

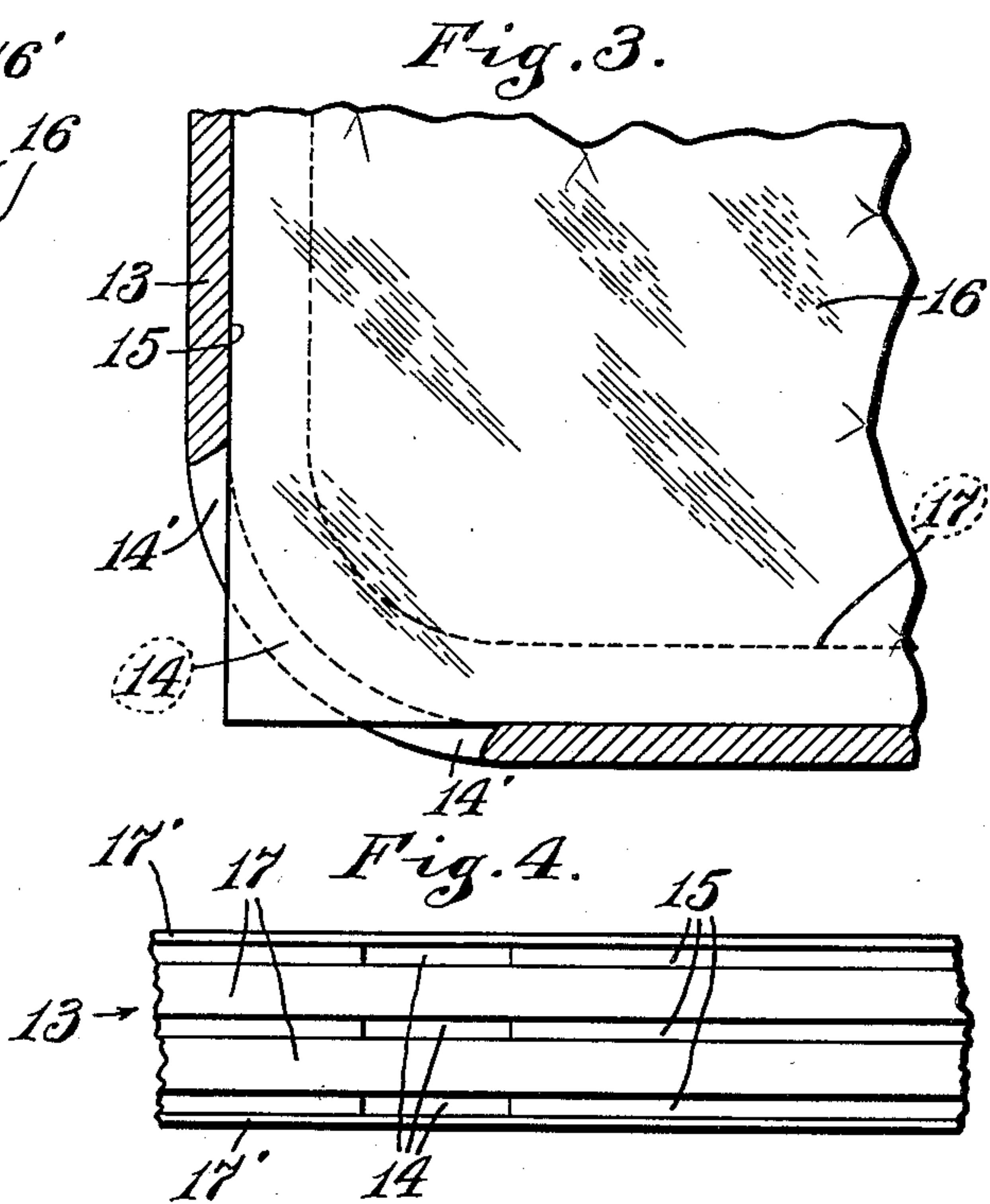
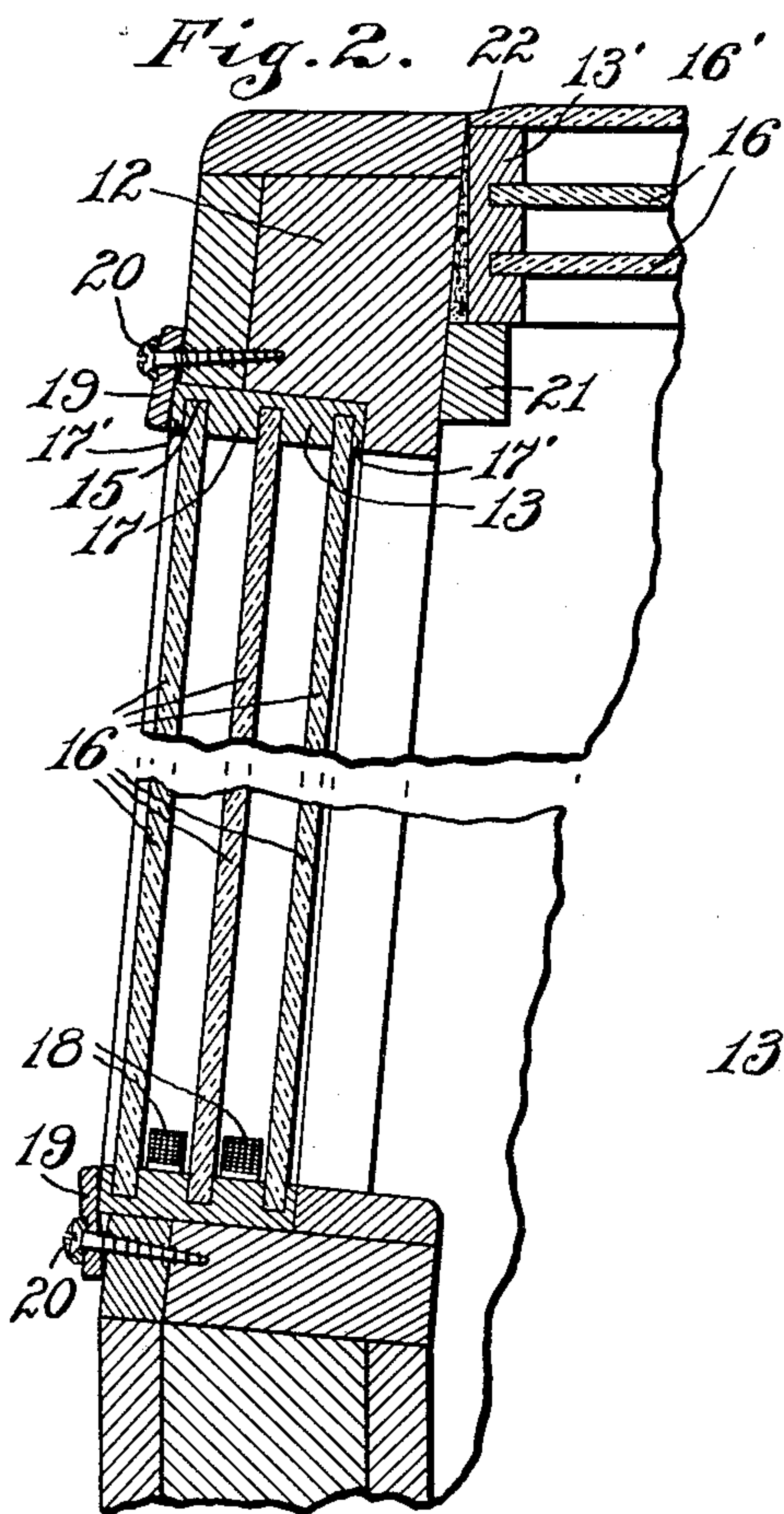
