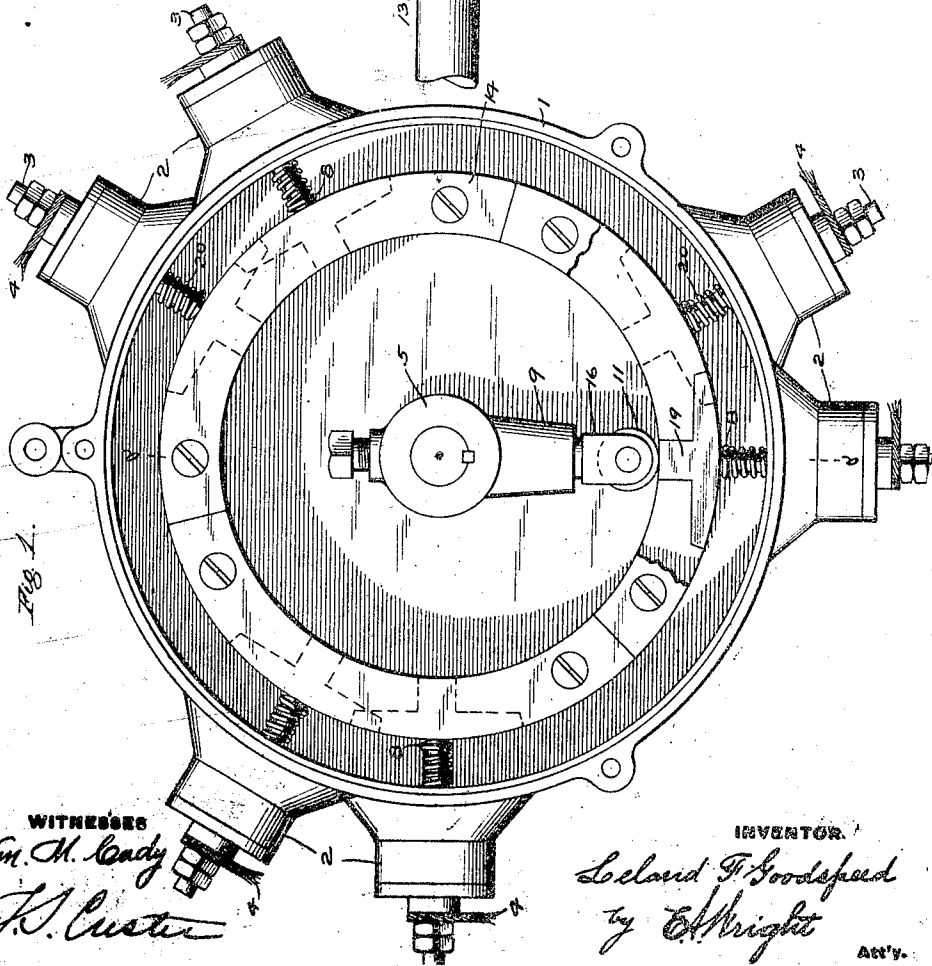
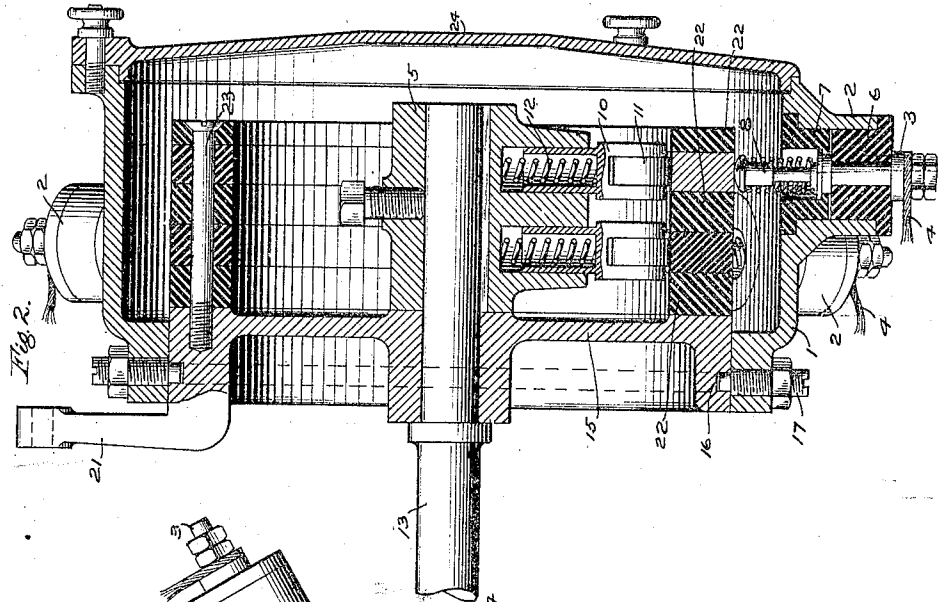


L. F. GOODSPEED.
 SPARK TIMING DEVICE.
 APPLICATION FILED MAR. 2, 1908.

1,037,828.

Patented Sept. 3, 1912.



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BEST AVAILABLE COPY

UNITED STATES PATENT OFFICE.

LELAND F. GOODSPEED, OF WILKINSBURG, PENNSYLVANIA.

SPARK-TIMING DEVICE.

1,037,828.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed March 2, 1903. Serial No. 418,731.

