

W. C. WESTAWAY.  
SPARKER OR IGNITER.  
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945,066.

Patented Jan. 4, 1910.

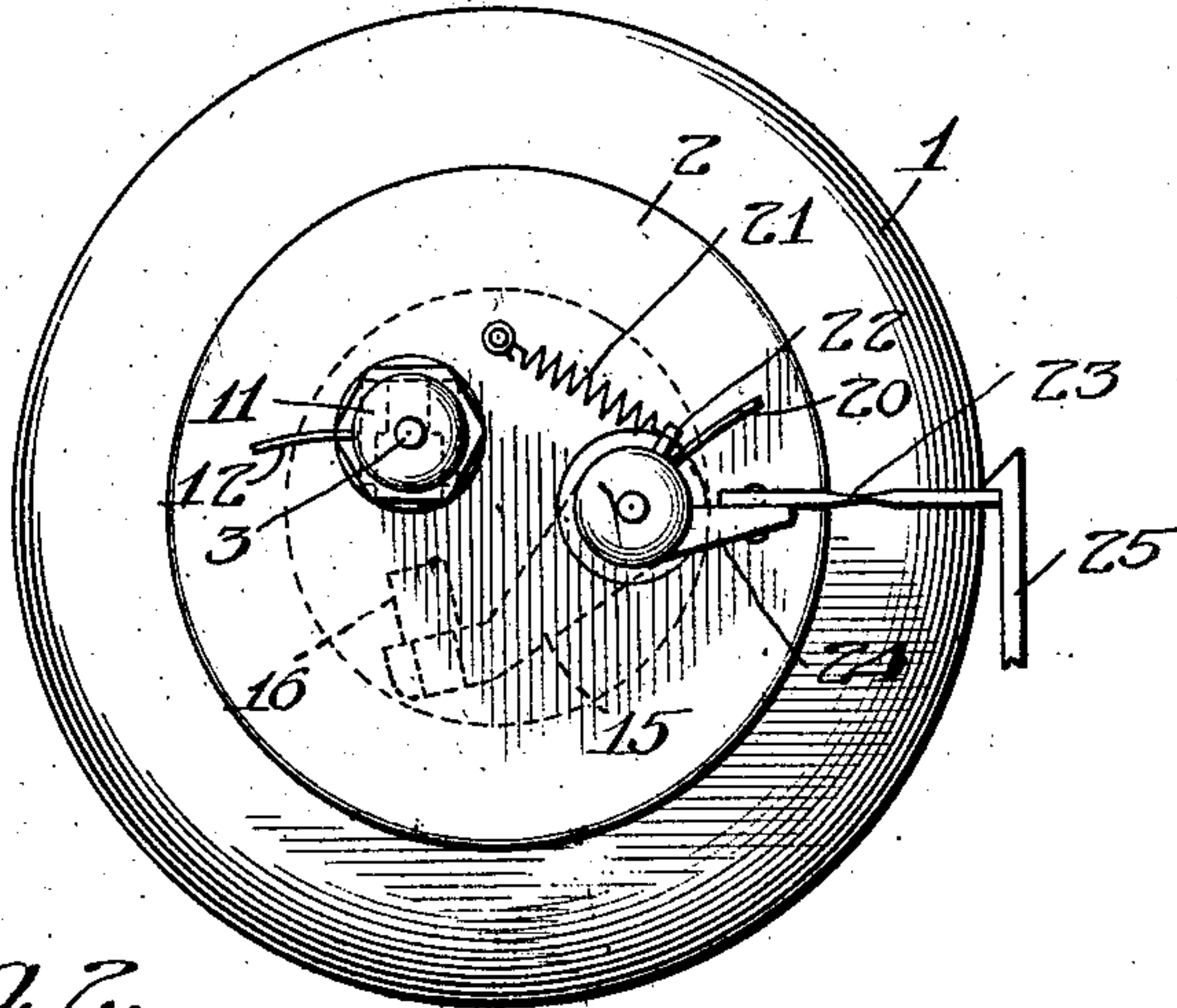


Fig. 1.

