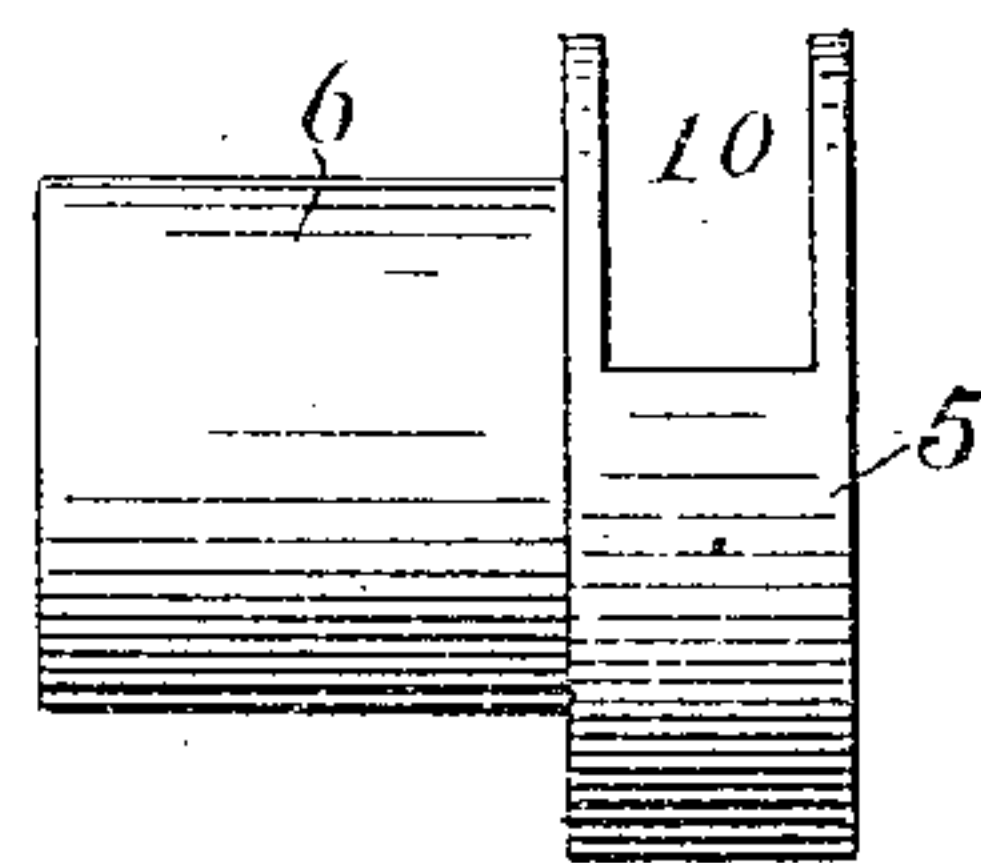