To all whom it may concern:

Be it known that I, LELAND F. GOODSPEED, a citizen of the United States, residing at Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Spark-Timing Devices, of which the following is a specification.

My invention relates to devices for governing the time of the spark for igniting the charge in internal combustion engines, and more especially as applied to self propelled vehicles.

It has been heretofore proposed to provide a spark timing device, wherein the spark producing mechanism is located in an electrical circuit, the respective terminals of which consist of a stationary contact member and a rotatable contact member adapted to periodically complete the electrical circuit through the spark mechanism and having means for adjusting the stationary contact forward or back, so as to retard or advance the time of making the spark. With such prior devices, when the stationary contacts are adjusted or shifted, the electrical conducting wires thereto are more or less flexed, and this action is the cause of frequent breakages of the wires, which is of course very undesirable.

The principal object of my invention is, therefore, to provide an improved spark timing device having means for varying the time of the spark wherein the stationary contact member is maintained in a fixed and immovable position, thus avoiding the danger of breaking the conducting wires leading to the spark producing mechanism.

In the accompanying drawing; Figure 1 is a face view, with the cover removed, of a preferred construction of my improved spark timing device, and Fig. 2 a central sectional view of same, taken substantially on the line *a-a* of Fig. 1.

According to the drawing, I provide a cylindrical casing 1 having hollow raised portions 2 corresponding with the number of spark devices and engines, for containing radially arranged electrical connections or binding posts 3 to which the several conducting wires 4 are secured. The binding posts 3 may be mounted in position within suitable insulating sleeves 6 and 7 and are provided with sockets in which stationary electrical contacts 8 are mounted to have

radial movement while maintaining electrical connection with the binding posts 3, and preferably provided with radial pressure springs 20.

The rotating contact device comprises a suitable shaft 13 geared to the engine so as to rotate at the desired speed relative to the speed of the engines and on which is secured a contact holder 5, provided with a radial arm 9, having sockets in which electrical contacts 10 are mounted. The contacts 10 are provided with radial pressure springs 12 and preferably have contact rollers 11 for effecting the electrical connection as the shaft 13 rotates.

According to a preferred construction, I interpose between the movable contacts 11 and the stationary contacts 8, electrical conducting sections 19, mounted in a ring 14 of suitable insulating material and having an outer extended surface for maintaining continuous contact with the stationary contacts 8, throughout the shifting movement of the ring 14, and an inner contact point, adapted to be engaged periodically or at each revolution of the shaft 13, by the contact roller 11. Where a number of engines are to be controlled, I preferably provide two such rings 14, as shown in the drawing, in which there are electrical contacts for six engines and the rings may be insulated from each other by an insulating ring 22, similar rings 22 being provided at the outer faces of said rings 14. By this means, the outer extended surfaces of the conducting sections 19 may be made as long as desired without interfering with adjacent sections, the contact holders 2 being alternately arranged so that the sections in one ring 14 are adapted to make electrical connections between one roller 11 and the alternate contacts 8, while the other ring 14 electrically connects the other roller 11 with the remaining set of contacts 8.

The rings 14 with insulating rings 22 are secured together by bolts 23 which are fastened into a disk 15, rotatably mounted in the casing 1 and on the shaft 13, the casing 1 being provided with guiding screws 17, the ends of which extend into a circumferential groove 16 in the disk 15 and guide the same in its rotative movement.

The disk 15 is provided with an arm 21 which is operatively connected to means whereby the disk 15 and the conducting sec-

tions 19 may be rotatively shifted back and forth.

In operation, the spark producing devices being arranged in electrical circuits with a suitable source of electric current, the terminals of which circuits are the stationary contacts 8 and the movable contacts 11, with engines in action the shaft 13 rotates and with it the contacts 11, which contacts successively complete the electrical circuit through the conducting sections to the several stationary contacts 8 and the spark devices. The time of the spark may be varied, either retarded or advanced, by shifting the disk 15 and the conducting sections 19, so that the rollers 11 come into engagement with the sections 19 at a relatively later or earlier period, as will be apparent, while the electrical connections from said sections to the corresponding contacts 8 are constantly maintained.

It will now be apparent that with my improvements the stationary electrical connections are maintained rigidly in position, thus obviating the danger of breaking the conducting wires or connections.

One side of the casing 1 being closed by the disk 15, the casing may be made dust and moisture proof by securing a cover plate 24 to the opposite side, as shown in the drawing.

Having now described my invention, what

I claim as new and desire to secure by Letters Patent is:—

1. In a spark timing device, the combination of a stationary casing carrying electric contacts, a disk rotatably mounted on the casing, a plurality of insulation rings mounted on said disk and extending within the casing, conducting sections carried by said rings and located in different planes taken at right angles to the axis of the rotatable disk, a shaft extending through and bearing in said disk, and a plurality of contact devices carried by said shaft and engaging the inner periphery of the insulation rings and the conducting sections.

2. A spark timing device comprising a casing, a rotatable member mounted in said casing, guide devices carried by said casing and adapted to extend into a groove in said member, conducting sections mounted in said rotatable member, stationary contacts for engaging said conducting sections on one side and a rotatable contact member adapted to engage said conducting sections on the opposite side.

In testimony whereof I have hereunto set my hand.

LELAND F. GOODSPEED.

Witnesses:

R. F. EMERY,
WM. M. Cady.