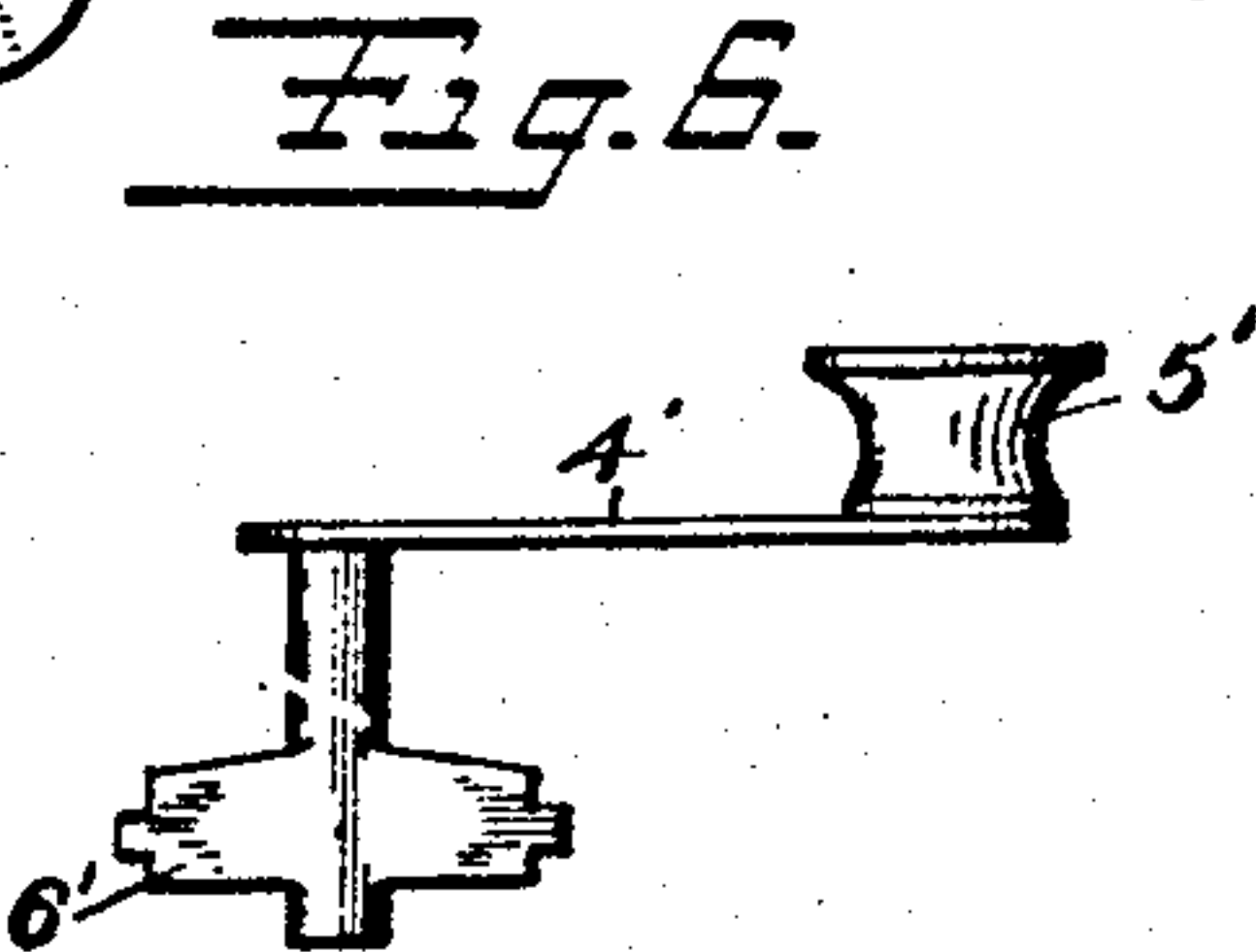
