

No. 845,519.

PATENTED FEB. 26, 1907.

C. J. CALEY.

HINGE.

APPLICATION FILED NOV. 10, 1906.

Fig. 1.

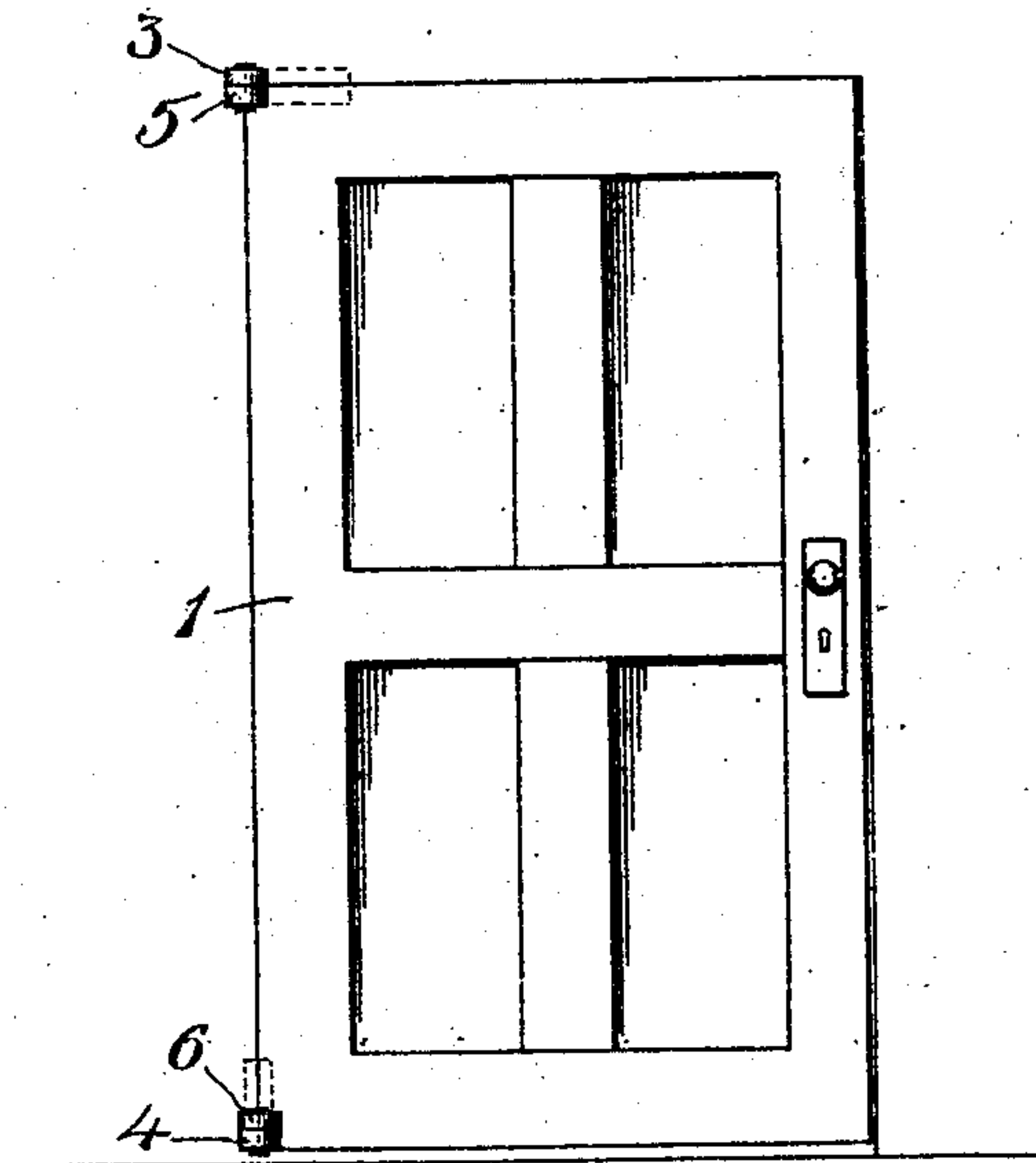


Fig. 2.

