July 1, 1930. S. I. FEKETE 1,768,549

DISTRIBUTOR UNIT FOR IGNITION SYSTEMS OF INTERNAL COMBUSTION ENGINES

Filed Jan. 23 1924

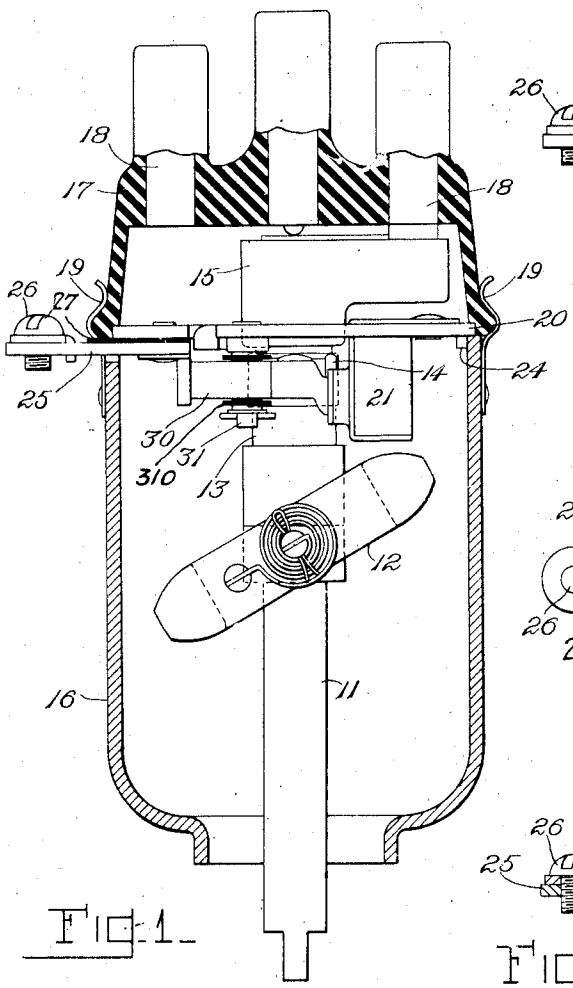


Fig. 1.

Fig. 2.

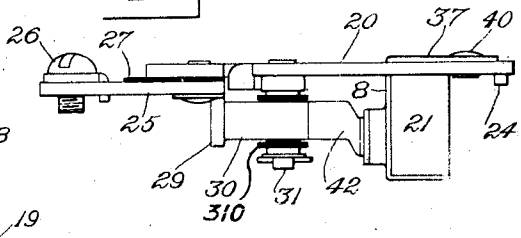
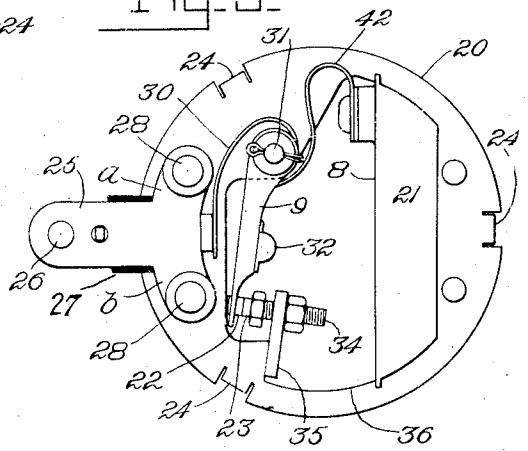


Fig. 3.



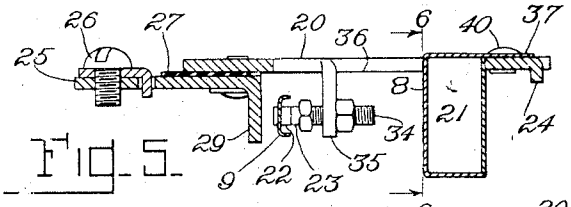


Fig. 5.

