

March 23, 1926.

1,577,572

M. FORDER

TIMER BRUSH

Filed April 25, 1924

Fig. 1.

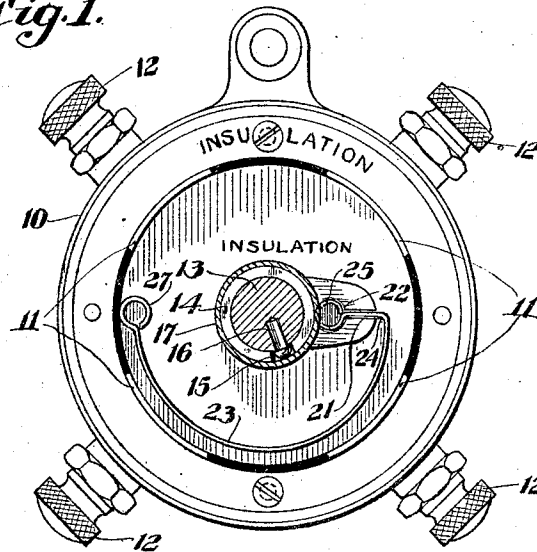


Fig. 2.

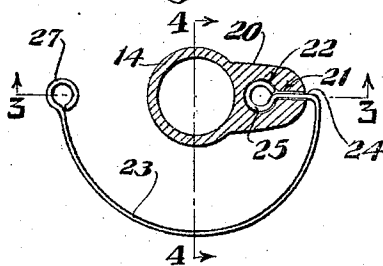


Fig. 4.

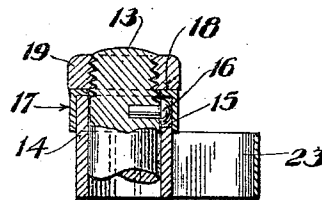


Fig. 3.

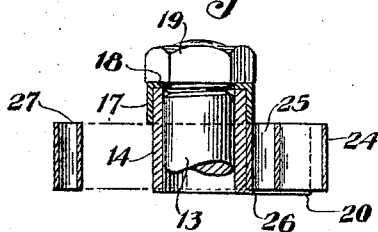
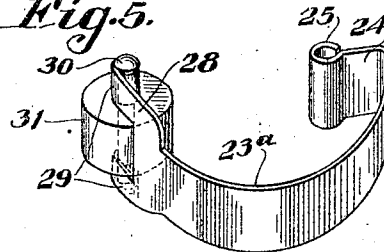


Fig. 5.



WITNESSES
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MILTON FORDER, OF THIEF RIVER FALLS, MINNESOTA, ASSIGNOR TO WILLIAM H. FORDER AND MILTON H. FORDER, BOTH OF BUHL, MINNESOTA.

TIMER BRUSH.

Application filed April 25, 1924. Serial No. 709,027.

To all whom it may concern:

Be it known that I, MILTON FORDER, a citizen of the United States, residing at Thief River Falls, in the county of Pennington and State of Minnesota, have invented a new and useful Timer Brush, of which the following is a specification.

This invention relates to a spring brush, especially adapted to be used on timers for internal combustion engines.

The general object of the invention is to provide a brush of simple and inexpensive construction, which is adapted to be secured to the timer shaft, in place of the brush now commonly used without any alteration in the securing means or other parts of the timing mechanism, and which operates smoothly and efficiently with little friction. The invention consists essentially of a hub and a spring removably held therein, and having a contact element at its outer end, which may be either of the wiper or roller type. Thus, springs with different types of contacts may be used interchangeably in the same hub.

A full and complete understanding of the invention may be obtained from a consideration of the following detailed description taken in connection with the accompanying drawing forming a part of this specification; it being understood that while the drawing shows a practical form of the invention, the latter is not to be confined to strict conformity with the showing thereof, but may be changed and modified so long as such changes and modifications mark no material departure from the salient features of the invention, as specifically pointed out in the appended claims.

In the drawing:

Figure 1 is a plan view of the timer cone illustrating my invention in connection therewith, with the hub and timer shaft shown in section.

Figure 2 is a horizontal sectional view of the invention detached.

