

No. 863,595.

PATENTED AUG. 20, 1907.

C. DIPPLE, JR.
DOOR HANGER.

APPLICATION FILED DEC. 21, 1906.

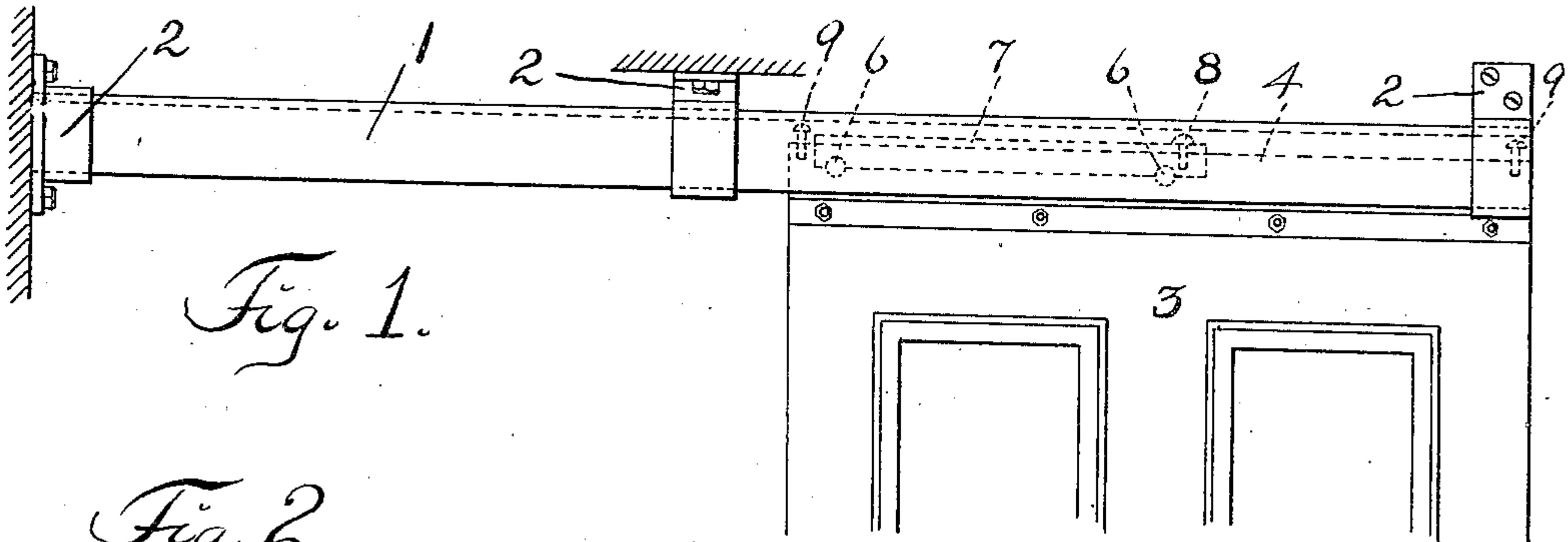


Fig. 1.

Fig. 2.

