to the transmission and compensating gears.

The motor is of 3½ horse power, and the weight of the vehicle is 500 pounds. The motor is started by means of a strap on which the operator pulls while seated in the carriage. The control of speed and the stopping of the motor are effected by a single handle controlled by the right hand. The change from high to low speed is made by means of one movement of the clutch handle, and the carburetor adjustment is effected by means of a small handle on top of the steering column.

The manufacturers make the following claims for this machine:

The Crestmobile has a long wheel base, which means easy steering and comfort to the user. The seat has a high back with good width. The trimmings and finish of the carriage are of the best. The tank, coil and battery are placed under the seat. The box in the curved dash is used for tools, rubber boot, etc. As no weight of machinery is supported by the body the springs are light and flexible, insuring easy riding. A double acting foot brake is used. The body of the carriage not being filled with machinery has space for goods, wraps, etc. Also the machinery on the running gear increases the stability.

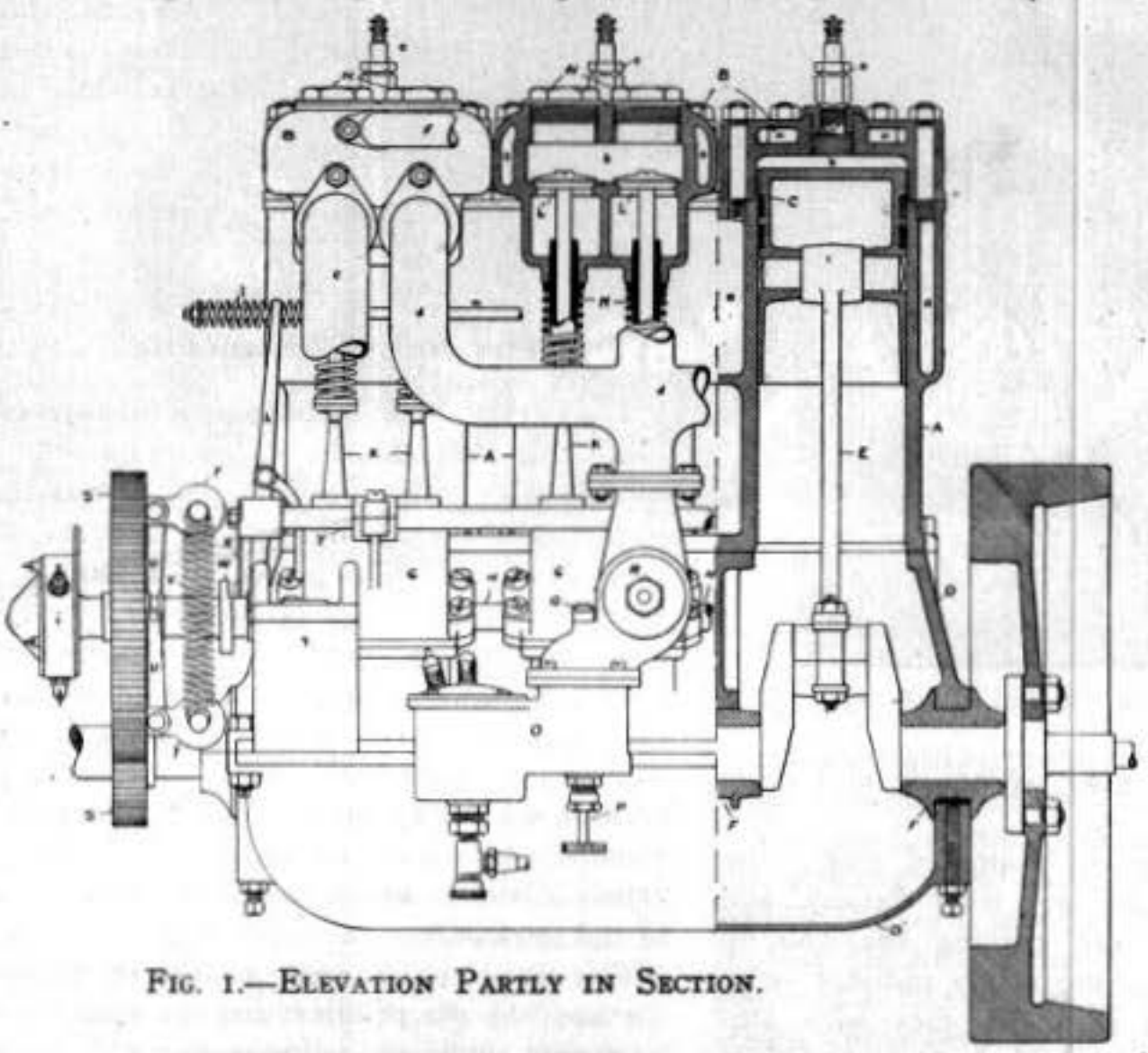


FIG. 1.—ELEVATION PARTLY IN SECTION.

