

No. 670,515.

Patented Mar. 26, 1901.

D. G. MUSSELMAN.

ANTIRATTLING DEVICE FOR DOORS, &c.

(Application filed Jan. 22, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

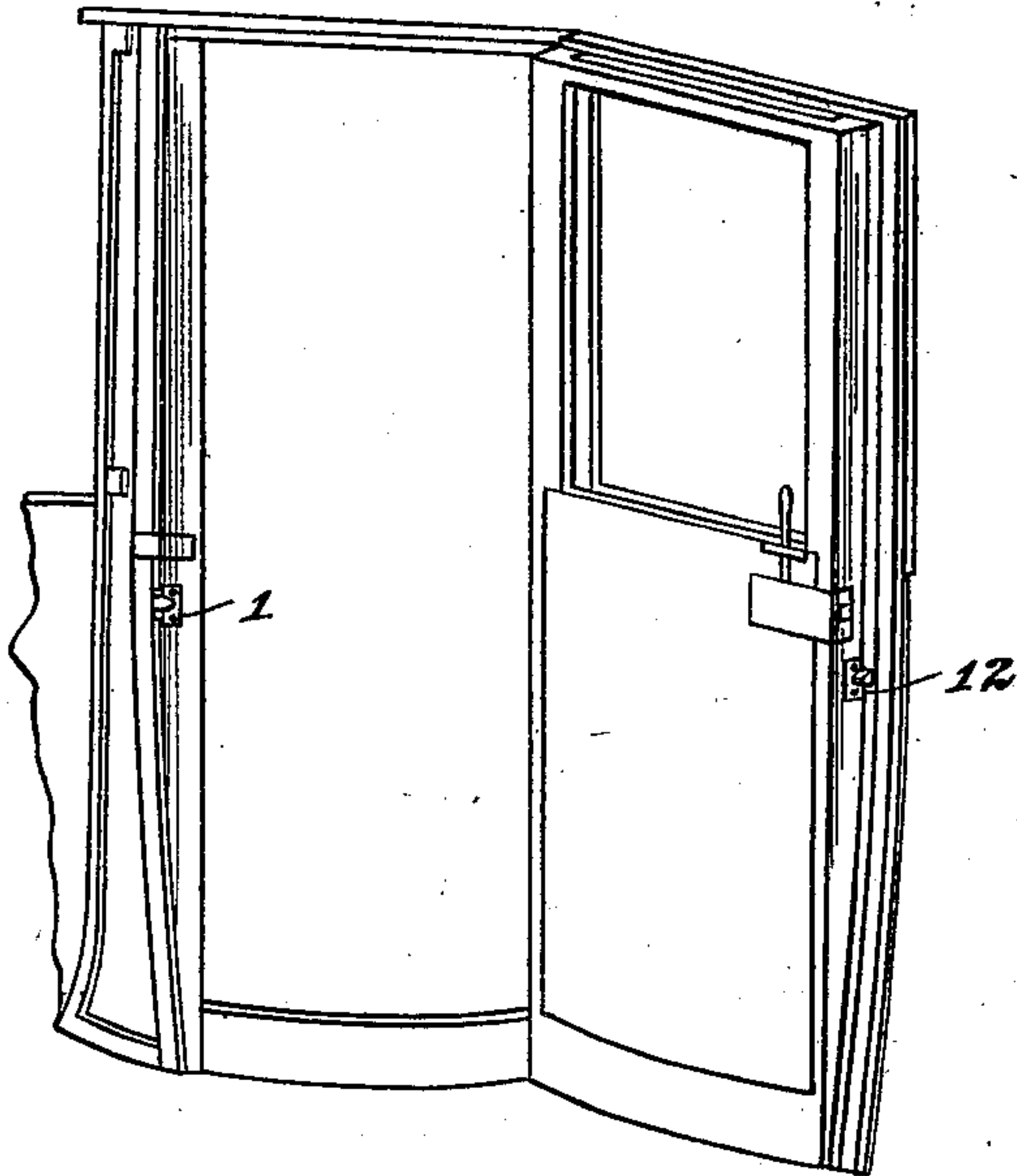


Fig. 5.

