AVERY

Tractors, Trucks, Motor Cultivators, Threshers, Plows, *etc.*

NEW MACHINES
FEATURES
IMPROVED QUALITY
REDUCED PRICES
1922

AVERY COMPANY
PEORIA, ILL. U.S.A.

IT PAYS TO AVERY-IZE

AVERY COMPANY
PEORIA, ILL., U.S.A.

BRANCH HOUSES

Billings, Mont.; Grand Forks, N. D.; Fargo, N. D.; Aberdeen, S. D.; Sioux Falls, S. D.; Omaha, Nebr.; Sidney, Nebr.; Lincoln, Nebr., Kansas City, Mo.; Wichita, Kan.; Des Moines, Ia.; Waterloo, Ia.; Davenport, Ia.; Minneapolis, Minn.; Madison, Wisc.; Indianapolis, Ind.; Columbus, O.; Stuttgart, Ark.; Sacramento, Calif.; Los Angeles, Calif.

DISTRIBUTORS

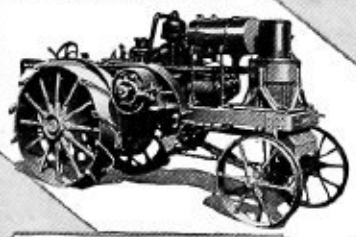
Avery Company of Texas, Dallas, Amarillo, Beaumont, Texas; Avery Machinery Company, Denver, Colo.; also other principal machinery centers. Western Canadian Distributors, Canadian Avery Co., Ltd., Main Office, Winnipeg. Branches at Regina, Calgary. Sub-Branch at Edmonton.

EXPORT REPRESENTATIVE

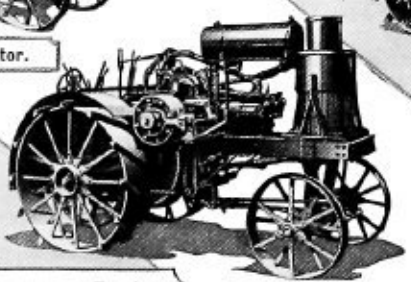
P. Aubeck, No. 3 Cedar St., N. Y. Peoria Cable Address: "Avery." Codes: Lieber's Regular and Five Letter, Western Union Regular and Five Letter, A. B. C. Fifth Edition, Bentley's and New Business Code.

INDEX

Medium Sized Tractors.

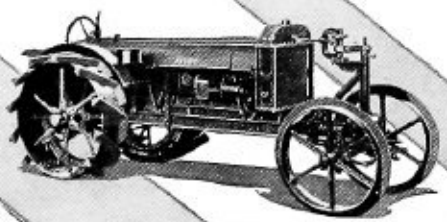


8-16 H. P. Avery Tractor.



12-20 H. P. Avery Tractor.

Small Tractors.

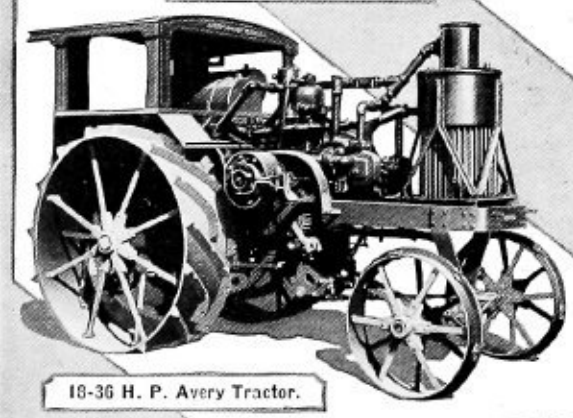


Avery Six-Cylinder Model "C" Tractor.

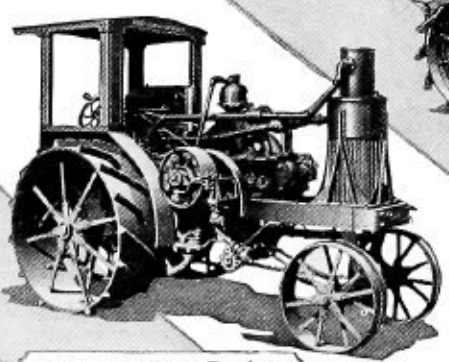
Motor Truck.

Avery Motor Truck.

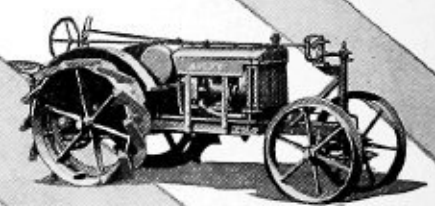
Large Tractors.



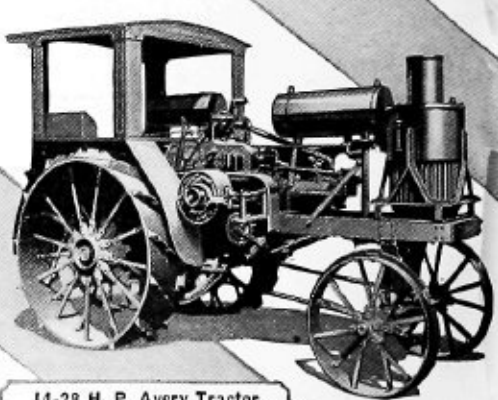
18-36 H. P. Avery Tractor.



12-25 H. P. Avery Tractor.



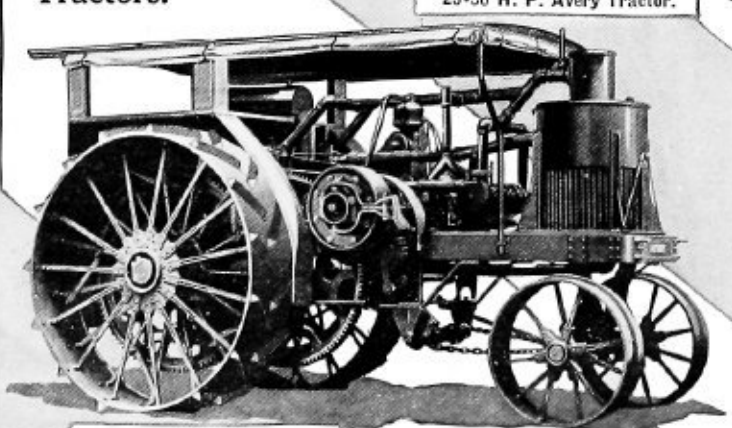
Avery Model "B" 5-10 H. P. Tractor.



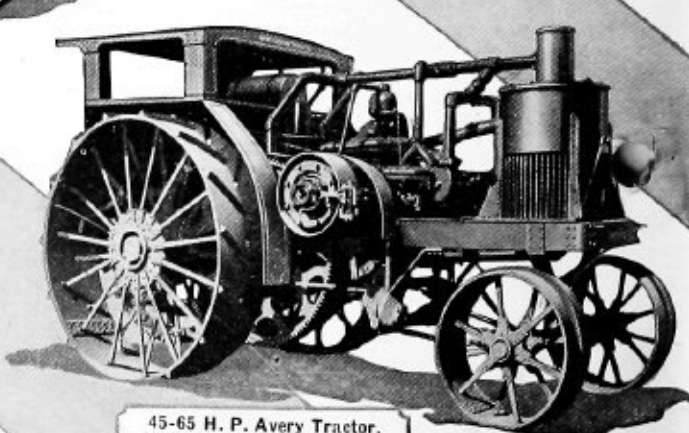
14-28 H. P. Avery Tractor.

25-50 H. P. Avery Tractor.

Special Road Tractors.

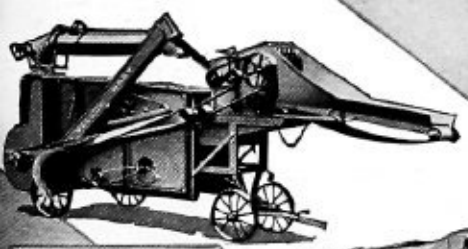


All Sizes.

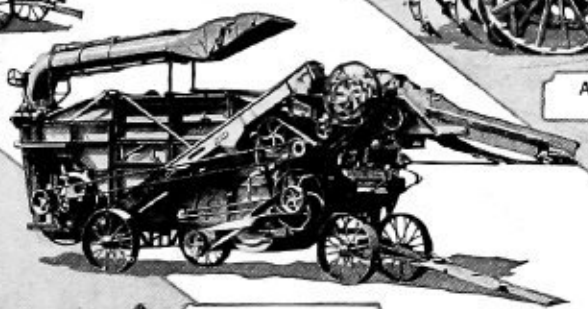


45-65 H. P. Avery Tractor.

Threshers.

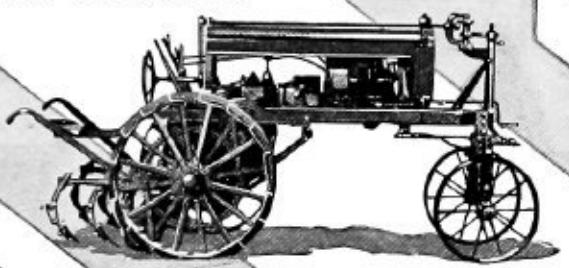


Avery "Yellow Baby" Thresher—22x32 inch.

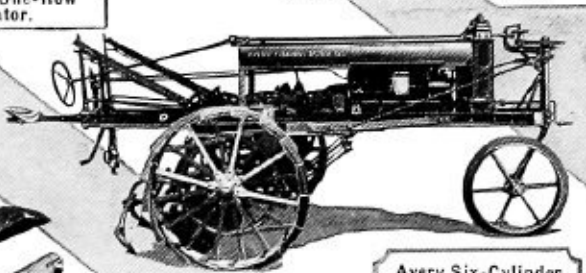


Avery "Yellow-Kid" Thresher—20x30—24x36 inch.

Motor Cultivators.

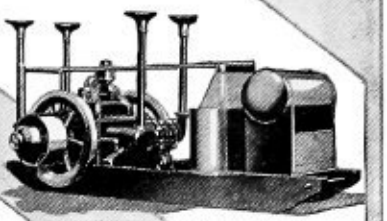


Avery 4-Cylinder One-Row Motor Cultivator.



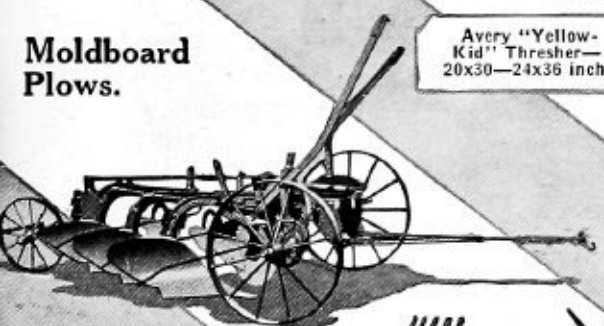
Avery Six-Cylinder Two-Row Motor Cultivator.

Skid Motors.

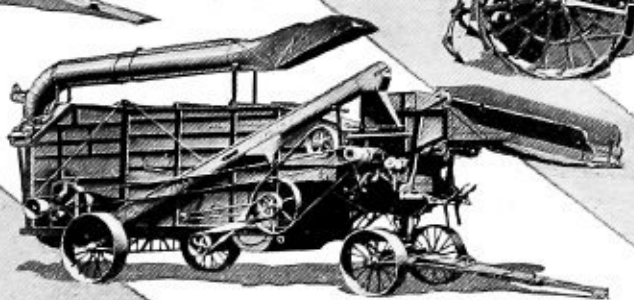


All Sizes.

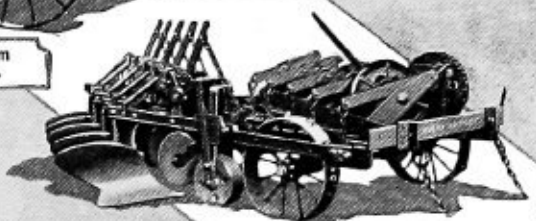
Moldboard Plows.



"Power-Lift" Rigid Beam Light Tractor Plows.



Avery "Yellow-Fellow" Thresher—24x40—28x46—32x54—36x60 inch.

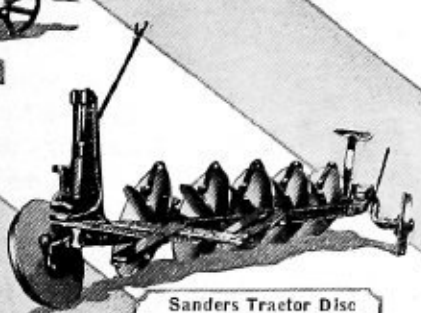


"Self-Lift" Independent Beam Heavy Tractor Plows.

Disc Plows.

Avery Tractor Disc Plows.

Tractor Tillage Tools.

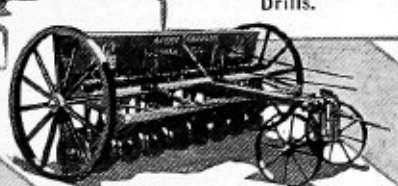


Sanders Tractor Disc Plows.

Avery "Power-Lift" Lister.

Avery "Power-Lift" Tractor Grain Drills.

Avery "Self-Adjusting" Tractor Disc Harrows.



Avery Silo Filler.

Power for Every Size Farm and Every Kind of Work

IN the Avery Line of Motor Farming Machinery all the power requirements of every farmer in the world are filled. The Avery is the **one standardized, thoroughly proved, complete line of power farming machinery.**

You have your choice of small, medium or large tractors to exactly fit the work you have to do. Or you can get an Avery One or Two-Row Motor Cultivator—the most versatile machine made—to handle your row crops and do field and belt work as well.

Then you can get a complete line of power-operated Tractor Drawn Machinery to fit your tractor and thus make your plowing and tillage outfits economical "one-man" outfits.

There is also a complete line of Tractor Driven Machinery, including all sizes of champion "grain-saver" threshers and roller-bearing silo-fillers.

And, lastly, there is the Avery Motor Truck for quick hauling; also tanks, skid motors, etc.

For any kind of field work, belt work, road work or hauling, there is an Avery motor power machine that will do the work to your entire satisfaction, pleasure and profit.

Get the Profits and Enjoy the Pleasures of Power Farming

FARMING with mechanical power, or Power Farming as it is usually called, has many advantages over farming with animal power. These many advantages, however, may be summed up into two classifications. First, the additional **profits** resulting from the use of modern farm power, and second, the many **pleasures** added as a consequence of making farm life more enjoyable.

Motorized Farms Produce Greater Profits.

There are four big reasons why motorized farms produce greater profits.

First. Actual farm practice has shown that the raising of a good crop depends largely upon the work of preparing the seed bed and planting the crop in the **right way** and at the **right time. Increased crops** mean **increased profits.**

Second. Thousands of farmers are proving daily that power farming **is** more economical than farming with animal power. And there is no question about it, for many of them show comparative cost production figures to back up their statements. **Decreased** costs mean **increased** profits.

Third. By the use of power farming equipment you can make money by doing work not possible with horses. This too, means **greater profits** for you.

Fourth. Power farmers also add to their profits by hauling their products with motor trucks. They are able to take quick advantage of market conditions and sometimes even change their markets. By so doing they receive the **best prices** for their products.

Bigger Crops Grow on Tractor Plowed Ground.

The growth of any crop is dependent **entirely** on the amount of plant food the crop can obtain from the soil in which it is planted. And the amount of plant food made available for the crop to absorb is in turn dependent upon the **character** of the seed bed. A good seed bed helps to make bigger crops. Government and state experiment stations, agricultural colleges and many farmers who have carefully studied the reasons for increased crop production, have found this to be true.

To put the seed bed in the best possible condition, two things are necessary—the work must be done **in the right way** and **at the right time.** But to do this work in the right way and at the right time much power is required, and most farms are **under-powered.** That is why the proper preparation of the seed bed is not more generally done. Farmers do not do their work at the right time and in the right way, not because they do not know the advantages of a good seed bed, nor because they do not want to, but they are usually compelled to do their work whenever they can because **they lack the power with which to do it.**

There are only a few days when the ground is in the best condition for plowing, discing, harrowing and planting. The ability to do all this work properly in those few days is a matter of power. The farm without modern motor equipment is **under-powered,** and to plow deep and quick, and to disc and harrow as often as you should would require 70 per cent more horses or 70 per cent more time. You neither have the time nor can you afford to keep enough horses to do it.

When farming exclusively with animal power it is not profitable to own enough horses or mules to pull all the plows you should during the short plowing season. To keep a sufficient number of animals to do the work properly at the right time would eat up the profits. This is the reason why farmers who do not use motor farming machinery are handicapped by smaller crop production.

Horses cannot supply sufficient power to do farm work the way it should be done and when it should be done. They cannot supply power in a concentrated form so that one man can handle the power he should with his own hands. They are obliged to rest, eat and sleep after a few hours of hard labor. They are soft in the spring when your work should be pushed fast. They get over-heated if you hurry them when cultivating your row crops and in harvest time. Flies and insects constantly bother them and reduce the work they do.

On the other hand, a tractor or motor cul-

tivator furnishes more economical power and is always ready for any kind of work. The tractor gives you power to plow deep and quick; power that is not stopped by hard ground, hot weather or flies; untiring power that will work long hours if necessary; and concentrated power that one man can handle and do the work of several men with a large number of horses.

The strongest point in favor of the farm tractor or motor cultivator is the **timeliness** with which the owner can do the work, whether plowing, discing, seeding, cultivating or harvesting, etc. Proper plowing at the right time —proper discing at the right time—proper seeding at the right time, and in the case of row crops, proper planting and frequent cultivation at the right time—**all play their parts in increasing yields.**

"Plowing used to scare me," one Avery owner wrote us, "but it does not **now.** Instead of wishing I had less to do, I look for more." That is the difference between farming with **motor** power and farming with **animal** power.

These are only a few reasons why motor farming is being practiced more and more each year—because motor farming is the **only real answer** to the many problems now confronting the modern farmer, and it is the **only solution** to the problem of having the power you need to do all your work in the right way and at the right time and thus raise bigger crops.

Many Avery owners have written us of the increased yields they have been able to raise with motor power. By plowing early and deep and putting the seed bed in the best condition, they report they have been able to reduce to a great extent the loss of moisture in their soil from evaporation. Then, too, they have been able to plow under Hessian flies, chinch bugs and other pests, so that they experienced little or no trouble from these sources. Many have reported an average increase per acre of 6 to 10 bushels of wheat, while others have written us that they were able to pay for their Avery outfit in one or two years' time out of the **increased** yields **alone.**

Motorized Farms Cost Less to Operate.

Only a short time ago farmers were spurred on by the incentive of good prices for their products. Now this situation has somewhat changed. The present problem is one of **how to reduce production costs** by the more efficient use of power, equipment and labor.

Whether the prices of farm products increase or decrease, whether the wages of farm labor raise or fall, the use of power farming machinery such as the tractor, truck, motor cultivator or thresher, will materially increase your margin of profit between cost of production and selling price.

"Will the use of power farming machinery save me money?" is a question which is frequently asked us by a prospect considering the purchase of a tractor, truck or motor cultivator. The answer is "Yes."

We have had many cases reported to us by Avery owners that they were able to cut their production costs down enough the first year to more than pay for their power equipment. Others have written us they have cut the cost of operating their farm down to about one-half the cost of doing the work with horses.

Among corn and cotton-belt farmers and others who raise row crops, it was at first difficult to cut farming costs to any great extent by the use of tractors, for the reason that they were compelled to keep enough horses to plant and cultivate their row crops. The success of the Avery Motor Cultivator has now, however, entirely changed this situation. First the tractor took the place of the **surplus** horses, and now the motor cultivator is taking the place of the horses formerly necessary to handle the row crops. And while we do not advocate the elimination of the horse on the farm **entirely,** yet with an Avery Tractor, an Avery Motor Cultivator and an Avery Motor Truck, it is not only possible to do this, but in many instances we know of it is proving to be a profitable combination to Avery owners who are operating "horseless" farms.

In considering the comparative cost of horse versus power farming, the expense of feeding idle horses stands out more clearly than any other. Farm horses work on the average only about 100 full days' time per year, but all of the other 265 days when they are doing nothing, they eat just the same as though they were working. When farming **entirely** with animal power, you feed about one-fourth of all you raise to your horses or mules. It takes the crops of five acres to feed one horse each year. **You can't turn a switch and stop them eating,** but with a tractor it is entirely different. A tractor, truck or motor cultivator **costs you nothing** for feed when it is **not working,** and when it is working it costs you less for fuel and oil to do the work than to do it with animal power. When using motor farming machinery you can sell all the grain that you otherwise would use in feeding horses, or you can use it for feeding profit-producing hogs and cattle.

Too many men are also required to farm with horses or mules, for one man can handle only a few horses with his own hands. This means additional hired help at high wages, if help can be gotten at all. Experience has shown that a tractor that will pull three fourteen-inch bottoms 6 to 9 inches deep operated by one man will do as much work in a day as two men and ten horses with the ordinary horse-drawn implements.

In figuring the comparative cost of farming with animal power and farming with motor power, the **initial investment,** the **up-keep expense** and the **depreciation** should all be taken into consideration.

The **investment** in an Avery Tractor or Avery Motor Cultivator will average **less** than the cost of the horses necessary to do the same amount of work. The **up-keep expense** of either will average **less** than the cost of shoeing, veterinary work, and other expenses necessary to keep the horses in shape. The **depreciation** on an Avery Tractor will also be much **less,** if properly cared for, than with animal power. The life of an Avery Tractor will average, at least as long as the working life of a horse. The first Avery Tractor built is still in operation and it performed so well that its owner now has his second Avery. An Avery Tractor can always be made **new** again, but **you can't fix a dead horse with a monkey-wrench.**

An Avery Tractor, Truck or Motor Cultivator cannot get overheated and die—they can't be poisoned by wrong eating—they aren't subject to all the common diseases that attack and kill valuable horses. If any one of these Avery machines is given reasonable care, it will run steady right along, do good work and last a long time.

Additional Profits Can Be Made By Doing Work Not Possible With Animal Power.

The ownership of an Avery Tractor, Truck, Motor Cultivator or Thresher, also enables one to do some custom work and so add to the profits of his farming business. With an Avery Tractor, custom work such as breaking land, grading roads, hauling and all kinds of belt work can be done. Belt work can also be done with an Avery Motor Cultivator. Avery Truck owners, too, have found that custom hauling is a profitable occupation. The man who owns both an Avery Tractor and Thresher also finds that after he has finished his own threshing, many jobs in the immediate neighborhood may be had, and from each he will receive a nice profit. Many farmers do not want to do custom work, but **they can do it—and do it at a profit, too**—if they use **motor** power in place of **animal** power.

Easier Work and More Pleasures in Power Farming.

Power Farming also makes farm life far more enjoyable for everyone on the farm. It does away with the endless chores taking care of horses. It takes too much time and hard work to care for horses and mules. In the morning you have to feed, water, curry, harness and hitch up. At noon it's unhitch, feed, water and hitch up. At night it's unhitch, feed, water, unharness and bed. And when they are sick additional hours must be spent looking after them. And horses must be taken care of whether idle or working. They average only about 100 days' work a year and take vacations of 265 days time. But there is **no** vacation for the man who has to take care of them—he must at least feed and water them every day whether they are working or not. It takes 17 full ten-hour day's time to take care of **one** horse **one** year. With four horses 2½ months of ten-hour days is required to take care of them.

Power Farming greatly increases the boys' interest in farm life. A recent article put out by the American Farm Bureau Federation says, in part, "To the boy the whole aspect of farm life is changed when he runs a good tractor and he sees **three** furrows turned behind him instead of **one** in front of him. He feels the power under him. At the end of the day he has accomplished as much work as he formerly did in a week. There is a throb of the machine that goes through his veins, and he loves it. He sees the work being done and realizes that he will have time to go fishing or to the ball game—pleasures his parents never thought were possible."

Farming with mechanical power helps mother and the girls, too, for it means less hired help and the owners of Avery machines don't get all covered with grease like the operators of some makes of tractors, so that the washing of dirty, greasy clothes by the women folks is pretty well eliminated.

If mother's life is filled with drudgery it is not to be expected that the daughter will care to return to the country after she has attended school in the city and seen the contrasts. Or if she does return and marry the farm boy the chances are that she will influence him to give up agriculture and move to town unless he makes farm life really enjoyable by the use of power farming equipment.

The man who has never used a tractor doesn't know how enjoyable farming can be made. He has never known the thrill of pleasure in seeing three, four or more furrows being plowed quickly and evenly behind him as he drives his tractor forward. He has never experienced the feeling of satisfaction there is in looking over a big field in the evening whose perfect seed-bed he has made complete in one day's time.

He doesn't know what joy there is to get up a little later in the morning and know he hasn't a whole herd of surplus horses to take care of before he gets into the field where productive work begins.

He doesn't know the satisfaction in plowing corn with motor power at just as fast a speed in the late afternoon as when he started in the early morning.

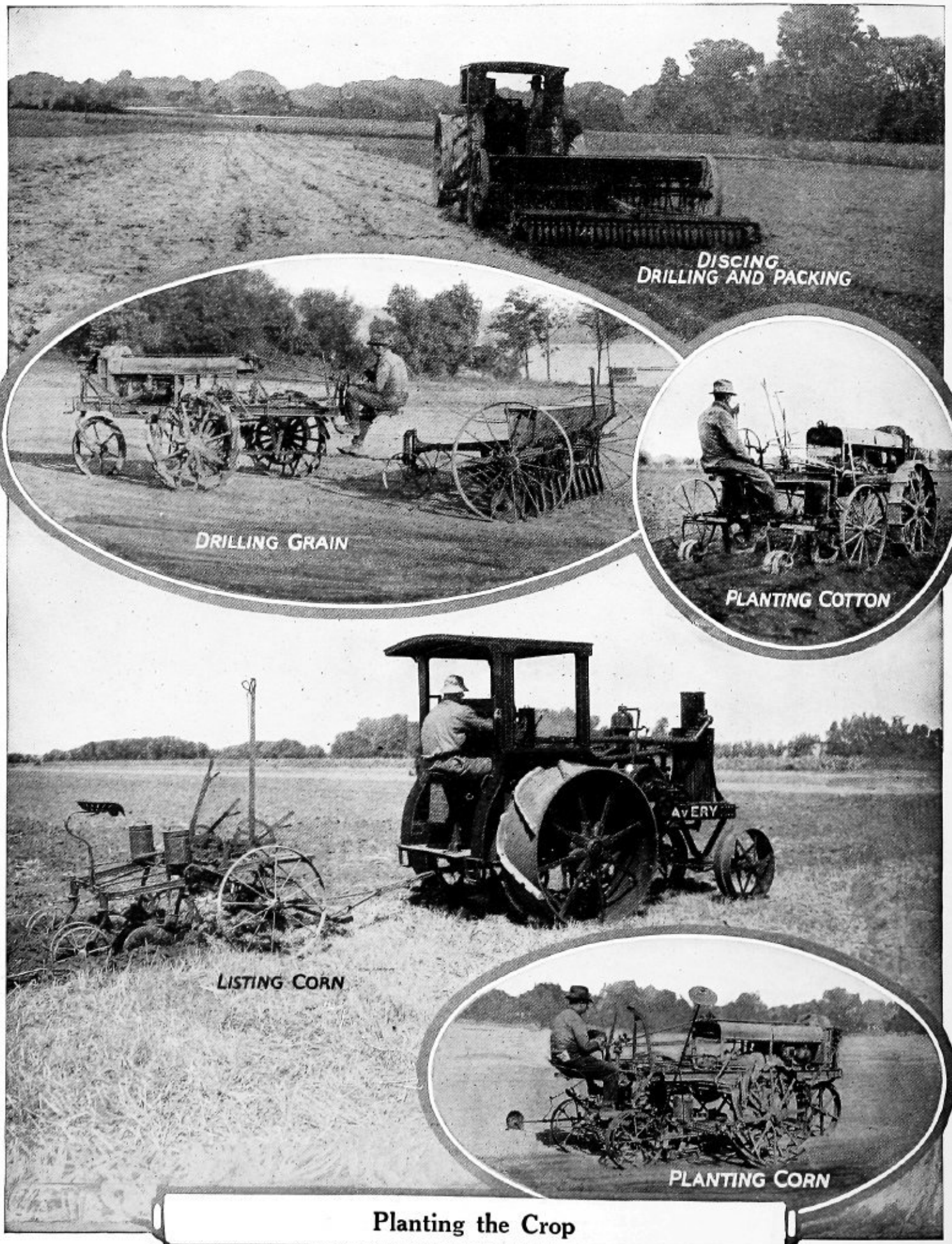
He has never experienced the hum of a motor truck in hauling his crop to market quick and coming back home even a little faster.

He doesn't know how much pleasure he can get out of life in the evenings when he farms with motor power. All his leisure hours he spends waiting on surplus horses. He is too tired at night to romp with the children or haul them off to a "movie" where they can laugh at the film stars. And he wonders why he doesn't get ahead as fast as his neighbors, who have already learned the profit and pleasures of power farming.

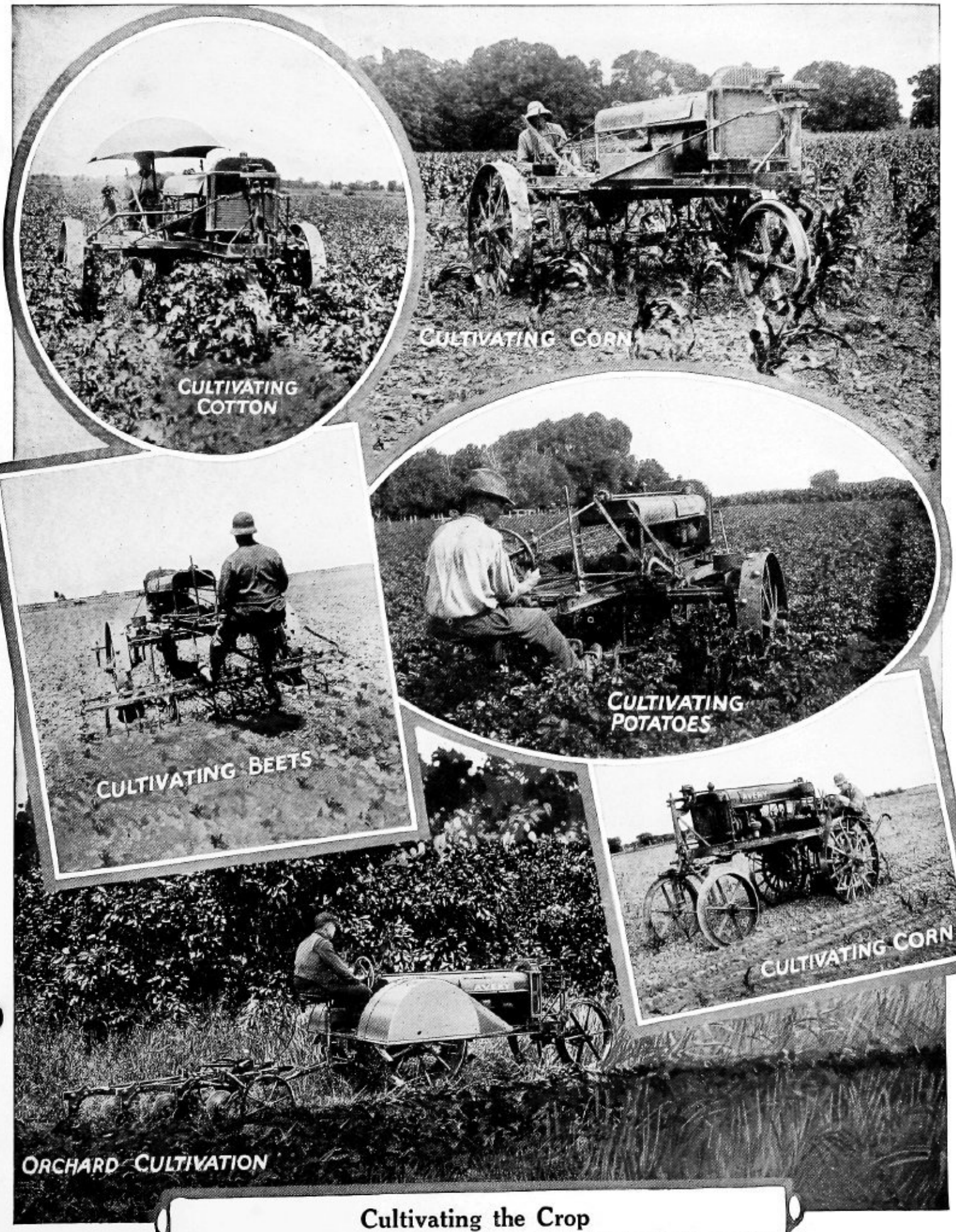
Think over the advantages of power farming. Spend a little time figuring out what it costs you to farm with horses. Keep in mind always that your problem is one of lowering the cost of production of your crops, and that the **lower** your production costs are the **higher** will be your net profit regardless of what the selling prices of your products may be. Buy a tractor, a motor cultivator or a farm truck and see the new interest your boy will take in the old farm. Also see how your daughter's pride will increase as she speaks of her well equipped home. Even hired help will work harder when connected with an up-to-date business.

Do not keep farming the old way when you can make farming more profitable and pleasant by adopting motor farming and using an Avery Tractor, Truck, Motor Cultivator and Thresher.

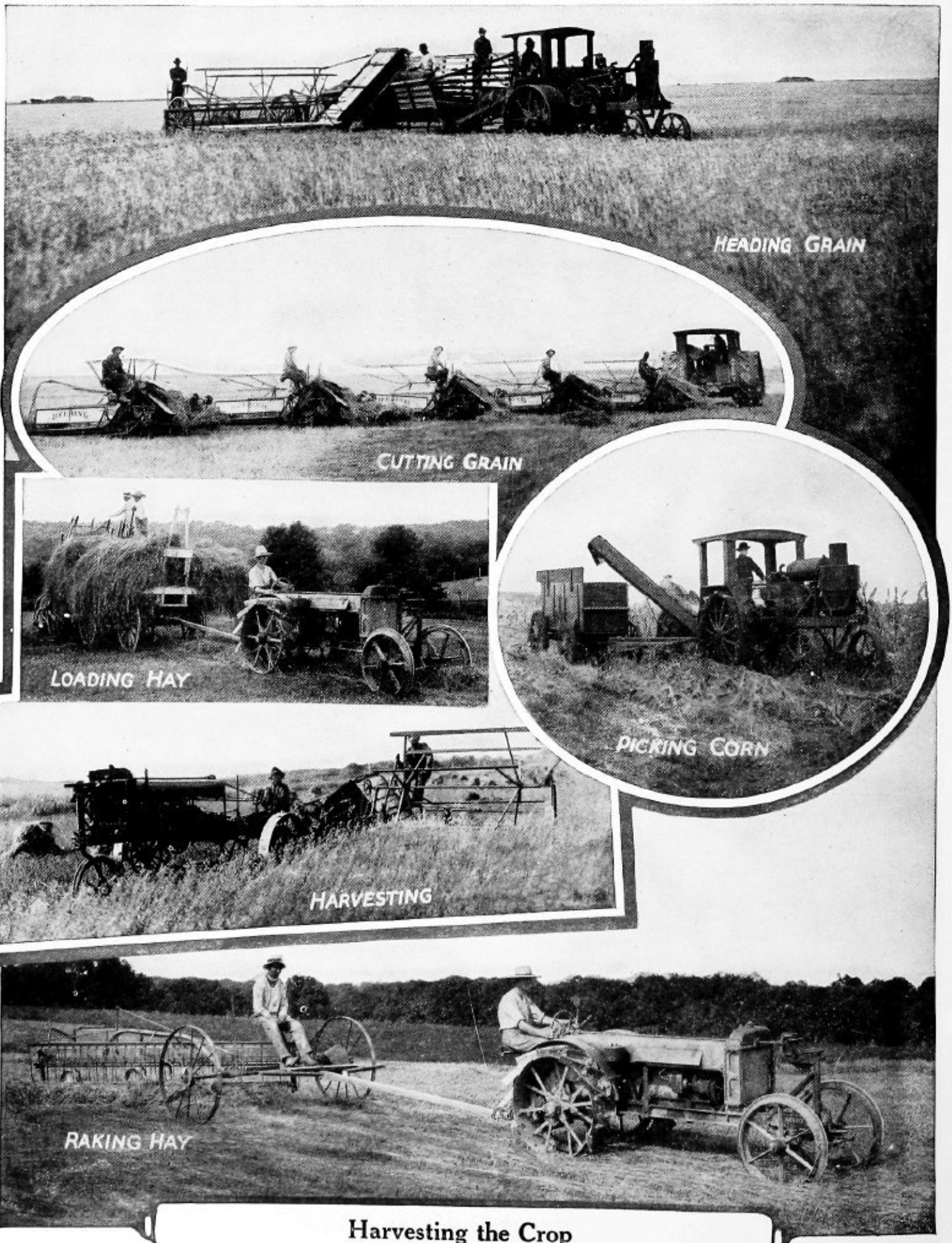
Preparing the Seed Bed



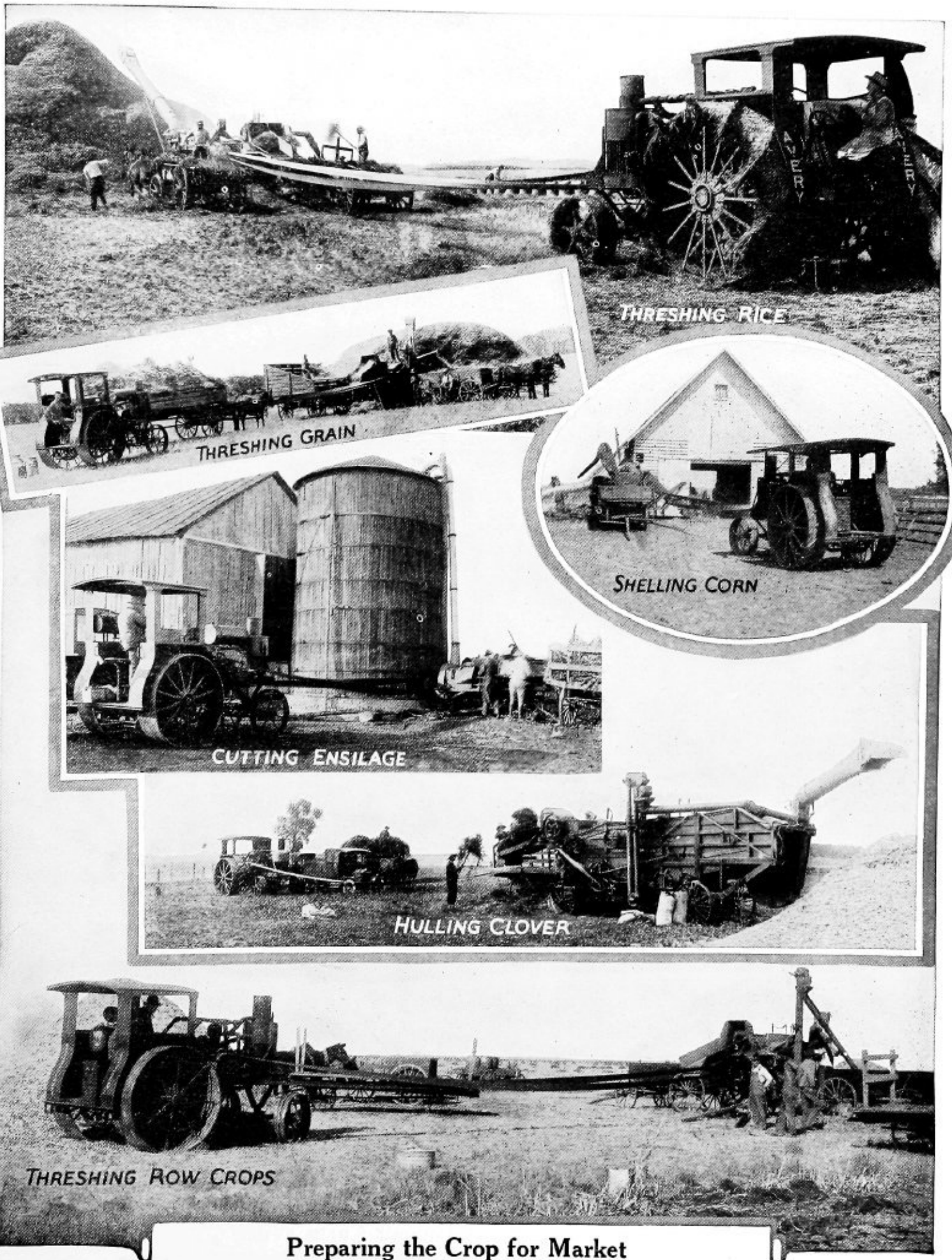
Planting the Crop



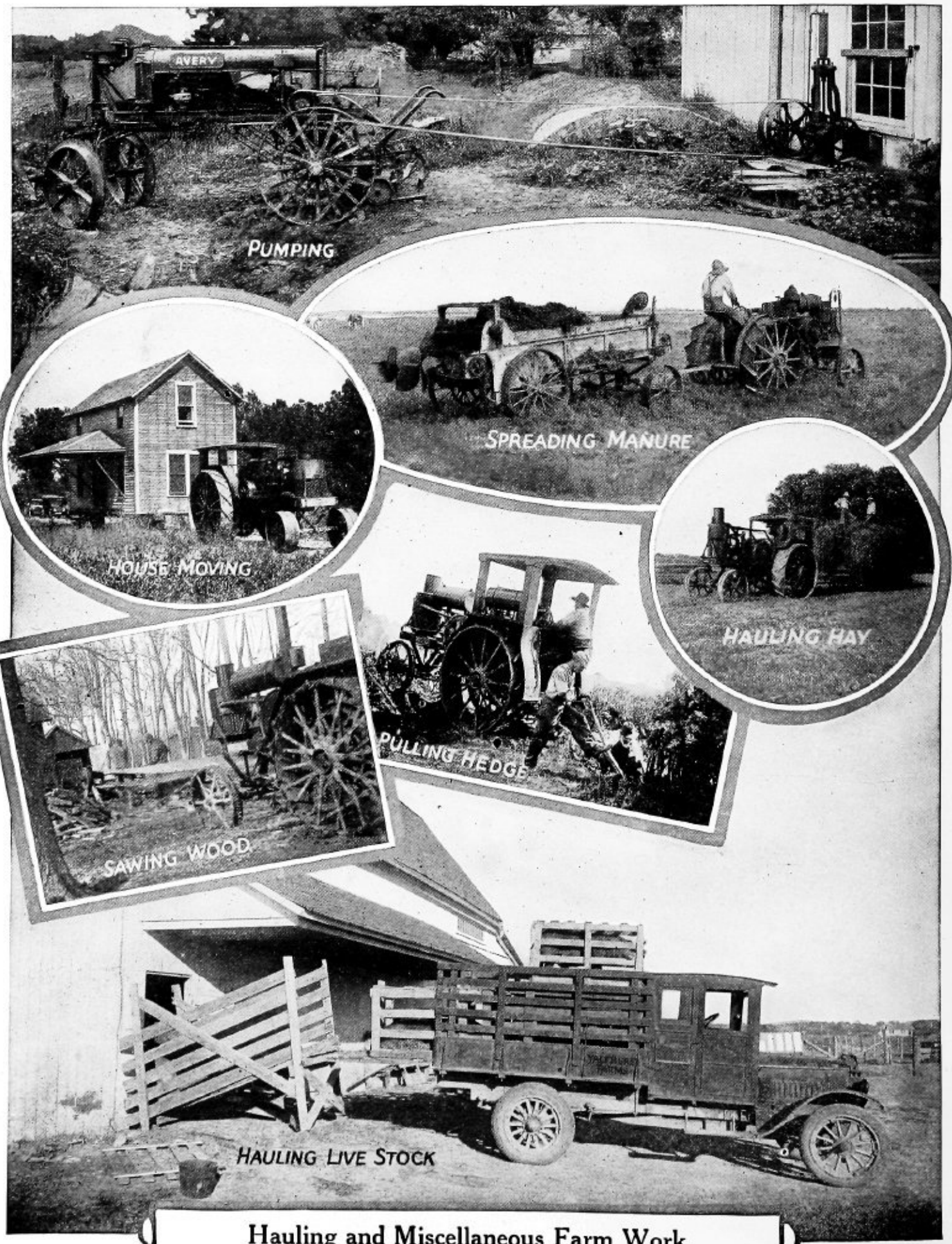
Cultivating the Crop



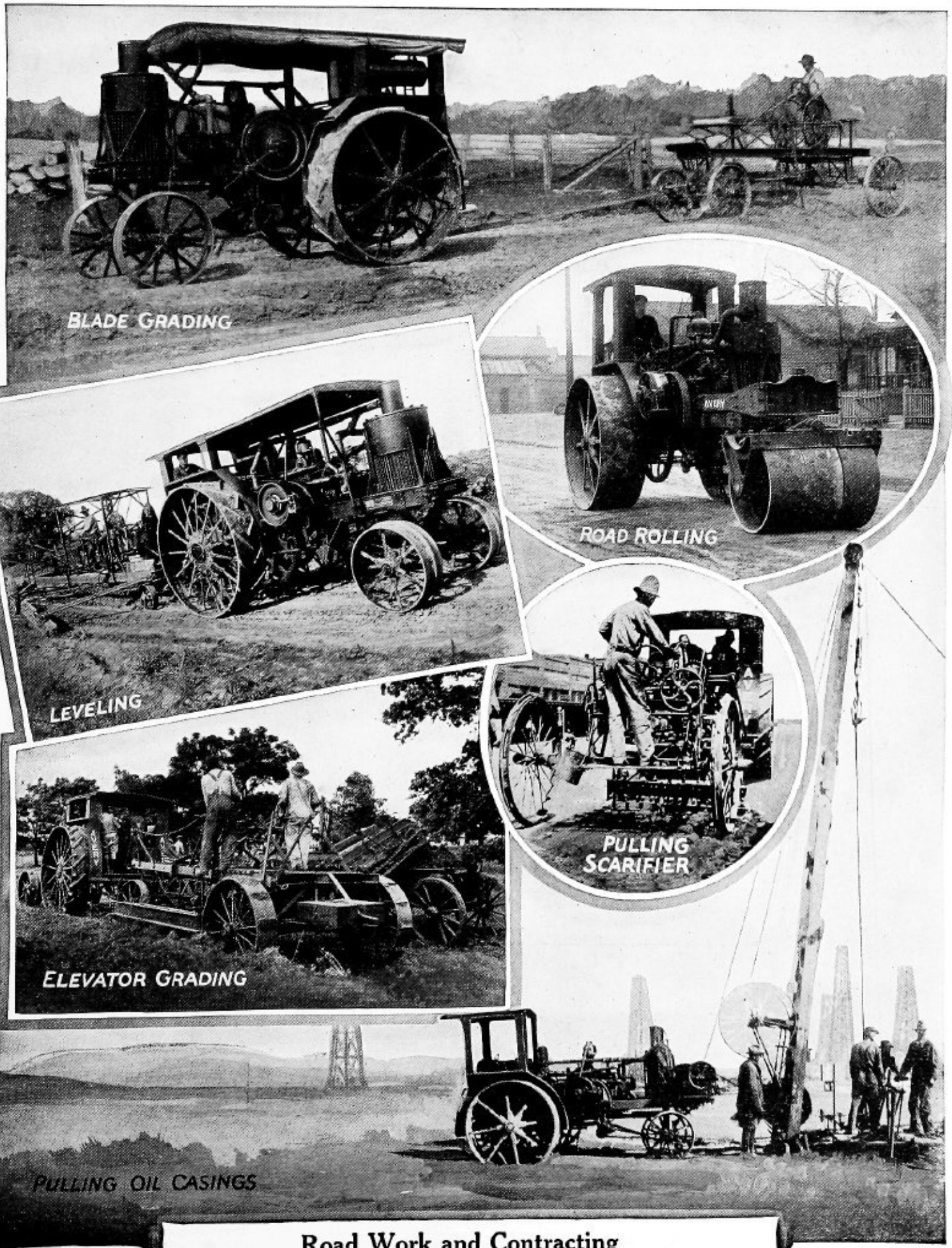
Harvesting the Crop



Preparing the Crop for Market



Hauling and Miscellaneous Farm Work

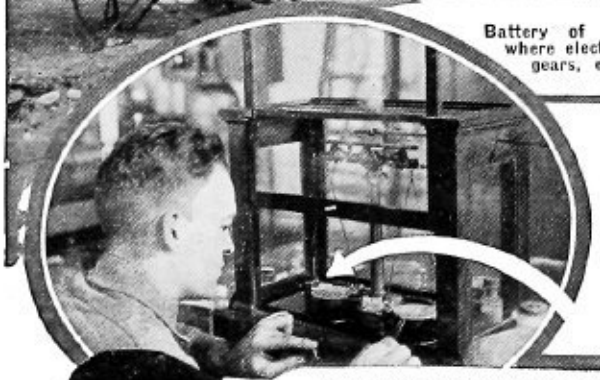


Road Work and Contracting

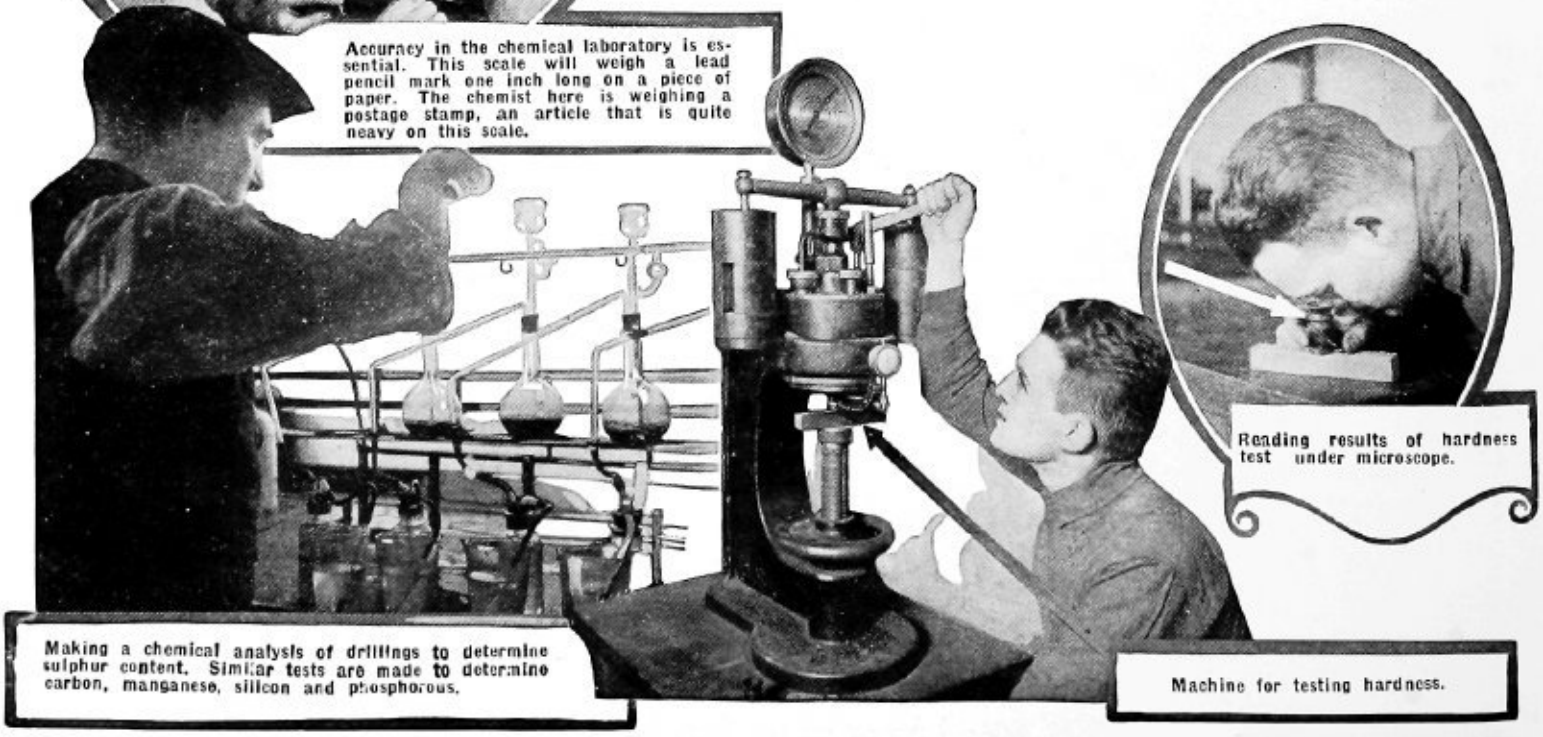
QUALITY FIRST VOLUME SECOND ECONOMY ALWAYS

This sign hangs in our foremen's meeting room. You want quality goods, of course, but volume and economy must be considered also to give you good machines at a fair price.

Battery of electric furnaces where electric steel pinions, gears, etc., are made.



Accuracy in the chemical laboratory is essential. This scale will weigh a lead pencil mark one inch long on a piece of paper. The chemist here is weighing a postage stamp, an article that is quite heavy on this scale.



Reading results of hardness test under microscope.

Making a chemical analysis of drillings to determine sulphur content. Similar tests are made to determine carbon, manganese, silicon and phosphorous.

Machine for testing hardness.

Building the Kind of Machines YOU Want

THE policy of the Avery Company has always been to build quality goods because we think that is the kind of machinery **you** want. And we believe we are right in this, for the ever-increasing sales of Avery Machines certainly indicate it.

In building Avery Machinery we try to build them just as **you** would build them were you making them for **yourself.** The standing order originally given every workman by our first president, Mr. R. H. Avery, and which has been continued ever since and always will be continued, is not to put into a machine a piece of material or class of workmanship that he would not put in if he were building the machine for **his own use.**

We believe you want that kind of workmanship and materials in the machines you buy—so that's why we use them.

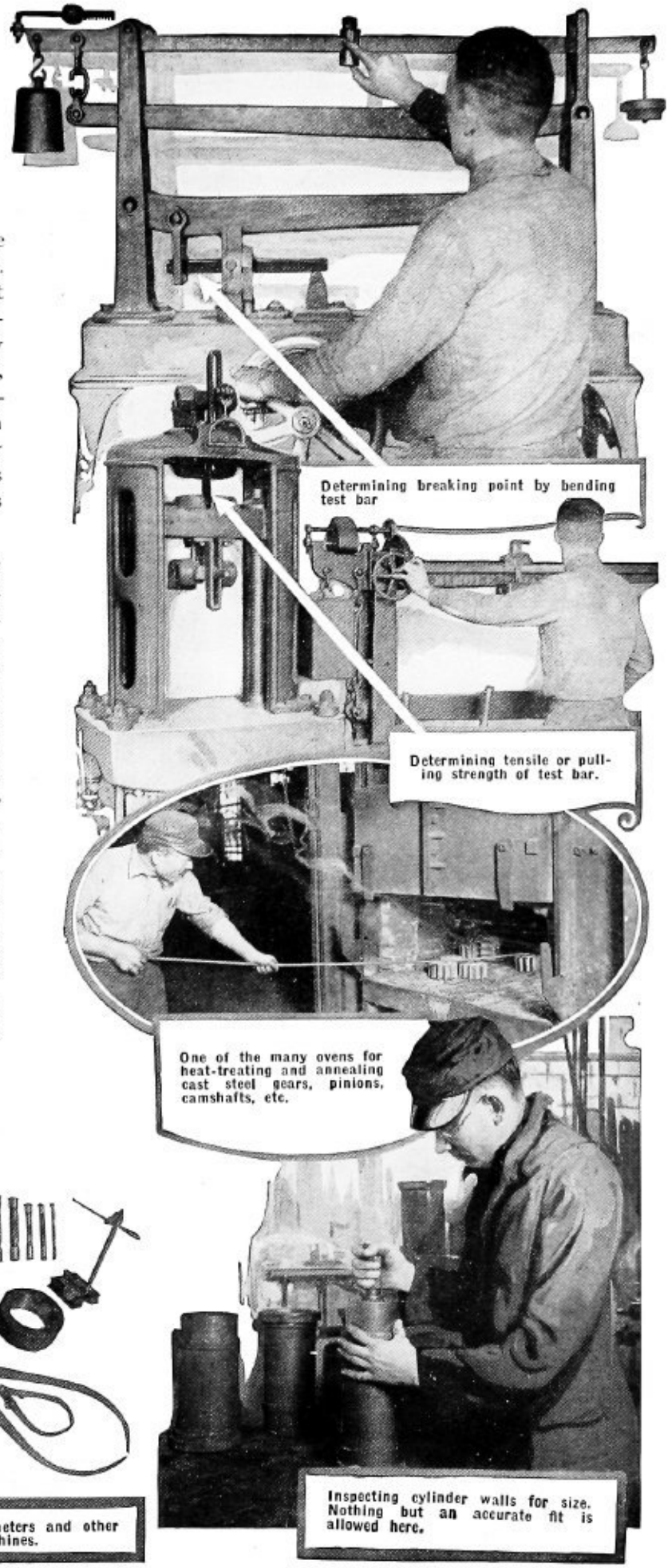
We only wish you could go through our four big factories. The modern equipment we have, the splendid type of workmen, the time and money-saving methods we use, and our thorough system of inspecting the raw materials, parts and completed machines, would surprise and please you as well.

We have our **own** chemical laboratory completely equipped with all the intricate and delicate machines and instruments known to the modern science of metallurgy, by means of which the hidden character of steel and iron be-

comes an open book. Threads of weakness in castings we might otherwise use were it not for the analysis made by our chemical laboratory, are thus discovered by the use of high powered microscopes enlarging to 900 diameters, while vigilant chemists scrutinize day and night the raw materials entering into the construction of Avery Machines.

The manner in which our raw materials are so carefully watched is after all quite simple. Our engineers know from long experience just what standards to specify—our purchasing department specify those standards when ordering raw materials. Then when a carload of pig iron, steel, bars, coke, limestone, etc., arrives, the cars are numbered; samples are taken from various parts of each car and taken to the laboratory for analysis. If they are found to be up to standard an O. K. order is given to unload the cars—if not, the raw materials are rejected.

A similar careful process is gone through in the analytical inspection of **all castings.** The molten metal used in Avery castings is given a chemical analysis and physical test every hour. This is done by analyzing a test bar—a bar one inch square and about 18 inches long. Before an O. K. is given the foundry to use any of the molten metal one of these test bars is poured and taken to the laboratory to be analyzed. The chemical tests are made by taking drillings from the bar which are accurately weighed on a scale so delicate that it will weigh a one inch pencil mark on a piece of paper, and which are then treated with various acids to determine the amount of sulphur, manganese, carbon, phosphorous, silicon, etc., which the molten metal from which the test bar was taken, contains. If the chemical analysis shows up to standard an O. K. is given the foundry to "pour off." If not, additional quantities of various raw materials are put into the metal to bring it up to standard before permission is given to pour it.

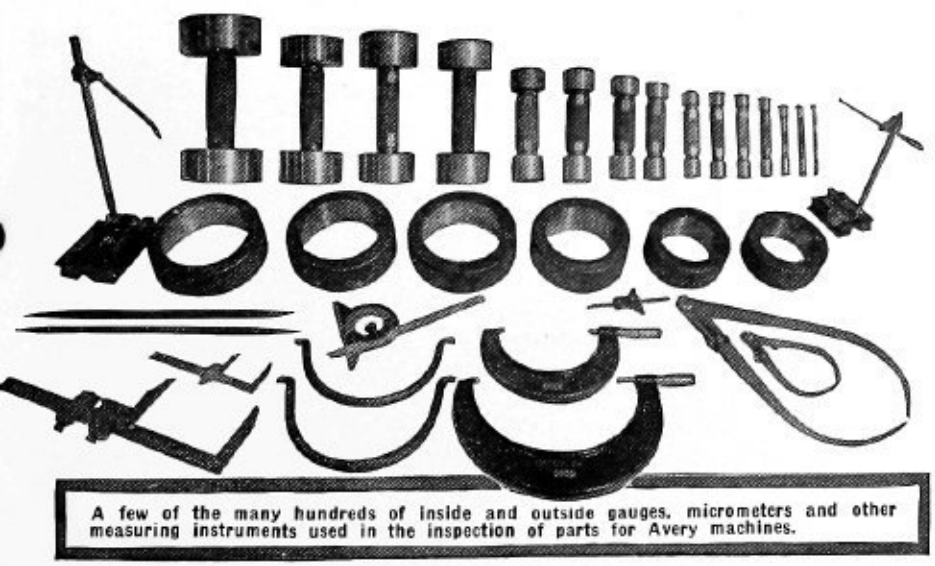


Determining breaking point by bending test bar

Determining tensile or pulling strength of test bar.

One of the many ovens for heat-treating and annealing cast steel gears, pinions, camshafts, etc.

Inspecting cylinder walls for size. Nothing but an accurate fit is allowed here.



A few of the many hundreds of inside and outside gauges, micrometers and other measuring instruments used in the inspection of parts for Avery machines.

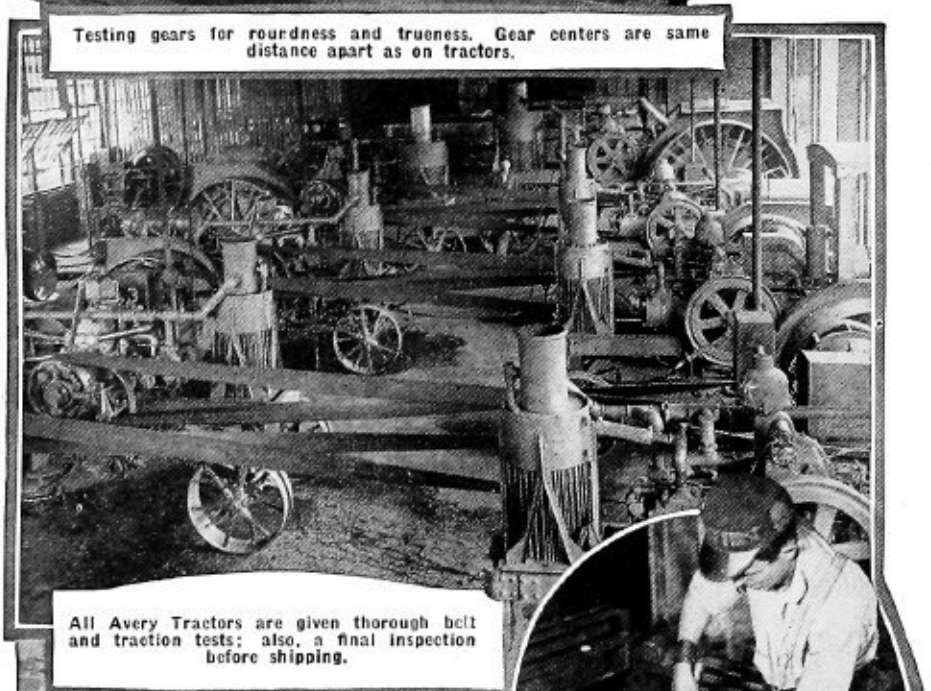
A corner of the inspection room where every casting is inspected one by one.

These test bars are also put through physical tests in the laboratory and their tensile or pulling strength, transverse or breaking strength, hardness, shrinkage, etc., are accurately determined in testing machines and recorded.

All Avery castings go through a department which we call the inspection room. Here each casting is inspected **one by one** by competent men before it is sent to the machine shop. Castings that need no machine work, if O. K., are sent on to the erecting departments. Castings that must be machined go through the inspection room a second time after being machined and are O. K'd., rejected or ordered reworked, after which the O. K'd. castings also go to the erecting departments. We believe Avery Castings are inspected more carefully than castings used in any other make of motor farming machinery.

Testing gears for roundness and trueness. Gear centers are same distance apart as on tractors.

But the laboratory tests and inspection of castings are not the only operations carried on to keep up the high standard of Avery quality. Motor parts such as pistons, cylinder walls and other wearing parts are inspected with micrometers to the accuracy of 1/1000 of an inch. Each unit as it is assembled is carefully fitted and tried out. Valves are ground-in both before and after the motor is assembled and tested under its own power. The cylinder walls are aged several weeks before machined to relieve them of all strains; they are also ground accurately after machining. And lastly, the completed machines are given thorough belt and drawbar tests and a final inspection afterward just before they are shipped.

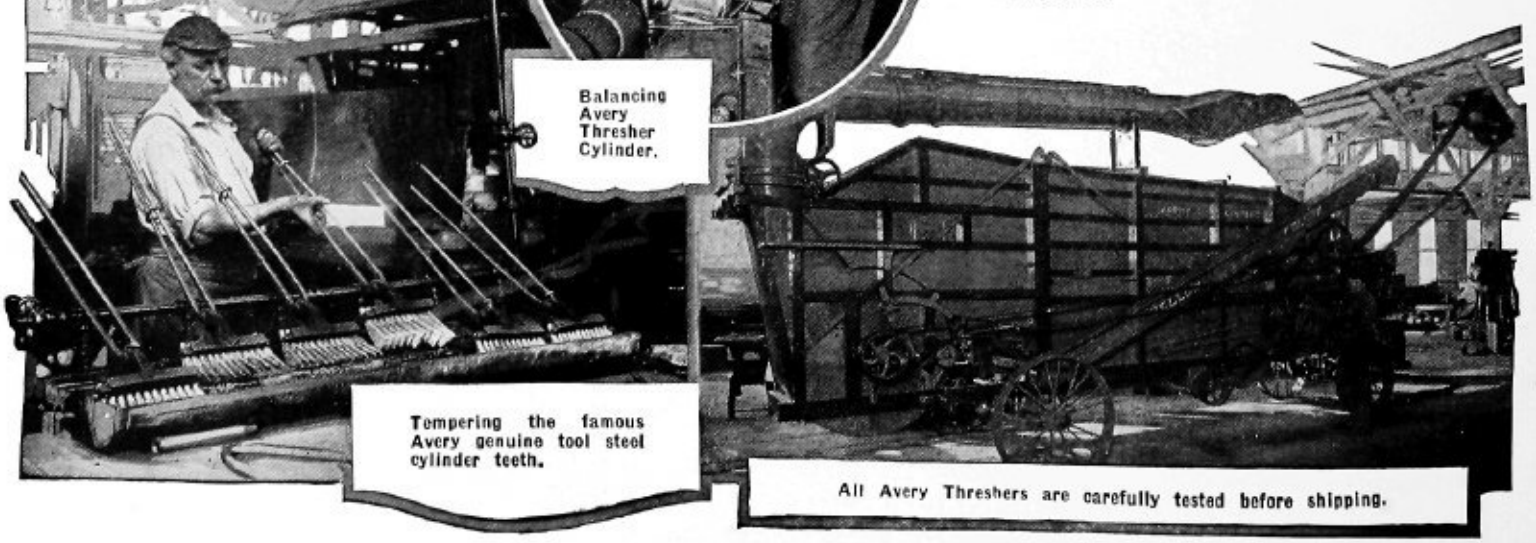


All Avery Tractors are given thorough belt and traction tests; also, a final inspection before shipping.

In the construction of Avery Motor Cultivators, Trucks, Threshers, Silo Fillers, etc., the same careful pains are taken to make them, too, the best possible machines that money, right methods and conscientious workmen can make.

In short—throughout the entire Avery Line, every possible precaution is taken to make each Avery Machine just as **you** would want it were **you** making it for **yourself.**

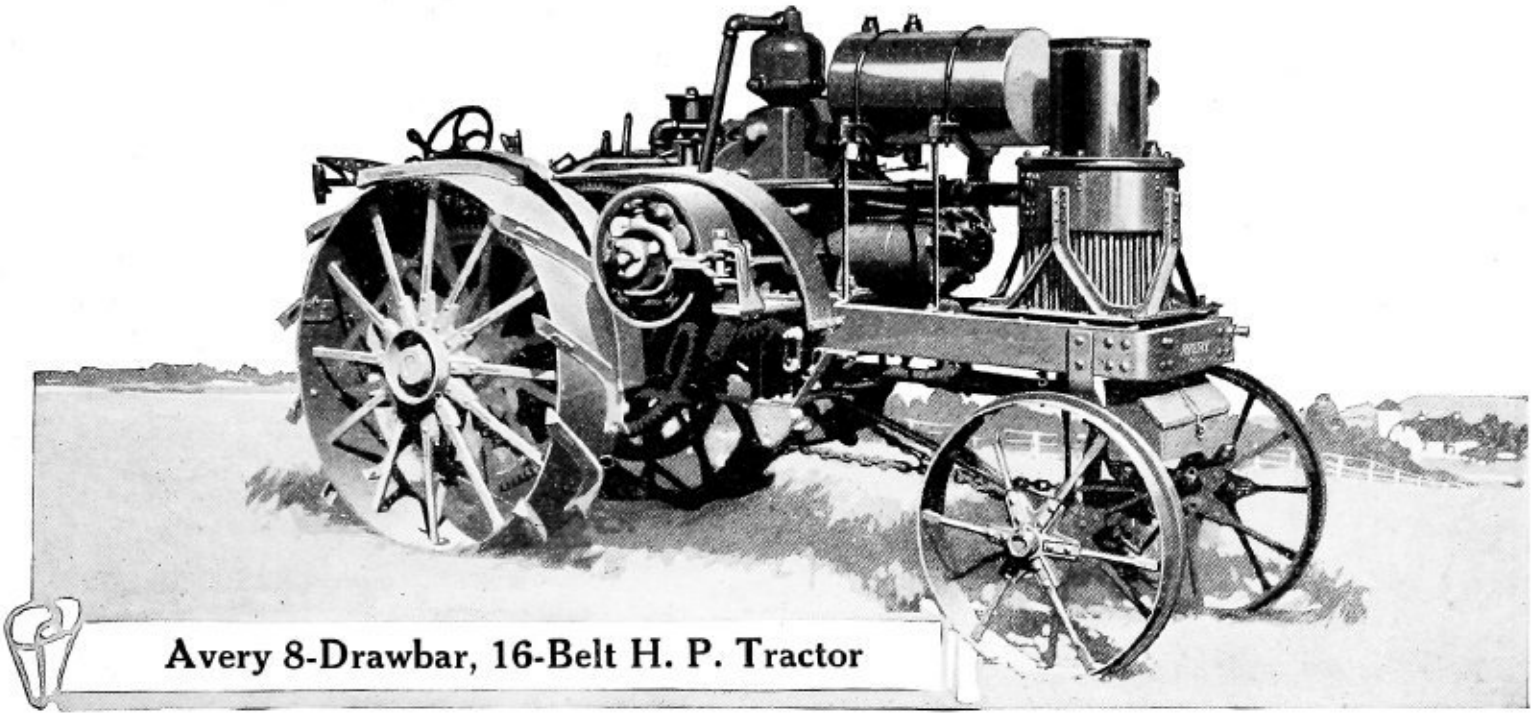
That's the reason why you get a big dollar's worth of value for every dollar you invest in Avery machines. And that's why Avery machines go out into the field—do **good** work and last a **long time.**



Balancing Avery Thresher Cylinder.

