THE STANDARD OF OHIO BOOK OF MOTOR TRUCKS

FACTORIES
WARREN,
OHIO.

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STANDARD OF OHIO

IN preparing this book it was our purpose to make it more than a mere catalog.

First of all it is a valuable book of reference for owners of our Motor Trucks; they will find much valuable information herein that will enable them to get more efficiency from their trucks—and from other makes of trucks as well. It is a book of information for our salesmen and dealers. A careful study of these pages will give them information that will enable them to make recommendations on an efficiency basis.

It contains a description of our product and the component parts thereof.

Finally, it contains ideas and suggestions of value to the dealer, buyer and operator of Motor Trucks.

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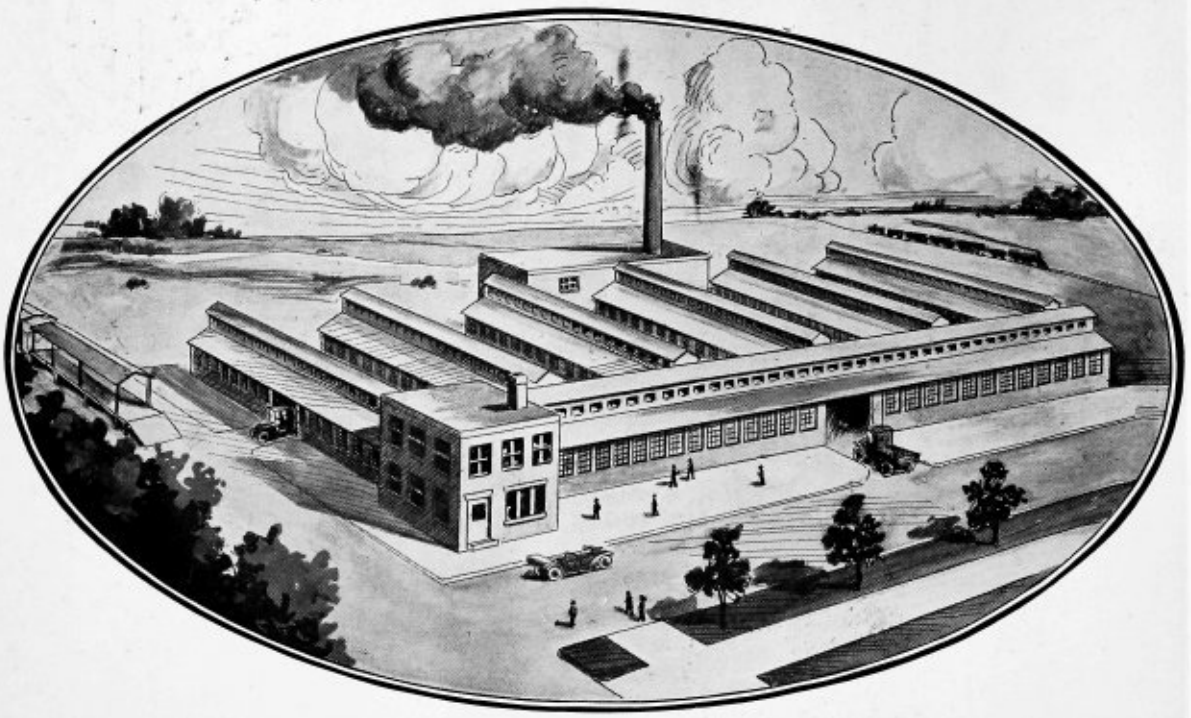

This is our New Factory at Warren, Ohio, now in course of construction, which will enable us to increase our production to meet the demand.

OFFICERS AND EXECUTIVES

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R. B. WICK . . . . . Vice-President
M. J. O'CONNOR, Secretary & Treasurer
C. H. MOODY . . . . . Auditor
J. A. BOYD . General Factory Manager
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J. A. BOYD . . . . . Warren, Ohio

Standard of Ohio One-Ton Chain-Drive Truck

CHASSIS SPECIFICATIONS

MODEL—A.

WEIGHT—About 3,200 pounds.

CAPACITY—2,000 pounds.

MOTOR — Hazard, four-cylinder, four-cycle, water-cooled, underhood, 4-inch bore, 4½-inch stroke, with fly ball governor set at 1,200 R. P. M. Water circulation by pump. Thirty horsepower. Three-bearing crankshaft, all valves enclosed. Oiler self-contained; splash and gear pump. Full aluminum crankcase and three-point suspension.

IGNITION—Eisemann Magneto.

CARBURETOR—Dayton Air-Friction.

RADIATOR—Long, genuine honey-comb.

CLUTCH—Multiple disc running in oil in unit with motor. Contained in dust-proof case. Specially arranged for accessibility. All steel discs.

TRANSMISSION — Covert, selective sliding gear, three speeds forward and reverse. Gears and shafts chrome nickel steel, heat treated, 1⅛-inch face.

JACK-SHAFT—Russel. Pinion gear type. Extra large gears, specially heat treated.

BEARINGS — Hyatt Roller, high duty type throughout transmission and differential. Extra large Bower roller bearings in wheels.

DRIVE—Baldwin double chain, ¾ x 1¾ inch pitch, riding on sprockets specially heat treated.

STEERING GEAR—Worm and double block type, ball bearing throughout. Complete adjustments.

AXLES—Liggett. Heavy I-beam type vanadium steel, spring seat forged to the axle. Rear, 1⅞ inch by 3 inch; front, 1⅝ x 2⅝ inch. Spindles, extra large, equipped with Bower roller bearings.

SPRINGS — Perfection, rear semi-elliptic, 52 inches by 2½ inches, free at both ends, riding on hardened steel rollers under frame. Front, 40½ x 2 inches, semi-elliptic, one end free, riding on hardened steel roller under frame.

BRAKES — Two sets, governed by Standard equalizers. One external set operating on jackshaft. One internal set operating on rear hubs. Both brakes are of generous dimensions and are easily adjusted.

WHEELS—36 inches front and rear. Spokes, 1¾ inches square, second-growth hickory. Extra heavy felloe. Large flange.

TIRES—Demountable, solid; 36 x 3 inch front, 36 x 3½ inch rear. Pneumatic demountable quick detachable type, 36 x 4 inch., on front $25 extra.

WHEELBASE—124 inch and 134 inch.

FRAME—Pressed steel, 3/16-inch thick. Rails 4 9/16 inches high. Extreme width, 38 inches. Front width, 34 inches.

On 124 inch wheelbase, length back of seat to rear end of frame, 94¾ inches; back of seat to center of rear axles, 56½ inches.

On 134 inch wheelbase, length back of seat to rear end of frame, 94¾ inches; back of seat to center of rear axle, 66½ inches.

Height to top of frame, unloaded, 35 inches.

TREAD—58 inches.

CONTROL—Gasoline throttle lever on steering column and foot accelerator. Spark set.

GASOLINE TANK—Under seat, 17 gallons capacity.

GASOLINE CONSUMPTION—12 to 14 miles per gallon.

EQUIPMENT—Includes seat, gasoline tank of 17 gallons capacity, front fenders, three oil lamps, complete set of tools and tool box, horn and jack.

PRICE—$1700 in lead, f. o. b. Warren, O.

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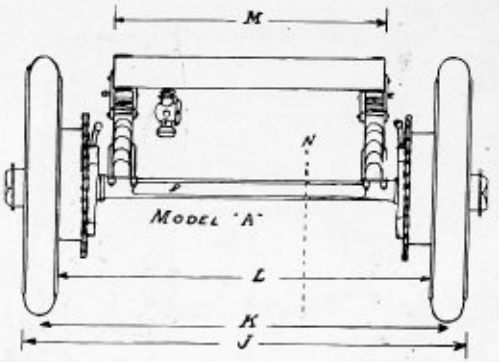
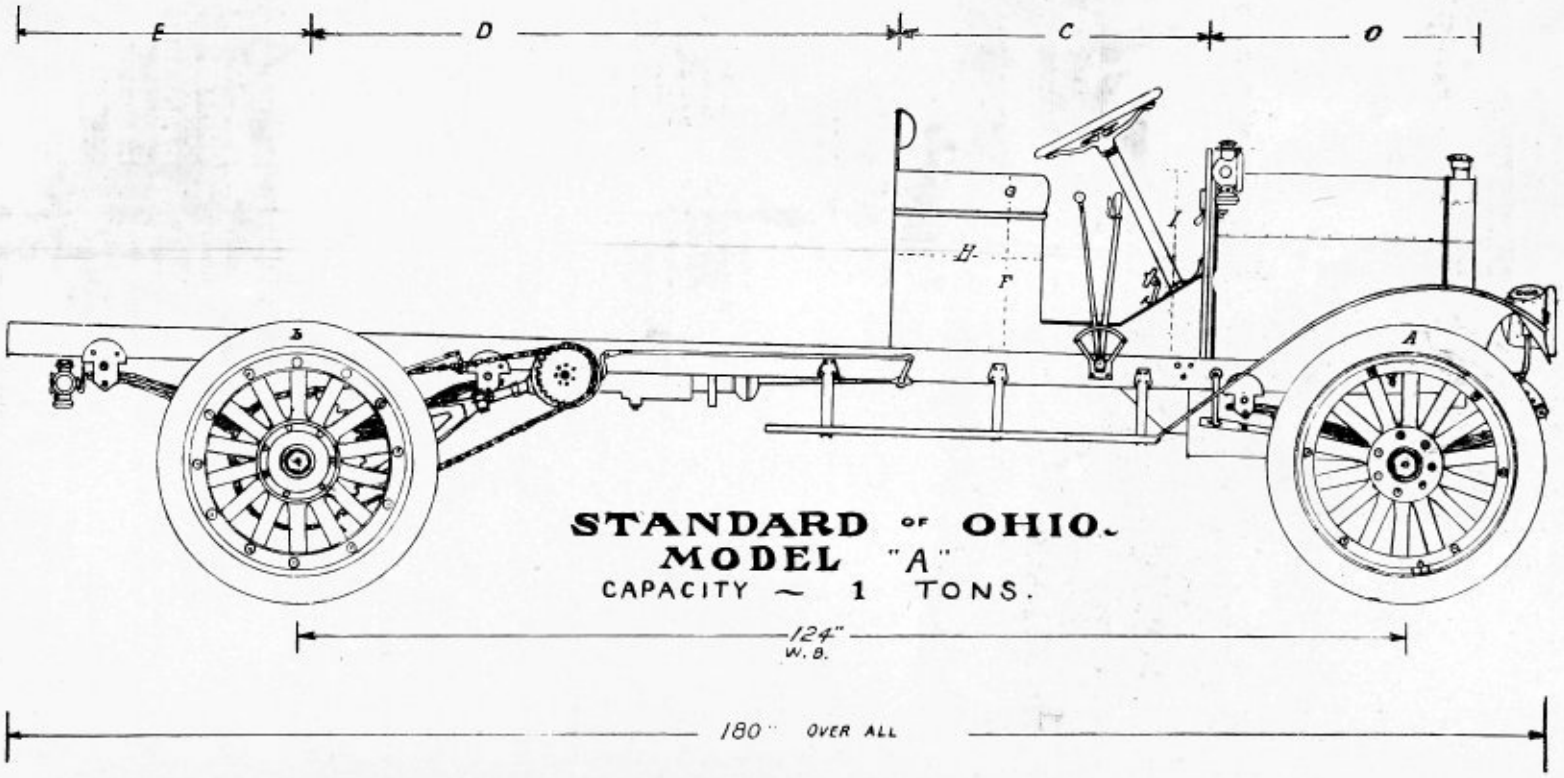


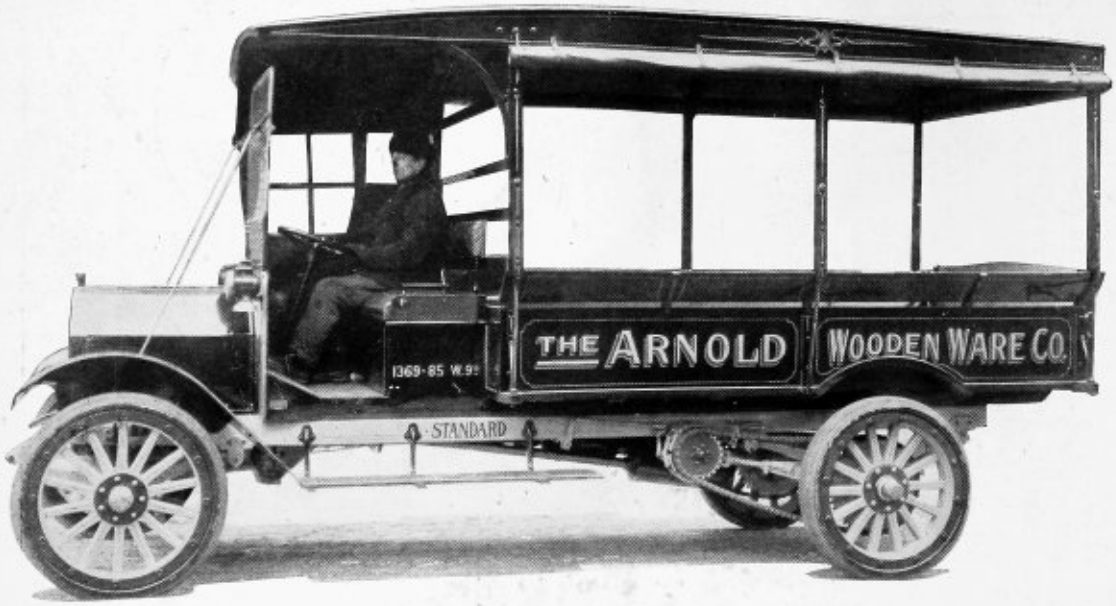
DIMENSIONS

A—36"x3"	D—56½"	G—5⅝"	J—62⅞"	M—38"	O—34¾"
B—36"x3½"	E—39"	H—19"	K—58"	N—36½"	P—1⅞"x3"
C—40½"	F—17"	I—27"	L—53⅛"		



STANDARD OF OHIO

Standard of Ohio 1½-Ton Chain-Drive Truck



CHASSIS SPECIFICATIONS

MODEL—B.

WEIGHT—About 3600 lbs.

CAPACITY—3000 lbs.

MOTOR—Ergon four-cylinder, four-cycle, water-cooled, under hood, 4-inch bore, 4½-inch stroke, with fly ball governor set at 1200 R. P. M. Water circulation by pump. 30 horsepower. Three-bearing crankshaft, all valves enclosed, oiler self-contained. Splash and gear pump. Full aluminum crankcase and three-point suspension.

IGNITION—Eisemann magneto.

CARBURETOR—Dayton Air Friction with dash adjustment and hot air pipe.

RADIATOR—Long, genuine honey-comb, 3-inch section.

CLUTCH—Multiple disc running in oil in unit with motor. Specially arranged for accessibility. Eighteen all-steel plates assures smooth starting and minimum wear.

TRANSMISSION—Covert. Selective sliding gear, three speeds forward and reverse, gears and shafts chrome nickel steel, heat treated, 1⅛-inch face.

JACKSHAFT—Russel. Pinion gear type. Extra large gears specially heat treated. In unit with transmission. Three-point suspension, hung on swivel casting.

BEARINGS—Hyatt roller high duty type throughout transmission and differential. Extra large Bower roller bearings in wheels.

DRIVE—Baldwin double chain, ¾ x 1¼-inch pitch riding on machine cut sprockets specially heat treated.

STEERING GEAR—Worm and double block type, complete adjustments and take-up for wear.

AXLES—Liggett. Heavy I-beam type vanadium steel. Spring seats forged to axle. Rear, 1⅞ x 3-inch; front, 1⅝ x 2⅝-inch. Spindles extra large, equipped with Bower roller bearings.

SPRINGS—Perfection. Rear, semi-elliptic, 52 x 2½-inch, free at both ends, riding on hardened steel rollers under frame. Front, 40½ x 2-inch, semi-elliptic, one end free, riding on hardened steel roller under frame.

BRAKES—Two sets. Controlled by Standard equalizers. One external operating on jackshaft, one internal operating on rear hubs; both brakes are of generous dimensions and are easily adjusted.

WHEELS—Bimel. 36 inches front and rear. Spokes 1¾-inch square, second-growth hickory, extra heavy felloe, large flange.

TIRES—Demountable solid, 36 x 3½-inch front, 36 x 4-inch rear. Pneumatic demountable quick detachable type, 37 x 4½-inch tires front, $25 extra.
Also 36 x 5-inch solid demountable rears, $25 extra.

WHEELBASE—134-inch and 144-inch.

FRAME—Hydraulic pressed steel, 3/16-inch thick, rails 4 9/16 inches high, extreme width 38 inches, front width 34 inches, well gussetted and hot riveted. Widened at center to withstand load strain.
On 134-inch wheelbase, length back of seat to rear end of frame, 94¾ inches. Back of seat to center of rear axle, 66½ inches.
On 144-inch wheelbase, length back of seat to rear end of frame, 114¾ inches. Back of seat to center of rear axle, 76½ inches.
Height to top of frame unloaded, 36 inches.
148-inch wheelbase furnished at extra cost of $25.

TREAD—58 inches.

CONTROL—Gasoline throttle lever on steering column and foot accelerator. Spark set. Right side drive.

GASOLINE TANK—Under seat, 17 gallons capacity.

GASOLINE CONSUMPTION—12 to 14 miles per gallon.

EQUIPMENT—Includes seat, gasoline tank, front fenders, three oil lamps, complete set of tools, tool box, horn and jack.

PRICE—$1800 in lead, f. o. b. Warren, Ohio.

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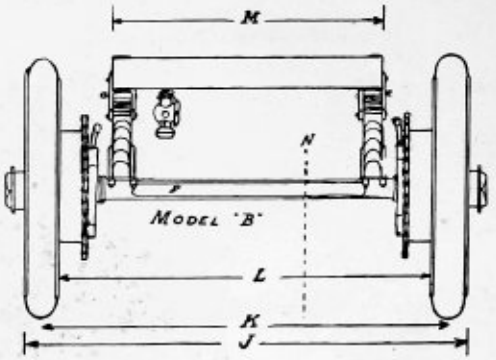
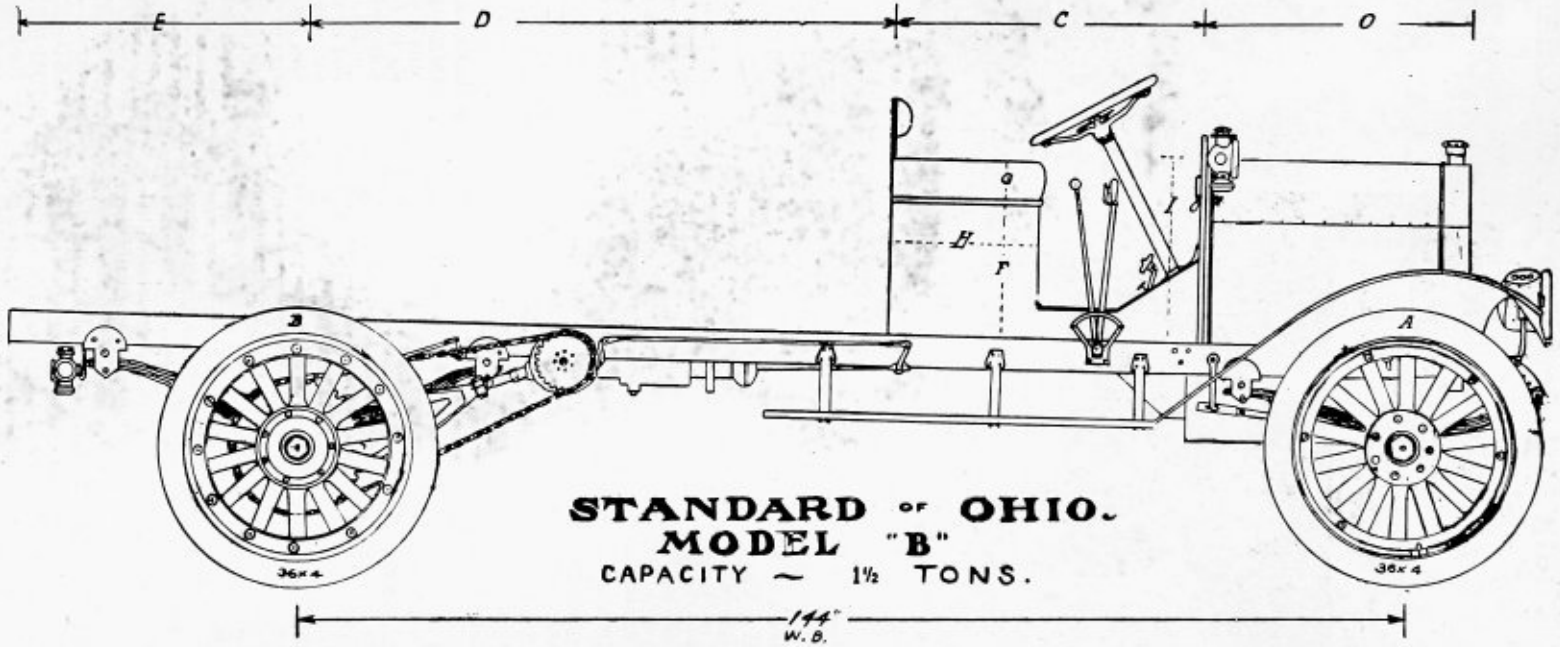


DIMENSIONS

A—36" x 4"	D—76½"	G—5⅝"	J—63⅜"	M—38"	O—34¾"
B—36" x 4"	E—38¼"	H—19"	K—58½"	N—36½"	P—1⅞" x 3"
C—40½"	F—17"	I—27"	L—52⅝"		



Standard of Ohio 2-Ton Chain-Drive Truck

CHASSIS SPECIFICATIONS

MODEL—C.

WEIGHT—About 4200 lbs.

CAPACITY—4000 lbs.

MOTOR—Ergon four-cylinder, four-cycle, water-cooled under hood, 4 inch bore, 4½ inch stroke. Fly ball governor set at 1200 R. P. M. Water circulation by pump. 30 horsepower. Three-bearing crankshaft, all valves enclosed. Oiler self-contained, splash and gear pump. Full aluminum crankcase, three-point suspension.

IGNITION—Eisemann magneto.

CARBURETOR—Dayton Air Friction with dash air adjustment and hot air pipe.

RADIATOR—Long. Genuine honey-comb, 3 inch section.

CLUTCH—Multiple disc running in oil in unit with motor. Specially arranged for accessibility. Eighteen steel plates assure smooth starting and minimum wear.

TRANSMISSION—Covert, selective sliding gear, three speeds forward and reverse. Gears and shafts chrome nickel steel, heat treated, 1⅛ inch face.

JACKSHAFT—Russel. Pinion gear type. Extra large gears, specially heat treated, in unit with transmission, three-point suspension, hung on swivel casting.

BEARINGS—Hyatt Roller, high duty type throughout transmission and differential. Extra large Bower roller bearings in wheels.

DRIVE—Baldwin. Double chain ¾ x 1¾ inch pitch, riding on machine-cut sprockets specially heat treated.

STEERING GEAR—Worm and double block type. Complete adjustments and take-up for wear.

AXLES—Liggett. Heavy I-beam type vanadium steel. Spring seat forged to axle. Rear 2¼ x 3½ inch, front 1⅝ x 2⅝ inch. Extra large spindles, equipped with Bower roller bearings.

SPRINGS—Perfection. Rear, semi-elliptic, 52 x 3 inch, free at both ends, riding on hardened steel rollers under frame. Front, 40½ x 2¼ inch, semi-elliptic, one end free riding on hardened steel roller under frame. Heavy jackspring with Standard fastenings.

BRAKES—Two sets controlled by Standard equalizer. One external operating on jackshaft, one internal operating on rear hubs. Both brakes are of generous dimensions and are easily adjusted.

WHEELS—Bimel. 36-inch front and rear, with front spokes 1¾ inch square, rear spokes 2¼ inch square, of Indiana second-growth hickory. Extra heavy felloe, large flange.

TIRES—Demountable, solid, 36 x 4 inch front, 36 x 5 inch rear. Pneumatic demountable QD type, 37 x 4½ inch front, $25 extra. 36 x 3½ inch, dual demountable solid rear, $50 extra.

WHEELBASE—144 and 148 inches.

FRAME—Hydraulic pressed steel, 3/16 inch stock, rails 4 9/16 inches high, widened at center to take up load strain. Well gussetted and hot riveted. Extreme width, 38 inches; front width, 34 inches. On 144-inch wheelbase, length back of seat to rear end of frame, 114¾ inches. Length back of seat to center of rear axle, 76½ inches.
On 148-inch wheelbase, length back of seat to rear end of frame, 114¾ inches. Length back of seat to center of rear axle, 80½ inches.
Height to top of frame unloaded, 37 inches.

TREAD—62 inches.

CONTROL—Gasoline throttle lever on steering column, and foot accelerator. Spark set, right side drive, right hand gearshift.

GASOLINE TANK—Under seat, 17 gallons capacity.

GASOLINE CONSUMPTION—10 to 12 miles per gallon.

SPEED—Maximum, 16 miles per hour.

EQUIPMENT—Includes seat, gasoline tank, front fenders, three oil lamps, complete set of tools, tool box, horn and jack.

PRICE—$2,000 in lead, f. o. b. Warren, O.

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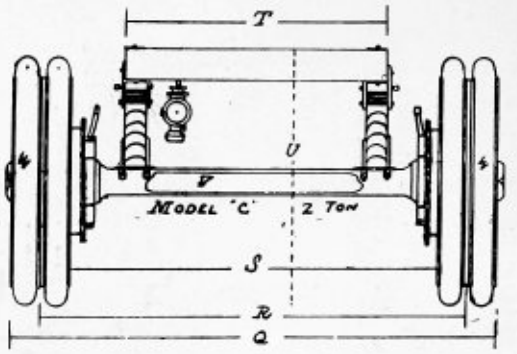
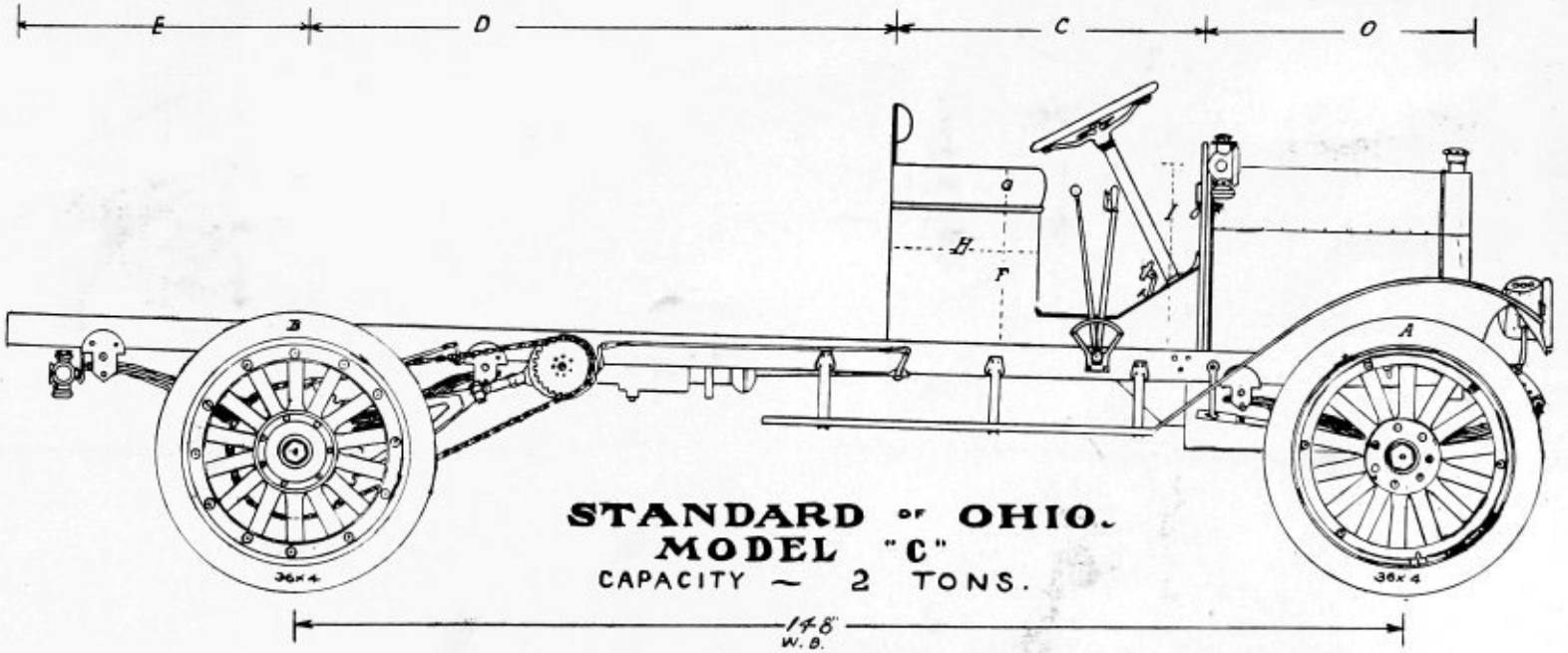


DIMENSIONS

A—36"x4"	D—80½"	G—5⅝"	O—34¾"	S—53¼"	V—2¼"x3½"
B—36"x4"	E—34¼"	H—19"	Q—70¾"	T—38"	W—36"x3½" dual
C—40½"	F—17"	I—27"	R—62"	U—37"	



Standard of Ohio One-Ton Worm-Drive Truck

CHASSIS SPECIFICATIONS

MODEL—AX.

WEIGHT—About 3,750 pounds.

CAPACITY—2,000 pounds.

MOTOR—Hazard, unit power plant, four-cylinder, four-cycle water-cooled, under hood, 4 inch bore, 4½ inch stroke, fly ball governor set at 1,200 R. P. M. 30 H. P. Water circulation by pump. Three bearing crankshaft, all valves enclosed. L head type. Oiler self-contained. Constant level splash and gear pump. Full aluminum crankcase, three-point suspension, crankshaft bearings split and easily adjusted.

CLUTCH—Multiple disc running in oil in unit housing with motor specially arranged for accessibility. Ball bearing thrust. Eighteen steel plates assure smooth starting and minimum wear.

TRANSMISSION—Brown-Lipe in unit with motor, selective sliding gear, three speeds forward and reverse, gears chrome nickel steel, 1 inch face.

CARBURETOR—Dayton Air Friction, with dash adjustment and hot air pipe.

IGNITION—Eisemann magneto.

RADIATOR—Long, genuine honey-comb, 3-inch section.

BEARINGS—F. & S. imported self-aligning ball throughout transmission and clutch. Rhineland, double ball throughout rear axle and differential. Bower roller bearings in front axle.

DRIVE—Shaft, from motor to worm-driven axle, through two universal joints, and 2-inch tubular shaft.

AXLES—Front, Liggett I-beam vanadium steel, spring seats forged to axle. 1⅝ x 2⅝ inch cross section. Large spindles equipped with Bower roller bearings.

Rear, Empire Axle Co. Model F full floating type, equipped with Brown-Lipe gears and differential, 1¾-inch chrome nickel shaft, imported ball bearings throughout. Equipped with Cleveland Worm Gear, 1 3/16 inch pitch. Worm mounted on top with positive self-contained lubricating device, all Rhineland bearings perfectly aligned, with easy adjustment. Housing specially arranged for accessibility.

SPRINGS—Perfection. Rear: 2½ x 51 inch, one end riding free on hardened steel roller under frame. Front: 2 x 40½ inch, one end free, riding on hardened steel roller under frame. Spring eyes bushed to size, and fitted to heat treated oiler bolts.

BRAKES—16 x 2½ inch, easily adjusted, one external and one internal, both working on rear wheels.

WHEELS—Bimel, 36-inch front and rear. Indiana second growth hickory.

STEERING GEAR—Worm and double block type, complete adjustments and takeup for wear.

WHEEL BASE—124 and 134 inches.

FRAME—Hydraulic pressed steel, 3/16 inch stock. Rail 4 9/16 inches high, especially widened at mid-sections to take load strain. Extreme width, 38 inches; front width, 34 inches.

On 134-inch wheelbase, length back of seat to rear end of frame, 92¾ inches. Back of seat to center of rear axle, 64½ inches.

On 124 inch wheelbase, length back of seat to rear end of frame, 92¾ inches. Back of seat to center of rear axle, 54½ inches.

Height to top of frame, 35 inches.

CONTROL—Right side drive, center gear shift, gasoline throttle lever on steering column, and foot accelerator.

GASOLINE TANK—Under seat. 17 gallons capacity.

GASOLINE CONSUMPTION—14 to 16 miles per gallon.

TIRES—36 x 3 front, 36 x 4 rear, solid demountable. Pneumatic demountable quick detachable, 36 x 4 front, $25 extra.

SPEED—Maximum, 25 miles per hour, when pneumatic tires are used in front.

EQUIPMENT—Includes seat, gasoline tank, front fenders and running boards, three oil lamps, complete set of tools, tool box, horn and jack.

PRICE—f. o. b. Warren, O., $1900 in lead.

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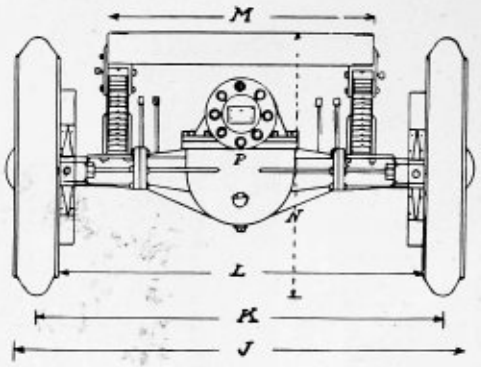
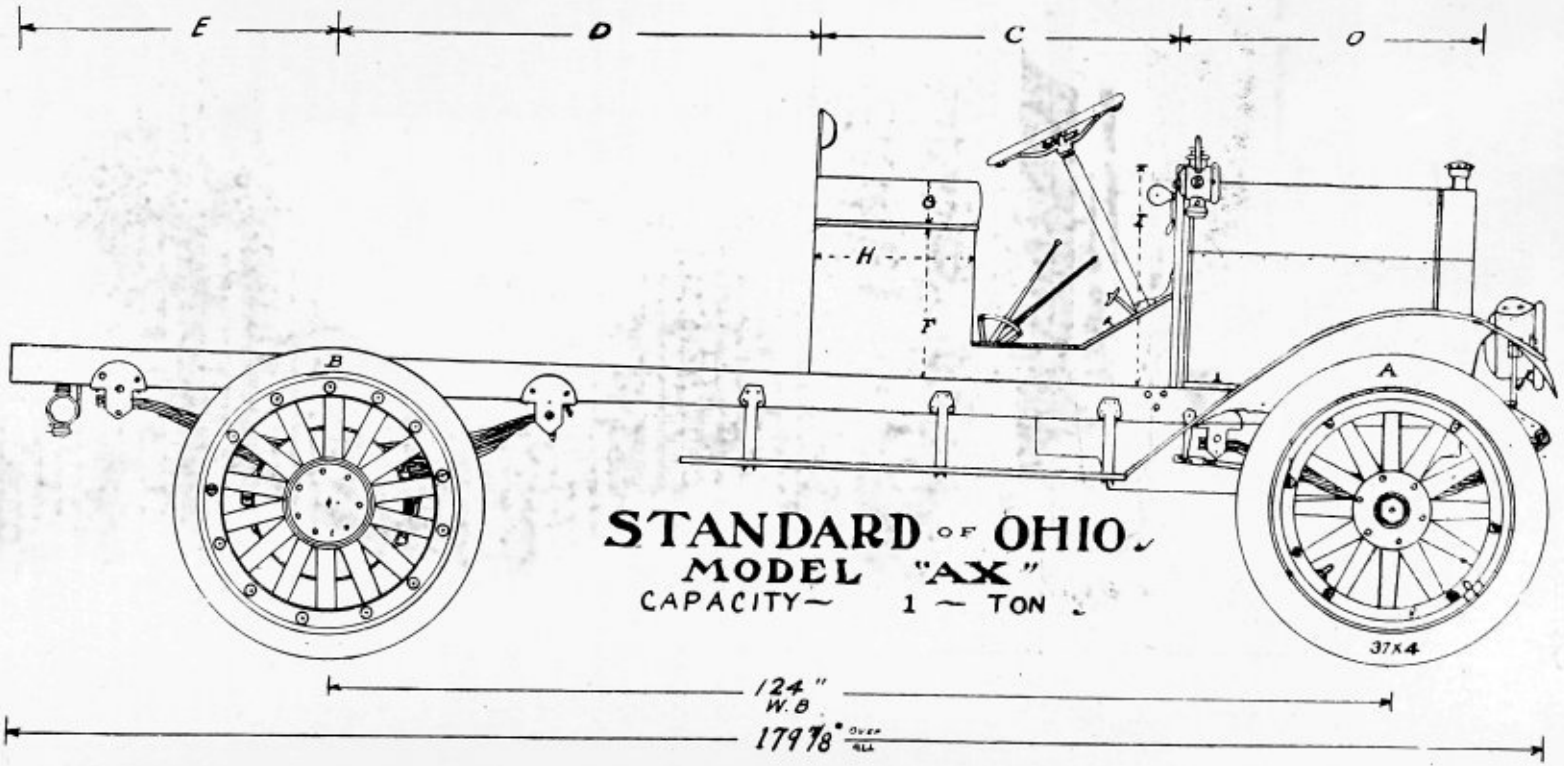


DIMENSIONS

A—36" x 4"	D—54½"	G—5"	J—62¾"	M—38"	P—1¾" drive shaft
B—36" x 4"	E—38¼"	H—19"	K—57¾"	N—36½"	
C—42¼"	F—17"	I—27"	L—52¾"	O—34¾"	



STANDARD OF OHIO

Standard of Ohio 1½-Ton Worm-Drive Truck

CHASSIS SPECIFICATIONS

MODEL—BX.

WEIGHT—About 4000 pounds.

CAPACITY—3000 pounds.

MOTOR—Hazard, unit power plant, four-cylinder, four-cycle water-cooled, under hood, 4 inch bore, 4½ inch stroke, fly ball governor set at 1,200 R. P. M., 30 horsepower. Water circulation by pump. Three-bearing crankshaft, all valves enclosed. L-head type. Oiler self-contained, constant level, splash and gear pump. Full aluminum crankcase, three-point suspension. Crankshaft bearings split, easily adjusted.

CLUTCH—Multiple disc running in oil in unit housing with motor specially arranged for accessibility. Ball bearing thrust. Eighteen steel plates insure smooth starting and minimum wear.

TRANSMISSION—Brown-Lipe, in unit with motor. Selective sliding gear, three speeds forward and reverse. Gears 1⅛ inch face. Shaft and gears chrome nickel steel specially heat treated.

CARBURETOR—Dayton Air Friction, with dash adjustment and hot air pipe.

IGNITION—Eisemann Magneto.

RADIATOR—Long, genuine honeycomb, 3 inch section.