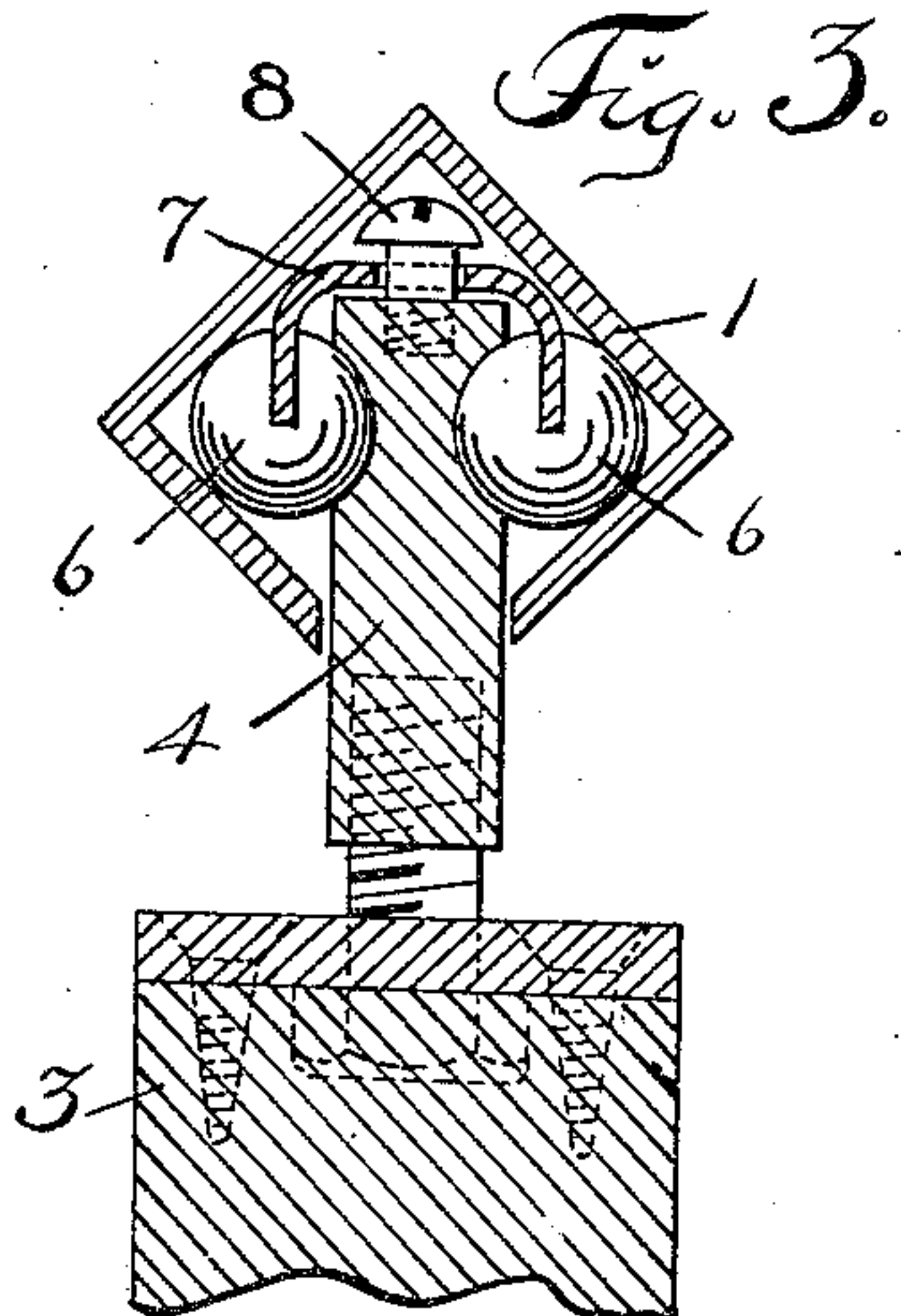