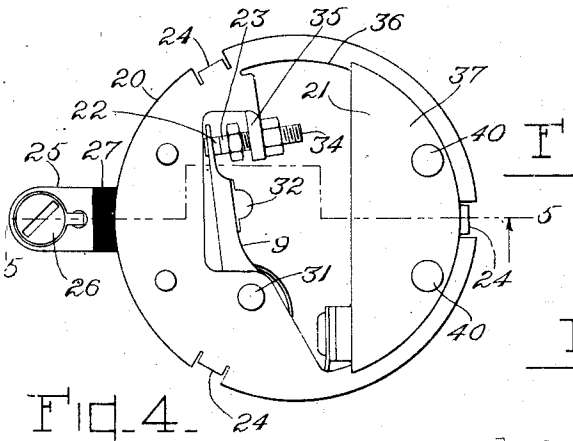


Fig. 4.

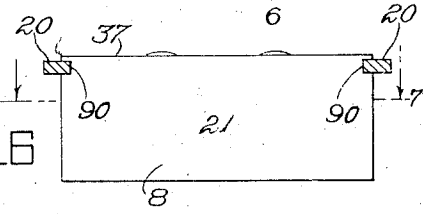


Fig. 6

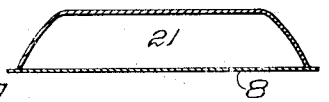


Fig. 7.

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UNITED STATES PATENT OFFICE

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DISTRIBUTOR UNIT FOR IGNITION SYSTEMS OF INTERNAL-COMBUSTION ENGINES

Application filed January 23, 1924. Serial No. 688,074.

My present invention relates to distributor units for the ignition systems of internal combustion engines of the type known as battery ignitions. The particular object of the invention is to provide a simple structure which can be manufactured more economically and which will be more satisfactory to the user, particularly on account of greater accessibility for adjustment and repair.

As is well known to those skilled in the art, one type of battery ignition has been provided with a distributor unit in which are combined the interrupter, condenser, fixed points of the distributor, a rotating shaft carrying the movable member or rotor of a distributor, and a centrifugal governor which automatically controls the spark advance.

In one particular form of these ignition systems the interrupter points and condenser have been carried in a cup located inside the casing and removable as a unit for adjustment, repair, or replacement. This construction has many advantages but is expensive to manufacture because of the kidney-shaped condenser and was difficult to repair or adjust particularly in the absence of special tools.

My present invention, therefore, has for its object to provide a distributor unit having the advantages of the form already described but which can be manufactured cheaply and can be readily repaired and adjusted without the use of special tools.

The invention will be fully understood from the following description when taken in connection with the accompanying drawings, and the novel features thereof will be pointed out and clearly defined in the claims at the close of this specification.

In the drawings:

Fig. 1 is a vertical section partly in elevation of a distributor unit embodying my invention.

Fig. 2 is a side elevation of the plate 20 and attached parts.

Fig. 3 is a bottom plan view of the plate 20 and attached parts shown in Fig. 2.

Fig. 4 is a top plan view of the plate 20 and attached parts.

Fig. 5 is a section taken on line 5—5, Fig. 4.

Fig. 6 is a section taken on line 6—6, Fig. 5.

Fig. 7 is a section taken on line 7—7, Fig. 6.

Referring now to the drawings:

At 11 is shown the distributor shaft, at 12 the governor weight, at 13 the cam sleeve, at 14 the interrupter cam, and at 15 the rotor or movable arm of the distributor. The distributor casing is composed preferably of a casing proper 16 preferably made of metal and a cover 17 formed of molded insulating material, as, for instance, bakelite and containing the several fixed contacts 18. The two parts of the distributor casing are held together by spring clasps 19. As these parts are of well known construction, they will not be described in further detail.

Clamped between the casing 16 and cover 17 is a plate 20 which supports the condenser 21 and interrupter points 22 and 23. The parts supported by the plate 20 are located on its underside and hang down into the casing 16 above the governor 12. In practice, the plate is made of a diameter slightly greater than the interior diameter of the distributor casing 16 so that it will rest on the upper edge of the casing. At three or more points around the edge of the plate tongues 24 are struck out and bent downwardly so that they will just fit inside the casing and thus serve to position and centre the plate with respect to the axis of rotation of the shaft. Accurate centering of the plate is important because any change in its position will affect the amount of the gap between the interrupter points 22, 23 and consequently the intensity of the discharge through the high tension circuit. The tongues just described centre the plate accurately and hold it securely in position under all conditions of operation.

