To all whom it may concern:

Be it known that I, ANTHONY GEROSA, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Improved Spring Brush for Timers, of which the following is a specification.

This invention generally relates to timers for internal combustion engines and has more particular relation to a brush therefor.

An object of the invention is to provide for an even distribution of spark to the cylinders of an internal engine whereby the engine may be easily started. A further object is to provide a brush of simplified construction, of efficient and inexpensive character and one capable of having worn parts readily replaced without necessitating the purchase of a new brush. A still further object is to provide a brush which may be applied to a timer casing having a worn or pitted bearing surface whereby the operation of said brush in time will cause said surface to become perfectly smooth. Other and further objects reside in the provision of general details of construction and in the arrangement and combination of parts.

The invention consists of the improvements hereinafter described and finally claimed.

The nature, characteristic features and scope of the invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof, and in which:

Figure 1, is a face view of a timer having applied thereto a brush embodying feature of the invention.

Figure 2, a front elevational view of a brush embodying features of the invention.

Figure 3, is a view in side elevation thereof.

Figure 4, is a view of brush parts of slightly modified form about to be assembled.

Figure 5, is a view in side elevation of the brush parts assembled, and

Figure 6, is a view in front elevation of a further modified form of brush.

For the purpose of illustrating my invention, I have shown in the accompanying drawings one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

In the drawings 10 designates a timer casing for internal combustion engines, 11 the contact pieces and 12 the binding posts. 13 designates a cam shaft which is provided with a radially disposed, fixed pin 14. These parts are of ordinary and well known construction. The timer brush of the invention is detachably fitted to the cam shaft 13 and a description thereof will now be given. The brush parts are principally stamped from sheet and spring steel thus providing an inexpensive article. The hub of the brush which engages over the shaft 13 is sheet steel and is bent to form a split tube-like portion 15. That part of the hub adjacent the split portion 16 is substantially flat as at 17, is slotted as at 18 and has a keeper 19 struck up therefrom. The arm 20 of the brush is tempered spring steel and one end thereof passes through the slot 18 of the hub and beneath the keeper 19 and is secured to the hub either in a detachable manner as shown in Figs. 1 to 5 or permanently as shown in Fig. 6. As shown in Figs. 1 to 3 the hub is provided with a threaded stud 21 over which the aperture end of the arm is passed and attachment effected by means of a nut 22. In Figs. 4 and 5 the hub is provided with a stud 23 having a head of any desired configuration and the end of the arm is apertured as at 24 to fit over said head and has a slit 25 in communication with said aperture whereby when the arm is moved forward the slit accommodates the shank of stud 23 thus interlocking said parts, see Fig. 6. In Fig. 6, the arm 20 is riveted as at 26 to the hub. The opposite end of the arm 28 carries a steel brush 27 of semi-cylindrical configuration with the flat surface thereof slitting against the arm 20 and curved surface thereof in engagement with the inner periphery of the casing 10. This brush may be either detachably secured to the arm 20 as shown in Figs. 1 to 5 or permanently attached as shown in Fig. 6. The same modes of attachment for the brush are utilized as those just described for effecting attachment of the arm 20 so that it is 110
thought description thereof is unnecessary as the same reference numerals are used to designate like parts. As manufactured the hub has secured thereto an outwardsly curved spring arm the free end of which spring arm is provided with a brush which lies in a plane substantially parallel to a plane passing through the flat part 17 of the hub the brush being out of alignment with the hub.

The hub is notched as at 28 for engagement with the pin 14 upon the cam shaft 13 whereby the hub is interlocked with respect to said shaft so as to be rotative therewith but is held against slipping therearound. The tubular hub being split may be readily fitted to cam shafts of slightly different diameters and the flexible arm likewise accommodates itself readily to timer casings of different diameters.

By reason of the flexible arm positioned as above described the brush positively and uniformly engages a contact-piece thus ensuring an equal distribution of sparks to the engine cylinders so that the engine may be not only easily started but operate more efficiently. Should a timer case have a worn or pitted contact surface a brush of the present invention, by reason of its uniform contact, will in time wear such surface smooth.

Replacement of brush arms and brushes by reason of the detachable features before described adds to the commercial value of the article.

It will now be apparent that I have devised a novel and useful construction which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description and while I have in the present instance shown and described the preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that the same is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

What I claim is:

A timer brush comprising a sleeve, a spring arm mounted upon and extended from said sleeve, means for detachably securing said arm to said sleeve including a headed stud upon the sleeve and an aperture and slit in the arm, and restraining means also extended from the sleeve for freely engaging said arm to limit the radial play thereof and to prevent substantial transverse movement of said arm.

In testimony whereof, I have hereunto signed my name.

ANTHONY GEROZA.