

O. E. HALIN.
DOUBLE ACTING SPRING HINGE.

APPLICATION FILED FEB. 27, 1904.

NO MODEL.

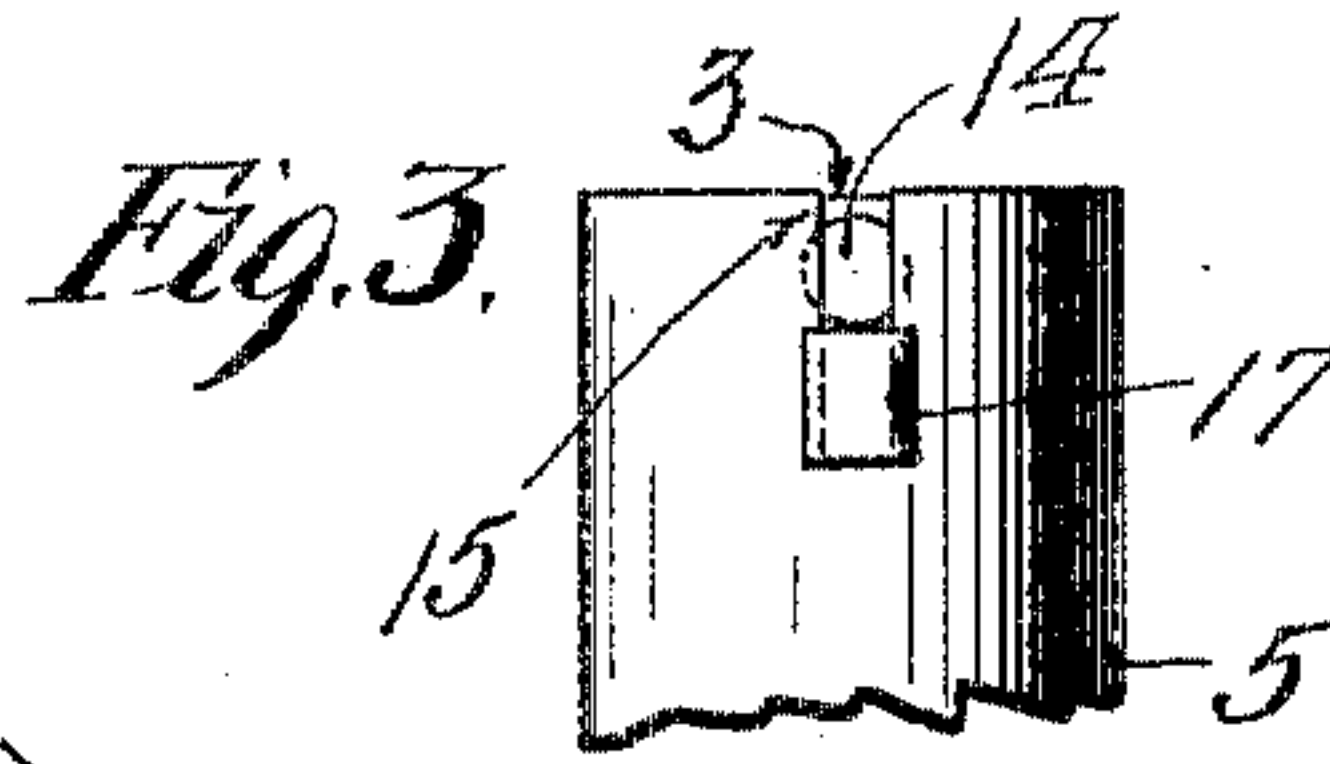
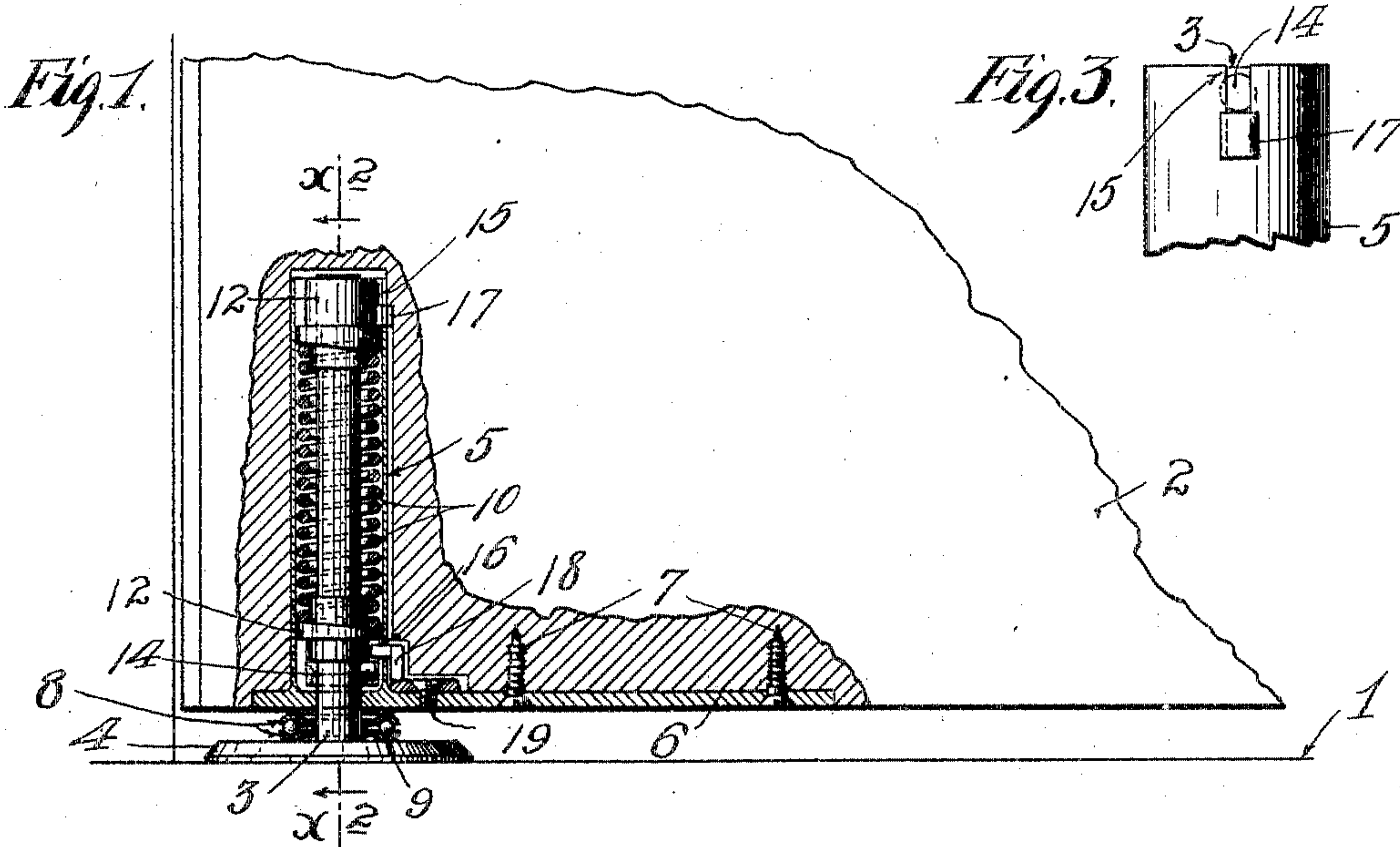