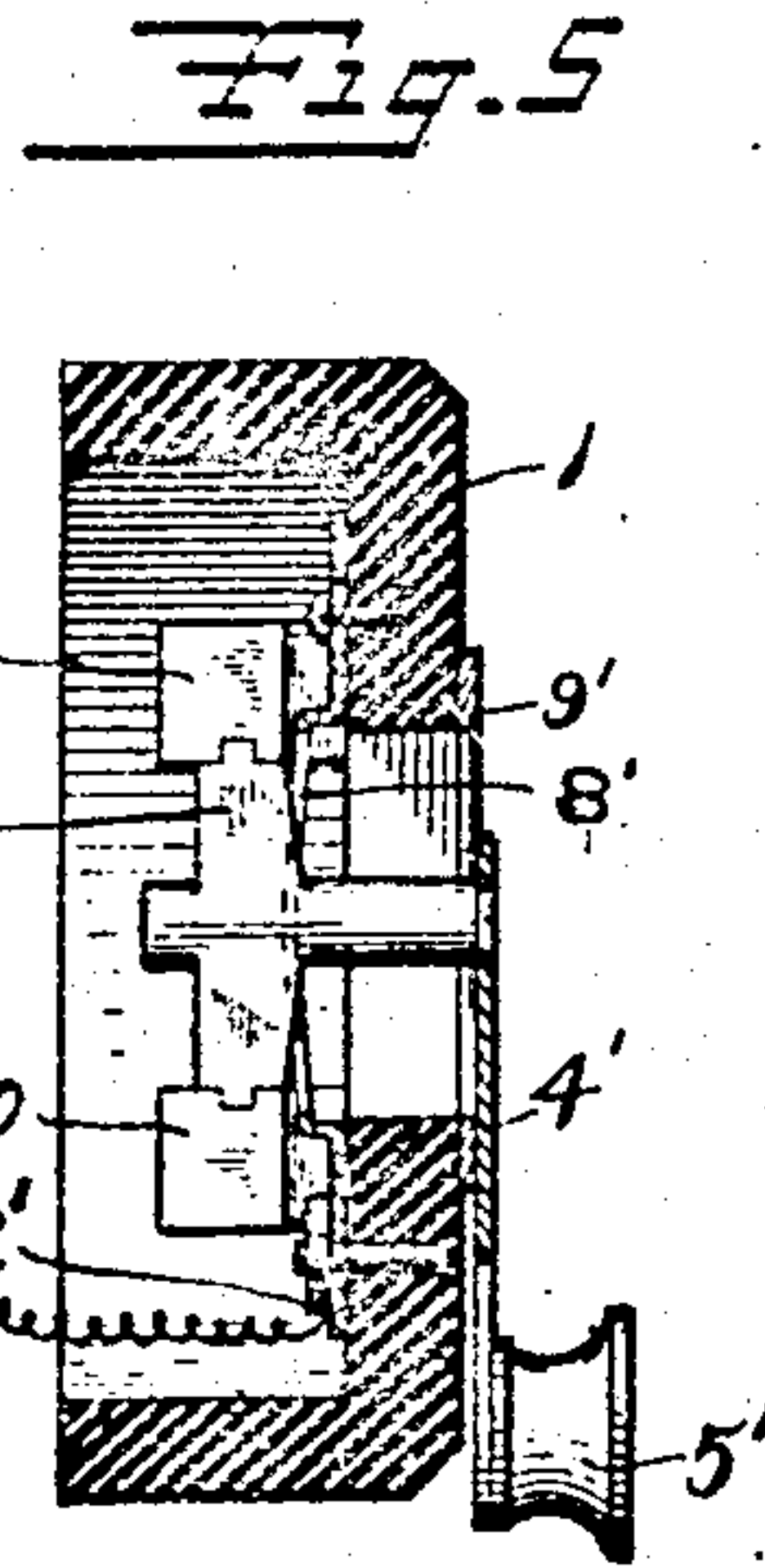
