Nov. 25, 1924. 1,516,617

H. W. MUHLEISEN

CONICAL ROLLER TIMER

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Fig 1

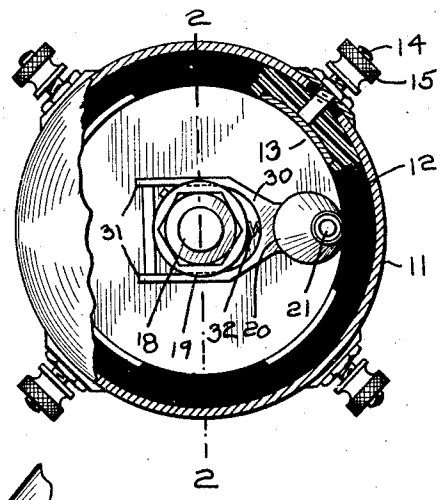


Fig 2

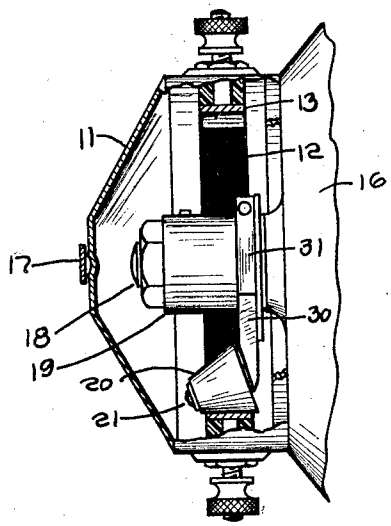


Fig 3

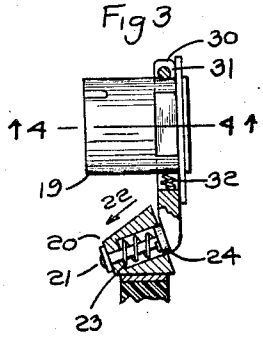
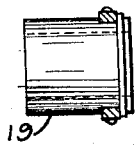


Fig 4



Henry W Muhleisen INVENTOR.

BY

Graham & Harris ATTORNEYS

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H. W. MUHLEISEN

CONICAL ROLLER TIMER

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Fig 5

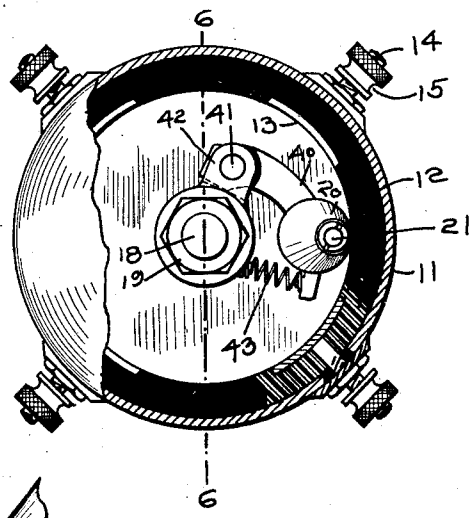


Fig 6

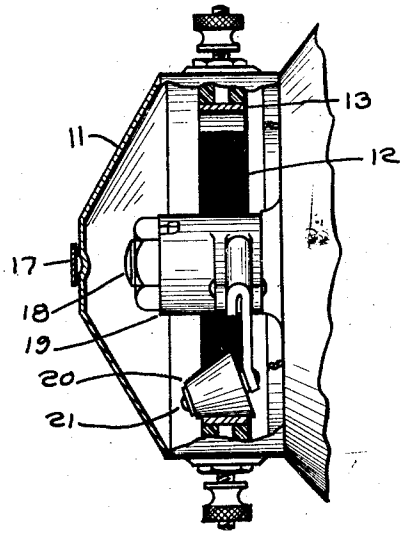
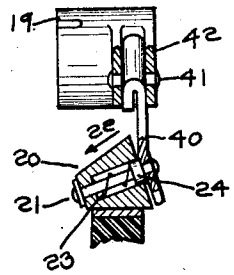


Fig 7



Henry W Muhleisen INVENTOR.

