

THE
ARISTOCRATIC
"ARDSLEY"

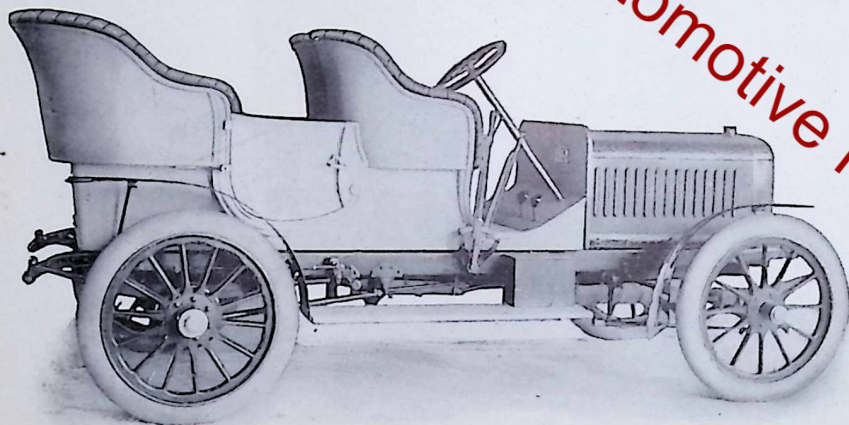


Someone Automotive Museum

THE ARISTOCRATIC "ARDSLEY"

A Quiet, Powerful Dignified Car
With a Future

MADE IN NEW YORK BY NEW YORKERS
FOR NEW YORKERS

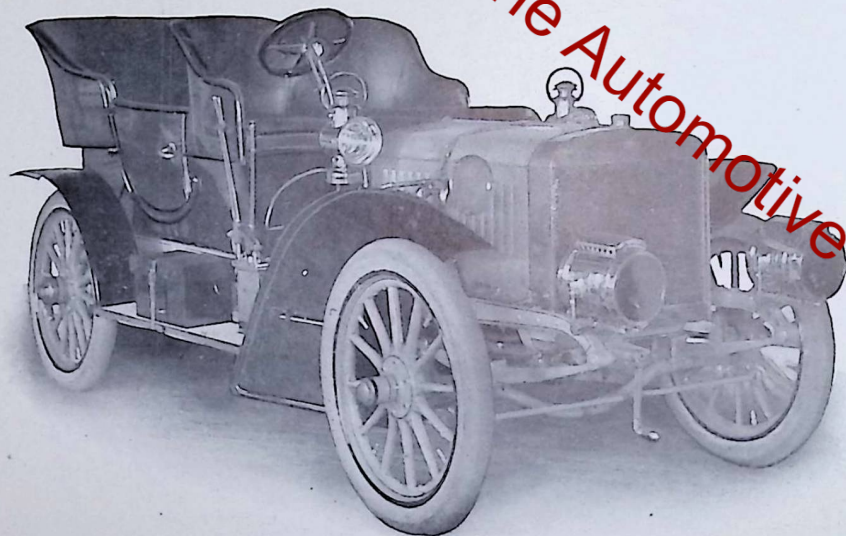


A Foreign Type Car without the Usual "Improvements."? A Car so perfect in workmanship and duplicating of parts that two machines could be taken apart and with their parts form a third

Manufactured by
ARDSLEY
MOTOR CAR CO.
OF YONKERS, N. Y.

THE ARISTOCRATIC "ARDSLEY"

THE CAR WITH A FUTURE



Complete with
Lamps, Horn
and Full
Equipment

Siemeone Automotive Museum

THE NEW ARDSLEY TOURING CAR

(Extracts from an article published in The Automobile, issue of January 7th, 1905)

Mr. W. S. Howard, of Yonkers, N. Y., has designed a 30-35-horse-power touring car and finding the results satisfactory, is putting through a lot of twenty-five similar cars, to be followed shortly by another lot of fifty.

QUIETNESS. Probably the most noticeable thing about the machine, when running, is its lack of noise and vibration. Running at low or moderate speeds—say up to about fifteen miles an hour—it is impossible to detect any sound beyond that of the vibrator and, by intent listening, on a smooth road, a slight swishing in the engine.

