

Witnesses

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No. 696,028.

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HINGE.

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(No Model.)

2 Sheets—Sheet 2.

Fig. 6.

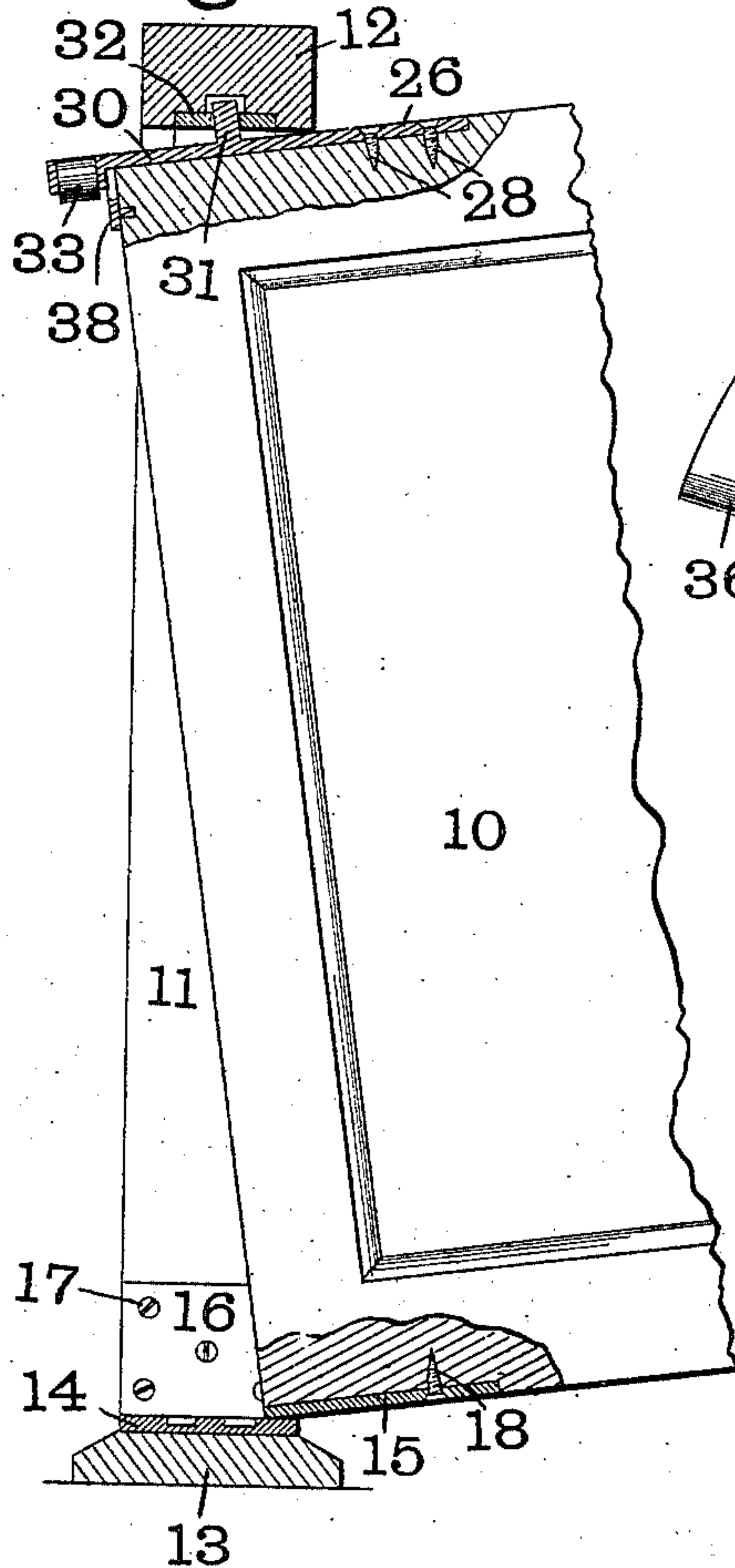


Fig.7.

