

21

Aug. 25, 1925.

H. P. DONLE

1,550,789.

IGNITER

Filed Oct. 16, 1923

2 Sheets-Sheet 1

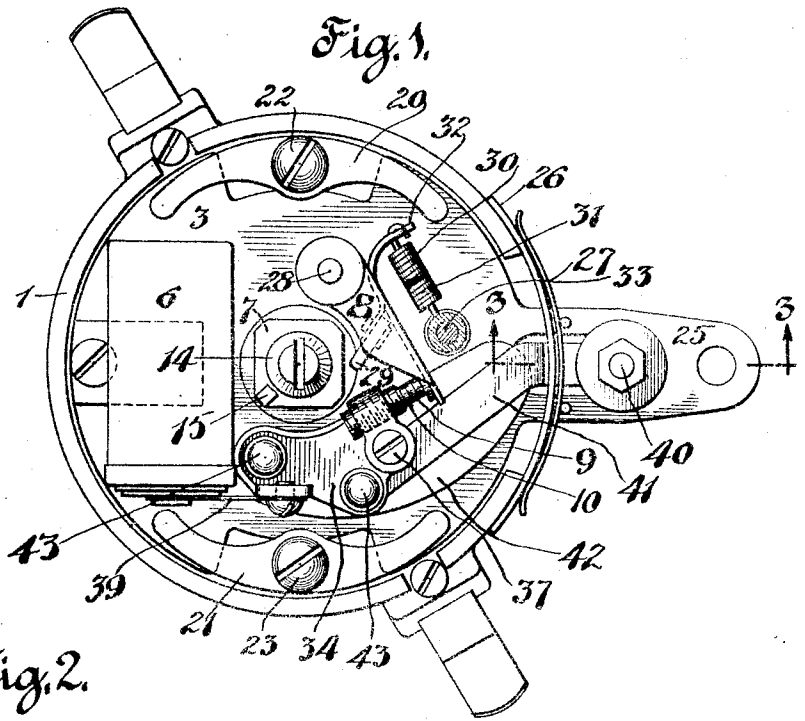


Fig. 2.

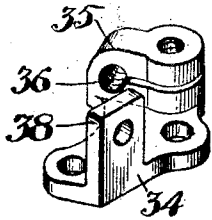


Fig. 3.

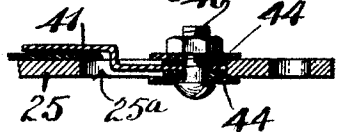
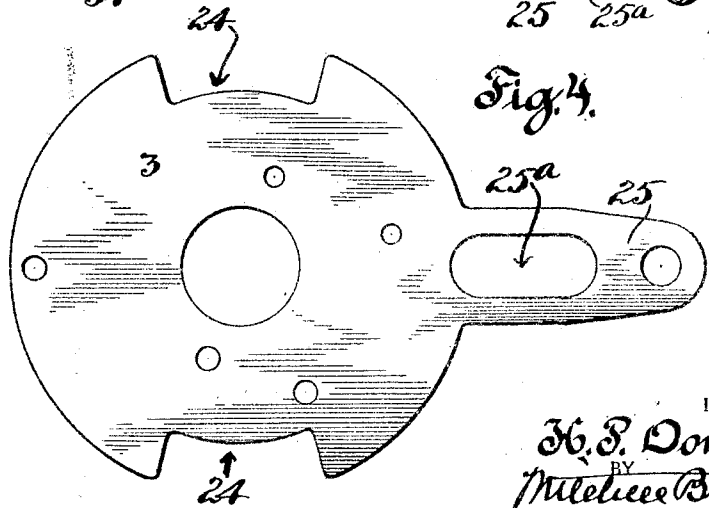


Fig. 4.



INVENTOR
H. P. Donle
BY *Melville Barber*
ATTORNEY

21

Aug. 25, 1925.

H. P. DONLE

1,550,789

IGNITER

Filed Oct. 16, 1923

2 Sheets-Sheet 2

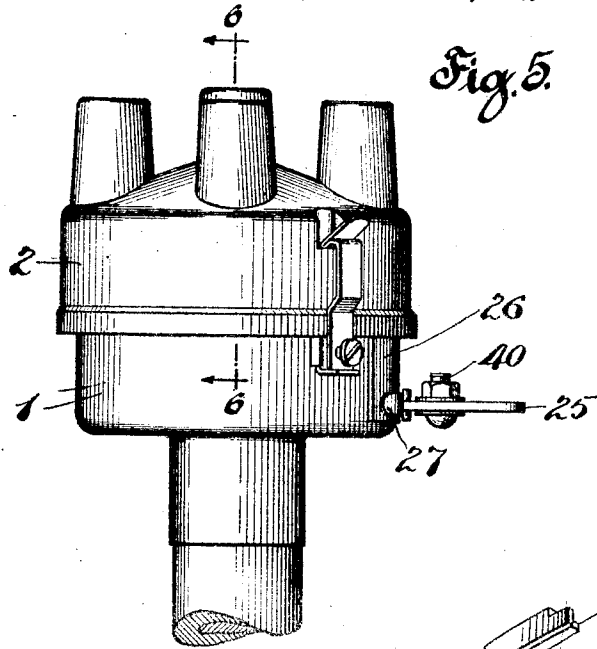


Fig. 5.