NO VIBRATION. As the speed increases, the exhaust from the muffler gives out a continuous low hiss, and the swishing in the motor increases slightly, but the buzz of the vibrator is the only distinct sound at any time. Vibration is also conspicuously absent at all speeds.

REMOVABLE DRIVING AXLES.

The mechanical features of the car include a number of interesting details, one of the most important being the construction of the live rear axle. Drive is by propeller shaft and bevel gears, the gears and differential being enclosed in one housing, as usual. The road wheels are driven from the outer ends of the hubs by means of a sort of castellated cap.

REAR AXLES. Each half of the live shaft has its ends squared, one end entering a square hole in one of the gears of the differential. and the other end entering a similar hole in the

castellated driving cap. The tubular outer axle or casing, which is strongly trussed, supports the entire weight of the car, relieving the live shaft of all but driving stresses. It is a simple matter to unscrew the bronze dustcap from the hub, remove the castellated driving cap, which slips easily from the end of the shaft, and draw out one-half of the shaft itself. This squared shaft idea is carried out wherever possible in the car, and while giving a positive drive, makes easy the dissembling of the parts.

BOLTS RELIEVED OF SHEARING STRAINS.

Another idea is to take all shearing strain from bolts and at the same time make it easy to remove them, if necessary. In the case of a changed shaft coupling, for instance, the bolt holes in the abutting faces of the flanges are counterbored and washers are fitted in the recesses thus formed.

RELIABILITY. When the flanges are abutted the plates just fill the recesses half in one flange and half in the other and take the torque instead of allowing the bolts to take it. There is thus nothing for the bolts to do except to hold the parts together.

SEPARATE OILING. Lubrication of the transmission shaft bearings is independent of the lubrication of the gears themselves. The shafts have ring oilers, the oil being carried in pockets or "cellars" formed in the casing below the bearings. These shafts run in tool steel bushes, hardened and ground. Where the shaft does not project, the bush is made in the form of a cap with a closed end. The shafts are case hardened and ground on the bearing surfaces.

BRAKES.

The frictional surfaces in the expanding ring brakes in the rear hubs are formed of blocks of hard maple wood set in recesses in the steel rings which form the bands, with the grain of the wood radial to the center of the ring. This material has the advantage of being almost unaffected by oil; is noiseless and strong in action, giving a good grip, and does not wear the metal braking surface appreciably. It is also easily renewable and inexpensive. Any other material may be used by removing the wood blocks and fitting others in the recesses, where they are held by screws which are under no strain when the brake is applied. The emergency brakes are not automatically equalized. They are operated by the usual hand lever, through a rigid cross shaft which extends through a tube to stiffen it, bell cranks on the ends of the shaft oscillating the double cams by which the rings are expanded. Adjustment is made manually by means of threaded rods clamped in the main rods by split lugs, nuts and bolts.

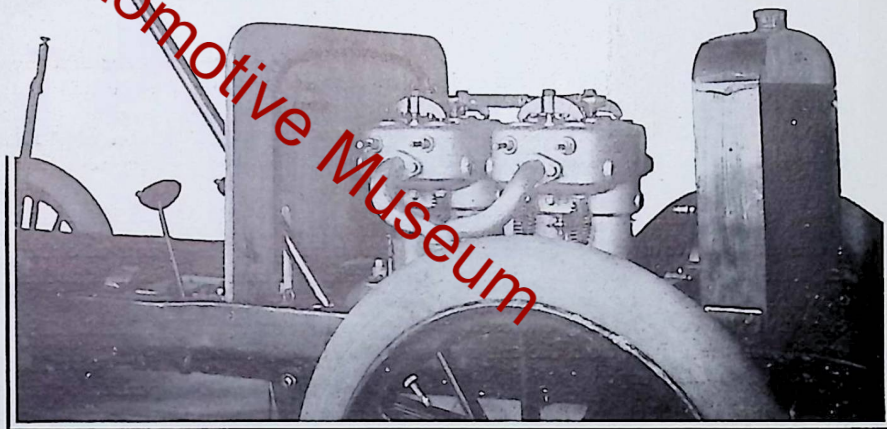
FOLLOWS FOREIGN PRACTICE.

