

No. 734,905.

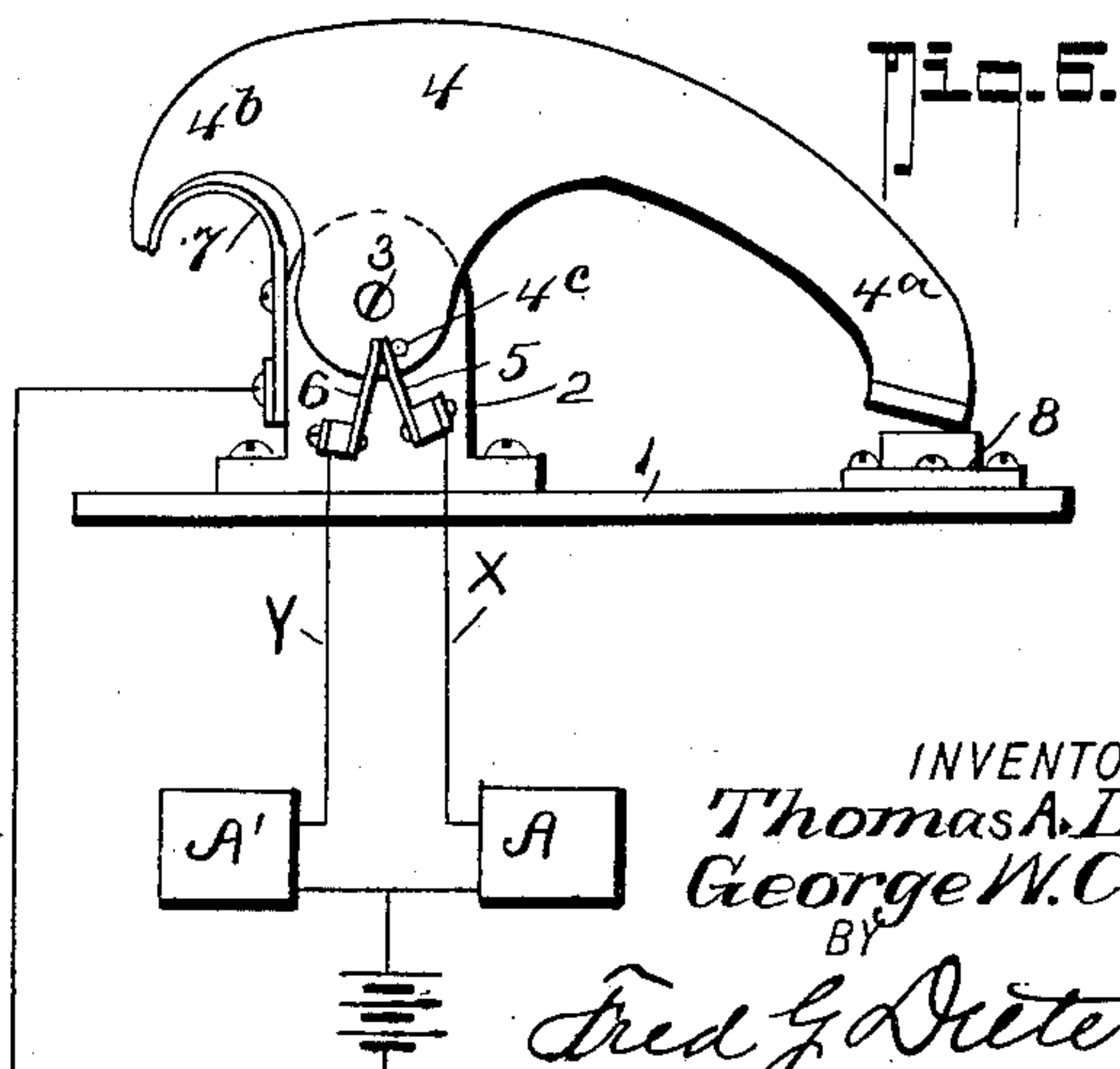
