H. S. HARRIS, A. E. WAITE AND L. C. McCORMICK.

COMMUTATOR.

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1,404,761. Patented Jan. 31, 1922.

Fig. 1.

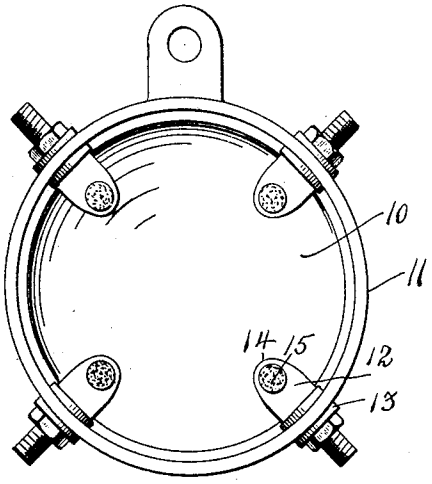


Fig. 2.

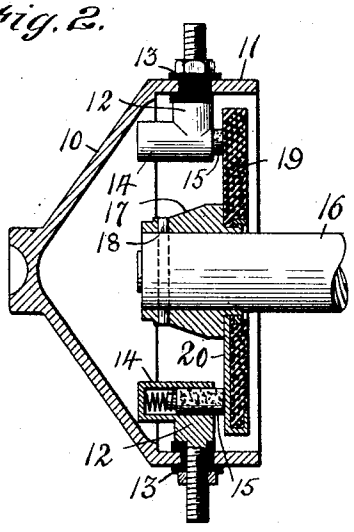
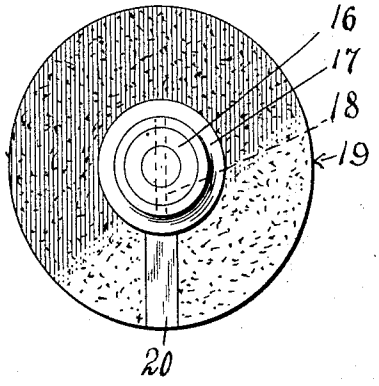


Fig. 3.



Inventors.

H. S. Harris, A. E. Waite and L. C. McCormick.

By *Geo. P. Kimmel.*

Attorney

UNITED STATES PATENT OFFICE.

HENRY S. HARRIS, ALBERT E. WAITE, AND LLOYD C. McCORMICK, OF SACRAMENTO, CALIFORNIA.

COMMUTATOR.

1,404,761. Specification of Letters Patent. Patented Jan. 31, 1922.

Application filed March 18, 1920. Serial No. 366,763.

To all whom it may concern:

Be it known that we, HENRY S. HARRIS, ALBERT E. WAITE, and LLOYD C. McCORMICK, citizens of the United States, residing at Sacramento, in the county of Sacramento and State of California, have invented certain new and useful Improvements in Commutators, of which the following is a specification.

This invention relates to improvements in the timers for internal combustion engines, for exploding the gas mixture in the combustion chambers of the cylinders by an electric spark at the proper time, and has for one of its objects to improve the construction and increase the efficiency and utility of devices of this character.

With these and other objects in view, the invention consists in certain novel features of construction as hereinafter shown and described and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention.

Figure 1 is a view of the hollow body or shell with the binding posts, sockets, and spring pressed contacts in position,

Figure 2 is a sectional elevation of the device complete,

Figure 3 is a detached view of the revolving disk with the radial contact arranged thereon.

The hollow body is represented at 10 and includes a cylindrical portion 11, with a plurality of binding posts 12 engaged therewith and insulated therefrom by washers or sleeves 13 of insulating material, such as fibre, rubber, or the like.

Each post 12 is provided at its inner end with a socket 14 in which a spring pressed contact 15 is supported, as shown.

A portion of the timer shaft is represented at 16, of the usual construction, and bearing upon the inner end of the shaft is a hub or sleeve 17. The sleeve is coupled to rotate with the shaft by a pin 18, and has mounted thereon a disk 19 of insulating material such as fibre, vulcanite, rubber, or the like. At its outer end the sleeve 17 is reduced thereby forming an annular shoulder against which the disk bears, as shown.

Formed in the inner face of the disk is a radial seat extending at its inner end beneath the shoulder and extending at its outer end through the rim of the disk and for a short distance into the opposite face.

Embedded in the seat of the disk is a radially directed contact 20. The outer end of the member 20 conforming to the portion of the seat in the outer edge of the disk while at its inner end the member 20 is in electric contact with the sleeve 17 and shaft 16.

The disk 19 rotates with the shaft 16 and in constant engagement with the brushes 15.

Surrounding the reduced portion of the sleeve 17 and embedded in the disk 19, is a ring 21 and rigidly secured to the sleeve by expanding the material of the reduced portion of the sleeve.

The ring 21 is preferably L shaped transversely, as shown, to facilitate the expanding or riveting.

By this means the disk 19 is firmly connected to the sleeve and the contact 20 firmly anchored to the disk and to the sleeve, so that no danger exists of the disk 19 or its contact 20 working loose.

The sparker device of each cylinder of the engine will be in electric connection with one of the binding posts 12, and with the timer shaft 15, so that as the timer shaft and the disk are rotated the contact 20 will be consecutively engaged with the contacts 15, and thus consecutively actuate the sparker devices, as will be obvious.

The posts 12 and their contacts 15 will correspond in number with the cylinders and sparkers of the vehicle, four being shown for illustration, but it will be understood that the device may be readily adapted without material structural change to motor driven vehicles equipped with any number of cylinders.

Having thus described the invention, what is claimed as new is:

In a timer device, a casing, a plurality of brushes carried by said casing, a shaft extending into said casing, a sleeve connected to said shaft and reduced at one end to form an annular shoulder, a disk of insulating material engaging said reduced por-

tion of the sleeve and against the shoulder, said disk having a radial seat in one face and extending beneath said shoulder, a contact embedded in said seat with the inner end beneath the shoulder, a holding ring engaging around the reduced portion of the sleeve and embedded in the disk, and secured to the sleeve by expanding the reduced portion thereof over the ring.

In testimony whereof, we affix our signatures hereto.

HENRY S. HARRIS.
ALBERT E. WAITE.
LLOYD C. McCORMICK.