BEARINGS—F. & S. imported self-aligning ball throughout transmission and clutch. Rhineland double ball throughout rear axle and differential. Bower roller bearings in front axle.

DRIVE—Shaft, from motor to worm-drive rear axle through two universal joints and 2 inch tubular shaft.

AXLES—Front, Liggett I-beam vanadium steel. Spring seat forged to axle. 1⅝ x 2⅝ inch cross section. Large spindles equipped with Bower roller bearings. Rear, Empire Axle Co. Model E full floating type, equipped with Brown-Lipe gears and differential. 1¾ inch chrome nickel shaft. Imported ball bearings throughout. Equipped with Cleveland Worm and Gear, 1 3/16 inch pitch. Worm mounted on top with positive self-contained lubricating device. All Rhineland bearings perfectly aligned, easy adjustment. Housing specially arranged for accessibility.

SPRINGS—Perfection. Rear 3 x 51 inches, mounted under frame, one end riding free on hardened steel roller. Front 40½ x 2¼ inches, one end riding free on hardened steel roller under frame. Spring eyes bushed to size and fitted to heat-treated oiler bolts.

BRAKES—Two sets on rear axle, 18 x 2½ inches, easily adjusted.

WHEELS—Bimel. 36 inch front, spokes 1¾ inches square, rear spokes 2¼ inches square, second growth hickory. Extra heavy felloe. Large flange.

STEERING GEAR—Worm and double block type, complete adjustments.

WHEELBASE—134 inches and 144 inches, optional.

FRAME—Hydraulic pressed steel, 3/16 inch stock, rail 4 9/16 inches high, specially widened to take load strain. Extreme width 38 inches, front width 34 inches.
On 134 inch wheelbase, length back of seat to rear end of frame, 92¾ inches. Back of seat to center of rear axle, 64½ inches.
On 144 inch wheelbase, length back of seat to end of frame, 112¾ inches. Back of seat to center of rear axle, 74½ inches.
Height to top of frame unloaded, 36 inches.
148 inch wheelbase at extra cost.

CONTROL—Right side drive, center gear shift, gasoline throttle lever on steering column and foot accelerator.

SPEED MAXIMUM—18 miles.

GASOLINE TANK—Under seat, 17 gallons capacity.

GASOLINE CONSUMPTION—12 to 14 miles per gallon.

TIRES—Demountable solid, 36 x 3½" front, 36 x 5" rear. Pneumatic demountable quick detachable type, 37 x 4½ front, $25 extra.

EQUIPMENT—Includes seat, gasoline tank, front fenders and running boards, three oil lamps, complete set of tools, tool box, horn and jack.

PRICE—$2,100 in lead, f. o. b. Warren, O.

BX chassis with 37 x 5" pneumatic or 36 x 4" solid front and 36 x 6" solid rear tires and heavier rear springs at $2300. Guaranteed capacity, 4000 pounds.

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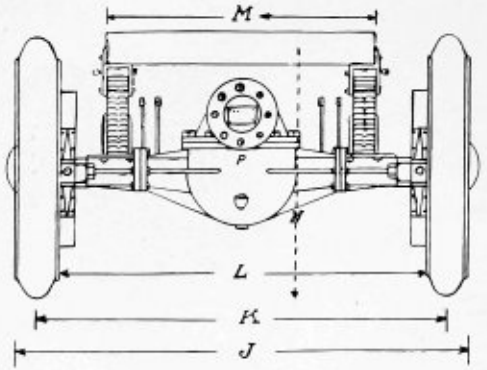
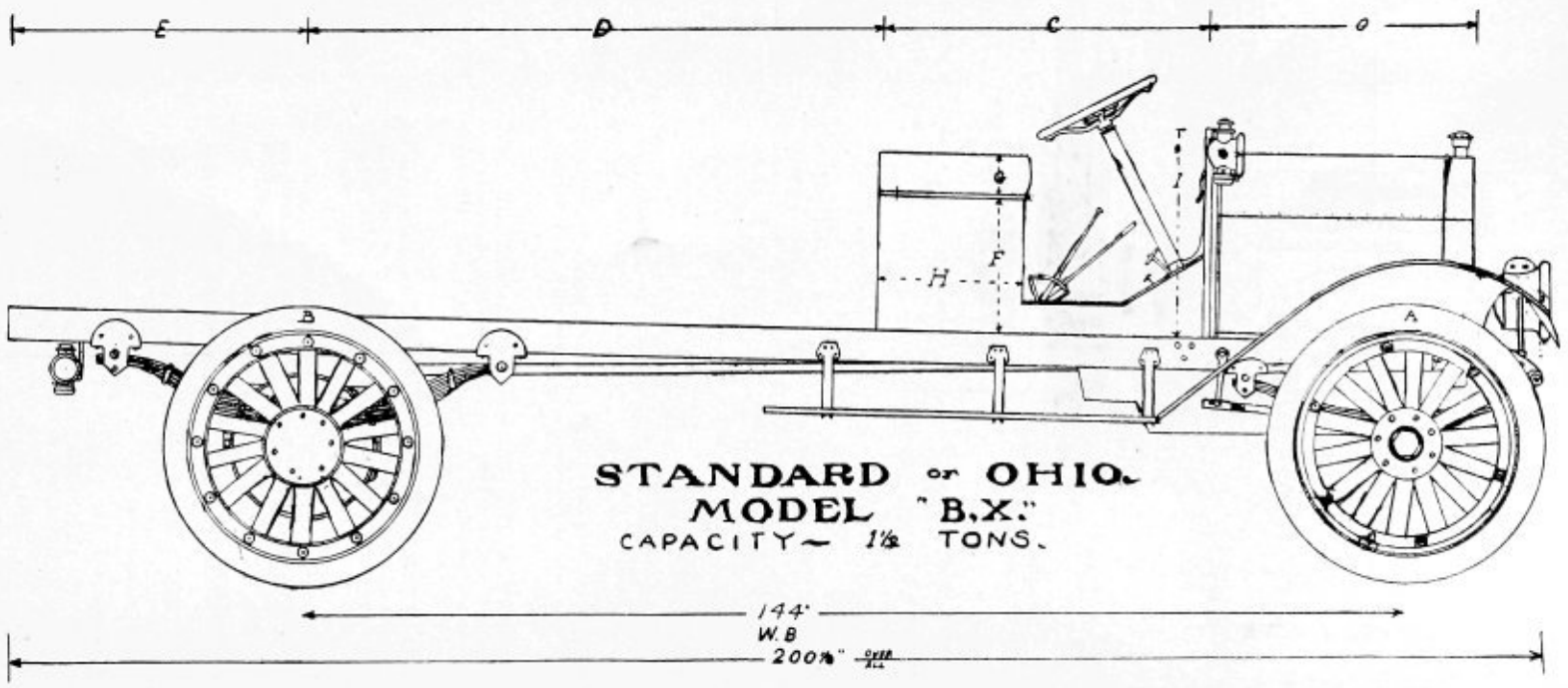
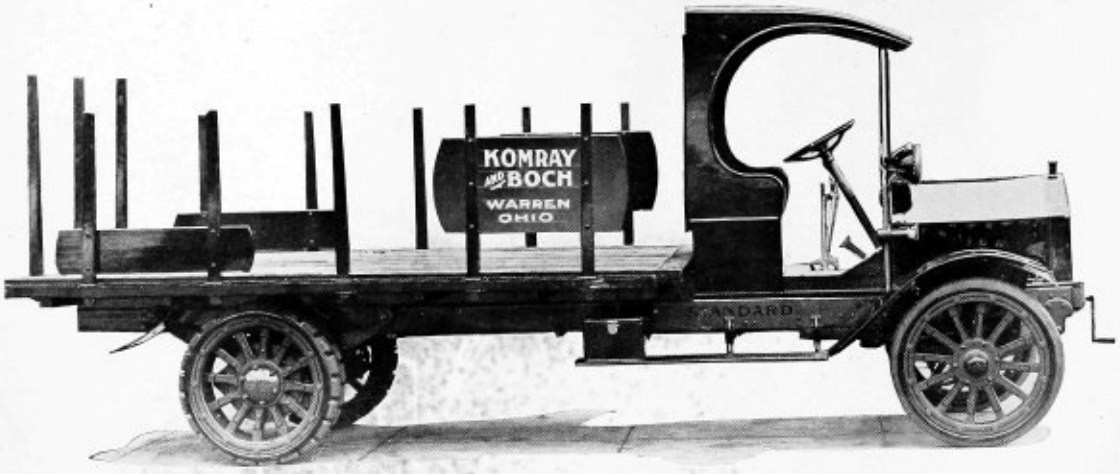


DIMENSIONS

A—36" x 4"	D—74½"	G—5"	J—63¾"	M—38"	P—1¾" drive shaft
B—36" x 5"	E—38¼"	H—19"	K—57¾"	N—36½"	
C—42¼"	F—17"	I—27"	L—51¾"	O—34¾"	



Standard of Ohio 3½-Ton Worm-Drive Truck



CHASSIS SPECIFICATIONS

MODEL—CX.

WEIGHT—About 5800 pounds.

CAPACITY—7,000 pounds, in addition to weight of body not to exceed 2,000 pounds.

MOTOR—Ergon, four-cylinder, four-cycle, water-cooled, under hood, 4⅜ inch bore by 6 inch stroke, with fly ball governor set at 1100 R. P. M., 39 horsepower A. L. A. M. Water circulation by pump. Three-bearing crankshaft, split bearings.

IGNITION—Eisemann.

CARBURETOR—Schebler. Model R, with dash adjustment.

CLUTCH—Brown-Lipe dry plate in unit with motor, specially arranged for accessibility and adjustment.

TRANSMISSION—Brown-Lipe. Selective in unit with motor. Three speeds forward and reverse. Gears and shaft chrome nickel steel, heat treated. Gears 1¼ inch face.

BEARINGS—F. & S. imported ball throughout transmission. Timken roller bearings in front axle. Imported Rhineland ball bearings, extra large size in rear wheels, differential and worm shaft.

DRIVE—Shaft, direct from transmission to worm-driven rear axle through stub shaft mounted on F. & S. bearings. Main drive shaft, 2 inches outside, 1¾ inches inside.

STEERING GEAR—Worm and double block type.

CONTROL—Right side drive. Center gear-shift. Throttle and spark control on steering column. Foot accelerator.

AXLES—Front: Timken I-beam type, Krupp's chrome nickel steel. Bearings all ground to size. Timken adjustable bearings on steering knuckles and spindles. Tilting spring blocks. Rear: Empire Axle Co. Model G, full floating type. Brown-Lipe gears in differential 1⅞ inch chrome nickel shafts, imported Rhineland ball bearings throughout. Equipped with Cleveland Worm and Gear, 13/16 inch pitch. Worm mounted on top with positive self-contained lubricating device. All bearings perfectly aligned with easy takeup for wear.

SPRINGS—Perfection. Rear 3 inches by 50 inches, hung outside of frame, special Standard design to withstand torque, mounted on top of axle. Semi-elliptic. Front 2½ inches by 42½ inches semi-elliptic, one end free riding on hardened steel roller under frame. Spring eyes bushed to size.

BRAKES—Two sets, one internal and one external operating on rear wheels, dimensions 18 inches by 2½ inches.

WHEELS—Bimel. 36 inches front, 2½ inches square spoke, second growth hickory. Rear 36 inches, 2¾ inch offset spoke, second growth hickory.

WHEELBASE—162 inches. Special lengths to meet requirements of customers.

FRAME—Hydraulic pressed steel, ¼ inch stock, rails 5½ inches to 7 inches high. Well gusseted and hot-riveted. Width outside, 35 inches. Length back of seat as required by customer and not to exceed 14 feet.

TREAD—62 inches.

GASOLINE TANK—Under seat, 20 gallons capacity.

GASOLINE CONSUMPTION—7 miles per gallon.

SPEED—Maximum, 14 miles.

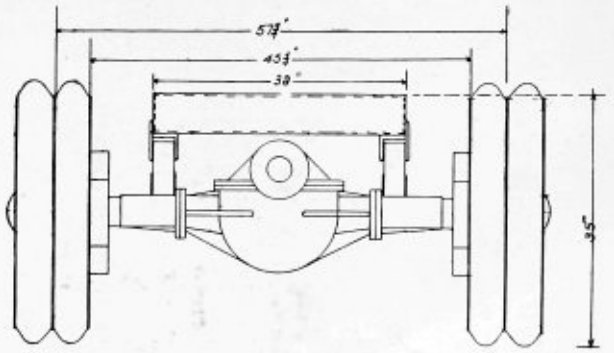
TIRES—Demountable solid 36 x 5 front, 36 x 5 dual rear.

EQUIPMENT—Includes seat, gasoline tank, front fenders, three oil lamps, complete set of tools, tool box, horn and jack.

PRICE—$3,200 in lead. F. O. B. Warren, O.

EXTRA EQUIPMENT—Electric lamps, generator, and wiring, $100.

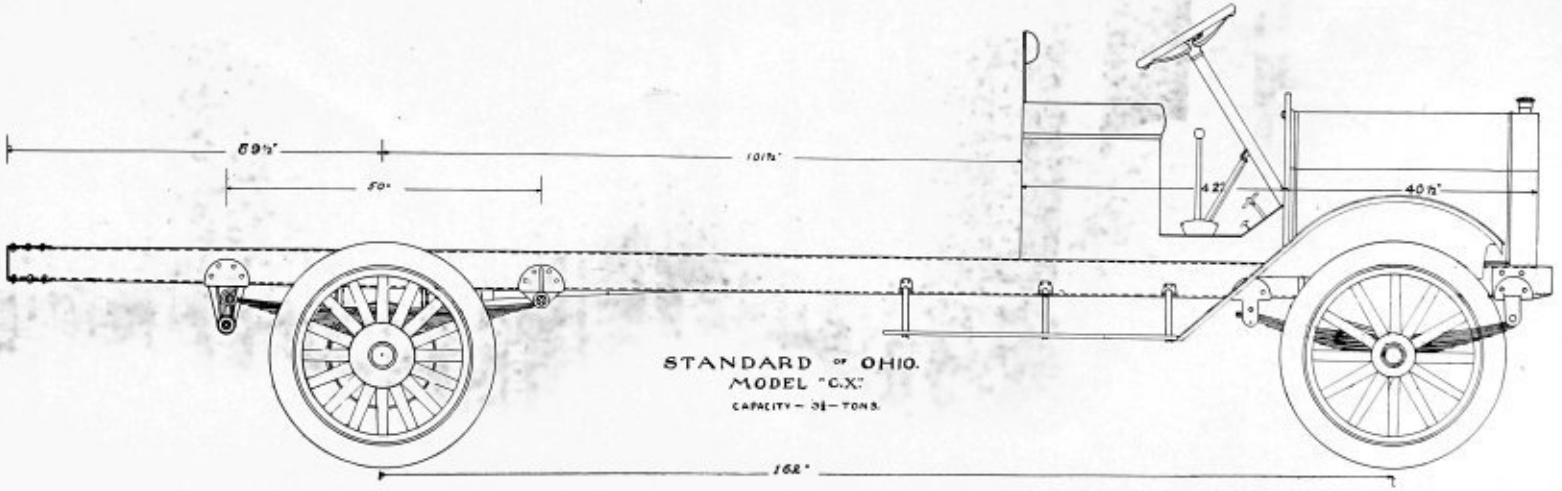
This is a blueprint reproduction of the Standard of Ohio 3½-ton worm-drive model. It gives the correct dimensions as shown, and is printed here for the purpose of enabling you to sketch your own body requirements. Simply paste a sheet of transparent paper over this drawing and sketch in your body design. After this is done, get in touch with us and we will solve your problem. It's a specialty with us and no trouble at all to handle.



DIMENSIONS

Wheelbase	162"	Rear of driver's seat to rear end of chassis	161"
Overall length	244"	Rear spring length	50"
Radiator length	40½"	Height from ground to top of frame	35"
Dash to rear of driver's seat	42"		

Width of frame	36"
Width inside of wheels	45¾"
Width between centers of dual treads	57¾"



¶ And now follow illustrations showing

STANDARD OF OHIO

Trucks in various lines of business—

¶ Showing different types of bodies in use in the respective installations—

¶ Giving expressions of opinion from those concerns which have paid out their good money for Value Received—

¶ And "VALUE RECEIVED" is what counts.

Expressions From Some of Our Customers

One-Ton Chain-Drive Standard of Ohio Truck, $1925 Complete

Your One-Ton Worm-Drive Truck, in our opinion, should give the best kind of service because the worm and gear is of ample size and the entire construction of the rear system should make it most satisfactory on solid tires. In fact, the style of the chassis, we believe, is perfectly adapted to our delivery. PABST BLUE RIBBON DISTRIBUTING CO.

Our Standard Truck, placed in service in August, 1913, is the only motor truck in our little city, where the streets are almost impassable during the winter, that has been in constant service every day regardless of roads or weather conditions. We are so well pleased that I have decided to place an additional order for the Two-Ton Standard Motor Truck, which we are enclosing herewith. Yours very truly,

O. F. HAGEMAN, Wholesale Grocer, Lorain, Ohio.

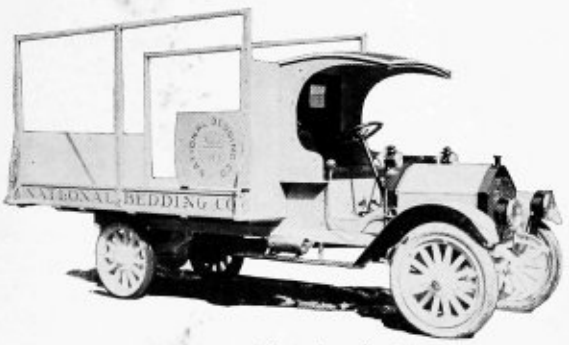
We have given you an order for the Standard of Ohio Worm Drive Trucks to be used in connection with our delivery service, because we believe them to be most efficient, equal in workmanship and material to that of any other truck which we have ever had in our service, and, furthermore, our investigation of the Worm-Drive feature leads us to believe that our repair expense with this particular type of drive will be almost nothing during the first 25,000 miles of service. We shall keep a most careful record of the performance of these trucks each day and will be glad to answer any inquiries which we may receive. THE BAILEY COMPANY, Cleveland, Ohio.

Furniture

1½-ton chain-drive chassis, $1800—144-in. wheelbase

1½-ton chain-drive chassis, $1800—144-in. wheelbase

1½-ton chain-drive chassis, $1800—144-in. wheelbase



1-ton worm-drive chassis, $1900

Cleveland, O., March 19.

Mr. C. W. Moody,
The Standard Motor Truck Co.,
Cleveland, O.

Dear Sir: Occasionally we receive a complimentary letter from a satisfied customer, which makes us feel good. Today such a letter came in referring particularly to the splendid delivery service given, which made me feel magnanimous enough to express my satisfaction with the two Standard Trucks which we have in service and to tell you that there need be no hesitancy on your part to refer to us any one contemplating the purchase of a motor truck.

Yours very truly,
THE LEDERER FURNITURE COMPANY.
Leo W. Lederer.

Cleveland, O., March 20, 1914.

The Standard Motor Truck Co.,
City.

Gentlemen: We have been using one of your ton-and-a-half trucks for a little over eight (8) months and wish to say that same has given us entire satisfaction. Also the service, which you have given us.

You can use this letter as you see fit, as we cannot speak too highly of Standard Trucks.

Yours very truly,
THE MAYER-MARKS CO.
H. S. Marks, Sec'y.

Cleveland, O., March 20th, 1914.

Standard Motor Truck Co.,
City.

Gentlemen: We have had one of your trucks in use for the past year, which has been furnished by the Peoples Transfer Co. of this city.

We are pleased to state that this truck has given excellent satisfaction.

Respectfully yours,
BROWN BROS.,
Cleveland, O.

Cleveland, O., March 18, 1914.

The Standard Motor Truck Co.,
Cleveland, O.

Gentlemen: Your truck now in our service up to date has been entirely satisfactory and we consider the one-ton truck with long wheelbase perfectly adapted to the delivery of mattresses in quantities.

It is our plan to place an order with you in the near future for a truck similar to the one we have here in Cleveland, to be used by the Specialty Mattress Company at Huntington, W. Va., and as soon as required, also an additional truck for our service here in Cleveland.

Assuring you we shall be glad to have you use our name as reference at any time, we remain,

Respectfully yours,
THE NATIONAL BEDDING CO.
By F. G. Denby.

Moving Vans

Cleveland, O., March 1, 1914.

The Standard Motor Truck Co.,
1824 Euclid Ave., Cleveland, O.

Gentlemen: We thought it might at this time be gratifying to you to learn of the success we are having with our 3½-ton moving van.

While it has been in operation only a short time, the truck has been put to very severe test, making some long out of town trips, which has not only demonstrated to us the practicability of the Standard Truck as far as service is concerned, but has proven its earning capacity as well.

You are at liberty to refer prospective purchasers to us for information.

Yours very truly,
JOHN BECKER.

3½-ton chassis, $3200—162-in. wheelbase

Cleveland, O., March 4, 1914.

The Standard Motor Truck Co.,
Cleveland, Ohio.

Gentlemen: We take pleasure in replying to your letter of recent date, requesting an expression of opinion relative to our Standard 3½-ton Moving Van.

While, as you are aware, this has only been in our service for a short time, it has during that time given splendid satisfaction, and a thorough investigation among many of the older users before making our purchase, has absolutely convinced us that we have made no mistake in selecting the STANDARD.

Trusting our relations will continue mutually satisfactory, we remain,

Yours very truly,
A. KAMMERER.

3½-ton chassis, $3200—162-in. wheelbase

The Standard Motor Truck Co.,
Cleveland, O.

ATTENTION C. W. MOODY

Gentlemen: We have used our moving van, which is the fourth truck purchased from you, during all of the Winter months, making country trips in the worst possible road conditions, in some cases with wagon attached as trailer, and it gives us pleasure to recommend the 3½-ton Standard Truck to any prospective purchaser.

We fully expect to give you an order for two or three more trucks during the next thirty days.

Very sincerely yours,
PEOPLES TRANSFER COMPANY.
D. F. Bevington, Prop.

3½-ton chassis, $3200—162-in. wheelbase

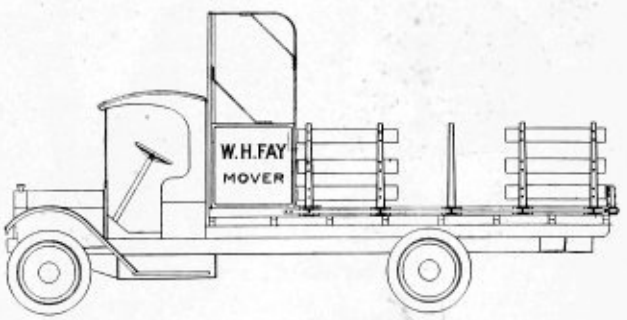
Cleveland, Ohio, March 17, 1914.

Standard Motor Truck Co.,
Cleveland, Ohio,
C. W. Moody.

Gentlemen: The various demonstrations which you have given us, together with the recommendations from many of our friends now using your trucks, convinced us of the advisability of placing our order with your company for one 3½-ton STANDARD TRUCK, equipped with special platform body and windlass, which we will use in connection with the moving of heavy machinery, safes and factory equipment.

We are also convinced that it is thoroughly practical to use our heavy machinery trucks as trailers; moving them from place to place with the motor truck, thereby saving the cost of maintaining two extra teams, which is in addition to the earning capacity of the truck itself.

Yours truly,
W. H. FAY, The Mover.



3½-ton chassis with special windlass for heavy hauling

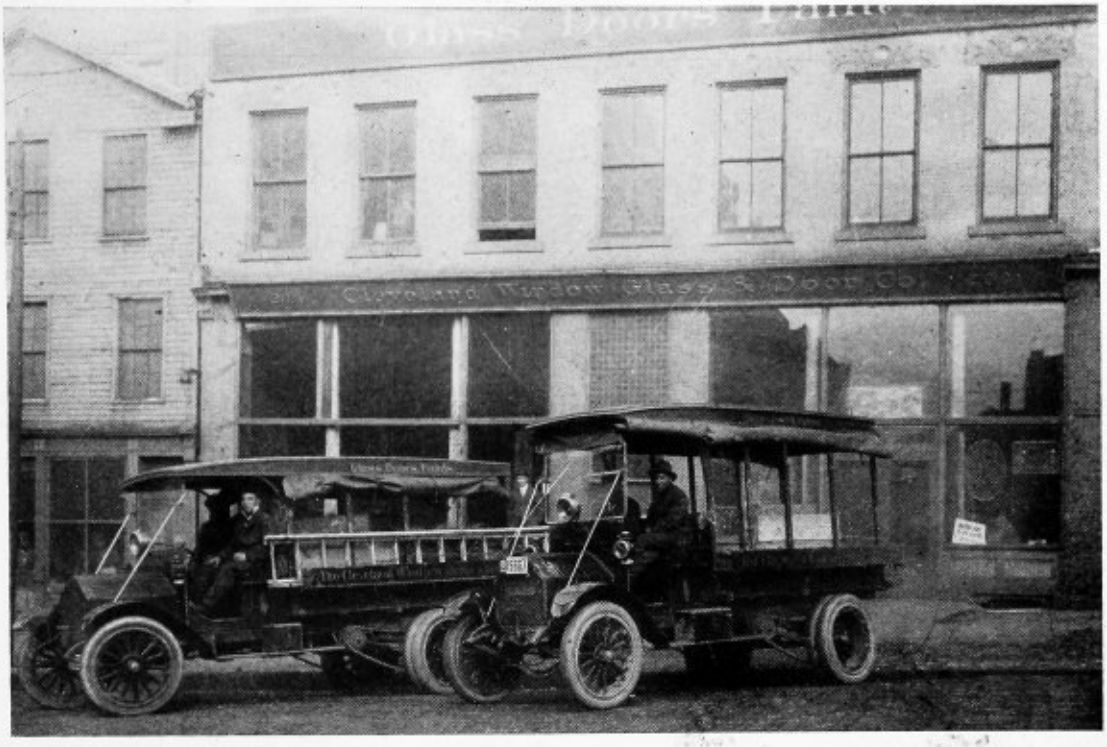
Our 2 ton Chain Drive Truck is one of four different makes of trucks used in our service, and we consider it the most satisfactory we have had. Yours truly,
THE BROUGH CO.,
Per Ed. Brough, Cleveland, O.

Beer and Soft Drinks

We have decided on your truck for our business, after watching the STANDARD TRUCK in service here in our town for over a year in four different lines of business. Yours truly,
PAINESVILLE MINERAL SPRING CO.
Per R. E. Colgrove.

After considering all makes of trucks and calling on several of your owners, we selected your 2 ton Chain Drive Truck as best adapted to our requirements. Yours truly,
The Clay City Mineral Water Works,
Per Geo. C. Smitley, Zanesville, O.

Window Glass



Above trucks have special rack flare-board bodies for carrying glass packed in boxes, and paints, oils, etc., inside of body proper. Equipped with pneumatic tires and demountable rims front and rear, to avoid breakage and to insure deliveries over a large territory daily. Cost of truck complete, $2,100.

"Almost No Time Lost for Repairs, and No Cost for Repair Parts"

March 5, 1914.

C. W. Moody, President,
The Standard Motor Truck Co.,
Cleveland, O.

Dear Sir:

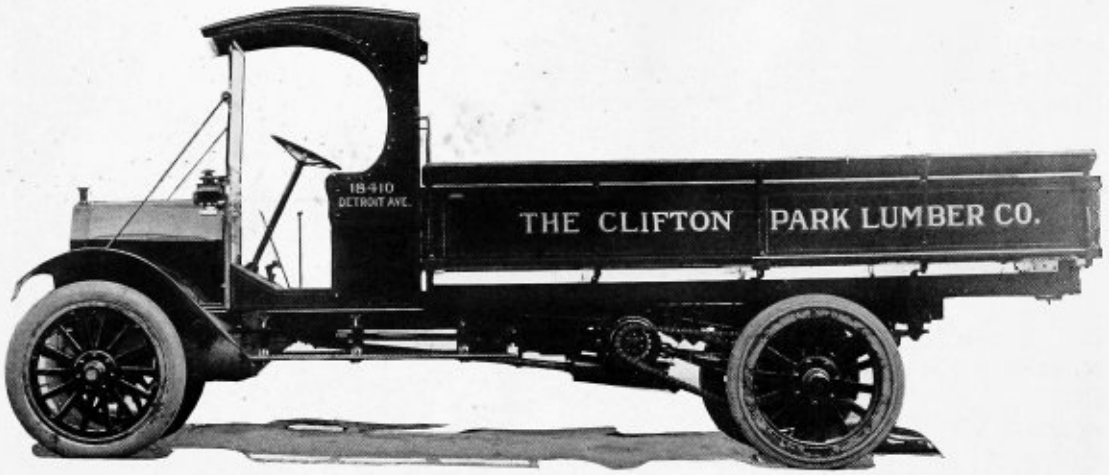
In reply to your letter of recent date, wish to state that we expect to purchase one or more trucks this Spring, and when we are ready we will give you the first consideration.

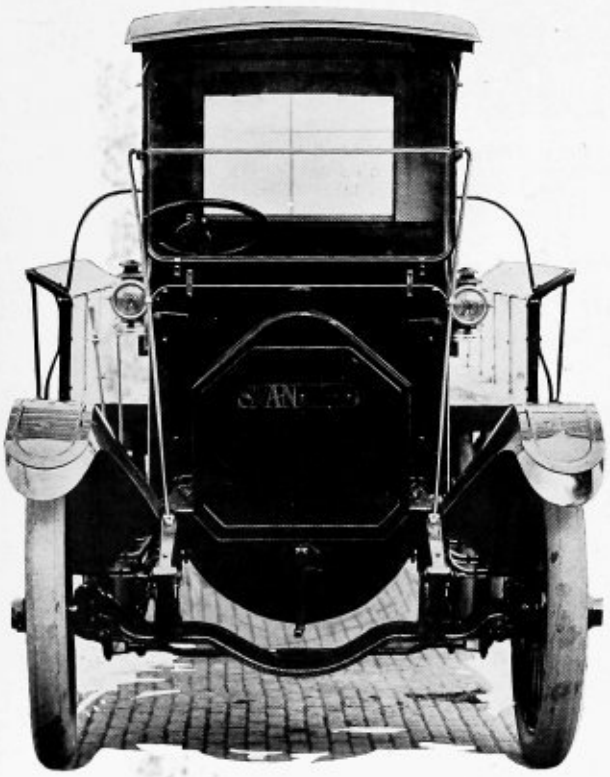
You will remember that we purchased one 1½-ton Standard Truck about one year ago and then our second job of the same size about four months later. These trucks have proven entirely satisfactory, having given constant service with almost no time lost for repairs and no cost for repair parts.

Yours very truly,

THE CLEVELAND WINDOW GLASS & DOOR CO.
F. H. Palmer.

Lumber Business





The two illustrations on this page, showing the two-ton chain-drive as adapted to delivery of lumber in various lengths, we believe are interesting because the length of body, 11 feet back of driver's seat, without taking into consideration the tailgate, is shown, and the width, 68 inches, the opening in the front end of the body on each side of the cab top over driver's seat making it possible to load lumber 18 feet or 20 feet long without having excessive overhang at the rear end of the body.

In order to save time and make more money with the truck, we recommend the use of a light shell body which may be loaded in the lumber yard while the truck is making another delivery by mounting same on a light wagon and then removing the shell body from the wagon, dropping it inside of the permanent body by means of a rope and tackle attached to the four corners of the shell body.

This truck, which is owned by the Clifton Park Lumber Co., Cleveland, O., is also fitted with attachment for trailer, and any one of their wagons loaded in the lumber yard can be attached to the truck in a minute's time and the truck used as a tractor for delivering the double load.

Telegraph and Telephone

Washington Hyde, President — E. G. Miller, General Manager

INDEPENDENT LOCAL AND LONG DISTANCE TELEPHONE

. . . THE . . .

WARREN & NILES TELEPHONE CO.

Warren, Ohio, Nov. 13, 1913.

The Standard Motor Truck Company,

Warren, Ohio.

Gentlemen:-

During the storm Sunday November 10th and since that time we have made good use of our truck.

Sunday afternoon we were repairing the line to North End Fire Dept., and in order to reach it had to use Hall Avenue an unpaved street, across from Mahoning , the truck came through fine, although up to the hubs in mud, Sunday night we went to Niles and back again through the blizzard which was going some, when you consider the unusual condition.

The very satisfactory performance and service during a trying period of this kind is very gratifying.

Yours very truly,

THE WARREN & NILES TELEPHONE CO.,

BY B. Miller

General Purpose Work

2 Ton Worm Drive

The Standard Motor Truck Co.,
Cleveland, O.

Gentlemen:

We believe, in view of the fact that your Standard Truck is really the third commercial vehicle that we have used, that you will be interested in having a letter from us showing our appreciation of the service which you have inaugurated and telling you that we believe your Standard Truck is thoroughly adapted for use by any concern in the plumbing business which carries loads ranging from 1,000 to 3,500 lbs.

We will be glad to have you use our name as reference with any concern who may care to write to us.

Sincerely yours,
POPLOWSKY PLUMBING CO.

1½ Ton Chain Drive

The Standard Motor Truck Co.,
1824 Euclid Ave., Cleveland, O.

Gentlemen:

We have received most satisfactory service from your 3,000 lb. truck, which has now been in operation almost a year.

We can frankly state to any one that we have had perfect service and the truck has not cost us a dollar during this time as far as any repair expense is concerned.

Very truly yours,
THE WINDERMERE PLUMBING CO.
C. A. Mutton, Sec. and Treas.

1 Ton Chain Drive

[Read Page 23]

1½ Ton Chain Drive

The Standard Motor Truck Co.,
1824 Euclid Ave., Cleveland, O.

Gentlemen:

ATTENTION, MR. C. W. MOODY

We wish that you would submit us your very best proposition on one of your two ton trucks, as we have had excellent service from the 1½ ton truck which has now been in our service more than six months.

It has not been unusual for us to load this truck with from 4,000 to 4,500 pounds, and we find it will be necessary for us to have another truck of about one ton greater capacity.

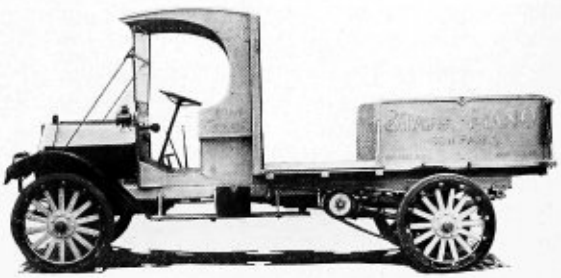
Yours respectfully,
THE WM. DUNBAR CO.
Per Wm. Dunbar.

General Purpose Work

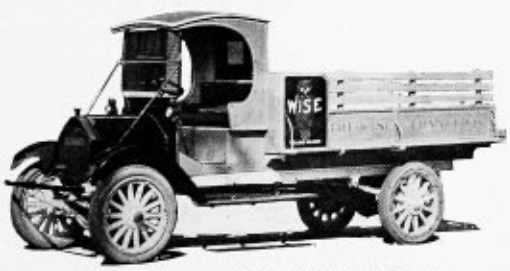
Carries Oil and Lubricants, 1½-ton Chain

Hauls Heavy Steel Castings, 2-ton Chain

Delivers Macaroni and Noodles, 1½-ton Worm

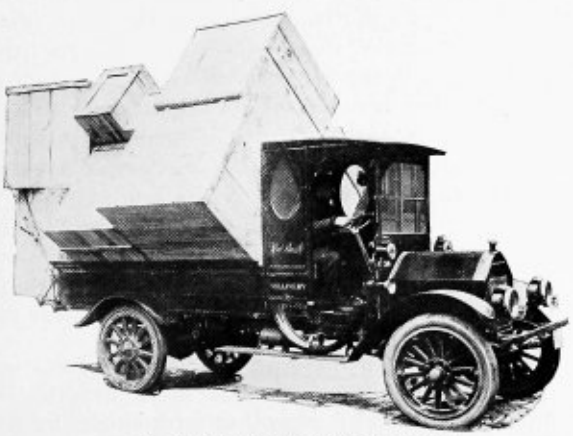


For Piano and Organ Delivery, 1½-ton Chain



Wise Furnace Co.'s 1½-ton Worm

Only Truck in America to Carry Buttonholes



Reed Bros.' 1-ton Worm-Drive

Totes Tires for Kelly-Springfield Cleveland Branch

On the Farm

THE progressive farmer of today is decidedly interested when it comes to the subject of motor trucks, and under the classification of farmers we might mention all vegetable growers who have greenhouses and also farms in connection, making it possible for them to use motor trucks twelve months of the year; and then there is the farmer who makes use of the truck during the busy Summer season for delivery of his produce to the city markets, often renting the use of his truck to corporations in the city during the Winter season, thus increasing the earning capacity of his motor truck.

We have in mind several Standard of Ohio owners engaged in agricultural pursuits who have made good use of their trucks in many different ways. For example, Ruhling & Sons, Painesville, O., who have celery gardens, general produce farms and greenhouses. The distance which they travel from their farm to the city is about 35 miles, and this trip is made, on an average, in about 1½ hours. This not only is a great saving in time and money—which in this case means about $6.00 per day—but it also enables them to deliver their produce at once to their most select customers, instead of simply standing in the market as they would be compelled to do if they were following the old methods of making the trip with horses and wagon. The produce is delivered fresh to the customer early in the morning, having been prepared for the market only a few hours before, which makes it possible for them, by soliciting and selecting the best trade and delivering the best produce, to secure better prices for their products than was possible under the old methods.

In not a few instances additional revenue has been earned by Standard of Ohio owners by attaching the wagon of their neighbor to their truck, thereby assisting him in making delivery of his produce early in the morning to the market, or in other cases where there is an exceptionally big crop of some particular vegetable the man who owns the truck makes use of an additional wagon as a trailer, thereby marketing his load all at one time.

In our opinion it is much better for the farmer to purchase a truck of 1½ or 2 tons capacity, as the springs are more flexible and the delicate berries or vegetables can be carried to market without injury. In making this suggestion we are comparing these two vehicles with a truck of 3 or 4 tons capacity sometimes recommended.

We believe in the use of a trailer attached to a comparatively light truck, instead of the use of a much heavier truck, because such a combination reduces the operating expense and investment and enables the farmer to deliver his produce in much better condition and more quickly to the market.

As a general thing, the farmer brings the produce to market himself. This, of course, does not apply to all vegetable growers; but it is a decided advantage for the owner of a motor truck himself to come to the market in two or three hours' time and make his arrangements with the customers, and then to return to his farm early in the day, which is impossible with horses and wagons. Under the old system he would be away from his farm for two days each trip, making it impossible for him to oversee the work at the farm.

The cost of operating a truck is much less for the farmer than it would be to the average merchant in the city, because there is really no expense for garaging, the truck will last longer, being driven on either dirt or good macadam roads, and generally by the owner himself. In fact, we know that time will show that Standard of Ohio trucks will give an average of more than six years of good service at a very low annual upkeep expense.