Fig. 2.

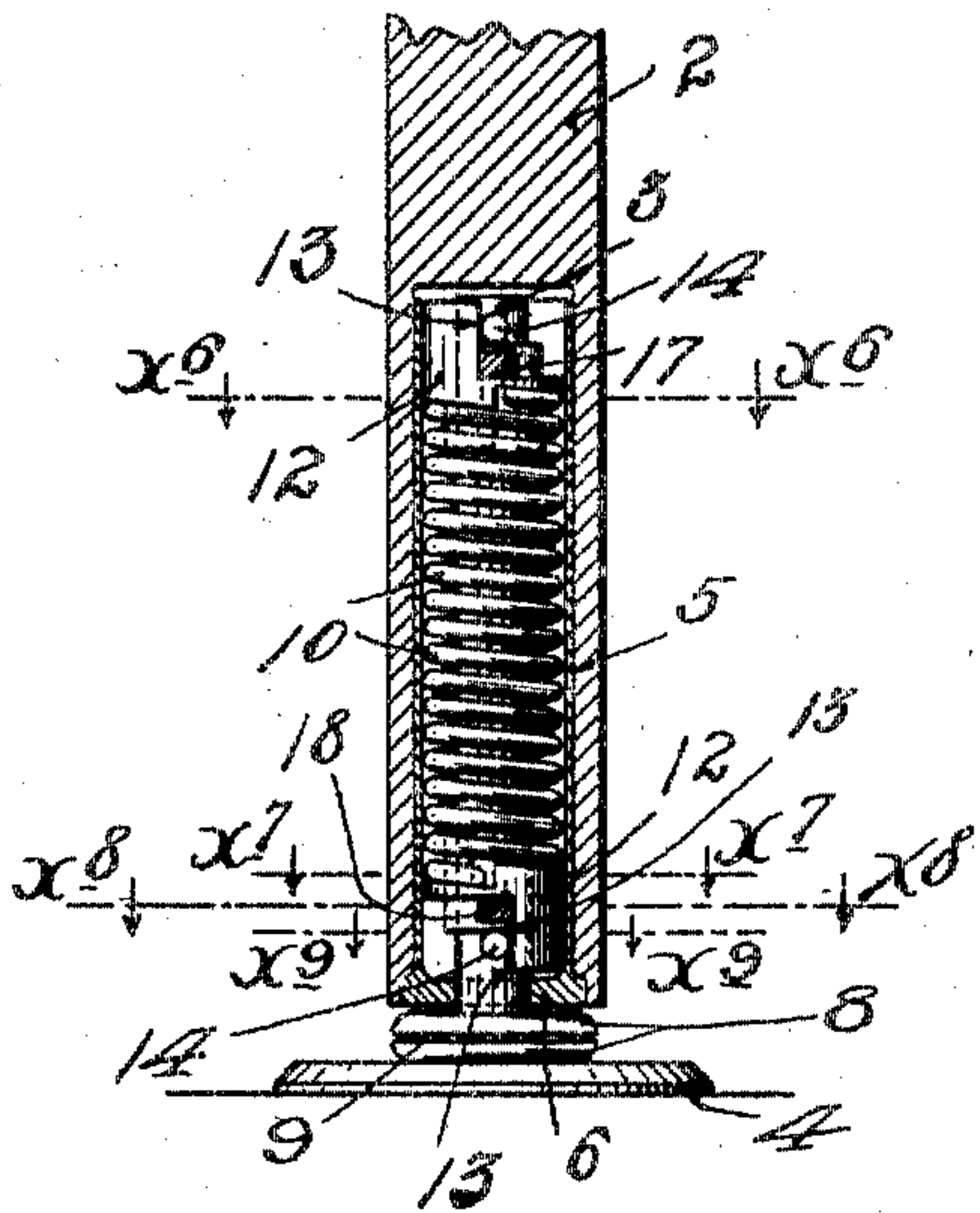


Fig. 4.

