

D. E. MOULTON.
 TIMER AND DISTRIBUTER.
 APPLICATION FILED APR. 3, 1915.

1,172,384.

Patented Feb. 22, 1916.

Fig. 1.

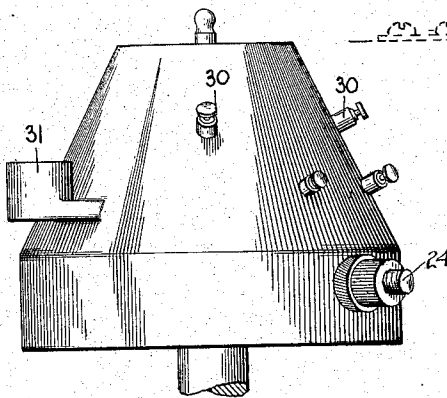


Fig. 2.

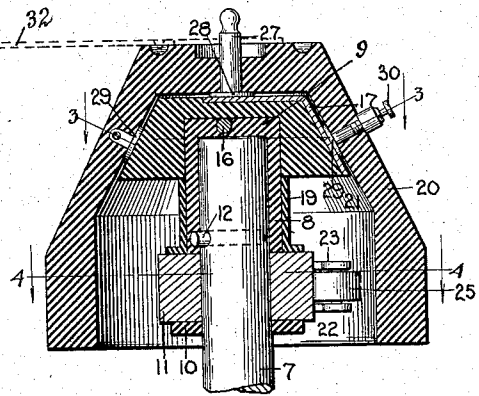


Fig. 3.

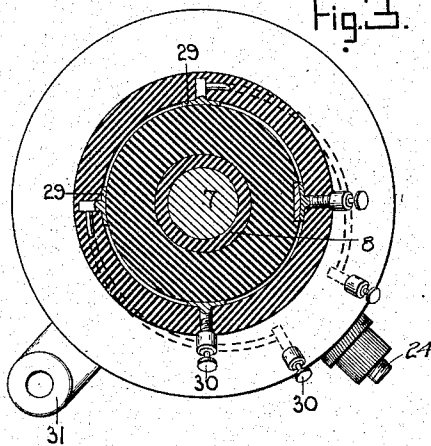


Fig. 4.

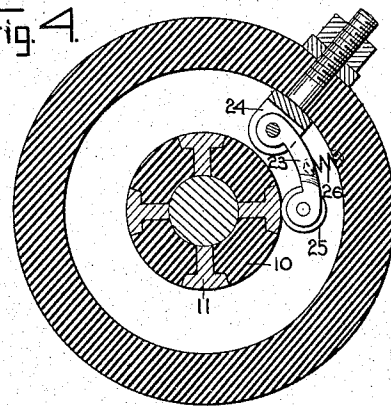


Fig. 5.

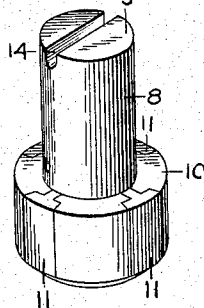
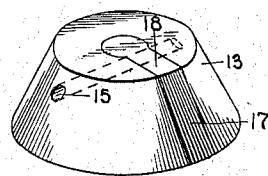


Fig. 6.



WITNESSES

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TIMER AND DISTRIBUTER.

1,172,384.

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To all whom it may concern:

Be it known that I, DEXTER EDWARD MOULTON, a citizen of the United States, and a resident of Pierre, in the county of Hughes and State of South Dakota, have invented a new and Improved Timer and Distributer, of which the following is a full, clear, and exact description.

My invention relates to timers and distributors and has for its object the provision of a simple, compact, efficient and inexpensive device the parts of which are so related that the same can be easily inspected or cleaned when necessary and the relation of which parts is such that they require little attention, and the same are self-adjustable.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts as herein fully described, illustrated and claimed.

In the accompanying drawings, forming part of the application, similar characters of reference indicate corresponding parts in all the views.

Figure 1 is an elevation of my device; Fig. 2 is a vertical section thereof; Fig. 3 is a horizontal section on line 3—3, Fig. 2; Fig. 4 is a similar section on line 4—4, Fig. 2; Fig. 5 is a perspective view of the timer; and Fig. 6, that of the distributor.

