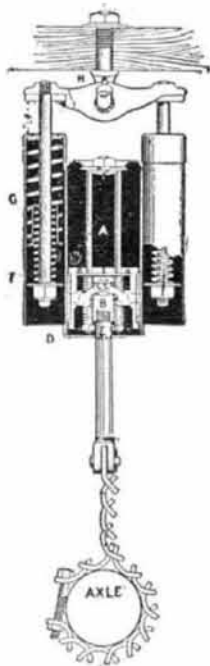


THE HOUSE RECOIL CHECK.

A new form of shock-absorber, which has recently been patented by Mr. Henry A. House, is intended to check the rebound of the car body without in any manner affecting the action of the springs under compression. The new device consists of a large cylinder, A, in which, mounted upon a suitable head, B, of the rod, E, are two semicircular brake shoes adapted to be pressed against the walls of the cylinder by means of levers, C C. A chain extends down from the end of the rod, E, and is attached to the axle of the car. A hanger, H, attached to the frame, carries two rods, which extend downward into smaller cylinders on either side of A and attached to it. Within each of these cylinders are a pair of coiled springs, F and G, one of these springs being lighter than the other. With an up-and-down movement of about 4 inches, the rebound is checked by these springs. Should, however, a much greater movement of the frame with respect to the axle occur, the piston, B, will travel up-



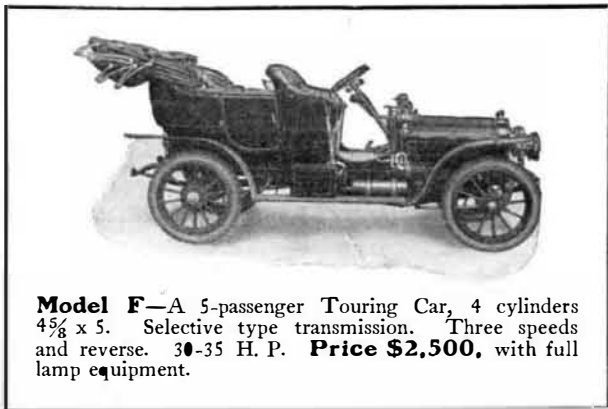
AN IMPROVED SHOCK ABSORBER.

ward in the cylinder, A, while the frame is approaching the axle, but will immediately lock, and then travel slowly downward as soon as the rebound begins. The locking of the friction shoes of the piston would cause the body to be drawn downward with the axle when the latter dropped, as the wheel of the car passed over an obstruction; but as there is a play of about 4 inches on the supplementary compound springs, these allow the body to keep on in its upward movement while the piston is slowly descending. The result is that instead of a series of sharp curves being obtained, such as are shown by the record of the instrument described on page 38, the body has a gentle undulatory motion, due to the springs of the car absorbing the downward movement, and the brake shoes and compound springs of the recoil check absorbing the upward movement. This device has recently been perfected, and has given entire satisfaction.

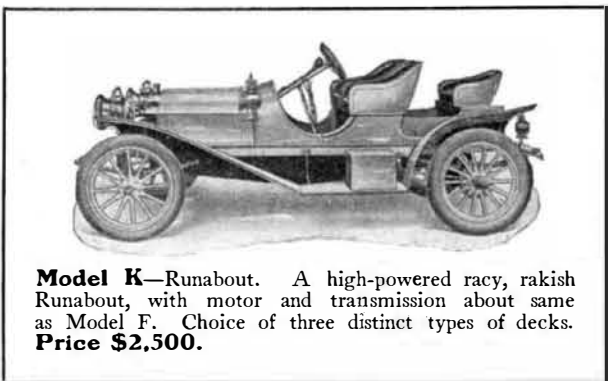
THE 1907 PEERLESS TOURING CAR.

