

No. 865,911.

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DOOR HINGE.

APPLICATION FILED JAN. 19, 1907.

Fig. 1.

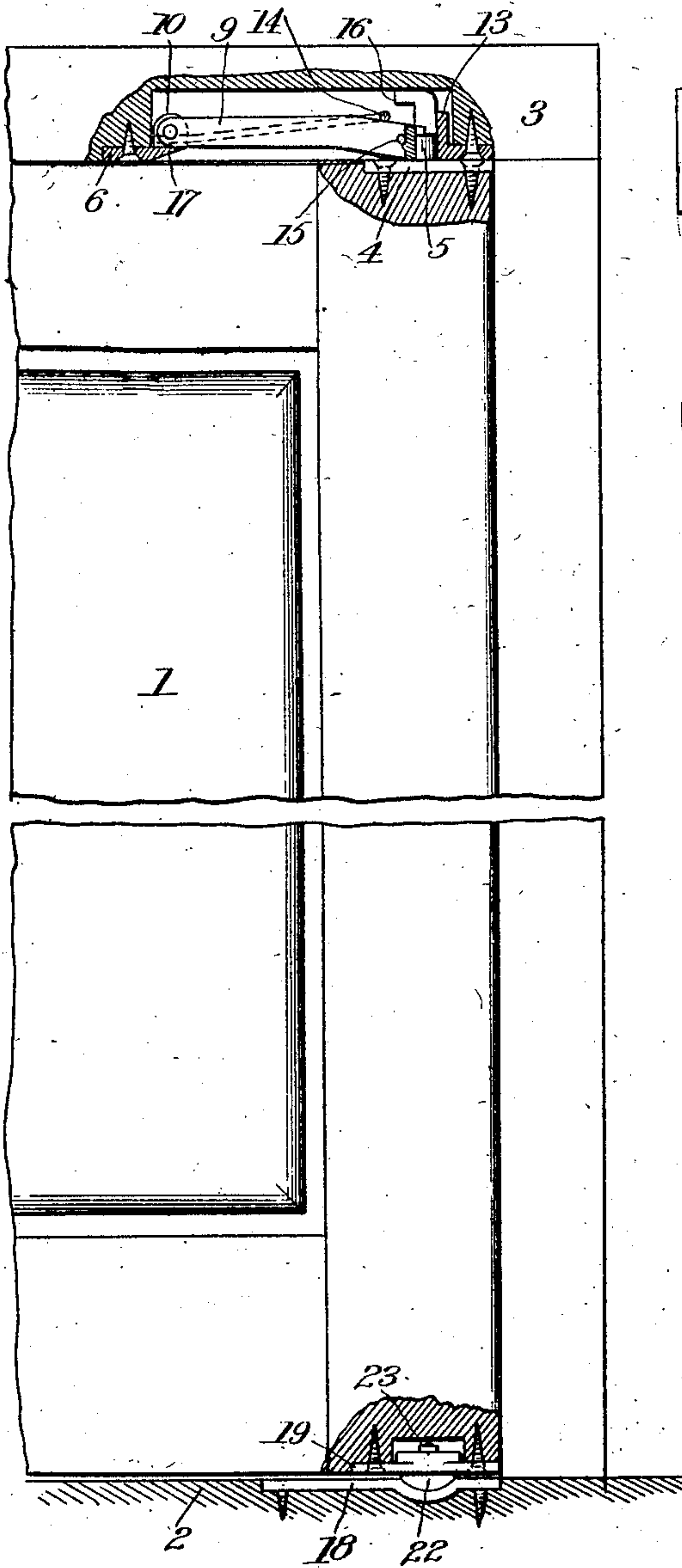


Fig. 2.

