

No. 870,640.

PATENTED NOV. 12, 1907.

C. H. OCUMPAUGH.
DOOR CONTROLLING DEVICE.

APPLICATION FILED JAN. 22, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

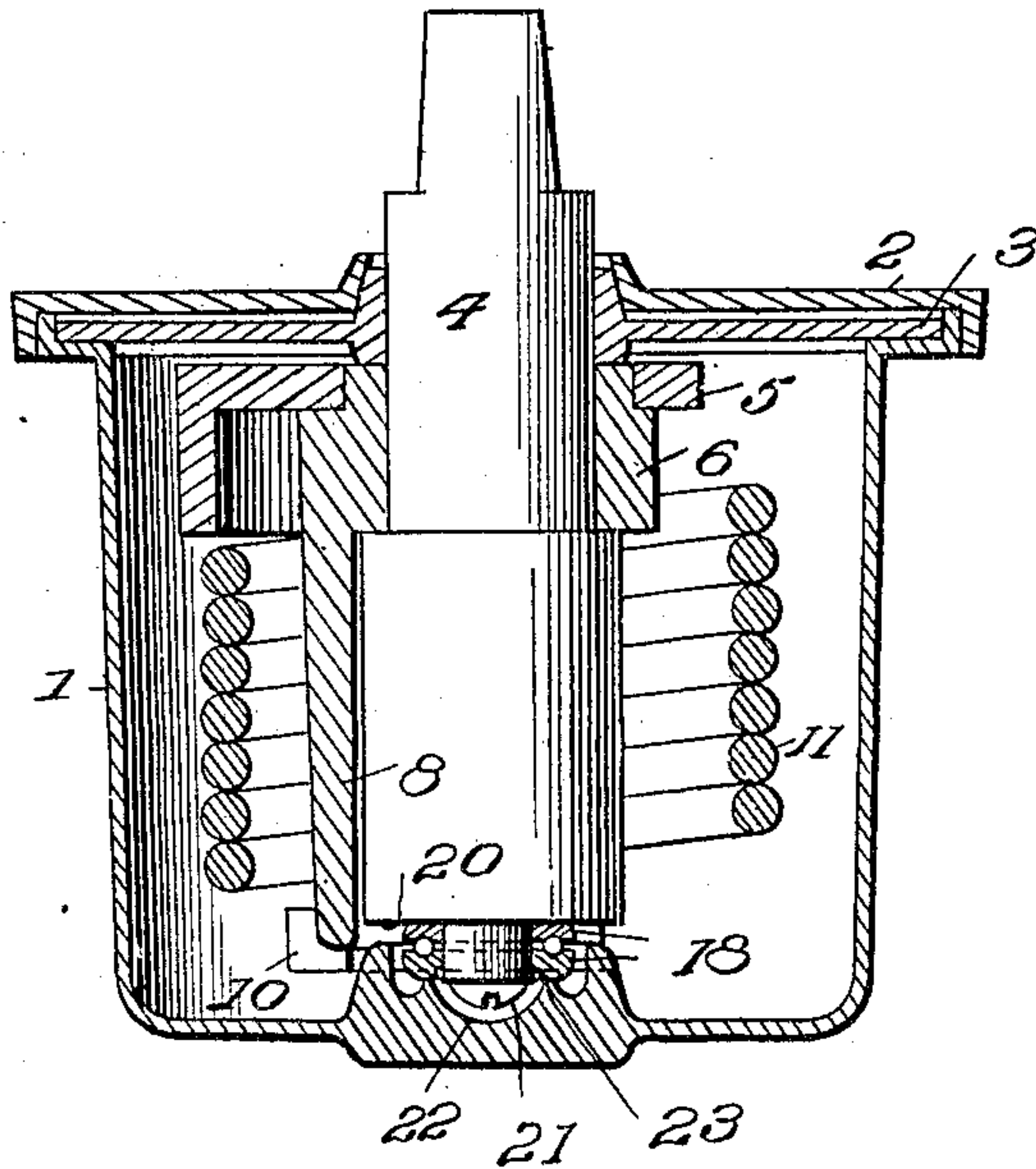


Fig. 2.

