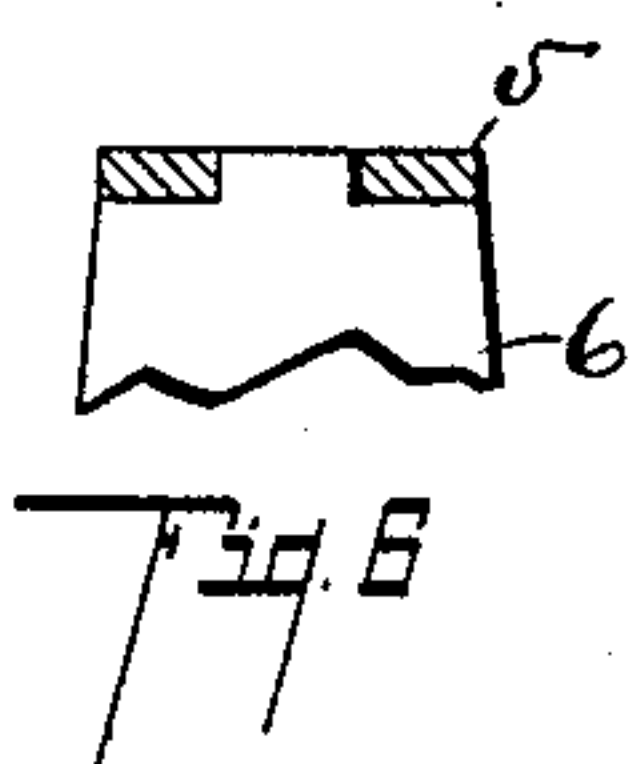
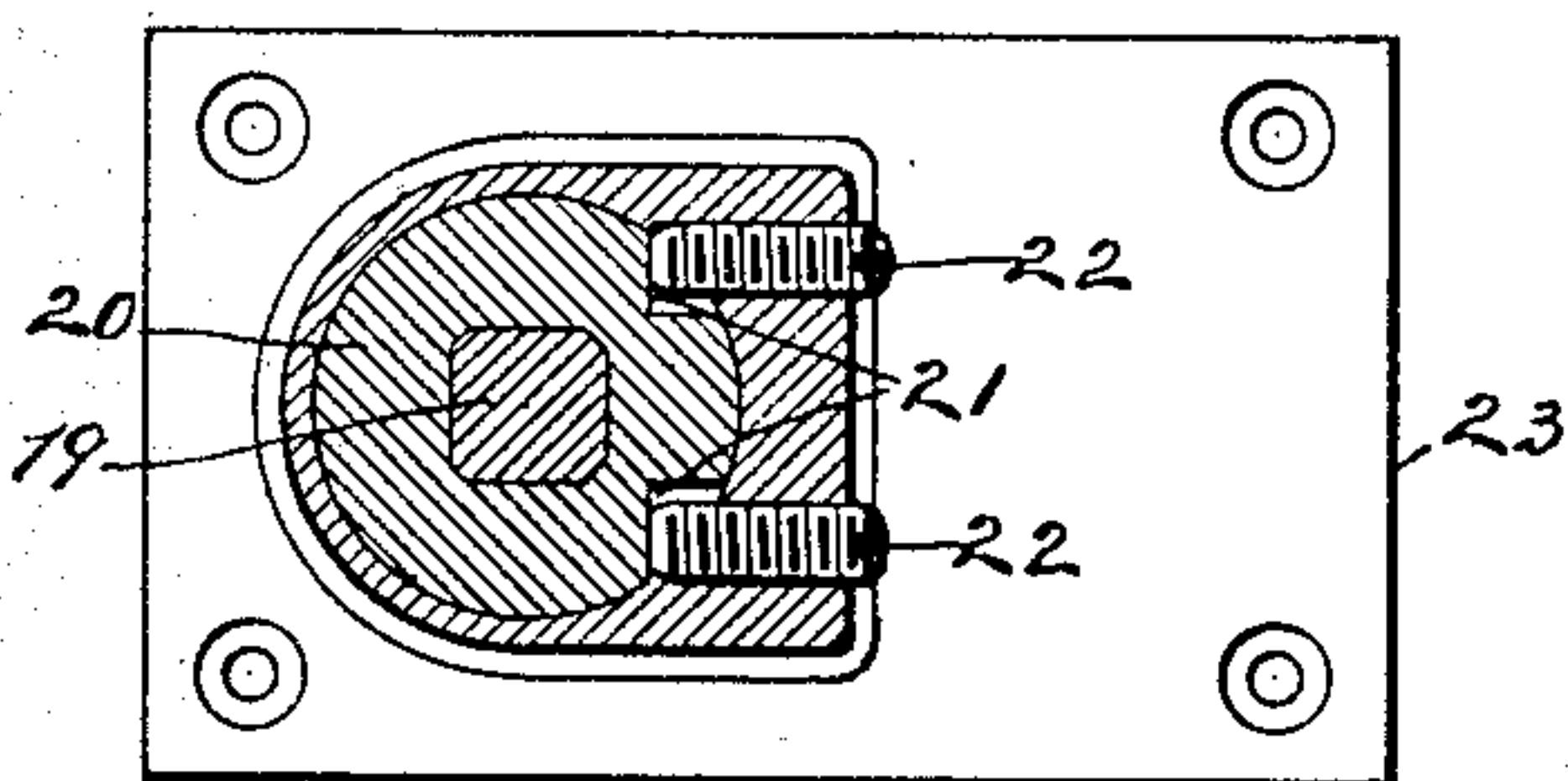
