

No. 662,614.

Patented Nov. 27, 1900.

E. A. WENTWORTH.
BALL BEARING DOOR FOR SHOW CASES, &c.
(Application filed May 31, 1900.)

(No Model.)

Fig. 1.

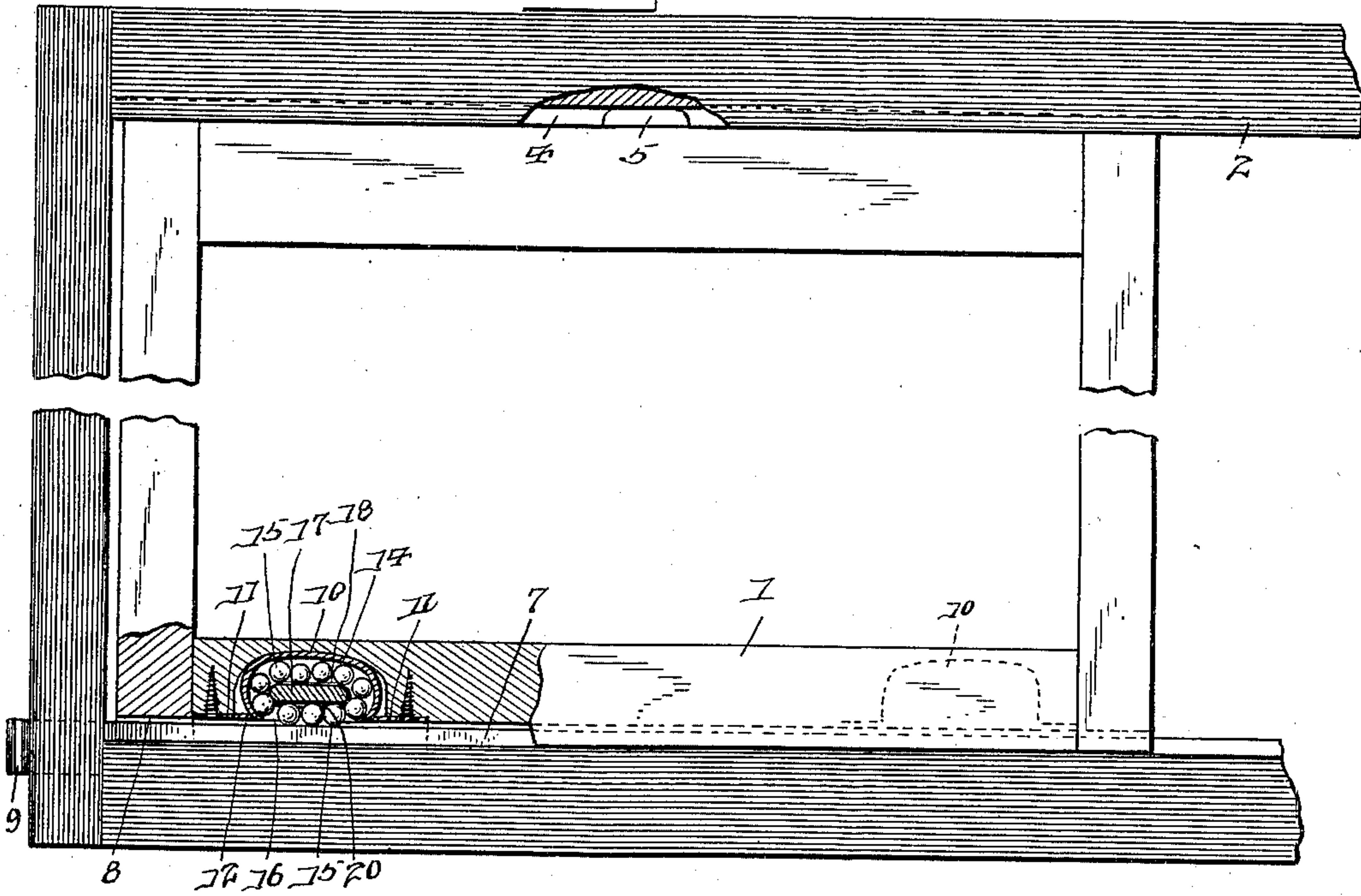
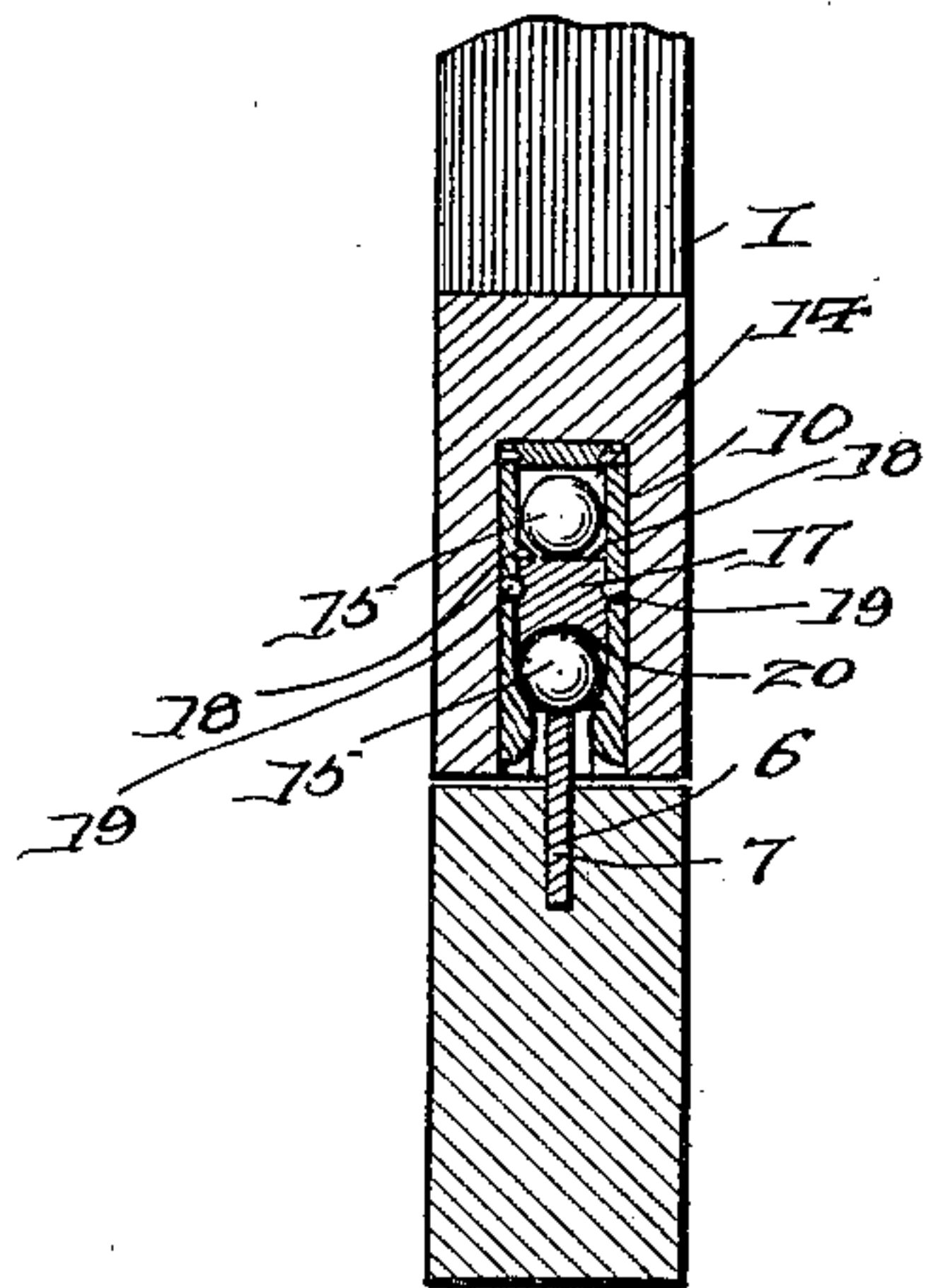