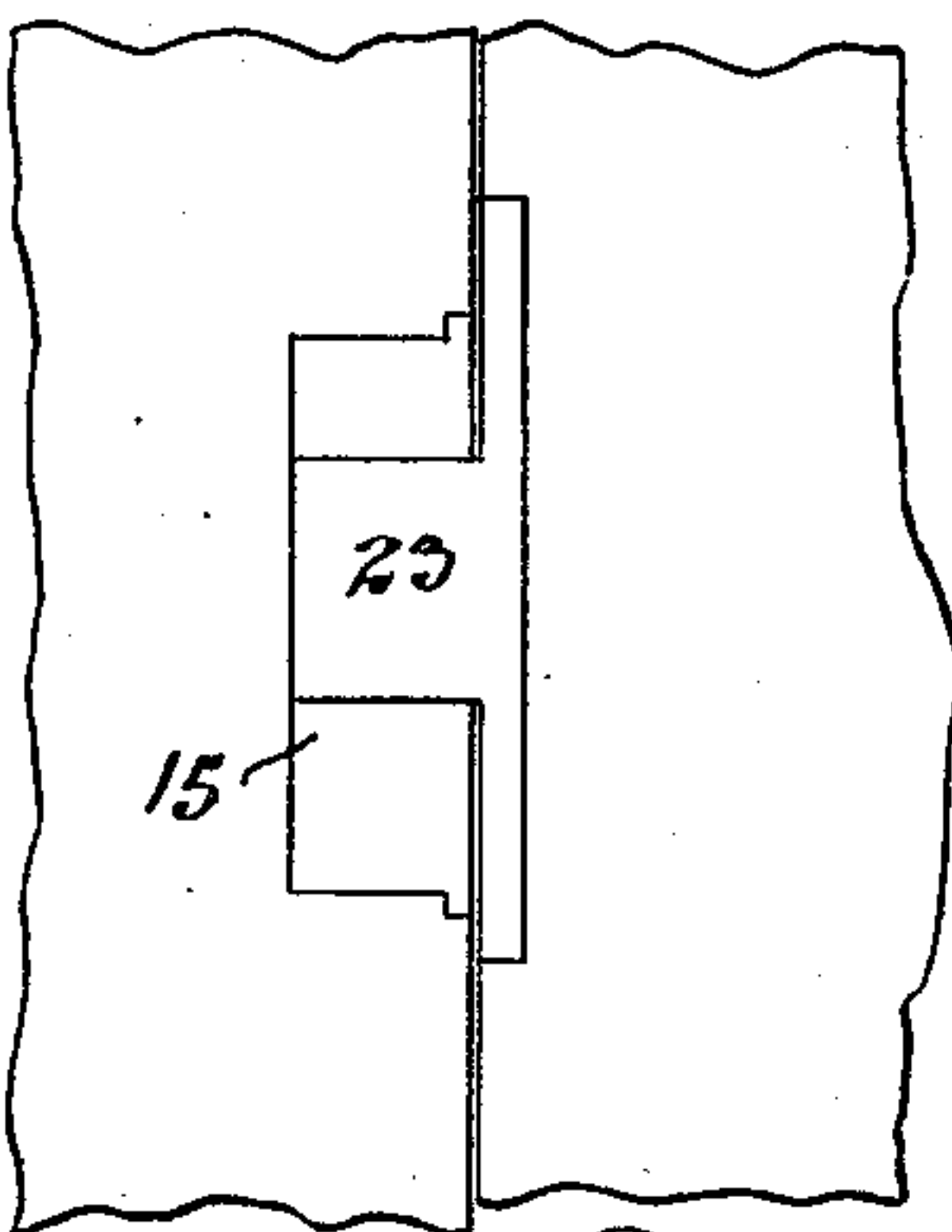


Fig. 4.

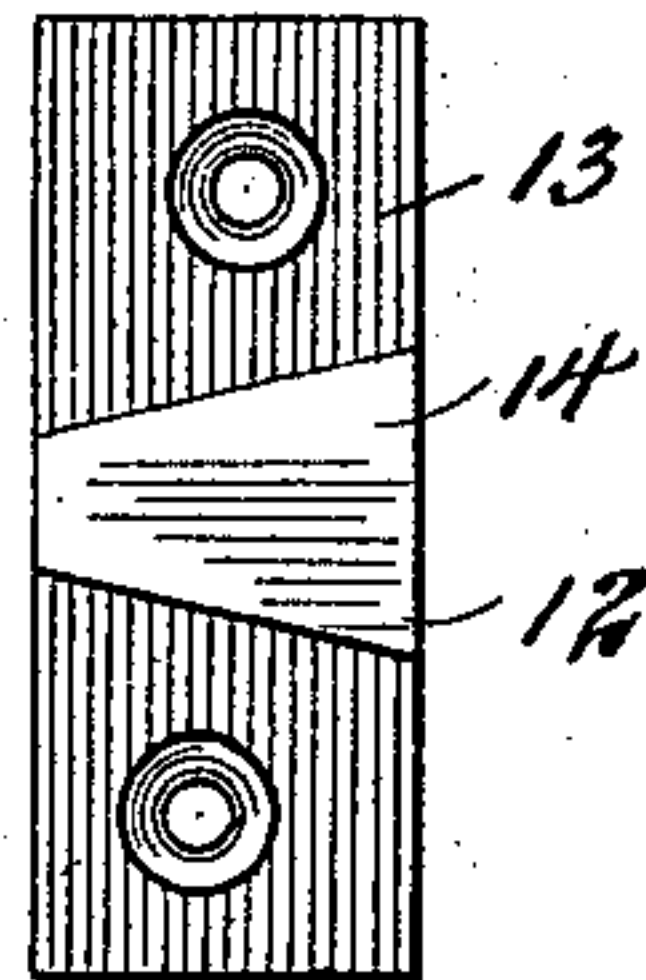


Fig. 7.

