

No. 661,478.

Patented Nov. 6 1900.

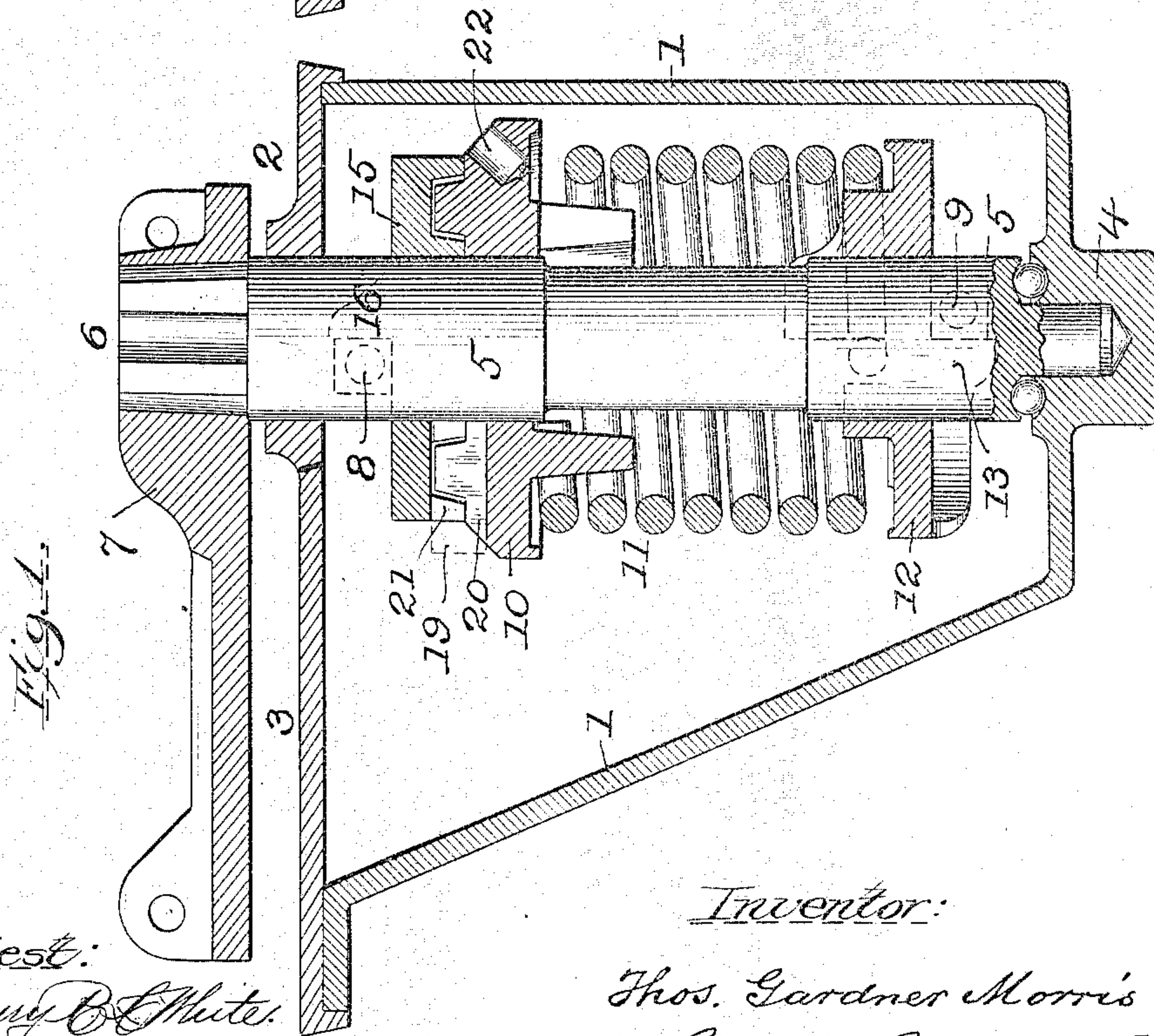