FOREIGN TYPE. Generally speaking, she accepted foreign methods of construction are followed in the Ardsley car. The frame is of pressed steel, 1.46 inches long over all, the side members being 4 inches deep and 1 1/2 inches wide at the centre. The spring hangers are of unusual length. They are of channel form where they fit into the channel of the frame and are tapered to match the frame into which they are secured by hot riveting. Machined steel studs, projecting at right angles from the hangers are used for bearings for the shackles, making a very neat arrangement. Pressed steel of channel section is used for the cross

members. All corners are braced by gussets formed integral with the cross pieces instead of being separate plates riveted on.

FRAME. The corners of the front and rear cross-members are additionally re-enforced by the ends of the spring hangers which are bent at right angles and riveted to the cross-members, adding materially to the stiffness of the frame. The cross-member just behind the motor, which is of heavy material and deeply dropped, is the only portion of the frame that is bent hot, all the others being cold-pressed.

SPRINGS. All the springs are semi-elliptic, the rear ones being 48 inches long with eight leaves, and the front ones 44 inches long with seven leaves. They are all 2 inches wide. The front axle, which is of steel tubing with walls 5-16 inch thick, is dropped in the center. It is likely that an axle of I-section will be used in



INLET SIDE OF ENGINE AS MOUNTED IN THE ARDSLEY

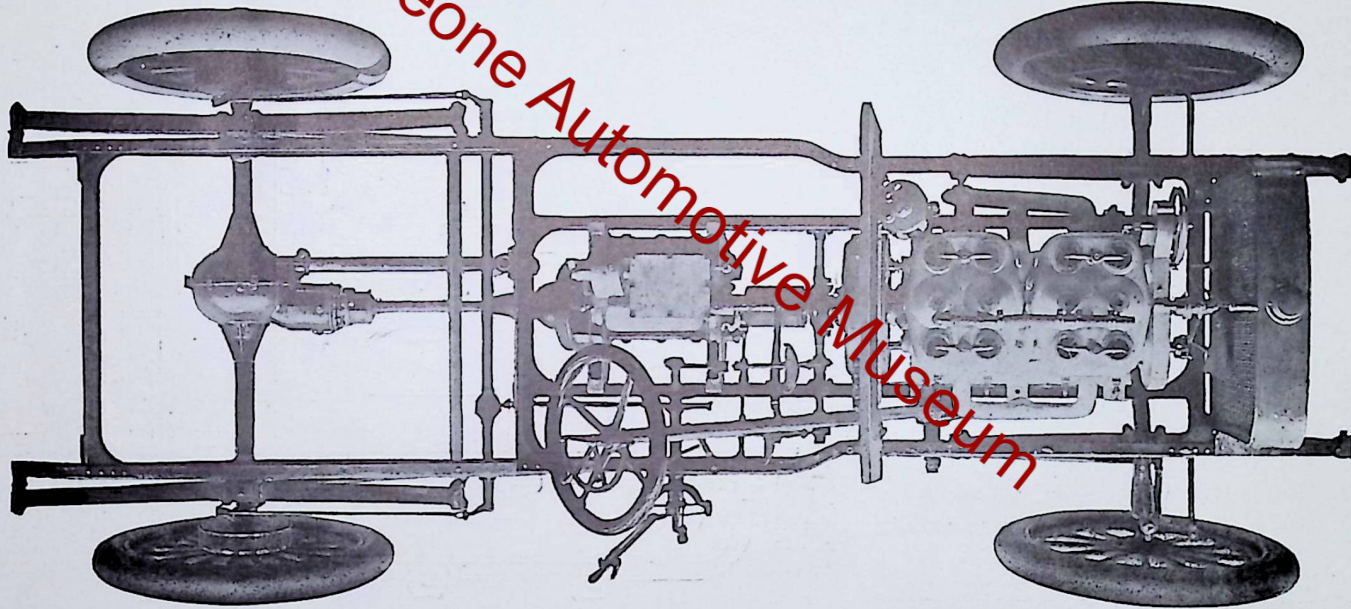
future cars. Reversed Elliot knuckles are used—that is, the fork is attached to the hub and the pivot to the axle stub, the reverse of the regular Elliot arrangement.