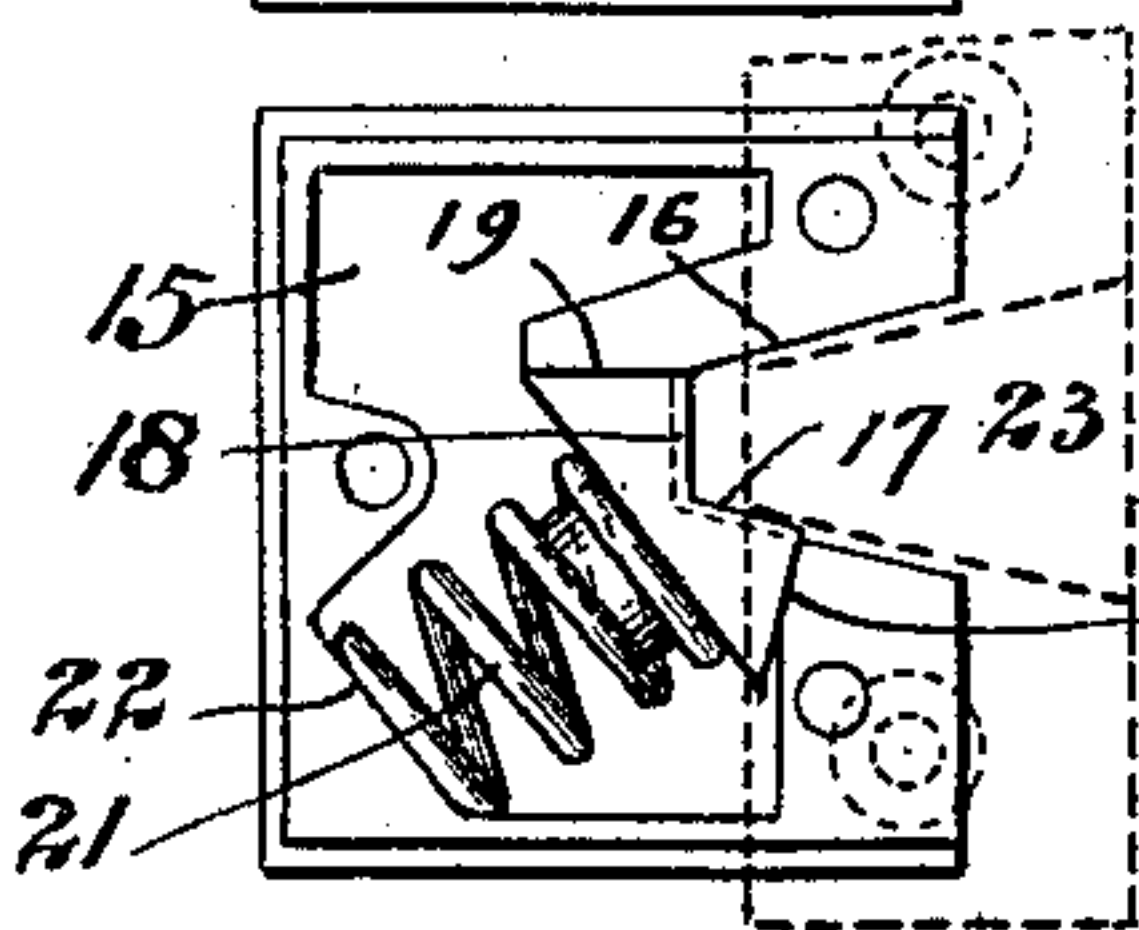
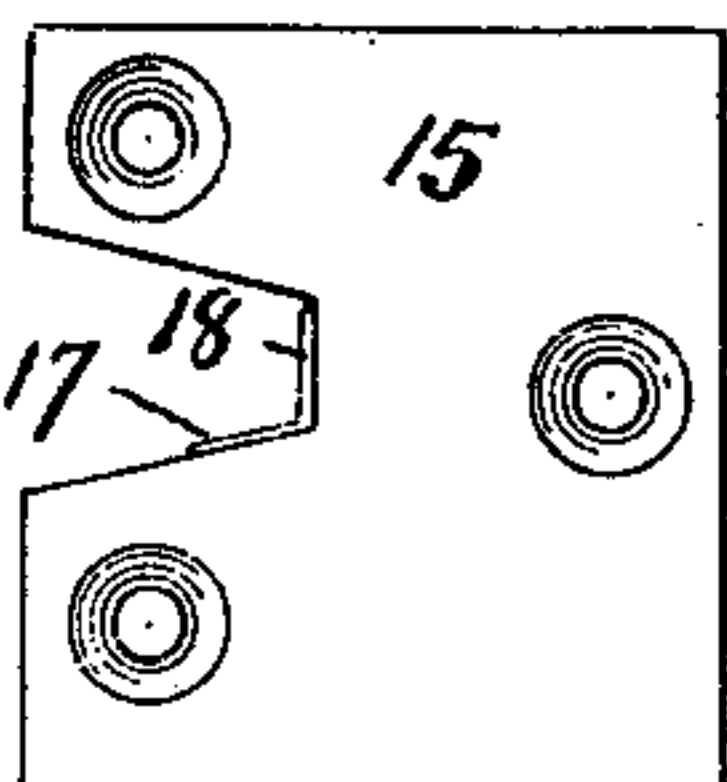


Fig. 6.