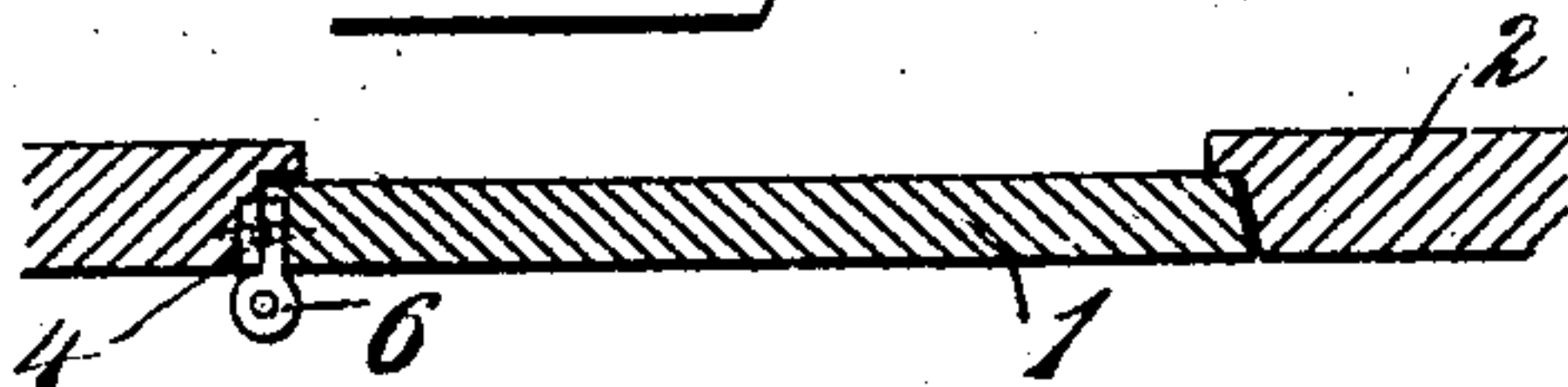


Fig. 3.