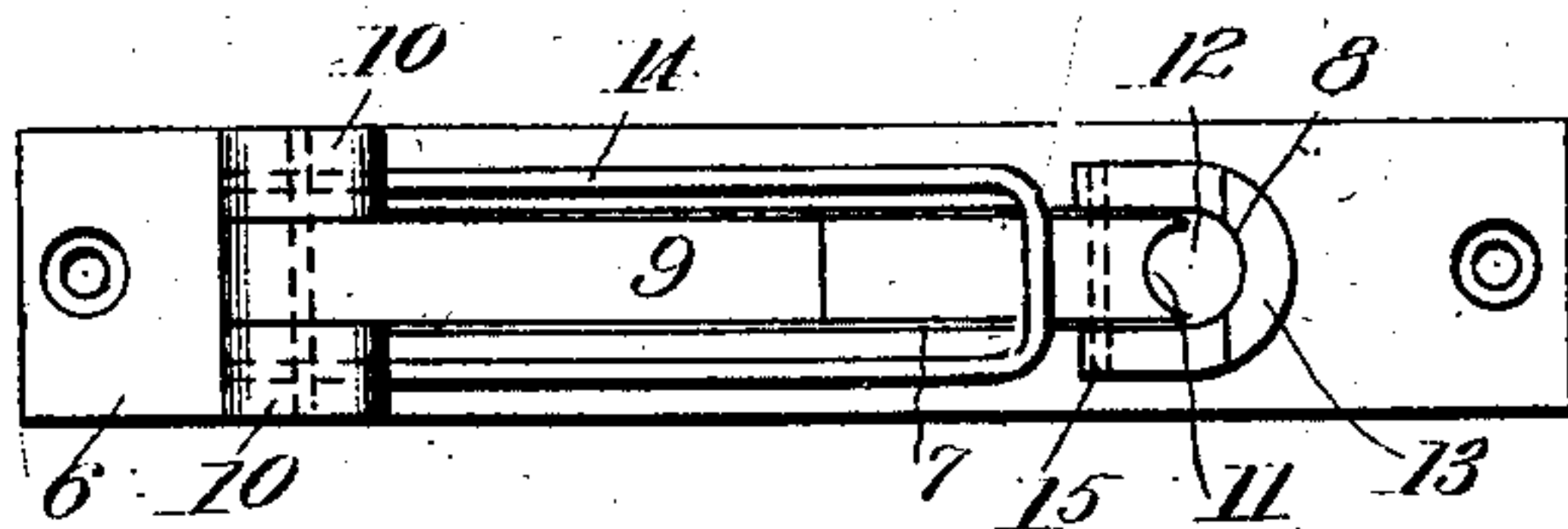


Fig. 3.

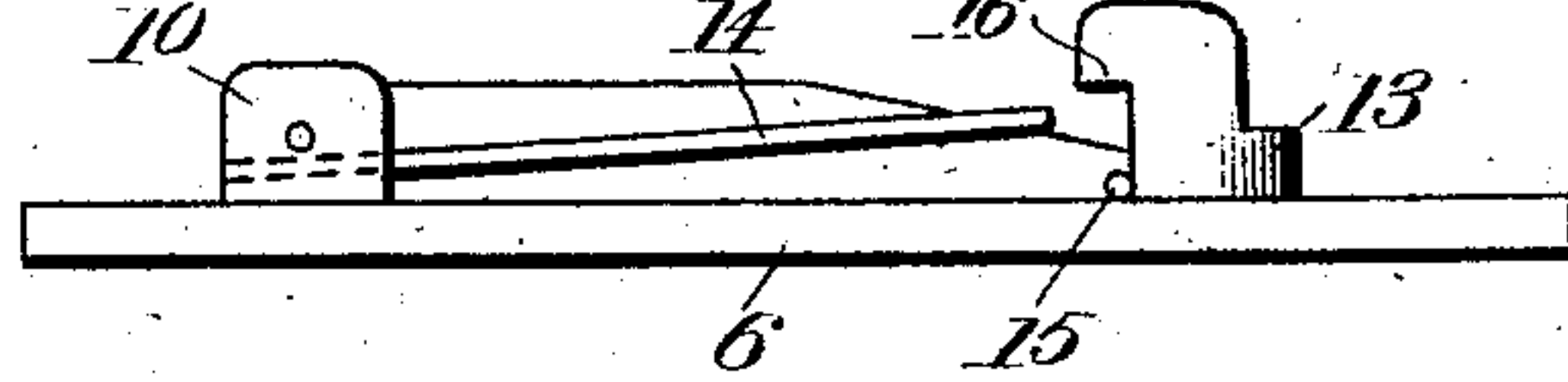


Fig. 4.