Fig. 2.

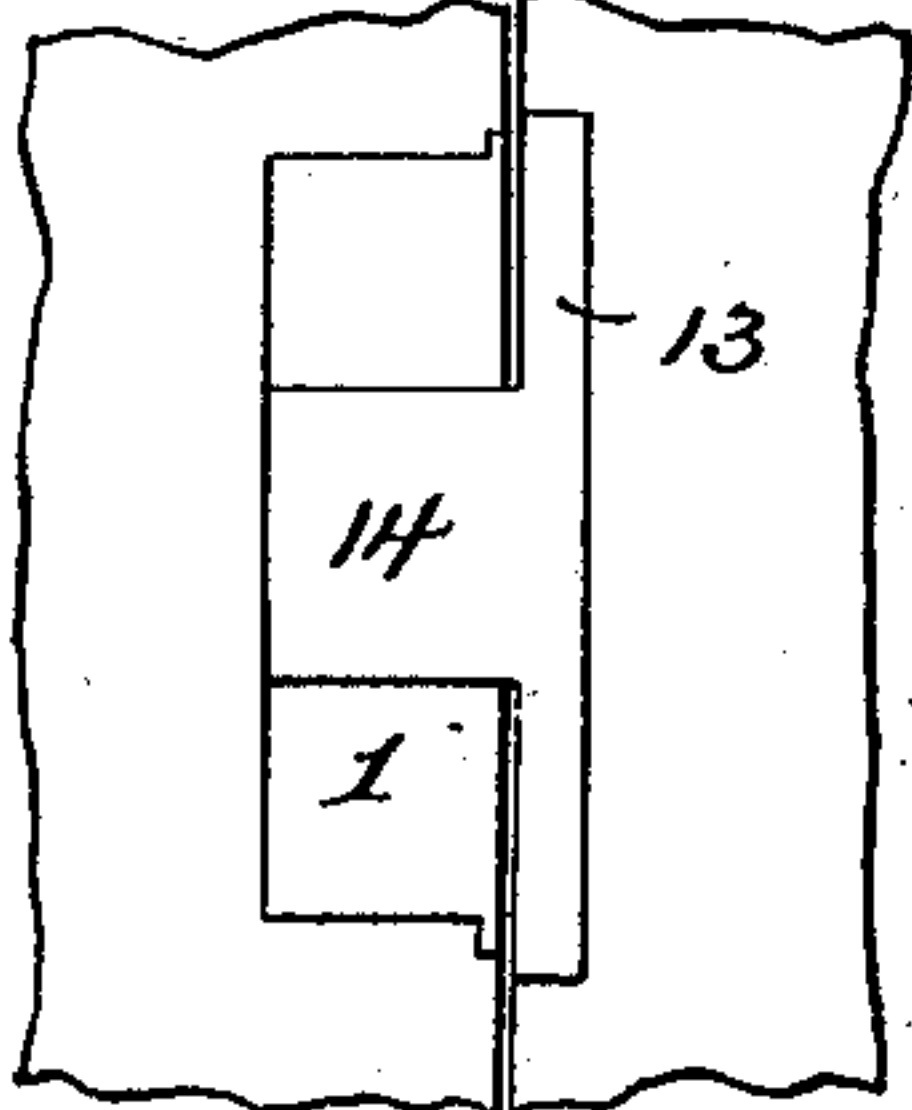
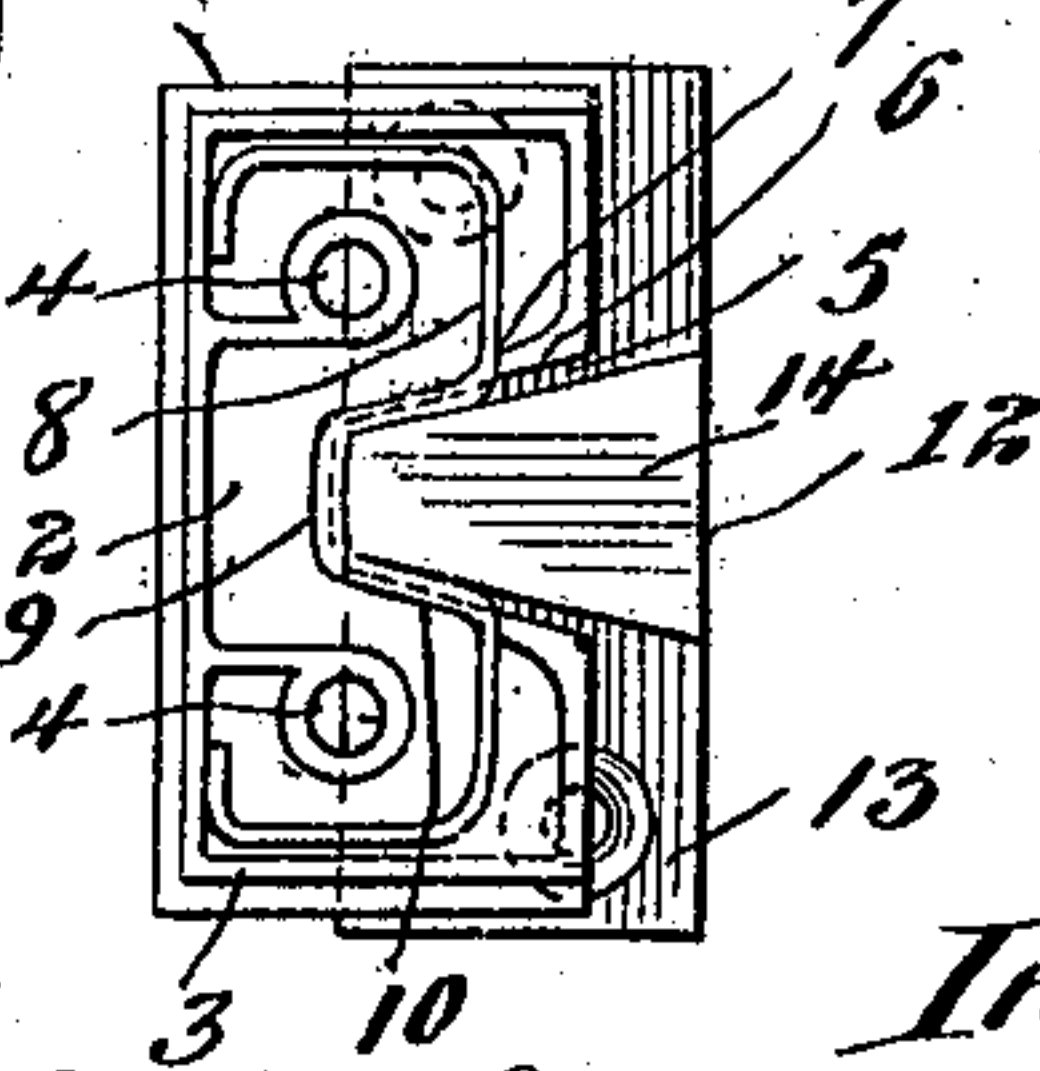