STEERING. The steering gear consists of a combination of screw and nut, and rack and pinion, an eccentric adjustment being provided for taking up wear so that all lost motion can be avoided. A spring-cushioned joint is provided at the end of the connecting rod. Artillery wheels, 34 inches in diameter front and rear, run on balls and are fitted with 4-inch tires. Heavy steel tubes,

tapered toward the hubs, are used for the rear axle casing, being pinned and brazed into the cast steel differential gear casing in the centre. A heavy steel truss rod passes under the differential casing.

MOTOR CONTROL SYSTEM.

AMPLE POWER. The four cylinders of the motor have a bore of 4 5-8 inches and a stroke of 5 1-4 inches. It is rated at 30 horsepower at 900 revolutions per minute, a considerable increase of power being obtainable by increasing the speed.



CHASSIS OF THE NEW 30-35 HORSEPOWER ARDSLEY, SHOWING DISPOSITION OF PARTS AND OPERATING MECHANISM

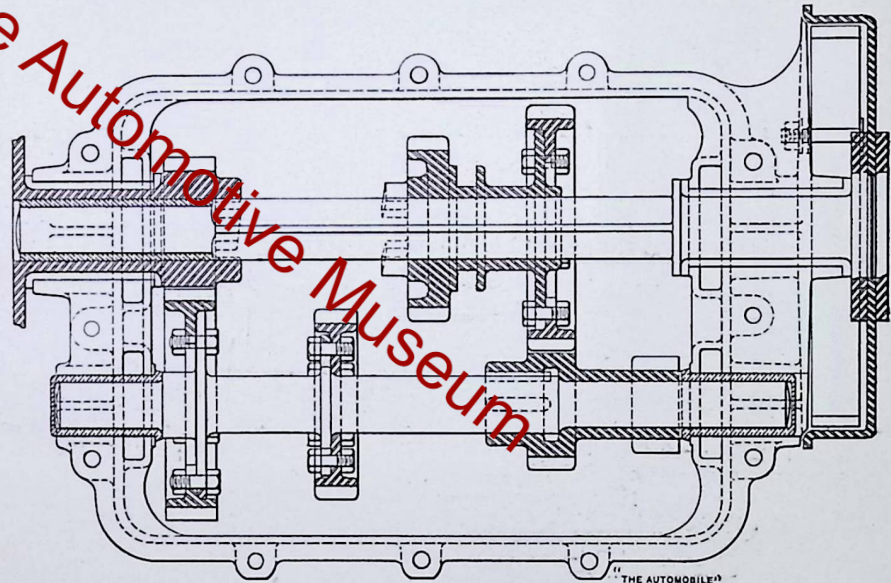
STATIONARY CONTROL. Control is effected by spark and throttle levers, placed on the top of the steering wheel, and by a pedal-operated accelerator. The latter works on the throttle and can increase the speed only above the point at which the hand throttle is set and then drop back to the same point. A peculiarity of the controlling handles is that they do not turn with the steering wheel, but remain stationary, and the handles are so arranged that both are on the centres of their sectors when the motor is running at a moderate speed.

CARBURETER. The specially designed carbureter is automatic in operation, depending for its action upon the different velocities of two opposed currents of air, one the main air supply and the other the auxiliary opened by the throttle. As the strength of the auxiliary air current increases, it partially neutralizes the force of the main air current and prevents the latter from taking up an excessive amount of gasoline. In a trial the carbureter worked perfectly; the motor was run in a closed room at all speeds, from the slowest to out-and-out racing, and at no time was there any noticeable odor or smoke from the exhaust, though the trial was continued for some time. The same was true when the car was put through its paces on the road, whether running on the level or climbing grades.

THE VALVE MECHANISM

DUPLICATE VALVES The cylinders are cast in pairs with integral heads and water jackets. No openings are left in the tops of the combustion chambers. Bronze plugs fill the holes in the tops of the water jackets. The

valve housings and their water jackets are also formed integral with the cylinders being symmetrically arranged with the exhaust on the left and the inlet on the right. A single pipe leads to each pair of inlet valves, and the exhaust is similarly arranged. The inlet valves are mechanically operated and all valves and their gearings are exactly alike excepting, of course, that the inlet and exhaust cams are differently shaped. Valves are 2 1/8 inches in diameter of nickel steel, annealed during machining to avoid warping under heat.



