

April 4, 1944.

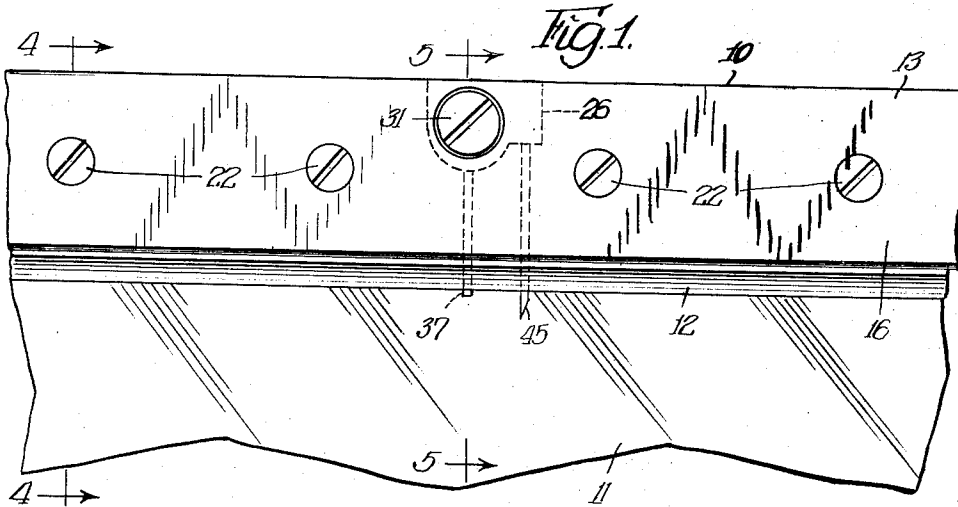
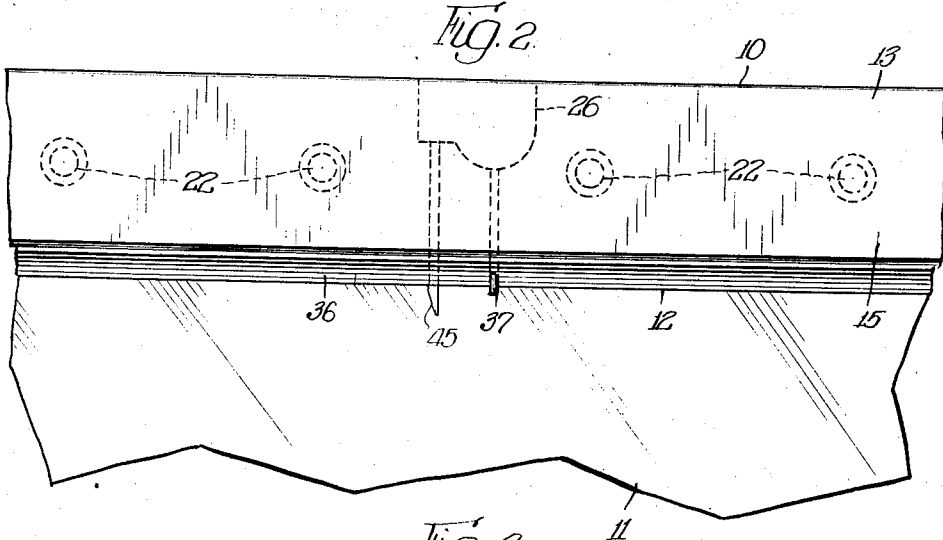
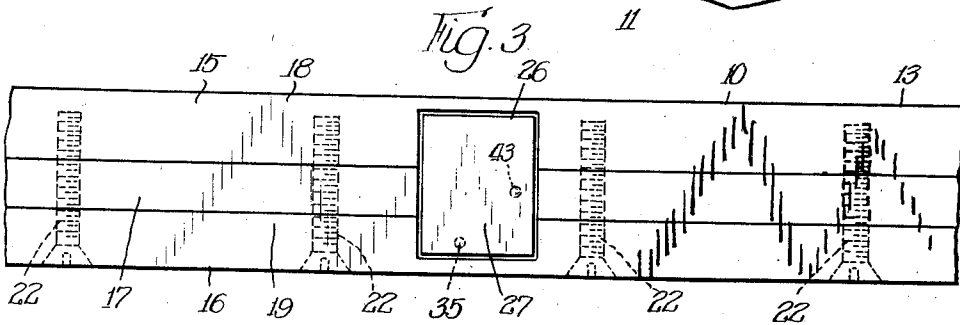
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2,345,643