Fig. 3.



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Fig. 8.

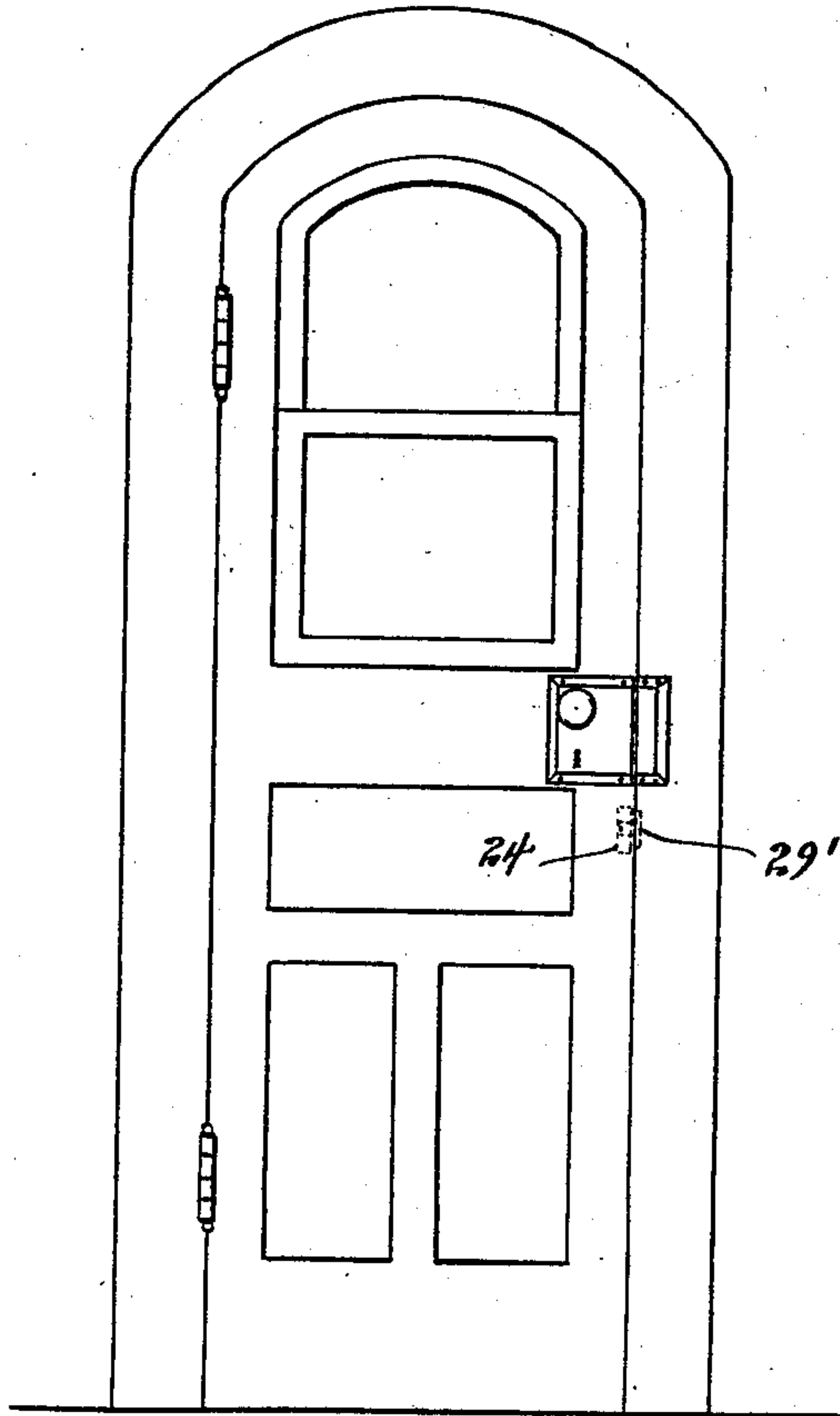
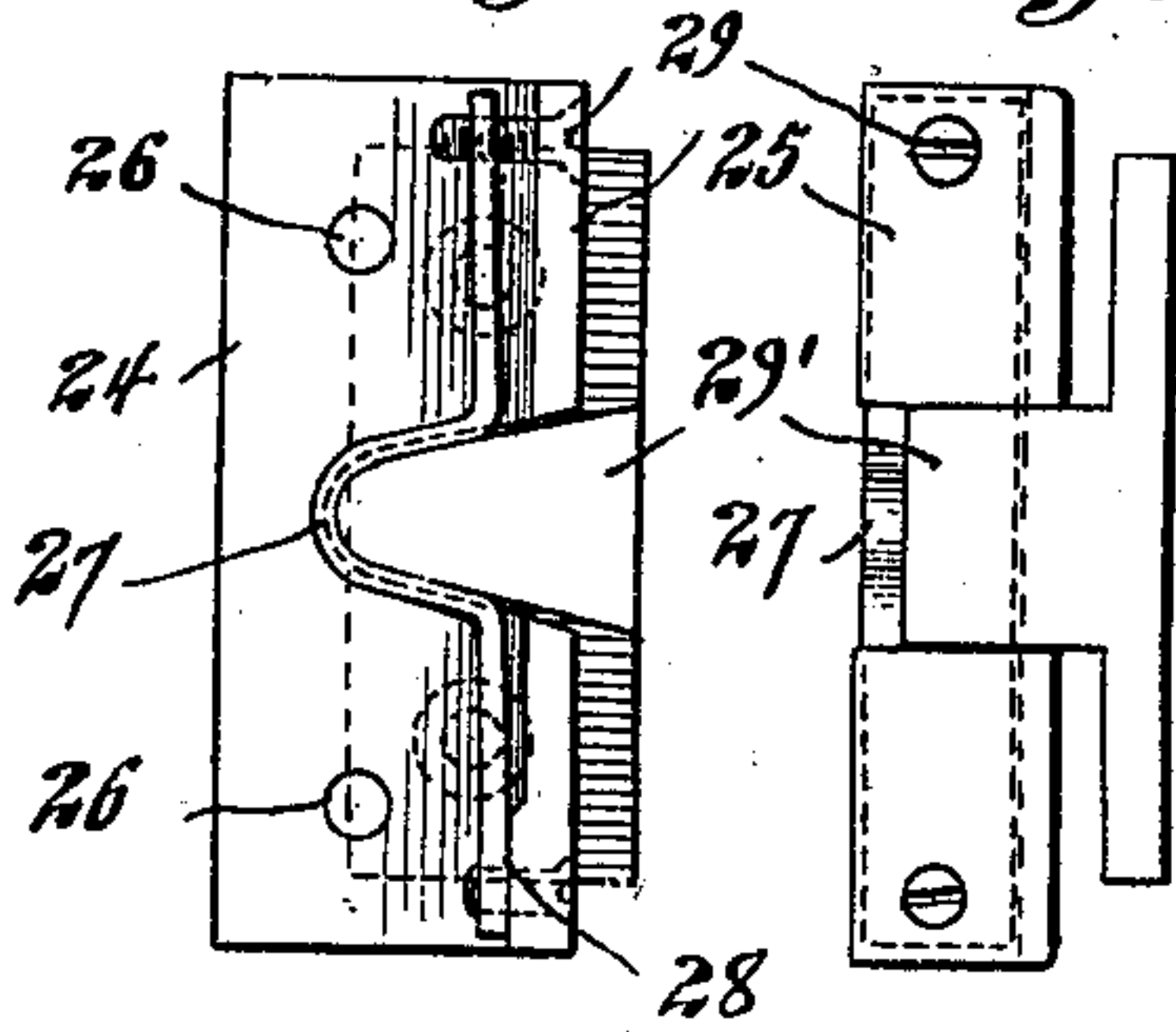