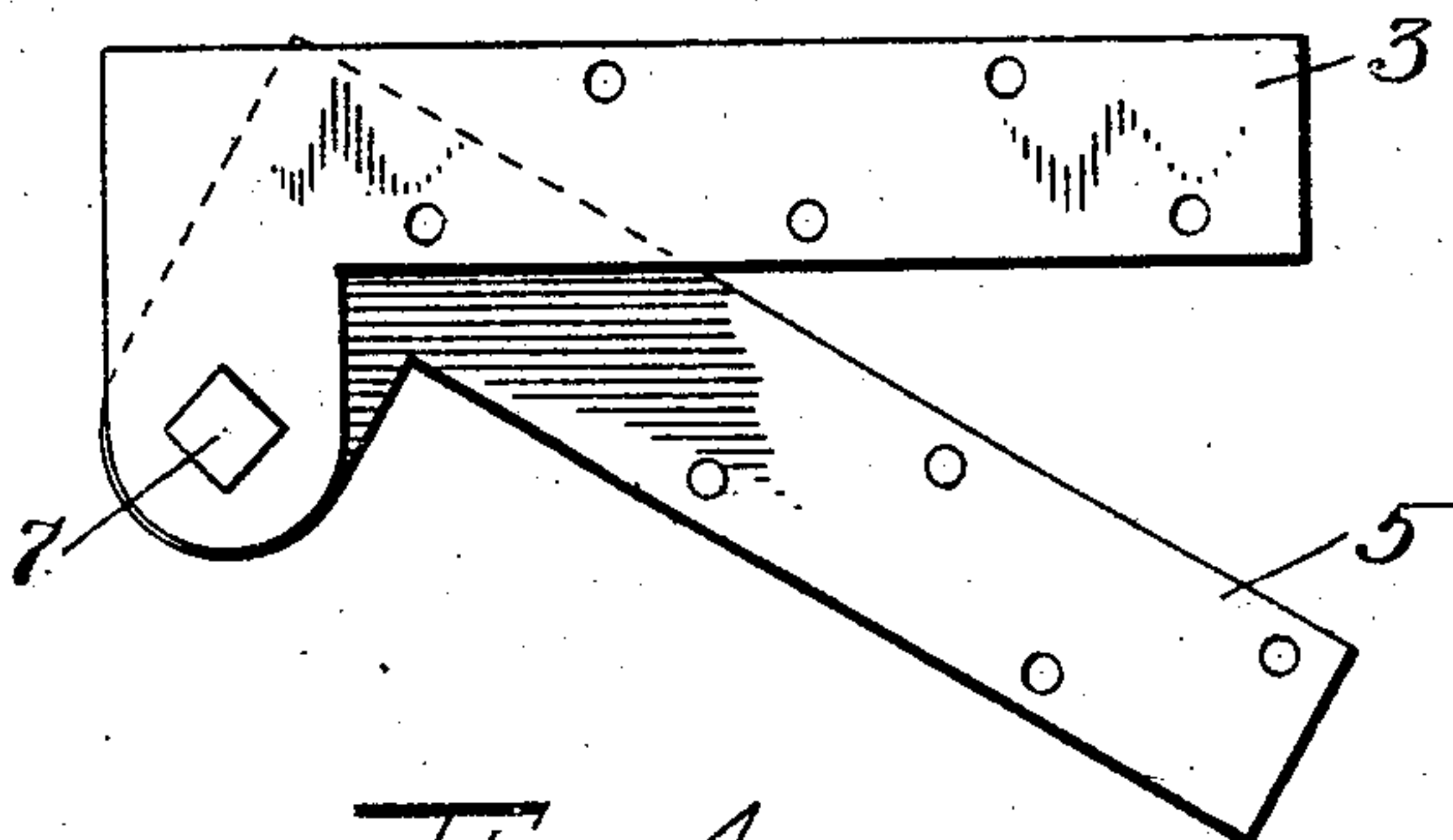
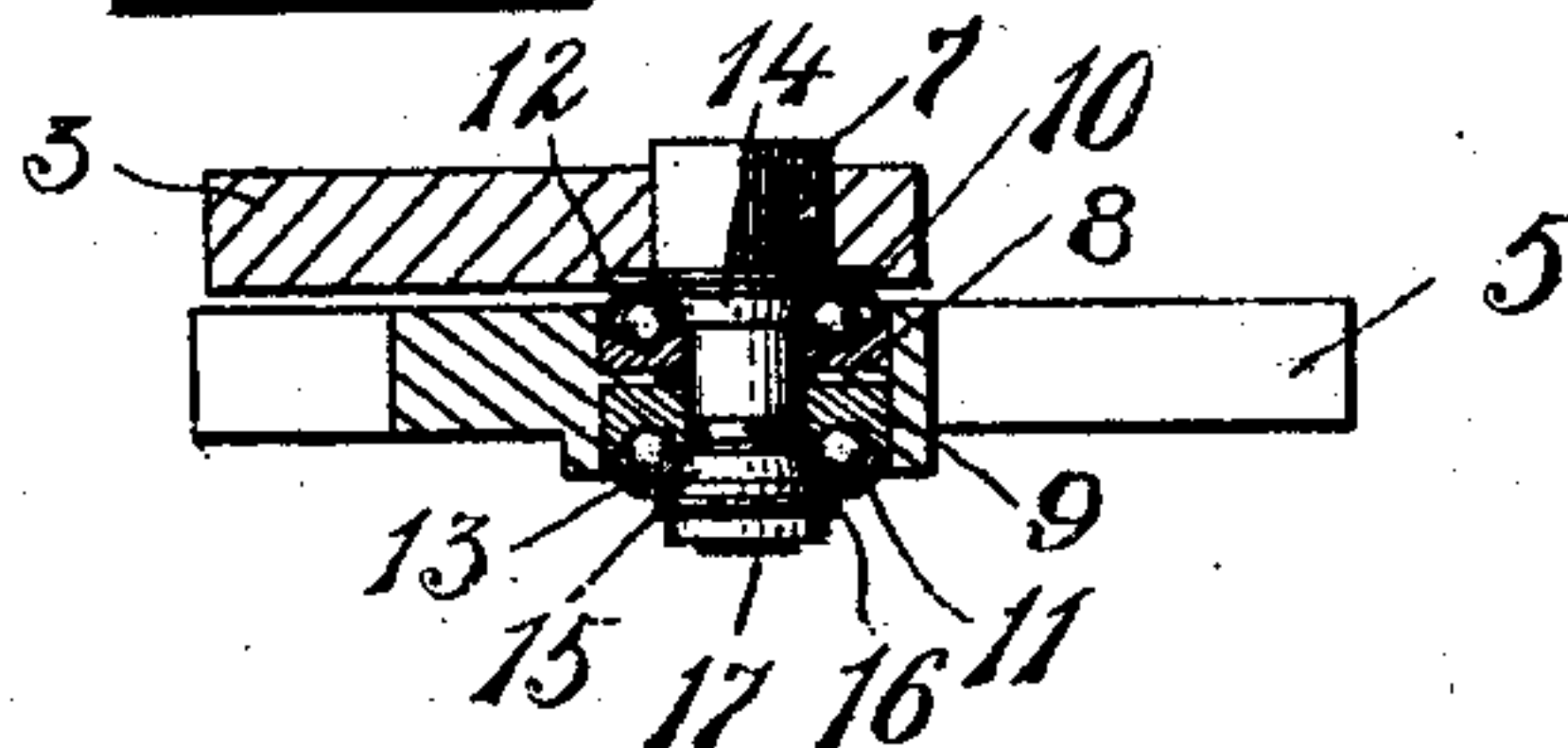