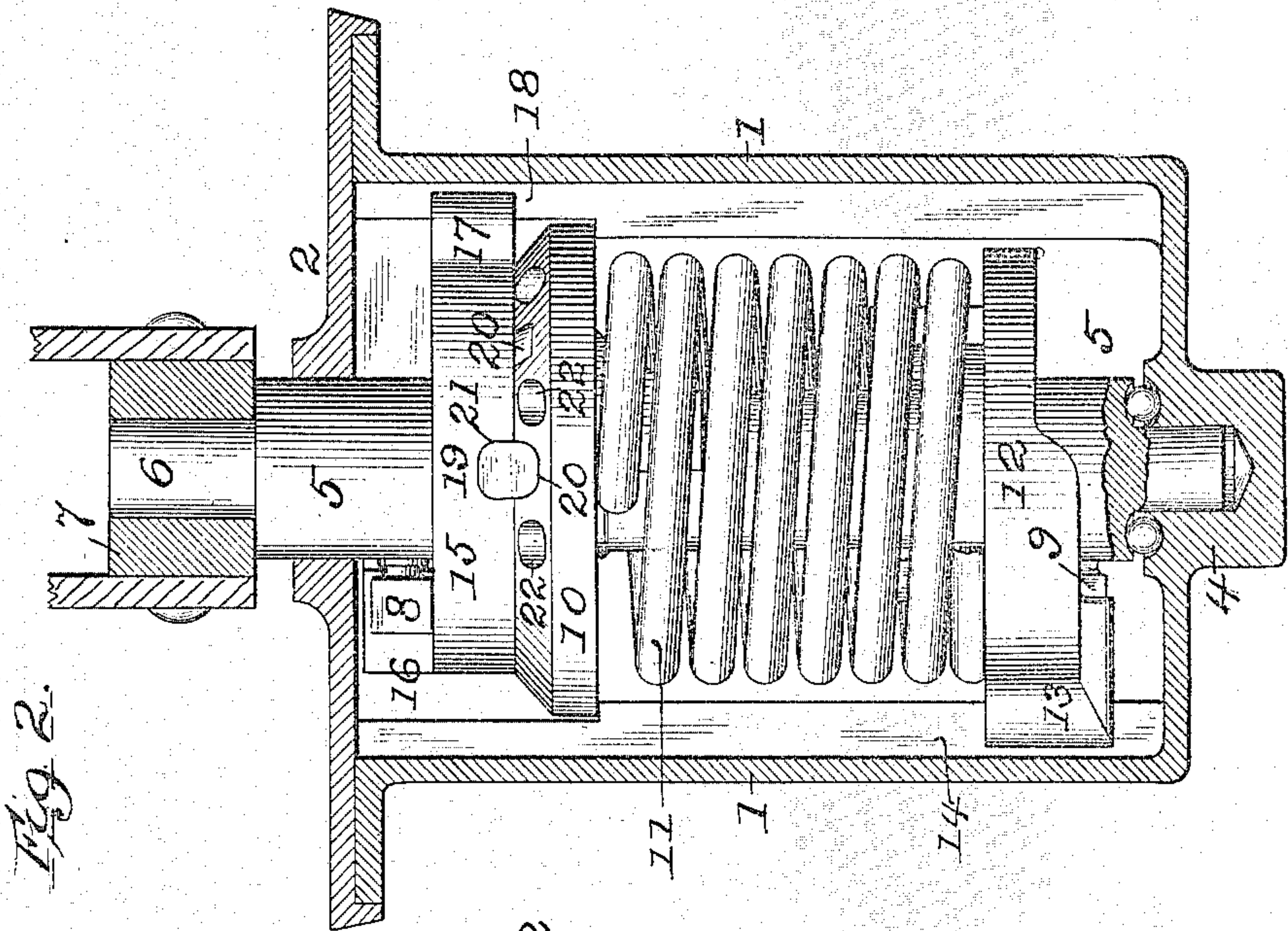
T. G. MORRIS.