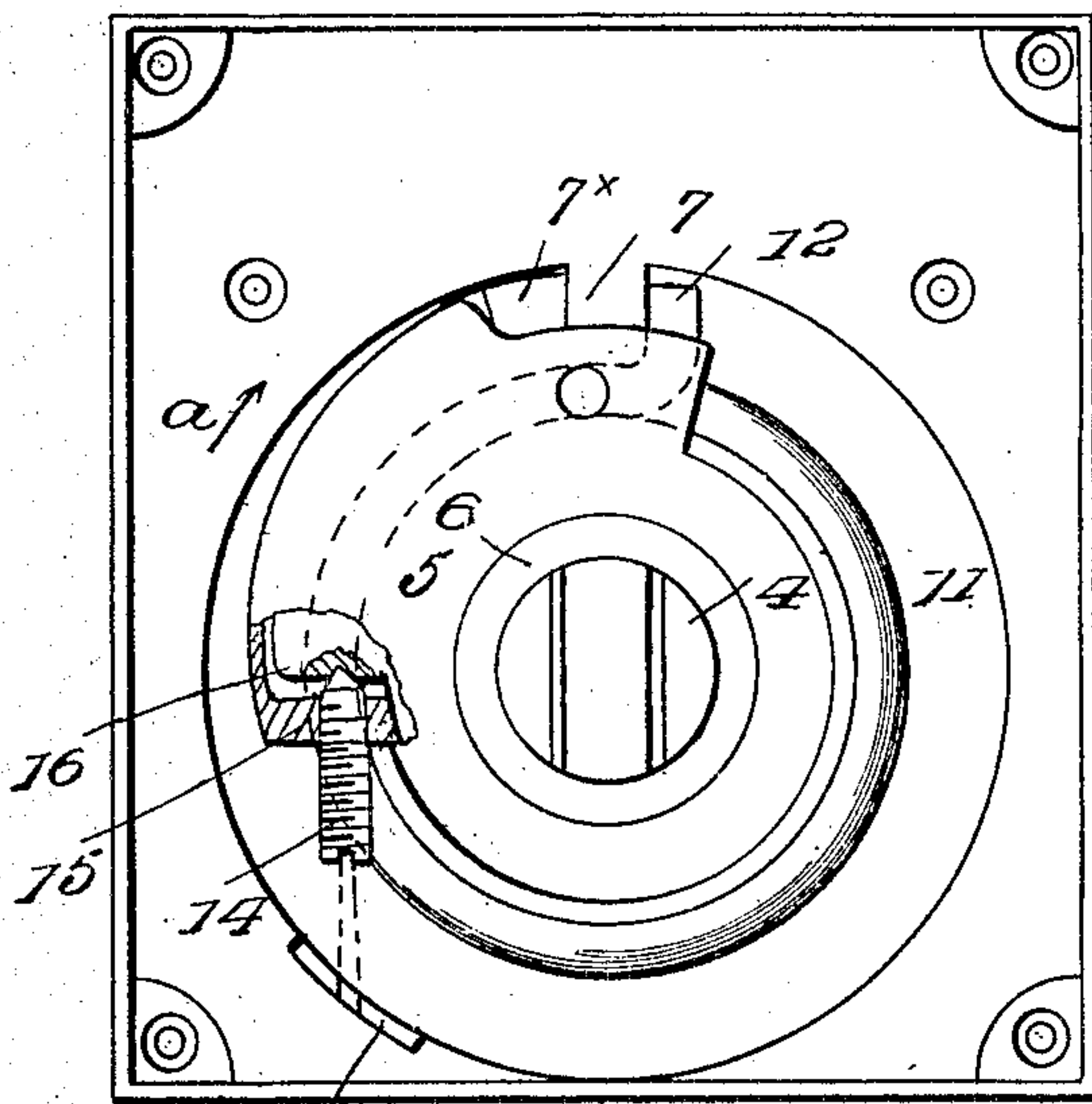
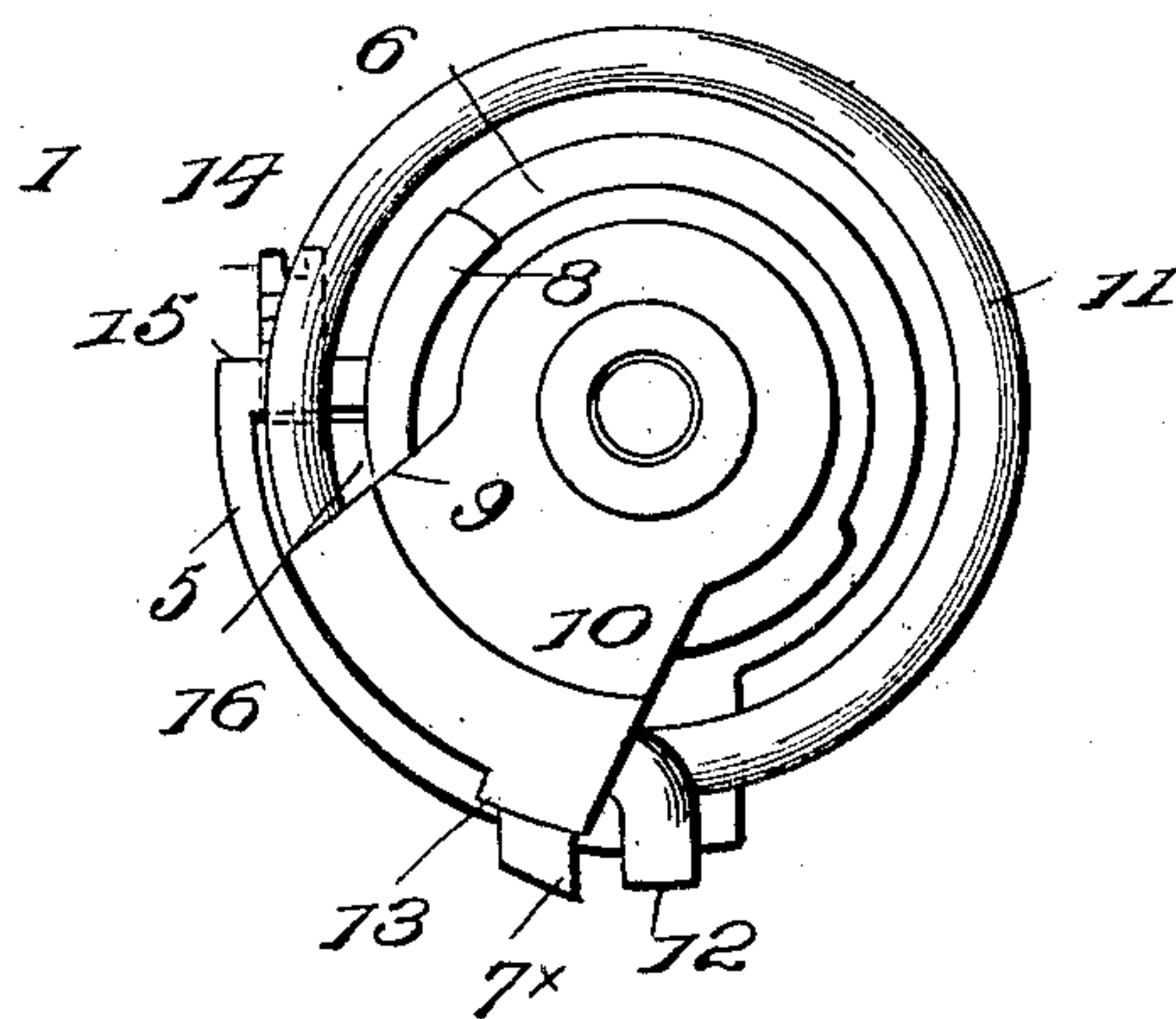