Fig. 2.

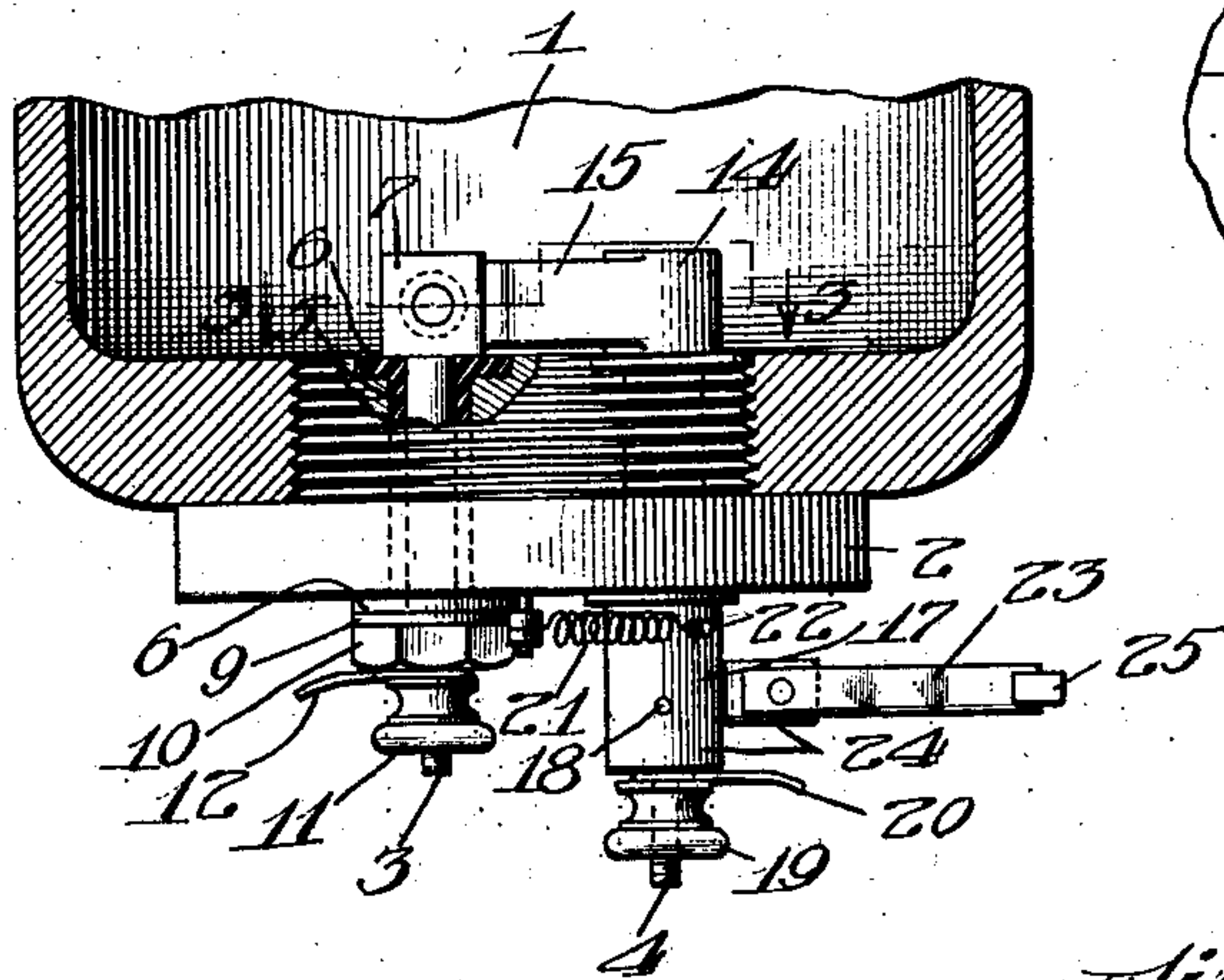


Fig. 3.

