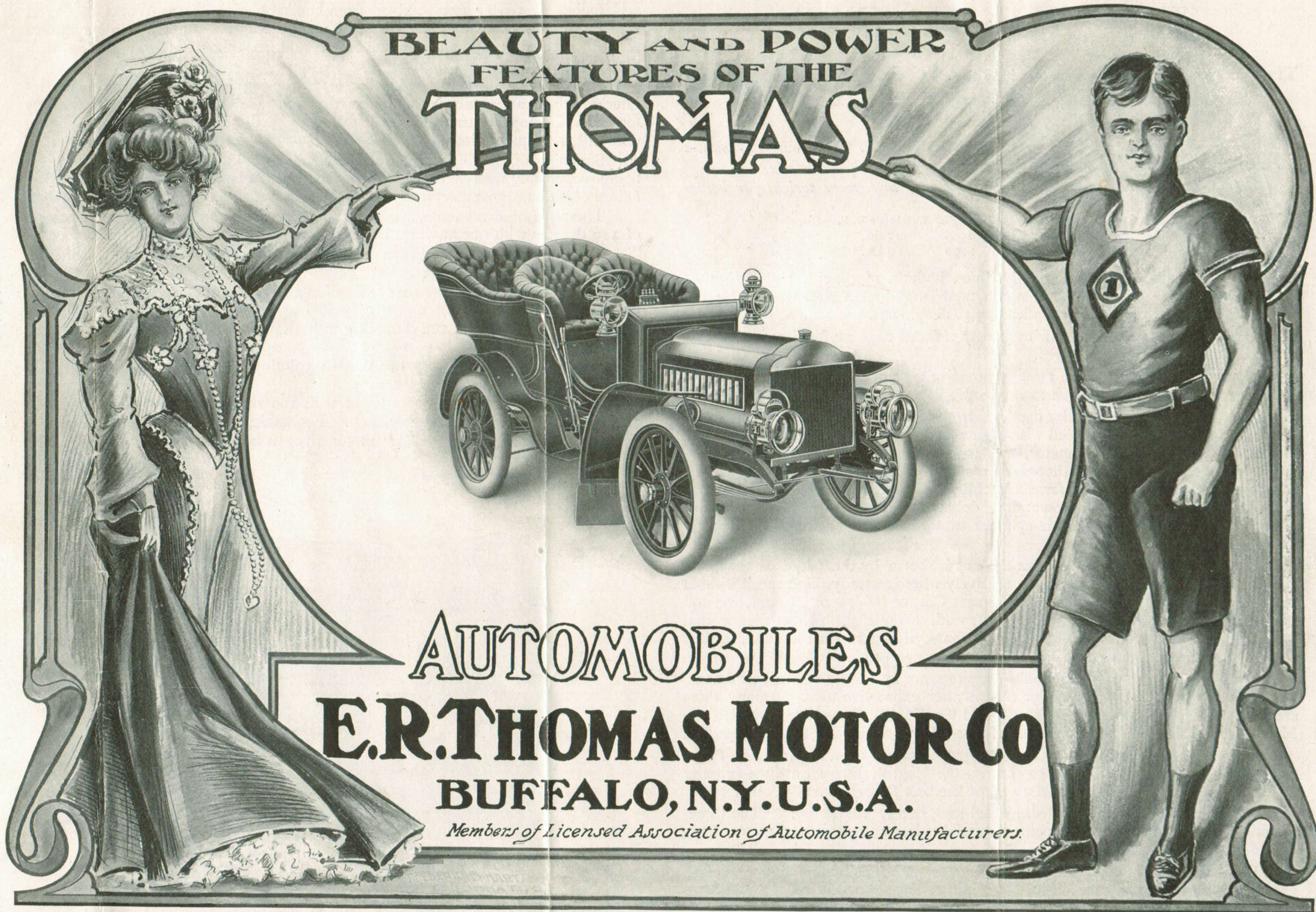


275-  
1904

BEAUTY AND POWER  
FEATURES OF THE  
**THOMAS**



**AUTOMOBILES**  
**E.R. THOMAS MOTOR CO**  
**BUFFALO, N.Y. U.S.A.**

*Members of Licensed Association of Automobile Manufacturers.*

# THE IDEAL CAR

## The Problem of Every Progressive Automobile Manufacturer is to Find the Maximum of Speed and Strength with the Minimum of Weight

The new Thomas "Flyer," so named by Mr. C. A. Coey, our enthusiastic Chicago agent, is the nearest approach to this ideal.

The closest competitor in its class draws *50 per cent. more weight per horse-power.* Note:

	List	H. P.	Weight	Weight per H. P.	Capacity
Competitor	\$2500	20	2500	125 lbs.	5 people
Thomas	\$2500	24	2000	83 lbs.	5 people

The Thomas is constructed on the lines, both in mechanism and design, of the very latest 1904 Panhard and English models, and is in accordance with the principles advocated by the world's leading gas engineers.

The Thomas is miles faster, with greatly reduced expense for tires and operation, on account of reduced weight.

The Thomas represents the most progressive type of automobile building and is the nearest American approach to standard.

In order to meet the popular demand, to produce a touring car of great speed and hill-climbing power, coupled with lightness and strength, it became necessary to adopt a multiple-cylinder motor, and to choose either a two, three or four-cylinder model. After a very thorough investigation and inquiry among domestic and foreign makers of motors for automobiles, marine and electric lighting purposes, besides spending many thousands of dollars in experiment in our own works, we decided in favor of the triple-cylinder motor as meeting automobile requirements in the highest degree.

That we are not alone in our conclusions is shown by the fact that the great Westinghouse Works build this type exclusively where a steady, high speed without vibration is necessary. The Leeds Equipment Co., of Bridgeport, Conn., use and recommend it for launches when great speed, simplicity, high efficiency and greatest power are required. They have no four-cylinder motors, because, as they say, "it would mean just one-third more working parts to look after."

Turning to the foreign automobile makers, we find some of the best known among them adopting triple-cylinder motors after exhaustive tests. Among them are such concerns as Panhard of France, and the English firms manufacturing the Maudslay, Brooks and Argyle cars, all of whose latest models are thus equipped.

A three-cylinder car recently made a record non-stop run in England of over 600 miles. In the late endurance contest, the English Duryea, a three-cylinder machine, won every prize in its class against the best foreign makes of other types.

The editor of a leading English journal says, in a recent letter: "The three-cylinder motor is distinctively superior to and has less competition than the four-cylinder motor."

Westinghouse Manufacturing Co. say: "Inasmuch as three-cylinder engines are eminently satisfactory for electric lighting, as built by us, it would be folly to complicate all their parts of operation."

Quoting from a letter received from the Wolverine Motor Works of Grand Rapids, Mich.: "One of the principal reasons why we adopted triple cylinders is because we can balance the engine better, and get a more uniform exhaust than by any other number of cylinders."

Simplicity is always desired; therefore (quoting from a prominent manufacturer), "the least number of cylinders that will give the necessary weight, steady torque, and compact arrangement should be adopted, and since the triple cylinder does this, it is unquestionably preferable."

Summing up, it will be seen that the triple-cylinder motor is no experiment, being successfully used and advocated by the world's leading manufacturers. The failure of the local manufacturers in earlier stages was absolutely due to faulty design.

There are no dead centers, because the three crank throws are set at an angle of 120 degrees with one another, hence the rotating parts are always in balance.

There are no extra weights to counterbalance vibration, hence every ounce of the explosion counts for power.