Fig. 3.



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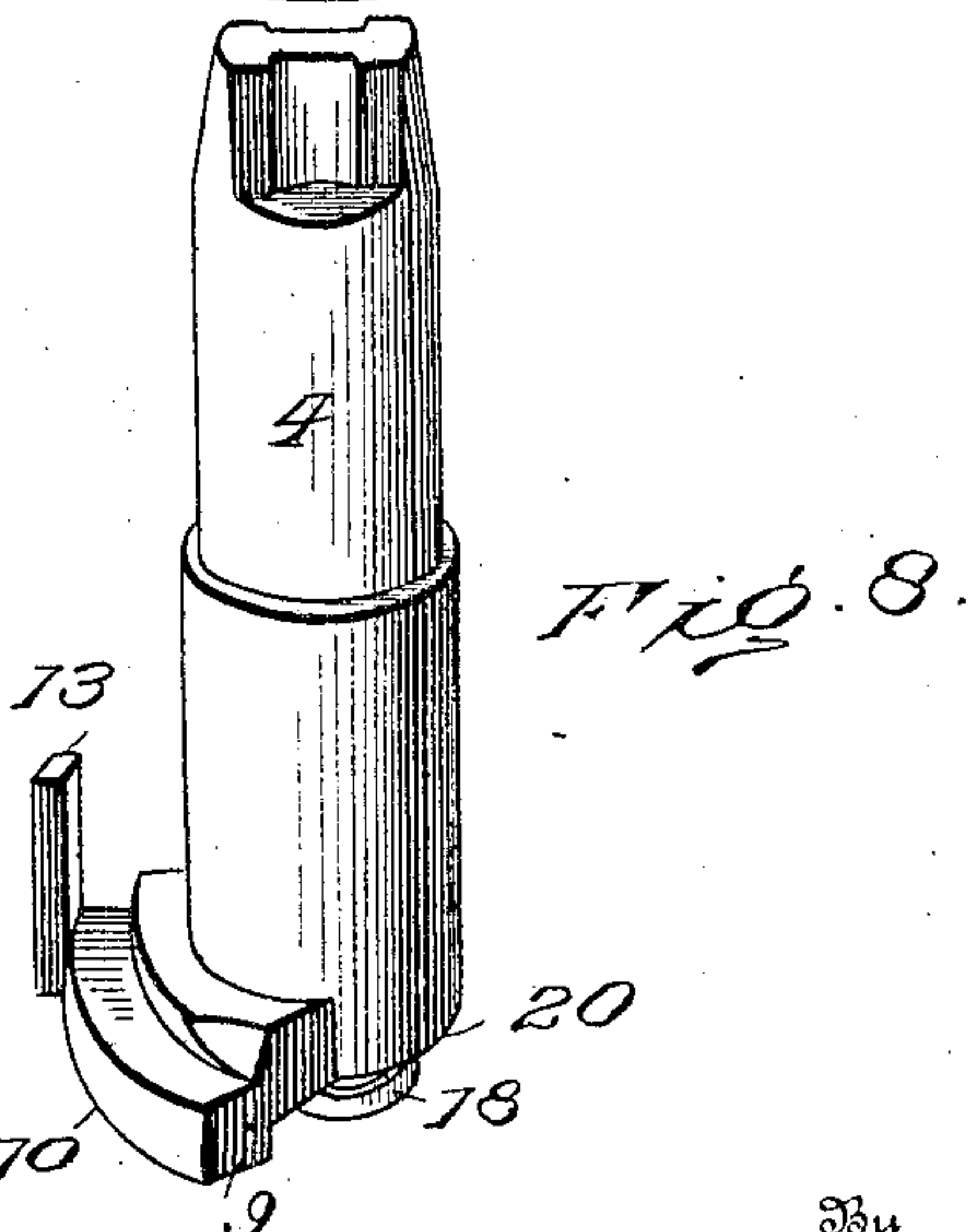
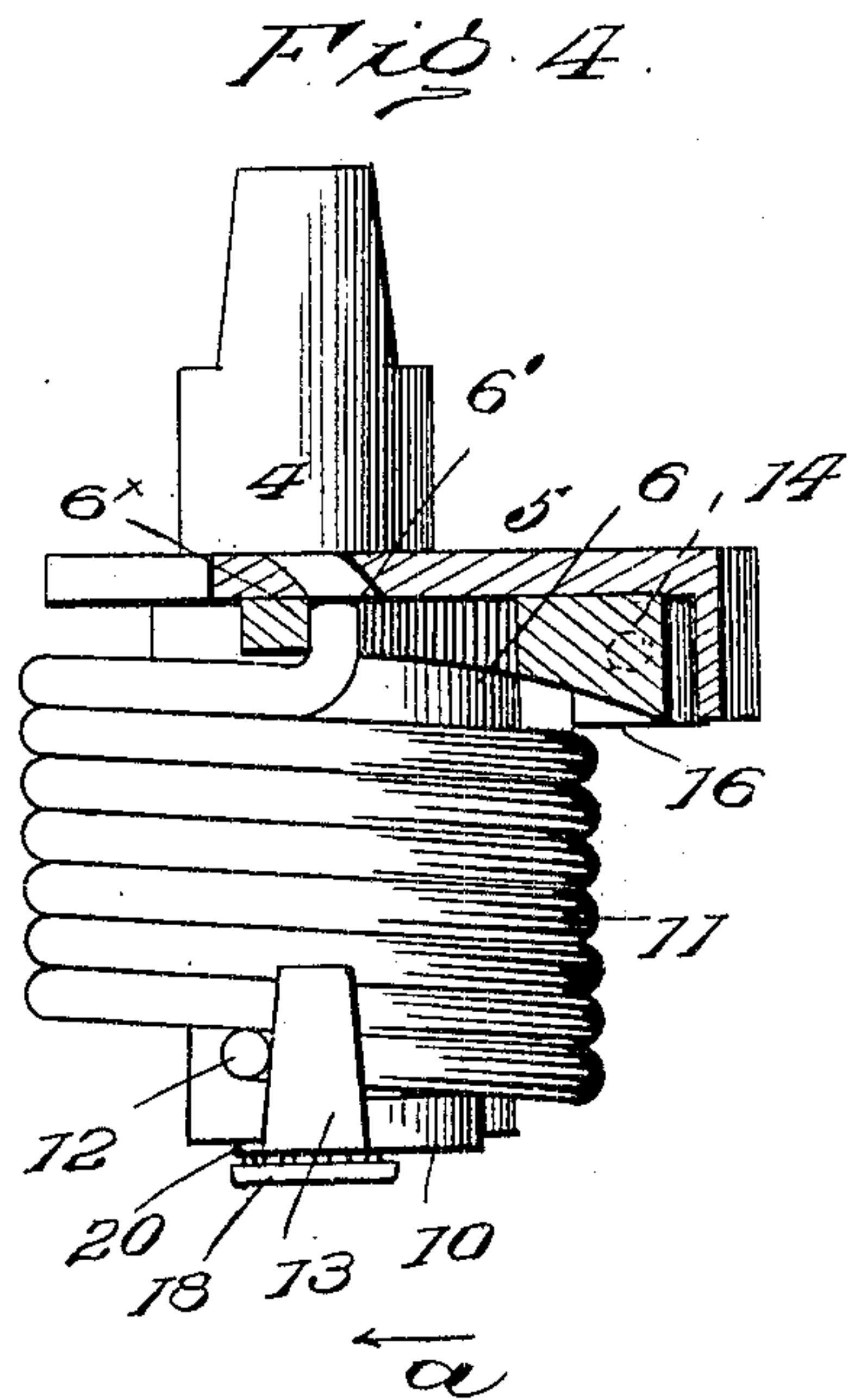