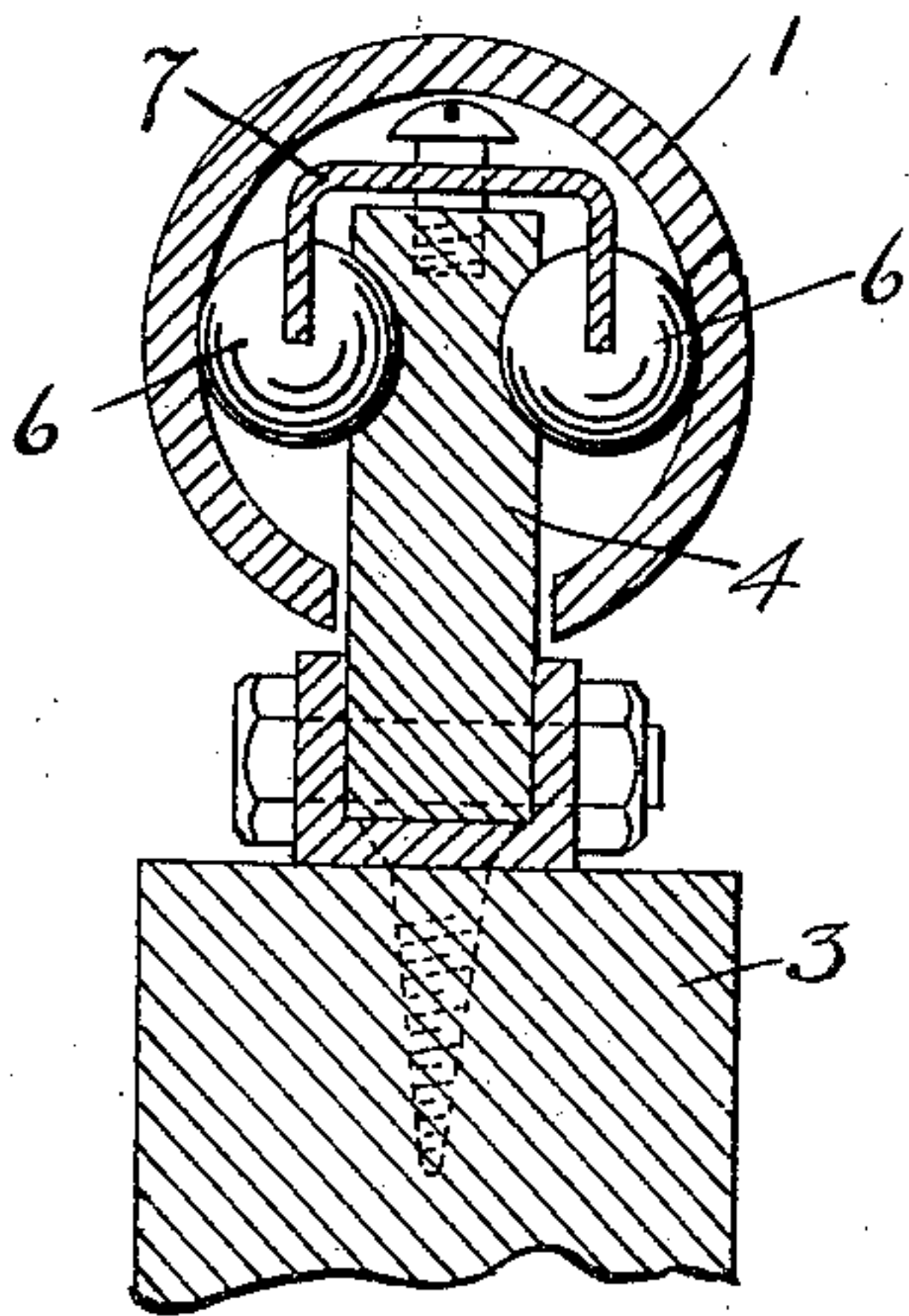


