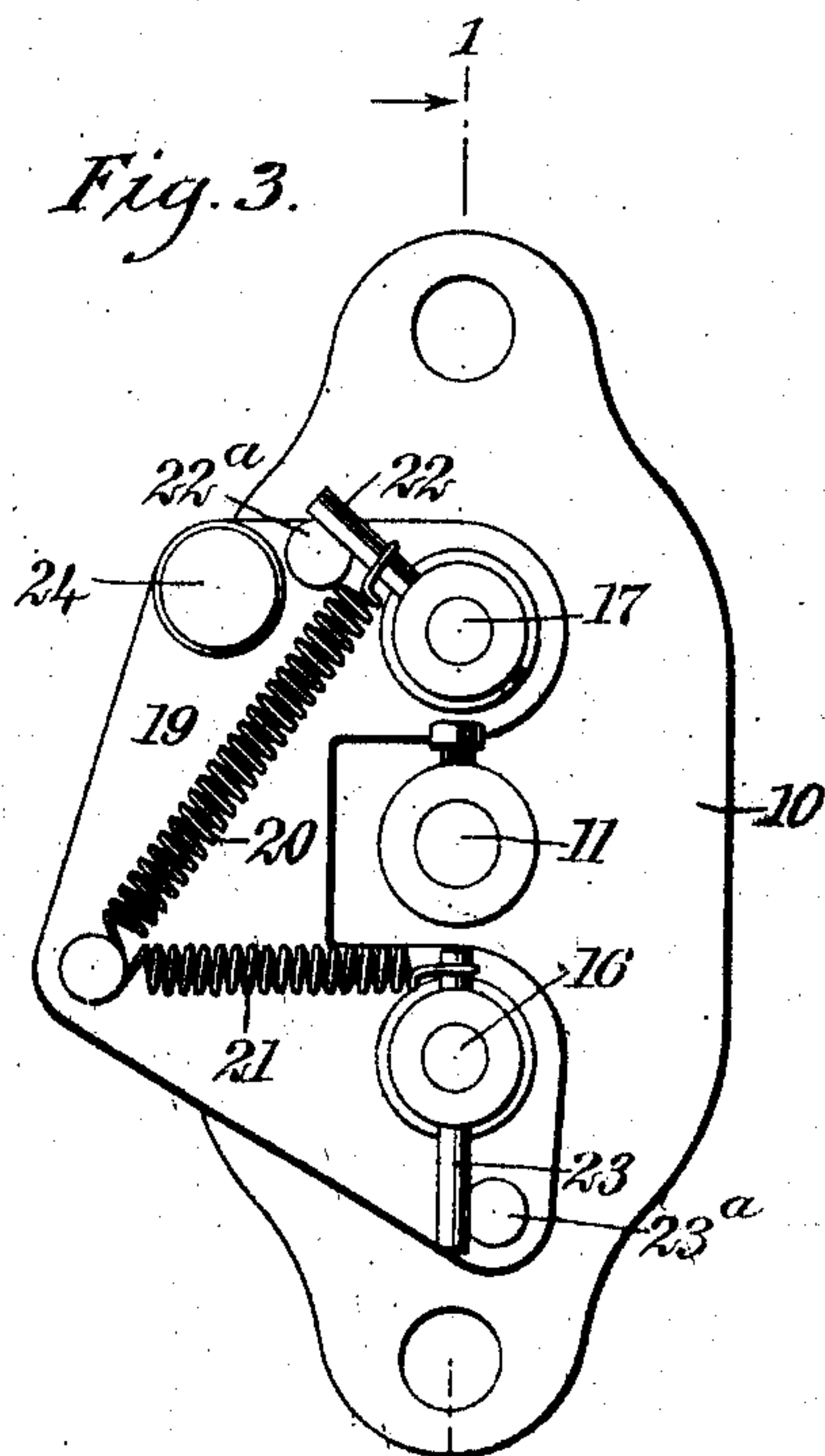