At one side of the plate and on the under face thereof is secured an arm 25 having on its outer end a binding screw 26 for connection to one side of an induction coil. The arm 25 is insulated from the plate 20 by a thin sheet 27 of suitable material such as bakelite or mica. The inner end of the arm is branched, as shown at *a* and *b* and secured by rivets 28, 28 to the plate 20. It is also provided with a downwardly turned tongue 29 against which rests one end of the spring 30 which closes the interrupter points and

furnishes an electrical connection between the arm 25 and the movable interrupter arm 9. This arm 9 is pivoted to a stud 31 which also depends from the under side of the plate 20, said arm and stud being insulated from one another by the usual fibre or other bushing 310. The pivoted arm carries the usual fibre wearing member 32 for contact with the cam 14, see Fig. 1, also the contact point 22 of platinum, tungsten or other suitable material. The fixed contact point 23 is on the end of a screw 34 supported in an arm or lug 35 which forms part of the plate 20 and is bent down into a substantially vertical position.

The centre of the plate 20 is cut away, as shown at 36, so that the contact points 22 and 23 and the fibre wearing member 32 can be seen when the parts are in operating position. This makes it possible to check the adjustment conveniently.

The condenser 21 is provided with a horizontal flange 37 which extends over the upper surface of the plate and assists to secure the condenser in place. The inside wall 8 of the condenser which is formed in one piece with the flange 37 is notched as shown at 90 in Fig. 6. In assembling the parts the condenser is slipped down through the opening with its inside wall 8 about on a line with the diameter of the plate and then is moved sidewise, that is, to the right, as shown in Figures 2 and 4, until the notches 9 engage the edge of the plate. Thereafter rivets 40 are inserted, thus securing the whole in place. Electrical connection between the condenser and the movable interrupter contact is provided by means of a thin piece of suitable sheet metal 42.

As has already been pointed out all the parts carried by the plate are below its bottom surface so that when the plate is taken out and turned bottom side up they are exposed to view and are in a convenient position for adjustment. They are not surrounded by any other parts or by a rim or flange and therefore are readily accessible and visible. Furthermore, when the plate is in position with the wearing member against the cam, it is also possible to examine the interrupter points and check the size of the gap to make sure that the points are correctly adjusted. The plate 20 is a stamping and is not drawn or shaped, therefore the expense of manufacture of this part is largely reduced over that of making a cup which must be drawn to be accurate in size so that it will be centered properly in the casing. Furthermore the condenser can be made of the shape shown which is relatively inexpensive as compared with the kidney shaped condensers heretofore commonly employed. Altogether the devices embodying my invention reduce materially the expense of the distributor unit while at the same time increasing its success and reliability.

What I claim is:

1. The combination with a casing and a cover, of a plate supporting a condenser and interrupter points, said plate resting on the upper edge of the casing and being provided with tongues struck from the edge of the plate and extending down inside the casing to position the plate with relation thereto.

2. The combination of a casing, a cover, a removable plate between the casing and the cover, a condenser and interrupter points, the said condenser and interrupter points being supported on the under side of said plate.

3. The combination of a casing, a cover, a plate, a condenser and interrupter points, the plate being interposed between the casing and the cover and having an arm secured to one face thereof insulated therefrom and extending through the side of said casing, and the condenser and the interrupter being supported by the plate inside the casing.

4. The combination of a casing, a cover, a plate, a condenser and interrupter points, said plate being provided with an outwardly extending arm secured to the under surface thereof and insulated therefrom and having a downwardly extending tongue thereon, one of said interrupter points being secured to the plate and the other of said interrupter points being secured to a downwardly extending lug integral with said plate, said tongue on the arm forming an abutment for the interrupter spring.

5. The combination of a casing, a cover, a plate between the casing and the cover, a condenser and interrupter points, said condenser and interrupter points being supported on the underside of said plate within the casing, and said plate having an opening through which said interrupter points are accessible from the top.

6. The combination of a casing, a cover, a plate, a condenser, and interrupter points, said plate resting at its edge on the upper edge of the casing and being provided with inset tongues struck from its edge and extending down inside the casing to position the plate with relation thereto, and said condenser and interrupter points being supported on the underside of said plate within the casing.

In testimony whereof I affix my signature.

STEPHEN I. FEKETE.