

Aug. 20, 1929.

R. J. MITCHELL ET AL

1,725,664

MEANS FOR PREVENTING CONDENSATION ON TRANSPARENT PARTITIONS
BETWEEN REGIONS OF DIFFERENT TEMPERATURE

Filed Oct. 11, 1928

Fig. 1.

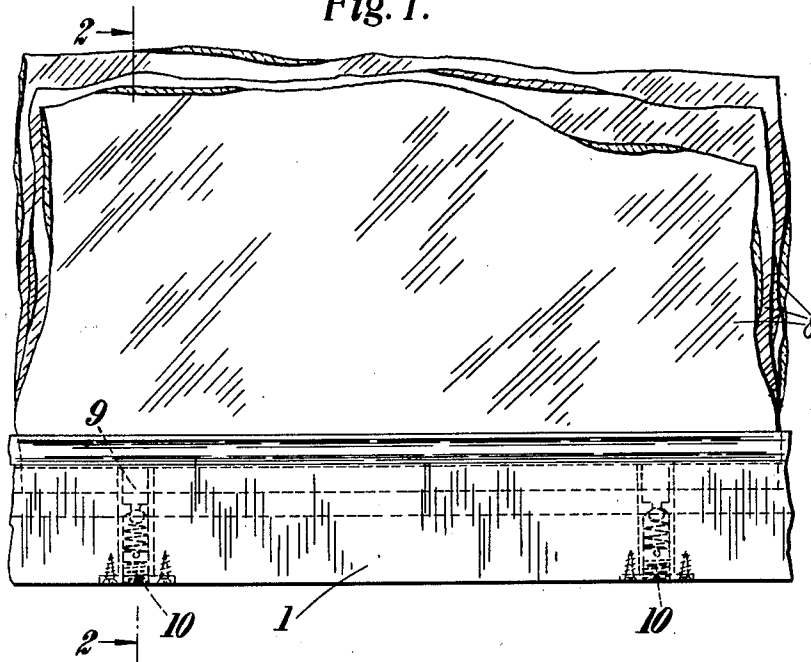


Fig. 2.

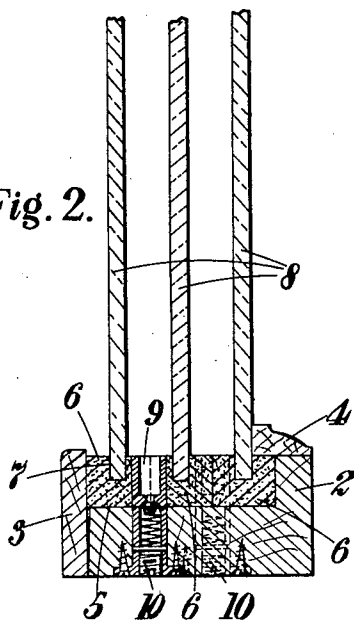
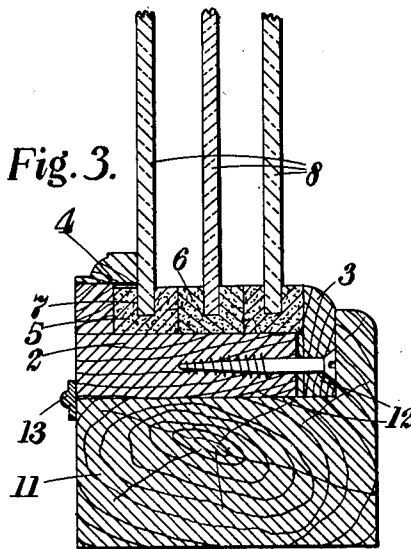


Fig. 3.



INVENTORS

RAYMOND JAMES MITCHELL AND
ARTHUR THOMAS HAWKINS

BY

Langner, Barry, Card & Langner
ATTORNEYS

UNITED STATES PATENT OFFICE.

RAYMOND JAMES MITCHELL, OF TAPLOW, AND ARTHUR THOMAS HAWKINS, OF LONDON, ENGLAND, ASSIGNORS TO FRIGIDAIRE CORPORATION, OF DAYTON, OHIO, A CORPORATION OF DELAWARE.

MEANS FOR PREVENTING CONDENSATION ON TRANSPARENT PARTITIONS BETWEEN REGIONS OF DIFFERENT TEMPERATURE.

Application filed October 11, 1928, Serial No. 311,923, and in Great Britain October 7, 1927.

The present invention relates to a means for preventing condensation of moisture on transparent partitions separating regions of different temperatures. The invention is particularly adapted for use with show-cases, counters and the like in which goods are displayed in a chamber maintained at a low temperature, and is also suitable for the doors of refrigerators and cold-storage cupboards. If a single sheet of glass is employed, moisture will condense on the outside and the view of the interior will be obscured. Further, if a double thickness of glass is employed, having an intervening, insulating air space, moisture will condense on the outermost face of the inner sheet of glass. It is the object of the present invention to overcome these difficulties and to provide a transparent partition or window which will remain clear under conditions of use.