Fig. 3.

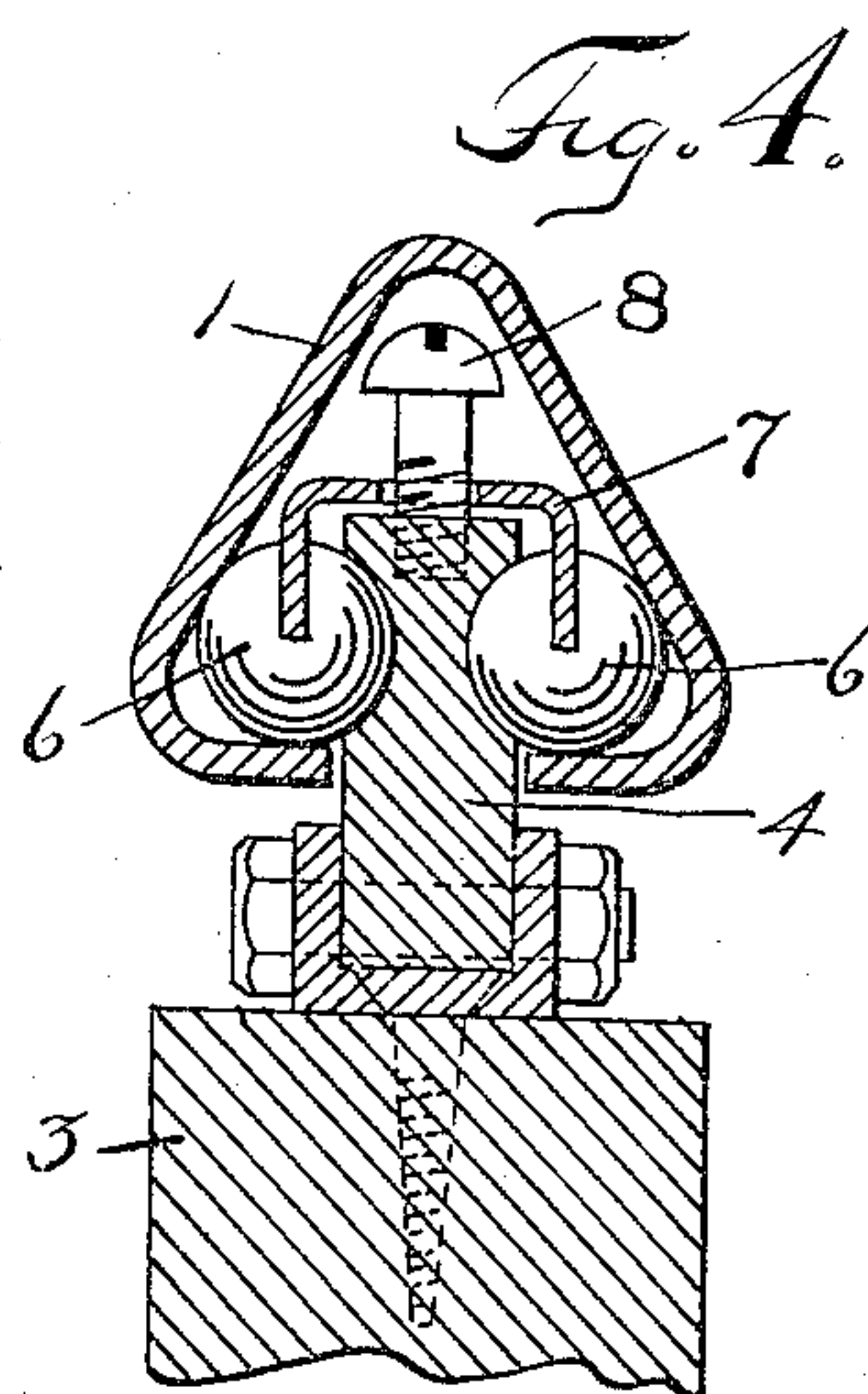


Fig. 4.

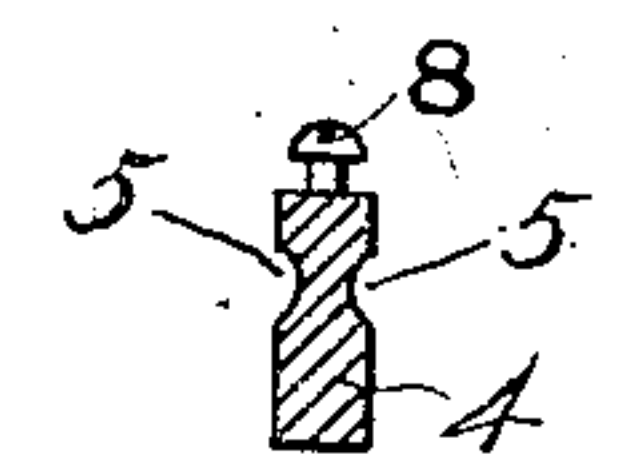


Fig. 6.