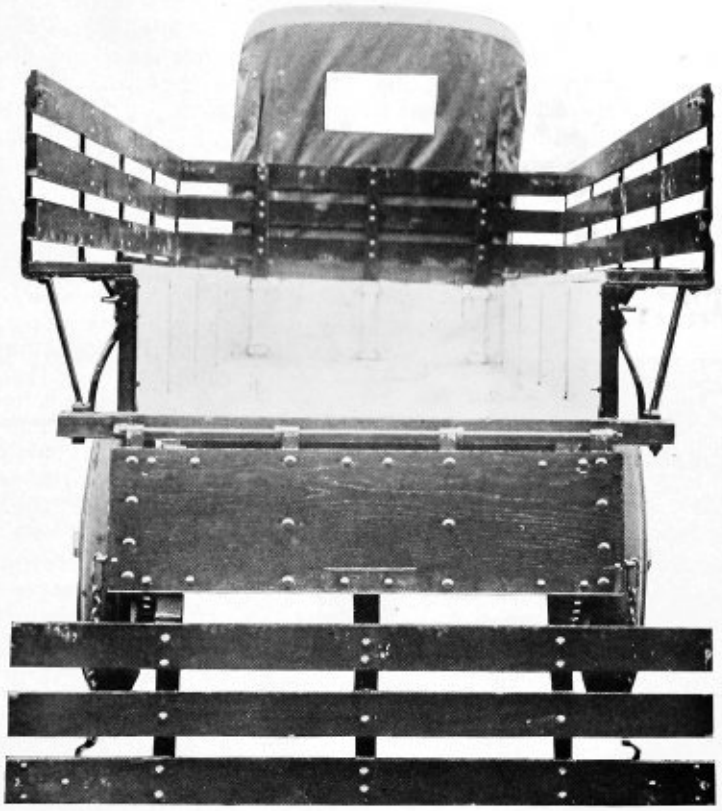
The Standard Motor Truck Co. (of Ohio) makes it a point to design bodies suited to the particular requirements of the customer; that is to say, in many cases the 1½-ton trucks are fitted with bodies built to carry 144 half-bushels or 72 bushel baskets or boxes. In every case it seems advisable to mount the body on the chassis so that the load will be as wide and long as possible instead of piling it too high, which in most cases would damage the fruit or vegetables.

D. S. Barrett, Painesville, O., one of the Standard of Ohio owners, figures that he made enough money with his truck during the first year to cover the cost of investment, keeping it very busy during the Summer season, marketing his own produce, and increasing his earnings by buying from neighbors who are not equipped to deliver in the city of Cleveland direct to the consumer. He has been able to build up a good trade in the city and the profit which he has made has represented in many cases as much money as the cost to him of the produce secured from other farmers. During the Winter season he has received for the service of his truck $10 per day, working for a public service corporation in the city of Cleveland. This can be done by any other Standard-owning farmer by employing a driver to operate the truck or doing the work himself, providing, of course, that he has comparatively little to do on his farm in the winter.

On the other hand, it is not a particularly serious matter if the motor truck is idle during the Winter a greater part of the time, because the farmer pays nothing for storage, and it simply costs the interest on his investment, whereas, during the quiet season the horses are costing him four times as much as does the motor truck when it is idle, and their efficiency, during the busy season, cannot be compared with that of the motor truck in any degree.

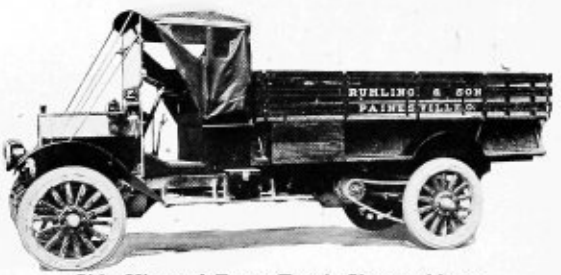
In many cases owners of Standard of Ohio motor trucks are operating small saw mills, grinding feed, pumping water, and doing other farm chores by power obtained from the trucks. This can be done by disconnecting the power to the rear wheels and connecting a shaft and pulley to the jackshaft or live rear axle.

On the Farm



Rear View of a Typical Standard Farm Truck. Note Body Lines

1½-ton Chain Drive



Side View of Farm Truck Shown Above

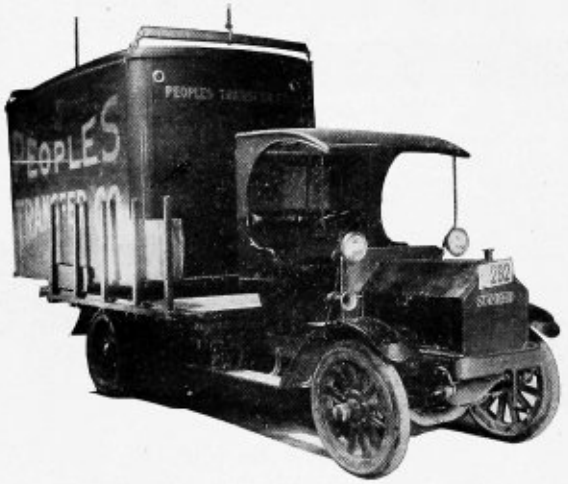
1½-ton Chain Drive

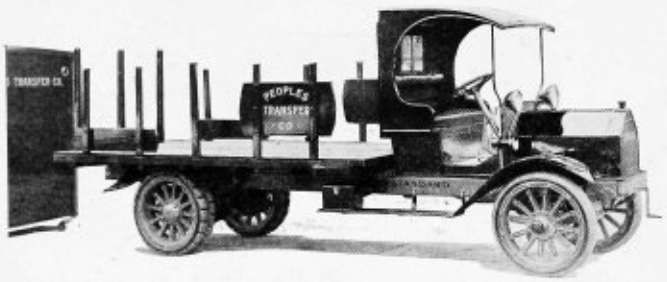
1½-ton Chain Drive

Removable Bodies

THE accompanying illustrations of the Standard of Ohio 3½-ton worm-drive truck now being operated by the Peoples Transfer Company of Cleveland, show the van as it appears in service on the street, also with the van body partially removed, and finally with the body on the ground at the rear of the truck, which has now the appearance of an ordinary stake-body job.

The van body is 7½ feet high, 6 feet wide and 14 feet long—all inside dimensions. The truck is guaranteed to carry 4 tons with the van body removed and 3 tons with the body in place. The bottom of the body is only 38 inches from the ground when the van is empty. To avoid the marring of expensive furniture, the inside construction of the van shows no bolt-heads or obstructions of any kind. The corners of the body are round. There are no outside projections to interfere with traffic in narrow alleys or while making short turns. There is a guard rail which is part of the platform body, 6 inches away from the sides of the van body proper, for the purpose of protecting the lettering and preserving the outside appearance of the van body. The tailgate is 36 inches high and the heavy folding iron doors make it possible to completely lock the body so that the truck may stand on the street at night without danger of any of its contents being stolen.





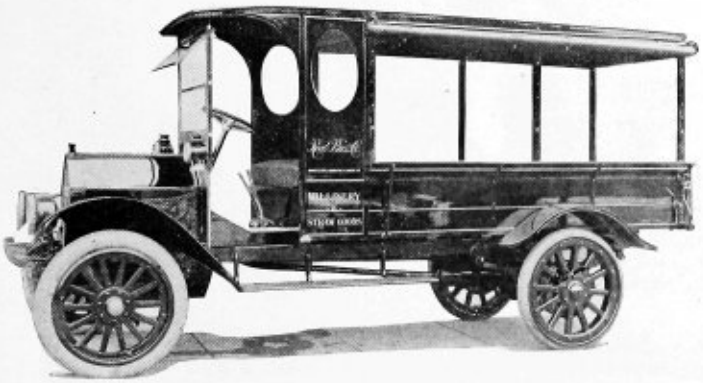
There are three inside lights, so located as to serve the purpose of the ordinary signals which all motor vehicles are required by law to carry after nightfall. Two of them are located in the extreme front upper corners of the body, the one at the rear serving as a tail light. These lights are very convenient when the van is being loaded or unloaded after dark. The entire lighting equipment is electric.

In order to raise the van body free from the truck, it is only necessary to attach hooks at the top corners, the cost of the hoisting apparatus being approximately $50. This apparatus can remain permanently in the garage and the body can be raised by two men, the stakes placed in position and the truck driven away as a regular platform stake-body job in less than fifteen minutes.

The body is made in four distinct sections, dovetailed together so sturdily that it will not be affected in any way when hoisted free from the truck while loaded. The panels are of wood; the corners are metal reinforced with wood inside, and the body strengthened throughout with hand-forged iron. The cost of this outfit complete, with van body and electric lighting system, is $4000.

The Peoples Transfer Company, John Becker and A. Kammerer, all of Cleveland, operate these removable body vans, and have found the combination a big money-maker.

Removable and Special Bodies

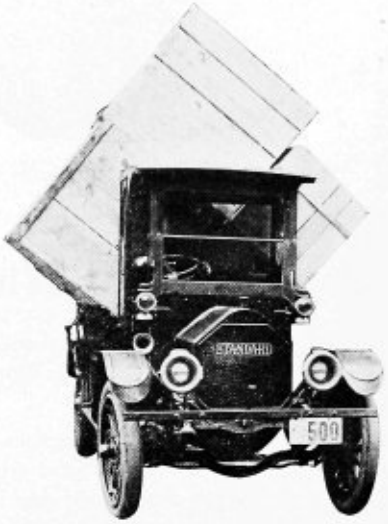


In the above illustration is shown the 1-ton truck now in the service of Reed Bros. Co., of Cleveland. This job has a removable top which can be taken away from the body in less than five minutes by simply unscrewing six thumb nuts.

R. H. Robb, in charge of the shipping and receiving department, states that the truck has replaced four horse-drawn rigs. It is used in hauling heavy sample trunks to and from the depots, and for carrying bulky loads of light-weight material. In transporting the latter the top is removed, thus permitting the piling up of the material to be carried.

During last December's heavy snowstorm, when nearly every vehicle in the city was out of commission, this truck was at work day and night after having been equipped with a full set of anti-skid chains.

Below is shown the same Reed Bros. truck with top removed and carrying a towering load of packing cases filled with millinery. After that load was delivered at the depot the top was replaced in a trifle over three minutes by two men.



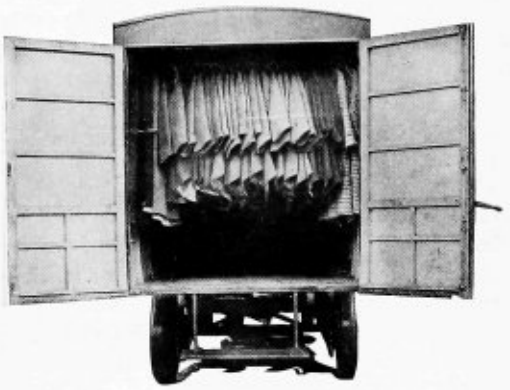
Below is shown the specially built body of the Printz-Biederman truck from the rear, with the double doors open, disclosing the garments neatly hung in rows, with no possibility of their becoming creased or soiled by coming in contact with the floor. There are six iron rods extending from side to side, on which from 200 to 250 garments can be accommodated without undue crowding.

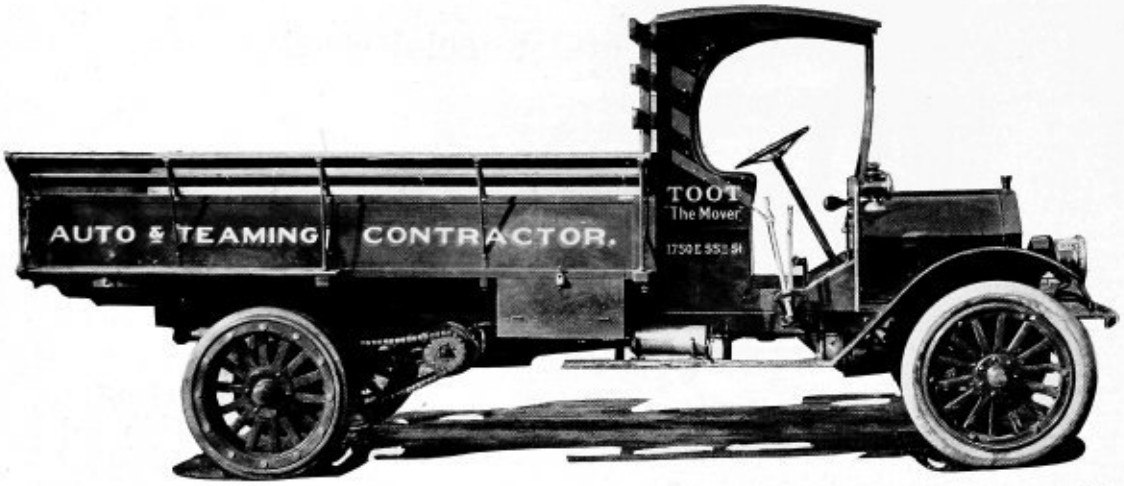
Printz-Biederman Co., Cleveland, O., manufacturers of Printzess brand ladies' cloaks and garments, and one of the largest concerns of its kind in the Middle West, is a well-satisfied user of the Standard of Ohio Truck.

The Printz-Biederman truck is a Model B, 1½-ton chain-drive job, which has been in service nearly a year. The truck has a closed panel body 11 feet in length, 5 feet in width and 6 feet in height, with rear doors opening out.

It is used chiefly in carrying garments to and from tailor shops in Cleveland. Many garments are sent to the tailors every day. These are sent from the factory in pieces to the several shops to be sewed together to make a complete ready-to-wear garment. They are then pressed and are ready to be sent back to the factory.

In sending the garments to the dealers they are put into big bundles, a large number of these bundles being carried on each load. In returning the finished garments to the factory, a unique way of carrying them has been devised, which is shown in the lower illustration.





The Owner of This Truck Is Making a Great Economy Record, and Is Contemplating Additions to His Motor Service

Some Reasons Why Horse-Drawn Service is Expensive

THOMAS A. EDISON says the horse is "the poorest motor ever built," eating nearly eight times his own weight in a year.

It is safe to say that there is not a successful business man in the United States today who would be satisfied with a return of two per cent on the money he invested in upkeep cost of any machine he operates. Any manufacturer would immediately discard a machine on which the maintenance cost was 49 times greater than the power returned.

A horse eats 10 pounds of food for every hour he works. He eats 12,000 pounds of food every year. A motor truck consumes no fuel—and this is the food of the vehicle—when it is not working. The minute the motor stops the feeding cost stops. The superiority of the motor is shown, too, in the power developed. The 35 horsepower truck will carry 2,000 pounds of merchandise from six to 10 miles on a single gallon of gasoline.

This is a vastly greater return in energy for the money expended than the two per cent showing the horse makes. Some day the people of the United States are going to awaken to the fact that they are deliberately throwing away a great deal of money by sticking to the horse and disregarding the efficiency and economy of the motor truck.

* * *

WHY is motor truck haulage so much cheaper than horse haulage? There are a number of reasons, not the least important of which is that a motor truck—say a 1½-tonner—which actually does the work of at least two teams, is garaged in a space not more than 15 feet square. Four horses and two wagons occupy five times that amount of space for stabling, while the necessary feed takes up at least twice the amount of space taken up by the single motor truck. In short, the horse-using teamster pays interest upon a housing equipment at least eight times as great as is necessary in the case of one 1½-ton truck.

As regards pay of drivers, one 1½-ton motor truck with one man can do the labor of two trucks with two men, apart from the fact that loading must be a fixed item, inasmuch as two men can do twice as much loading and unloading as one man can in a given time. But the wage item nullifies this advantage to the extent of at least 75 per cent, leaving the motor victorious in the general comparison by a large margin.

* * *

A TELLING argument in favor of the motor truck as against the horse-drawn team is the fact that the ground on which its garage is to be located need not be in the high price, down-town district. It can be stored over night five to ten miles from the store, factory or warehouse, and still be on hand at the regular opening hour, without imposing any hardship on anyone. With horses this cannot be done, for a team that has to travel eight or ten miles in the morning is partially tired out before its work begins.

A garage 35 by 60 feet will house five heavy trucks, while the 35 to 40 horses and 8 or 10 wagons that these trucks replace require a space three or four times as great. Those firms who stick to horses for merchandise transportation find that they must make a large, unnecessary investment to carry on their business, for down town real estate is as costly for a stable as for an office building.

This Truck Has Convinced Its Owner That Standard of Ohio Vehicles Are Not Only Economical, but Actually Needed in His Business

Why Is R. M. Andrews Using Standard Motor Trucks?

BECAUSE years of experience in operating more than twenty-five teams have shown the cost (including all expense) per team per month as follows:

Wages	$ 65.00	Int. on investment at 6%	5.50
Rent	3.00	Shoeing	6.00
General expense	4.25	Veterinary and drugs	1.00
Insurance	1.50	Feed	25.00
Taxes	1.50	Office and stable expense	10.00
Telephone	1.00		
Depreciation	18.33	Total	$142.08

The average earning of each two-horse team has been less than $180 per month, showing in comparison with the earning of motor trucks, as shown on this page, a very small margin of profit. However, with from twenty-five to forty teams earning this amount per month, the total profit is a basis for comparison with the same number of motor trucks of a greater earning capacity.

The 2-ton motor truck operated in the service of the Andrews Cartage Co., of Cleveland, has shown in actual work an average earning capacity in the same kind of work, compared with horses and wagons, of over $300 per month on a yearly basis. The cost of operating this same motor truck is shown in detail below on a monthly basis:

Driver's salary	$ 70.00
Rent	3.00
Repair expense	5.50
Insurance	6.00
Taxes	3.50
Telephone	1.00
Depreciation	42.50
Interest on investment at 6%	10.00
Engine oil and grease	$1.75
Gasoline	18.20
Office and garage	12.50
Tires	20.50
Total expense per month	$194.45

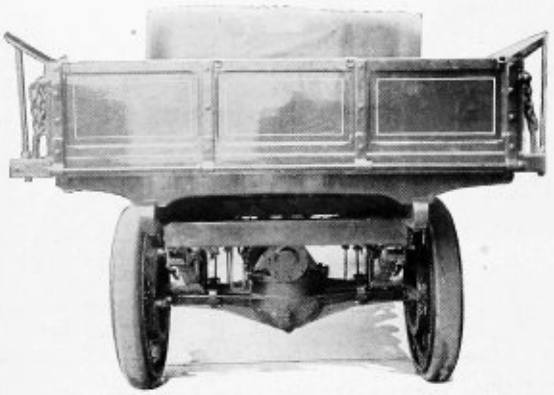
This means a yearly operating cost of $2,333.40, thus showing an annual earning for each truck of $1,266.60.

This comparison speaks for itself inasmuch as twenty motor trucks ranging in size from 1½ to 3½ tons would clearly show a profit of more than 50 per cent greater than forty teams, and one-half the number of trucks as compared with the number of teams could be handled with less trouble, showing a big increase in profit.

Without question the time is now upon us when it is necessary to gradually change the methods of delivery, adapting the bodies used to the particular line of business so that in the end all merchandise will be handled on a much different basis than in the days of the horse-drawn vehicles and the deliveries made promptly and in a more satisfactory manner.

Any teaming contractor who has a place of business—that is to say, offices and barns suitable for storage—and who has staggered under the overhead expense which has been necessary in operating a large number of teams, may find it possible to add motor trucks to his equipment, gradually replacing the horses and wagons, without changing the overhead expense, at the same time increasing the margin of profit on the investment, keeping his customers satisfied, and securing much new business.

Some Rear Views of Standard of Ohio Bodies

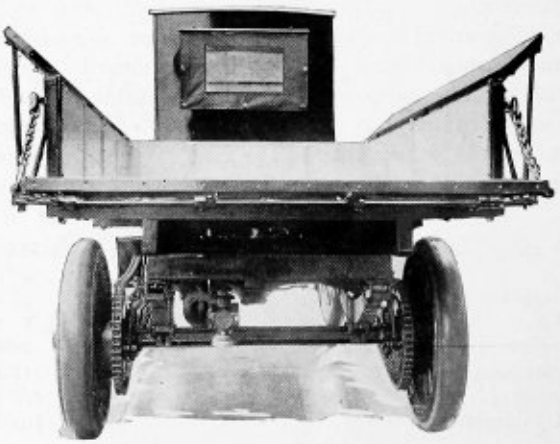


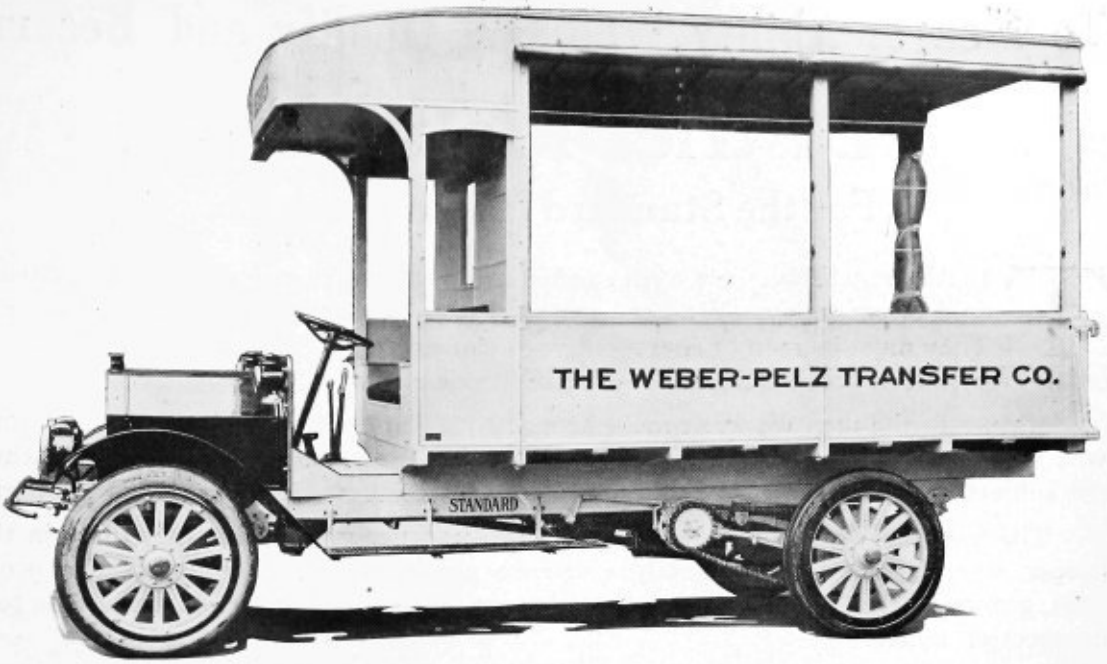
Above is shown a rear view of a typical 1½-ton worm-drive job, with five-feet-wide bolstered body. Standard tread, with ample clearance for non-skid chain.

Below is an illustration showing the rear of 2-ton worm-drive truck operated by the Painesville Coal & Feed Co. Body is 5 feet wide, with wheel house. Note attachment for trailer.

The above is a rear view of Reed Bros.' worm-drive delivery, with 46-inch wide express body between the wheels and close to the frame.

Below is shown rear view of a 2-ton chain-drive Standard of Ohio truck, with body 5 feet wide, bolstered above wheels. Note clearance for non-skid chains.





A Creditable Eight Months' Record

THE WEBER-PELZ TRANSFER CO.

Office—Kenilworth Rd.

C. W. Moody, President,
The Standard Motor Truck Co.,
Cleveland, O., March 23, 1914.

Dear Sir:

Replying to your letter of the 21st inst. in regard to the experience that we have had with our 1½-ton Standard Motor Truck, wish to state that this has now been in our service exactly eight months, and you will remember the extreme precaution which we took at the time of making our purchase, compelling you to give us an itemized statement showing the cost of operation and your estimate as a basis for our records in making comparison after the truck had been in service for six months or more.

We had several demonstrations and out of about a dozen trucks which we considered yours was selected. We had considerable doubt in regard to the upkeep expense, but found after keeping record of every cent that our actual cost is below the figures given us by you. We have had absolutely no repair expense except the inspection or labor on our part with the exception of two small items amounting to $3.00 for replacement of a storm front and repairs in connection with the speedometer.

This truck is being operated, as you know, in the service of the Lederer Furniture Co., here in this city on a contract basis, and we are entirely satisfied with the results; so much so, in fact, that we expect to place an order with you in the very near future for a truck to place on additional contract work.

The more we see of the truck proposition, the more we realize that our job is a good, Standard, serviceable vehicle, which we believe will give good service for several years at a very low upkeep expense, and we frankly believe it is the best truck we have seen for the money.

Assuring we shall be glad to have our name used as reference, we remain,

Yours very truly,

THE WEBER-PELZ TRANSFER CO.
Arthur O. Weber, Pres. and Treas.

To Men of Ability Who Can Qualify and Become

District Managers

For the Standard Motor Truck Co.

THERE is no bigger field open to efficient men than that which the motor truck field offers today. We need men who can learn the motor truck business. They must be men of character, who can not only SEE, but take advantage of the tremendous possibilities that are open in this industry.

Naturally the men we want must be salesmen—not simply glib-tongued orators, who sell on the strength of talk or personality—but men who are big enough to study the subject of Motor Truck transportation and then impart that knowledge to others.

The men we want must be able to interest good dealers and instruct them in the proper way, so that they can analyze delivery conditions, study transportation problems, gather all the facts and weigh the evidence before making recommendations to a prospective buyer.

And after analyzing a problem, the men we want must be able to select the proper type of truck and style of body to suit the character of work to be performed.

They must be able to work with the dealer and co-operate with the buyer of trucks, and by doing so, make each and every installation of Standard Motor Trucks a complete success. This they can do only through scientific analysis, rugged honesty, and by absolute adherence to the facts as they find them.

The men we want must be able to advise and counsel with the dealers in their respective territories on sales and organization problems, and help them to put their business and their plants on an efficiency basis, so that the buyer of Standard Motor Trucks will receive 100 per cent service.

They must be able to secure and hold the good-will of dealers and their customers. They must be good salesmen through the fact that they are efficiency experts and know what they are talking about. They must be able to do more than talk efficiency —they must be able to work with their dealers, inspire them, enthuse them and keep them on their toes all the time.

To the men who can measure up to the mark we have indicated, we have a proposition that they cannot get elsewhere. We will back them up with the most serviceable line of trucks in the world. We will co-operate with them in every way and do our utmost to make their work pay them in a generous measure.

And the men who can use their brains will find that we will show our appreciation of their efforts in a very tangible way; we will agree to give them an opportunity to acquire a stock interest in this Company.

If you are the man we want—it will pay you to write or wire to-day.

THE STANDARD MOTOR TRUCK CO.
(of Ohio)

A Talk on
Motor Truck Efficiency

Addressed to the Dealer, the Salesman and the Owner

IT is the usual thing—we believe—in addressing the trade for the manufacturer to make a loud noise—to talk a lot of glittering generalities and to assure the dealer that his fortune is forever made if he will just tie up to the proposition the manufacturer so eloquently presents.

WE DON'T INTEND TO FOLLOW THAT PRACTICE. We feel that the man who would be impressed by such methods would not be competent to handle and sell Standard Motor Trucks. We want to talk to you calmly and sanely and we do not intend to try to stampede you by any "hurrah boys" talk. We sincerely believe our proposition is one that will interest you—and it is not necessary for us to overstate or exaggerate.

The dealer who is in a position to handle the Standard of Ohio motor trucks, described herein, will certainly not overlook this opportunity to get in touch with us.

While this is addressed to the dealer or agent who sells Motor Trucks, every word in it can be profitably read by the salesman, the purchasing agent and the man who buys and operates motor trucks.

The dealer, the salesman, the consumer, and the builder of motor trucks have problems they must work out together. All of these men have a vital interest in the factors that affect the EFFICIENCY of transportation by motor vehicles. If there were no other use for the word EFFICIENCY it would justify its existence by its absolute necessity in considering the construction, the buying and the operation of Motor Trucks.

It is the practice of the Standard Motor Truck Co. to insist that every motor truck installation can and must be made profitable. We believe it would be extremely difficult to find any class of delivery service that cannot be made more efficient by the use of some type of Standard Motor Trucks. But to attain this result it is ab-

solutely necessary for the manufacturer and dealer to co-operate with the buyer and user. They must get together—study conditions together and then get profitable results together.

It is not sufficient to simply sell Standard Trucks of Ohio to a consumer. He must have his delivery conditions analyzed and then have his truck installation fitted to meet those conditions. He should not be allowed to buy a heavy truck when he needs a LIGHT ONE; the most careful analysis should be given to the subject of capacity. Often a single four or five-ton truck is used where two 2-ton trucks would give more efficient service and do more economical work. In this case the lower-speed heavy truck may be running with its load two-thirds gone—making single deliveries at infrequent intervals; two smaller trucks running at greater speed would serve more than double the number of customers—in far less time.

Actual figures show that over 75% of the motor trucks being sold to-day range in capacity from 1 to 3½ tons. We know that you will be most successful if you devote your entire energy and attention to this one complete line.

It is a mistake for a dealer to sell a truck to a consumer who already has a fleet unless every unit in that fleet is delivering 100% efficiency. We insist that our dealers and salesmen make certain that each unit is carrying the maximum load in the minimum time—getting all the efficiency possible before the prospect is encouraged to add another truck. We believe it to be bad business to sell additional trucks to a user when a study of his running time and delivery load shows that he is not getting all that he should from the trucks he already has.

And after a Standard truck has been sold, the policy of this Company and its dealers is to continue to co-operate with the user in order that neglect or abuse shall not destroy the efficiency of the truck. The owner of a truck must be "kept sold" by constantly showing him how to keep down the cost of operation. He must be impressed with the fact that a truck must be kept running—running—running!

The truck must be loaded and unloaded without waste of time. The good salesman and dealer must show the buyer that he must not be indifferent to his own responsibilities. It is up to the owner to see that the operator of the truck is careful and skilled in the proper handling of a motor truck. He must be impressed with the fact that maximum mileage, the efficiency of fuels, of lubricants and tires are entitled to the owner's careful thought. Reckless running — overloading — overspeeding — and an inefficient system of delivery can destroy the value of the motor truck just as they will any other form of transportation.

There can be no doubt as to the ultimate replacement of horse-drawn vehicles by motor trucks. That time will come just as soon as you convince the man with delivery problems that the motor truck is

more efficient than horses. According to figures compiled by the "Review of Reviews" there are 55,000 motor trucks in use today in the United States; these trucks have probably supplanted not more than 300,000 horses. There are 25,000,000 horses and mules, so that it can be readily seen that but little more than one per cent of the available animal power has been supplanted.

These figures visualize what has been done so far in this field and they speak eloquently of the tremendous possibilities of the motor truck's future when the men with vital delivery questions awake to the economies that the motor truck guarantees.

We consider it a part of the work of all Standard dealers and agents to educate the business man who does not recognize the vital importance of his delivery department; to show the truck user the folly of basing a motor truck delivery system upon experience gained by a system of horse-drawn vehicles. The conditions being different, the practice will also necessarily differ.

Too much of the busy man's valuable time can be wasted by the dealer, or salesman, who solicits truck business without first securing sufficient data and facts about his prospective customer's problems upon which to base an intelligent solicitation. We insist that our salesmen and dealers must not fall into that error.

Finally we want all dealers and agents of Standard Motor Trucks to assist the customer to arrive at a new viewpoint regarding his delivery system and to make a sincere and determined effort to help him. It is of course of importance to sell Standard Motor Trucks—but it is of greater importance that they be sold only when they are adaptable to and will solve his delivery problems.

We believe that it will repay any truck user or prospective buyer to make a careful study of these pages. We know that our own dealers and agents will make more sales — and particularly BETTER SALES — by giving these pages their concentrated thought.

And finally, a thorough reading of these pages will increase YOUR efficiency, and that word EFFICIENCY should be the keynote of every man who is interested in the sale and use of Standard Motor Trucks.

The Standard Motor Truck Company
(of Ohio)

C. O. Moody

Building Bodies for Standard (of Ohio) Trucks

THE conditions and requirements of every business are individual and peculiar to itself, for which reason it is manifestly impossible to build a single type body adapted to every line of business. For this reason it is impossible to build bodies in quantities, with the result that the price per body has been somewhat higher than if large numbers could have been built after a single pattern.

The Standard of Ohio Company has developed a system of body construction which will enable it to meet the conditions of many lines of business and permit of engaging in quantity production to a limited degree, thus keeping the price down to the minimum.

In all instances bodies have been made as light as possible consistent with the determination not to sacrifice the strength requisite to successfully cope with the rough usage to which commercial motor vehicles are invariably subjected. The bodies are well reinforced and the floors are protected with iron strips to insure longer wear.

Standard of Ohio bodies may be classed under two heads, standard stake platform and standard express. Variations from these standard patterns mean an advance in price. A large number of different bodies, however, can be built by using the various types of stake units for stake model bodies and the various top and screen units for the express bodies. The prices on these various combinations will be found listed elsewhere in this article.

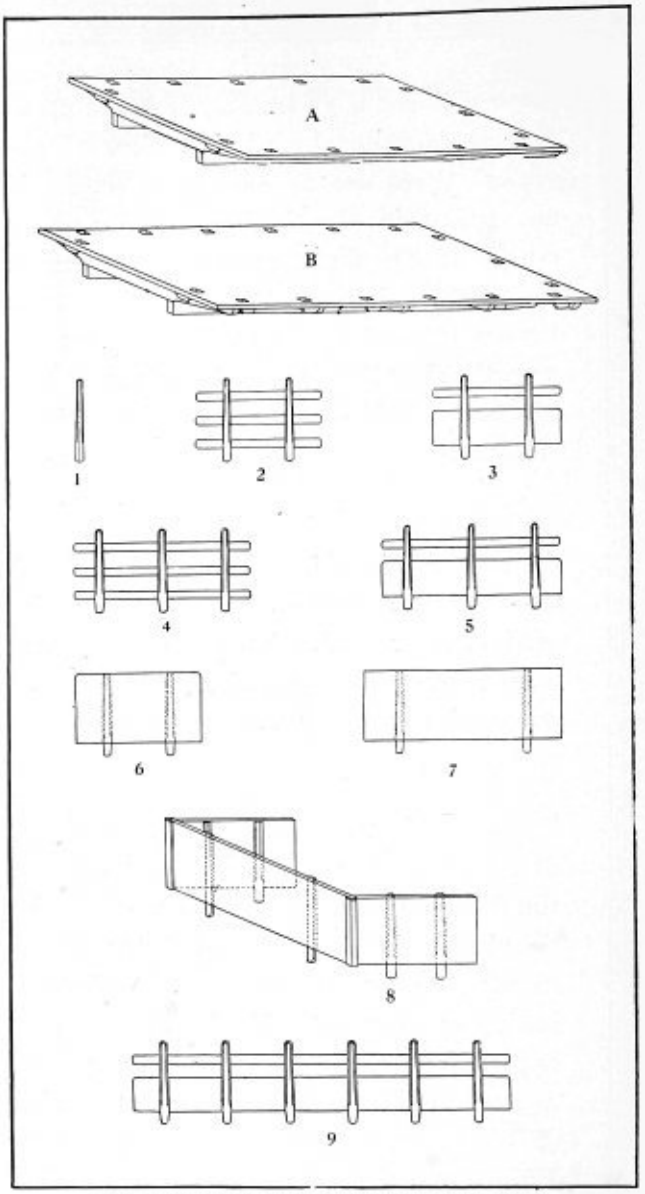


FIG. 1—UNITS IN A STANDARD STAKE BODY

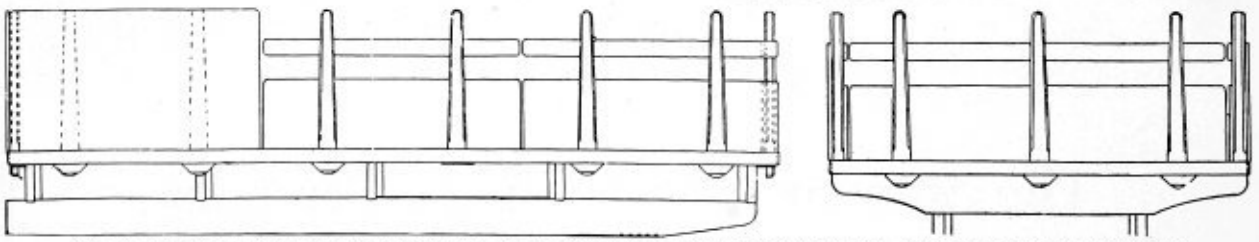


FIG. 2—SIDE AND REAR ELEVATIONS OF A STANDARD STAKE BODY DESIGNED FOR A LONG WHEELBASE CHASSIS

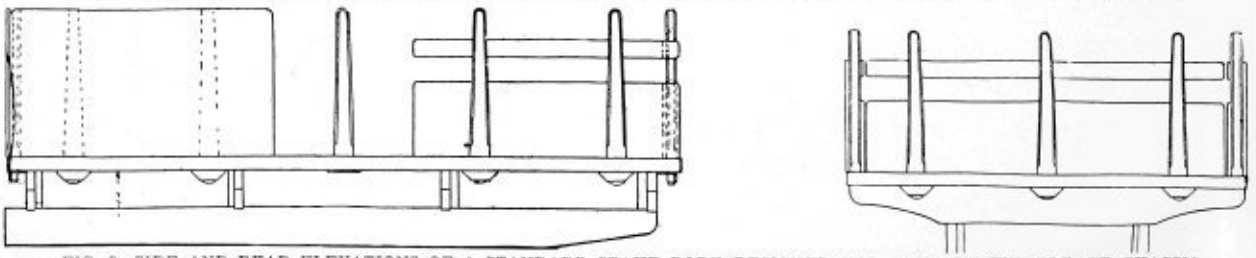


FIG. 3—SIDE AND REAR ELEVATIONS OF A STANDARD STAKE BODY DESIGNED FOR A SHORT WHEELBASE CHASSIS

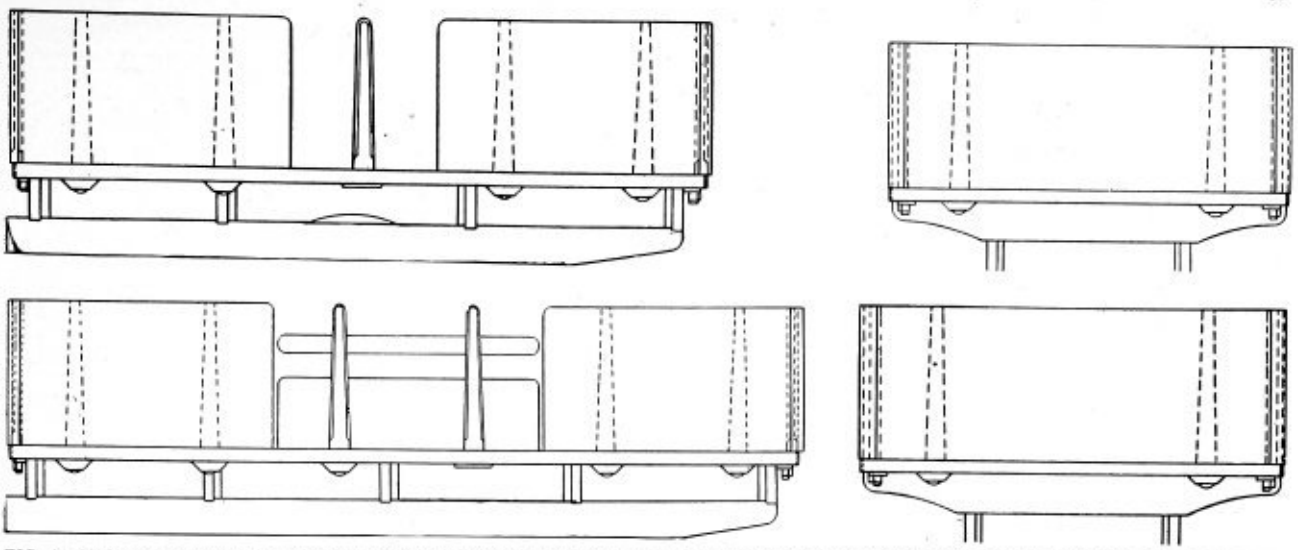


FIG. 4—ANOTHER TYPE OF STAKE BODY EVOLVED FROM STANDARD UNITS AND MOUNTED ON SHORT AND LONG WHEELBASE CHASSIS

The company has devised a combination of stake units based on the larger percentage of requirements as shown by the orders on its books. On these standard combinations a price of $150 has been placed on the 10½ ft. body, and $125 on the 8½ ft. body.