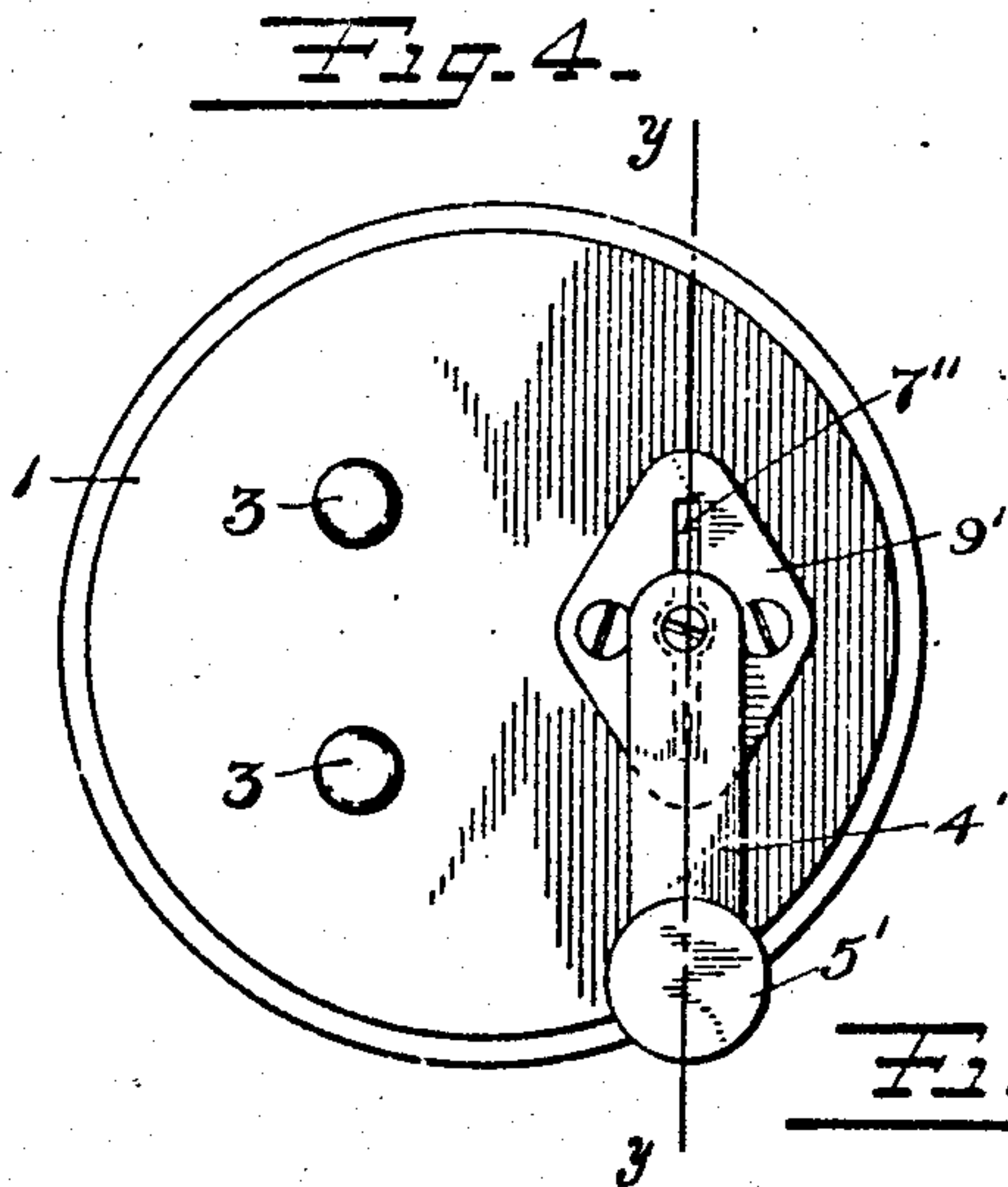
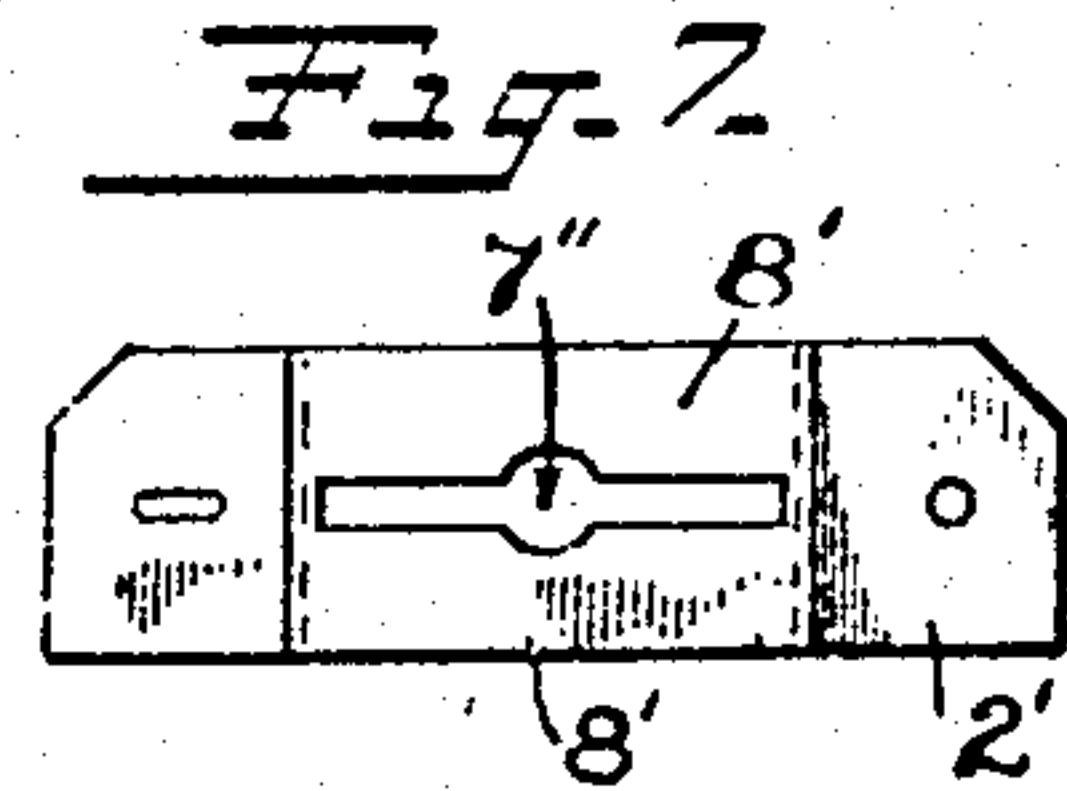