ARDSLEY SLIDING GEAR CHANGE SPEED, PARTLY IN SECTION

VARIABLE COMPRESSION.

A peculiar arrangement of the exhaust valve cams is adopted. Normally the compression of the motor is 90 pounds. By shifting the exhaust cam-shaft endwise slightly, a new set of cams is brought into play, causing the valves to close late and reducing the compression to 60 pounds for slower running or easier starting. All-steel half-time gears are used, and they are enclosed in an aluminum case and run in grease, which eliminates noise from this source and ensures efficient lubrication.

Thirty-point carbon steel is used for the crankshaft, which is 1 1/16 inches in diameter, with crank-pins of the same diameter.

AMPLE BEARINGS.

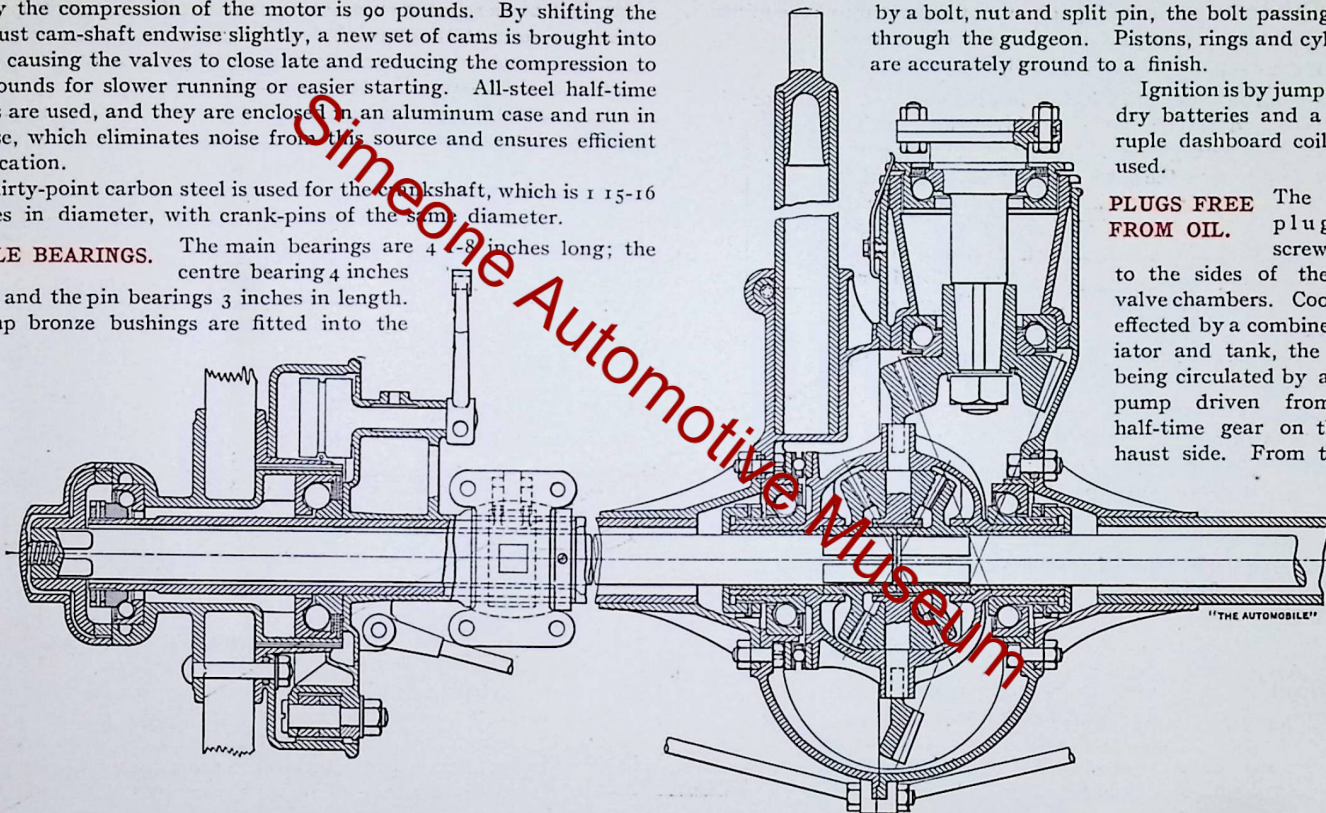
The main bearings are 4 1/8 inches long; the centre bearing 4 inches long; and the pin bearings 3 inches in length. Cramp bronze bushings are fitted into the