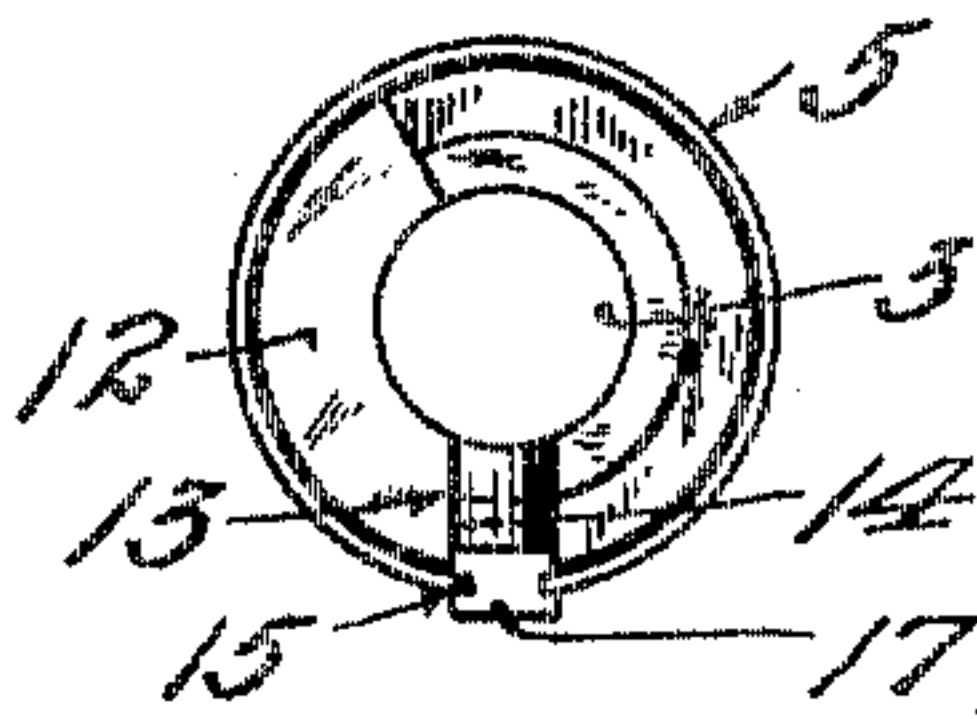


Fig. 5.

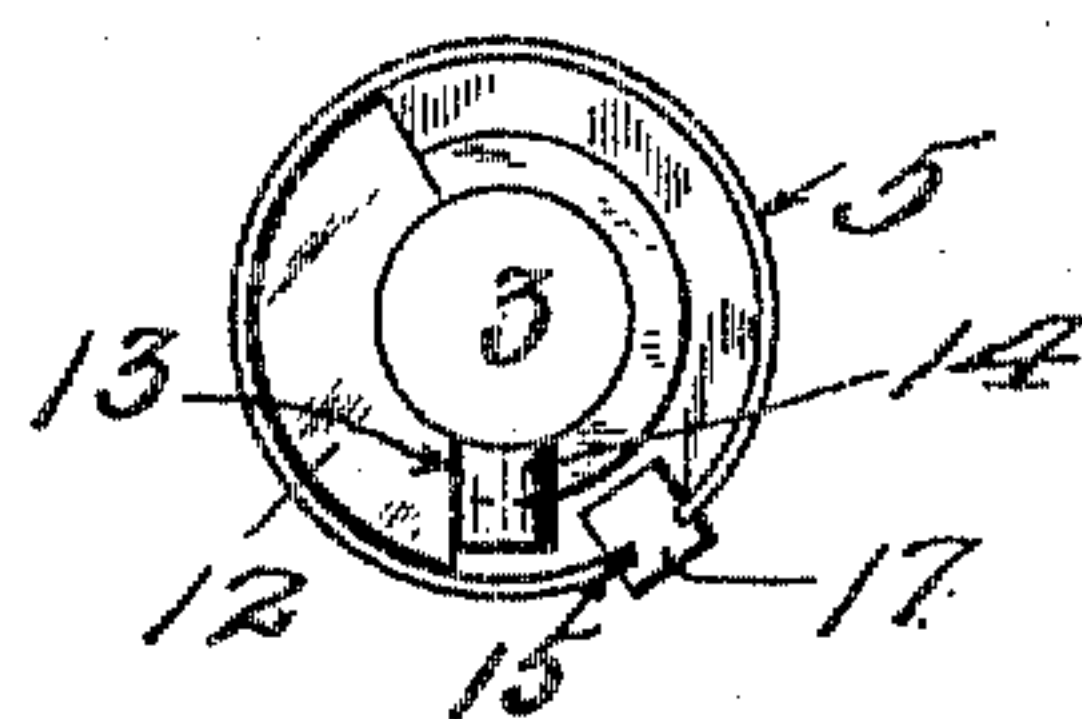


Fig. 6.

