

O. E. HALIN.  
DOUBLE SWINGING DOOR HINGE.  
APPLICATION FILED SEPT. 18, 1909.

975,130.

Patented Nov. 8, 1910.

2 SHEETS—SHEET 1.

Fig. 1

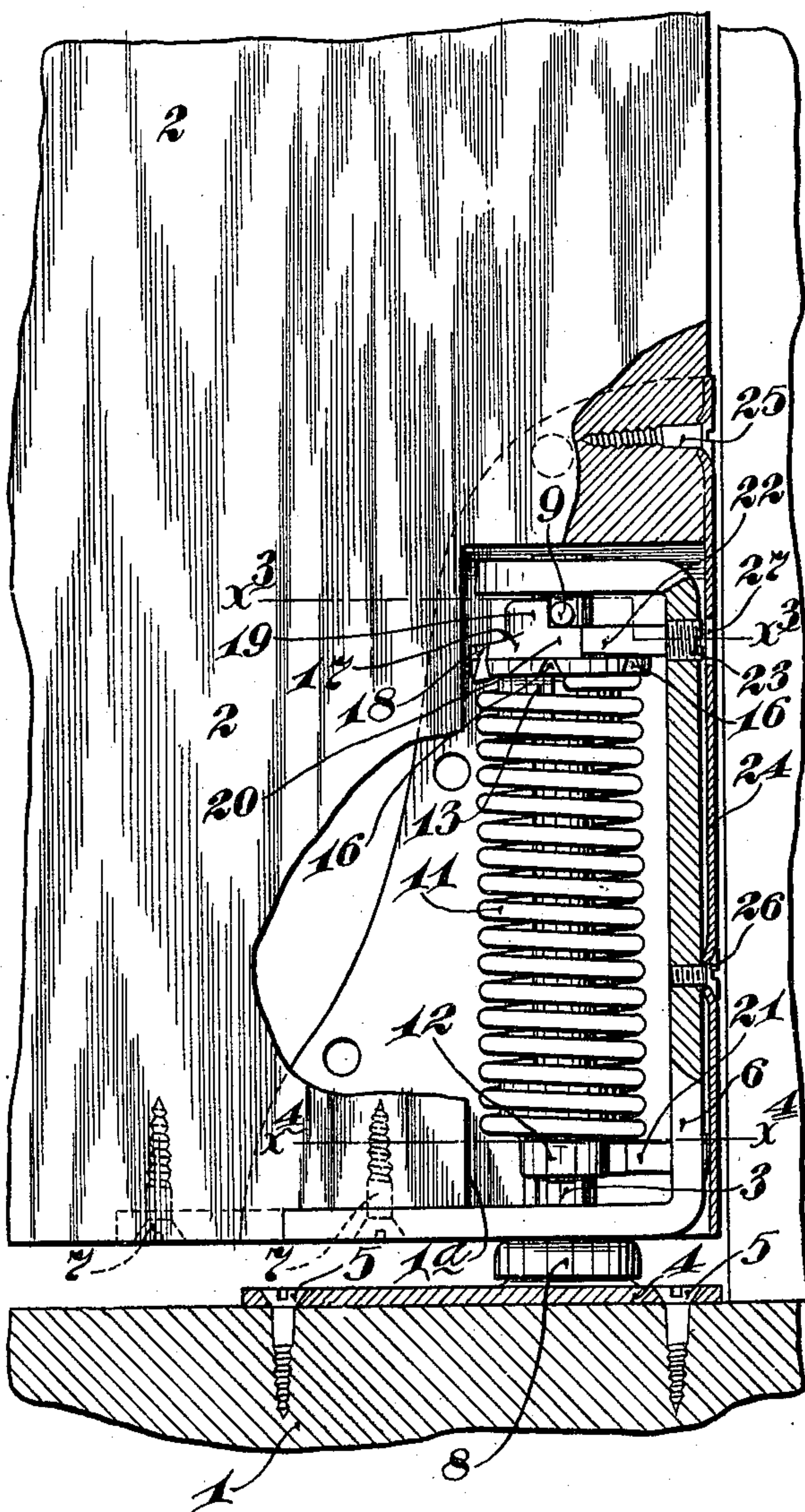
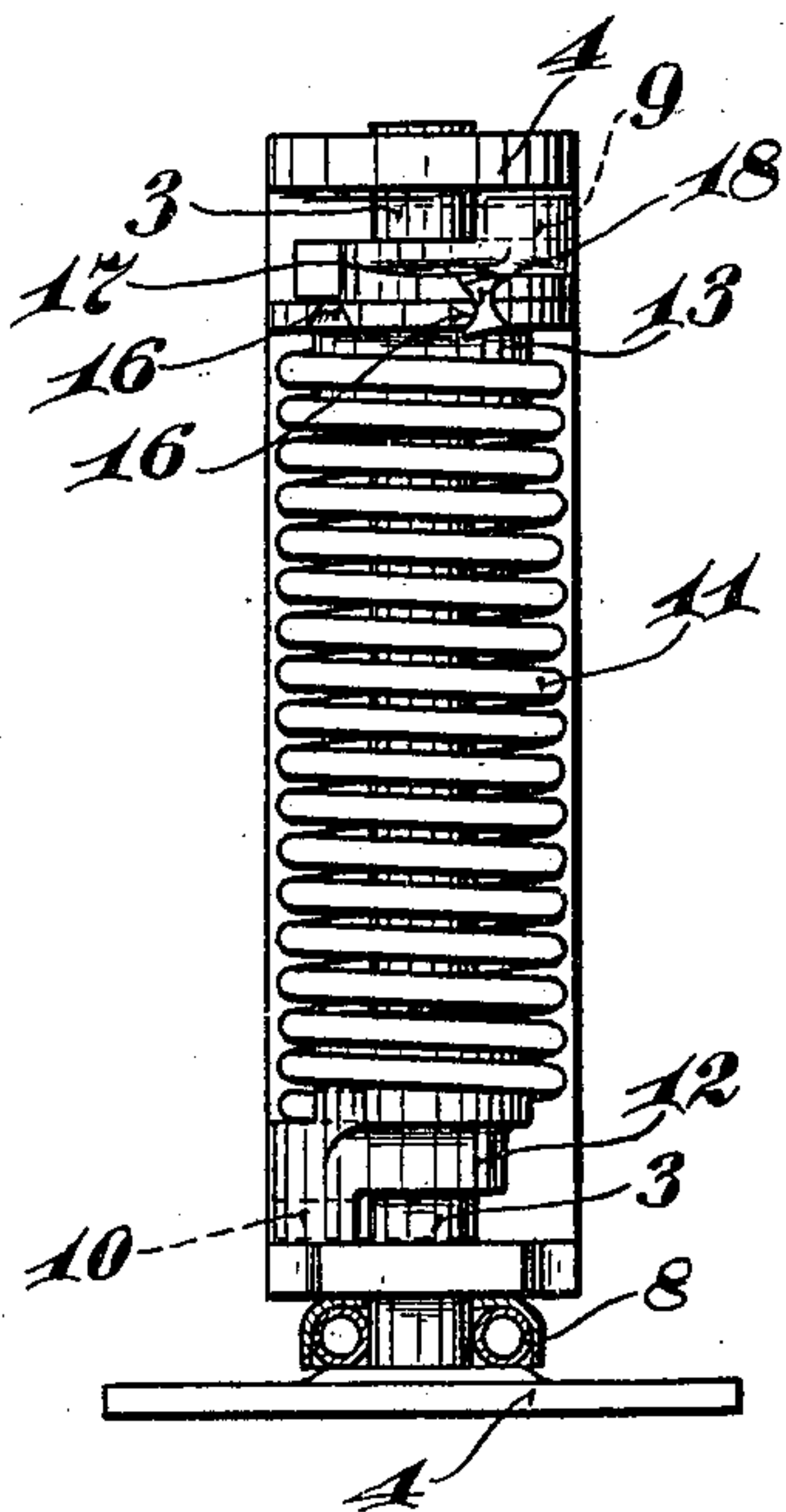