BREATHER FOR MULTIPLE GLASS SASH

Filed Aug. 1, 1941

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

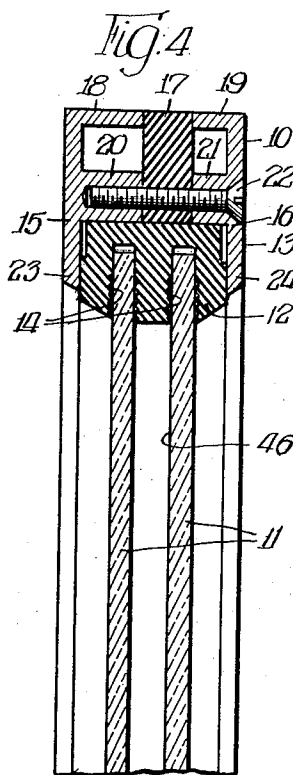
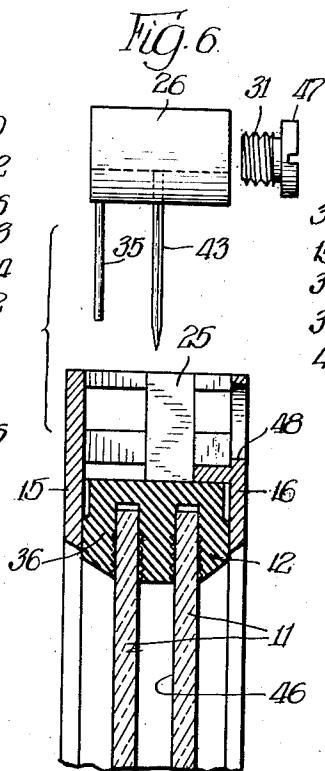
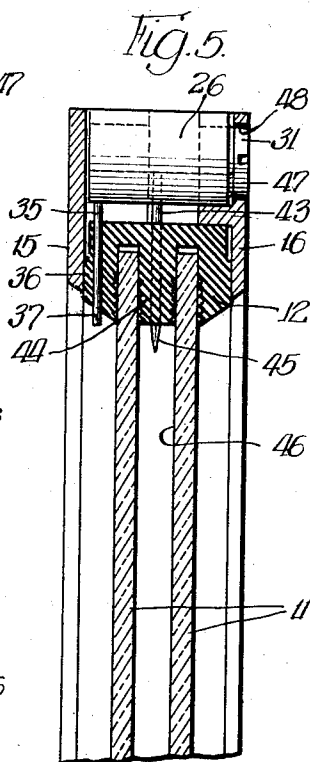
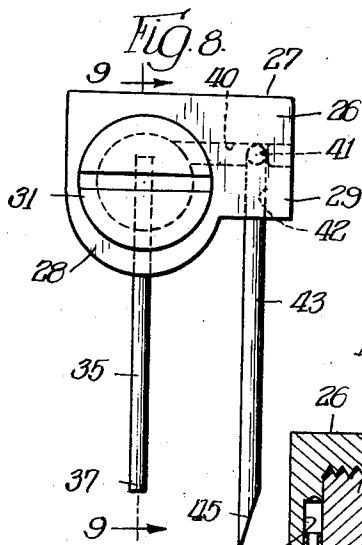
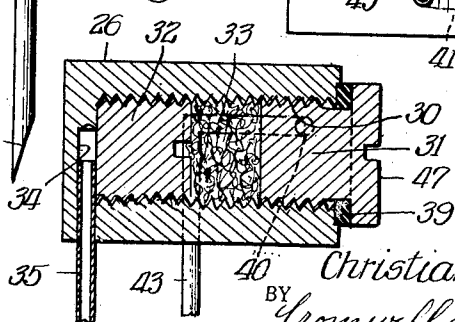
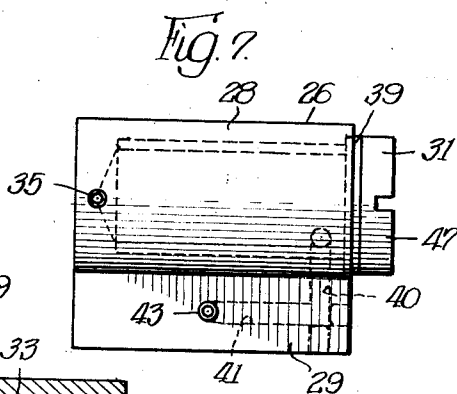


Fig. 9



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BREATHER FOR MULTIPLE GLASS SASH

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Application August 1, 1941, Serial No. 405,053

8 Claims. (Cl. 20—56.5)

This invention has to do with multiple glass sash, in which an insulating air pocket is provided between the panes, and is particularly concerned with the provision in such sash of improved means for venting the air pocket, whereby to prevent fogging of the panes on the inside and also compensate for changes in atmospheric pressure.

One of the objects of the invention is to provide an improved breather, in the form of a self-contained unit, which may be easily and quickly applied to or removed from a multiple glass sash.

Another object of the invention is to provide a multiple glass sash which is so constructed and arranged as to accommodate such a breather within an exteriorly accessible recess in one of its rails, whereby to permit application of the breather with the sash in fully assembled condition ready for use.

While the foregoing statements are indicative in a general way of the nature of the invention, other more specific objects and advantages will be apparent to those skilled in the art upon a full understanding of the improved sash and breather.