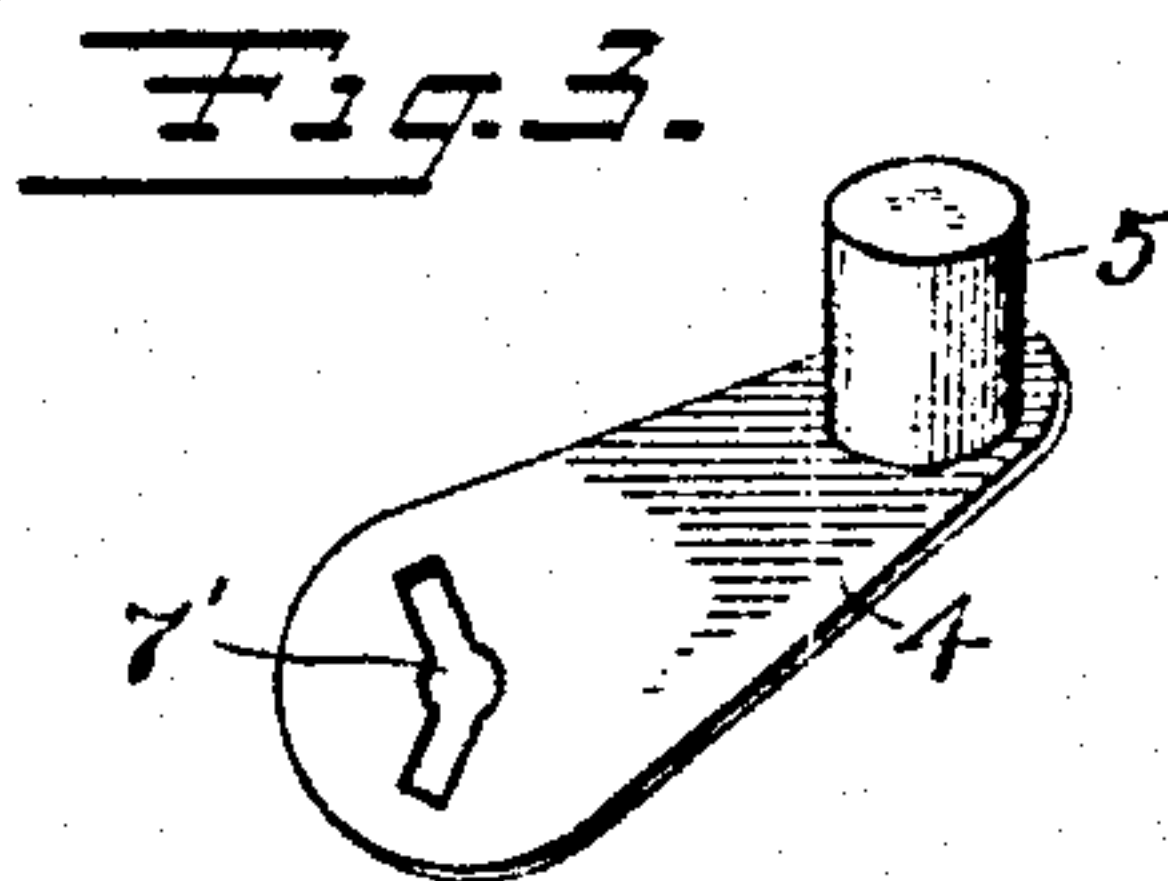