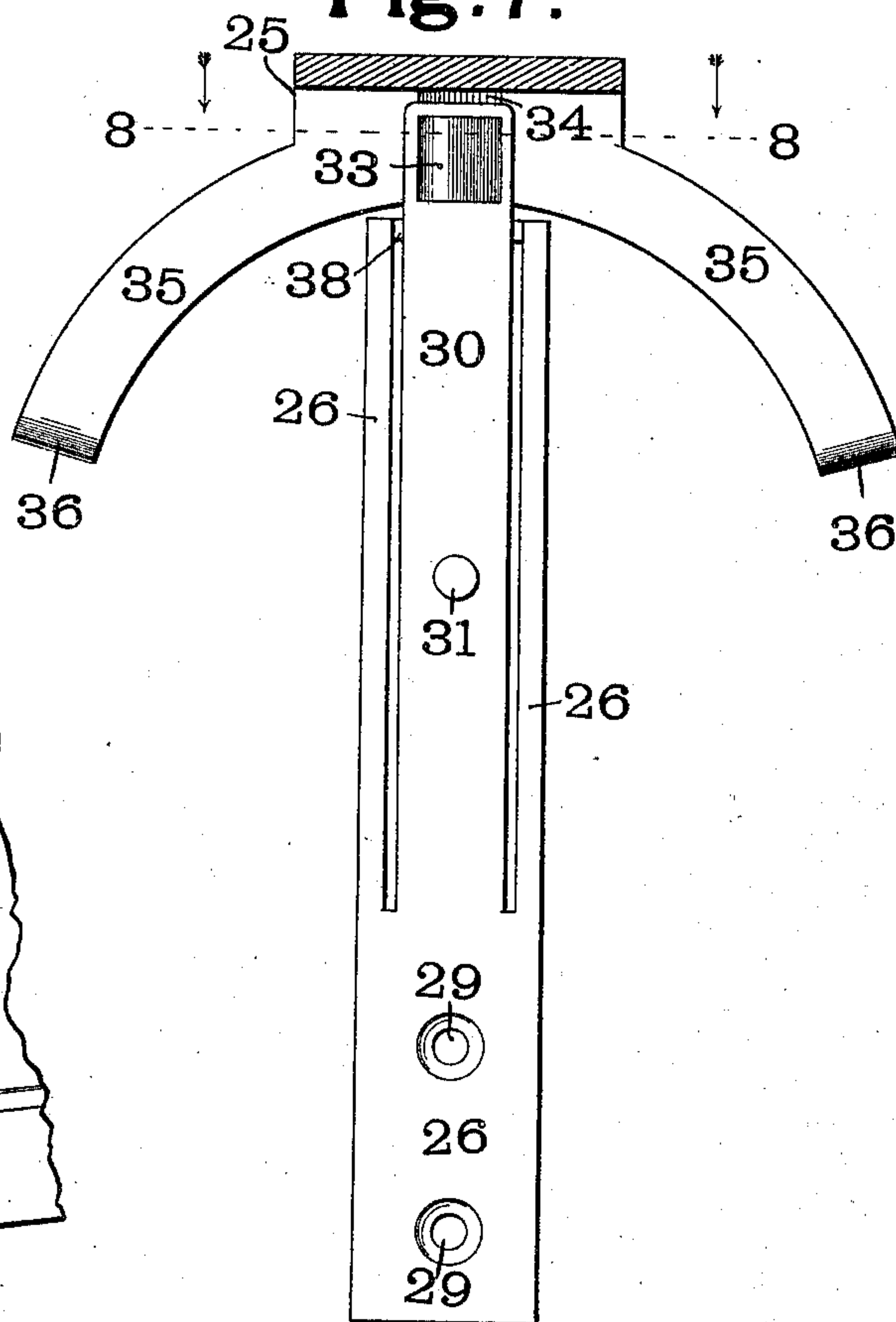
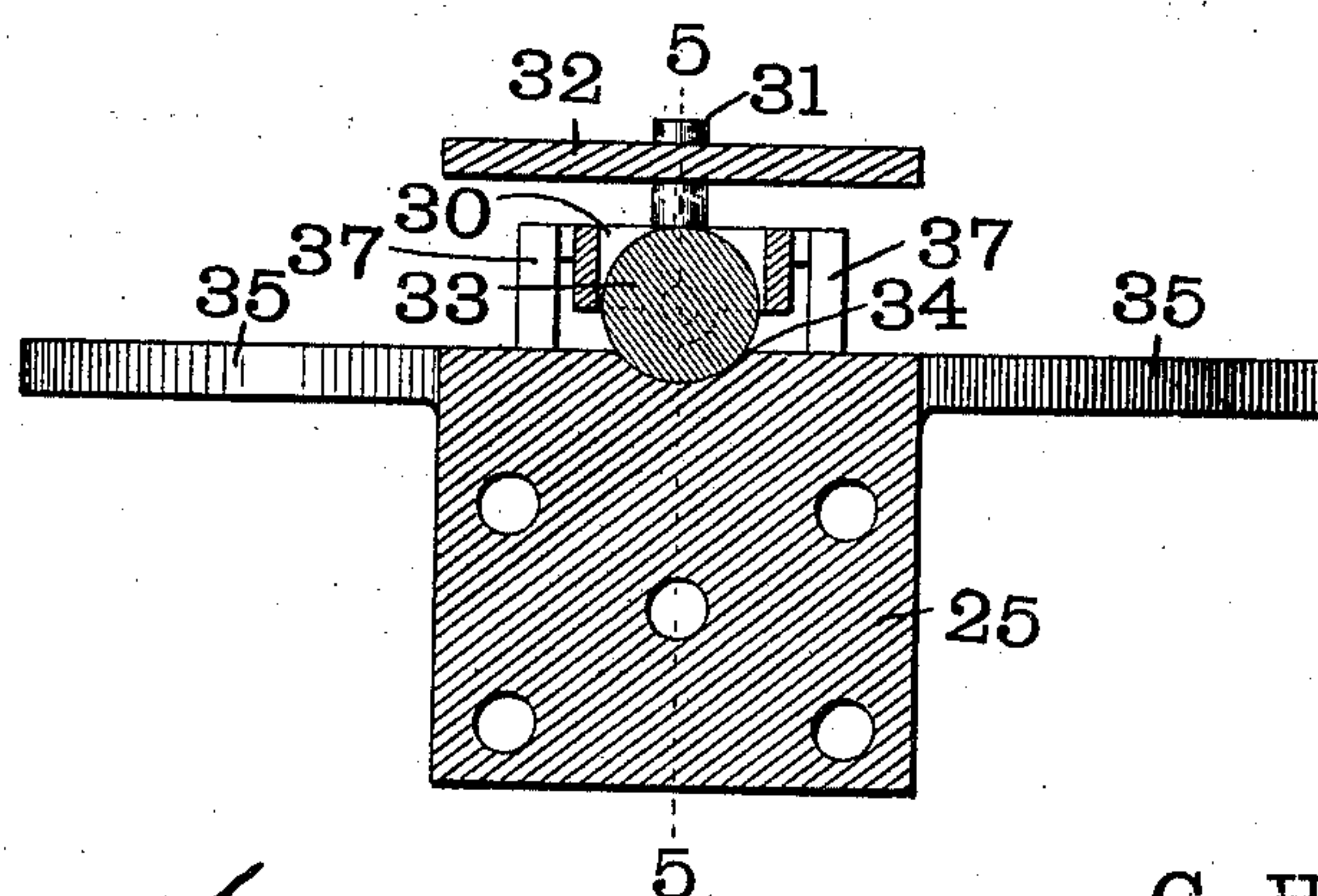