SPRING HINGE.

(Application filed May 29, 1899.)

(No Model.)

2 Sheets—Sheet 1.



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2 Sheets—Sheet 2.

Fig. 4.

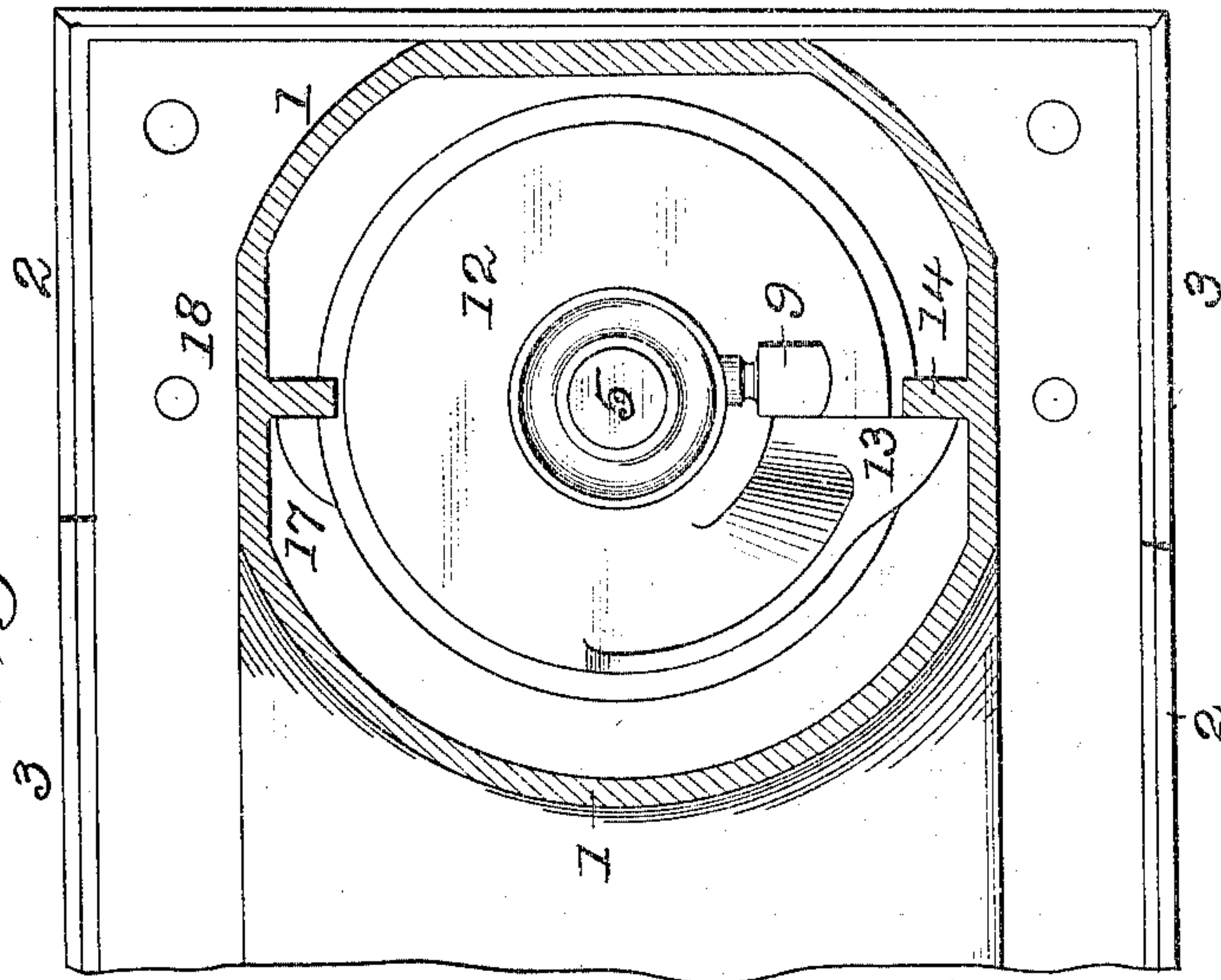
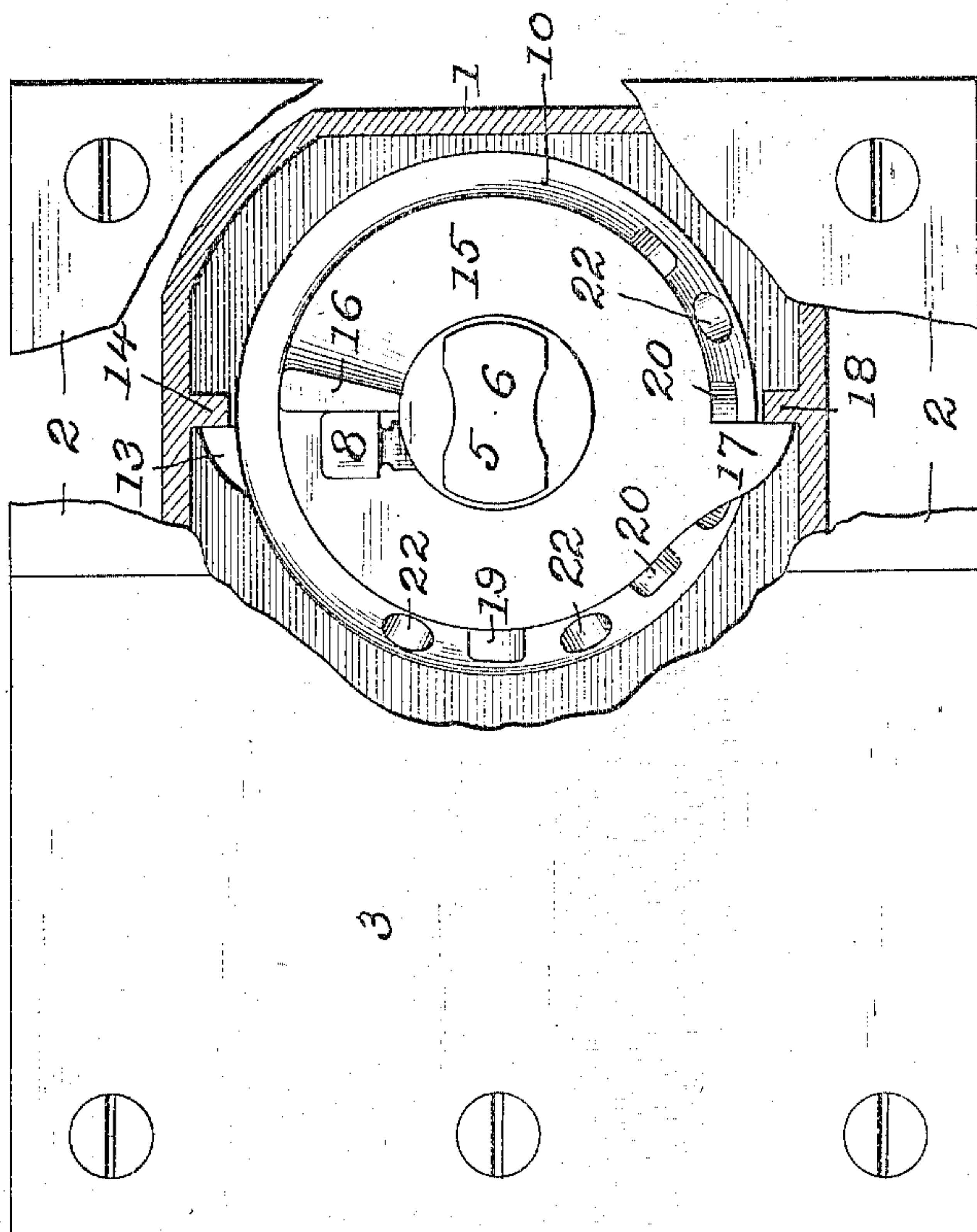