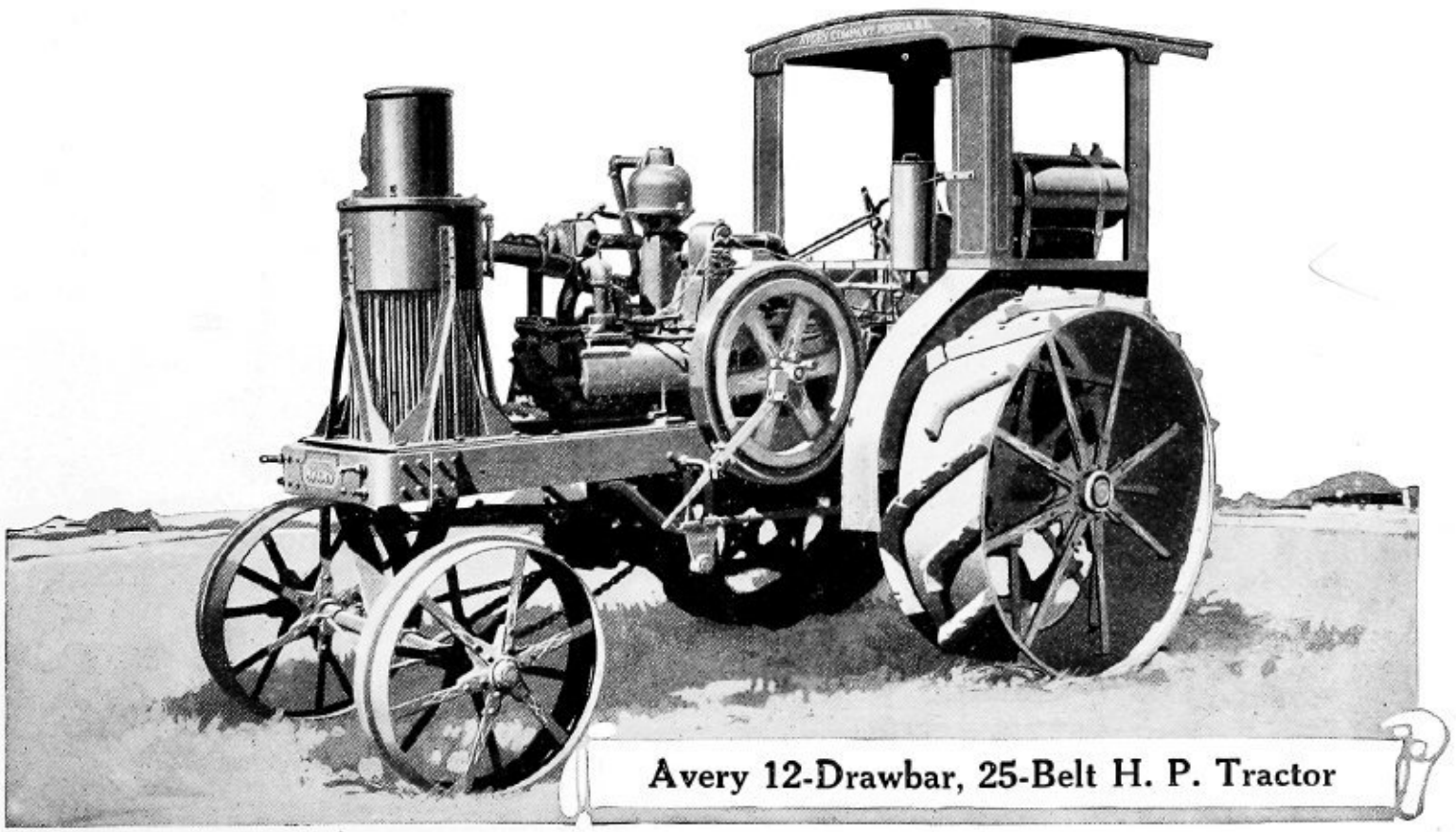
Tempering the famous Avery genuine tool steel cylinder teeth.

All Avery Threshers are carefully tested before shipping.



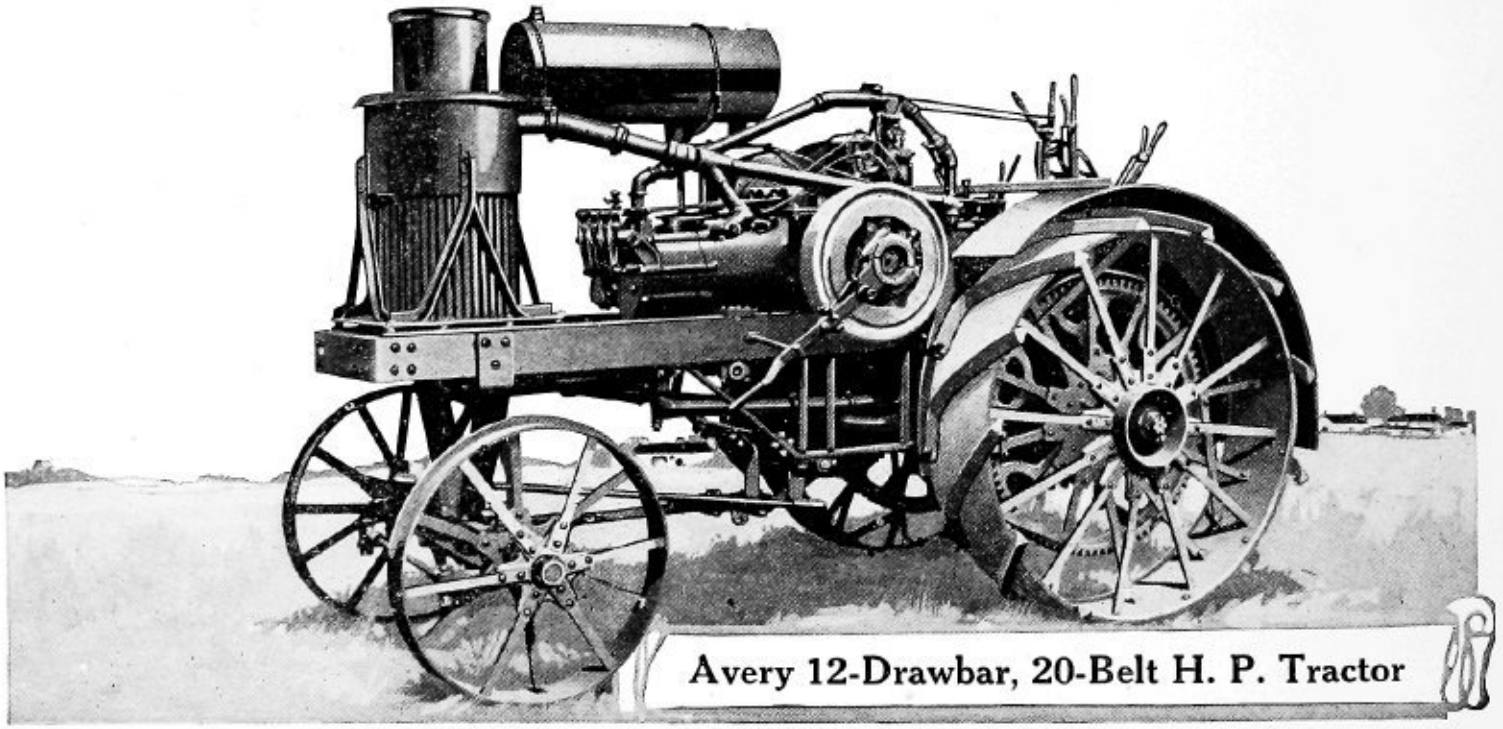
Avery 8-Drawbar, 16-Belt H. P. Tractor

With Two-Cylinder Opposed "Draft-Horse" Motor. For pulling 2 moldboard plows, 3 or 2 disc plows—driving small threshers, silo fillers, etc., and for other field, belt, hauling and road work.



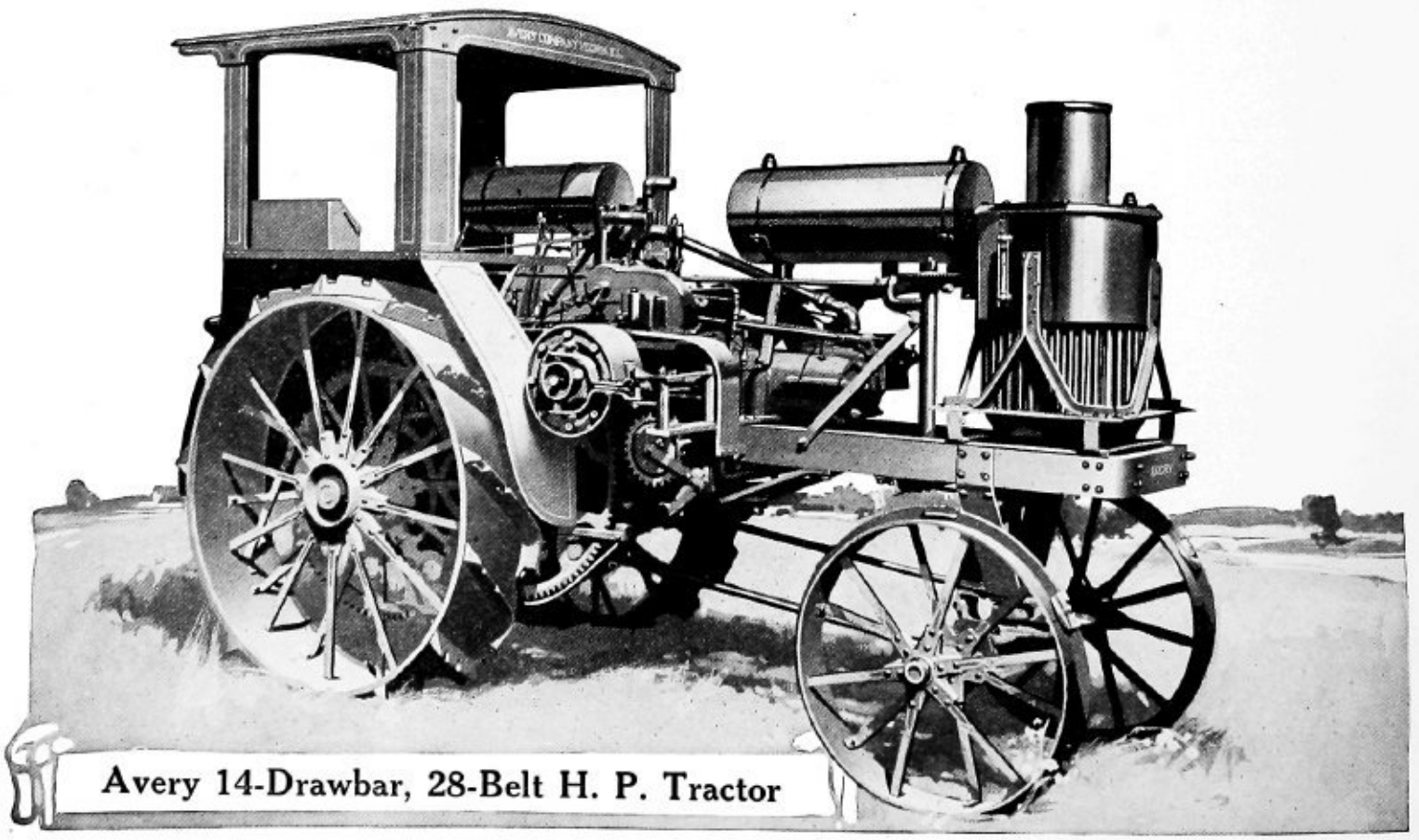
Avery 12-Drawbar, 25-Belt H. P. Tractor

With Two-Cylinder Opposed "Draft-Horse" Motor. For pulling 3 or 2 moldboard plows, 5 or 4 disc plows—driving 20 x 30-inch threshers, silo fillers, etc., and for other field, belt, hauling and road work.



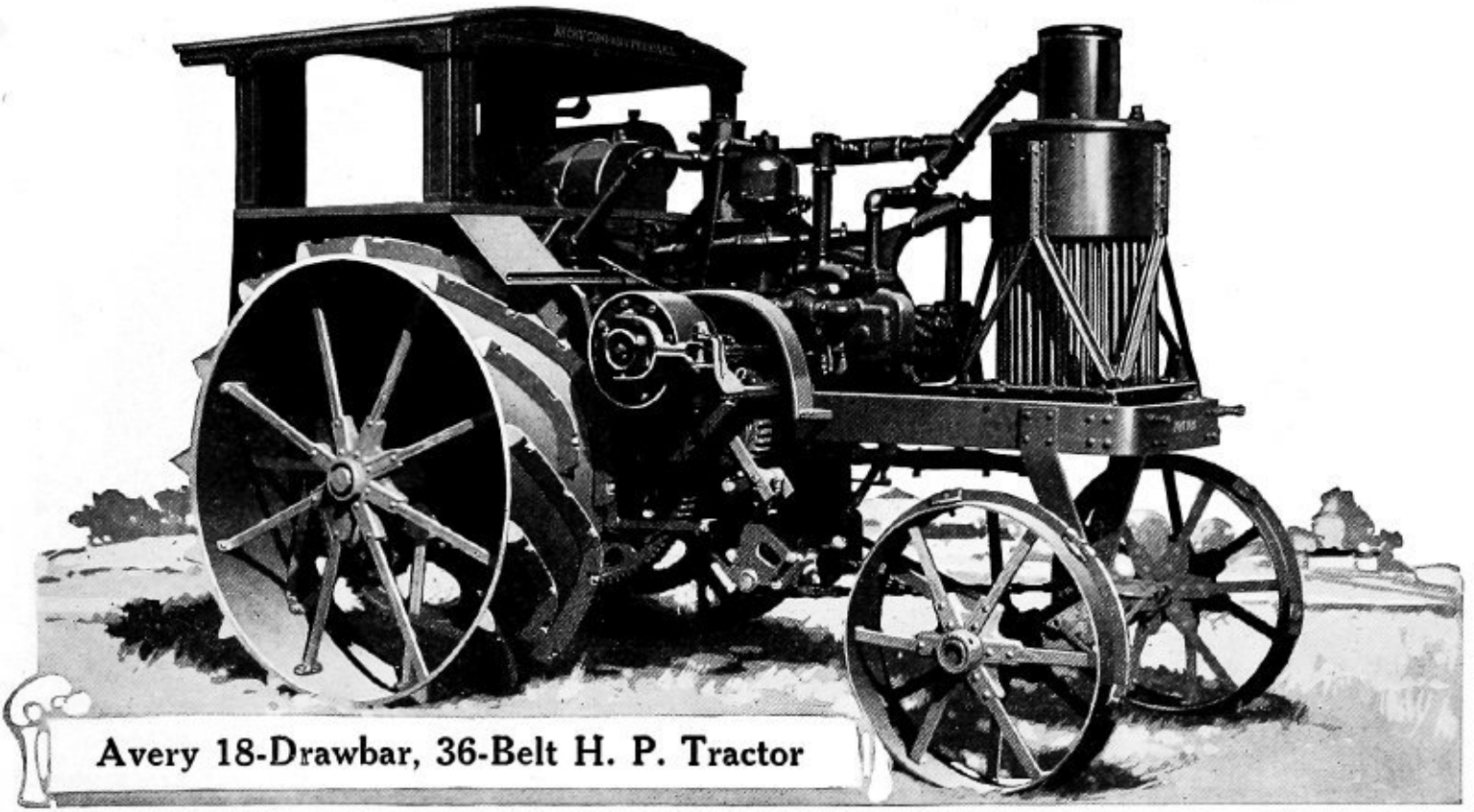
Avery 12-Drawbar, 20-Belt H. P. Tractor

With Four-Cylinder Opposed "Draft-Horse" Motor. For pulling 3 or 2 moldboard plows, 5 or 4 disc plows—driving 24 x 36, 20 x 30-inch threshers, silo fillers, etc., and for other field, belt, hauling and road work.



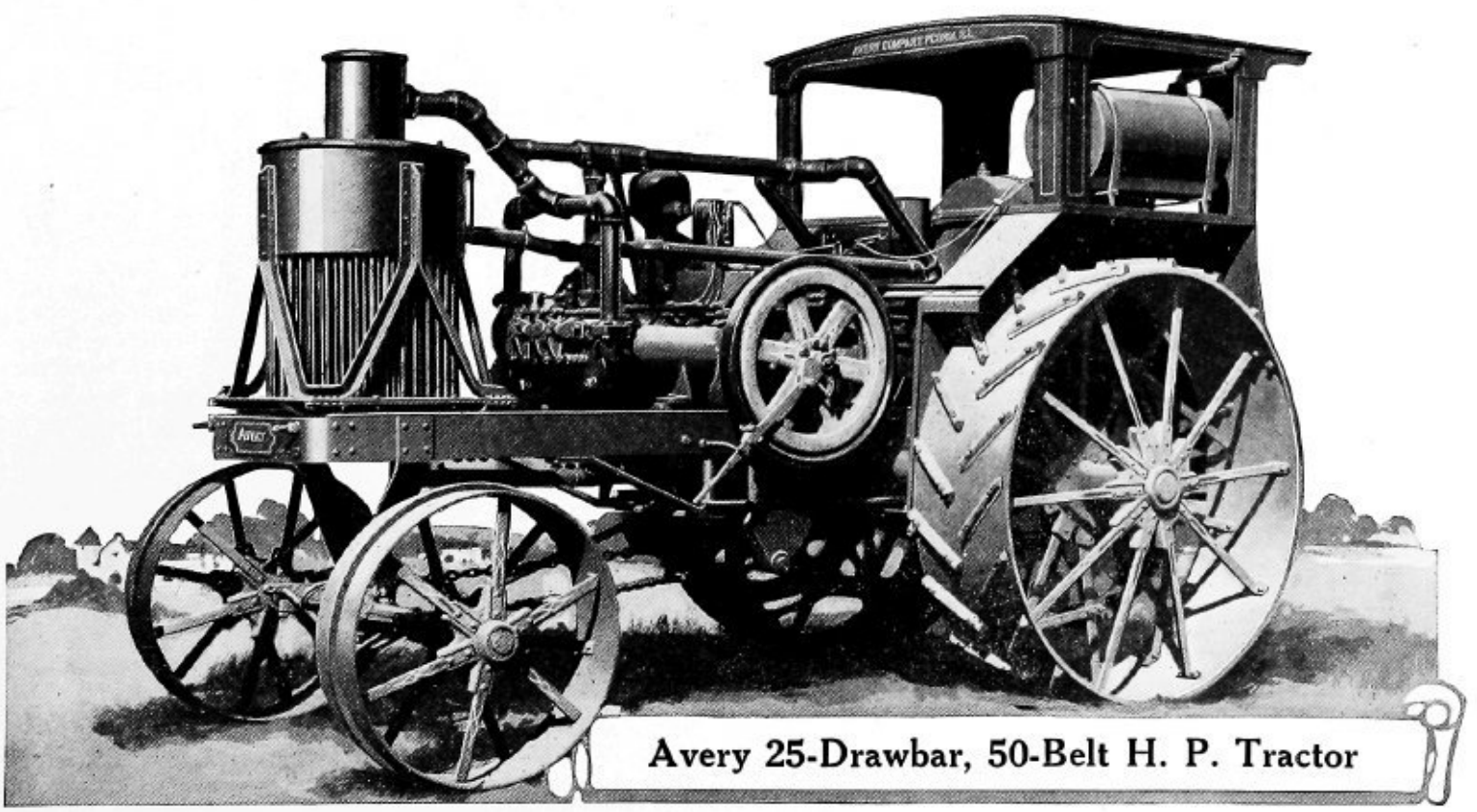
Avery 14-Drawbar, 28-Belt H. P. Tractor

With Four-Cylinder Opposed "Draft-Horse" Motor. For pulling 4 or 3 moldboard plows, 6 or 5 disc plows—driving 24 x 40, 24 x 36-inch threshers, silo fillers, etc., and for other field, belt, hauling and road work.



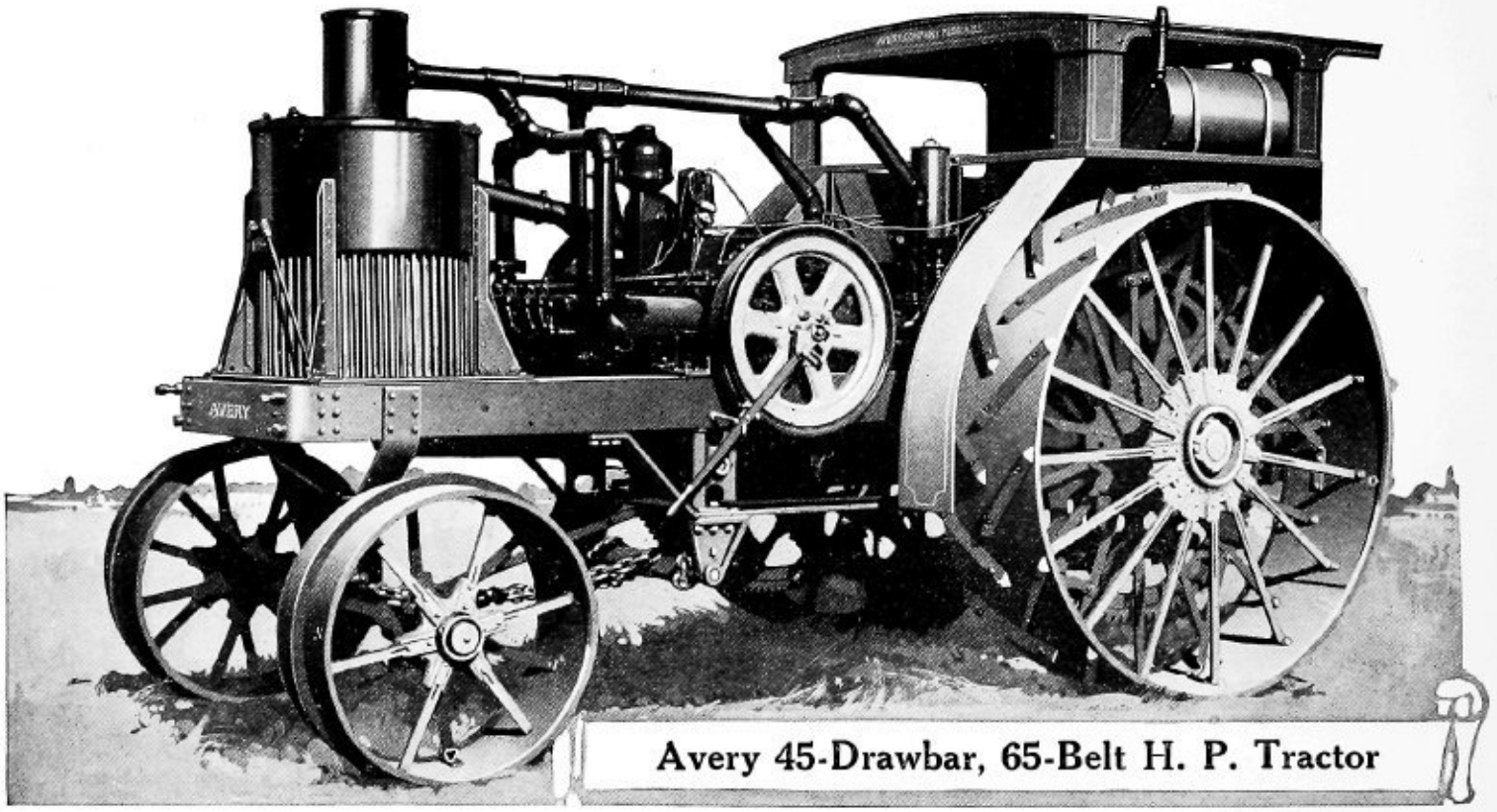
Avery 18-Drawbar, 36-Belt H. P. Tractor

With Four-Cylinder Opposed "Draft-Horse" Motor. For pulling 5 or 4 moldboard plows, 8 disc plows—driving 28 x 46, 24 x 40 or 24 x 36-inch threshers, silo fillers, etc., and for other field, belt, hauling and road work.



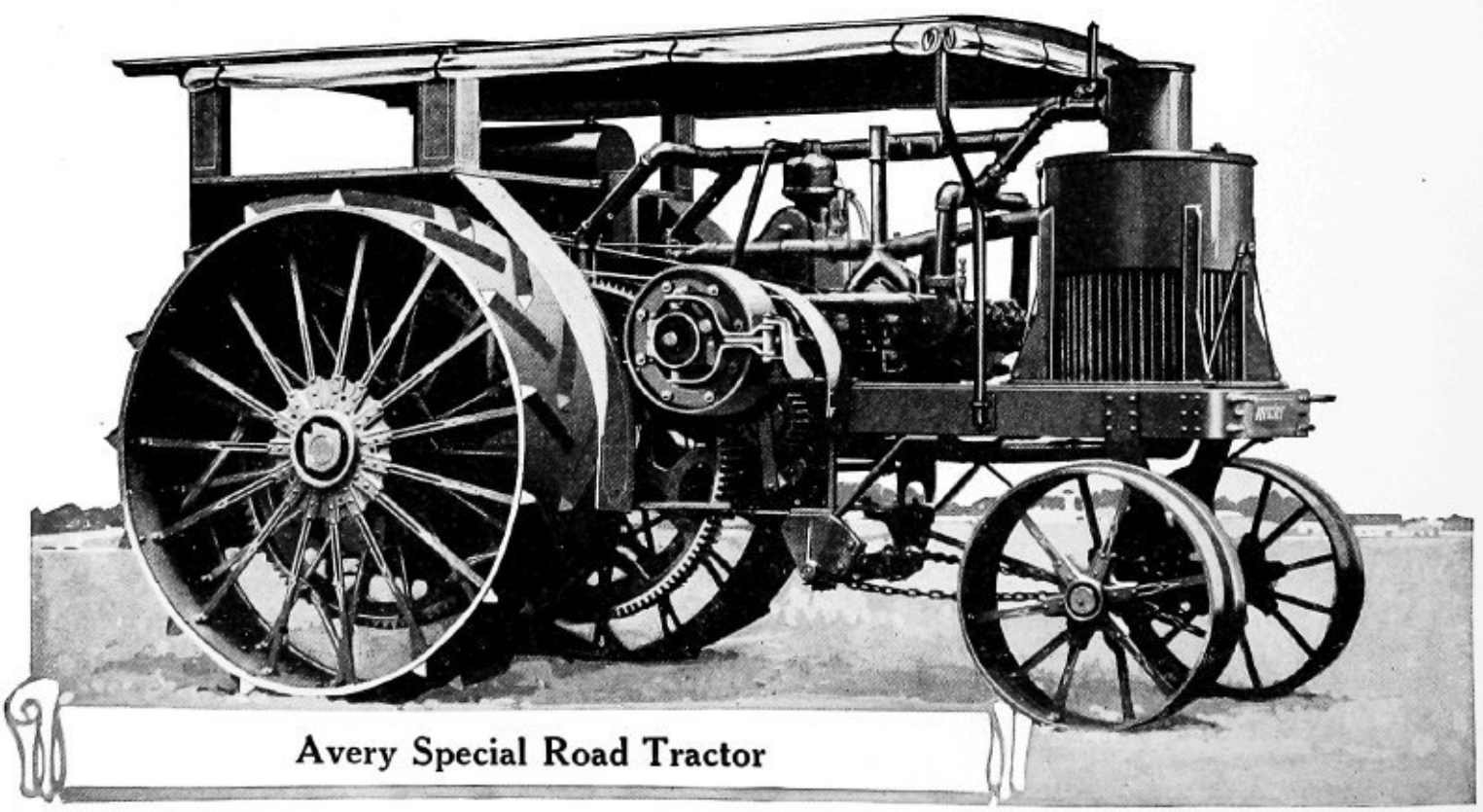
Avery 25-Drawbar, 50-Belt H. P. Tractor

With Four-Cylinder Opposed "Draft-Horse" Motor. For pulling 6 or 5 moldboard plows, 12 disc plows—driving 32 x 54 or 28 x 46-inch threshers, silo fillers, etc., and for other field, belt, hauling and road work.



Avery 45-Drawbar, 65-Belt H. P. Tractor

With Four-Cylinder Opposed "Draft-Horse" Motor. For pulling 10 or 8 moldboard plows, 18 disc plows—driving 42 x 70, 36 x 60 or 32 x 54-inch threshers, and for other field, belt, hauling and road work.



Avery Special Road Tractor

This illustration shows a 45-65 H. P. Avery Tractor with special road tractor equipment. The Avery 12-20, 12-25, 14-28, 18-36 and 25-50 H. P. Tractors can also be similarly equipped for this class of work.

Specifications of Avery Tractors

DESCRIPTION.	AVERY 8-16 H. P	AVERY 12-25 H. P.	AVERY 12-20 H. P.	AVERY 14-28 H. P.	AVERY 18-36 H. P.	AVERY 25-50 H. P.	AVERY 45-65 H. P.
MOTOR							
Number of Cylinders	2	2	4	4	4	4	4
Bore and Stroke, inches	5½ x 6	6½ x 7	4⅜ x 6	4⅝ x 7	5½ x 6	6½ x 7	7¾ x 8
R. P. M. Minimum and Maximum	600-750	600-700	800-900	700-900	650-750	600-700	500-600
Number of Crankshaft Bearings	2	2	2	2	2	2	2
Diam. of Crankshaft Bearings, inches	2¾	3¼	2¾	3	3⅛	3¾	4½
Length of Crankshaft Bearings, inches	5⅛ & 5¾	6 & 7¼	4½ & 4½	5½ & 5½	5½ & 7¼	6⅝ & 7½	9 & 9
Diameter of Belt Pulley, inches	17½	19½	16	16	18	22	26
Face of Belt Pulley, inches	7	7	7	7½	8	8½	10
Fuel: Kerosene, Distillate, or Gasoline	K. D. or G.	K. D. or G.	K. D. or G.	K. D. or G.	K. D. or G.	K. D. or G.	K. D. or G.
Capacity of Fuel Tank, two compartments, gallons	2¼ & 13½	3¼ & 20	2½ & 13½	3¼ & 20	5½ & 34	5½ & 34	5½ & 45
GEARING							
Face of Crankshaft Pinion and Compensating Gear, inches	2	2½	2	2½	3	3	5
Face of Bull Gears and Pinions, inches	3	3	3	3	4	4	6
Miles per Hour, on low gear	1¾-2¼	1¾-2⅛	2⅜-3	2⅛-3	2-2½	2⅛-3	1¾-2⅛
Miles per Hour, on high gear	3-3½	2¾-3⅓	3½-4	3½-4½	3-3½	3½-4	2⅔-3⅓
WHEELS							
Front Wheels, diameter, inches	30	30	30	36	35	38	42
Front Wheels, face, inches	5	8	5	6	8	10	16
Rear Wheels, diameter, inches	50	56	50	60	65	69	87½
Rear Wheels, face, inches	12	20	12	16	20	20	24
Special Rear Wheel Extensions, inches	6	8	6	8	8	8	12
SHAFTING							
Rear Axle, diameter, inches	2½	3	2½	2½	3	3½	5
Front Axle, diameter, inches	2	2	2	2	2½	2½	3½
Countershaft, diameter, inches	2	2½	2½	2½	2½	3	4
No Intermediate Shaft used.							
MISCELLANEOUS							
Extreme Width, inches	56	80	60	68	84	90½	111½
Extreme Length, inches	130	164	132	152	152	176	215
Extreme Height, inches	73	105	78	104	105	108	121
Shipping weight, pounds	4,900	7,500	5,500	7,500	9,250	12,500	22,000

There's a Size Avery Tractor for Every Size Farm—All Built Alike—One Design—Standardized

WHEN you look at the Avery Line of Tractors you will notice two important facts **instantly. First,** Avery Tractors **are** different. **Second.** Avery Tractors, including the 8-16, 12-20, 12-25, 14-28, 18-36, 25-50 and the 45-65 H. P. **are all built alike** of the same standardized design in sizes to exactly fit the needs of every size farm.

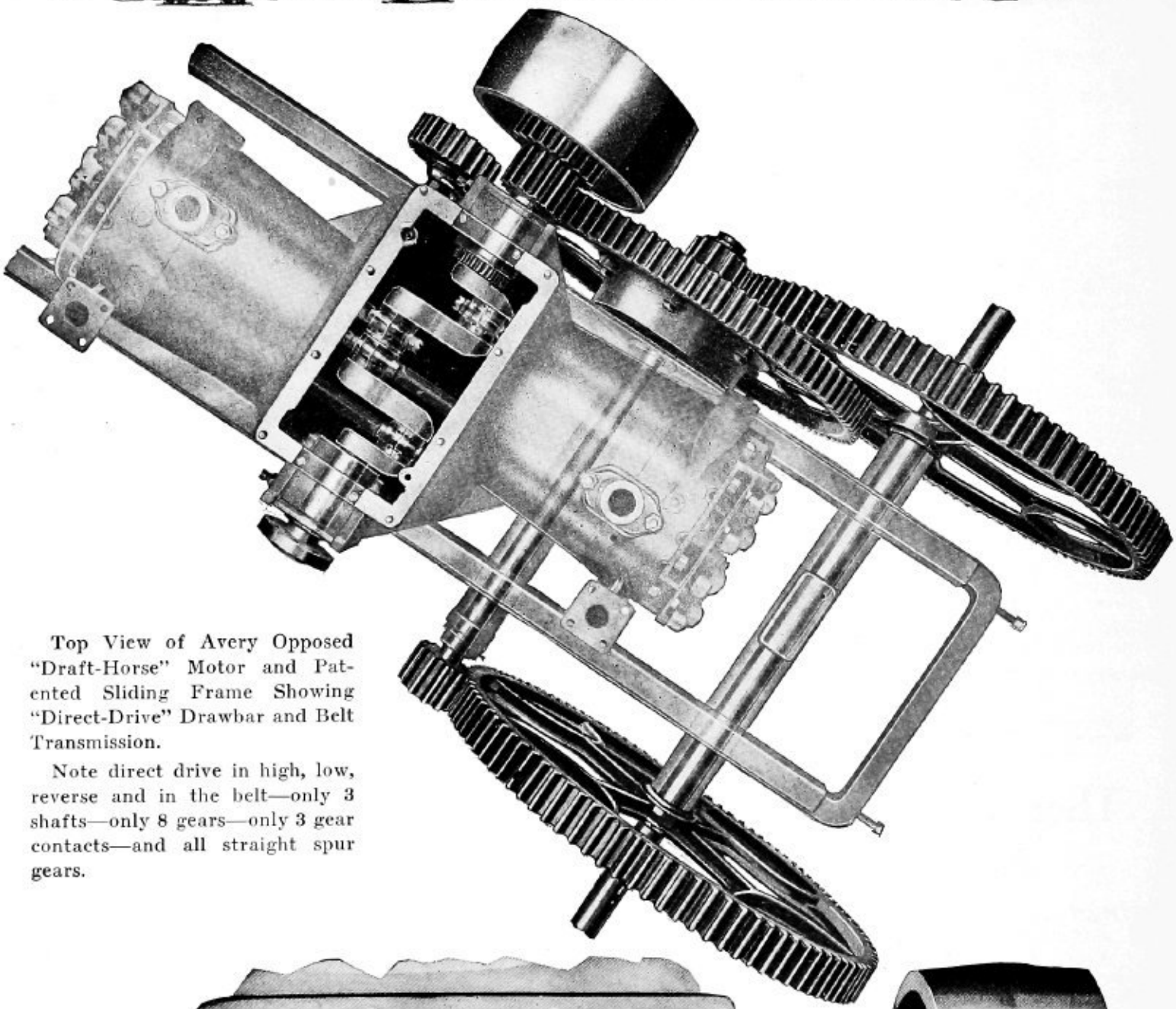
Even without a detailed investigation of Avery Tractors this one thing stands out strongly as proof of the success of the Avery design—that Avery Tractors are the **only** make built in so many sizes, all of the same design. The Avery Tractor design, therefore, must be a success or the same design would not have been built in so many sizes.

When a company starts building one size tractor and then, because of its success, builds another size, then another, then another, then another, and then another, until it has a size for every size farm of the **same** design, it is proof in itself that that design must be successful. And when most other companies building new sizes of tractors are building them of a different design than their former tractors, isn't it an admission on their part of the failure of their former design, and the best that can be said of any design they make is that it is an experiment?

The fact that the Avery Company has grown so rapidly and the fact that the Avery Company is the **only** company building a size tractor for every size farm, all of the same design, are absolute proof of the superiority of Avery Tractors and the Avery Tractor Design.

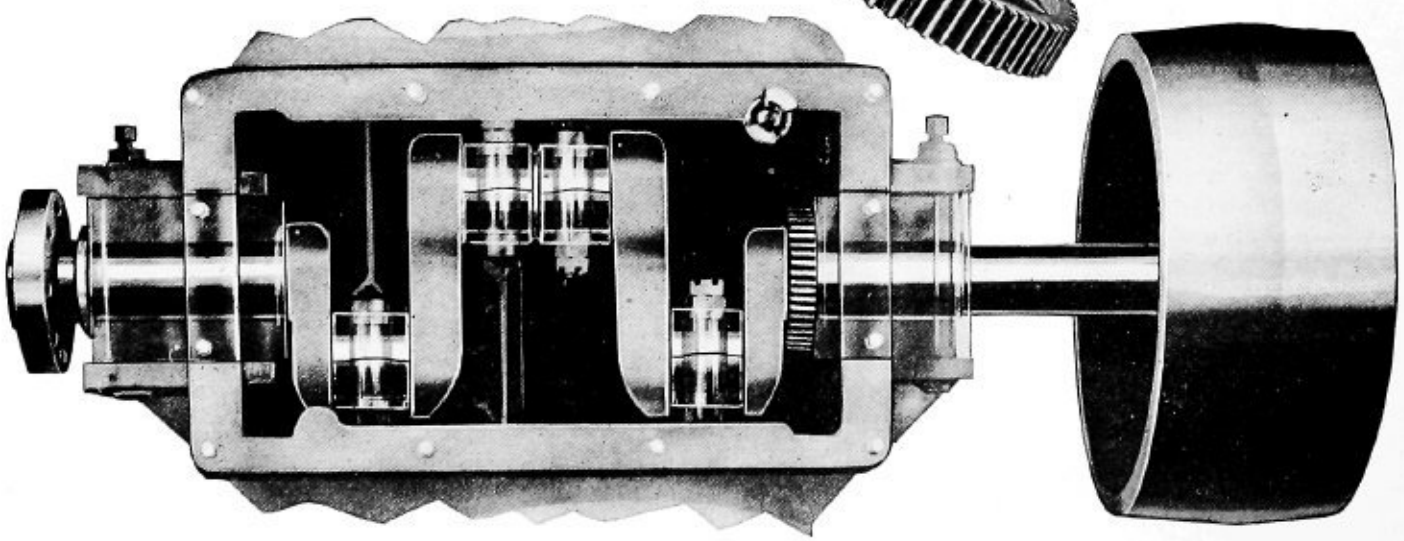
All sizes of Avery Tractors, from the 8-16 to the 45-65 H. P., have the same exclusive features that you will find in any **one** of them. The motors are of the horizontal opposed low speed type, with valves-in-head, extra strong practically unbreakable crankshafts, renewable inner cylinder walls, adjustable main crankshaft bearings, and patented gasifiers that turn kerosene or distillate into gas and **really** burn it. They all have the Avery Perfected Opposed "Draft-Horse" Motor and the Avery Patented Sliding Frame "Direct-Drive" Transmission.

All sizes of Avery Tractors now being built have the same design with many up-to-date improvements and refinements, that has made it possible for the first Avery Tractor built over eleven years ago to still be in daily operation; the design that has made it possible for another Avery Tractor ten years old to plow, disc and harrow over 25,000 acres; the design that has resulted in hundreds of repeat orders from the same men, members of the same family and adjoining neighbors; and the design that has resulted in Avery Tractors being successfully used in **every State in the Union and 80 Foreign Countries.**



Top View of Avery Opposed "Draft-Horse" Motor and Patented Sliding Frame Showing "Direct-Drive" Drawbar and Belt Transmission.

Note direct drive in high, low, reverse and in the belt—only 3 shafts—only 8 gears—only 3 gear contacts—and all straight spur gears.



Top View of Avery Opposed "Draft-Horse" Motor, with Cam Case Removed, Showing How Belt Pulley is Driven Direct from Main Crankshaft. Also Shows Crankshaft and the Two Adjustable Main Bearings. **All Bevel Gears and Extra Crankshaft Bearings on the Frame are Eliminated.**

Averys—the Tractors with the Perfected Opposed "*Draft-Horse*" Motor and the Patented Sliding Frame "*Direct-Drive*" Transmission

YOU can compare tractors most readily if you think of a tractor as being made up of only two main units—first a **Motor** which produces the power, and second a **Transmission System** for delivering the power developed by the motor to the belt wheel and drawbar.

The motor used in Avery Tractors is the Avery Perfected Opposed Motor, which was designed **exclusively** for tractor work, is built in **our own special motor factory** and is used **only** in Avery Tractors.

There are many reasons why we adopted the opposed type of motor in preference to other types. It is a **"draft-horse"** type of power plant and a tractor has to do draft-horse work. The length of the opposed type of motor makes it a motor that distributes the weight correctly between the front and rear wheels, thus putting the right amount of weight on the rear wheels to give good traction and the right amount on the front wheels to prevent them from rearing up. Its narrow width makes possible a narrower tractor with less side draft and also makes possible the use of a short two bearing crankshaft which means perfect alignment **at all times.** Furthermore the opposed type is strong in construction and runs at a low speed.

Because of these advantages, we adopted the opposed type of motor. We then built the Avery opposed motor with an extra heavy practically unbreakable crankshaft, five ring pistons, thermo-siphon cooling system, internal gear pump oiling system and valves in the head. Finally we **perfected** it by inventing renewable inner cylinder walls, adjustable main crankshaft bearings and gasifiers for turning kerosene and distillate into gas and **really burning it.**

No other motor used in any tractor has even **half** of these features. The Avery Perfected Opposed Motor does its work so well that Avery owners say it is "the finest power plant on wheels."

As regards the second main unit in a tractor, namely, the Transmission System for delivering the power of the motor to the belt wheel and drawbar, **the Avery Patented Sliding Frame Transmission System makes it a "direct-drive" transmission system.**

It is the **only** transmission system that makes possible a **direct drive** in **high, low, reverse,** or **in the belt.** It requires but three shafts—crankshaft, countershaft and rear axle—**the intermediate shaft is eliminated.** There are **only eight gears** in the Avery Transmission and **only three gear contacts.** Furthermore, all of the gears are of the straight spur gear type and no bevel gears or sprocket chains are used.

The straight spur gear transmission as used in Avery Tractors is not a type of transmission developed for high speed automobile or truck work. Instead the Avery Tractor transmission is like the steam engine transmission that has been developed successfully through fifty years of test. We simply use an internal combustion motor in place of a boiler on the same type of transmission. It is the type of transmission which has proven to be the best for low speed, heavy traction work such as a tractor must do. Avery gears are electric steel and semi-steel. They are amply protected and located outside of the frame where they are easily accessible. Nothing can start to go wrong with the gears without your seeing it in time to prevent any damage.

The belt pulley on an Avery Tractor is mounted **directly** on the end of the crankshaft so you get all the power developed by the motor when doing belt work, and no crankshaft bearings on the frame or bevel gears are used in transmitting belt power. Only **one** clutch is used for belt driving or traction work.

Without a question the Avery Patented Sliding Frame Transmission is an extremely simple and a most efficient belt and drawbar transmission system. This means much to you as a tractor owner. It means that an unusually large percentage of the power developed by the Motor in the Avery Tractor is delivered to the belt wheel and to the drawbar.

You have the advantages of all these improvements in an Avery Tractor which make an Avery run **satisfactorily**—it will do its work efficiently, economically and conveniently.

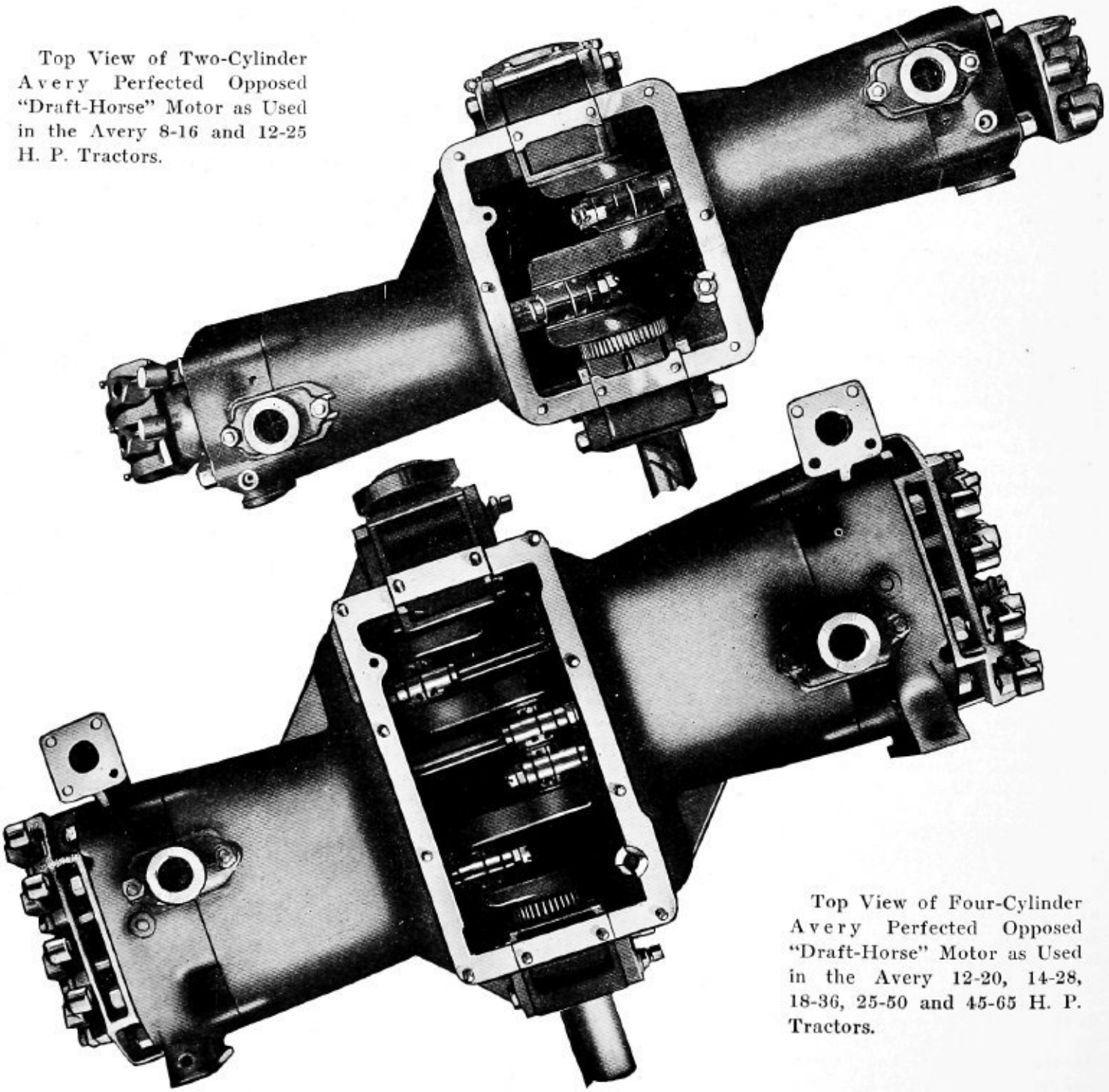
You can also keep an Avery Tractor running **steadily**—any adjustment or replacement required can be made by the owner at home without having to haul the tractor to a machine shop or hire a special service man.

Finally, you can run an Avery Tractor **indefinitely.** Avery Tractors do good work and last a long time because all easily broken parts such as pumps, belts, chains, etc., **are eliminated.** All main parts such as the motor shell, frame and wheels will last **indefinitely.** And all working or wearing parts such as the inner cylinder walls and gears are **extra long lived,** but if they do wear, they are easily **adjusted or replaced.**

An Avery Tractor can always be made new again.

This successful combination of the Avery Perfected Opposed Motor (the "Draft-Horse" Motor) and the Avery Patented Sliding Frame Transmission (the "Direct-Drive" Transmission) is the reason why Avery Tractors lead.

Top View of Two-Cylinder Avery Perfected Opposed "Draft-Horse" Motor as Used in the Avery 8-16 and 12-25 H. P. Tractors.



Top View of Four-Cylinder Avery Perfected Opposed "Draft-Horse" Motor as Used in the Avery 12-20, 14-28, 18-36, 25-50 and 45-65 H. P. Tractors.

The Avery is a "Draft-Horse"—Not a Race-Horse Type of Motor

Note the length and the narrow width of these Avery Motors, also the unusual simplicity and strength of construction.

The Avery Perfected Opposed Motor— The "Draft-Horse" Tractor Motor

THERE are three types of motors used in tractors —the Twin Cylinder, Automobile, and Opposed Type. We will discuss them here and show you why we selected the opposed type of motor, then after selecting it, so refined it and perfected it that Avery Opposed Motors are now called by many Avery owners, "the finest power plant on wheels."

The twin cylinder type is unbalanced—heavy counter-weights are necessary making speed variation impossible to any great degree. It is also wider than an opposed motor—hence uses a longer crankshaft and makes necessary a wider tractor. It cannot be located so as to distribute the weight correctly.

The vertical or automobile type of motor, was also not adopted for many reasons. This type of motor is built to be carried on spring-mounted axles and rubber tires, not to stand the shocks of rigid axles and solid steel tires, nor to pull a heavy load behind, as is required of a tractor motor.

This type of motor was built for use in automobiles or trucks, where speed is required and only a small amount of space can be given to the motor on account of the load which must be carried. Furthermore, in an automobile or truck, the motor is not required to develop regularly anywhere near as large a percentage of its power as is required in a tractor motor. It is only called upon to develop on an average about 25 to 33⅓ per cent of its rated horsepower, while a tractor motor must develop about 80 per cent of its horsepower **steadily almost all the time.**

To make the comparison more clearly, an automobile motor, even when running on low gear up a heavy, sandy grade, is not operating under any more severe conditions than a tractor motor is when doing ordinary plowing. You know what continuous pulling of that kind will do to an automobile motor.

But its lack of strength is not the only fault of the automobile type of motor. This type of motor placed crosswise of the frame in order to use a straight spur gear type of transmission, makes the tractor too wide and increases the side draft when pulling plows, etc. If placed lengthwise of the frame to narrow up the tractor, a bevel or worm gear transmission must be used to turn the power at right angles.

The **opposed** type of motor eliminates the faults of both the twin cylinder and automobile type motors and is specially adapted for use in tractor work because:

Its length distributes the weight properly between the front and rear wheels, allowing the right amount of weight on the rear wheels to obtain sufficient traction and on the front wheels to make them guide easy yet keep the tractor from rearing up in front.

Its narrow width permitted by the cylinders overlapping, makes possible a narrower tractor with less side draft in pulling plows and the right width for straddling rows.

It has a shorter crankshaft—is stronger—requires only two main bearings that are **always** in perfect alignment.

It runs at a low speed. Less gears are required in the transmission to get proper traction speed. Avery Motors only run from 600 to 900 revolutions per minute, and thus possess the important feature of low speed which automobile motors lack. This makes it possible to put the belt pulley on the end of the crankshaft and to use a larger pulley,—saves power and gets a better grip on the belt.

It is perfectly balanced—does not shake the tractor to pieces and delivers a constant steady stream of power.

It has a stronger construction—the main parts will last indefinitely.

It has a better water space for cooling than a vertical motor.

It delivers its power in a steady, dependable flow; does not race under light loads or kill easily on hard pulls. Many stationary engines of fifteen years ago had vertical cylinders, now practically all are horizontal. Why? Because it was found that the horizontal motor was a most efficient type for heavy duty work, the kind of work a tractor must do.

Because of these reasons we adopted the opposed type of motor. In building the Avery "Draft-Horse" Motor we also added these advantages:

We built into it the heaviest crankshaft in any tractor motor. Avery Crankshafts are one-half or more than one-half the diameter of the cylinders—means strength. Avery owners don't worry about broken crankshafts.

We made it a valve-in-head motor—means power with economy and saving in fuel.

We put five high tension rings on the pistons—enable the motor to hold compression better, save fuel, and produce more power.

We built it with a thermo-syphon cooling system—does away with pumps, belts, pulleys, etc., saves the power required to drive them, eliminates trouble-making parts, and makes it easier to burn low grade fuels.

We connected it with the Avery Round Radiator, which is open on all sides and catches the wind from any direction.

Finally, we **perfected** the Avery Opposed Motor to a wonderful degree of superiority by means of these three inventions:

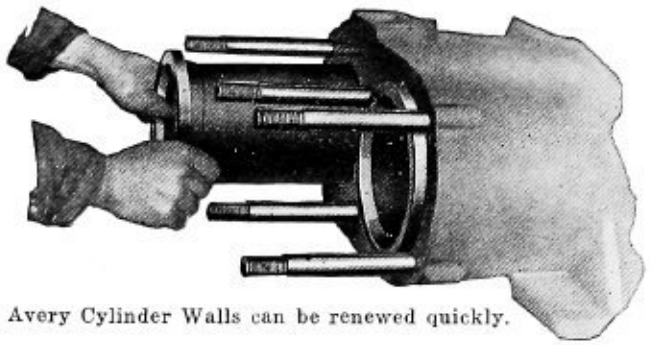
First, the renewable inner cylinder walls, which enable us to use a harder metal which wears **longer,** and if they ever do wear can be replaced at low cost. You do not have to buy a complete new cylinder should you score it. You simply remove the scored wall and replace it with a new one. You can also turn the cylinder part way round from time to time and thus equalize wear on all sides. You can remove the cylinders and clean the scale from the water jacket. After years of use you can put new cylinder walls and new pistons in your motor and so make it **new** again.

Second, the Avery Centrifugal Gasifier—turns kerosene, distillate, or other low-grade fuels into gas, and **really** burns it.

And **Third,** the adjustable main crankshaft bearings with which you can take up the wear in the bearings **instantly** without tearing down the motor.

No other motor has even half of these features—a tractor is **only** as good as its motor.

Some Improvements and Inventions That Have Helped to Refine and Perfect the Avery "Draft-Horse" Motor



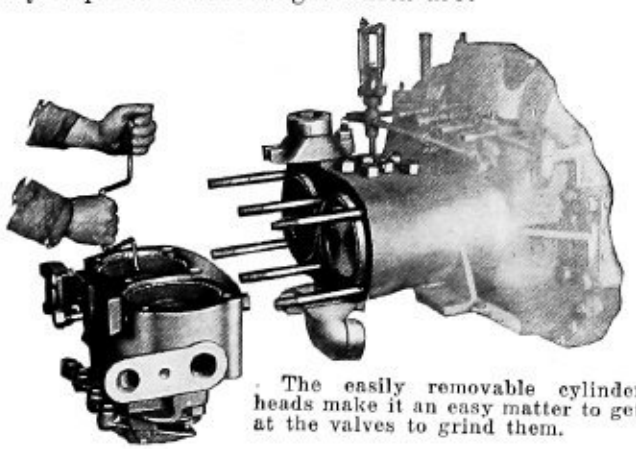
Avery Cylinder Walls can be renewed quickly.

ON the proceeding page we said, "A tractor is only as good as its motor." That's why we are so jealous of the performance and reputation of the Avery "Draft-Horse" Motor. That's why Avery engineers guard so faithfully the construction of Avery motors and the inspection of the raw materials and finished parts used. **Always** they are working to improve this wonderful motor, and when such improvements and refinements have been proven in the field by the test of time, our customers get the benefit of them. The Avery "Draft-Horse" Motor is built today with as much care and precision as is used in the building of motors for most high-priced cars and aeroplanes.

All the exclusive features have been designed to give you a tractor that will run successfully and **stay running** a long time, yet each is so designed to make it easy for you to take care of an Avery yourself. Keep this in mind, therefore, that there is a good substantial reason for the design of every Avery feature.

Renewable Inner Cylinder Walls.

Here is one of the most important features in the Avery "Draft-Horse" Motor—the **Renewable Inner Cylinder Wall.** Cast separately from the main cylinder, it is made of harder material. After being cast, it is given a rough cut inside and outside, then set aside to season for three weeks or longer to relieve it of **all strains.** Following seasoning, it is again machined inside and outside and then the inside is carefully ground to **exact** size. The pistons are cast, seasoned and machined in a similar way so that both the cylinder walls and the pistons are always absolutely round and of uniform thickness throughout, regardless of their temperature. (See illustration of cross-section of piston, cylinder wall and piston rings.) This construction has many important advantages which are:

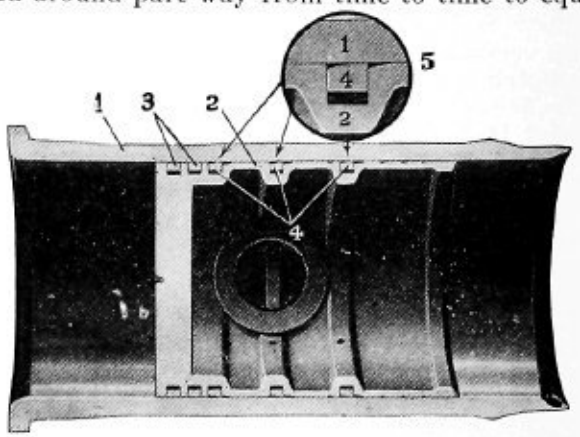


The easily removable cylinder heads make it an easy matter to get at the valves to grind them.

First, you can quickly renew the cylinder wall at small cost if at any time it wears or becomes scored from any cause. With other tractors the cylinders must be rebored, reground and over-size pistons turned up at the factory. Naturally, this is very expensive and means a great deal of work as compared to merely putting in a new wall in the Avery Motor.

Second, all things wear in time. When the Avery Cylinder wall becomes worn, you can replace it with a new one yourself, at home or even in the field, and your motor will be made **new** again.

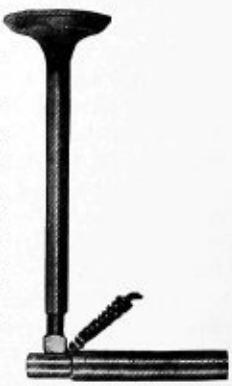
Third, being cast separate the Avery Cylinder Wall is made of harder material—**lasts longer.** Can be turned around part way from time to time to equalize any wear that may take place. Also it is more round than a wall that is cast integral with the cylinder—results in better compression and more power.



No. 1, inner cylinder wall; No. 2, piston; No. 3, two compression rings; No. 4, three oil and compression rings; No. 5, enlarged view of No. 4, showing sled-runner edge on oil rings. As piston moves forward these rings ride the film of oil. As piston returns the sharp rear edge of ring scrapes oil back into crankcase.

Fourth, you can remove it any time and scrape off any water scale or sediment which collects between the wall and the cylinder itself—insures motor being cooled **perfectly** at all times.

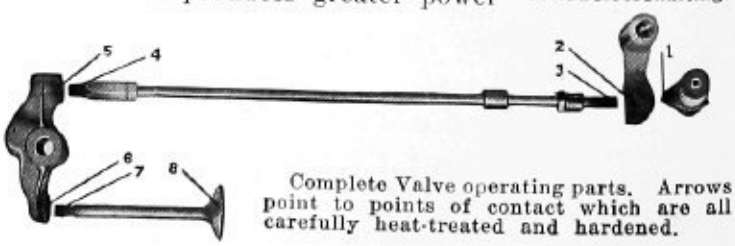
This one of the many Avery inventions has done much to perfect the Avery "Draft-Horse" Motor, and it is such an important one in itself, that many men buy Avery Tractors because of this feature **alone.** When one fully appreciates the advantages of this feature, he will not consider the purchase of a tractor without it.



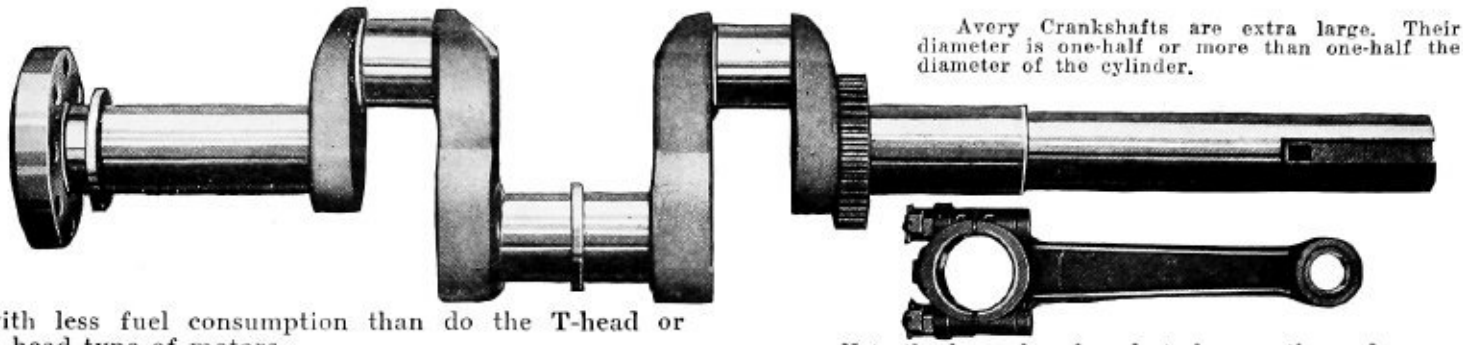
Exhaust valve cutting piece of cold-rolled steel shafting.

Valve-in-Head Motor.

Avery "Draft-Horse" Motors are all valve-in-head type which every one knows produces greater power



Complete Valve operating parts. Arrows point to points of contact which are all carefully heat-treated and hardened.



Avery Crankshafts are extra large. Their diameter is one-half or more than one-half the diameter of the cylinder.

Note the large drop-forged steel connecting rod.

with less fuel consumption than do the T-head or L-head type of motors.

The cylinder heads are also easily taken off by removing the nuts from the stud bolts passing through the cylinder head—the valves are then exposed so that they can be readily ground.

The cylinder heads also have enlarged intake and exhaust passages so that there is no chance of any "choking" of gases which might interfere with the power of the motor.

The valves used in Avery Motors are the best that can be made. The intake valve is of nickel steel, heat-treated and hardened; the exhaust valve which must undergo enormous heat is made of **cobalt chrome steel** with nickel steel stem and heat-treated and case-hardened end. This valve costs 12 times the ordinary valve, but it is worth it because of its great heat resisting qualities and its intense hardness. It will not burn out as will the ordinary exhaust valves used in many tractors.

Also all the points of contact of the parts making up the complete valve operating mechanism are heat-treated and hardened. This prolongs the wear and makes the valve adjustment **better** and **more lasting.** In the illustration on the previous page of the valve operating parts No. 1 represents the cam shaft which is drop-forged steel, heat-treated and hardened; No. 2 valve hanger—drop-forged steel, heat-treated and hardened; No. 3 and 4 ends of push rod steel, heat-treated and hardened; No. 5 rocker arm—contains steel cup insert, heat-treated and hardened; No. 6 rocker arm—steel button insert heat-treated and hardened; No. 7 end of valve, also heat-treated and hardened; No. 8 valve—intake valve made of high grade nickel steel, exhaust valve of cobalt chrome non-burning steel.

Avery Crankshafts Are Extra Large.

The smallest Avery Crankshaft is 2¾ inches in diameter and the largest 4½ inches. The bore in the Avery 8-16 H. P. Tractor Motor is 5½ inches in diameter and in the 45-65 H. P. Tractor 7¾ inches. The diameter of an Avery Crankshaft is therefore **one-half or more than one-half** the diameter of the cylinder.

An Avery Crankshaft is also mounted in two extra wide bearings, the combined length of which is nearly as great as the width of the cranks between them. The length of each bearing is in most cases more than the diameter of the cylinder. Furthermore, on account of using opposed cylinders Avery Crankshafts are shorter and for this reason stronger.

The large size of the Avery Crankshaft, the extra wide bearings and the shortness of the shaft, are the reasons why an Avery Crankshaft is **practically unbreakable. The Avery Tractor Crankshaft is the shortest, heaviest, strongest crankshaft built in any tractor.**

Five Ring Pistons.

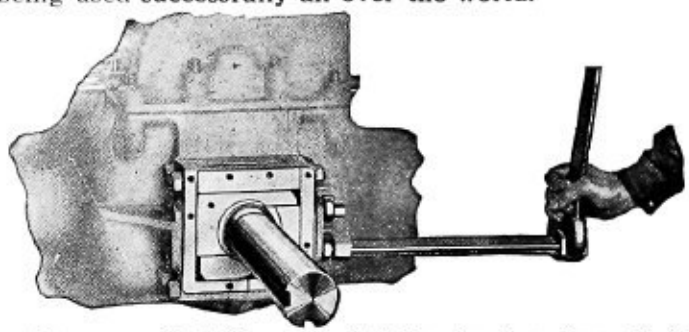
One reason why Avery Motors are so powerful is because all the pistons are equipped with five high tension rings. This enables them to hold the compression better, save fuel and produce more power. One of the cylinder rings holds the piston pin in place so that it cannot work out and score the cylinder. (See illustration of cross-section of cylinder on previous page.) The forward two piston rings (No. 3) are the compression rings, the next three rings (No. 4) have a special beveled front edge which rides the film of oil as the piston moves forward and a sharp rear edge which pulls the oil film back toward the crankcase on the return stroke of the piston. This keeps the oil consumption down to a minimum.

The connecting rods in Avery Tractors are steel forgings with a heavy, babbitt-lined, bronze bearing on the crankshaft end and a bronze bearing on the piston end.

Adjustable Main Crankshaft Bearings.

Another Avery invention which has helped to perfect the Avery "Draft-Horse" Motor is **adjustable main crankshaft bearings,** which can easily and quickly be taken up at any time with the aid of an ordinary socket wrench. The illustration on this page shows clearly its construction. The upper half of the bearing is subject to very little wear and, as the lower bearing wears, adjustments to take up the wear can be easily made by loosening the locknuts and turning the set screws, saving the trouble and expense of rebabbitting the bearings. Taking up the main crankshaft bearings in the ordinary type of tractor motor is a job which few people care to attempt, because it requires expert skill and takes so much time and hard work. In the ordinary type of tractor motor, it means tearing the motor completely down and often requires a long time to do the job correctly. In the Avery "Draft-Horse" Motor, the main crankshaft bearings can be adjusted perfectly in a few minutes. It is also an easy matter to make any necessary adjustments on the connecting rod bearings as the cam case, which is on **top** of the motor, **not on the bottom,** can be lifted back, leaving plenty of room to do this work with ease and comfort.

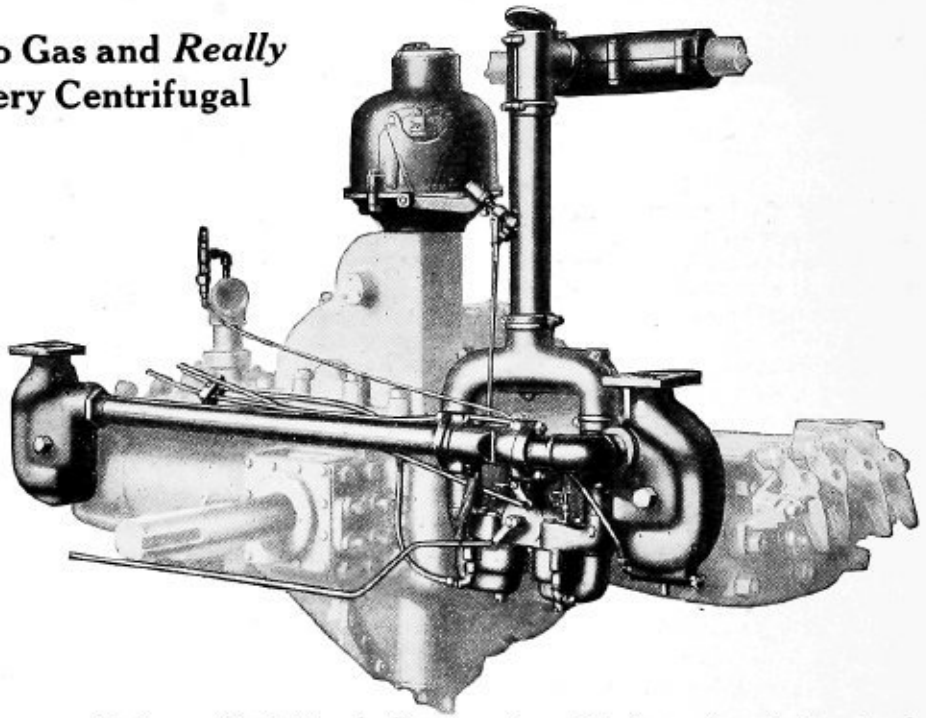
These are additional **exclusive features** found only in Avery Tractors and are strong reasons why Avery Tractors are being bought by the thousands and are being used **successfully all over the world.**



You can adjust the crankshaft bearing in a few minutes with an ordinary socket wrench.

The Avery Tractor Fuel System—

Turns Kerosene or Distillate Into Gas and *Really* Burns It. The Patented Avery Centrifugal Gasifier Does the Trick



THE fuel system as used in Avery Tractors from the 8-16 to the 45-65 H. P. size, is one of the greatest inventions ever made for burning kerosene, distillate or other low-grade fuels.

It is not the product of an idle moment—it is the result of years of faithful study and careful experimentation on the part of Avery Engineers. And although numerous tractor and automobile companies are now talking "hot-spots, super-heated manifolds, flash plates, etc.," all of which are more or less in the experimental stage, the Avery Fuel System with its Centrifugal Gasifier has been proven a **really successful device** for burning all low-grade fuels, by years of performance in actual field conditions.

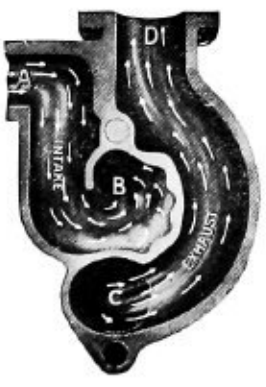
Because of the Avery Fuel System, Avery Tractors burn the kerosene that many so-called kerosene burning tractors waste. They use less kerosene by gasifying it instead of allowing it to pass the pistons and be wasted on account of not being vaporized. With an Avery Tractor you can get as much power out of a gallon of kerosene as the old style so-called kerosene burning tractors get out of a gallon of gasoline.