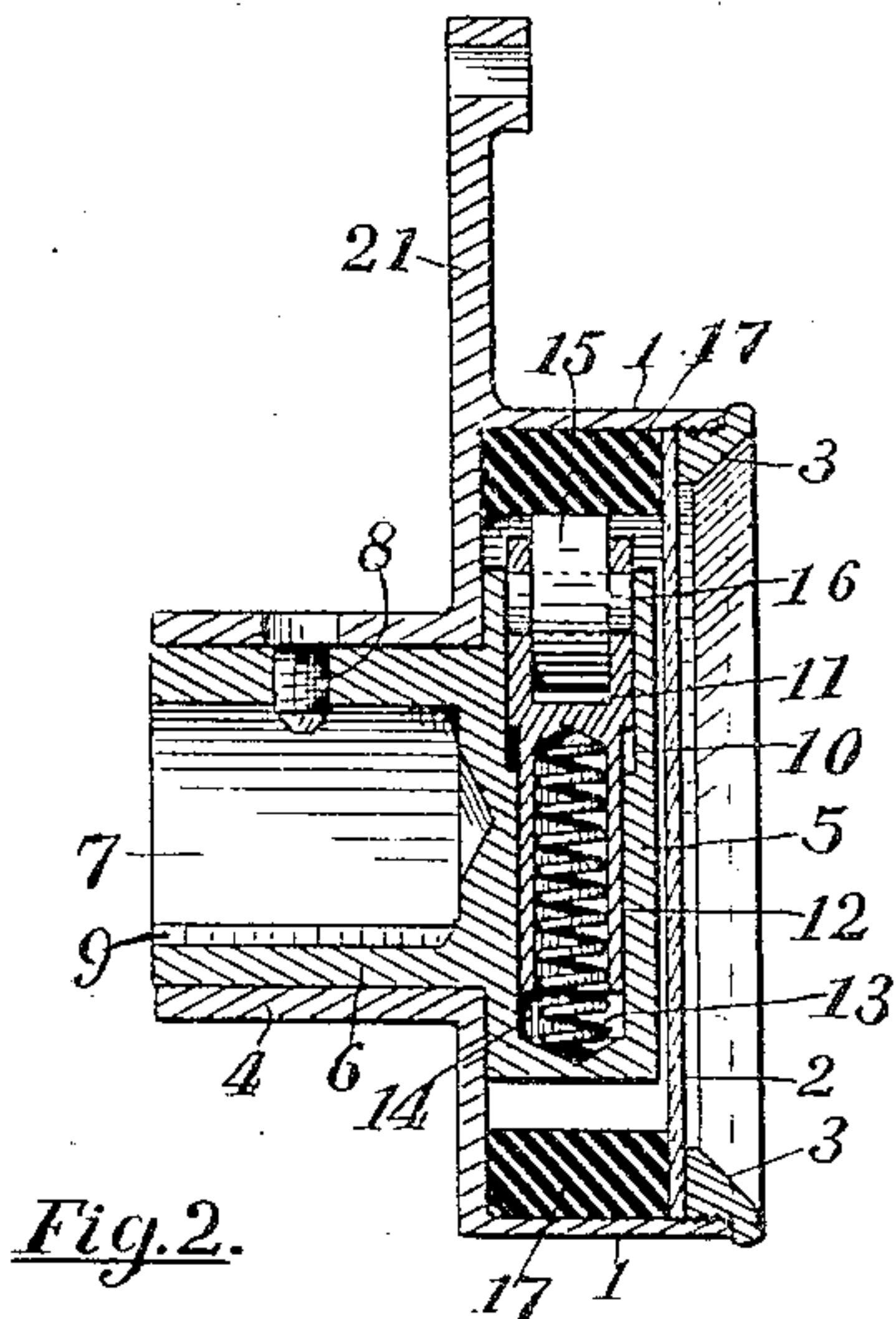
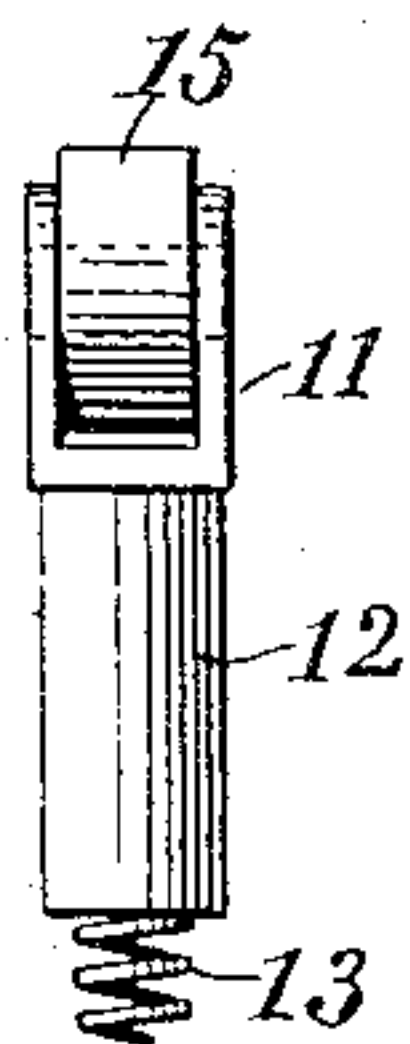