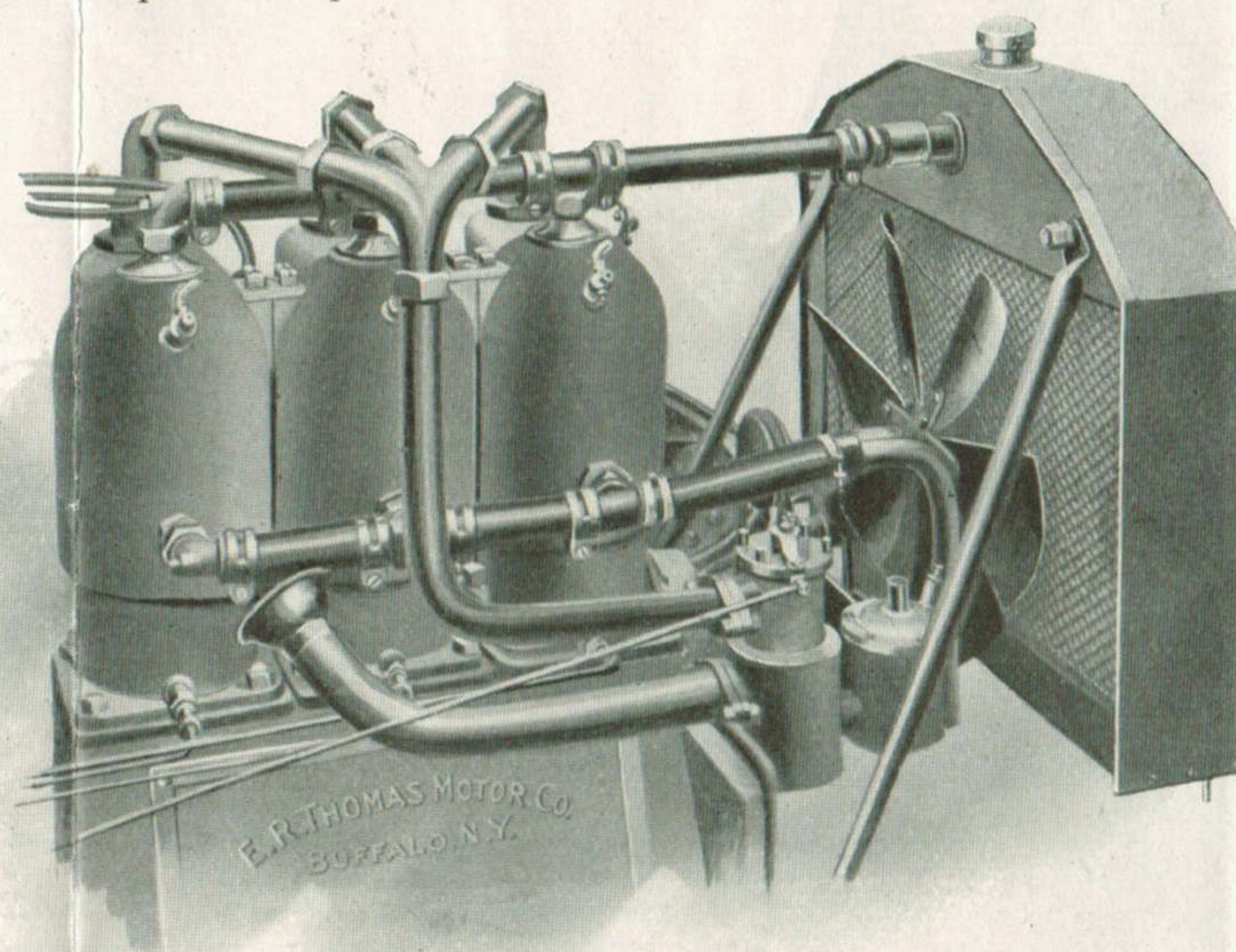
There is a practical absence of vibration at all speeds; whereas, this is true of the double-cylinder vertical motor only at the one speed for which it is balanced.

It furnishes long life and durability to both motor and car, and comfort to the passengers.

It has an impulse at every two-thirds revolution, meaning high speed steadily maintained on the level and up grades.

It is the lightest motor consistent with the required power, consequently it means a light car and highest efficiency. Economical in operation and up-keep.

In a word, the triple-cylinder motor gives us high speed, high efficiency, the greatest amount of power for a given size of cylinder, or for a minimum of weight, a maximum of speed and power.



Motor, Water and Electric Connections, Fan, Radiator, Carburetter, Air and Gas Tubes

# SOME SPECIAL FEATURES OF THE THOMAS 24 H.-P. TRIPLE-CYLINDER CAR

**Motor.** Triple cylinder, vertical, 24 H. P., mounted under front hood. A motor developing a maximum of power for a minimum weight and size. All vibration eliminated.

**The Motor Base** is cast from aluminum alloy and affords four solid bearings for crank shaft. The outer bearings are provided with chain lubrication and will run 1000 miles with one oiling. The inner bearings as well as the pistons and the connecting-rod boxes receive splash lubrications. Crank-axle bearings are very large, and are accurately ground and lapped. All connecting-rod boxes are of bronze and babbitt. Intake valves are very accessible—any one of them can be removed and replaced in one minute; in fact, any part of the motor can be gotten at easily and quickly.

**The Crank Shaft** is self-oiling, milled from a solid steel forging. The shaft bearings, *large and strong* (106 square inches of bearing surface in the four bearings), are turned to size and polished with great care. No counterbalancing weights required.

**The Cylinders** are cast separately, each cylinder and head being in one piece. After the cylinders are bored out to size they are ground and lapped to a beautiful polish. Cylinders are securely bolted to base, have ground joints, no gaskets.

**The Rings** are made after the most improved design and are ground by our secret process on the three bearing surfaces. Our rings are perfect and will micrometer exactly alike. Five of these rings are used—four at upper part of piston for compression and one at lower part, the latter to act as a balance, and an oil retainer and distributor.

**The Piston** is machined, lapped and polished with the same care given the cylinder and rings. Wrist pin is of tempered tool steel.