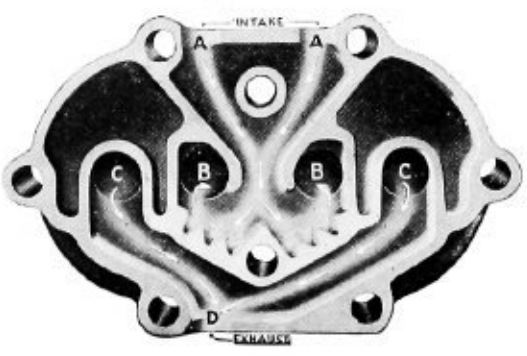
Avery Tractors burn kerosene or distillate without the troubles previously experienced in burning these low-grade fuels, such as fouled spark plugs, pitted valves, carbon in the cylinder, pre-ignition, etc. They burn it **so successfully** that we are able to use a closed bottom crank case and gear pump oiling system. Everyone knows this system is much superior to the mechanical oilers which builders of so-called kerosene tractors are compelled to use to prevent the kerosene which passes their pistons and piston rings diluting the oil and causing the crankshaft and connecting rod bearings to be cut out. Avery Tractors also burn low-grade fuels so successfully because of the Patented Centrifugal Gasifiers located at each cylinder head, that we are able to use an opposed **perfectly balanced** motor with a long manifold, which results in a more thorough mixture of air and fuel, while others are compelled to use **unbalanced** twin cylinder motors with short manifolds in order to use kerosene even as well as they do.

The Avery Fuel System, which causes all these wonderful results, consists of an air heater, double carburetor, long manifold, patented centrifugal gasifiers, fuel temperizer, governor, cold air inlet, water spray, and thermo-siphon cooling system. The combination of all these devices, which took years of experimenting to develop, makes Avery Tractors such that they do not merely run on kerosene, distillate, or other low-grade fuels, they **really burn it.**

The Avery Fuel System is also well built. There is not a drop of solder used in the construction of the fuel tank, nor a soldered joint in the fuel line. The fuel tank is welded and the fuel line is made of copper tubing with brass unions.

Cross Section of the Avery Centrifugal Gasifiers





The illustration at the extreme left shows the type of Centrifugal Gasifier used on the Avery 8-16, 12-25, 18-36, 25-50 and 45-65 H. P. Tractor Motors. The illustration in the center shows the type of Centrifugal Gasifier used in the Avery 12-20 and 14-28 H. P. Tractor Motors. In these two sizes of motors this wonderful device is built into the cylinder heads of the motor itself; in the others it is attached to the cylinder heads. This device turns kerosene, distillate or other low-grade fuels into gas and **really burns it.** A—Fuel mixture coming from carburetor and entering gasifier. B—Fuel mixture thoroughly gasified and entering cylinder. C—Exhaust coming from cylinder. D—Exhaust exit.

How Avery Tractors Turn Kerosene or Distillate Into Gas and *Really* Burn It

THE manner in which Avery Tractors are able to burn kerosene, distillate or other low-grade fuels is very interesting. To facilitate the carburetor in making the right mixture of fuel and air, an air heater is provided for heating the air as it is drawn to the carburetor whenever weather conditions make it desirable. This air heater is equipped with a lid which can be raised or closed to let in or shut out the cold air, and when lowered the air is drawn in past the exhaust pipe and heated. The air heater is shown at the bottom of this page.

All Avery Tractors are equipped with **double** carburetors. One bowl is for gasoline and the other for kerosene or distillate. The motor is started on gasoline. When warmed up, you simply pull a lever and instantaneously switch over to the low-grade fuel without having to make a single adjustment of any kind. This double carburetor is one of the special features of the Avery fuel system, and **is an Avery invention.** See illustration below.

When the fuel leaves the carburetor it passes through a long intake on the way to the cylinders. Now it has always been known that the longer the intake passage, the better would the air and fuel be mixed in passing through. But the advantages of the long intake were offset by the fact that some condensation of the mixture took place, and economy was sacrificed to a small extent. The result was other engineers compromised on the matter. They gave up trying to use the opposed type of motor with its long intake manifold, and its many advantages for tractor work. They resorted to the twin cylinder or automobile type of motor with all its inefficiency and faults for tractor work, because it had a **short** intake, and so sacrificed good design in order to burn kerosene **even** as well as they do.

Avery Engineers, as usual, pioneered the way. They knew that while a carburetor will mix gasoline with air and form a gas which will explode readily in the cylinder, no carburetor has yet been designed which **alone** will successfully vaporize kerosene or distillate to such an extent that no fuel will be wasted. So they solved the problem by inventing the Avery Centrifugal Gasifier, which they located at each cylinder head. This wonderful device takes the mixture of kerosene and air as it comes from the carburetor and so **reduces** the particles of kerosene and mixes them with air as to form a **vapor** or **gas** that burns **successfully.**

On the preceding page you will see illustrations of cross section views of the Patented Avery Centrifugal Gasifiers. The thin corrugated wall separating the exhaust and intake chambers, is heated to a high degree by the exhaust. The fuel mixture received from the carburetor contains some unvaporized particles, as no carburetor will completely vaporize all of it. This mixture is drawn into the intake chamber of the gasifier, which is so shaped that, by **centrifugal action,** these heavier particles of fuel are dashed against the hot wall and are instantly vaporized or held in suspense until they are **fully gasified** when they are sucked into the cylinder. The Avery Gasifier works somewhat like a cream separator, it throws the heavy particles of fuel to the outside as a cream separator throws milk out of the cream.

Engineers say that to burn kerosene successfully the fuel must first, not enter the cylinder until it is all in a state of gas; second, that the fuel must not be overheated or it will lose its power-producing qualities and third, that after it is gasified it must have longer time to explode.

The Avery Tractor Motor does all these three things. First, any liquid fuel that might reach the gasifier cannot get into the cylinder until the fuel is gasified, because the intake opening is above the level of the place where any liquid might accumulate.

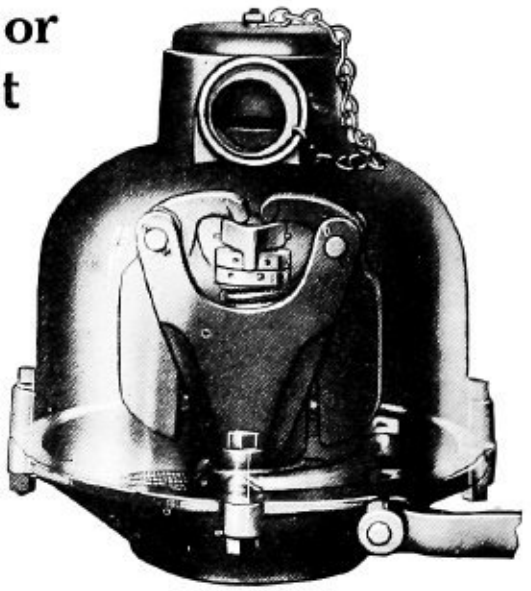
As regards the second requirement. Most attempts to preheat the incoming charge have been unsuccessful because of inability to control the temperature. Over-heated gas would expand to such an extent that only part of the charge could get into the cylinder, with the result that just when you wanted to push the motor to the limit you would find your power diminishing instead of increasing. You may have seen some motors act that way. In the Avery Centrifugal Gasifier the fuel charge is not over-heated—only the heavier parts that need the extreme heat receive it. Then when the mixture is in the cylinder it is tempered to just the right degree by the heat in the cylinder heads, modified by the flowing water.

Lastly, because of the low speed of Avery Motors the charge has time enough to explode, which it does not have in a high speed motor. Because of these facts you profit both in fuel economy and increased power.

Any lack of thorough vaporizing on the part of the carburetor or any condensation in the manifold is thus taken care of by the Avery Centrifugal Gasifier, which thoroughly gasifies the mixture and delivers it immediately into the cylinder in a form that makes it possible for Avery Tractors to burn kerosene, distillate, or other low-grade fuels **successfully.** The Avery Governor is also a very important part of the Avery Fuel System. By its use the quantity of fuel is regulated accurately to meet the varying conditions of traction or belt work.

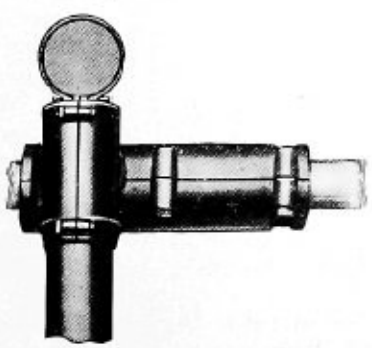
In buying a tractor, remember this, that **running on** kerosene is one thing, and that **burning it** is another. While it is a big step in advance from **burning** gasoline to **running on** kerosene it is even a much bigger step from **running on** kerosene (as most any tractor can do for a little while) to **burning kerosene or distillate as do Avery Tractors.**

Avery Tractors are the only make of tractors with a double carburetor and Centrifugal Gasifier Fuel System.



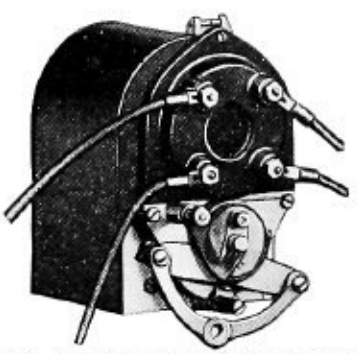
Avery Governor.

This Governor is of the reliable steam engine type and controls the fuel supply to the motor. It is entirely housed, is perfectly lubricated and free from dust.



Air Heater. When desired, the small door can be opened and cold air taken in.

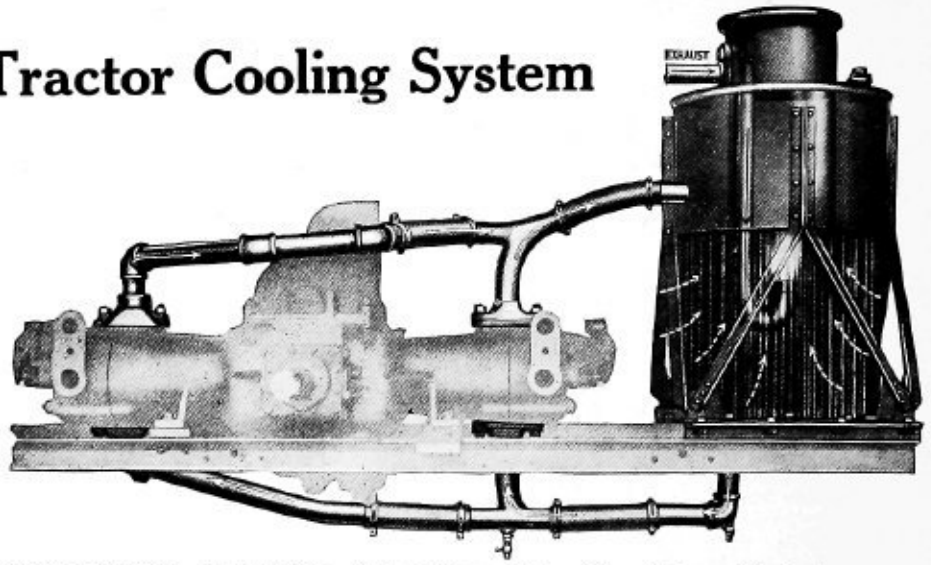
Water Spray Control Valve.



High Tension 3 or 4-Bar Magnetos with impulse starters are regular equipment on Avery Tractors. The impulse starter helps to make it easy to start the Avery Motor.

Avery Tractors are equipped with double carburetors—an Avery invention. It is a simple carburetor that anyone can adjust.

The Avery Tractor Cooling System



Cooling System—Solid White Arrows Show Water Circulation—Black Arrows Exhaust—Broken White Arrows Air Circulation.

THE thermo-siphon cooling system used in Avery Tractors is the simplest and yet the most efficient type made. The heat of the water causes its own circulation. No circulating water pump is used. Thus all wearing and breaking of gears, packing of pumps, draining and freezing and such other pump troubles are all done away with. The cooling is done automatically regardless of the load under which the tractor is operating.

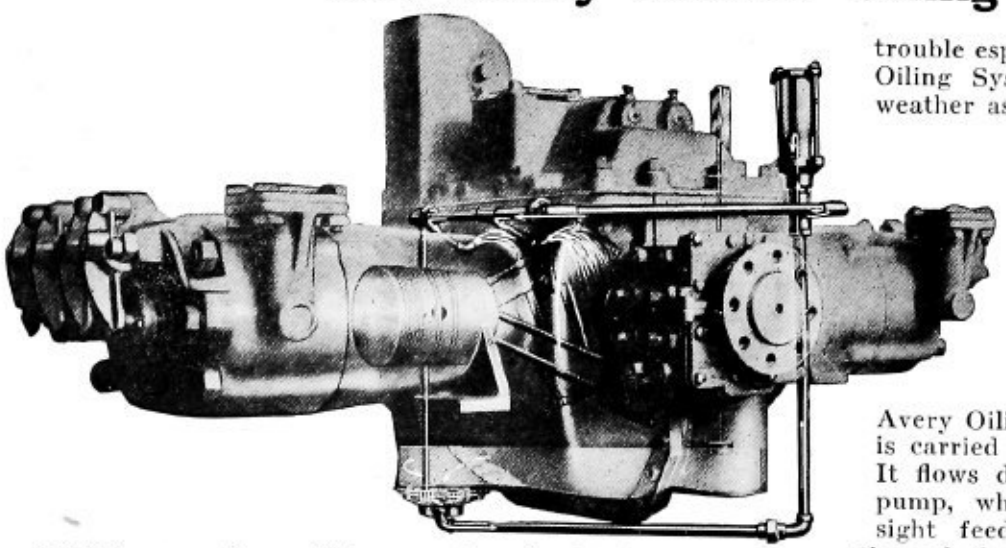
In the Avery Cooling System the exhaust of the motor is used to draw the cool air in past the tubes. The exhaust is also piped so that it does not blow on the driver at any time.

The Avery Tractor Radiator has a distinctive appearance. It is unlike that used on any other tractor. It is round and open on all sides, a feature which is very important when you consider that a tractor is used about half the time standing still doing belt work. And when doing traction work it travels but a few miles per hour, so that its speed of travel does not aid in cooling the motor. No matter from what direction the wind blows, the air strikes this radiator, while with style of radiator open only in front, the wind does not blow on the tubes unless it comes from just the right direction.

The Avery Radiator is made of copper tubes placed vertically. Not a drop of solder is used in its entire construction. Each tube is independent of the rest. It is put in by means of hollow steel plugs which are driven in either end of the tube, thus spreading them so that they cannot leak. If, however, you should chance to break a tube, all you have to do is to stop up the holes in each end until you can put in a new tube, when your radiator is just as good as ever.

The illustration above of the Avery Cooling System shows everything in detail—the round tube radiator, open on all sides; the exhaust, which is piped in such a way as to cause a vacuum and draw the cool air in past the vertical tubes; and the manner in which the water circulates.

The Avery Tractor Oiling System



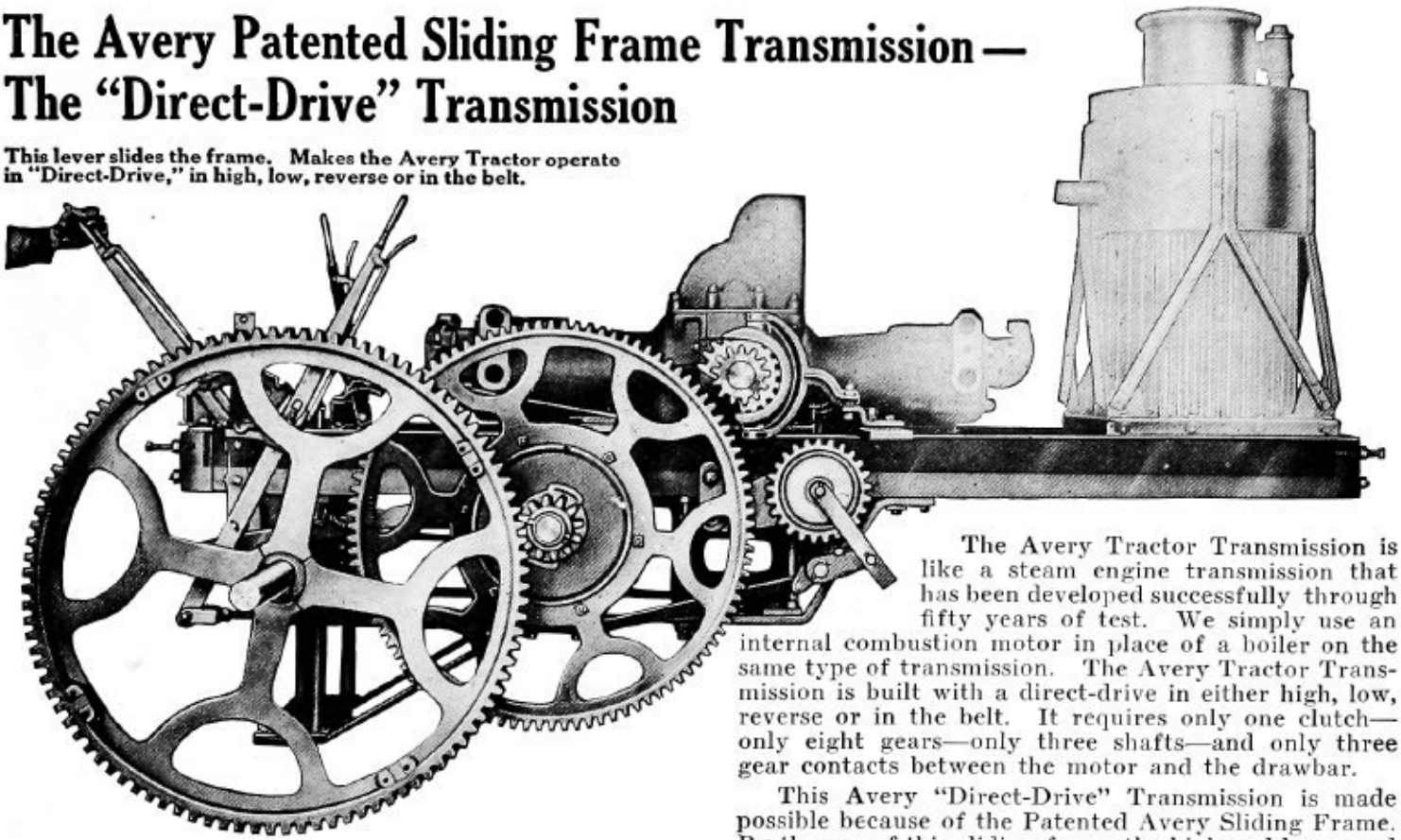
ONE reason Avery Motors are long lived is because of the remarkable efficiency attained in lubricating the working parts by the Avery Oiling System. The Avery Tractor Motor is equipped with an internal gear pump oiling system. This system is very simple as well as efficient, has few parts, and the oil pipes are large. We do not use any troublesome mechanical oil pump such as is used on many tractors, which has a small pipe for each bearing and a pump for each pipe with holes so small that they clog up and cause a lot of trouble especially in cold weather. In the Avery Oiling System the oil flows instantly in cold weather as soon as the tractor starts. There is no pressure system to stop up. The oil flows through a ⅜-inch pipe so that there is practically no chance of the pipes clogging up. The Avery Oiling System works every day in the year, cold or hot, and works every minute. The oil flows the instant the motor is turned over until it stops.

The illustration here shows the Avery Oiling System in detail. The surplus oil is carried in the lower part of the crank case. It flows down through a strainer to the gear pump, which forces it up the pipe into the sight feed glass bottle. It then flows down through the pipes to the openings just above each crank, out of which it pours in a steady stream. This lubricates the crankshaft bearings, connecting rod bearings, etc., and is then thrown by the motion of the cranks into the cylinders and lubricates them.

A cork gauge shows the operator the exact level of the oil in the crank case at all times and the glass sight feed enables him to be sure that there is always a constant flow of oil.

The Avery Patented Sliding Frame Transmission — The "Direct-Drive" Transmission

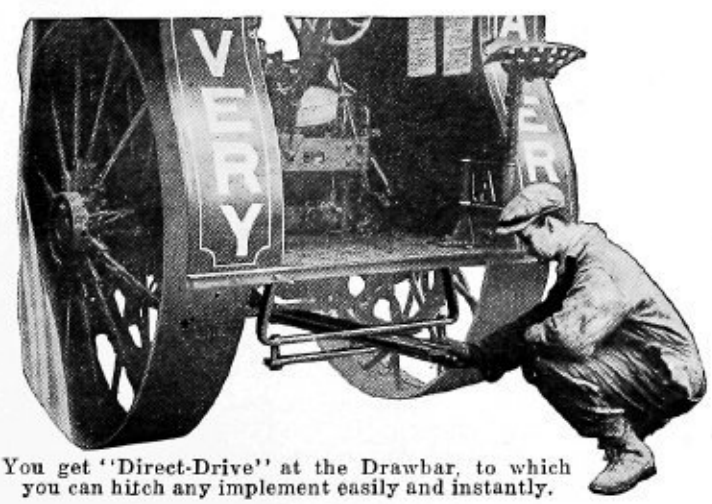
This lever slides the frame. Makes the Avery Tractor operate in "Direct-Drive," in high, low, reverse or in the belt.



THERE are many different types of transmissions being experimented with by newer tractor companies, but manufacturing experience has shown that certain types of transmissions have always proved best for the conditions under which different kinds of machines operate.

On the bicycle, the bevel gear type was tried out and discarded for the chain type. On the automobile the chain type was tried out and discarded for the bevel gear. On the motor truck the chain was also tried out, but in most cases has been discarded for either the worm or internal gear. On the steam tractor, which is the machine most like the gas and oil tractor, chains, bevel gears, worm gears and friction drives were tried out, and all discarded in favor of the spur gear type, which proved the most efficient.

We, accordingly, adopted the spur gear type of transmission because of its many advantages, and then improved it as no other company has done.



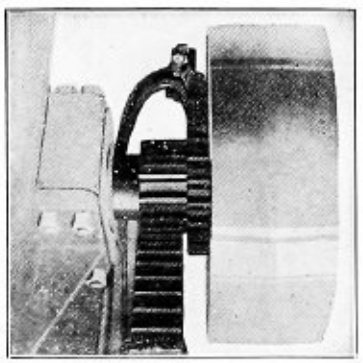
You get "Direct-Drive" at the Drawbar, to which you can hitch any implement easily and instantly.

The Avery Tractor Transmission is like a steam engine transmission that has been developed successfully through fifty years of test. We simply use an internal combustion motor in place of a boiler on the same type of transmission. The Avery Tractor Transmission is built with a direct-drive in either high, low, reverse or in the belt. It requires only one clutch—only eight gears—only three shafts—and only three gear contacts between the motor and the drawbar.

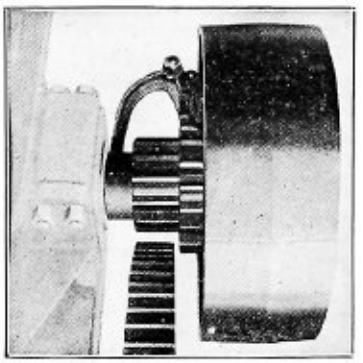
This Avery "Direct-Drive" Transmission is made possible because of the Patented Avery Sliding Frame. By the use of this sliding frame the high and low speed crank pinions both mesh directly into the compensating gear without using any intermediate gear. All intermediate gearing, shafting and bearings are eliminated. This makes less gears, shafts and bearings to wear out, and delivers more power to the drawbar because of less friction. We have designed the Avery Tractor Transmission in such a way that all the gears are open and located outside the frame, where they are easily accessible, yet are well protected. Nothing can start to go wrong without your seeing it in time to overcome your troubles before you are broken down. All are made of electric steel and semi-steel, which means that they are able to stand up under the hard strains that tractor gears meet. All gears are carefully inspected on a special machine to see that they are absolutely round, are not warped and the teeth have the correct pitch. (See illustration on page 16.)

The belt pulley is mounted directly on the end of the crankshaft. There are no bevel gears between it and the motor and no extra crankshaft bearing on the frame of the tractor. **All** the power of the motor is delivered directly to the belt. None is lost through extra bearings or by turning corners through bevel gears. Because the Avery "Draft-Horse" Motor runs at a low speed, we are also able to use a large belt pulley, which grips the belt better and insures better running of the belt driven machinery.

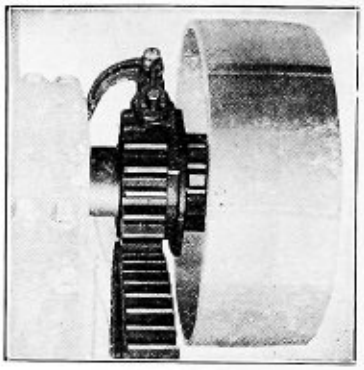
These features make the Avery Patented Sliding Frame "Direct-Drive" Transmission a most simple and most efficient tractor transmission. No other tractor has a combination of all these superior transmission features—**direct drive from crankshaft to belt—direct drive from crankshaft through both high and low speed gears—all straight spur gears—and such a small number of gears, shafts and gear contacts.** The combination of all of these features which you get **only** in an Avery Tractor is made possible by the Patented Avery Sliding Frame, **an exclusive Avery feature.**



No. 1 Top View—shows low speed pinion in mesh with compensating gear for traveling ahead.



No. 2 Top View—shows sliding frame moved forward to release low speed crankshaft pinion from compensating gear for belt driving.



No. 3 Top View—shows high speed pinion shifted over in mesh with compensating gear for traveling ahead.

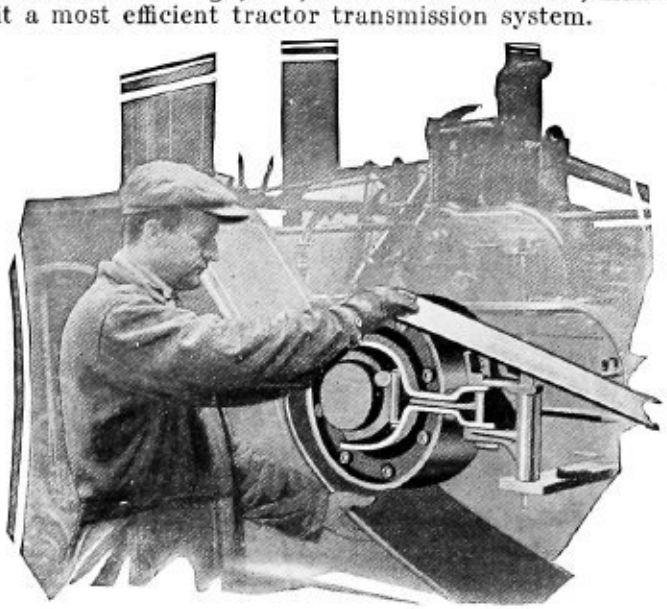
The Patented "Direct-Drive" Transmission Makes Avery Tractors the "Real Pullers" at the Drawbar and in the Belt

A TRACTOR has to do but two kinds of work—**drawbar** work and **belt** work. You want **your** tractor to be just as efficient doing one kind of work as the other. And its efficiency depends entirely on the system of transmitting the power of the motor to the drawbar and the belt wheel.

Because of the Avery "Draft-Horse" Motor, described on the preceding pages, which develops **unusual power,** and because of the Avery Patented Sliding Frame Transmission, which transmits by means of a "Direct-Drive" the power developed by this wonderful motor with a minimum loss, you get in an Avery—a tractor that is "a **real puller** both at the drawbar and **in** the belt."

The "Draft-Horse" Motor and "Direct-Drive" Transmission is used in all sizes of Avery Tractors from 8-16 to 45-65 H. P.

The Avery "Draft-Horse" Motor is so designed that a large percentage of the power is delivered to the drawbar and all of it is delivered at the belt because of the "Direct-Drive" Transmission which gives you **direct-drive** in **high, low, reverse** or **in the belt,** making it a most efficient tractor transmission system.



You get "Direct-Drive" in the Belt, too. You can also stand on the ground and easily put the belt on an Avery. The belt pulley is always in place.

By means of the Avery "Direct-Drive" Transmission you get a larger percentage of the power developed by the Avery "Draft-Horse" Tractor Motor delivered to the drawbar. This is because you are **always in direct drive** when doing traction work with an Avery. Less power is absorbed in the Avery Transmission than in any other tractor, because there are **only three shafts**—crankshaft, countershaft and rear axle between the Avery motor and the drawbar. There are also **only six gears** and **only three gear contacts.** That's why Avery Tractors produce so much power at the drawbar where you need it.

When you get a tractor you will discover that about half of the work you want to do with it will be belt work. Therefore, you want to be sure that you get not only a tractor that is an efficient puller in traction work, but you also want one that will do good belt work.

That Avery Tractors are the **real pullers** in the belt is proven by the fact that we have received hundreds of letters from Avery owners, telling us of the excellent belt work their tractors will do. One Avery owner wrote us that with this wonderful "Draft-Horse" Motor and the "Direct-Drive" in the belt it was **"just like threshing with water power,"** because of the even, steady transmission of the motor power.

Another Avery 45-65 H. P. motor has now been used about six years in operating a small town lighting plant. The last report we had was that this motor had been used practically every day during that time and was usually operated 22 to 23 hours per day. The owners also reported that the electric lights did not "flicker," which speaks well of the even transmission of the power of this motor.

Of course, the chief reason for the wonderful belt transmitting power of the Avery "Draft-Horse" Motor is that the belt wheel is mounted directly on the crankshaft. The power of the motor is not transmitted through any bevel gears as is done in many makes of tractors. Also, there is no extra crankshaft bearing on the frame of the tractor to absorb power. **All** of the power is delivered directly to the belt wheel. None is lost through extra bearings or by turning corners through bevel gears. It is because of this Patented Avery Sliding Frame Transmission that Avery Tractors are so unusually efficient in both belt and drawbar work. Read how the Avery "Direct-Drive" Transmission operates on the next page.

How the Patented Avery Sliding Frame Gives You "Direct-Drive" in High, Low, Reverse or in the Belt

THE wonderful simplicity of the gearing and shafting on Avery Tractors is made possible by the use of a patented sliding frame as shown in the illustration on the preceding pages. In the Avery Tractor the entire power plant is mounted on a sliding frame, which makes possible the simplest and most efficient transmission on any tractor.

When traveling ahead on low gear the low speed crankshaft pinion meshes directly into the compensating gear—no intermediate gear is used. (See side and top views of gearing No. 1, on this and the preceding page.)

For belt work, backing up, or high speed, the sliding frame is pushed forward until the low speed crankshaft pinion is disengaged from the compensating gear.

With the crankshaft pinion disengaged from the compensating gear, you are in position for belt driving or are in neutral. (See side and top views of gearing No. 2, on this and preceding page.)

If you wish to travel ahead in high gear, slide the high-speed pinion over to engage the compensating gear. (See side and top views of gearing No. 3, on this and preceding page.)

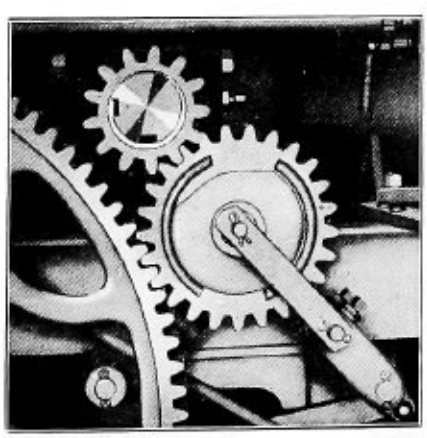
If you wish to back up, draw back the reverse gear to engage both the crankshaft pinion and the compensating gear. (See side view of gearing No. 4, below.)

By the use of this Patented Sliding Frame, no intermediate gear is required for traveling ahead and the intermediate shaft and bearings are done away with, thus eliminating loss of power by the friction of the extra gear and shaft, decreasing the dead weight to move around and reducing the expense of wear and breakage.

It also makes possible the simplest two-speed gear on any tractor. The low-speed gear is double the width of the compensating gear and the high-speed gear slides back and forth over it. No gear box, third crankshaft bearing, or double ring gear are necessary for speed changes.

This sliding frame and opposed motor also make possible a narrower tractor, as will be seen by comparing the width of Avery Tractors with other makes. This means less side draft, less double travel on the ground in field work, a shorter turning radius and being able to pass through narrower gates.

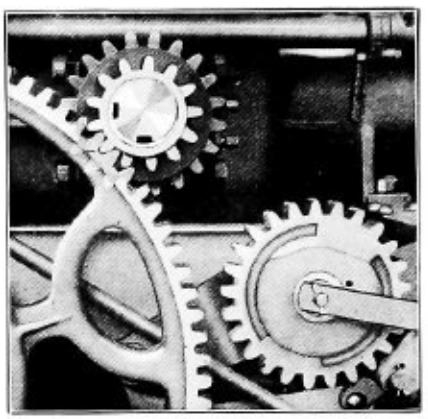
Avery Tractors also have revolving rear axles—no stub axles are used. All Avery Tractors have the rear axle and countershaft bearings in one casting with oil wells in the center, thus making them easily oiled and keeping the bearings always in line—no separate bearings are used for each end of the shaft.



No. 4 Side View—shows reverse gear drawn back to engage low speed crankshaft pinion and compensating gear for backing up. High speed pinion is removed to show low speed pinion clearly.

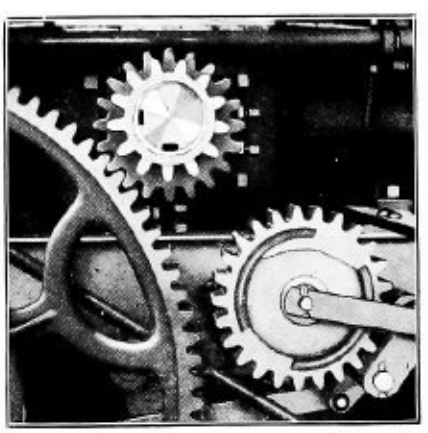
The mesh of all Avery Gears is also adjustable for wear. The countershaft and rear axle are tied together with rods threaded on each end, making it possible to adjust the mesh between the bull pinions and bull gears. The adjusting screws on the sliding frame also make it possible to adjust the mesh between the crankshaft pinions and compensating gear.

This combination of an all spur gear transmission, two speeds and double drive, with all these advantages, is found **only** in Avery Tractors with the patented sliding frame and has a big part to do with their unusual success.

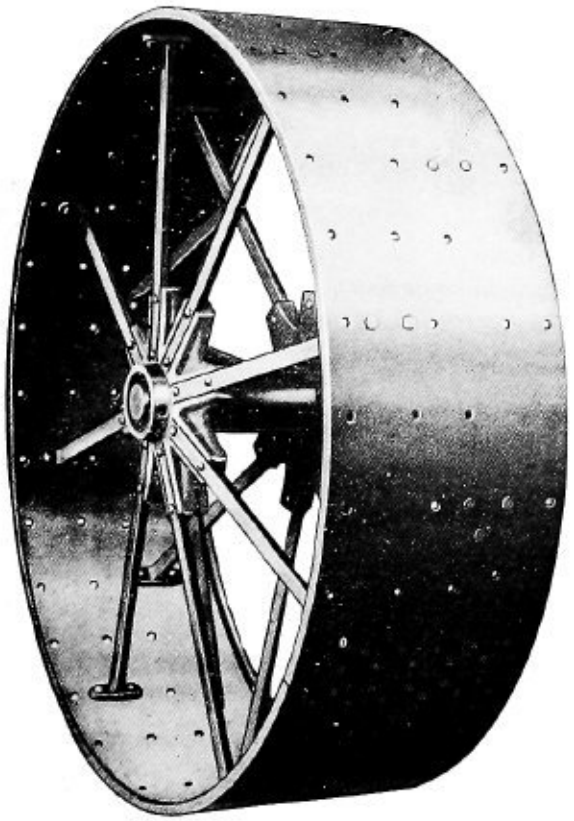


No. 1 Side View—shows low speed pinion in mesh with compensating gear for traveling ahead. High speed gear is shown in phantom.

No. 2 Side View—shows sliding frame moved forward to release low speed crankshaft pinion from compensating gear for belt driving. High speed gear is removed to show low speed pinion clearly.



No. 3 Side View—shows high speed pinion shifted over in mesh with compensating gear for traveling ahead.



Avery Tractor Wheels Are Long Lived

ALL Avery Tractors have round, built-up steel wheels with flat spokes riveted hot to the hubs and rims. They are cheaper in first cost, longer lived, and require less repairs than any other wheel built.

In all the Tractor Demonstrations, in actual field work in sand, bottom lands and marshes, Avery Round Wheel Tractors have proved themselves able to travel anywhere the sprocket type of wheel or track laying type would go. Avery Tractors will travel on any ground in fit condition to be worked.

Both rear drive wheels on Avery Tractors, being located outside of the frame, can be equipped with extension rims for traveling over very soft ground.

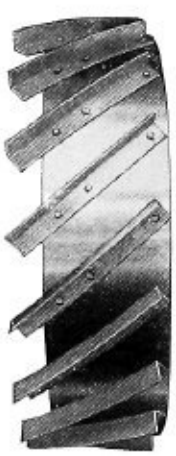
We have spent a great deal of time and effort devising various forms of cleats, spuds and lugs to be used on Avery Drive Wheels to meet all conditions. We are in position to supply six types of lugs, as may be desired. All these are bolted to the drive wheel, making it also possible to have smooth drive wheels when wanted. The various styles of wheel equipment we are in position to furnish are shown below.

The question of the wheels on a tractor is a very important one, and we believe that you will find this question has been better solved on an Avery Tractor than on any other make.

Wheel Equipment on Avery Tractors

OWNERS of Avery Tractors need not worry about the ability of their Avery Tractors to travel anywhere that animal power can be used. While it has not as yet been found possible to design a single kind of wheel equipment which will meet all conditions of ground everywhere, the Avery Company have, however, succeeded in designing various kinds of cleats, lugs, spuds, etc., which, when properly applied to local conditions, have successfully met every condition that has presented itself. This variety of wheel equipment will enable an Avery Tractor to travel almost anywhere, whether the ground is sandy, loose, soft, or marshy. Being able to get the wheel equipment which will most successfully meet their requirements is a great advantage to purchasers of Avery Tractors.

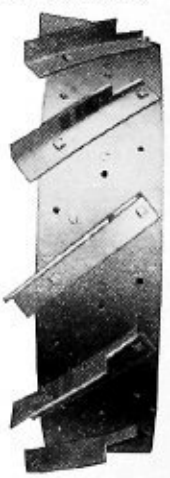
Universal Cleats.



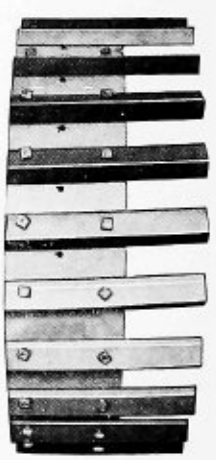
Angle Iron Lugs.

V Cleats and Spuds

Heart-Shaped Spuds.



"Never-Slip" Lugs.



Perfection Lugs.

The first illustration shows a rear wheel of an Avery Tractor equipped with **"Universal Cleats,"** so called because of the many varieties of conditions in which they can be used to good advantage. They largely prevent slippage and are to a great extent self-cleaning.

The second shows a rear wheel equipped with **Angle Iron Lugs,** an excellent type of lug that reduces slippage to a minimum and still retains its self-cleaning qualities.

The third shows a rear wheel equipped with a combination of **V Cleats and Heart-Shaped Spuds,** which are furnished when desired.

The fourth shows a rear wheel equipped entirely with **Heart-Shaped Spuds,** furnished when wanted.

The fifth shows a rear wheel equipped with **"Never-Slip" Lugs,** first designed for use in the rice fields, but which have since been used in soft lands generally with great success.

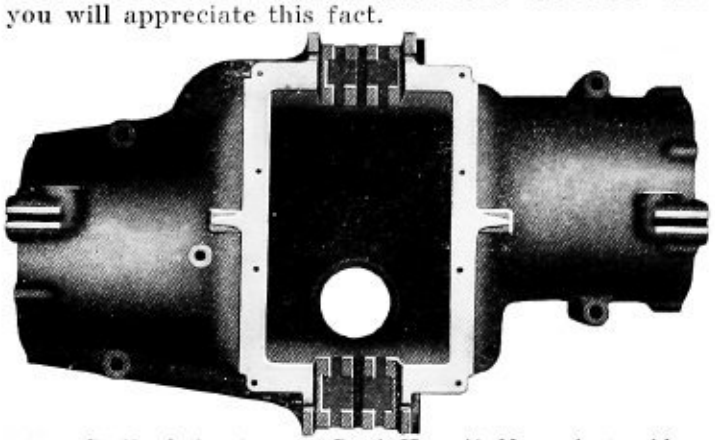
The sixth shows the **Perfection Lugs** designed primarily for sand and light, loose ground. This type of lug is said by users to meet these conditions splendidly.

Why Avery Tractors are Reliable and Durable

OF all the points you should consider in buying a tractor these two, **Reliability** and **Durability,** are of the first importance. How much a tractor is worth depends, first of all, how well it will stand up under the work and how long it will last. The design and construction of Avery Tractors are such that we have been able to build into them an **unusual** degree **of reliability** and **durability.** Here is why:

First, we have eliminated **all easily broken parts** such as belts, chains, fuel pump, water pump, and mechanical lubricator which does away with a lot of delicate parts that are always getting out of order and cause trouble on other tractors.

Second, we have made **all main parts,** such as the motor shell, crankshaft, frame and wheels, **so strong that they will last indefinitely.** The Avery "Draft-Horse" Motor is of the opposed type, which makes possible an extra strong construction. It runs at a low speed—only around 600 revolutions per minute—which means that there is little wear on the parts. Being of the opposed type, no balancing counterweights are required on the crankshaft, which are a constant source of trouble and repair expense with many makes of motors. It balances perfectly and prevents the great vibration found in many tractors, which is constantly jerking them to pieces. Watch an Avery Tractor and see how still it stands and then watch the others and you will appreciate this fact.



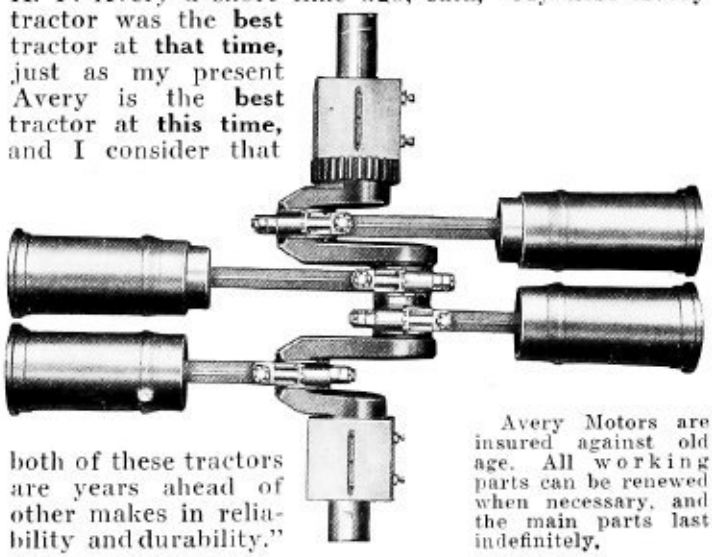
The Shell of the Avery "Draft-Horse" Motor is trouble proof—it never wears out.

An Avery Tractor is so perfectly balanced that our customers often stand nails on their heads on the frame when the motor is pulling a full load, to show how little vibration there is.

The crankshaft in Avery Tractors is extremely large in diameter. It is short in length. It is made from forged steel. It is mounted in wide bearings. The countershaft is cold rolled steel and revolves in a solid babbitted box. The rear axle is a cold rolled steel shaft and also revolves in a solid babbitted box. We do not use stub axles as do many. The countershaft box and rear axle box are not only bolted solid to the frame, but special rods are provided for holding these positively at the correct distance apart to give the proper mesh to the gears. Because of the Avery Sliding Frame, no intermediate shaft and bearings are necessary. Large shafting, wide bearings, and fewer shafts and bearings than on other tractors are further reasons for the unusual reliability and durability of Avery Tractors.

The main frame on Avery Tractors is a combination of channel and angle steel bars with cast steel corners all strongly hot riveted together. The Avery Frame has proven to be of absolutely dependable and durable construction. The wheels are built-up steel with hot riveted flat spokes. The rear wheels on the larger sizes have reinforcements rolled from the solid stock on the inside outer edges of the rims. This is the longest lived wheel construction known.

Third, we have made **all wearing or working parts** such as inner cylinder walls, gearing, clutch, etc., **extra long lived,** and if they do wear so that they are easily **and quickly renewable.** The inner cylinder walls in Avery Tractors are cast separately from the outer cylinder. They are made of extra hard material so that they will wear longer, and when they do wear they can be easily removed and replaced with new ones without your having to buy a whole new motor shell. Furthermore, you can turn them part way round from time to time to equalize any wear. The All Spur Gear Type of transmission as used on Avery Tractors has proven itself to be a most reliable and durable type for heavy traction work. No ordinary cast-iron gears are used; instead we use a combination of electric steel and semi-steel gears. We have found that this combination of gearing wears much longer than all steel and by using a high grade quality of material (analyzed before using and tested afterward) we are able to produce semi-steel gears that for tractor use are almost as unbreakable as all steel. A straight Spur Gear Type of transmission, with the fewest gears of any, together with a combination of steel and semi-steel, are the reasons why the transmission on an Avery Tractor causes so little trouble and is so long lived. Avery Tractor No. 25 plowed, disced, harrowed and drilled over 25,000 acres with its original set of gears before requiring replacement. The clutch in an Avery Tractor is large and strong and of the type which has shown itself to be the most durable for heavy traction work. **All these features—the elimination of all easily broken parts; all main parts built so that they will last indefinitely; and all working parts made extra long lived and also renewable when they do wear—all these make up a combination that results in unusual reliability and durability and are the reasons why Avery Tractors stand up so well under hard work and are extra long lived.** The first Avery Tractor built is still in daily operation. Its owner, who bought a 25-50 H. P. Avery a short time ago, said, "My first Avery tractor was the **best** tractor at **that time,** just as my present Avery is the **best** tractor at **this time,** and I consider that both of these tractors are years ahead of other makes in reliability and durability."



Avery Motors are insured against old age. All working parts can be renewed when necessary, and the main parts last indefinitely.

Why Avery Tractors Are Simple In Construction

THE successful combination of the "Draft-Horse" Motor and the "Direct-Drive" Transmission is also the reason for the unusual simplicity of Avery Tractors.

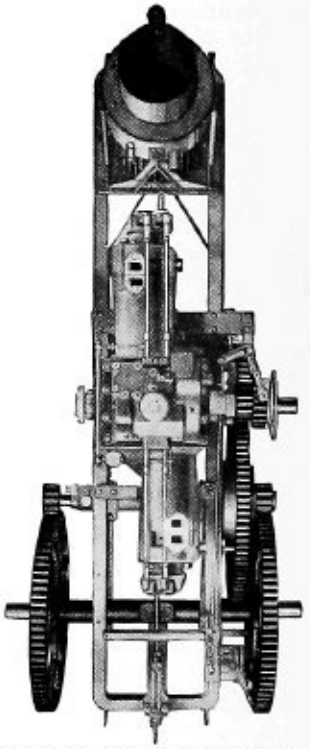
The Avery Tractor has a simple opposed motor with no counterweights on the crankshaft and requiring but two main bearings which are adjustable, in place of three or more. It has no heavy flywheel needed for momentum, no fuel pump to leak, no troublesome clockwork lubricator to clog up, and no water pump to freeze. The simple thermo-siphon system of water circulation is used and the pump is eliminated. It also has no belts, chains or sprockets. As one man said when looking over an Avery at a state fair: "Your tractor hasn't any of the parts that cause me all my troubles with my present make of tractor."

The "Direct-Drive" Transmission allows the Avery Tractor, we believe, to have the fewest gears of any two-speed double drive tractor—no intermediate gear is used in traveling ahead — the crankshaft pinion meshes directly into the compensating gear. Only three shafts—only eight gears —only seven bearings — and only three gear contacts are used. No idle gears are in mesh either when belt driving or pulling. It also has no intermediate shaft—there being but three main shafts, crankshaft, countershaft and rear axle.

No successful tractor ever has been or, we believe, ever can be designed with less gearing and shafting than are used in an Avery.

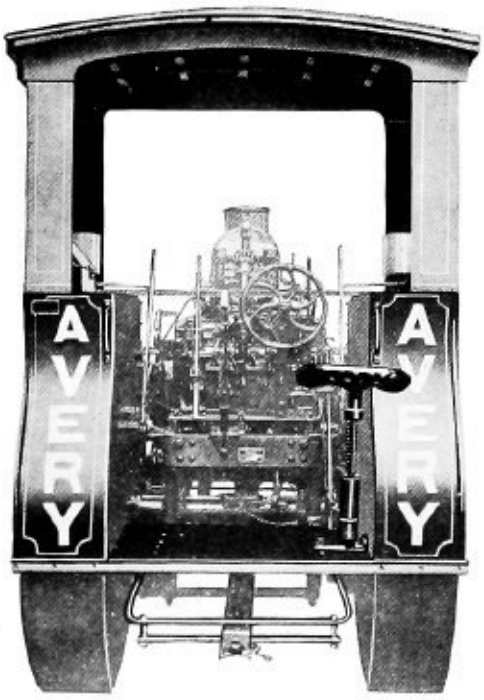
An Avery Tractor has but one clutch, which serves for traveling forward, backward or when working in the belt.

They are also of the right weight—are not so light as to be easily worn out, neither are they too heavy because of a lot of unnecessary parts being used in their construction. They are made as light as possible and yet still be strong and durable.



Note the extreme simplicity of the Avery Chassis.

Avery Tractors Are Complete When You Get Them



A Rear Platform, Wide Wheel Fenders, Tool Box, and Spring Seat or Combination Seat and Tool Box are All Regular Equipment on an Avery.

SOME tractors are sold at a certain price **plus** an additional amount for each of the various accessories and attachments needed to get the best all-around service out of the machine. The first price may be attractive, but the final total of the prices is not nearly so. You should look into this question in every case before you buy and find out what the regular equipment is.

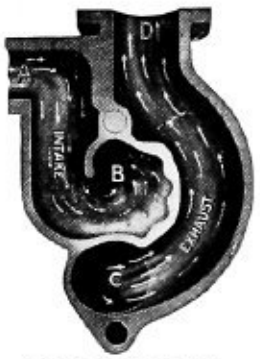
Avery Tractors are sold at **one** price, which includes **all of the necessary accessories.** They are completely equipped when you buy them. We believe every tractor owner should have these accessories, that's why the price on Avery Tractors includes them all. That's why you get the biggest dollar's worth of value in buying an Avery. Here is some of the regular equipment you get with an Avery:

Governor; Centrifugal gasifiers for burning kerosene; cabs on the 12-25 H. P. size and up; wide wheel guards and platform; plow hitch; automatic coupler on all sizes except on the 8-16 and 12-20 H. P. sizes, which are equipped with a special type of drawbar; gravity gear oiler for oiling gearing and shafting; spring seat or combination wooden seat and tool-box; foot brake; equipment of lugs or spuds; safety starting lever; high tension magneto; and large belt pulley which is always in place ready for immediate use.

Many tractor companies charge extra for **all or part** of these accessories and equipment. Remember, all of these general fittings are regular equipment with Avery Tractors, and the price of an Avery Tractor **includes all of them.** Don't fail to take this into consideration in comparing the price of Avery Tractors with other makes.

Why Avery Tractors Are Powerful and Economical

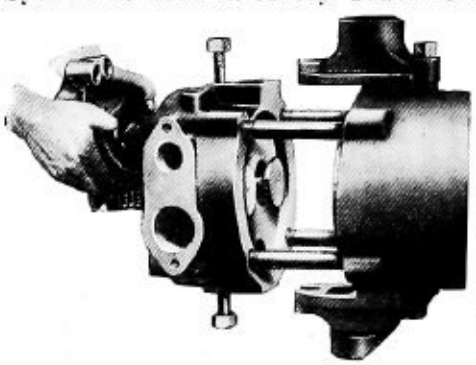
POWER and Economy are two more results you get to an unusual degree in an Avery Tractor. To get them you must first have a tractor motor that develops a lot of power with a small amount of fuel and then have a transmission system that so delivers that power to the belt wheel and the drawbar that you get the greatest possible percentage of it where you need it. Here is why Avery Tractors develop an unusual amount of power economically and then deliver so much of that power to the belt and drawbar.



Avery Centrifugal Gasifier.

First, the motor in an Avery Tractor produces unusual power with wonderful fuel economy for many reasons. It is a "Draft-Horse" type of motor—a motor of large dimensions considering the size of tractors in which they are used. It is valve-in-head type, which everyone knows means power. The pistons have five high tension rings which are closely fitted by careful hand filing into accurately bored cylinders, and so prevent any fuel leaking by into the crank case or loss of compression and power. At each cylinder head we have also placed the Patented Avery Centrifugal Gasifier, the device by which Avery Tractors are able to turn cheap kerosene, distillate, or other low-grade fuels into gas and really burn them. The motor is also equipped with inner cylinder walls, which, being cast separate and carefully ground, stay round better and result in better compression, more economy, and increased power.

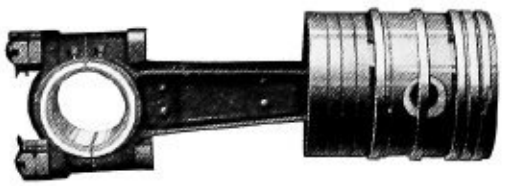
Second, the Patented Sliding Frame Transmission System as used in Avery Tractors delivers an unusually large percentage of the power developed by the Avery Motor to the belt and drawbar.


Avery Tractors are Valve-in-Head.

An Avery Tractor has all straight spur gears which deliver more of the power of the motor to the drive wheels than other kinds of transmission such as bevel gears, worm gears, etc. Avery Tractors also do not have an intermediate shaft or intermediate gear, hence the power lost by the friction of these parts in other tractors is saved in the Avery. Engineering authorities say there is a loss of from 8 to 10 per cent of power in every gear contact. The one less gear contact in Avery Tractors saves this power for use at the drawbar which in other tractors is absorbed in the transmission.

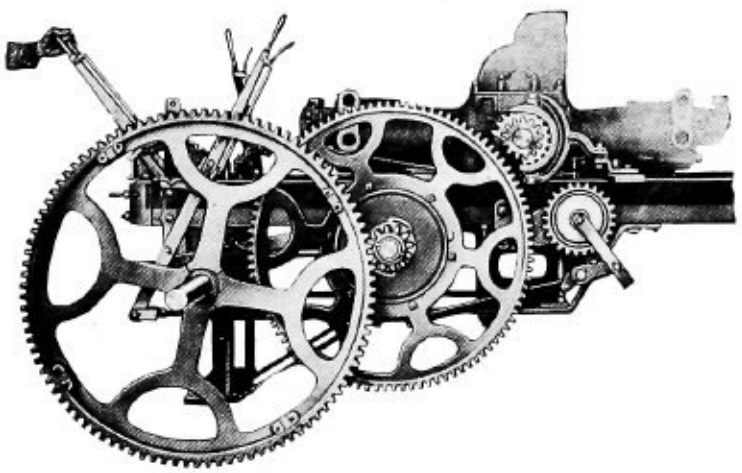
Avery Tractors are always in **"direct-drive"** whether operating in high or low gear, so that no power is lost through any extra gearing. The low speed is not too slow and the high speed is not too fast—Avery Tractors are built to pull a maximum number of plows on low speed, and a lesser number on high speed, as the conditions of the ground make advisable or as the operator may prefer.

Furthermore, when Avery Tractors are being operated in the belt the power is not transmitted from the motor to the belt wheel through a train of gears or extra shaft bearings. Instead the belt wheel is mounted directly on the crankshaft, so that every bit of power developed by the motor is used.


All Avery "Draft-Horse" Motors Have Pistons with 5 High Tension Rings.

Avery Tractors have but three shafts—crankshaft, countershaft, and rear axle—only eight gears with all of them straight spur gears—and only three gear contacts, so that the power lost by the friction in shafts and gears has been reduced to the minimum. Also, because Avery Tractors are not heavy weight tractors no power is wasted in moving around a lot of surplus unnecessary weight.

You want power and economy when you get a tractor, and you get real power and GREAT economy in an Avery Tractor. You get a tractor that does not waste its power in useless friction or in moving around unnecessary weight. You get a tractor that operates in "DIRECT-DRIVE" in high, low, reverse, or in the belt—you get a tractor that burns cheap kerosene, distillate or other low grade fuels and gets all the power out of the fuel used without wasting a lot of it —and you get a tractor that travels at the right rate of speed, with two different speeds that you can use as you may need them.


The Avery "Direct-Drive" All Spur Gear Transmission Delivers the Power at the Drawbar and at the Belt Wheel, where you want it.

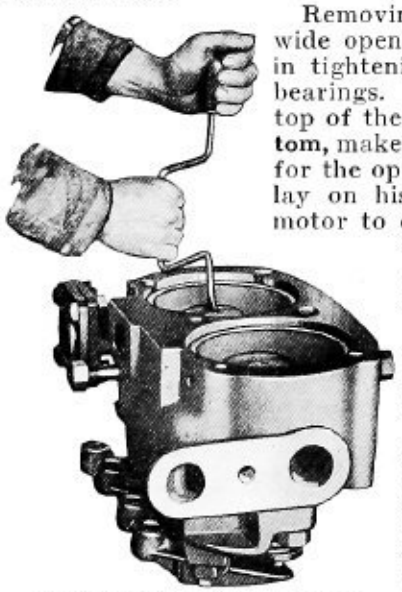
Why Avery Tractors Are Easy, Pleasant and Safe to Operate

IN designing the Avery Tractors we have done everything possible to make them not only easy and pleasant to operate and to take care of, but safe to operate as well.

Accessibility is absolutely necessary if the job of adjusting and taking care of the working parts of a tractor is to be made an easy one. We have made all of the working parts easily adjustable or renewable by the owner of the tractor at home or in the field without the aid of an expert.

The cylinder heads can be quickly slipped off by removing a few nuts from the stud bolts which fasten them to the motor. Being of the valve-in-the-head type the valves can then be readily ground.

The inner cylinder walls are easily renewable in case of wear.



Grinding Valves is easy in an Avery.

Removing the cam case, gives a wide opening for using wrenches in tightening the connecting rod bearings. The cam case being on top of the motor, **not on the bottom,** makes the work much easier, for the operator does not have to lay on his back underneath the motor to do this, as is necessary with the ordinary automobile type of tractor motor.

The valve rods are quickly and easily adjustable from the outside.

The patented adjustable main crankshaft boxes make the work of adjusting the crankshaft bearings extremely simple and quick.

Unlike the ordinary type of tractor motor, the Avery Motor does not have to be torn down and the bearings carefully adjusted by an expert. In the Avery Tractors the main crankshaft bearings can be adjusted correctly with an ordinary socket wrench in a few minutes' time.

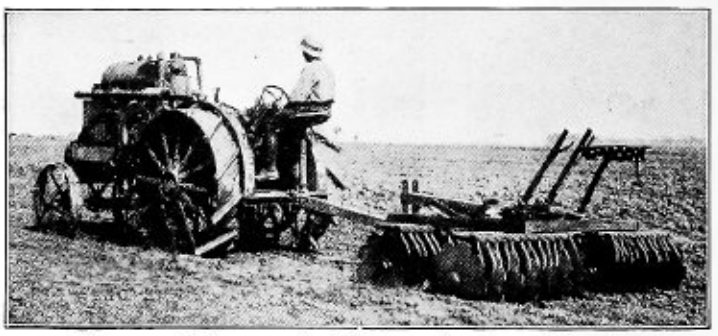
The gears in an Avery Tractor are all open and located on the outside of the frame, where they are easy to get at in case of adjustment or replacement, although amply protected.

That Avery Tractors are easy to operate can be readily proven by the fact that, of the thousands of Avery Tractors which are being used in every State in the Union and in eighty foreign countries, many are being operated by boys and even girls. Avery Tractors are so simple that any one who is able to handle the levers can easily operate them.

The exhaust of an Avery Tractor is piped so that the gases do not blow in the operator's face and make the work of operating an Avery Tractor an unpleasant one. A cab, wheel guards and platform protect the operator from the weather and from dust.

Guiding and turning Avery Tractors around has also been made easy. We have self-guide attachments which handle the tractor alone, saving the operator any effort of guiding, and leaving him free so that he can attend to the plow if it needs adjustment.

Every Avery Tractor is regularly equipped with our special easy safety starting lever. This is by far the finest thing ever devised in the hand tractor starter line. The lever is permanently attached to the flywheel and rests in the hook on the side of the frame. To start the motor, the operator raises the lever. When he pulls down, the lever presses against the rim of the flywheel and revolves the motor. This lever makes the starting of the motor easy and safe.



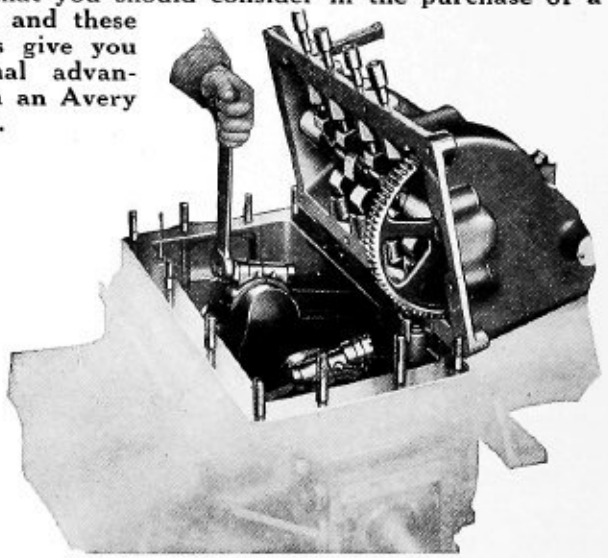
Many small boys and girls operate Avery Tractors.

You don't need to be an expert to run an Avery Tractor. Many of the things which cause trouble in other tractors, such as the breaking of belts or chains, freezing up or leaking of fuel and water pumps, and the choking up of lubricators, cannot happen to you because we have eliminated all of these unnecessary parts in the construction of Avery Tractors.

About all there is to do to run an Avery Tractor is to pour in the fuel, lubricating oil and water, and keep everything tightened up and adjusted nicely.

The weight of Avery Tractors is also well distributed on both front and rear wheels. This is due to the fact that we use a large well balanced opposed cylinder type of motor. Enough weight is on the rear wheels to give excellent traction and enough on the front wheels to keep the tractor from rearing up and tipping over backward, as has been done by some tractors on the market.

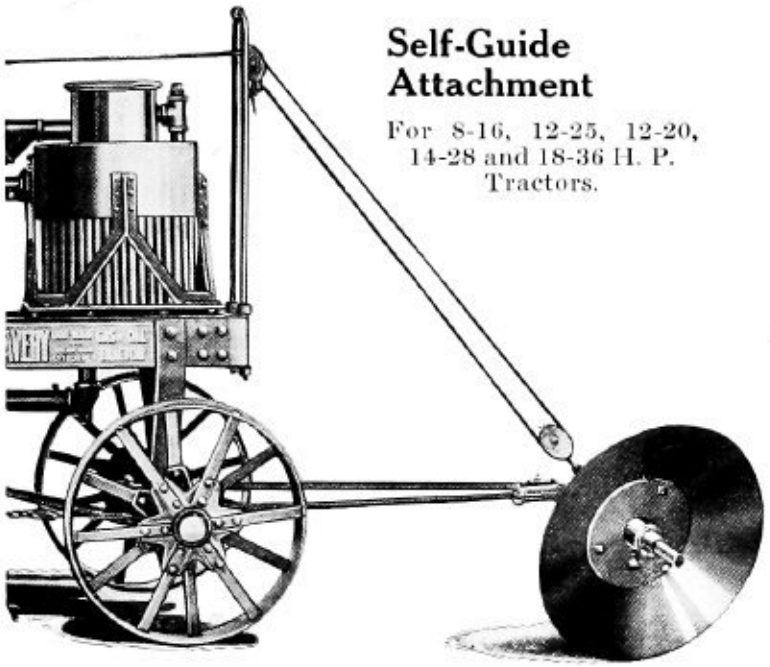
Ease, pleasantness and safety of operation are things that you should consider in the purchase of a tractor, and these features give you additional advantages in an Avery Tractor.



There is plenty of room to adjust the connecting rod bearings in an Avery Tractor.

Self-Guide Attachment

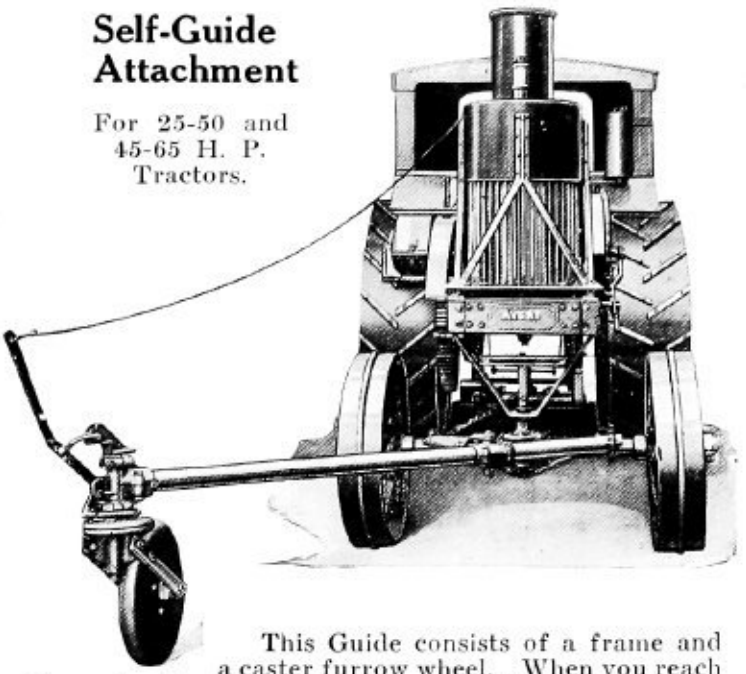
For 8-16, 12-25, 12-20, 14-28 and 18-36 H. P. Tractors.



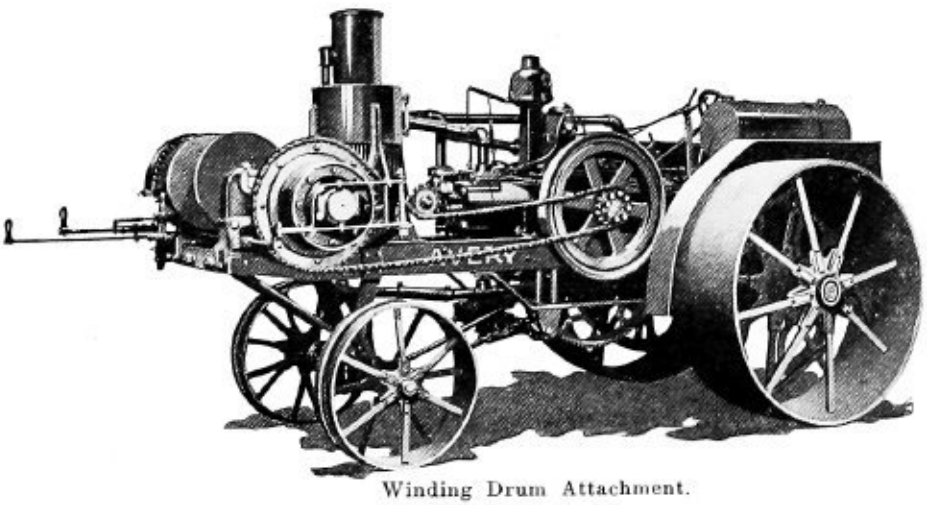
THIS Guide consists of a frame with a large disc furrow wheel. The disc wheel follows the furrow in fine shape. The wheel is raised from the ground for turning around at the ends or for moving from one field to another.

Self-Guide Attachment

For 25-50 and 45-65 H. P. Tractors.



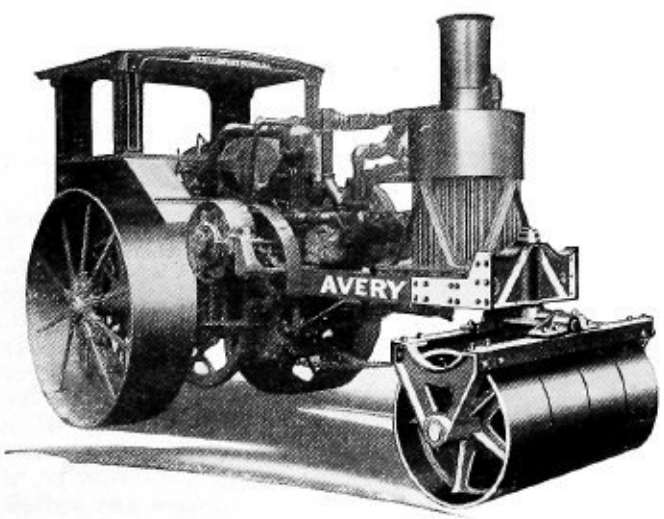
This Guide consists of a frame and a caster furrow wheel. When you reach the end, pull a cord to release the latch and the wheel will then caster so you can turn around. After turning around, pull the cord again and the latch will engage the guide wheel when it drops into the furrow.



Winding Drum Attachment.

Winding Drum Attachment

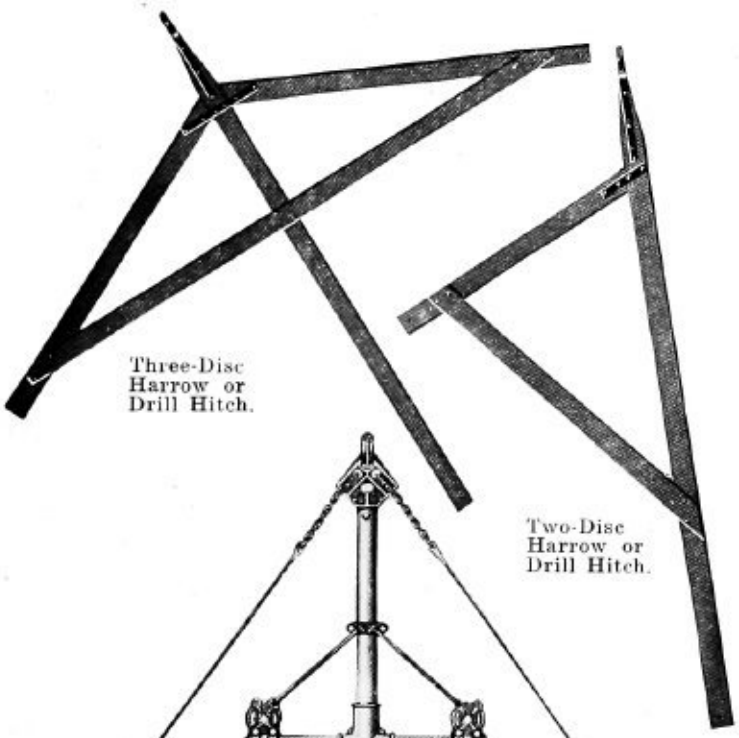
This Winding Drum is specially designed for the 12-25 H. P. Avery Tractor. It is strongly built and will withstand severe service. It will handle approximately 5,000 pounds at 150 feet per minute. It is equipped with a multiple disc clutch, thus making it possible to pick up the load without a jerk. It also has a strong brake. The drum will carry approximately 1,300 feet of ½-inch cable, 850 feet of ⅝-inch cable, 570 feet of ¾-inch cable or 410 feet of ⅞-inch cable. This winding drum attachment on an Avery Tractor is just the thing for pulling rods, casings and tubing in the oil fields, for pulling stumps, excavating and snaking logs in timber land. See illustration on page 13.