Referring to the drawings, 7 represents the driving shaft. Fitting over one end of the shaft is an insulated sleeve 8 of condensite. Said sleeve 8 is provided with a closed end 9 which rests on the said end of the shaft. Adjacent the open end, the sleeve 8 is provided with a collar 10 into which are fitted metallic contacts 11 extending from the lateral surface through the sleeve to contact with the shaft 7. Said contacts 11 are symmetrically disposed on the lateral surface of the collar 10. There are four of said contacts and they are at right angles to each other, as can best be seen in Fig. 4. A pin 12 keys the sleeve 8 to the shaft 7.

An insulating, frustocone-shaped member 13 has a central, cylindrical recess which receives the closed end of the sleeve 8. A groove 14 is provided in the closed end 9 of the sleeve 8 which registers with alining openings 15 provided in the frustocone-shaped member 13. A pin 16 keys the sleeve to the member 13. The lateral sur-

face of the frustocone-shaped member 13 carries a metallic contact strip 17 which has a portion 18 thereof located in the smaller base of the member 13 and extending to the center of the same. The sleeve 8 carries a ring 19 located between the collar 10 and the member 13. This ring constitutes a spacer and also a locking for the pin 12.

Covering the above-described structure is a dome 20 which comprises a frustocone-shaped recess 21 of similar convergency as the frustocone-shaped member 13, so that a snug fit therebetween is obtained. The cone-shaped recess terminates with a cylindrical recess 22 of a diameter sufficiently large to accommodate between the collar and the wall of the recess a swinging arm 23. One end of the arm is pivotally mounted within a yoke 24 which projects through the body of the dome and which constitutes a binding post for the primary current of the coil. The other end of the arm carries a roller 25 which is maintained in contact with the collar 10 of the sleeve 8 by a spring 26 interposed between the wall of the dome and the arm 23. The dome 20 can be made of any suitable insulating material; and its outer shape is preferably in conformity with the recesses 22 and 21; that is to say, the upper part of the dome is frustocone-shaped, while the lower part is cylindrical.

Mounted in the top of the dome and in the axis thereof is a binding post 27 to form a connection with the secondary wire from the coil. This binding post has an interior flange 28 engaging the portion 18 of the metallic strip 17 with which it is maintained in contact by a resilient member 32. Contact points 29 are provided in the frustocone-shaped recess 21 of the dome 20. The annular distance between the said contacts is 90°. The exterior surface of the dome is provided with four binding posts 30, each in proper connection with a corresponding contact point 29. These contacts 29 are adapted to be consecutively engaged by the metallic strip 17 when the frustocone-shaped member 13 is rotated through the medium of the shaft 7. The dome 20 is prevented from rotation during the rotation of the shaft 7 by its connection with means for controlling the dome on the frustocone-shaped member 13, which means, although not shown in the drawings, are adapted to be connected to an extension 31 provided on the dome, as shown in Figs. 1, 2 and 3.

The dome covering the revolving parts of the device protects the same from injury, and also prevents oil or other material from entering and lodging between the dome and the revolving parts and thus interfere with the perfect distribution and interruption of the current. It will be noted that the primary to the coil is controlled by the contacts 11 within the collar 10, which periodically come in contact with the roller 25. The secondary of the coil coming through the post 27 is conveyed to the plugs of the engine from the posts 30. The relation between the metallic contacts 11 within the collar 10, the metallic strip 17 within the frustocone-shaped member 13, and the contacts 29 is such that the primary and secondary currents are properly timed thereby.

Although the disclosure made shows the frustocone-shaped member and the sleeve made of separate pieces, the same can be made of a single piece if desired. The dome, which is funnel shape, as can be seen from Fig. 1, if desired can also be provided with a closed bottom.

Although the above described and illustrated device is mainly intended for the Ford automobile, it can be as efficiently used with any other four-cylinder, four-cycle engine; and while I have described the principle of operation, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative and that such changes may be made as are within the scope of the appended claims.

I claim:

1. In a timer and distributor, a rotatably mounted sleeve of insulating material, symmetrically disposed contact members carried by said sleeve, a frustocone-shaped insulating member on said sleeve, a metallic contact strip on the lateral surface of said frustocone-shaped member extending to the central part of the small base of said member, an insulating casing having a cone-shaped recess fitting snugly over the frustocone-shaped member, symmetrically disposed contact points carried by said casing and adapted to be engaged by said strip on the lateral surface of the frustocone-shaped member when the same is rotated through the medium of the sleeve, a binding post carried by said casing and in engagement with the extension of the strip, a second binding post associated with the casing, a swinging arm carried by said post within the casing, means for maintaining said swinging arm in contact with the sleeve, whereby the contacts carried by the sleeve will consecutively engage said arm, and means for turning said casing on the frustocone member.

