

(No Model.)

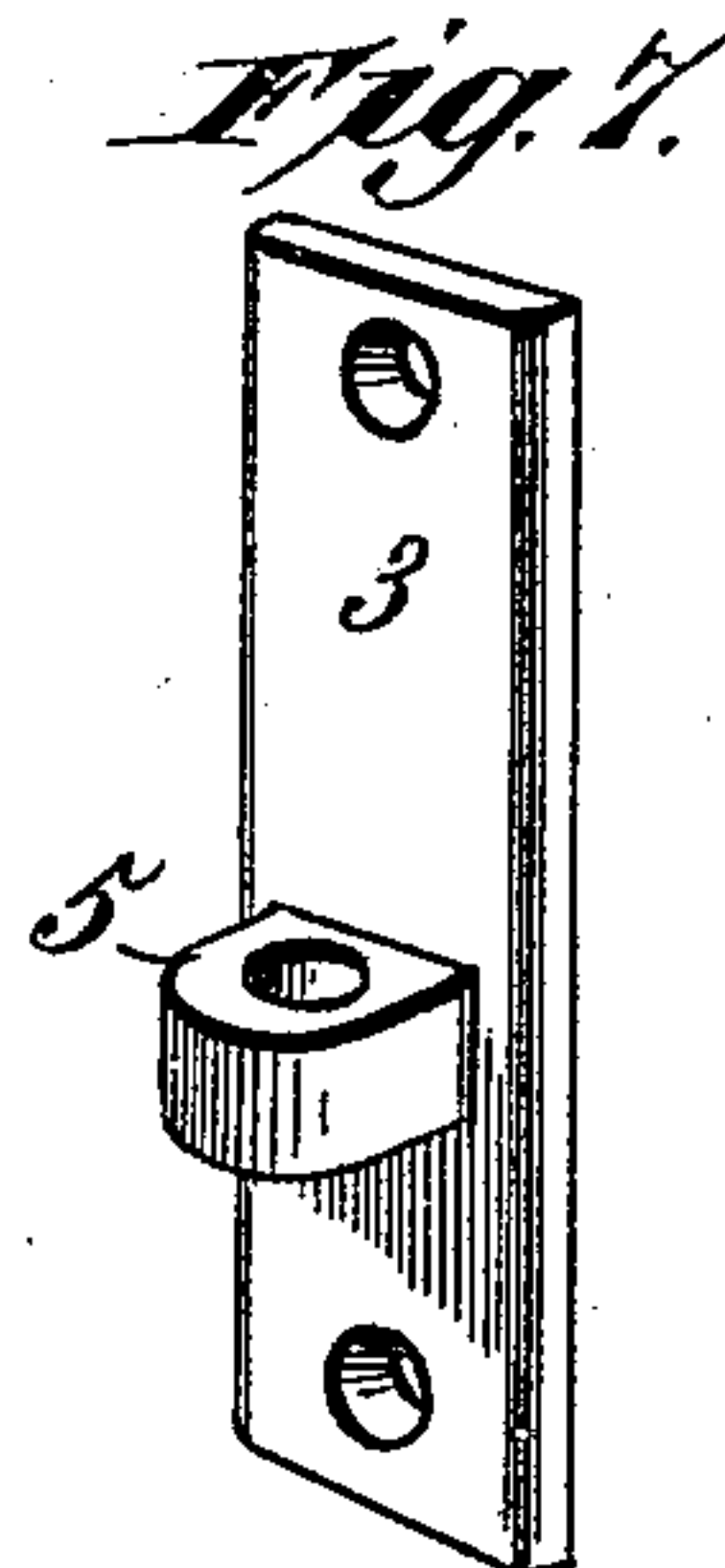