Avery Road Roller Attachment.

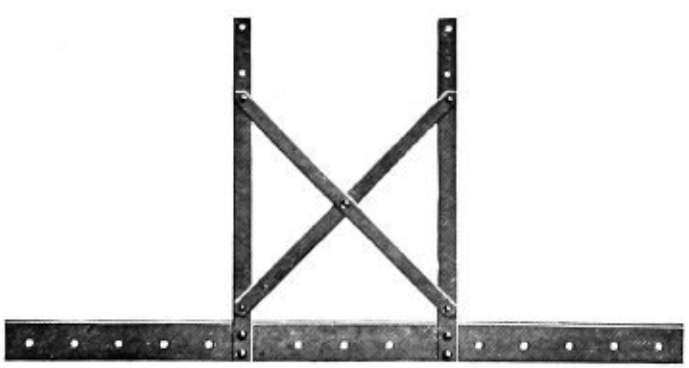
Road Roller Attachment

The Avery 12-25, 18-36, 25-50 and 45-65 H. P. Tractors can also be equipped with special road roller attachment as shown here. The rollers are 32 inches in diameter and 13½ inches wide. Three rollers are used on the 12-25 H. P. Avery, four on the 18-36 and 25-50 H. P. sizes, and five on the 45-65 H. P. sizes. When using an Avery Tractor as a road roller, the cleats on the rear wheels are removed. This combination of Tractor and Road Roller, all in one machine, means a big saving in expense.



Hansmann Drill Hitch

THIS Hansmann Drill Hitch enables a tractor to pull three or five drills of any make or size and permits the turning of the tractor in as short a circle as necessary. The drills will not bunch or touch one another. This hitch can also be used for pulling discs, packers, or harrows.



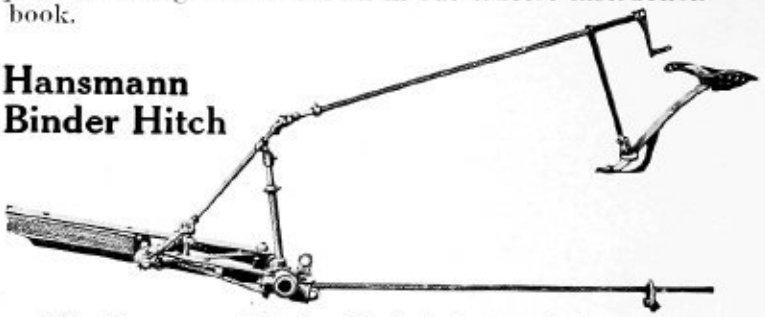
Special Drawbar Hitch for Averv Road Tractor

This Hitch may be attached to 12-20, 12-25, 14-28, 18-36, 25-50 and 45-65 H. P. Avery Tractors. It is strongly made of angle steel and by its use a grader or other road machinery may be hitched in any position. It extends to the outer edge of each rear wheel.

Tractor Disc Harrow and Drill Hitches

WE are in position to furnish you with tractor disc harrow and drill hitches as shown here for use with two 8 or 10-foot disc harrows or drills or for three 8-foot disc harrows or drills. These hitches are, we believe, the most simple and practical of any yet designed for pulling tractor disc harrows and drills. They are strongly made of 2 x 6-inch oak with substantial iron straps and put together with carriage bolts. If desired, you can make them yourself from the plans and diagrams as shown in our tractor instruction book.

Hansmann Binder Hitch



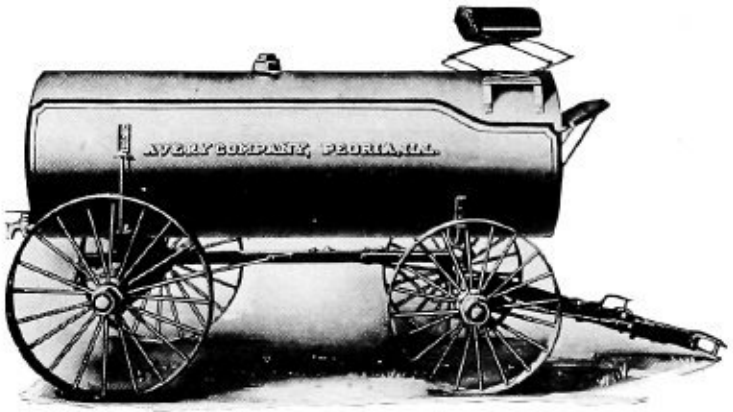
The Hansmann Binder Hitch is designed for pulling a number of binders behind a tractor. It is guaranteed to operate successfully on any make or size of binder without the least side draft or use of trucks to support the hitch, and that you can operate as many binders as the tractor has power to pull.

Griep Binder Hitch

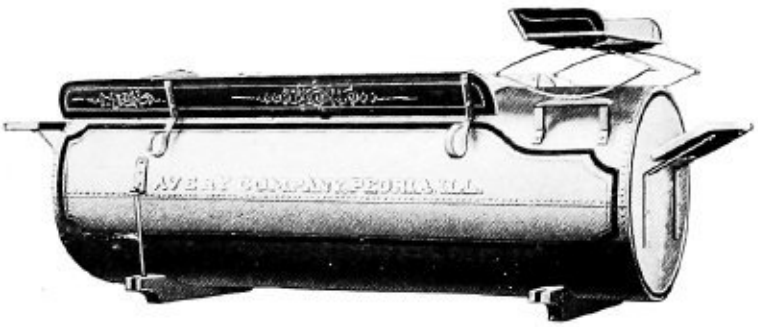
The Griep Binder Hitch is designed for pulling one harvester behind a tractor. It can be attached to any make or size of harvester. This hitch guides the harvester automatically, cutting square or round corners according to the way the operator of the tractor steers.

Caswell Binder Hitch

Designed for pulling a number of binders and is one of the simplest binder hitches on the market. The main tongue is of one piece. I-Beam construction, formed to the shape required. Reversible clips are provided at the rear end to fit all binders. The steering bar is jointed at the middle and guided by a slide. It is provided at the rear end with a hook to fit the eye in the binder. The cross-beam is rigidly attached to the tractor drawbar at right angles to the line of travel. The operation of the parts steers the binder around the corner without running down the grain, and leaves the corner square. The above illustration shows the front Binder Hitch attached to the drawbar of a tractor. When only two binders are used a steel trailer hitch is used with the second binder. A cable type of hitch is used when more than two binders are pulled. One hitch is required for each binder used.



Avery 15-Barrel Steel Oil Tank, Mounted on Our Regular Steel Tank Trucks.



Avery 15-Barrel Steel Water Tank with Wood Saddles for Mounting on an Ordinary Wagon Gear.

Avery Steel Tanks for Fuel, Water and Combination

15-Barrel Steel Fuel and Water Tanks

THESE tanks are built for carrying kerosene, distillate, gasoline, oil or water. They are built regularly with only one compartment, but can be furnished at an additional price with two or three compartments. Can be furnished mounted on our regular Steel Tank Trucks with 33-inch front wheels and 39-inch rear wheels with 4-inch tires, or unmounted with bolsters for mounting on an ordinary wagon gear, if desired. The tanks are made of No. 12 tank steel and are built round, 36 inches in diameter and 108 inches over all.

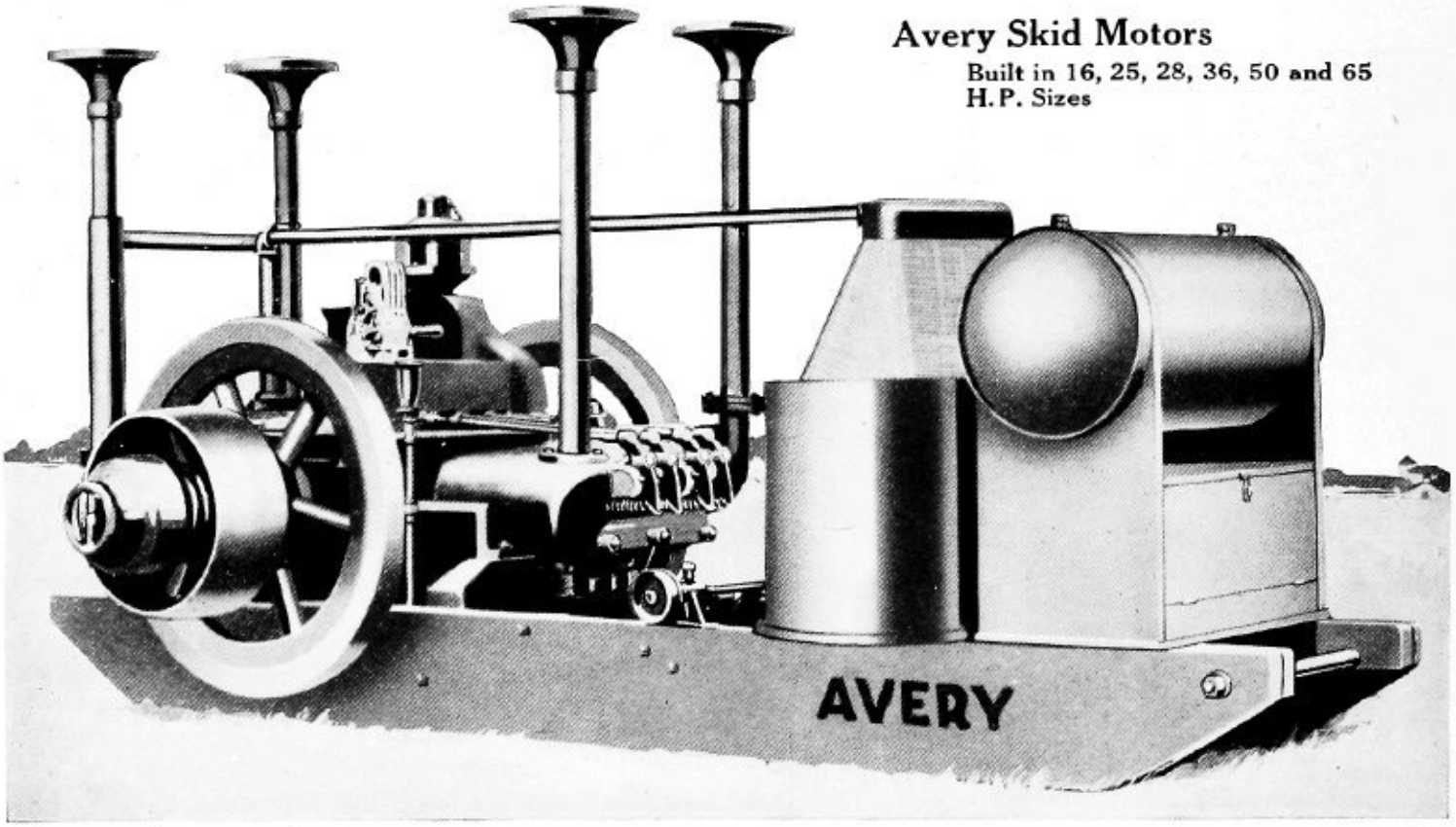
When made as a water tank 8-inch flare boards are arranged on top for carrying anything that is desired, and on either side are hooks for carrying such articles as a lifting jack, flue cleaner and scraper. A steel splash-board is riveted in the center of the tank. At the rear is provided a step, where the operator may stand when pumping, or he may stand on top, as may be desired. An opening is made in the top of the tank, close to the front end, in which is fitted a piece of 2½-inch boiler flue, extending downward, 10 inches; this leaves sufficient opening through which to insert a 1-inch hard rubber suction hose; thus water may be taken from the tank and supplied to the engine while moving. On account of the flue extending downward, water will not splash out at the opening. A manhole, sufficiently large to admit an ordinary pail, is located near the tank pump. The tongue is made so that by taking out one piece it can be coupled very short when it is desired to haul the tank behind the engine.

These tanks are finished and painted in nice style. They are strong, light and durable, and overcome all the disadvantages of a wooden tank.

Avery 7-Barrel Two Compartment Tractor Tender.

Two Compartment Tractor Tender

This small tractor tender is the handiest and best tractor tender made. Made of No. 14 tank steel, 27 inches diameter, 84 inches length, two equal size compartments, 3½ barrels capacity each, with faucet in each. On top is cradle for carrying barrel of oil. On the back there is a step or shelf fastened to under side of which are snap hooks for carrying buckets. Also equipped with 7½-inch flare boards. Built strong throughout, but light weight, weighing only about 700 pounds. Steel axles, 1½-inch square, are used in both front and rear. Has 24½-inch front wheels and 31½-inch rear wheels, with 4-inch tires. Can be used with horses or for trailing behind an automobile or motor truck.



Avery Skid Motors
Built in 16, 25, 28, 36, 50 and 65 H. P. Sizes

Avery Two and Four-Cylinder Skid Motors

An Economical and Reliable Power for All Kinds of Belt Work for Farm and Industrial Purposes

FOR those who desire a simple, durable and efficient skid engine the Avery is just the motor for their requirements. Avery Skid Motors are built in 16, 25, 28, 36, 50 and 65 H. P. sizes.

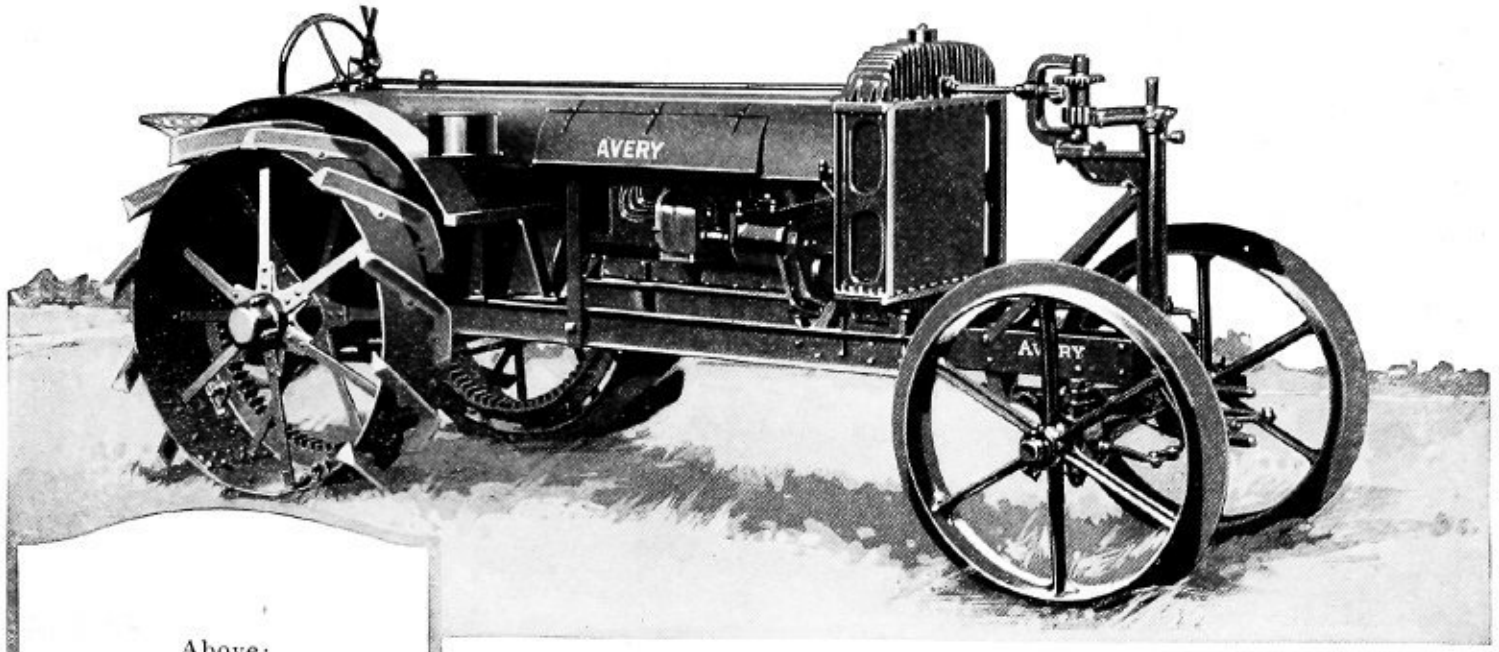
They can be used for all kinds of farm and industrial purposes where belt power is required—in foundries, machine shops, electric lighting plants, grain elevators, etc. On the farm they are especially adapted to such belt work as feed grinding, corn shelling, pumping water, irrigating, sawing wood, etc.

The motors used in the Avery Skid Engines are the same as those used in the well-known Avery Line of Tractors which are being successfully used in every State in the Union and 80 Foreign Countries.

These motors have more original features than any other motor built.

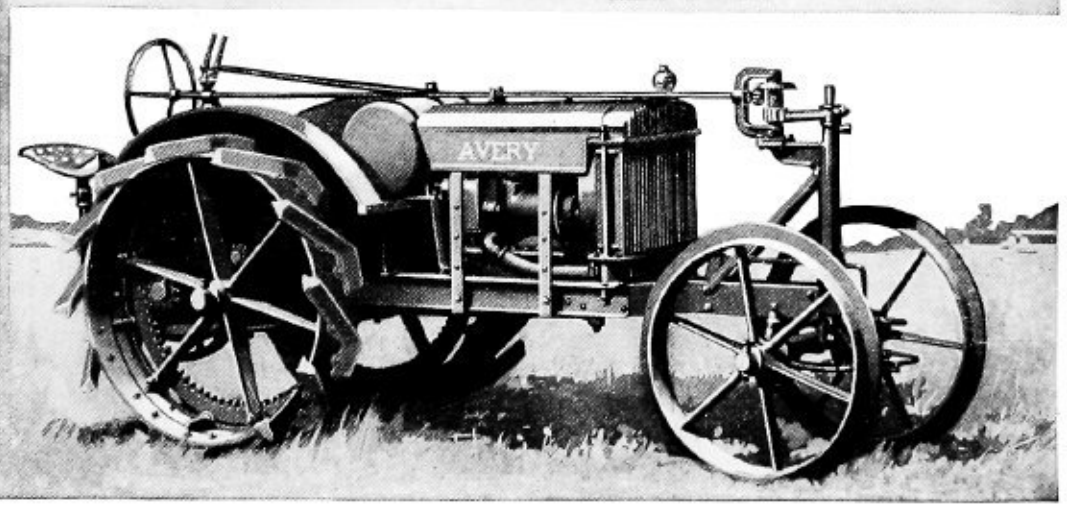
They have gasifiers that turn kerosene or distillate into gas and **burn it**; a governor of the reliable steam engine type which controls the fuel supply to the motor, and high tension magnetos with impulse starters.

They also have renewable inner cylinder walls that can be quickly and easily replaced should the cylinder ever become scored; two main crankshaft bearings that are instantly adjustable from the outside with the aid of an ordinary socket wrench. Connecting rods are extra large and are drop forged of special steel. The crankshafts are 2¾ inches in diameter or larger, depending on the size of the motor. The largest size has a 4½-inch crankshaft. They are so big that almost no Avery crankshaft has ever been broken. The motors are also low speed and of the valve-in-head type. These are only a few of the main features in the Avery Skid Motor. For more complete description of the mechanical features of these motors, see pages 24 to 30 inclusive. Write for special circular.



Above:
Avery Six-Cylinder
Tractor,
Model "C."

To the right:
Avery 5-10 H. P.
Tractor,
Model "B."



The Avery Line of Small Tractors

Six-Cylinder Model "C" and 5-10 H. P. Model "B"

TO meet the demand for small tractors is the purpose of the Six-Cylinder Model "C" and the 5-10 H. P. Model "B" Avery Tractors. These tractors are especially desirable for the man who wants a small tractor, light and easy to operate, for doing all kinds of field and belt work. Are also being used very successfully on large farms to supplement the work of larger tractors, and for gardening, fruit growing, orchard cultivation, etc.

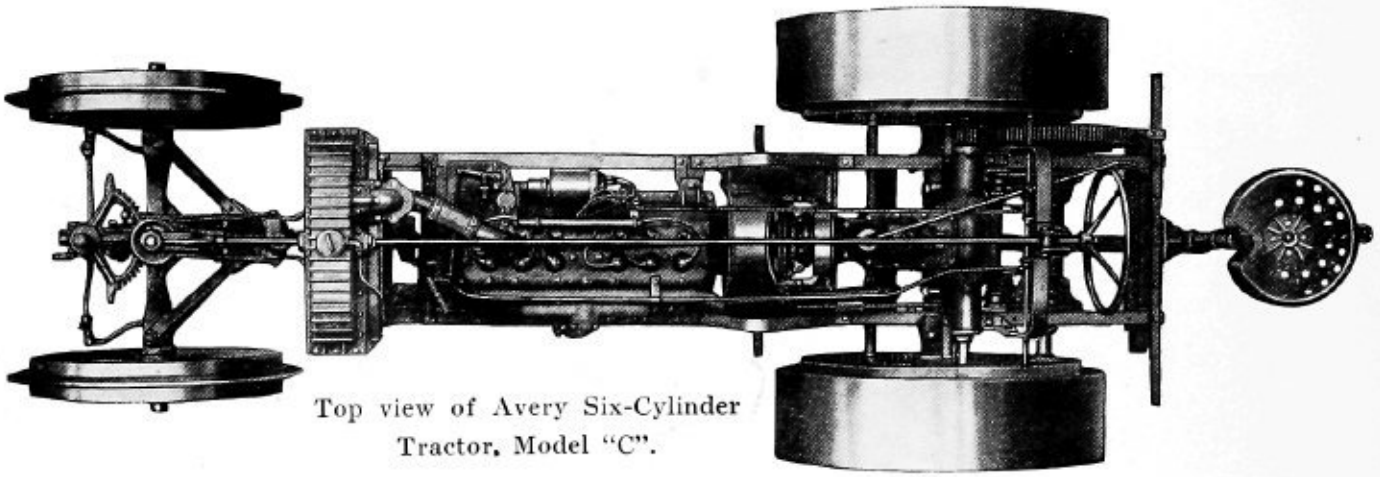
That they have fulfilled the requirements of the small tractor is proven by the fact that they are in use all over the country and are being enthusiastically recommended by their owners for such kinds of work as plowing, discing, harrowing, pulling a grain drill, grain binder, mower, etc., also for silo filling, feed grinding, sawing, pumping water or operating a small thresher.

The motor used in each of these tractors is of similar design and construction throughout and has the same bore and stroke. The Model "C" has a six-cylinder motor, while that used in the Model "B" is of four-cylinder design.

Both tractors are sold with more regular equipment than is usually furnished with other makes of small tractors. This equipment includes platform, tool box, fenders, adjustable seat, magneto, governor, air cleaner, etc. The belt pulley is extra.

The Avery Model "B" and "C" Tractors also sell at a price that is making them very **popular.** They are, of course, up to the usual high-class Avery standard as regards design, workmanship and materials. The motors and assembled machines are both given thorough and frequent inspections throughout their construction and careful tests when completed. They are also built complete—chassis, motor, transmission, etc.—in the Avery Factories.

You can be assured that either of these Avery Tractors will prove to be a serviceable and profitable small tractor for you to own and operate. Write for prices and further information.



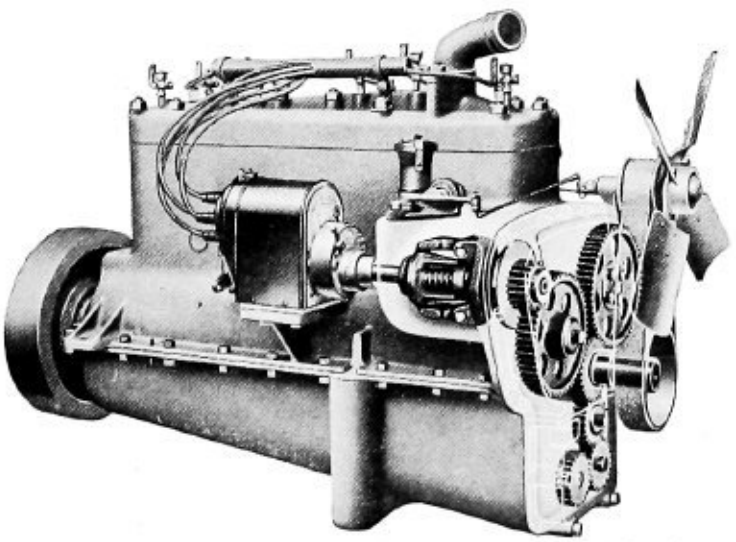
Top view of Avery Six-Cylinder Tractor, Model "C".

Specifications of Avery Six-Cylinder Model "C" Tractor

Motor.

THE motor used in the Avery Six-Cylinder Model "C" Tractor is built complete by the Avery Company in our own Motor Factory. It has heavy, drop-forged connecting rods, and large crankshaft, 1¾ inches in diameter, which is mounted in three large main die cast bearings of ample capacity for the heavy duty work the motor may be called upon to do. The cylinders are cast en-bloc with a removable cylinder head, giving easy access to the pistons and valves. It is a Six-Cylinder Motor of the vertical block type; has 3-inch bore, 4-inch stroke.

The motor is also equipped with a centrifugal governor of the throttling type, which is entirely enclosed and runs in a spray of oil. The governor is mounted on the magneto drive shaft and driven by the magneto timing gears.



Right hand side of Six-Cylinder Motor, showing High Tension Magneto and Enclosed Governor running in oil.

Oiling System.

The motor is at all times thoroughly lubricated by means of a combination circulating splash system and pump. All interior parts are lubricated by the splash in the crank case. A float type of indicator is in plain view of the operator of the tractor, thus showing the level of the oil at all times. The forward part of the crank case where the oil pump is located, dips downward, so that when the oil is low, or when the tractor is traveling up hill, the oil pump is sure to be forcing oil to the working parts of the motor.

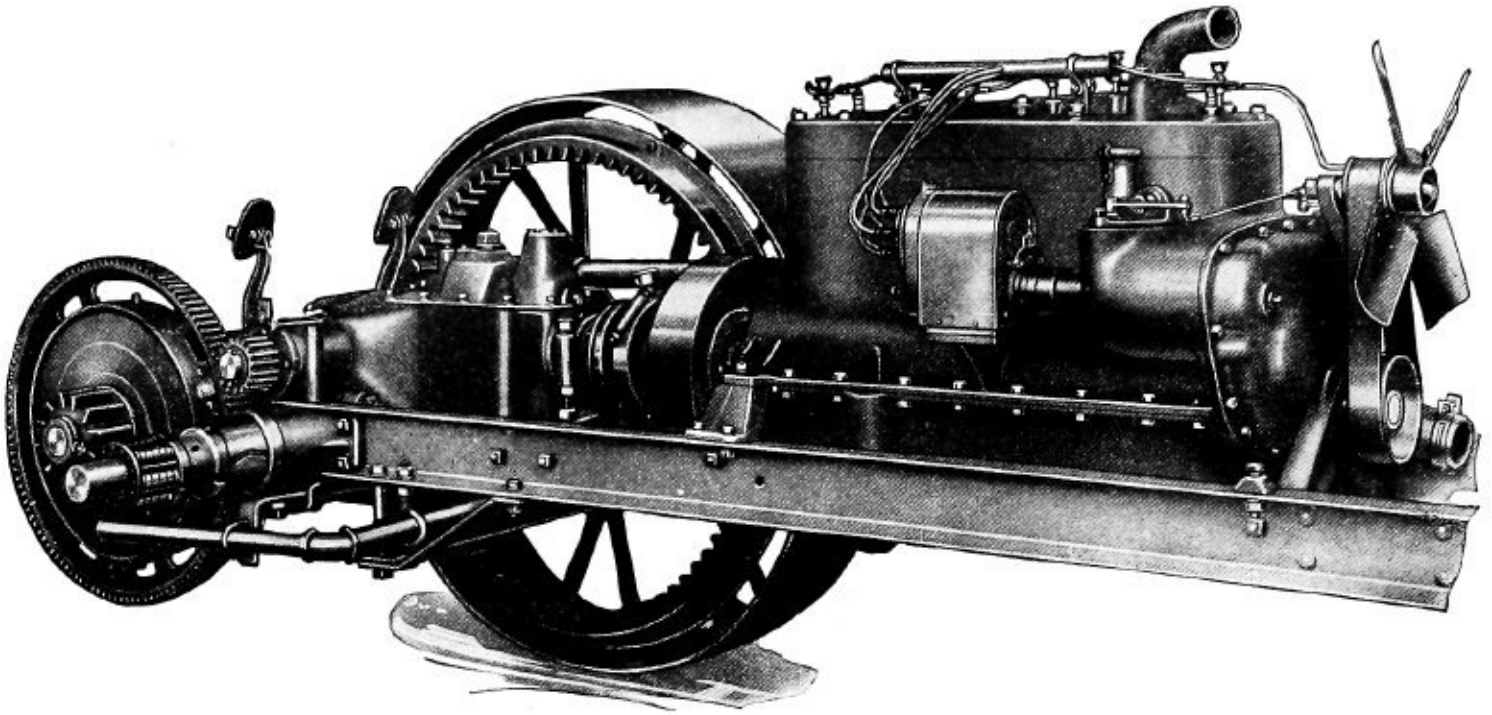
Ignition System.

A high tension ignition system with K-W Magneto is used. This insures perfect ignition at all times. The magneto is equipped with an impulse starter which is of considerable aid when starting the motor in cold weather.

This motor is recommended to burn gasoline, but many burn kerosene with entire satisfaction, as the motor is equipped with a combination hot manifold. The fuel supply is controlled by the governor, which prevents the motor from racing under light loads. The governor also has a thumb-screw adjustment by means of which the speed of the motor may be regulated by the operator. The fuel tank is mounted under the motor hood, is easily accessible, and has a capacity of ten gallons.

Cooling System.

The motor is cooled by a Thermo-siphon system with a cellular type of radiator. The radiator is extremely large and assures ample cooling capacity under the most extreme conditions. It is assisted by a



Chassis view, showing arrangement of motor and transmission. The transmission, countershaft and rear axle are equipped with Roller and Ball Thrust Bearings throughout.

fan 15½ inches in diameter, driven at a speed of 2,400 R. P. M. This fan blows the air through the radiator.

Clutch.

The clutch is of the Multiple Disc, Dry-Plate Type, is easily controlled, simple in construction, and requires a minimum of attention.

Transmission.

The transmission is of the selective sliding gear type. All the gears in the transmission case are of chrome-nickel steel, heat treated and hardened. The shafts are hardened and ground.

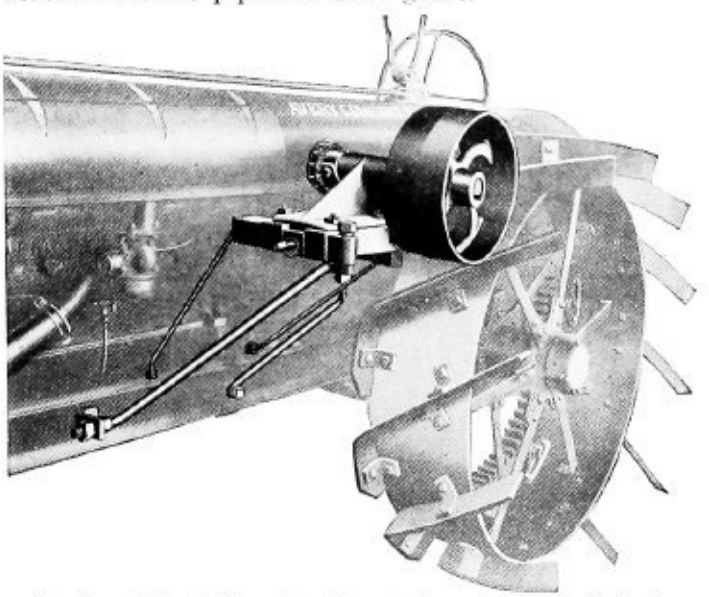
All the transmission gears and shafts are also carefully inspected with micrometers measuring to one one-thousandth part of one inch, both before and after heat treating. Brinell tests for hardness are made, and the gears are carefully run in a special gear testing device to see that they are of exact size and perfectly round and true in every way.

The assembled transmission is also carefully run in and inspected before it is put in the completed tractor. The transmission case is roller and ball-bearing equipped throughout. The three selective speeds are 1½ M. P. H. low; 2⅛ M. P. H. intermediate; 4¼ M. P. H. high; 1½ M. P. H. reverse. The working speed, which is the intermediate, is in direct drive with the motor and insures a minimum loss of power through gears.

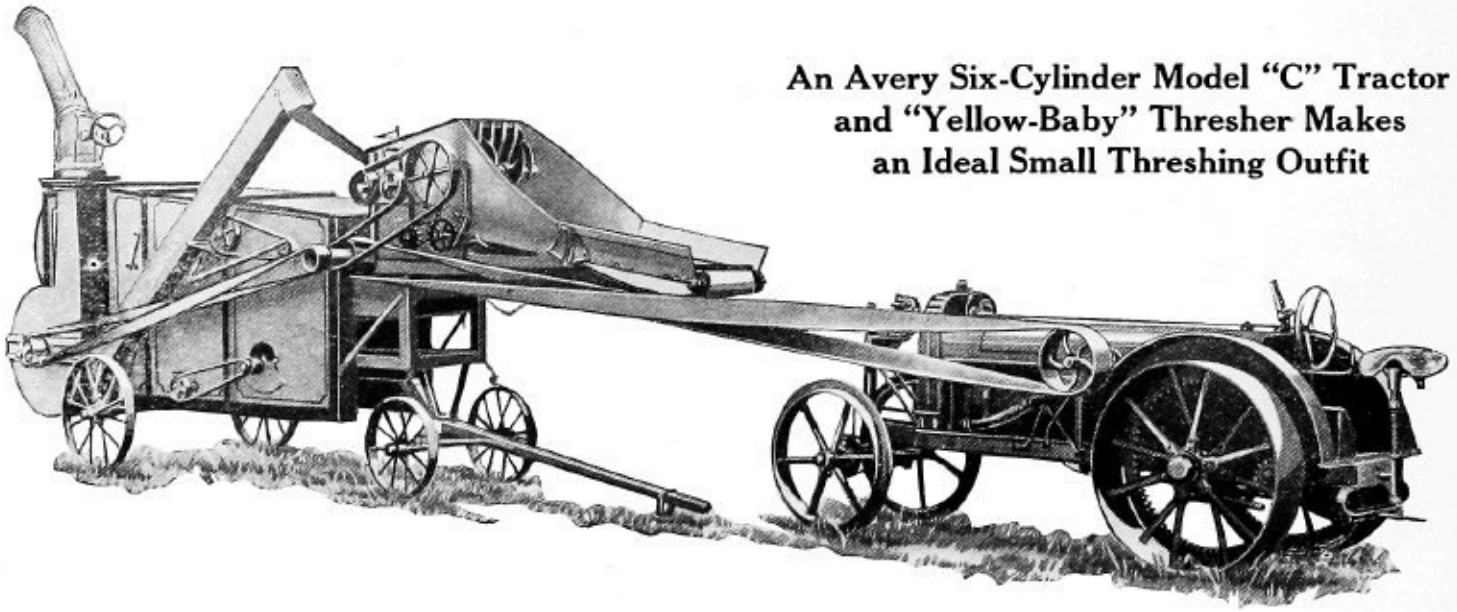
The transmission gears are mounted on roller and ball-thrust bearings. The countershaft and rear wheels are also mounted on roller bearings so that a minimum of friction results. The differential is mounted on the countershaft and thus insures easy turning and is enclosed to protect it from dirt and dust. It is also provided with a drip gear oiler.

The final drive is through semi-steel bull gears of 2¼-inch face, of heavy pitch and the bull pinions are steel, thus insuring them long life.

The drive is transmitted to both rear wheels so that no frame distortion will result as is the case with tractors having a single final drive. The bull gears are cleaned and lubricated by the exhaust from the motor which is piped to both gears.



Showing Belt Pulley Attachment for either Six-Cylinder Model "C" or Model "B" 5-10 H. P. Avery Tractors. Furnished at an extra price.



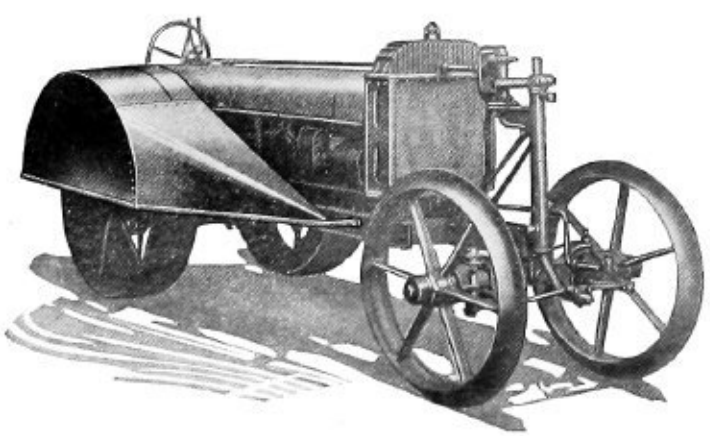
An Avery Six-Cylinder Model "C" Tractor and "Yellow-Baby" Thresher Makes an Ideal Small Threshing Outfit

Wheels and Axles.

There are two drive wheels which are built up steel wheels 38 inches in diameter and 10 inches wide, running on Roller Bearings. These can be further widened with 5-inch extension rims, which can be quickly attached or detached and which are furnished at an additional cost. A special Universal Cleat has been designed for the rear wheels, which supplies all of the desired features in a wheel, namely, smooth rolling; good traction; good cleaning; and the elimination of side thrust.

The front wheels are 28 inches in diameter and are provided with high bands or center rings, cast integral with the wheels, which prevent skidding and which are also self-cleaning.

The rear axle is 2 inches in diameter. The front axle is of the automobile type and has a swivel connection with the frame at the center. The weight is so distributed that steering is made easy. In order to insure a short turning radius, the frame is narrowed at the front.



Six-Cylinder Tractor, Model "C", equipped with Special Rear Wheel Guards for orchard work. Furnished at small additional price.

Dimensions.

This tractor is of narrow width, only 50 inches; low height, only 54 inches; length 136 inches with 90-inch wheel base. It has a short turning radius, being only 11 feet, and shipping weight is 3,150 pounds. The height to the drawbar is 12 inches.

Equipment.

This machine is furnished with special belt pulley, as shown in the illustration on page 45, at an extra price.

Special orchard guards for the rear wheels can be furnished for orchard work, at a small extra price.

A seat is furnished and located at the rear of the tractor, and is equipped with an umbrella bracket. It is adjustable in height and so located that it gives easy access to all the control levers of the tractor, as well as to the implements pulled behind.

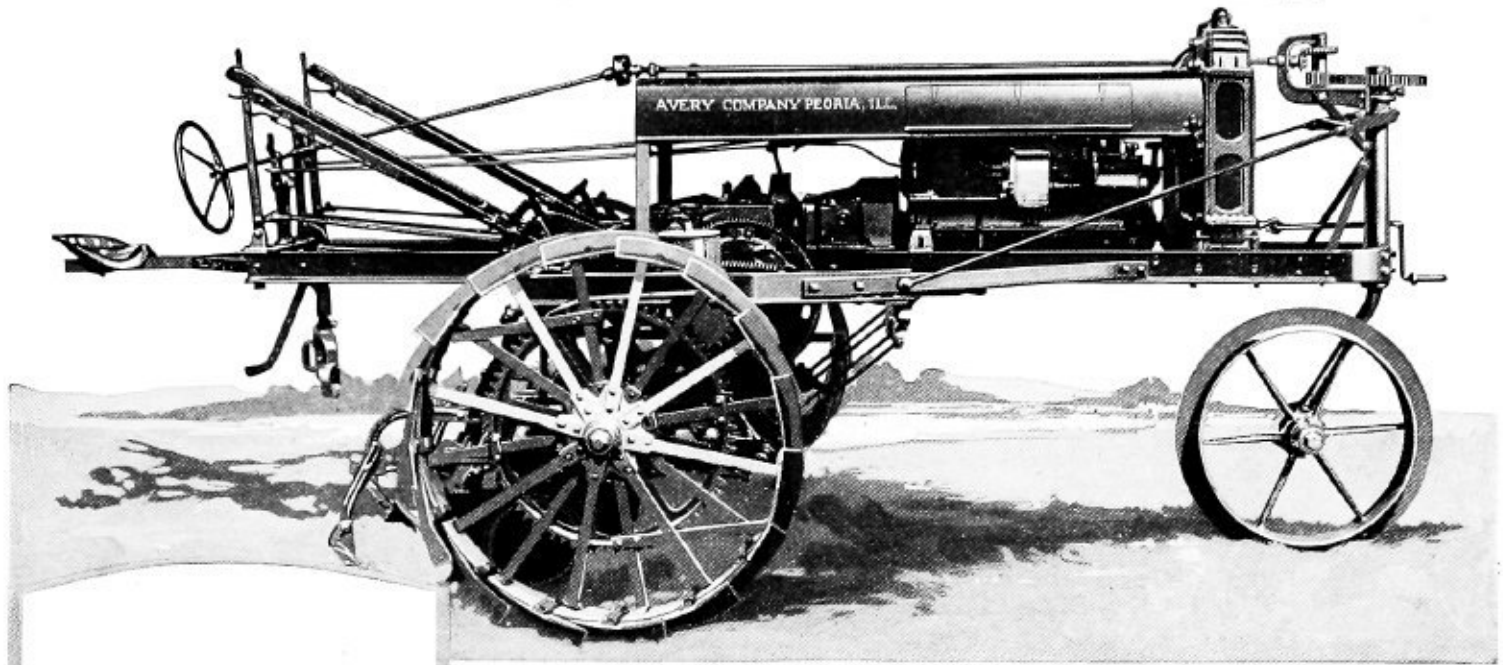
An improved type of air cleaner is recommended for use in territories where it is at all dusty, and is furnished regularly, without extra cost, with each Model "B" 5-10 H. P. and Model "C" Six-Cylinder Avery Tractor.

It is regularly provided with a drawbar, which can be swung to either side for easy coupling and turning, or which may also be locked in any position.

The tractor is, furthermore, regularly furnished with platform, tool box, also rear wheel housings, which keep the dust and dirt off the operator.

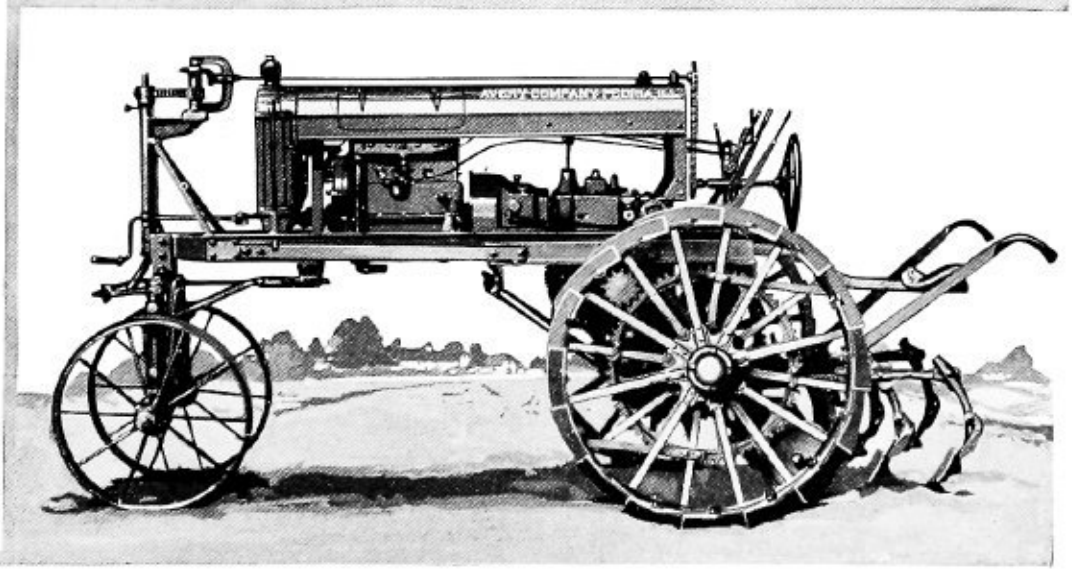
Avery 5-10 H. P. Model "B" Tractor.

This tractor is similar in many respects to the Model "C" Avery Tractor; the chief difference, of course, being that it is equipped with a four-cylinder motor. Therefore, a great deal of mechanical description referring to the Six-Cylinder Model "C" Tractor is applicable to this machine as well.



Above: Avery Six-Cylinder Two-Row Motor Cultivator, Equipped with Corn Cultivating Gangs.

To the Right: Avery Four-Cylinder One-Row Motor Cultivator, Equipped with Corn Cultivating Gangs.



Avery Motor Cultivators—One and Two-Row Sizes

THE Avery Line supplies motor power to do all kinds of farm work. There's a size Avery Tractor for every size farm. And then for handling all kinds of row crops as well as for many kinds of field work and belt work, we have the Avery Motor Cultivators in one and two-row sizes.

Just as the tractor has proved to be a pleasure and profit-producing machine to its owner, so is the Avery Motor Cultivator proving to be one of the most versatile power farming machines ever built. Also one of the best investments the average farmer can make.

Tractors have proved that they are able to do away with the surplus horses formerly required. The Avery Motor Cultivator gives you the chance to do away with still more horses and use motor power practically altogether, if not exclusively, for your farm work.

Avery Motor Cultivators are a **proven** success. Their design is right and they are built right and we believe they lead the field in power, durability, simplicity, etc. As many as six to ten of these machines are being used by the same men who are farming on a large scale. In one locality within a radius of 18 miles, 121 of these machines are being used. The wonderful versatility of the Avery Motor Cultivator is resulting in many sales of second machines to the same men. This is the best possible proof of the success of any machine.

With an Avery Motor Cultivator you can cultivate double or more than the amount one man ordinarily handles with horses. And in doing this greater amount of work, you will find it much **more enjoyable** and **more pleasant.**

The cultivating and planting of row crops, however, are not the only jobs you can do with an Avery Motor Cultivator. You can remove the gangs and by putting on the drawbar attachment, you have one of the best machines yet developed for pulling a two-bottom plow, disc-harrow, drill, binder, hay-rake, hay-loader and for doing other field work on the farm.

You can also do your light belt work such as feed grinding, pumping, sawing, silo filling, operating a baby-thresher, etc. **The Avery Motor Cultivator is adapted, we believe, to more kinds of farm work than any other machine.**

The Avery Motor Cultivator Fills a Long-Felt Want

TRACTORS supply the demand for power to do plowing and other farm work. But no sooner does a man get a tractor and find out the wonderful advantages of using motor power for plowing, discing, harrowing, drilling, harvesting, etc., than he begins to want to be able to also use the same kind of power for the planting and cultivation of corn, cotton and other row crops.

Thousands of farmers who have been large grain growers, and many located in the corn belt, too, have been enjoying the success and advantages of motor farming with Avery Tractors for many years. But the corn and cotton belt farmers and others located in sections of the country where row crops are raised to a large extent were not satisfied with the raising of their corn, cotton, peas, beans, beets, etc., by animal power, after having once seen power farming make farm life more enjoyable, do the work easier, cheaper and better, and often times actually increase yields because they were able to do their work in the right way and at the right time to produce the best results.

The demand, therefore, for a motor cultivator was long felt. That the Avery Motor Cultivator has successfully filled this demand is proven by the fact that they are today being used for planting and cultivating almost every kind of row crop raised, as well as doing all kinds of field and belt work. And from every section of the country where row crops are grown Avery owners have written us telling of the splendid success they have had with these machines.

You Can Do Many Kinds of Work With An Avery Motor Cultivator.

The kinds of work you can do with an Avery Motor Cultivator are **many**—so many in fact that one Avery owner says it is "the handiest thing on my farm," while another calls it the "missing link in tractor farming."

With it you can not only plant and cultivate your row crops, but you can also do many other kinds of field and belt work. You can pull a two-bottom plow, a disc-harrow, grain drill, hay loader, hay rake, a manure spreader, etc., with it. In harvest time it is an exceptionally good power unit, for you can pull a grain binder with it, cut square corners and open up the fields quickly and easily and with little loss from down grain.

With this machine equipped with a belt pulley you can also do many kinds of lighter belt work such as feed grinding, baling hay or straw, sawing wood, pumping water, filling a silo, operating a small thresher, etc.

In handling row crops you can cultivate a great deal more than one man can ordinarily handle with animal power and do it, too, with less hard work and effort. With an Avery Motor Cultivator, you don't have to get up early and feed a lot of horses, curry them, harness them and clean out the stable as you do when you cultivate with horse power. Then when breakfast is over, you don't have to get them out of the barn, water them and hitch up. All this work, just to get started, is eliminated. Then you don't have to unhitch, water, feed and hitch up at noon, or unhitch, water, unharness, feed and bed them at night.

With this machine, it doesn't take any more of your time getting ready to start than is required to care for one horse, and at night when you are through cultivating, **you are really through.**

From Government agricultural statistics it is shown that almost fifty per cent of all crops raised in the United States are row crops. The Avery Motor Cultivator, therefore, has a permanent place in the field of American agricultural machinery, as it is an exceptionally well designed machine and is also built right of the very finest materials and good workmanship throughout.

Your corn crop is not the only crop you can motorize with the Avery Motor Cultivator. The Avery 2-Row Motor Cultivator is built in four special widths for crops planted in any width rows. It also has special front wheel attachments for cultivating crops planted any distance apart or where the front wheels must straddle the rows. You can cultivate any kind of row crops with an Avery Motor Cultivator such as corn, listed corn, cotton, beans, peas, beets, potatoes, etc. Then you can also plant cotton, beans and other similar crops with the same machine by getting a special planter attachment.

One big advantage in using an Avery Motor Cultivator is in your ability to take advantage of weather conditions with this wonderful machine. Last year, you remember we had a wet spring. It rained, cleared up for a short time, then rained again. The result was many farmers were late in getting their corn in, and many of them finally were compelled to put in less acreage than they planned on.

We watched Avery Motor Cultivator owners very carefully. We found they usually got into the field more quickly after each rain than their neighbors could with horses. Then during the half day or single day period between showers, they planted twice as much as did their neighbors with animal power. This was also true during the cultivating season. Many farmers saw the rainy season turn their cornfields into weed patches, but Avery Motor Cultivators covered the ground so much quicker their owners were able to destroy the weeds almost as fast as they grew.

It was during wet seasons such as these and also during the hot harvesting and haying seasons, that Avery Motor Cultivator owners appreciated planting, cultivating and harvesting with motor power and learned the advantages of being able to **"beat the weather."**

How the Avery Motor Cultivator Operates

AVERY Motor Cultivators are built in one and two-row sizes. Both machines have a three-speed selective gear which gives you a wide variation of speed so that you can plow as slow as necessary the first time over when your crop is small and the plants are tender and at faster speeds when your crop is larger.

The two-row size is guided by a single front wheel which runs between the rows. The one-row machine has two front wheels which straddle the row. Both sizes are driven by two rear wheels, while a compensating gear takes care of any variations in the direction of the rows.

When the end of the row is reached, you release the steering wheel, which allows the front wheel to act as a caster. At the same time, you take hold of the two levers operating the drivewheel clutches, and by releasing one clutch and allowing the other to remain engaged, one drive wheel remains stationary while the other revolves around it until the cultivator has turned around onto the next row. Then you release the clutch levers and again guide the cultivator with the steering wheel. These cultivators will turn around in their own length. They will turn either way, depending upon which drive wheel the power is applied.

SPECIFICATIONS:

MOTOR.

	Two Row.	One Row.
Number of Cylinders	6	4
Bore of Cylinders, inches	3	3
Stroke, inches	4	4
R. P. M.	1200	1200
Fuel: Gasoline. Many customers report using Kerosene, however, with satisfactory results.		

GEARING.

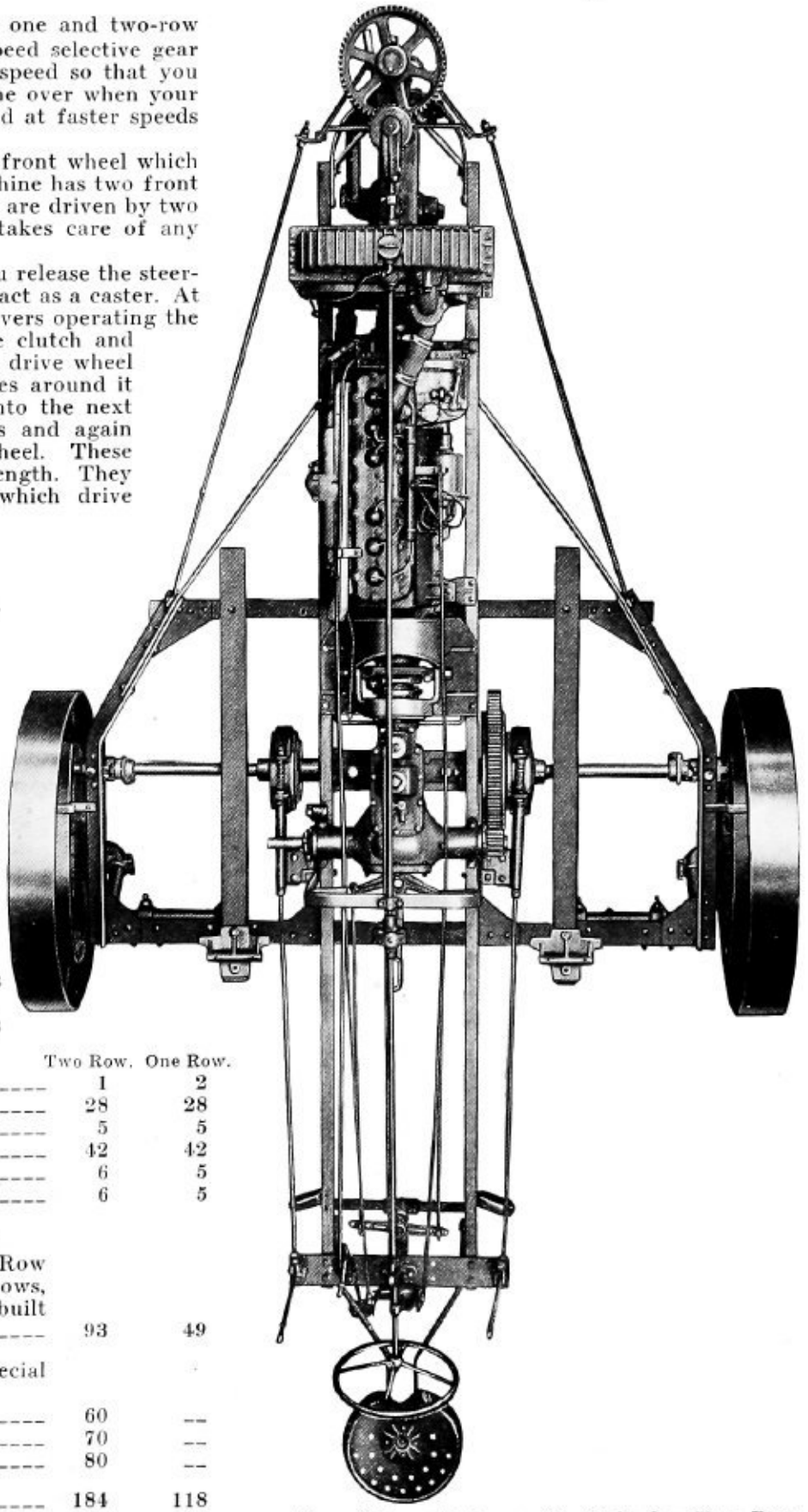
Face of Jackshaft Pinion and Compensating Gear, inches	2	2
Miles per Hour on Low Gear	1⅝	1⅝
Miles per Hour on Intermediate Gear	2⅓	2⅓
Miles per Hour on High Gear	4⅔	4⅔

WHEELS.

	Two Row.	One Row.
Number of Front Wheels	1	2
Front Wheels, Diameter, inches	28	28
Front Wheels, Face, inches	5	5
Rear Wheels, Diameter, inches	42	42
Rear Wheels, Face, inches	6	5
Special Rear Wheel Extensions	6	5

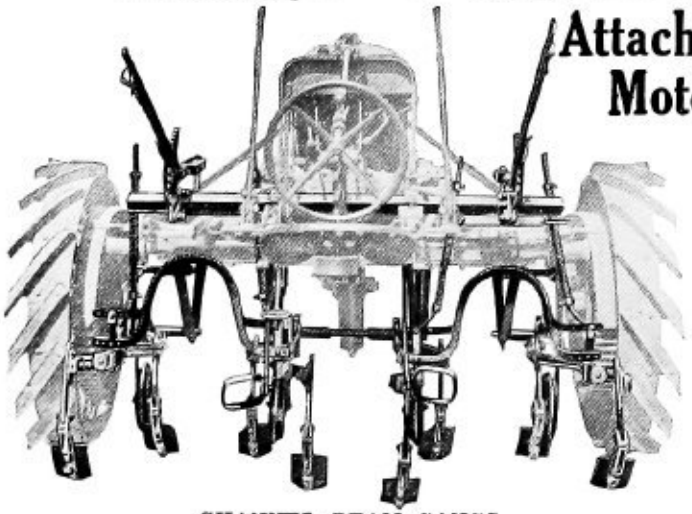
MISCELLANEOUS.

Width to center of Drive Wheels of Two-Row Motor Cultivator, for 40 to 44-inch rows, and of One-Row Cultivator, which is built in but one width, inches	93	49
Two-Row Motor Cultivator also built in special widths as follows:		
For 28 to 32-inch rows, inches	60	--
For 32 to 36-inch rows, inches	70	--
For 36 to 40-inch rows, inches	80	--
Extreme Length, inches	184	118
Clearance Under Frame, inches	30	30
Shipping Weight, pounds	3050	2650

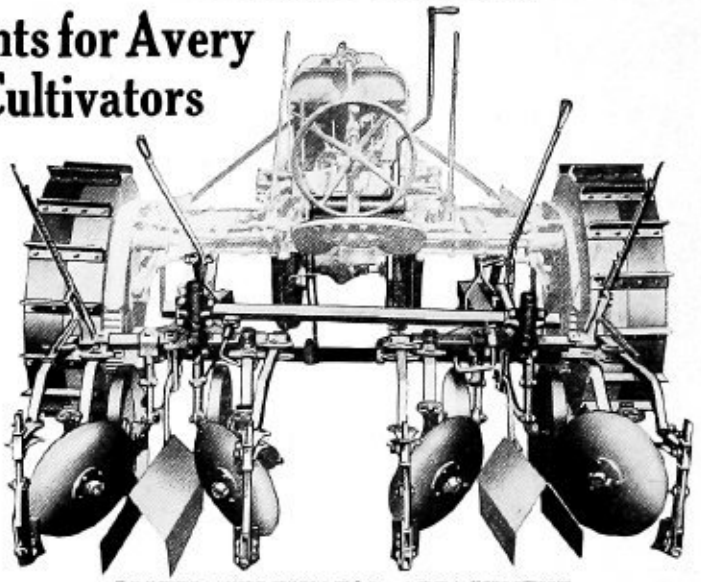


Top View of Avery Six-Cylinder Two-Row Motor Cultivator Chassis.

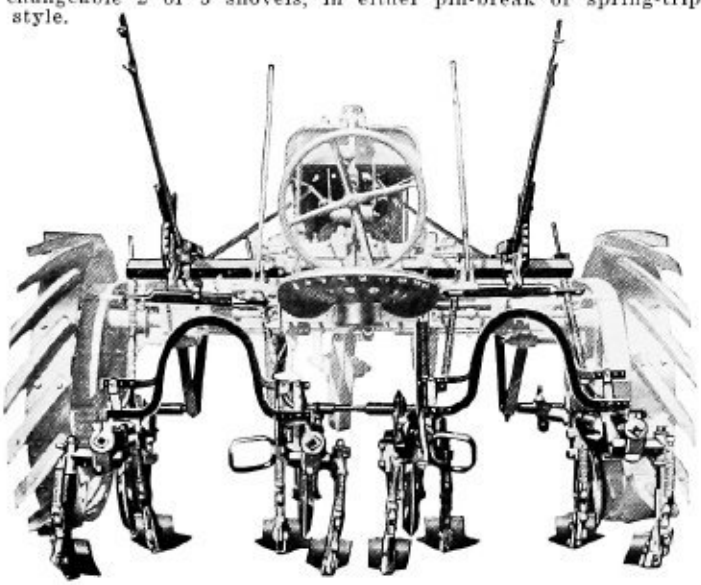
Attachments for Avery Motor Cultivators



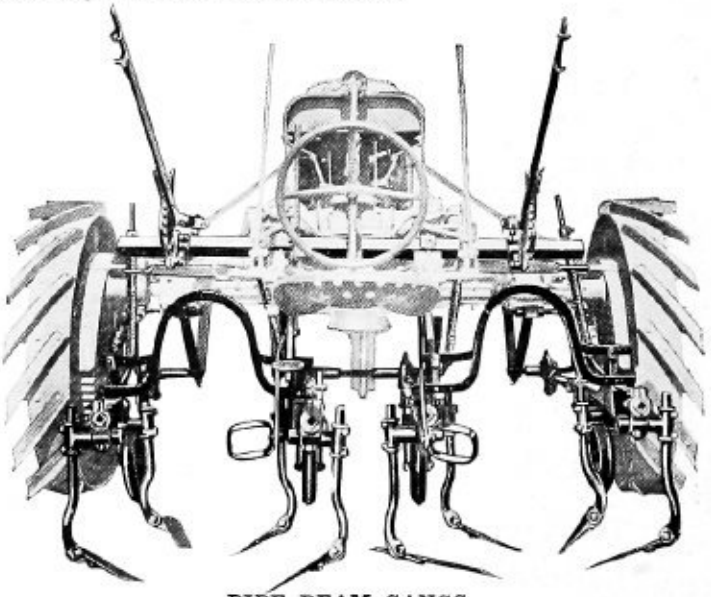
CHANNEL BEAM GANGS.
Showing Standard Channel Beam Corn Belt Gangs. Interchangeable 2 or 3 shovels, in either pin-break or spring-trip style.



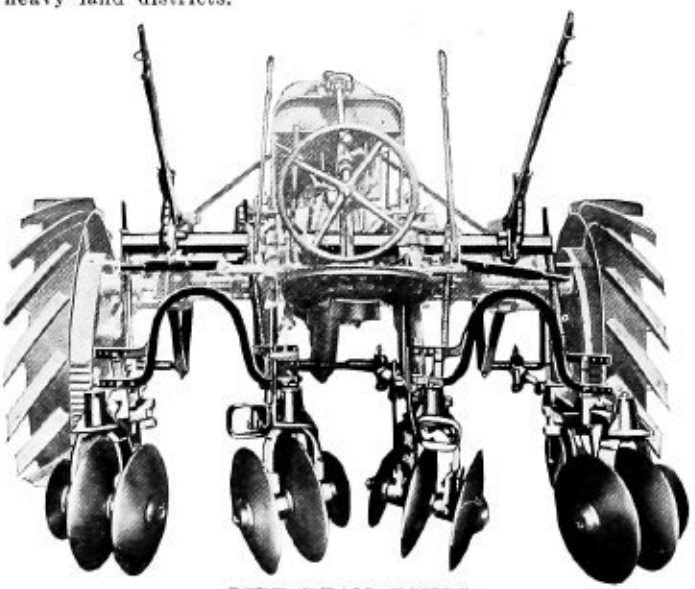
LISTER CULTIVATOR ATTACHMENT.
For handling corn or any row crop planted with lister or in furrows. Double front wheels and rear wheel extensions are also required with this attachment.



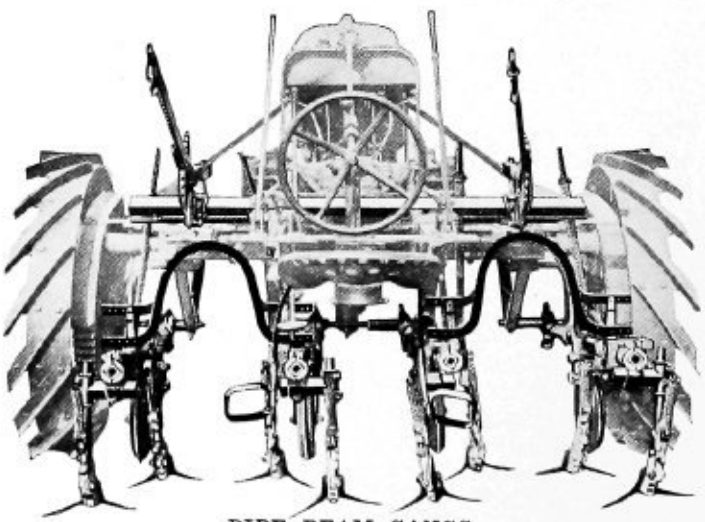
PIPE BEAM GANGS.
Equipped with shovels for cultivating cotton and corn in heavy land districts.



PIPE BEAM GANGS.
Equipped with surface blades for cultivating corn.

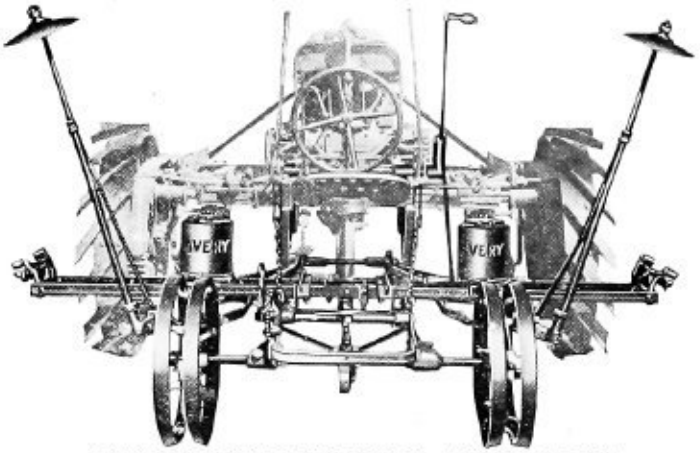


PIPE BEAM GANGS.
Equipped with discs for cultivating cotton and corn. Discs may be reversed so as to throw to or from the row.



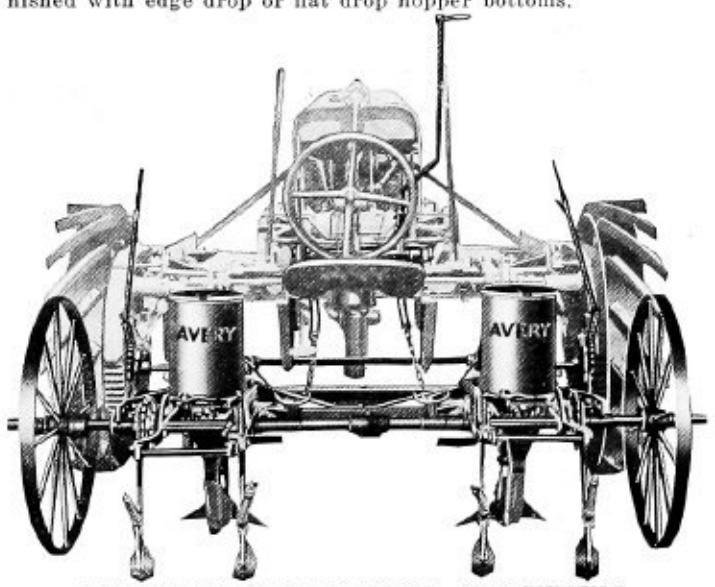
PIPE BEAM GANGS.
Equipped with crabb sweeps for cotton cultivation.

Note: The shovels, surface blades, discs and sweeps illustrated above, attached to the pipe beams, are interchangeable. Therefore, when you have a set of the pipe beam gangs you can attach any or all of these four kinds of cultivating equipment.



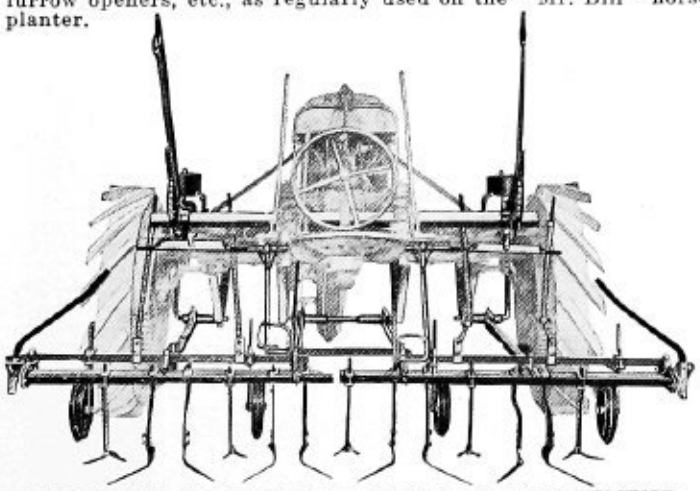
TWO-ROW CORN PLANTER ATTACHMENT.

Made as a combination outfit for both checking and drilling, and also special for drilling only when wanted. Can be furnished with edge drop or flat drop hopper bottoms.



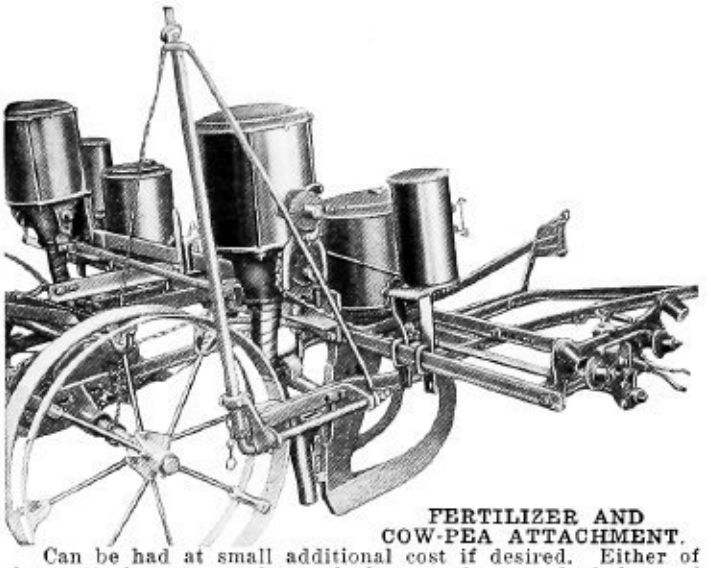
COTTON OR CORN PLANTER ATTACHMENT.