Fig. 2



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By his Attorneys:  
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2 SHEETS—SHEET 2.

Fig. 3

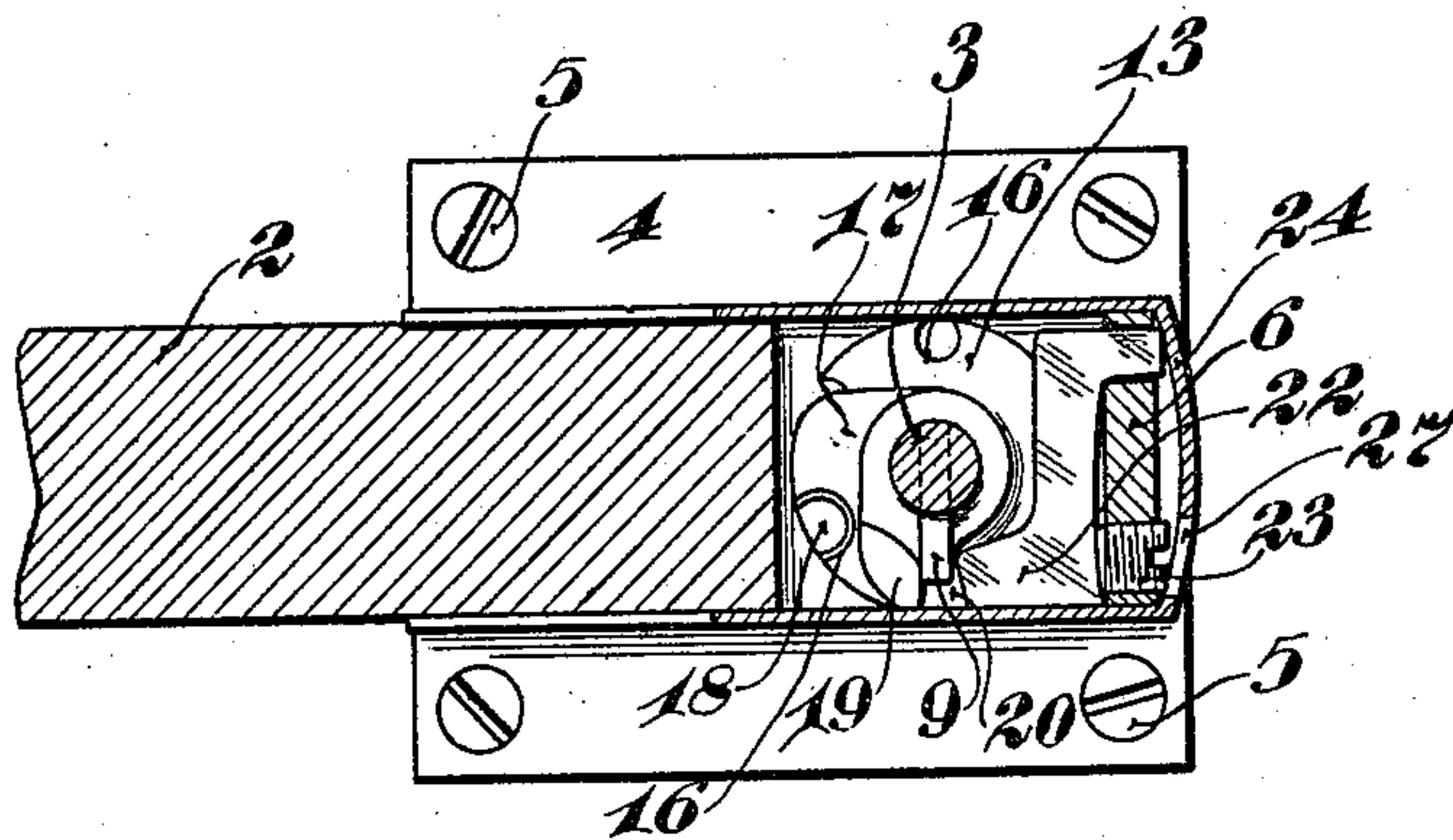
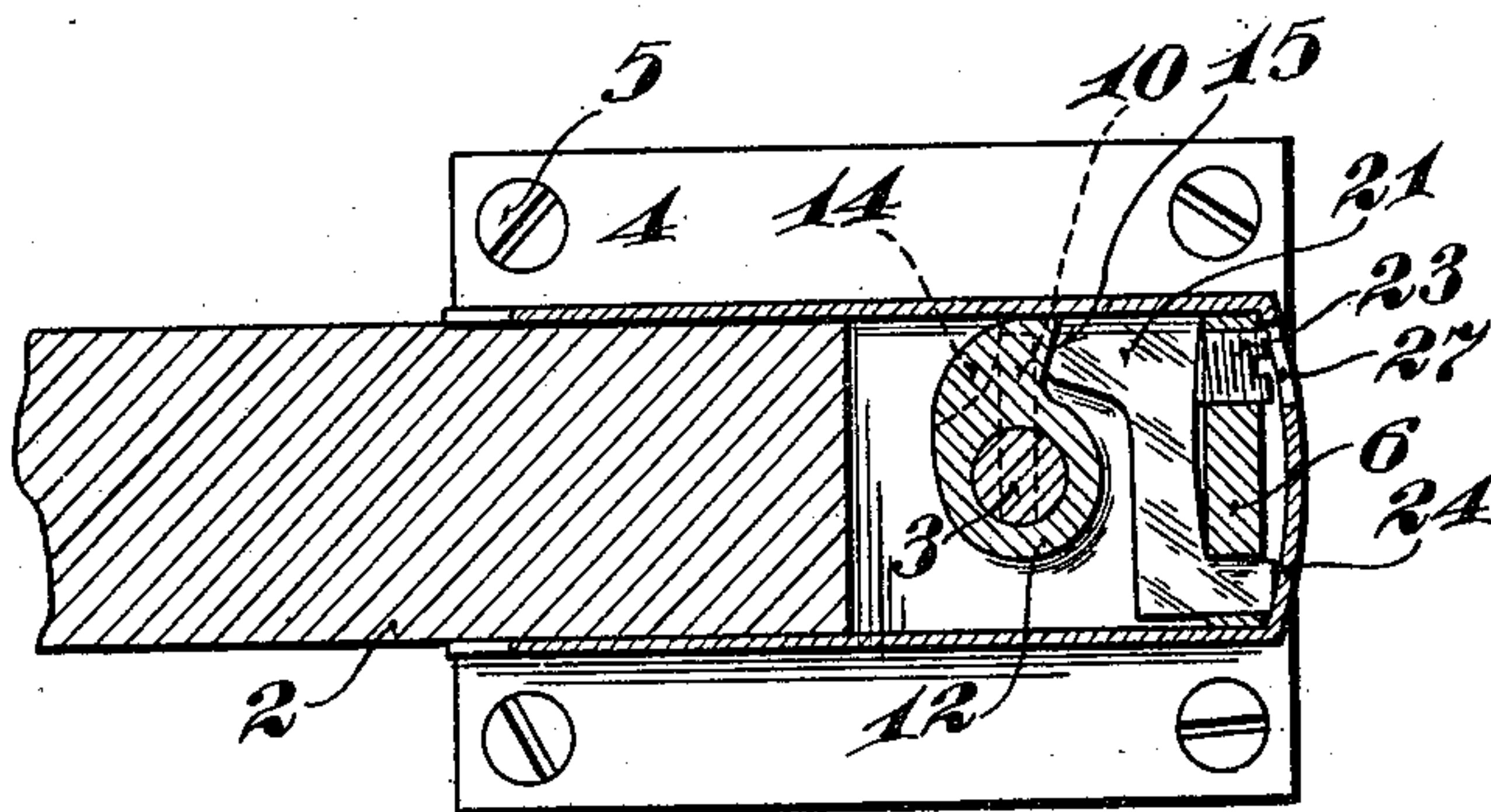