According to the present invention we provide a means for preventing condensation on transparent partitions between regions of different temperatures, comprising two or more sheets of glass separated by layers of substantially dry air or by evacuated zones.

According to the present invention also we provide a method of constructing a transparent partition which consists in forming the partition of a frame containing two or more sheets of glass which form with the frame one or more air-tight compartments.

A zone or layer of dry air is contained between sheets of glass which are spaced apart, being secured at their edges in a frame so as to confine an air-tight space.

A particular embodiment of the invention as applied to a single transparent door, window or panel will be described by way of example with reference to the accompanying drawings, although of course any number of such panels might be assembled and used to constitute any or all of the walls of a cold-storage chamber or show-case.

In the accompanying drawings:

Figure 1 is a front elevation of a portion of transparent window or panel;

Figure 2 is a section of the line 2—2 of

Figure 3 is a sectional view similar to Figure 2 showing how the panel is set in the frame of a show-case or the like.

The panel consists of a wooden frame 1, comprising front and rear portions 2 and 3, the front portion being provided with a flange 4, which co-operates with the projecting part of the rear portion 3, to form a clamping device for the seating 5 for the sheets of glass. The seating 5 consists in this instance of rubber blocks 6 grooved as at 7 to receive the edges of the sheets of glass 8 of which three are in this instance employed. The rubber blocks may extend throughout the whole length of one side of the panel or any convenient number of blocks of suitable length may be employed. The rubber blocks are of such dimensions that, when the rear portion 3 of the frame is clamped or screwed on to the front portion, the rubber is compressed and so forms a tight joint with the glass. If desired, rubber or like cement may be applied to the outer walls of the rubber blocks and in the grooves which receive the edges of the glass sheets for the purpose of ensuring a leak-proof and absolutely air-tight assembly. Apertures 9 are provided extending through the wood and rubber portions of the frame through which the air can be extracted from the space between two sheets of glass after which it may if desired be replaced by air which has been dried and/or treated chemically. Alternatively the spaces may of course be left in an evacuated condition. The apertures may consist of metal tubes which may or may not project beyond the frame and are internally or externally threaded to facilitate connection to an air pump or the like, and to facilitate air-tight closure by a plug or cap as for instance by the plug 10.

In Figure 3 we have shown the preferred method of securing an assembled panel in a show-case for example. In this figure 11 represents the frame of the show-case which is provided with a recess 13 adapted to accommodate the frame of the assembled panel with a tight fit both the panel 1 and the frame 12 being very carefully made for this purpose. Preferably beading or moulding is secured over the joint between the frame of

the assembled panel and the frame 11 of the show-case at the front and if desired at the rear also.

Whilst we have hereinbefore described one embodiment of the invention, it must be understood that modifications may be made without departing from the scope of the invention. For example the frame may be made of metal or any desired material, and any suitable form of packing might be employed instead of the channel section or grooved rubber blocks described above. Further, the invention may be applied to doors, windows, partitions or the like which may be made of any desired number of sections.

What we claim is:—

1. Means for preventing condensation on transparent partitions between regions of different temperature comprising at least two sheets of transparent glass, separate blocks of compressible air-impervious material for each sheet provided with grooves for housing the marginal edges of the said sheets, a frame for housing said sheets and said blocks and means for clamping said blocks together thereby to form an airtight space between each pair of glass sheets.

2. A case having a transparent partition comprising a frame provided with a flanged recess, a transparent panel comprising at least two sheets of transparent glass, a panel element surrounding the edges of said sheets, a construction of compressible air-impervious material interposed between the edges of said sheets and said panel element, said construction including a separate block of compressible air-impervious material provided with a groove for each sheet of glass, and

means for securing said panel element in said flanged recess.

3. A case having a transparent partition comprising a frame provided with a flanged recess, a transparent panel comprising at least two sheets of transparent glass, a panel element surrounding the edges of said sheets, a construction of compressible air-impervious material interposed between the edges of said sheets and said panel element, said construction including a separate block of compressible air-impervious material provided with a groove for each sheet of glass, one edge of said panel element and one edge of said frame being in alignment and beading securing said panel to said frame.

4. Means for preventing condensation on transparent partitions between regions of different temperatures comprising a plurality of spaced sheets of transparent material, retaining means for the margins of the sheets comprising a body of compressible, air-impervious material having grooves receiving the margins of the sheets, and a frame comprising a section seating the retaining means and constituting also a backing for one side thereof, and a section secured to the first mentioned section to engage and back the other side of said body and exert compressive force thereon, thereby preventing entry of air between the walls of the grooves in the body and the margins of the sheets after evacuation of the space between adjacent transparent sheets.

In testimony whereof we have signed our names to this specification.

RAYMOND JAMES MITCHELL.
ARTHUR THOMAS HAWKINS.