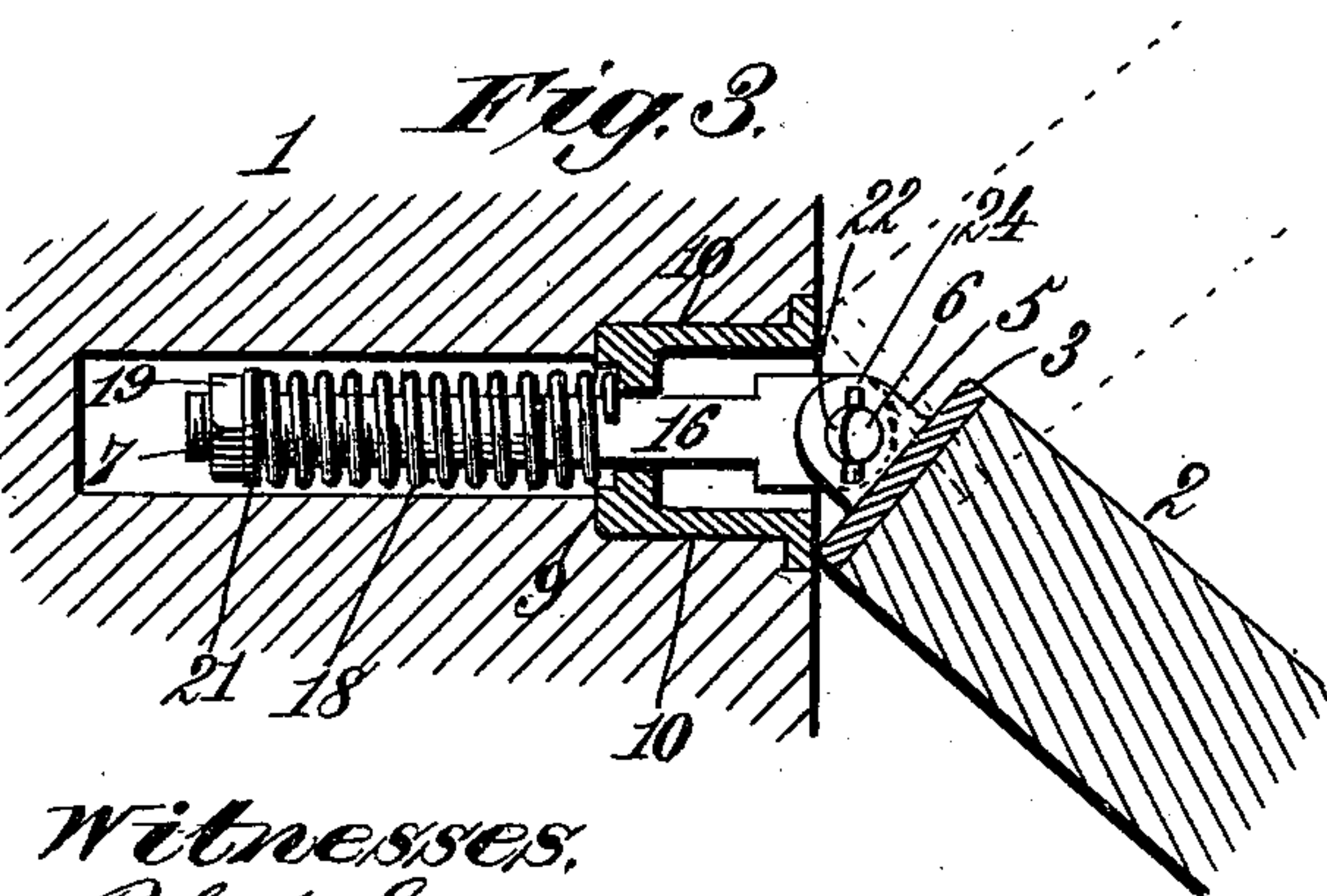