This is the "Mr. Bill" two-row cotton and corn planter attachment. Can be supplied with the same shovel attachments, furrow openers, etc., as regularly used on the "Mr. Bill" horse planter.



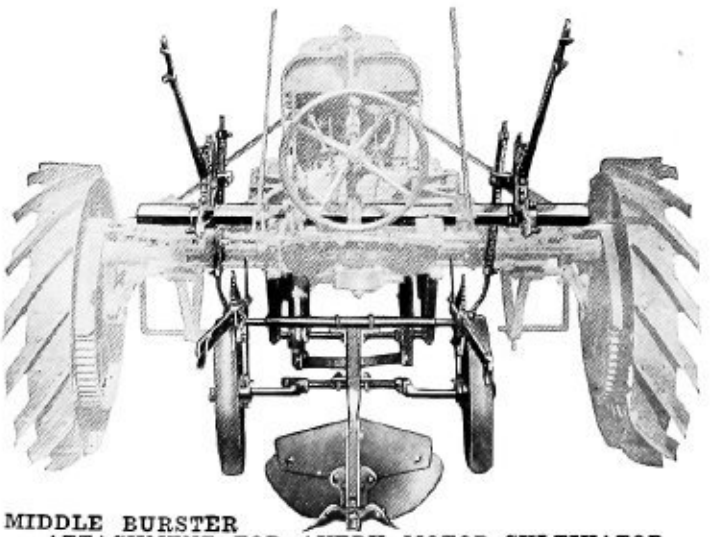
BEAN, PEA AND BEET CULTIVATOR ATTACHMENT.

This is a standard bean and pea attachment. The same rows which are planted at one time should, of course, be cultivated together, as only parallel rows can successfully be cultivated. The 60-inch width cultivator is designed for use with this special attachment for cultivating beans, peas, beets, etc. When cultivating three or five rows at one time the double front wheels are required. The cultivator teeth, sweeps, shovels, etc., are adjustable longitudinally on the bar to meet any width of rows.



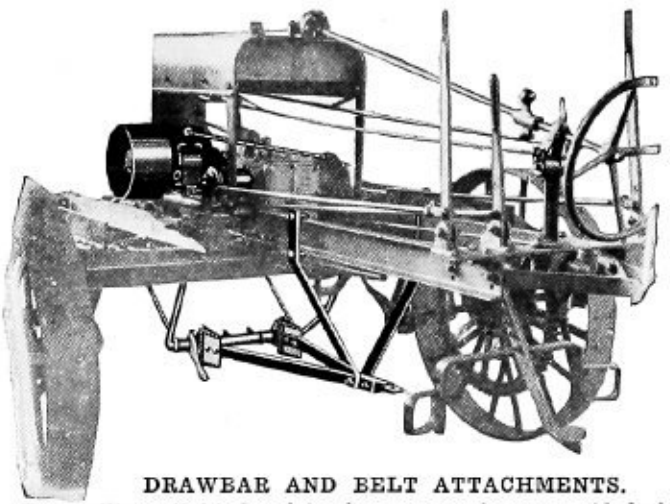
FERTILIZER AND COW-PEA ATTACHMENT.

Can be had at small additional cost if desired. Either of these attachments can be used alone or they can both be used at the same time. In the above illustration the fertilizer attachment is the large hopper at the rear of the planter, the cow-pea attachment is the smaller one to the right.



MIDDLE BURSTER ATTACHMENT FOR AVERY MOTOR CULTIVATOR.

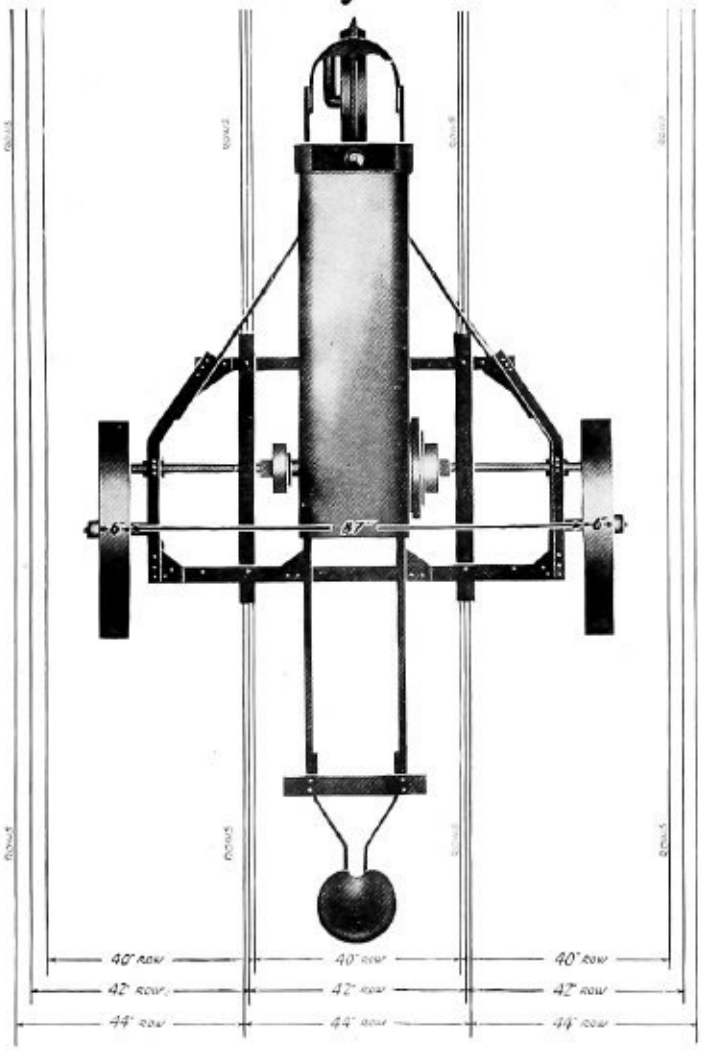
Two-wheel carriage allows land to be bedded better and more uniformly than is possible with walking burster.



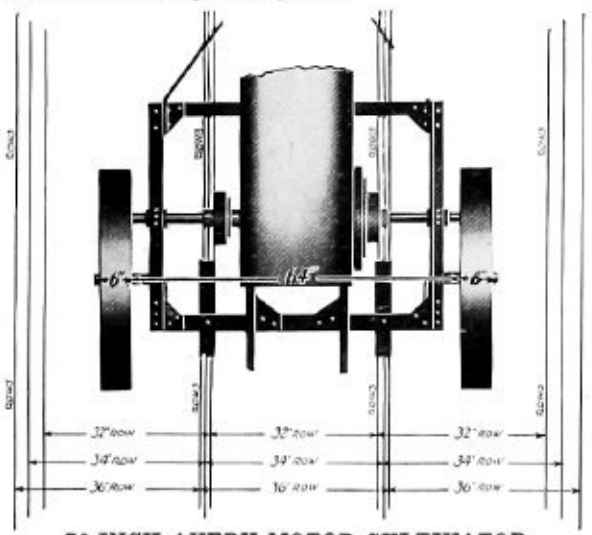
DRAWBAR AND BELT ATTACHMENTS.

For pulling all kinds of implements we have provided the drawbar illustrated here. Is attached by taking off the gangs and connecting the front ends of the drawbar to the arched sleeves and carrying the rear end on the frame. A belt pulley can also be attached, making it possible to use the power of the motor for all kinds of light belt work.

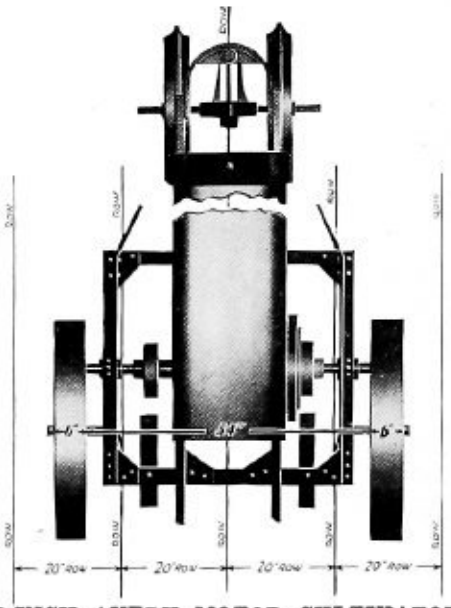
Avery Motor Cultivators Are Built in Widths for Crops Planted in Any Width Rows



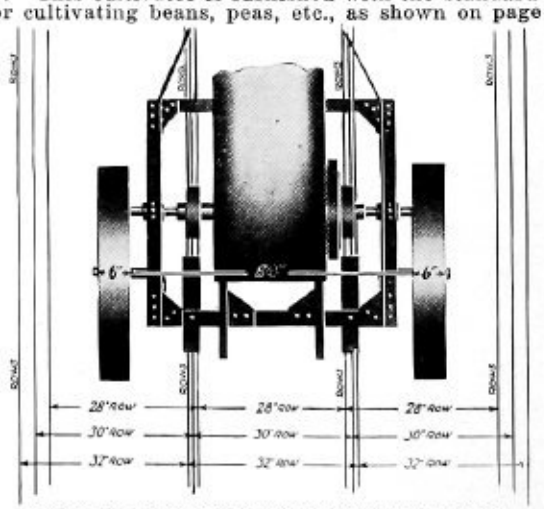
93-INCH AVERY MOTOR CULTIVATOR.
This illustration shows the 93-inch width cultivator as used for cultivating rows 40, 42 and 44 inches apart. This is the width cultivator most generally used.



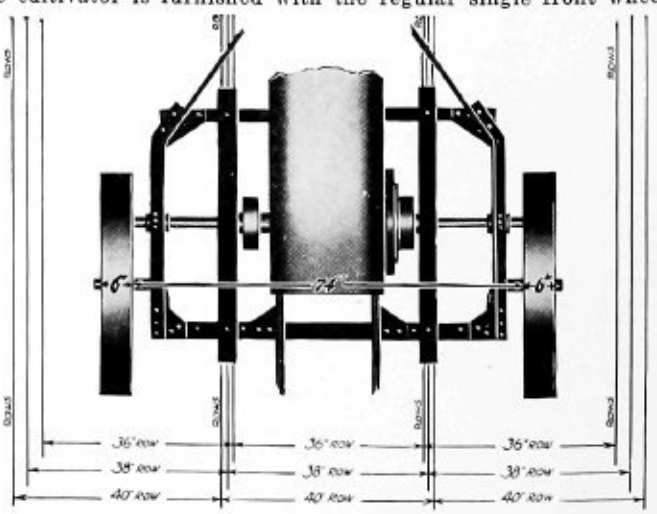
70-INCH AVERY MOTOR CULTIVATOR.
This illustration shows the 70-inch width cultivator as used for cultivating rows 32, 34 and 36 inches apart.



60-INCH AVERY MOTOR CULTIVATOR.
This illustration shows the Avery Motor Cultivator as used for cultivating beets and other crops planted in rows 20 inches in width. A two-wheel front truck is required in place of the regular single front wheel, as the front wheels must straddle one row. This cultivator is furnished with the standard attachment for cultivating beans, peas, etc., as shown on page 51.

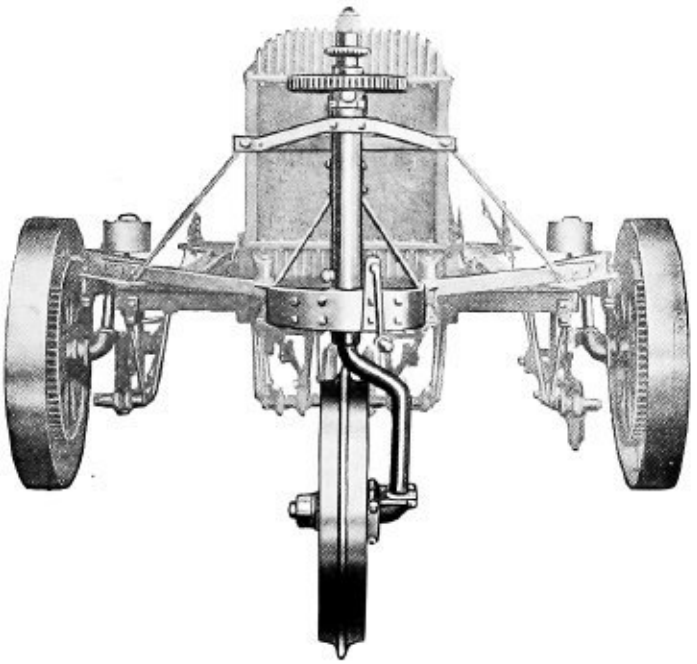


60-INCH AVERY MOTOR CULTIVATOR.
This illustration shows the 60-inch width cultivator as used for cultivating rows 28, 30 and 32 inches apart. When so used, the cultivator is furnished with the regular single front wheel.



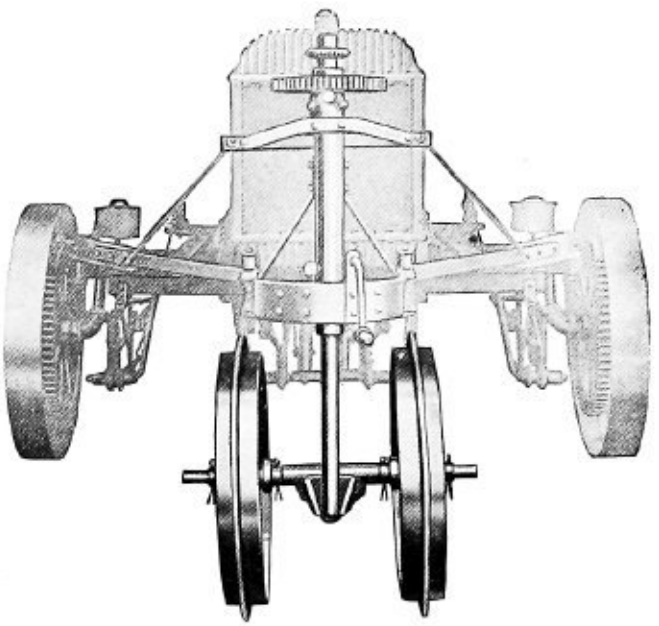
80-INCH AVERY MOTOR CULTIVATOR.
This illustration shows the 80-inch width cultivator as used for cultivating rows 36, 38 and 40 inches apart.

Avery Motor Cultivators Are Built With Two Types of Front Wheels



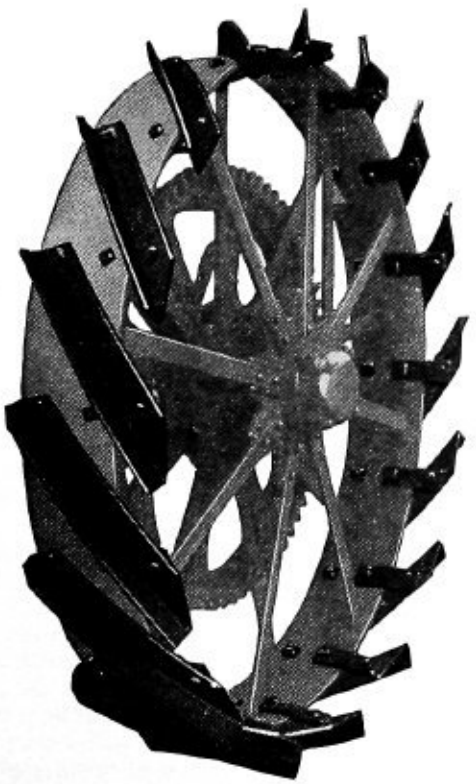
Regular Single Front Wheel.

The above cut shows the regular single front wheel equipment on the Avery Two-Row Motor Cultivator when used for planting and cultivating such crops as corn, cotton, etc.



Double Front Wheels.

The cut above shows the double front wheel truck as used on the Avery Two-Row Motor Cultivator when used in cultivating listed corn and for other crops where the two front wheels must straddle the center row.



Rear Wheel, Showing Angle Iron Lug.

Lug Equipment.

AVERY Motor Cultivators are regularly equipped with angle iron lugs on the rear wheels as shown here. This type of lug gives splendid traction in almost every condition of soil, yet at the same time is self-cleaning to a large extent.

General Instructions About Ordering Avery Motor Cultivators.

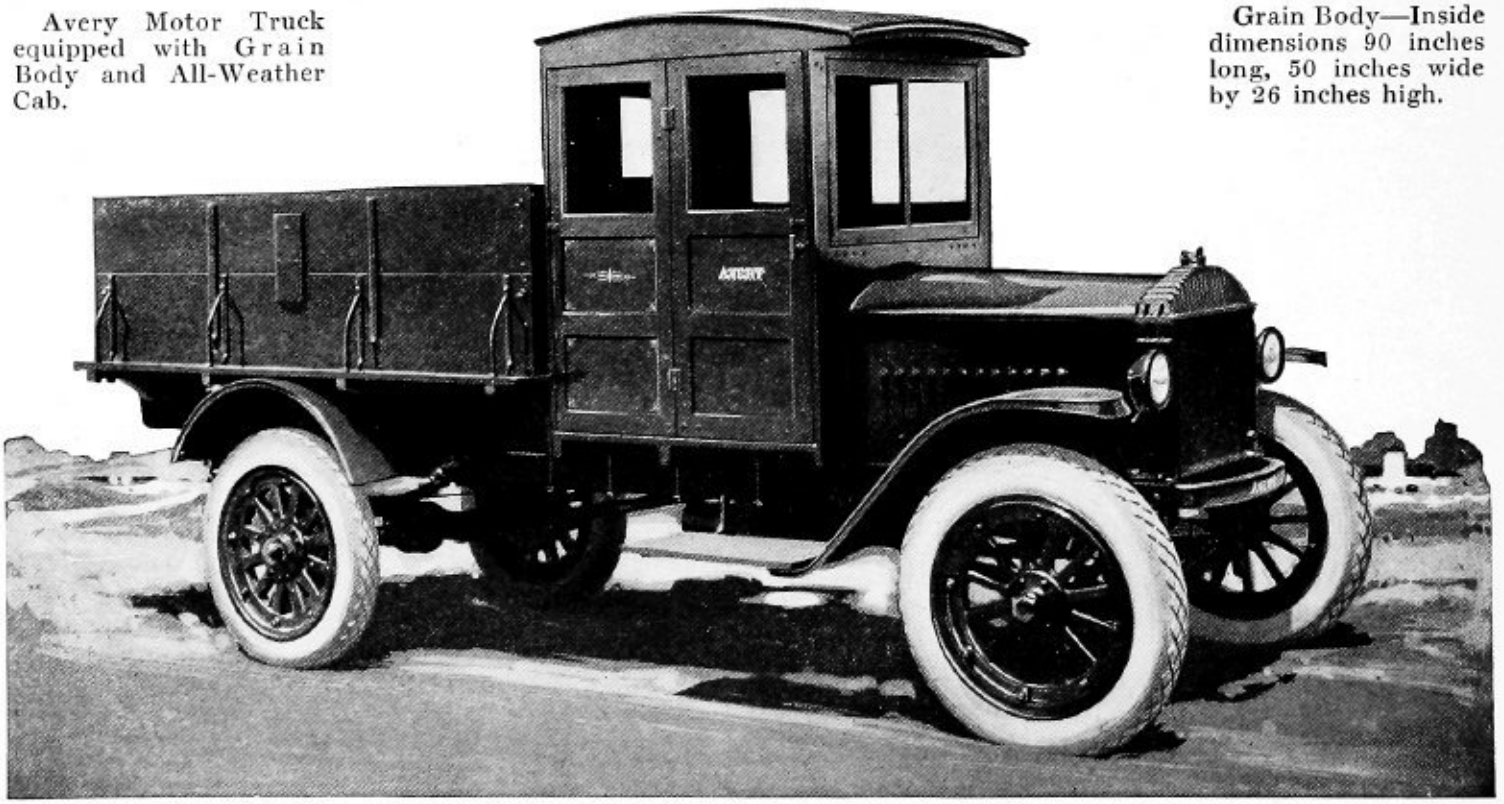
In ordering Avery Motor Cultivators, do not fail to specify the width cultivator required—whether 60, 70, 80 or 93 inches. It is also well to mention kind of crop you desire to plant or cultivate and the width the rows are planted so proper equipment will be furnished. Do not fail to note also that cultivators are supplied with two types of front wheels; either the regular single front wheel, or the double front wheels which are used in cultivating listed corn and for other row crops where the center row must be straddled by the double front wheels.

Cultivators are also furnished with various type gangs and shovels, and these shovels should be carefully specified in order. We can furnish two or three shovel gangs in either pin-break or spring-trip style, with either round sleeve or slotted shanks as desired. This applies to both corn and cotton cultivating attachments.

If corn planter attachment is wanted, state whether check row, drill or combination is desired. If cotton or other planter attachments, belt pulley or drawbar is wanted, these, too, should be specified as extra equipment.

Avery Motor Truck equipped with Grain Body and All-Weather Cab.

Grain Body—Inside dimensions 90 inches long, 50 inches wide by 26 inches high.



Avery Motor Truck

Six-Cylinder Motor—Internal Gear Drive—Electric Lights and Self-Starter—For Country or City Hauling

THE Avery Motor Truck was designed and built with the idea of enabling the modern farmer to completely motorize or Avery-ize his farm work, by offering him a dependable, reliable motor power as a solution to his haulage problems.

In buying a motor truck, you want speed, power and capacity. Equipped with pneumatic all-weather cord tires and six-cylinder motor, you get in this Avery Truck just the right combination of power, speed and ability for doing the work that you desire. It is a truck that will show you splendid results in the saving of time, effort and money, by reducing your transportation costs, whether doing country or city hauling.

A motor truck on the farm is a paying investment. It enables you to transport your products quickly and cheaply—to take advantage of market conditions—to go further to a better market if you desire—to reduce shrinkage to the minimum in hauling hogs and live stock—to save time and money—to spend less time hauling your products to market and more time at productive work in the field—to offer the young people better education by carrying them to and from consolidated schools and many other advantages. In a recent Government survey of the use of motor trucks on the farm, it was found that 91% of the owners believed their trucks to be a profitable investment.

The city man has long since found the motor truck to be a cheap, dependable power for solving his transportation and delivery problems. It enables him to do his work quicker and cheaper—enlarges his radius of action—opens up new fields of endeavor—gives his customers better service, etc.

The Avery Truck is especially adaptable to both country and city hauling. Like other Avery Machines, this truck is a **quality** machine built throughout with the very best materials, workmanship and units that can possibly be secured. It is designed by men who have had years of experience in motor transportation problems—men who have played leading parts in the development of motors and motor engineering.

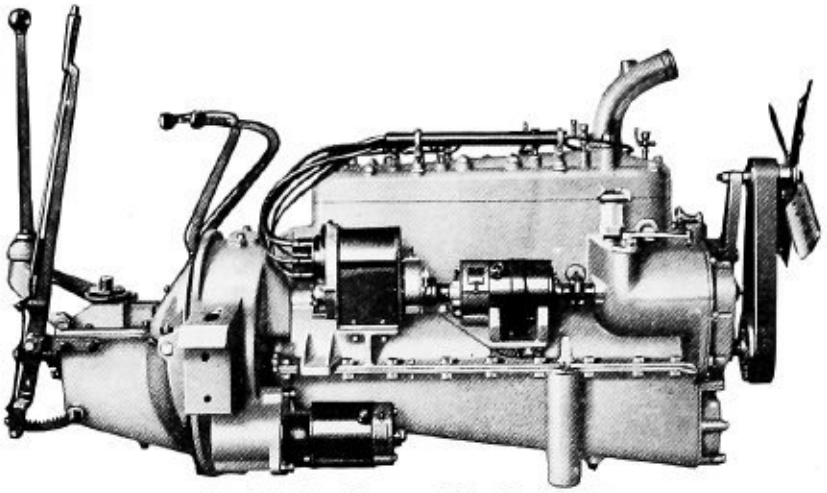
In its construction every piece of material and unit is standardized and has been carefully tested. Raw materials are tested and analyzed before being used; parts are inspected—then the assembled units are inspected and tested; and lastly the completely assembled truck is given a thorough road test and final inspection before shipment.

In all these tests a pay load of 1¼ tons capacity is hauled. We are jealous of the reputation of Avery Machines and we propose to keep their standard of quality as high as possible at all times.

The Avery Motor Truck is sold chassis only, as illustrated on page 56, chassis with all-weather cab including seat, or complete with all-weather cab and a choice of three different bodies—box body for hauling grain, for which a hog or stock rack may be furnished and a stake body. The price of this machine is in keeping with the Avery Company's usual practice of giving the most value per dollar, as you will readily see in looking over the description of the various high-class units in this truck as given on the following pages.

Motor.

SATISFACTORY truck performance depends largely on the motor. Maximum power with the minimum use of fuel is desired for the practical truck. The Avery Truck Motor is of a powerful six-cylinder design with large crankshaft and heavy drop-forged connecting rods. The advantages of the six-cylinder motor are greater flexibility, perfect balance and a more uniform torque than is given by a motor of less number of cylinders. The crankshaft is 1¾ inches in diameter, mounted in three large main die cast bearings of ample capacity for the heavy duty work the truck may be called upon to do. The cylinders are cast en-bloc with removable cylinder head, giving easy access to pistons and valves. Motor has 3-inch bore and 4-inch stroke—N. A. C. C. Rating 21.6 H. P. Is thoroughly lubricated by means of Force Feed and Splash System. Speed, 1,400 R. P. M. Is equipped with a centrifugal governor of the throttling type, which is entirely enclosed and runs in a spray of oil.



Six-Cylinder Motor—Unit Power Plant.

It is thoroughly lubricated at all times by means of a combination circulating splash system and pump. All interior parts are lubricated by the splash in the crank case. A float type of indicator shows the level of the oil at all times. The forward part of the crank case, where the oil pump is located, dips downward so that when the oil is low or when the truck is traveling up hill, the oil pump is sure to be forcing oil to the working parts of the motor.

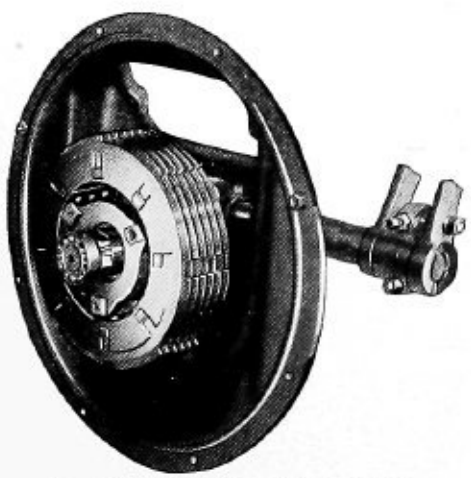
A high tension ignition system with K-W Magneto is used—insures perfect ignition at all times. The magneto is equipped with an impulse starter, which is of considerable aid when starting the motor in cold weather.

The fuel system consists of a 14-gallon tank located under the seat, Stewart Vacuum Tank mounted on the dash under the hood and Stromburg Carburetor. The carburetor receives the air through a tube connected with a hot air stove, mounted on the exhaust pipe of the motor, which connection can be shut off if desired. This results in better motor performance and greater fuel economy in all conditions of weather. Carburetor choke is located on the dash. The fuel supply is controlled by the governor, which prevents the motor racing under light loads. The governor also has a thumb-screw adjustment, by means of which the speed of the motor may be regulated by the operator.

The cooling system combines air and water circulation as the motor is equipped with a belt drive, four-blade fan and Thermo-siphon system with large cellular type of radiator. The capacity is approximately eight gallons. Radiator is also protected by a pressed steel bumper.

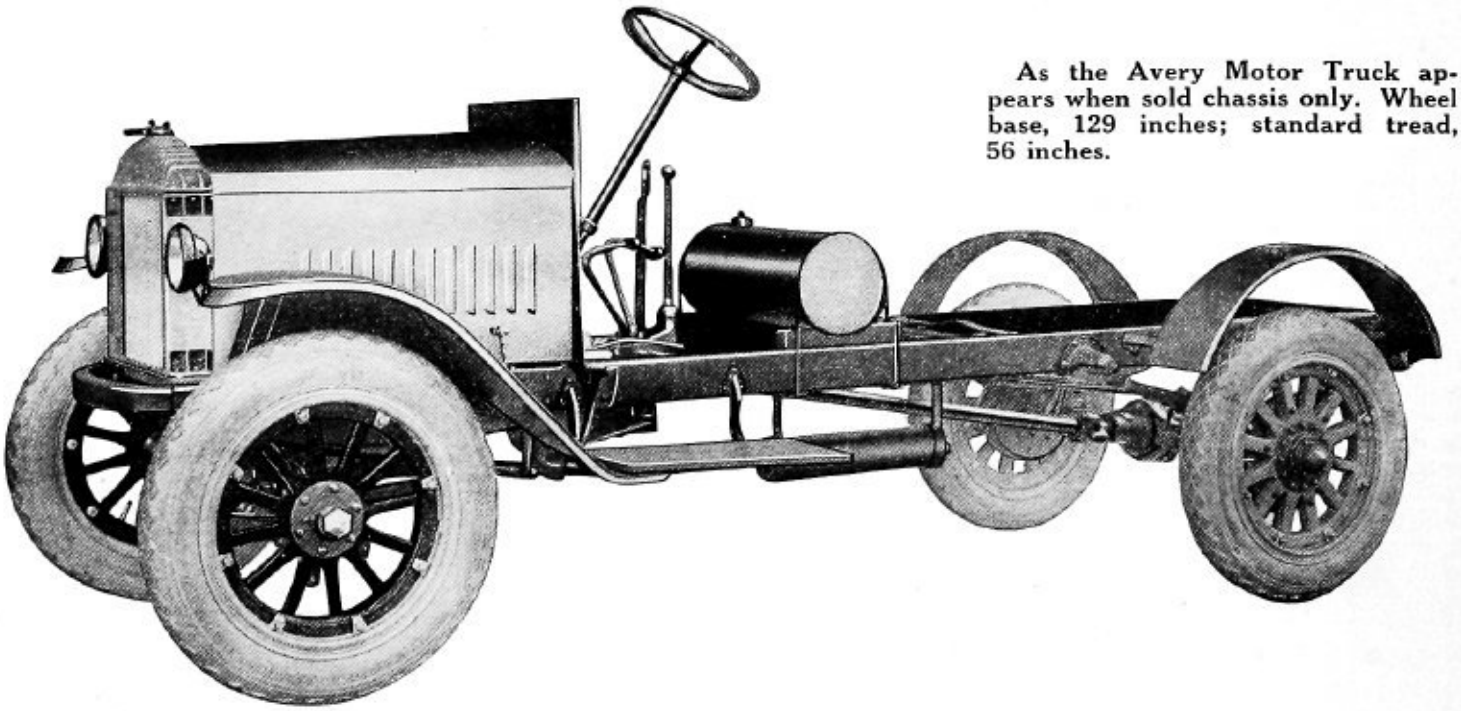
Clutch and Transmission.

At the rear of the motor, forming a part of the unit power plant is mounted the transmission case, which carries a dry multiple disc type of clutch. Has 13 steel discs with Raybestos facing. The transmission is of the selective sliding gear type with three speeds forward and one reverse; high speed on direct drive. All gears and shafts are of high grade nickel steel properly heat treated, carbonized and hardened to give maximum strength and wear. A power take-off is also provided. The gear shift forks and gear shift and brake handles are drop-forged high grade steel.



Dry Plate Multiple Disc Clutch.

Three Speed Transmission.



As the Avery Motor Truck appears when sold chassis only. Wheel base, 129 inches; standard tread, 56 inches.

Drive and Axles.

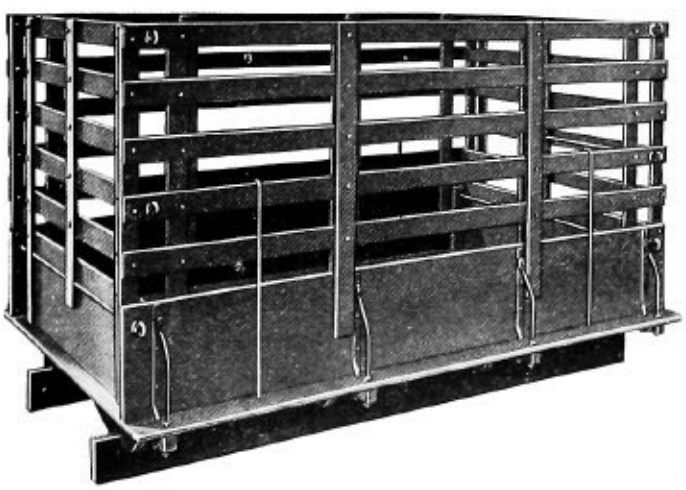
The Hotchkiss type drive, which permits the elimination of radius rods, torque arms and many wearing parts, is used. Its advantages over the use of radius rods lie in the fact that road shocks cannot be transmitted through the rigid radius rods, but are conveyed through the springs, and the life of the truck is therefore increased.

The rear axle is an Avery-Torbensen Internal Gear Drive type. It consists of a solid drop-forged I-Beam member for carrying the load and an independent power transmitting mechanism for driving the truck. Each is specially designed for its purpose and this type of rear axle gives you four big advantages which are: **First,** far less weight for equal carrying capacity—an important feature, as every pound of unsprung weight is as injurious to tires as 8 pounds of sprung weight—means greater economy in oil, gas and tires. **Second,** increased road clearance. **Third,** possibility of using steel forging for weight-carrying member, instead of cast or built up gear housing—means greater reliability and strength. **Fourth,** increased efficiency at low speeds.

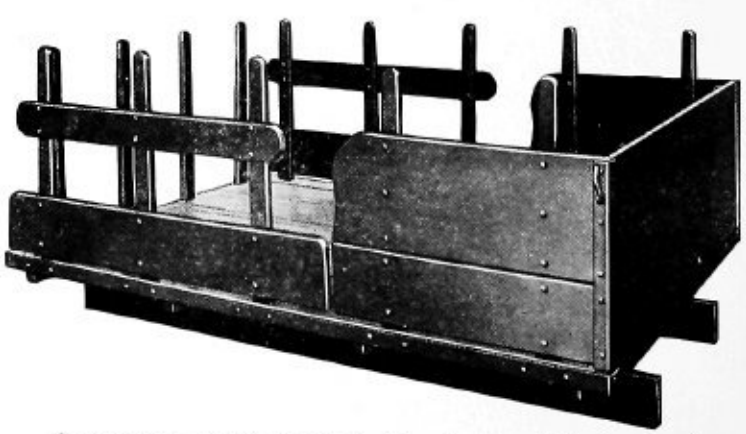
Avery-Torbensen rear axles also have a Powerlock differential—an exceedingly valuable feature in the operation of a truck. It consists of 11 spiral gears so meshed as to permit of one wheel traveling at a different speed from the other, as is necessary when rounding corners. **Nevertheless, it prohibits the spinning of one wheel** when soft ground is encountered and permits the other wheel (which may be on more solid ground) to continue to propel the truck. Thus skidding and stalling are overcome.

The rear axle, like the motor, is one of the most important units in a truck, and in the Avery Truck these two units are the best that can be had.

The front axle is of the inverted Lemoine Type, a type that has proven to be the best for truck usage. It is a drop-forged I-Beam section carefully heat treated; the steering knuckles are drop-forged of Chrome Vanadium Steel, heat treated to withstand the shocks of the road. The front axle carries cast steel



Hog Rack attached to Grain Body.
90 inches long, 50 inches wide, 48 inches high.



Stake Body—With boards inside of stakes 92 inches long by 58 inches wide, and with boards on the outside of the stakes 96 inches long by 60 inches wide. Stakes 32 inches high.

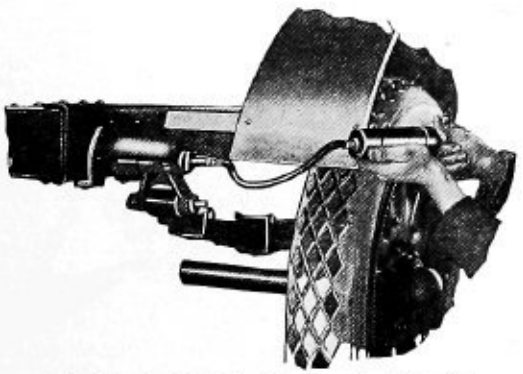
torsion brackets, securely bolted to pressed steel torsion arms, which in turn are riveted to a drop-forged steel torsion ball, which is fastened to the bell housing of the motor. By means of this construction—a single transverse front spring and the ball joint—the greatest amount of flexibility is obtained, so that road inequalities are easily cared for.

Frame and Springs.

A pressed steel frame—5-inch channel section, with 2-inch flange is used. Has three cross members and bumper in front. Riveted to the frame are the step-hangers, brake rock shaft brackets, rear spring and tail lamp brackets. Both front and rear springs are Chrome Vanadium Steel, scientifically heat-treated. This is the toughest and strongest material for springs made today. This material is so strong that a bar 1 inch square can take a load of 200,000 pounds before breaking—which speaks well of the quality of materials used in Avery Trucks. Rubber bumpers are also provided so that when traveling over bad roads, the rear springs do not get the brunt of the shock.

Wheels and Brakes.

Artillery type wood wheels with roller bearings both front and rear are used. They are fitted with Goodyear Demountable Rims and carry Goodyear 34 x 5-inch all-weather tread pneumatic cord tires.



Alemite Lubricator System is Regular Equipment.

Avery-Torbensen Rear Axle

Note strong, solid-forged I-Beam below. It does nothing but carry the load, taking all the strain off the driving parts.

The rear wheels are also provided with two sets of brakes. The service brake is foot operated and is external contracting. The Emergency Brake is operated by a hand lever and is internal expanding.

A Ross Steering Gear is used in connection with front wheels and results in great ease of operation. Is left-hand drive with gear change and emergency brake lever located in center at right of driver.

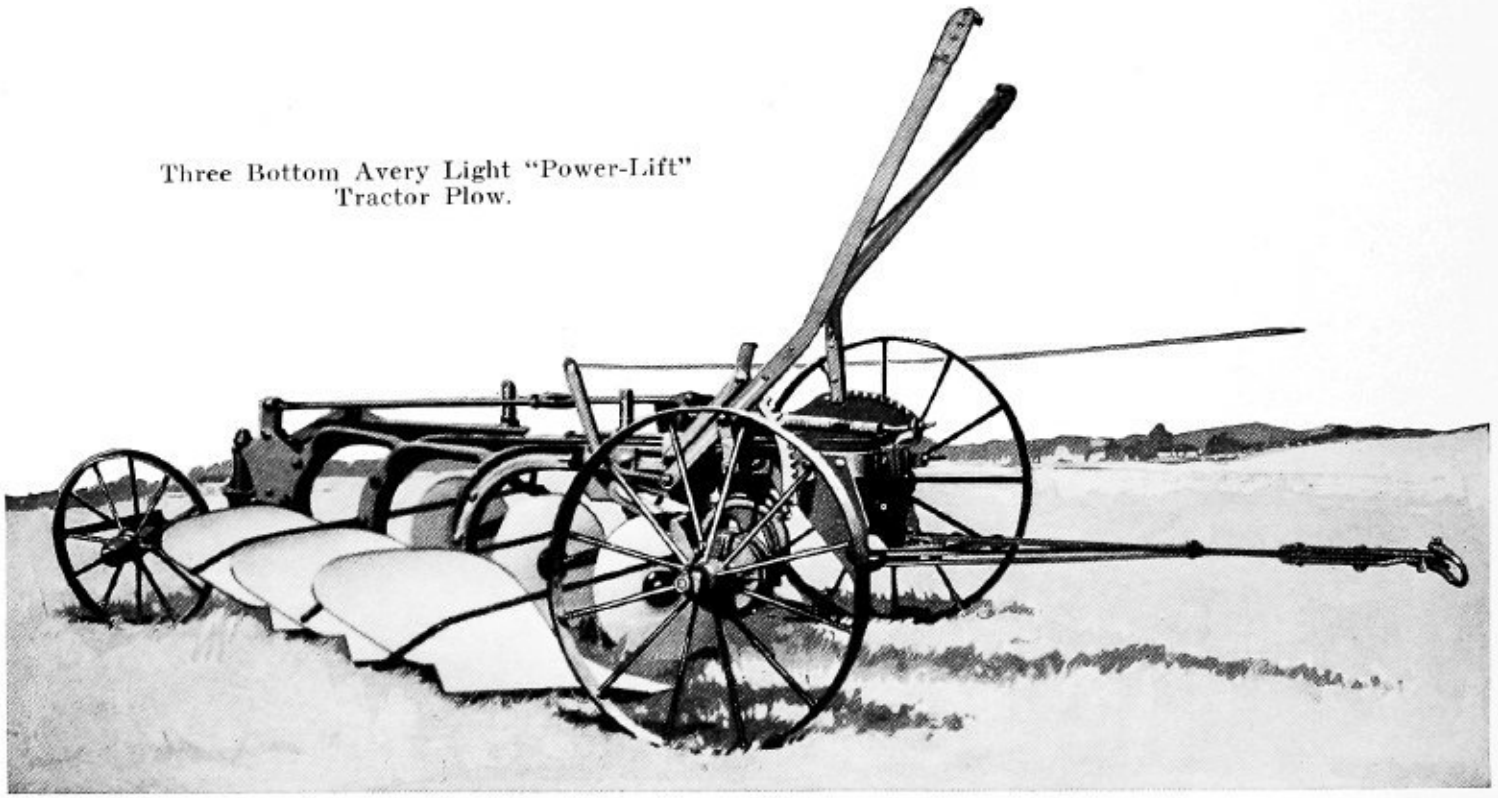
Equipment.

This truck is regularly equipped at no additional expense with pneumatic cord tires; front and rear wheel fenders; Alemite Lubricating System, tool kit, hand pump, Westinghouse 2-unit starter and generator; Willard Truck type battery; Klaxon horn; double bulb head lamps; tail lamp with license bracket and dash lamp. Also one extra demountable rim.

Inequalities in the road are easily cared for by this efficient type of front spring construction.

The weight of the chassis only is approximately 2,800 pounds, cab 200 pounds additional, stake type of body 575 pounds additional, and grain box type of body 400 pounds.

Ross Steering Gear.



Three Bottom Avery Light "Power-Lift" Tractor Plow.

Avery Light "Power-Lift" Tractor Plows

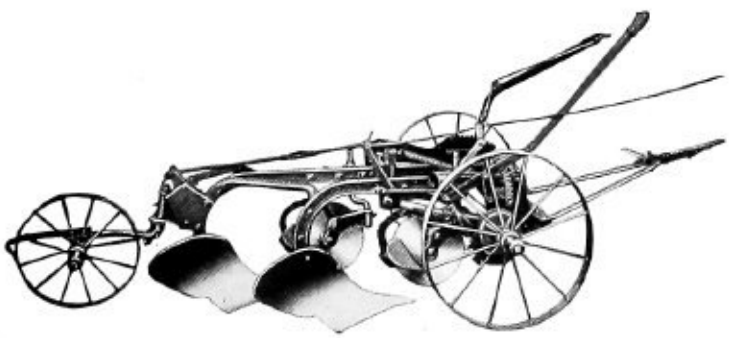
Rigid Beam Type

IN addition to having a complete line of tractors from which you can select a size to exactly fit your needs, we are also in position to supply you with the size plow you need in either light rigid beam or heavy independent beam styles. You will find our light tractor plows shown on these two pages. On the following two pages our heavy independent beam type are shown, while on the next four pages are shown our tractor disc plows and brush plow.

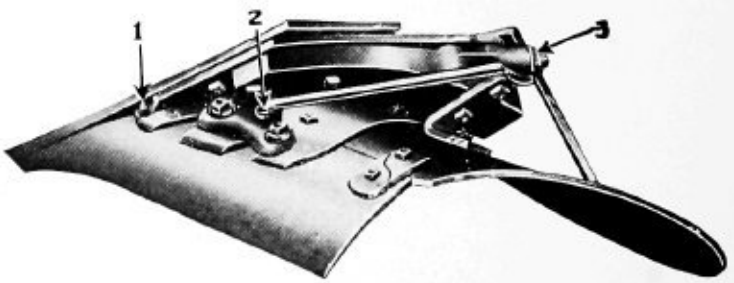
The light tractor plows are built in four sizes, 2, 3, 4 and 5 bottoms. They are regularly equipped with rolling coulters, weed hooks, and tractor hitch. These plows are built with either 12-inch or 14-inch bottoms. The regular equipment includes breaker bottoms, Texas black land, stubble, mixed land or turf and stubble bottoms. Coulter-jointers can be furnished extra if desired.

These plows do first-class work and are easy to handle. The bottoms are guaranteed to scour in any soil where any other moldboard plows will scour.

In changing shares it is not necessary to remove a bolt or nut. One or two short turns of the wrench releases the share lock, allowing the share to be slipped off. The releasing nut is set high where it is easy to get at—you don't have to get down under the bottom.



Two Bottom Avery Light "Power-Lift" Tractor Plow. Also Built in Three, Four and Five Bottom Sizes.



Quick Detachable Share—Regularly Furnished.

Some Special Features of the Avery Light "Power-Lift" Tractor Plows

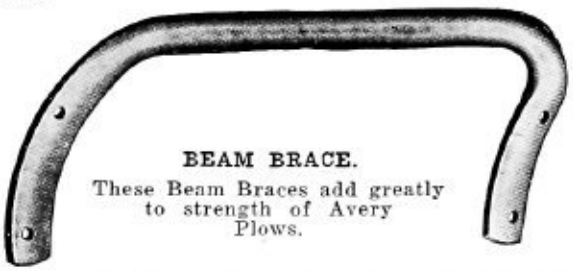
THE Avery Light "Power-Lift" Tractor Plows have in their construction four essentials that a successful tractor plow must have.

First: They have a **safe margin of strength.** This is important, because a breakdown means expense and also delays the work of plowing — sometimes with disastrous results.

Second: They have remarkable **simplicity.** In the power-lift device there is a complete absence of unnecessary "trigger work." There is no complicated mechanism likely to give trouble under the strain of hard plowing conditions.

Third: They are extremely **convenient to handle.**

Fourth: They are built with **ample clearance** to prevent clogging when plowing deep in trashy fields. This is becoming an extremely important feature because the practice of spreading straw is growing more popular.



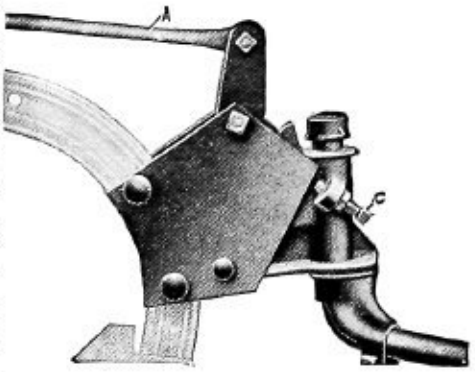
BEAM BRACE.
These Beam Braces add greatly to strength of Avery Plows.

As regards **Strength** in the Avery Light "Power-Lift" Tractor Plows the use of cast iron has been avoided wherever practicable. The predominance of high grade steel in the construction of the Avery means more years of service and less expense for repairs. The front axles are 1¾ inches in diameter instead of 1½ inches as used in other tractor plows. Another element of strength in the Avery is the braces between the beams. These are of extra size, with a long bearing on each beam. They curve downward on the beams, giving great strength just where strength is needed. The beams are 2⅛ inches wide by 2⅞ inches deep, with a high curve at the throat, giving plenty of clearance even in the deepest plowing. Coulter stems also are of extra size and strength.

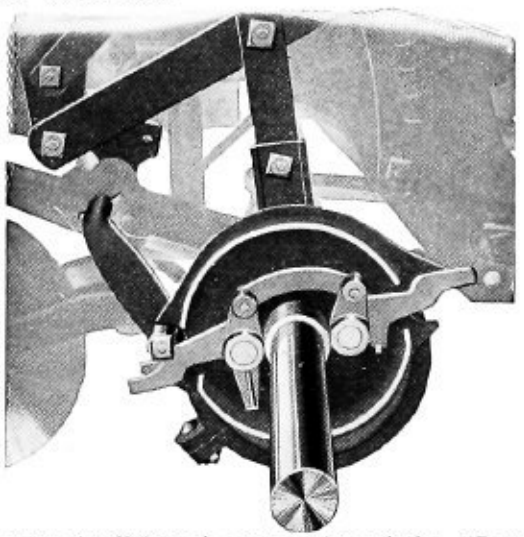
As regards **Simplicity,** the part of a tractor plow most likely to get out of order is the power-lift device. The man who knows tractor plows will appreciate the simplicity of the lifting device on the Avery. It consists of a strong, simple clutch mounted on the furrow axle and connected directly to the furrow lever. This construction does away with chains and sprockets. The wheel box forms the moving part of the clutch, thus reducing the number of wearing parts. The power-lift acts on all three wheels, raising all plow bottoms level and to a height that prevents picking up trash when passing over headlands.

As regards **Convenience,** most tractor plows are constructed so that in order to change the depth of plowing it is necessary to adjust both levers, because in adjusting the leveling lever the position of the furrow wheel is changed. On the Avery the quadrant for the land (or leveling) lever is attached to the furrow axle. The leveling lever itself is attached to the leveling axle by means of a link, thus making it possible to adjust the leveling wheel for various depths of plowing without adjusting the furrow wheel. Both lever quadrants are also made of heavy steel. Another important advantage in this Avery Plow is that both the levers remain stationary when the plow bottoms are raised to transport position or lowered to working position by the power-lift. Both levers are also within easy reach all the time, and the depth of plowing can be changed without stopping the tractor.

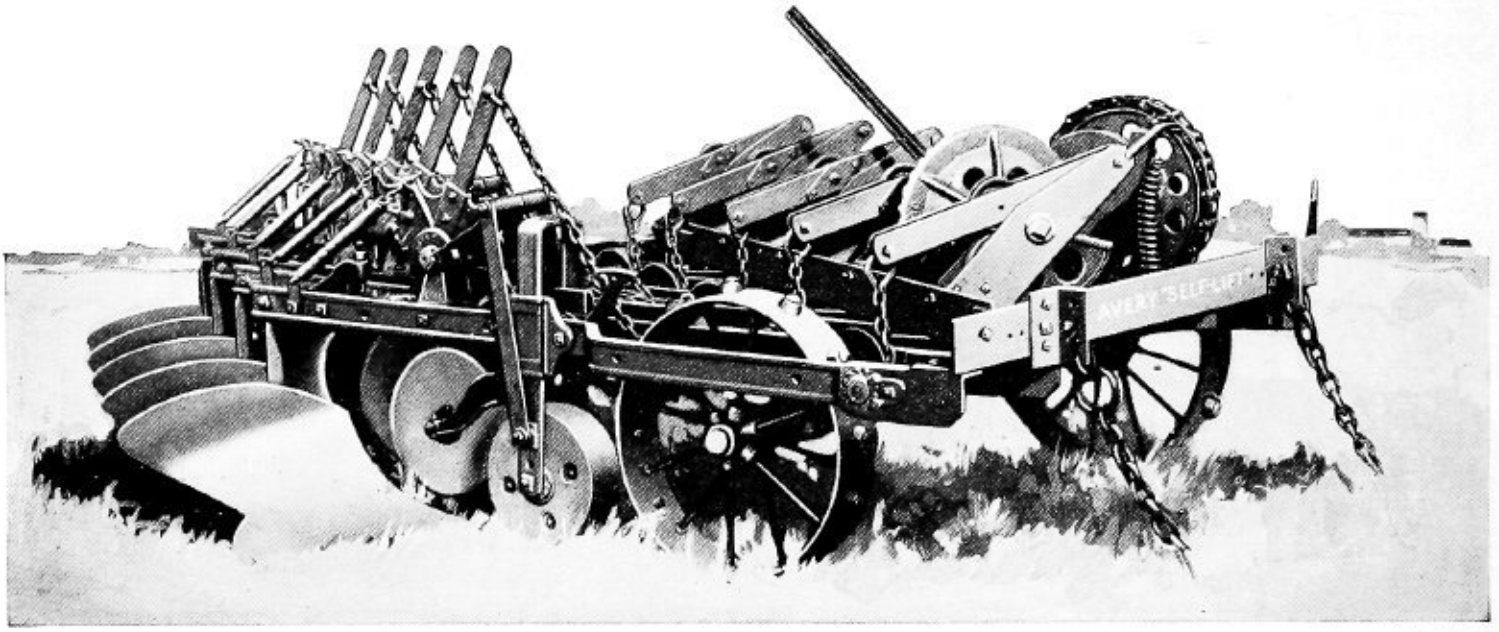
As regards **Clearance,** there is a wide clearance between the plow bottoms and between the front furrow wheel and the front bottom. When using a horse-drawn plow, the operator usually sees the trash as it accumulates, and can remove it with hand or foot. In tractor plowing, his attention is centered on the tractor, and the plow bottoms are outside his range of vision. Hence, in tractor plowing in a trashy field, if there is not wide clearance between the bottoms and between the furrow wheel and the front bottom, trash will accumulate before the operator is aware. Then the front wheels may raise, making it impossible to operate the power-lift and the operator must get down and "dig out" trash with his hands. The rear furrow axle is provided with a simple adjustment for giving the plow bottoms more or less penetration. All the wheels are extra large—32-inch in front, 24-inch in rear. This extra size results in a steady running plow because the larger wheels are less affected by inequalities in the surface of the land. The wheels have broad tires, steel hubs, staggered spokes, and are fitted with dirt-proof boxes and threaded grease caps of large size. Wheels are keyed on axles from the outside—inside collar cannot wear out wheel box.



When power lift is released to throw bottoms into ground, connecting rod A moves back, tripping lock back of plate B, allowing plow bottoms to enter point first. Set screw C is then in contact with plate B. Advancing set screw C increases pitch of shares; withdrawing it decreases pitch.



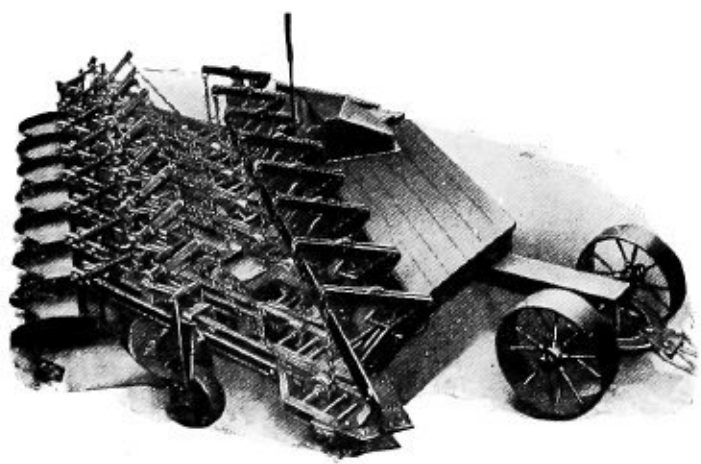
Showing the simplicity of construction of the "Power-Lift" Devise on Avery Light Tractor Plows. It is mounted on the furrow axle.



Avery Heavy "Self-Lift" Tractor Plows

Independent Beam Type

IN THE AVERY Independent Beam "Self-Lift" Tractor Plow, each plow is attached to the frame independent of the others. It is free to raise or lower according to the conditions of the ground and to follow its furrow without being affected by any other plow. If one plow strikes a stone or other object it does not affect any of the others.



Avery 8-Furrow Independent Beam Heavy "Self-Lift" Tractor Plow. 6-Furrow Plows are also built in this style.

Avery 5-Furrow Independent Beam "Self-Lift" Engine Gang. **(See large illustration above.)** 3 and 4 Furrow Plows are also built in this style.

The Avery "Self-Lift" Plow also has unusual strength. Each plow has double heavy beams spread at the front end to give a wide bearing where coupled to the frame. One of the beams is straight, while the other receives only a side bend. The Avery Plow may be pulled through ordinary rocky ground without danger of breakage or bending of the beams, but if by any accident a beam should become sprung, it can be straightened by an ordinary blacksmith.

The position and character of the gauge wheel on an Avery Plow is also worthy of special note. It is located directly in front and just forward of the point of the plow. Each plow being entirely independent of the others and the gauge wheel being located in this position, it carries the point of the plow at a uniform depth at all times, which is one of the most important elements in perfect plowing.

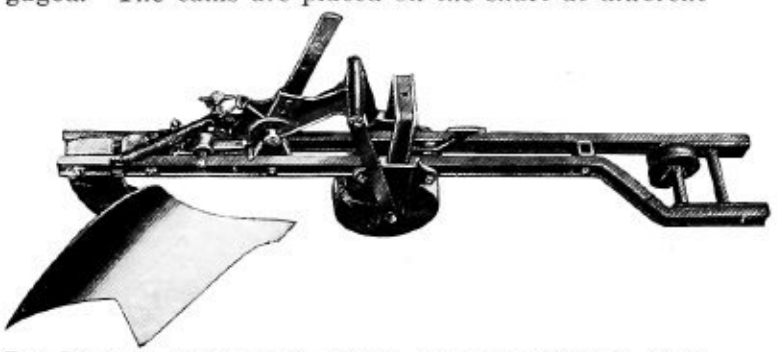
Avery "Self-Lift" Plows were the first "Self-Lift" Tractor Plows built, and are fully covered by patents Nos. 819,223; 909,919; 933,858; 936,767. We have numerous other applications for patents pending, also Canadian patents and patents pending in Canada. The matter of infringement of patents and damages has already been taken up and will be pushed vigorously against all infringers not licensed under our patents. Manufacturing licenses under our patents have been granted only to the following companies: Deere & Co., M. Rumely Co., Grand Detour Plow Co., Holt Manufacturing Co., and Cockshutt Plow Co. in Canada.

How the Avery "Power-Lift Self-Drop" Device Works

IN the construction of the "Power-Lift Self-Drop" Device on the Avery Plow, a large simple clutch is used. When the cord is pulled, the clutch immediately engages and the cord can be at once released. It is not necessary to hold it. All you have to do is to pull it an instant until the clutch is engaged.

The Plow Wheel is provided with grouters to prevent slipping, and the axle, to which the wheel is rigidly attached, carries a sprocket wheel from which power by means of a sprocket chain is conveyed to the clutch mechanism.

When the operator wishes to lift the plows, he simply pulls on the cord and this engages the clutch much after the fashion of the ordinary binder trip. This transmits the power to a diagonal shaft, extending the length of the plow frame, upon which is located an individual cam and lever for lifting each plow. This shaft turns one-half revolution when the clutch is engaged. The cams are placed on the shaft at different



Top View of Single Plow of the Avery Independent Beam "Self-Lift" Tractor Plow. Showing the Double Straight Heavy Beams.

angles. When the shaft turns, the cam for the forward plow operates to raise its plow first and each of the other plows are raised in turn when they reach the point where the first plow emerged from the ground.

To drop the plows, the cord is again pulled and the clutch engaged; when the diagonal shaft turns the other half revolution, the first plow drops ahead of the rest and each plow in turn drops when it reaches the point where the first plow entered the ground.

Accurate Adjustments

The Adjustments on the Avery Plow are unusually accurate. The depth of plowing is regulated by a hand screw, as will be noted in the illustration, and can be changed easily and accurately. Much finer adjustments can be made than with a hand lever. In an advertisement one manufacturer states that the lever notches on their plow provide adjustments of ½-inch in depth, while with the screw thread adjustment on the Avery Plow you can adjust the depth to any fraction of an inch.

A Set Screw is also used on the plow standard to raise or lower the point of the plow to give more or less suck. An absolutely accurate adjustment can thus be easily gotten.

In attaching the plows to the frame an eccentric coupling is employed for lining or winging the plows. After this very important adjustment has once been made, it is rarely ever necessary to adjust again during the life of the plow.

Other Features On Avery "Self-Lift" Plows

The Avery Plow is mounted on supporting wheels of wide face and large diameter, all of which run on the unplowed ground. The construction of the Avery Plow is such that there is no side draft requiring a furrow wheel. The plow will follow the tractor without slipping on the ground, and as all the wheels run on the unplowed ground, no special adjustments are necessary when opening up a new land. The width of the first furrow is gauged uniformly by a self-guide on the tractor.

By using Cross Chains for hitching the plow to the engine, the operator may commence turning at the end when the front wheels of the tractor are even with the end of the plowing and the plow will follow straight out, thus requiring only a short turning space at the end.

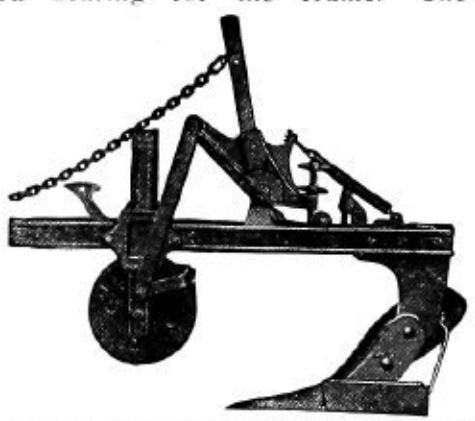
The Gauge Wheel itself is 13 inches in diameter and has a 4-inch face. It is made of two shell castings bolted together and constructed in such a way that both faces of the wheel are completely enclosed and there is no rim to pick up and fill with mud or soft earth. It is carried on a hard maple bearing. This bearing receives a special treatment which thoroughly saturates it with special oil, and it will run in dust an indefinite period without lubrication. If it should ever wear, the box can be replaced as good as new at a very slight cost.

An Adjustable Scraper on the gauge wheel prevents accumulations on the face of the wheel and may be used or removed as desired, according to the condition and character of the ground. It is constructed in such a way that it does not interfere with the adjustment and working of the rolling coulter.

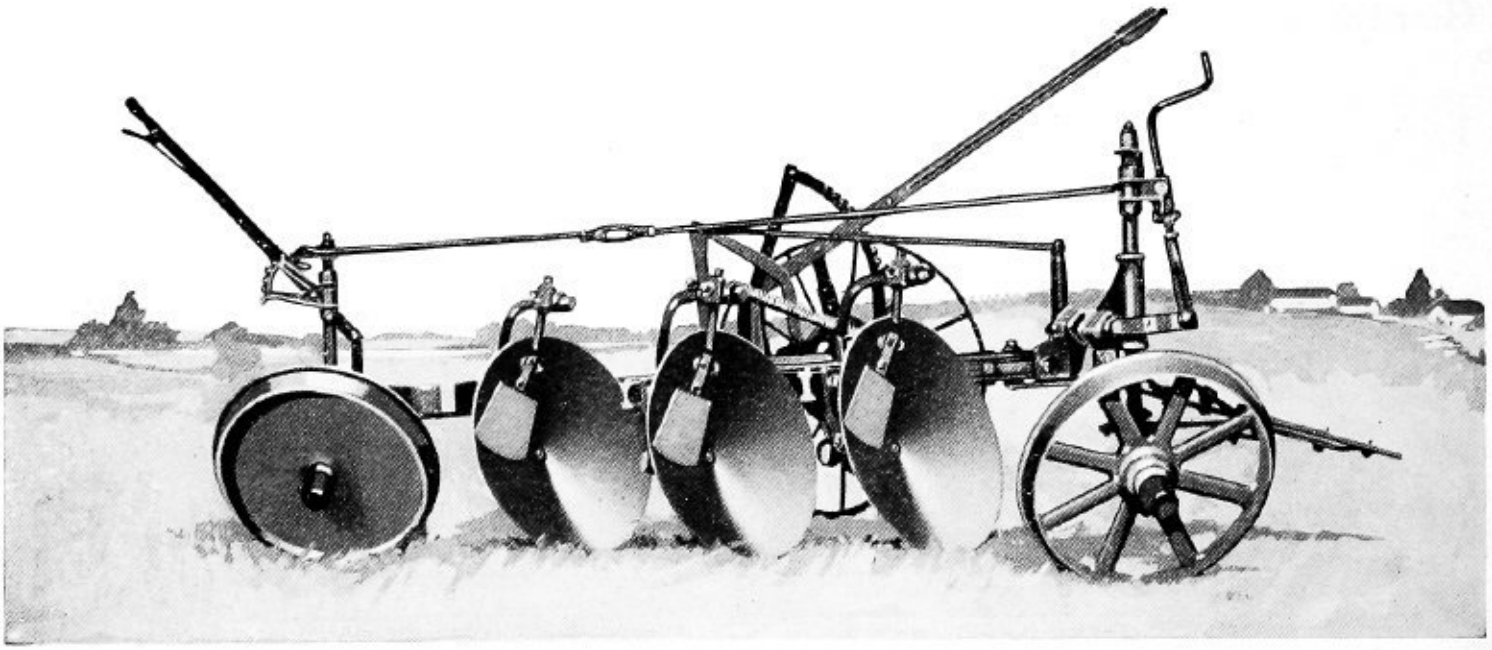
On the 3, 4 and 5 Bottom Plows we use a malleable standard; on the 6 and 8 bottom we use a heavy cast standard. The plow bottoms are made of heavy material and will stand the grief incident to being pulled by steam or gas tractors in tough or stony land. Any type of bottom will interchange with the beams on any size plows.

The Plow Frame, including the plow hitch, is made of steel plates, angle iron, and channel bars riveted solidly together, thus making a construction that is very strong and proof against breakage. The castings that undergo the most severe strains are malleable, and the whole machine, aside from being very strong, is so designed as to be light in weight.

The 6 and 8 Gang Plows are mounted on four wheels. The 3, 4 and 5 gang plows have two main plow wheels, and one of the single plow gauge wheels serves as a third bearing for the frame. The wheels are built with renewable boxes and are equipped with hard oil cups and so designed that they do not gather mud or trash in wet soil to cause them to clog. They are possessed of sufficient freedom to overcome any trouble of this sort.



Showing the Adjustment Screws on the Avery "Self-Lift" Tractor Plow.

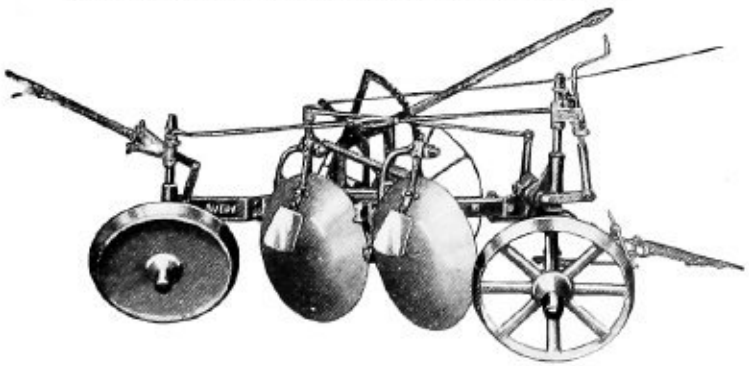


Three-Disc Avery Tractor Disc Plow.

Avery Tractor Disc Plows

AVERY Tractor Disc Plows can be furnished in three sizes with two, three or four discs and with 24-inch discs. The third and fourth beams can be quickly removed or put on with the simplest tools that are found on any farm. The two-disc plow cuts 18 to 22 inches; the three-disc from 24 to 30 inches; the four-disc from 32 to 36 inches.

These plows meet the demand for a plow that will work in soils which cannot be successfully broken with a moldboard plow and are especially adapted for use in sticky, waxy, gumbo and difficult prairie soils. They are also used to advantage in old or stubble lands, and wherever deep plowing is desired.

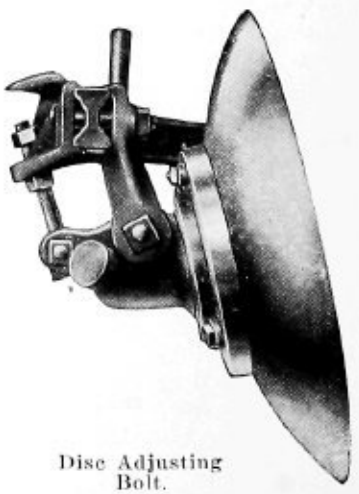


Two-Disc Avery Tractor Disc Plow.

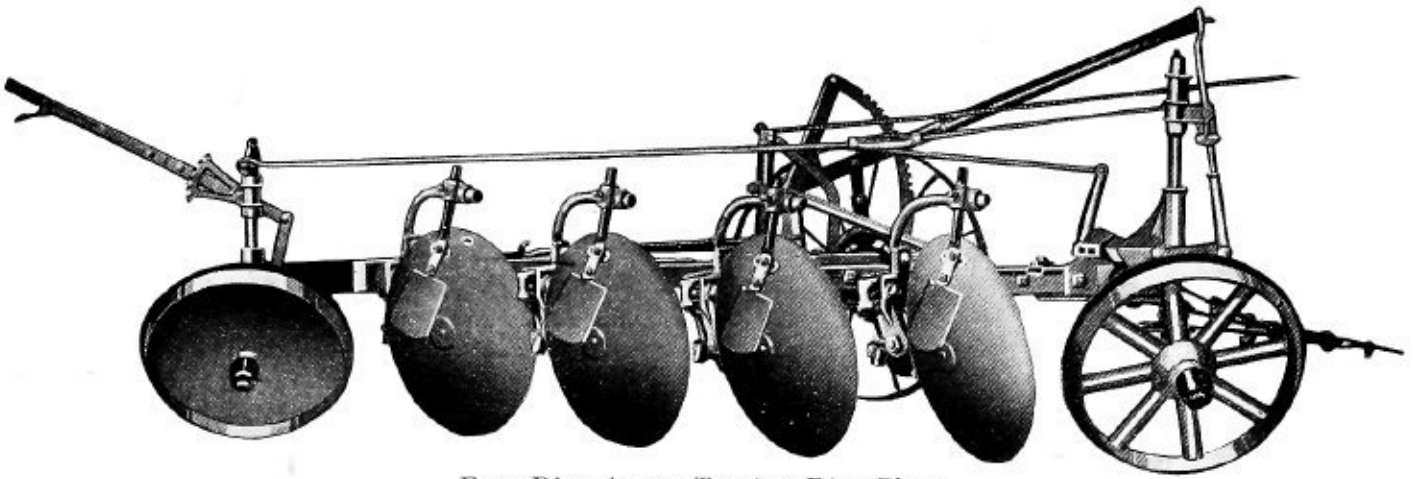
Ample Penetration Without Excessive Weight

The Avery Disc Plow is not clumsy and loaded with excessive weight to give sufficient penetration in hard ground. Instead improved principles of construction which enable this plow to turn soil too hard for the average plow to handle have been applied.

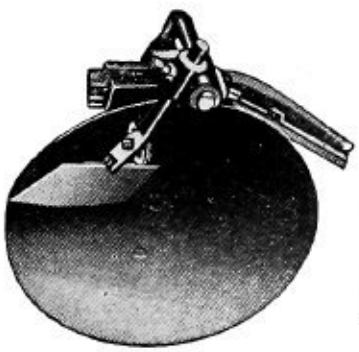
The disc adjusting bolt illustrated on this page allows the set, or tilt, of the discs to be changed easily and quickly to meet different conditions of soil. Each disc can be moved in or out on its beam as much as two inches. Thus in working in extra hard ground, the furrows can be narrowed; when the soil loosens up after a rain, the discs can be set to cut wider furrows.