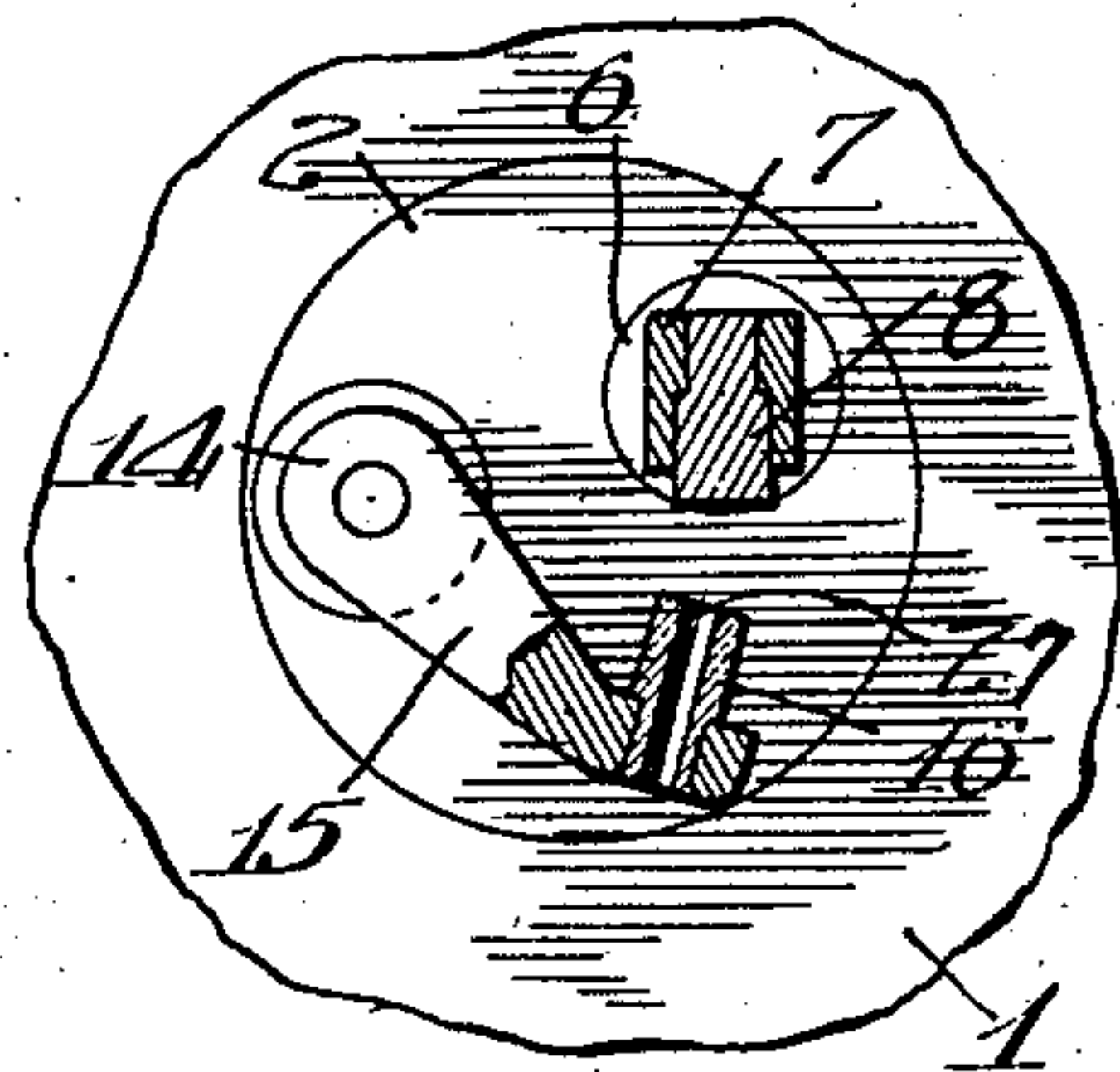