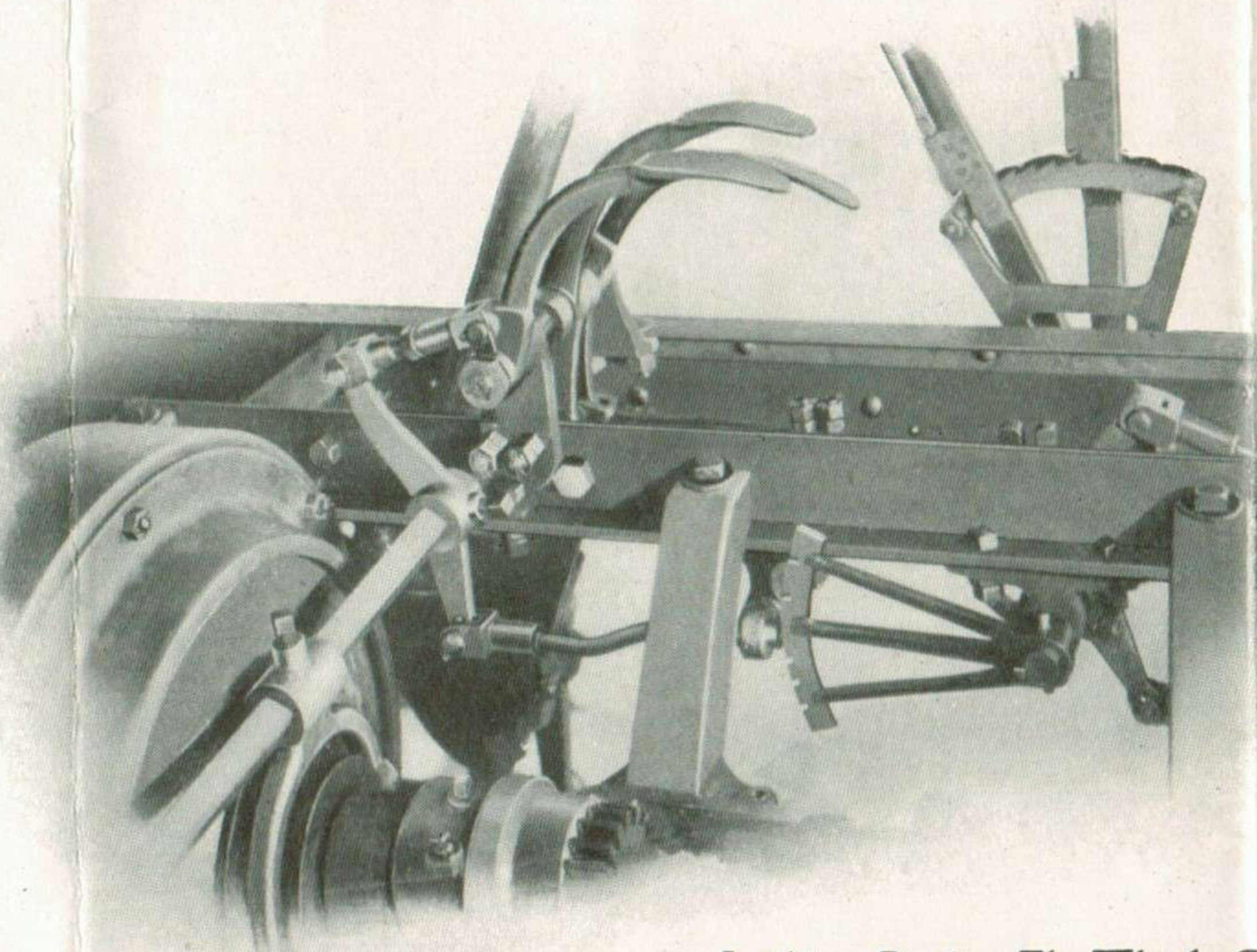
**It is this extreme care** in the manufacturing which has given to the Thomas Motors *the just reputation* of developing more power in proportion to size than any other.

**Lubricating of Cylinders** is by a force-feed device attached to dash. This arrangement is provided with hot-water tube to warm oil in cold weather and a warm-air tube to supply pressure. Both tubes are adjustable. The supply of oil is carried through sight-feed regulators. *Lubrication is therefore positive and absolutely under control.*

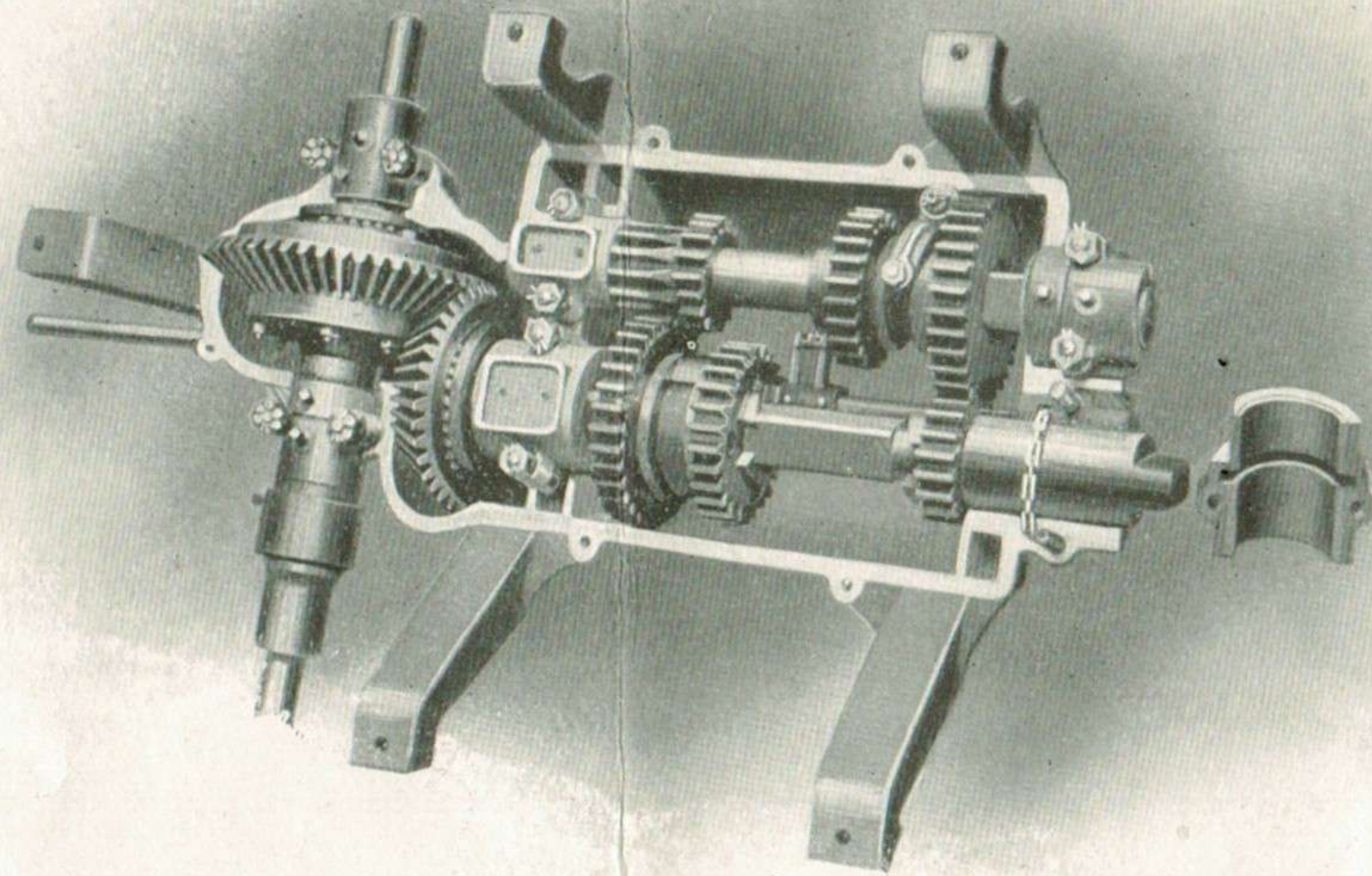
**Locking Device** (see cut) in connection with transmission makes it impossible for clutch to engage motor until gears are perfectly in mesh. Once the clutch is thrown out by foot, and speed lever is moved slightly, there is no danger to the gears, even though foot is lifted.

**Transmission.** Sliding gear (patent applied for), three forward speeds and reverse, running direct on high speed without a gear enmeshed. Entire gearing, including differential, enclosed and running in oil bath. All outer bearings fitted with chain oilers. Ball bearings of large size relieve end thrust in both directions. All main bearings of hardened tool steel, accurately ground, very large and strong.

The transmission (patent applied for) is wonderfully strong and simple. All journals are extra large, made from hardened steel, ground true. By means of the safety device no change of speed can be effected without the clutch is first disengaged, thereby eliminating the danger of stripping gears. When running on high speed it gears direct, the secondary shaft remaining idle. This feature reduces noise to a minimum and also economizes power.



Locking Device, Fly Wheel, Clutch and  
Disengaging Lever



**Transmission, Shifting Gears, Chain Oiler, Ball Thrust and Differential**

The transmission clutch is self-contained within the fly wheel and operates without exerting any end thrust whatever. This feature alone adds years to the life of the car. The clutch spring is adjustable.