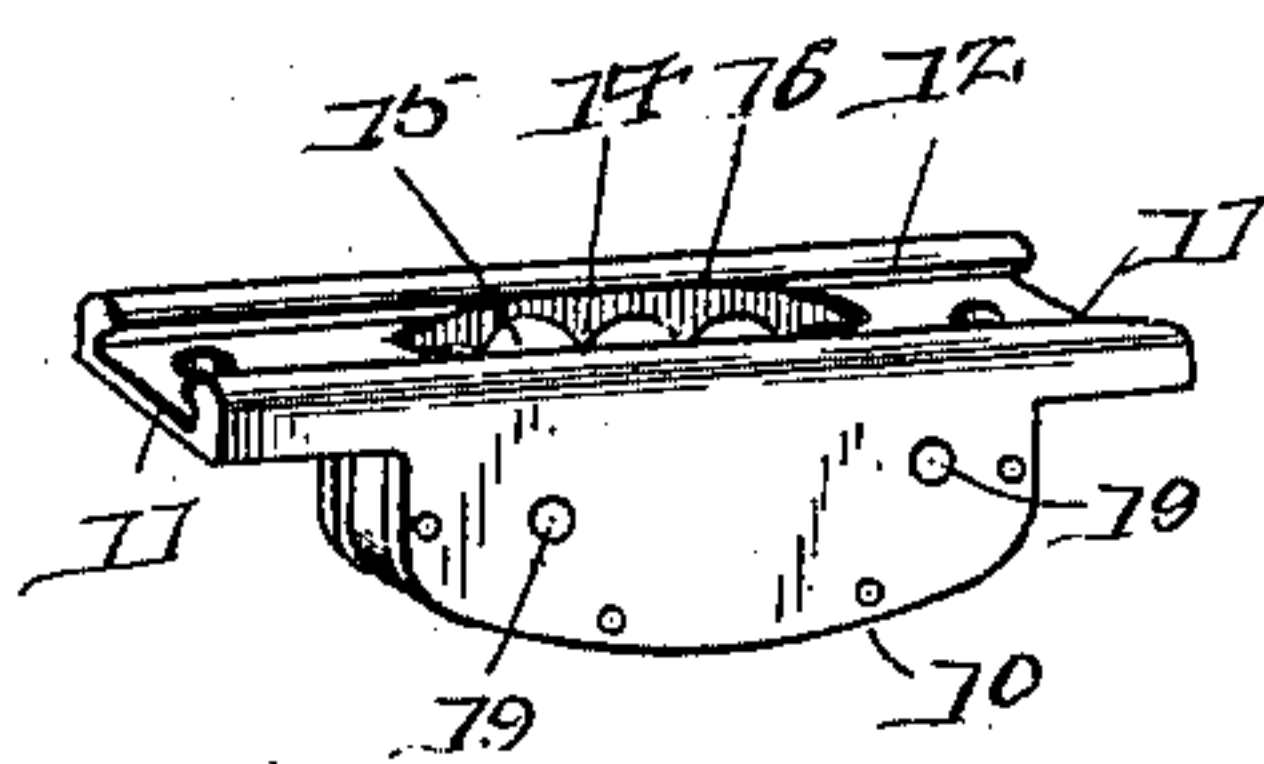
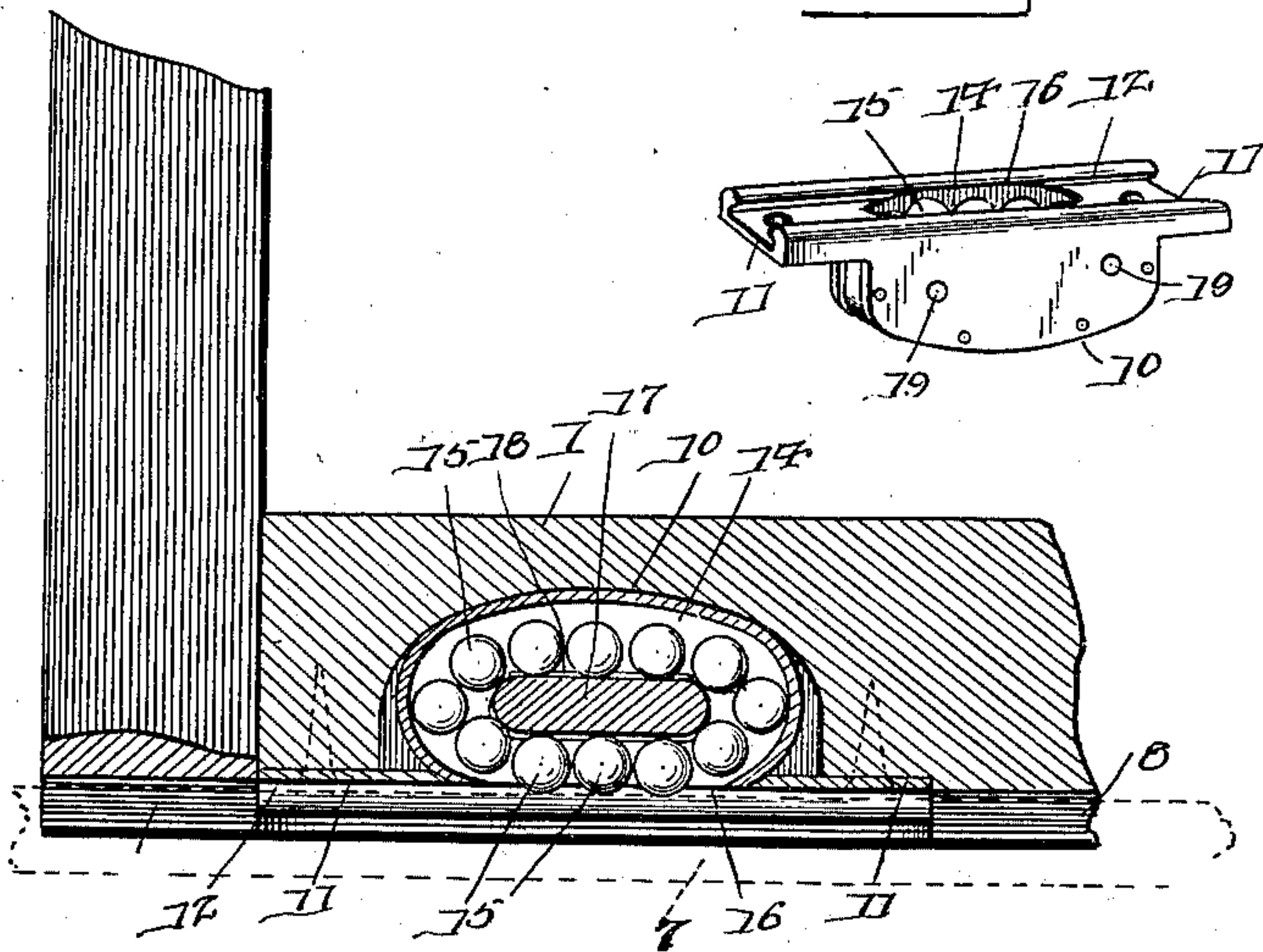


