

**CONTROLS**

**THE OLDSMOBILE CHASSIS.**

By constructing their chassis so that either a touring car, a limousine, or a runabout body can be fitted,

the Olds Motor Works have confined themselves to the production of a single standard model chassis for their three types of 1907 cars. This chassis is fitted with a 4½ x 4¾-inch, 4-cylinder, vertical motor rated at 35-40 horse-power. The motor is much the same as that used last year, its principal feature being the method of lubrication, which is effected by an oil pump that forces oil through passages in the crank case, and continually deluges the main bearings with a liberal supply of lubricant. These bearings are of Parsons white

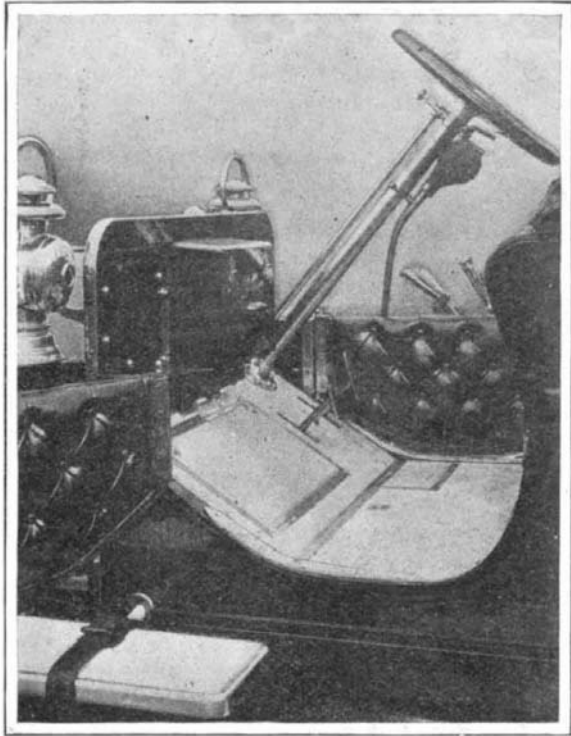
metal, and they are of exceptional length. A novelty about the clutch is the use of an extra spring between the cone and the flywheel, which makes it possible to let in the clutch more easily, as it forms a spring take-up for the load. The transmission is of the three-speed selective type, and the final drive is by propeller shaft and live floating rear axle. Roller bearings are used in the axle and front wheels. Expanding brakes are fitted in the rear-wheel hub drums, while the regular running brake is mounted just back of the transmission and is of the usual contracting type, lined with camel's hair felt. One of our illustrations (on page 32) shows the runabout with rumble seat, while the other picture, showing the control, displays the rather unusual use of doors at the front seat on the touring car. As can be seen in the latter picture, the spark and throttle control levers are on the steering column below the wheel—a rather unusual place for them on a 1907 model. The spark coil and mechanical oiler are placed upon the dash. The floor boards have several trap doors, thus making the clutch and the transmission easily accessible.

The emergency brake is applied by pulling back on the lever instead of pushing it forward. This is a practice which is in vogue this year on many of the new cars. The Oldsmobile was one of the gold medal winners in last year's Glidden tour, one of these cars, driven by the late Ernest Keeler, having made a perfect score, though driven at a rapid rate over extremely rough roads. One of the 1907 touring cars is at present engaged in a long-distance touring race from New York to Ormonde Beach, which it is expected to reach in time for the races on January 22. The progress has been very slow, however, on account of extremely muddy roads filled with deep sink holes, encountered in Virginia,

**THE ROYAL TOURING CAR AND LIMOUSINE.**  
The handsome limousine shown on page 33 is the latest product of the Royal Motor Car Company, of Cleveland, Ohio. This company, like many other large automobile concerns, is this year building but a single standard chassis, to which any one of a considerable number of different bodies, such as the limousine