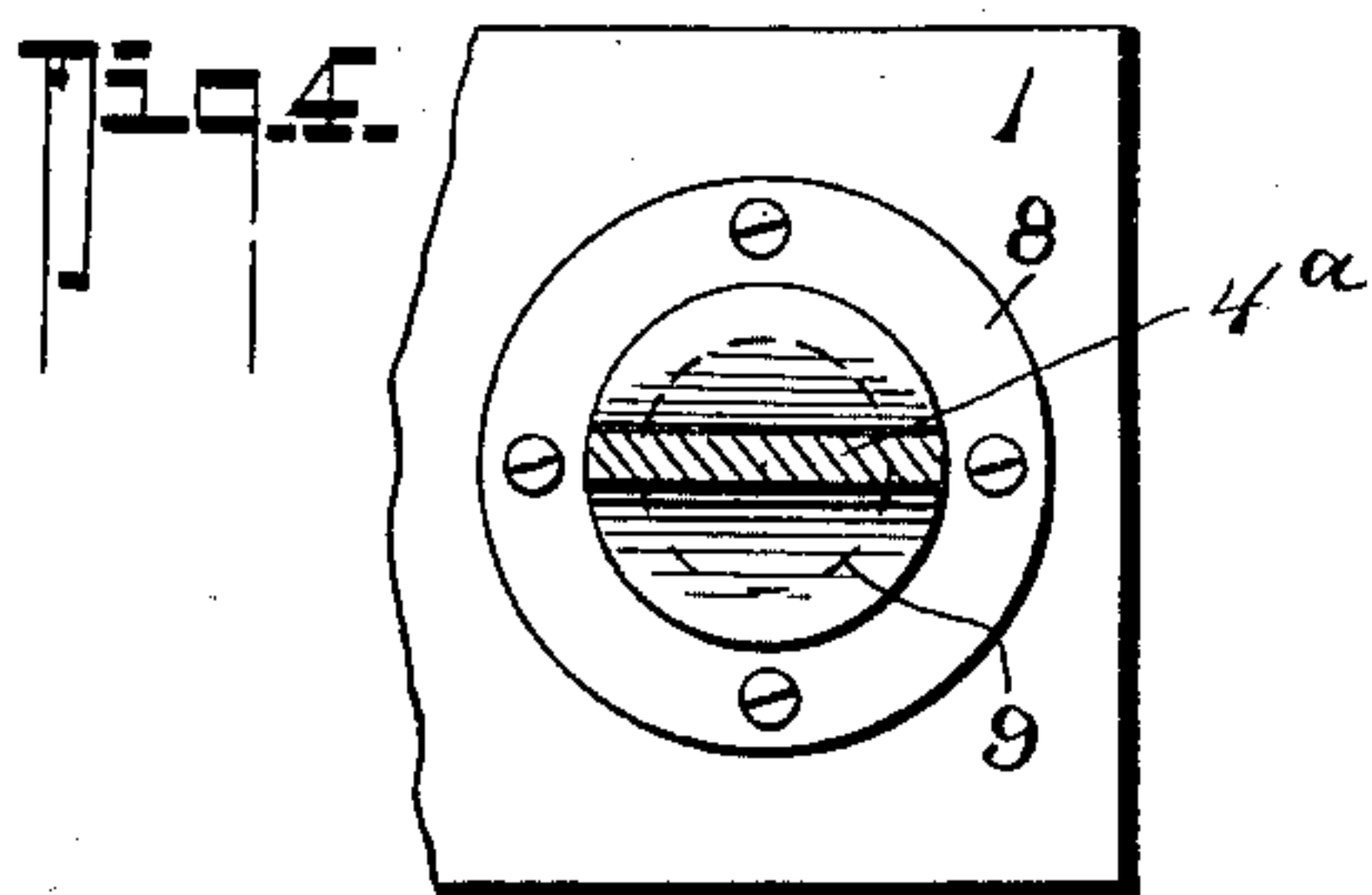