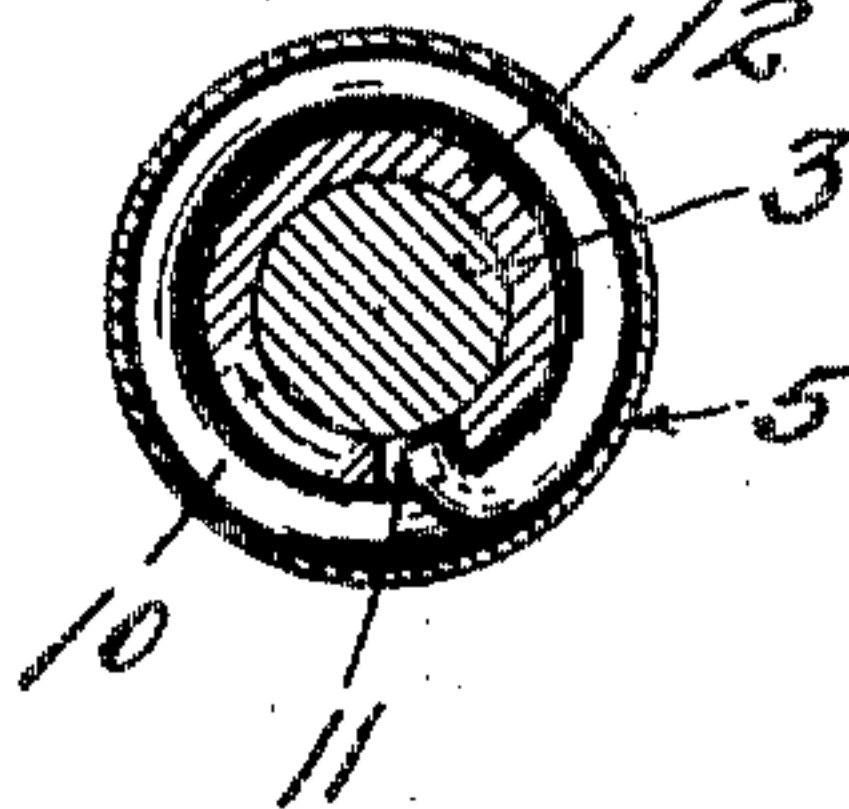


Fig. 7.

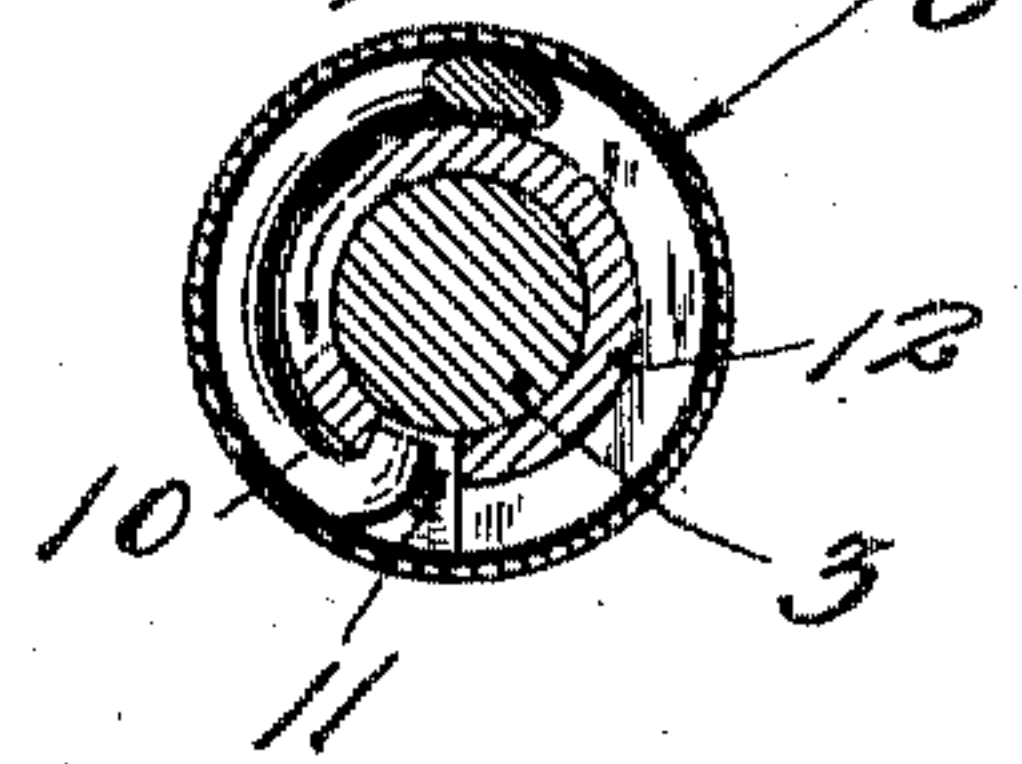


Fig. 8.