The new Peerless touring car shows the same high quality in material and construction that has always been used by the Peerless firm. The improvements are merely in details, and there is no wide departure from the model produced last year. Some of the parts, such as the springs and the ignition apparatus, are imported from France, in order to insure their being of the very best material. A special feature about the frame is that it is dropped 2½ inches just in front of the rear axle, thus giving the car a lower center of gravity, and increasing the comfort and safety of its occupants at high speed. The steering gear, of the worm-and-sector type, has been greatly strengthened. The sector and shaft are made of a single forging, and the sector is in reality a complete wheel, having three times the wearing

Stoddard=Daytons

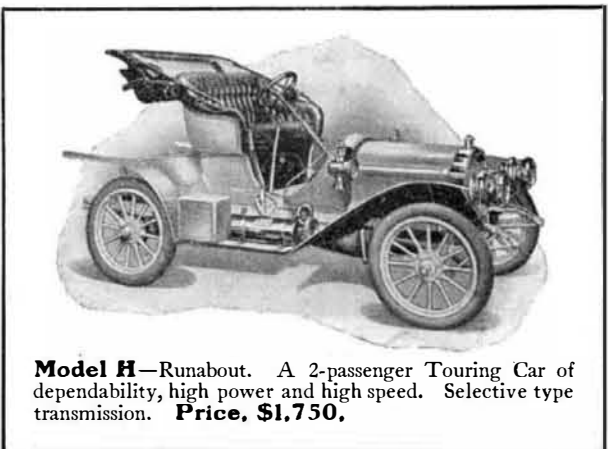


Model F—A 5-passenger Touring Car, 4 cylinders 4½ x 5. Selective type transmission. Three speeds and reverse. 30-35 H. P. **Price \$2,500**, with full lamp equipment.

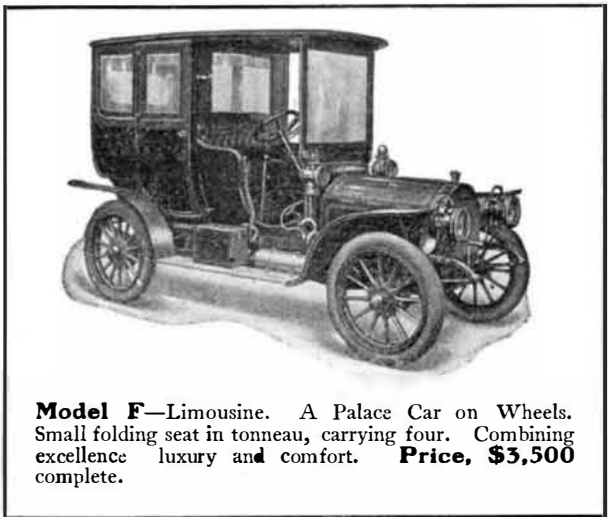


Model K—Runabout. A high-powered racy, rakish Runabout, with motor and transmission about same as Model F. Choice of three distinct types of decks. **Price \$2,500**.

The Stoddard=Dayton will equal the performance of any American-made car, at any price, as to speed, power and durability.



Model H—Runabout. A 2-passenger Touring Car of dependability, high power and high speed. Selective type transmission. **Price, \$1,750**.



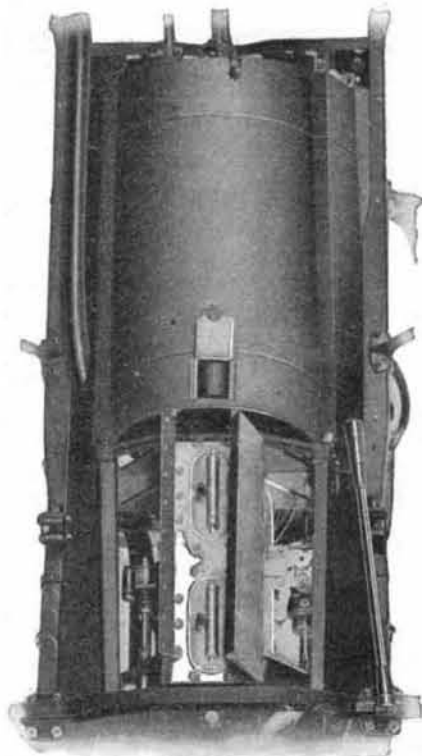
Model F—Limousine. A Palace Car on Wheels. Small folding seat in tonneau, carrying four. Combining excellence luxury and comfort. **Price, \$3,500** complete.

Our 1907 Book, fully illustrated, describes all our Models. Sent FREE to those interested.