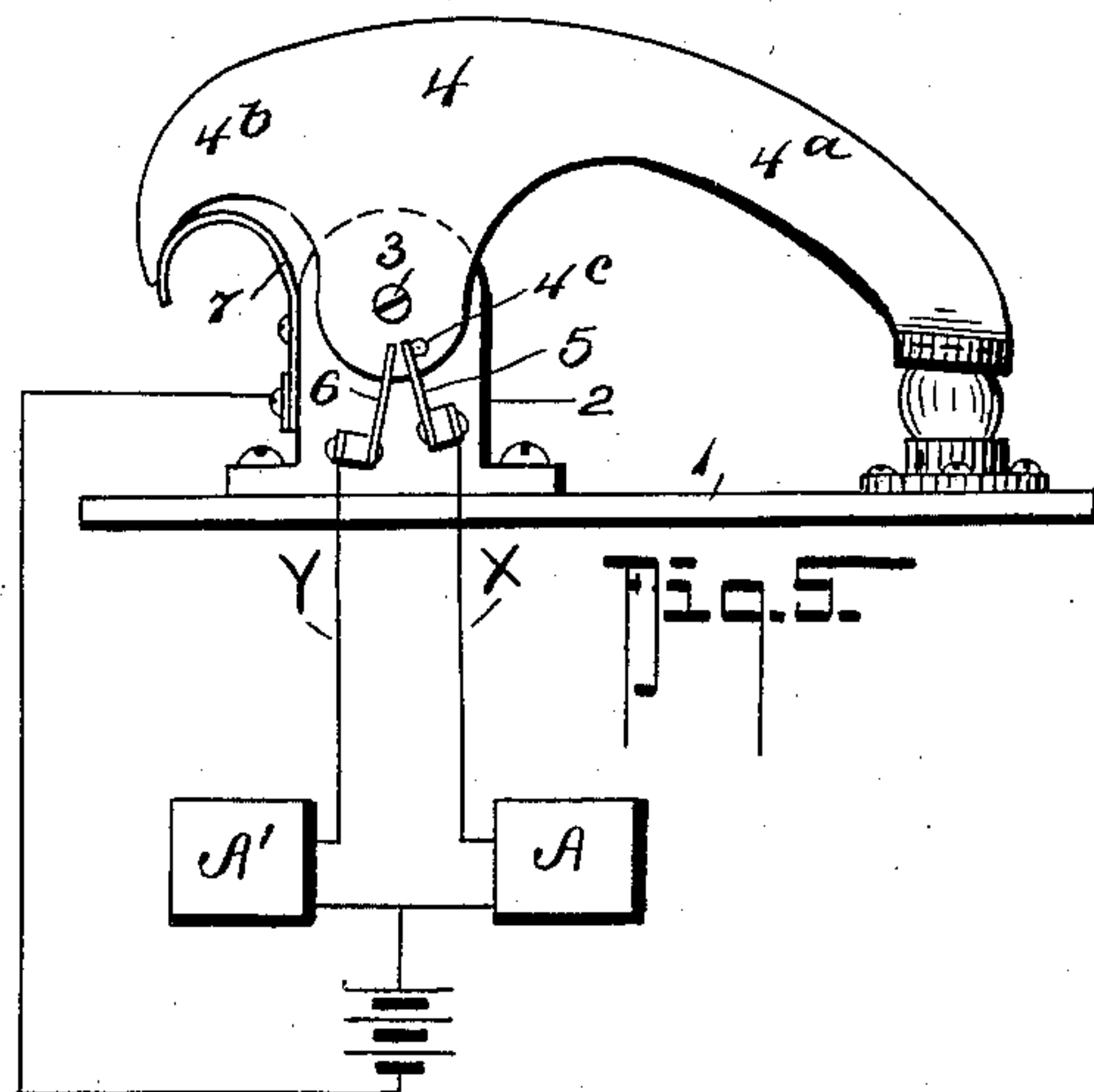