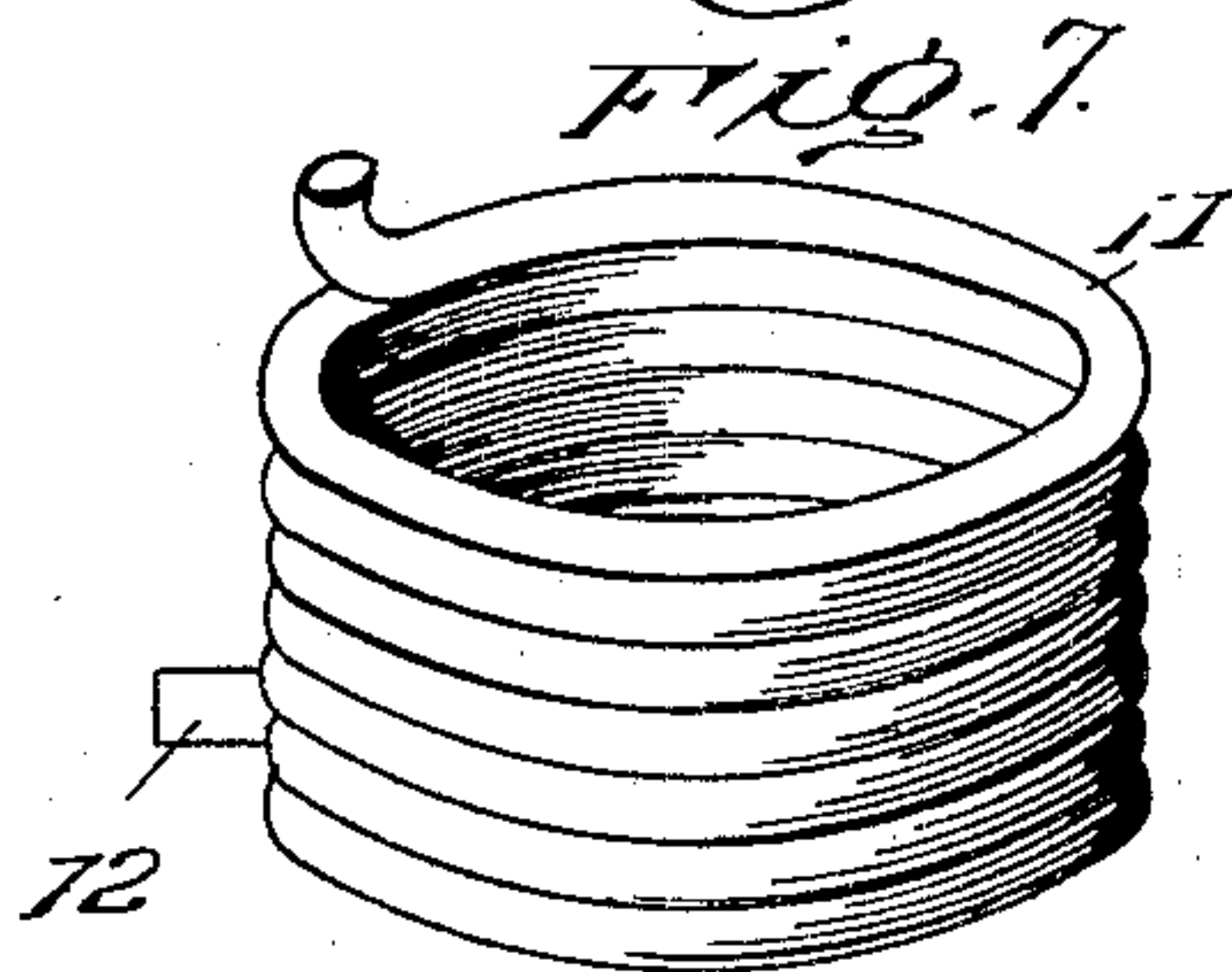
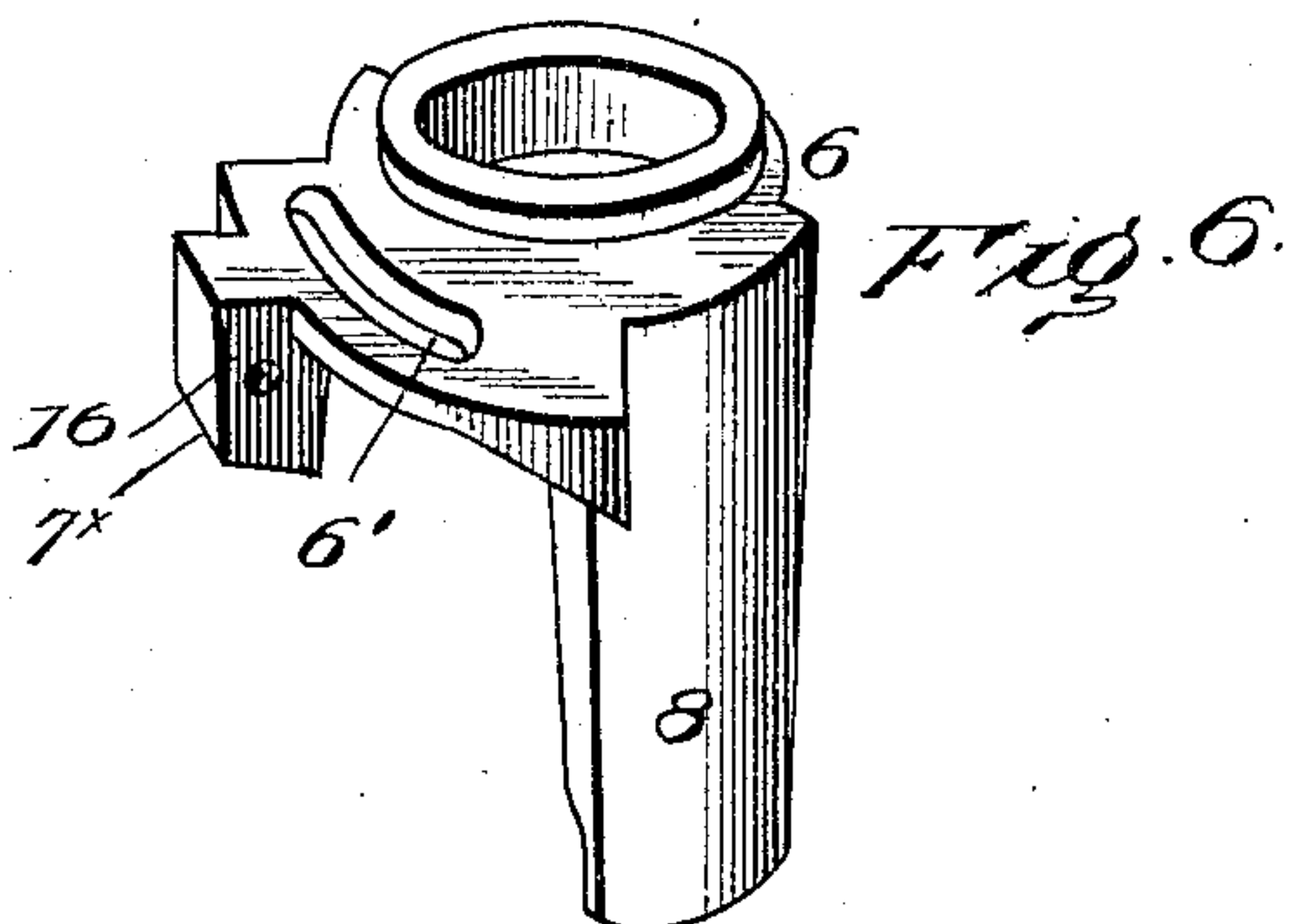