To aid the prospective customer in arriving at an approximate idea of the cost of these unit bodies, let it be assumed that he desires to purchase a body for the long wheelbase chassis, designed for carrying small articles and to be loaded and unloaded from the side. Such a body can be made by using two of the No. 8 units as shown in the accompanying illustration, one at the front and the other at the rear, with a single No. 3 unit in the center of either side. This provides a fixed bulkhead at either end, with a removable unit on each side for loading and unloading.

Should the customer desire a flush-side body, two of the No. 6 units could be used, or if the material to be carried consisted of barrels or boxes a No. 1 unit would be indicated, filling out the two sides with single stakes. Should it only be necessary to provide sign-boards on the side, a very convenient body could be had by the use of two No. 6 units at the front and then, by adding four No. 3 units and one No. 5 unit, complete the body as shown in Fig. 2.

To get an approximate price of the first body mentioned, viz., that constructed of two No. 8 units and two No. 3 units, all that is necessary is to add the prices of the units as follows:

2 No. 8 units at $17.25	$ 34.50
2 No. 3 units at 3.90	7.80
1 long wheelbase unit	115.00
	$157.30

In the case of the short wheelbase job, requiring two No. 8 units and two No. 1 units, the price would be:

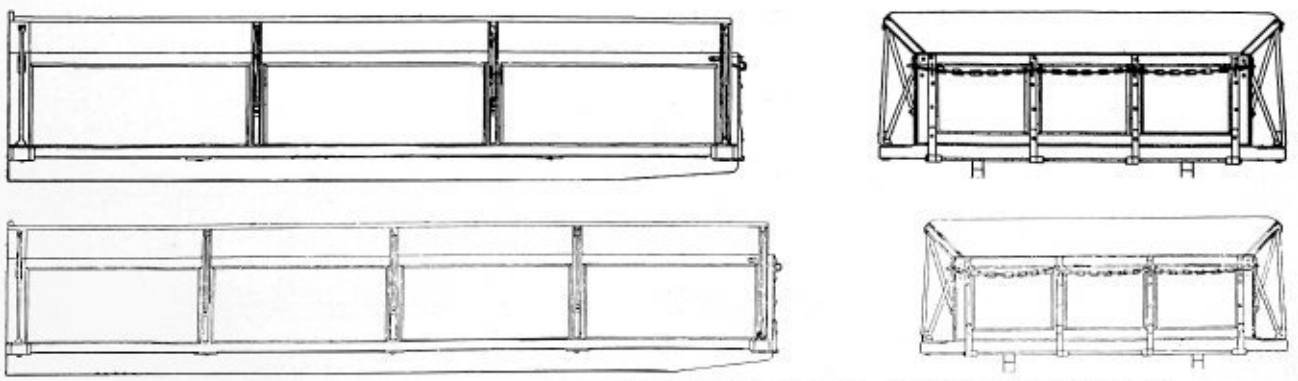


FIG. 5—SHORT AND LONG WHEELBASE TYPE OF STANDARD EXPRESS BODY—SIDE AND REAR ELEVATIONS

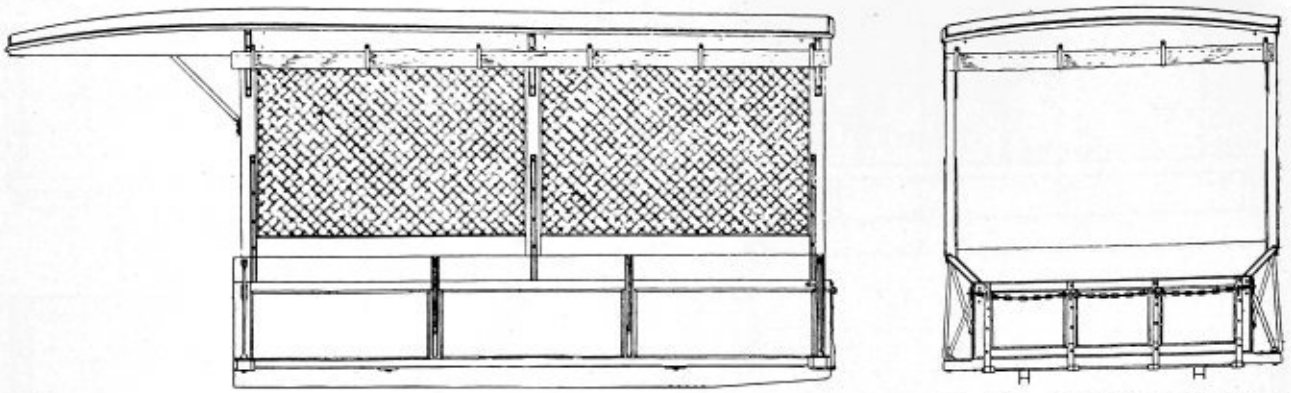


FIG. 6—EXPRESS BODY WITH TOP AND SCREEN, MOUNTED UPON A SHORT WHEELBASE CHASSIS—SIDE AND REAR ELEVATIONS

2 No. 8 units at $17.25	$ 34.50
2 No. 3 units at 3.90	7.80
1 short wheelbase unit	95.00
	$137.30

All stake bodies are built in lengths of either 10½ feet or 8½ feet, the inside width in both instances being 60 inches, the prices being respectively $150 and $125.

The units of these bodies are priced as follows:

Short wheelbase platform	$ 95.00
Long wheelbase platform	115.00
Unit No. 1	.90
Unit No. 2	3.30
Unit No. 3	3.90
Unit No. 4	5.00
Unit No. 5	6.50
Unit No. 6	5.30
Unit No. 7	6.60
Unit No. 8	17.25
Unit No. 9	11.50

EXPRESS BODIES

The Standard of Ohio express bodies are 8½ feet long by 4 feet wide for the short wheelbase job and 10½ feet long by 4 feet wide for the long wheelbase model. The sides of the bodies rise 14 inches above the bed, with 7 inch flareboard on which top and screens are mounted, these being fastened at six points to insure rigidity. By the simple loosening of the six thumb nuts which fasten these bodies in place, the top can be removed within five minutes and replaced in the same time. If the customer so desires, rear fenders, mounted directly on the frame, will be provided at a cost of $15 per pair.

FURNITURE BODIES

A thorough analysis of the body requirements of purchasers who desire to use their trucks for the transportation of furniture shows that in the majority of instances the orders can be met with the standard furniture body design for the long wheelbase chassis. The inside dimensions of this body are 11 feet by 5 feet, with sides 22 inches high. These bodies are listed at $165. The top, 6 feet 6 inches high, with side curtains, will insure protection from the weather when necessary. This top equipment is installed at an additional cost of $80.

PIANO BODIES

Piano bodies sufficiently large to accommodate three upright instruments can be mounted on the long wheelbase chassis at a cost of $265. These bodies are provided with stakes, top and curtains, the loading platform being 5 feet wide, 10½ feet long by 6½ feet high. The protecting curtains are so placed as to insure the exclusion of rain and snow when lowered.

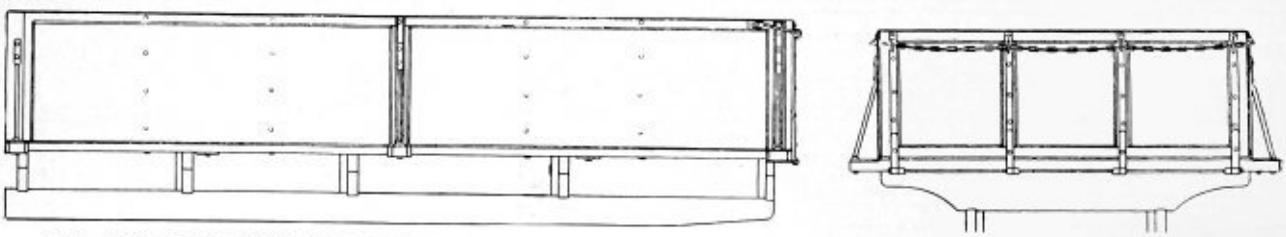


FIG. 7—STANDARD FURNITURE BODY ON LONG WHEELBASE CHASSIS, WITHOUT TOP, $165. TOP EQUIPMENT, $80 EXTRA

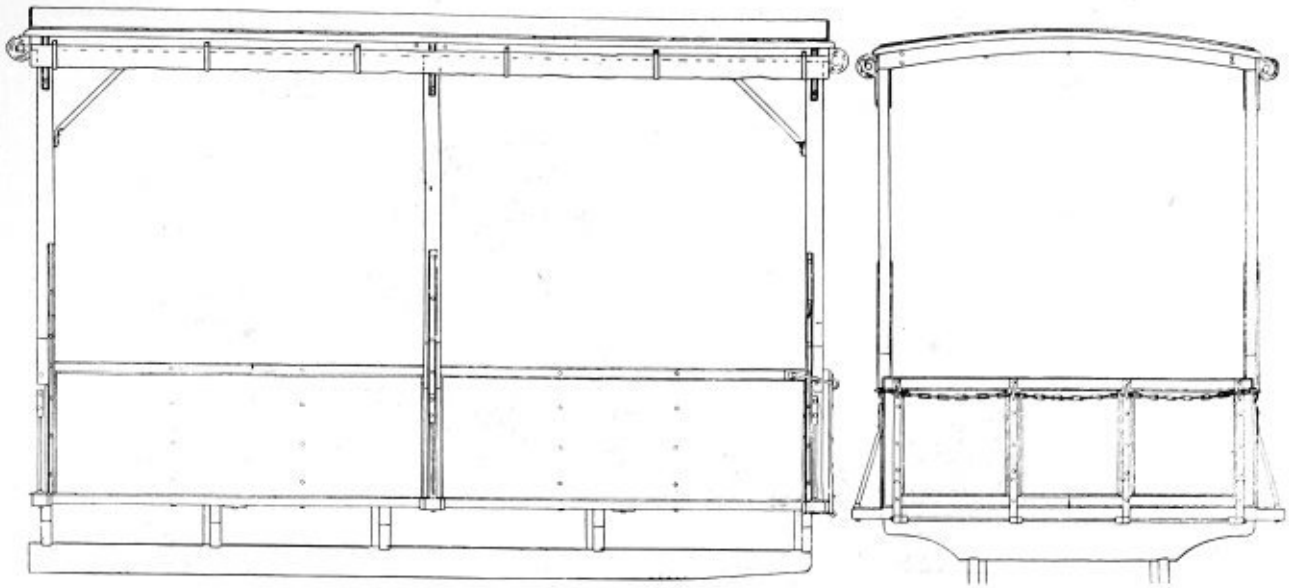


FIG. 8—SAME AS FIG. 7, WITH TOP ADDED. NOTE BRACES TO STIFFEN THE HIGH TOP

A summary of this Standard body price list follows:

STAKE BODIES

For short wheelbase truck	$125.00
For long wheelbase truck	150.00

EXPRESS BODIES—SHORT WHEELBASE

Without top, screens or curtains	$100.00
With top, but no screens or curtains	160.00
With top and curtains, no screens	175.00
With top and screens, no curtains	185.00
With top, screens and curtains	200.00

LONG WHEELBASE

Without top, screens or curtains	$125.00
With top, no screens or curtains	200.00
With top and curtains, no screens	$225.00
With top and screens, no curtains	235.00
With top, screens and curtains	250.00

FURNITURE BODIES—ON LONG WHEELBASE CHASSIS ONLY

Open body	$165.00
Top body	245.00

PIANO BODIES—ON LONG WHEELBASE CHASSIS ONLY

Top body	$265.00

All the above prices include painting, but lettering is charged for extra according to style and quantity. All bodies are f.o.b. Cleveland and are shipped at owner's risk after delivery in good condition to the transportation company.

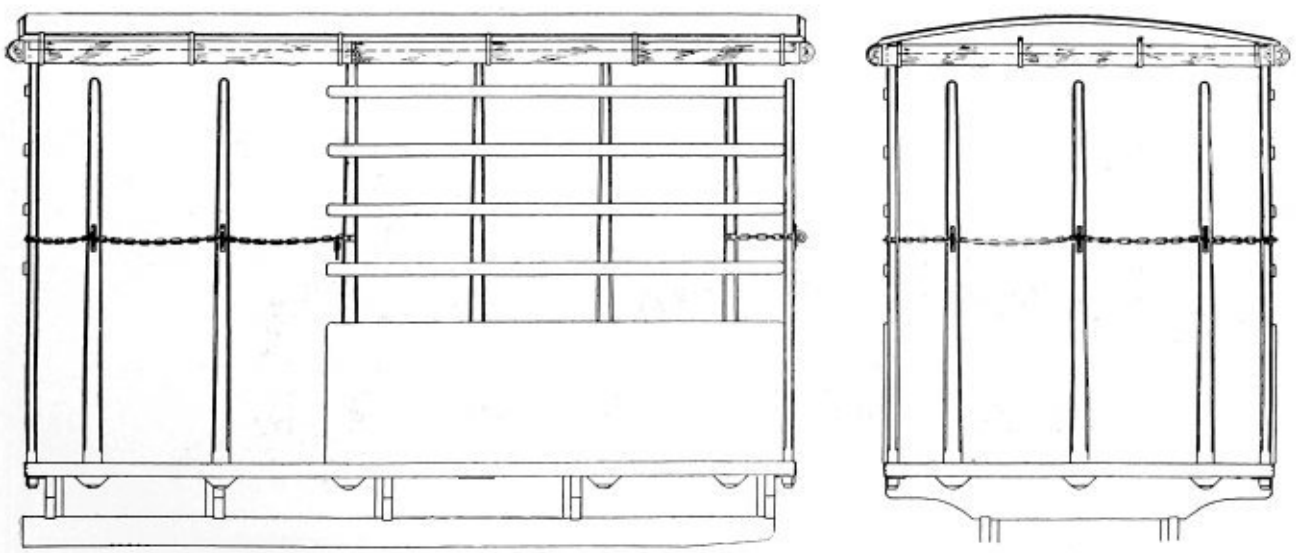
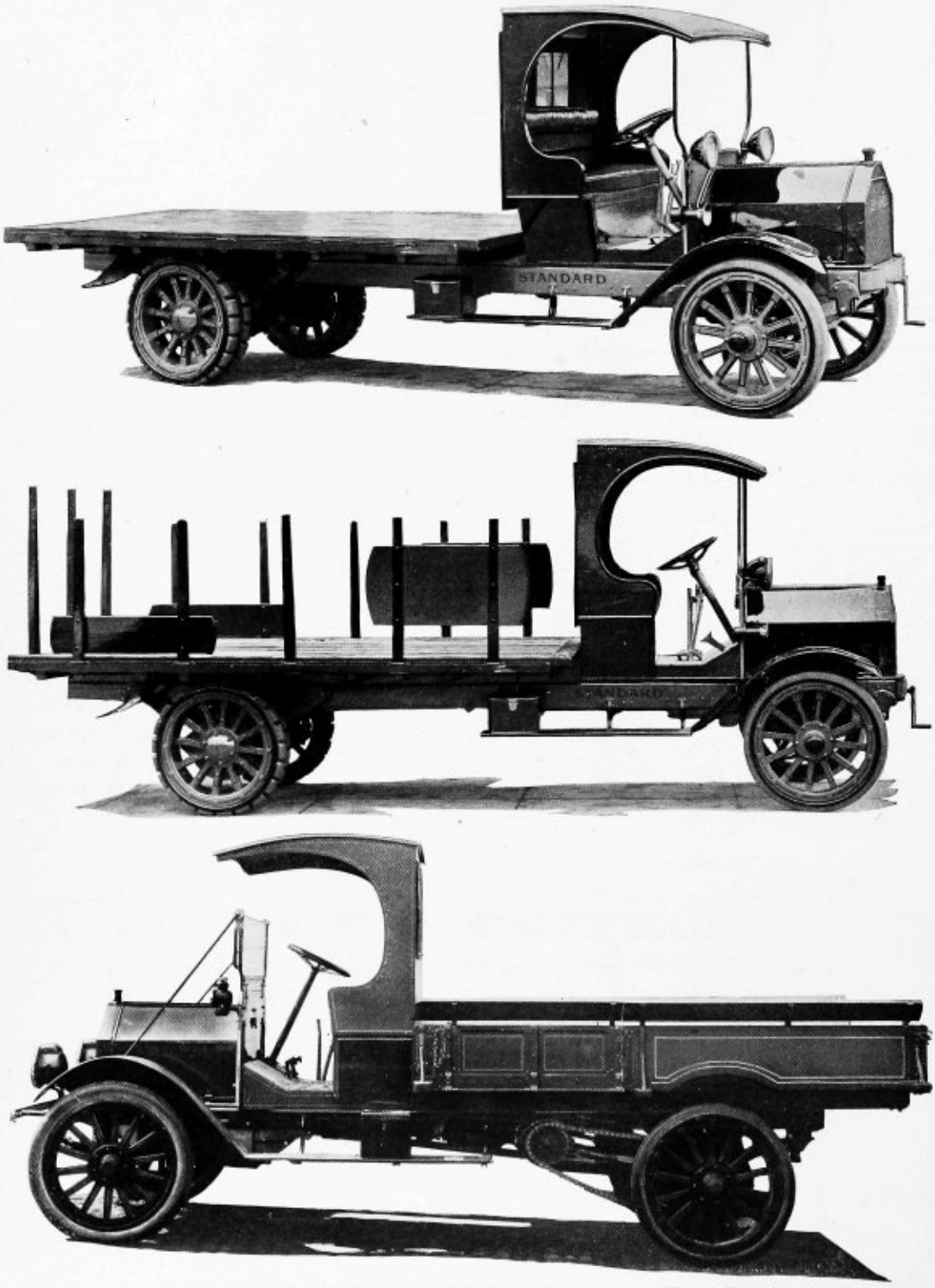


FIG. 9—STANDARD PIANO BODY MOUNTED ON LONG WHEELBASE CHASSIS—CAN ACCOMMODATE THREE UPRIGHTS

Typical Finished Standard of Ohio Bodies



UPPER—PLAIN PLATFORM BODY. CENTER—STAKE BODY. LOWER—EXPRESS BODY

A Few of the Satisfied Users of Standard Trucks

These Vehicles Are Applicable to Any Line of Business, For We Can Design and Build Bodies Suitable For Any Purpose

GLOBE MACHINE & STAMPING CO., Cleveland, Metal Stampings, Tool Boxes, Etc.
PAVELKA BROS., Cleveland ..... Sausage Makers
E. C. BOORNE, Warren, O. ..... Roofing
DOUBLE EAGLE BOTTLING CO., Cleveland ..... Soft Drinks
M. GREENBAUM, Cleveland ..... Buttonholes
W. F. PHOUTS, Painesville ..... Express
A. BROMBERGER & CO., Cleveland ..... Stoves and Ranges
WM. KIRTZ, Cleveland ..... Tobacco
NASS & WENHAM, Wickliffe, O ..... Express
CLEVELAND WINDOW GLASS & DOOR CO ..... (2) Glass Doors and Windows
BROUGH CO., Cleveland ..... Soft Drinks
WM. DUNBAR & CO., Cleveland ..... Contractors
WINDERMERE PLUMBING CO., Cleveland ..... Plumbing
WEBER-PELZ TRANSFER CO. ..... Express
PEOPLES TRANSFER CO. ..... (4) Moving
MAYER-MARKS CO., Cleveland ..... Furniture
BROWN BROS., Cleveland ..... Furniture
LEDERER FURNITURE CO., Cleveland ..... (2) Furniture
PRINTZ-BIEDERMAN CO., Cleveland ..... Suits and Cloaks
DENNE LAPHAM, Painesville, O. ..... Farmer
D. S. BARRETT, Painesville, O. ..... Farmer
O. F. HAGEMAN, Lorain, O ..... Grocer, Wholesale
D. F. JONES, Cleveland, O. ..... Contract Trucking
STANDARD STEEL CASTINGS CO., Cleveland ..... Steel Contractors
REED BROS., Cleveland ..... Wholesale Millinery
STARR PIANO CO., Cleveland ..... Pianos
WARREN & NILES TELE. CO. ..... Warren, O.
O. F. KNUTSEN, Cleveland ..... Contract Trucking
A. J. KEYSER, Cleveland ..... Contract Teamster
G. W. FLINTA, Cleveland ..... Contract Trucking
RUHLING & SON, Painesville, O. ..... Truck Farmer
CLEVELAND MACARONI CO. ..... Cleveland
LUBRIC OIL CO. ..... Cleveland
BLUE RIBBON DISTRIBUTING CO., Cleveland ..... Brewery
M. E. BOEHLKE, Cleveland ..... Express
POPLOWSKY PLUMBING CO ..... Cleveland
W. W. TOOT, Cleveland ..... Moving
NATIONAL BEDDING CO., Cleveland ..... Mattresses
BAILEY CO., Cleveland ..... (2) Department Store
PAINESVILLE COAL, FEED & SUPPLY CO. ..... Painesville
W. H. FAY, Cleveland ..... Moving
JOHN BECKER, Cleveland ..... Moving
CLIFTON PARK LUMBER CO., Cleveland ..... Lumber
AUGUST KAMMERER, Cleveland ..... Moving and Hauling
C. A. SHELDON & SON, Ashtabula, O. ..... Commission Merchant, Fruits and Vegetables
WISE FURNACE CO. ..... Akron, O.
CLAY CITY MINERAL WATER CO. ..... Zanesville, O.
ELECTRA PINE WATER CO. ..... Cleveland, O.
CITY OF ELYRIA, OHIO ..... Municipal Work
GALION GRAVE VAULT CO., Galion, O. ..... Steel Vaults
ANDREWS CARTAGE CO., Cleveland, O. ..... Cartage
MORGAN & WILLIAMS ..... Warren, O.
PAINESVILLE MINERAL SPRINGS CO. ..... Painesville, O.

Standard Insurance

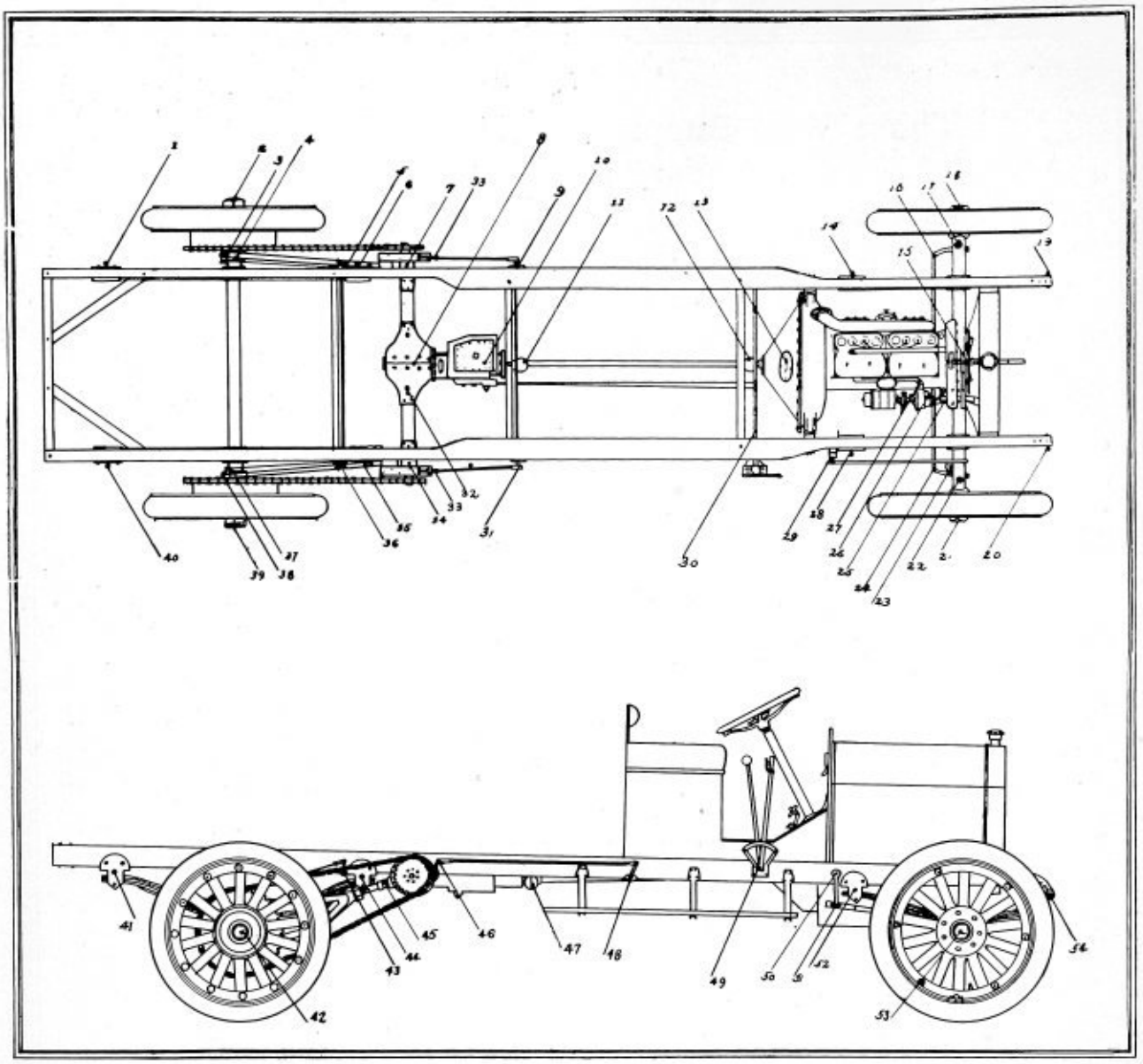
Buyers of the Standard Motor Truck Company's product have, in addition to their liberal guarantee, which appears on page 96, the guarantee of each and every one of the Manufacturers of the component parts, the names of which manufacturers appear on the opposite page.

The commercial responsibility of these makers represents unlimited capital.

It is impossible to accurately estimate the tremendous value of this form of insurance. However, the fact remains that the world's largest motor truck users have recognized and purchased this insurance as evidence that its real value shows on their transportation cost sheets.

Those Who Supply Material and Parts for Standard Motor Trucks

HAZARD MOTOR CO	Rochester, N. Y.
EMPIRE AXLE CO	Dunkirk, N. Y.
THE KINSLER-BENNETT CO	Hartford, Conn.
THE BALDWIN CHAIN CO	Worcester, Mass.
DITWILER GEAR CO	Galion, Ohio
THE HYDRAULIC PRESSED STEEL CO	Cleveland, Ohio
THE PERFECTION SPRING CO	Cleveland, Ohio
THE STANDARD STEEL CASTINGS CO	Cleveland, Ohio
THE LUBRIC OIL CO	Cleveland, Ohio
THE CLEVELAND WORM & GEAR CO	Cleveland, Ohio
THE RUSSEL MOTOR AXLE CO	North Detroit, Mich.
THE COVERT MOTOR VEHICLE CO	Lockport, N. Y.
THE BIMEL SPOKE & WHEEL CO	Portland, Ind.
THE BROWN-LIPE CO	Syracuse, N. Y.
THE LIGGETT SPRING & AXLE CO	Monongahela, Pa.
THE AIR FRICTION CARBURETOR CO	Dayton, Ohio
THE LONG MFG. CO	Detroit, Mich.
THE TIMKEN AXLE CO	Detroit, Mich.
THE EISEMANN MAGNETO CO	Brooklyn, N. Y.
THE RIVERSIDE CARRIAGE CO	Warren, Ohio
THE GLOBE MACHINE & STAMPING CO	Cleveland, Ohio
THE RHINELAND MACHINE WORKS CO	New York City
THE HYATT ROLLER BEARING CO	Detroit, Mich.
PACKARD ELECTRIC CO	Warren, Ohio
THE LAVIGNE GEAR CO	Racine, Wis.
DANN OIL CUSHION INSERT CO	Chicago, Ill.
KEMCO ELECTRIC GEAR CO	Cleveland, Ohio
BOWER ROLLER BEARING CO	Detroit, Mich.
TROY WAGON WORKS CO	Troy, Ohio
H. W. JOHNS-MANVILLE CO	New York City
B. & B. MFG. CO	Cleveland, Ohio
LOU ZINKE	Chicago, Ill.
THE UNIVERSAL MACHINE CO	Bowling Green, Ohio
THE ELITE MFG. CO	Ashland, Ohio
THE WARNER ELECTRIC CO	Muncie, Ind.
THE GITTS BROS. MFG. CO	Chicago, Ill.
THE WINKLEY CO	Detroit, Mich.
THE CLEVELAND TOOL & SUPPLY CO	Cleveland, Ohio
THE EBERHARD MFG. CO	Cleveland, Ohio
THE CLEVELAND HARDWARE CO	Cleveland, Ohio
THE DUNKIRK MOTOR MFG. WORKS CO	Dunkirk, N. Y.
THE BEAN CO	Berea, Ohio
THE TRUMBULL MFG. CO	Warren, Ohio
THE LUNKENHEIMER CO	Cincinnati, Ohio
THE MICHIGAN ELEC. WELD CO	Detroit, Mich.
THE SERVICE RECORDER CO	Cleveland, Ohio
THE HOFFECKER CO	New York City
THE BUNN HUTCHINSON CO	Cleveland, Ohio
BROWNING BROS	Warren, Ohio



Key to Oiling Chart for STANDARD OF OHIO Chain-Drive Trucks

Turn down daily, and fill with Lubric Cup Grease weekly

No. 1 Rear spring bolt
No. 3 Brake rocker bearing
No. 4 Radius rod rear end
No. 5 Spring bolt
No. 14 Spring bolt
No. 19 Spring bolt
No. 20 Spring bolt
No. 26 Pump shaft grease cups
No. 28 Spring bolt
No. 37 Radius rod rear end
No. 38 Brake rocker bearing
No. 40 Rear spring bolt
No. 44 Rear spring bolt
No. 50 Pitman arm bearing

Daily Lubric Oil Co. special Standard Motor Oil

No. 6 Radius rod front end
No. 7 Jackshaft end bearing
No. 9 Brake rod hanger
No. 16 Steering arm cross rod yoke
No. 17 Spindle bolt
No. 22 Spindle bolt
No. 24 Steering arm cross rod yoke
No. 30 Gear shift tubes
No. 31 Brake rod hanger
No. 33 Brake rod ends
No. 34 Jackshaft end bearing
No. 35 Radius rod front end
No. 36 Brake rod hanger
No. 49 Gear shift lever bearing
No. 47 Gear shift selecter case

FILL OIL RESERVOIR VASE AS PER GAUGE
Weekly

No. 15 Fan
Starting crank bearing, front motor support, hand lever shaft bearing and rod ends, pedal bearings

Every 1000 Miles

No. 13 Remove cover, wash out clutch and drain dirty oil. Replace with 1 qt. of Lubric Standard Motor oil
No. 23 Drag link front end. Repack with grease
No. 51 Drag link rear end. Repack with grease
No. 27 Magneto, 2 drops of engine oil in each oil hole
No. 25 Timing gear case. Remove plug and pour in 1 qt. motor oil
No. 29 Steering gear. Remove plug and put in grease gun full of grease

Every 2000 Miles

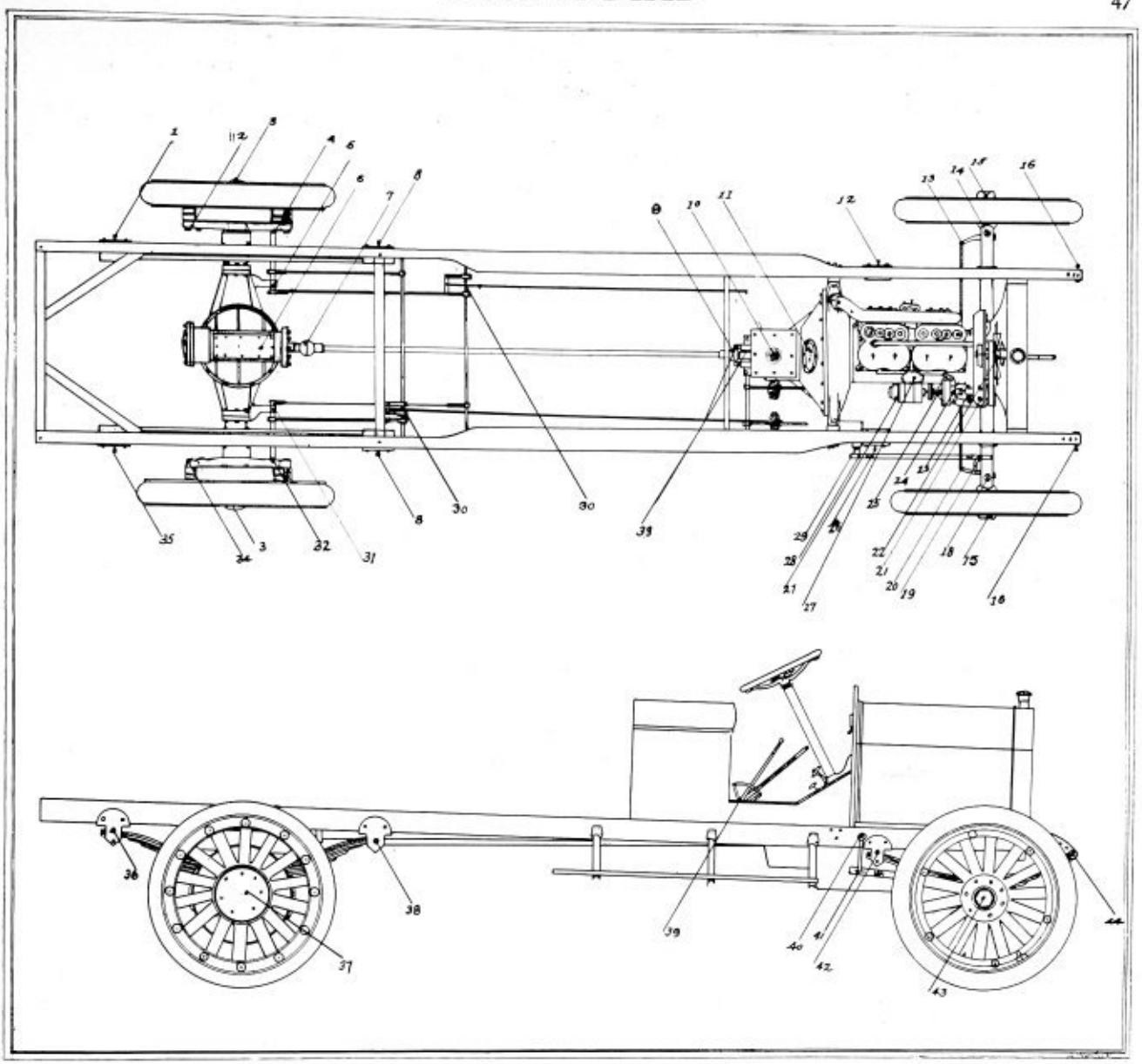
No. 8, 32, 10, 11, 12. Remove plates, plugs or covers, from gear case, differential and universal joints. Clean thoroughly and drain. Replace with Lubric grease. Pack differential and universal joints full. Pack gear case about half full and pour in 1 qt. of Lubric No. 600 oil

Every 6 Months

No. 2, 18, 21, 39 Wheel bearings. Remove wheel, clean bearings thoroughly, pack with Lubric heavy cup grease

Every Year

Have clutch removed and thrust bearings packed in grease



Key to Oiling Chart for STANDARD OF OHIO Worm-Drive Trucks

Turn down daily and fill weekly with Lubric Cup Grease

No. 1 Spring bolt
No. 2 Brake rocker shafts
No. 4 Brake rod bearings
No. 5 Brake rod bearings
No. 8 Spring bolt
No. 12 Spring bolt
No. 16 Spring bolt
No. 23 Pump shaft cups
No. 24 Pump shaft cups
No. 25 Pump shaft cups
No. 26 Spring bolt
No. 29 Pitman arm bearing
No. 30 Equalizer bearings
No. 31 Brake lever arms
No. 32 Brake lever arms
No. 34 Brake lever arms
No. 35 Spring bolt

Oil daily with Lubric Motor Oil

Brake rod lever ends and cross rod ends
No. 13 Steering arm cross rod yoke
No. 14 Spindle bolt
No. 18 Spindle bolt
No. 20 Steering arm cross rod yoke
No. 17 Fill reservoir in vase to level called for in oil gauge

Weekly

Oil starting crank bearing, front motor bearing, hand lever shaft bearing, brake rod clevis pins, pedal bearing, quadrant lever, and quadrant shaft.

Every 1000 miles

No. 6 Remove plate and pour in Lubric 600 oil, until same reaches top of level plug in rear of housing

Nos. 7 and 9. Universal joints. Remove plugs and grease thoroughly

No. 10 Remove cover and fill half full of Lubric transmission grease

No. 11 Clutch. Remove drain plug, wash out thoroughly and pour in 1 qt. of Lubric motor oil

No. 27 Magneto. Two drops of motor oil in each oil hole

No. 33 Gear case shifter arms

No. 40 Steering gear. Remove plug and repack with grease

Every 2000 miles

No. 19 Front end drag link. Repack with grease

No. 21 Timing gear case. Remove plug and pour in 1½ qt. Lubric oil

No. 28 Rear end drag link. Repack with grease

Every 6 months

Remove caps and pack thoroughly with Lubric cup grease

Motor Trucks do most of their work OFF-THE-BOULEVARDS

where the children at play in the streets are not on the everlasting lookout for automobiles. The sickly squawk of a cheap bulb horn WON'T DO. You have GOT to let them know that you are coming. Your signal must do what it's put there to do. Otherwise comes sacrifice of life, arrest of driver, damage suits and loss of time. It's a business proposition to INSURE AGAINST TROUBLE.