Fig. 4.



Witnesses

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# UNITED STATES PATENT OFFICE.

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## HINGE.

No. 845,519.

Specification of Letters Patent.

Patented Feb. 26, 1907.

Application filed November 10, 1906. Serial No. 342,823.

*To all whom it may concern:*

Be it known that I, CHARLES J. CALEY, a citizen of the United States, residing at New Britain, county of Hartford, Connecticut, have invented certain new and useful Improvements in Hinges, of which the following is a full, clear, and exact description.

My invention relates to hinges, and particularly for doors.

The principal object of the invention is to provide a simple and reliable hinge, particularly for supporting heavy doors. In accomplishing this object I have employed ball-bearings adapted to take up the vertical and horizontal stresses brought into play by the action of the door in ordinary use.

The invention consists in improvements the principles of which are illustrated in the accompanying single sheet of drawings.

Figure 1 illustrates a door with hinges embodying the improvements of my invention. Fig. 2 is a horizontal section of the door and casing, taken just above the lower hinge. Fig. 3 is a plan view of the upper hinge partially opened. Fig. 4 is a vertical sectional view of the same, partly in elevation.

The door 1 is pivoted to swing in the casing 2 by means of the upper and lower hinges. The hinge members 3 and 4 are secured to the door frame or casing, while the hinge members 5 and 6 are secured to the door. The construction of the upper and lower hinges is similar, so that detailed illustration and description of the upper hinge will be sufficient for the purpose of this application, the leaves of the hinges being, however, slightly different in shape and disposition.

The hinge member which is secured to the door carries a pivot 7, which has one end angularly shaped and projecting for some distance and adapted to be seated in a correspondingly-shaped opening in the other hinge member, so that the pivot remains stationary with the stationary hinge member when the door swings, but so that the door and its hinge member may be assembled or disassembled readily.

The hinge members are constructed of suit-

able material—for instance, brass or composition—and the door member 5 has recesses in which are seated on opposite sides the hardened bearings 8 and 9. Two series of balls, such as 10 and 11, coact with these bearings 8 and 9 and are covered and protected by plates 12 and 13, respectively. The bolt 7 has a hardened cone-bearing 14, which may be integral with it and which bears against the series of balls 10. At the opposite end of the pivot is an adjustable cone-bearing 15, which coacts with a series of balls 11. A washer 16 is introduced between bearing 15 and the set-nut 17.

By this construction the parts of the bearings are kept intact and protected from dirt and injury, and yet may be adjusted to adapt them to different conditions as necessity may require.

What I claim is—

1. A construction of the character described, comprising the combination of a door and door-casing with hinges at the top and bottom, each hinge comprising a member carried by the casing with an outstanding portion, an angular opening provided in said outstanding portion, and a member carried by the door with a corresponding outstanding portion, a pivot loosely mounted in said latter outstanding portion provided with separate cone-bearings, members intermediate said cone-bearings forming therewith raceways, and two series of ball-bearings in said raceways, said pivot non-rotatably seated in said opening.

2. A hinge, comprising two members each provided with an outstanding part, one movable relative to the other, a pivot carried by one member and provided with two cones vertically separated from each other, bearings on said member forming raceways therewith, and a series of balls in said raceways, said pivot removably and non-rotatably engaging the other member.

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Witnesses:

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