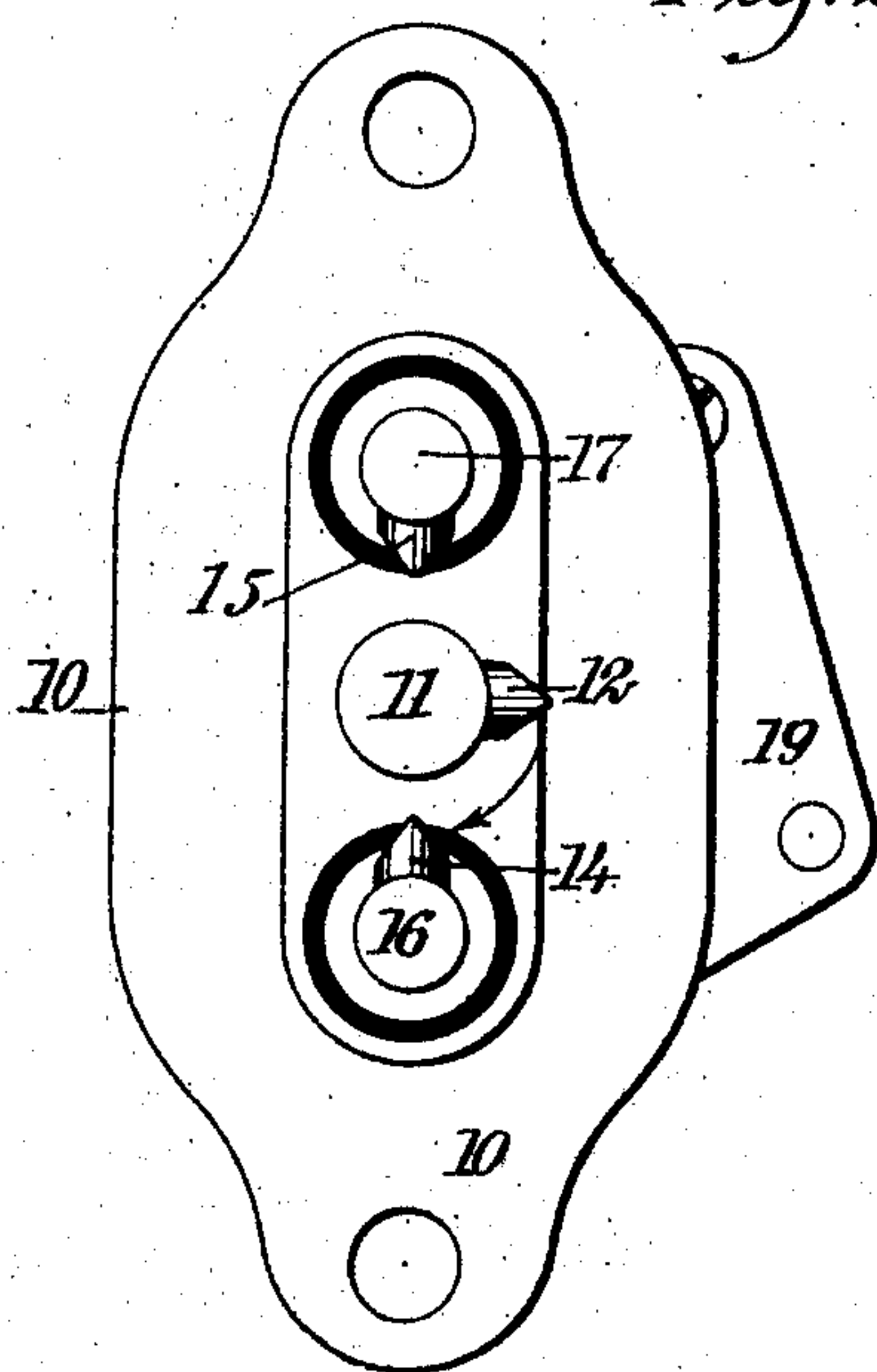