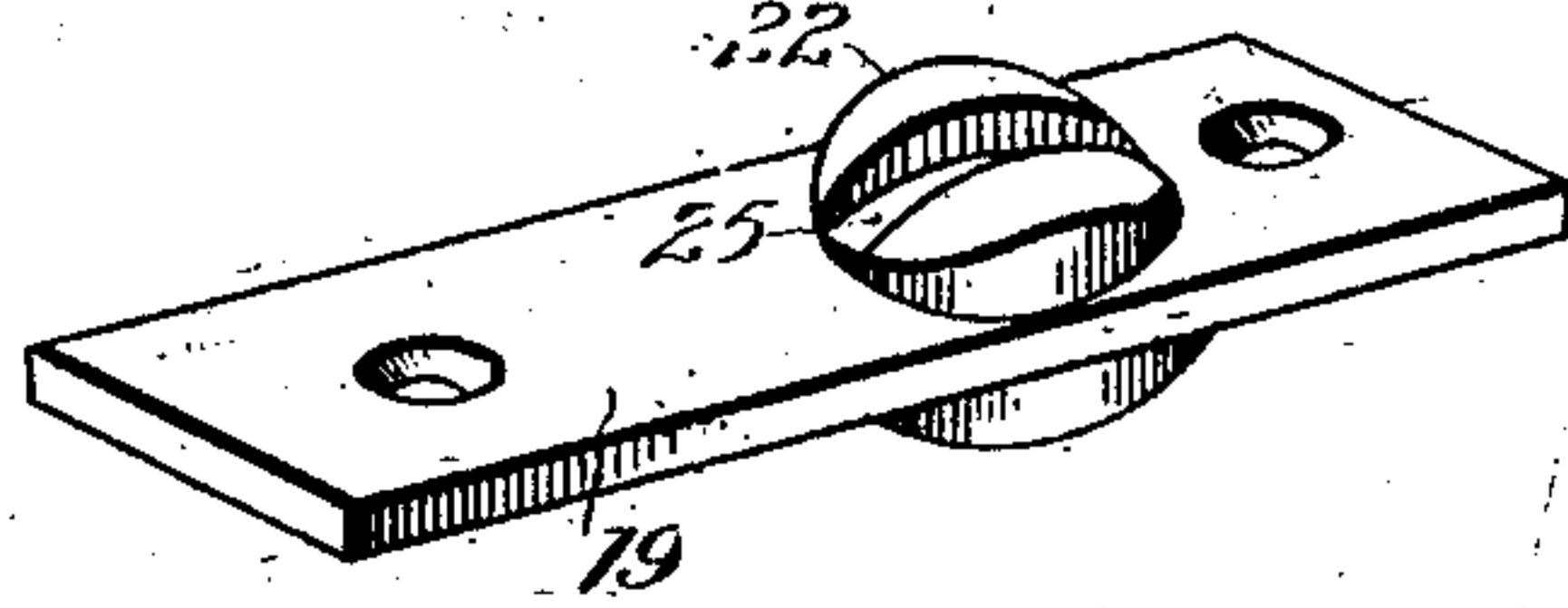


Fig. 5.