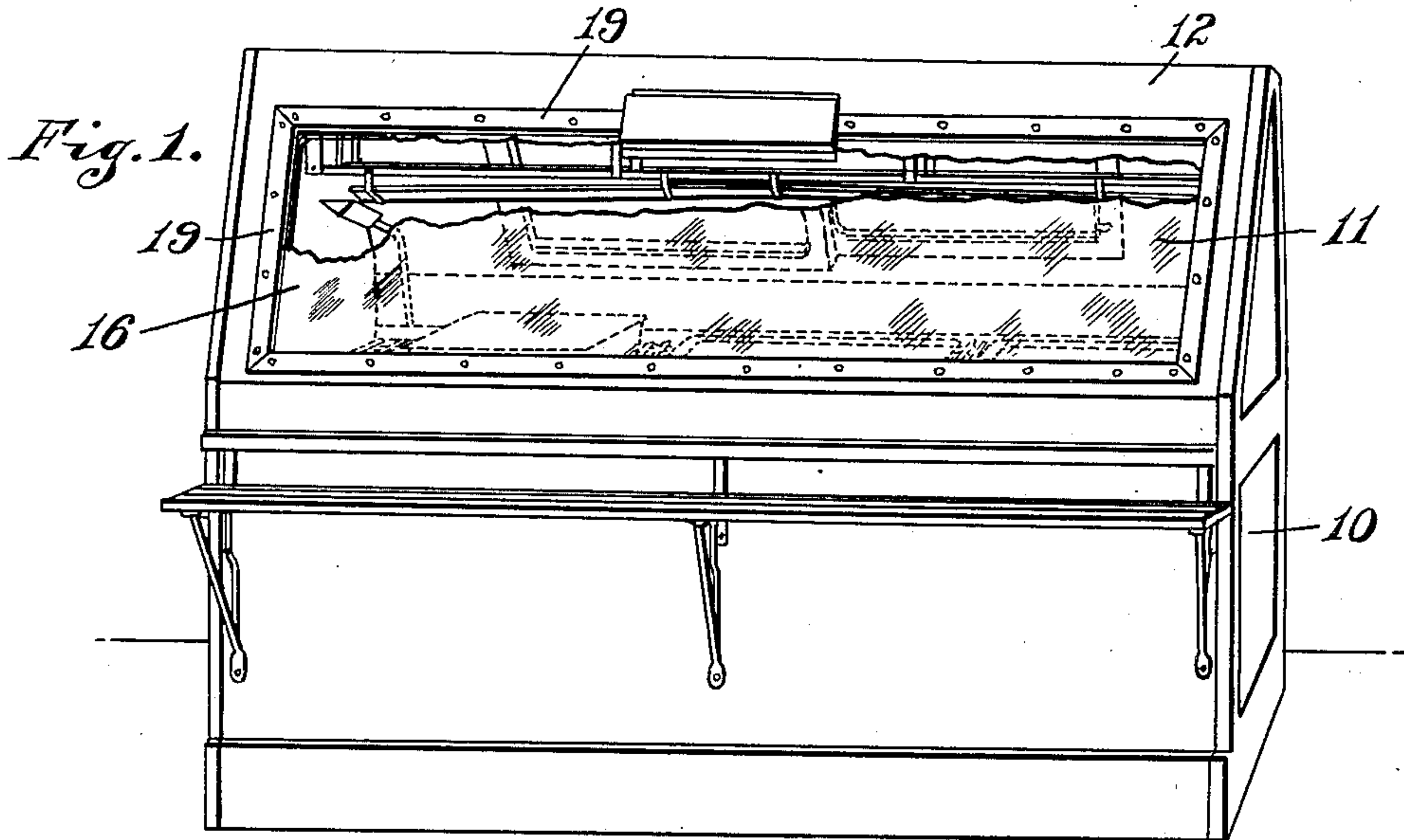
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G. H. ROSSEBO ET AL.