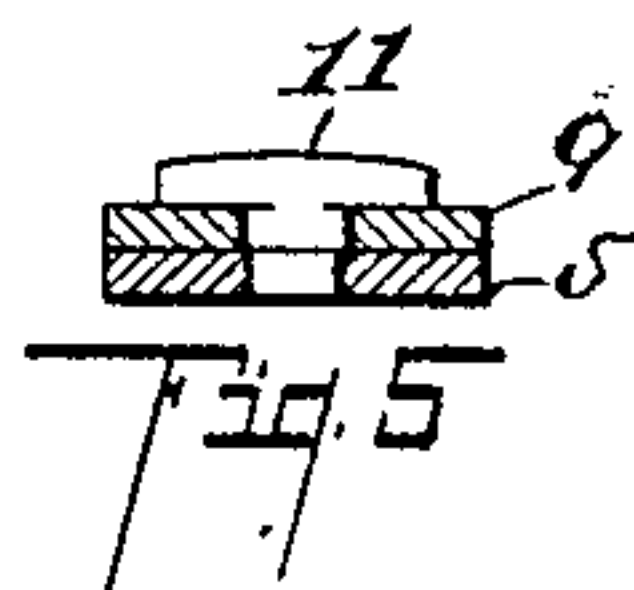
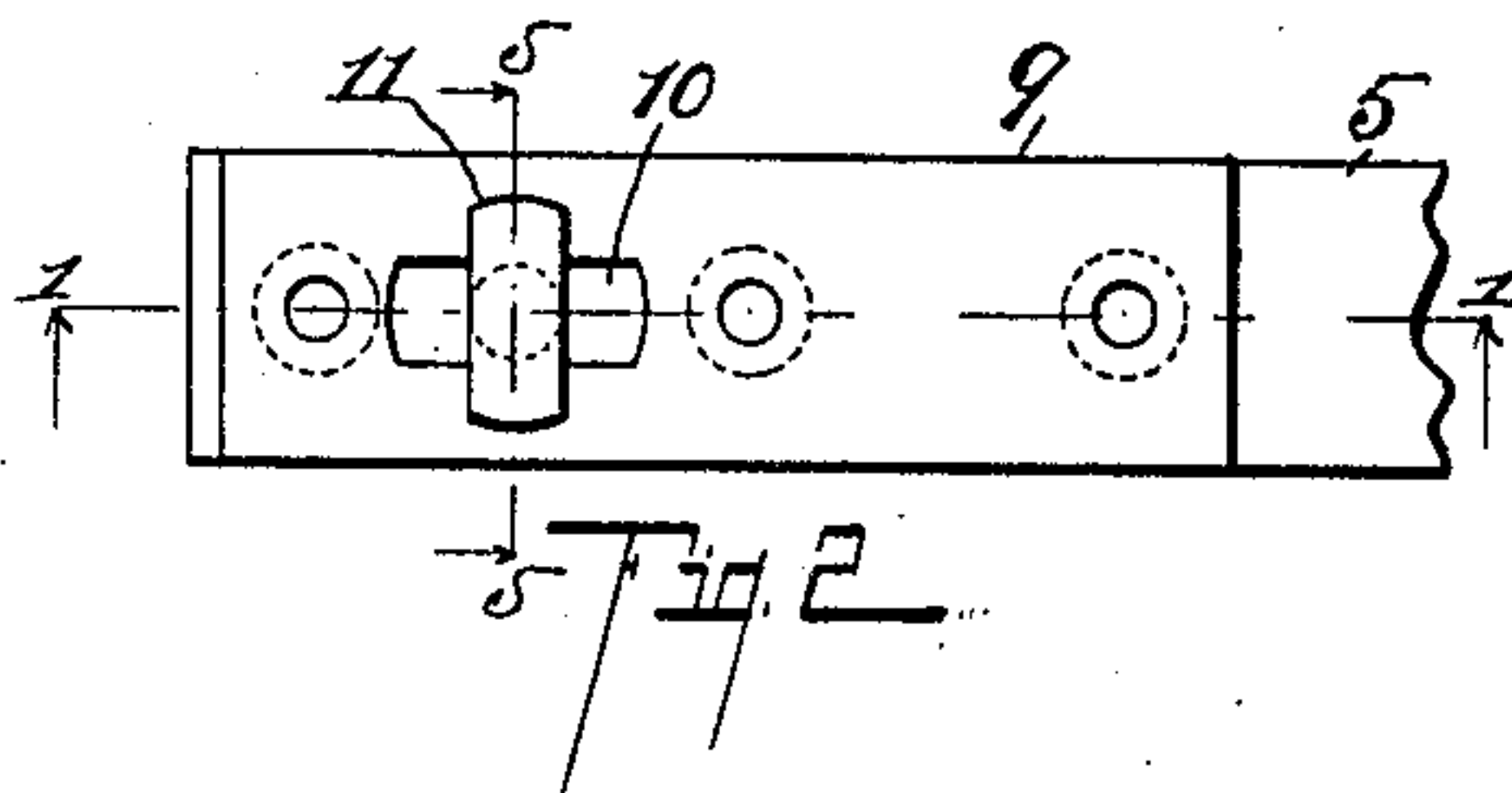
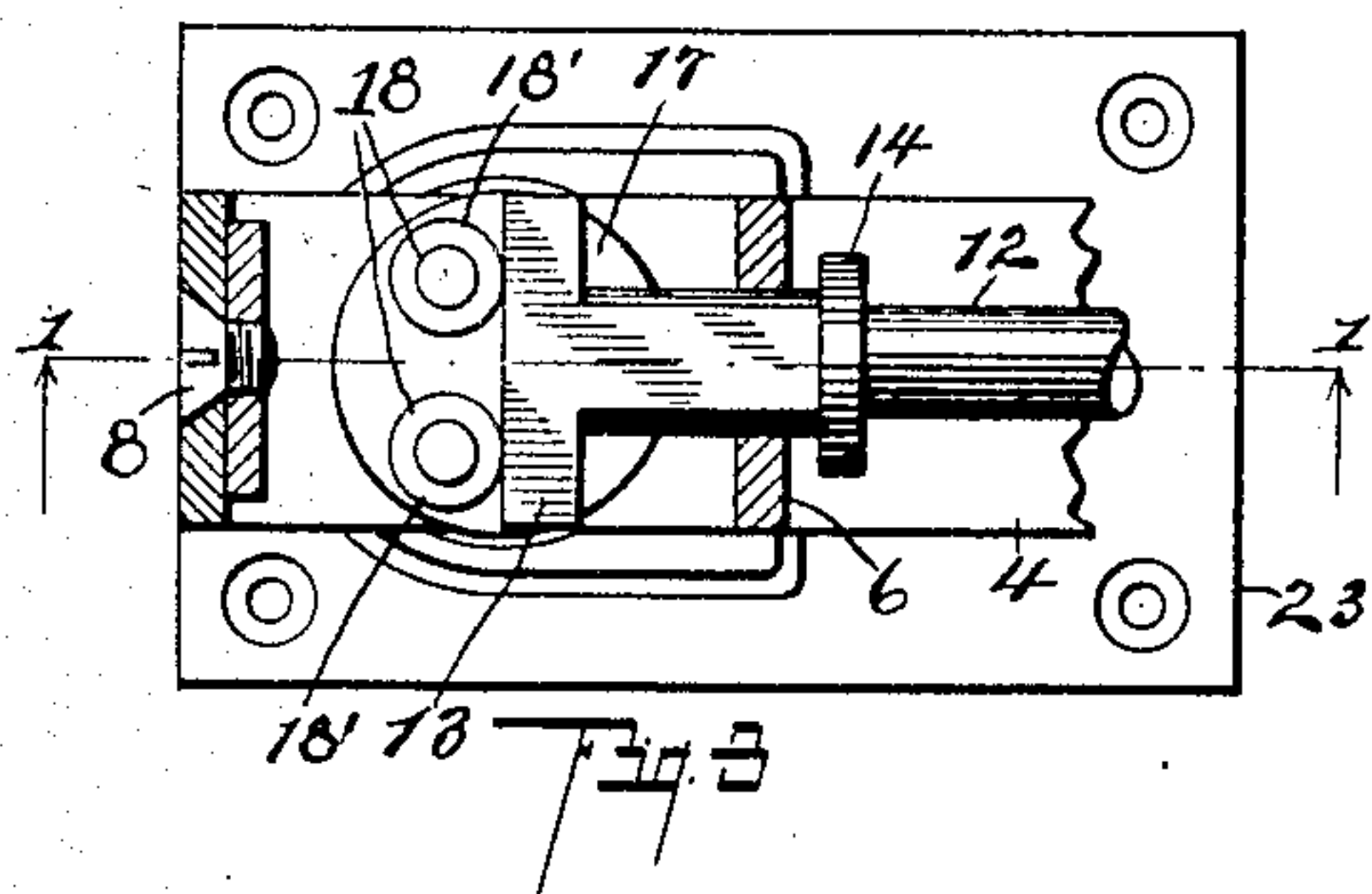