Witnesses:
H. D. Kilgore.
A. B. Opsahl.

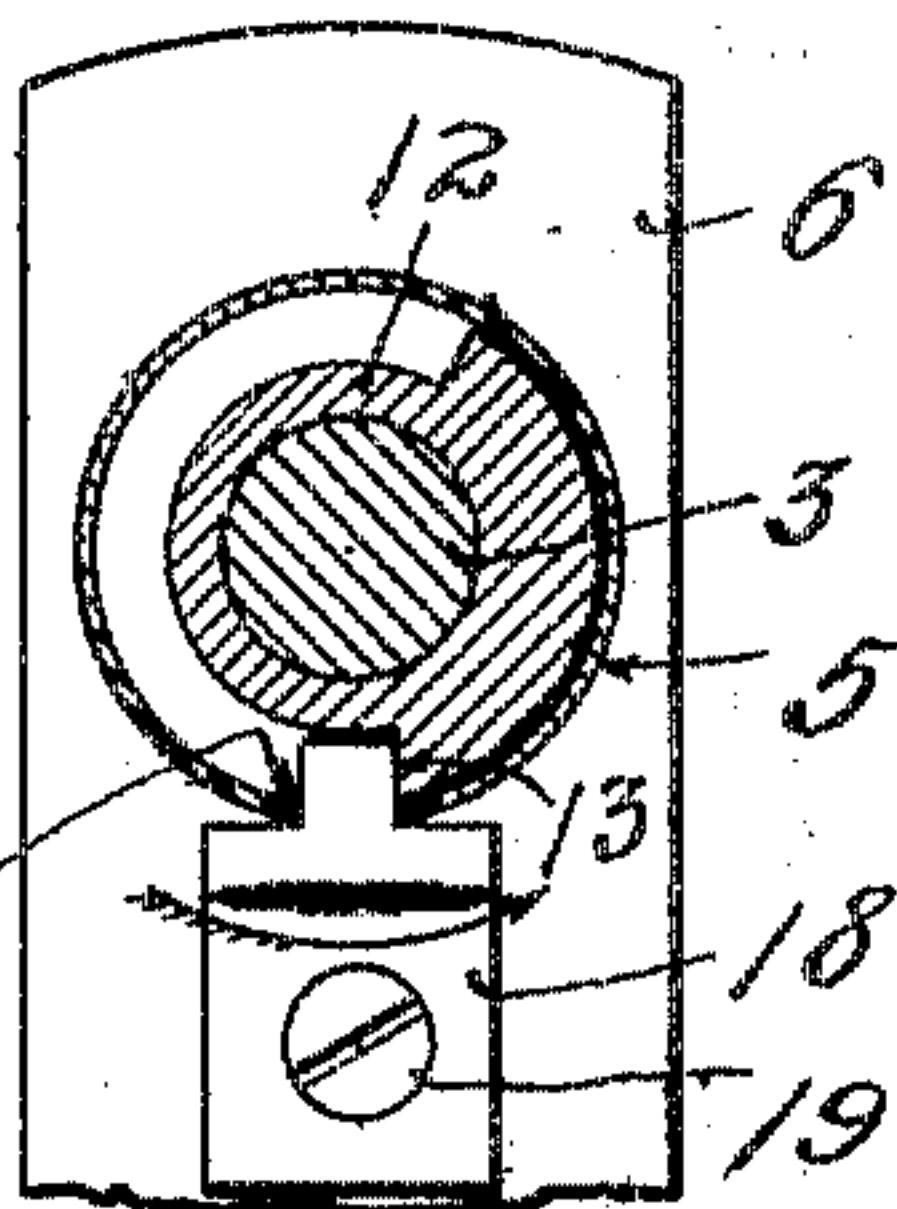


Fig. 9.