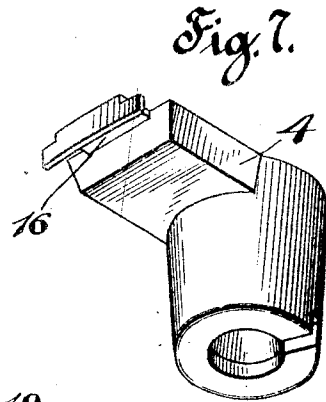


Fig. 7.

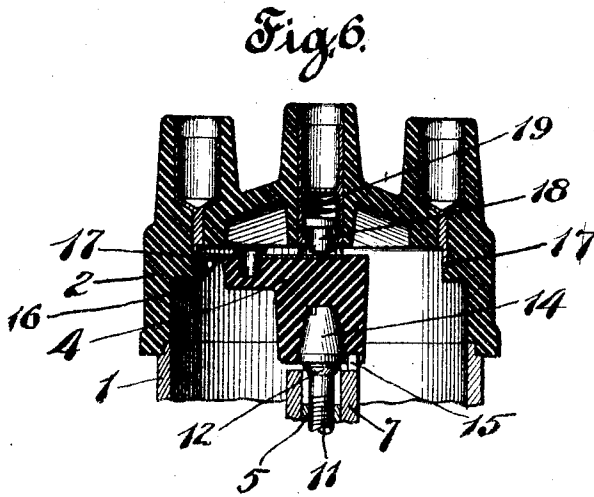


Fig. 6.

INVENTOR
H. P. Donle
 BY
Milnes Osburn
 ATTORNEY

Patented Aug. 25, 1925.

1,550,789

UNITED STATES PATENT OFFICE.

HAROLD POTTER DONLE, OF MERIDEN, CONNECTICUT, ASSIGNOR TO THE CONNECTICUT TELEPHONE AND ELECTRIC COMPANY, INCORPORATED, OF MERIDEN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

IGNITER.

Application filed October 16, 1923. Serial No. 668,951.

To all whom it may concern:

Be it known that I, HAROLD P. DONLE, a citizen of the United States of America, residing at Meriden, Connecticut, have invented new and useful Improvements in an Igniter, of which the following is a specification.

My invention relates to igniters for internal combustion engines, and has particular reference to novel and useful features of assembly and improved structural details facilitating such assembly.

In the accompanying drawings,

Fig. 1 is a plan view, somewhat enlarged, of the igniter, the distributor cover being removed;

Fig. 2 is a perspective view of a novel mounting for certain parts;

Fig. 3 is a section on the line 3—3 of Fig. 1;

Fig. 4 is a plan view of what I will term the breaker plate;

Fig. 5 is a side elevation of the igniter showing the distributor cover in place;

Fig. 6 is a fragmentary section on the line 6—6 of Fig. 5;

Fig. 7 is a perspective view of the distributor arm.

1 represents a housing in which the timer mechanism is located, the same being mounted in any suitable way in line with the usual shaft by which the interrupter cam is actuated. 2 is the distributor cover, which is detachably mounted on the timer housing 1. 3 is the breaker plate, mounted for limited rotation on or near the bottom of the housing 1, said plate carrying the breaker or interrupter mechanism hereinafter described. 4 is a distributor arm or member secured to the upper end of the driving shaft 5 as hereinafter described, so that said arm will be rotated around within the cover 2 to "distribute" the high tension current to the respective spark plug terminals therein. 6 is a condenser mounted within the housing 1 and on the breaker plate 3, being secured thereto in any desired manner. 7 is a cam which is mounted on the shaft 5 and by which the breaker mechanism is actuated to interrupt the primary circuit as required. I have made no effort to show the high and low tension circuit wires herein, because the same are well-known features of an igniter of this type

and perfectly well understood to anyone skilled in the art. 8 represents the breaker arm proper, while 9 represents a so called "contact point" carried thereby which co-acts with another point 10 which is fixedly mounted within the housing.

Having thus pointed out the main features of the igniter mechanism, I will now describe the various details and the particular method of assembling the same.

Starting with the cam 7 and its mounting on the shaft 5. In Fig. 6 I have shown the upper end of this shaft as split longitudinally for a short distance. The cam 7 slides onto the split end of the shaft. 11 is an expansion means in the form of a screw which screws into a threaded opening within the shaft 5. This screw has a tapered portion 12 which serves to expand the split end of the shaft 5 to frictionally hold the cam 7 in any position of angular adjustment thereon. The upper end of the screw 11 is provided with a tapered head 14, the upper end of the head being preferably provided with a slot to receive a screwdriver. The body of the distributor arm 4 is provided with a cavity in its lower end which is tapered to fit friction tight on the tapered head 14 of the screw. The lower end of the body of the distributor arm 4 at one side of said cavity is provided with a notch designed to receive a dog 15 on the upper end of the cam, as shown in Fig. 6, so that the angular position of the breaker arm 4 will always correspond with the angularly adjusted position of the cam 7. The distributor arm 4 is provided with a metallic current carrying member 16, the outer end of which in operation sweeps around adjacent the high tension terminals 17 within the distributor head, while the inner end is in electrical engagement with a central high tension terminal piece 18 pressed by a spring 19 so as to preserve contact between the central high tension outlet of the distributor head and the contact member 16.