Fig. 4



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# UNITED STATES PATENT OFFICE.

OLE E. HALIN, OF MINNEAPOLIS, MINNESOTA.

## DOUBLE-SWINGING-DOOR HINGE.

975,130.

Specification of Letters Patent.

Patented Nov. 8, 1910.

Application filed September 18, 1909. Serial No. 518,324.

*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-Swinging-Door 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 spring door 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.

Referring to the drawings, Figure 1 is a view partly in front elevation and partly in section and with some parts broken away, showing the improved hinge applied to a door; Fig. 2 is a detail view in front elevation of the improved hinge, some parts being sectioned; Fig. 3 is a horizontal section taken on the irregular line  $x^3 x^3$  of Fig. 1; and Fig. 4 is a horizontal section on the line  $x^4 x^4$  of Fig. 1.

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

Describing the improved hinge, the numeral 3 indicates a vertically disposed spindle or shaft which, at its lower end, is rigidly secured to a base plate 4 which, in turn, is set upon and rigidly secured to the floor 1, preferably by screws 5. This spindle 3 constitutes the only actually fixed or immovable part of the hinge.

The numeral 6 indicates an approximately L-shaped door bracket, as shown formed from a flat bent bar of steel or wrought iron set into a recess 1<sup>a</sup> of the door and rigidly secured to the bottom of the door by a screw 7. The spindle 3 is passed through vertically alined perforations in the upper and lower horizontal portions of the bracket 6, thereby constituting a pivotal connection be-

tween the said parts 3 and 6; and a ball bearing device, indicated as an entirety by the numeral 8, is interposed between the base or floor plate 4 and the lower portion of the said bracket 6. In this way, the door is mounted so that it will swing easily on the spindle 3.