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REFRIGERATOR ELEMENT AND METHOD OF PRODUCING SAME

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INVENTORS  
George H. Rossebo and  
Frank Hoke,  
BY  
*Hood & Hahn.*  
ATTORNEYS



## UNITED STATES PATENT OFFICE

GEORGE H. ROSSEBO AND FRANK HOKE, OF INDIANAPOLIS, INDIANA, ASSIGNORS TO  
HOLCOMB & HOKE MANUFACTURING COMPANY, OF INDIANAPOLIS, INDIANA, A  
CORPORATION OF INDIANA

## REFRIGERATOR ELEMENT AND METHOD OF PRODUCING SAME

Application filed September 26, 1930. Serial No. 484,479.

The present application relates to a transparent non-frosting panel primarily intended for use as a refrigerator element, and to a method of producing the same. The primary object of the invention is to provide a panel of the type which is used in display refrigerators, but of such construction that the low temperature of the refrigerator will not result in the condensation of moisture from the warmer outer air upon any portion of the transparent panel. A further object of the invention is to provide a novel method of constructing such a panel. Further objects of the invention will appear as the description proceeds.

To the accomplishment of the above and related objects, our invention may be embodied in the form illustrated in the accompanying drawing, and may consist of the steps herein disclosed, but it is to be understood that the disclosure is illustrative only, and that change may be made in the specific construction or in the specific steps of the process so long as the scope of the appended claim is not violated. In said drawing:

Fig. 1 is a perspective view of a refrigerator embodying my invention;

Fig. 2 is a fragmental transverse section through a portion thereof;

Fig. 3 is a fragmental longitudinal section of a detail; and

Fig. 4 is a broken plan of a detail.