The transmission oiling arrangements are such that the machine can be run more than 1000 miles with one oiling. The end bearings have chain lubrication, while all other bearings and gears run in an oil bath.

The transmission case is made of aluminum and when bolted down is oil tight. An easily removable hand-hole plate allows inspection of gears and shifting mechanism.

**The Ratios of Speed** when car is equipped with 25 and 40-tooth sprockets, ordinary touring equipment, are: To each revolution of rear or driving wheel is required of motor shaft, on high speed or direct drive, 2.4 revolutions; on second speed, 3.9; on slow speed, 7.8; and on the reverse, 10.2. In other words, with motor running 900 revolutions per minute a speed of 35 miles per hour would be attained on high gear and 10 miles on low.

**Muffler.** Very silent and efficient.

**Wheel Base.** 84 inches.

**Gauge.** 56½ inches.

**Chain.** Double drive, roller, detachable link.

**The Bearings** on four wheels and countershaft are rollers made from tem-

pered tool steel, accurately ground. They are very large and constructed to exclude perfectly all dust and moisture. One packing of lubricating grease lasts for thousands of miles.

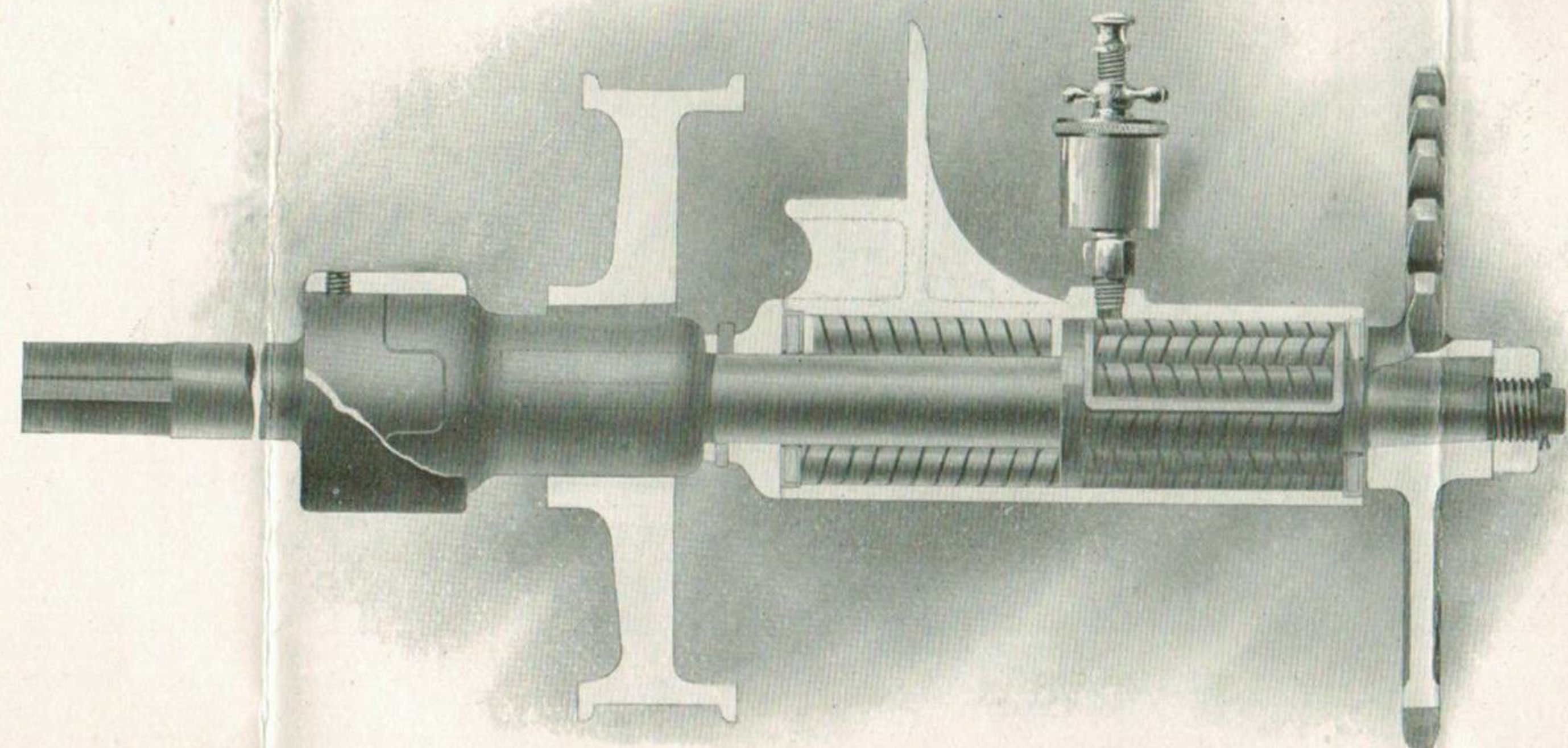
**Wheels.** Wood, artillery pattern, patented, 32 x 4 inches. Dust-proof roller bearings.

**Sprockets.** Interchangeable, allowing speeds up to 50 miles per hour—see “speed ratios” above.

**Brake.** One foot brake on differential shaft, operated by foot lever, two on drums attached to rear wheels. ALL brakes can be applied at once by throwing on emergency lever. The brakes are powerful, but are never operated with clutch engaging fly wheel. The application of one or all of these brakes disengages clutches automatically. They are double acting (patents pending), and very strong on reverse as well as forward.

**Steering Device.** Worm-and-gear type, Hindley patent, adjustable both in steering post and sector; all enclosed, making it absolutely dust-proof. The worm engages five teeth at all times, whereas the ordinary engages but one or two (see cut).

**Transmission of Power** to rear wheels is by two chains, each pulling between the outside and inside roller bearings of each driving wheel—a *valuable feature*.



**Sectional View of Countershaft, Coupling, Brake Drum, Roller Bearings and Sprocket**

**Electrical Switch, Spark Gaps, Three Vibrator Coils, Oiler** (force feed and visible sight feed), all housed under a new design metal dash board, which curves back at top and sides.

**Cooling System.** Honeycomb radiator of large capacity, exhaust fan attached. Pump of large capacity is geared to motor. Pump is fitted with strainer and oil trap. Cylinders and valve chambers have large water jackets. (See cut of motor, radiator and fan.)