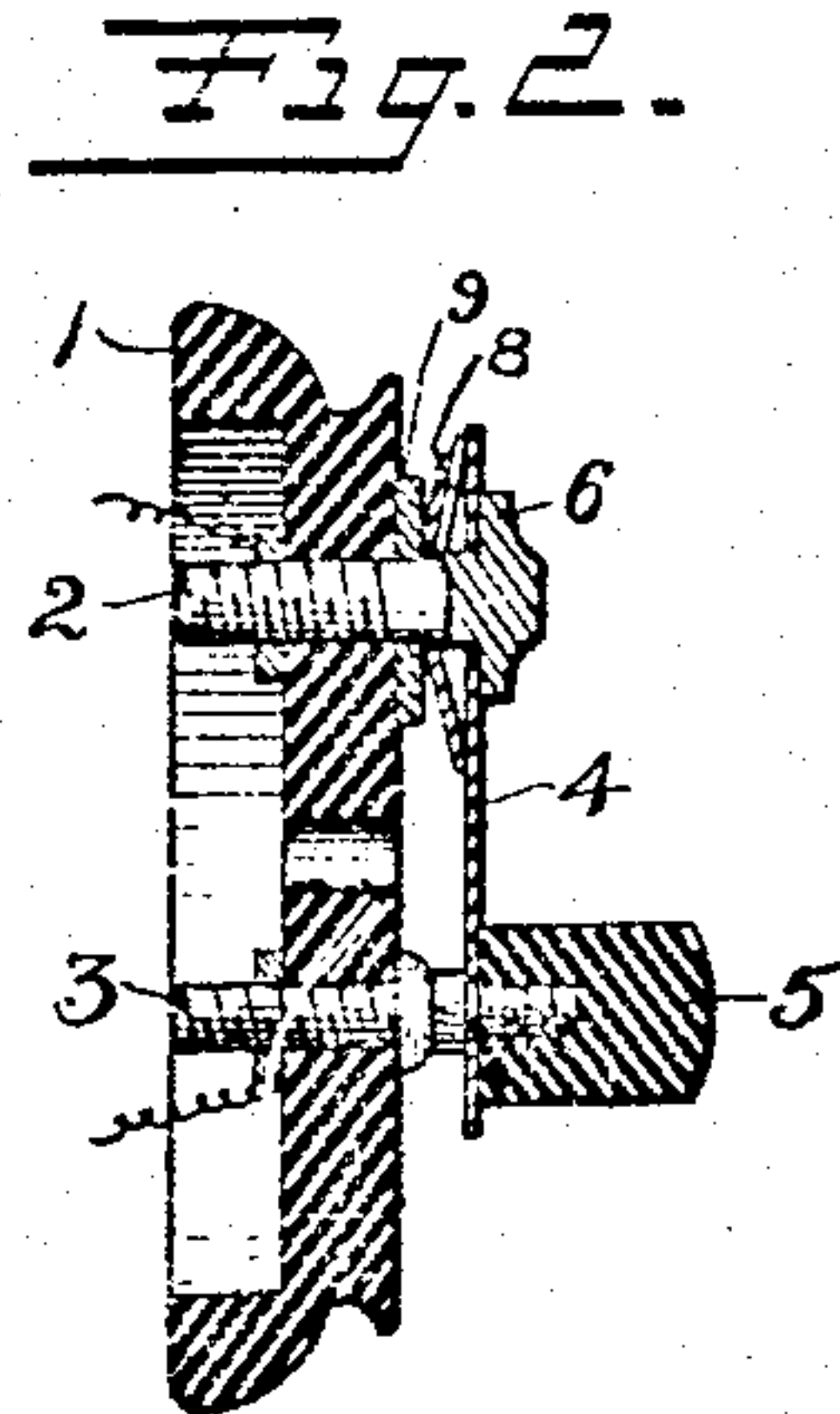