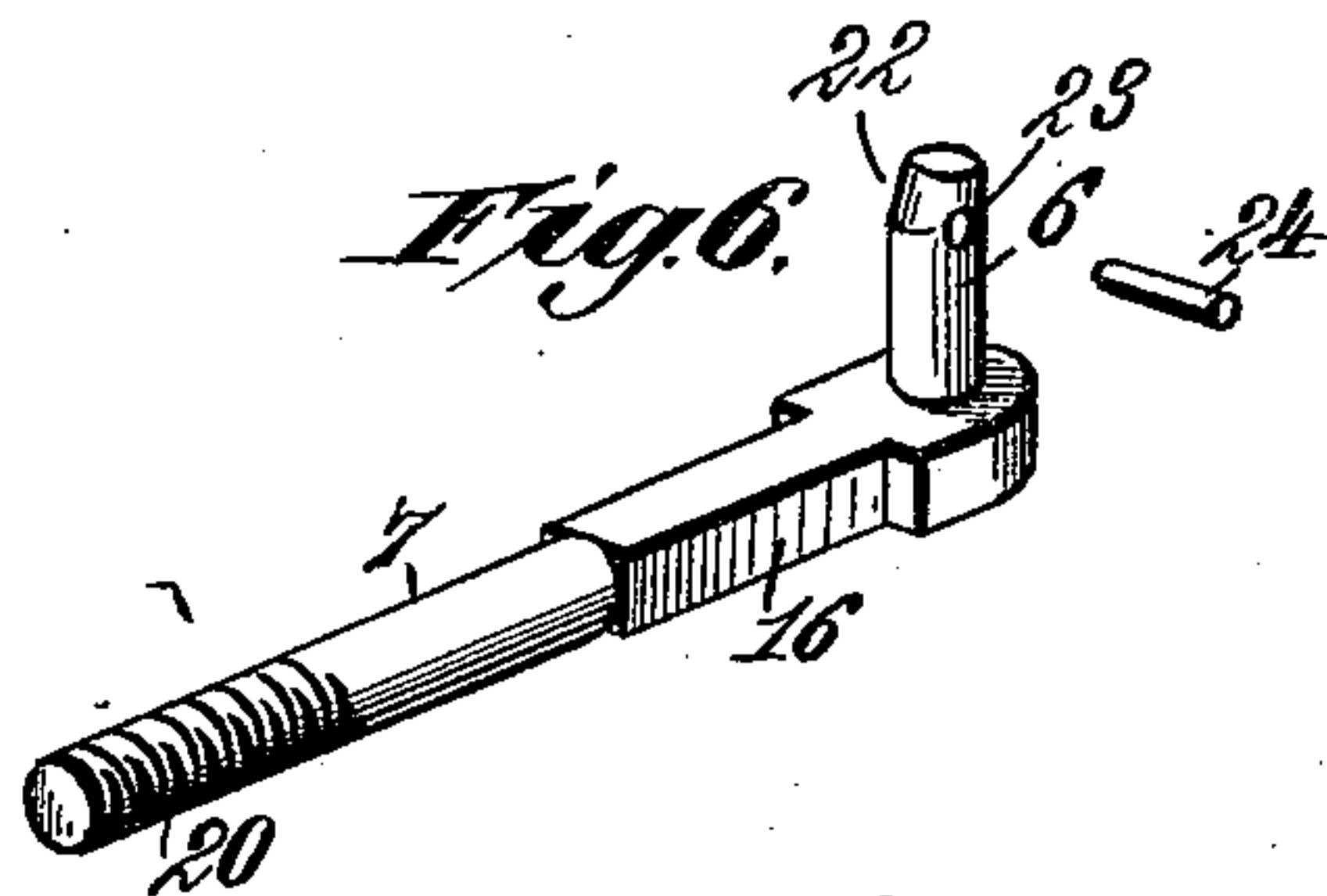
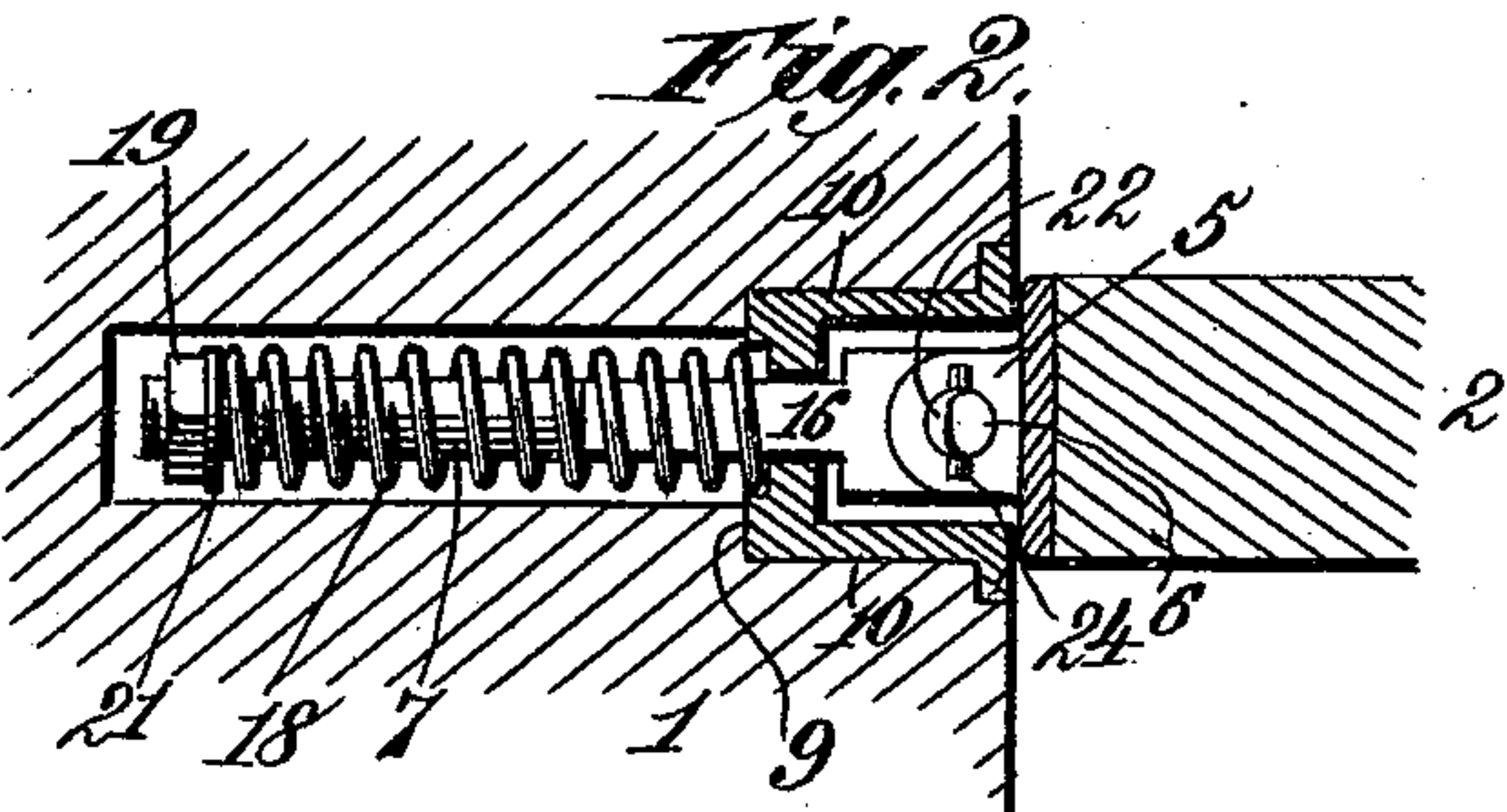