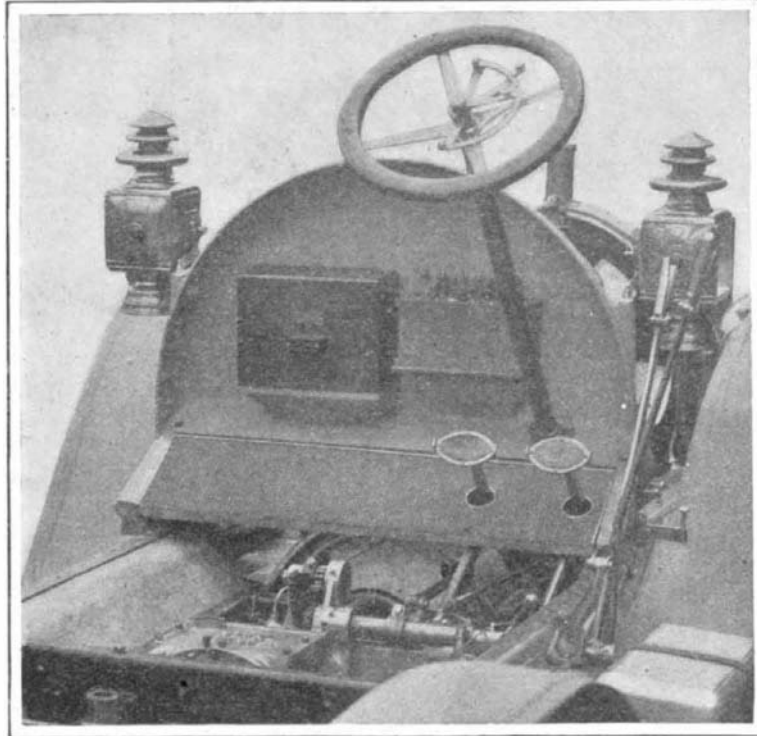
The top of the gear box is visible in the foreground, and above and in front of this are to be seen a couple of toothed sectors. One of these sectors is mounted upon the sleeve that carries the gear-shift lever on the outside of the frame, and when the lever is moved back and forth, the sector revolves a pinion with which it meshes. On the same shaft with the pinion is a second sector meshing with a rack on the sliding gear-shift bar. Through this second sector and rack, therefore, the movement of the gear-shift lever is transmitted to the rod that slides the gears. This arrangement is shown in detail on page 56. It is a positive method of shifting the gears. The brakes used on this car are of very liberal dimensions, and the brake shoes can be readily renewed. The car is provided with sheet-metal pans, which completely enclose the under side of the engine and trans-

mission. These pans can be readily removed for cleaning, but they are so arranged that adjustments can be made without the necessity of taking them off. Another feature is a ratchet wheel at the rear of the transmission, for the purpose of checking the car from running downhill backward should the brakes fail.



**DASHBOARD OF OLDSMOBILE, SHOWING CONTROL LEVERS AND PEDALS.**

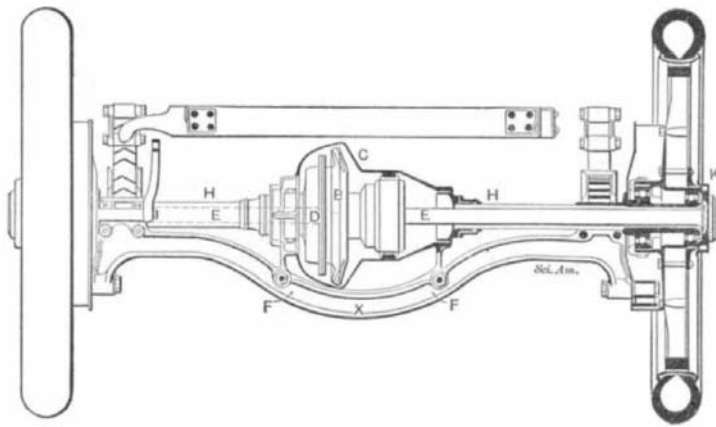
Note the push pedals on long levers passing through slots in floor, the throttle and spark levers on steering column below wheel, and the gear-shift and brake levers at side. Small doors at the front seat entrances are also a feature of this car.



**CURVED METAL DASH OF ROYAL TOURIST CAR, SHOWING CONTROL MECHANISM.**

The spark coils and oiler are supported on brackets formed in the dash. The pedals are fitted with removable rubber pads and have a downward movement through round holes in the floor boards. The gear-shift lever operates two toothed sectors and pinions (seen at the center) for shifting the gears.

just mentioned, can be fitted. This chassis is built up on a pressed-steel frame which carries a 5½ x 5½-inch, 4-cylinder, water-cooled engine of 45 horse-power. The picture of the dashboard and control levers,