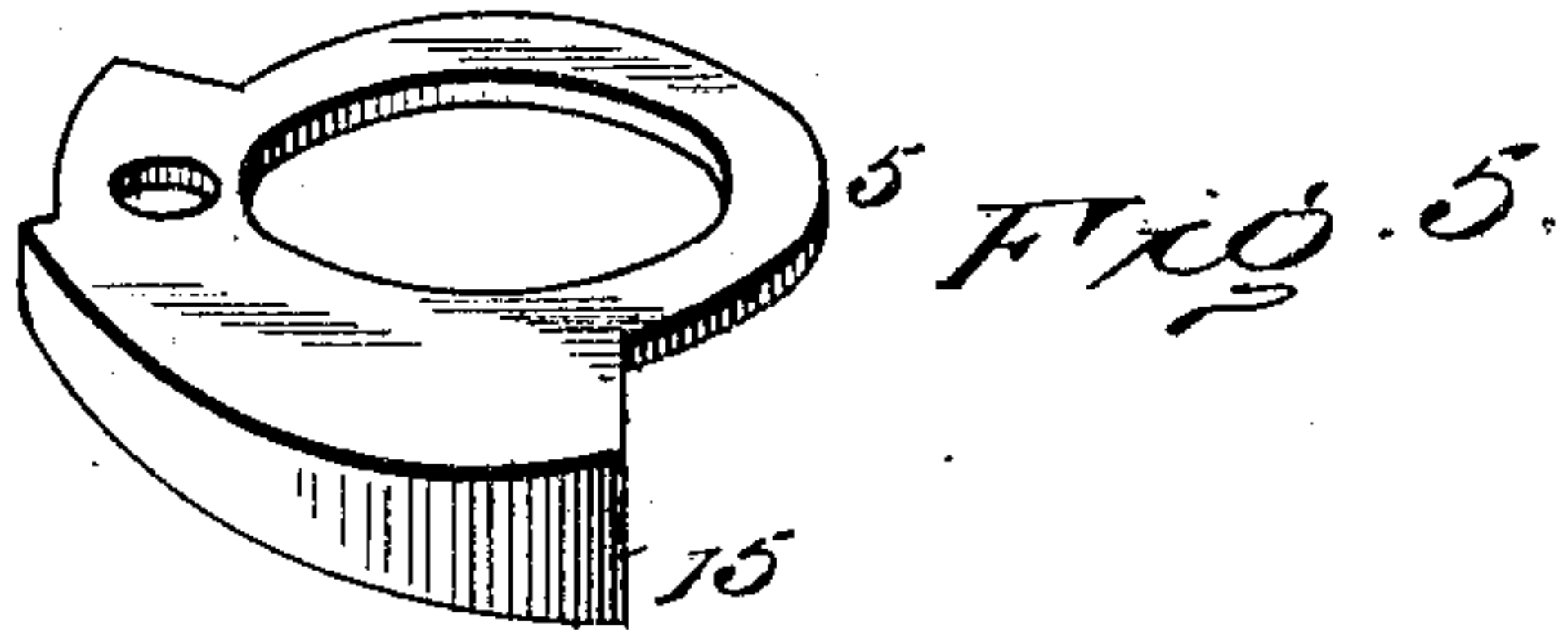
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