Fig. 8.



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CHARLES H. FOSTER, OF OMAHA, NEBRASKA.

HINGE.

SPECIFICATION forming part of Letters Patent No. 696,028, dated March 25, 1902.

Application filed March 25, 1901. Serial No. 52,735. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. FOSTER, a citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain new and useful Improvements in Hinges for Swinging Doors, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to construct a hinge for a gravity-closing swinging door which will swing in either direction and in which the rear edge of the door will fit close to the rear jamb and also to provide means for holding the door in its closed position until an appreciable amount of pressure is brought to bear against it and also to prevent its repeated swinging to and fro after it is released from its open position.

My invention consists in part in the combination, with a door and its rear jamb, lintel, and sill, of an upper hinge between the upper edge of said door and said lintel and provided with a single pivot and a lower hinge between the lower edge of said door and said sill and provided with two pivots, said upper hinge turning at a point farther from the rear jamb than said lower hinge.

My invention also consists in certain other novel features and details of construction, all of which will be described in the following specification and pointed out in the claims affixed hereto.

In the accompanying drawings, which illustrate the usual form of door with my invention applied thereto, Figure 1 is a view on a reduced scale, partly in elevation and partly in section, showing the door closed. Fig. 2 is a top plan view of the fixed part of the lower hinge. Fig. 3 is a bottom plan view of the movable part of the lower hinge. Fig. 4 is a side view of the movable part of the lower hinge. Fig. 5 is a section on the line 5 5 of Fig. 8. Fig. 6 is a view similar to Fig. 1, but showing the open door. Fig. 7 is a top plan view of the complete upper hinge, the top part of the fixed member being broken away to better show the remaining parts; and Fig. 8

is a section on the line 8 8 of Fig. 7 looking in the direction of the arrows.

Like marks of reference refer to similar parts in the several views of the drawings. 55

10 is the door, 11 the rear jamb, 12 the lintel, and 13 the sill, all of the usual form.

