

F. M. BRINCKERHOFF.
METALLIC DOOR.
APPLICATION FILED MAR. 24, 1908.

969,518.

Patented Sept. 6, 1910.

Fig. 1,

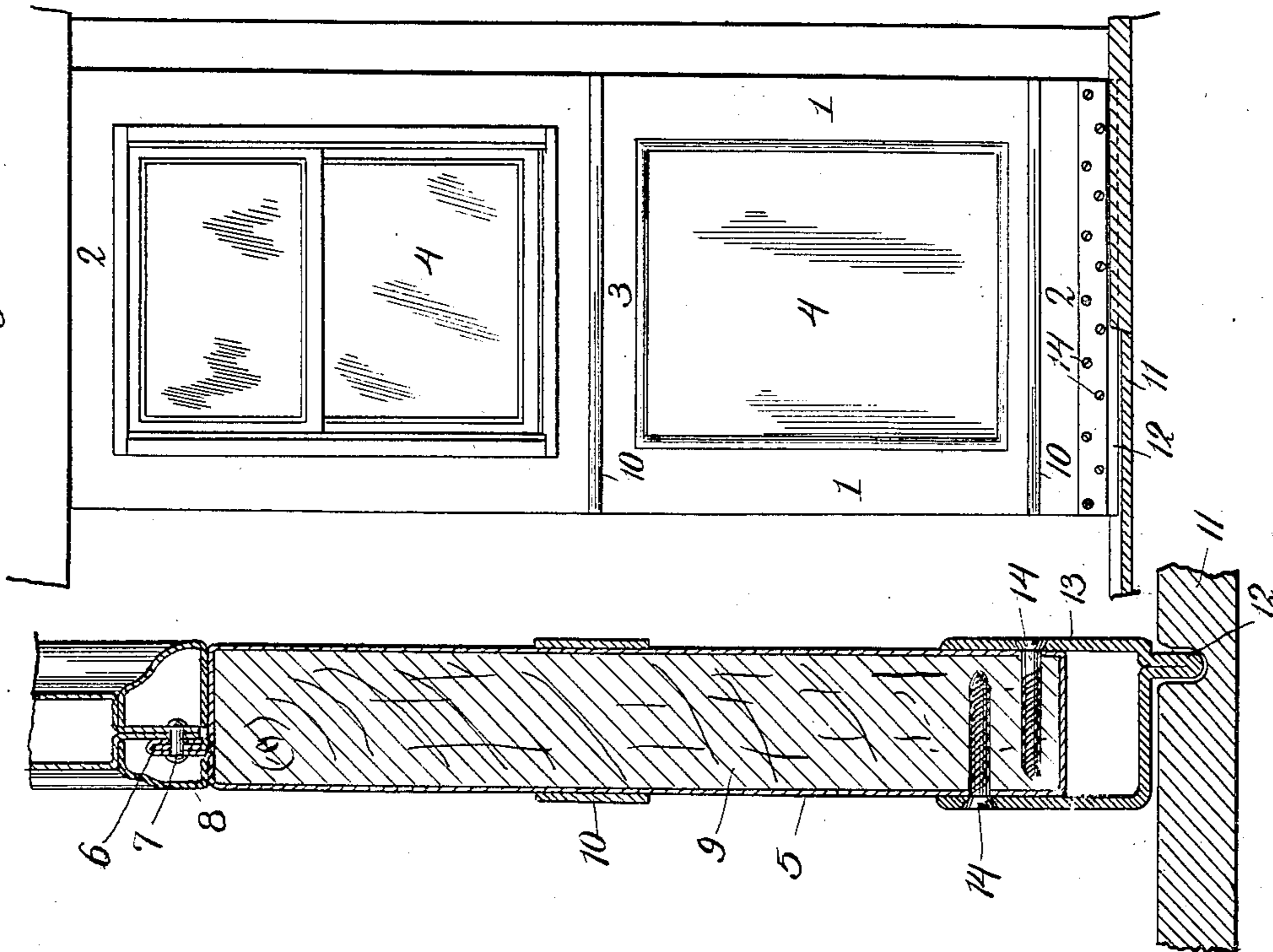


Fig. 2,

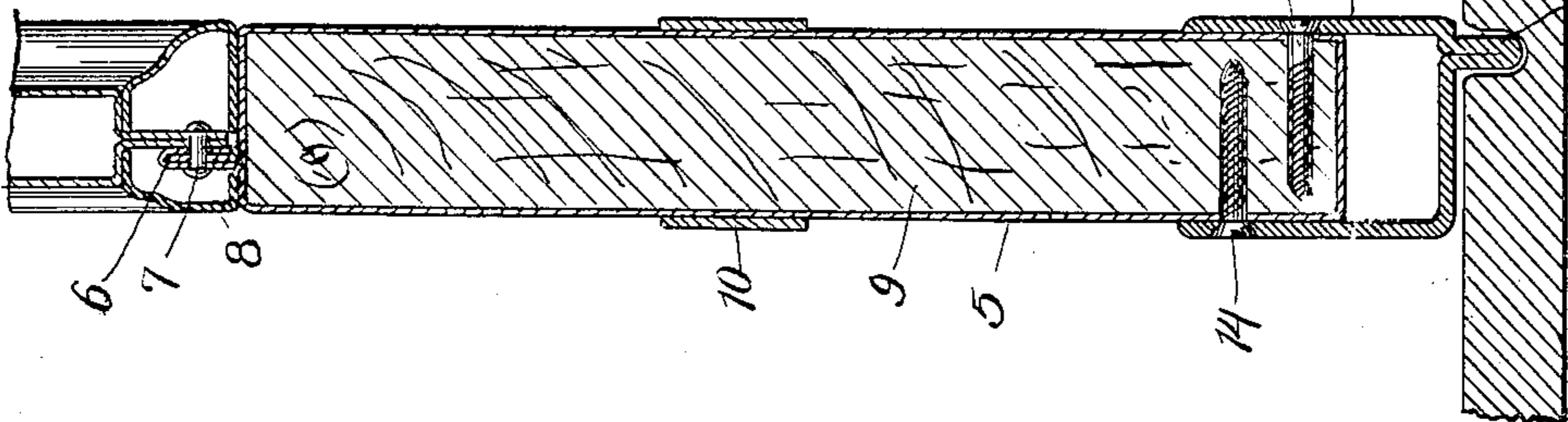
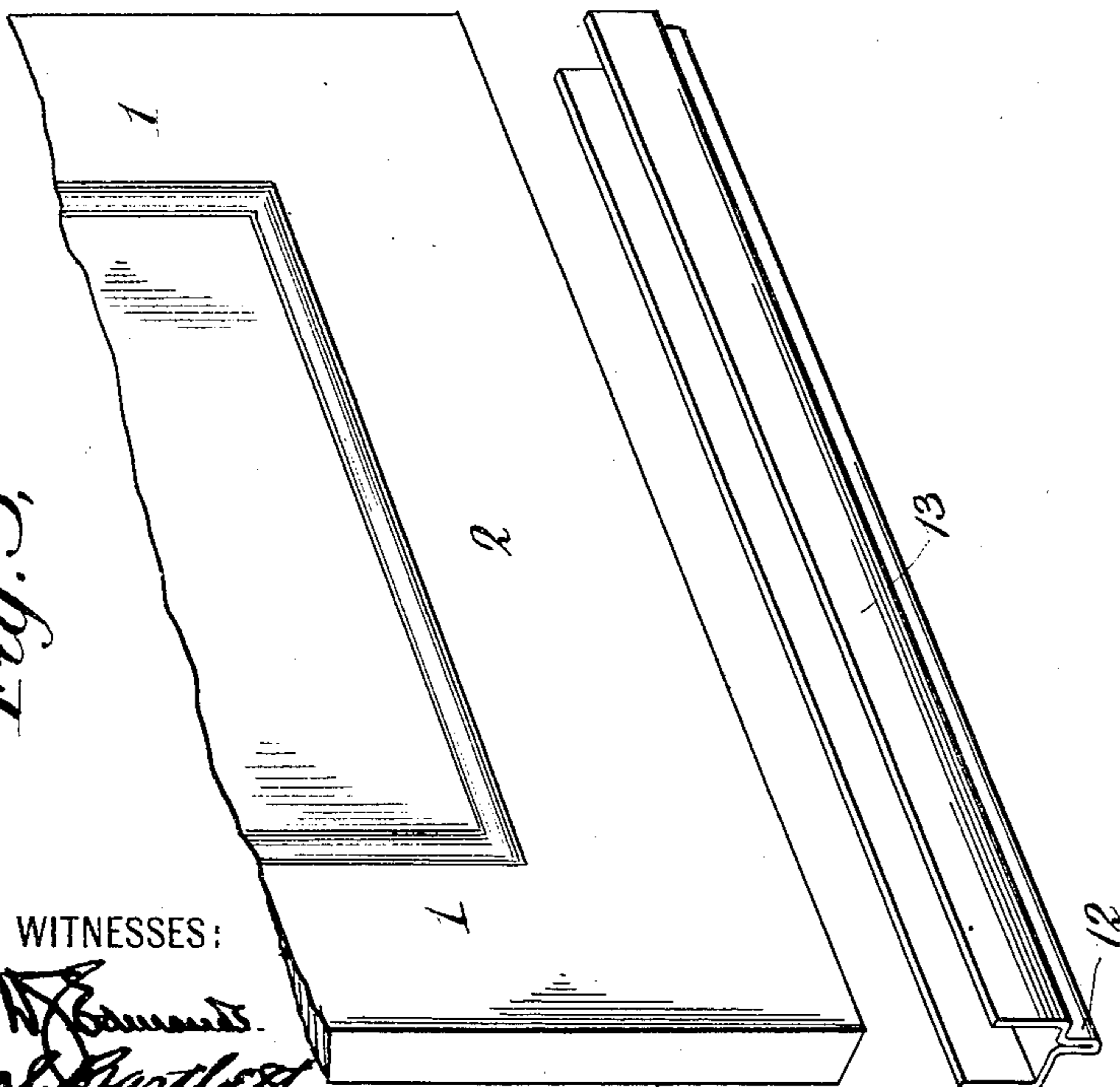