CHARLES H. OCUMPAUGH, OF ROCHESTER, NEW YORK.

DOOR-CONTROLLING DEVICE.

No. 870,640.

Specification of Letters Patent.

Patented Nov. 12, 1907.

Application filed January 22, 1906. Serial No. 297,229.

To all whom it may concern:

Be it known that I, CHARLES H. OCUMPAUGH, a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and
5 useful Improvements in Door-Controlling Devices; 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 pertains to make and use the same.

10 The invention relates to door closing hinges of the class placed in the floor or at the bottom of the door.

Heretofore in the adjustment of the tension of the spring used in this class of hinges it has been necessary either to remove the spring from the casing, or to re-
15 move a casing cover, and to employ a special tool, the tension of the spring attained by the use of such tool requiring the manipulation and use of a spring-holding pin. Further, in ball bearings such as now employed the wear of the parts incident to use under the weight
20 of a door finally renders the balls inoperative. The construction has also been such that the removal of the pintle for any purpose permitted the balls to drop and their replacement in relation to their bearings has been a matter of difficulty for the inexpert.

25 The invention has for its objects to facilitate the adjustment of the hinge spring, and to enable this to be done without the removal of any part of the hinge construction, or the use of a locking pin, or the use of any but an ordinary carpenter's tool or the like; also
30 to increase the durability of parts comprised in the ball bearing of the hinge pintle; and to provide against dispersion or loss of the balls in case the hinge is removed for examination, repair or readjustment, and thus avoid consequent annoyance or difficulty in
35 assembling the balls and other parts for use, and to secure other advantages.

The invention consists in the construction herein-after described and pointed out.

In the accompanying drawing forming part of this
40 specification,—Figure 1 is a vertical central section of the improved hinge; Fig. 2 is a plan view of the same with the casing covers removed; Fig. 3 is a bottom plan of the mechanism removed from its casing; Fig. 4 is a side elevation of said mechanism; Figs. 5, 6, 7
45 and 8 are perspectives of mechanical details.

Numeral 1 denotes a casing adapted to be secured to a floor. It has at its upper end removable exterior and interior covers 2 and 3, each of which has a hole to receive the upper end of the pintle 4 as shown.
50 The pintle has its upper end angular in cross section to engage a fixture on the door in a well known manner.

5 and 6 are two sleeves or short rings surrounding the pintle, the latter sleeve being contiguous to the pintle and between it and sleeve 5.

55 The sleeve 5, best shown in Fig. 3, is provided with an offset having a flange depending below the main

body of the ring and said flange has a face 15 disposed in a plane approximately radial to said ring.

The sleeve 6 has an offset 6^x provided with a slot 6' and a depending lug 7^x. Said offset has a face 16
60 arranged in a plane approximately parallel to the face 15 as indicated in Figs. 2 and 3. These faces are shown in proximity and from the underside in Fig. 3, these parts and also the stop 7^x being in planes remote from offset 10 and spring-end 12 in said figure. 65

7 denotes a stop fixed on the interior of the casing to coöperate with said lug 7^x fixed on the sleeve 6 to limit its rotation in one direction. The upper or main part of this sleeve is short or ring-like and has an extension 8, the foot of which is adapted to be engaged
70 by a shoulder 9 fixed on an offset 10 of the spindle, such engagement being shown in Fig. 3.

11 denotes a double acting spring one end of which is situated in a slot 6', and engaged with sleeve 5 adjacent the lug 7^x, a hole being provided in the sleeve
75 offset for the purpose. The opposite end of the spring is bent at 12 whereby it is adapted for engagement at times with part 13 of the spindle offset 10 and at other times with casing stop 7, said part 13 rising above the offset and at its end opposite shoulder 9. These
80 parts are shown in Fig. 8 and the spring end 12 is shown in proximity to part 13 in the bottom view Fig. 3. The spring end 12 extends outside the post far enough to engage the casing stop 7 on its side opposite that adapted to be engaged by the upper end of the spring through the
85 medium of sleeve 6 and its lug 6^x. The construction is such that the spring is put under tension by the opening of the door in either direction, the tension being sufficient for closing the door when free to swing, substantially as indicated in my application No. 90
227,765, filed Oct. 10, 1904.