In the drawing, we have shown a display refrigerator and have indicated the same at 10, said refrigerator being provided with a transparent panel 11 set in the inclined front face 12 thereof.

The panel 11 comprises a substantially continuous frame 13 formed of soft rubber, or other similar material, the corners of said frame being formed with slots 14, within the substantially continuous grooves 15 formed about the inner surface of said frame. In the embodiment shown, the frame 13 is provided with three grooves 15, said grooves being spaced from each other and substantially parallel to each other. Each of said grooves receives a pane of glass 16, the edges of each pane being received in its groove and being embraced by the lips 17. It is to be

noted that the lips 17' at the inner and outer edges of the frame 13 are much thinner than the spacing lips 17.

The corners of the panes are received in the slots 14, and preferably the lips 17 and 17' are suitably cemented to the edges of the glass panes. If desired, the portions 14' of the slots 14 may be filled or calked with suitable cement or with battery sealer.

One or more foraminous cartridges 18 are positioned between each pair of panes, said cartridges containing a moisture-absorbent material and being preferably secured to the frame 13 in any desired manner. Obviously, the cartridges 18 may be positioned before the glass panes 16 are located in the grooves, or, in order to preserve the absorptive effect of the cartridges as much as possible, they may be removed from their air-tight containers only after the panes have been positioned, and, the rubber frame being stretched away from the panes for the purpose, may be slipped into place as shown.

It will be apparent that the above outlined steps provide a unit comprising, in the present instance, three spaced panes of glass the edges of which are sealed by a rubber frame to provide between said panes substantially air tight chambers. The air contained in said chambers is now withdrawn through suitable ports (not shown) in the frame 13, and is dehydrated in any suitable manner. We have found that one suitable method of dehydrating the air so withdrawn is to pass it directly from the exhaust pump into a region of sub-zero temperature. In such region, the moisture suspended in the air is congealed and precipitated out of the air as frost. The dehydrated air is then permitted to flow back into the chambers between the panes 16. Of course it will be obvious that, instead of dehydrating the air withdrawn from the chambers and returning the same air to the chambers, previously dehydrated air, or any other substantially moisture-free gas may be substituted for the air withdrawn from said chambers without violating the scope of the present invention.

The exhaust ports having been closed and suitably sealed the panel is inserted in the



socket provided therefor in the surface 12 of the refrigerator 10 and frame members 19 are secured to said surface 12, said members 19 overlapping the frame 13 to hold the same in place. The frame members 19 may be drawn up by screws 20.

It will be obvious that a panel of the character disclosed will be absolutely non-frosting. Of course the dead air spaces between the panes 16 have a sufficient insulating effect substantially to prevent any condensation of atmospheric moisture on the outer pane 16. As a matter of fact, condensation of moisture on that pane would be substantially prevented even if the air between the panes were moisture laden.

Furthermore, any moisture which may, under unusual circumstances, condense on the outer pane is easily removable. The temperature of the air within the chambers between the panes, however, is of course progressively reduced from the outer to the inner chamber. If there were any substantial amount of moisture in the air contained in said chambers, such moisture would be deposited on the panes, and it would be impossible to remove the moisture from such panes without completely disassembling the panel. The present invention prevents any deposition of moisture on the inner surfaces of any of the panes.

If desired, the top surface of the refrigerator may also be provided with a transparent panel and, in some cases, it may be found desirable to form this panel also in accordance with the present invention. If so, a ledge 21 may be provided at a point below the upper surface of the refrigerator and extending completely about the inner rim of said surface. Upon said ledge 21 there may be supported a frame 13' for the reception of panes 16, said frame being similar to the frame 13 except for the outer lip 17' which is omitted from the frame 13' for the sake of appearance. Preferably, the outer pane 16' of the top panel should be provided with a bevelled edge 22, and of course this edge should not be covered by a rubber lip.

We claim as our invention:

The combination with a polygonal plate, of an endless strip of resilient material, such strip being formed, upon its inner surface, with a continuous groove adapted to receive the edges of said plate, and said strip further being formed with a plurality of slots therethrough for the reception of the corners of said plate.

In witness whereof, we have hereunto set our hands at Indianapolis, Indiana, this 23rd day of September, A. D. one thousand nine hundred and thirty.

GEORGE H. ROSSEBO.  
FRANK HOKE.