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CONICAL ROLLER TIMER

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Fig 8

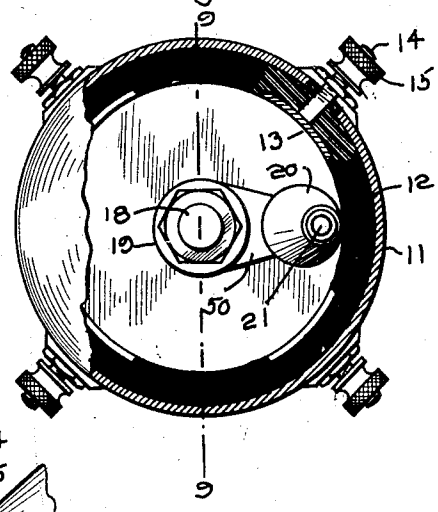


Fig 9

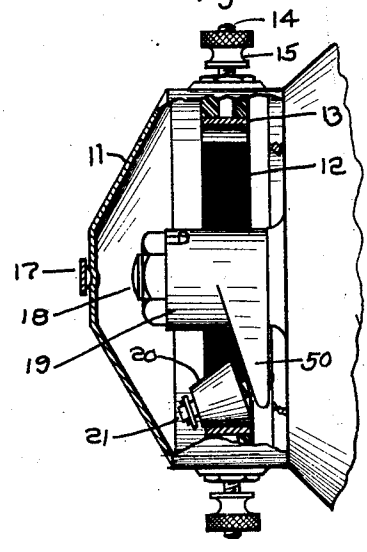
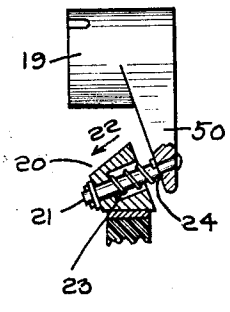


Fig 10



Henry W Muhleisen INVENTOR.

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Graham + Harris ATTORNEYS

Nov. 25, 1924. 1,516,617

H. W. MUHLEISEN

CONICAL ROLLER TIMER

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Fig 11

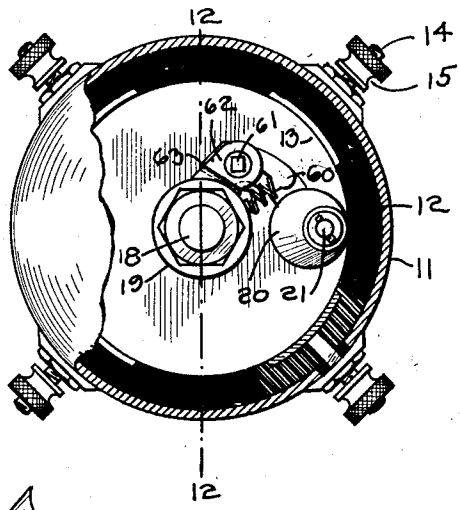


Fig 12

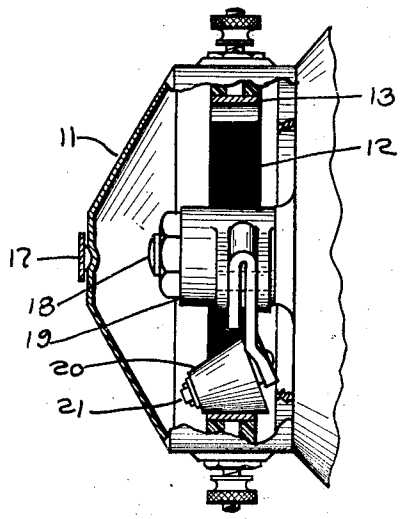
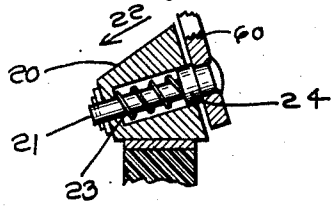


Fig 13



Henry W Muhleisen
INVENTOR.

BY

Graham + Davis
ATTORNEYS

Patented Nov. 25, 1924. 1,516,617

UNITED STATES PATENT OFFICE.

HENRY W. MUHLEISEN, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO W. S. RUSH & CO., OF LOS ANGELES, CALIFORNIA, A PARTNERSHIP CONSISTING OF W. S. RUSH, E. S. RUSH, AND B. C. GRAVES.

CONICAL ROLLER TIMER.

Application filed February 7, 1921. Serial No. 443,066.

To all whom it may concern:

Be it known that I, HENRY W. MUHLEISEN, a citizen of the United States, residing at Los Angeles, county of Los Angeles, and State of California, have invented a new and useful Conical Roller Timer, of which the following is a specification.

My invention relates to timers such as are used in standard ignition systems for internal combustion engines and it relates particularly to timers such as are used on the well known type of Ford automobile. In this automobile a low voltage current is distributed by the timer to the primaries of a plurality of spark coils, the secondary of each of which is connected to one of the spark plugs.

An object of the invention is to provide a timer which may be applied to the standard form of Ford automobile and which has certain advantages which will be made evident hereinafter.

Referring to the drawings which are for illustrative purposes only,

Fig. 1 is a view of a preferred form of my invention, a portion thereof being broken away and shown in section to better illustrate the invention.

Fig. 2 is a side elevation partly in section on a plane represented by the line 2—2 of Fig. 1.

Fig. 3 is a view partly in section of the invention illustrated in Fig. 2.

Fig. 4 is a plan view partly in section on a plane represented by the line 4—4 of Fig. 3.

Fig. 5 is a view of an alternate form of my invention, a portion thereof being broken away and shown in section to better illustrate the invention.

Fig. 6 is a side elevation partly in section on a plane represented by the line 6—6 of Fig. 5.

Fig. 7 is a side elevation partly in section of a portion of the mechanism shown in Fig. 6.

Fig. 8 is an end view of a still different form of my invention, a portion thereof being broken away and shown in section to better illustrate the invention.

Fig. 9 is a side elevation partly in section on the plane represented by the line 9—9 of Fig. 8.

Fig. 10 is an elevation partly in section of the mechanism shown in Fig. 9.