Fig. 9. Fig. 10.



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UNITED STATES PATENT OFFICE.

DAVID G. MUSSELMAN, OF CHICAGO, ILLINOIS.

ANTIRATTLING DEVICE FOR DOORS, &c.

SPECIFICATION forming part of Letters Patent No. 670,515, dated March 26, 1901.

Application filed January 22, 1900. Serial No. 2,354. (No model.)

To all whom it may concern:

Be it known that I, DAVID G. MUSSELMAN, of Chicago, Illinois, have invented certain new and useful Improvements in Antirattling Devices for Doors, &c., of which the following is a specification.

This invention relates to improvements in antirattling devices for use upon doors and other closures, and refers more specifically to a device of the character referred to comprising a yieldable socket mounted upon one member of the closure and a wedge-shaped lug or latch mounted upon the cooperating member of the closure.

The object of the invention is to provide a simple, cheap, and effective device of the character referred to capable of being adapted to doors under all ordinary circumstances without necessitating expensive or special change in the structure to which it is applied.

The invention consists in the matters hereinafter described, and more particularly pointed out in the appended claims, and will be readily understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a carriage-door and the parts of the carriage within which the door-opening is located showing the application of a device embodying my invention thereto. Fig. 2 is an external face view of the device applied to a closure, the latter being in closed position. Fig. 3 is a side elevation of the two members of the device engaged or in operative position, looking at the inner or open side of the fixed or socket member. Fig. 4 is a similar side elevation of the latch member disengaged from the socket member. Fig. 5 is a view similar to Fig. 2 of the parts shown in Figs. 3 and 4. Fig. 6 is a view similar to Fig. 3, except that the latch member is indicated in dotted lines, showing a modified form of the invention. Fig. 7 is an external side elevation of the socket member shown in Fig. 6. Fig. 8 is an elevation of a car-door or the like equipped with my invention, the location of the latter being indicated in dotted lines. Fig. 9 is a view similar to Fig. 3, showing still another modification. Fig. 10 is a face or edge view of the two members shown in Fig. 9 engaged with each other.

Referring to Figs. 1 to 4, inclusive, wherein I have shown a preferred embodiment of my invention, 1 designates as a whole a casing adapted to be mortised into or otherwise seated in one of the members of a closure—usually the jamb—and comprising an outer or face wall 2 and an inclosing flange 3, desirably extending around all sides of the face-plate, except for an interrupted portion at one side thereof, and provided with a plurality of screw-apertures 4, whereby the casing may be secured in position. At one side, as indicated at 5, said casing is provided with a recess or socket-opening, the side walls 6 of which are made tapering inwardly, as indicated most clearly in Fig. 3. The marginal flange 3 is constructed to extend from the front edge of said casing inwardly along the side margin of said recess a short distance and terminating in shoulders 7, located at points intermediate of the depth of the socket or recess.

8 designates a plate-spring arranged within the casing 1 and so shaped as to constitute the effective portion of the inner end of the socket. To this end the central portion 9 of said spring is shaped to conform approximately to the wedge-shaped inner end of the recess, being made, however, of a size normally somewhat smaller than the outline of the recess, as indicated in dotted lines in said Fig. 3, and having its outer ends extended oppositely away from the sides of the recess and engaged with the inner walls of the casing in such manner as to throw its center outwardly or in a direction to decrease the depth of the socket or recess, as well as at the same time to contract the side walls thereof formed by the portions of the spring 10. This end is conveniently accomplished, as shown herein, by extending said outer ends laterally some distance from the socket and then deflecting them backwardly and engaging their extreme end portions 11 with the rear wall of the flange in such manner that the combined action of the two ends tends to throw the central portion of the spring, constituting the socket, forwardly into bearing with the shoulders 7, formed by the ends of the flanges, it being understood that the spring will be so shaped as to tend to contract the side walls of the socket by reason of its own resiliency.