The Dayton Motor Car Co.
DAYTON, OHIO

surface that was used before. A special form of imported ball thrust bearing is used above and below the worm on the steering column. The front axle is a solid I-beam drop forging having the spring saddles integral. This is the strongest type of axle for a given weight. The axle is curved downward in the center, and the steering knuckles are fitted with imported, self-adjusting ball bearings of large size, oiled by an improved oiling device. Timkin roller bearings are employed on the front wheels. The rear axle is of the usual floating type, the live shafts being of nickel steel in place of the ordinary quality of steel that is usually employed. The bevel driving gears are of large diameter, and are adjustable. The annular ball bearings are fitted with a retaining screen, so that if a ball should break, the broken pieces could not get into the gears. It will be remembered that the Peerless rear-axle construction comprises universal joints in the live axle on either side of the differential, which render possible an arched construction of the axle and dishing of the rear wheels.

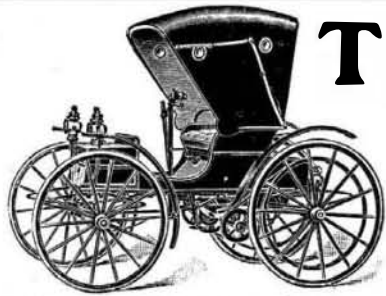
The 30 and 45-horse-power Peerless motors, each of the 4-cylinder, vertical, water-cooled type, have a bore and stroke of 5½ x 5½ and 5¼ x 5¼ respectively. The crankcase is a one-piece casting of aluminium, having large handholes in the



UNDER SIDE OF PEERLESS CHASSIS.

The pan below the engine is provided with hinged doors so that the crank case can readily be got at from below.

bottom. Each plate that covers these handholes is fitted with a patented arrangement, consisting of a pocket or groove at its lowest point, in which any dirt or sediment from the oil can collect. By removing a plug from this pocket, all sediment and dirty oil can be withdrawn from the crankcase, and the latter can be flushed with kerosene. A steel casing that goes under the motor, and extends from the front of the car to the rear of the transmission, is provided with doors, so that the crankcase can be got at from its under side without removing the pan. This is a decided improvement in the line of accessibility. It is shown in the cut which accompanies this article. The motor is fitted with a gear-driven gear pump and a gear-driven mechanical oiler. The pump shaft is connected with the driving gear through a spring. All the gears are housed and run in oil. The commutator is located on a vertical shaft between the two pairs of cylinders and on a level with the cylinder heads. It is of an improved type, containing but one brush which runs in oil. The ignition system ordinarily fitted consists of separate sets of storage batteries and individual coils. In addition to this a gear-driven Eisemann high-tension magneto is furnished as an extra, if desired. A separate set of spark plugs



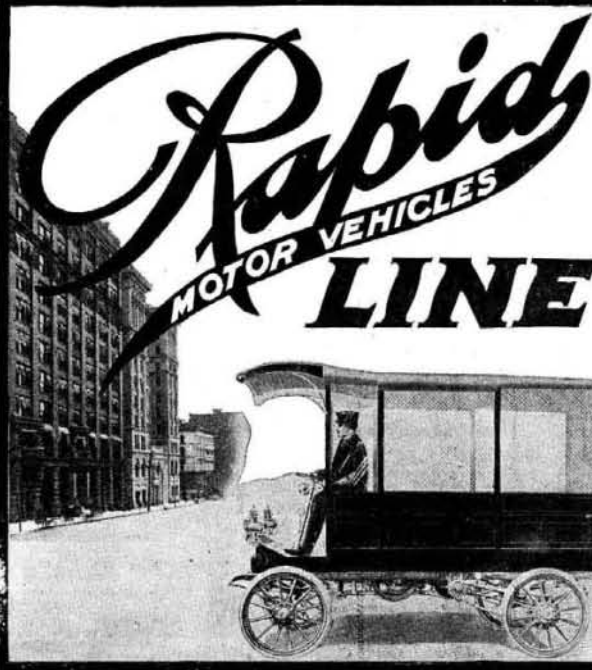
THE HOLSMAN AUTOMOBILE

WINTER USE. It is during that season of the year when the temperature is below freezing and there may be considerable snow on the ground, that the practical utility of an automobile is put to the test. If the machine cannot readily do that work it is not a complete success, and is not equal to the exacting service of a practicing physician. The automobile that is suited for that service necessarily must be entirely satisfactory the balance of the year.