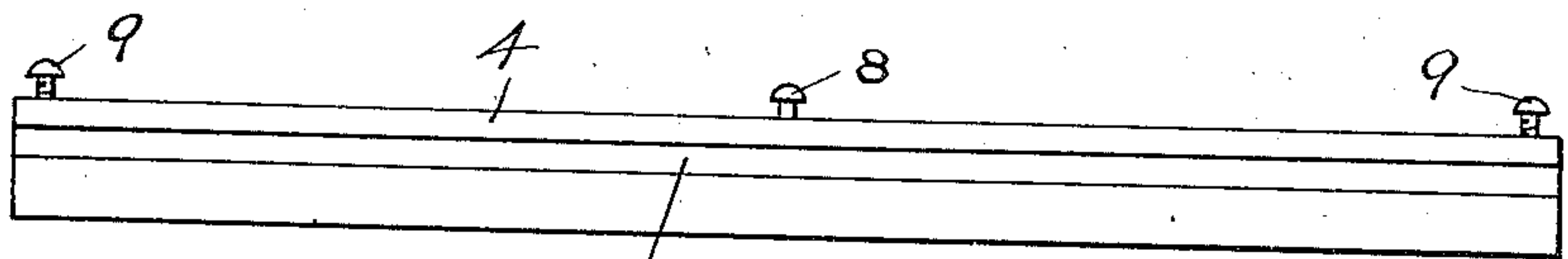
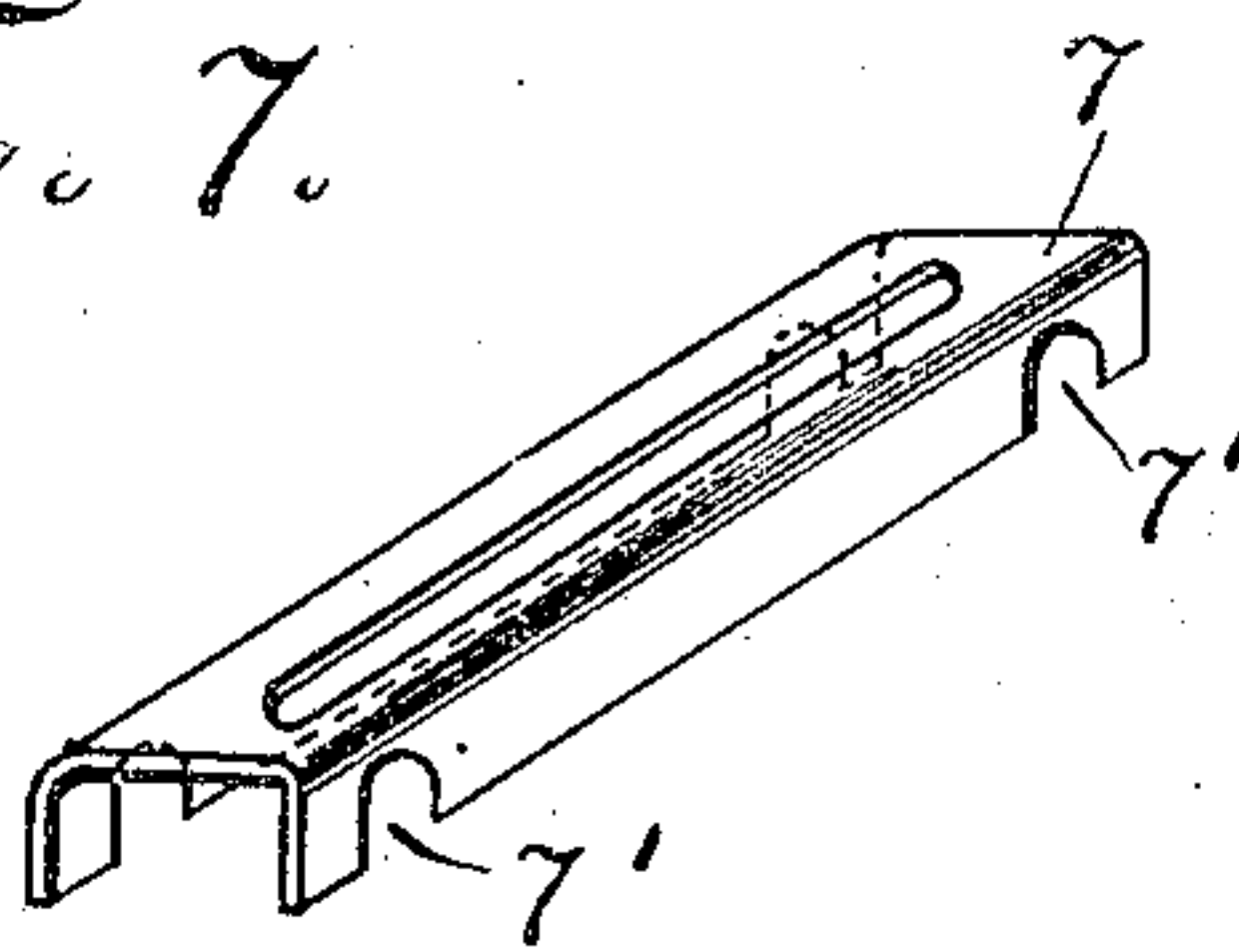


