

Feb. 14, 1933.

F. REESE

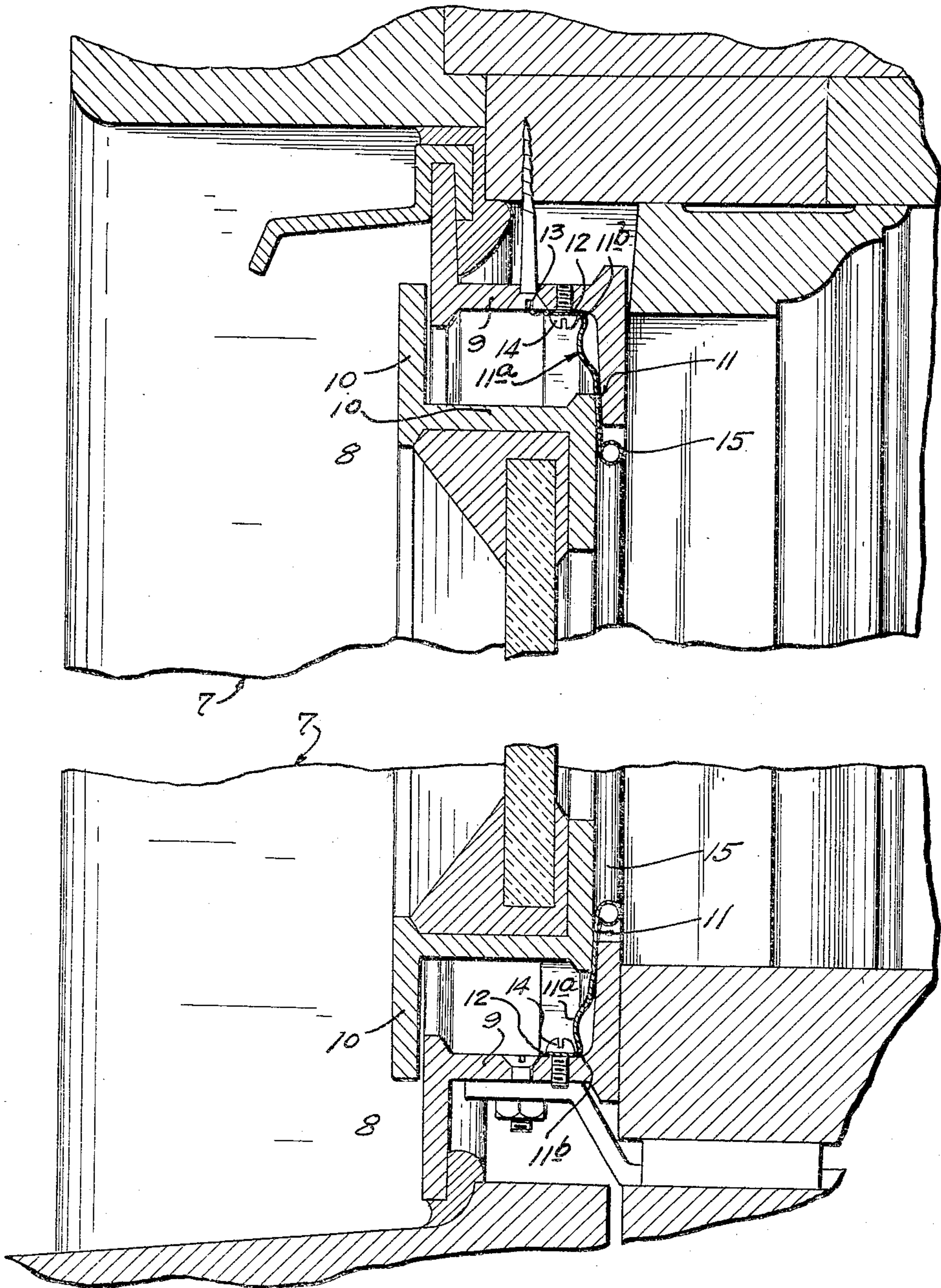
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WEATHER STRIP FOR METALLIC WINDOW FRAMES AND SASHES