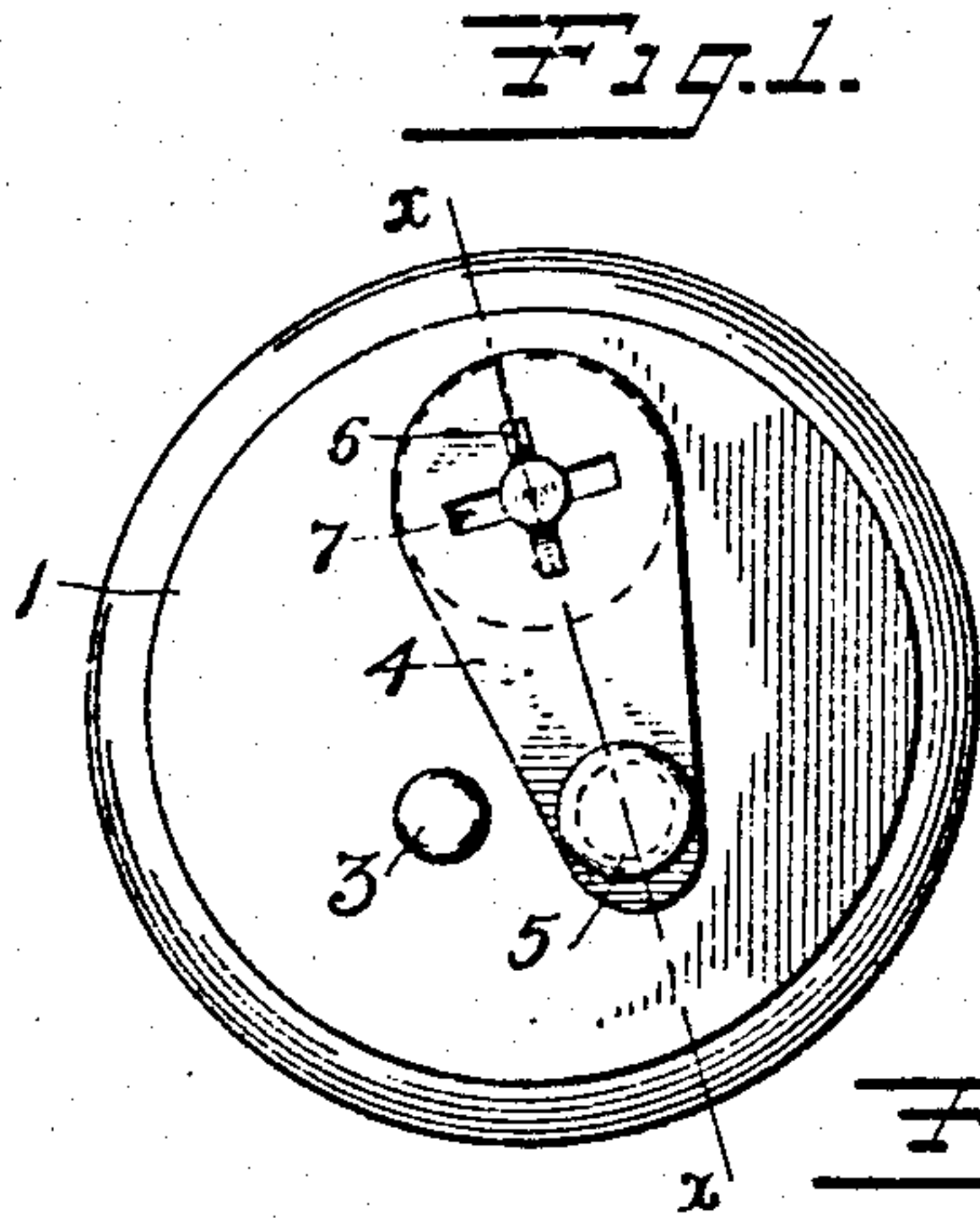