THE WARNER WARNING

Is Different From All Others

Warner "Echo No. 1" Electric Horn for Motor Trucks

It is Standard "Look-Out" Equipment on All Standard (of Ohio) Motor Trucks

There are a Lot of Reasons Why

One of them, "No Trumpet to Vibrate"
Another one, "It Goes Under the Hood"
Also, "It's a Classy Proposition"
Likewise, "Built to Last Forever,"
but greatest of all
"IT DOES WHAT IT OUGHT TO DO"
and that is what you want on a motor truck sure, these days.

The entire Warner line consists of 8 different models
Correspondence with the Trade is solicited

WARNER ELECTRIC CO.
MUNCIE, INDIANA

Standard Don'ts

Meaty Admonitions for Users and Prospective Users of Motor Trucks

Don't use a five-ton truck for pick-up work, nor a 1500-pound truck to meet the requirements of a three-ton truck. Delivery at minimum cost is governed primarily by the construction of truck and its adaptability to the service required by it.

Don't fail to study your truck in relation to its load. Truck demonstrators may overload to bring out excess power and strength built into truck, but for the purchaser to continue this policy would mean sacrifice of durability of both truck and tires.

Don't load your truck according to bulk—you should know the weight of what you are loading and stop when the truck's rated capacity is reached. Make two trips if necessary rather than pile it all on one load.

Don't fail to consider the type of merchandise and the design of the body. Where the overhang is great, such as when lumber is hauled, the proportion of the load carried on the rear axle is increased. Allow for this in tire equipment.

Don't fail to remember that in all cases the truck should be loaded as far forward as possible.

Don't buy truck tires until you study your road conditions; differentiate between country and city driving, between street conditions in different cities, and between suitable equipment for rear wheels as against the front. Don't neglect to keep the clutch in good working order, and thus avoid quick starting strains on the rear tires.

Don't apply brakes suddenly, also keep brakes in uniform adjustment so that both wheels will share equally in breaking the motion of the truck. Considerable damage from skidding the tire and straining the fastening device and the rims is thus avoided.

Don't pass a week without going over all the nuts and bolts on your truck, including rims, to see that they are tight.

Don't fail to give the wheels frequent attention. Worn bearings and other irregularities permit wheels to wobble. Also take measurements for alignments. Do these things and avoid the quick wearing down of the tires.

Don't overlook the steering wheel. Be on watch for bent steering knuckles, connecting rods or too much play in steering wheel. These cause quick wearing down of tires.

Don't drive in car tracks or you will weaken and break down your tires. Don't use any other but a removable rim, which will permit the frequent interchange and reversing of tires so that all four tires will wear down evenly.

Don't forget that rubber has a limit to its strength and when taxed beyond that point, damage to both tires and truck is to be expected. Also remember that it is the exceptions that cause the trouble.

JEWELL

Steel and Semi-Steel

CASTINGS

Used by 70% of all American Truck Makers

CASTINGS that run uniform in quality and strength on large and small orders.

CASTINGS that will never break because of their malleability.

CASTINGS that can be easily machined.

Tensile Strength in Excess of 60,000 Lbs. Per Square Inch

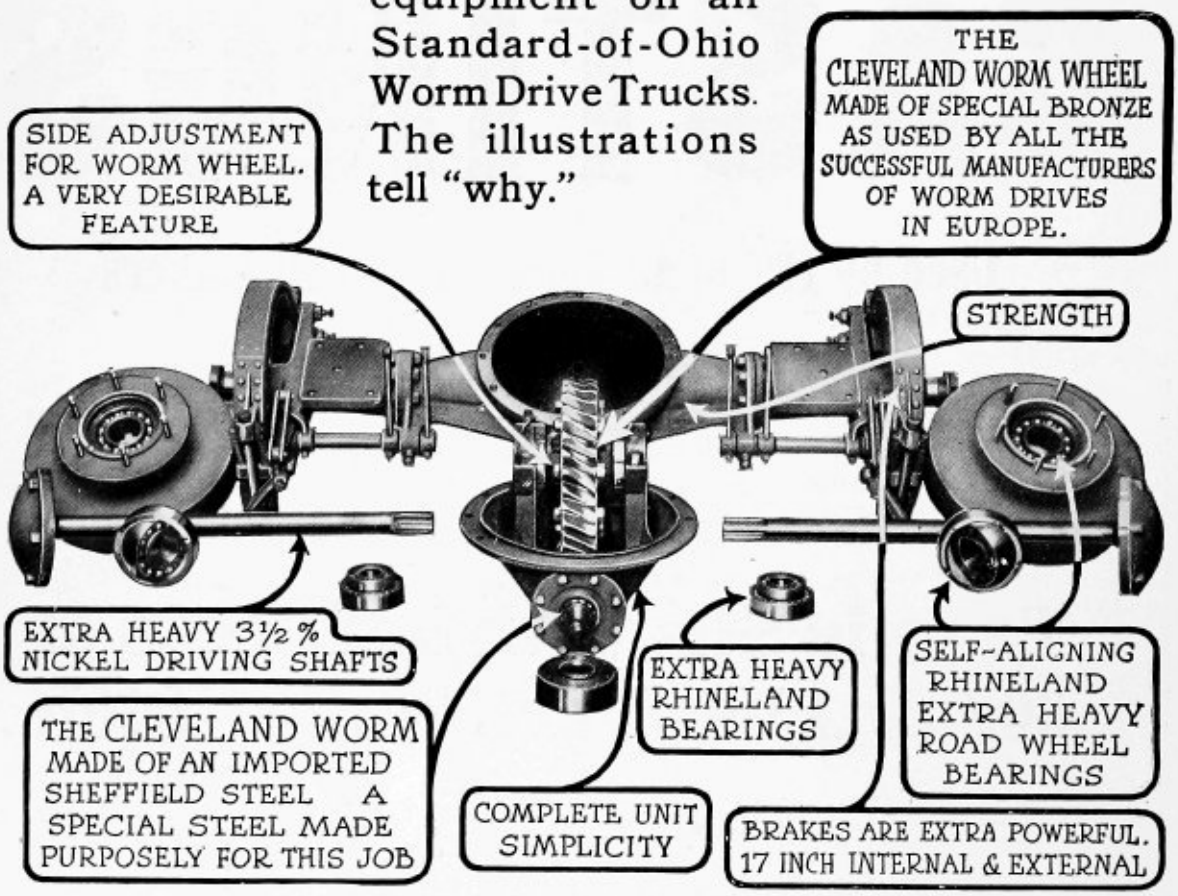
DELIVERIES ARE INVARIABLY PROMPT.
PRICES ARE ALWAYS RIGHT.
CORRESPONDENCE WITH THE TRADE SOLICITED.

Jewell Steel & Malleable Co.

Hertel Ave. and Military Road, Buffalo, N. Y.

STANDARD OF OHIO

Empire Worm Drive Axles are regular equipment on all Standard-of-Ohio Worm Drive Trucks. The illustrations tell "why."



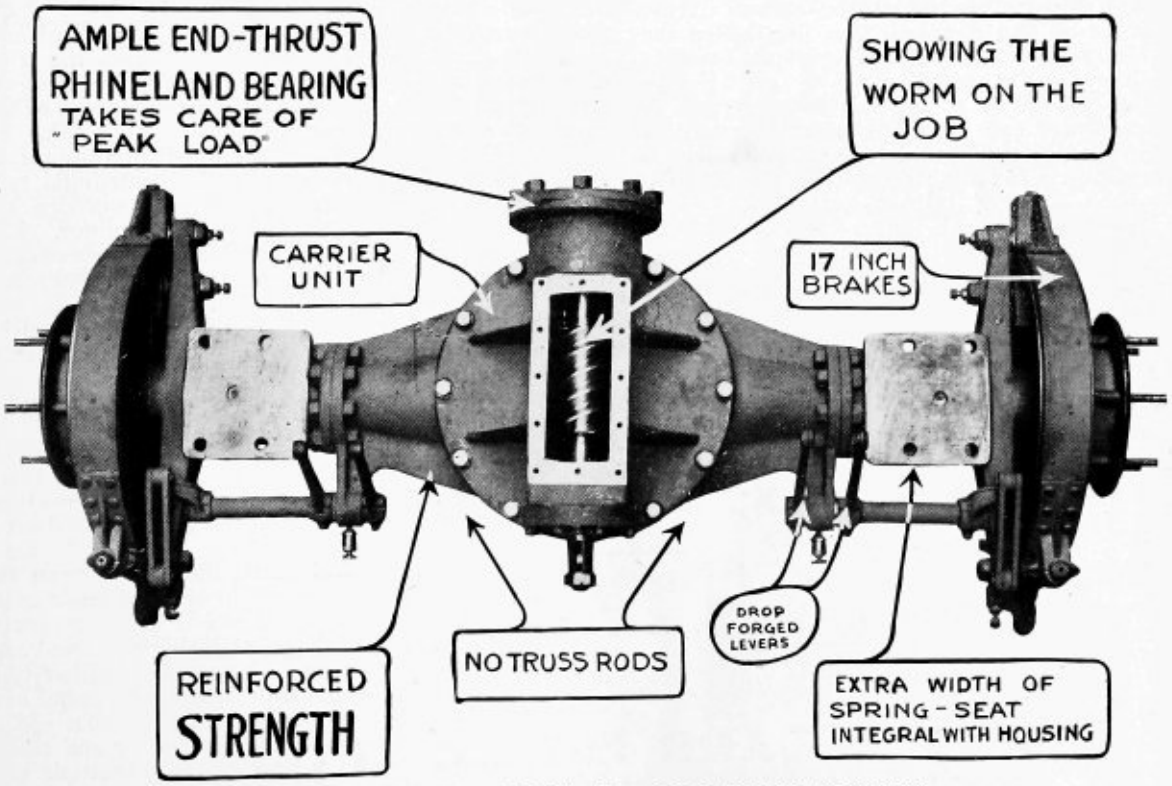
THE STANDARD MOTOR TRUCK CO.

Sales Offices: 1824 EUCLID AVE., CLEVELAND Factory: WARREN, OHIO

EMPIRE

WORM DRIVE AXLES

The Empire Axle Company has taken over the axle business of the Chautauqua Motor Company of Dunkirk, New York.



EMPIRE AXLE COMPANY

DUNKIRK, NEW YORK

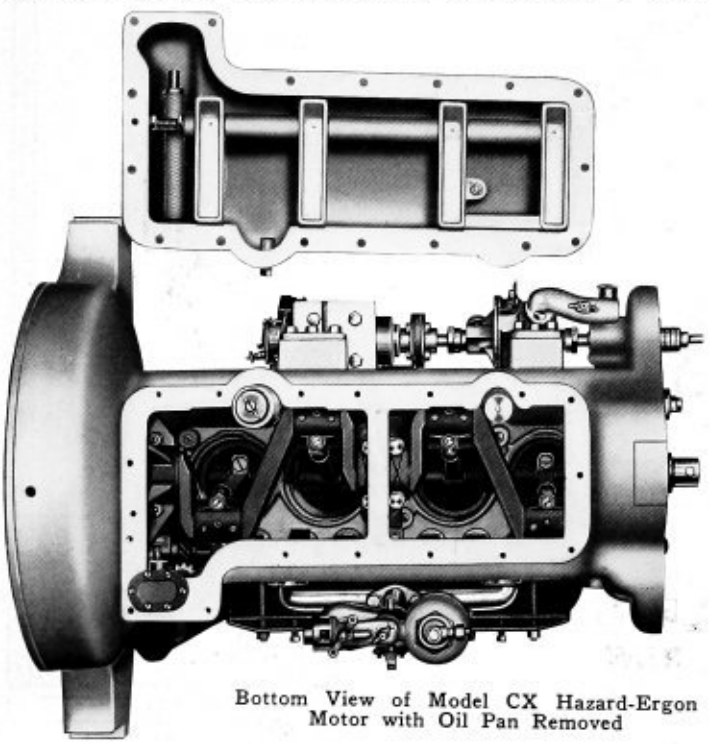
Motive Power of Standard of Ohio Trucks

IT is extremely appropriate that Standard of Ohio Motor Trucks should be equipped with Hazard-Ergon motors, made by the Hazard Motor Mfg. Co., of Rochester, N. Y.—"ergon" being a Greek word meaning "work." The makers of the Standard adopted the Hazard-Ergon motor only after a series of exhaustive tests extending over many months, and the results of which were most convincing. Hazard-Ergon motors do the work assigned to them, and do it easily and well.

These motors are made in three sizes, but two of which are used in Standard of Ohio trucks—Model CX, 4-inch bore by 4½-inch stroke, rated at 25-30 horsepower, and Model D, 4⅜-inch bore by 6-inch stroke, rated at 35-45 horsepower. One of the notable features of these motors is their extreme simplicity of construction. All moving parts are encased and only auxiliary equipment, such as fan, magneto and carbureter, are on the outside of the motor.

Accessibility—a most valuable feature in commercial work—is particularly noticeable in the Hazard-Ergon motor. The oil pan can be completely removed without the necessity of breaking any connection except that the oil strainer must first be disconnected. This leaves the crankshaft and connecting rod bearings easily accessible. All main bearings can be easily adjusted. The front cover plate and starting crank support, which is one complete casting, may be removed without disturbing the remainder of the power plant, and the transmission and clutch may also be taken out of the car without removing the motor. One of the accompanying illustrations shows the bottom of the motor with the oil pan removed, thus illustrating the ease with which the crankshaft and crankpin bearings may be inspected and adjusted.

The oiling system is of the full splash type. A scoop on the lower end of each connecting rod dips into the corresponding trough in the oil pan on each downward stroke. The timing drive is oiled from a pocket, and an oil level indicator is located beside the rear cylinder on top of the crankcase, and in such a position as to be easily seen with the hood lifted.



Bottom View of Model CX Hazard-Ergon Motor with Oil Pan Removed

Four helical cut gears are used in Models C and CX for driving the camshaft and the motor countershaft, the latter being driven from the crankshaft gear through an idler gear, while the camshaft is driven direct from the crankshaft gear. In the Model D the timing drive is by means of silent Renold chains and sprockets driven from the crankshaft in a triangular drive by means of a 1¾-inch face chain over a double idler sprocket, which in turn drives the motor countershaft by a 1 3/16-inch face chain. The double idler sprocket can be adjusted to take care of any stretch that may develop in either or both chains.

The cylinders are of the L-head type, cast in pairs and with interchangeable pistons. Valves are made with cast iron head electrically welded to carbon steel stem. The intake manifold is made of aluminum and the exhaust manifold of cast iron. The flywheel is carefully balanced before and after assembly on crankshaft.

The Eisemann magneto is attached to a bracket bolted to a boss on the right side of the crankcase. The instrument is driven from the pump shaft, to which it is attached by a flexible coupling. The magneto and water pump may be easily removed without disturbing the motor countershaft.

The rear of the motor is supported by means of extra heavy arms cast integral with the crankcase on either side of the flywheel housing. In Model D the front support is from a trunnion at the forward end. In Model C the front support may be from the trunnion on the front cover plate through which passes the starting crankshaft, or on a boss on the bottom of the front end of the crankcase in front of the oil pan.

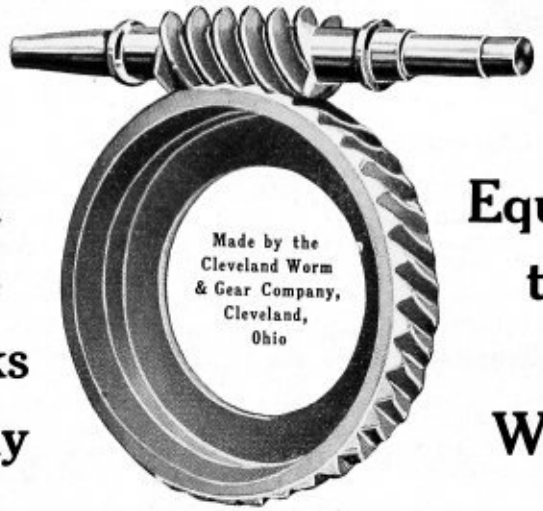
A special feature of the Hazard-Ergon motor as applied to the Standard truck is the centrifugal type of throttling governor. These governors are specially adapted to each type of motor. The governor throttle is contained in a connection which is mounted between the carbureter and the intake manifold. A butterfly valve is contained in this connection, which is operated by means of a rack and pinion, the latter being attached to the throttle disk. In Models C and CX the governor weights and spring are mounted on the camshaft front gear, the motion from the governor to the butterfly valve being transmitted by means of a swinging yoke which is connected to the rack by a stiff steel rod. In Model D the governor weights and spring are mounted on a vertical shaft driven from the center of the camshaft through spiral gears, the motion from the governor being conveyed in same manner as in the other models. In Model D the governor is located in a special pocket inside the crankcase below the carbureter. The action of either type is positive, and should adjustments be found necessary, provisions have been made to that end.

Models C and CX have the motor and clutch with separate clutch housing, with multiple disk clutch tightly encased and a driving shaft extension, permitting attachment to separate transmission wherever located. The multiple disk clutch runs in oil, and is made up of sixteen crucible steel disks, hardened, tempered and

(Continued on page 54)

STANDARD OF OHIO

All Standard Worm-Drive Motor Trucks are Regularly



Equipped with the Famous Cleveland Worm Gears

BECAUSE

¶ The "Handwriting On The Wall" reads as plain as Daylight—and it says "Worm Drive is the Ultimate Power Transmission for Motor Trucks."

¶ We read it exactly as it is written and carefully analyzed its fullest meaning.

¶ Then we set out to find the **Dominant Best** in Worm Gears.

¶ We searched the World for what we finally found right here in Cleveland—the product of the Cleveland Worm & Gear Co.

¶ We found that while the theory of Worm Gears is extremely simple—the making of them is a difficult art, such as demands long experience and **specially designed machinery.**

¶ In **some** plants we found the machinery without the experience and in others we found the brains without facilities.

¶ But at the Cleveland Worm & Gear Co. we found not only **both** but **the best of each.**

¶ There we found **men** whose practical experience with worm drives dates back to their initial introduction in Europe many years ago.

¶ Men who have kept step with the progress since the very inception of the thought.

¶ We found these **master minds** surrounded by engineers of the same type and efficiency.

¶ We found men capable of giving us expert advice on our mountings and general assembly, with facilities for production unequalled in any other plant in the world—with **the only machines** in America that **will** cut worm gears **theoretically and mechanically correct.**

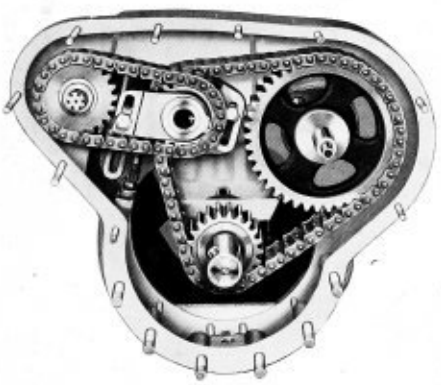
¶ So we decided to **not** experiment with experimenters but to tie up to what **we knew to be absolutely free from speculation,** as a result of which we invite world-wide consideration of our Standard Worm Drive Models which are shown and described on the neighboring pages. These worm gears are made by

The Cleveland Worm & Gear Co.

Cleveland, Ohio

Motive Power of Standard (of Ohio) Trucks

(*Continued from page 52*)



Hazard-Ergon Model D Timing Drive

ground. The forward thrust of the clutch spring is taken by a large thrust bearing which also acts as a radial bearing, thus making a ball bearing support for each end of the clutch.

Appended will be found the principal dimensions of the two models used in Standard of Ohio Motor Trucks:

Model CX—Rating 25-30 Horse-power

Bore	4"
Stroke	4½"
Camshaft Diameter	⅞"
Flywheel Diameter	16"
Flywheel Weight	65 lbs.
Water Outlet Manifold	1¼" O. D.
Water Inlet Manifold	1¼" O. D.
Valve diameter in the clear	1⅝"
Valve seat angle	45°
Valve lift	9/32"
Piston Pin Bearing	1" dia.—2¼" long
Crank Pin Bearing	1½" dia.—2¼" long
Camshaft Bearings:	
Front (Hard Phosphor Bronze)	1⅞" dia. (inside) 1¼" long
Middle (Die Cast Babbitt)	1⅞" dia. (inside) 1¼" long
Rear (Die Cast Babbitt)	13/16" dia. (inside) 1⅜" long
Crankshaft Bearings (Die Cast Babbitt):	
Front	1½" dia. (inside) 2¾" long
Middle	1½" dia. (inside) 2½" long
Rear	1⅝" dia. (inside) 3½" long
Exhaust Manifold (Inside Diameter)	2" outlet
Weight of Unit Power Plant Complete	500 lbs.
Weight of Unit Power Plant Motor only	380 lbs.
Weight of Sub-Frame Motor and Flywheel	400 lbs.

Model D—Rating 35-45 Horse-power

Bore	4⅛"
Stroke	6"
Camshaft Diameter	1¼"
Flywheel Diameter	17⅜"
Flywheel Weight	105 lbs.
Water Outlet Manifold	1½" O. D.
Water Inlet Manifold	1¼" O. D.
Valve diameter in the clear	2⅛"
Valve seat angle	45°
Valve lift	13/32" Ex. 11/32"
Piston Pin Bearing	1⅞" Dia.—2 7/16" long
Crank Pin Bearing	1¾" Dia.—2½" long
Camshaft Bearings (Die Cast Babbitt):	
Front	2 5/16" Dia.—2½" long
Middle	2 5/16" Dia.—1⅜" long
Rear	1¼" Dia.—2¾" long
Crankshaft Bearings (Die Cast Babbitt).	
Front	2" Dia.—3" long
Center	2" Dia.—3" long
Rear	2⅛" Dia.—4" long
Exhaust Manifold (Inside Diameter)	2⅛" Dia.
Weight of Unit Power Plant	825 lbs.
Weight of Motor and Flywheel only	650 lbs.

What the "Prospect" Should Do Before Buying a Motor Truck.

ANY prospective installer of motor truck equipment will find his problem greatly simplified if he will first answer for himself a few fundamental questions.

First: What is the nature of the routes to be covered in the service? Is it all a town service or all a country service or does it partake of both characters?

Second: What is the general character of the streets and roads? Are they comparatively level or are steep hills numerous?

Third: What are the distances which each vehicle must cover in a day's round?

Fourth: What is the character of the load to be carried? Is it light but bulky or heavy in comparison with the bulk?

Fifth: Are the packages to be carried of large size, such as heavy furniture, pianos, safes or the like, or are they small, such as groceries, jeweler's boxes, light dry goods, etc.?

Sixth: Are the goods and packages of such a nature that they must be protected from dust and rain or can they be carried in open wagons or express bodies?

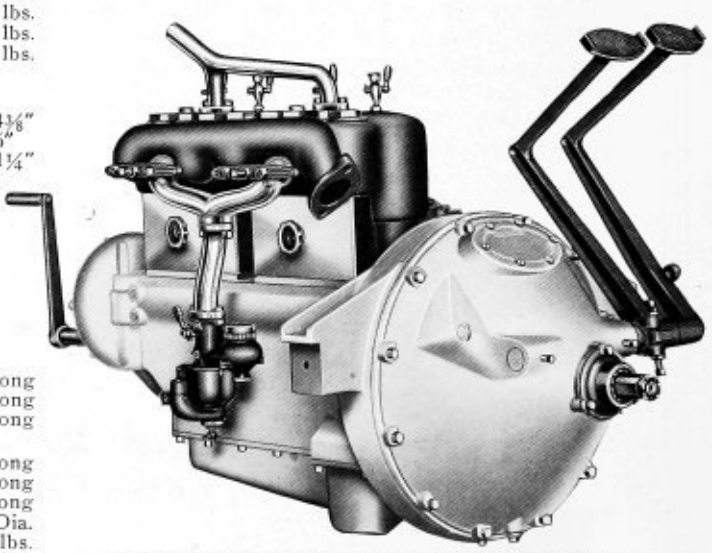
Seventh: Are they of a fragile nature calling for unusually flexible spring suspension if the load is to be moved at speed?

Eighth: What quantity of goods will usually be loaded up for each trip? Will the load be carried the full distance or only half the distance? Do the vehicles ordinarily return empty or are they partly loaded?

Ninth: What is the most convenient body construction to admit of easy loading and unloading of the class of goods to be handled?

Tenth: Would it be desirable in the case of heavy goods to enable the power of the motor to be utilized in loading or unloading?

These are some of the principal questions for consideration in determining the type and size of motor trucks which will best meet individual requirements. There are many others, but those enumerated are sufficient to indicate the salient points to be kept in mind. It is quite plain that three points: (1) Load to be carried; (2) Distance to be traveled; (3) Country to be covered, must all be carefully considered.



Hazard-Ergon Model CX Motor and Clutch Unit

FRANCE

GERMANY

UNITED STATES

The Standard Product of Three Countries

BALL BEARINGS

R. B. F. FAFNIR RHINELAND

RHINELAND MACHINE WORKS
HUDSON EXPORT & IMPORT CO. 142 W. 42nd St. N. Y.

Standard Ball Bearing Equipment on All

STANDARD

(OF OHIO)

Worm Drive Models

Complete Stock carried at Chicago, Detroit, Minneapolis, Milwaukee, San Francisco, Baltimore, Boston and New York.

Strikes, Fire, Flood or War Cannot Stop Deliveries. This Constitutes Real Insurance for Builder and User.

How Standard Truck Worm Gears Are Made

IN AN endeavor to secure quiet-running and efficient rear axle drives for automobiles, various types of gearing have been employed, bevel and worm gearing being the two types most generally used. Bevel gearing has been used with considerable success, and when properly made and aligned shows a high efficiency with comparative quietness in action. When bevel gears begin

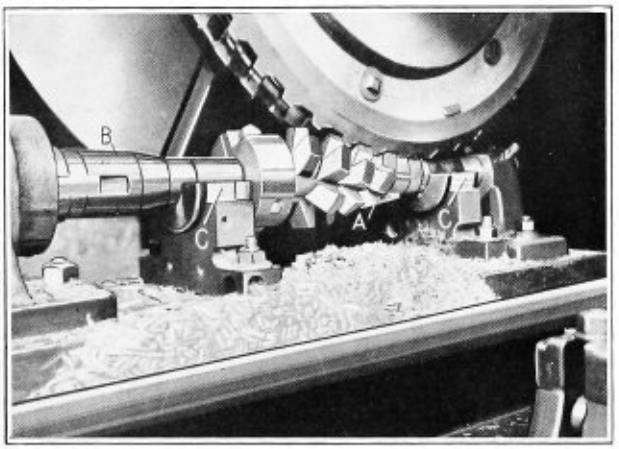


FIG 1. CUTTING A WORM-WHEEL BY MEANS OF THE TAPERED HOB METHOD

to wear, however, backlash is introduced, tending to produce "clatter" and the familiar humming sound emitted from a transmission case. Dis-alignment of the gearing reduces the efficiency and also produces noise. Within the last few years worm-gearing has been receiving considerable attention on the part of automobile manufacturers for the following reasons: it is possible to produce this type of drive, with the proper equipment, more cheaply than the best bevel gearing; it is much more quiet in action; has a longer life; and if properly made, has a higher efficiency and smoother action.

Generally speaking, there are three distinct types of worm-gearing that have been applied to rear axle drives. The first is the common type of worm drive produced by the ordinary gear hobbing machine method, which generally shows a comparatively low efficiency. The second type is globoid gearing, more commonly called Hindley or hour-glass type of worm-gearing. This shows a very high efficiency, but owing to the refinement necessary in its manufacture and alignment, has not given the satisfactory service that its design would indicate. The third type, which is used in the worm-drive models of the Standard Motor Truck Co. of Ohio, is not so well known as the other two, but, judging from various experiments and tests that have been made, gives a high efficiency and long life combined with quiet running and smooth action. It is known as the "straight worm" type of drive, this name serving to differentiate it from the Hindley type in which the worm is curved to conform with the circumference of the worm wheel, says Douglas T. Hamilton, in a recent article on "Making High-Efficiency Worm Gearing," which appeared in "Machinery," the article being based on methods employed by the Cleveland Worm & Gear Co., which supplies the worm gears for the Standard Motor Truck Co., of Warren, Ohio.

The purpose in designing globoid or Hindley worm-gearings is to enlarge the surfaces in contact so as to reduce wear, and obtain relatively small dimensions—pitch of teeth, etc. While, theoretically speaking, the conditions obtained in this type of gearing would seem almost perfect, there are, in practice, serious objections to its use where dis-alignment of the gearing occurs. On an ordinary screw the pitch angle depends on the lead and on the pitch diameter, and the angle of inclination of the threads is uniform from end to end. Such is not the case in the Hindley worm, where the diameter increases with the length, or in other words, enlarges on each side of a vertical line drawn through the axis of the worm-wheel and the center of the worm.

In practice, it is not a simple matter in all cases to get the center or hollow of the worm exactly in conformity with the center of the worm-wheel. This, however, is one of the conditions necessary in the alignment of Hindley worm-gearing if good results are to be expected. Hindley worm-gearing shows a very high efficiency when new and when set up in proper alignment, but just as soon as the least wear begins to take place, the efficiency immediately drops.

In the worm gears used in the Standard worm-drive models the difficulties in alignment common to globoid gearing are eliminated, because the center portion of the worm does not have to bear any direct relation to the

(*Continued on page 62*)

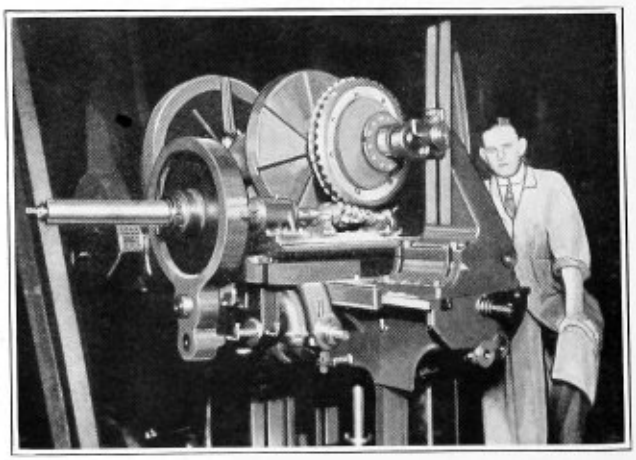


FIG. 2. MACHINE USED FOR CUTTING WORM-WHEELS USING TAPERED HOBS

"Lost Motion a Thing of the Past"

The DITWILER Steering Gear

has been adopted by the **Standard Motor Truck Co.** (of Ohio) because of its many superior merits as stated, illustrated and described on this page.

The entire steering mechanism is enclosed and works in a bath of oil. There are only two points at which it is **possible** for any perceptible wear to occur, and an easy adjustment by means of set screws enables one to take up such wear, with the result that this steering device is practically self-contained and at all times most responsive, sensitive and absolutely irreversible. It is a pleasure to the driver to know that his car will respond quickly and willingly to the slightest touch—that it will go where he wills.

Spark and throttle levers located on top the steering wheel and friction-retained.

The steering column is large and rigid, amply braced and securely fastened to footboard through which it passes.

The worm and double nut steering device is more sensitive, more easily adjusted, and less liable to wear than the worm and gear or worm and sector.

The Half Moon Yoke which works on an angle against the half-nuts, **absorbs the shocks and eliminates all lost motion.**

The strongest, simplest and most easily operated steering gear on the market. All moving parts ground to perfect fit and absolutely adjustable to take up lost motion. Write for blue prints to

Ditwiler Mfg. Company, Galion, Ohio

The Standard Motor Truck Co. (of Ohio) has adopted Liggett Axles as Standard Equipment

BECAUSE Liggett-Standard Front Axles are made of VANADIUM STEEL, HEAT TREATED, and

STANDARD OF OHIO EQUIPMENT

LIGGETT AXLES

BECAUSE the product, the plant and the people are RIGHT

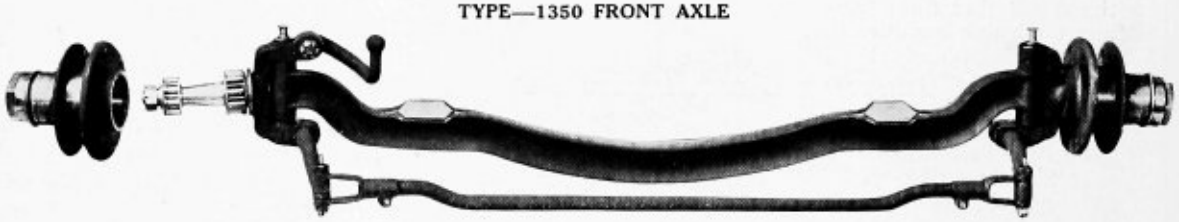
BECAUSE Liggett-Standard Rear Axles are made of SOLID FORGINGS without welds

BECAUSE

in every instance, Liggett Axles are stronger than just enough—and that is an important factor in motor trucks

Not all Liggett Axles are made of Heat Treated Vanadium Steel, therefore those which are—as in Standard Trucks—represent the best that money can buy.

TYPE—1350 FRONT AXLE

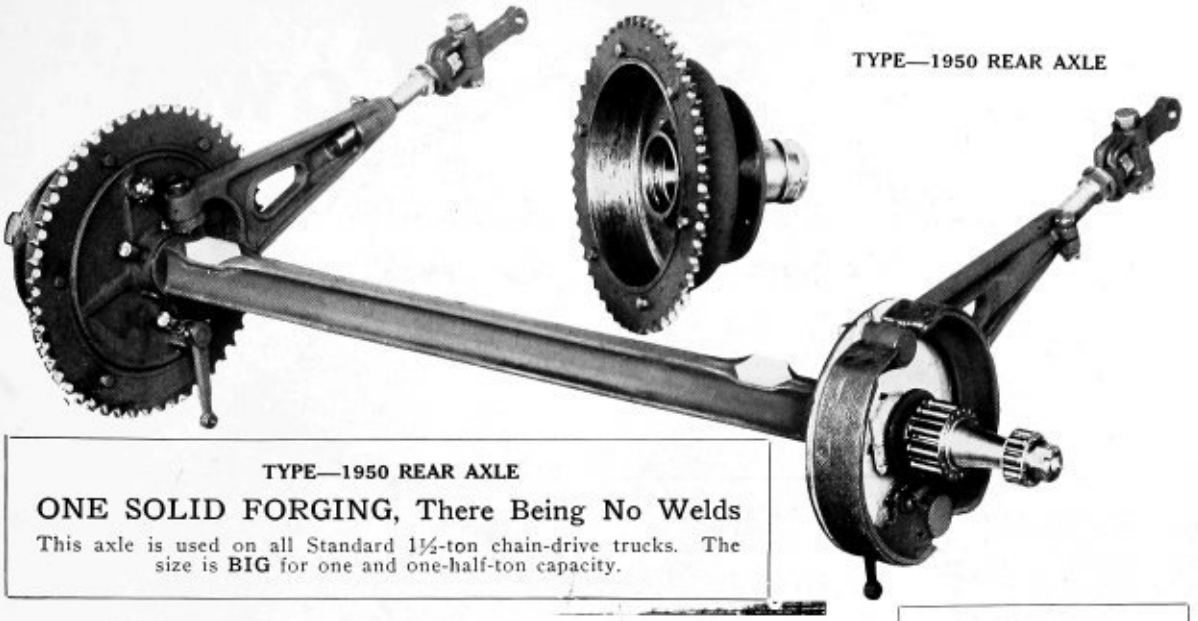


Liggett Chrome Vanadium Steel Analysis as Used in Standard Motor Truck Front Axles.

The Chrome Vanadium Steel we are using for axle purposes is intended to fall within the range of the following analysis:

Carbon	.24% to .30%
Manganese	.35% to .65%
Silicon, under	.20%
Chrome	.75% to 1.25%
Vanadium	.25% added
Phosphorus, under	.04%
Sulphur, under	.04%

LIGGETT SPRING & AXLE CO.



TYPE—1950 REAR AXLE

TYPE—1950 REAR AXLE

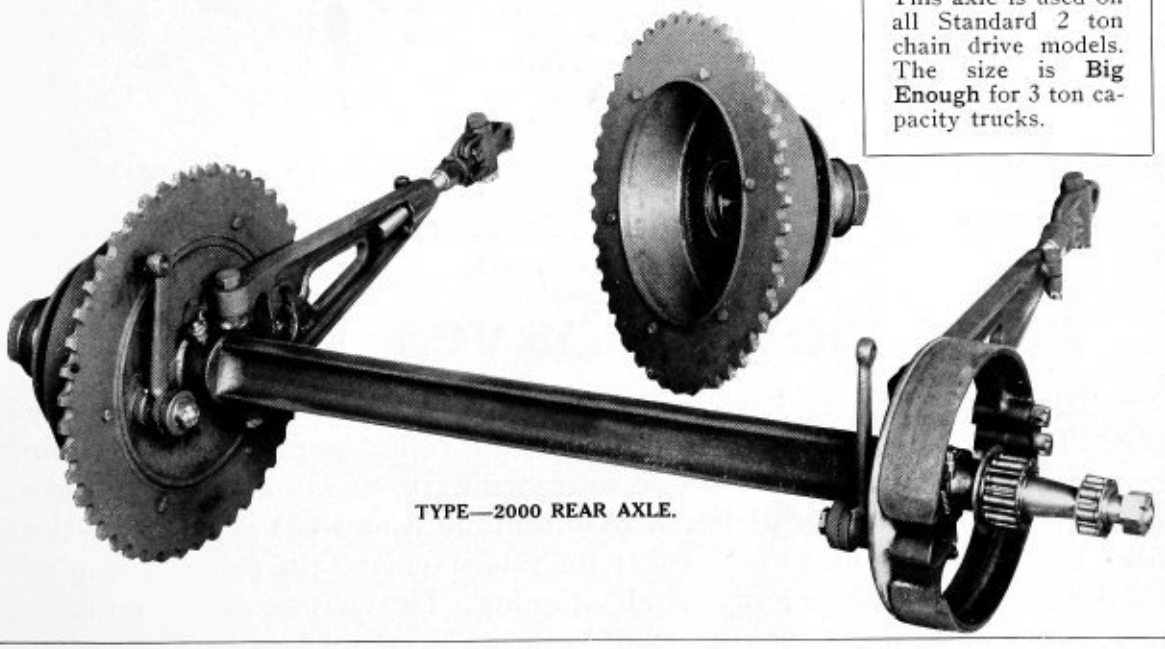
ONE SOLID FORGING, There Being No Welds

This axle is used on all Standard 1½-ton chain-drive trucks. The size is **BIG** for one and one-half-ton capacity.

TYPE 2000 REAR AXLE

One Solid Forging, No Welds

This axle is used on all Standard 2 ton chain drive models. The size is **Big Enough** for 3 ton capacity trucks.



TYPE—2000 REAR AXLE.