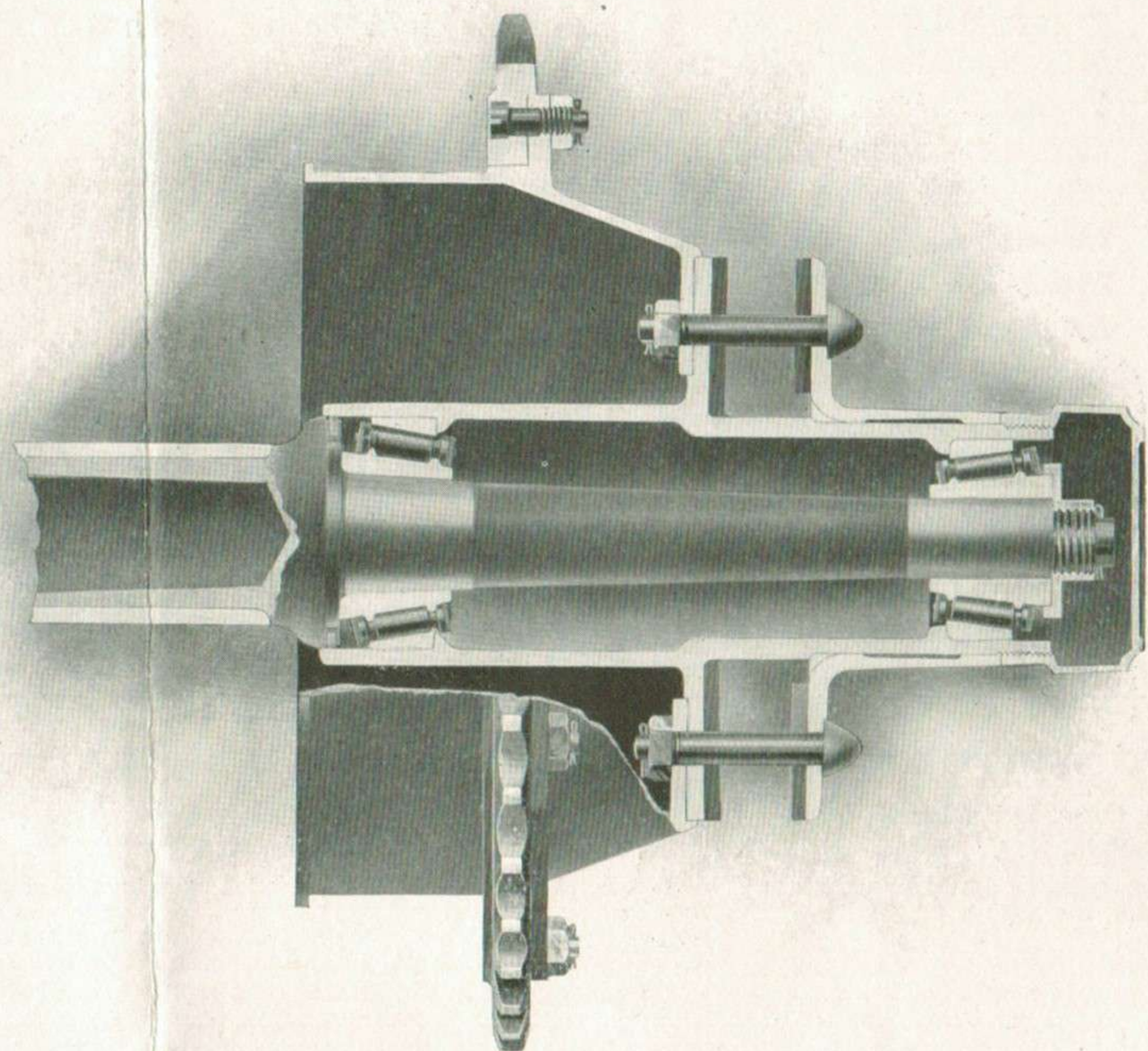
**Carburettor.** Thomas improved, float-feed type, of ample capacity, is set for normal speed, but is also provided with foot-lever control.

**Universal Joints** between fly wheel and gear case, and on either side of countershaft, thus insuring perfect alignment in operation. Fly wheel, motor shaft, cylinders, pistons, gears, shafts and countershafts can be removed without disturbing the alignment of the bearing boxes—a very important feature for quick and perfect repairs.

**Main Frame.** Steel plate, angle steel riveted top and bottom; to this is riveted the angle steel sub-frame to which is bolted motor and transmission.

**Axles.** Heavy solid drop-forged-steel axles, yoke and knuckles; axle tubes of best seamless steel, 9 gauge.

**Tires.** Detachable, 4 inches x 32 inches.



Sectional View of Rear Hub, Sprocket between Roller Bearings and Emergency Brake Drum

**Springs.** Extra heavy and large, and reinforced on either end, made from best steel, oil tempered. 40-inch front and 44-inch rear.

**Gasoline Capacity.** 15 gal.

**Water Capacity.** 3 gal.

**Body.** A great deal of care has been used in designing the body, resulting in something very striking and artistic. This, with the splendid finish and luxurious upholstery of finest hand-buffed leather and brass trimmings, makes it a car without an equal in appearance.

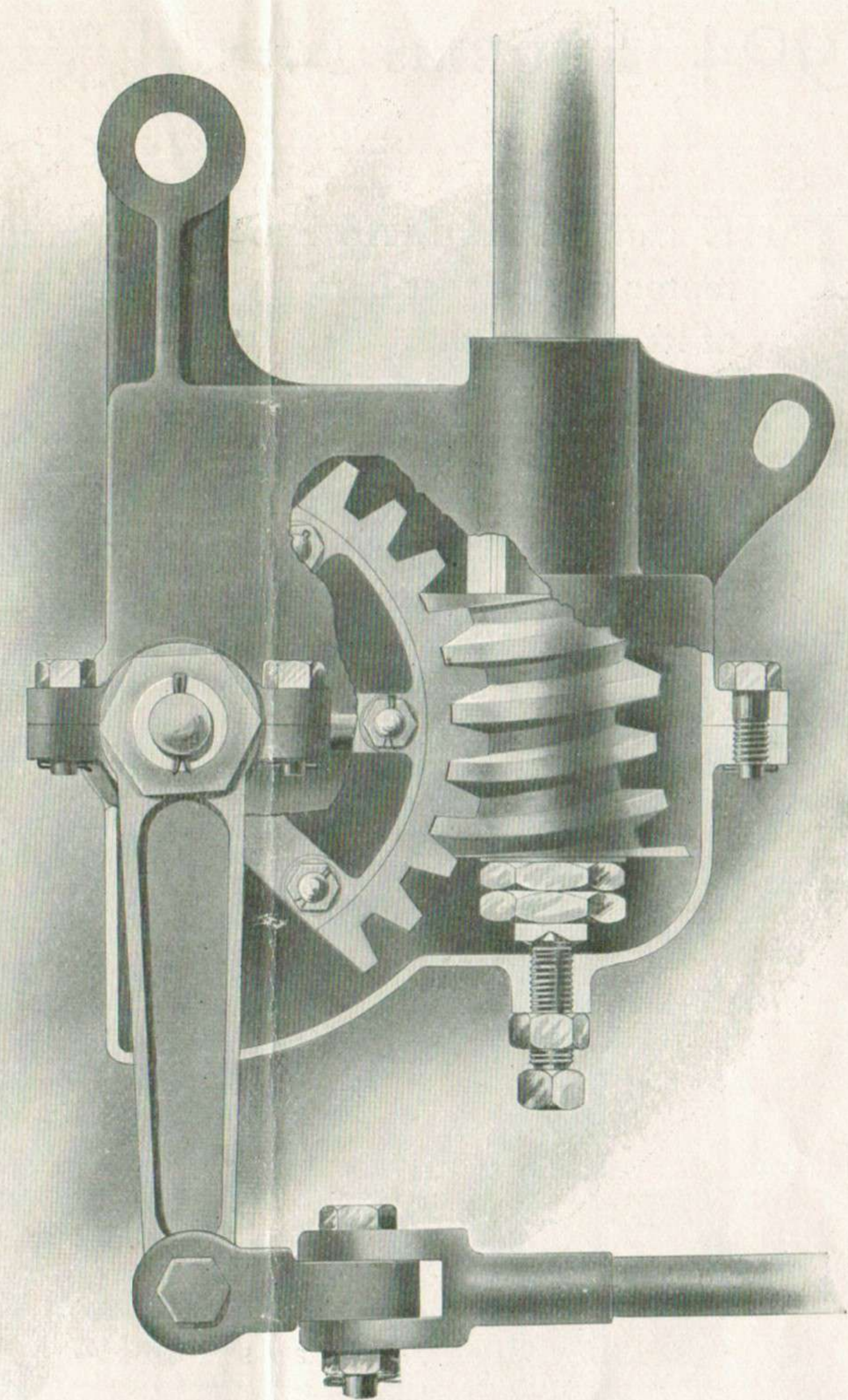
Improved King-of-Belgium type tonneau with curved lower body. Very roomy, high back seats, wide door. Heavy top roll, deep tufting, brass trimming. Third seat hinged to door, effectually locking door when let down. Tonneau will seat three full-grown persons comfortably.