Filed July 20, 1931

2 Sheets-Sheet 1

Fig. 1



Inventor
Frank Reese
By his Attorneys
Merchant and Kilgore

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F. REESE

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Fig. 6

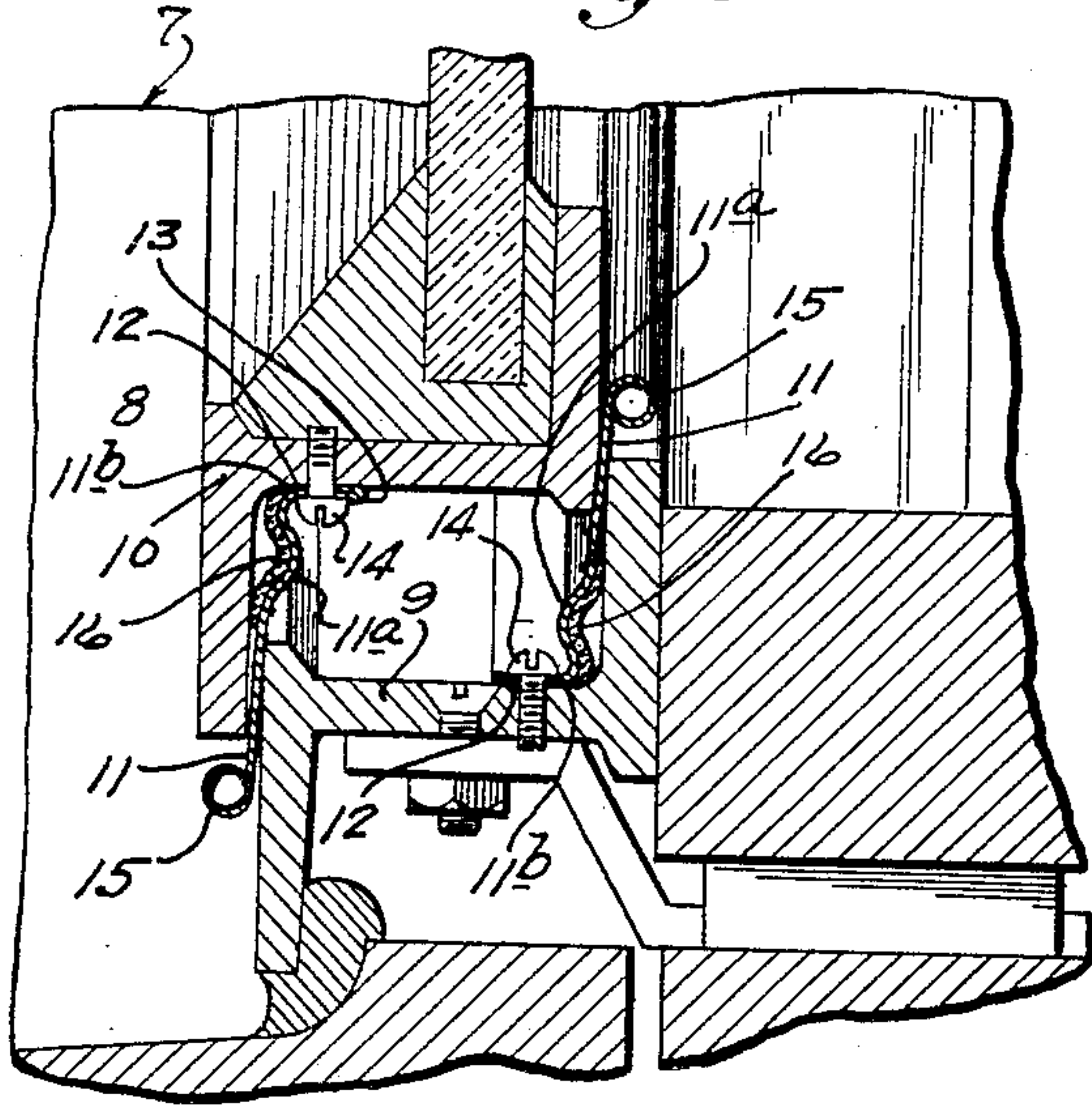


Fig. 7

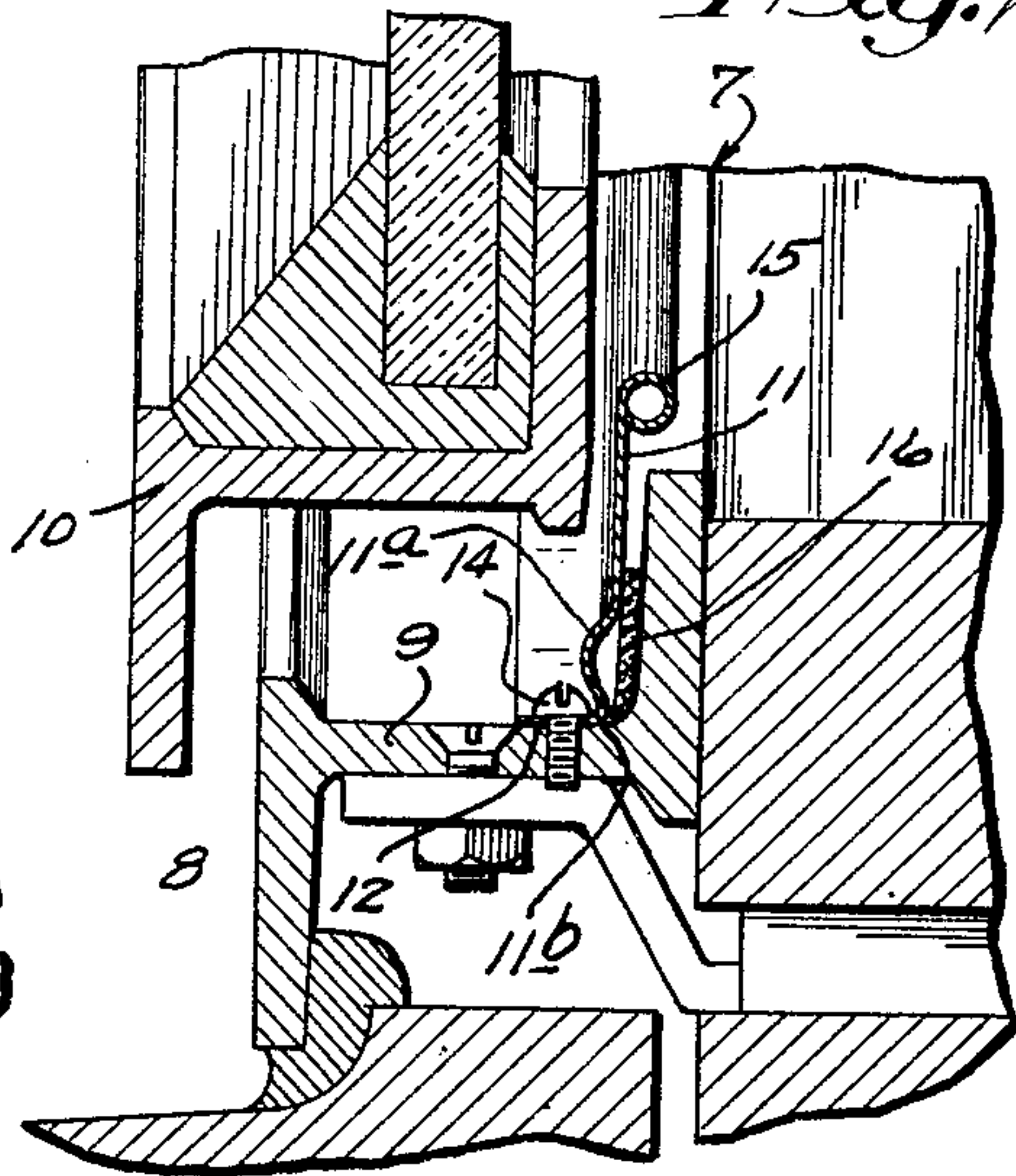


Fig. 3

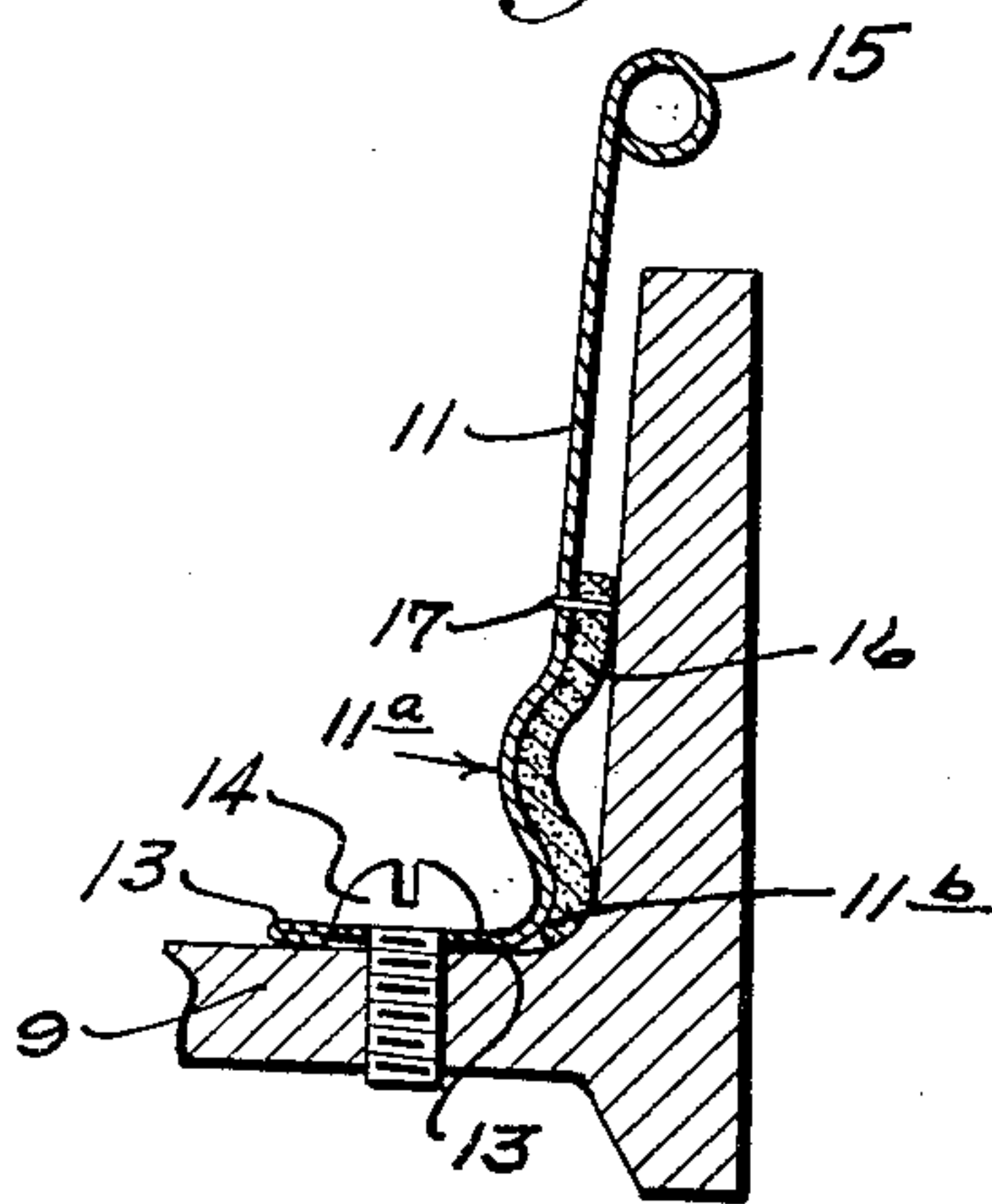


Fig. 4

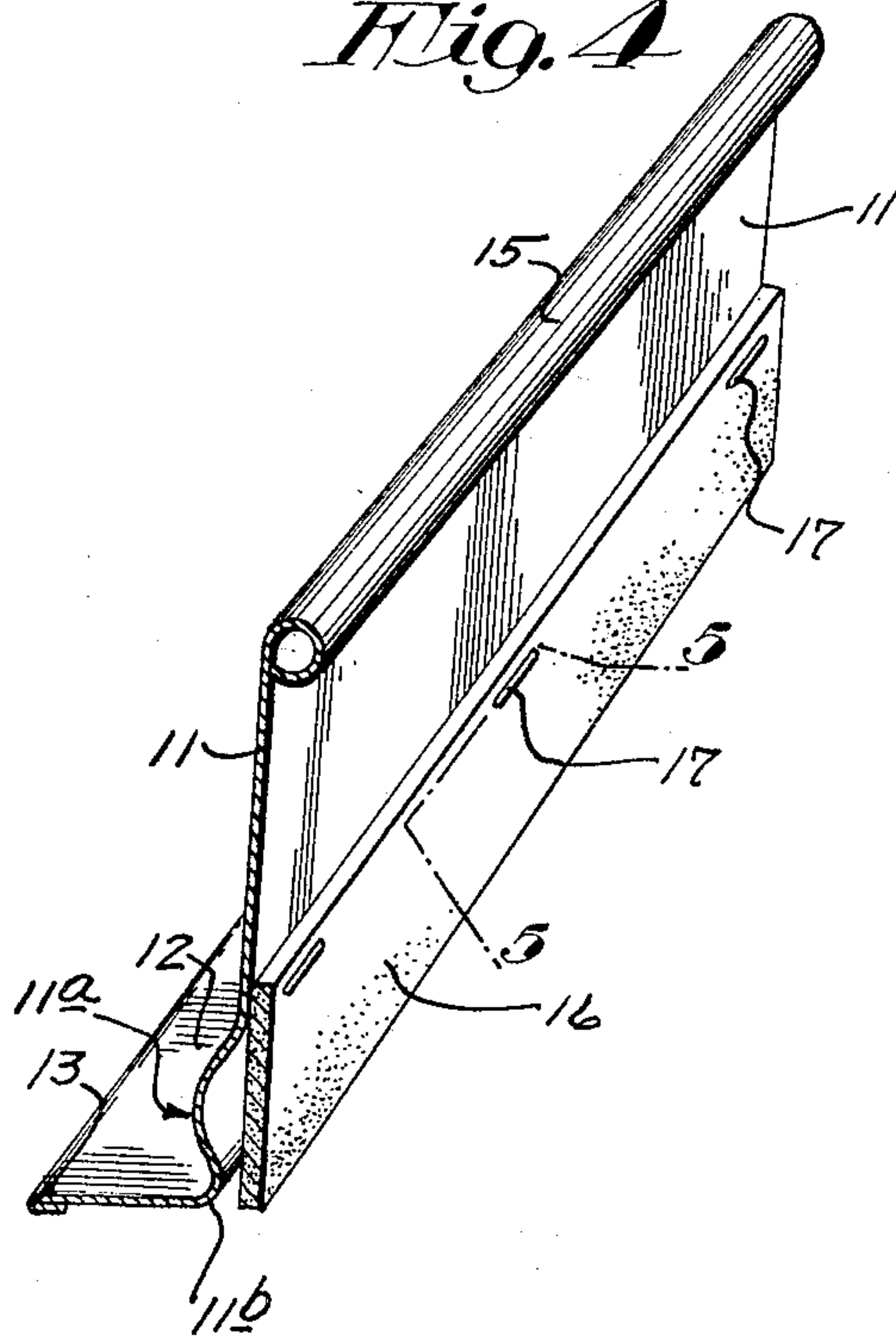