LIGGETT SPRING & AXLE COMPANY

MANUFACTURERS OF

AUTOMOBILE AXLES, SPRINGS AND PARTS

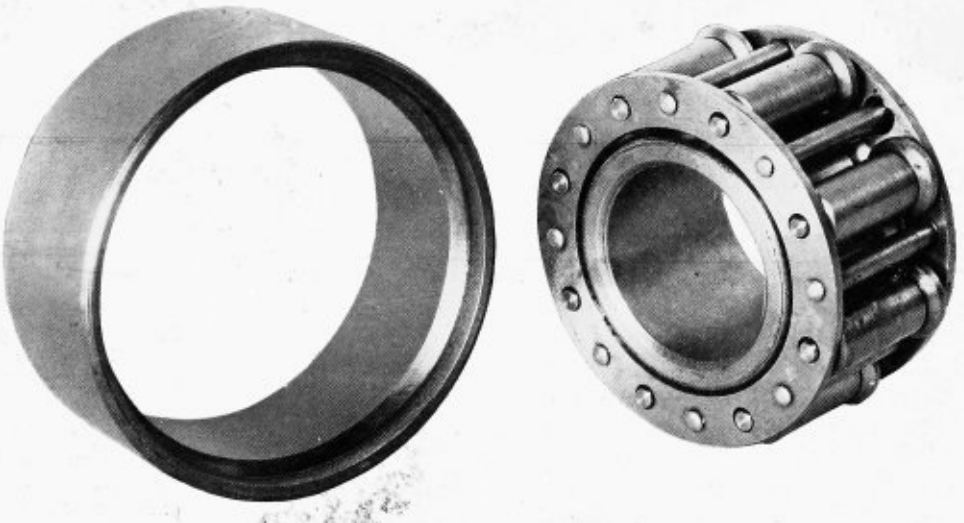
SPRING AND FORGING PLANT
MONONGAHELA, PA.

GENERAL OFFICE
PARK BLDG., PITTSBURGH

AUTO PARTS PLANT
CLEVELAND, O.

"Bower Saves Power"

and Money for Standard (of Ohio) Motor Truck Owners



SAVES THE POWER OF YOUR TRUCK WHICH IS MONEY
SAVES THE EFFICIENCY OF YOUR TRUCK WHICH IS MONEY

How Bower Saves Power

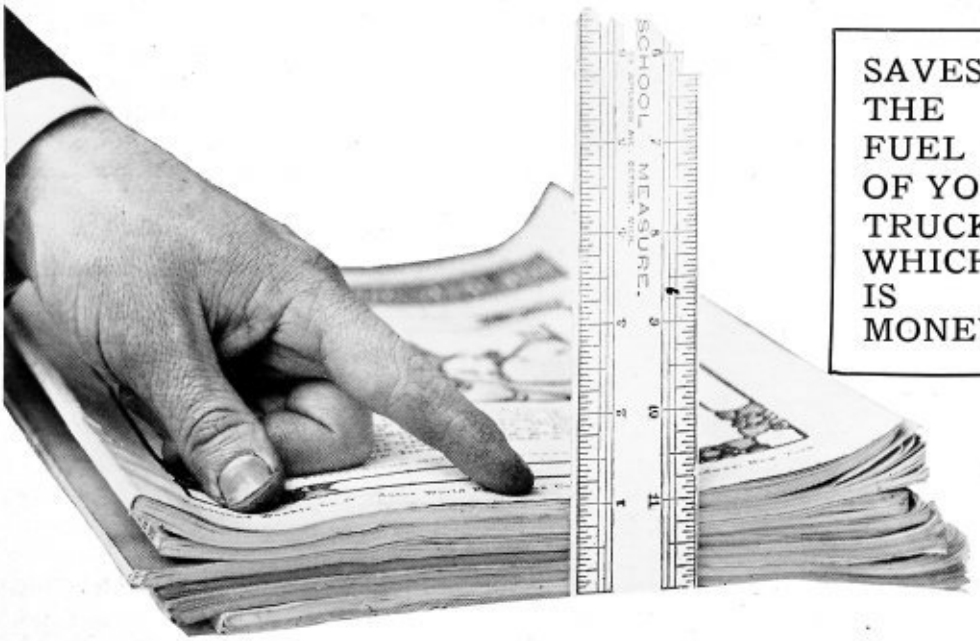
The Bower Bearing has a cylindrical roller with a flanged head at one end. The flange takes care of end thrust, the roller of radial load. This simple division of labor gives two extraordinary advantages to Bower Bearings: (1) it reduces friction to a minimum and (2) it obviates the need of any adjustment. Moreover, the raceways and the rollers being at all times parallel, the rollers are self-aligning. Thus a maximum diameter of rollers can be used; their speed of rotation is comparatively low; wear is minimized, and long life is assured to the bearing.

BOWER ROLLER BEARING COMPANY
DETROIT, MICHIGAN

"You Bought Your Truck to Save Money—Bower Helps You Save It"

"Bower Saves Power"

Standard (of Ohio) Motor Trucks are Equipped with Bower Roller Bearings



SAVES THE FUEL OF YOUR TRUCK WHICH IS MONEY

One Bower Roller Cannot Differ From Another by 1-20th the Thickness of This Sheet of Paper

The amazing endurance of Bower Roller Bearings is not accidental. It results from a conscientious attention to even the slightest detail of manufacture.

For instance, the rollers of Bower Bearings are accurate to two ten-thousandths of an inch. Think of what this means. The sheets of paper upon which this is printed run about 250 to the inch. Every Bower Roller is accurate to within 1-20th the thickness of a single sheet.

"Trifles make perfection, but perfection is no trifle"

BOWER ROLLER BEARING COMPANY
DETROIT, MICHIGAN

"You Bought Your Truck to Save Money—Bower Helps You Save It"

How Standard Truck Worm Gears Are Made

(*Continued from page 56.*)

center of the worm-wheel. The only requirement is that the center distances of the worm and worm-wheel must be exact if perfect action and high efficiency are to result. In the Cleveland Worm & Gear Co.'s method this important point is carefully provided for and is comparatively easy of attainment. Fig. 1 shows a close view of the machine used for cutting the straight type of worm-wheel. By this method a taper worm hob A held on the arbor B is used. The arbor is supported in bearing shoes C which are retained in blocks fastened to the table of the machine. The hob is set by means of a vernier and scale at the exact center distance in relation to the worm-wheel blank, and as shown in Fig. 2, is very rigidly supported. The worm hob and the work are rotated in the correct relation to each other, and at the same time the hob is fed in a longitudinal direction past the axis of the worm-wheel.

By applying the hob to the work in the Cleveland Co.'s

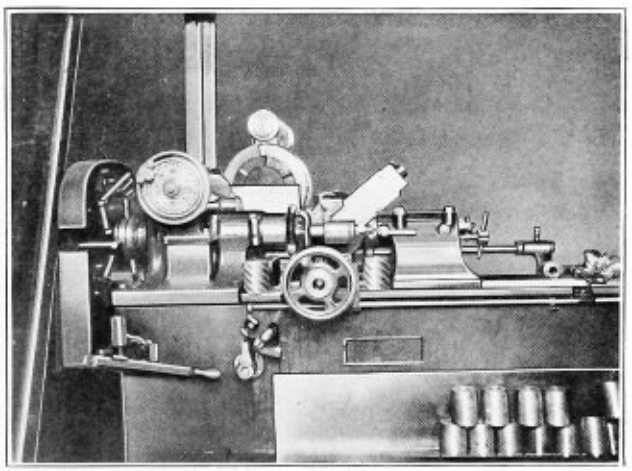


FIG. 3. THREAD MILLING MACHINE USED FOR CUTTING WORMS AND TAPERED HOBS

method, a theoretically correct and accurate worm-gear is produced, which cannot be excelled where high pitch angles or wide wheel faces—wide in relation to the worm—are concerned. By such a method of production the area of contact between the worm and worm-wheel is as large as possible, and provided that a good combination of materials is used, viz., a high grade of phosphor-bronze for the worm-wheel and a good grade of case-hardened steel for the worm, this type of gearing shows no appreciable wear under the heaviest loads after having run for a practically unlimited time.

The method ordinarily used in hobbing worm-wheels is to gear up the mechanism driving the hob with that actuating the dividing wheel which controls the indexing or rotation of the worm-wheel, and to feed the hob axially into the worm-wheel, both hob and blank being rotated at the same time. This action is continued until the hob has been fed in to the correct depth. Now in analyzing this method of cutting the worm-wheel, it will be seen that by presenting the hob in this manner it does not produce a tooth of a theoretically correct shape, for the simple reason that the hob cuts away certain portions of the tooth that are necessary to give a perfect contact with the worm. This is due to the constant changing of the theoretical helix angle of the hob while being fed in axially. Instead, therefore, of producing a worm-wheel tooth that has a reverse curve corresponding with the path through which the face of the worm tooth travels in rotating, this method removes a certain amount of the surface of the worm-wheel tooth that should come in contact with the worm, and in theory the line of contact between a worm-wheel cut in this manner and the worm is only on the center. The worm-wheel teeth are relieved toward each end and do not contact at all with the teeth of the worm, these portions of the worm-wheel teeth being removed by the hob in forming them. It will, therefore, be seen that this method never produces a correct tooth form, and its failings are especially noticeable as soon as the pitch angle or width of the worm-wheel face becomes somewhat great, resulting in the mutilation of the teeth.

Fig. 2 shows one of the machines employed by the Cleveland Worm & Gear Co. for cutting worm-wheels. The hob arbor and the work arbor on this machine both have a positive drive, which is governed by a series of change gears to obtain the required ratio between the worm-wheel and hob. The hob A (Fig. 1) is fed longitudinally and automatically under the blank at the correct speed by means of another series of change gears, located at the left end of the worm-shaft, which drives the work arbor through the dividing wheel. The table of this machine cannot be swiveled one way or the other from a position at right angles to the axis of the work arbor, thus avoiding trouble which has often occurred in the making of worm-gearing by not having the hob cut the worm-wheel at an angle of exactly 90 degrees with the hob axis. When the worm-wheel teeth have not been cut at the correct angle great friction is introduced between the worm and the worm-wheel, especially when the worm is forced to fit in the housing provided for it, which naturally would be machined exactly at an angle of 90 degrees.

One peculiar feature which is noticeable in cutting a worm-wheel by the tapered hob method illustrated in Fig. 1 is that the hob, in starting to cut on the small end, produces a series of steps on the outside faces of the worm-wheel teeth, and as it feeds in further, the steps are produced on the other side of the teeth. Then as the cutter passes the center all marks are removed, producing a particularly smooth surface and correctly shaped teeth. The chief advantages claimed for this worm-wheel is that it has a perfect surface bearing (this, theoretically, would be only a line bearing, but with the aid of the oil film becomes in practice a surface bearing) with the worm teeth for its entire arc of contact. It is also cut theoretically correct, which cannot be said of the ordinary method of worm-wheel hobbing.

A very high degree of accuracy can be obtained by this method of hobbing worm-wheels, owing to the fact

(*Continued on page 64.*)

You Can Buy No Better Goods Than

LUBRIC LUBRICANTS

"The Standard Motor Truck Co. has adopted, uses and endorses—to the total exclusion of all others—the products of The Lubric Oil Company, of Cleveland, Ohio."

Signed C. W. MOODY, President,
THE STANDARD MOTOR TRUCK CO.
(of Ohio)

The Correct Lubrication of Automobiles is such an Important Factor in their Successful Operation that there CAN BE NO ONE SUBJECT of greater interest than this—after the car has left the hands of its maker.

Lubric Lubricants represent the careful working out along practical lines of every problem connected with the subject of automobile lubrication in all climates.

Lubric Lubricants represent the result of 100 per cent High Fire Test, 100 per cent High Viscosity, 100 per cent Cold Test and greater freedom from carbon than any others.

Lubric Auto Oils Will Properly Lubricate Automobiles under the most trying conditions

Prices
AAA Auto Oil
IN BARRELS, 33c PER GAL.
IN ½ BARRELS, 35c PER GAL.
IN 10 GALLONS, 40c PER GAL.

THE LUBRIC OIL COMPANY
CLEVELAND OHIO

PRICES ON APPLICATION
STATE QUANTITY
Lubric Transmission Grease
Lubric Fiber Transmission Grease
Lubric Linseed Soap
Lubric Emerald Olive Soap

How Standard Truck Worm Gears Are Made

(Continued from page 62.)

that the full size of the hob does not come into play until the finishing cut is reached, so that the teeth of the hob tend to preserve their shape indefinitely. Another point that tends to produce accuracy is the fact that the distance between the work arbor and the hob spindle is at all times fixed at exactly the distance between the axis of the worm-wheel and the worm in the finished gearing. This is a refinement of greater importance than is usually realized, and one that is not always looked out for in hobbing operations in which the cutter spindle is fed in toward the work.

In order to prove that worm-wheels cut by the Cleveland Co.'s method would work out as satisfactorily in practice as theoretical considerations indicated, a number of tests made by a prominent automobile manufacturing concern indicates that the efficiency was very high, averaging from 90 to 98 per cent. Continual running appeared to have but very little effect on the efficiency, and the wear was almost negligible. Both worm and worm-wheel shafts run in ball bearings and are held in place so that the center distances of the worm and worm-wheel cannot change due to wear. As far as noise was concerned, the ball bearings did not run anywhere nearly as quietly as the worm and worm-wheel did during the tests, which would indicate that from this point of view the conditions met with in this type of gearing are almost ideal.

The Cleveland Worm & Gear Co. uses a thread milling machine of the type shown in Fig. 3 for cutting worm gears. By means of this machine worm milling becomes quite a simple matter, and the machines are so simple in operation that intelligent workmen can easily handle them and turn out good work cheaply and satisfactorily. The cutter head is accurately graduated and can be swiveled either way to the correct angle of the thread. The headstock spindle is hollow, allowing work to pass completely through it, and the cross-slide is provided with an automatic stop. The machine is also stopped automatically, at the end of a thread, thus insuring regularity of length when cutting multiple pitch worms. There is, of course, as is evident in all milled spiral flutes, a tendency to leave the face of the worm thread cut somewhat concave. In order, therefore, to produce the best results, this company finds it advisable to rough out the worm on the thread milling machine, and leave a grinding allowance of 0.010 inch on each face of the thread. The worm, after hardening, is then ground by a special machine which corrects this concavity of the worm tooth and also removes any distortion which is likely to occur in hardening.

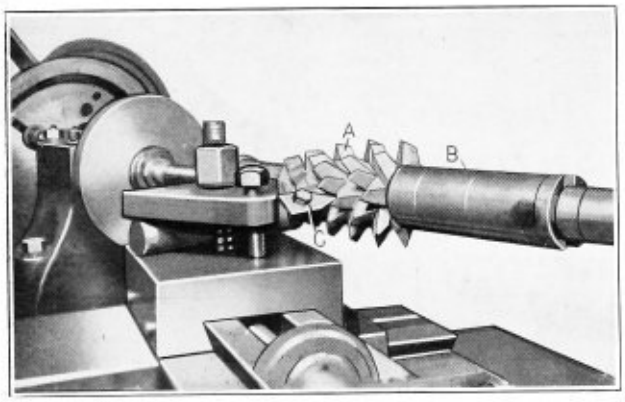


FIG. 4. CLOSE VIEW OF MACHINE, ILLUSTRATING METHOD OF APPLYING CUTTING TOOL TO TAPERED HOB

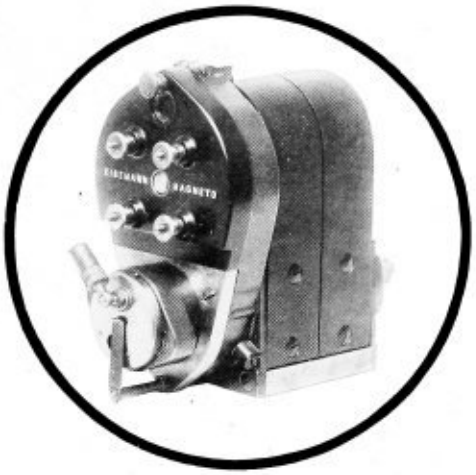
The tapered hobs used for cutting the straight type of worm-wheels are roughed out in the thread milling machine shown in Fig. 3, and are then fluted in the milling machine; before hardening they are backed off in a special backing-off or relieving lathe. This is a patented machine which has been constructed for making gear-cutters of every description as well as side relieved cutters with straight or spiral grooves, right- or left-handed.

The relieving mechanism works in either direction and can be easily reversed or released; it is actuated by means of a shaft running longitudinally inside of the bed of the machine and by gearing at the right-hand end of the machine. By means of easily interchangeable cams the clearance angles for each special tooth are obtained. The hob A to be relieved is held on a special arbor B, (Fig. 4), which in actual operation is held in the headstock spindle by a screw, and on the other end is supported in a taper bushing held in the tailstock spindle. By means of this method of retaining the arbor, deviation of the work during the relieving operation is impossible, as the arbor withstands all pressure from the backing-off tooth C. By means of a system of change gears actuated by a lead-screw, a worm-drive and a differential gear, relieving can be obtained to any given length of left- or right-hand spiral. By this arrangement it is also possible to relieve, in addition to the ordinary plain and machine relieved cutters, taps and hobs with any given lead or number of spiral grooves. Provision for relieving spirally fluted hobs is secured by means of the change gears at the right-hand end of the machine. The spacing, of course, is accomplished with cams held on the screw running longitudinally inside of the machine bed. The hob thus relieved is accurate as to shape of tooth, and it is then hardened. In the event of any distortion from hardening, the hob is ground in the special worm-grinding machine previously mentioned.

For cutting the worm gears such as are used by the Standard Truck Co. it is necessary to make a hob for every different pitch, pitch diameter and number of starts on the worm. In making a separate worm hob for each pitch and pitch diameter, the theoretically correctly shaped tooth on the worm-wheel is obtained. The reverse curve previously mentioned is also secured and the action of the worm-wheel teeth with the worm closely approximates ideal conditions. While the making of a hob for each pitch, pitch diameter and number of starts on the worm incurs considerable expense, it is evident that if a perfect working worm and worm-wheel is desired, the expense incident to the making of the hob is of minor consideration.

EISEMANN

The performance of Eisemann Ignition Systems during the Indiana-Pacific Tour justifies every claim we have **ever** made for Eisemann efficiency and dependability.



All Standard (of Ohio) Motor Trucks are equipped with the Eisemann Magneto, which absolutely guarantees to every Standard owner **all** that is **possible** in Ignition Satisfaction.

"One thing is sure — No manufacturer makes Eisemann his standard equipment unless he is determined to use only the Ultra-Best."

C. W. Moody, President
Standard Motor Truck Co. (of Ohio)

THE EISEMANN MAGNETO COMPANY

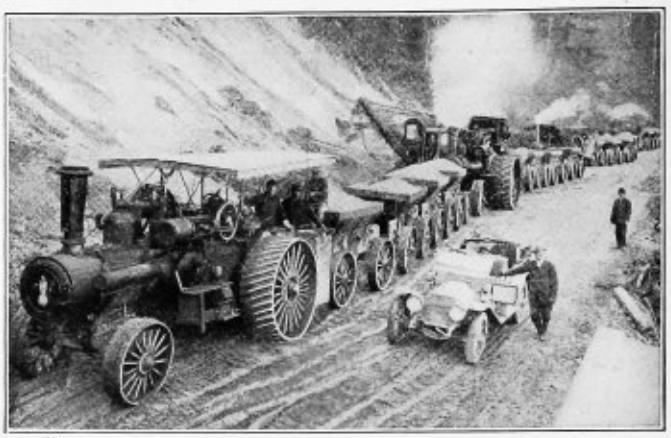
Sales and General Offices,
32-33d St., Brooklyn, N. Y.

INDIANAPOLIS, IND., 514 North Capitol Ave.

DETROIT, MICH., 802 Woodward Ave.

Trailers for Motor Trucks

FOR the past eight years this Company has been extensively engaged in the manufacturing of trailers for use behind steam tractors on country roads and has met with very marked success in this field. For the past two years we have been making extended and expensive experiments to adapt the proposition to the modern motor truck.



This first problem was to determine whether or not it is practicable to use trailers behind motor trucks, that is, whether the average truck would be able to pull one or more trailers under the various conditions which would arise in actual use. To secure the information necessary in this connection, the tests made were very thorough and exhaustive.

The conclusion reached was that THE AVERAGE TRUCK LOADED TO ITS RATED CAPACITY, IN ADDITION TO CARRYING ITS RATED LOAD, DEVELOPS A DRAW BAR PULL EQUAL TO ABOUT ONE-HALF ITS RATED LOAD. For example, a truck rated three tons capacity will develop a draw bar pull of about three thousand pounds. A TEAM OF HORSES WILL DEVELOP A MAXIMUM SUSTAINED DRAW BAR PULL EQUAL TO TWENTY-FIVE PER CENT OF THEIR WEIGHT, VIZ.:—a team weighing 3,000 pounds can develop about 750 pounds draw bar pull.

It was estimated from the tests that the draw bar pull required to move a ton of material varies from 50 pounds on a city brick street to 150 pounds on a hard country road, no grades of consequence considered. Further variations are in proportion to grades, road conditions, etc. It was shown that on average roads with average grades, AN AVERAGE DRAW BAR PULL OF ABOUT 250 POUNDS PER TON OF LIVE LOAD moved on a properly constructed vehicle was a conservative conclusion. On this basis, an AVERAGE THREE-TON TRUCK WILL PULL TEN TONS LIVE LOAD in addition to the rated load on the truck proper; that is, the draw bar pull of the average truck EQUALS THAT OF THREE 3000-POUND TEAMS.

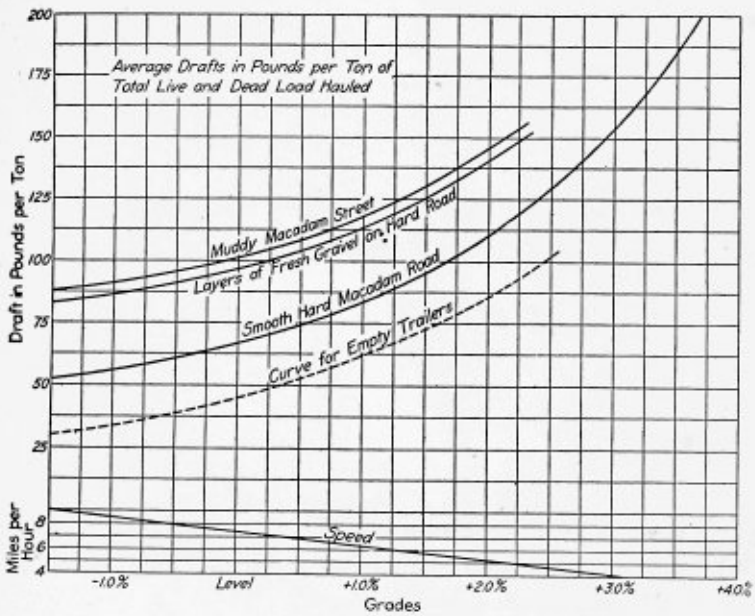


Fig. 1:—Draft per Ton Curves for Various Road Conditions

Figure 1 shows "draft per ton curves for various road conditions," from actual tests. It will be noted that in previous paragraph the per ton draw bar pull is placed considerably in excess of that shown by actual tests. This is done to take care of possible conditions not obtained in actual tests.

It being established that an average motor truck could develop the tractive power to take care of a trailer or trailers, the next step in the investigation was to find just what, if any, advantages would be obtained by the use of the trailer.

The efficiency of any hauling outfit is in proportion to its ability to deliver material cheaply. In other words, the question to be determined was—WHETHER BY THE USE OF TRAILERS THE TRUCK COULD DELIVER A TON OF MATERIAL AT A LOWER COST THAN IT COULD WITHOUT TRAILERS, AND WHETHER OR NOT A SATISFACTORY, DEPENDABLE TRAILER COULD BE PRODUCED?

In each case of trailers used, the TRAILER PLANT was three times the number being pulled—⅓ of plant at loading point, ⅓ in transit, and ⅓ being unloaded, thus keeping motor in constant motion.

Table 1 shows conclusions reached from actual tests in tons delivered, comparing teams with motor alone, with motor hauling one trailer, and motor hauling two trailers.

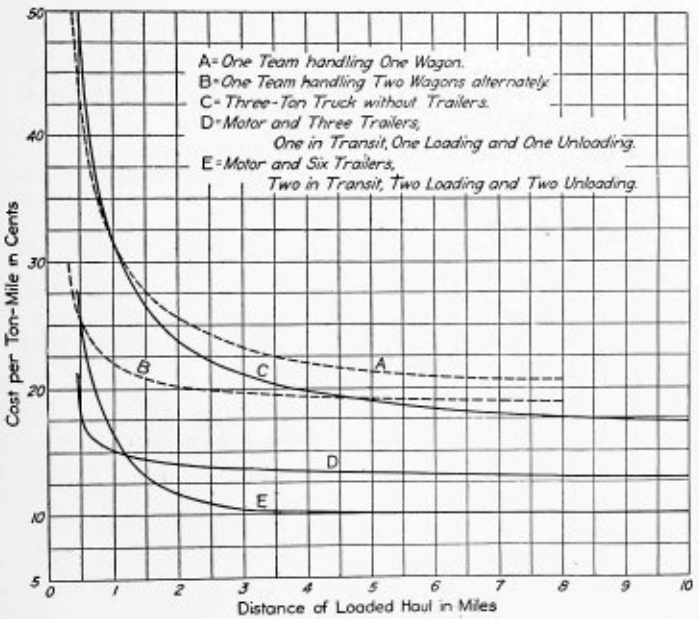


Fig. 4—Curves Showing Ton-Mile Costs for Various Outfits

TABLE 1—DAILY TONNAGE DELIVERED

Length of Haul	One Team One Wagon	Motor Alone	Motor Hauling One Trailer	Motor Hauling Two Trailers
½ mile	27	42	160	280
1 mile	18	36	140	260
2 miles	12	30	85	160
3 miles	9	21	60	110
4 miles	6	18	50	100
5 miles	6	18	35	70

TABLE 2—TON-MILE COSTS

Distance of Loaded Haul in Miles	One Team One Wagon Cost Per Ton-Mile	Motor Alone Cost Per Ton-Mile	Motor Hauling One Trailer Cost Per Ton-Mile	*Motor Hauling Two Trailers Cost Per Ton-Mile
½	0.444	0.480	0.210	0.258
1	0.319	0.319	0.154	0.167
2	0.256	0.240	0.143	0.118
4	0.221	0.200	0.137	0.106
6	0.214	0.186	0.135	0.104
8	0.209	0.179	0.134	0.103
10	....	0.176	0.134	0.103

It should be noted that on short hauls the cost per ton mile with a truck and two trailers is greater than with a truck and one trailer. This is due to the time lost in loading and unloading, which is greater with two trailers than one.

If special facilities for loading and unloading are provided, such as removable bodies, etc., the cost with two trailers would be less than with one, even on short hauls.

In connection with Figure 2, Table 2 indicates ton-mile cost for various outfits, and shows a REMARKABLE ECONOMY BY USE OF TRAILERS.

It is evident from the tabulated results of tests that the first question is amply and favorably answered.

The question, "WHETHER OR NOT A SATISFACTORY, DEPENDABLE TRAILER COULD BE PRODUCED?" was found a very difficult one.

Many difficulties were encountered. Gasoline motor truck power is the reverse of steam power, viz: it is least effective on the slow speed of the motor. It is less resilient, and therefore shocks to the vehicle are more distinctly shocks to the engine and its mountings.

Motor trucks travel at much greater speed and through more dense traffic conditions than steam tractors, are more frequently started and stopped, must enter narrow streets, lumber and railroad yards, back up to loading platforms, under bins and coal chutes, and must frequently back quite a distance when under full load. Their upkeep and expense while loading, unloading and on the way is much greater.

Subdivisions of these difficulties were treated in the order of their importance, viz:

Resiliency
Flexibility
Lubrication
Sturdiness

RESILIENCY—It was demonstrated that on account of road conditions, strain on tractor when starting, road resistance, and general train resistance, that no greater than a FIVE-TON live load should be placed on any ONE TRAILER, and that for the same reasons, a very SHORT WHEEL BASE was desirable.

That the trailer MUST FOLLOW, and be GUIDED BY the tractor, WITHOUT SIDE SWIPING, or lateral strain on either tractor or its motor; that the DRAFT BAR must be attached to a resilient FRAME OF TRAILER, and NOT TO THE AXLES;

That the wheels and axles must be CONNECTED FLEXIBLY TO THE FRAME. Both of these last conditions are important to relieve as far as possible, the IMPACT OF STARTING and of various road obstructions from SUDDENLY REACHING THE MOTOR or its bearings.

For the same reason the draw bar between the Tractor and the Trailer, and between the Trailers must be RESILIENT TO A DEGREE.

The draw bar of the trailer must be provided with a spring to avoid both the jar to the tractor when starting the load, as well as the effect produced by a sudden stop.

The whole effect must be similar to the ROLLING OF A FREIGHT CAR, rather than the JERKING of a heavy body over the road by an attached rope.

FLEXIBILITY—The promptness and convenience with which the train may be handled is very important. Small units of loads, convenience of connecting to and detaching the trailer from tractor, and the trailers to and from each other are also important features.

The necessity of trailers to follow tractor, requires that tractor be able to PUSH OR PULL ITS TRAIN IN STRAIGHT LINES, OR AROUND CORNERS, or up to loading platforms and bins, or into blind alleys.

The convenience of using any one or all THE TRAILERS WITH TEAMS, when accidents, weather, or road conditions will not permit their use with tractor, was fully considered and cared for.

LUBRICATION—The speed of the trailer is always equal to that of the tractor, but as the trailer is built for even HEAVIER LOADS than that of the tractor, the question of bearings, lubrication of spindles, spring joints, shackles, etc., was given special and careful attention and fully tested in all the conditions encountered.

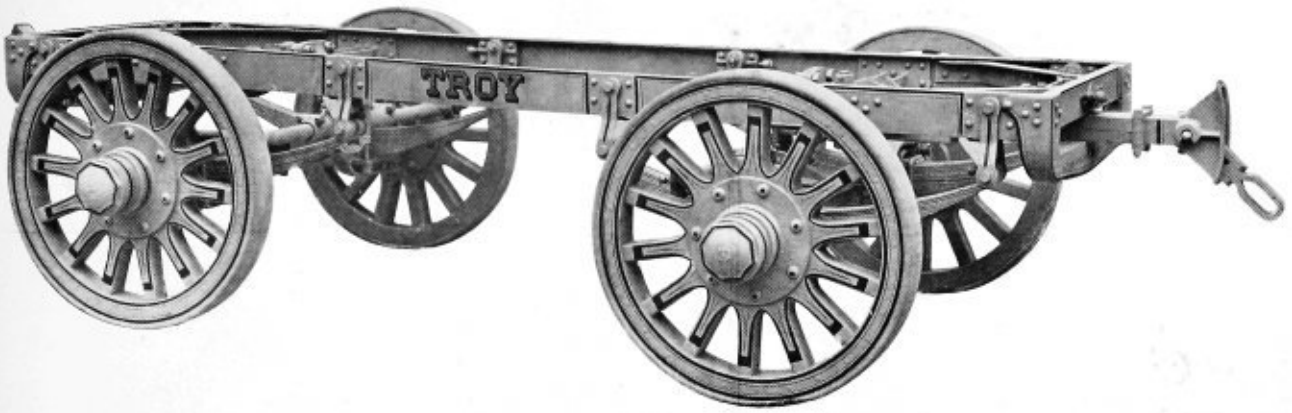
STURDINESS—The TRAILER is subjected to a great many strains not encountered by the tractor or by an ordinary vehicle of the same capacity. It must not only have sufficient strength to carry its own load in the regular way but must pull the trailers following. It is also subject to many lateral strains in crossing and sliding over rail and cobble stones, and the shocks which it receives must be absorbed before they reach the tractor.

The wheels, bearings, spindles, and guide bars required, were found to be of the very heaviest type. Attempts to use ORDINARY EQUIPMENT WERE FAILURES.

Rivets, bolts and all wearing parts were required of the best quality, and must be protected by the latest improved locking devices. Widths and kinds of tire to conform with conditions were subjects of considerable investigation.

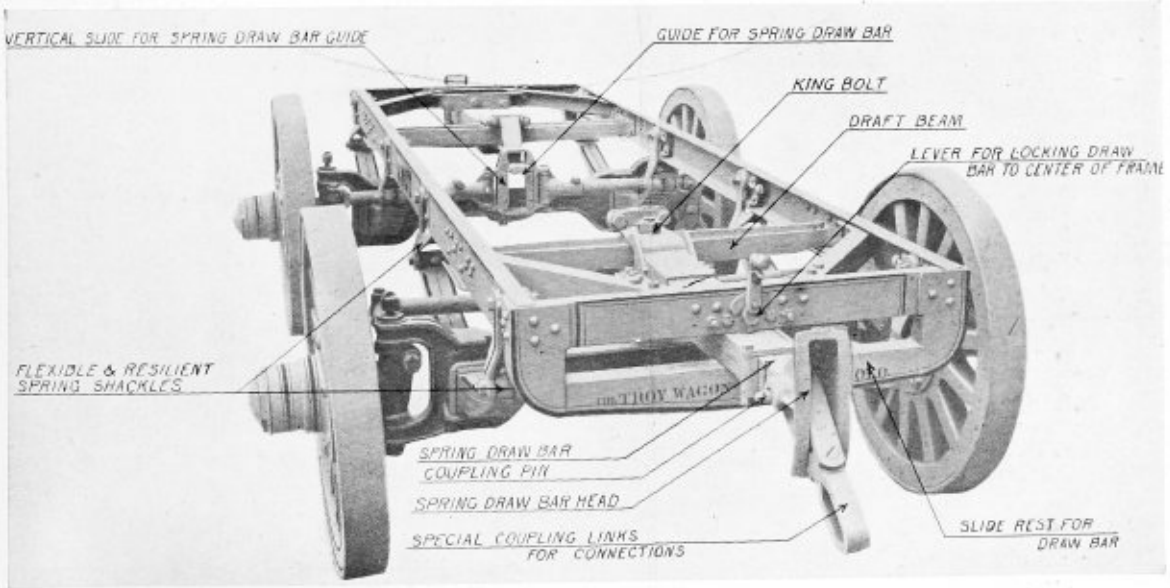
THE RESULTS ARE EMBODIED IN THE TRAILER NOW OFFERED.

For the purpose of demonstrating the manner in which all difficulties encountered have been successfully overcome, several views of the Trailer follow



View 1 is a general side elevation of Chassis.

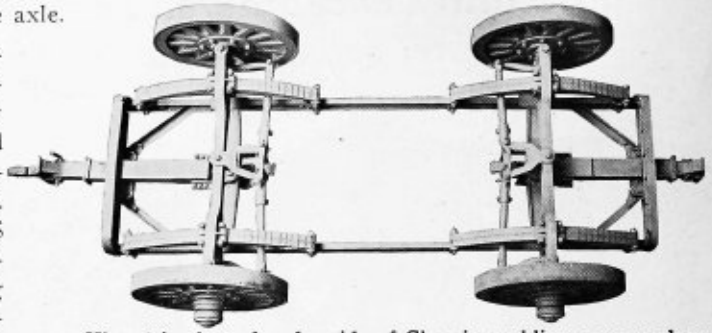
Length over all 14 feet 8 inches.
Width over all 7 feet ½ inch.
Wheel Base is 6 feet 11 inches.
Wheel Height 3 feet without tires.
Width of Track from center to center of tires, 5 feet 5 inches.
Dimensions of Frame 3 feet 5½ inches by 11 feet 10 inches.
Dimension of Tires 4x¾ inches.
Height from ground to top of Frame 2 feet 10½ inches. (No load.)
Road Clearance under Axles 15½ inches.
Clear space between Steering Bars 4 feet 8 inches.
Weight of Chassis 3330 lbs.
Capacity 2 to 5 tons—factor of safety 25 per cent overload.



No. 2 is a top view for the purpose of explaining more clearly the functions of parts not in common use on vehicles or motor trucks.

It will be noted that the DRAW BAR IS CONNECTED TO THE MAIN FRAME of the trailer and NOT TO THE AXLES. This connection is made by passing a king bolt through a very rigid draft beam in a perpendicular line with the center of the axle.

The draw-bar is telescope form and contains a coil spring, which starts into compression at 200 pounds pressure and is completely compressed at 2000 pounds pressure, and which is so arranged that it is in compression whether the trailer is pulled or pushed. This arrangement effectually PREVENTS SHOCKS TO THE MOTOR, ITS MOUNTINGS and clutches, when the load is being started or stopped and PROVIDES RESILIENCY on grades, as well as when the trailer meets unusual road obstructions.



View 3 is view of under side of Chassis enabling a more clear understanding of general and detail of construction in connection with No. 2.

Draw-Bars Acting as Bumpers Between Trailers

Draw-Bars in Operation Between Two Trailers

Draw-Bars Acting to Prevent Climbing in Uneven Places

The special design of the DRAW-BAR HEAD is for the purpose of affording BUMPERS between trailers when operated in multiples. It also provides a LONG SPRING BUMPER surface at any ordinary angle of contact, thus preventing the tendency of the draw-bars to climb one upon the other when on down grades, or when passing over uneven road surfaces.

Coupling Links

It will be noted that the coupling links are of SPECIAL DESIGN for use with the special drawhead. The slots in the links are to enable QUICK CONNECTION between trailers, as well as to enable a RIGID CONNECTION between trailers on DOWN GRADES, or when being BACKED IN MULTIPLES. It can be seen that when the faces of two draw-bar heads are in contact, the flexible joint of the link is within the walls of the heads, and is therefore rigid.

The connection is made through the guide for the spring draw-bar passing within a vertical slide. This arrangement permits an absolutely FLEXIBLE CONNECTION, and as there is NO OTHER connection between frame and wheels, EXCEPT THROUGH the springs by means of FLEXIBLE SHACKLES, COMPLETE RESILIENCY is maintained throughout the whole structure.