Fig. 5.



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UNITED STATES PATENT OFFICE.

THOMAS GARDNER MORRIS, OF CHICAGO, ILLINOIS.

SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 661,478, dated November 6, 1900.

Application filed May 29, 1899. Serial No. 718,715. (No model.)

To all whom it may concern:

Be it known that I, THOMAS GARDNER MORRIS, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Double-Acting Spring-Hinges, of which the following is a specification.

The present invention relates to that particular type of double-acting spring-hammer in which the spring mechanism is inclosed within a casing or housing which is adapted to be inserted in the floor or threshold.

The object of the present improvement is to provide a simple and effective construction and arrangement of the hinge parts and with which the tension of the spring can be changed at pleasure in an easy and convenient manner, all as will hereinafter more fully appear.

I attain such object by the construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional elevation of a spring-hinge embodying the present improvements; Fig. 2, a transverse sectional elevation of the same; Fig. 3, a top view of the same, with parts of the casing or housing broken away to show the hinge mechanism and with portions of such casing in horizontal section; Fig. 4, a bottom plan of the hinge mechanism, with the casing or housing in section.

Similar numerals of reference indicate like parts in the several views.

The present invention relates to that type of spring-hinges in which a single coiled spring surrounds the hinge-pintle and is connected thereto in such manner that the opening of the door in one direction will wind up the upper end of the spring, while the opening of the door in the opposite direction will wind up the lower end of the spring, the lower end of the spring finding a stationary abutment in the one case and the upper end of the spring a like stationary abutment in the other case.

Referring to the drawings, 1 represents the casing or housing of the hinge, formed with an open top, the margin of which is flanged, as shown, and provided with a cover portion composed of sections 2 and 3, the whole being adapted to be inserted in the floor or

threshold flush with the surface of the same. The cover-section 2 is intended to remain fixedly attached to the casing 1, so as to afford a bearing for the upper end of the hinge-pintle, while the cover-section 3 is intended to be readily removable to afford access to the mechanism of the hinge in the operation of changing the tension of the operating-spring, as will hereinafter more fully appear. At its lower end the casing 1 is provided with a step-bearing 4, preferably of the ball type, as shown, for the lower end of the hinge-pintle.