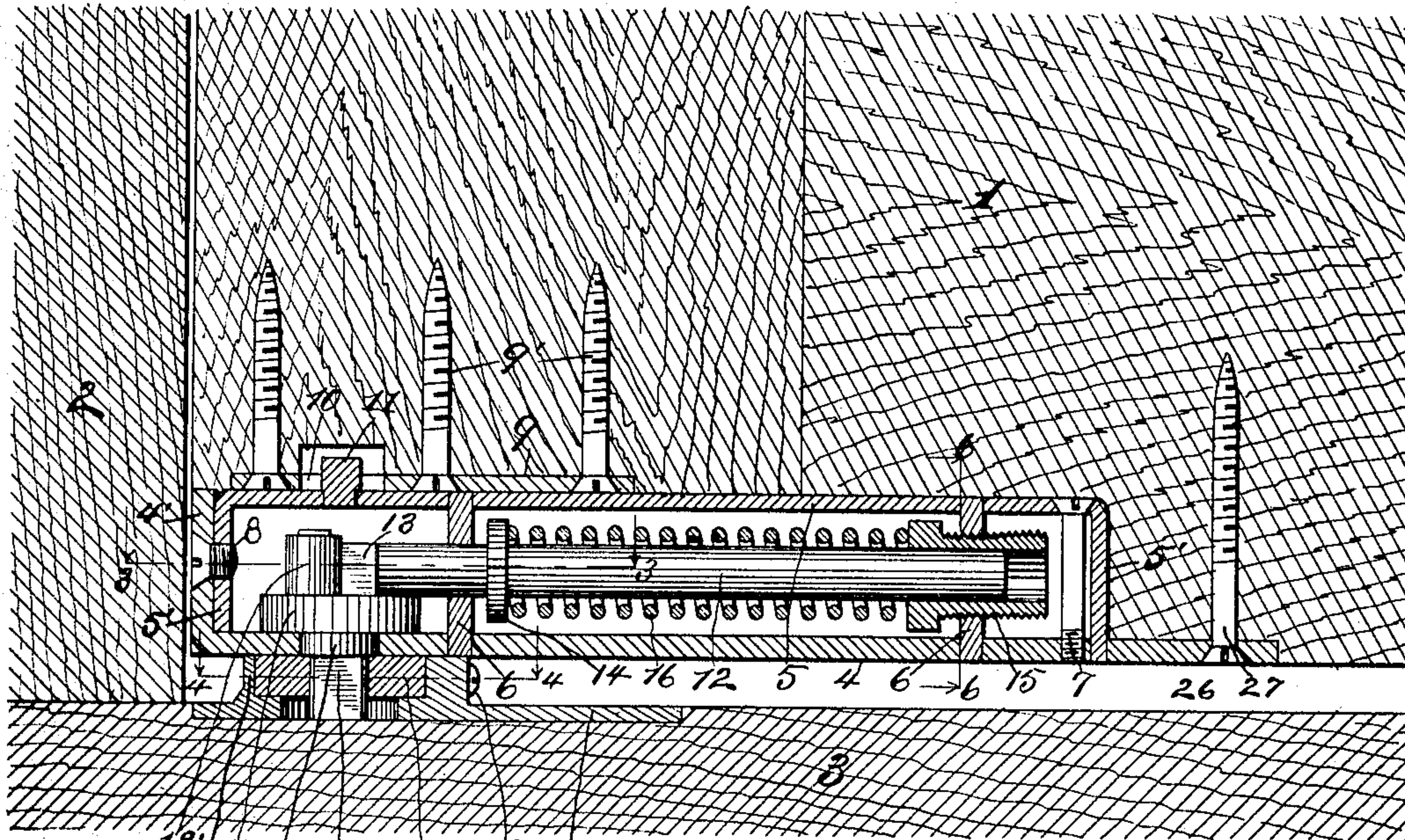