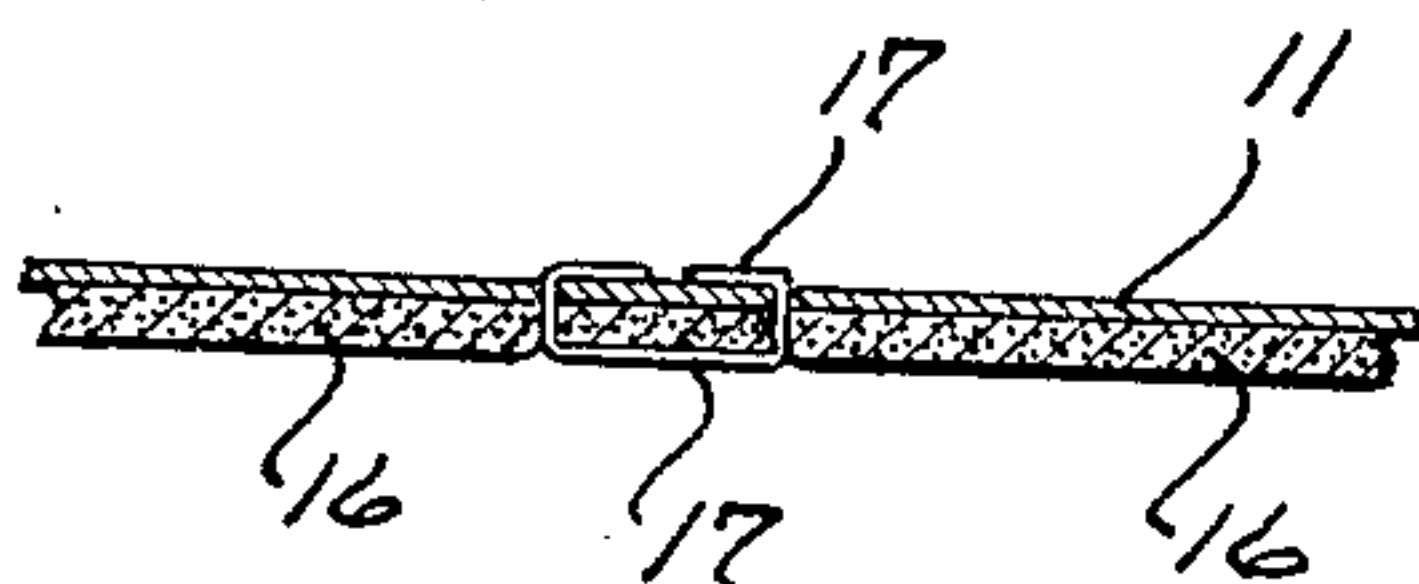


Fig. 5



Inventor
Frank Reese
By his Attorneys
Mercant and Kiegon

UNITED STATES PATENT OFFICE

FRANK REESE, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO REESE METAL WEATHER STRIP CO., OF MINNEAPOLIS, MINNESOTA, A CORPORATION OF MINNESOTA

WEATHER STRIP FOR METALLIC WINDOW FRAMES AND SASHES

Application filed July 20, 1931. Serial No. 551,867.

My present invention has for its object the provision of a simple and highly efficient weather strip for metallic window frames having a metallic sash portion hinged, pivoted, or attached by means of a sliding pivotal mechanism to the frame.