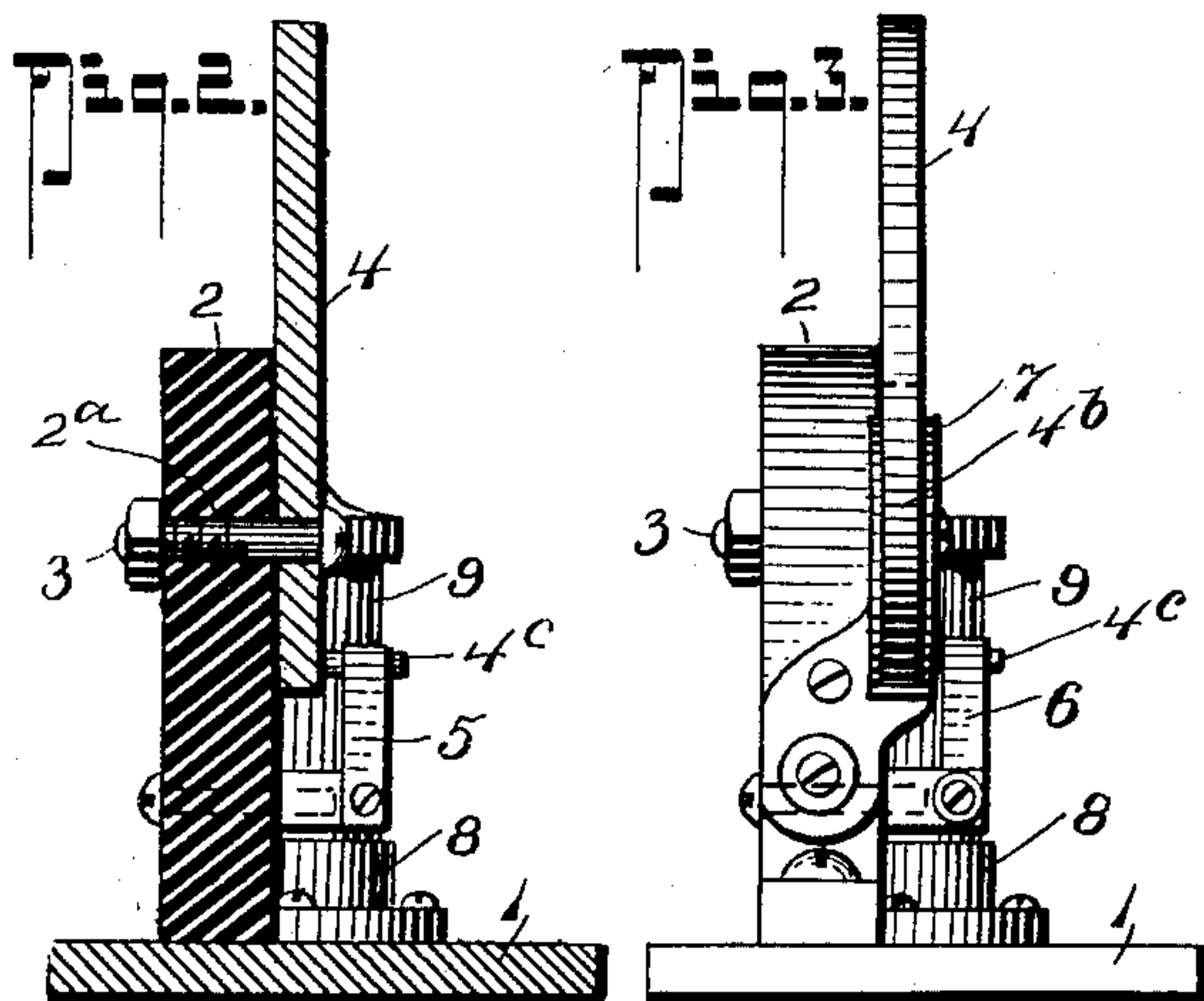