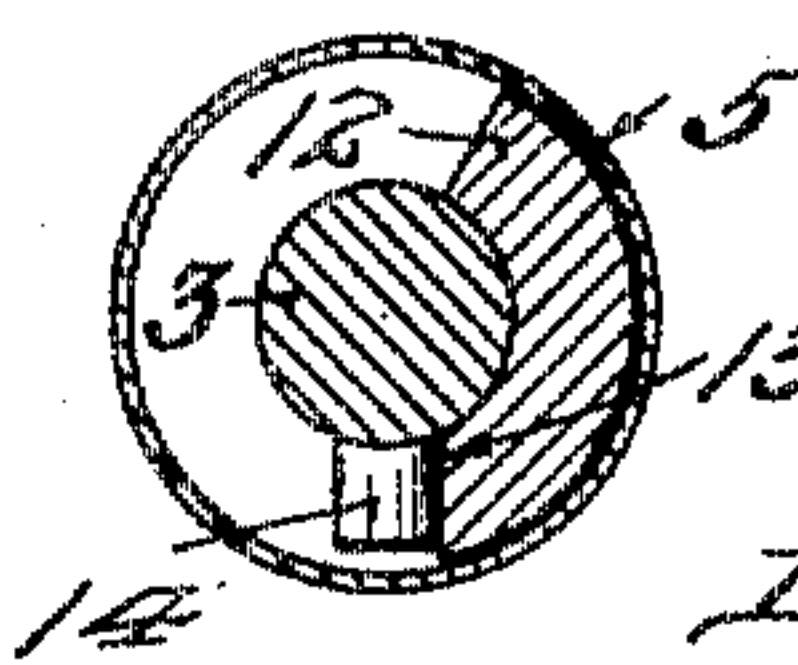
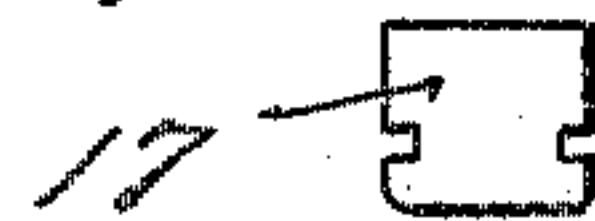


Fig. 10.



Inventor:
Ole E. Halin.
By his Attorneys

Williamson & Merchant

UNITED STATES PATENT OFFICE.

OLE E. HALIN, OF MINNEAPOLIS, MINNESOTA.

DOUBLE-ACTING SPRING-HINGE.

SPECIFICATION forming part of Letters Patent No. 777,673, dated December 20, 1904.

Application filed February 27, 1904. Serial No. 195,509.

To all whom it may concern:

Be it known that I, OLE E. HALIN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Double - Acting Spring-Hinges; 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 appertains to make and use the same.

My invention has for its object to provide an improved double-swinging hinge; and to this end it consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a view, partly in side elevation and partly in section, with some parts broken away, showing my improved hinge applied to a double-swinging door. Fig. 2 is a section on the line $x^2 x^2$ of Fig. 1. Fig. 3 is a detail in elevation, showing the upper portion of the improved hinge. Fig. 4 is a plan view of the upper end portion of the hinge. Fig. 5 is a view similar to Fig. 4, but showing a slightly-different position of the parts. Fig. 6 is a section through the hinge on the line $x^6 x^6$ of Fig. 2. Fig. 7 is a horizontal section through the hinge on the line $x^7 x^7$ of Fig. 2. Fig. 8 is a horizontal section through the hinge on the line $x^8 x^8$ of Fig. 2. Fig. 9 is a horizontal section through the vertical portion of the hinge on the line $x^9 x^9$ of Fig. 2; and Fig. 10 is a detail in plan, showing the upper member of a pair of so-called "spring-drivers."

In Fig. 1 the numeral 1 indicates the floor-line, and the numeral 2 indicates the lower portion of a door which is mounted to swing in both directions from a normal or intermediate closed position. At its upper portion this door may be mounted on any suitable pivot, but at its lower portion is mounted on one of my improved hinges.

The numeral 3 indicates a vertically-dis-

posed spindle or shaft which at its lower end is formed integrally with or is rigidly secured to a base 4, which in turn is rigidly secured by screws or otherwise to the floor.

The numeral 5 indicates a sleeve which is set into a seat in the door 2 and is provided at its lower end with a horizontally-extended strap portion 6, which is countersunk into the lower edge of the door and rigidly secured thereto, preferably by screws 7. This sleeve 5 telescopes over the fixed spindle 3, the strap 6 being perforated to pass the said spindle therethrough.