5 is the hinge-pintle, the upper end of which is formed with a non-circular extension 6, that has engagement in a similarly-formed socket in a plate 7 on the under end of the door, as usual in the present type of spring-hinges, and with upper and lower lateral lugs or stops 8 and 9, preferably in the form of removable stud-bolts, as shown.

10 is the upper spring-collar, loosely surrounding the pintle 5 and having engagement with the upper end of the coiled spring 11 in any usual manner, and 12 is the lower spring-collar, arranged in like manner upon the pintle 5 and having engagement with the lower end of the coiled operating-spring 11. This lower collar is provided with a downwardly and laterally projecting lug 13, that is adapted to contact with the lower lateral stop 9 of the pintle and with the vertical rib or stop 14 on the main casing or housing. (See more particularly Figs. 2 and 4 of the drawings.) With such construction when the hinge-pintle is turned to wind up the lower end of the operating-spring the pintle-stop 9 will engage against the lug 13 to impart motion to the lower spring-collar 12, to which the lower end of such spring is attached, and when the pintle is turned in an opposite direction to wind up the upper end of the operating-spring the lug 13 will abut against the stop 14 of the hinge-casing to afford a stationary abutment for the lower collar 12 and the lower end of the operating-spring. Movement of the collars 10, 15, and 12 toward each other is prevented by the interposed spring 11, while movement of the same away from each other is prevented by the lateral stops 8 and 9 upon the hinge-pintle 5. In this manner the parts are retained in proper relative position in use.

In the present improvement the upper spring-collar 10 constitutes an element of the means by which the tension of the operating-spring of the hinge is changed to suit the requirements of any particular use of the hinge, and to this end said collar 10 will be provided with a companion collar 15, that is formed with a stop or projection 16 to engage the upper lateral pintle-stop 8, and with a stop or projection 17 to engage the vertical rib or stop 18 of the main casing or housing.

The spring-carrying collar 10 is capable of circular adjustment independent of the companion collar 15, and the two are locked together at the required adjustment by the insertion of a locking-pin 19 into a radial recess between said collars, which is formed by one of the radial recesses 20 in the collar 10 coming in line with the single radial recess 21 in the collar 15, as illustrated in Fig. 2 of the drawings.

The circularly-adjustable collar 10 is formed with a series of radial capstan-holes 22 for the insertion of the usual capstan-rod, by which the adjustment of the said collar and of the operating-spring is effected, and in this connection a material part of the present improvement lies in the formation of said radial capstan-holes 22 in an inclined direction, as illustrated in Fig. 1, and the arrangement of said collar in a position adjacent to the cover of the main housing, so as to afford ready and convenient access to the tension-adjusting mechanism of the hinge, the cover-section 3 being adapted for ready removal to afford such convenient access to the tension-regulating mechanism.

In the present construction when the hinge-pintle is turned to wind up the upper end of the operating-spring the pintle-stop 8 will engage the lug or stop 16 to impart motion to

the upper spring-collar and to the upper end of the spring, and when the pintle is turned in an opposite direction to wind up the lower end of the operating-spring the stop or projection 17 will abut against the stop 18 of the hinge-casing to afford a stationary abutment for the upper collar and the upper end of the operating-spring.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

In a double-acting spring-hinge, the combination of a casing or housing adapted for insertion in the floor or threshold, having a wall inclined upwardly to produce an enlarged upper portion in which an adjusting-tool may be operated and provided with a cover formed in two sections, one section of which is stationary and the other of which is removable, a hinge-pintle journaled at its upper end in said stationary cover-section and at its lower end in a step-bearing at the lower part of the casing or housing, an operating-spring surrounding said pintle below the cover, devices for connecting the spring with the pintle, and means for adjusting the tension of the spring from above the casing, comprising a collar having an inclined upper surface provided with inclined capstan-recesses, whereby upon removal of the removable cover-section said collar and capstan-recesses may be readily accessible from above for adjustment of the spring tension without disturbing the location of the hinge.

Signed by me at Chicago, Illinois, this 27th day of May, 1899.

THOS. GARDNER MORRIS.

Witnesses:

ROBERT BURNS,
R. A. WHITE.