A A A, cylinders; a a a, water jackets; B B, valve chambers; b b, compression spaces; C, piston; c, exhaust pipe; D¹, lower half crank case; d d, inlet tubes; E, connecting rod; e e e, ignition plugs; F F, crank boxes; f, water tube; G G, cam shaft cases; g, supporting bracket; H H, cam shaft; i, circuit breaker; K K, valve lifters; L, inlet valve; L¹, exhaust valve; l, counteracting spring; M M, valve guides; m, throttle governor connecting link; N N, valve covers; O, carburetor; P, carburetor regulating screw; Q, mixture valve lever; R, throttle valve chamber; S, motor shaft pinion; S¹, cam shaft gear; T T, governor; U U, governor arms; V, governor spring; W, throttle cam; X, rock shaft arm; Y, rock shaft.

The Toledo Three Cylinder Motor.

The motor of the new Toledo touring car is of the three cylinder vertical type mounted in front under a cast aluminum bonnet. This motor is said to be of 16 brake horse power, each of the three cylinders being of 4¼ inch bore and 5¼ inch stroke. The three cylinders are cast integral or in a single casting of best gray iron. The combustion chamber and valve chamber for each cylinder are also cast integral. A soft copper gasket is fitted in the joint between the combustion chambers and the cylinders, thus forming absolutely tight joints. The cylinder walls and combustion and valve chambers are water jacketed.

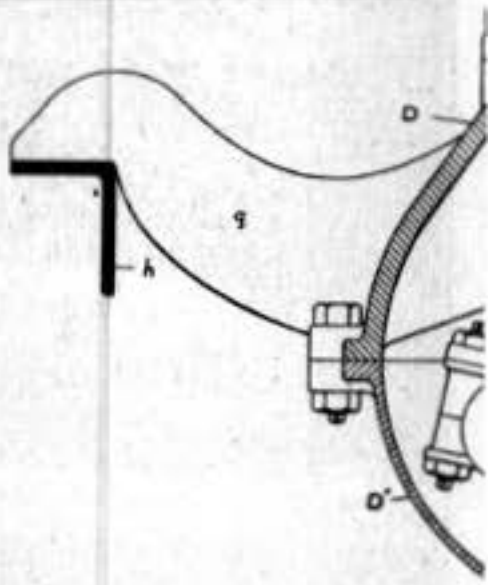
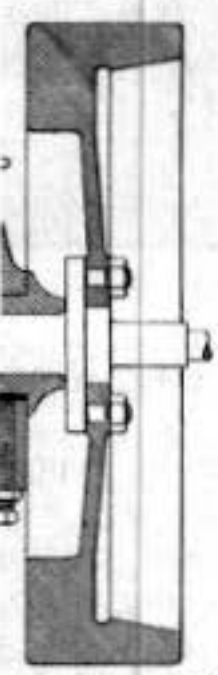


FIG. 2.—SECTION THROUGH

The crank case is cast of aluminum in two halves, the upper half carrying the motor supporting brackets and the shaft bearings. The cylinders are bolted to this casting in the usual manner. The lower half of the crank case may be removed should occasion require without disturbing any of the working parts of the motor. This portion of the crank case forms an oil reservoir into which the cranks dip, and in this way the crank bearings and

wer, each of the three cylin- 4¼ inch bore and 5¼ inch ree cylinders are cast inte- single casting of best gray nbustion chamber and valve ach cylinder are also cast ft copper gasket is fitted in en the combustion chambers ers, thus forming absolutely The cylinder walls and com-



b, compression spaces; C, ; E, connecting rod; e e e, ; g, supporting bracket; H H, exhaust valve; I, counteract- k; N N, valve covers; O, car- , throttle valve chamber; S, governor arms; V, governor

connecting rod bearings are lubricated. The cranks are set at 120 degrees and the shaft is forged of a single piece of "car axle steel." After turning it up it is hardened and ground on centres.

The shaft is mounted in adjustable bronze bearings, four in number. The cam shaft which operates not only the exhaust valves but the inlet valves as well is driven from a bronze pinion on the engine shaft meshing with a bronze gear keyed to the cam shaft. The cam shaft is also lubricated on the "splash" principle from the crank chamber of the motor.

The connecting rods are drop forged. The pistons, cast in gray iron, each have two ring grooves of double width, and each groove carries two rings. The cylinders are bored and then "lapped" out, thus insuring a perfect internal surface. The inlet and exhaust valves are turned from forged nickel steel blanks. A screw plug covers each valve, removing which the valves are readily accessible. A single float feed carburetor of large size supplies the three cylinders through an ample three way induc-

FIG. 2.—SECTION THROUGH CYLINDER AND VALVE BOX.

lve chambers are water jack-

case is cast of aluminum in he upper half carrying the ting brackets and the shaft cylinders are bolted to this usual manner. The lower rank case may be removed n require without disturbing orking parts of the motor. of the crank case forms an into which the cranks dip, ay the crank bearings and

tion pipe. The carburetor is attached to the motor and forms an integral part of it. A simple centrifugal governor controls the speed of the motor on the throttling principle. The action of this governor is prevented by a small foot pedal or "accelerator." When this pedal is depressed the speed of the motor is entirely controlled by a lever operating the spark timing arrangement. The ignition plugs are located directly over the centres of the pistons. A very heavy flywheel forms the fixed clutch member, according to usual practice.