Disc Adjusting Bolt.



Four-Disc Avery Tractor Disc Plow.



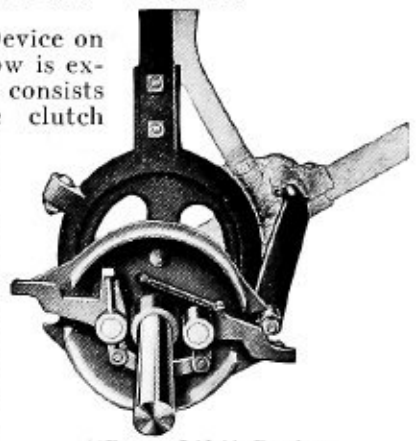
Adjustable Scraper.

Adjustable Scraper Blade

The proper working of the disc plow depends to a large extent upon the position of the scraper blade against the disc. In this plow the scraper blade can be adjusted so it rests on the disc at just the right point and at an angle that will turn the furrow slice to the best advantage.

"Power-Lift" Device

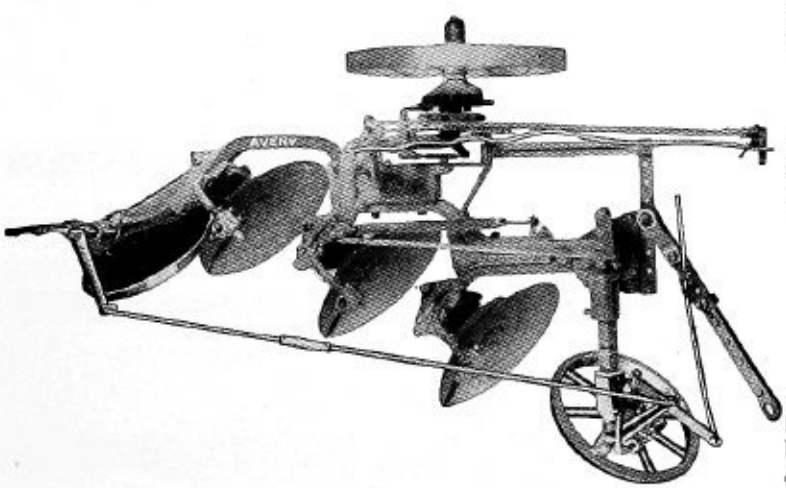
The "Power-Lift" Device on the Avery Tractor Plow is extremely simple. It consists of a strong, simple clutch mounted on the land axle and is directly connected to the leveling lever. This construction does away with chains and sprockets. The wheel box forms the moving parts of the clutch, thus reducing the number of wearing parts to the minimum.



"Power-Lift" Device.

Short Turning

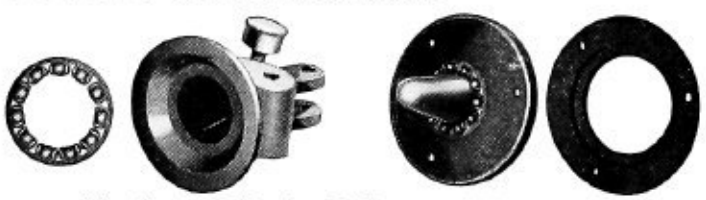
The drawbar in the Avery Tractor Disc Plow is pivotally connected to the plow as shown below. When it is swung to one side or the other, the front furrow wheel is automatically angled in the same direction and the rear wheel in the **opposite** direction. This permits making a short turn to the right or left as desired.



Top view of Avery Tractor Disc Plow showing angularity of front and rear wheels in turning round. This permits the making of a very short turn to either right or left.

Bearings

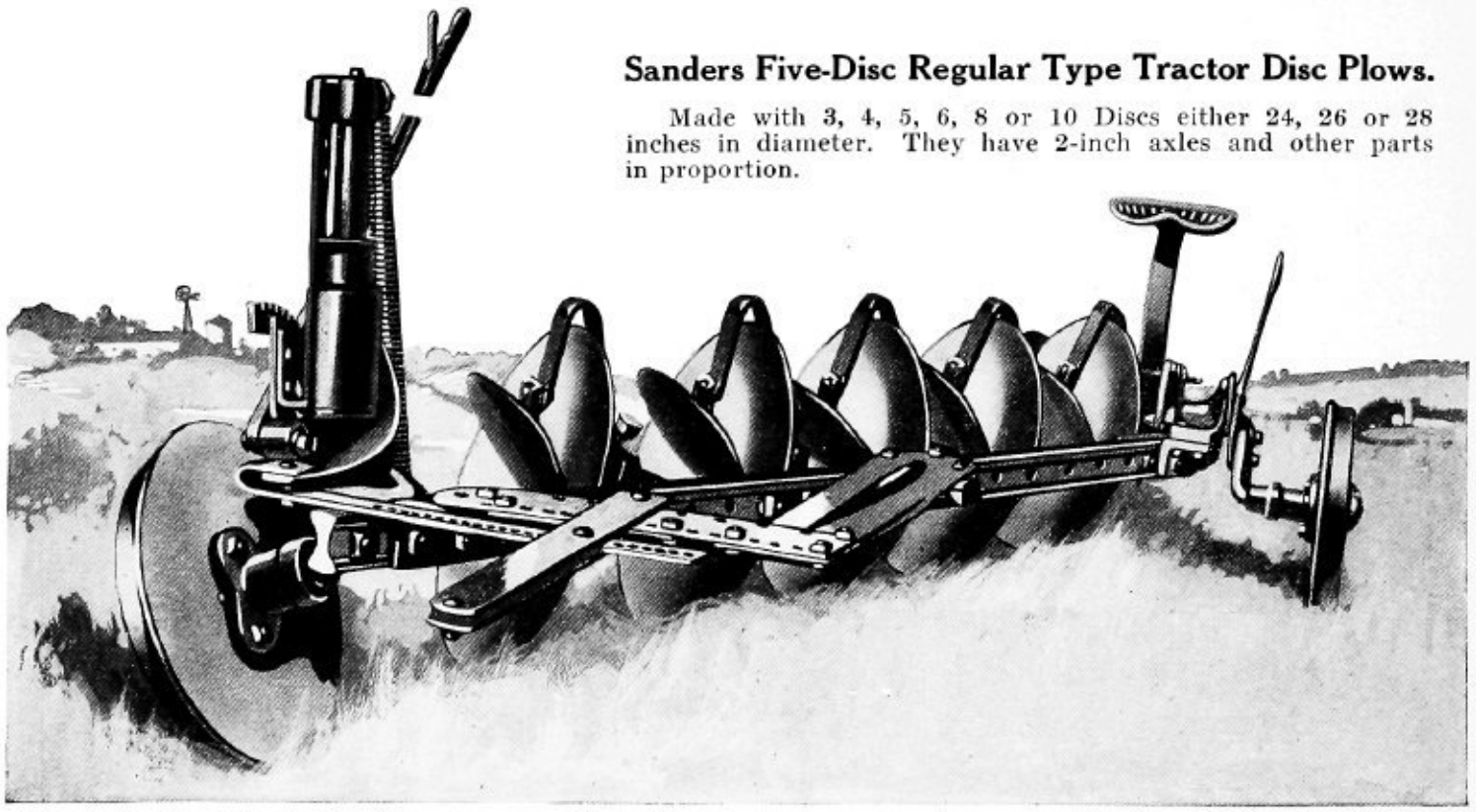
The bearings on a disc plow are of vital importance because they carry a tremendous thrust. The bearings on the Avery Tractor Disc Plow meets the three requirements of strength, light draft and long service. They have a large tapered spindle which is unusually strong, and the ¾-inch ball bearings are of extra high quality and set in a retainer of large diameter in such a way that they carry the entire pressure of the discs. The draft is thus greatly reduced.



Disc Bearing Showing Ballrace and Disc Spindle.

Strength

The construction of the rear furrow wheel and axle on the Avery is unusually strong. This is a highly important feature because these parts must bear the great strain caused by the immense pressure of the soil against the discs. Both wheel and axle have a safe margin of strength. The axle is so mounted in a heavy casting that the wheel is held securely in alignment in relation to the rear discs, no matter how hard the plowing.



Sanders Five-Disc Regular Type Tractor Disc Plows.

Made with 3, 4, 5, 6, 8 or 10 Discs either 24, 26 or 28 inches in diameter. They have 2-inch axles and other parts in proportion.

Sanders Tractor Disc Plows

SANDERS Tractor Disc Plows are light draft and do excellent work. They will plow deep, taking the place of subsoil plows. They leave the bottom of the furrow loose so as to absorb water and allow the roots of the crop to go down. They pulverize the soil equal to one harrowing. They make a mellow seed bed and will draw everything down and turn under vines, weeds, stalks and stubble. They will plow in sticky or hard ground. It hardly ever gets too dry to plow with a Sanders Disc Plow.

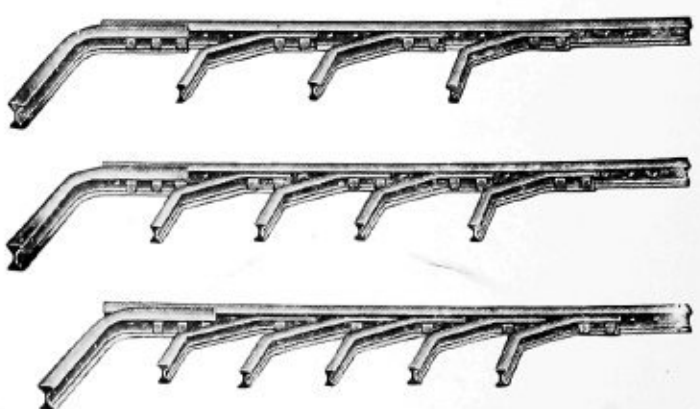
Showing Method of Fastening Sanders Patent Discs — Also Oiling Bearings.

These plows are simple in construction with nothing to get out of order. They are strong and rigid. The frame being low makes the plow run steady and presses everything down to be turned under. These plows can also be furnished in a number of sizes. The Sanders Light Tractor Disc Plows are built with 2, 3, 4 or 5 discs either 24, 26 or 28 inches in diameter. They have 1½-inch axle and other parts in proportion. The discs can be set to cut 6, 8 or 10-inch furrows. They also have improved front wheel lift and Self-Guiding Hitch, and they can be furnished with "Power-Lift" if desired. The wheels have combined grease cups and dust-proof caps, and the plow comes regularly equipped with a 5-foot chain to attach direct to the tractor. Wheels 3 and 6 inches wide furnished at extra cost.

The Sanders Regular Type Tractor Disc Plows are built with 3, 4, 5, 6, 8 or 10 discs either 24, 26 or 28 inches in diameter. They have 2-inch axles and other parts in proportion. The discs can be set to cut either 6, 8 or 10-inch furrows, and the number of discs can be changed very readily. This type of Sanders Plow also has a "Self-Guiding" Hitch.

Wheels have combined grease cups and dust-proof caps and can also be furnished either 3 or 6 inches wide at an extra cost. The regular equipment also includes a 5-foot chain for attaching plow direct to the tractor. Both types of plows are regularly set up to cut 10-inch furrows unless otherwise ordered.

The framework of the Sanders Plow consists of a main frame which is a solid steel bar made expressly for the purpose, to which is bolted a series of strong beams which carry the discs. All the principal parts of the plow are bolted direct to the main frame. One-inch bolts are used throughout the frame.



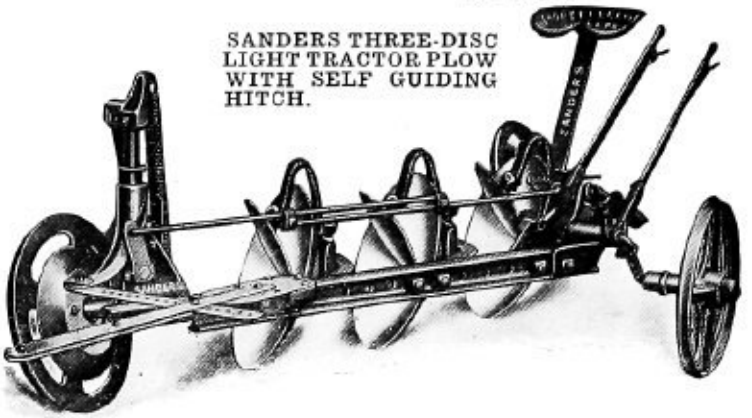
Sanders Patent Disc Plow Frames, Set for Different Widths of Furrows and Number of Discs.

By means of a series of equally spaced holes in the main frame the beams can be bolted on at any point along the entire length of the main frame so that the discs can be set to cut any width of furrows. The rear beam which has to carry so much more than the other beams is attached to the main frame by an extra long bearing and by three bolts instead of two. The entire construction is unusually strong and rigid as well as simple.

The Sanders Disc Plows have a Guiding Hitch for controlling the front furrow wheel so that they readily follow the engine in turning to the right or left. The connecting bar between the draft bar and controlling arm on the front axle is horizontal at all times, so that the direction of the front wheel is not changed when the front lever is operated as is the case with other plows. All these parts are made of spring steel, and are light, elastic and strong.

By means of a series of holes in the front axle link, a greater adjustment of the front end of the plow can be had.

The discs used in Sanders Plows are made with a Patented Countersunk Seat, by pressing back the center of the disc into the shape of a countersunk head bolt, which gives a perfectly smooth surface over the entire face of the disc. One large bolt is used and that is at the center of the disc where there is no motion. (See illustration on the opposite page.)



SANDERS THREE-DISC LIGHT TRACTOR PLOW WITH SELF GUIDING HITCH.

Made with 2, 3, 4 or 5 Discs either 24, 26 or 28 inches in diameter. They have 1½-inch axles and other parts in proportion.

The number of discs cutting different widths of furrows that can be used on each size frame is as follows:

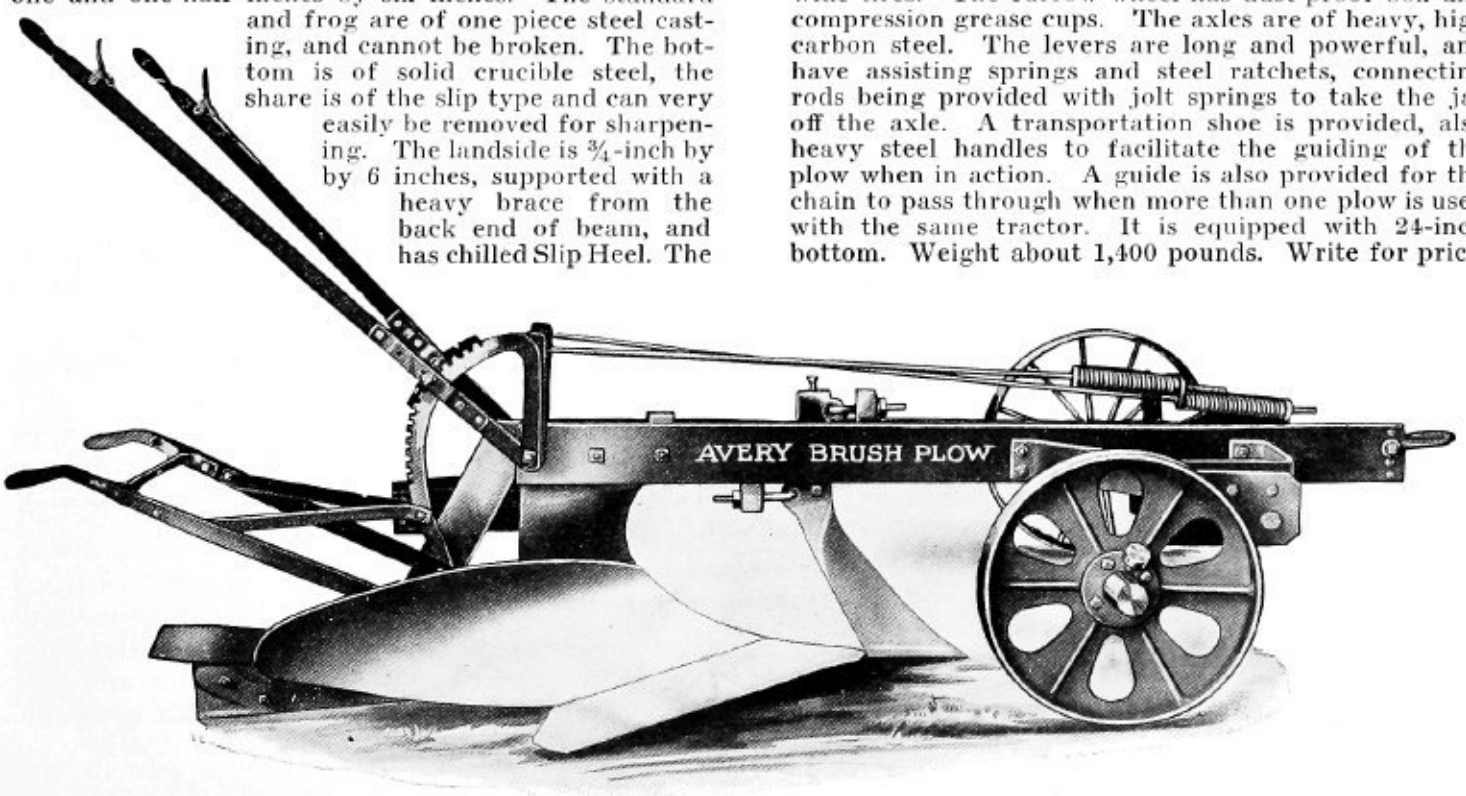
		10-inch Furrows	8-inch Furrows	6-inch Furrows
Two	Disc Frames	2	2	3
Three	Disc Frames	3	3	4
Four	Disc Frames	4	5	8
Five	Disc Frames	5	6	8
Six	Disc Frames	6	7	10
Eight	Disc Frames	8	10	13
Ten	Disc Frames	10	12	16

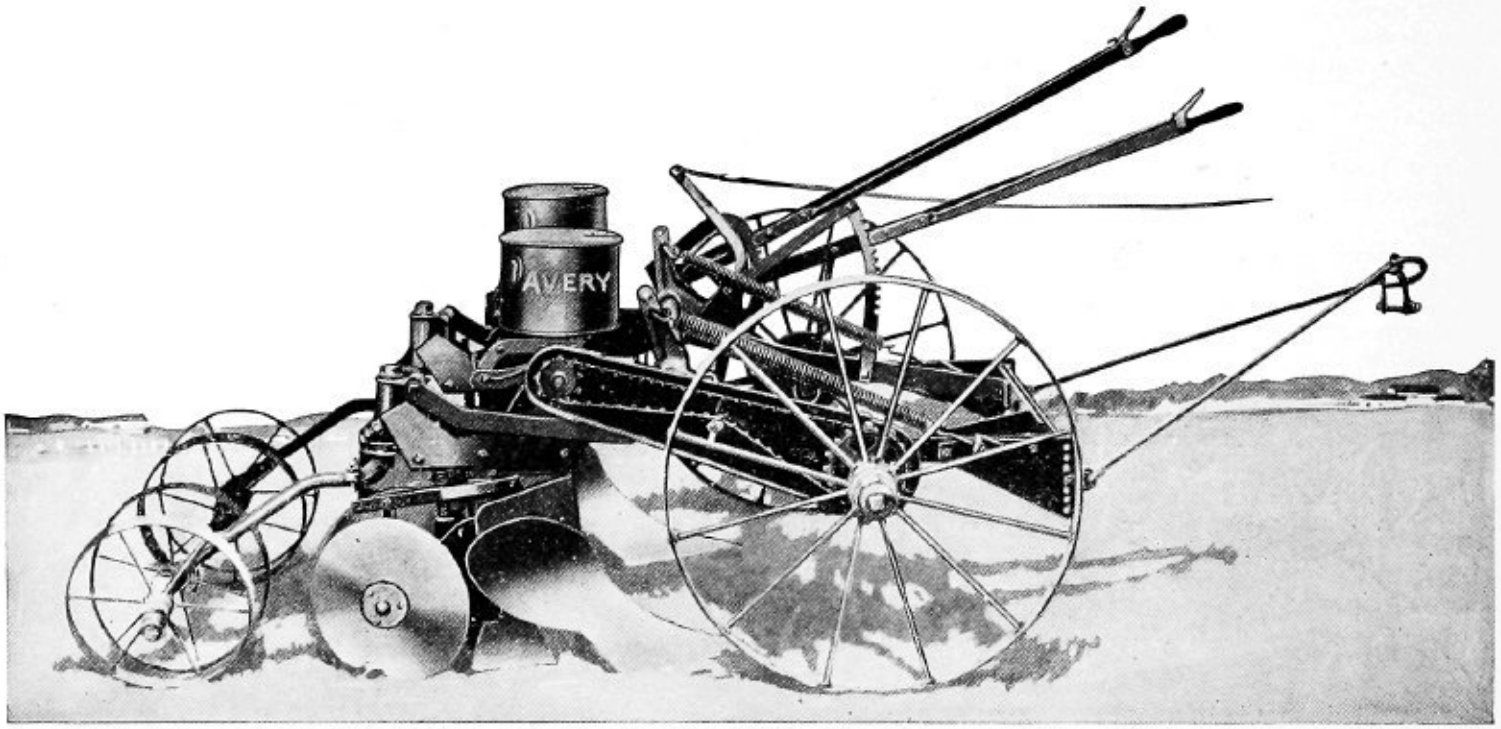
Avery Brush Breaker Plow

FOR those who have bogs, marshy land or brush land to plow under for the first time, we recommend the Avery Brush Breaker. Unless the grubs are very large, it is unnecessary to do any clearing before plowing. Adjustable to any depth up to twelve inches.

Practically all steel with the exception of the wheel. The beam is made of two bars of high-carbon steel, one and one-half inches by six inches. The standard and frog are of one piece steel casting, and cannot be broken. The bottom is of solid crucible steel, the share is of the slip type and can very easily be removed for sharpening. The landside is ¾-inch by by 6 inches, supported with a heavy brace from the back end of beam, and has chilled Slip Heel. The moldboard has an extension plate which can be adjusted to prevent the furrow slice from falling back into the furrow. The standing cutter is extra heavy, and has a hole in the heel to slip over the point of share. It is held between the two beams, and has a positive adjustment giving more or less suck to the point as required.

The wheels of the fore-carriage are heavy and have wide tires. The furrow wheel has dust-proof box and compression grease cups. The axles are of heavy, high carbon steel. The levers are long and powerful, and have assisting springs and steel ratchets, connecting rods being provided with jolt springs to take the jar off the axle. A transportation shoe is provided, also heavy steel handles to facilitate the guiding of the plow when in action. A guide is also provided for the chain to pass through when more than one plow is used with the same tractor. It is equipped with 24-inch bottom. Weight about 1,400 pounds. Write for price.





Avery Two-Row "Power-Lift" Lister

THE Avery Two-Row "Power-Lift" Lister has during the past year very successfully filled the demand for a tractor lister that can be used with or without planting attachment. Some of the advantages of listing are, it saves the labor and expense of plowing and it enables the farmer to take advantage of brief, favorable soil and weather conditions.

One of the distinctive features in the Avery Two-Row "Power-Lift" Lister is its sturdiness. It has no delicate adjustments, clutches or toggle-joints to go wrong in the field.

When the lister bottoms are raised to transport position, the hoppers are automatically tilted back out of gear without the use of clutches or springs. As the beams are raised, the front and rear ends have the same amount of travel, keeping the beams and bottoms level.

The hoppers are mounted on the beams in such a way that they slide forward or back as the beams are raised or lowered. This holds the hoppers the same distance from the axle regardless of height of the beams, thus keeping the driving chain at uniform tension.

The power of the tractor is employed to raise and lower the bottoms, the levers being used only to regulate the depth of plowing or planting. A slight pull on the rope actuates the power lift device attached to the left-hand wheel. Notice that the levers are also within easy reach from the tractor seat. With the Avery "Power-Lift" Lister your outfit is a real "one-man" outfit.

This lister can be used with or without planting attachment. After listing your ground, you can attach the planting mechanism, then re-list and plant.

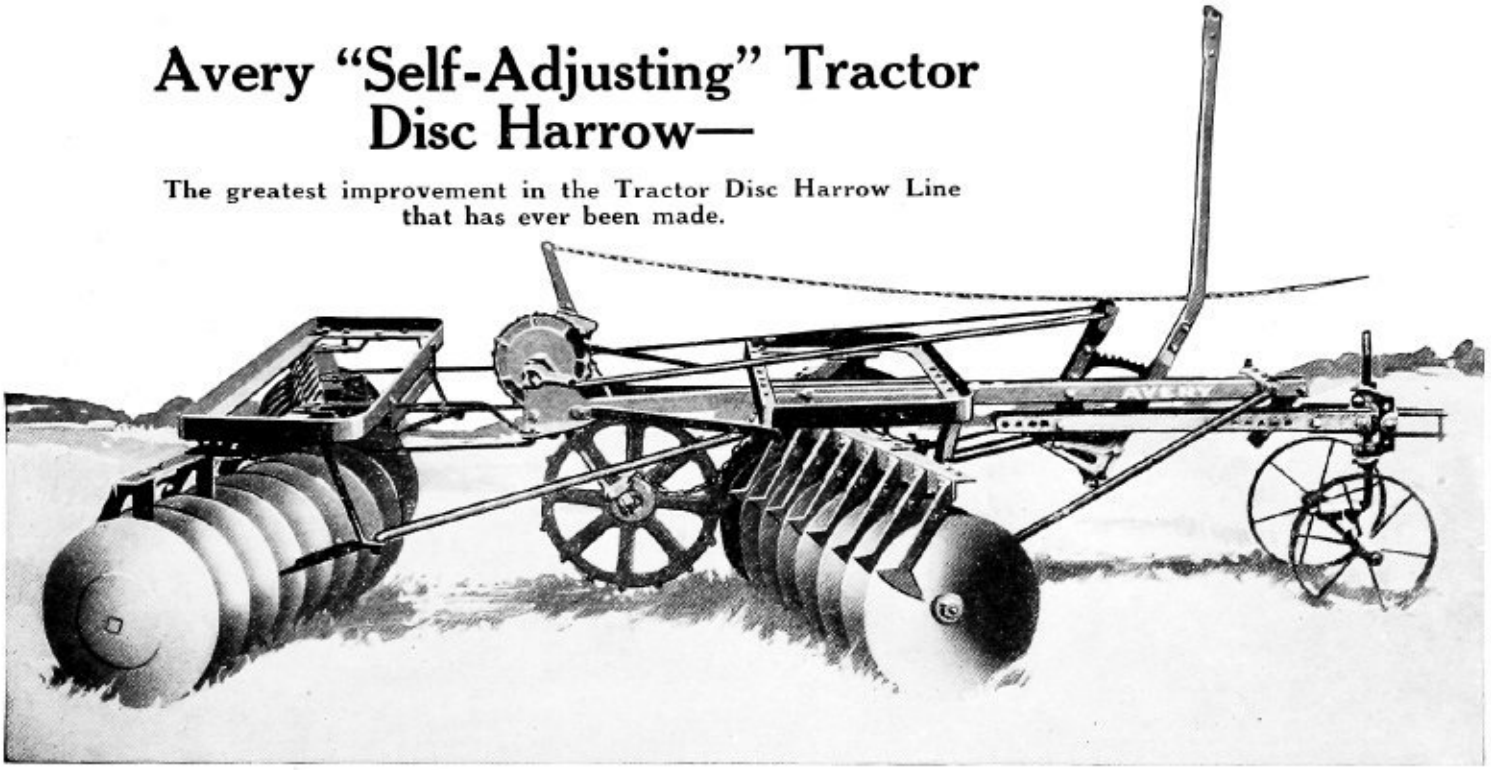
The one-piece axle is made of 1⅜-inch cold-rolled steel, and is re-enforced by an angle steel frame which is built in the shape of an arch.

The planting mechanism is simple, accurate and dependable. The planting plates are 7¾ inches in diameter, giving every hole a chance to fill. By using a hitch bar with a larger tractor, two of these listers may be pulled at one time.

Fourteen-inch lister bottoms are furnished of soft-center steel, which have superior qualities for scouring in sticky soils. Is also equipped with tractor hitch, furrow opener and covering discs. Can also be fitted with combination corn and cotton hoppers.

Avery "Self-Adjusting" Tractor Disc Harrow—

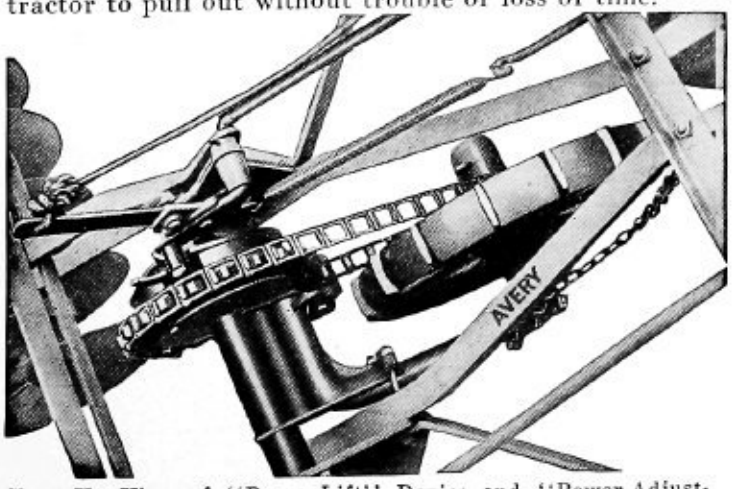
The greatest improvement in the Tractor Disc Harrow Line that has ever been made.



THE angularity of the discs is regulated by merely setting a floating lever. Then by pulling a cord the discs adjust to the angle desired. In order to turn easily at the ends or prevent getting stuck in soft ground, pull the cord and the discs straighten up. After turning around, or passing over the soft spot, pull it again and they adjust to the angle set. The operation is all done by the "Self-Adjusting" Device and while the tractor is traveling ahead.

This is the **first** and **only** disc harrow which can, by the simple pulling of a trip rope, be thrown from working to transport position and back from transport to working position without stopping or backing.

The straightening or angling of the disc gangs without stopping or backing gives three striking advantages. **First:** Head lands are left level and in fine condition for planting, instead of in high ridges. **Second:** It avoids the waste of power which results when turns are made at the ends of the field with the disc gangs in working position. **Third:** When the tractor runs into difficult places and is stalled, a pull on the rope straightens the gangs and allows the tractor to pull out without trouble or loss of time.

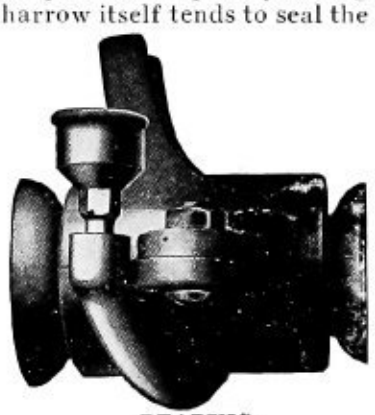


Close Up View of "Power-Lift" Device and "Power-Adjusting" Wheel Between Front and Rear Harrow.

This harrow is adjusted from the tractor platform. You don't have to stop the tractor and get off to adjust it—the pull of the cord does the work. And another exclusive feature of this harrow is that **it is not necessary to back the tractor either to straighten or angle the gangs.** The power adjusting wheel between the front and rear harrows does the business. The Avery Tractor Disc Harrow outfit is a **real "one-man" outfit.**

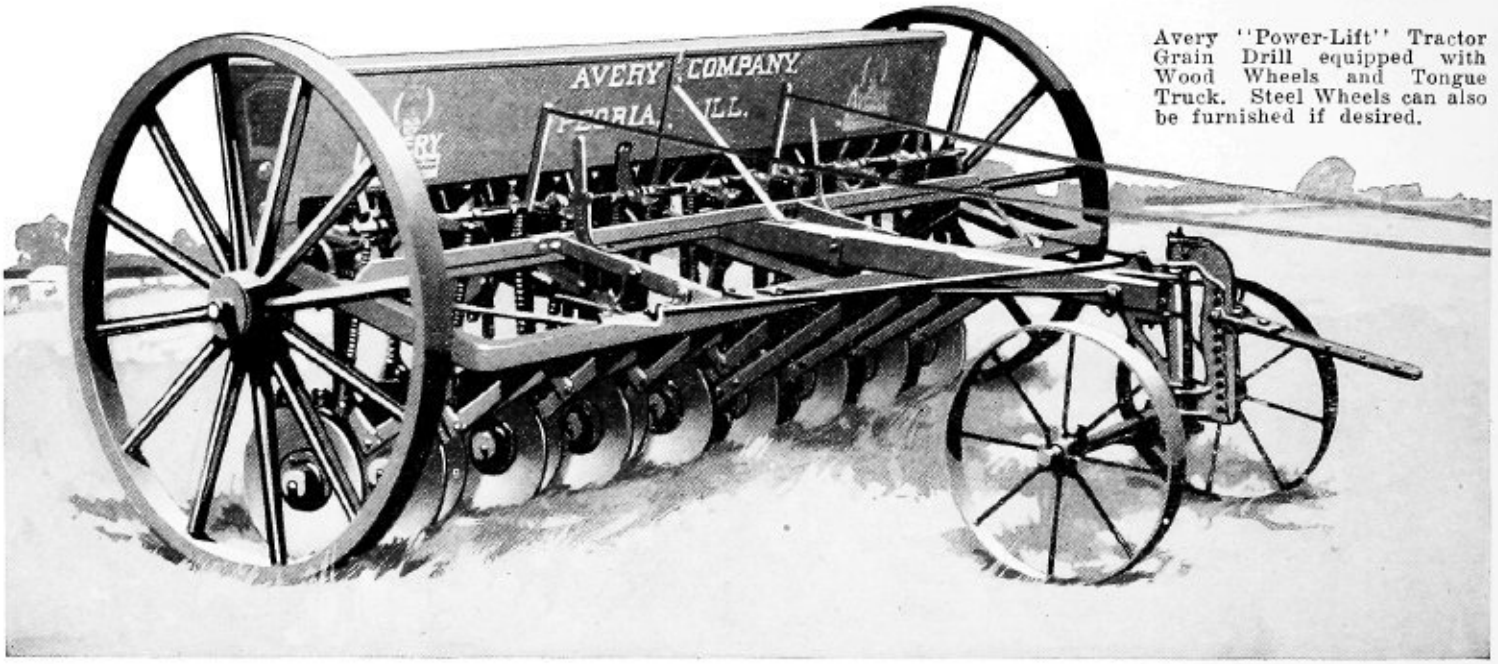
The power adjusting wheel between the front and rear harrow is what puts the Avery in a class by itself. This wheel runs idle except when the gangs are being adjusted. It is so mounted that when running idle, it practically floats, exerting no pressure on the ground except that represented by its own weight. The instant the trip rope is pulled, bringing the power adjusting device into action, the wheel has a tendency to move backward, thus forcing it into contact with the ground. Another valuable feature of this harrow is the superior method of insuring well lubricated bearings. Other harrows are constructed so grease enters the bearings from the top. This is plainly wrong because the weight of the harrow itself tends to seal the outlet of the grease tube. The Avery bearings are constructed in the logical way—so grease enters from the bottom. (See illustration.)

These harrows are furnished in either 6, 8 or 10-foot widths as desired with 16 inch discs. However, where more than one is used at a time we recommend the **6 or 8-foot unit.** Regular equipment includes Tractor Hitch, Round Discs and Scrapers, and Weight Pans on front gangs.



BEARING.

Note this improved bearing—the grease enters the bearing from the bottom.



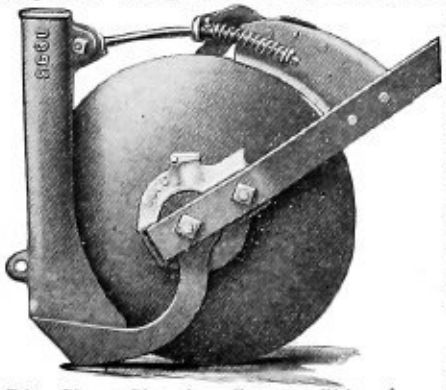
Avery "Power-Lift" Tractor Grain Drill equipped with Wood Wheels and Tongue Truck. Steel Wheels can also be furnished if desired.

Avery "Power-Lift" Tractor Grain Drill

THE demand for a reliable "Power-Lift" Tractor Grain Drill has grown greater each year as more and more progressive farmers are using motor farming machinery. You want to raise as big crops as you can, and you want to keep your production costs as low as possible. If you leave your grain scattered on top of the ground to be picked up by the birds and be subject to the influence of the weather, you are not going to get the yields that you should.

The Avery "Power-Lift" Tractor Grain Drill with its patented disc shoe will assure you of a more uniform stand and will result in more and better grain per acre. The patented disc shoe as used in the Avery Drill is a combination disc and shoe. It embodies the single disc for opening the furrow, cutting trash and penetrating hard ground; and the shoe for forming the furrow and properly depositing the grain. The disc simply cuts the way; the shoe follows in the cut made by the disc and forms the furrow. This is a patented construction used.

The forward end of the shoe is pivoted to the disc bearing and works independently of the disc. After the disc opens the furrow, the shoe follows directly behind in the furrow—forms a perfect seed bed and deposits the grain on a packed seed bottom. A spring forces the shoe to the bottom of the furrow made by the disc and insures uniformity. The small grain is thus placed where it will receive the three essentials — heat, air and moisture necessary to produce a good yield.



Disc-Shoe, Showing Convex Side of Disc.

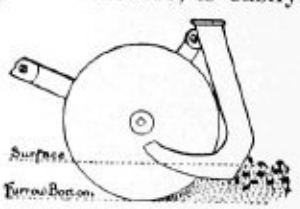
This construction also gives you lighter draft. On other styles of disc furrow openers, it is necessary to run the discs one to two inches deeper, in order to get part of the grain in the furrow, and the greater depth of course causes greater draft.

The bearings in the disc shoe furrow opener are also guaranteed. We agree to furnish free, F. O. B. Factory, all removable disc sleeve bearings on this machine which wear out during the life of the drill.

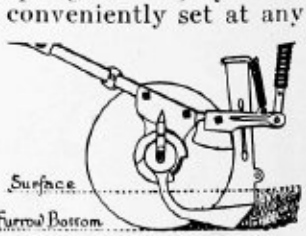
The splendid results obtained from the use of this patented disc shoe furrow opener are sufficient in sowing 50 acres to more than pay for the average size grain drill, so that in purchasing an Avery Drill, fitted with this device, you will usually more than pay for your drill in the saving in seed and increased crop the first season.

We use a large feed-wheel in our Double-Run Feed, and it extends into the box to assist in agitating the grain; it also permits running the feeds slower, giving grain more time to lodge in feed-wheel, which insures uniformity and lessens liability of cracking the seed. Sows accurately oats, rice, corn, peas, beans, wheat and flax without bunching seed. There are other drills which have the internal feed, but none of them make as large feed wheels as used in the Avery. This feature is especially important in oats, which are light and inclined to bunch.

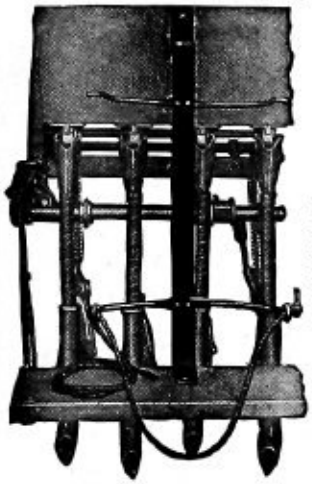
Another feature is the manner in which the quantity of grain which may be sown is regulated. A multiple gear is used on the drill-axle. A sliding pinion mounted on a drive shaft meshes with the different rows of cogs in this multiple gear and, by shifting the indicator, is easily and conveniently set at any



The Ordinary Way—the Wrong Way.

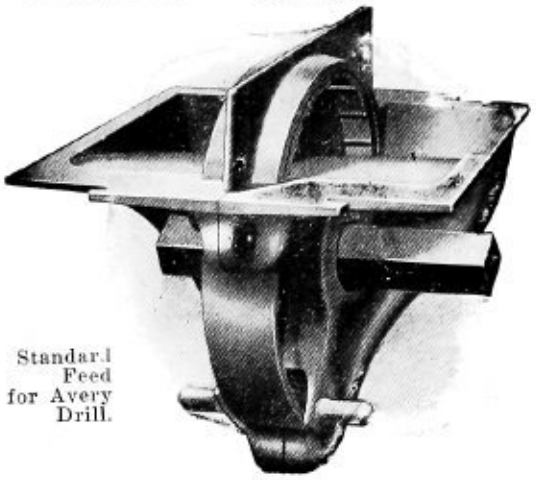


The Avery Way—the Right Way.



Sack-Rack Attached to Foot-Board and Grain Box.

Sack of Seed Attached to Drill with Sack-Rack.



Standard Feed for Avery Drill.

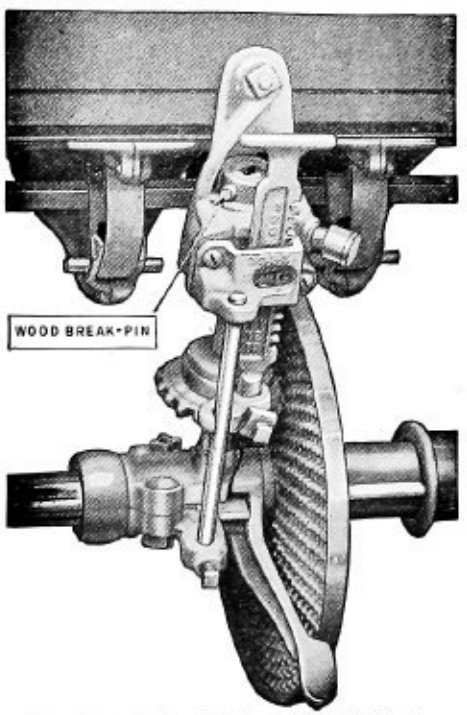
of the thirteen different changes of speed, so as to cause the feeds to sow any desired quantity of grain, from two pecks to five bushels per acre.

Furthermore, the power is delivered to the feed-shaft by means of a worm loosely mounted on a sleeve at the upper end of the driving shaft. This worm is held in operative relation to the sleeve and the drive-shaft by means of a Wood Break Pin—another exclusive feature. A worm-wheel on the feed shaft is rotated by the worm on the drive-shaft and turns the feeds, giving the smoothest, strongest and lightest-running drive on any grain drill. The worm-gear driving parts are incased in a dust-proof housing and run in grease, a compression grease cup being provided for replenishing the supply.

If any foreign matter, such as a bolt, screw or other hard substance, which will not pass through, gets into the feed, the wood break-pin shears in place of breaking gears and twisting the feed-shaft, as on other makes of drills. This feature alone is worth a great deal more to any farmer during seeding time.

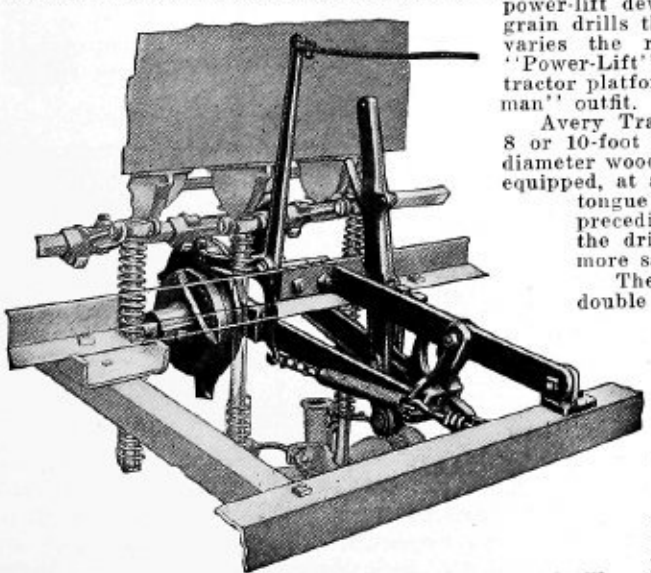
Other important features you should look into in the purchase of a grain drill, are the frame and wheels. Both the wood or steel wheels we furnish are of the very strongest type and construction. Barring accidents, they should last a lifetime. The frames used are made of angle iron strongly braced, and we have yet to receive the first complaint on the weakness of the frame.

The Avery Tractor Grain Drill is also equipped with a "power-lift" device that is more simple and easier to operate than any other power-lift drill on the market. It has given unusual satisfaction. A great many power-lift devices have been made for grain drills, but none of them have been perfected or proven a success, because of the fact that it was not possible to change the working depth for planting and still retain a necessary raising height for the discs—a requirement which users demand. Therefore, those devices had little practical value.



The Wood Break-Pin—An Exclusive Feature.

In the Avery Tractor Grain Drill, however, these objections have been entirely done away with. Whether the controlling lever is set for the least pressure on the discs or for the greatest pressure, in both cases the discs are raised to the same height when the power-lift device is tripped. With all other power-lift grain drills the adjustment of the pressure on the disc varies the raising of the discs. Furthermore, the "Power-Lift" device is operated by two cords from the tractor platform, thus making this tractor outfit a "one-man" outfit.

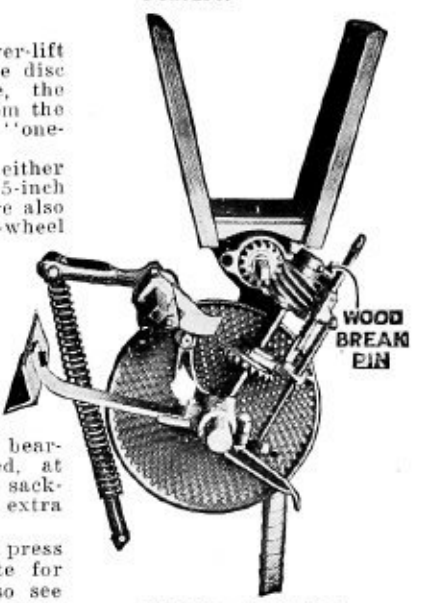


"Power-Lift" Device on Avery Tractor Grain Drill.

Avery Tractor Grain Drills are furnished in either 8 or 10-foot widths. They are equipped with 45-inch diameter wood or steel wheels as desired. They are also equipped, at a small additional price, with a two-wheel tongue truck, as shown in illustration on preceding page. This tongue truck makes the drill run steadier, easier to turn and more satisfactory in every way.

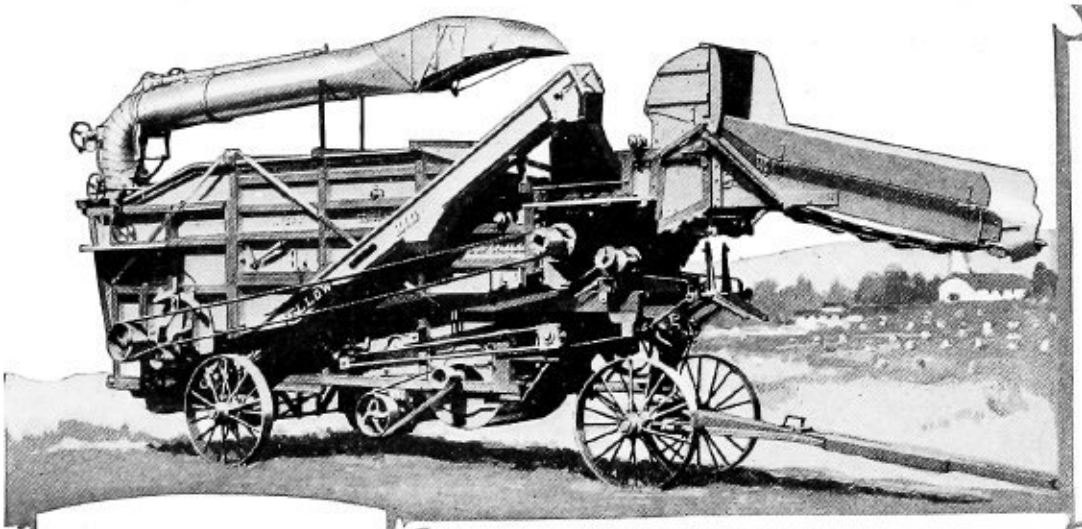
These drills can also be furnished with double disc furrow openers of the front delivery deposit type, if preferred. The double disc drills have the same bearing construction as is used on our single disc drill, hence the same strong guarantee is given with these bearings. There can also be furnished, at small extra cost, foot-board on which sack-racks may be attached to carry extra sacks of grain, if desired.

Grass seed attachments, also press wheel attachments are extra. Write for prices and special information. Also see page 40 for illustrations and descriptions of tractor grain drill hitches.



Driving and Feed Regulating Device.

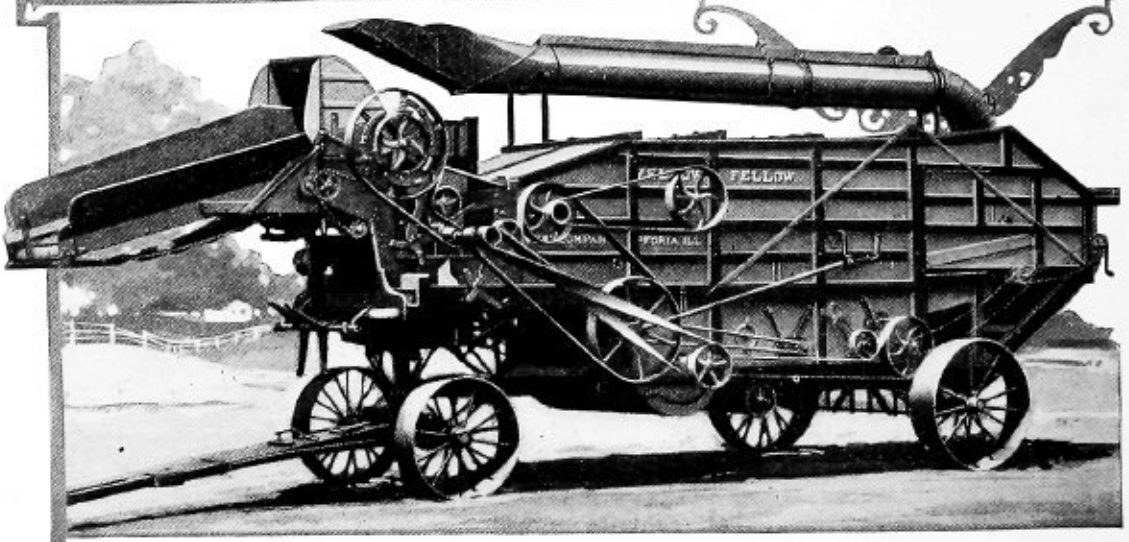
AVERY COMPANY PEORIA, ILL., U.S.A.

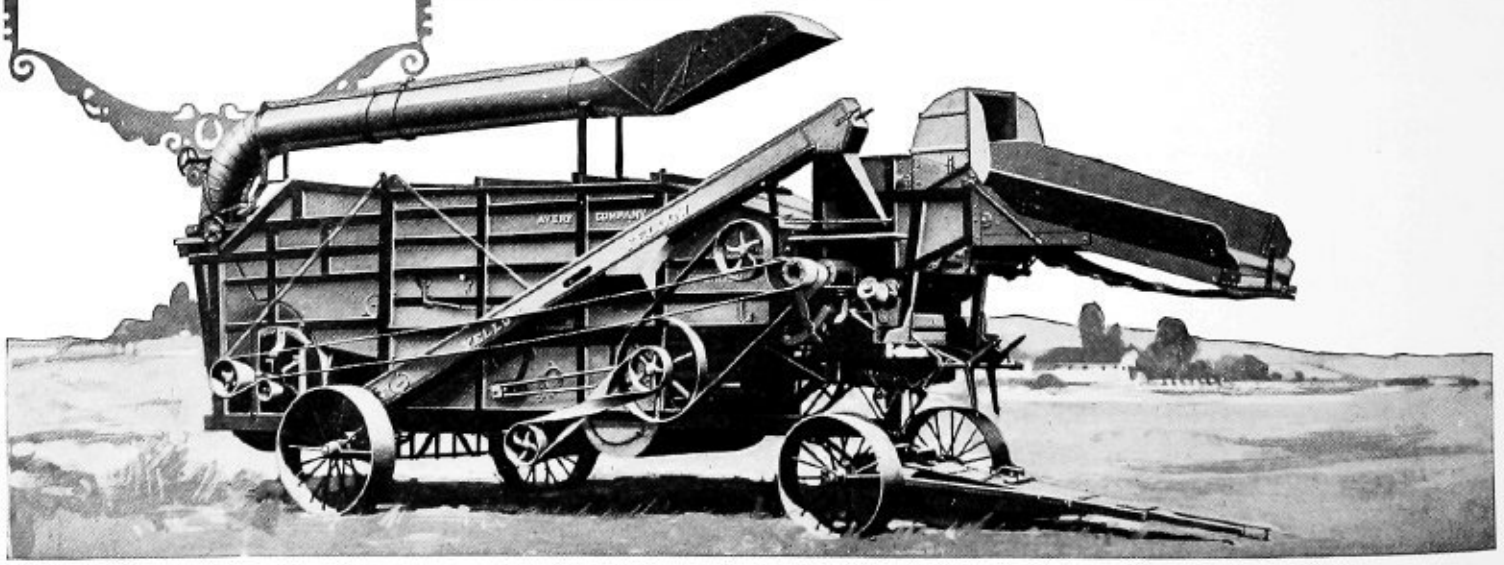


Left-hand side of an Avery "Yellow-Kid" Separator fitted with Self-Feeder and Wind-Stacker. Built in 20x30 and 24x36-inch sizes.

Below: Right and Left-hand sides of an Avery "Yellow-Fellow Grain-Saver" Separator. Built in 24x40, 28x46, 32x54 and 36x60-inch sizes.

All Avery "Yellow-Kid" and "Yellow-Fellow" Separators are regularly equipped with "Guaranteed-for-Life" Cylinder Teeth, I. X. L. Separating Device, Cone Pulley Belt Guide, Anti-Friction Bearings on Cylinder and Windstacker Fan Shafts, Extra Concaves and Tools without extra charge.





There's a Size Avery Thresher for Every Size Run

YOU can get an Avery Thresher in exactly the size you need to fit the amount of threshing you have to do. The two smaller sizes are called Avery "Yellow-Kid" Threshers—the four larger sizes are called Avery "Yellow-Fellows." All do good work, run steady, last a long time, and are easy to operate—are **money-makers** and **job-takers** for threshermen and **grain-savers** and **grain-cleaners** for farmers. It will pay you to get an Avery Separator to thresh with or to have an Avery Separator **thresh for you.** For detailed information and description of the Avery "Yellow-Baby" Thresher, **see pages 90-91.**

A Few of the Many Kinds of Grain and Seeds Threshed by Avery Separators.

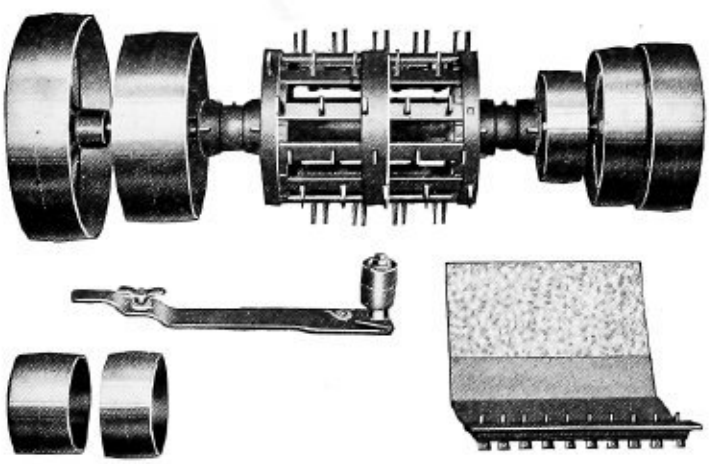
You Can Thresh *All* Kinds of Grain and Seeds With An Avery

WHEN we say that you can thresh **all kinds of grain and seeds** with an Avery Separator, and that you can save it and clean it in excellent condition for the local market, **we mean exactly that.**

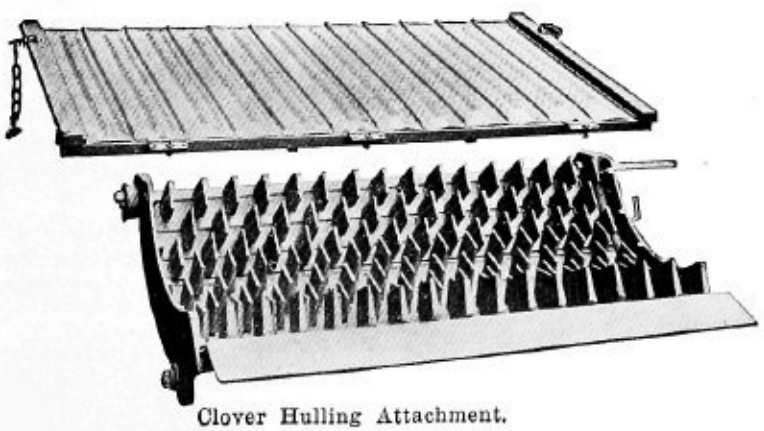
Avery Separators thresh wheat, oats, barley, rye, timothy, flax, rice, bird seed; will hull clover and alfalfa; thresh sweet clover, soy beans, cowpeas, buckwheat, kaffir corn, carrot seed, cabbage seed, or anything else. Avery Separators are the **only** machines in the world that have established a record for threshing all these many kinds of grain and seeds in a satisfactory manner.

With our special clover-hulling attachment an Avery Separator will hull, clean and save clover, as well as, if not better and do it almost twice as fast as an ordinary huller. This attachment consists of special concaves and teeth, extension chaffer for grain pan and clover sieve, and can be furnished for any size Avery Thresher.

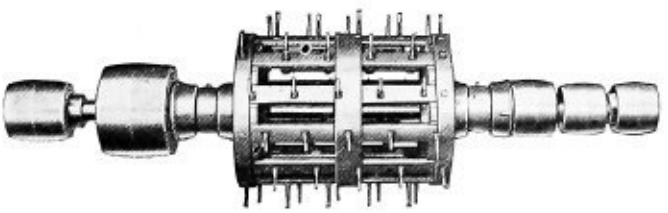
Many different kinds of attachments are made for the Avery Separators for threshing rice, peas, beans, and for hulling clover, etc., and we have yet to find any kind of grain or seed that the Avery Separator will not thresh if adjusted and operated properly.



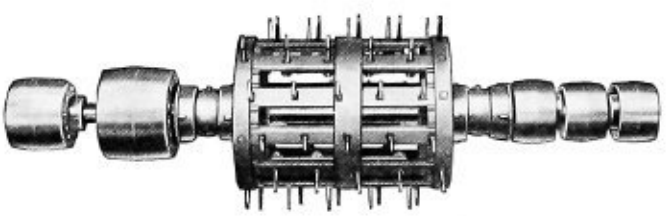
Special Equipment for Threshing Beans and Peas.



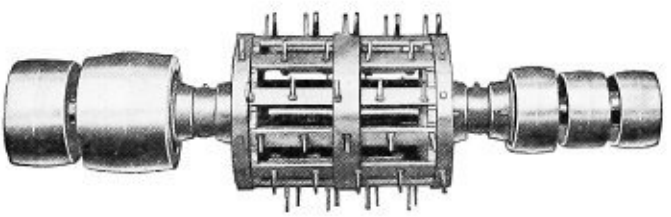
Clover Hulling Attachment.



Regular Pulleys for Grain Threshing Such as Wheat, Oats and Barley.

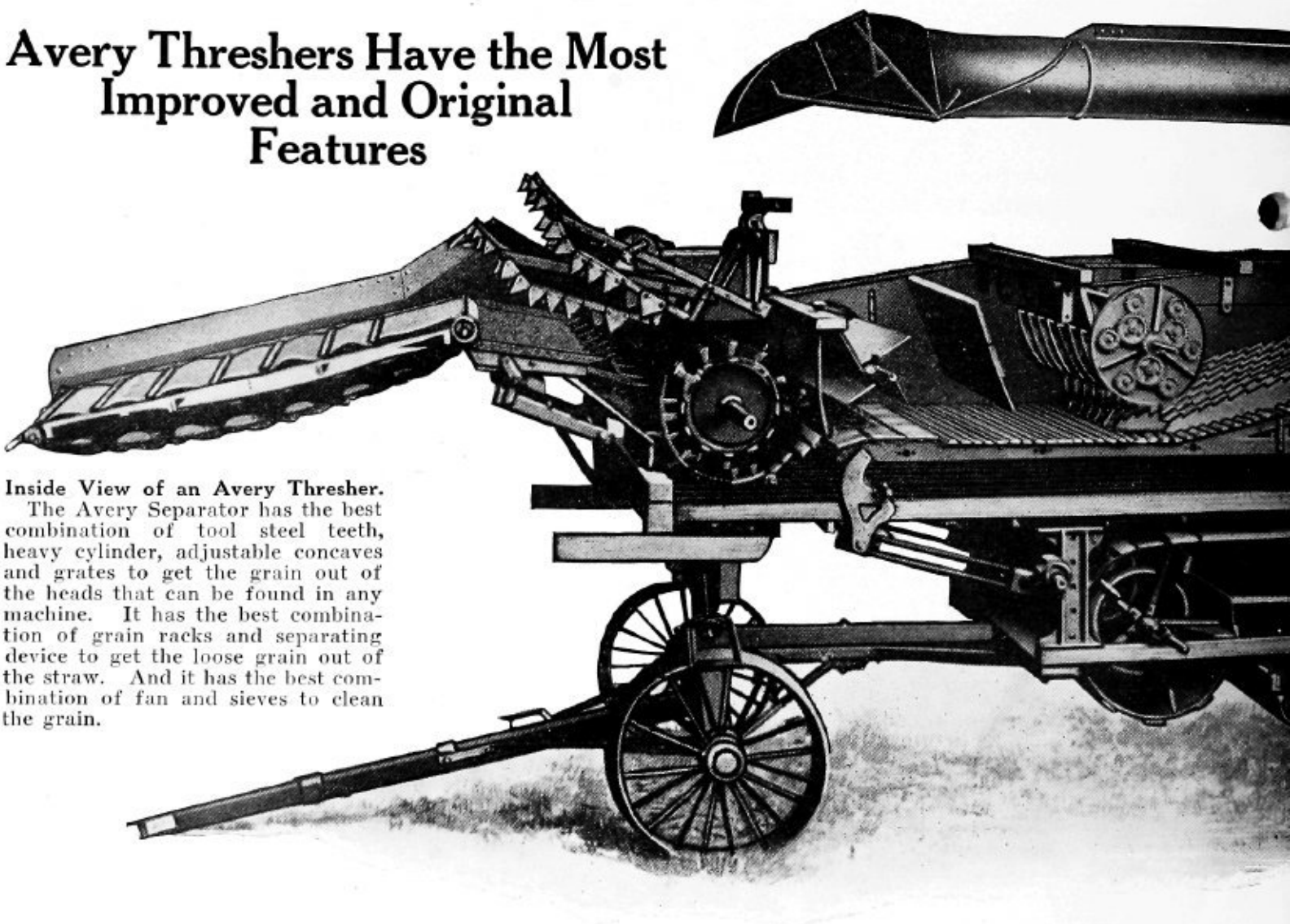


Pulley Equipment (1000 R. P. M.) for Threshing Rice.



Pulley Equipment (800 R. P. M.) for Threshing Rice, Maize and Kaffir Corn. In threshing Maize and Kaffir Corn extra strips are used on under side of straw rack.

Avery Threshers Have the Most Improved and Original Features



Inside View of an Avery Thresher. The Avery Separator has the best combination of tool steel teeth, heavy cylinder, adjustable concaves and grates to get the grain out of the heads that can be found in any machine. It has the best combination of grain racks and separating device to get the loose grain out of the straw. And it has the best combination of fan and sieves to clean the grain.

THE following are some of the Original and Improved Features designed and introduced by the Avery Company which you get in an Avery Separator.

We originated and were the first to use the Big Cylinder Tooth called the Jumbo. Made from genuine Razor Tool Steel.

We originated the double belting system from the cylinder to the crankshaft. Also the system of belting all the other important parts of the separator direct from the cylinder shaft, such as the fan and the beater, thereby driving them in proper speed relation to each other and giving wider belt surface from the cylinder shaft back.

We originated the belt reel, which is of great convenience in winding up and unwinding the belt.

We originated the Windstacker without gears, with the fan located inside the frame work and driven with a straight open belt direct from the cylinder shaft.

We originated the band cutter and self-feeder with reciprocating knives and a governor located on the crankshaft, whereby the crankshaft and all of the feeding parts, including the carrier, will stop when the speed of the cylinder falls below threshing speed.

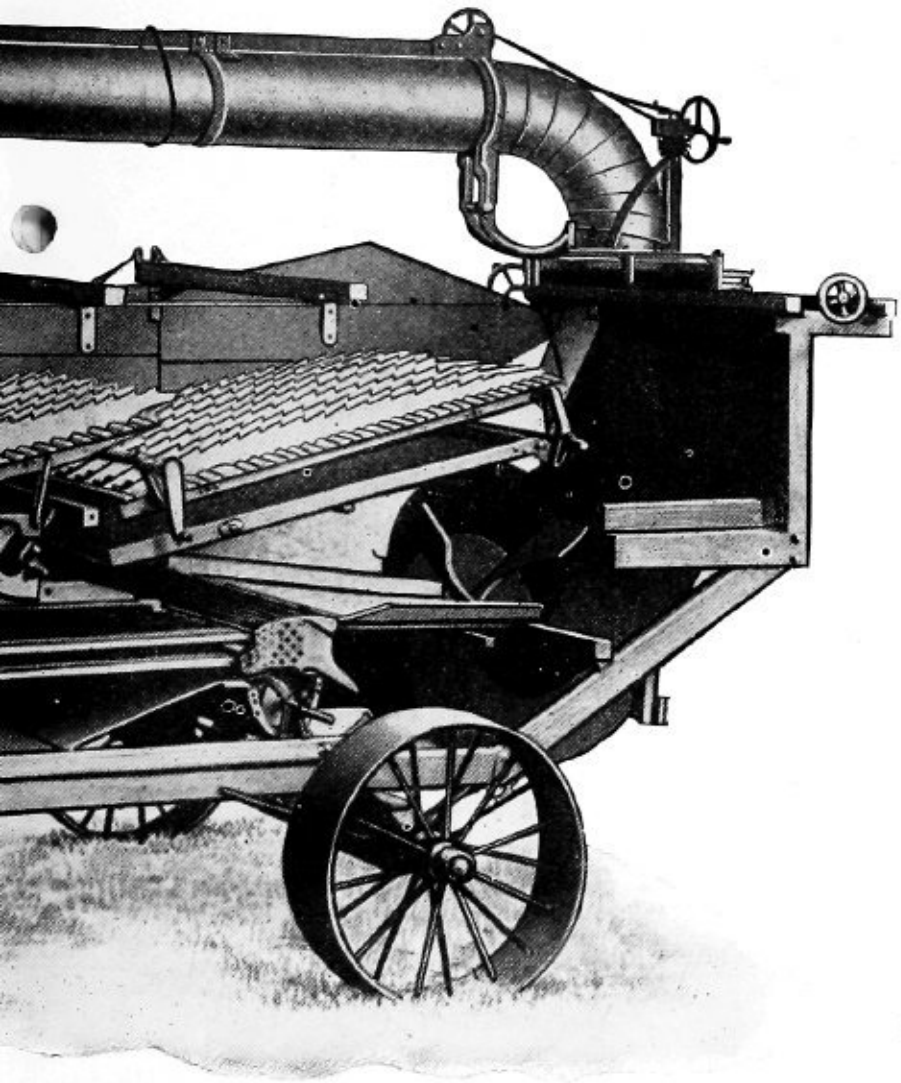
We invented and can now furnish at an extra price Avery Feeders with the Avery Duplex Automatic Straw Governor that controls both the amount of straw fed into the cylinder and the amount of straw delivered by the carrier into the feeder, its action being governed by the volume and condition of the straw.

We originated a tailings elevator drive, with the lower sprocket located below the entrance of the tailings, which prevents clogging. We also originated the idea of leaving the upper end of the tailings elevator open, which permits the tailings to deliver on the ground in case the down spout is choked and thus prevents clogging the elevator in the head.

We were the first to introduce steel axles for carrying the weight of the separator, thus preventing breakdowns, delay and loss of time and money.

We were the first to adopt an extension tongue of large size and so designed that it may be lengthened for horses and shortened when pulling the separator with a tractor.

We were the first to build a thresher with the grain pan, separating table, vibrating table, and shoe all driven direct from one crankshaft, in such a way that the shaking parts counterbalance, so that the machine



stands so steady that threshermen sit on top of them and write us testimonials to show that there is not enough vibration to make their hands shake at all.

We were the first to adopt a compressed paper cylinder drive pulley, which does away with all anxiety about the lagging coming loose in the middle of a hot day on a rush job.

We were the first to adopt as regular equipment anti-friction bearings on the cylinder and windstacker fan shafts, thus making them the lightest running separators built.

We originated the first really successful belt guide, and the only one today that carries the belt on the center of the pulley in a high wind even when the engine is several feet out of line.

We were the first to adopt the marvelous separating device known as the I. X. L., which hunts around in the straw for the last kernel and gets it, and we furnish it regularly with Avery Threshers, because we have proved its merits as a Grain-Saving Device.

We were the first to use a solid feeder web on the Band Cutter and Self-Feeder, which runs noiselessly and without much wear and takes up all the loose grain and delivers it into the machine without wasting a large percentage of it.

We originated a concave adjusting device by which the operator can raise or lower both the front and rear concaves and adjust them for the different kinds of grain.

We originated and were the first to use diagonal frame cross rods, located underneath the deck of the separator which hold the frame work so rigid that it will run through a long number of years without twisting and causing the shafting to bind in the boxes and quickly wear out.

We were the first to introduce and put on a separator leveling jacks, attached to the separator, which are a great convenience for leveling and holding the front of the machine rigid while threshing.

We were the first to build a fan with bands to distribute the blast over the shoe and overcome the cross currents of air which had previously given threshermen so much trouble in properly cleaning the grain.

We were the first to encourage the manufacture of and to adopt the Closz & Howard Adjustable Sieve, which enables the thresherman to adjust his sieve for the different kinds of grain without stopping, adjustment being made by a small lever operated from outside the machine.

We were the first manufacturers of threshing machinery that ever had the nerve to send out men during the threshing season in the various states where our machines were in operation and make field tests for the benefit of our customers to show the actual amount of waste that was going into the straw stack, and then publish a correct report of these tests, after putting out a guarantee that these machines would save 99 52/100 per cent **or more** of the grain.