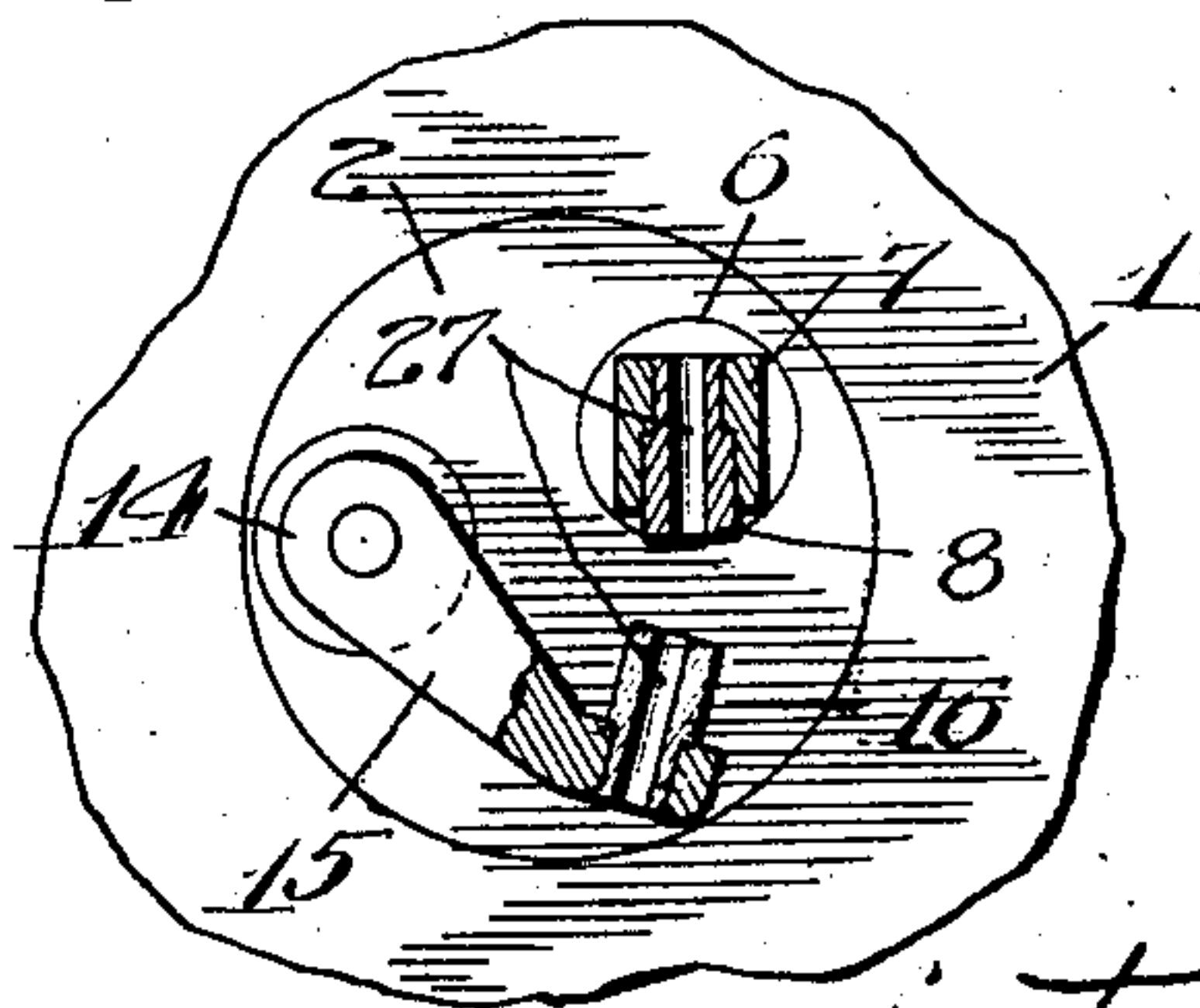