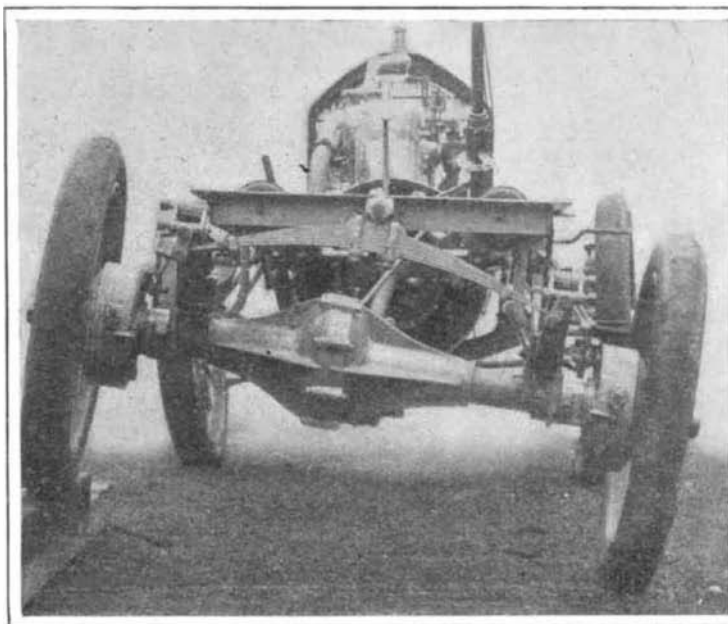


**SOLID I-BEAM REAR AXLE OF CAR DE LUXE, COMBINED WITH FLOATING-TYPE, LIVE, DRIVING AXLE.**

shown herewith, gives a good idea of the neatness and the simplicity of the mechanism. The cone clutch is seen in the flywheel, as well as the two rubber-padded push, pedals that operate the clutch and the brake.

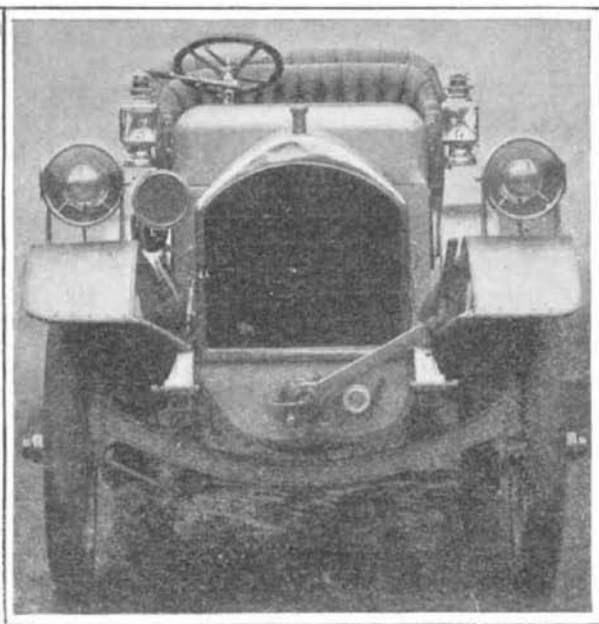
**AN IMPROVED TYPE OF LIVE REAR AXLE.**

The rear axle of the new Car de Luxe is similar to that used on the De Dion runabouts for a number of years past. A solid I-beam rear axle, with a downward curve in the center, is used to support the usual form of revolving rear axle contained in an outer tubular sleeve. The rear axle proper has the usual spur gear differential, D, with a large driving bevel gear, E, attached to its casing. All this mechanism is inclosed in an outer steel casing, C, which is supported upon the I-beam rear axle at points, F F. The usual square end drive shafts, E E, extend from each side of the differential through holes in the solid axle, X, and through the wheels, which they drive through suitable clutches, K, on the outside of the hubs. These drive shafts are protected by an outer tubular casing, H, which is fastened to the stationary axle, X, at the springs and is also clamped to the differential casing, C, at the center, thus serving to tie together this casing and the stationary axle. The result is that the inner floating axle, E, is thoroughly protected, and its inclosing tubes are rigidly tied to the differential casing and the solid rear axle. The wheels run on ball bearings on hollow spindles, which form part of the end of the solid rear axle.



**REAR END OF NORTHERN CHASSIS, SHOWING PIVOTED TRANSVERSE SPRING.**

The rear axle is of the live floating type, the outer casing being strongly reinforced by ribs, as shown. The propeller shaft is seen running forward to the air clutch in the flywheel. The wide band brakes are operated by compressed air. Grease cups are fitted to all the pivot pins at the springs. By pivoting the rear transverse spring the twisting effect of the latter upon the body is done away with.



**FRONT OF NORTHERN CAR, SHOWING LEVER CONTROL ON STEERING COLUMN.**

The front axle is a heavy I-beam manganese bronze casting. The tie rod connecting the steering lever arms is behind the axle. A long lever is used for starting the engine instead of the usual crank. Pulling this lever automatically retards the spark. The lever on the steering column below the wheel shifts the gears, while by twisting the grip the clutch can be applied or released. The spark and throttle levers are above the steering wheel. Note also the location of the acetylene lamps on fenders.

**THE NORTHERN FOUR-CYLINDER 50-HORSE-POWER CAR.**

After carefully testing the air-control features during last sea-  
(Continued on page 53.)