No. 785,419.

PATENTED MAR. 21, 1905.

D. E. GRAY.
ELECTRIC SWITCH.
APPLICATION FILED JUNE 6, 1904.



Witnesses
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UNITED STATES PATENT OFFICE.

DAVID E. GRAY, OF NEW YORK, N. Y.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 785,419, dated March 21, 1905.

Application filed June 6, 1904. Serial No. 211,251.

To all whom it may concern:

Be it known that I, DAVID E. GRAY, a citizen of the United States, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Electric Switches, of which the following is a full, clear, and exact description.

My invention relates to electrical apparatus, and particularly to an electric switch.

The object of my invention is to construct a switch of simple form in such a manner that the switch-arm may be readily removed to prevent tampering with the same. It is particularly designed for use as a starting-switch for motor boats and cars.

The invention consists in improvements the principles of which are illustrated in the accompanying single sheet of drawings.

Figure 1 is a plan view of a switch embodying the improvements of my invention. Fig. 2 is a cross-section of the same, taken on the plane of the line X X of Fig. 1. Fig. 3 is a detail perspective view of the switch-arm slightly modified. Fig. 4 is a plan view of another form of switch of my invention. Fig. 5 is a cross-sectional view of the same on the plane of the line Y Y of Fig. 4. Fig. 6 is a detail side elevation of the switch-arm. Fig. 7 is a detail view of the spring-contact of the switch shown in Figs. 4 and 5.