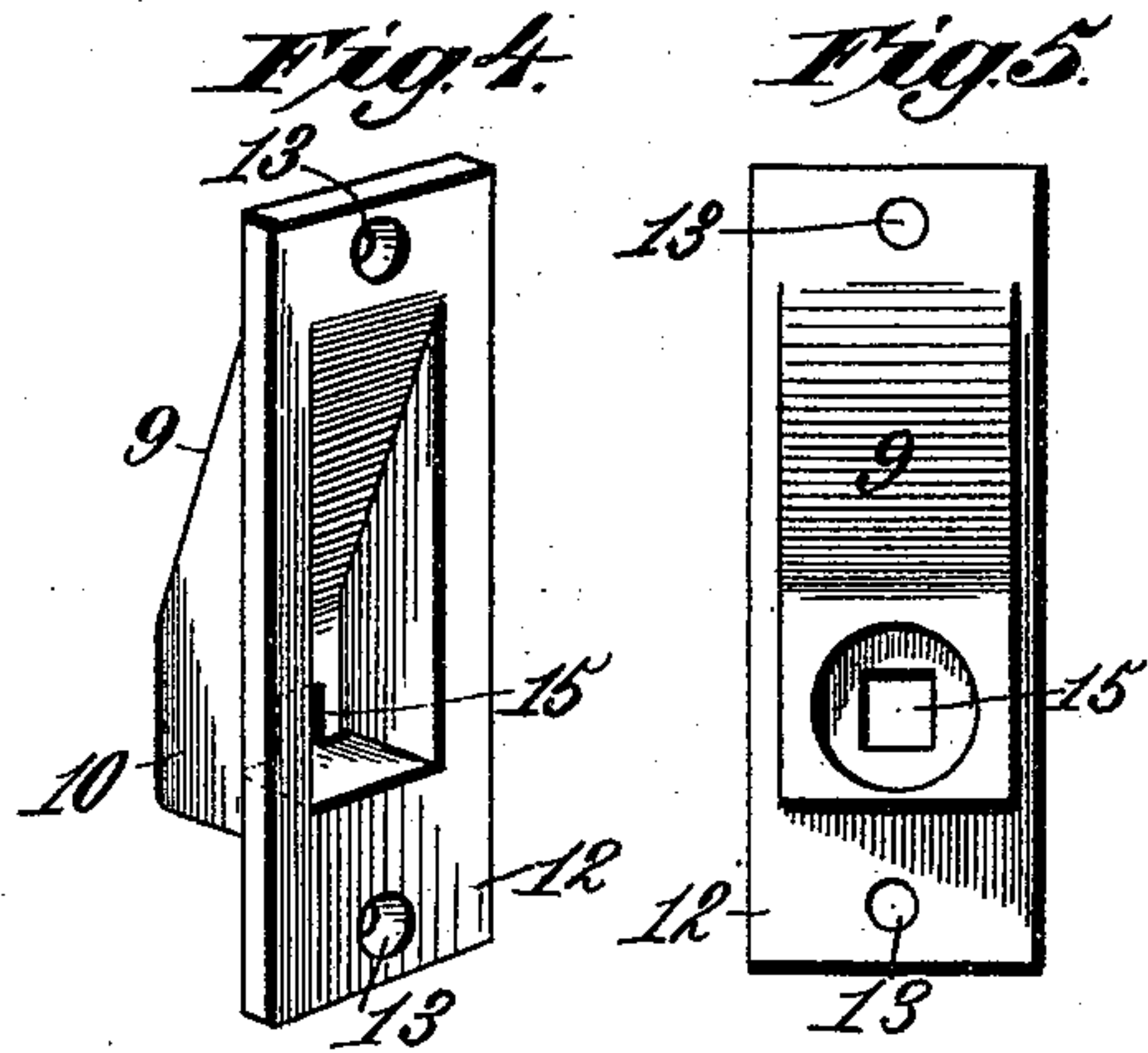