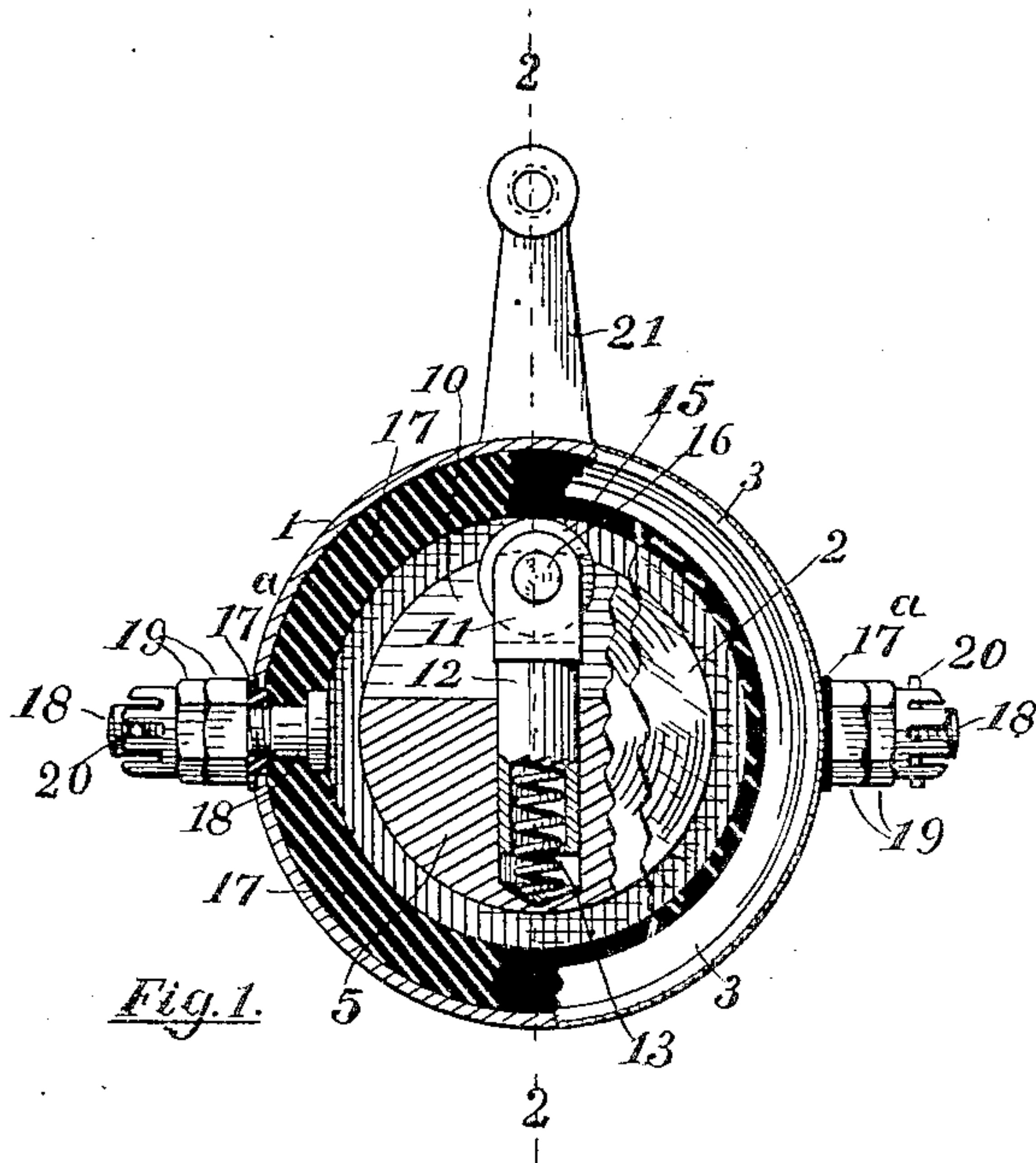