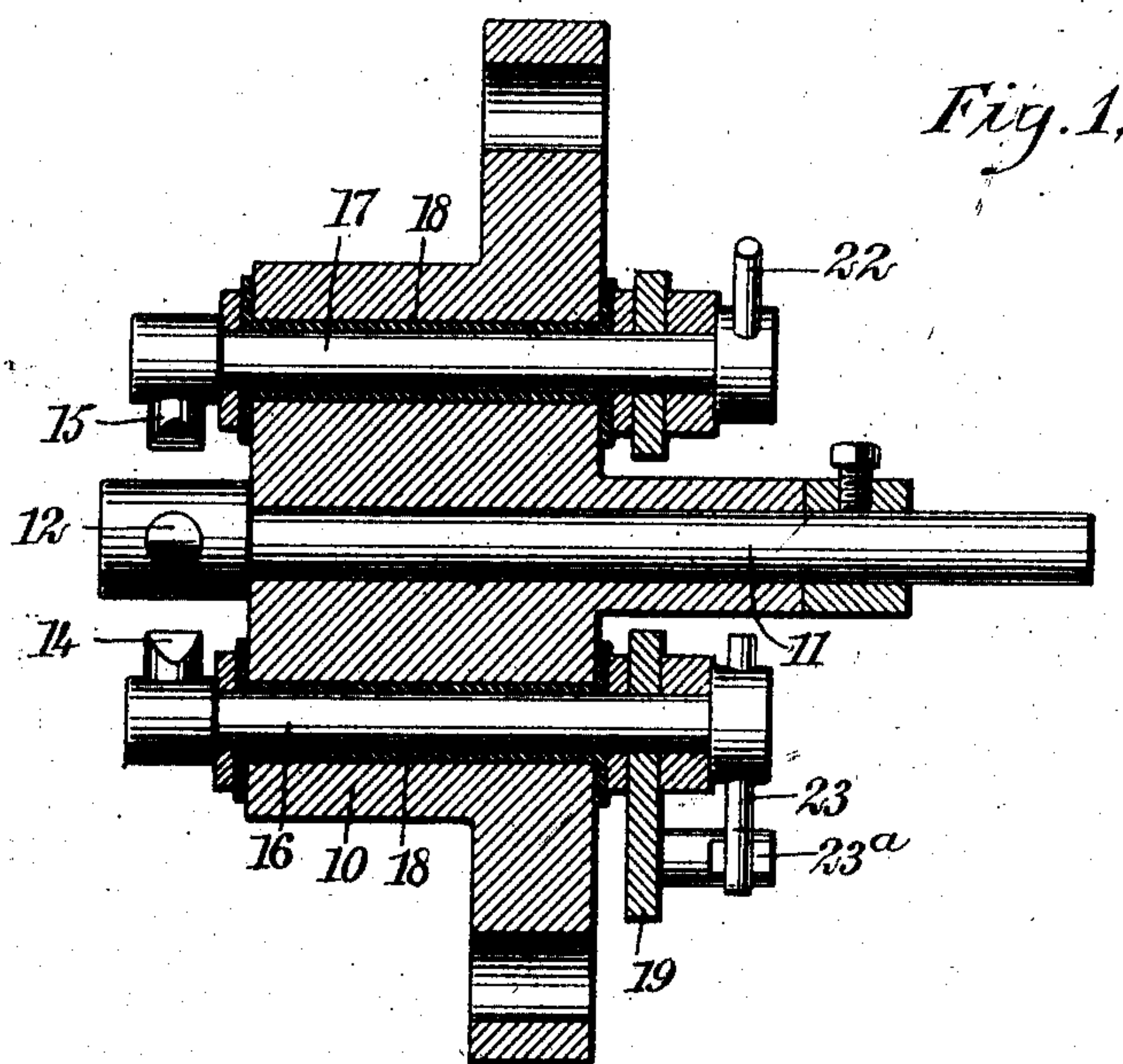