FIVE YEARS OF SUCCESS. The Holzman automobile has now been on the market five years and has long since passed the experimental stage. It is built high enough to travel the country roads like a carriage and can be run twelve months in the year. It clears the center of the road by eighteen inches, and therefore has **TWICE THE ADVANTAGE** of the ordinary machine in muddy, rutty, rough or rocky roads. Has large wheels, solid rubber tires and **RIDES LIKE A CARRIAGE.** The Holzman exclusive patent marks an era in automobile building. It does away with all live axles, friction clutches, differential gears, pumps, etc. Reverses without extra gears. **No water to freeze; No puncture troubles; No odor. New hill climbing power. Ask for Catalogue S.**

THE HOLSMAN AUTOMOBILE COMPANY

Monadnock Block, CHICAGO



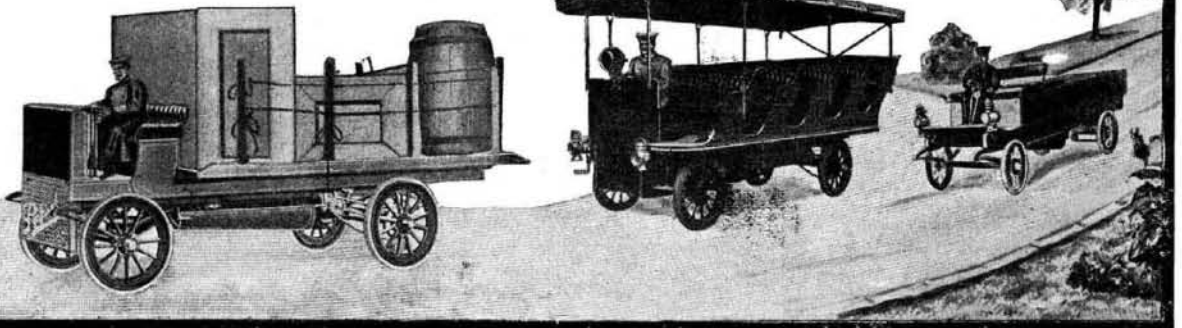
offers a selection for any purpose, from the latest and most efficient types of motor cars as applied to commercial use.

For light delivery work, heavy trucking, hotel or sight-seeing purposes, we can furnish a "Rapid" car that will do three times as much work as a similar horse-drawn vehicle, at less than one-fifth the cost of up-keep.

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placed over the inlet valves is used with the magneto. The clutch is of the internal expanding type, consisting of a leather-lined steel band expanded by a single spring in the flywheel. The transmission is of the four-speed selective type. By meshing the reverse gears on the clash gear system it has been found possible to shorten the gear case and gear shaft several inches, thereby increasing their strength. The shafts are mounted on annular ball bearings lubricated from without, and thoroughly protected from the oil used in the gear box. Both the motor and transmission are mounted upon a three-point suspension, and are connected by a short shaft fitted with two universal joints.

The car is fitted with 34-inch wheels having 4-inch tires on the front and 4½-inch on the rear. The wheel base is 114 inches. Internal and external brakes are used on the rear wheels. The fenders are of the new type, being brought down on the inside to the side bars of the frame, and thus thoroughly protecting the occupants of the car from being splashed by mud or water. Several types of body, both open and closed, are used on the standard chassis.

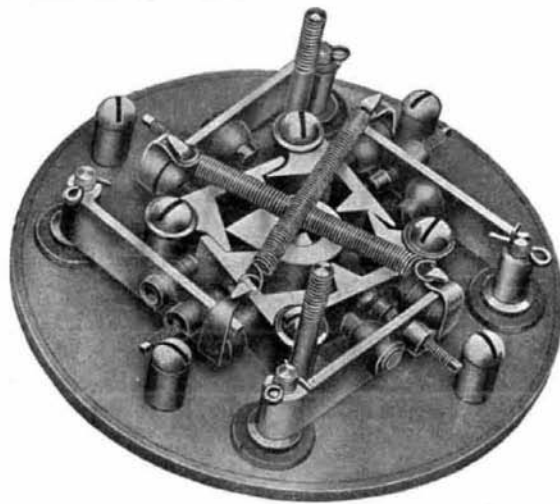
SOME EARLY AMERICAN AUTOMOBILES.