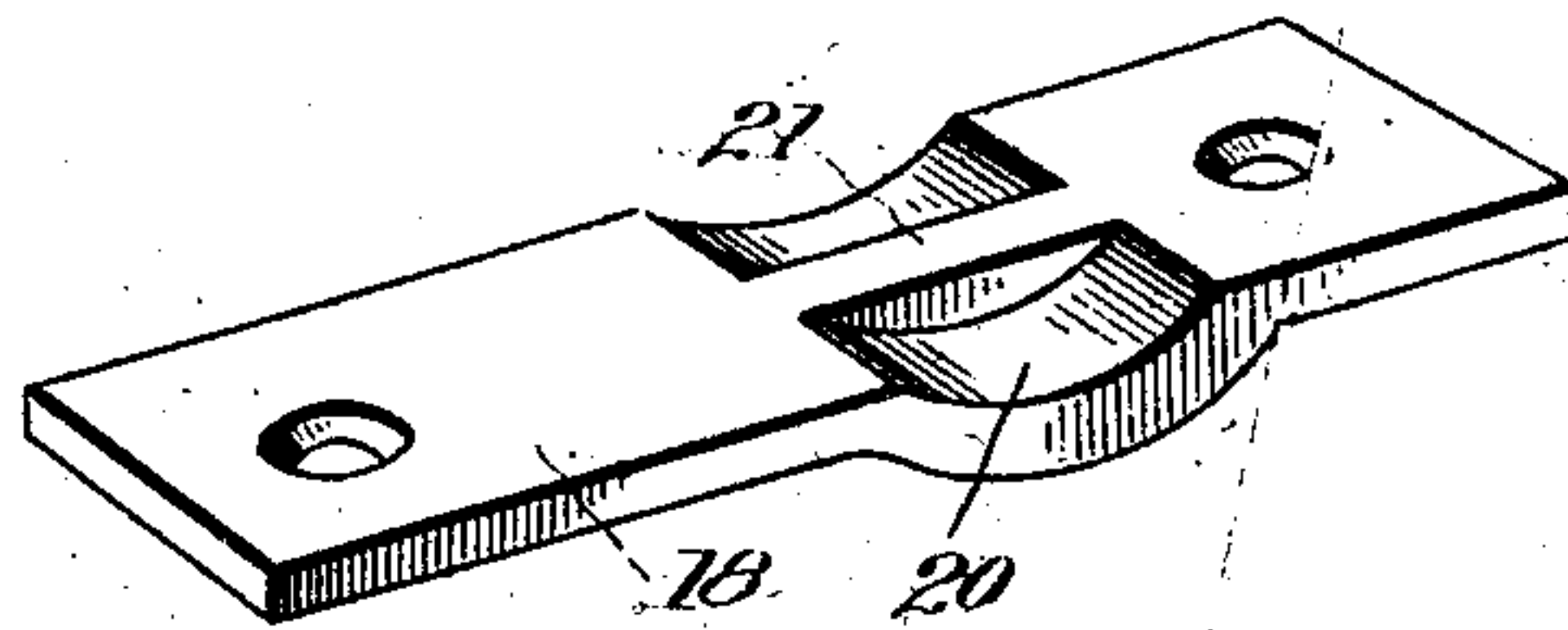
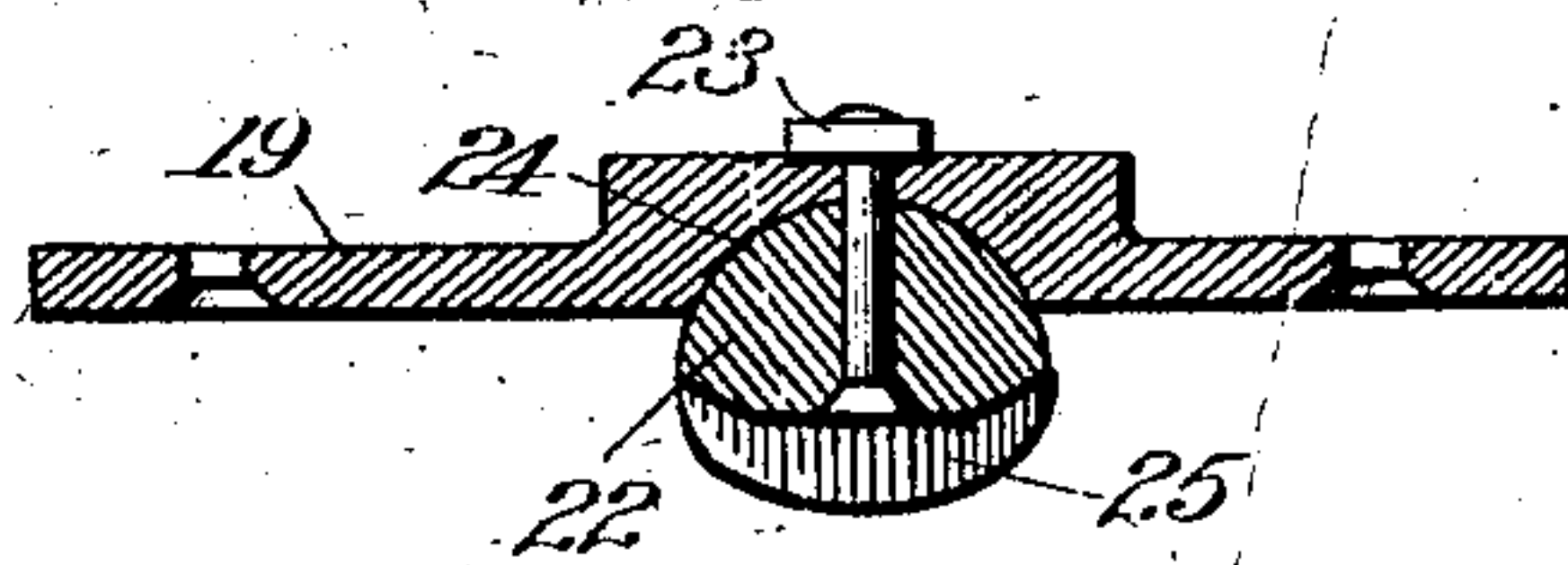


Fig. 6.