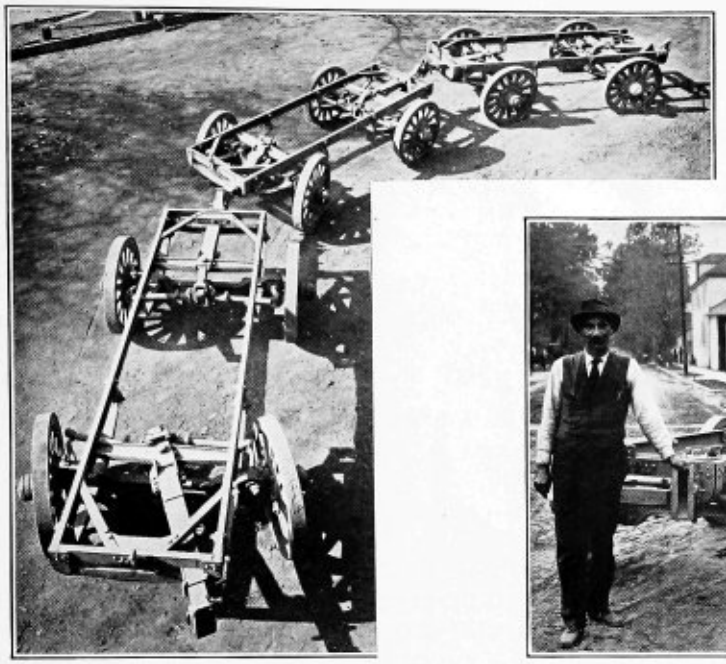
Four 3½ x 48-inch springs, with a deflection capacity of 850 pounds to the inch, support the load and provide, through the flexible shackles, the connection between the axles and frame. Both ENDS OF THE SPRINGS ARE SHACKLED and each shackle is provided with a stop to prevent it closing beyond a perpendicular line. The rear shackles are always in operation, and BOTH FORWARD AND REAR SHACKLES COME INTO ACTION UNDER LOAD WHEN SUDDEN JARS ARE ENCOUNTERED.

It is understood that the draw-bar pull is through the frame to the wheels, and it will be noted that by this arrangement of the shackles, the SPRINGS ARE ALWAYS PULLING INSTEAD OF PUSHING the wheels; that is, the springs are in tension longitudinally, rather than in compression.

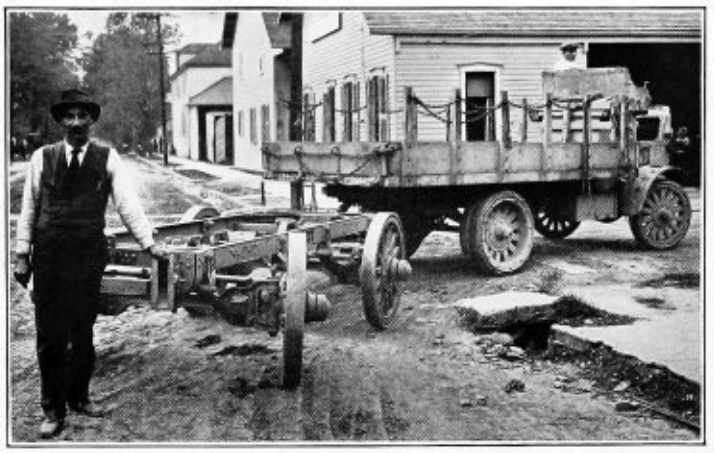
IT WILL BE NOTED THAT THE GUIDE FOR SPRING DRAW-BAR IN CONNECTION WITH THE VERTICAL SLIDE NOT ONLY PROVIDES FOR BOTH THE DOWNWARD AND FORWARD MOTION OF THE SPRINGS WHEN IN ORDINARY COMPRESSION, BUT ALSO THE SHIFTING OF THE SPRING SHACKLE. IT MUST ALSO TAKE CARE OF SHIFTING OF THE DRAW-BAR UPON ITS KING-BOLT AXIS, TOGETHER WITH THE TORSION WHICH OCCURS BETWEEN THE FRAME AND THE AXLES, IN PASSING OVER VARIOUS ROAD OBSTRUCTIONS.

It is certainly evident from the preceding description that with this construction the resiliency of the trailer is complete and satisfactory, and that there can be NO DAMAGE ARISE TO THE MOTOR, such as results from a RIGID TRAILER, drawn by the truck, or a TWO-WHEELED RIGID TRAILER, part of whose load is carried by the tractor.

Flexibility of Trailer



Showing Positions of Wheels and Draw-Bars when Trailers are Following or Being Pushed Around Corner.

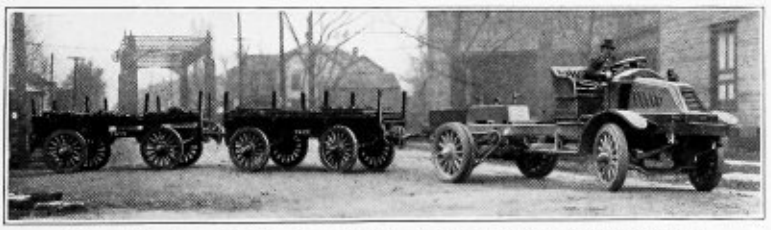


One Trailer Being Backed Around Right Angle Corner, Guided By Man at Draw-Bar

Three Trailers Being Backed Around Right Angle Corner, Guided by Man at Draw-Bar

In case where it is desired to BACK EITHER ONE OR MORE TRAILERS INTO AN ALLEY, AROUND A CORNER, and to any difficult place, the free draw-bar can be used to control the direction of travel by SIMPLY GUIDING THE BAR BY ONE HAND. Examples of what can be done are shown in photos.

It will be observed that the trailer shown provides exactly the SAME CONSTRUCTION ON EACH END. In its actual use the draw-bar is connected to the tractor by a special coupling, and the movement of the draw-bar laterally along the draw-bar rest is DIRECTED PERFECTLY BY THE MOVEMENT OF TRACTOR AND AS THIS DRAW-BAR CONTROLS THE DIRECTION of TRAILER, THE TRACTOR DRIVER IS IN COMPLETE CONTROL, and on account of the manner of construction of the gears and wheels, there will be no SIDE SWING to the draft-bar, as the trailer travels forward.



Three Trailers Following Motor Around Right Angle Corner

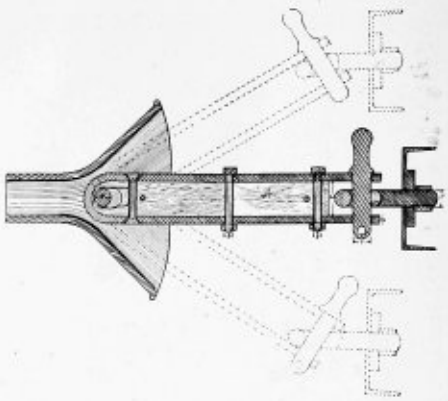
When it is desired to back the trailer, or to draw it in the opposite direction, the lever for locking the draw-bar to center of frame is brought into use, and by the same means the draw-bar at the opposite end of the trailer is released from its fixed central position, and BY THESE OPERATIONS THE TRAILER IS COMPLETELY REVERSED.

The fact that the trailer may be HITCHED VERY CLOSELY to the tractor, that it can be very QUICKLY REVERSED without a single movement of the tractor, are very important features for many obvious reasons.

The connection between the frame, the axles and the wheels is made through the guide for the spring draw-bar passing within a vertical slide.

It is plain that if at any time it becomes necessary or desirable to USE A TEAM to draw this type of trailer, a convenient CONNECTION may be READILY MADE to either end without a moment's delay.

On the longer hauls and under many conditions of use, it is desirable to CONNECT THE TRAILERS IN TRAINS of as many as four or five. This can be done VERY QUICKLY, and it is only a question of a moment to drop any member of the train at any desirable or necessary place.



Showing kind of connection which should be made between motor frame and trailer. A plain eye-bolt attached to rear cross member of chassis is sufficient. Ample allowance should be made for the different positions taken by motor and trailer, one toward the other. Connections can be readily made to any standard motor truck at a very small expense, and without in any way injuring it, or inconveniencing its use in the regular way.

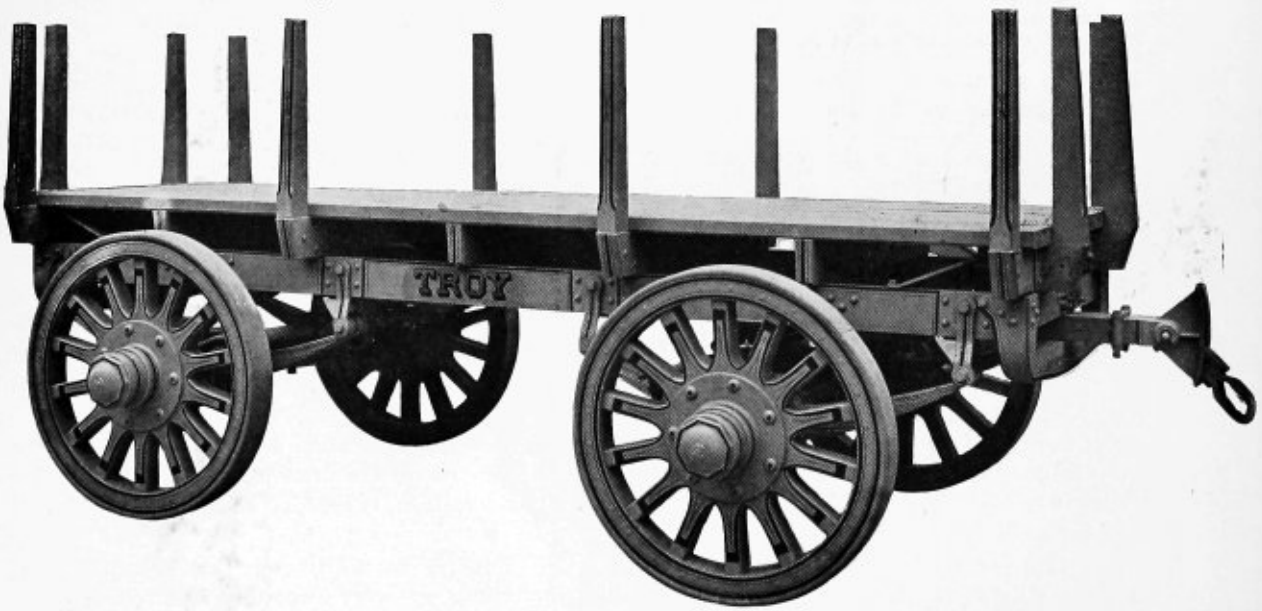
LUBRICATION

It will be noted that nothing has been left undone in this respect. THE SPINDLES ARE HIGH-CLASS HEAT-TREATED DROP FORGINGS fitted with DOUBLE CAGES of standard ROLLER BEARINGS, lubricated by COMPRESSION GREASE CUPS, and need only receive the same attention along these lines as is afforded the motor truck.

STURDINESS

WHEELS ARE HEAVY ARTILLERY TYPE, FITTED WITH FOURTEEN 3-INCH BROAD-POINTED, HICKORY SPOKES. FELLOES ARE THREE INCHES DEEP, AND CROSS-RIVETED AT EACH SIDE OF EVERY SPOKE. KNUCKLE SPINDLES ARE 2.95 x 8½ INCHES. ROLLER BEARINGS ARE PERFECTLY PROTECTED FROM WEATHER AND DUST. SPRINGS ARE 3½ x 48 INCHES, HIGH QUALITY, AND WITH A CAPACITY OF 850 POUNDS COMPRESSION TO THE INCH. THE AXLE AND ALL THE MACHINE PARTS ARE CAST STEEL. THE FRAME IS CHANNEL STEEL, FULLY SUPPORTED BY PROPER GUSSETS, HOT RIVETED. ALL BOLT NUTS ARE STANDARD CASTELLATED AND PROTECTED BY COTTERS. BRONZE BUSHINGS ARE USED ON ALL CLOSE BEARINGS. EXTREME FACTORS OF SAFETY HAVE BEEN USED IN ALL PARTS.

The dimensions of the Chassis are standard and practical for any of the many types of bodies that it may be desired to use. It is impractical to illustrate or at this time offer special bodies, but the supplying of these is the least difficulty encountered by the truck user.



Chassis Fitted With Plain Platform and Stakes.

Uses For a Satisfactory Trailer

THERE are so many hundred uses to which a SATISFACTORY TRAILER can be put in connection with a motor plant, and so many places where a motor plant can be made profitable only by the use of a Trailer that it is impractical to mention all of them here.

¶ Transfer Companies moving any class of materials, road building, and all classes of cross-country hauling, factory and lumber-yard hauling, logging, short and long hauls from the jobbers to and from railroads, and to customers in outlying districts can use Trailers to big advantage. *Maximum Loads at Minimum Cost can be secured only by the use of a satisfactory trailer of the class and type here shown.*

¶ The Chassis is offered to the user at a very conservative price of $1000.00 f. o. b. Troy.

¶ Suggestions as to their use and adaptability to various projects will be gladly made if the conditions are made known.

¶ Reasonably prompt deliveries in any quantities have been arranged for.

THE TROY WAGON WORKS CO.
Troy, Miami County, Ohio

Gasoline-fed "Horse Sense"

DAILY inspection of a motor truck is the one most vital point in securing good service.

It is just as important to have loose bolts tightened and the wearing parts of the truck oiled, as it was to water and feed your horse.

Keep the nuts tight. Remember that every rattle denotes wear. Wear means depreciation, and that hits the pocketbook.

One of the worst enemies of oil is dirt. Keep your chassis clean, as well as the body. Remember that dirt and oil mixed make a splendid grinding compound, which is worse than no oil at all. When a grease cup or oiler is broken or lost, get a new one at once. They are cheaper than new parts.

A driver who does not keep his truck clean, well oiled and tight, either never slows up for the rough spots, or never has to slow up.

There are more wearing parts in a drive chain than in your motor. Do not forget to have them properly cared for.

The average human being likes to be clean. Your driver is human. Give him plenty of clean waste.

Cotter pins are the most important little thing on a truck. See that they are in place.

Well regulated brakes mean a 99 per cent depreciation in the accident account.

The Humane Society punishes a driver who abuses a horse. Be your own Humane Society with your truck.

Ten hours' work is enough for any man. Give your driver some part of the 10 hours for inspection and oiling. It will mean more hours of service in the end.

Horses have to have sharp shoes when it is slippery. Skid chains are to the truck what sharp calks are to the horse.

A tool box equipped with broken tools is worse than none at all. When a tool is broken, replace it at once.

Spend half of the time you waste in getting the carburetor out of adjustment in keeping things tight.

If your motor spits and stops, the best place to look for trouble is in the gasoline tank.

Do not believe your driver every time he says "She is running fine." Have a look for yourself once in a while.

Worn out lines have caused many runaways. Apply that to your brake linings.

Dirt in gasoline causes many delays. A strainer in the funnel will catch those dollars.

Motors are cooled with water—not mud. Remember that when filling your radiator.

Alcohol is rather expensive, but motors are more so.

You do not move your desk outdoors when it rains. Put a cover over your driver.

In the language of motor trucks, a squeak is a call for help. Oil is the first aid.

The man who knew his horses by name is the man who kept them in good condition. Get acquainted with your truck.

Daily Inspection

DAILY inspection is just as important to the man with one truck as it is to the firm with a big battery. Whether this inspection is in charge of yourself, your driver, your transportation manager, or your garage foreman, let the following ten points be the ten commandments of your truck inspection:

No. 1. See that the gasoline tank, oil reservoir and radiators are filled before the vehicles leave the garage.

No. 2. Test and trim the lamps. The wicks should be turned down to the proper level; at this level they should be blown out, and the adjustment of the wick left ready for lighting.

No. 3. Examine wiring for loose connections.

No. 4. Examine fan for loose belt or fastening. A loose fan will often become detached and ruin the radiator.

No. 5. Examine bolts which secure the springs to the axles. Tighten them if loose.

No. 6. Examine steering and brake connections thoroughly. See that the nuts are all tight, and pay particular attention to the cotters.

No. 7. Test and tighten, if necessary, all bolts and nuts on the wheels.

No. 8. Oil and grease such parts as are provided for on your oiling chart.

No. 9. Examine and tighten bolts on fenders, steps, windshields and other fixtures.

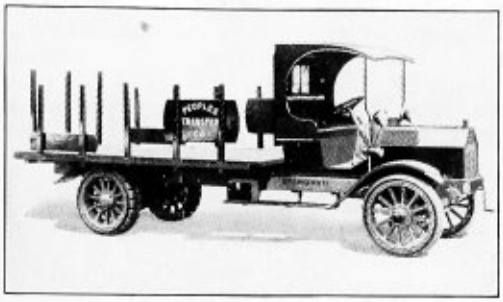
No. 10. Start motor to be sure everything is in running order, and that the carburetor, etc., are adjusted properly.

One point that is ordinarily passed over in daily inspection is the care of the chains. This is most important. There is only one best method of cleaning drive chains. This is to remove them from the truck, soak them over night in kerosene; the kerosene should then be washed off with gasoline and allowed to dry. After the chains are cleaned in this way, they should be immersed in a bath of tallow and graphite, brought to a boiling point for several minutes. Remove the chain from this bath and coil it up in a clean place and let it lie, if possible, for 24 hours before being used. The ideal time to treat a chain is on Saturday night—when the truck is to be idle Sunday. This treatment should be given not less than once a month.

The DANN OIL CUSHION SPRING INSERT

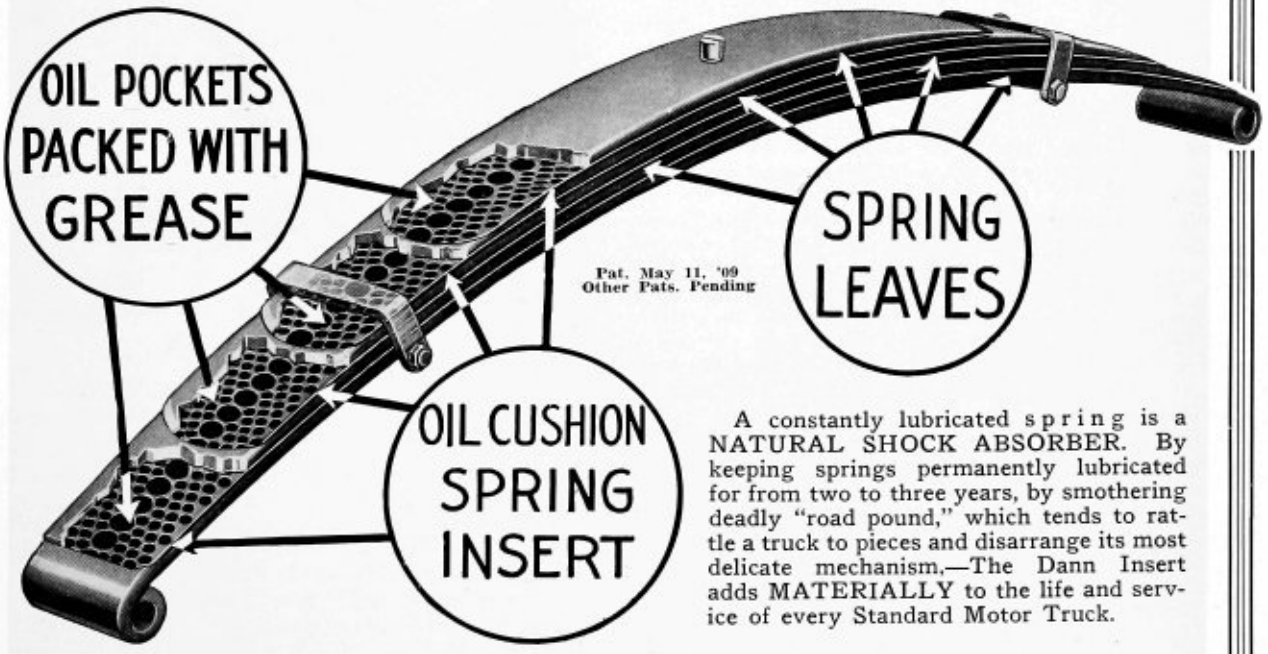
"The Insert of 10,000 OIL Pockets"

The Dann Oil Cushion Spring Insert keeps springs from squeaking, rusting, solidifying or "going dry." It reduces the liability of spring breakage to the absolute minimum.



All Standard Motor Trucks are regularly equipped with Dann Oil Cushion Spring Insert—the only construction of its kind on the market that provides PERMANENT AND PERFECT spring lubrication.

Standard Equipment on
The STANDARD MOTOR TRUCK of Ohio



A constantly lubricated spring is a NATURAL SHOCK ABSORBER. By keeping springs permanently lubricated for from two to three years, by smothering deadly "road pound," which tends to rattle a truck to pieces and disarrange its most delicate mechanism.—The Dann Insert adds MATERIALLY to the life and service of every Standard Motor Truck.

Springs that CONDUCT rather than ABSORB vibration "kill" a truck quicker than any other kind of abuse.

No truck is more efficient than its springs — no springs on any truck are more efficient than the Dann Insert-equipped springs on the Standard of Ohio.

The Dann Oil Cushion Spring Insert is a thin, perforated strip of metal, designed to go between the spring leaves from tip to tip. The Insert metal is of special composition, very ductile, and possesses anti-frictional qualities.

The perforations in the Insert are filled with a heavy lubricant. Once bolted and clipped between the spring leaves, it is physically impossible for this lubricant to squeeze out of the pockets in the Insert. A spring equipped with Dann Insert has approximately 10,000 oil cups in its construction!

And Every Standard of Ohio Is Thus Equipped

Dann Oil Cushion Spring Insert Co. 2252 Indiana Avenue Chicago, Illinois

Pneumatics on Front Wheels Mean Increased Earnings

ACTUAL figures covering the cost of operation of even our two-ton truck equipped with pneumatic tires on the front wheels convince us that their use means not only a saving in dollars and cents to the customer, but the earning capacity of the truck is increased exactly in proportion by the amount of additional territory covered during each day. For example, a truck of 1, 1½ or 2 tons capacity, engaged in the average business in a city of more than 250,000 population, can be operated sixty miles during a day when equipped with pneumatic tires. It would be absolutely impossible to cover more than fifty miles with the same truck equipped with solid tires on the front wheels. Even then, unless the street conditions were much better than the average, considerably more damage would be done to the truck equipped with solid tires.

Generally speaking, the entire delicate construction of the motor vehicle is carried over the front wheels, besides which the driver should also be taken into consideration. If he is comfortable and happy he will do more work during the day. There is a great tendency on the part of the drivers to crowd the truck much faster than it should be driven on solid tires. It is almost impossible to regulate the driver to such an extent that he will take the proper precaution on the rougher streets. Any governor that is used in connection with the motor is usually fixed to control the speed of a 1½-ton truck to a maximum of 18 miles per hour. By the use of pneumatic tires a large part of the vibration is taken up even under the worst conditions.

We want to make this point: If a truck of 1½ tons capacity is earning on an average $12 per day, equipped with solid tires, we can prove by customers who are using the pneumatic tire equipment that the earning capacity is increased 20 per cent, providing there is sufficient work to keep the truck steadily busy. This means $2.50 per day or $750.00 per year, which is at least three times the total cost of the pneumatic tires used on the front wheels during that period of time.

We believe that this total amount, $750, can be placed on the profit side of the sheet because the difference in cost between pneumatic and solid tire equipment on the front wheels is more than saved in the life of the truck and repair expense.

We do not wish to give the impression that our truck is not built for solid tires. We have taken every precaution that any other manufacturer can take. We simply wish to bring out clearly the facts and figures which we have learned by actual experience.

We furnish an extra demountable rim with pneumatic equipment so that the spare tire can be carried and the change made in case of puncture or trouble, with only a few minutes' delay.

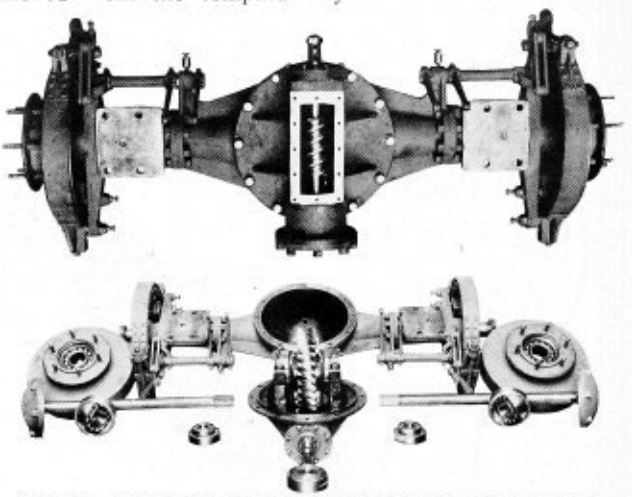
Advantages of Empire Worm-Drive Axles

The Empire Axle Co., Inc., formerly the Chautauqua Motor Co., of Dunkirk, N. Y., furnishes worm-driven axles for the Standard Motor Truck Co. These axles have given such uniformly excellent service that the following claims of superiority will be of interest to users of Standard trucks;

(1) A sufficient load-carrying capacity on the seven ball bearings employed to amply take care of the "peak" loads frequent in trucking. The total thrust of the worm is borne by one double end thrust bearing. Means are provided for the longitudinal expansion of the worm due to variation in temperature. In the Empire Model E, 2- to 2½-ton axle an end-thrust bearing capable of withstanding a safe load of 11 tons is used. The combined load-carrying capacity of the wheel bearings on this model is 12 tons. It will, therefore, be evident that, since this proportion is constant in the several models, there is a tremendous factor of safety.

(2) A special oiling device capable of flooding the end-thrust bearing at all speeds.

(3) One self-aligning, two-row bearing for each road wheel with practically no end-thrust imposed upon it. This reduces the length of the supporting tube, eliminating the chance of the tube bending under severe loads. The end thrust on the road wheels and the tendency to collapse under side strains are overcome by the driving shafts. In other words, the rack of the wheels is removed from the comparatively delicate construction of



EMPIRE AXLE USED IN STANDARD WORM-DRIVE TRUCKS—COMPLETE AND DISASSEMBLED

any type of bearing and placed upon the substantial alloy steel shafts.

(4) On the Model E, 2- to 2½-ton axle will be found a driving spindle on the worm in excess of 1-9/16 inches in diameter. Other models in proportion.

(5) It is essential in good brake construction to keep the diameter as large as possible. From 15 inches to 16 inches in diameter, using a 36-inch wheel, has been the limit among most axle makers due to the interference of the brake operating mechanism with the dual tires unless the spokes are offset. The Empire is a patented design allowing the use of 17-inch brakes with 36-inch, any width, dual wheels without offsetting the spokes and allowing a skid-chain clearance of 1⅝ inches.

(6) In the construction of Empire worm-drive axles all castings are semi-steel, having a tensile strength of not less than 60,000 pounds per square inch. The castings are extremely malleable and may be bent without fracture. All bolts are made in the Empire factory, of special alloy steel. The driving shafts are 30 point carbon, 3½ per cent nickel steel. The Empire axles use the Cleveland Worm & Gear Co. hardened and ground steel worm and their special bronze worm wheel mounted on a Brown-Lipe-Chapin differential. All bearings are Rhineland Imported.

"STANDARD" Universal Joints

Roller-Bearing Type

The STANDARD is the ONLY PRACTICAL ROLLER-BEARING joint on the market. It is a ball in a socket, as you see in the cut. The ball and socket take care

of the up-and-down motion, the end thrust and all other strains, while the four roller-bearings mounted on pins take care of the driving torque. Wearing surfaces are hardened and ground.

The STANDARD is the ONLY ADJUSTABLE joint on the market. After driving your car 20,000 miles, if you find any lost motion in this joint, you can take it up without removing the joint from the car.

The STANDARD is the ONLY joint that is PERFECTLY UNIVERSAL. It was tested in the laboratories of the Ohio State University and pronounced "perfectly universal." It has no "lag" and "catch-up," which are found in all other joints.

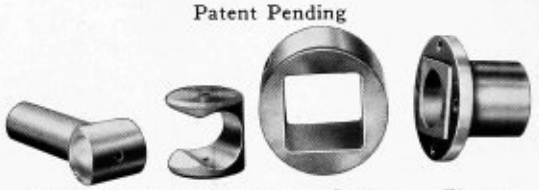
The STANDARD joint requires GREASING ONLY ONCE A SEASON, or once in every 10,000 miles. And then it takes only five minutes to refill with grease. Centrifugal force puts the grease right where it is needed.

The STANDARD joint is DUST-PROOF in its construction and needs no boot. It works up to an angle of 10 to 15 degrees and will transmit up to 60 horsepower.

This joint was USED on the HEAVIEST TRUCK for the last four years, for over 20,000 miles service, and when examined it was found to be in FIRST-CLASS CONDITION.

The STANDARD joint, with its PERFECTLY UNIVERSAL ACTION, ROLLER BEARINGS, EFFICIENT LUBRICATING QUALITIES, AND

Patent Pending



Trunnion Trunnion Block Socket Flange

ABSENCE OF VIBRATION, is the ideal joint for the heavy work of the truck and for the high speed work of the modern automobile.

Standard Equipment on All Standard (of Ohio) Trucks

We are equipped with modern machinery to turn out these joints and to make deliveries according to contract. Prices according to specifications and quantities. Let us figure with you.

The Universal Machine Company

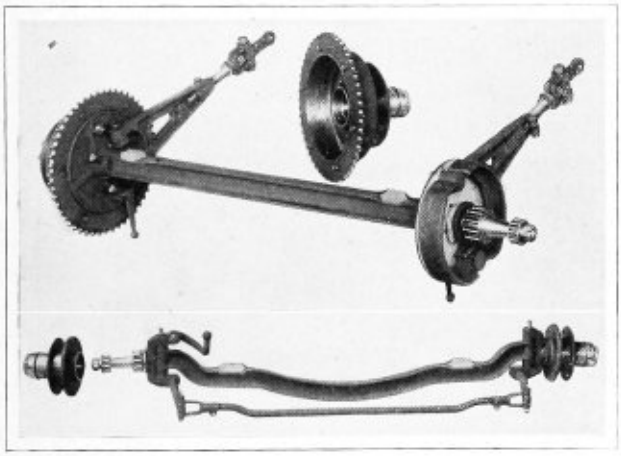
RIDGE STREET **BOWLING GREEN, OHIO**

Best Axles None Too Good for Standard Trucks

It is apparent that with the strains and stresses to which the axle equipment of a motor truck is subjected the design and materials of which they are made are matters of the first importance to the buyer. The purchaser of Standard of Ohio trucks will have the satisfaction of knowing that the springs of his vehicle have behind them the experience of over fifty years, the Liggett Spring & Axle Co., of Monongahela, Cleveland and Pittsburgh, having been established upward of half a century ago.

On its chain models, the Standard Motor Truck Co. (of Ohio) is using Liggett axles, both front and rear, with marked success—Type 1350 front, on the 1½- and 2-ton models; Type 1950 rear, on the 1½-ton model, and Type 2000 rear, on the 2-ton.

The Type 1350 front axle bed is one solid forging, there being no welds. The size, 1¾ by 2⅝ inches, is ample for trucks of much greater rated capacity than the Standard, the limit of safety being well beyond what those trucks will be called upon to carry. The Liggett Co. provides all the steering details complete and ready for the attaching drag link. The spindles are 1⅝ inches in diameter, and upon them are assembled the end-thrust antifriction roller bearings, housed in suitable hubs and protected at the rear end with dust washer and at the outer end with polished brass hub caps, to prevent loss of lubricating grease and the entrance of dirt and grit to the bearing surfaces. This axle is designed to carry a total load upon itself of 3,500 pounds, which includes a proportionate share of the weight of the car and carrying load to which the axle is to be subjected. Vanadium steel, heat treated, is used in the construction of the front axles used on Standard of Ohio trucks.



TYPES OF LIGGETT AXLES USED ON STANDARD OF OHIO CHAIN-DRIVE TRUCKS

The Type 1950 rear axle bed, which is used on the 1½-ton Standard truck, is 1⅞ by 3 inches in dimensions, it being the policy of the Standard people to overdimension their product in such important items as rear axles. This type is also one solid forging, there being no welds. The spindle diameter within the largest bearing carrying the load is 2 inches, and directly to the rear of this and turned concentric with the bearing diameter is a turned section 2⅜ inches in diameter, upon which the radius rod, brake housing and brake are carried. The same precautions to protect the end-thrust bearings from dust and to prevent the loss of lubricant are adopted as in the Type 1350. The brake drum and hub is an integral casting. The back of the brake drum is one solid piece, thereby tightly enclosing the brake, and furthermore, this wall forms a permanent spoke flange on the hub. On the outside of the brake drum a flange is provided, which is turned concentric with bearing housing, and upon this the sprockets are mounted.

From the foregoing it will be readily seen that absolute concentricity is maintained between spindle center, inside diameter of brake drum and pitch diameter of sprockets. Furthermore, the brake is in a concentric position when neutral within the brake drum, owing to turned diameter of the spindle carrying same.

Brakes are of the two-shoe internal expanding cam action type, 12 inches in diameter, 2½-inch face, lined with high and reputable grade asbestos and wire brake lining. For release of the brake, a heavy spring is provided between the two shoes. Radius rods are of the swivel type, which provides for lateral strains and for unequal position of the wheels when upon rough roads, and furthermore, for unequal loading of truck. This axle is designed to carry a total load upon itself of 5,000 pounds.

The specifications of the Type 2000 rear axle differ from those of the Type 1950 mainly in the matter of dimensions. the axle bed is 2¼ by 3½ inches, spindle diameter 2⅛ inches and that of the turned section carrying radius rod, brake housing and brake 2⅝ inches. Brakes are of the two-shoe, internal expanding, toggle action type, 14 inches in diameter, 2½-inch face, with an adjustable feature for taking up wear on the brake lining. This axle is designed to carry a load of 6,500 pounds.

Standard Castings Used in Standard Trucks

Appreciating the direct requirements demanded by automobile manufacturers on castings, and the limitations of most foundries for complying with these requirements, the Standard Steel Castings Co., of Cleveland, Ohio, has made a special study of just what is wanted in the automobile field, and has equipped its plant accordingly.

This company is making a specialty of small steel castings, ranging as a rule anywhere from one to one thousand pounds, and in order to absolutely control the quality of its product has installed a specially equipped chemical and physical laboratory. Every piece of raw material, of whatever kind, coming into the works is first tested in the laboratory. No material is bought except upon specifications, and all material must meet a standard analysis before being accepted. An analysis is then made of every heat, and so accurately and completely is the work done that the phosphorus is guaranteed under .04 and the sulphur under .06. The average tensile strength on these castings runs between 70,000 and 85,000 pounds.

The operating end is headed by one of the best steel casting men in the country, Thos B. Lavey, who for the past seven years has been superintendent of the Isaac G. Johnson Co. at Spuyten Duyvil, N. Y. Only recently the Standard plant has been doubled in size, and the capacity is now twenty-five tons per day. Every piece of equipment is thoroughly up-to-date and modern in every respect.

This company also makes a specialty of meeting customers' specifications where the order amounts to two tons or more. Analysis is furnished on any order when requested. This concern is now furnishing castings to some of the largest automobile manufacturers in the field, its products being used in the make-up of Standard motor trucks at points where special serviceability is required. Most of these customers started with merely a trial order, and eventually offered their entire tonnage to the Standard Company.

The strength and quality of the product are further backed up by the physical appearance of the castings, as they are clean, free from sand and other imperfections, and at the same time sharp and true to pattern.

What Chains?

Why Baldwin, of course, on all Standard chain-drive models—for eight different reasons.

In the first place, **Baldwin Quality—**

And the other seven reasons do not matter.

Baldwin Chains are made in all styles—cotter pin, riveted, and regular detachable. All kinds in stock—prices the same.

The large list of Baldwin patrons and years of experience in the Art guarantee to the trade the continuance of the high quality of Baldwin products.

Baldwin Chain & Manufacturing Co.

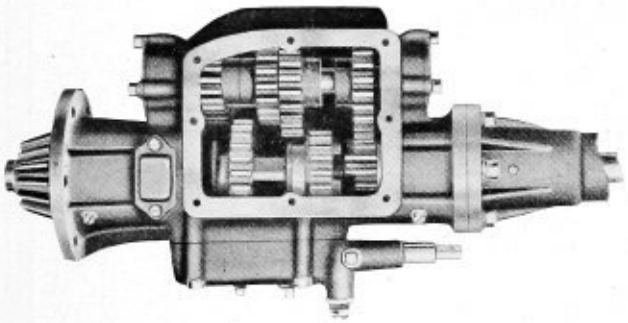
WORCESTER, MASS.

AGENTS:—H. V. Greenwood, 122 So. Michigan Blvd., Chicago, Ill.
C. J. Iven, Rochester, N. Y.
M. A. Bryte, 788 Mission St., San Francisco, Cal.
C. D. Schmidt, 276 Canal St., New York City
N. A. Petry Co., 1427 Vine St., Phila.
F. Shirley Boyd, 903 Boylston St., Boston, Mass.

The Covert Transmissions

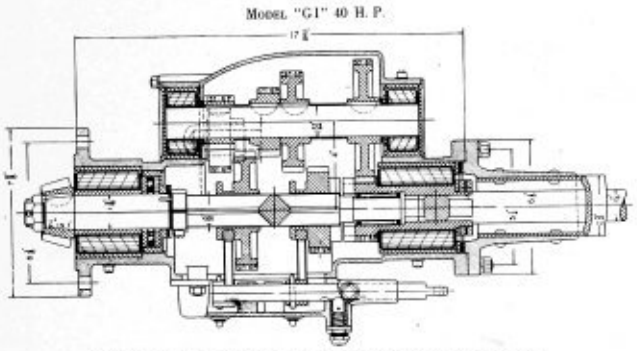
The Covert transmissions, manufactured by the Covert Motor Vehicle Co., Lockport, N. Y., are of selective type construction, having three forward speeds and one reverse. The gear shifting is accomplished by the sliding of two shifting rods which are placed on the side of the transmission, one above the other—the upper rod shifting the high and intermediate gears; the lower rod shifting the low and reverse gears. Both rods are held in position by a locking device which fits into notches in the sliding rods in such a manner as to hold the gears in their proper place, after being shifted.

Another feature worth mentioning is the locking ball, which is placed in such a position, between the two shifting rods, that it is impossible to shift both rods at the same time, this ball being arranged so that the moment one rod is shifted the ball locks the other, and thus prevents getting the two gears in mesh at the same time.



COVERT, MODEL G 1, TRANSMISSION USED IN STANDARD MOTOR TRUCKS

The gears in Covert transmissions are made of 3½ per cent nickel steel, and are hardened, heat-treated and ground to fit the shafts and bearings in which they run.



SECTION OF MODEL G 1 COVERT TRANSMISSION

The square holes in the sliding gears are so finished as to be a perfect fit on the square shaft in the transmission. The shafts are also made of 3½ per cent nickel steel, and are heat-treated and ground accurately to size.

The bearings are the Hyatt High-Duty type. The rolls on these bearings are made of 3½ per cent nickel steel, hardened, heat-treated and ground accurately to size, and are run in hardened sleeves which are ground both inside and out, thus making an unusually high-grade, quiet and easy-running bearing.

The cases are made of a high-grade malleable iron, and are sand-blasted, which operation naturally removes all the scale and sand from the cases, thus eliminating any possibility of grit or dirt getting into the bearings after the transmission is assembled.

Covert transmissions are also provided with an adjusting nut on the main pinion shaft, so that the bevel pinion can be adjusted one way or the other, in order to match up the large bevel gear in the rear axle.

The workmanship and material in these transmissions are of the highest grade, and the large number of Covert transmissions that are in use today is a fair indication of the satisfaction that they are giving.