C. SINTZ.
IGNITION TIMER.
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Patented Feb. 16, 1909.



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UNITED STATES PATENT OFFICE.

CLAUDE SINTZ, OF GRAND RAPIDS, MICHIGAN.

IGNITION-TIMER.

No. 912,906.

Specification of Letters Patent.

Patented Feb. 16, 1909.

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To all whom it may concern:

Be it known that I, CLAUDE SINTZ, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Ignition-Timers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to ignition timers for internal combustion engines, and its object is to provide an improved adjustable ignition timer for such engines, to provide a simple and durable device, to provide a device so constructed that the parts are not liable to become loosened or displaced by use, and to provide the same with various new and useful features hereinafter more fully described and particularly pointed out in the claims. Heretofore in such devices there has been great difficulty in maintaining the parts in proper relation and adjustment due to the vibrations and rapid movement of the same.

My invention consists of the combination and arrangement whereby these difficulties are obviated, and a simple and reliable structure produced, which is easy to manufacture, and readily taken apart as assembled, as will more fully appear by reference to the accompanying drawings, in which:

Figure 1. is a front elevation of a device embodying my invention with parts broken away to show the construction; Fig. 2. is a vertical section of the same on the line 2—2 of Fig. 1.; Fig. 3. a detail of the rotating head; and, Fig. 4. a detail of the contact member in the head.

Like numbers refer to like parts in all of the figures.

1 represents a cup-shaped case of any suitable dimensions and preferably provided with a transparent disk 2 to close the front of the same, said disk being secured in place between a ring 3 screwed into the front of the case and the insulating ring 17.

21 is an arm to hold the case from rotating and to adjust the case to determine the time of closing the circuits.

At the rear, and in line with the axis of the case, is a large tubular bearing 4 in which bearing is journaled the hub 6 of a rotative head 5 located within the case. This hub is provided with a socket 7, a set screw

8 and a key seat 9, whereby it may be attached to a rotative shaft in the usual way. The head 5 is cylindrical in shape and is recessed in the edge as at 10, transversely to its axis. Extending from this recess and radially across the axis is an opening 14 within which is slidably inserted the tubular stem 12 of a yoke 11, said yoke being located and slidable within the recess 10 and also having its opposite flat sides slidably engaging the walls of the recess and retained thereby in planes at right angles to the axis of the head. In this yoke is mounted a roller 15 journaled on a transverse pin 16 in the yoke, which pin abuts against the walls of the recess 10 and is retained in place thereby. In the tubular stem 12 is a spring 13 which moves the yoke radially and thus yieldingly forces the roller 15 in contact with the inner surface of the insulating ring 17 in the periphery of the case. Extending radially through this insulating ring, and at regular intervals are bolts 18 of conduction material forming the insulated terminals of the igniter circuits, the heads of which bolts are embedded in the ring with their surface exposed and engaged in succession by the roller 15 as the head is rotated by the shaft to which it is attached. These terminals are in number to correspond to the cylinders of the engine with which the device is to be connected, two terminals being shown in this case. Surrounding each bolt are insulating washers 17^a and on each bolt are jam nuts 19, the outer nut being provided with recesses in which are inserted cotter pins extending through transverse openings in the bolts 18 to secure the nuts from being loosened.