**Finish.** Highest coach quality. All bright parts polished brass.

**Color.** Automobile red or green.

**Canopy Tops** with glass front, also Limousines and Pullmans at reasonable prices.

**Tools.** All necessary tools.



Steering Gear, Concave Worm Engaging Four Teeth, Dust-Proof Case, Adjustment

**Price, \$2500.00**

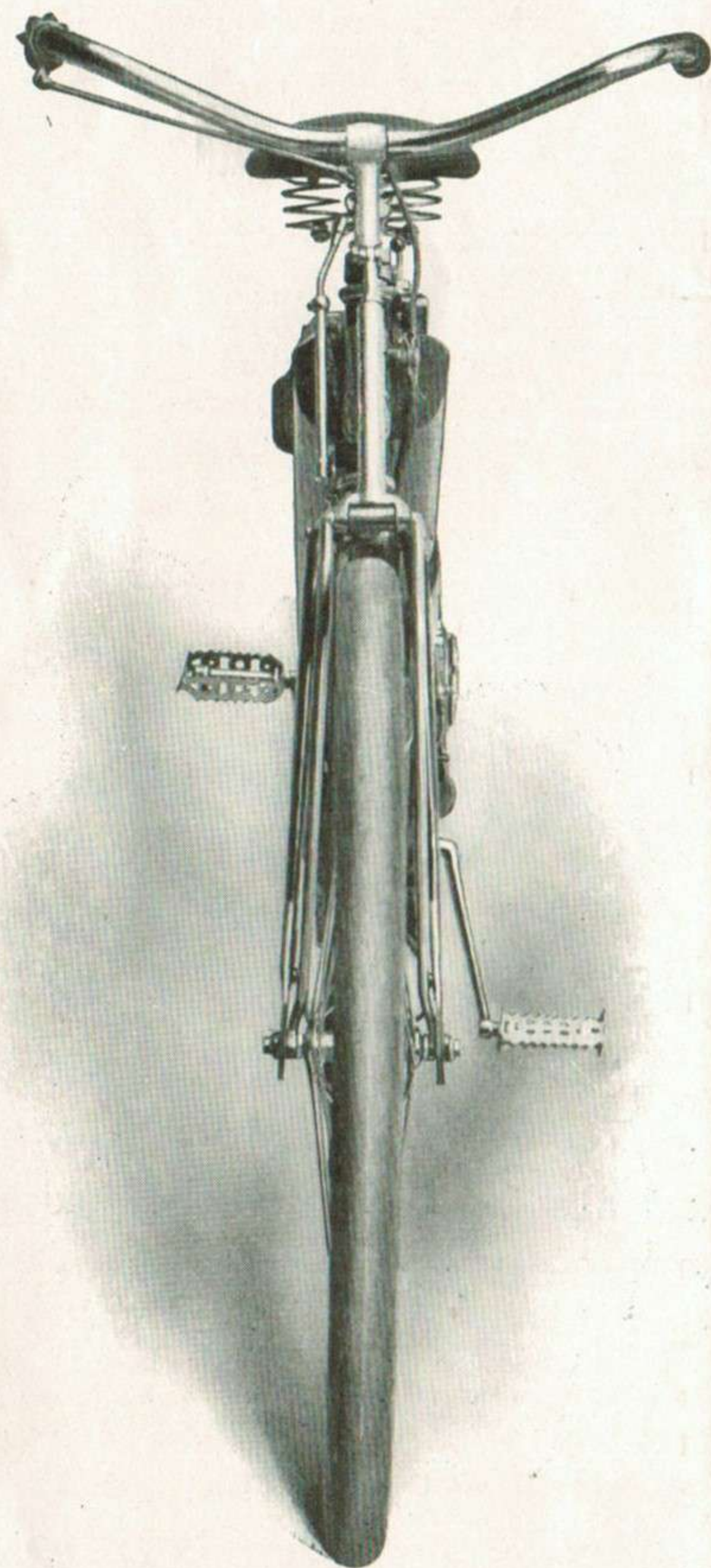
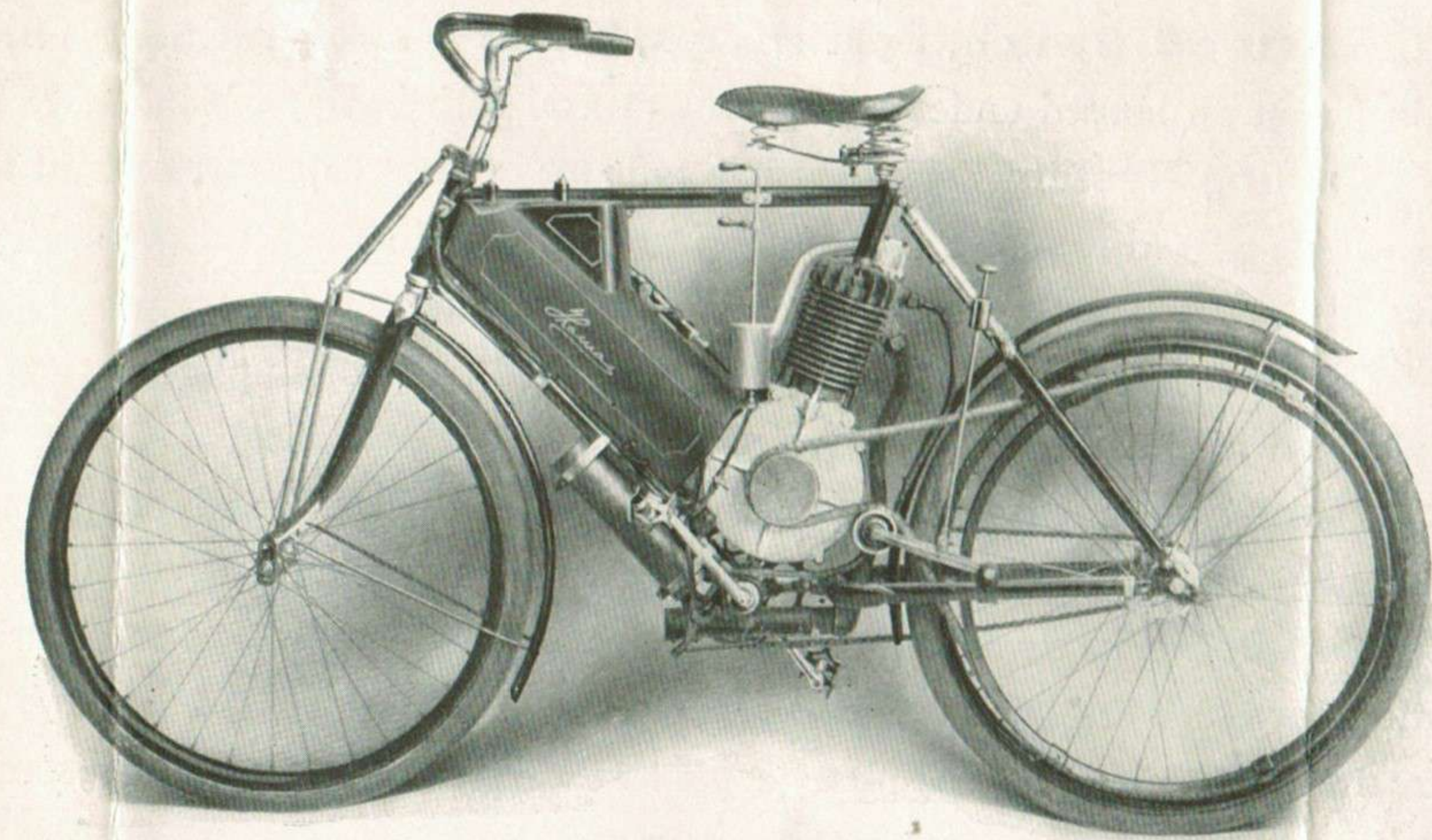
# 1904 Thomas Model 36 Motor Bicycle

Price \$210.00

**T**HE name THOMAS AUTO-BI needs no introduction, for the motor bicycle that bore it in the past placed it away above the heads of its competitors.