At its upper portion, the fixed spindle 3 is provided with a stop pin 9 that projects therefrom in one direction, and near its lower portion said spindle is provided with a similar stop pin 10 that projects therefrom in the opposite direction. A heavy coiled spring 11 loosely surrounds the spindle 6 between the pins 9 and 10. The lower end of this spring is anchored to and reacts against a lower hub 12 which is preferably telescoped into said spring, and the upper end of said spring is anchored to and acts against an upper hub 13 which is preferably telescoped in the upper end of said spring. The lower hub 12 is provided with two stop lugs or shoulders 14 and 15, the former of which is normally pressed against the lower stop pin 10 by the spring 11. The flange of the upper hub 13 is formed with peripheral notches 16 and is adapted to be adjustably connected to the notched flange of a supplemental hub section 17, as shown by means of a lock pin or block 18 which flares in both directions from its longitudinal center (see Figs. 2 and 3). This supplemental hub section 17 is formed with two stop lugs or shoulders 19 and 20, the former of which is normally pressed against the upper stop pin 9 by the spring 11. It will thus be seen that the spring 11, acting through the hubs described, has its final base of reaction against the said stop pins 9 and 10. The tension of the said spring may be varied by rotary adjustments of the supplemental hub 17 in respect to the coöperating hub member 13, but, regardless of this adjustment of the tension of said spring, the stop shoulders or lugs 14 and 19 will be normally held against the stop pins 10 and 9, respectively.

A lower presser foot 21 is interposed between the lower portion of the door bracket 6 and the shoulder 15 of the lower hub 12, and a similar but oppositely located and reversely acting presser foot 22 is interposed between the upper portion of the said bracket 6 and the shoulder 20 of the supplemental upper hub section 17. These presser feet, as shown and as preferably constructed,



are approximately Z-shaped in plan view and the outer ends thereof are loosely seated in perforations formed in opposite edge portions of the vertical backs of the door bracket 6. The inner extremities of the said presser feet 21 and 22 are located on opposite sides of the spindle 6 and they engage, respectively, with the above noted shoulders 15 and 20. The free ends of the said presser feet 21 and 22 are engaged and adjustably held by set screws 23 which work with threaded engagement through the vertical portion of the door bracket 6.

A channel-shaped sheet metal casing 24 is detachably secured to the door 2 and to the door bracket 6, by screws 25 and 26. This casing is provided with perforations 27 alined with the adjusting set screws 23 and which permit adjustments of the said screws when the casing is applied. The presser feet 21 and 22 are made adjustable so as to adjust the hubs on a fixed spindle, and thereby compensate for, and to provide adjustment, enabling the door, when closed, to be set in true alinement with the doorway.

The set screws 23 should be so adjusted that there will be no normal play between the same and the presser feet 21 and 22 and cooperating shoulders 15 and 20, and they should also be so adjusted that the door will normally stand in a true intermediate or closed position. When the door is swung in either direction from its closed or intermediate position, one or the other of the shoulders 15 or 20, according to the direction in which the door is swung, will be forced away from its cooperating fixed stop pin 9 or 10, and when the door is released it will, as is evident, be forced back into its normal or closed position, by the torsional spring 11.

Under the swinging movements of the door, a sort of pounding action will take place between the presser feet 21 and 22 and the cooperating shoulders 15 and 20. These presser feet are well adapted to take the wear incident to this pounding action and frictional engagement and they relieve the set screws 27 from all wear, such as would

be produced if the said screws were directly engaged with the said shoulders 15 and 20.

The improved hinge described may be cheaply constructed and, in practice, has been found durable, easily adjusted and generally efficient for the purposes had in view.

What I claim is:

1. In a double swinging door hinge, the combination with a fixed spindle, of upper and lower hubs pivotally mounted on said spindle, a torsion spring tending to rotate said hubs in reverse directions, stops on said spindle limiting the reverse rotations thereof, a door bracket pivotally mounted on said spindle, presser feet carried by said door bracket and engageable with reversible acting shoulders of said upper and lower hubs, and set screws on said door bracket affording adjustable bases of reaction for said presser feet, substantially as described.

2. In a double swinging door hinge, the combination with a fixed spindle, of upper and lower hubs pivotally mounted on said spindle, one thereof having an adjustable section, a torsion spring reacting against said hubs and tending to rotate the same in reverse directions on said spindle, projecting stop pins on said spindle engaged by shoulders of said lower hub and the adjustable section of said upper hub and limiting the reverse rotations of said hubs under tension of said spring, a door bracket pivotally mounted on said spindle, reversely extended upper and lower presser feet adjustably mounted on said door bracket and engageable with reversible acting shoulders of said lower hub and of the adjustable section of said upper hub, and set screws in said door bracket affording adjustable bases of reaction for said presser feet, substantially as described.

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

OLE E. HALIN.

Witnesses:

ALICE V. SWANSON,  
HARRY D. KILGORE.