All of these things certainly show that the Avery Separator is without question the most original and improved machine built today—and that's the kind of a machine that will make you money and you'll be proud to run.

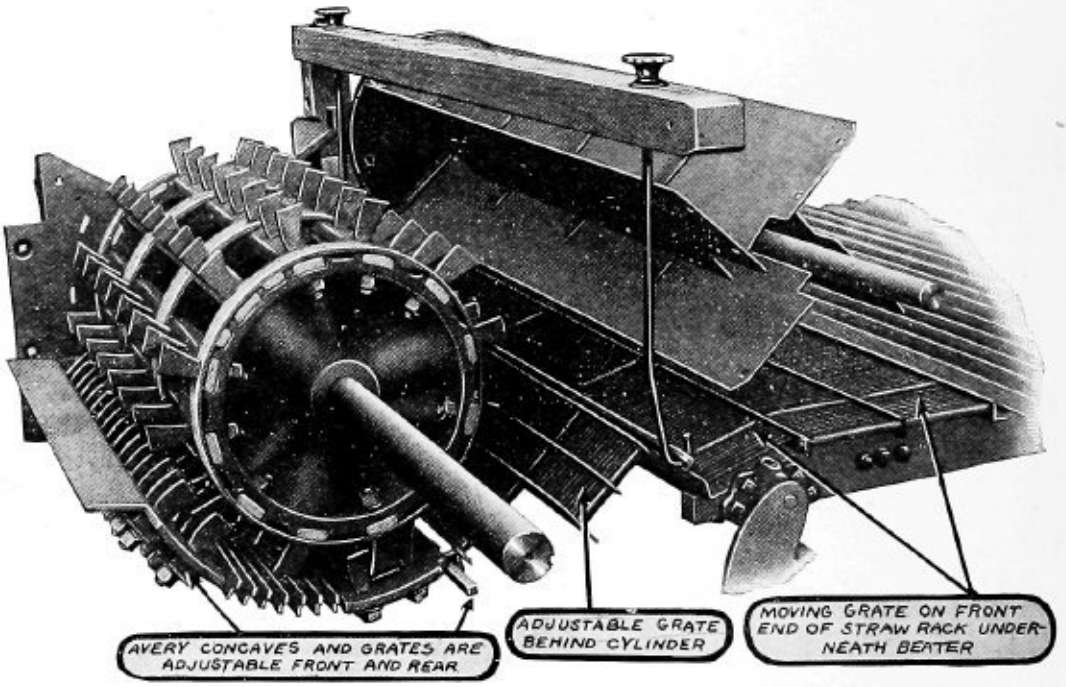
Other machines have some of these features—copied from the Avery or prompted by our introduction of them—but no other machine offers you anywhere near all of them. **You get them all only in an Avery.**

Many of these improvements have been sold by hundreds to threshermen for use on other machines. But, after all, only a few of these can be gotten in this way as only a few can be attached to other machines.

And even though a thresherman might get an Avery Belt Guide, Paper Center Cylinder Pulley, I. X. L. Separating Device, and other Avery features to help cure the troubles he finds in some other make of separator, it would add just that much to the cost of his other machine, and after getting all these he would still not have the Avery Heavy Crankshaft, Steel Rod Pitmans, Double Belting System, Belt Winder, Steel Bottom No-Choke Elevator, Heavy Tongue, and all the other improved features found in the Avery Separator. The way to get all of these improved features is to buy an Avery Separator.

This list of improvements, designed and introduced by the Avery Company, will show you that the Avery Company is progressive—that we keep pushing ahead —that we are always designing and adopting improved features in our machines, and you will realize that in placing your order for an Avery Separator you get the most improved and up-to-date machine that can be bought. Read the further description and see the detailed illustrations of these special features in an Avery Thresher on the following pages.

You Get the Grain Out of the Heads Better With an Avery Thresher



THERE are six Special Reasons why you get the grain out of the heads **better** with an Avery "Yellow-Fellow" or "Yellow-Kid."

The **First Reason** is because the Avery Cylinder is extra strong and heavy. It has heavy bars 1⅞ x ⅞ inches, which are backed up by an inner bar 1⅞ x ⅜ inches. It also has wide, heavy bands. The 36-inch size cylinder weighs 692 pounds ready to run. That's why Avery Cylinders last longer and run smoother than others. These cylinders are also built in two styles—with the regular number of teeth or double-spiked. No matter what you need, we can furnish the proper cylinder to get the best results.

The **Second Reason** is because Avery Cylinders are well balanced, carefully tested out at actual running speed and run on anti-friction bearings.

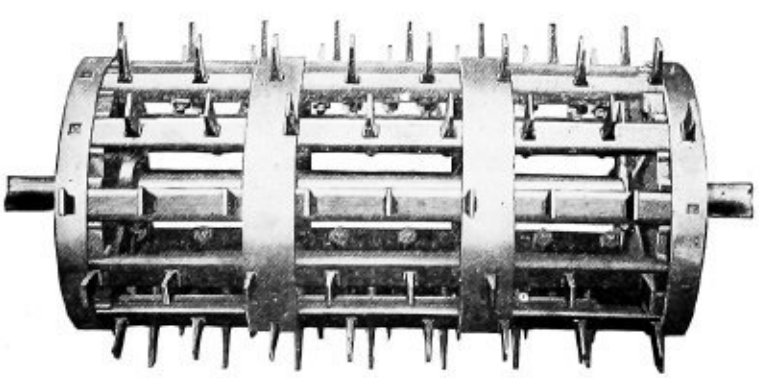
The **Third Reason** is because Avery Threshers have a Long Concave and Grate Surface. In actual running inches an Avery Thresher has an open concave and steel concave grate surface of 18 inches; at the rear of the cylinder a 14-inch grate, and under the beater a 20-inch grate, making 52 inches of grate surface, the whole width of the machine. This **more than equals** the grate surface of the **so-called big cylinder** machines.

The Fourth Reason is because the Concaves are Adjustable, **both front and rear.** With the common arrangement for adjusting concaves, you can only raise the front concave about **half the length** of the tooth, and cannot raise the rear concave at all, but with the Avery you can raise and lower both concaves and also adjust them **the full length** of the teeth. Furthermore, an Avery Jumbo Tooth is tapered, and when you raise the concaves the cylinder and concave teeth not only come closer together endwise, but **sidewise** as well, so that you get a double adjustment.

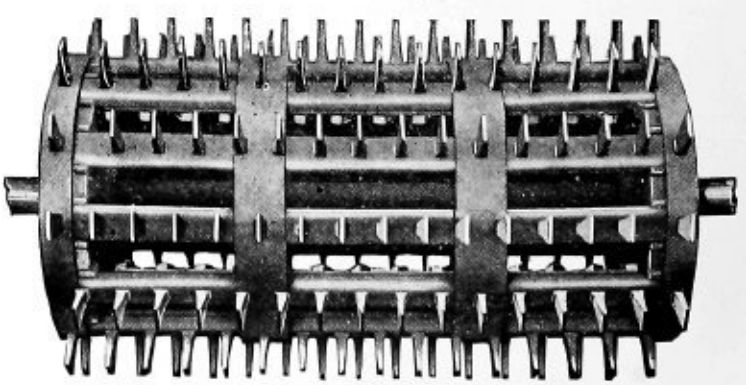
The **Fifth Reason** is because an Avery Thresher has an Adjustable Grate behind the cylinder. This is a very important feature. Some manufacturers place a **stationary** grate at this point. This may be all right in some conditions of the grain, but it can **never** be all right in **all** conditions of the grain.. In an Avery Thresher, the rear end of this grate is hung from two adjusting rods, allowing it to be raised or lowered. In wet grain you can let it down, and thus prevent wrapping; in dry grain you can raise it up closer to the cylinder. The fact that you can adjust this grate **according to the condition of the grain,** is a strong reason why you can get the grain out of the heads **better** with an Avery Thresher.

The **Sixth Reason** is because of the Moving Grate underneath the beater. The 20-inch grate underneath the beater is a part of the straw table. It moves back and forth with the table and the beater constantly pounds the grain through this moving grate.

Because of these many features, an Avery Thresher when properly adjusted will get the grain out of the heads and also separate out the **largest possible percentage** of the grain from the straw right at the cylinder. An Avery Thresher has a **better** combination of devices to get the grain out of the heads than can be found in any other machine.



Avery 36-inch REGULAR Heavy Cylinder Filled with Jumbo Tool Steel Teeth.



Avery 36-inch DOUBLE-SPIKED Heavy Cylinder Filled with Jumbo Tool Steel Teeth.

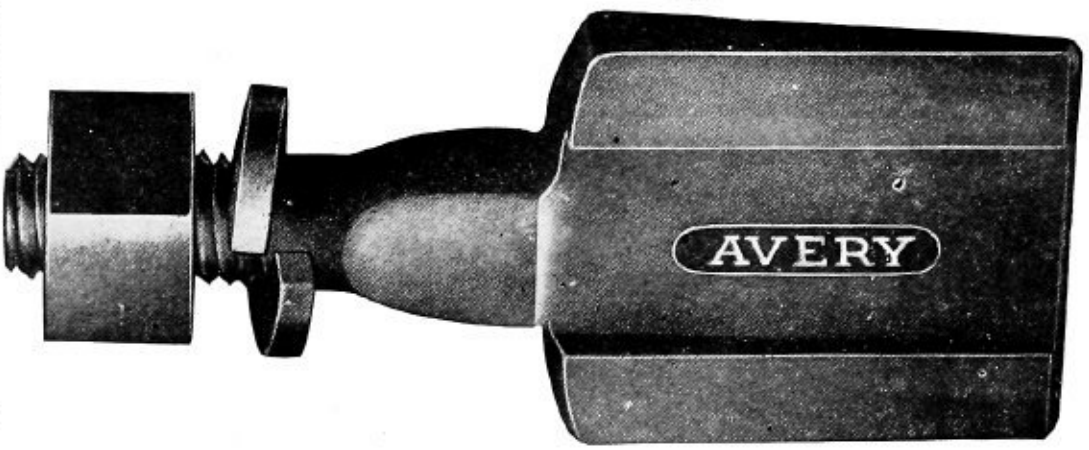
Jumbo Tooth, showing tempered wearing corner.

Below: Turkey Tooth, designed especially for the Concaves when Threshing Turkey Wheat, Hulling Clover, etc.

SPECIAL WARRANTY ON AVERY CYLINDER AND CONCAVE TEETH.

"Avery Jumbo Teeth are warranted for life against breakage caused by pitchforks, bolts, spades or other foreign materials accidentally entering the cylinder."

You get this warranty printed right in the order blank—it means if you ever break an Avery Tooth you get a new one **FREE.**



Genuine Tool Steel Cylinder and Concave Teeth

A FEW years ago—in fact even now with many threshers, the sound of a broken tooth was a familiar one. We made the Avery Teeth big out of the best steel that we could find, because we didn't want Avery owners to experience any teeth troubles.

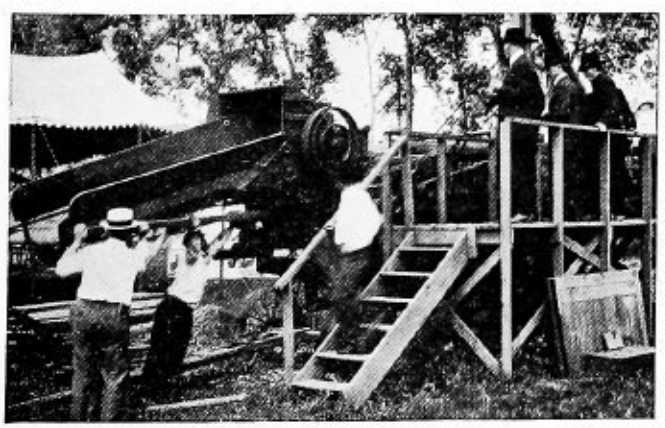
We call the Avery Tooth the "Jumbo" because it was the first large tooth ever used in a separator. And we made it out of **genuine tool steel** because tool steel has great resistance against breakage, unusual wearing qualities, and it will also take a good tempered wearing corner. (Note this: We use **genuine tool steel,** not machine steel. There is a big difference—don't let anyone confuse you by telling you they use steel teeth. Be sure you know whether they are **machine** steel or **tool** steel.)

Every Avery Jumbo Tooth is guaranteed to be genuine tool steel. They are hammer forged from square tool steel bars and the wearing corner is tempered **extra hard.** (See illustration, page 16.) That's why pitchforks seldom bend them, and even wrenches, spades, etc., run through right along without breaking a single tooth or stopping the machine for a minute. Jumbo Teeth will bend double, are almost unbreakable, and will wear longer than other makes. They are a big **expense-saver.**

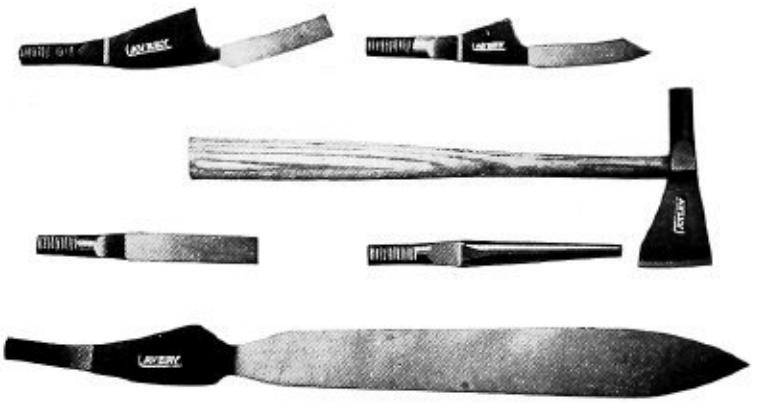
When you are buying a Thresher, remember that by getting an Avery Separator you will be **free** from tooth troubles.

Beware of imitation soft steel Cylinder Teeth, sold by supply houses under the name of "Jumbo."

Genuine Avery Jumbo Tool Steel Teeth have the name "Avery" stamped on them.



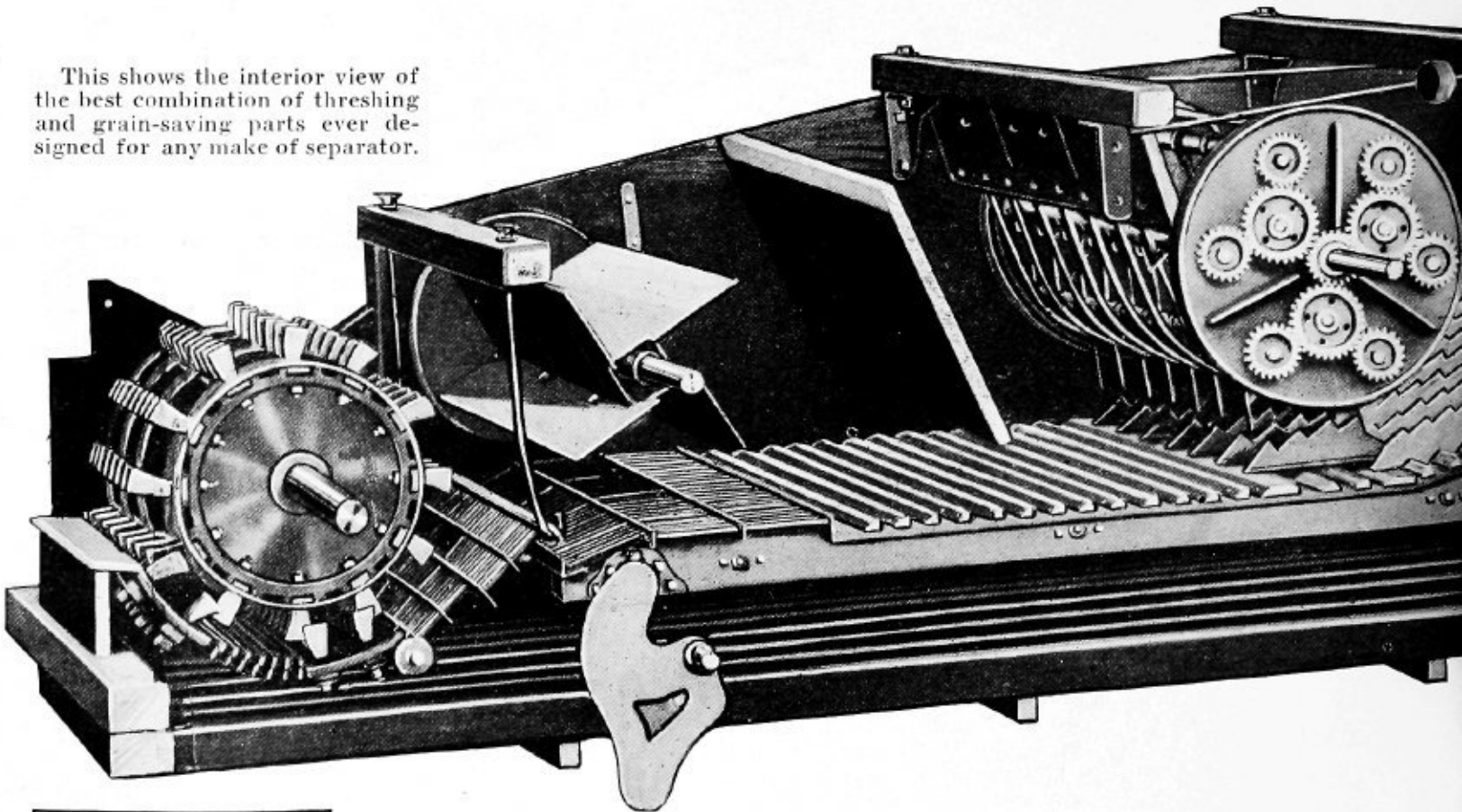
Threshing a 2x12-inch Oak Plank at the Fair to Show the Strength of Avery Jumbo Tool Steel Teeth.



Razor, Paring Knife, Hatchet, Chisel, Punch and Butcher Knife Made from Avery Teeth, Showing Quality of Steel Used.

You Save the Grain Better With Avery Threshers—They are the
The Grain Threshers That Beat the Government Tests

This shows the interior view of the best combination of threshing and grain-saving parts ever designed for any make of separator.



This is the Way the "Yellow-Fellows" Saved the Grain in the 27 Field Tests:

Test No.	1	99 92/100%
Test No.	2	99 93/100%
Test No.	3	99 92/100%
Test No.	4	99 91/100%
Test No.	5	99 89/100%
Test No.	6	99 94/100%
Test No.	7	99 94/100%
Test No.	8	99 91/100%
Test No.	9	99 92/100%
Test No.	10	99 93/100%
Test No.	11	99 92/100%
Test No.	12	99 93/100%
Test No.	13	99 86/100%
Test No.	14	99 94/100%
Test No.	15	99 92/100%
Test No.	16	99 73/100%
Test No.	17	99 99/100%
Test No.	18	99 96/100%
Test No.	19	99 96/100%
Test No.	20	99 95/100%
Test No.	21	99 67/100%
Test No.	22	99 80/100%
Test No.	23	99 95/100%
Test No.	24	99 87/100%
Test No.	25	99 99/100%
Test No.	26	99 94/100%
Test No.	27	99 96/100%

Av. Saving, 99 9/10%.

The Best Grain-Saving Record Ever Made. Better than the Government Grain-Saving Tests made on various makes of Separators.

THE illustration above shows clearly why an Avery machine is built right to save the grain.

Note in the first place the construction of the concaves and grates. Both the concaves are adjustable. The rear concave is not stationary as in many machines. The grate behind the cylinder in an Avery Thresher is also adjustable to suit the condition of the straw and not a solid stationary grate as used by others. There is also a moving steel grate underneath the beater. These three special features of construction in an Avery machine are such that a large percentage of the separation of the grain from the straw is done right at the cylinder.

After the straw passes the beater it is thrown back on a lattice work section of the straw rack and is carried along by the motion of the rack.

It then reaches the famous I. X. L. Grain-Saving Separating Device which is furnished with every Avery Thresher. Underneath this separating device is a set of toothed steel plates.

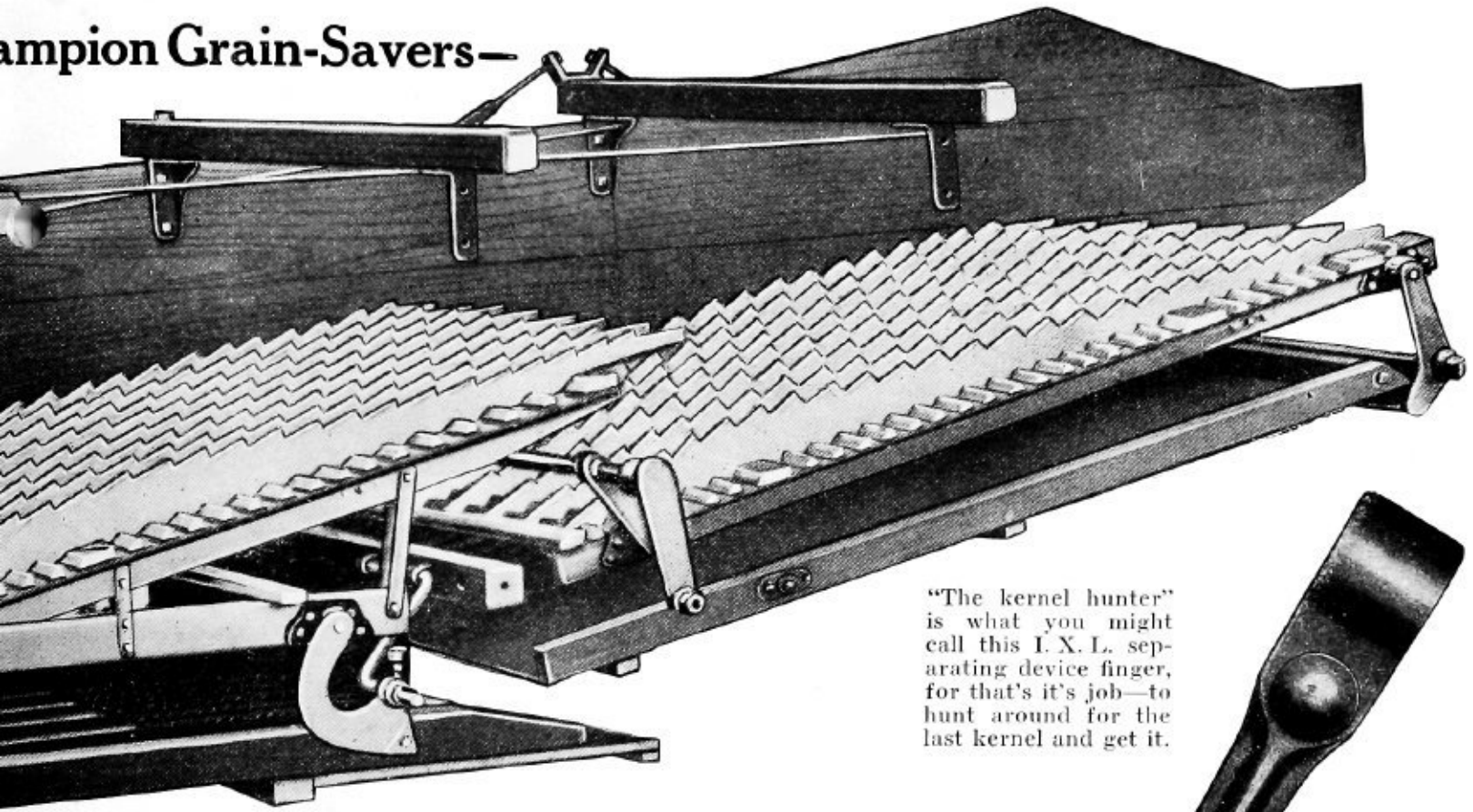
This Device is the greatest invention made for tearing up bunches of straw, wet or dry, and getting the grain out of them. It thins out the straw so well that the kernels cannot help but fall into the grain pan below. Straw that is six inches deep on the straw racks in front of this device is thinned down by it to about ½-inch deep. It revolves 125 times per minute and has sets of fingers which dip 750 times per minute into the straw and loosen it up. These fingers hunt around for the last kernels and get them.

Behind the I. X. L. are placed toothed fish backs on the straw rack slanting upwards. This rack has a strong motion upward and backward and as the straw moves along over these toothed fish backs it is well shaken and every chance is given any few remaining kernels to drop through out of the straw.

This combination of Separating Parts—Adjustable Concaves, Adjustable Grates, I. X. L. Separating Device and Toothed Rack—makes an Avery "Yellow-Fellow" a wonderful Grain-Saver, as is proved conclusively by the Records of Field Tests and our Strong Grain-Saving Guarantee given on the next page.

There is just one way to absolutely prove what a separator will do in saving grain

ampion Grain-Savers—



"The kernel hunter" is what you might call this I. X. L. separating device finger, for that's it's job—to hunt around for the last kernel and get it.

End View of I. X. L. Separating Device Showing Arrangement of Gearing.

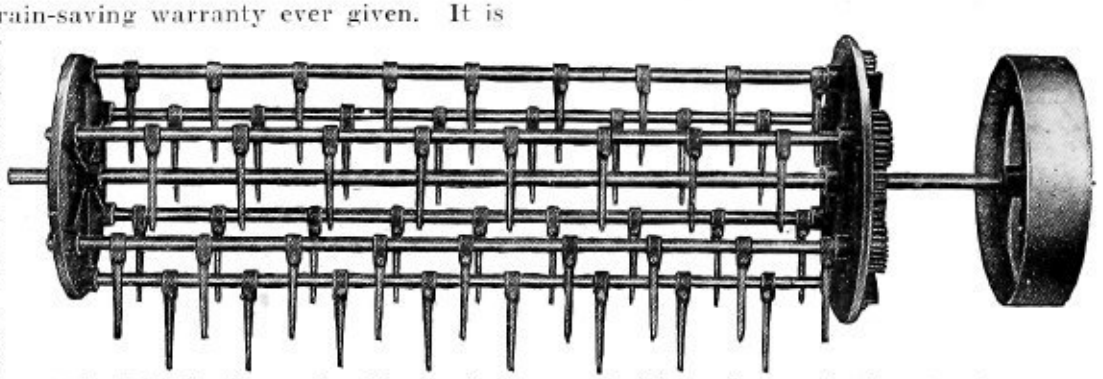
and that is to make a field test. Avery Separators have been tested in many states threshing on canvas. Twenty-seven tests in all have been made. The average saving in the twenty-seven tests was 99 9/10 per cent—practically perfect. This is the best record of grain saving ever made by any separator and is even better than the grain-saving record made with various makes of separators by the Food Administration Grain Corporation under the direction of the government. No other make of separator is backed up by such a grain-saving record as this.

And besides being backed up by these tests—when you buy an Avery "Yellow Fellow-Grain Saver" you also get the strongest definite guarantee on grain saving ever given with any make of machine. This guarantee is printed right in the order blank.

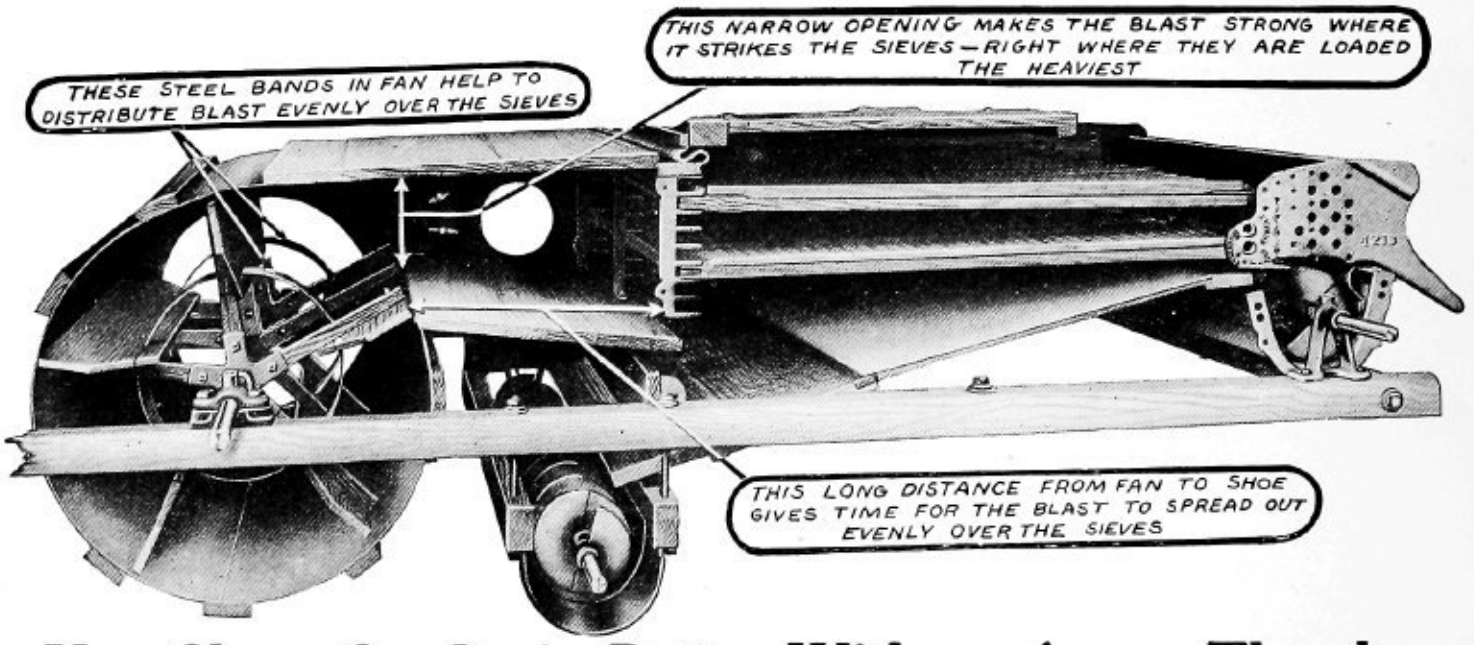
"Averv Separating Devices are guaranteed to shake out 99 52/100 per cent or more of the loose grain that is in the straw, the grain to be dry and in fit condition to thresh. When desired we will submit the machine to test."

This is the strongest definite grain-saving warranty ever given. It is absolutely plain and straightforward. It means exactly what it says and there are no impossible conditions connected with it in any way, shape or form. We guarantee a saving of 99 52/100 per cent **or more**—and the "or more" means anywhere up to 99 99/100 per cent, for this record has been made by many "Yellow-Fellows" in field tests.

These tests and this strong guarantee are positive proof that you get **a genuine Grain Saver** when you buy an Avery Thresher.



The I. X. L. Separating Device is the greatest invention made for thinning out the straw to let the loose grain fall through to the grain pan below, 6,375 fingers dip into the straw every minute.



You Clean the Grain Better With an Avery Thresher

EVERYONE — threshermen, farmers and elevator men — **all** say Avery Threshers are wonderful grain cleaners as well as excellent grain threshers. The reasons are:

First, the Avery Separator Fan is the only one equipped with two wide bands which distribute the air **evenly** over the entire surface of the sieves and prevent the usual cross-blast. Every experienced separator man will understand the advantage of this.

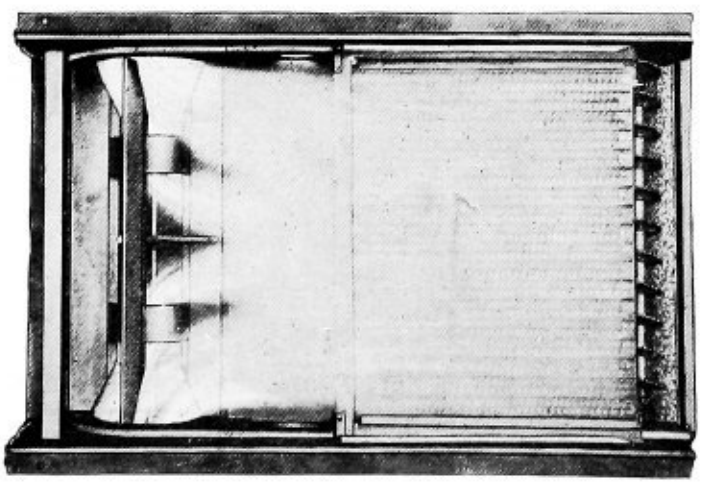
Second, the fan is placed **farther** from the shoe, and because of this greater distance the blast has time to spread out more uniformly over the sieves than in other machines.

Third, the fan-housing is built up **higher** between the fan and the sieves.

With this construction the blast enters the shoe through a narrow opening and is strongest just as it strikes the sieves (right where they are loaded the heaviest) and as it passes back gets softer so it does not blow the grain over at the back end, where the sieves are loaded the lightest. With other separators, you get the lightest blast at the front end where the sieves are loaded the heaviest, and the strongest blast at the back end, where the sieves are loaded the lightest. Then when you close the wind boards, sufficiently to keep the grain from blowing over, the blast is not strong enough on the front end where the sieves are loaded heavy, to do perfect cleaning of the grain. Look into other separators and see the short distance between the fan and the shoe and the wide opening where the blast enters the shoe, and you will understand why many machines do poor cleaning.

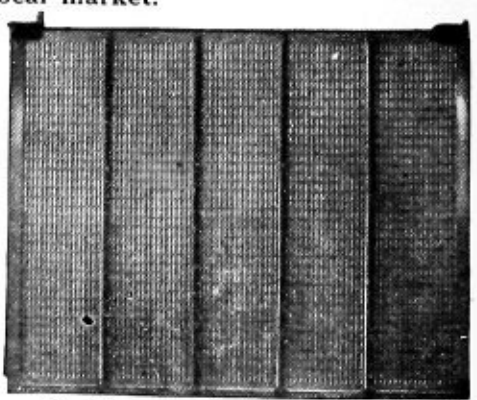
You also get this Special Warranty on Cleaning when you buy an Avery Thresher:

"The Fanning Mill and Shoe of an Avery Thresher are guaranteed to clean the grain in perfect conditio for the local market."



Top View of the Avery Fanning Mill and Shoe.

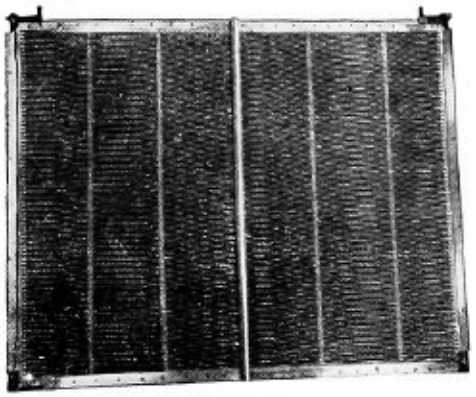
This shows how the Special Steel Bands in the Avery Fan distribute the currents of air evenly over the sieves and prevent any cross-blasts.



Closz & Howard Adjustable Sieve.

Furnished regularly with Avery Threshers in place of regular sieves, when desired, and without extra charge.

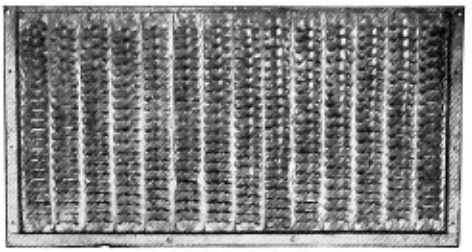
This is the one adjustable sieve we can recommend when an adjustable sieve is wanted, and feel sure that it will prove more satisfactory than any other adjustable sieve on the market. It is built strong and substantial, and is adjustable outside the separator. Made with our special malleable sieve corners. We charge extra for this sieve, but will allow for regular sieves not taken.



Avery Sieve.

Avery Sieves Are Strong and Durable.

They have malleable iron corners with spring latchets. Compare them with the cheap construction of many others.



No-Choke Chaffer.

Avery Threshers Have Two No-Choke Chaffers.

One is attached to the rear end of the grain pan and extends back over the shoe 30 inches. The other is in the shoe. These chaffers are so constructed that all material passing over them is easily and quickly separated. The corrugations and the turned-up edges of metal between them carry all the material very loosely, enabling the wind-blast, which is turned in an upward direction by the curved surface between the openings, to quickly separate the chaff from the grain. We have used these chaffers for years in our machines. They have a large capacity and the best of separating and cleaning qualities.

Avery Threshers Are Backed by the Strongest Guarantees Given With Any Make of Separator

THESE are the special warranties you get when you buy an Avery Thresher, in addition to the ordinary warranties against defects:

Special Warranty on Grain Saving.

Avery Separating Devices are guaranteed to shake out 99 52/100 per cent **or more** of the loose grain that is in the straw, the grain to be dry and in fit condition to thresh. When desired we will submit the machine to test. (This is the strongest grain saving warranty ever given. And it's absolutely plain and straightforward.)

Special Warranty on Avery Jumbo Razor Steel Cylinder Teeth.

Avery Jumbo Teeth are warranted for life against breakages caused by pitchforks, bolts, spades or other foreign materials accidentally entering the cylinder. (Notice that there's no limit to the Avery Special Tooth Warranty against breakages—**for life.)**

Special Warranty on Cleaning.

The Fanning Mill and Shoe of an Avery Thresher are guaranteed to clean the grain in perfect condition for the local market.

Special Warranty on Feeders.

The Bartholomew Band Cutter and Self-Feeder is guaranteed to feed all kinds or conditions of loose, headed or bound grain, without slugging the cylinder, and faster and more evenly than feeding can be done by hand.

Special Warranty on Avery Wind Stackers.

Avery Wind Stackers are warranted to handle dry or wet straw in any condition or quantity without choking and to be built with tank steel fan housings and boiler plate wings.

Furthermore—

If any purchaser of Avery Machinery prefers the form of warranty adopted by any other manufacturer of this class of machinery, we will allow him the privilege, when placing the order, to substitute such other manufacturer's form of warranty for ours, and such purchaser is hereby authorized before signing the order, to write across the face of the warranty in our order blank the following:

"This order is given with the understanding that the warranty and all conditions of (insert name) Company are substituted in place of the warranty printed herein."

Nowhere Else Can You Get Warranties Anywhere Near as Strong.

And they mean just what they say. There's no "Joker" anywhere in them. No impossible conditions. Just out and out straightforward agreements and guarantees that are printed right in every Avery order blank and that you can fall back on when you buy Avery Machinery if it doesn't do just what is represented here, and the Avery Company stands squarely back of them and will make good on every point.

And the reason we can make these strong warranties—much stronger than those given by any other manufacturer—is simply this—because Avery Threshers are built with the right kind of high grade raw materials and workmanship, and we have perfected them in design and detail to the point where they will go out in the field and stand up under the work and do a first-class job of threshing.

Just Consider What it Means to You to Get a Thresher that is Backed Up Like This.

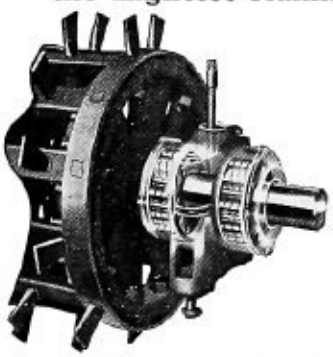
You aren't getting a thresher that is simply backed up by claims, but one that has strong guarantees and field tests behind it. Avery Threshers must do good work and stand up on the job or we couldn't give the strong guarantees we do. Just compare these guarantees and tests with those which any other company offers.

Read the following pages carefully. They tell how Avery Threshers are designed and built and show why they are built to run steady and last a long while and to do good work all the time.

Features That Make Avery Threshers Lighter Running, Longer Lived and More Convenient

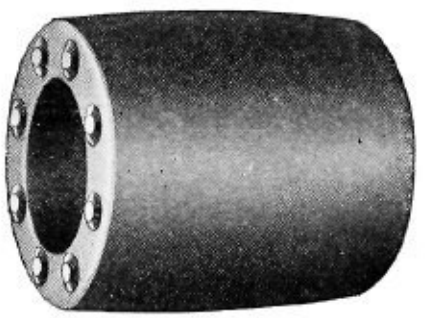
EASE of operation, durability and convenience are three things we have always worked for in designing an Avery Thresher. And we have given unusual attention to the smaller features which are often passed by. Read here about some of the original and improved smaller features in an Avery Separator and see how they are designed to give you a lighter running, stronger and easier handled machine.

Anti-Friction Bearings Make Avery Threshers the Lightest Running Separators Built.



Avery Separators are equipped with anti-friction bearings on both the cylinder and the windstacker fan shafts. Those who have used these bearings report they are a wonderful success as they make Avery Threshers the lightest running separators built. These bearings are so mounted that they are self-aligning. They roll on a heat-treated and hardened inner steel race, so there is no danger of the rollers cutting the shaft. For illustration showing these bearings on the windstacker fan shaft, see page 89.

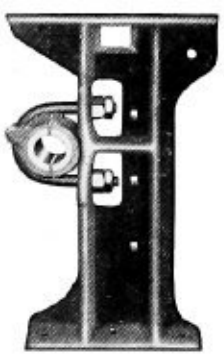
Avery Threshers Are Equipped With Compressed Paper Cylinder Pulleys.



This Compressed Paper Pulley has the following advantages:

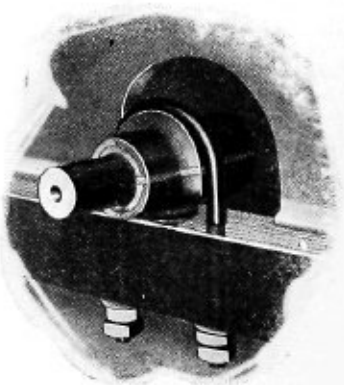
It grips the belt much better than wood, leather or iron; there is no covering to quickly wear out; it saves time and trouble replacing worn out laggings; it lasts longer than others; the main belt can be run slacker, which increases the life of the belt.

All Avery Threshers Have Iron Crankshaft Posts.



When the Crankshaft Boxings are bolted to wood posts in the separator frame, there is always a possibility of the post springing and the shaft bending out of line. The Avery Iron Crankshaft Posts overcome all this and hold the crankshaft firmly in position, without danger of springing under heavy strains.

Avery Separators Have Self-Aligning Boxes.



Self-aligning boxes as shown here are used on the main crankshaft, upper feeder crankshaft, heater shaft and cleaning fan shaft. They are of great advantage to the user over the stationary type of box as you are assured that the bearings are always in line.

The Avery Main Thresher Crankshaft is 2 Inches in Diameter.

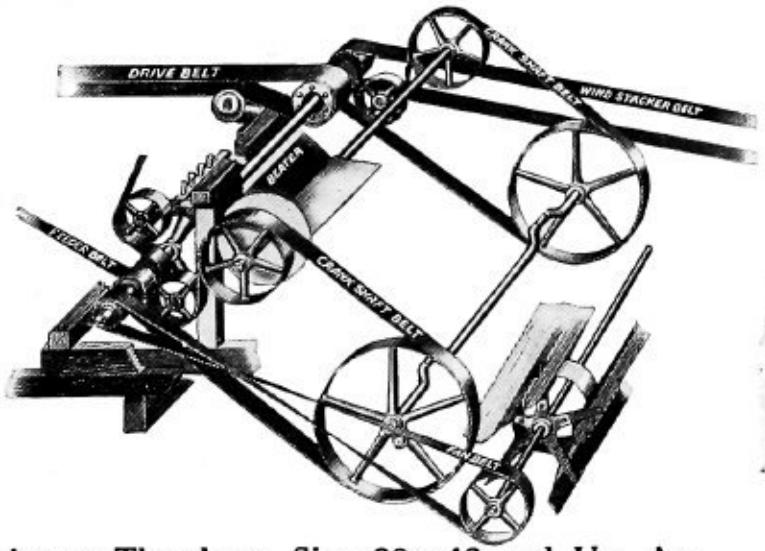
Our Separator Crankshaft is 2 inches in diameter, or from ¼ to ½ of an inch larger than the ordinary separator crankshaft, and on that account much stronger. It is made of the best steel and is neatly bent and turned. The size of the Avery shaft makes it extra strong, and almost wholly does away with all possibility of its being sprung out of line in any manner.

Avery Vibrating Tailer Pitmans Are Made from Steel Pipe.

They are light in weight and much stronger and neater than wood pitmans. They have maple boxings at each end with hard oilers attached and take-up provisions for wear and lost motion. This pitman leads from the separator crankshaft to the rear rock shaft, and drives the rear straw rack and the return grain pan.

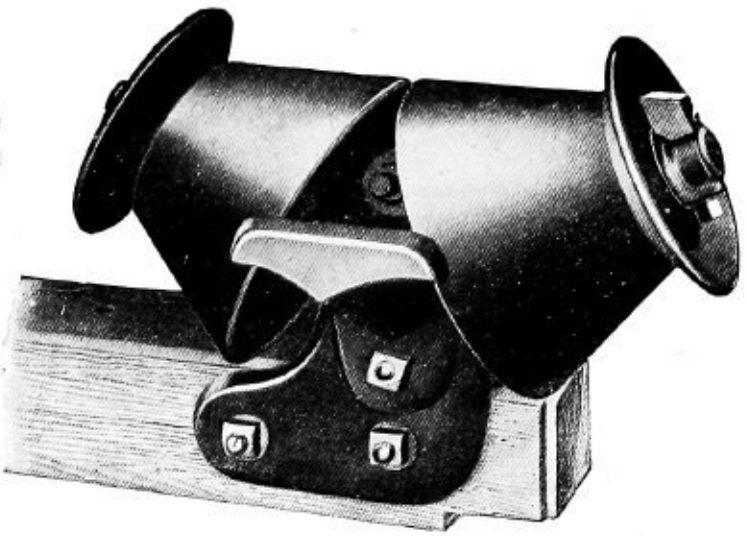
Avery Shoe Pitmans Are Made from Double Steel Pipes.

They have heavy maple boxes at each end. Bolts extend through the pipes from one end to the other, thus holding the boxes in a substantial manner and providing a simple method for taking up wear and lost motion at either end. This pitman is operated by the main crankshaft, and one is used on each side of the separator to drive the shoe.



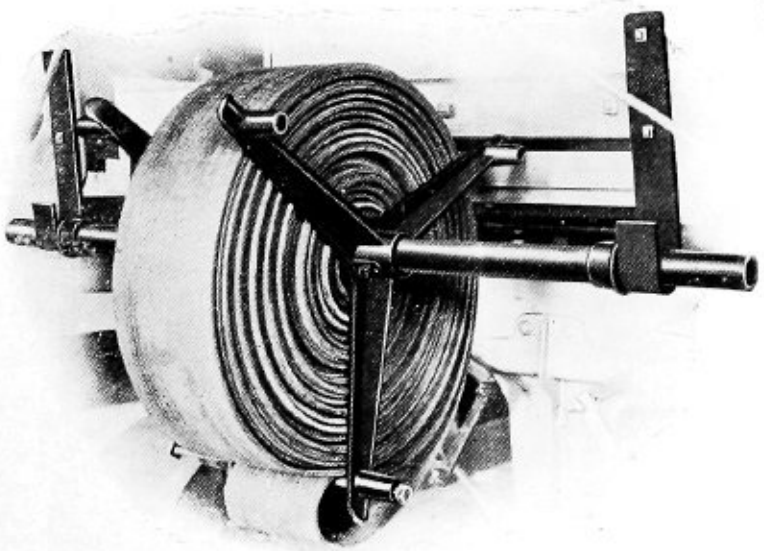
Avery Threshers, Size 28 x 46 and Up, Are Double Belted from the Cylinder Shaft to the Crankshaft.

We also use wide belts, the narrowest belt being 4 inches wide. On single, narrow belted machines the belts have to be drawn up to such a tension that they wear out quickly and also draw the shafting tight so that the machine runs harder. The Avery Separator, in the 28x46 size, is driven with 21 inches of belting surface, in the 32x54 and 36x60 sizes with 22 inches of belting surface, besides the main drive belt; the smaller sizes with 17 inches. Easy on belts and the separator always runs smooth. Another valuable point in an Avery is that all the principal belts are equipped with belt tighteners.



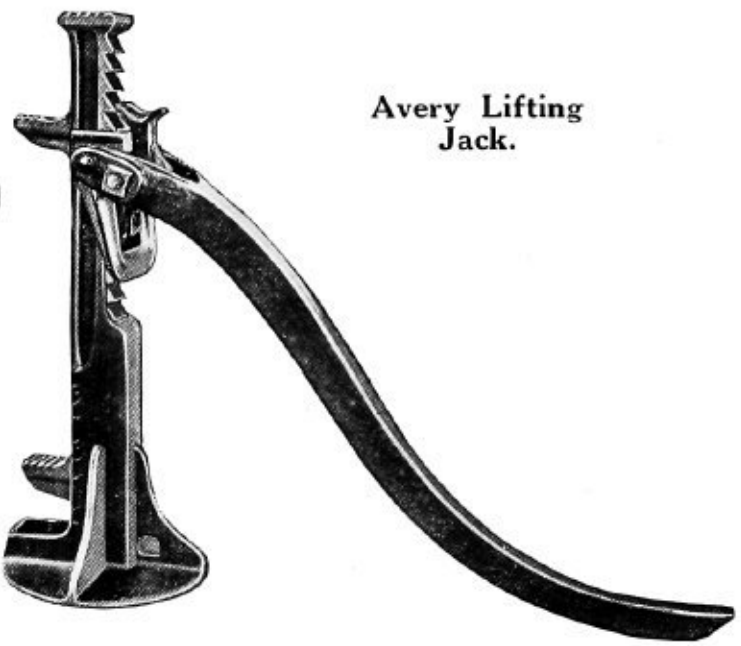
Famous Avery Double Cone Pulley Belt Guide.

Our Belt Guide is constructed with tapering cone pulleys set at such an angle that the belt surface is flat and runs at the same speed at all times. The flanges are a part of the pulleys. As the belt is driven by the wind it is held by the flanges, which are running just as fast as the belt is, and so protect the edges of the belt instead of wearing them off, as other makes of belt guides do, where the edges of the belt are constantly rubbing against pulleys that only run when the belt is forced against them. When the belt is blown to the side, the guide quickly runs the belt back to the center of the pulley. It also holds the under part of the belt up closer around the cylinder pulley, giving you more lap, preventing slipping and adding that much more to your power. This is, without question, the best belt guide made.



Improved Belt Winder is Furnished with Complete Avery Threshers.

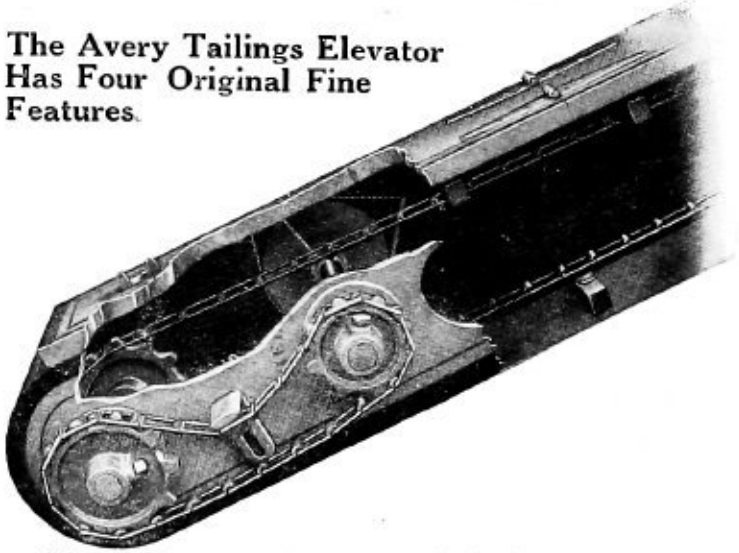
The belt is carried underneath the feeder—it is out of the way when pulling between the stacks. It is also protected from injury by the weather. With this Belt Winder you can very easily wind up or unwind the drive belt. There is no sagging of the separator frame, as often happens when the heavy drive belt hangs on one corner of the frame. It is furnished without extra cost with all Avery Threshers when sold complete with Avery Self-Feeder.



Avery Lifting Jack.

This Jack is our own make. It is a dandy. The finest medium size jack made. Handy to operate, strong and durable. Much superior to the ordinary jacks. It has sufficient strength to handle an ordinary-sized engine, and is just the thing for use around a separator in setting the machine.

The Avery Tailings Elevator Has Four Original Fine Features.

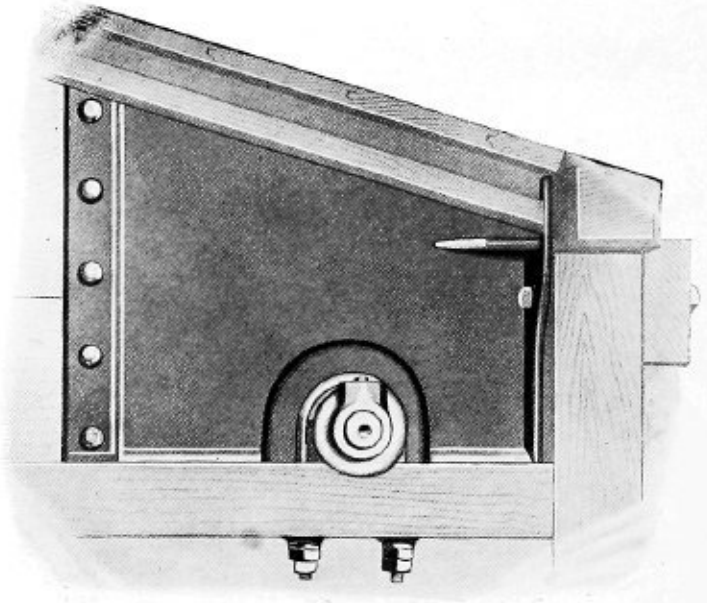


First, it has a steel bottom which doesn't cut out in ridges or wear the face of the blocks uneven, as do the wooden bottom elevators.

Second, the drive sprocket is located below the entrance of the tailings, which keeps the sprocket clear and prevents clogging.

Third, the sprocket chain drive also does away with slipping, common with belt-driven separators.

Fourth, the upper end of the tailings elevator is open, which permits the tailings to be delivered on the ground in case the down spout becomes choked and thus prevents clogging the elevator in the head.



Avery Threshers Have Removable Iron Beater Castings.

If for any reason you wish to remove the beater from an Avery Separator, all that you have to do is unbolt the iron casings on either side, after which the beater can be easily lifted out.

Front Steel Axle for Avery Thresher; Carrying Capacity, 40,000 Pounds. (Notice the Ball and Socket Style of Bearing. It is Strong and Easy to Turn.)

Rear Steel Axle for Avery Thresher; Carrying Capacity, 30,000 Pounds.

All Avery Threshers Have Steel Axles.

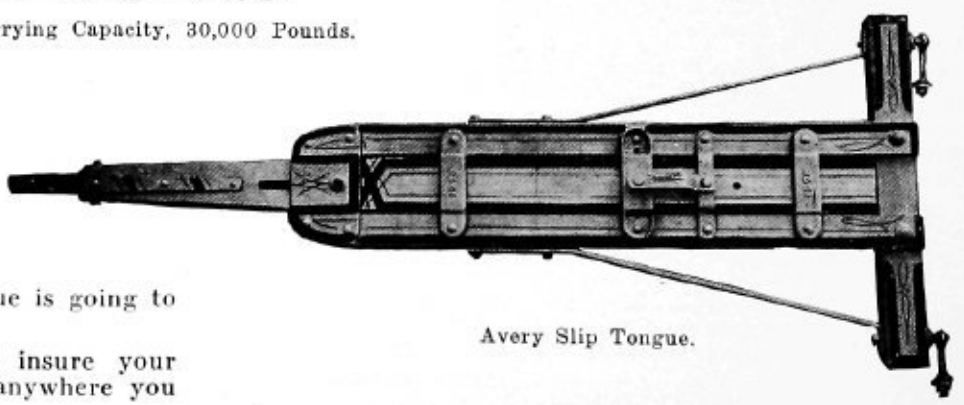
They are made from Steel Bars, bridge trussed and bolted together. Each axle has a carrying capacity of several times the weight that rests upon it. There is no comparison between them and the old style wooden axles, still used by some manufacturers, which rot out and break down and cause so much expense and loss of time.

Loot At This Strong Avery Slip Tongue.

When you are going down a steep hill with the thresher coupled close behind, you have other things to think about than whether the separator tongue is going to twist or break.

The Avery Thresher Tongue will insure your getting down a hill safely or pulling anywhere you want to go.

The Tongue Center on all except the "Yellow-Kid" sizes measures 2¾x6 inches, and each of the two sidebars 2¾x4 inches. This is a slip-tongue and the tongue center can be extended far enough so that you can pull the separator with horses or so that you can couple your engine or tractor on and make a move without having to fold the feeder back over the deck.



Avery Slip Tongue.

Avery Separator No. 63 Has Threshed Over a Million Bushels

H. E. Meyers, Owner of Avery Separator No. 63.

AVERY "Yellow-Fellow" Separator No. 63 threshed its first bushel of grain in the fall of 1892. In the fall of 1920 it completed its 29th threshing season, after having threshed in all this time over a million bushels of all kinds of grain and seeds.

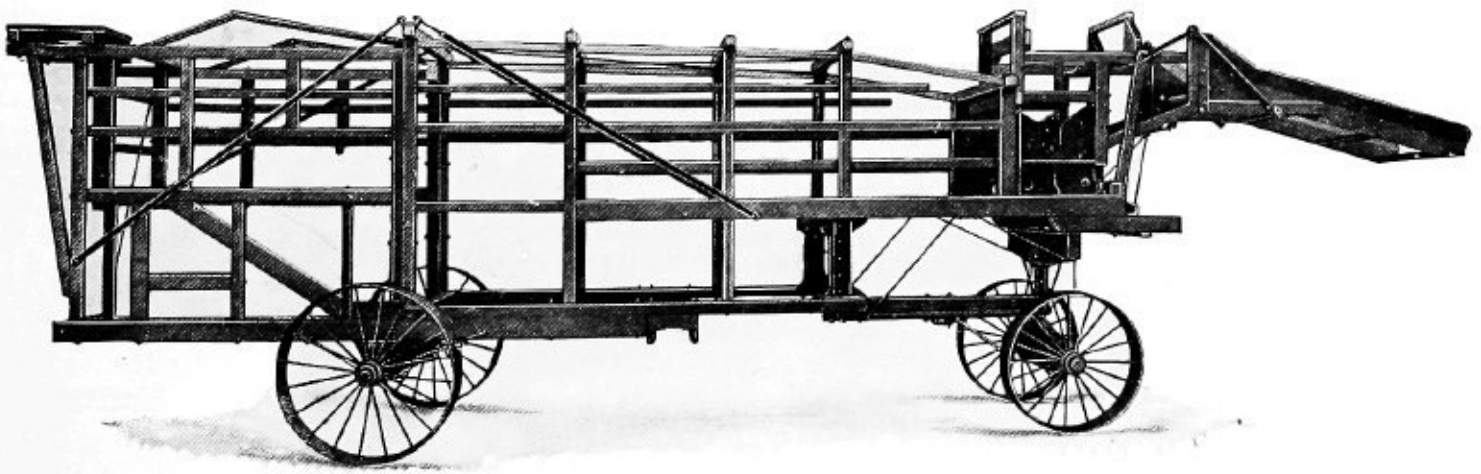
In each of the twenty-nine years this separator has been in service, canvas tests were made, and it was shown that this machine saved 99 52/100% **or more** of the grain threshed at all times. The highest test made with this machine was 99 99/100% — **which means practically perfect work.**

Avery Threshers do good work and last a long time. This is only one instance of this fact. We have hundreds of testimonial letters from Avery owners who have had their machines ten, fifteen and twenty years, and all report that they are still doing an excellent job of grain saving and cleaning.

One reason why an Avery Separator lasts longer than other makes is because the construction of the frame is such that it will withstand all twists and strains. Cross-rods run underneath the deck, holding the frame in shape. Also every part of an Avery Thresher frame is dipped in paint before it is assembled. This means that every joint is covered with paint and so prevents the joints from rotting first—the weakest spots in some makes of separators.

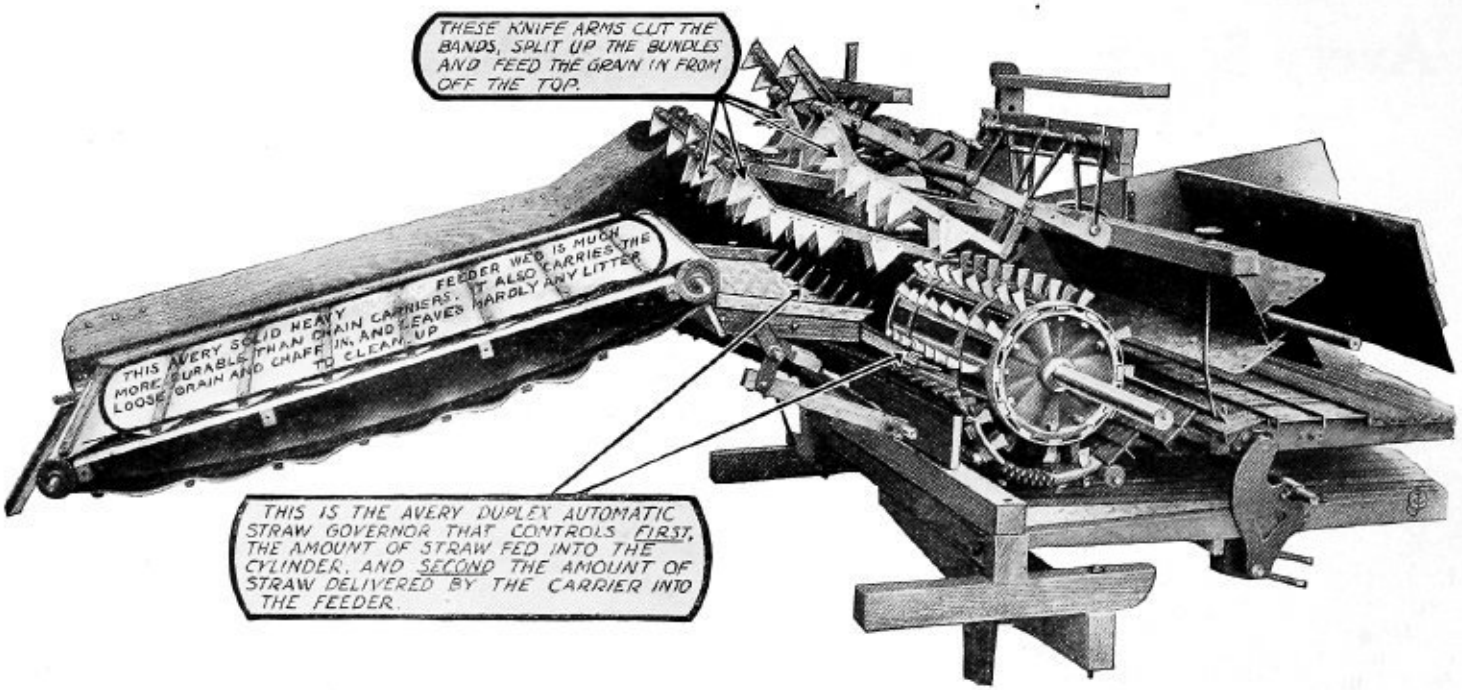
Other reasons are the big crankshaft, the extra strong straw racks, the tank-steel windstacker housing and many other features.

H. E. Meyers, Mt. Pleasant, Iowa, owner of Avery Separator No. 63, wrote us. "If I live fifty years more and am able to look after this machine, it will last just that much longer." So you see we cannot say just how long an Avery Separator will last.



Here is Why an Avery Thresher Frame Lasts So Long.

An Avery Separator Frame is unusually strong and long lived. One of the most valuable features is the two diagonal steel brace rods just underneath the deck, which connect the upper ends of each of the two front posts of the main frame with the upper ends of the rear posts on the opposite side. These form a cross tie which prevents twisting and sagging of the frame.



This Bartholomew Automatic Band Cutter and Self-Feeder Feeds Even, Fast and Clean

AVERY Feeders do even feeding without slugging. They are built to feed the bundles in the same way as is done by hand. The knife arms dip into the bundles and thoroughly loosen them up. The motion of these arms also feeds the bundles in from off the top, while the steel retarding fingers hold back on the lower part of the bundles. This is exactly the way that hand feeding is done. That's why you get even feeding without slugging with an Avery Feeder.

Avery Feeders do fast feeding. Users of them say that the capacity of Avery Feeders has never been reached. We do not use any delicate feeding devices, such as are often used, which greatly reduce the capacity of the feeding and wear out quickly.

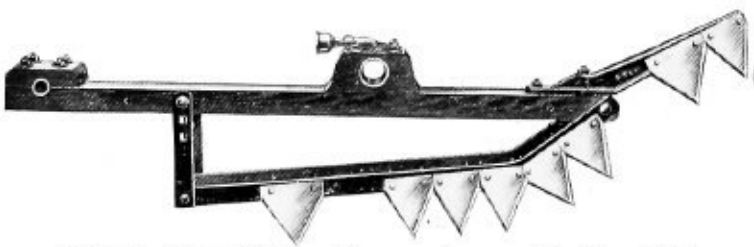
Avery Feeders do clean work. They are not "slobbering" feeders, as one farmer wrote us, "when you are done threshing you are ready to go." They are equipped with solid feeder carriers, which carry the loose grain and chaff into the machine instead of wasting the grain and leaving a lot of litter to clean up. They are also much more durable and do not break and cause the trouble which the chain carriers do.

You also get the following strong warranty with this feeder:

"The Bartholomew Band Cutter and Self-Feeder is guaranteed to feed all kinds and conditions of loose, headed or bound grain without slugging the cylinder, and faster and more evenly than feeding can be done by hand."

You get this warranty printed **right in the order blank.**

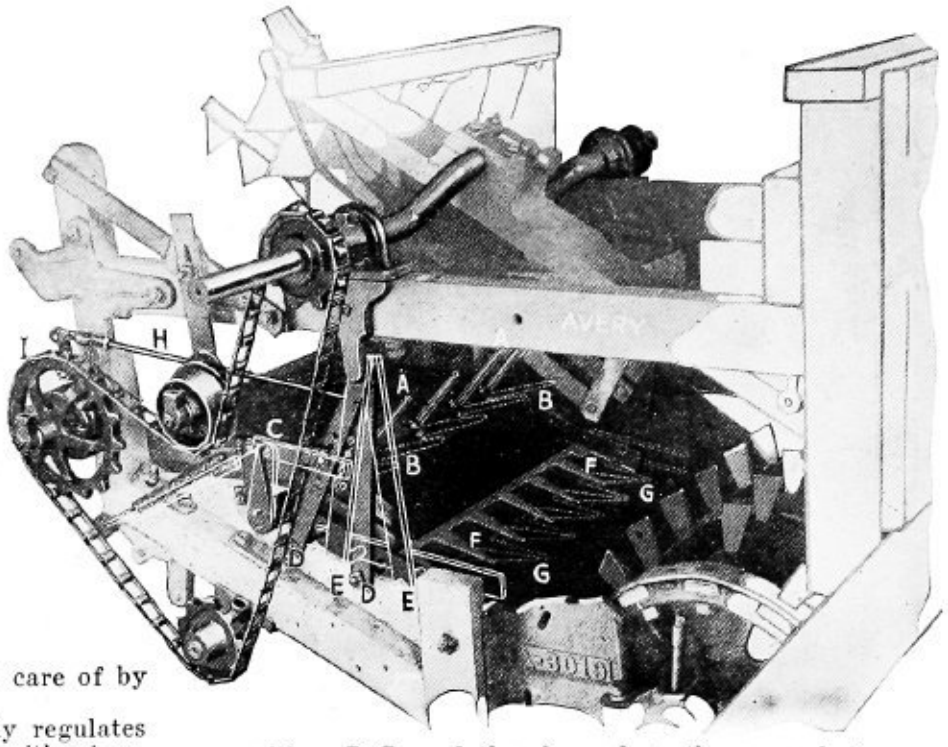
You can see from the construction of an Avery Feeder that it is built to do even, fast work and to last a long time. If it didn't do it we couldn't give this strong warranty that goes with every order. Read the letters from users which we publish telling about the work of the Avery Feeder and ask anybody who owns one and you will find that Avery Feeders do all we claim for them.



This is One of the Strong Avery Feeder Knife Arms. A Hard Oiler is Furnished for the Journal. The Knife Bars are Adjustable to Raise or Lower.

The Crankshafts on our 28, 32 and 36-inch Feeders are made from 1¾-inch Open Hearth Steel. Those on the smaller sizes from 1½-inch. All the Bearings are Accurately Machined. They are Heavier than Many Others and Less Liable to Spring or Break.

The Avery "Duplex-Automatic" Straw Governor



AVERY "Yellow-Kid" and "Yellow-Fellow" Separators can now be equipped with the new Avery "Duplex-Automatic" Straw Governor at an extra price—a simple yet effective device that controls, first, the amount of straw fed into the cylinder, and second, the amount of straw delivered by the carrier into the feeder. It acts according to the volume and condition of the straw—all this being done **automatically** without reducing the speed of the cylinder.

It automatically adjusts the width of the throat between the cylinder and retarding fingers and thereby prevents the cylinder from slugging or wrapping; and at the same time stops the carrier so that no more straw is drawn into the feeder until what is already there is taken care of by the cylinder.

It is the **only** feeder that automatically regulates the amount of grain reaching the cylinder without reducing the speed of the cylinder.

It automatically takes care of **all** overloading of the feeder and distributes the grain evenly before reaching the cylinder.

It will feed in more grain and feed it in better, and it will handle all kinds and conditions of grain.

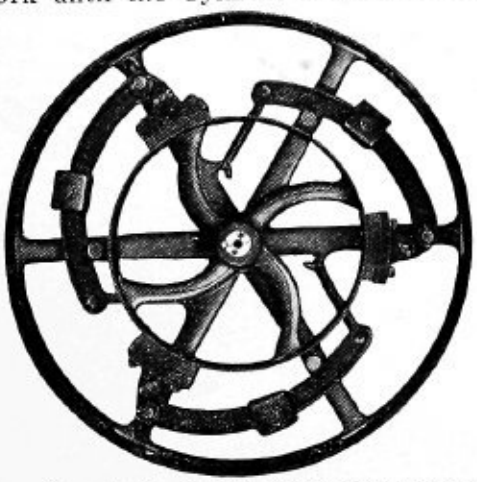
It consists only of a number of steel fingers and a retarding comb as shown above—is simple—and has no delicate or revolving parts to become wrapped with wet grain. The action of this device is as follows:

The Straw Governor is operated by a number of steel fingers projecting upward from the feeder pan. (See A. A.) When too large an amount or too heavy straw is pitched into the cylinder these fingers are automatically pressed downward. (See position of finger B. B.) This, in turn, pushes the Arm C and hangers D. D. forward to the position E. E. The retarding fingers F. F. are then moved forward to the position G. G. and thereby reduce the space between them and the cylinder. Thus a lesser quantity of straw is allowed to be fed into the cylinder. At the same time the rod H is moved forward by the action of the arms D. D. which releases the clutch I and stops the feeder carrier so that no more straw is drawn into the feeding parts until what is already there is handled by the cylinder. As soon as the pressure on the straw governor fingers B. B. is relieved they automatically return to the position A. A., the retarding comb is drawn back and the carrier again starts in motion.