Knowing that *worth* alone obtained for the AUTO-BI its eminent place in the opinion of the motor cycle world, we have spent a great deal of time and money in making improvements that will increase the *worth* and *lead* of the AUTO-BI over all other motor cycles.

If you are looking for comfort of body and mind, practicability, reliability, and durability in the motor cycle, buy the THOMAS AUTO-BI.



## SPECIFICATIONS

**Motor**—Three horse-power, forged fly wheels and shaft same piece, large bearings hardened and ground, cylinders lapped, four piston rings ground true, oil tight.

**Height of Frame**, 22½ inches.

**Wheels**—28 inches.

**Tires**—Goodrich motor cycle.

**New Departure Brake**—Especially large hub and braking surface.

**Weight**—110 pounds.

**Wheel Base**—47 inches.

**Hubs**—Specially-constructed front hub.

**Front and Rear Mud Guards.**

**Heavy Spokes.**

**tubing**—Shelby weldless, 1½ x 16 and 18 gauge, reinforced.

**Head Tube**—5½ inches, one piece, drop forged.

**Connecting Joints**—Drop forged, outside joints.

**Seat Post**—Forward extension L.

**Saddle**—Messenger double coil spring.

**Forks**—Coiled spring truss fork, patented

**Frame**—Hygienic cushion spring frame, all parts of which have been strengthened to take added power.

**Belt**—Thomas leather and steel, unstretchable, unbreakable. Patent applied for.

**Mixer**—Latest style Loomis float feed.

**Tread**—6 inches.

**Control**—Auxiliary grip on handle bar for spark adjuster and exhaust lift.

**Oiler**—New sight feed, in view of rider at all times without turning body.

**Handle Bars**—20 inches wide. Left switch.

**Induction Coil**—Made to order, wires emerging at one end.

**Engine Pulley**—Corrugated, with oil receiver.

**Rear Pulley**—“V” shaped, steel.

**Idler**—Automatic, ball bearing, adjusting.

**Spark Plug**—The Thomas, porcelain or mica.

**Gasoline Tank**—5 quarts, very large.

**Oil Tank**—1½ pints.

**Battery Box**—Automatic clip lock, for either No. 5 or No. 6 cell.

**Muffler**—Removable core, with cut-out exhaust for racing.

### ABSENCE OF VIBRATION.

WORCESTER, MASS., July 15, 1903.

E. R. Thomas Motor Co., Buffalo, N. Y.

Gentlemen.—I wish to pay a high tribute to the Model 35 Auto-Bi which I rode in the recent endurance test from New York to Worcester and return. In addition to the test of about 400 miles in the three days, I rode 215 miles on the preceding two days and covered over 700 miles in six days. I did this without any fatigue and attributed it to the entire absence of vibration. I am surprised at the hill-climbing qualities, and often on the run beat out chain-driven machines, and we had no fear of breaking belt either.

Respectfully yours,  
(Signed) LINCOLN HOLLAND.

### HERE IS ONE TO WRITE TO.

JEFFERSON, OHIO, December 28, 1903.

E. R. Thomas Motor Co., Buffalo, N. Y.

Gentlemen.—This is to certify that I have owned an E. R. Thomas Motor Cycle for the past year, and am very much pleased with it.

Have ridden it almost constantly winter as well as summer, and it works as well in cold weather as warm.

I would recommend it highly to all who are anticipating buying a motor cycle.

Yours very truly,  
(Signed) RALPH L. WARNER.

### OTHERS WERE USED UP.

LOWELL, MASS., July 12, 1903.

E. R. Thomas Motor Co., Buffalo, N. Y.

Gentlemen.—I wish to say that I rode one of your 1902 machines fitted with spring fork in the 400-mile contest from New York to Worcester and return, making the entire trip without any serious accident. There were 32 starters and only 16 finished, and four of these were Thomas machines. I finished in fine condition, while I noticed some of the riders who rode rigid frames and forks were completely used up. I consider the spring fork the greatest improvement that has been put on the motor cycle.

Yours truly,  
(Signed) C. H. EMERSON.

# General Description of the Thomas Motor Bicycle

**Motor.** Three horse-power, air cooled, very large radiating flanges around the cylinder and particularly large on the cylinder head, giving the motor a very large cooling surface.

**Motor Base** or crank cases are cast from aluminum alloy, and are of the male and female members, making them absolutely oil tight without the aid of gaskets.

**Bearings** are very long and very large in diameter, made of hard phosphorus bronze.

**Valves**, both inlet and exhaust, have very large diameters, giving quick free inlet and quick free exhaust, which reduces to a minimum the chances of back pressure and over-heating. The inlet valves are ground in the cylinder head, which when tightly fastened down prevents any chance of leaky compression at this point. They can always be easily removed at any time.

**Fly Wheel and Crank Shafts** are of single drop forging, and are therefore very accurate and true.

**Fly Wheels** are of very large diameter, giving a steady running motor.

**Crank Shafts** have hard ground steel sleeves, securely fastened, which makes perfect bearing.

**Connecting Rods** drop forging with very large and very wide bearings of phosphorus bronze at both ends.

**Wrist Pin** is made of tempered tool steel.

**Cylinder and Cylinder Head** have very large radiating flanges. After the cylinders are bored out to size, they are ground and lapped to a beautiful polish. Cylinders are securely bolted to crank cases by four bolts.

**Piston Rings** are made after the most improved design and are ground by our secret process on the three bearing surface. Our rings are perfect and will micrometer exactly alike. Four of these rings are used—three at upper part of piston for compression and one at lower part, the latter acting as a balance, and an oil retainer and distributor.

**Piston** is machined, lapped and polished with the same care given the cylinder and rings.

**Spring Truss Fork** being constructed on the arch or truss principle, is therefore of the strongest known mechanical construction. (In an editorial on motor cycle construction published in the *Motor World*, the writer states that rigid front forks of whatever gauge or diameter may be set down as suicidal.) It is a well-known fact that a solid or rigid truss fork simply transfers the breaking strain from fork to bottom tube to frame, thus intensifying danger of breakage there. With our spring truss fork all sudden shocks are taken up in cushion, thus taking strain off both the frame and fork.

This fork also eliminates handle-bar vibration, thereby removing strain on wrist and arms caused by rigid forks of any construction. This fork has been tested in the hands of the public for over one year with a record of not a single broken one.

**Hygienic Cushion Frame** absolutely absorbs road concussion and motor vibration, eliminates crystallization and increases the life of the frame.

Many riders had to give up riding the motor cycles of stiff frame construction on account of the bad effect it had on them physically.

**Auxiliary Grip Control** is within easy reach of the rider's hand, and the rider has perfect control over the machine at all times. We have made this control an auxiliary grip simply because we believe that a loose main grip is dangerous to the rider, and in order that he may have perfect control over his machine at high speed on any kind of roads, it is necessary for him to have a cemented main grip. Aside from this, riders are under a severe strain to hold movable grips at certain places, to maintain a desired speed.