2. In a timer and distributor, a vertical

shaft, an insulating sleeve carried by the shaft and mounted to rotate therewith, symmetrically disposed contacts carried by said sleeve in engagement with the shaft, an insulating frustocone-shaped member engaging the upper part of the sleeve, said member being adapted to rotate with said sleeve, a metallic strip on the lateral surface of said frustocone-shaped member, said metallic strip extending to the central part of the smaller base of said frustocone-shaped member, an insulating dome having a cone-shaped recess fitting over the frustocone-shaped member, resilient means maintaining the engagement between said dome and frustocone-shaped member, symmetrically disposed contact points carried by said dome and adapted to be engaged by the strip when the frustocone-shaped member is rotated, a binding post in the top of the dome in contact with the strip portion in the smaller base of the frustocone-shaped member, a second binding post projecting through the lateral surface of the dome, a swinging arm carried by said second binding post within the dome adjacent the contacts in the sleeve, and a coil spring for maintaining said arm against the sleeve so that the contacts therein will engage the arm when the sleeve is rotated, said dome having means whereby the same can be turned on the frustocone-shaped member, substantially as and for the purpose set forth.

3. In a timer and distributor, a rotatably mounted insulating member having a frustocone-shaped head, a dome of insulating material fitting over said member and having a cone-shaped recess fitting snugly over the frustocone-shaped head, a resilient member maintaining the engagement of the dome with said head, a metallic strip carried by said head, contact points carried by said dome and adapted to be engaged by said strip intermittently when the member is rotated, a binding post in the top of the dome engaging the strip, a second binding post carried by the dome, an arm associated with said binding post and mounted to swing to and from said member, means for maintaining said arm in contact with said member, symmetrically disposed contacts carried by said member below the head adapted to engage said arm intermittently when said member is rotated, the number of contacts carried by the member and those carried by the dome being the same, and means for turning said dome on the frustocone-shaped head.

4. In a timer and distributor, a rotatably mounted insulating member having a frustocone-shaped head, an insulating, funnel-shaped casing fitting over said member and engaging said head, symmetrically disposed contact points carried by said casing, a me-

tallic strip carried by said head and adapted to intermittently engage said contacts when said member is rotated, a binding post in the top of the casing engaging the strip, a
 5 second binding post carried by the casing, an arm associated with the last-mentioned binding post, contact points carried by the member below the head and adapted to en-
 10 gage said arm intermittently, and means for displacing the casing angularly on the member.

5. In a device of the class described, a rotatably mounted distributor of insulating material in the shape of a frustocone, an
 15 insulating, funnel-shaped casing covering said distributor and engaging the same, a resilient member maintaining the engagement between the distributor and casing, means carried by the casing and distributor
 20 whereby contacts are established at proper intervals, and means preventing the rotation of the casing on the distributor whereby the same can be displaced through an angle thereon.

25 6. In a device of the class described, a rotatably mounted distributor of insulating material in the shape of a frustocone, an insulating dome having a frustocone-shaped top covering said distributor, a spring main-
 30 taining the engagement between the dome and distributor, electric conductors associated with said distributor and dome and adapted to come in contact at proper inter-

vals, and means preventing the rotation of the dome on the distributor, including
 35 means whereby said dome can be displaced angularly on said distributor, substantially as and for the purpose set forth.

7. In a device of the class described, an insulating casing, an insulating distributor
 40 within said casing, means maintaining the engagement therebetween, a timer associated with said distributor in the shape of a sleeve, means for rotating said sleeve, a plurality of symmetrically disposed con-
 45 tacts carried by said sleeve and in engagement with said means for rotating the sleeve, a swinging arm within said casing, means for maintaining one end of said arm in engagement with said sleeve whereby the
 50 contacts carried by said sleeve will come in engagement with said arm, a binding post carried by said casing and associated with said arm, and means carried by said casing and distributor adapted to establish con-
 55 tacts at predetermined intervals and in predetermined relation with the engagement of the contacts of the sleeve with the arm.

In testimony whereof I have signed my name to this specification in the presence
 60 of two subscribing witnesses.

DEXTER EDWARD MOULTON.

Witnesses:

F. R. MOULTON,
 C. F. THATCHER.