bearings. The steel connecting rods are machined all over and are balanced in pairs. The gudgeon is hollow and is held from turning by a bolt, nut and split pin, the bolt passing clear through the gudgeon. Pistons, rings and cylinders are accurately ground to a finish.

Ignition is by jump spark, dry batteries and a quadruple dashboard coil being used.

PLUGS FREE FROM OIL.

The spark plugs are screwed into the sides of the inlet valve chambers. Cooling is effected by a combined radiator and tank, the water being circulated by a wing pump driven from the half-time gear on the exhaust side. From the ex-



REAR AXLE CONSTRUCTION SHOWING DRIVING GEAR AND DIFFERENTIAL.—LIVE AXLE REMOVABLE THROUGH WHEEL HUB

haust pipe a small tube leads off, passing between the pairs of cylinders and communicating with a jacket surrounding the gas inlet from the carburetor, ensuring an even temperature of the mixture. A cock in the pipe regulates the amount of gas passing and consequently the temperature of the jacket.

CLUTCH. The clutch is 16 inches in diameter. It is self-contained and exerts no end thrust on moving parts when in engagement. Thrust on moving parts is exerted only when the car is coasting with the clutch held out of engagement, and when the friction is reduced to a minimum by a doubleball bearing in the collar. The arrangement of the clutch parts and also of the universal joints just behind it, the latter enclosed in a leather boot, are clearly shown in the sectional engraving, which shows how the joint is provided with a wide bearing surface, not depending on the area of the pins alone.

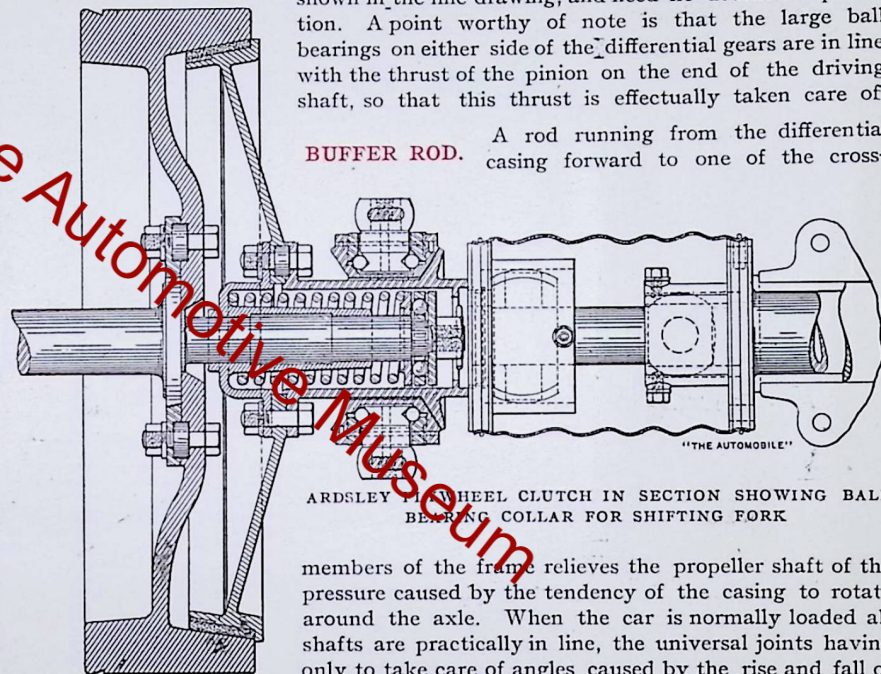
CHANGE-SPEED MECHANISM. The drawing of the transmission gear shows the arrangement of the gears; also the oil cellars and the steel bearing brushes. Flanges are formed integral with the shafts and to these the gears are bolted.