Our grip raises and lowers the exhaust valve lift, advances and retards the spark, but does not cut out switch, because when you cut out switch and raise exhaust with same lever on grip you lose a powerful brake in your motor. With our method of the old reliable left-grip cut-out switch you still have the motor for a brake, and very much less movement to stop is needed than with a three-operation grip, because the left grip does not have to turn so far before current is broken.

**Steel and Leather Belt** eliminates the strain on motor, eliminates strain on tires, increases speed, increases mileage many times, and saves the annoyance of belt stretching and breaking.

We have changed our front pulley from V to U, which relieves all wear on belt.

**Gasoline, Oil and Battery Box** are in one tank of very neat design. The battery box will take six No. 5 cells or four No. 6 cells. You can buy one or the other any place.

There are no tools necessary to open the battery box, which has an automatic clip fastening.

The gasoline tank capacity is five quarts, which is more than most of our competitors. Last season one of our riders made a world's record of  $23\frac{3}{4}$  miles with one pint of gasoline.

The oil tank has a capacity of  $1\frac{1}{2}$  pints.

**Lubrication** is a very important part that the manufacturers of motor cycles should study in their construction. We have made a very important change and have solved this problem. In our Model 36 the rider has a sight gauge glass in plain view at all times, and by lifting a lever the oil will feed if there is any in the tank. You are sure of this because you can see it without turning head or body. (Patent applied for.)

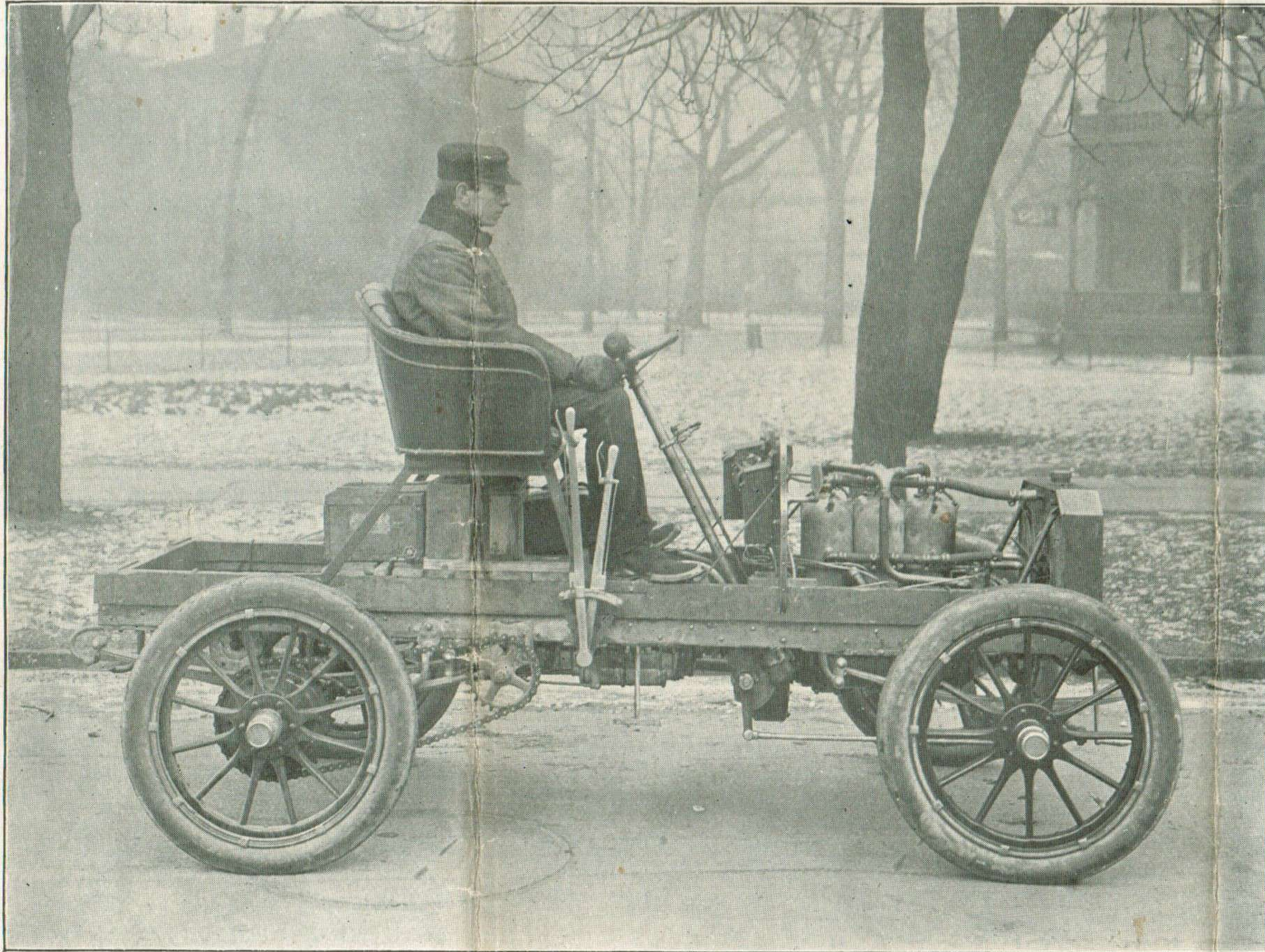
**Mixer.** Very latest design of improved Loomis Float Feed.

**Idler.** Ball bearing, adjustable, compensating.

**Muffler.** Thomas adjustable, the core of which may be removed simply by taking out a nut. We have a cut-out on our motor which may be opened or closed by a little kick of the foot. It is within easy reach of the left foot.

**Coil.** Special Thomas coil, three terminals.

Every Thomas Car is Tested like this in Actual Use on the Road



## E. R. THOMAS MOTOR CO.

MANUFACTURERS,

BUFFALO, N. Y., U. S. A.

### REPRESENTATIVES

C. S. HENSHAW - NEW ENGLAND - 288 Columbus Ave., BOSTON  
WOOLSTON & BREW - NEW YORK & BROOKLYN - 152 W. 56th St., NEW YORK  
C. A. COEY & CO. - ILLINOIS - 5311 Cottage Grove Ave., CHICAGO  
BALTIMORE MOTOR CAR CO. - MARYLAND - BALTIMORE, MD.  
CANADA CYCLE AND MOTOR CO. - CANADA - TORONTO, ONT

## THOMAS AUTOMOBILE BOATS

In designing the Thomas "Flyer" Automobile Boat, we aimed to build a roomy speed launch that is not a freak, but that would be suitable for family or club cruising, and although attaining speed was one of our principal aims, we have not sacrificed any lines necessary to make the boat durable, comfortable and seaworthy.

The following are the specifications:

30-foot length of water line,

5-foot beam, molded,

25 1/2-inch freeboard,

7 3/4-inch draft,

Weight of boat about 1200 lbs.

24 H. P. motor, 3 cylinders,

Weight of motor, 280 lbs.

Displacement about 1400 lbs.,

14 to 18 seating capacity.

### SPECIAL FEATURES

Needle-point bow.

Very wide stern.

Widest section of water line is at stern, although whole boat is wider on water line than on deck line.

Hull very strongly built; frames run from deck to deck.

It also has two bilge clamps running full length of boat.

It has 3-inch tumbled home stems, which add to the appearance of the water line.

All plankings are wrought fastened.

It is fitted with a reversible 3-bucket, 26-inch wheel, and has rudder which swings on a pivot.

It is equipped with front and side steering wheel.

The steering cables have turnbuckles with which to take up slack.

There are six large, roomy lockers forward and two aft.