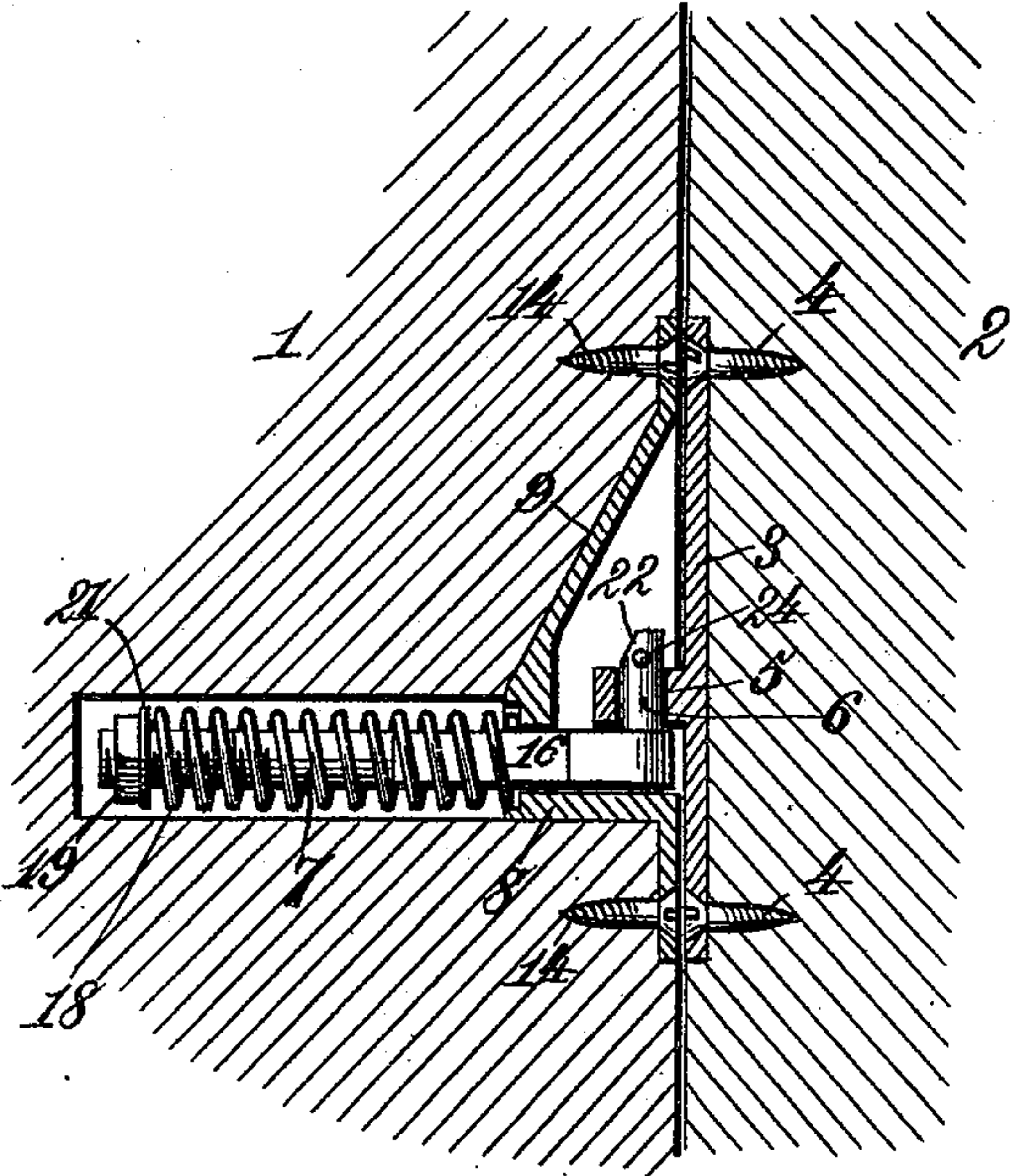
2 Sheets—Sheet 1.