The breaker plate 3 is held on its seat within the housing 1 by means of a pair of springs 20—21 which are respectively held by screws 22—23 in position so that the two ends of each of said springs will rest substantially flatwise on the upper edge of the breaker plate. The opposite edges of the breaker plate are notched as at 24—24 (Fig.

4) to afford clearance for the screws 22—23 sufficient to permit the breaker plate to be angularly adjusted within the housing 1. This adjustment is effected by means of an arm 25 which is usually integral with the plate 3 and projects through an opening in the side wall of the housing 1 as shown in Fig. 1. A suitable cover plate 26, held by a spring 27, serves to close the opening referred to against the entrance of dust and the like.

The breaker arm 8 is pivotally mounted on a stud 28 and is swung outwardly by the operation of the cam 7 which engages a suitable abutment shoulder 29. To swing the arm 8 in the opposite direction, I preferably provide two springs 30—31, each of which is hooked to an arm 32 which projects from the breaker arm 8 in such a fashion as to permit said springs to be conveniently connected therewith. 33 is a post carried by the breaker plate 31 to which the opposite ends of the springs 30—31 are connected. The operation of the springs is to throw the contact point 9 toward and into engagement with the contact point 10.

The contact point 10 is adjustably mounted on a novel supporting member illustrated in Fig. 2. This supporting member comprises a base 34 which is rigidly secured to the breaker plate 3. Projecting upwardly from said base 34 is a boss 35 which is provided with a threaded passage 36 to receive the threaded body portion of the contact point 10. The side of this boss 35 is slitted so that by means of the screw 37 the said boss may be tightly clamped on the threaded portion of the contact point 10 when the desired adjustment has been effected to hold the screw against displacement. This construction obviates the necessity of check nuts and the like, and greatly simplifies the operation of adjustment and prevents any possibility of disturbing the adjustment, as is always possible in such cases as employ a lock nut on the threaded body of the fixed contact point, inasmuch as the setting up of such a nut is liable to turn the contact point.

38 is another boss projecting upwardly from the base 34 which furnishes a convenient and accessible means for securing a connector strip 39 which is carried by the end of the condenser 6 as shown in Fig. 1.

40 is a binding post for connecting one end of the primary circuit. This post is mounted on the arm 25 and is insulated therefrom preferably as shown in Figs. 1 and 3. The said arm is provided with an elongated slot 25^a which affords ample clearance for the end of a connector strip 41 which leads from the binding post 40 to the supporting member for the contact point 10. 42 is a strip of insulating material which assists in insulating the base 34 of the support-

ing member from the breaker plate 3. In this connection it should be said that the studs 43—43 by which said supporting member is secured to the breaker plate 3 are also insulated, so that the primary circuit leading to the fixed contact point 10 will be perfectly insulated from the ground. The binding post 40 is suitably insulated from the arm 25 by means of suitable washers 44—44. The cover plate 26 and its spring 27 may be slotted so as to permit the strip 41 to pass freely therethrough without contacting therewith, and if desired the space around said strip where it passes through said plate 26 and spring 27 may be filled with suitable insulating material, the purpose being of course to prevent short circuiting at this point.

The other end of the primary circuit is preferably grounded, and current reaches the breaker arm and movable contact point 9 through the medium of said ground.

I claim—

1. In an igniter, a stationary housing having an opening in the side thereof, a breaker plate mounted in said housing and carrying timer mechanism thereon, an arm integral with said breaker plate and extending through said opening in said housing, said arm having a slot therein, a conducting strip lying partially within said slot and extending to the outside of said housing and insulated from said integral arm, said conducting strip being electrically connected to a part of said timer mechanism.

2. In an igniter, a housing, a shaft entering the housing from the lower side, the upper end of said shaft being slotted and provided with a longitudinal threaded passage through said slotted portion, a cam mounted on the slotted portion of said shaft and adjustable angularly thereon, a screw-threaded wedge entering the threaded portion of said shaft for expanding the slotted end thereof to hold the cam in different positions of adjustment, a distributor arm having a tapered cavity adapted to fit snugly on said tapered screw head, and a dog on the cam, said distributor arm having a recess for receiving said dog, to lock said cam and arm together against independent rotation.

3. In an igniter, a cam, a slotted shaft for supporting the same, an expansion means comprising a screw for expanding the slotted end of the shaft to lock the cam in place, a tapered head on said screw, a distributor arm having a cavity adapted to be secured friction-tight on said screw-head, whereby said screw-head supports said arm, and means of connection between the cam and the arm for holding said cam and arm in predetermined angular adjustment.

HAROLD POTTER DONLE,