This Avery Duplex Automatic Straw Governor operates **automatically** and **instantly,** regulating the amount of straw carried into the feeding parts and adjusting the throat between the retarding comb and the cylinder according to the quantity and condition of the straw. This wonderful device so controls the feeding as to feed the cylinder to its fullest capacity at all times and at the same time prevents slugging.

The Avery Speed Governor is the Best Governor Made.

With an Avery Feeder no part of the feeder will go to work until the Cylinder has reached **threshing**

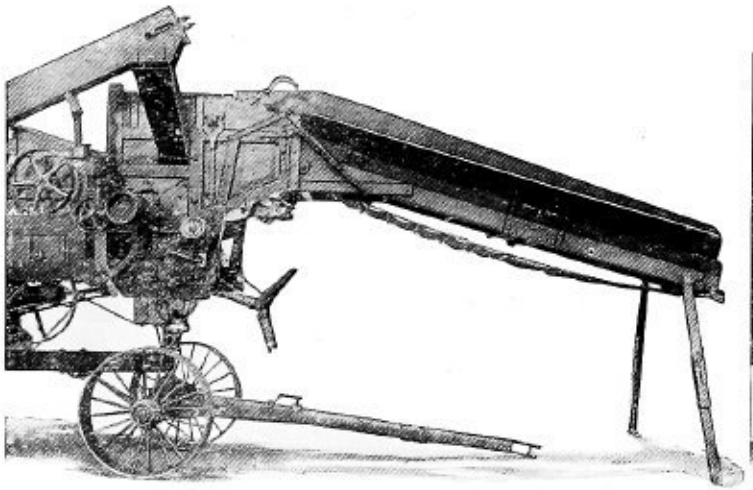


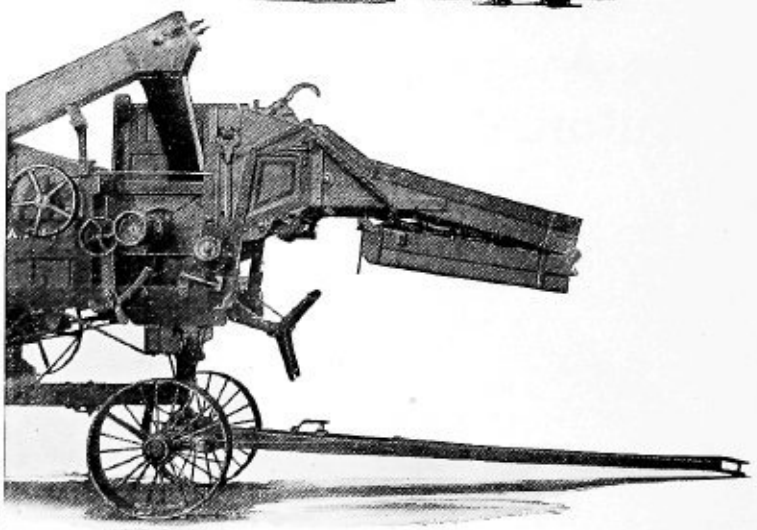
speed, then the whole feeder starts into operation and takes care of the grain which has been pitched into it while the machine was stopping.

This Governor is also very sensitive—has a wide range of adjustment, so that it will give you perfect control in all kinds of grain, whether threshing a small or large number of bushels per minute. This governor is also strong enough to control a feeder extension as well—another feature of importance.

The action of this Governor is as follows: The large pulley is loose on the shaft and is driven by the feeder drive belt. Attached to it are three clutch arms, on the ends of which are wooden clutch blocks. The smaller inside pulley is keyed to the crankshaft. When the Separator is started the large pulley revolves until the speed becomes fast enough to overcome the tension of the springs which hold the ends of the clutch arms; the clutch blocks then engage the inside pulley and the feeding parts and carrier start in motion. When the speed gets too low the clutch blocks release from the small pulley and the feeding parts and carrier stop. The weights on the clutch arms give a wide range of adjustment for different conditions.

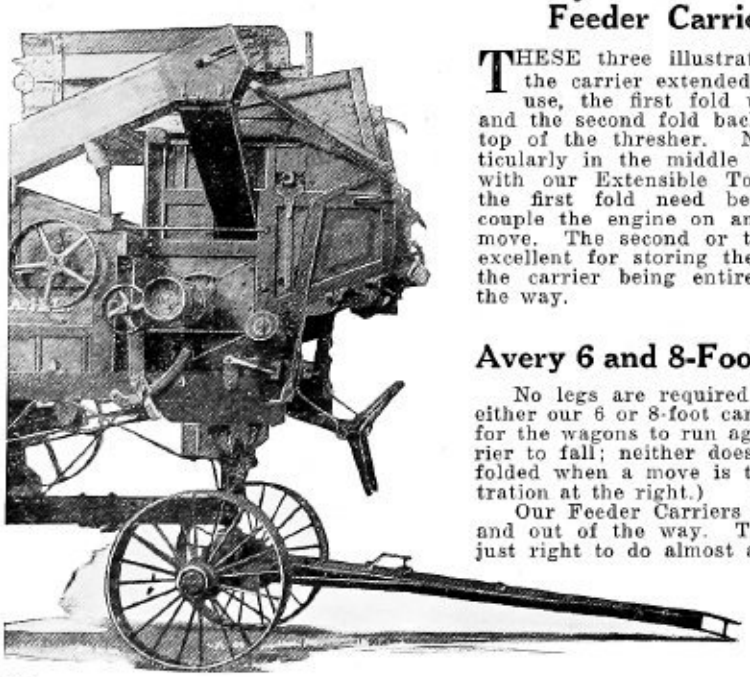
The Governor is one of the most important parts of a feeder, and the Avery leads them all.





Avery 10 and 14-Foot Feeder Carriers.

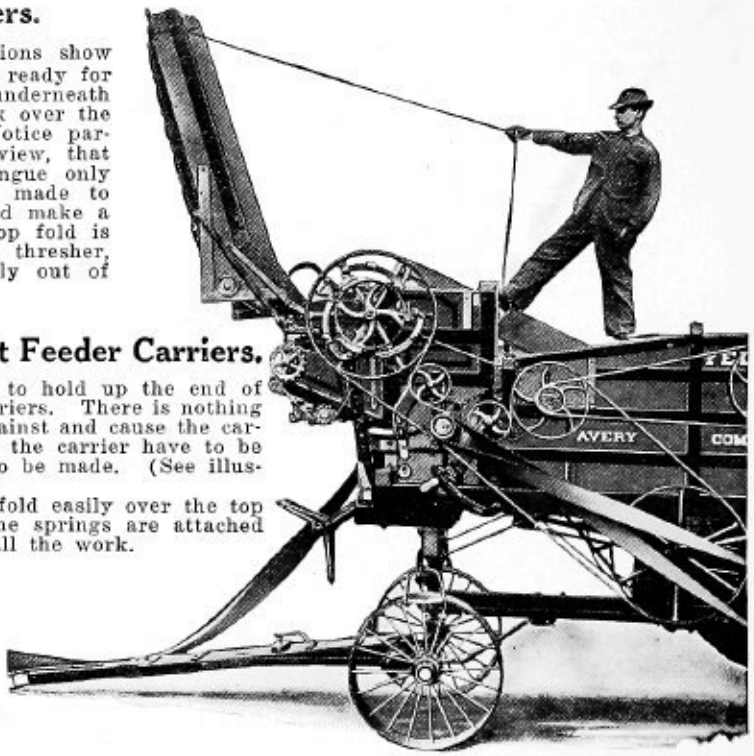
THESE three illustrations show the carrier extended ready for use, the first fold underneath and the second fold back over the top of the thresher. Notice particularly in the middle view, that with our Extensible Tongue only the first fold need be made to couple the engine on and make a move. The second or top fold is excellent for storing the thresher, the carrier being entirely out of the way.



Avery 6 and 8-Foot Feeder Carriers.

No legs are required to hold up the end of either our 6 or 8-foot carriers. There is nothing for the wagons to run against and cause the carrier to fall; neither does the carrier have to be folded when a move is to be made. (See illustration at the right.)

Our Feeder Carriers fold easily over the top and out of the way. The springs are attached just right to do almost all the work.



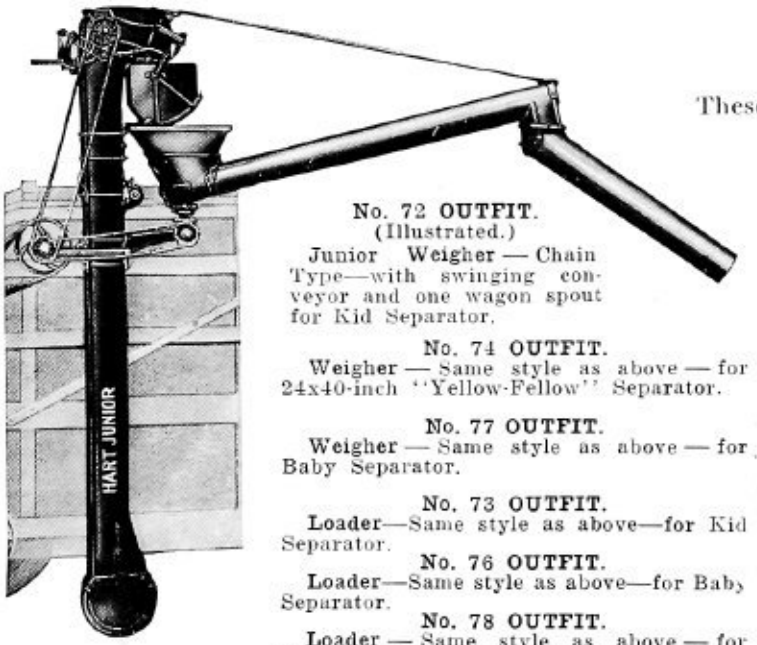
Avery 18-Foot Mounted Feeder Extension.

Remember that, unlike other makes, the Avery Feeder Governor is strong enough to control this Extension also, and that the carrier on the Feeder Extension does not keep running and piling up the grain after the feeder carrier has stopped.

This is an exclusive Avery feature.

Weighers and Loaders

These are the Principal Styles of Weighers and Loaders Commonly Used.



No. 72 OUTFIT.
(Illustrated.)
Junior Weigher — Chain Type—with swinging conveyor and one wagon spout for Kid Separator.

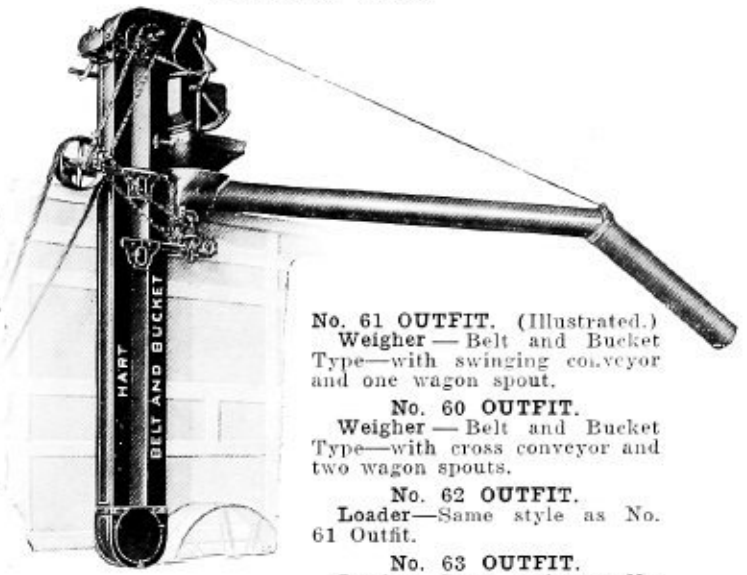
No. 74 OUTFIT.
Weigher — Same style as above — for 24x40-inch "Yellow-Fellow" Separator.

No. 77 OUTFIT.
Weigher — Same style as above — for Baby Separator.

No. 73 OUTFIT.
Loader—Same style as above—for Kid Separator.

No. 76 OUTFIT.
Loader—Same style as above—for Baby Separator.

No. 78 OUTFIT.
Loader — Same style as above — for 24x40-inch "Yellow-Fellow" Separator.

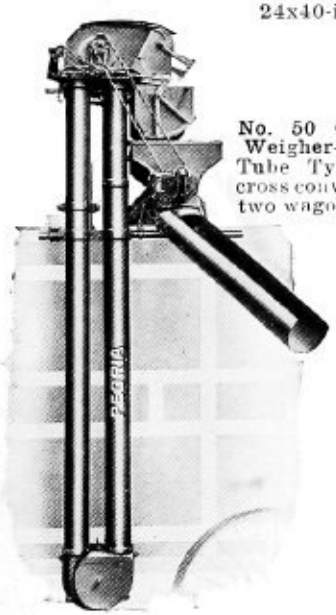


No. 61 OUTFIT. (Illustrated.)
Weigher — Belt and Bucket Type—with swinging conveyor and one wagon spout.

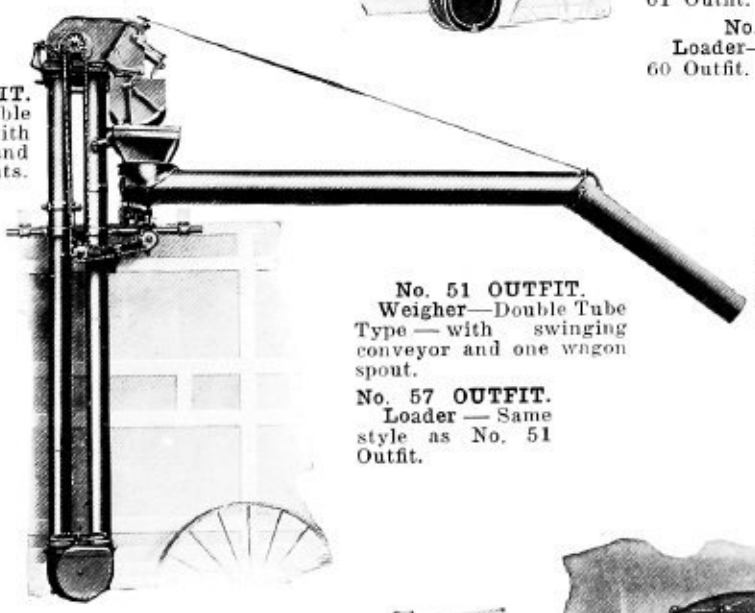
No. 60 OUTFIT.
Weigher — Belt and Bucket Type—with cross conveyor and two wagon spouts.

No. 62 OUTFIT.
Loader—Same style as No. 61 Outfit.

No. 63 OUTFIT.
Loader—Same style as No. 60 Outfit.

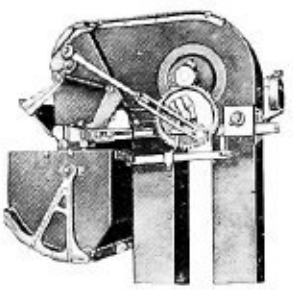


No. 50 OUTFIT.
Weigher—Double Tube Type—with cross conveyor and two wagon spouts.

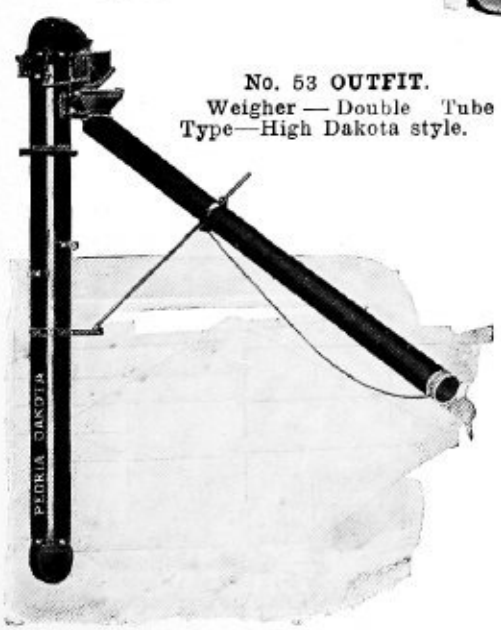


No. 51 OUTFIT.
Weigher—Double Tube Type — with swinging conveyor and one wagon spout.

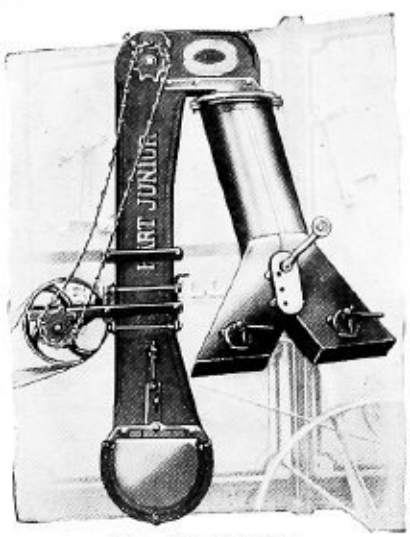
No. 57 OUTFIT.
Loader — Same style as No. 51 Outfit.



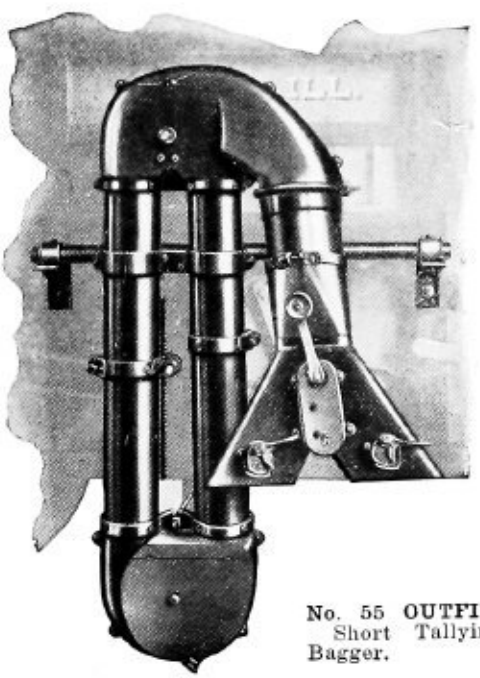
Weigher Head.



No. 53 OUTFIT.
Weigher — Double Tube Type—High Dakota style.



No. 75 OUTFIT.
Junior Tallying Bagger for Baby Thresher.

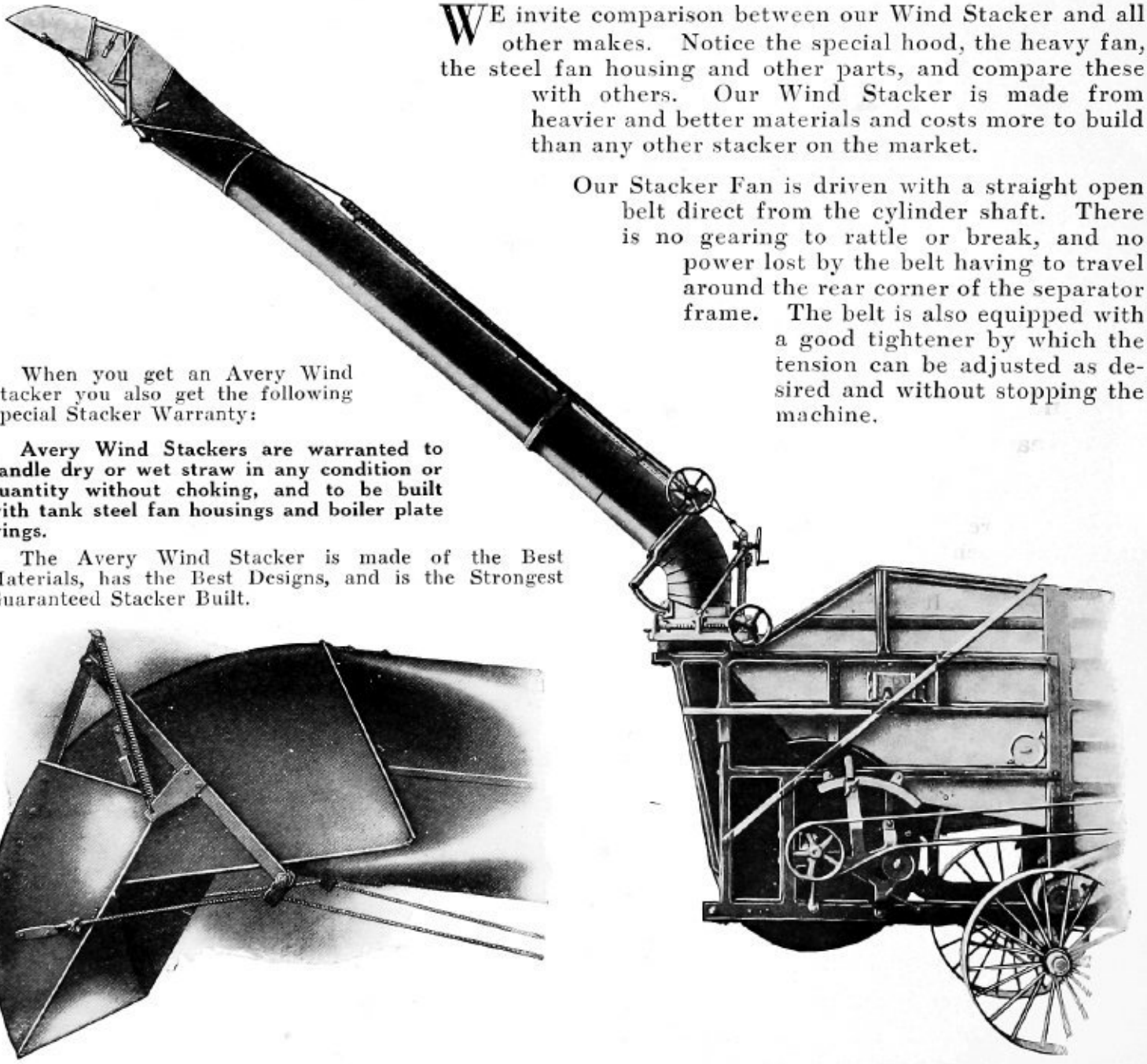


No. 55 OUTFIT.
Short Tallying Bagger.

You Pay the Same Price and Get a Whole Lot More for Your Money When You Buy an Avery Wind Stacker

WE invite comparison between our Wind Stacker and all other makes. Notice the special hood, the heavy fan, the steel fan housing and other parts, and compare these with others. Our Wind Stacker is made from heavier and better materials and costs more to build than any other stacker on the market.

Our Stacker Fan is driven with a straight open belt direct from the cylinder shaft. There is no gearing to rattle or break, and no power lost by the belt having to travel around the rear corner of the separator frame. The belt is also equipped with a good tightener by which the tension can be adjusted as desired and without stopping the machine.



When you get an Avery Wind Stacker you also get the following Special Stacker Warranty:

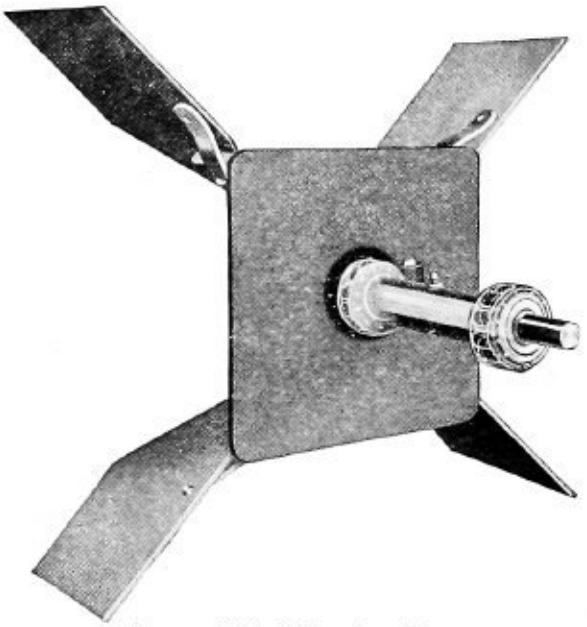
Avery Wind Stackers are warranted to handle dry or wet straw in any condition or quantity without choking, and to be built with tank steel fan housings and boiler plate wings.

The Avery Wind Stacker is made of the Best Materials, has the Best Designs, and is the Strongest Guaranteed Stacker Built.

This Wind Stacker Hood Spreads the Straw Out and Builds a Fine Stack.

Threshermen and farmers tell us that our wind stacker hood is a fine improvement. With it you can build a better stack, and if you use a man in the straw he will have much easier work than with the old style round stacker hood.

This Hood is so hinged that it maintains a perfect curve, no matter in what position it is placed, thus causing the straw to always pass out in a steady, unchecked stream. The outer end of the hood has a broad, flat face, with square sides, which spread the stream of straw out into a wide, thin sheet, depositing it over a large area on the stack and without too great a force. These thin layers of straw lap back and forth upon one another and bind the stack into one compact mass, while with the round hoods large bunches of straw are delivered in one place, holes are bored in the stack, large chunks rolled off, and the stack built up piece by piece. With this hood you can place the straw anywhere you wish, build up the stack more uniformly, bind it closer together, top it out in finer shape, and make a better built and more waterproof stack.



Avery Wind Stacker Fan.

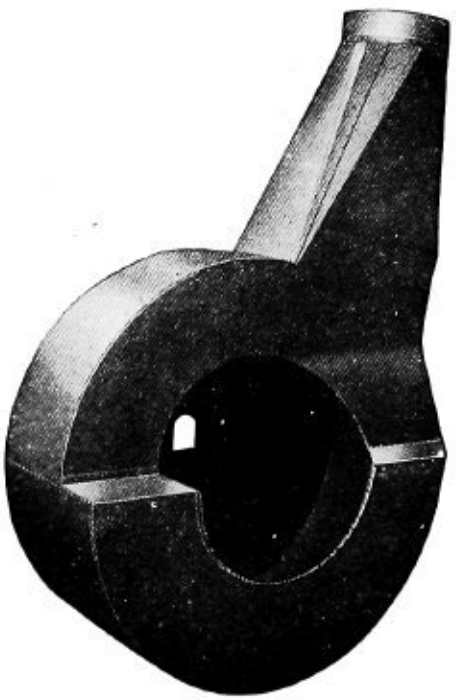
The Avery Wind Stacker Fan is the Strongest and Heaviest Fan Used in Any Wind Stacker—Runs on Anti-Friction Bearings.

Has ¼-inch steel boiler plate wings, much stronger than the sheet iron style. Pitchfork handles don't bend or break them, and they will take care of more straw and blow it to a greater distance than will other wind stacker fans. The fan head alone weighs more than most other complete fans. The whole fan rotates very easily and smoothly as the fan shaft runs on two anti-friction bearings.

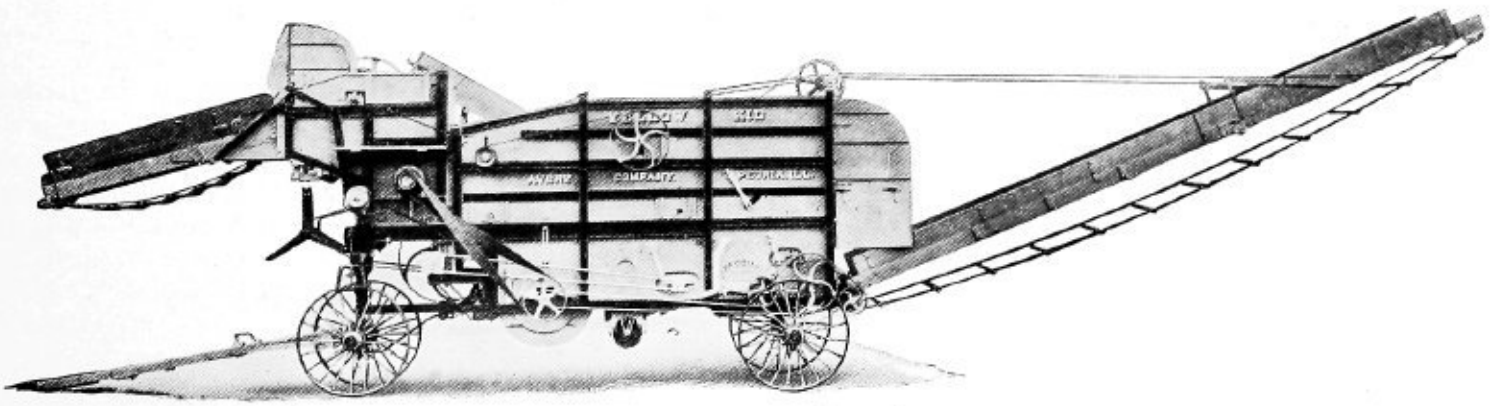
Our Wind Stacker Fan Housing is Made of Heavy Sheet Steel and Boiler Riveted.

Just compare it with one of those fan housings with wooden heads and galvanized iron nailed on for a casing, or with any other kind of a fan housing. It is the Strongest, the Most Durable one of all.

The bottom of our fan housing is also widened out and when the straw reaches the mouth of the housing the force of the blast made by the fan carries most of the straw up the stacker pipe without the fan wings having to touch it at all. This largely increases the capacity and helps to prevent clogging and cutting up the straw. Threshermen say that the only way to clog an Avery Wind Stacker, with this fan housing, is to throw off the wind stacker belt.

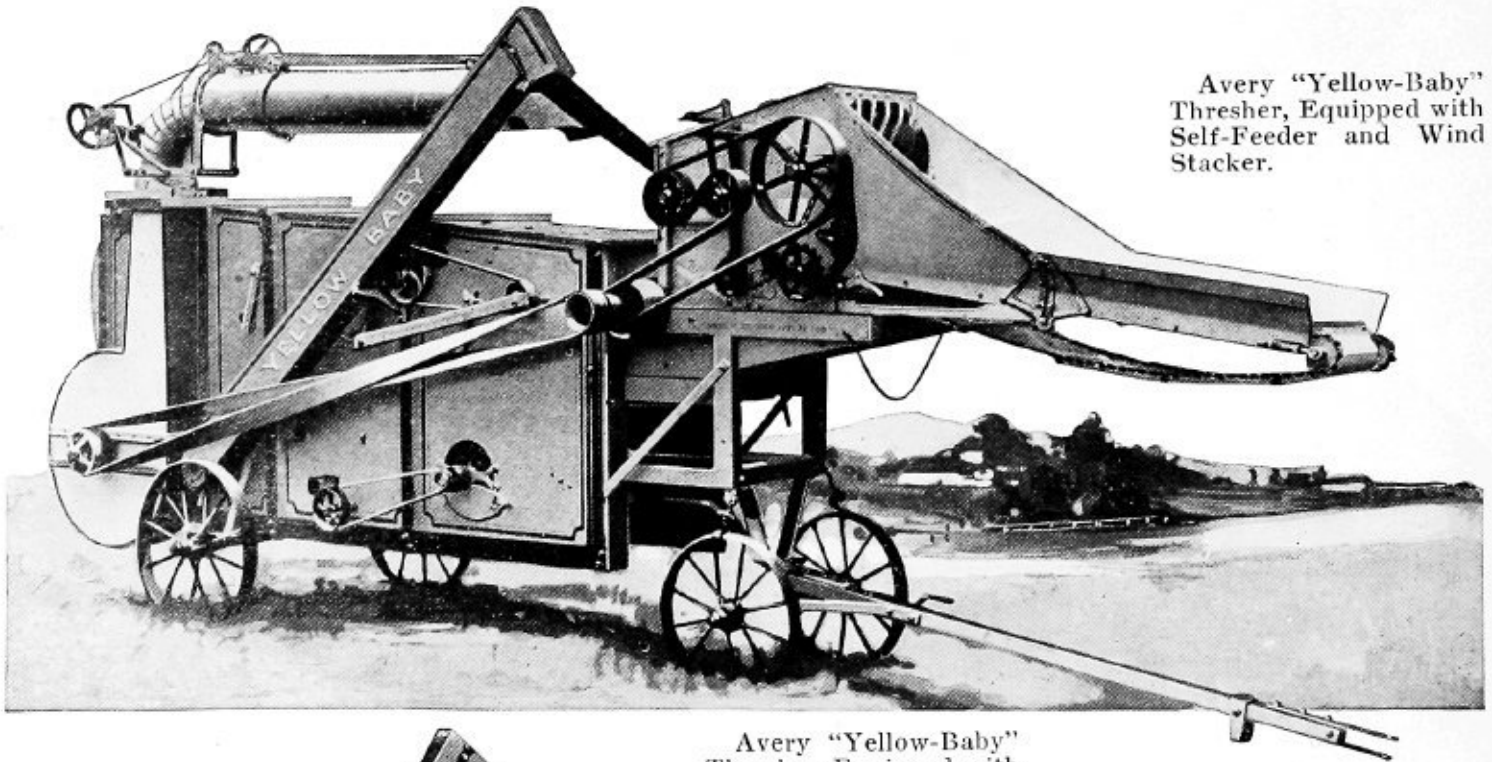


Avery Wind Stacker Fan Housing.

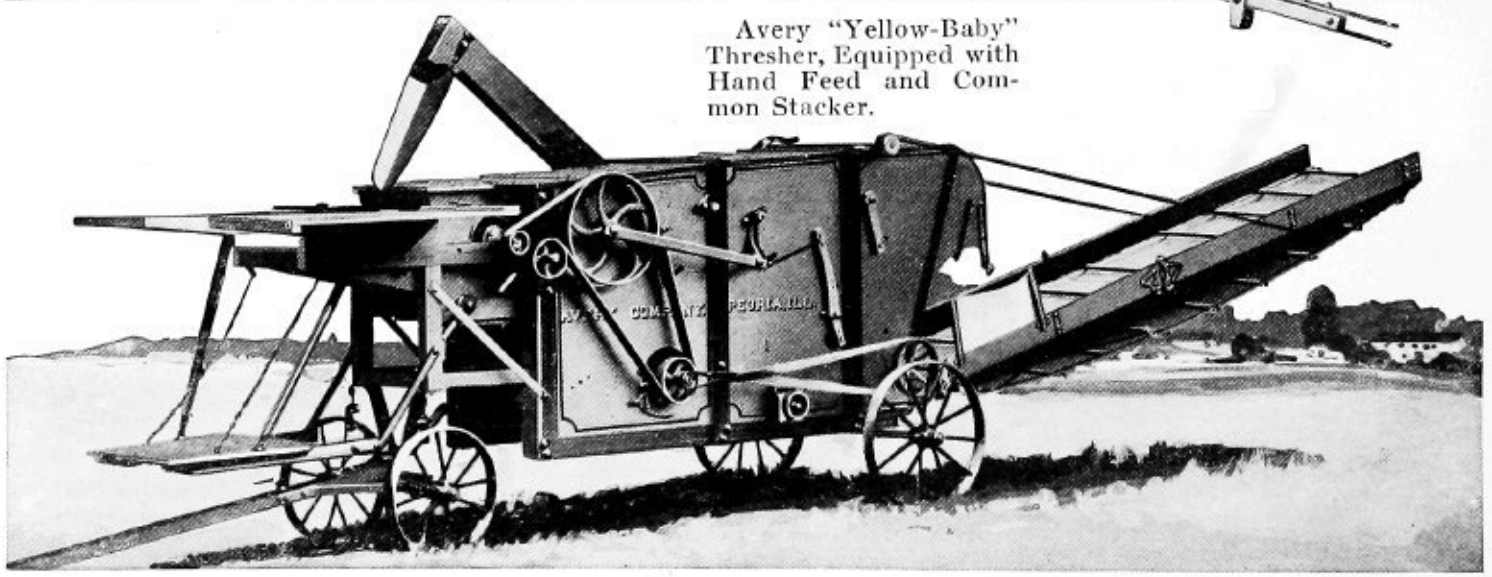


Avery Common Stacker.

Built for Any Size Avery Separator.



Avery "Yellow-Baby" Thresher, Equipped with Self-Feeder and Wind Stacker.



Avery "Yellow-Baby" Thresher, Equipped with Hand Feed and Common Stacker.

Avery "Yellow-Baby" Thresher

Size 22 x 32-inch. For Individual Use and Small Runs.

THE Avery "Yellow-Baby" Thresher is designed chiefly for the purpose of meeting the demand for a small light-weight thresher, easily transported from one place to another and having a capacity adapted to such farms as cannot be reached by or cannot economically use a larger grain separator. This machine is especially desirable for individual use and small runs.

It is different from the ordinary type of small individual threshers in that it is **not** an experiment. Its design includes many of the grain saving and cleaning features that have helped to make the Avery "Yellow-Fellow" and "Yellow-Kid" Separators the Champion "Grain-Savers" of them all, having made the wonderful record of saving 99 9/10 per cent of the grain threshed in twenty-seven actual field tests. Therefore, an excellent job of threshing is assured with the Avery "Yellow-Baby." It is also well built and strong throughout and has a number of special features.

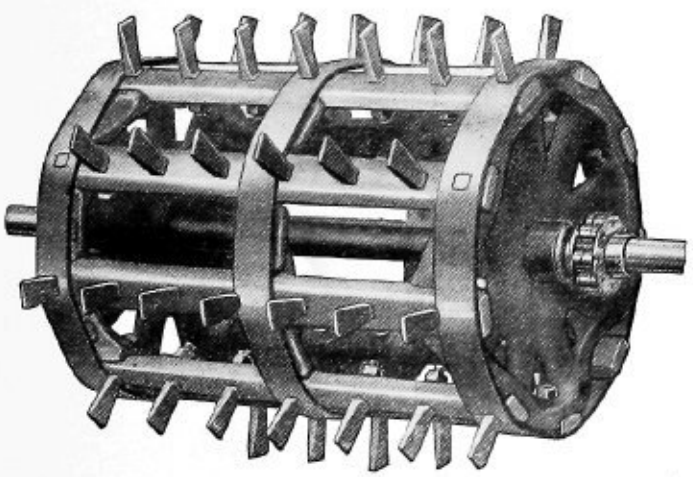
It is a 22-inch Cylinder, 32-inch Separator. It has a capacity of about 30 to 50 bushels of wheat and 50 to 80 bushels of oats per hour, and other grains accordingly. With it you can do your own threshing and that of a few of your neighbors, if desired.

This separator can be equipped with either hand or self-feeder and with common or windstacker, as de-

sired. When equipped with self-feeder and wind-stacker it weighs approximately 3,800 pounds, while with the hand feed and common stacker it weighs about 2,800 pounds. When boxed for export it can be packed in a minimum of cubical contents and weight.

The Avery "Yellow-Baby" will thresh almost any kind of grains and seeds. The concaves and cylinders have teeth made of the same kind of material, but smaller in size, as is used in the famous Jumbo Teeth in the Avery "Yellow-Kid" and "Yellow-Fellow" Separators. They are made of **genuine tool steel.** And they are backed by the same warranty as the regular Jumbo Teeth—that is, **they are guaranteed for life against breakage.**

This little separator is also equipped with the famous I. X. L. Grain-Saving Device similar to the one used in the larger size Avery Threshers. This device is the greatest invention made for separating the grain from the straw. It tears up the bunches of straw, wet or dry, and gets the grain out of them. It thins out the straw so well that the kernels cannot help but fall through into the grain pan below. It has sets of



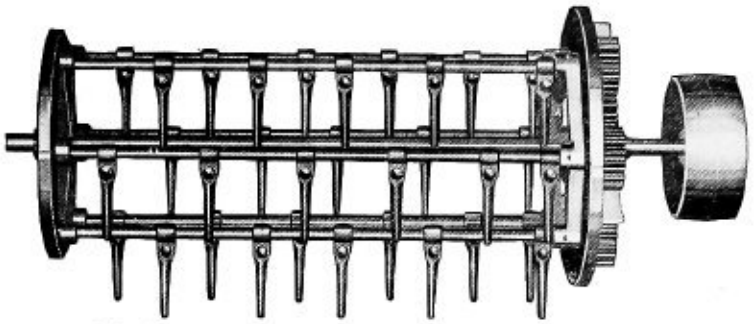
The Avery "Yellow-Baby" is equipped with Anti-Friction Bearings on both the cylinder and the wind stacker fan shafts. They make it the lightest running little separator built.

fingers that dip into the straw and loosen it up. **These fingers hunt around in the straw for the last kernel and get it.**

Anti-friction Bearings are used on the cylinder and windstacker-fan shafts and they reduce the friction to a minimum. These bearings make this little grain thresher the lightest running small separator built. Don't get a thresher without them. If you do you will be getting a machine that will be out of date in a few years.

It requires only about eight horsepower to operate it when equipped with hand feed and common stacker, twelve horsepower when equipped with self-feeder, and about fifteen horsepower when fully equipped.

The frame of this little separator is also unusually strong and long lived. Like the big Avery Threshers it also has two diagonal steel brace rods connecting



The Avery "Yellow-Baby" Thresher is also equipped with the I. X. L. Separating Device, the greatest invention made for thinning out the straw.

the upper ends of each two front posts of the main frame with the upper ends of the rear posts on the opposite side. These form a cross tie which prevents twisting and sagging the frame.

This separator also has a slip tongue of ample size to prevent any worry about its breaking, when you are going down a steep hill or at any other time. They are also equipped with steel axles in place of wood, which soon rot out and break down, causing much loss of time and expense. They have leveling jacks, and are also equipped with the Closz & Howard Adjustable Sieve, the best adjustable sieve on the market.

This Avery "Yellow-Baby" Thresher also sells at a low price, considering the character of its design, construction and workmanship. It is not a **cheap** machine —cheaply built. It is a **low-priced** machine, but with the usual **high standard of Avery quality.**

You will be getting a big dollar's worth of value for every dollar you invest in this Avery "Yellow-Baby" Separator.

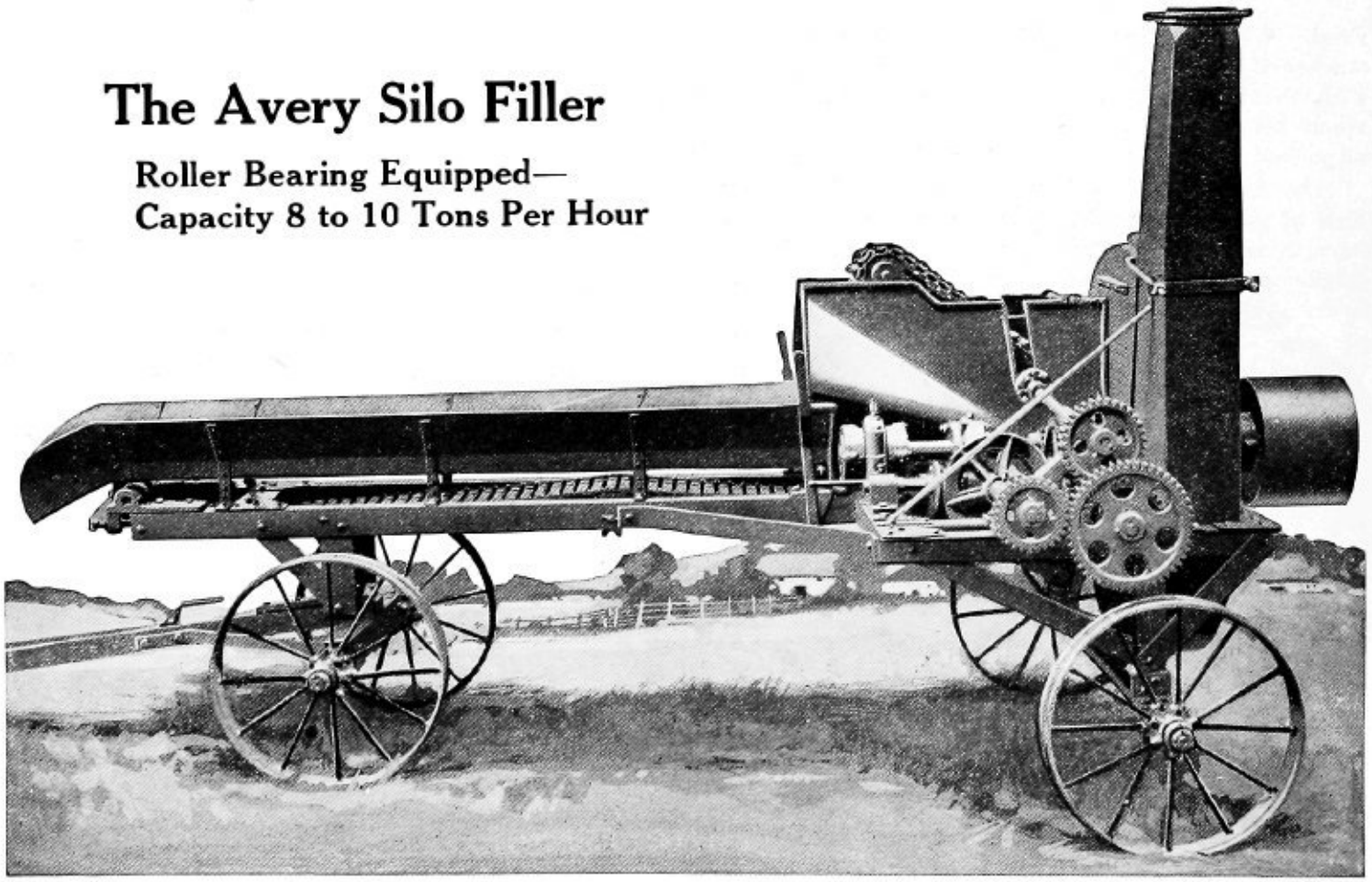
This small thresher with either the Six-Cylinder Model "C" or the 8-16 H. P. Avery Tractor, will make you an ideal small threshing outfit for individual use or for small runs.

It is convenient to get at the sieves in the Avery "Yellow-Baby" Thresher.

AVERY COMPANY PEORIA, ILL., U.S.A.

The Avery Silo Filler

Roller Bearing Equipped—
Capacity 8 to 10 Tons Per Hour



EVERY progressive farmer of today recognizes the necessity of obtaining feed containing the highest feeding value at the lowest possible cost.

Ensilage is undoubtedly the best and cheapest feed that can be produced. It comes nearest to a balanced ration of any one crop that is raised on the farm when fed with proper roughage.

The number of silos throughout the country are increasing each year and will continue for many years to come until every farm has one of them.

If you have a silo you should own your own silo filler. If you do not have a silo you ought to have one. The ownership of a good silo and a good silo filler is an excellent investment. It makes you independent and you do not run the risk of having your ensilage spoiled because you could not get a filler at the right time. There is **just one time** when corn should be cut for silage. That time is when the corn is in the glaze. As corn is in the glaze only a few days at the most you can readily see why the ownership of your own ensilage cutter is an important matter.

The Avery Silo Filler is the best that can be built. It has the best of material, combined with light weight and durability and with large capacity.

The all-metal features should also be taken into consideration.

The ease with which the machine runs is remarkable and is appreciated by those familiar with the operation of Silo Fillers. The quality of work which the Avery Silo Filler does is without question excelled by none.

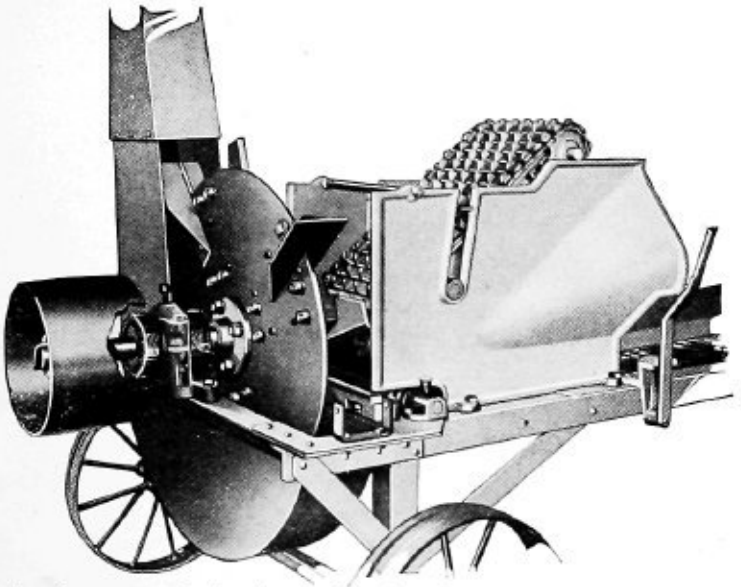
Consider the advantage of having a good machine at the right time and then study the excellent features contained in this machine.

Low-down self-feed table, which enables the operator to stand on the ground. No undue reaching or stretching to get stalks lined up to the force feeder.

The throat is thirteen inches wide as is the feed hopper. The parts are so constructed that a full thirteen-inch width is cut.

This Silo Filler has no roller, but is equipped with an endless steel conveyor both above and below. The upper conveyor has steel slats with teeth. Each alternate row being staggered giving a very perfect working surface. This conveyor moves upward as the bundles pass toward the cutting bar.

The cutting plate is made of two parts, a substantial cast iron block to which is attached by two ¾-inch bolts, a steel ledger plate having four cutting edges. The ledger plate can be removed by taking off two nuts and bolts. This feature alone is a great time saver.



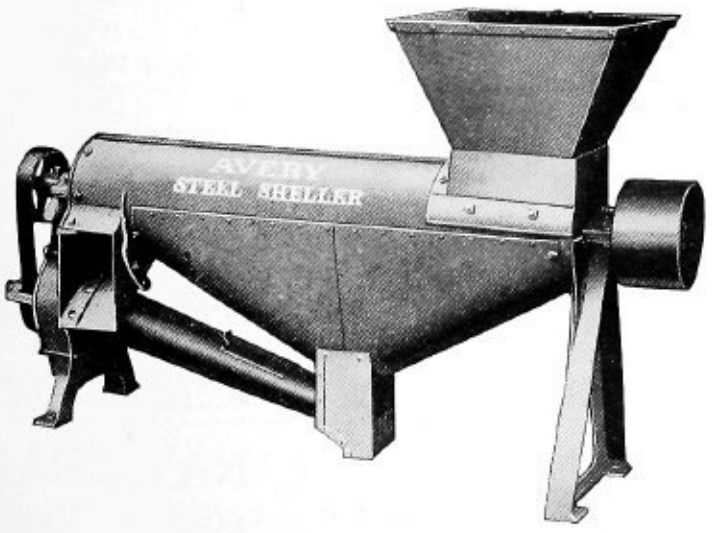
Covering removed, showing boiler plate flywheel, knives, cutting plate, ledger plate and front roller bearing.

Boiler plate flywheel. This feature alone insures against any possibility of explosion, as the wheel is made of ½-inch boiler plate.

Adjustments. The knives can be easily adjusted as to angle of cut. The knives can also be removed by taking out two bolts. Flywheel can be moved to or from cutting plate while running, by adjusting control screw and collar which holds main shaft in proper position.

Easy running. Main bearings are of roller type, which gives the least possible friction. The short shaft and even balance of flywheel brings all heavy duty points close together, making possible the easy running Avery Silo Filler.

Is also convenient to work around. The front trucks can be turned around so that the tongue is under the machine itself. This allows teams to drive up close to the machine and eliminates the necessity of taking the tongue off at each setting.

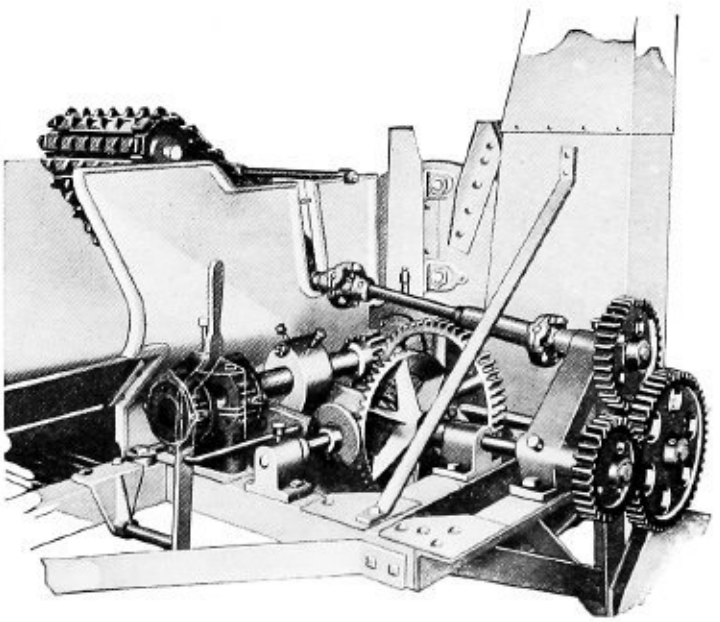


Rapid, simple, strong and durable.

The Avery Silo Filler also has large capacity—its capacity being 8 to 10 tons per hour depending on the power used to operate it.

Lengths of cut. The machine is sent out set for ¼-inch cut. By reversing the two outside gears ½-inch cut is obtained. Remove two knives opposite to each other and you have ¾-inch cut with gears in original position. Reverse the gears and you get 1½-inch cut.

This machine is regularly equipped with pulley 10-inch face and 14-inch in diameter unless otherwise specified. Its normal speed is 1,000 revolutions per minute. We can also furnish galvanized iron blower pipe, 7½-inch diameter, with strong malleable iron flanges at each end provided with four holes for bolting together, in various lengths of 1, 2 or 5 feet, at a reasonable price, as well as distributor pipe. Distributor elbow is furnished regularly.



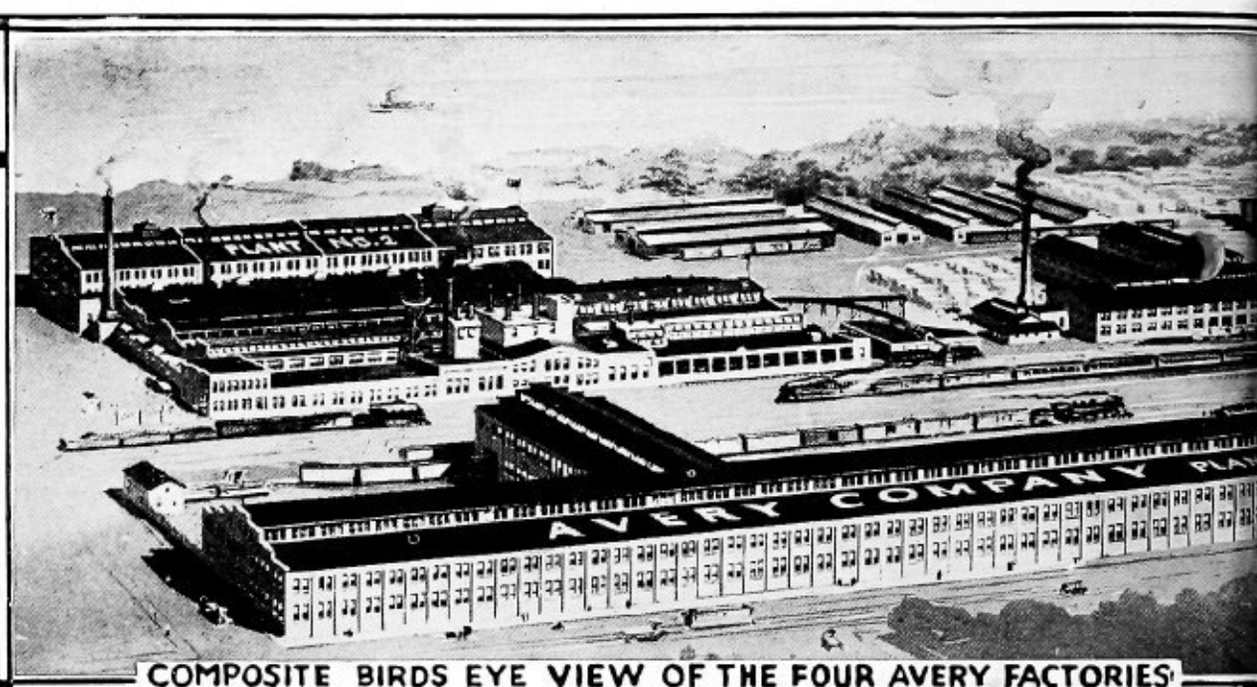
Showing gear mechanism; also rear roller bearing.

Avery Steel Cylinder Corn Sheller

This sheller is proving to be very popular. It not only shells all kinds and conditions of corn, but it also cleans it, discharging the cleaned shell corn through one opening, the cobs through another and the dust and silk is drawn off by a fan through a third opening. Is compact; built entirely of iron and steel, with steel cylinder and renewable steel teeth. Simple to operate and gives splendid satisfaction. Capacity 75 to 100 bushels per hour. Write for special circular.

IT PAYS TO AVERY-IZE – AVERY COMPANY, PEORIA

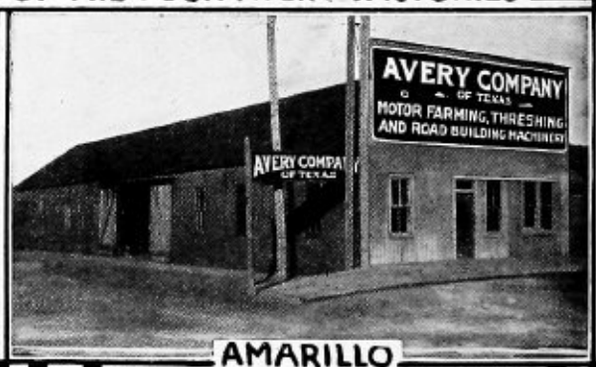
KANSAS CITY



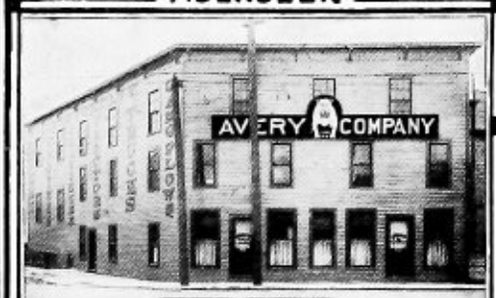
COMPOSITE BIRDS EYE VIEW OF THE FOUR AVERY FACTORIES

ABERDEEN

GRAND FORKS



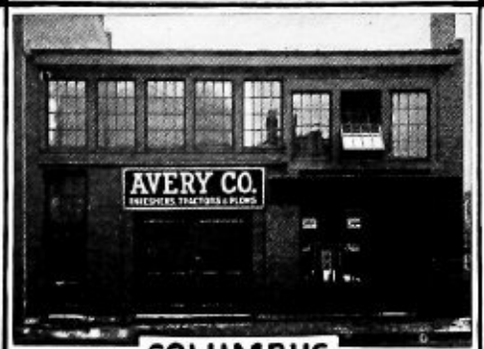
AMARILLO



MADISON

SACRAMENTO

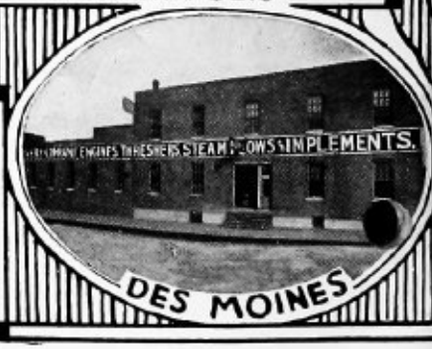
INDIANAPOLIS



COLUMBUS

BEAUMONT

DAVENPORT

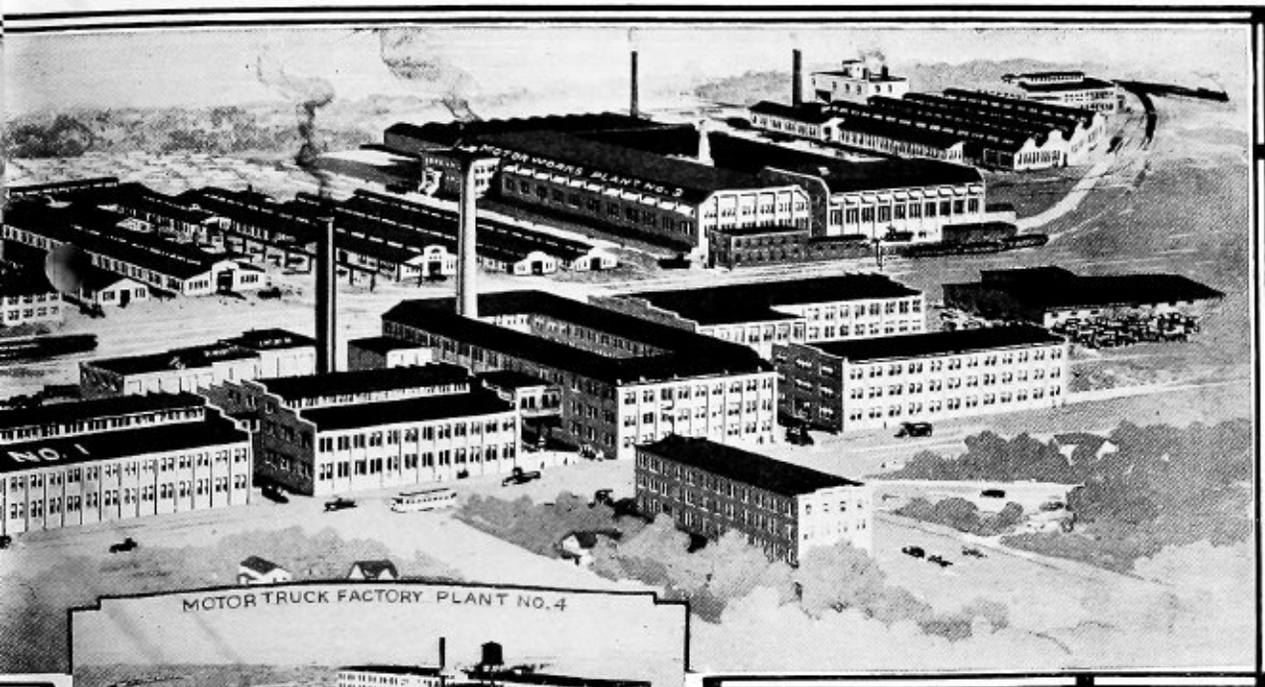


DES MOINES

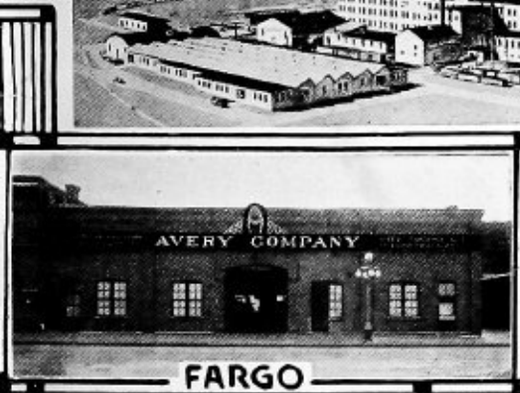
SIDNEY

NATIONAL TRA

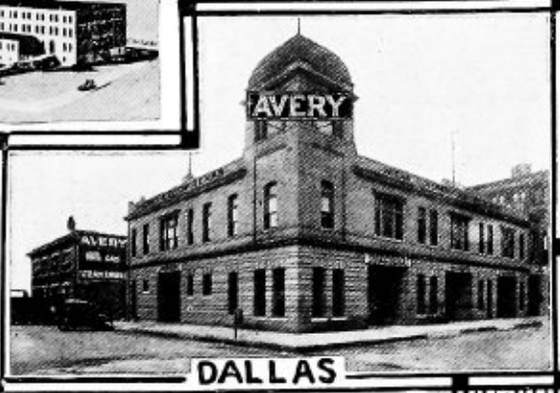
The Four Big Avery Factories and the many Avery Branch House
continued prompt and permanent se



MOTOR TRUCK FACTORY PLANT NO. 4

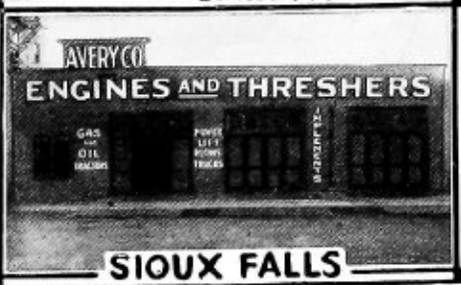


FARGO

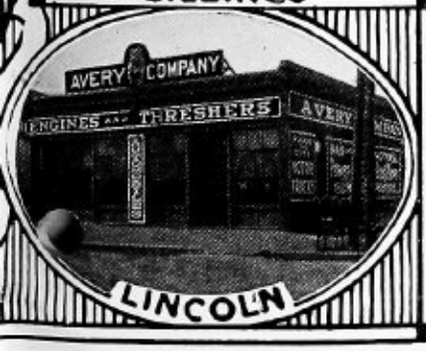


DALLAS

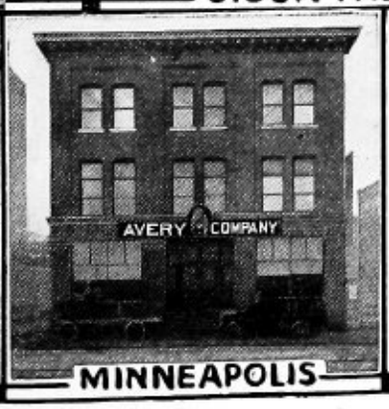
BILLINGS



SIOUX FALLS



LINCOLN



MINNEAPOLIS

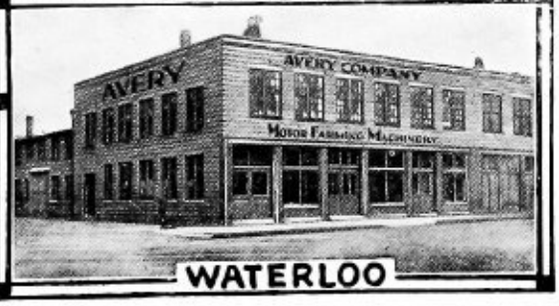
LOS ANGELES

OMAHA

WICHITA

DENVER

STUTTGART



WATERLOO

CTOR SERVICE

and Distributors covering every State in the Union assure you of vice after you buy an Avery Machine.

The Avery Policy—"A Good Machine and a Square Deal"

Avery Machines.

IN manufacturing Avery Machinery we endeavor to build what **you** want. Our entire field organization, branch houses, salesmen and servicemen, are constantly in touch with your needs and report them back to our engineers. Many suggestions are also received direct by mail from successful Avery owners. Every idea is received with an open mind and each suggestion given consideration. We have adopted many suggestions made by the large number of owners of Avery Machines.

Our first president, Mr. R. H. Avery, who invented the Avery Corn Planter, was a practical farmer, just as our present president, Mr. J. B. Bartholomew, is also a practical farmer as well as a designer of unusual ability. It might be said in passing, that at the age of six years, as a farm boy, he made his first thresher out of a few spools and cigar boxes. And in his later life, he never really left the farm, for he is a farm owner and operator now.

It is because practical men like these have always been at the head of the Avery Company, and it is because these men and other Avery Company officials have had practical knowledge, and a desire to progress and not to imitate, and have always been anxious and willing to "sit down and talk things over" with our customers, that the Avery Line of Machinery leads in **Originality** and **Improved Construction today.** The Avery Company are **originators, not imitators.** That is why the Avery Company have grown from a little factory, building corn planters and cultivators, to a big organization of thousands of men manufacturing a complete line of Power Farming Machinery.

As regards the quality of materials entering into the construction of Avery Machines, this has already been covered in the story entitled "Building the Kind of Machines You Want," on pages 14, 15, 16 in this catalog. But we repeat it here briefly. The standing order originally given to every workman by our first president, Mr. R. H. Avery, and which has been continued ever since, and always will be continued, is not to put into a machine a piece of material that he wouldn't put in if he were building the machine for his own use. That is the kind of materials you want in the machinery you buy, isn't it? Well, that is the kind of materials you get in an Avery machine.

And it is for these reasons—good design and right quality, plus the Avery square-deal policy—that Avery Machines are now being successfully used in every State in the Union and 80 foreign countries.

Avery Guarantees.

In looking through this catalog you probably noticed the strong guarantees—the best proof possible that we have faith in our product, for Avery machinery is backed up by the strongest guarantees ever given by any company selling machinery.

But we do even more than we guarantee. We stand squarely behind **every** Avery machine. It is not just **your** order we want—we want **your friendship and good will,** and also your backing and recommendation to help sell the next man. We take care of your needs and help you to keep your machine running steady and giving you the best service. It is the Avery policy to take care of its customers. We are proud of Avery quality and jealous of the reputation of Avery machines. That's why one Avery sells another.

Avery Prices.

Avery prices have never been **high;** they have always been fair and just. It isn't a question of how many dollars a machine costs you; it is how much the dollar you spend gets for you. You can pay a low price—but don't think that it is necessarily the cheap price. Remember, it is not what you pay, but what you get for your money that counts.

The Avery Company have always built **quality** goods, because we know you want that kind of goods—goods built of good materials, with good workmanship, that have the best improved features for saving time, labor and money. And the price we ask for them is an **honest** price—you get a big dollar's worth of actual value for every dollar you invest in Avery Machines.

Avery prices are not based on earning money on capital stock, inflated or watered by good-will and patents. They are not based on long-time business, which requires excessive investments and causes small turnovers of capital, losses, etc. Avery goods are marketed the most economical way—through our own branch houses and local dealers who give our customers real service. The result is Avery prices are **always low.**

Avery Factories and Branch Houses.

Avery machines are pedigreed. We have our own four big factories—three in Peoria, Illinois, and our own motor works in Milwaukee, Wisconsin. All these factories are devoted **entirely** to the manufacture of the complete Avery Line. Not only are Avery Machines built **complete** in these factories, but every unit in them is designed **especially** for the work for which it is intended, and is built **only** for Avery Machinery. Avery Company are **builders—not assemblers.**

Our Branch Houses and Distributors cover every State in the Union. Prompt and permanent service is therefore assured you. Repair stocks are carried at each to take immediate care of breakdowns, although breakages with Avery Machinery are extremely rare compared with ordinary machines. If they were not, we could not give the strong guarantees we do.

We have the Designing Department to design improved and up-to-date machines, the factory organization to build the goods, and then we take care of you in the way of quick repair service **after** you get an Avery Machine.

The Avery Policy.

It is a question of mutual benefit. You need good machinery—we are here to supply you with what you need—you should give us a fair return for doing so.

The Avery Organization is built up on this basis—to serve the customer—which means you—by building the kind of goods you want and dealing with you on a square basis. The Avery Policy is **"A Good Machine and a Square Deal."** That's undoubtedly why it is one of the largest and most substantial companies in the business and why this Company has had such a rapid growth. If these methods appeal to you, we invite you to take up with us further the matter of your requirements. Write us a letter or call at our Home Office or any of our Branch Houses, Distributors or Dealers.

The Avery Ideal—We propose that every Avery owner shall be, in so far as we are able to assist him, the best profit-making machine owner and the best satisfied customer of any man owning any make of machine in his neighborhood.

IT PAYS TO AVERY-IZE

"A GOOD MACHINE *and* A SQUARE DEAL"