E. A. LELAND.
SPRING HINGE.

No. 496,264.

Patented Apr. 25, 1893.

Fig. 1.



Witnesses,
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By *Amos L. Norris,*
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(No Model.)

2 Sheets—Sheet 2.

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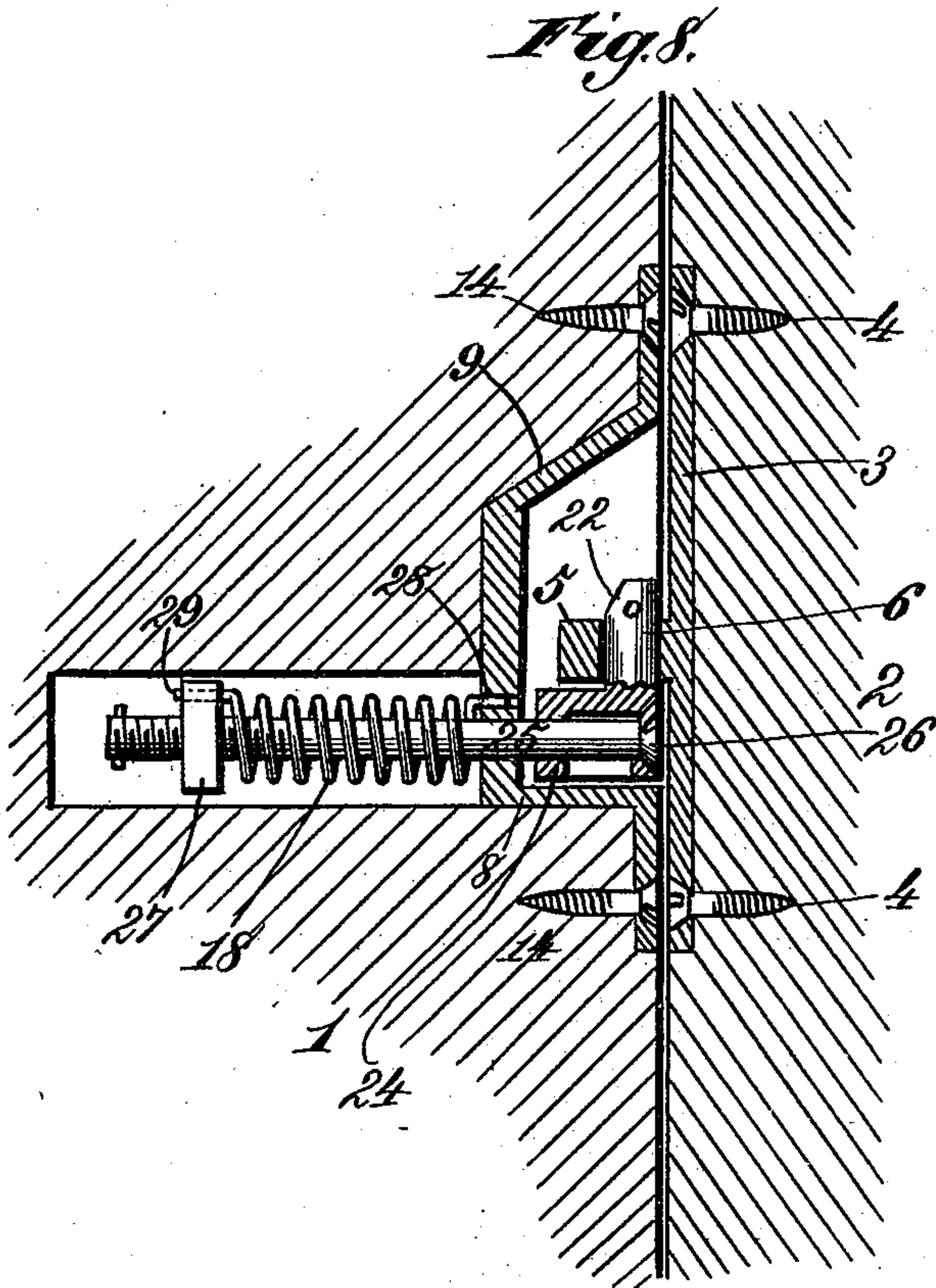


Fig. 9.