12 designates as a whole the coöperating member, which is provided with the wedge-shaped projection adapted to engage the yieldable socket, said member for convenience of description being hereinafter termed the "latch" member, although having no latch function in the sense of preventing the parts from separation by withdrawing one from the other. In the preferred form shown herein said latch member comprises simply a plate 13, provided with suitable screw-apertures, whereby it may be secured to the door, and upon which plate is rigidly mounted a wedge-shaped block 14, having its smaller end conformed approximately to the shape of the recess of the socket member and being of suitable dimensions to expand or spread apart the yieldable portions of said socket when forced home by the closing of the door or brought into the relation with the socket. (Shown in Fig. 3.) The latch member 12 will be so located upon the door that when the latter is closed the central portion of the spring 8, constituting the yieldable portion of the socket, will not only be expanded or spread laterally, but will also be forced inwardly toward the rear or in the direction of the depth of the socket against the resistance of the spring, so that the door will not only be made rigid against vibration in a direction laterally with relation to the socket, but will also be cushioned in its closing movement and will have a constant pressure exerted against it tending to throw it open, which will result in preventing vibration in the direction of its opening and closing movements.

It will be obvious from the foregoing description that a device constructed as described will require no adjustment to compensate for wear, but will remain effective indefinitely. Obviously the only part of the device liable to destruction or impairment is the spring 8, and this may be replaced at any time at trifling cost and with no appreciable trouble.

In Figs. 5, 6, and 7 I have illustrated a modification which embodies substantially the same general idea. In this construction, 15 designates as a whole the socket member, which corresponds generally to that hereinbefore described, being in this instance, however, provided with a socket or recess having one rigid or unyielding side 16 and having its opposite side formed in part by a retractable block 17, which also forms the inner end 18 of the socket. Said block 17 is held and guided in its place by means of guide-surfaces 19 20, formed by the flange portions of the casing, and is held yieldably projected in a direction approximately dividing the angle between its parts 17 and 18, forming the yieldable side and end wall portions of the socket, by means of a coiled spring 21, engaged with a suitable boss upon said block at one end and at its opposite end seated against the interior wall of the casing, as indicated at 22. The latch member 23 (indi-

cated in dotted lines in Fig. 6) is constructed substantially like that hereinbefore described. Obviously the operation of this device is substantially the same as that of the device before described, the principal difference being that instead of tending to center the latch member the yieldable block will always force the latch member laterally into bearing with the rigid side 19 of the socket by reason of the oblique direction in which the thrust of said block is exerted. Obviously the cushioning effect will also be secured, although somewhat less effectively, owing to the indirect direction in which the spring acts upon the entering latch-block.

In Figs. 9 and 10 I have shown still another modification in which the same idea is embodied in a somewhat simpler construction. In said figures, 24 designates as a whole the socket member, which consists simply of a plate having its front edge turned at right angles to the main body of the plate to form an upstanding flange 25, the plate being provided with suitable screw-apertures 26, whereby it may be secured in position. 27 designates a plate-spring forming a yieldable socket in substantially the same manner as does the spring 8 of the construction first described, it being noted, however, that in this instance the inner end of the socket is rounded, so that the side walls merge into the end wall without demarcation. The opposite end portions of the spring are extended oppositely from the recess adjacent to the upstanding flange 25, one end being rigidly secured to a shoulder 28, formed by a slight thickening of the flange, while the opposite end is adjustably connected with the flange 25 by means of a tensioning-screw 29, whereby this end of the spring may be swung inwardly or outwardly to increase or decrease the depth of that portion of the socket formed by said spring. The latch or striker of the latch member 29' is suitably formed to fit the socket. The operation of this device will be entirely obvious from the description of the preceding construction.

While the foregoing-described constructions constitute practical embodiments of my invention, yet it will be obvious that still other modifications may be made without departing from the invention, and I do not therefore wish to be limited to the details shown except as they may form the subject of specific claims.

I claim as my invention—

1. In a combined cushioning and anti-rattling device, for application to doors and the like, the combination of a socket member having a part composed of resilient material and having a socket provided with inwardly-converging wall portions yieldable both inwardly and laterally, and a latch member provided with a wedge-shaped projection adapted to fit and expand said socket both laterally and inwardly when forced therein.

2. In a combined cushioning and anti-

rattling device, for application to doors and the like, the combination of a socket member provided with an inwardly-tapering recess, a spring forming the inner end portion and 5 parts of both side portions of said recess, and a cooperating latch member provided with a projection adapted to engage and force back the said inner end wall of the recess against the outward thrust of the latter to enter into 10 wedging engagement with the yielding side portions of said socket-recess.

3. In a device of the character described, the combination of a casing-plate, as 2, provided with an inclosing flange, as 3, an inwardly-tapered recess formed in one edge of 15 said casing-plate and extending through the inclosing flange, a plate-spring having a por-

tion conformed approximately to the outline of the inner end portion of said tapering recess, as 9, and an end portion engaged with 20 the interior of the casing in such manner as to tend to force the socket portion of the spring outwardly or in a direction to decrease the depth of the socket, and a latch member, as 12, provided with a tapered engaging pro- 25 jection, as 14, the end of which is adapted to enter said spring socket portion against the spring-pressure, of the latter, substantially as described.

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