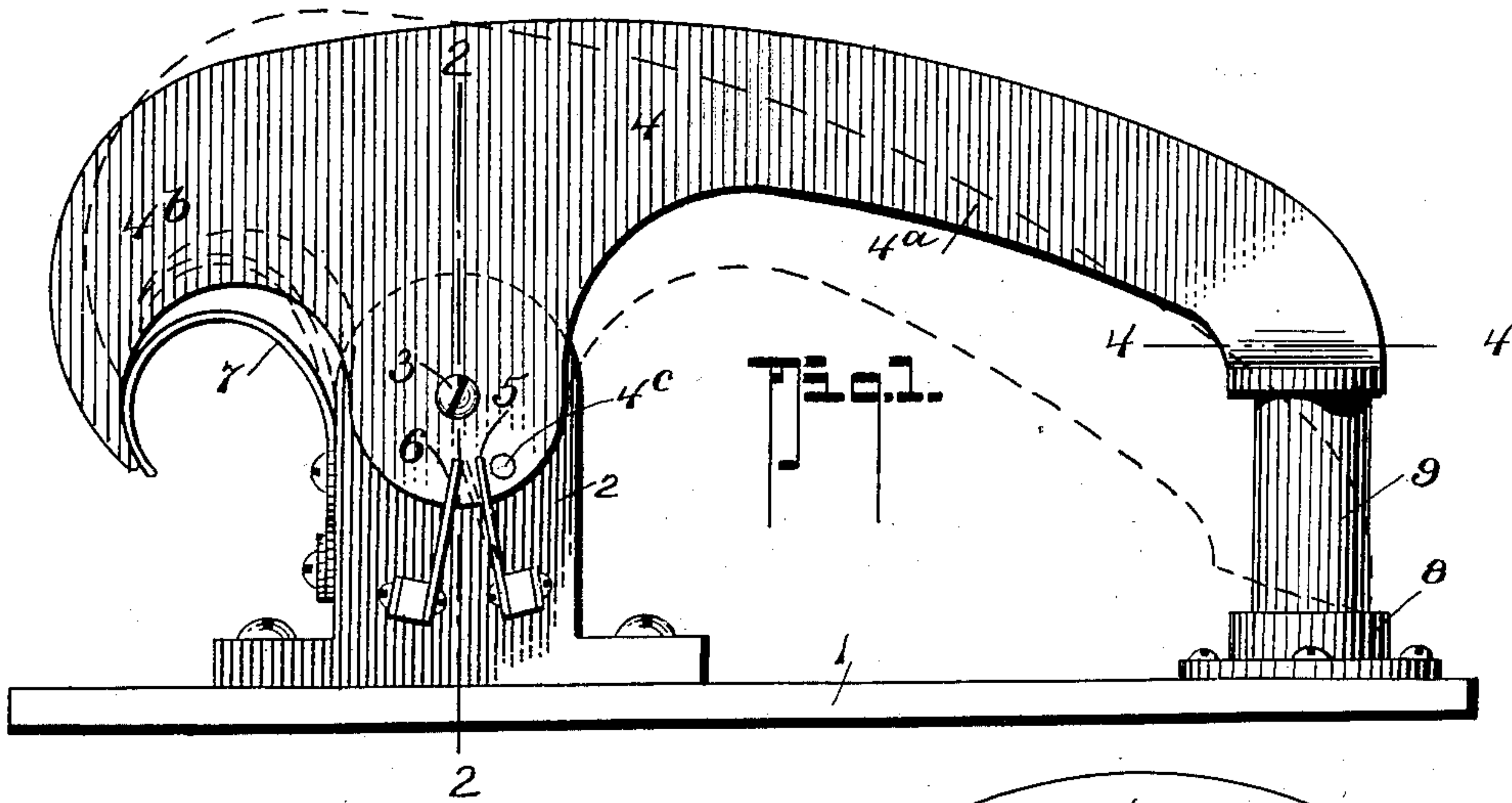
PATENTED JULY 28, 1903.