The lower hinge is placed between the lower edge of the door 10 and the sill 13 and is formed of a fixed part 14 and a movable part 15. The fixed part 14 is preferably mortised into the sill 13 and is provided with an upwardly-extending portion 16, which is secured to the rear jamb 11 by means of screws 17 or in any other suitable way. The movable part 15 is secured to the lower edge of the door 10, preferably by means of screws 18, passing through holes 19 in the said movable part 15. In the fixed portion 14 of the lower hinge are formed two curved grooves or guideways 20, at the rear end of each of which is formed a recess 21, extending outwardly. On the lower face of the movable part 15 of the lower hinge are formed two oblong bearings 22, adapted to rest in the rear ends of the grooves 20 and recesses 21. The above-described form of hinge is not broadly claimed in the present application, as the same is covered by my co-pending application, Serial No. 47,391, filed February 15, 1901. The bearings 22 are such a distance apart that they cannot both slip forward into the grooves at the same time. On the lower face of each of the bearings 22 is formed a rounded projection 23, which rests on the bottom of the grooves 20, and thus reduces the friction when the hinge is moved. 60 65 70 75 80 85

The upper hinge is formed of a fixed part 25 and a movable part 26. The fixed part 25 is preferably secured to the rear jamb 11 by means of screws 27, and the movable part 26 is preferably secured to the top edge of the door 10 by means of screws 28, passing through holes 29 in the said movable part 26. Carried by the movable part 26 is a spring-tongue 30, on which is carried a bearing-pin 31. This bearing-pin 31 passes through an opening in a plate 32, preferably carried by the fixed part 25 of the hinge. Journaled in the end of the spring-tongue 30 and projecting beyond the rear edge of the door is a roller 33. When the door is in its closed position, the roller 33 rests in a groove 34 in the fixed part 90 95 100

25 of the hinge. The roller 33 is adapted to travel on a curved track 35, projecting from each side of the fixed part 25 of the hinge. The ends of the track 35 are curved, as shown at 36 in Figs. 5 and 7. In order to prevent the movable part 26 of the hinge from being raised from the top edge of the door with the spring tongue 30, the said part is provided with two downwardly-projecting arms 37, carrying a cross-piece 38, on which is formed a pin 39, adapted to enter the rear jamb of the door 10.

The operation of my door is as follows: When the door is in its closed position, the roller 33, carried by the spring-tongue 30, rests in the groove 34 in the fixed part 25 of the upper hinge, thus preventing the door from being opened until a considerable pressure is brought to bear against it. As soon as sufficient pressure is brought to bear against the door the roller will be forced up out of the groove 34 and to one side of the track 35, the spring-tongue 30 bending sufficiently to allow this. The roller then moves on the track 35. The tension thus brought to bear on the spring-tongue 30 tends to lift the door, and thus relieve the pressure between the parts of the lower hinge. As the door moves upon one of the bearings 22 the movable part of the lower hinge will turn in the corresponding recess 21 in the fixed part of the lower hinge, the other bearing, 22, passing along the opposite groove or guideway 20. As the pivot 31 of the upper hinge is farther from the rear jamb of the door than the bearings 22 of the lower hinge, the outer end of the door will be carried upwardly, as shown in Fig. 6, thus causing the door to tend to return to its closed position. In case the door is opened to a point at right angles to its closed position the roller 33 will pass off the track 35. When the door is released, the roller will be forced up onto the track 35 upon striking the curved end 36, thus tending to lessen the momentum of the door, so that when it reaches its closed position it will be readily stopped in such position by the roller 33 dropping into the groove 34, thus preventing the repeated swinging to and fro of the door. In doors of this class it is usual to provide no raised sill, the floor itself serving as a sill. Therefore where I have used the term "sill" I want to include a floor serving as a sill.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with a door, of a rear jamb, a lintel, a sill, a hinge situated between the upper edge of said door and said lintel and provided with a single pivot, and a hinge situated between the lower edge of said door and said sill and provided with two pivots, said upper hinge having its pivotal point at a greater distance from the rear jamb than said lower hinge.

2. A hinge for doors or the like consisting of a fixed part and a movable part, one of said parts being provided with a pair of bearings, and the other of said parts being provided with a pair of intersecting curved guideways having a recess formed at the outer sides of the rear ends thereof.

3. A hinge for doors or the like consisting of a fixed part and a movable part, one of said parts being provided with a pair of intersecting curved guideways, and the other of said parts being provided with a pair of bearings having rounded projections formed on the faces thereof.

4. In a hinge for doors or the like, a fixed part, a movable part, a track carried by one of said parts, and a spring-mounted member carried by the other of said parts and traveling on said track.

5. In a hinge for doors or the like, a fixed part, a track carried by said fixed part, a movable part, and a spring-mounted member carried by said movable part and traveling on said track.

6. In a hinge for doors or the like, a fixed part, a movable part, a track carried by one of said parts, and a spring-mounted roller carried by the other of said parts and traveling on said track.

7. In a hinge for doors or the like, a fixed part, a track carried by said fixed part, a movable part, and a spring-mounted roller carried by said movable part and traveling on said track.

8. In a hinge for doors or the like, a fixed part, a track carried by said fixed part and having a recess in the central portion thereof, a movable part, and a spring-mounted roller carried by said movable part and traveling on said track.

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

C. H. FOSTER. [L. S.]

Witnesses:

JAMES H. BRYSON,
W. A. ALEXANDER.