Fig. 3,



WITNESSES:

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METALLIC DOOR.

969,518.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, FRANCIS M. BRINCKERHOFF, a citizen of the United States, residing in the borough of Manhattan, in the city, county, and State of New York, have invented a certain new and useful Improvement in Metallic Doors, of which the following is a specification.

This invention relates to metallic doors and has reference particularly to sliding doors of this type employed as side and end doors of railway cars.

In the construction of railway cars, and especially sheet-metal passenger-cars, though great care is exercised in the making and assembling of the parts, there is considerable variation in the size and shape of the openings in the walls of the cars for the doors. These variations are so great that with the construction heretofore employed, the doors have not fitted the openings well, with the result that when the car is put in use, an objectionable rattling of the door takes place and it is frequently difficult to slide the door to the open or closed position.

The object of my invention is to provide a metallic sliding door so constructed as to permit of compensating for such variations in the size and shape of the openings for the doors, so that in every case the door may be made to fit the opening properly. These sliding doors are commonly provided with a guide at the bottom edge which is received in a groove or runway in the floor of the car. In accordance with the invention, this guide is made separate from the door itself and may be secured to the bottom of the door in such position as will make the combined door and guide fit the opening in the wall of the car in the desired manner. Preferably the guide consists of a strip of sheet-metal pressed to a U-shaped cross-section, the bottom edge of the door being adapted to be received within this U-shaped guide. Then by adjusting the extent of the overlap of the bottom edge of the door and the side walls of the guide while the door is positioned within the opening in the wall of the car, the door may be made to fit the opening properly and the two parts may then be secured together to hold them permanently in this relation.

The preferred embodiment of my inven-

tion is illustrated in the accompanying drawings, in which—

Figure 1 is a front view of a sliding metallic door and the flooring under the same, the latter being broken away and sectioned in part; Fig. 2 is a section through the lower edge of the door and the flooring; and Fig. 3 is a perspective of the lower portion of the door and the guide, the latter being detached from the door.

Referring to these drawings, the metallic sliding door is of any suitable construction, it being shown here as consisting of side and end frame-members 1 and 2, respectively, secured together at their ends, one or more stiles 3 extending across the frame, and panels 4 secured at their edges to the frame-members and stiles, one of these panels being preferably of glass. The frame-members of the door may be constructed as illustrated in Fig. 2, wherein the bottom member 2 is shown as formed of a single piece of sheet-metal 5 bent to a rectangular cross-section and having the lateral edges secured together by means of a fold on one edge inclosing a flange on the other. This flange and its inclosing fold form a flange 6 extending inwardly of the frame to which the edge of the lower metallic panel 4 may be secured by rivets 7, and moldings 8 may be secured in position overlying the junction of the panel and frame-member to conceal the rivets and give the door an attractive appearance. If desired, the lower frame-member 2 may have a filling 9 therein of wood, asbestos or other suitable material to prevent denting and reduce vibration of the metal. Friction-strips 10 may be secured to the bottom frame-member 2 and to the stile 3 in the usual manner.