1 is a base member constructed of some suitable insulating material.

2 indicates the main contact in the form of a post with which electrical connection is made.

3 3, are the secondary contacts, of which there may be several raised above the surface of the base.

4 is an arm adapted to make connection with the contact 2 and with either one of the contacts 3 3, depending on the position of the arm.

5 is an insulating knob or handle carried by the arm 4.

6 is an enlarged head or projection carried by the post-contact 2.

7 indicates a slot or opening in the switch-arm 4 of a form to correspond with the enlarged head 6 of the post 2.

When the parts are in the position shown

in the drawings, the current will pass to one of the contacts 3, while the arm is held securely in position.

8 is a spring which presses against the plate 9 and serves to hold the arm 4 in contact with the post 2, the spring being in the form of a cup-shaped disk. This arm 4 may be readily removed by simply rotating it with respect to the contact 2 until the opening 7 is in alignment with the enlarged end 6. When the arm 4 is removed, the switch is inoperative. This construction is particularly useful on launches and automobiles or motor-cars to prevent tampering with the mechanism when the operator is away. It is simply necessary to remove the arm and replace it when desired. In the form of arm shown in Fig. 3 the recess or opening 7' in the arm is of irregular shape, illustrating but one of the many forms which this invention is adapted to take, so as to provide a large number of different forms of switches, the arms for which will not be interchangeable. The contact-post of each switch has a head to correspond with the slot in its proper arm.

In the form shown in Figs. 4 and 5 the switch-arm 4' has a handle 5' and an enlargement or projection 6'. 2' indicates the main contact, having an opening 7''. 8' 8' are spring-arms forming the sides of the opening 7'' and serving to press against the enlarged end 6'. 9' represents a plate secured to the upper surface of the base 1 and having an opening therein through which the head 6' may pass. One of the contacts in this case is situated on the interior of the base 1 instead of on the outside, thus affording an additional means of protection to prevent tampering. The blades or projections 6' may be made in as many varying forms as key-blades are made. 10 10 are blocking devices. The blades and blocking devices have corresponding projections and recesses, so as to prevent a switch-arm having improperly-shaped blades being inserted and rotated. It will be noted in this form it would be impossible to rotate the switch-arm unless the blades have the proper projections. It will be noted that it would be impossible to insert the head 6' on this switch-arm unless it corresponds in form to the opening in the

plate 9' and in the contact 2'. The arm may be removed when in the position shown in Fig. 4.

While this construction is exceedingly simple and inexpensive to manufacture, it nevertheless provides a convenient and efficacious means for effecting electrical connections and yet avoids the danger of tampering.

What I claim is—

1. In an electric switch, the combination of an insulating-base, a stationary electric contact carried thereby, a main contact, a switch-arm, one of said latter parts having an enlarged head or projection and the other having a correspondingly-formed opening, said arm being pivoted on said main contact, movable in a plane parallel to said base and removable after electrical connection is broken with said stationary contact.

2. In an electric switch, the combination of an insulating-base, a main contact, a stationary contact carried by and projecting above the surface of said base, a pivotally-mounted switch-arm rotatable in a plane parallel to said base for affording an electrical connection be-

tween said contacts and means for removing said switch-arm by a movement at right angles to said base but only after electrical contact has been broken by a rotative movement.

3. In an electric switch, the combination of an insulating-base, a secondary contact secured thereto, a main contact carried by said base affording an axis at right angles to said base, a switch-arm, one of said elements having an enlarged head or projection and the other having an opening corresponding in form to said enlarged head and spring means for holding said arm in contact with said post, said arm affording electrical connection between said contacts, the enlarged head and the opening being so arranged that said arm may be removed by a rotary and longitudinal movement.

Signed at New York, N. Y., this 3d day of June, 1904.

DAVID E. GRAY.

Witnesses:

L. VREELAND,
ROBT. S. ALLEN.