It is well known that metallic window frames and sashes are now in general use and the commercial forms thereof are made up of Z and other angular bars, certain of the flanges of which overlap when the sashes are closed. Due to the required working fit between a swingable metallic sash and its frame, there is considerable leakage of air and dust through the joints therebetween. These joints between metallic sashes and their frames are further subject to considerable variation in size due to careless fitting at the time of manufacture. As the bars from which metallic frames and sashes are made are relatively light, they are often sprung or bowed in shipping, handling or during installation, which further increases the width of the cracks therebetween.

The shapes of the bars used in a swingable metallic sash do not permit a wiping contact of the sash with a flexible or spring weather strip, as in a wood sash and frame, but must close directly upon the weather strip. The sash structure is relatively light and is easily sprung out of the plane thereof by a stiff or bulky weather strip.

My improved weather strip permits a metallic sash to be closed with a relatively light pressure, and at the same time the weather strip will yield and adjust itself to the sash and its frame with cracks of various widths therebetween; or, where one or more of the sash or frame bars are bowed, said weather strip will effectively close the cracks and form weather tight joints therebetween without causing the sash to bind in its frame or be sprung out of its plane.

To the above end, generally stated, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indi-

cate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a fragmentary view in vertical section taken through a window opening in a building having secured therein a metallic window frame in which is mounted a horizontal swinging metallic window sash;

Fig. 2 is a view corresponding to the lower portion of the parts shown in Fig. 1 with the exception that the sash is partly open;

Fig. 3 is an enlarged view of the frame member and weather strip, as shown in Fig. 2;

Fig. 4 is a perspective view showing a section of the weather strip before the same is applied to the sash or frame;

Fig. 5 is a fragmentary detail view principally in section taken on the line 5—5 of Fig. 4; and

Fig. 6 is a view corresponding to Fig. 2 with the exception that the sash is closed and two weather strips are employed.

While the drawings are based on a hinged construction, the various views apply also to pivoted or sliding pivotal constructions, all of which are included hereinafter under the term "swingably mounted."

The numeral 7 indicates a building structure having a window opening 8 in which a metallic window frame 9 is permanently secured and calked in the customary manner. A glazed metallic sash 10 is mounted in the frame 9 and secured thereto by hinges, not shown, for horizontal swinging, opening, and closing movements. The rectangularly arranged metallic members, which form the frame 9 and sash 10, are Z-bars, the flanges of which are in planes parallel to said frame and sash. Adjacent Z-bars comprising the frame 9 and sash 10 form, at the sides, tops and bottoms thereof, when the sash 10 is closed, box-like structures in which the flanges of said bars on each side of the window project in the same direction and overlap the one with the other.

The parts thus far described are of standard and well known construction.

Referring first to the weather strip 11, as shown in Figs. 1 to 5, inclusive, the same is a flat strip of spring metal having its base formed as a laterally projecting flange 12, the

free longitudinal edge portion of which is folded upon itself and pressed together to form a hem 13 which strengthens said flange. This flange 12 rests on the face of the web of the frame 9, is secured thereto by screws 14 which hold the weather strip 11 substantially parallel to the inner flange of the Z-bar forming the frame 9 and laterally spaced therefrom when the sash 10 is open, see Figs. 2 and 3. The weather strip 11 is wider than the adjacent flange of the frame 9, so that it projects beyond the flange of the frame 9 and between adjacent flanges of the frame 9 and sash 10.

The weather strip 11, adjacent to the flange 12, is outwardly bulged from the same side with the flange 12 to form a relatively wide bead 11^a which extends longitudinally of said strip. Between the bead 11^a and flange 12 the weather strip 11 is reversely curved from its junction with the bead 11^a and shaped to offset the flange 12 from the plane of the weather strip 11, as indicated at 11^b to afford clearance for a fillet, as will presently appear.