Fig. 5.

Fig. 7.



WITNESSES:

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UNITED STATES PATENT OFFICE

CHARLES DIPPLE, JR., OF BROOKLYN, NEW YORK.

DOOR-HANGER

No. 863,595.

Specification of Letters Patent.

Patented Aug. 20, 1907.

Application filed December 21, 1906. Serial No. 348,900.

To all whom it may concern:

Be it known that I, CHARLES DIPPLE, Jr., a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, with post-office address 7 St. Francis Place, have invented certain new and useful Improvements in Door-Hangers, of which the following is a specification.

My invention relates to the construction of anti-friction bearings for sliding doors, windows or other objects.

The invention is especially useful for doors, and for the purposes of illustration I will, therefore, describe the same as applied to a door.

The main object of the invention is to provide a simple and effective device having the necessary strength and also so constructed as to occupy but little space.

Briefly stated, my invention consists in the combination with a hollow track or rail consisting of metal tubing having a longitudinal slot to permit connection with the door or other object, of a carriage consisting of a bar having two race ways upon its two opposite vertical faces and anti-friction devices such as balls suitably retained upon said race ways and traveling also upon race ways formed on the inner face or wall of said hollow track or rail.

In carrying out my invention, I prefer to employ a metal tube which, in cross section, would be angular in form and would have the slot so located that the balls or anti-friction devices will each, in addition to its bearing upon the side of the bar, have a double bearing upon the interior of the rail or track.

My invention consists further in an improved form of hollow track which is triangular in cross section and which has the slot formed in one of its sides.

My invention consists further in other details of construction and combination of parts more particularly hereinafter described and then specified in the claims.

In the accompanying drawings, Figure 1 represents my improved apparatus in side elevation as applied to a sliding door. Figs. 2, 3 and 4 are full sized cross sections through various forms of hollow track or rail. Fig. 5 is a side elevation to reduced scale of the sliding bar or carriage. Fig. 6 is a cross section of the same. Fig. 7 is a perspective view of the ball retainer.

1 indicates the hollow track or rail suitably supported in the desired position by hangers or equivalent devices of any desired number as indicated at 2.

3 is the sliding door and 4 is the bar or carriage to which the door is suitably attached. In the opposite faces of the bar or carriage 4 are formed suitable race ways or grooves 5 which receive the anti-friction devices consisting, as usual in the art, of the balls 6.

The manner of attaching the door 3 or other object to the bar or carriage 4 may obviously be varied in-

definitely, some of the forms of attachment being clearly shown so as not to require further description in Figs. 2, 3 and 4.