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UNITED STATES PATENT OFFICE.

CALVIN KEITH AND GEORGE F. LISTER, OF MANSFIELD, OHIO.

DOOR-HINGE.

No. 865,911.

Specification of Letters Patent.

Patented Sept. 10, 1907.

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To all whom it may concern:

Be it known that we, CALVIN KEITH and GEORGE F. LISTER, citizens of the United States, residing at Mansfield, in the county of Richland and State of Ohio, have invented certain new and useful Improvements in Door-Hinges; and we 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.

Our invention relates to that class of door hinges which permit the door to be swung in either direction.

It has for its object to provide a hinge which will assure free movement of the door when in place, and which will permit the quick removal of said door without the necessity of first taking out screws or the like and removing parts of the hinge from the door or casing.

The invention consists of the features of construction and combinations of parts hereinafter described and specified in the claims.

In the accompanying drawings, illustrating the preferred embodiment of our invention: Figure 1 is a broken elevation, partly in section, of a door and casing therefor, showing our hinge applied. Fig. 2 is an enlarged plan view of the tongue-carrying plate of the upper hinge which is secured to the door frame opposite the upper rear corner of the door. Fig. 3 is a side elevation thereof. Fig. 4 is an enlarged perspective view of the swivel plate of the lower hinge which is secured to the lower rear corner of the door. Fig. 5 is an enlarged perspective view of the floor plate which is fastened opposite said swivel plate, and Fig. 6 is a central vertical sectional view of said swivel plate.

Referring more particularly to the drawings, 1 designates the door, 2 the floor and 3 the door frame. The upper hinge comprises a plate 4 secured to the door and having a projecting cylindrical stud 5, and a tongue-carrying plate 6 secured to the door frame opposite said plate 4. Said plate 6 is provided with a slot 7 wide enough to receive the stud 5. The rear end of said slot is rounded as at 8. A tongue 9 is pivoted between ears 10 on the upper surface of the plate 6 and extends into the slot 7 near the rear end thereof. The end of said tongue is grooved, as at 11, and forms with the rounded end of the slot a socket 12 for the stud 5. The end of the slot is reinforced by a semi-circular flange 13 on the upper surface of the plate. Said tongue is pressed by a spring 14 and its movement is limited by a cross pin 15 inserted transversely through said tongue and adapted to contact with the plate and stops 16 on the semi-circular flange 13. It will be noted that the outer end of the slot 7 is beveled, as at 17, to permit the stud on the plate secured to the door to pass into said slot.

The lower hinge comprises the floor plate 18 secured to the floor opposite the rear bottom corner of the door, and a swivel plate 19 fastened to said bottom rear corner

of the door. Said floor plate is provided with a curved groove 20 in its upper surface, said groove being bisected by a longitudinal rib 21 preferably flush with the surface of the plate. The swivel plate on the door carries a projecting lug 22 swiveled thereto by means of the pin or bolt 23. The upper portion of said lug, where it engages the swivel plate, is shaped like a truncated cone and is mounted in a correspondingly shaped bearing recess 24 in said plate. The lower face of said swiveled stud is curved from side to side to fit the groove in the floor plate and is formed with a groove or way 25 having its bottom likewise curved or rounded to fit over the rib on said floor plate and at the same time permit the door to be tilted when hanging or removing it.

To hang a door which is equipped with our hinge, said door is turned at right angles to the plane of the doorway and tilted slightly while the swiveled stud 22 is placed in the groove in the floor plate. The door is then gradually brought to an upright position as the stud 5 on the top edge thereof is introduced into the slot of the plate 6. As said stud nears the inner end of said slot it raises the tongue 9 and finally comes in contact with the curved end of said slot whereupon said tongue drops into place behind it. To remove the door, it is again turned at right angles to the plane of the doorway whereby a portion of the slot in the plate 6 is exposed. The tongue is then raised by means of a suitable tool inserted through said slot, thus releasing the stud 5 and permitting the door to be tilted forward to entirely disengage said stud from said slot.

It will be noted the curved bearing between the swiveled stud and the groove in the floor plate allows the door to be tilted as described, while the rib on said floor plate engaging the groove or way in said stud holds the latter in place. It will also be observed that the conical bearing between the swiveled stud and the plate carrying the same gives the door great freedom of movement.