T. A. LONG & G. W. COFRAN.

CIRCUIT CLOSER.

APPLICATION FILED JAN. 7, 1903.

NO MODEL.



WITNESSES:

John T. Schnott
Irene Dieterich

INVENTORS:

Thomas A. Long.
George W. Coffran.

BY

Fred G. Dietrich & Co.
ATTORNEYS

ATTORNEYS

UNITED STATES PATENT OFFICE.

THOMAS A. LONG, OF SPARROWS POINT, AND GEORGE W. COFRAN, OF BALTIMORE, MARYLAND, ASSIGNORS, BY MESNE ASSIGNMENTS, TO STANDARD FIRE ALARM COMPANY, OF SPARROWS POINT, MARYLAND, INCORPORATED.

CIRCUIT-CLOSER.

SPECIFICATION forming part of Letters Patent No. 734,905, dated July 28, 1903.

Application filed January 7, 1903. Serial No. 138,138. (No model.)

To all whom it may concern:

Be it known that we, THOMAS A. LONG, of Sparrows Point, in the county of Baltimore, and GEORGE W. COFRAN, of Baltimore, State of Maryland, have invented certain new and useful Improvements in Circuit-Closers, of which the following is a specification.

This invention relates to that class of circuit-closing means in which the closing of the circuit is regulated or controlled by means of some fusible substance which under predetermined conditions of temperature will soften or entirely fuse, and thereby bring a series of contact members into electrical connection with each other to complete electric circuits.

Our present invention seeks to provide a device of this character of a simple and economical construction and which will effectively serve its intended purposes, the invention being more particularly adapted for use in connection with the improved fire-alarm mechanism set forth in our copending application filed on even date herewith, Serial No. 138,139.

This invention includes a stationary member, to which is loosely secured a rockable beam or arm carrying a suitable contact-stud, which under predetermined conditions will make contact with one or more fixedly-held contact members secured upon the stationary member, the motion of the beam or arm being governed by the fusible plug or stop.

With other objects in view, which will hereinafter appear, our invention consists in the construction and arrangement of parts, which will be first described in detail and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which like numerals and letters of reference indicate like parts in all of the figures, and in which—

Figure 1 is a side elevation of our improved circuit-closer. Fig. 2 is a cross-section thereof, taken practically on the line 2 2 of Fig. 1. Fig. 3 is an end elevation of Fig. 1. Fig. 4 is a detail section taken on the line 4 4 of Fig. 1. Fig. 5 is a diagrammatical view

showing the application of our invention to the fire-alarm system, the parts being shown in the position they assume when the first contact is in circuit; and Fig. 6 is a similar view, both contacts being shown in circuit.

Referring now to the accompanying drawings, 1 indicates a suitable base plate or support, preferably of slate or stone or like material, upon which is firmly mounted a base member 2, apertured, as at 2^a, to receive a bolt 3. Secured to the member 2 by the bolt 3 is what we term a "contact-making beam" 4, having a long arm 4^a and a short heel portion 4^b for the purposes presently explained. This beam 4 is preferably constructed of metal and carries upon one face thereof a short contact-making stud 4^c. Mounted upon the base member 2, which, it should be stated, is preferably constructed of some insulating material, such as fiber, is a series of contact members 5 6, which project upwardly into the path of the stud 4^c. To each of the contacts 5 and 6 is connected one terminal of electric circuits X Y, which circuits include suitable annunciator mechanism A A'. (See Figs. 5 and 6.) The other terminal of the circuits connects to the spring member 7, firmly secured to the base member 2 and projecting to and engaging with the heel portion 4^b of the beam 4, the spring serving to carry the current to the beam 4 and also to hold the beam with its stud 4^c in the upper contact-making position.

8 indicates a cup or holder securely mounted to the base-plate 1, into which is inserted a plug 9, of fusible material—such as wax, resin, and the like—upon the upper end of which the arm 4^a of the beam 4 is adapted to press. The fusible plug 9 therefore serves to maintain the beam 4 with its contact-making stud 4^c out of engagement with the contacts 5 and 6.

So far as described the operation of our invention is best explained as follows: The circuit-closer being placed at the point desired, as the temperature of the air rises the plug 9 will soften and allow the beam 4, by reason of the action of the spring member 7, to bring

the contacting stud 4^c into engagement in the first contact 5 of the base 2, and thereby cut in the annunciator mechanism A, as shown in Fig. 5. This is the position the parts assume when the temperature is only sufficient to soften the plug 9, the annunciator A alone being operated. At this point it should be stated that the annunciator A, which may be of any approved construction, is preferably located within the same building in which the closer is used. As the temperature of the annunciator surrounding the circuit-closer rises above the predetermined amount and fuses the plug 9 the spring 7 will force the beam 4 to the position shown in Fig. 6, and thereby bring the second contact 6, as well as the first contact 5, into circuit, thereby operating both the annunciator mechanism A and the second annunciator mechanism A', preferably located at the fire-station.