Fig. 2.

Fig. 4.

Fig. 3.



Witnesses

F. E. Alden,
H. K. Riley

E. A. Wentworth, Inventor

by C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

EVERETT A. WENTWORTH, OF BAR HARBOR, MAINE.

BALL-BEARING DOOR FOR SHOW-CASES, &c.

SPECIFICATION forming part of Letters Patent No. 662,614, dated November 27, 1900.

Application filed May 31, 1900. Serial No. 18,617. (No model.)

To all whom it may concern:

Be it known that I, EVERETT A. WENTWORTH, a citizen of the United States, residing at Bar Harbor, in the county of Hancock and State of Maine, have invented a new and useful Ball-Bearing Door for Show-Cases, &c., of which the following is a specification.

The invention relates to improvements in ball-bearing doors for show-cases and the like. The objects of the present invention are to improve the construction of sliding doors, more especially the manner of mounting the same, and to provide a simple and comparatively inexpensive one provided with a roller-bearing and adapted to be readily removed from the frame in which it is mounted.

The invention consists in the construction and novel combination and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claim hereto appended.

In the drawings, Figure 1 is an elevation, partly in section, showing a sliding door arranged within a frame. Fig. 2 is an enlarged sectional view of the same, taken longitudinally of the door. Fig. 3 is a detail sectional view taken transversely of the door. Fig. 4 is a detail perspective view illustrating the construction of the casing and the arrangement of the balls relative to the groove.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a sliding door arranged within a rectangular frame 2, designed to form a portion of a show-case; but the improvements are applicable to various other forms of sliding doors and may be advantageously applied to bookcases and the like. The rectangular frame 2 is provided at its top with a longitudinal groove 4, forming a way for the reception of a tongue or projection 5, extending from the top side of the door, as clearly shown in Fig. 1. The bottom of the frame 2 is provided with a longitudinal groove 6, removably receiving a longitudinal strip or bar 7, which preferably projects above the bottom of the frame 2 to form a longitudinal tongue to engage a bottom groove 8 of the lower side of the door. The end 9 of the strip or bar 7 is designed to project beyond the frame, so that the said strip or bar may be readily removed

from the groove of the frame 2. The lower edge of the door is arranged adjacent to the upper edge of the bottom bar of the frame 2, as clearly shown in Fig. 1, and when the strip or bar is removed the door may be readily taken out of the frame.

Within the lower portion of the door is mounted a casing 10, provided at its bottom with arms 11 and having a longitudinal groove 12 extending from the outer end of one arm to the outer end of the other arm, and the side walls of the groove are undercut to reduce the friction to a minimum. The casing, which is provided at its bottom with an opening communicating with the groove, is provided also with an elliptical ball-race 14, receiving a series of friction-balls 15, which are adapted to project through the opening 16 to engage the upper edge of the metal bar or strip 7, as clearly shown in Fig. 2. The body portion of the casing is elliptical, and a central longitudinal block or piece 17 is arranged within the casing, being supported at its upper edge by ribs 18 and secured to the sides of the casing by rivets or projections 19, formed integral with the block or piece and extending through perforations of the sides of the casing and headed at their outer ends. The lower edge or face of the block or piece is grooved to receive the balls which bear against the same, and the said bottom groove 20 conforms to the configuration of the said balls, as clearly shown in Fig. 3. The arms or extensions are provided with openings for the reception of fastening devices for securing the casing to the door, as clearly shown in Fig. 1. One or more sets or series of balls may be provided for supporting a sliding door, and they are preferably arranged near the ends thereof, as indicated in Fig. 1, and when the door slides longitudinally of the frame the balls will roll around the elliptical ways and will reduce the friction to a minimum. The upper face of the central longitudinal block or piece is flat and its ends are rounded, and the distance between the top of the casing and the upper face of the block or piece is greater than the diameter of the balls to permit the latter to move freely. The casing may be constructed in any suitable manner, and the upper ribs, which support the central block

or piece, may be cast integral with the sides of the casing or may be formed by grooving or indenting the same.

5 It will be seen that the sliding door is exceedingly simple and inexpensive in construction, that the removable strip or bar detachably secures the door within the frame, and that the ball-bearings reduce the friction to a minimum and enable the door to slide freely.

10 What I claim is—

The combination of a rectangular frame provided with opposite grooves and having an opening at one end communicating with one of the grooves, a sliding door provided at 15 one side with a groove and having means at the opposite side for engaging one of the grooves of the frame, a removable bar arranged in the other groove of the frame and

extending into the groove of the door and passing through the said opening and projecting beyond the frame and adapted to be 20 readily withdrawn to permit the door to be removed, a casing arranged in a recess of the door and provided with grooved arms registering with the groove of the door and receiving the bar, and balls arranged within 25 the casing and adapted to bear against the bar, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in 30 the presence of two witnesses.

EVERETT A. WENTWORTH.

Witnesses:

JOHN H. BUTTIMER,
WILLIAM D. CROWELL.