Fig. 4.



Witnesses  
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# UNITED STATES PATENT OFFICE.

WALTER C. WESTAWAY, OF BELOIT, WISCONSIN, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO J. W. DUNTLEY, OF CHICAGO, ILLINOIS.

## SPARKER OR IGNITER.

945,066.

Specification of Letters Patent:

Patented Jan. 4, 1910.

Application filed February 1, 1905. Serial No. 243,623.

*To all whom it may concern:*

Be it known that I, WALTER C. WESTAWAY, a citizen of the United States, residing at Beloit, county of Rock, and State of Wisconsin, have invented certain new and useful Improvements in Sparkers or Igniters, of which the following is a description.

My invention relates to that portion of an internal combustion engine and the like employed to ignite the charge within the combustion chamber and especially to those parts of an igniter between which the spark is produced.

The object of my invention is to provide igniter points which will increase the efficiency, durability, and certainty of action of a make and break igniter without materially increasing the first cost of the device.

To this end my invention consists in the novel construction, arrangement, and combination of parts herein shown and described and more particularly pointed out in the claims.

In the accompanying drawings wherein like or similar reference characters indicate like or corresponding parts, Figure 1 is an elevation of an igniter attached in a combustion chamber. Fig. 2 is a sectional view of part of a combustion chamber showing an igniter plug with parts broken away to more clearly show the construction. Fig. 3 is a section taken on line 3—3 of Fig. 2. Fig. 4 is a section similar to that shown in Fig. 3 showing a slightly modified form of igniter points.

In the drawings I have shown my improvement in connection with a simple form of igniter mechanism arranged in operative relation with the combustion chamber of an internal combustion engine or similar device.

As shown 1 is the combustion chamber above referred to, and 2 is an igniter plug, of the usual or any preferred construction, secured into the wall of the combustion chamber 1 and provided with the electrode rods 3 and 4.

The electrode rod 3 is shown extending through the plug 2 from which it is electrically insulated by the sleeve 5 and washers 6—6 which may be formed of any suitable material, the electrode rod 3 being provided with a suitable head 7 upon the interior of the combustion chamber to which the electrode or contact member 8 is attached. The outer end of the electrode rod

3 is provided with a washer 9 and a nut 10, by which the electrode rod is rigidly secured in place by clamping the insulated washers 6—6 firmly against the surfaces of the plug 2 between the head 7 and nut 10. A second nut 11 or equivalent means is arranged upon the outer end of the electrode rod 3 to provide suitable means for firmly attaching an electrical conductor 12 to the electrode rod 3 as shown.

The electrode rod 4 is partially rotatable and extends through a suitable opening in the plug 2 and is provided upon its inner end with a head 14 arranged to bear against the inner face of the plug 2, and having a lateral extension 15 provided to carry an electrode or contact member 16 in such a position that by a partial rotation of the electrode rod 4 the face of the electrode 16 will be brought into contact with the face of the electrode 8.

A sleeve 17 is fitted upon the electrode rod 4 outside the plug 2 and rigidly fixed in position upon the electrode rod by means of a pin 18 or other suitable means for the purpose.

A nut 19 or equivalent means is provided upon the outer end of the electrode rod 4 to provide means for attaching an electrical conductor 20 thereto. Obviously as the electrode rod 4 may sometimes not be insulated from the plug 2 or other parts of the combustion chamber; if preferred the conductor 20 may, in such cases, be attached to such other parts as desired and accomplish the same result as when connected as shown.