Between the strap 6 and the base 4 is placed a ball-bearing device made up of a pair of annular ball-runways 8 and interposed bearing-balls 9, the said bearings 8 being perforated axially to pass the spindle 5 therethrough. Friction between the lower ball-runway 8 and the base 4 will cause the former to remain stationary, and the friction between the door and the upper runway 8 will cause the latter to rotate with the door.

A coiled spring 10 surrounds the spindle 3 within the sleeve 5, and at its ends it is anchored, preferably, as shown at 11, to hubs 12, which hubs have shoulders 13 and are loosely mounted on the spindle 3. Anchoring pins or stops 14, projecting from the spindle 3, engage the shoulders 13 of the hubs 12 and normally afford bases of reaction for the spring 10.

At its upper end the sleeve 5 is formed with a slot 15, and near its lower end it is formed with a perforation 16. A driving-block 17, which, as shown, is grooved to adapt it to be dropped into the slot 15, normally engages the shoulder 13 of the upper hub 12, and a lower driver in the form of a small bracket 18, detachably secured to the strap 6 by a screw 19 or otherwise, projects through the sleeve perforation 16 and engages the shoulder 13 of the lower hub. Fig. 5 illustrates the position in which the sleeve 5 should be turned to permit the driving-block 17 to be dropped into an operative position at the bottom of the slot 15.

Normally the parts will stand as shown in Figs. 1, 2, 4, and 8. When the door is swung in the direction indicated by the arrow marked on Fig. 8, the projecting end of the driving-
 5 bracket 18, acting on the shoulder 13 of the lower hub 12, twists the spring 10 at its lower end, the spring at this time being anchored at its upper end to the fixed spindle 3 by the engagement of the shoulder 13 of the upper
 10 hub 12 with the upper pin 14 of said spindle. When, however, the door is swung in a direction reverse from that illustrated by the arrow marked on Fig. 8, the upper driver 17, engag-
 15 ing the shoulder 13 of the upper hub 12, twists the spring at its upper end, the said spring at such time being anchored at its lower end by the engaging of the shoulder 13 of the lower hub 12 with the stop-pin 14 at the lower portion of said spindle. Hence it is evident
 20 that the spring-hinge yields to permit the door to swing in either direction and exerts a yielding tension to return the door to its closed position.

As is evident, this spring-hinge is adapted
 25 for application to a door or other swinging body in quite a number of different ways. Nevertheless there is an advantage in counter-sinking the hinge or the main body portion thereof into the door instead of into the floor,
 30 and this feature I believe to be new. As is evident, with the hinge applied to the door as described the upper portion of the door may be supported by a simple pivot or pintle lo-
 cated in axial line with the lower spring-hinge.

35 From what has been said it will be understood that the hinge described is capable of considerable modification within the scope of my invention as herein set forth and claimed.

What I claim, and desire to secure by Letters Patent of the United States, is as follows: 40

1. The combination with a door, of a double-swinging hinge comprising a spindle anchored to the floor, and provided with upper and lower hub-stops, hubs loose on said spindle and provided with reversely-acting shoulders normally engaging said stops, a coiled
 45 spring surrounding said spindle and anchored to said hubs, and a sleeve set into said door, and having shoulders operating on one of said hubs, under one movement of the door and
 50 operating on the other hub, under the other movement of said door, substantially as described.

2. A double-swinging hinge comprising the spindle 3, having a base 4 and stop projections
 55 14, of the sleeve 5 having the upper end slot 15, lower end perforation 16 and lower end strap extension 6, the hubs 12 loose on said spindle and provided with the reverse-acting
 60 shoulders 13 normally engaging said stops 14, the coiled spring 10 surrounding said spindle and anchored at its ends to said hubs 12, the driving-blocks 17 seated in said slot 15 and
 65 coöperating with the shoulders 13 of the upper hub 12, and the driving-bracket 18 anchored to said sleeve, projecting through the perforation 16 thereof and coöperating with
 the shoulder 13 of the lower hub 12, substantially as described.

In testimony whereof I affix my signature in
 70 presence of two witnesses.

OLE E. HALIN.

Witnesses:

E. H. KELIHER,
 F. D. MERCHANT.