G. M. HUGHES.  
 SPRING HINGE.  
 APPLICATION FILED MAR. 16, 1907.

916,447.

Patented Mar. 30, 1909.



Witnesses:

Lulu Greenfield  
 Gertrude Doremus

Inventor,

George M. Hughes  
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 Att'ys



# UNITED STATES PATENT OFFICE.

GEORGE M. HUGHES, OF ALBION, MICHIGAN, ASSIGNOR TO T. C. PROUTY COMPANY, LIMITED,  
OF ALBION, MICHIGAN.

## SPRING-HINGE.

No. 916,447.

Specification of Letters Patent.

Patented March 30, 1909.

Application filed March 16, 1907. Serial No. 362,780.

*To all whom it may concern:*

Be it known that I, GEORGE M. HUGHES, a citizen of the United States, residing at the city of Albion, county of Calhoun, State of Michigan, have invented certain new and useful Improvements in Spring-Hinges, of which the following is a specification.

This invention relates to improvements in spring hinges.

10 The objects of this invention are, first, to provide an improved spring hinge of the class designed to allow the door to which it is applied to swing in either direction and automatically close the door. Second, to provide an improved spring hinge in which the spring is very effectively supported so that the strain thereon is reduced to a minimum and one in which the spring is conveniently adjusted to secure the desired tension. 15 Third, to provide an improved spring hinge which is capable of adjustment to bring the door into proper position. Fourth, to provide in a spring hinge an improved means for attaching the same to the door and for 20 attaching to the floor or door casing. Fifth, to provide an improved spring hinge which is comparatively simple and economical in structure, and at the same time one in which the wear on the parts is reduced to a minimum. 30

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention 35 by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

40 A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which,

Figure 1 is a longitudinal vertical section through my improved spring hinge, taken on a line corresponding to line 1—1 of Figs. 2 and 3, the same being shown applied to a door. Fig. 2 is a detail plan, showing the means for attaching one of the hinge members to the door. Fig. 3 is a detail view, 50 partially in horizontal section, on a line corresponding to line 3—3 of Fig. 1. Fig. 4 is a horizontal section taken on a line corresponding to line 4—4 of Fig. 1. Fig. 5 is a transverse section taken on a line corresponding to line 5—5 of Fig. 2. Fig. 6 is a detail ver-

tical section of the frame taken on a line corresponding to line 6—6 of Fig. 1.

In the drawings, similar characters of reference refer to similar parts throughout the several views. The sectional views are 60 taken looking in the direction of the little arrows at the ends of section lines.

Referring to the drawing, 1 represents a door, 2 the casing, and 3 the floor, my improved spring hinge being shown in operative relation in connection therewith. 65

The movable member of my improved spring hinge or the member preferably attached to the door consists of a frame preferably made up of a bottom piece 4 and a top piece 5. The forward end of the bottom piece 4 is turned upwardly at 4' and the ends of the top piece 5 are turned downwardly at 5'. The end 4' of the bottom piece and the forward end 5' of the top piece are preferably 75 secured together by means of the screw 8. The rear downturned end piece 5' is preferably provided with a tongue or tenon projecting into the bottom piece and secured therein by means of the screw 7 arranged 80 through the top piece in front of its downward end. A pair of transverse pieces 6 are provided, the purpose of which will be brought out in detail as the description proceeds. The frame is preferably secured to 85 the door at its lower edge by means of the slotted plate 9, which is secured by suitable screws as 9'. The plate 9 is provided with a longitudinal slot 10 adapted to receive the head of the T-shaped stud 11 on the frame, 90 when presented longitudinally thereto. This stud is arranged through the slot 10 and when the frame is swung into position it is securely retained at its forward end. The bottom or base piece of the frame 4 is preferably 95 provided with an extension 26 through which the screw 27 is arranged, thus effectively attaching the frame to the door.