The spring 21 is provided preferably in the form shown with one end attached to a pin upon the plug 2 and the other end attached to an arm 22 upon the sleeve 17 to normally maintain the electrode rod 4 in a position in which the member 16 is not in contact with the member 8. A spring 23 or equivalent part may be attached to the sleeve 17 by means of the bracket 24 with its free end extended in position to be engaged by a hook 25 or other part which is moved in a suitable manner by means of a crank, cam, or other suitable part, carried by a suitable movable portion of the engine or device upon which my device is attached.

In the foregoing description a complete igniter is described but my invention relates only to the electrode or contact members 8 and 16 usually known as igniter points or



contact points shown in section in Figs. 3 and 4. These contact members may be of any desired form or size, but provided with a contact surface only near their peripheries.

5 In the form shown in Fig. 3 tubular contact members are provided, in this form an opening 27 extends longitudinally entirely through each member providing a passage for spreading the flame started at the contact surfaces, thus greatly increasing the initial effective area of the ignition. In the form shown in Fig. 4 the member 16 is provided with the opening 27 as above described and the member 8 is provided with a plain flat surface; this form while not as effective as the form shown in Fig. 3 is greatly superior to the usual form of electrode or contact member. One advantage of these forms of electrodes not heretofore mentioned, is that the contact area is maintained and the well known tendency of the contact members to wear to a point by the action of the electric current and the heat of the combustion chamber is apparently entirely overcome. Also apparently owing to the rush of gas from the interior of the electrodes at each ignition, the faces of the electrodes as well as the interior of the opening 27 are free from the usual annoying tendency to accumulate a coating of soot or other dirt.

In my improved points it is proved by actual practice that the above mentioned tendency is obviated or reduced to a minimum, and that the points keep clean upon their contact faces and produce a much larger and more intense spark than with the usual flat or solid points.

Having thus described my improvement, obviously immaterial modifications may be made without departing from the spirit of my invention hence I do not wish to be understood as limiting myself to the exact form and construction shown.

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

1. In a device of the kind described, electrodes provided with cooperating flat meeting surfaces which contact only near the periphery of each, one of said electrodes consisting of a tubular member having a direct passage entirely therethrough, with a contact surface formed at one end.

2. In a device of the kind described, electrodes provided with cooperating meeting surfaces, each electrode consisting of a tubular member having a direct passage entirely therethrough, with a contact surface formed at one end.

3. In a device of the kind described, electrodes provided with similarly formed flat meeting surfaces which contact only near their periphery, each electrode consisting of a member with an opening formed longitudinally therethrough and having a contact surface formed at one end about said opening.

4. In a device of the kind described, a combustion chamber, a tubular electrode open at both ends positioned within said chamber, and means attached to said electrode to operate the same to make and break an electric circuit.

5. In a device of the kind described, a combustion chamber, a stationary and a movable electrode positioned within said chamber, one of said electrodes consisting of a tubular member open at both ends, and means attached to said movable electrode to operate the same.

6. In a device of the kind described, a combustion chamber, a stationary and a movable electrode positioned within said chamber, each electrode consisting of a tubular member open at both ends with an annular contact surface formed upon its end, and means attached to said movable electrode to operate the same.

7. An igniter for internal combustion engines, comprising a stationary electrode and a movable electrode, one of said electrodes comprising a hollow tube open at both ends.

8. An igniter for internal combustion engines, comprising two relatively movable electrodes, each formed of a tube open at both ends.

9. An igniter for internal combustion engines, comprising two relatively movable electrodes, each formed of a tube open at both ends, said tubes being in alinement during the igniting action.

10. An igniter for internal combustion engines, comprising two rods, means for insulating them from the engine proper, an electrode upon the inner end of one of said rods, and comprising a hollow tube open at both ends and adapted to be moved to a position with one end adjacent one end of the other electrode, and means for oscillating the first mentioned rod.

In testimony whereof, I have hereunto signed my name in the presence of two (2) subscribing witnesses.

WALTER C. WESTAWAY.

Witnesses:

J. G. WICKHEM,  
M. L. TREADWAY.