Referring to Figs. 2 and 4, if the pintle be turned in the direction of arrow *a* the upper end of the spring is held by its engagement with the sleeve 5 adjacent slot 6' of sleeve 6, and the sleeve 6 is held by the engagement
95 of lug 7^x with a stop 7 of the casing, while the lower end of the spring is oppositely moved by part 13 with the effect to put the spring under tension. If the pintle be turned oppositely to the direction indicated by the arrow *a*, the spring end 12 will be held by stop 7 of the casing and tension produced by movement of its upper end caused by the rotation of the pintle. For this purpose the upper end of the spring is adapted to be engaged by sleeve 6 at the end of its slot 6'. Said sleeve
105 6 is turned by the pintle-post or part 13 moved against the pendent extension 8 of said sleeve 6 thereby turning the sleeve and moving the upper end of the spring as soon as the slot end bears on it as represented in Fig. 4. If the situation of the spring end in slot 6' as shown in said figure is changed by the adjusting device 14 to
110 move the bearing end of the slot away from the spring a greater movement of the pintle will be necessary be-

fore the tension begins and the amount of the tension produced will be thereby varied.

To adjust the circumferential relation of the sleeves 5 and 6 and thereby regulate or adjust the tension of the spring without removing it or removing the casing, an adjusting screw 14 is provided. This is accessible through an opening in the casing situated below the covers 2 and 3 and below the contiguous flange of the casing and screws through the face 15 of sleeve 5 and bears against a part 16 of the sleeve 6 situated within flange 15 (see Fig. 2) whereby the distance between their faces which are practically parallel can be adjusted and the relative situation of the sleeves changed with the effect to vary the spring tension as stated. The slot 6' through which the spring passes to engage sleeve 5 permits such adjustment.

Since the opening 17 is entirely below the casing flange which receives covers 2 and 3 the screw 14 is always accessible when the parts of the device are assembled ready for being secured to a floor or the like, and also accessible after being placed in position provided the floor supports, or other parts of a floor or the like do not obstruct. To provide that this may be effected without detaching or uncovering the casing there is an opening 17 to admit a screw driver or the like and the parts are so constructed and arranged that the opening and the screw will be adjacent each other and the screw accessible when the device is in normal situation.

To avoid the evil effects of wear on the ball bearings and adjacent parts at the foot of the pintle, which are usually made respectively of malleable and gray iron, the ball raceways 18 are made of hard steel. They are secured on the foot of pintle 4 below a shoulder 20 by means of a screw, rivet or upset head 21, suitable balls having been interposed between the raceways as shown. Either the screw or the bearing 23 will hold the raceways up against shoulder 20. And ordinarily friction will hold the raceways on the pintle if removed from the casing, though the screw would act with greater certainty. This construction prevents scattering or loss of balls when the pintle is removed from the casing.

22 is a seat or socket in the casing which receives the pintle foot and ball bearing device, and 23 is a bearing

therein for the lower ball raceway. In use friction will hold the lower raceway stationary.

As thus constructed the pintle, spring, ball bearings and balls can be placed in or removed from the casing as a unit, and the spring tension can be adjusted either in the casing or out of it without freeing the balls thus obviating the necessity of a skilled operator either in the spring adjustment or in the assemblage of the balls and other parts. This adjustment can also be effected without changing the normal situation of any of the parts.

Having thus described the invention what I claim is,—

1. In a floor hinge, a casing, sleeves, a spring connecting the sleeves, and a spring-tension-adjusting-device forming part of the permanent structure, said device maintaining the tension produced thereby.

2. In a floor hinge, a casing, a pintle, a sleeve on the pintle, a spring-carrying sleeve on the first named sleeve, a spring connecting the sleeves, and means for adjusting the normal situation of the sleeves to vary the tension of the spring said means consisting of a screw operatively engaged with one sleeve and bearing on the other.

3. In a floor hinge, a casing having a cover-receiving flange surrounding its open top, a detachable casing cover on the flange, a pintle, a sleeve on the pintle, a spring-carrying sleeve on said first named sleeve, a spring connecting the sleeves, and means for adjusting the relative circumferential situation of the sleeves to vary the tension of the spring, said casing having an opening in its side and below its covers and said flange to permit said adjustment.

4. In a floor hinge, a casing, a detachable spring-controlled rotatable pintle having a reduced portion, ball raceways mounted thereon, balls in said raceways, and separable means distinct from the casing for holding the raceways against longitudinal movement on the pintle.

5. In a floor hinge, a casing, a detachable spring-controlled rotatable pintle having a reduced portion, ball raceways mounted thereon, balls in said raceways, and separable means distinct from the casing for holding the raceways against longitudinal movement on the pintle, said casing having a socket or seat, and a bearing therein for the lower raceway, and also a recess for the raceway-holding means.

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

CHARLES H. OCUMPAUGH.

Witnesses:

A. M. ZIMMER,

A. M. GREENWOOD.