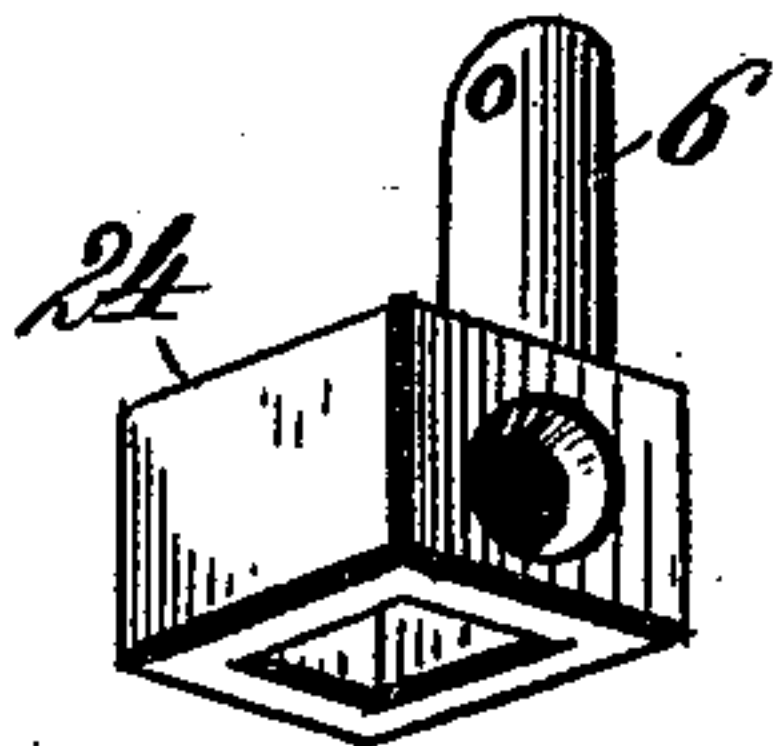
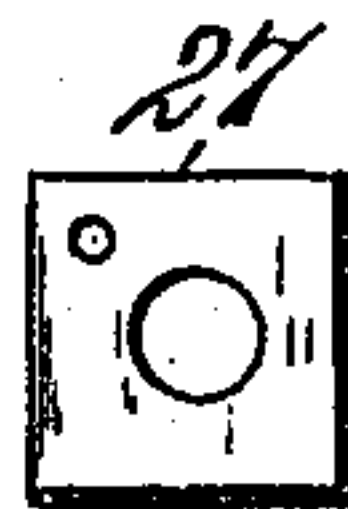


Fig. 10.



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UNITED STATES PATENT OFFICE.

EDWIN A. LELAND, OF BROOKLYN, NEW YORK, ASSIGNOR TO JOHN S. LEVIS, OF SAME PLACE.

SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 496,264, dated April 25, 1893.

Application filed August 10, 1892. Serial No. 442,691. (No model.)

To all whom it may concern:

Be it known that I, EDWIN A. LELAND, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Spring-Hinges, of which the following is a specification.

This invention has for its object to provide a novel, simple, efficient and economical double acting spring hinge for a door, whereby the latter can be quickly and conveniently removed and replaced if occasion demands.

To accomplish this object the invention consists in the features of construction and the combination or arrangement of devices hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1, is a vertical central sectional view of the improved double acting spring hinge, showing portions of a door and a door frame. Fig. 2, is a horizontal sectional view of the same. Fig. 3, is a similar view showing the parts in position when the door is swung on its hinged connection. Fig. 4, is a detail perspective view of the metallic pocket or case adapted to set in the door frame. Fig. 5, is a rear elevation of the same. Fig. 6, is a detail perspective view of the spring pressed spindle or bolt which carries the pintle on which the door is hung. Fig. 7, is a detail perspective view of the plate or bracket having an eye to engage the pintle. Fig. 8, is a vertical central sectional view showing a modification of the invention; and Figs. 9 and 10, are detail views of parts illustrated in the modified construction Fig. 8.

In order to enable those skilled in the art to make and use my invention I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a door frame, 2 a door, 3 a metallic plate or bracket secured to the inner edge of the door through the medium of screws 4, and provided with a laterally projecting eye or socket 5, adapted to engage and disengage a cylindrical pintle 6, carried by the outer end of a horizontally movable spindle or bolt 7. The edge of the door frame is constructed with a recess to receive

a metallic pocket or case which comprises a horizontal or base portion 8, an inclined rear wall 9, parallel side walls 10, and a flanged front portion 12, having screw holes 13, for the passage of screws 14, into the door frame for the purpose of securing the pocket or case in position. The rear wall of the pocket or case is constructed with a square or similar angular orifice 15, to receive the angular portion 16, of the spindle or bolt 7, so that the latter is prevented from axially turning while it can move lengthwise. The door frame is also constructed with a horizontal cavity 17, to receive the spindle or bolt and the coiled spring 18, which is coiled upon the spindle or bolt between the metallic pocket or case and a shoulder at the inner end of the spindle or bolt, which shoulder is composed of a screw nut 19, adjustable on a threaded portion 20, of the spindle or bolt and preferably acting upon a washer 21, against which bears the inner end of the spring.