While we have described our improved circuit-closer as being particularly adapted for use in connection with the fire-alarm mechanism disclosed in our copending application above referred to, yet we desire it understood that the same may be used for any purposes to which it may be adapted, and we further desire it understood that slight modifications and changes in the detail, arrangement, and construction of parts can be made without departing from the scope of the appended claims.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. A circuit-closer comprising a base-plate, an insulating base member mounted thereon, a contact-carrying beam having a projecting portion intermediate its ends, said projecting portion carrying a contact-stud, said beam being fulcrumed at said projection on the base member, contacts for engaging with the contact of the contact-carrying beam, means for normally holding the contacts out of engagement with each other, as and for the purposes described.

2. A circuit-closer comprising a base-plate, an insulating base member mounted thereon, a contact-carrying beam having a projecting portion intermediate its ends, a contact carried by said projecting portion, said beam being fulcrumed on the base member at said projecting portion, contacts for engaging with the contact of the contact-carrying beam, said contacts being mounted upon the base member, means for normally holding the contacts out of engagement with each other as and for the purposes described.

3. A circuit-closer comprising a base-plate, an insulating base member mounted thereon, a contact-carrying beam including a projecting portion intermediate its ends, a contact-stud mounted on said projecting portion, said beam being fulcrumed on said base member, at said projecting portion, contacts for engaging with the contact of the contact-carry-

ing beam, said contacts being mounted upon the base member, means for normally holding the contacts out of engagement with each other, and means for moving the contact-carrying beam into electrical engagement with the contacts mounted upon the base, substantially as shown and for the purposes described.

4. In a circuit-closer of the character stated, a base-plate, a base member mounted thereon, said base member carrying a plurality of contacts, a contact-making beam having a contacting stud and fulcrumed upon said base member, said contact-stud and said contacts upon the base member being adapted for engagement with each other under predetermined conditions, means for normally holding the beam with its stud out of engagement with the contacts upon the base member, and a spring member mounted upon the base member and in electrical connection with the beam, said spring member being adapted to move said beam with its stud to a contacting position, substantially as shown and described.

5. In a circuit-closer, a base member, contacts mounted thereon, a contact-making beam including an arm, a heel portion and a contact-carrying portion intermediate the arm and heel portion, said beam being fulcrumed at the contact-carrying portion on the base member, fusible means for engaging said arm to hold the beam out of contact, substantially as shown and described.

6. In a circuit-closer, a base member, contacts mounted thereon, a contact-making beam, including a long arm, a short heel portion, and an intermediate contact-carrying portion, said arm being fulcrumed at the intermediate contact-carrying portion, on the base member, means for engaging said long arm to hold the beam out of contacting position, and means for engaging with the heel portion, to move the beam to its contacting position, said means being in electrical connection with said heel portion, substantially as shown and described.

7. A circuit-closer, comprising a base member of insulating material, contacts mounted thereon, said contacts each serving as one terminal for electrical circuits, a beam fulcrumed upon said base member, said beam carrying a contact-stud, and having an arm and a heel portion, said heel portion being concave on its under side, and a spring member mounted upon said base and adapted for engagement with the base part of the heel portion, said spring member being in electrical connection with the beam and serving as the other terminal of the electrical circuits, substantially as shown and described.

8. A circuit-closer, comprising a base member of insulating material, contacts mounted thereon, said contacts each serving as one terminal for electrical circuits, a beam fulcrumed upon said base member, said beam carrying a contact-stud, and having an arm and a heel

portion, said heel portion being concave on its under side, and a spring member mounted upon said base and adapted for engagement with the base part of the heel portion, said
5 spring member being in electrical connection with the beam and serving as the other terminal of the electrical circuits, a cup and a fusible member therein, upon which the end

of the arm is adapted to rest, for the purposes specified.

THOMAS A. LONG.
GEORGE W. COFRAN.

Witnesses:

SIMON S. MARTIN,
H. NELSON CRANE.