(Continued from page 23.)

lieve the belt and avoid twisting. The drum inclosed a differential gear, and there were driving sprockets on each end of the countershaft. The engine was fitted with make-and-break ignition from dry batteries. The gasoline was allowed to run from a high reservoir to one placed at a lower level. The carbureter, or mixer, was placed between the two, and by an overflow arrangement a constant level was maintained, the excess of gasoline falling into the bottom tank, whence it was raised once more to the upper tank by a small hand pump. Although most of the running of the machine shown in the photograph was done with a friction drive, Mr. Duryea was constantly trying to improve on this, the result being that he fitted a three-speed individual-clutch transmission, which is the arrangement shown in the photograph. The countershaft directly under the flywheel was driven by bevel gears, and carried three separate gears with individual clutches. These gears were constantly in mesh with three other gears on the driving countershaft, which terminated in sprockets, as shown. By picking up the three clutches in succession,

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Every Automobile manufacturer who is interested in making his cars perfect in their electrical equipment will obviate the usual trouble caused by failure to get a strong spark at the proper time and at the right point, by having the **CLIMAX ELECTRICAL COMMUTATOR** installed in every machine he turns out. Whether there are two, four or six cylinders, this system insures a strong spark at the point desired. Each cylinder gets its spark at the proper moment, and as the sparks are perfectly synchronized, each cylinder does the same amount of work as the other.



This system insures perfect working to every car and consequent satisfaction to the buyer. It makes unnecessary the use of the old type of spark coil with vibrators which stick and constantly need re-adjustment.

The Climax System explodes the charge, no matter how rich or lean it may be. Causes every cylinder to explode at the exact point, saving breaking of crankshaft and uneven running of Engine. Prevents unseating of valves.

Saves gasoline, more than half repair charges, and makes the car last longer. Send for further particulars to

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he was able to pass from the slow to the fast speed. Vertical movement of the tiller steering lever accomplished this. The machine was in use for several years, and made fairly good speeds (ten or twelve miles an hour), although the inventor at that time did not attempt to go much faster than a horse would trot. The very first Duryea, built in 1891, was constructed along the same lines. Like the machine shown, it was quite a light rig, weighing between 600 and 700 pounds, and it was propelled by a friction drive. It was under-powered, and would only run under extremely favorable circumstances.

The original Haynes gasoline car shown on our front page was built along the lines upon which many of the early designers worked, and which comprised the placing of the engine and transmission upon the running gear and mounting the body on the springs independently. Mr. Haynes built his running gear of steel tubing and mounted it upon wire wheels provided with pneumatic tires which were made specially at a nearby rubber factory. The body was placed upon a pair of side-bar springs. The original engine was of the single-cylinder two-cycle type. It was mounted at the rear of the frame, and drove a countershaft through chains and individual clutches giving two forward speeds. A double chain drive was provided from the countershaft to the rear wheels, as can be seen from the photograph. The machine traveled successfully over the country roads in the vicinity of Kokomo, Ind., at a speed of about 10 miles an hour. Subsequently, Mr. Haynes replaced the two-cycle engine with one of the four-cycle type; but it is nevertheless noteworthy that in striving for simplicity he adopted a two-cycle engine in the beginning, while many people believe to-day that this type of engine will eventually be largely used on automobiles. Another point in which Mr. Haynes was in advance of other American experimenters was the use of pneumatic tires. That he has kept in advance in design and workmanship is evidenced by the novel features of his cars (see page 28) and also by the fact that one of these stock chassis, fitted with a 50-horse-power motor, made an exceptionally fine showing in the Vanderbilt cup race last October. This car, which was exhibited at the automobile show, has been duplicated in touring car form



1907 MODEL

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