We claim:

1. A hinge of the character described comprising means to pivot the lower end of a door, and means to pivot the upper end of said door consisting of a stud adapted to be fastened to the door, and a plate, having a slot therein to receive said stud, adapted to be secured to the door frame, said plate carrying a spring pressed tongue extending into said slot with its end forming with the end of said slot a socket for said stud.

2. A hinge of the character described comprising means to pivot the lower end of a door, and means to pivot the upper end of said door consisting of a stud adapted to be fastened to the door, and a plate, having a round ended slot therein to receive said stud, adapted to be secured to the door frame, said plate carrying a spring pressed tongue extending into said slot with its end grooved and forming with the rounded end of said slot a socket for said stud.

3. A hinge of the character described comprising means to pivot the lower end of a door, and means to pivot the

upper end of said door consisting of a stud adapted to be fastened to the door, a plate, having a slot therein to receive said stud, adapted to be secured to the door frame, said plate carrying a spring pressed tongue extending
5 into said slot and adapted to retain said stud in said groove, and means to limit the movement of said tongue.

4. A hinge of the character described comprising means to pivot the lower end of a door, and means to pivot the
10 upper end of said door consisting of a stud adapted to be fastened to the door, a plate, having a slot therein, to receive said stud, adapted to be secured to the door frame, said plate carrying a spring pressed tongue extending into said slot and adapted to retain said stud in said groove, and means to limit the movement of said tongue, com-
15 prising stops arranged above the surface of said plate and a cross pin passed through said tongue and adapted to contact with said stops and with the surface of said plate.

5. A hinge of the character described comprising means to pivot the lower end of a door, and means to pivot the
20 upper end of said door consisting of a stud adapted to be fastened to the door, and a plate, having a slot therein to receive said stud, adapted to be secured to the door frame, said plate carrying a spring pressed tongue extending into said slot with its end forming with the end of said slot a socket for said stud, said plate also having a flange
25 around the end of said slot.

6. A hinge of the character described comprising means to pivot the lower end of a door, and means to pivot the
30 upper end of said door consisting of a stud adapted to be fastened to the door, and a plate, having a slot therein to receive said stud, adapted to be secured to the door frame, said plate carrying a spring pressed tongue extending into said slot with its end forming with the end of said slot a socket for said stud, said plate also having a flange
35 around the end of said slot, stops on said flange and a cross pin passed through said tongue and adapted to contact with said stops and with the surface of said plate.

7. A hinge of the character described comprising means to pivot the upper end of a door, and means to pivot the
40 lower end of said door consisting of a floor plate having a groove therein with a rib across the same, and a plate, adapted to be secured to a door, having a swiveled stud

adapted to fit in said groove and provided with a groove to receive the rib on said floor plate.

8. A hinge of the character described comprising means to pivot the upper end of a door, and means to pivot the
lower end of said door consisting of a floor plate having a curved groove therein with a rib across the same, and a plate, adapted to be secured to a door, having a swiveled stud provided with a rounded end to fit said groove, and a
50 groove to receive the rib on said floor plate.

9. A hinge of the character described comprising means to pivot the upper end of a door, and means to pivot the
lower end of said door consisting of a floor plate having a curved groove therein with a rib across the same, and
55 a plate, adapted to be secured to a door, having a swiveled stud provided with a rounded end to fit said groove and a groove with a curved bottom to receive the rib on said floor plate.

10. A hinge of the character described comprising means to pivot the upper end of a door, and means to pivot the
lower end of said door consisting of a floor plate having a groove therein with a rib across the same, and a plate, adapted to be secured to a door, having a swiveled stud adapted to fit in said groove and provided with a
60 groove to receive the rib on said floor plate, said swiveled stud having a conical bearing in the plate carrying the same.

11. A hinge of the character described comprising means for pivoting the upper end of a door consisting of a
70 stud adapted to be fastened to said door and a plate having a slot to receive said stud, said plate carrying a tongue extending into said slot and adapted to hold said stud in pivotal position, and means to pivot the lower end of said door which permits the latter to be tilted when hanging
75 or removing the same.

In testimony whereof, we affix our signatures, in presence of two witnesses.

CALVIN KEITH.
GEORGE F. LISTER

Witnesses:

D. F. HAGER,
GEO. W. CAMPBELL.