The door is guided in its sliding movement by a depending guiding flange on the bottom of the door entering a groove or runway in a piece secured to or forming part of the floor of the car. This piece is shown at 11 in Figs. 1 and 2; it is preferably a strip of metal having a groove formed in its upper face to receive the guide on the door. This guide is a flange 12 formed in a piece 13 which is secured to the lower portion of the door in such position as may be necessary with reference to the bottom edge thereof. Piece 13 is preferably a strip of

sheet-metal pressed to a U-shaped cross-section as shown with the flange 12 in the bottom thereof. The side walls of the U-shaped piece 13 are spaced apart by a distance equal to the width of the bottom member 2 of the door and the lower edge of that member is inserted within the U-shaped piece 13. When the piece 13 and member 2 are in the desired relation, holes are cut in the metal of the two parts through which screws 14 are passed, these coacting at their inner ends with suitable nuts or with the wood strip 9 to hold piece 13 firmly to the door.

In the manufacture of the door, the parts are constructed as shown in Fig. 3, no holes being provided in the member 2 or guide 13 for the screws 14. As above pointed out, the openings provided in the walls of metallic railway-cars for the doors vary considerably in size and shape and doors constructed without any provision for compensating for these variations as has heretofore been the practice do not fit the openings well, with the result that the doors rattle in their casings and do not have a free smooth movement between the closed and open positions. When wooden doors are employed, these are made considerably larger than the openings provided therefor and when mounting them in position they are trimmed down to fit the openings nicely. With a metallic door constructed as above set forth, the fitting of the door to the opening can be similarly accomplished to compensate for irregularities in the size and shape of the opening for the door, the flooring or the runway for the guide secured to the flooring. The side walls of the U-shaped guide and the bottom frame-member 2 overlap and when the door is to be mounted in its opening these parts may be moved relatively to the position of maximum overlap. Then after the door is properly mounted, the guide may be moved relatively to the member 2 until the door fits the opening therefor properly and the flange 12 extends into the groove in piece 13 the desired amount. With the parts in this relation, the holes for screws or bolts 14 are cut and the screws inserted. This construction possesses the further advantage that it is quite simple and the doors so made are of attractive appearance and may be manufactured at low cost.

Having now described my invention, what I claim as new therein and desire to secure by Letters Patent is as follows:—

1. The combination of a sliding metallic door, a metallic guide secured to the lower edge thereof and extending downwardly therefrom, and a part having a groove therein into which said guide extends to guide the door in its sliding movement, said guide being adapted to be secured to the lower edge of the door in such position as will

make the door fit the opening therefor to compensate for irregularities in said opening, substantially as set forth.

2. The combination of a sliding metallic door, a sheet-metal strip secured to the side of the door at the lower edge thereof and depending therefrom to form a guide, and a part having a groove therein into which the lower edge of said strip extends to guide the door in its sliding movement, said strip being adapted to be secured to the side of the door overlapping more or less of the lower edge thereof to compensate for irregularities in the opening for the door, substantially as set forth.

3. The combination of a sliding metallic door, a sheet-metal strip of U-shaped cross-section having a flange formed therein secured to the lower edge of the door with the side walls thereof lying one on either side of the door, and a part having a groove therein into which said flange extends to guide the door in its sliding movement, said strip being adapted to be secured to the lower edge of the door in such position as will make the door fit the opening therefor to compensate for irregularities in said opening, substantially as set forth.

4. The combination of a sliding metallic door, a sheet-metal strip pressed to a U-shaped cross-section and to provide an integral downwardly-extending flange in the bottom thereof, said strip being secured to the lower edge of the door with the side walls thereof lying one on either side of the door, and a part having a groove therein into which said flange extends to guide the door in its sliding movement, said strip being adapted to be secured to the door with its side walls overlapping more or less of the sides of the door at the lower edge of the latter to compensate for irregularities in the opening for the door, substantially as set forth.

5. A metallic door having a frame consisting of frame-members secured together at their ends and each formed of a sheet-metal strip pressed to a rectangular cross-section, a strip of wood within the lower frame-member, a U-shaped sheet-metal strip between the side walls of which the lower edge of said lower frame-member enters, screws passing through openings in said U-shaped strip and entering said wood strip to secure the U-shaped strip to the door, and an integral flange formed in the bottom of said U-shaped strip, substantially as set forth.

This specification signed and witnessed this 18th day of March, 1908.

FRANCIS M. BRINCKERHOFF.

Witnesses:

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