SHIFT GEAR. For backing off or easing the ends of the teeth a special milling process is employed, which insures uniformity. As a result of this the gears engage easily and quietly. The reverse is obtained through a countershaft and pair of gears, not shown in the drawing, and this, as well as the three forward speeds, is manipulated by one lever. Drive is direct on the high speed, the shifting gears being slid from the low speed, shown "in" on the drawing, through the second speed and on until the teeth of the positive clutch engage. Not only can the cover

be taken off the gear case, but practically the whole gear system may be exposed by also removing the lower half of the case, just as the lower half of the motor crank-case is taken off. The foot-operated brake is shown at the rear of the gear-case.

DETAILS OF THE DIFFERENTIAL. The bevel gear drive, differential, and live axle are shown in the line drawing, and need no detailed explanation. A point worthy of note is that the large ball bearings on either side of the differential gears are in line with the thrust of the pinion on the end of the driving shaft, so that this thrust is effectually taken care of.

BUFFER ROD. A rod running from the differential casing forward to one of the cross-



ARDSLEY WHEEL CLUTCH IN SECTION SHOWING BALL BEARING COLLAR FOR SHIFTING FORK

members of the frame relieves the propeller shaft of the pressure caused by the tendency of the casing to rotate around the axle. When the car is normally loaded all shafts are practically in line, the universal joints having only to take care of angles caused by the rise and fall of the frame on its springs.

Lubrication is effected by pressure of the exhaust, sight feeds being placed on the dash. Batteries and gasoline tank are located under the front seat, the space under the rear seat being available for storage and accessible from front and rear, two doors being fitted.

LAMINATED WOOD BODY

BODY. The body is of laminated wood and has side entrances. It is asserted to be lighter than if made of aluminum. There is an unusual amount of foot-room in the rear portion, and the seats are roomy and comfortable. These features, in connection with the long, flexible springs and the extremely quiet and steady running of the motor, make the car a most comfortable one to ride in. The wheelbase is 100 inches and the tread standard. The weight of the car, with touring body, is 2,250 pounds. The ratio of speeds is, for the low, one-third of the high, and for second two-thirds of the high. Gearing can be fitted to suit the purchaser.

OPERATION. An important point in the operation of the car is the smooth working of the clutch. Owing to the leverage of the clutch pedal—8 to 1—the directness of the connections and the fact that three-quarters of the width of the leather face of the clutch is backed by deep springs, the car can be caused to move at an almost imperceptible speed, and moving through dense traffic with the high speed engaged was demonstrated to be greatly facilitated by the fine working of the clutch, which might almost be called an auxiliary change-speed gear.

A joint stock organization, called the Ardsley Motor Car Company, capitalized at \$75,000, is being incorporated under the laws of New York, for the building of the Ardsley cars. Those most deeply interested are Messrs. Fuller & Walsh, who have erected a new garage

in Yonkers, N. Y., and W. S. Howard, who is to be general manager of the company. An entire floor of the Fuller & Walsh building is available for the work, and the building is so constructed that two stories can be added when required. Two cars will be ready for exhibition at the forthcoming New York automobile show at Madison Square Garden.



SHOWING EASE OF REMOVING AXLE

SPECIFICATIONS AND PRICES

Roi des Belges Body

| | | |
|---------------------------|--------------------------------|------------------------------------|
| H. P. 30-35 | Seats 5 people | Straps for hood and boxes |
| Weight, 2250 lbs | Water, 8 gallons | Horn, 6 inch, with tube and screen |
| Weight per H. P., 75 lbs. | Gasoline, 16 to 20 gallons | 2 gas lamps and separate generator |
| Wheels, 34 inches | Battery, Storage | 2 side oil lamps |
| Tires, 4 inches | Extra shoe space under tonneau | 1 tail lamp, oil |
| Wheel Base, 100 inches | Tool box and tools | Muffler cut out |

Ignition, double set including two sets of plugs over inlet, one operated by battery and spark coil, the other by high tension magneto with distributor and spark advance, thus giving two separate and distinct systems of ignition.

Price as Above **\$3,500**

ARDSLEY MOTOR CAR CO.

OF YONKERS, NEW YORK, U. S. A.