The hollow track or rail 1 has a continuous longitudinal slot formed in its side next the door to permit the passage of the bar or carriage or of the attachment by means of which connection is formed between said bar and the door, window sash or other object. The hollow track or rail 1 may be of various forms in cross section, being practically tubular.

The track or rail in Fig. 2 forms a true tube, being practically circular in cross section and each ball 6 while having a bearing in the race way or track 5 has but one bearing against the inner wall of the hollow track.

In the form shown in Fig. 3, the hollow track or rail forms an angular figure in cross section and the longitudinal slot therein is formed between two of the meeting sides. Each of the two sets of balls on the opposite sides of the bar is then permitted to have two bearings on the inner face of the hollow track as shown. Obviously the hollow track or rail might be polygonal instead of rectangular in cross section, and the two bearings for each ball upon the inside of the rail instead of being upon meeting sides might be upon sides separated from one another by an intermediate side or face of the figure.

In Fig. 4 I show a preferred form of hollow rail which is, briefly stated, triangular in cross section and has its longitudinal slot formed in one side. This gives each anti-friction ball a double bearing on the inside of the hollow track, one bearing being on the side in which the slot is formed and the other on the adjacent inclined side.

Attached to the top of the bar or rail 4 is a suitable retainer for the anti-friction balls or other anti-friction devices. This retainer may consist, as shown in Fig. 7, of a channel-shaped piece of metal 7 placed in inverted position on top of the bar or carriage 4 so that its sides will drop below the same and to position to engage the balls 6 which run in notches or openings at 7' in the ball retainer. The top of the channel-shaped retainer is provided with a slot through which passes the retainer screw 8 which prevents the retainer from entirely leaving the bar and from moving in any direction other than that taken by the bar. Obviously a large number of balls might be used on each side of the bar, in which case the number of notches 7' would be correspondingly increased.

Near each end of the bar 4 and on the top thereof, I provide a suitable adjustable stop comprising, preferably, a screw 9 by setting which an adjustment is provided for any inequalities of thickness in the rail or track thereby affording means for preventing the bar from jumping or kicking out of its right position as it

is moved back or forth in the slotted rail or track. If for instance the bar be of less thickness, it would be permitted to settle down further in the hollow track since it is sustained by the lateral engagement of the balls with its sides and with the walls of said track. In such case the bar would be capable of a greater up and down play in the hollow track and to take up such play the screw is adjusted to project to a greater distance from the top of the bar so as to move very closely to the top of the hollow rail and thereby prevent the said bar from moving in anything but a straight line.

What I claim as my invention is:

1. In an anti-friction bearing for sliding doors and other objects the combination of a hollow track consisting of metal tubing provided with a longitudinal slot, a bar having race ways for anti-friction devices formed upon its opposite faces and sets of anti-friction devices having bearings in said race ways and upon the inner face of the hollow track.
2. In an anti-friction bearing for doors and other objects the combination, as described, of a hollow rail or track consisting of metal tubing angular in cross section

and provided with a longitudinal slot, a bar or carriage having ball bearing grooves on its opposite faces, and anti-friction balls retained between said grooves and the inner wall of the track, and each having a double bearing on the latter, as and for the purpose described.

3. In an anti-friction bearing for doors, etc., the combination of a hollow rail or track triangular in cross section and having a longitudinal slot in one of its sides, a bar or carriage provided with race ways or grooves in its opposite faces, and anti-friction devices retained in said race ways and each having a double bearing on the inside of the hollow track, one bearing being on the slotted side and the other upon the next adjacent side of said hollow track.

4. In an anti-friction bearing for doors, etc., the combination of a hollow track, a bar moving longitudinally therein and adjusting stops mounted on the bar to adjust for any inequalities and prevent the bar from jumping or kicking out of position, as and for the purpose described.

Signed at New York in the county of New York and State of New York this 20th day of December A. D. 1906.

CHARLES DIPPLE, JR.

Witnesses:

C. F. TISCHNER, JR.,
LILLIAN BLOND.