The upper end of the cylindrical pintle 6 is constructed with a beveled or inclined surface 22, in such manner that when a door is to be applied, and the eye 5 of the plate 3 is placed over the upper end of the pintle, and the door permitted to descend, the eye 5 will act upon the beveled or inclined portion 22 and thus move the spindle or bolt 7 slightly in an outward direction for the purpose of placing the coiled spring 18 under an increased tension, thereby causing the door to be drawn squarely against the door frame and rendering it susceptible of being freely opened and closed without loose play between the parts which would be objectionable.

The upper end of the pintle 6 is preferably constructed with an aperture 23, to receive a key or pin 24, for the purpose of preventing vertical displacement of the eye 5, from the pintle. To apply this key or pin it is only necessary to swing the door to the position indicated by dotted or by full lines Fig. 3, which affords space by which to introduce the key or pin.

The flanged face 12 of the metallic pocket or case is sufficiently wide to afford a bearing at either side for one of the vertical edges of the plate 3, which is secured to the inner edge

of the door, so that when the latter is swung in either direction, one of the vertical edges of the plate 3 will strike the face plate of the metallic pocket or case and act as a fulcrum for the lengthwise movement of the spindle or bolt 7 in an outward direction, whereby the coiled spring is placed under increased tension and operates to automatically close the door when the latter is released.

10 In the modification Figs. 8, 9 and 10, the pintle 6 is formed integral with or otherwise provided on a hollow metallic block or section 24, through which passes a spindle or bolt 25, which, as here shown, is in the form of an ordinary metal screw having its notched head 26, adapted to receive a screw driver by which to rotate the screw for moving the nut 27 and thereby adjusting the tension of the spring 18. The spring is secured at one end to the metallic pocket or case as at 28, and at the opposite end to the screw nut as at 29, so that rotary motion of the spindle or bolt 25, will cause the nut to move longitudinally on the spindle or bolt and thus increase or diminish the tension of the spring according to the direction in which the spindle or bolt is rotated. The remaining parts exhibited by Fig. 8 are substantially the same as described with reference to Figs. 1 to 7 inclusive.

30 My invention provides a double acting spring hinge of very simplified construction which is susceptible of being economically manufactured and in practical operation is entirely satisfactory. The relative arrangement of parts is such that the door can be readily removed and replaced for obviously the door can be raised to lift the eye 5 from the pintle 6 as there is ample room in the metallic pocket of the case for this purpose.

40 By constructing the housing or casing with a chamber in which the pintle 6 normally lies, and providing the plate 3 with an eye 5 to engage the pintle, the several parts can be so applied that when the door is closed the pintle

and the eye are wholly concealed from view and consequently the improved hinge presents no objectionable projecting parts.

While I have shown in the drawings the spring 18 as spiral and mounted on the spindle or bolt, I wish it understood that the form and location of the spring may be variously modified without changing the character of my invention.

Having thus described my invention, what I claim is—

1. The combination in a double acting spring hinge, of a chambered metallic casing adapted to set in a recess in the door frame and having its rear wall provided with an orifice 15, a rigid spindle or bolt 7 acted on by a spring and slidable lengthwise through the said orifice in the rear wall of the casing and having at its outer end an upwardly projecting cylindrical pintle 6 which normally lies in the chamber of the casing, and the plate 3 having an eye 5 to engage the pintle on the spindle or bolt, substantially as described.

2. The combination in a double acting spring hinge, of a metallic plate 3 having an eye 5, a metallic pocket or case composed of the flanged face plate 12, horizontal base 8, inclined rear wall 9, and side walls 10, the rear wall containing an orifice, a lengthwise movable spring pressed spindle or bolt extending through the orifice in the pocket or case and carrying a cylindrical pintle which is formed with a beveled or inclined portion 22 at the rear side of its upper end for engagement with the eye on the plate so that the spindle or bolt is moved outward when the door is hung, substantially as described.

In testimony whereof I have hereunto set my hand and affixed my seal in presence of two subscribing witnesses.

EDWIN A. LELAND. [L. S.]

Witnesses:

N. E. WHITE,

A. H. BRADLEY.