A bolt-like reciprocating member 12 having a head 13 at its forward end is slidably 100 supported by the transverse frame pieces 6. In the rear piece 6 is a threaded sleeve 15 in which the reciprocating member 12 is slidably mounted. On the reciprocating member is a collar 14, between which and the sleeve 15 I arrange the coiled spring 16. By the adjustment of the sleeve 15 the tension of the spring is regulated, the spring tending to hold the reciprocating member normally forward. 110



The hinge member or floor plate 23 is provided with a cylindrical socket 24 adapted to receive the disk-like cylindrical base 20 on the post 19. The base 20 is rotatably seated in the socket and is provided with notches 21 in its periphery, which are engaged by the set screws 22, thereby adjustably securing the post in the socket. The post is provided with a head 17, provided with a pair of upwardly projecting studs 18, the studs being preferably provided with bearing rollers 18'.

The head of the reciprocating member 12 is adapted to bear against the bearing rollers of the head, which are eccentrically arranged relative to the center of the head or post. The bottom piece of the frame is pivotally mounted on the post between the base and the head thereof, the post being provided with a suitable bearing 25 for the frame, and the frame also bears on the top of the floor plate, or the socket portion thereof and on the base of the post. This effectively supports the movable portion of the hinge on the fixed portion. It will be obvious that when the door is swung, carrying the movable member with it, the head of the reciprocating member 12 bearing on the fixed rollers 24 is forced rearwardly, thereby contracting the spring. As soon as the door is released, the spring returns the parts to their normal position. The bearing rollers relieve the parts of friction so that the wear is reduced to a minimum. Also there is no danger of the parts catching. When the door is swung to one side until the reciprocating member is thrown beyond the center line, the spring holds the door in its open position.

In applying the hinge or hanging a door, or in the event of the parts becoming out of alinement by wear or the like, the proper adjustment can be secured by the adjustment of the post. This is accomplished through the set screws 22, it only being necessary to loosen one of the set screws and tighten the other to secure the adjustment. This arrangement is also very convenient in assembling the parts, as the post is effectively secured by means of these set screws. This, in connection with the convenient means of attaching the other hinge member, makes it possible to very quickly and securely adjust the parts in hanging a door.

I have illustrated and described my improved spring hinge in detail in the form preferred by me on account of structural simplicity and economy. I am aware, however, that it is capable of considerable variation in structural details without departing from my invention, and I desire to be under-

stood as claiming the several features thereof specifically, as illustrated, as well as broadly.

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

1. The combination of a hinge member having a cylindrical socket therein; a post provided with a head having a pair of upwardly-projecting studs thereon; a cylindrical disk secured to said post and adapted to be seated in said socket, said disk having oppositely disposed notches in its periphery; set screws arranged through the wall of said socket to engage said notches in said post disk for adjustably securing the same in said socket; a second hinge member, comprising a frame pivotally mounted on said post between the said base and the head thereof, said frame having a pair of cross pieces thereon; a sleeve threaded through the rear cross piece to be adjusted therein; a reciprocating member having a head adapted to engage said studs on said post head, slidably arranged in said sleeve and the front cross piece; a collar on said reciprocating member; and a spring arranged on said reciprocating member between said sleeve and collar, whereby said reciprocating member is yieldingly held against said studs on said head.

2. The combination of a hinge member having a socket therein; a post provided with a head; a disk secured to said post and adapted to be seated in said socket; said disk having oppositely disposed notches in its periphery; set screws arranged through the wall of said socket to engage said notches in said post disk for adjustably securing the same in said socket; a second hinge member, comprising a frame pivotally mounted on said post between the said disk and the head thereof; a reciprocating member having a cross head and operatively mounted in said frame; bearing members on said post head to engage said cross-head; and a spring arranged to hold said reciprocating member yieldingly against said bearing members.

3. The combination with a hinge member frame, of a securing plate therefor having a longitudinal slot therein; and a stud on said frame having a head thereon adapted to enter said slot when presented lengthwise thereto, as specified.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

GEORGE M. HUGHES. [L. s.]

Witnesses:

MARK MERRIMAN,  
ALVIN DICE.