Figure 3 is a sectional view taken on the line 3—3 of Figure 2.

Figure 4 is a sectional view taken on the line 4—4 of Figure 2.

Figure 5 is a perspective view of a different type of brush with a spring which may be used interchangeably with that shown in the preceding figures.

The timer, in connection with which the

invention is illustrated, includes a casing 10, having contact blocks 11 electrically connected to the respective binding posts 12. The timer cam shaft 13 is rotatably mounted centrally of the casing 10, and carries a rotor having a brush, which contacts successively with the blocks 11 as the cam shaft rotates.

In carrying out my invention, I have provided a hub 14, which may be removably secured to the outer end of the shaft 13, in place of the usual rotor, and by the same means. The usual manner of securing this rotor or hub, consists in providing a notch or slot 15 in the hub 14, and inserting therein a pin 16 which enters a hole in the shaft, and is held therein by a ring 17, which is inserted over the outer end of the hub and has at its outer side an inturned flange 18, which is secured in fixed relation to the hub by a nut 19, which is threaded onto the outer end of the shaft.

The hub 14 is provided beyond the edge of the ring 17 with a laterally projecting wing 20, having therein a radial slot 21, which is enlarged at its inner end to form a substantially circular recess 22. Cooperating with the hub 14 is a flat spring 23, substantially semi-circular, and having at one end an inturned portion 24 terminating in an eye 25, adapted to fit within the slot 21 and recess 22, respectively. The inner end of the recess 22 may be partially closed or reduced in size, as indicated at 26, in order to prevent the spring 23 from bearing against the bottom of the timer casing, and it will be noted that the eye 25 extends partly underneath the ring 17, and is held in place thereby.

The outer end of the spring 23 is formed with a brush, which, as shown in Figures 1 and 2, is in the form of an eye, and the spring is tensioned so that the eye 27 forms a wiping contact with the contact blocks 11 as the shaft 13 rotates. The hollow nature of the brush member 27 aids in keeping it cool, and it is also to be noted that the spring 23 extends substantially half the distance around the periphery of the timer cone, and thus results in a smoother action and greater flexibility, with a decrease in friction.

In Figure 5 I have shown a spring 23^a, which is interchangeable with the spring 23, and which is formed with a bifurcated outer

end 28 terminating in eyes 29, through which a pin 30 is inserted and carries a roller 31. Thus, either a wiping contact or a roller contact may be used as desired, merely by interchanging the springs 23 and 23^a. The hub 14 will last indefinitely, and if the brush wears out, it may be easily removed from the hub and a new brush inserted.

What is claimed is:

1. In a timer mechanism, the combination of a hub, means for removably securing the same to the timer cam shaft, said hub having a laterally projecting wing having a radial slot enlarged at its inner end to form a substantially circular recess, and a substantially semi-circular spring having a brush at one end and having its other end turned inwardly and formed with a terminal portion fitting within said slot and an eye on said terminal portion received in said recess and removably secured therein.

2. In a timer mechanism, the combination of a timer cam shaft, a hub therefor, means for removably securing the hub to the shaft, said hub having a laterally projecting wing with a radial slot therein enlarged at its inner end, and a flat spring having a brush at its outer end and having its inner end turned at an angle to the body portion of the spring and formed with an enlarged end fitting within said slot and removably held

therein by the same means which secures the hub to the shaft.

3. In a timer mechanism, the combination of a hub, means for removably securing the same to the timer cam shaft, said hub having a laterally projecting wing with a radial slot enlarged at its inner end, and a substantially semi-circular flat spring having a brush at one end and having its other end turned inwardly toward its center of curvature and terminating in an enlarged portion fitting within said slot and removably held therein by the same means which secures the hub to the shaft, said brush when the spring is so held being engageable with the timer contact blocks on the side opposite to the hub wing.

4. In a timer mechanism, the combination with the timer shaft, of a hub, means for securing the hub to the outer end of the shaft, said means including a ring, said hub being provided beyond the edge of the ring with a laterally projecting wing having a radial slot, and a spring having a brush at its outer end and having its inner end fitted in the radial slot of the wing and removably held therein by the said ring.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature.

MILTON FORDER.