No. 865,212.

G. W. SAGE.
SPARK PLUG.

APPLICATION FILED MAY 25, 1906.

PATENTED SEPT. 3, 1907.



WITNESSES

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GEORGE W. SAGE, OF EUREKA, CALIFORNIA.

SPARK-PLUG.

No. 865,212.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed May 25, 1906. Serial No. 318,659.

To all whom it may concern:

Be it known that I, GEORGE W. SAGE, a citizen of the United States, and a resident of Eureka, in the county of Humboldt and State of California, have invented a new and Improved Spark-Plug, of which the following is a full, clear, and exact description.

My invention relates to an igniter of the make and break or contact and release type, adapted for firing the charge of gas for internal combustion engines, and the object of the invention is primarily to provide an igniter of this type which may be used effectually on high speed engines.

Heretofore igniters of the make and break type have not been successful in high speed engines owing to the mechanical difficulties of driving complicated parts at high speeds, and to the inability of ordinary springs to recoil with sufficient rapidity. To overcome this difficulty I have constructed an igniter with a regularly moving electrode which instead of coacting with a single relatively fixed electrode makes contact and release in constant order with a plurality of electrodes, the action of the moving electrode being so timed that contact and release and consequently a spark occurs once during each cycle of the engine whether the same is of the two or four cycle type. The engine, therefore, may be driven with great speed, yet keeping the speed of the igniter parts down to that at which they may operate with certainty and durability.

The invention involves various other features of major or minor importance, and all will be fully set forth hereinafter and particularly pointed out in the claims.

Reference is to be had to the accompanying drawings which illustrate as an example the preferred embodiment of my invention, in which drawings

Figure 1 is a sectional view of the spark plug on the line 1-1 of Fig. 3; Fig. 2 is an inner side elevation of the same; and Fig. 3 is an outer side elevation.

The plug comprises a body 10 which is adapted to be fastened into an orifice in the walls of the cylinder or cylinder head by bolts in the usual manner. Mounted in this body 10 is a constantly rotating electrode 11 adapted to be connected at its outer end with any suitable mechanism for driving it and having at its inner end a contact 12 projecting laterally therefrom. This contact is adapted successively to engage and release similar contacts 14 and 15 on electrodes 16 and 17. These electrodes are yieldingly mounted on the body 10 of the plug, and are insulated therefrom by bushings 18, as shown.

19 indicates a bracket plate which is supported by the electrodes 16 and 17, and this bracket plate is provided with springs 20 and 21 which are connected by

pins 22 and 23 respectively with the electrodes 16 and 17. One terminal of the circuit is grounded on the engine and is, therefore, in connection with the electrode 11 through the body 10, while the other terminal is connected to the bracket plate 19 by a binding screw 24 (see Fig. 3) so that the electrodes 16 and 17 are energized. Projections 22^a and 23^a are arranged on the bracket plate 19, to limit the movement of the pins 22 and 23 respectively in one direction.

The contact point 12 and the contact points 14 and 15 are projected into the working cylinder, and the electrode 11 rotating at a constant speed alternately contacts with the points 14 and 15. In case the invention is applied to a two cycle engine the electrode 11 is made to rotate at half the speed of the crank shaft of the engine, so that the contact 12 makes a spark with, for example, the contact 14 for one explosion in the working cylinder, while a spark is made with the contact 15 for the next following explosion. It is clear that by increasing the number of electrodes similar to the electrodes 16 and 17 the speed of the shaft 11 may be still further reduced. This invention, therefore, enables me to use a make and break ignition system on high speed engines without necessitating rotating or otherwise driving the parts of the igniter at the high speed at which the engine shaft itself rotates. Not only does this render the action of the parts much less destructive than heretofore but it also so reduces the speed and time of operation as to enable the springs 20 and 21 effectually to return the rocking electrodes 16 and 17 after each operation.

Having thus described the preferred form of my invention, what I actually claim and desire to secure by Letters Patent is:

1. A contact and release igniter, comprising a body, a rotary electrode mounted thereon, electrodes mounted for rotation in the body at spaced angular intervals with respect to the first-named electrode and insulated from the body, said last-named electrodes being provided with projections for engagement by the rotary electrode, a bracket plate supported by the electrode, and springs connected with the electrodes and the bracket.

2. A contact and release igniter having a body, a rotating electrode mounted therein, rocking electrodes mounted in and insulated from the body and adapted to be successively engaged by the rotating electrode, and means for holding the rocking electrodes in normal position, said means comprising a bracket plate, and springs connecting the bracket plate and the rocking electrodes.

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

GEORGE W. SAGE.

Witnesses:

DENVER SEVIER,
ARTHUR WORKMAN.