By the described construction, I am able to make a simple and compact structure of few parts with large bearings and easily constructed. The more delicate parts such as the spring and yoke are inclosed within the head and impossible of displacement or disorganization by the vibrations of the device when running. It will also be noted that the bolts which form the terminals are so arranged that the hammering of the roller 15 cannot displace or loosen the same; and also that the device is readily taken apart or re-assembled as occasion may require.

What I claim is:

1. An ignition timer comprising a rotative cylindrical head having a recess in one side;

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said recess having parallel walls spaced apart and in planes at right angles to the axis of the head, a radially movable yoke in said recess and guided by the walls of said recess, a roller in said yoke, a ring of insulating material surrounding the head and traversed by the roller, and electric terminals inserted in said ring and contacted by the roller.

2. An ignition timer comprising a case, a head rotative in the case and having a recess in one side, said recess having parallel walls spaced apart and in parallel planes at right angles to the axis of the head, and also having an opening extending from the bottom of the recess radially across the axis of the head, a yoke in the recess and guided by the walls thereof, a stem on the yoke and movable in said opening, a roller journaled in the yoke, a spring to move the yoke outward, a ring of insulating material surrounding the head and traversed by the roller, and electric terminals inserted in the ring and contacted by the roller.

3. An ignition timer comprising a cylindrical head, a case inclosing the head and having a bearing in its axis, an integral tubular hub on the head and journaled in the bearing, said head also having a recess with parallel walls and a radial opening communicating with the recess, a yoke in the recess and guided by the walls thereof, a tubular stem on the yoke, a spring in the stem, a roller journaled in the yoke, a ring of insulating material in the case and surrounding the head, and electric terminals radially inserted in the ring and case and successively contacted by the roller.

4. An ignition timer comprising a cylindrical head, having a recess in one side, said recess having walls spaced apart and in parallel planes at right angles to the axis of the head and also having a radial opening communicating with the recess, an integral tubular hub on the head and provided with means for securing a shaft therein, a yoke in the recess and guided by the walls thereof, a pin in the yoke and retained therein by the said walls, a roller journaled on the pin, a tubular stem on the yoke and movable in the opening in the head, a spring in the stem, a ring of insulating material surrounding the head and traversed by the roller, an adjustable case inclosing the head and ring, and a bearing in the case in which the hub is journaled.

5. In an ignition timer, a cylindrical and rotative head having a recess in one side, said recess having parallel walls spaced apart and in planes at right angles to the axis of the head, a yoke in the recess and having parallel flat sides slidably engaging the walls of the recess, a tubular stem on the yoke, a spring in the stem, and a roller journaled in the yoke.

6. In an ignition timer, a cylindrical and rotative head having a recess in one side, said recess having parallel walls spaced apart, and also having a radial opening communicating with the recess, a yoke in the recess and having parallel sides slidably engaging the walls of the recess, a pin in the yoke and retained therein by the walls of the recess, a roller journaled on the pin, a tubular stem to the yoke and movable in the opening, and a spring in the said stem to move the yoke radially in the recess.

7. A sparker of the type set forth comprising an insulating block formed with an annular opening, contact plates countersunk into said block and having their exposed edges flush with the wall of said opening, posts carried by said plate and projecting through said block, binding nuts on the edge of said post, a revoluble shaft projected centrally through said opening, a disk fast on said shaft and formed with a straight sided opening extending radially to the edge thereof, a straight sided plug conformably fitting in said disk opening for radially sliding movement and formed with an axial bore extending radially to the edge thereof adjacent the lower edge of said disk opening, an expansive coil spring disposed within said bore and bearing against the underneath surface of the top of said plug and against the lower surface of said disk opening, said plug being formed in its upper surface with a transverse concave recess, a pin having its ends journaled in the side walls of said recess, and a roller carried by said pin and having a portion thereof projecting beyond the periphery of said disk, the periphery of said disk being spaced away from the annular edge of said first named opening.

In testimony whereof I affix my signature in presence of two witnesses.

CLAUDE SINTZ.

Witnesses:

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GEORGIANA CHACE.