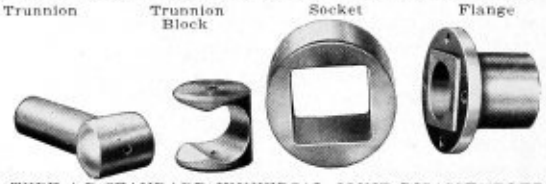
Packard Cable in Standard Trucks

In the belief that nothing but the best is good enough for the cables that carry the electric current from the magneto to the cylinders or from the battery to the coil, The Standard Motor Truck Co. has adopted Packard cable as the make best adapted to commercial car work. Packard cable is provided with a flexible protective covering which absolutely prevents the various layers of rubber from drying out and cracking, and also prevents oil from reaching the rubber and dissolving it. This covering of the copper wire core of Packard high-tension cable is composed of three separate layers of Para rubber properly compounded to give maximum strength and flexibility, and over these are inside and outside braids of glazed thread specially selected for its strength, toughness and durability.

The entire construction of Packard cable, in fact, is based upon the idea of combating the four great enemies of rubber—air, oil, water and heat. Before leaving the factory every foot of cable is tested in a special machine so constructed that a weak spot in the insulation is immediately detected.

Standard Universal Joints

In line with its policy of standardization the Standard Motor Truck Co. is using Standard Universal Joints, made by the Universal Machine Co., of Bowling Green, O. The latter company's new Type 4-P, which is shown disassembled, consists of but four pieces, yet it has unusually large wearing surfaces and a wide universal movement. There are no small, delicate parts to break or get lost. It consists of a large self-contained bearing built inside of a big, square slip sleeve, thus giving a combination joint and slip sleeve. The 4-P joint is compact, being very small in diameter for its rating. Power is transmitted through the square projection on the flange, thus relieving the bolts of all torsional strain.



TYPE 4-P STANDARD UNIVERSAL JOINT DISASSEMBLED

The Universal Machine Co. uses the best of material in its universal joints, trunnion and shaft being of chrome nickel steel, trunnion block and socket of titanium chrome steel, and bolts of alloy steel. All wearing parts are carefully hardened and treated

K. B. Universal Joints on Standard Trucks

The Kinsler-Bennett Co., Hartford, Conn., has manufactured the K. B. Universal Joint for the last seven years and has met with marked success in the trade. This universal is used by the Standard Motor Truck Co. (of Ohio) on its one-ton, 1½-ton and 2-ton trucks, and is made from drop forgings of special analysis steel, heat treated and case-hardened and has the very best workmanship. All parts are absolutely interchangeable. The joint is equipped with steel covers, which makes it dust-proof and oil-tight. This joint is noted for its strength and durability.

Kerosene For All Motors

Write for our Booklet, **"A Burning Question,"** which explains **Why** the fuel of today is not the fuel of the past, and **Why**

THE AIR-FRICTION CARBURETOR

with ½ Kerosene and ½ Gasoline Gives More Power with Less Expense

Try one on YOUR car for 30 days under our guarantee of complete satisfaction or money refunded.

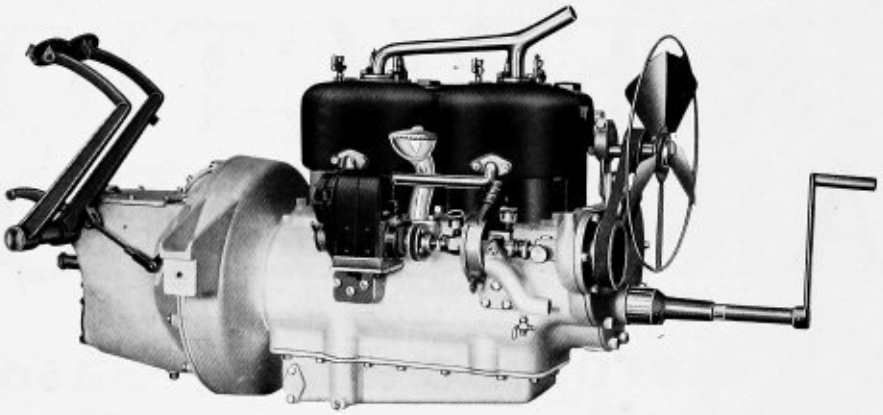
Air Friction Carburetors are Standard Equipment on Standard (of Ohio) Motor Trucks

AIR FRICTION CARBURETOR COMPANY

Liberal Trade Discounts **(Dept. M. F.) DAYTON, OHIO**

ERGON

ARE STANDARD



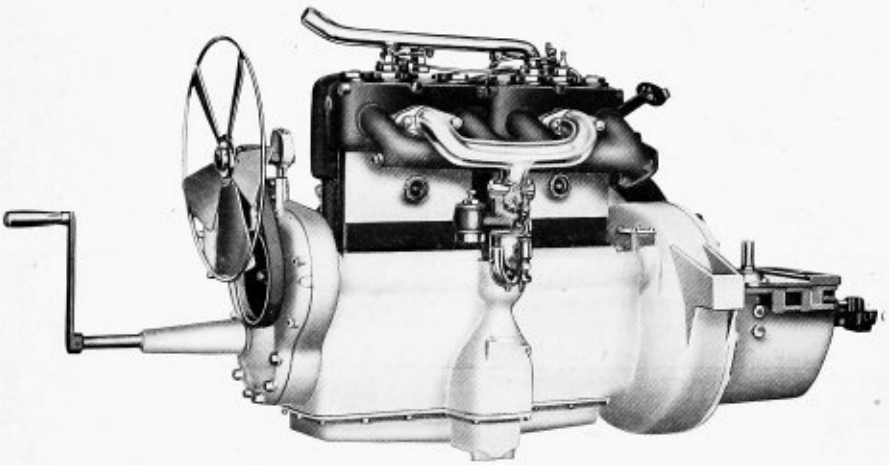
MODEL C. X. UNIT POWER PLANT, MAGNETO SIDE, RATING 25-30 H. P.

STANDARD OF OHIO

"ERGON" means "WORK"—but ERGON MOTORS mean something MORE: They stand for quality of material, refinement of design, a plant equipped with modern machine tools, ability to produce, and willingness to serve.

MOTORS

EQUIPMENT ON



MODEL D. UNIT POWER PLANT RATING 35-45 H. P.

TRUCKS

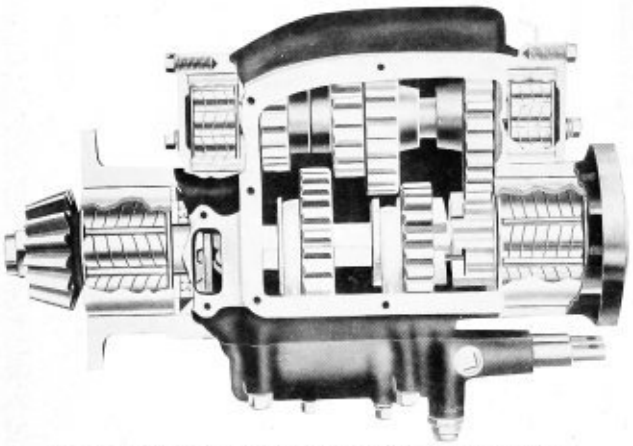
ERGON MOTORS are built in three 4-cylinder sizes:
Model C—3¾″x4¼″ | Model CX—4″x4½″ | Model D—4⅜″x6″
Motors for unit construction or for separate transmission and main-frame or sub-frame installation. Write for particulars.

Hazard Motor Mfg. Co.
Rochester, N. Y.

The Hyatt Quiet Roller Bearing

The Hyatt Quiet Bearing is a roller bearing of the parallel type. It is so very distinctive in character that it presents many interesting features peculiar to itself, from whence come many important advantages for motor car service.

In the Hyatt Quiet Bearing the rotating element is a flexible roller in place of a solid roller or ball. This flexible roller is so strong that it cannot crush or roll



SHOWING HYATT BEARINGS INSTALLED IN COVERT TRANSMISSION

out, yet is sufficiently flexible under the heavy load to which all motor car bearings are subjected to perform many functions impossible with any other type.

When one considers the enormous shocks which the motor truck meets in even its ordinary travels, to say nothing of the roads every truck has to meet during its life, he probably wonders how the mechanism stands the strain, notwithstanding the cushioning effect of the tires and springs. In addition to this there is the matter of alignment. As the frame twists and bends under the shocks and distortions of the road the shafts and mountings are more or less distorted, causing undue strain on the bearings and gears. It is right here that the flexible roller performs a very distinctive service. It cushions these severe shocks and relieves all the surrounding mechanism of sudden strains.

The rollers are made of nickel, heat-treated steel, and are ground to very close limit, while the inner and outer races are made of a special high-grade tubing which is carbonized, heat-treated and ground to close limits, both inside and outside.

Lighting the Path of the Motor Truck

The hardest service that comes to the motor truck or delivery car is in the evening just before closing time. It is hard service in two ways—faster driving to finish up the day's work, and rougher going because, during a part of the year at least, it is too dark for the driver to see and avoid the bad places in the pavement ahead. Such conditions call for lighting equipment that shall not only be bright but constant, and not so delicate as to succumb readily to the shocks inseparable from the economical operation of commercial motor wagons.

The designers of the Standard of Ohio truck have found that Prest-O-Lite equipment fills this difficult assignment to a nicety. It is reliable, efficient and undeniably economical. Prest-O-Lite on a motor truck or delivery makes the streets ahead as light as day. It shows up the inequalities in the pavement and gives the driver an opportunity to slow up or go around. Fragile articles carried in the wagons stand a better chance of arriving at their destinations safe and sound if the path of the vehicle is properly illuminated. The Prest-O-Lite system has been found to be practically trouble-proof; the driver's time is worth money.

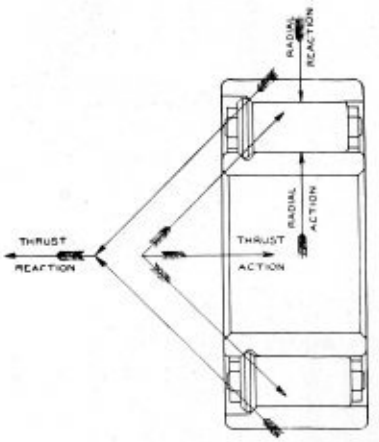
Those are some of the reasons why Prest-O-Lite has been selected by the makers of Standard of Ohio trucks as a part of the standard equipment—it being to the manufacturer's interest that the maintenance expense on a car he sells to a confiding customer shall be as low as possible.

How the Bower Roller Bearing Works

The Bower Roller Bearing, which is used to quite an extent by the Standard Motor Truck Co., is made by the Bower Roller Bearing Co., of Detroit, Mich. The accompanying diagram of this bearing illustrates the perfect conditions under which it works, showing that all loads, whether radial or thrust, have a reaction in the bearing which is parallel and opposite to the direction in which the load is applied.

The radial load is carried on parallel rollers which have a large amount of radial carrying capacity, allowing the bearing perfect freedom of motion. The end load or thrust is carried on the flanged head of the roller, which is an entirely distinct surface from that which carries the radial load.

The body of the roller is in contact throughout its entire length with both inner and outer parallel radial raceways. The thrust-sustaining portion of the roller does not come in contact with either radial raceway, thereby



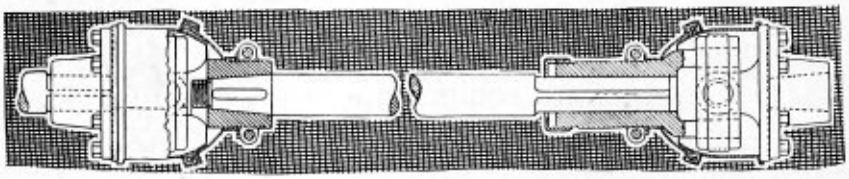
SHOWING PERFECT CONDITIONS UNDER WHICH BOWER ROLLER BEARINGS WORK

carrying no radial load. An increase in radial load has no effect whatever on the end thrust, and an increase in end thrust does not affect the radial load.

The Bower bearing is absolutely non-adjustable for radial alignment, but the end play in the bearing may be increased or diminished to suit conditions without in any way affecting the alignment of the shaft or spindle. On account of the self-aligning principle of this bearing the rollers always run in a true parallel path without wedging action, and, when correctly mounted and of proper size, the bearing will run for years without any appreciable wear. The races and rollers are parallel, and a maximum diameter of roller for a given size bearing is thereby obtained. The material and workmanship are of the best, and the most perfect machines, tools and gauges are used in their manufacture.

IN buying a Motor Truck you can't afford to overlook the Vital Importance of

Universal Joints



"The K-B Universal Joint"

¶ The Efficiency of your Motor Truck rests largely upon the Dependability of its Universal Joints. The builders of Standard (of Ohio) Trucks have recognized that fact; that's why they use

The Kinsler-Bennett Co.'s
Universal Joints

as standard equipment in their one, one and a half and two-ton trucks, chain-drive models.

¶ We have built this type of Universal Joint for seven years—and in that time it has demonstrated its ability to stand the strain under all conditions. Truck builders and owners have found that our Universal Joints can be relied upon for strength and durability.

¶ K-B Universals are made from the finest drop forgings especially case hardened throughout. They are unsurpassed for quality of material, high-class workmanship, perfect design and finish.

¶ Deliveries made within two or three weeks after receipt of specifications.

¶ Correspondence with the trade is solicited.

THE KINSLER-BENNETT COMPANY

100 Vernon Street **HARTFORD, CONN.**

(American Distributing Company, Jackson, Mich.)

TO MAKE A LONG

¶ The Standard Motor Truck Co. (of Ohio) has adopted Long Radiators as standard equipment.

¶ This makes sixty-three different manufacturers n o w specifying Long Cooling Systems.

¶ They have discovered through investigation that there is a vast difference between buying RADIATORS and buying COOLING SYSTEMS.

¶ They have found that it is not sufficient to put an ordinary RADIATOR on their car.

¶ This always means a questionable COMPROMISE.

¶ Experience has shown them that they required a special system designed for their particular purpose.

¶ Perhaps they needed larger water passages—a surplus amount of radiating surface—decreased weight and less air resistance.

¶ We have been able to furnish them with the system they needed and wanted.

THE MODERN PLANT OF THE LONG MFG. CO., DETROIT, MICH.

STORY SHORT

¶ Our modern factory with its efficient crimping, punching, bending and stamping machinery makes our product UNIFORMLY GOOD.

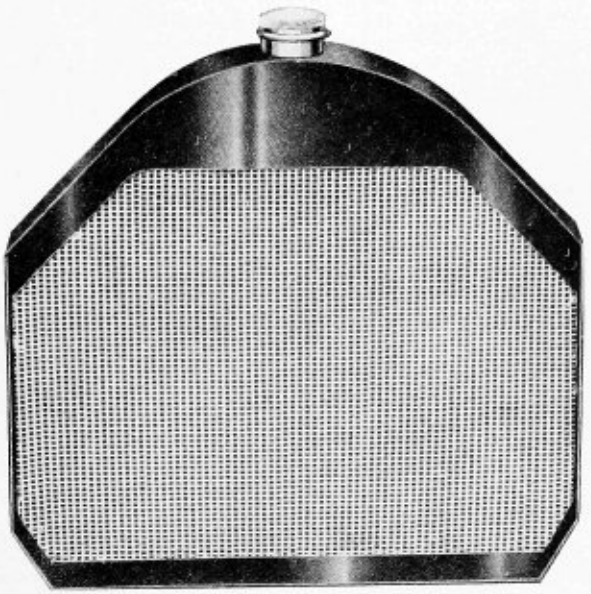
¶ We make all kinds of cooling systems—cellular, honeycomb, spiral tube types for all kinds of cars, trucks and tractors.

¶ We guarantee to solve your cooling problems.

¶ LET OUR ENGINEERING DEPARTMENT HELP YOU.

Long Manufacturing Company

Detroit, Michigan

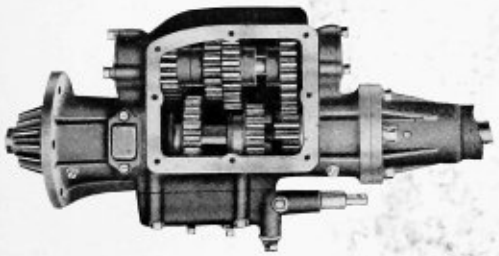


THE LONG RADIATOR WHICH IS STANDARD EQUIPMENT ON STANDARD TRUCKS.

COVERT

Transmissions

The Standard Motor Truck Co. (of Ohio) has found the most satisfactory disposition of their Transmission Problems in the adoption of the Covert Transmission in all chain-drive models.



The Covert name does more than to distinguish a superior product. It is a guarantee of dependability and insurance against transmission difficulties of which every Manufacturer should avail himself.

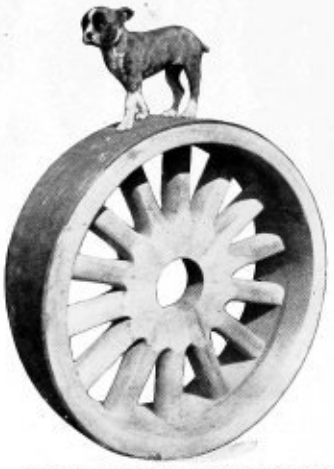
Specialized transmission engineers at the Covert plant stand ready to give their assistance in adapting the Covert Transmission to any construction. Send blue prints if this service is desired.

Covert Motor Vehicle Co.

Sales Offices: 1422 Ford Building
Detroit, Mich.
FACTORY, LOCKPORT, N. Y.

Bimel Wheels on Standard of Ohio Trucks

Standard motor trucks are equipped with "Indiana Second-Growth Wheels," made by the Bimel Spoke & Auto Wheel Co., of Portland, Ind. It is absolutely essential that wheels of motor vehicles engaged in hauling and delivery work shall be of the most substantial and durable construction, and it was to bring the wheel equipment up to the high standard of the other parts of the Standard truck that Bimel wheels were selected.

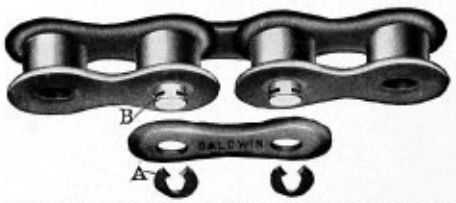


BIMEL WHEELS ARE STANDARD ON STANDARD TRUCKS

"Indiana Second-Growth Wheels" are made of the toughest and most durable wood in the world; that is, Ohio and Indiana second-growth hickory. The stock is first air-seasoned and then kiln-dried. Afterward it goes through the operation of kiln-drying a second time. Given absolutely perfect raw material to work with, the workmen of the Bimel company—experts in their chosen line—take every precaution to guard against the development of the slightest loosening or weakness in the completed wheel. They are built to stand the hardest possible knocks that traffic on city streets and country roads develop—and they do it.

Baldwin Product on Standard Chain-Drive Trucks

Looking over the field for the purpose of securing the highest-class material for its vehicles, the Standard Motor Truck Co. (of Ohio) has naturally selected chains made by the Baldwin Chain & Mfg. Co., of Worcester, Mass., for its chain-drive trucks. In commercial work, where the truck must perform its appointed task in all sorts of weather, it is especially necessary that drive chains shall be of such strength that they will stand up under severe stresses of work, and if they succumb to an over-strain that repairs can be effected speedily and thoroughly. The Baldwin chain fills these specifications to better effect than any other the Standard Motor Truck Co. can find.



REMOVABLE LINK FEATURE OF BALDWIN CHAINS

Dampness has no effect on Baldwin chains, and in the event of a broken link the repair is the matter of but a few minutes by removing the broken link and replacing it with a new one. An idea of the ease with which this may be accomplished is had from the accompanying illustration showing the removable link detached from the rivets B, with the lock clips A below it.

RUSSEL JACK SHAFTS

ARE STANDARD EQUIPMENT ON ALL

STANDARD

(OF OHIO)

Chain Drive Models

We Make Our Own Gears

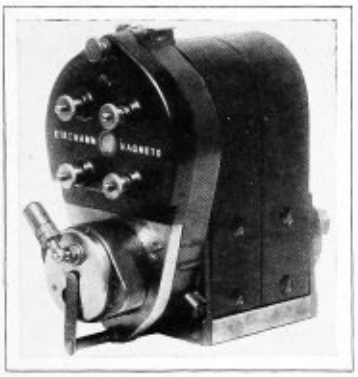
and therefore do not divide our responsibility for failure to make quiet running axles.

Front Axles
Rear Axles and
Jack Shafts
of Bevel Gear Type

RUSSEL MOTOR AXLE COMPANY
NORTH DETROIT, MICH.

Eisemann Magneto on Standard of Ohio Trucks

Ignition is an important element in the operation of a motor truck, and the builders of the Standard of Ohio, after a careful tryout of all the magnetos specially adapted to commercial car work, have decided to use the Eisemann, as being in every respect best fitted for the hard and continuous service inseparable from motor truck operation.



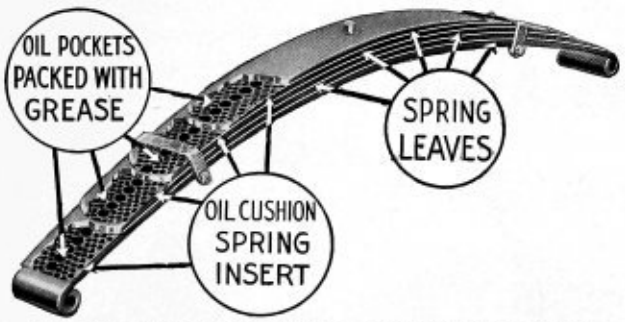
THE EISEMANN MAGNETO IS USED ON STANDARD OF OHIO TRUCKS

The construction of the Eisemann magneto is such that a spark is generated at a very low rate of speed, and under ordinary conditions any motor can be started on a quarter turn of the starting crank. The Eisemann has been found to work ideally with the Hazard-Ergon motor under any and all conditions of weather and street and road traffic. The simplicity of the apparatus reduces the complexity of the motor construction, and this point appeals to the general run of drivers and makes for economy in the operation of the truck.

In the accompanying illustration is shown the Eisemann magneto as it appears ready for service. The compactness of the instrument combined with its sturdy construction makes it ideal for the service which it has been called upon to perform in giving Standard of Ohio trucks an ignition apparatus that is reliable.

"Oil Cushionized" Springs for Standard

Lubrication of the leaves of truck springs has always been a problem for the owner, because of the stiffness of action due to the tremendous friction created by the lack of proper lubrication between the leaves. A spring, being composed of a number of leaves of graduated lengths, contains an enormous area of surface, which,



HOW STANDARD TRUCK SPRINGS ARE "OIL-CUSHIONIZED"

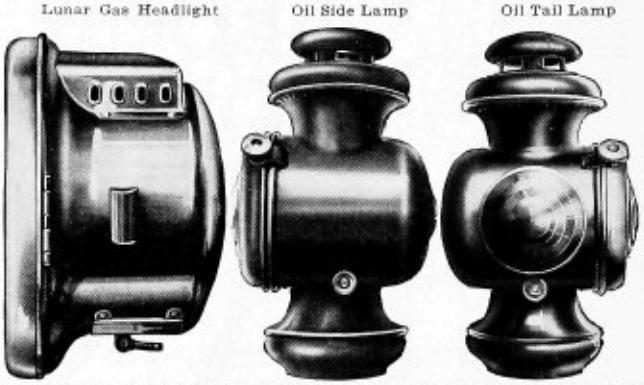
consequently, means an enormous friction if not lubricated. Any surface, large or small, that moves against another must have perfect and permanent lubrication in order to be efficient.

Springs of ordinary construction become dry and rusty soon after leaving the factory and consequently such a spring is left in a rigid state. A spring in this condition cannot perform its duties properly, nor can it even approach in value the efficiency of a perfectly lubricated spring.

The springs of all Standard motor trucks, constructed upon lines which are accepted as standard in regard to carrying capacity, are "Oil-Cushioned" by interposing the Dann Oil Cushion Spring Insert between the leaves, and they respond instantly to the slightest undulation in the road surface. The leaves slide smoothly and freely upon each other without friction from dry and rusty surfaces. They absorb vibration, which ordinarily shortens the life of a truck and makes it lose its newness and become old and clattery in its early life. The life of the tires and mechanism are prolonged by the ability of the springs to absorb terrific road impacts which a truck must necessarily receive in use. The comfort of the driver and the proper protection of the load carried are thus guarded against; spring breakage is reduced to a minimum, and spring squeaks are absolutely eliminated.

Standard's Splendid Lamp Equipment

In the Winter months especially not a small percentage of the motor truck's work is performed before dawn or after sundown. It is therefore highly important that its lighting equipment shall be of the most reliable kind, built especially to stand hard knocks and give constant maximum service despite the constant vibration to which lamps are exposed in commercial car work.



TYPES OF INDIANA LAMPS USED ON STANDARD MOTOR TRUCKS

The Standard Motor Truck Co., desiring nothing but the best, has arranged to supply all its vehicles with the equipment of the Indiana Lamp Co., of Connersville, Ind., of which the Zinke Co., Chicago, Ill., is the sales representative.

On the front will be found the 10-inch Lunar Gas Headlight, which is furnished in black, brass-and-black, or nickel-and-black finish. They are constructed of the very best material obtainable, are carefully made and will stand the most severe test. This lamp has a one-piece body, made of heavy gauge material throughout and gives a most brilliant light. It is very easy to clean. The 6-inch mirror is of genuine ground glass, and the reflector has a silvered front. All parts are interchangeable.

The side and tail lamps use oil as an illuminant, thus rendering it practically impossible to be without light after nightfall, even though the supply of acetylene should give out. These lamps are of the small round type, beautiful in design, of die-work construction throughout, and with all parts interchangeable and fitting perfectly. The oil pot locks with a simple turn of the wrist. The semaphore lens is used, retained by a snap ring, the door being fastened by a spring catch and a knurled nut. These lamps are furnished in all black, black-and-brass or black-and-nickel. They are vibration-proof and are practically indestructible.

BIMEL

"Indiana Second Growth Wheels"

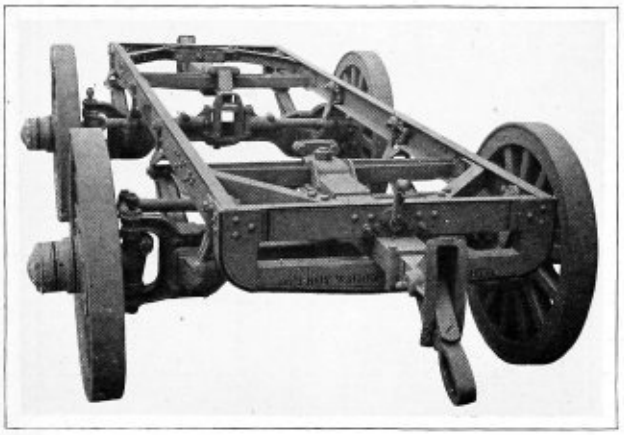
Are Standard equipment on STANDARD Trucks; in fact, in three short years have become the Standard truck wheel of America. Our wheels are standard on such trucks as the GARFORD, FEDERAL, B. A. GRAMM, PACKARD, WILCOX, WICHITA FALLS, SERVICE, MAIS, ADAMS, LAUTH-JUERGENS, G. A. SCHACHT, MERCURY, LAMBERT, LIPPARD-STEWART, DART, BOWLING-GREEN, MODERN, HENDRICKSON. SPEEDWELL, ETC.

The wheels carry the burden, and the careful manufacturer does not attempt to economize on truck wheels. Good wheels are never cheap—cheap wheels are seldom good, and it's the wise manufacturer who looks to the future when buying the important parts for his trucks. Bimel's "Indiana Second Growth Wheels" are backed by over 60 years of honest effort and they very, very seldom go "back to the shop." Six large spoke and one rim plant in connection make for good deliveries at all times.

BIMEL SPOKE & AUTO WHEEL CO., Portland, Ind.

Special Trailers for Standard Trucks

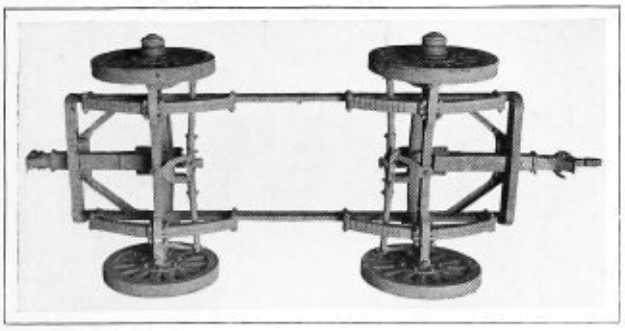
SO MANY and diverse are the uses to which a satisfactory trailer can be put in connection with a powerful motor truck such as the Standard of Ohio, that the builders of the latter have entered into an arrangement with the makers of the Troy trailers, the Troy Wagon Works, of Troy, O., to supply these useful vehicles in con-



FRONT OF TROY TRAILER, SHOWING DRAW BAR AND LINK

nection with Standard installations wherever quantity and character of work indicate a profitable combination.

Troy trailers are built with maximum capacity of 5 tons, the weight of the trailer chassis being 3,330 pounds. In experimenting with the idea of producing the most effective type of trailer the Troy Co. developed the fact that an average 3-ton truck will pull 10 tons live load in



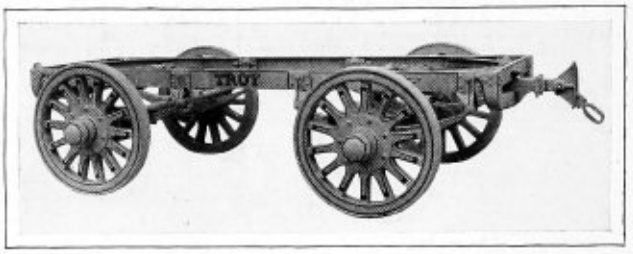
BOTTOM VIEW OF CHASSIS SHOWING SPRING EQUIPMENT

addition to the rated load on the truck proper. These tests developed a remarkable economy with the use of trailers. Reckoned in ton-mile costs, the figures were: Team, 0.221; truck, 0.200; truck with one trailer, 0.137; truck with two trailers, 0.106.

In designing these trailers it was necessary to devise some means to neutralize shocks to the motor truck and its gasoline power plant due to sudden starting. The tests along these lines developed the necessity of keeping the live load on any one trailer to 5 tons or less, and that a very short wheelbase was a desirable desideratum; that the trailer must follow in the tracks of the truck, without "side-swiping" or lateral strain on either the truck or its motor; that the draw-bar must be attached to the resilient frame of the trailer and not to the axles, and that the wheels and axles of the trailer must be flexibly connected to the frame. The frequent necessity of backing the entire train where the passageway was restricted was also considered, and means devised to do this in a straight line.

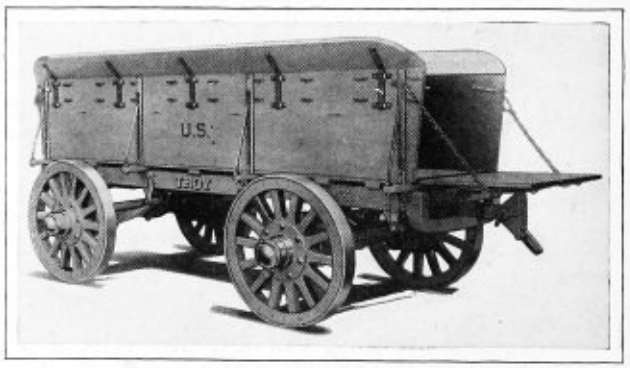
The draw-bar, which is connected to the main frame by means of a king bolt passed through a draft beam bolted to the frame in a perpendicular line with the center of the axle, is telescopic, containing a coil spring which starts into compression at 200 pounds pressure and is completely compressed at 2,000 pounds, so arranged that it is compressed when the trailer is either pulled or pushed. The draw-bar operates through a slide rest, but may be locked at the center of the frame by a small lever. The connection is made through the guide for the spring draw-bar passing through a vertical slide. This arrangement permits an absolutely flexible connection, and as there is no other connection between frame and wheels except through the springs with their flexible shackles, complete resiliency is maintained throughout the whole structure.

The draw-bar head is especially designed so that it may afford a bumper between trailers when operated in mul-



SIDE VIEW OF THE CHASSIS OF TROY TRAILER

tiples. It provides also a long spring bumper surface at any ordinary angle of contact, thus preventing the draw-bars from climbing one upon another when on down grades or uneven road surfaces. The coupling links are of special design also. The slots in the links allow quick connection between trailers, as well as a rigid connection when trailers are on down grades or are being backed in multiples. When the faces of two draw-bar heads are in contact the flexible joint of the link is within the walls of the heads and is therefore held rigid.



ONE OF TRAILER FLEET IN GOVERNMENT SERVICE

Below are given the specifications of these new trailers:

Height of wheels	3 feet
Width of steel tire	4 inches
Width of tread	5 feet 4 inches
Wheel base	6 feet 11 inches
Height of chassis	34½ inches
Length of chassis	12 feet
Width of chassis	41½ inches
Length from end to end of draw-bar	14 feet 8 inches
Length between steering arms	4 feet 10 inches
Springs, 4 feet long	3½ inches wide
Diameter of spindle	2⅞ inches

Bower roller bearings.

Packard CABLE

Makes Good In Service---*Always*

There is no variation in quality. High potential tests and careful inspections make shipments of defective cable impossible.

Truck makers, users and drivers the world over are learning that the best cable is none too good and are specifying Packard. If it could be made better we would certainly do it.

Packard Cable, because of its extraordinary wearing qualities, is used by American automobile manufacturers and the United States Government.

SPECIFY ***PACKARD***

The
Packard Electric Company
Warren, Ohio

GLOBE AUTO-MOBILE BOXES

Picture a line of Steel Boxes, the construction of which is substantial; that forms a harmonious part of any truck or car; that is built by the pioneers of Automobile Boxes and in the largest and best Box Factory in the world.

If you cannot picture this, then study the cut. For it shows the summary of the statements we have made. This Box is only one of the 32 different styles that we make—and carry in stock.

Globe Boxes are the leaders and will always continue as such, for the Automobile Box business is our business. We have brought out every innovation and refinement in Boxes, which accounts for Globe Box supremacy. Quality in construction; Quality in finish and Quality in appearance—spell Globe Boxes. And it does not follow that our prices are high.

Practically every truck or pleasure car that carries a Steel Box as regular equipment, carries a Globe. Fully ninety per cent of the jobbers in the country are Globe Box jobbers.

We want to tell you more about Globe Boxes. That's why we want you to send for that catalogue of ours. It explains in detail, and interestingly, why Globe Boxes are better than any other. Tomorrow is NOT today, so send for it right away.

THE
Globe Machine & Stamping Co.
Cleveland
Sixth City

Keeping Tab on the Truck's Movements

During the last five years manufacturers, dealers and owners have experimented thoroughly with all kinds of speedometers and odometers in connection with motor trucks for the purpose of determining the speed as well as the mileage in connection with the operation of their motor trucks during certain given periods.

JONES HUB ODOMETER USED ON STANDARD TRUCKS

It is well known that governors of various types have been adopted and are being used on all good motor trucks; therefore, the question of the speedometer for commercial work has been eliminated because the speed is governed absolutely by the manufacturer of the motor.

The advantages of this type of instrument are being appreciated by all owners of motor trucks as it enables them to determine the mileage for each day and compels the driver to render a report showing the cost for gasoline and oil, the condition of the tires and, in fact, all items in connection with the cost of operating a motor truck, whereby the owner is able to make a monthly statement for his own records showing the total cost, the total mileage and, perhaps the most important of all, to insist on a fair adjustment of any tires which do not give their full service.

The Jones Hub Odometer is perfectly adapted for the purposes described above because it is strong, substantial and easily attached to the hub of the left front wheel by simply removing the standard hub cap which is replaced by this instrument. It is a heavy casting and the delicate parts are few and well protected by the strength of the shell or casting on the outside. There is absolutely no chance for this to become detached, which is a common occurrence in connection with the average cable instrument which has many parts and is subjected to constant vibration, being attached to the steering knuckle which is constantly moving over a given fixed radius in addition to the vibration while the truck is in motion on the street.

Lubric Lubricants for Standard Trucks

The lubrication of an automobile is one of the most important factors in its successful operation and one which should be most carefully considered. It is an easy matter to determine the requirements in the proper lubrication of an engine which runs at a uniform speed and in an even temperature, but it is a different proposition in the lubrication of an automobile, which is operated under varying conditions as to speed, temperature, load, etc.

In manufacturing the Lubric line of automobile lubricants the makers have carefully considered all these features and worked them out along practical lines. To properly lubricate a gasoline engine of the type used in a motor truck, an oil must stand a high fire test, high viscosity and have a cold test sufficient to withstand climatic changes, and must be as free from carbon as possible.

Lubric Auto Oils have all these qualities, skillfully combined so as to properly lubricate under the most trying commercial service conditions. The company has been manufacturing lubricating oils and greases for a number of years and has made a careful study of automobile lubrication, with the result that there are no better goods on the market than the Lubric Oil Co.'s products. Lubric AAA Motor Truck Oil and Transmission and Differential Greases are excellently adapted to Standard motor trucks, their use having proven remarkably successful.

Analysis Steel AUTOMOBILE CASTINGS

Quality absolutely controlled by chemical analysis of every heat.

Phosphorus guaranteed under .04; Sulphur guaranteed under .06; Tensile strength 70,000 to 85,000 pounds.

High Grade Organization—Operating end under direct supervision of Thos. B. Lavey, for the past seven years superintendent of Isaac G. Johnson Company, Spuyten Duyvil, N. Y.

Modern Plant—Our equipment is up to date and complete in every department. Plant only recently doubled. Capacity 25 tons per day.

Quality Product—Castings are strictly high grade in every respect. Clean, free from sand and imperfections. Sharp and true to pattern. Anything from 1 to 1,000 pounds.

Delivery—Guaranteed to schedule.

Test Our Service With a Trial Order

The Standard Steel Castings Co.
W. 73rd St. & Big Four R. R.
Cleveland, Ohio

Guarantee

We guarantee new motor vehicles manufactured by us for 12 months after the date of shipment from our factory.

We will make free replacement of any defective parts F. O. B. factory. All parts for claims under this guarantee must be returned to our factory, express or freight prepaid, properly tagged, for our inspection before credit can be allowed.

This guarantee does not cover any vehicle that is overloaded, neglected, abused or damaged by an accident.

We make no guarantee whatever on accessories — such as tires, rims, spark plugs, magnetos, lamps, etc. They are guaranteed by their respective makers and in case of claims same should be sent to the factory of said makers direct, transportation prepaid.

The condition of this guarantee is such that if the motor vehicle to which it applies is altered, repaired, or on vehicles equipped with speed governors, if governor is removed or altered, outside of our factory, our liability under this guarantee shall cease.

The purchaser understands and agrees that no guarantee of the motor vehicle is made, or authorized to be made by the company, other than that herein above set forth.

The Standard Motor Truck Co.

(Of Ohio)

Factory and Main Office:
WARREN, OHIO

Sales Offices:
1824 Euclid Ave., CLEVELAND, O.

THE STANDARD OF OHIO BOOK OF MOTOR TRUCKS

FACTORIES
WARREN,
OHIO.