The free longitudinal edge portion of the weather strip 11 is tubular, as indicated at 15, to give a finished appearance to the weather strip 11, stiffen the same against damage and prevent vibration (called singing) produced by a high wind. A yielding gasket 16 of felt, rubber or other suitable material is interposed between the weather strip 11 and the adjacent flange of the frame 9 near the base thereof, see Fig. 3. This gasket 16 at its outer longitudinal edge portion is attached to the weather strip 11 outward of the bead 11^a, as shown, by wire staples 17, see Figs. 4 and 5. It will be noted that the free longitudinal edge of the gasket 16 is normally flush with the under side of the flange 12.

The portion 11^b of the weather strip 11 offsets the flange 12 from the fillet between the member 9 and its adjacent flange and permits the flange 12 to rest flat on the member 9 and thereby hold the weather strip 11 in its proper relation to said flange of the frame 9. In applying the weather strip 11 to the member 9 the longitudinal edge portion of the gasket 16 in striking the fillet will buckle at its transverse center into the bead 11^a and thereby reduce the width of said gasket. This buckling of the gasket 16 is important as it prevents distortion thereof that would prevent the longitudinal edge portions of the gasket 16 from evenly engaging the flange of the frame 9 throughout their entire length.

As previously stated, the weather strip 11 is laterally spaced from the adjacent flange of the frame 9 when the sash 10 is open, and during the final closing movement said sash engages the weather strip 11 and springs the same laterally into contact with the adjacent flange of the frame 9. It will thus be seen that the weather strip has contact with the opposing faces of frame 9 and sash 10 and

completely closes the crack therebetween. During the lateral springing movement of the weather strip 11 by the sash 10 during its closing movement the gasket 16 is compressed, as shown in Fig. 6, and tightly seals the joint between the frame 9 and weather strip 11. It is, of course, evident that the weather strip 11 will be just as efficient whether applied to the sash 10 or the frame 9, as shown.

Referring now to the invention as shown in Fig. 6, two weather strips 11 are employed to seal the cracks between the overlapping flanges of adjacent pairs. One of these weather strips 11 is secured to the frame 9 and the other to the sash 10 and the construction and arrangement of parts is identical with that shown in Figs. 1 to 5, inclusive, and have the same reference characters.

The above described weather strip while described for use in connection with a window sash and its frame is equally well adapted for use in connection with metallic doors of similar construction.

What I claim is:

1. A metallic weather strip having at one of its longitudinal edges a substantially perpendicular flange, said weather strip adjacent to its flange being shaped to edgewise offset the flange from the plane of the weather strip to leave clearance for a fillet when the weather strip is applied to the angular member of the frame or sash.

2. A metallic weather strip having at one of its longitudinal edges a substantially perpendicular flange, said weather strip adjacent to its flange being outwardly bulged on the same side with its flange to form a relatively wide bead that extends longitudinally thereof, and a pliable gasket attached to the opposite side of the weather strip from its flange and outward of the bead, whereby when the gasket is applied to a frame or sash member the gasket is free to buckle laterally into the concave side of the bead.

3. The combination with a metallic frame and a metallic sash swingably mounted in the frame, said frame and sash each having a structural member, the structural members being laterally spaced apart and one thereof being provided with a substantially perpendicular flange, the free longitudinal edge portion of the flange being overlapped by the other member when the sash is closed, of a metallic weather strip secured at one of its longitudinal edges to the member having the flange and extending edgewise from said member along the inner face of the flange substantially in the plane of the frame and outward of the free longitudinal edge of the flange, said strip being out of contact with the flange when the sash is open and arranged to be sprung laterally into contact with the flange by the sash during its closing movement.

4. The structure defined in claim 3 which
further includes a gasket between the flange
and the weather strip and between the two
members and arranged to be placed under
5 compression by the weather strip when the
sash is closed.

In testimony whereof I affix my signature.
FRANK REESE.

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