Fig. 11 is a view of another form of my invention, a portion thereof being broken away and shown in section to better illustrate the invention.

Fig. 12 is a side elevation partly in section on a plane represented by the line 12—12 of Fig. 11.

Fig. 13 is a section through the roller.

In each of the forms shown 11 is a casing in which is secured an insulating ring 12 having metal segments 13 inserted therein, the inner surface of the metal segments 13 and of the insulating members 12 forming a track having alternate insulating and conducting sections. In each of the sections 13 is a stud 14 insulated from the shell 11 and provided with nuts 15 to which conducting members, not shown, may be secured. The shell 11 is held in place on the frame 16 of the automobile by a spring 17. Projecting centrally inside the shell 11 is a timer shaft 18 to which is secured a hub 19.

In each of the forms of the invention shown a conical roller 20 is provided, this roller turning on a stud 21 and being forced in the direction of the arrow 22 on that stud by means of a compression spring 23 which surrounds the stud 21 and presses against a washer 24.

In the form of the invention illustrated in Figs. 1 to 4 inclusive, the stud 21 and the washer 24 are carried on a frame 30 having two arms 31 extending upwardly on either side of the hub 19 and sliding in grooves formed therein. A compression spring 32 tends to force the frame 30 downwardly as shown in Fig. 3 or more properly outwardly from the shaft 18 in the direction of the track, the spring 32, therefore, tends to hold the roller 20 in contact with the track. The spring 23 also tends to force the roller axially and assists in this contact.

In the form of my invention illustrated

in Figs. 5, 6, and 7, the spindle 21 is carried on an arm 40 which is pivoted on a pin 41 carried in a projection 42 formed on the hub 19. A compression spring 43 forces the arm 40 outwardly forcing the roller 20 against the inside surface of the track, this roller also being forced against the track by means of the spring 43.

In the form of my invention illustrated in Figs. 8, 9 and 10, the spindle 21 is carried on a rigid arm 50 forming a portion of the hub 19.

In the form of my invention shown in Figs. 11, 12 and 13 the spindle 19 is carried on an arm 60 pivoted on a pin 61 carried in a projection 62 formed on the hub 19. A spring 63 forces the arm 60 outwardly, forcing the roller 20 to make contact with the track.

In all of these different forms of my invention, the same fundamental idea is embodied, namely, a conical roller which is carried on a spindle inclined to the axis of the shaft 18. They also embody the use of the spring 23 for forcing the roller 20 axially on this spindle.

In the form shown in Figs. 1, 5 and 11, the spindle is forced outwardly by means of a spring while in the form shown in Fig. 8, the spring 23 is entirely depended upon to produce the contact.

I claim as my invention:

1. In a timer, the combination of a casing; a track inside said casing formed of alternate sections of conducting and insulating material, said track having an inner cylindrical contact surface; a conical roller; and means for forcing said conical roller against said contact surface.

2. In a timer, the combination of a casing; a track inside said casing formed of alternate sections of conducting and insulating material, said track having an inner cylindrical contact surface; members carried on a timing shaft which projects into center of said timer at the axis of said casing; a spindle carried by said members; and a conical roller on said spindle.

3. In a timer, the combination of a casing; a track inside said casing formed of alternate sections of conducting and insulating material, said track having an inner cylindrical contact surface; members carried on a timing shaft which projects into center of said timer at the axis of said cascasing; a spindle carried by said members; a conical roller turning on said spindle; and means for forcing said spindle away from said axis sufficiently to cause the periphery of said roller to roll on said contact surface.

4. In a timer, the combination of a casing; a track inside said casing formed of alternate sections of conducting and insulating material, said track having an inner cylindrical contact surface; members carried on a timing shaft which projects into center of said timer at the axis of said casing; an arm pivoted to said members; a spindle carried by said arm; a conical roller on said spindle; and elastic means for forcing said roller against said contact surface.

5. In a timer having a track with an internal contact face, the combination of a spindle inclined to said contact face; a conical roller carried on said spindle; and elastic means for forcing said roller axially on said spindle.

6. In a timer, the combination of a spindle; a conical roller on said spindle; and means for frictionally resisting the rotation of said roller.

7. In a timer, the combination of a spindle; a conical roller mounted to turn and slide axially on said spindle; and means for frictionally resisting the rotation of said roller.

8. In a timer, the combination of a spindle; a conical roller on said spindle; and a spring for frictionally resisting the rotation of said roller.

9. In a timer, the combination of a spindle; a conical roller mounted to turn and slide axially on said spindle; and means for forcing said roller to slide axially on said spindle.

10. In an engine timer, a timer shaft, a commutator ring having fixed contacts thereon, a conical roller adapted to roll and slide around the inside of the ring, and a shaft for the roller mounted on the timer shaft and inclined thereto.

11. In an engine timer, a timer shaft, a commutator ring having fixed contacts thereon, a conical roller adapted to roll and slide around the inside of the ring, a shaft for the roller mounted on the timer shaft and inclined thereto, and a spring to force the roller against the commutator ring.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 20th day of January 1921.

HENRY W. MUHLEISEN.