A preferred embodiment of the invention is presented herein for the purpose of exemplification, but it will of course be appreciated that the invention is susceptible of incorporation in other structurally modified forms coming equally within the scope of the appended claims.

In the accompanying drawings:

Fig. 1 is a face view of a portion of a double glass sash equipped with the new breather;

Fig. 2 is an opposite face view of the same portion of the sash;

Fig. 3 is an edge view;

Figs. 4 and 5 are vertical transverse sections, taken respectively on the lines 4—4 and 5—5 of Fig. 1;

Fig. 6 is a sectional view which corresponds to Fig. 5 but shows the breather removed from its recess in the top rail of the sash;

Fig. 7 is an inner face view of the breather;

Fig. 8 is an end view of the same; and

Fig. 9 is a section through the breather, taken on the line 9—9 of Fig. 8.

As will be observed in the drawings, the improved breather is shown applied to a double glass sash 10. This sash is composed of two spaced panes of glass 11, a rubber glazing strip 12 which extends about the four sides of the sash along the edges of the panes, and four rails 13. The glazing strip 12 spans the edges of the two panes 11 and is provided with grooves 14 in which

such edges are supported. The rails 13 each consist of two metal side plates 15 and 16 and an interposed strip 17 of hard rubber, fiber or other insulating material. The side plates are provided at their outer edges with confronting ribs 18 and 19, and are provided intermediate their inner and outer edges with other relatively wide confronting ribs 20 and 21. The side plates 15 and 16 and the insulating strip 17 are clamped solidly together by screws 22, with the inner edges 23 and 24 of the side plates embracing and tightly compressing the glazing strip 12 to effect an airtight engagement of the latter with the edges of the panes 11.

One of the rails 13 of the sash—preferably the top rail—is provided in its outer edge with a recess 25 for the reception of the hereinafter described breather 26. This recess is formed by cutting away or otherwise omitting a short section of the insulating strip 17 together with corresponding portions of the ribs 18, 19, 20 and 21 on the side plates. The recess 25 is rectangular, as viewed from the outer edge of the sash, and extends inwardly far enough to expose the back of the rubber glazing strip 12 throughout substantially the entire width of the latter.

The breather 26 completely fills the recess 25 in the rail, and is provided with a flat rectangular outer face 27 which conforms to the shape of the recess and is disposed flush with the outer edge of the rail. The breather includes a main semi-cylindrical body portion 28, which extends transversely of the rail, and a generally rectangular portion 29 which is formed integrally with the portion 28 and extends along one side of the latter. The portion 28 contains a cylindrical chamber 30 which is threaded throughout its length and is closed at one end by a headed screw 31. A headless screw 32 is disposed in the bottom of the chamber 30, and the space between the screws 31 and 32 is occupied by a wad 33 of cotton or other suitable filtering material. At the end of the chamber 30, behind the headless screw 32, is located a small bore 34 in which one end of a fine needle-like tube 35 is fixedly mounted.

The tube 35 projects inwardly, at right angles to the outer face 27 of the breather, penetrating the adjacent side portion 36 of the rubber glazing strip 12 and terminating in an open end 37 just beyond the fillet-like edge of the portion 36, all as clearly shown in Fig. 5. The open end 37 of the tube 35 serves to vent the breather 26 to the atmosphere. The threads of the headless screw 32 in the bottom of the chamber 30 are so dimensioned as to afford a slight amount of clear-

ance with the threads in the chamber, thus placing the tube 35 in restricted communication with the filtering wad 33 in the chamber. Likewise, the threads of the headed screw 31 are so dimensioned as to permit some air to pass along the same. The screw 31 is securely sealed in the end of the chamber 30, however, by an air-tight washer 39 which is clamped against the end of the chamber 30 by the overlapping head of the screw 31.

Near the end of the chamber 30, at a point opposite the threaded shank of the screw 31, is located another small bore 40 which extends horizontally into the portion 29 of the breather. This bore 40 intersects a second horizontally extending bore 41 in the portion 29, and the bore 41 in turn intersects a third bore 42 which leads from the portion 29. In the bore 42 a fine needle-like tube 43 is fixedly mounted. The tube 43 extends inwardly from the portion 29, in spaced parallel relation to the tube 35, penetrating the center rib portion 44 of the rubber glazing strip 12, and terminating in an open end 45 just beyond the edge of the portion 44, in open communication with the otherwise sealed air pocket 46 between the panes 11.

By this arrangement the air pocket 46 is vented to the atmosphere through a tortuous passage in which at one point the filter wad 33 is positioned. The wad 33 can be compressed to any desired extent by adjusting the position of the screw 32, and can be easily replaced at any time by merely removing the screw 31. The head 47 of the screw 31 is located in a circular aperture 48 in the side plate 16, flush with the surface of the latter. Before inserting or removing the breather in the recess 25 in the rail the screw 31 is of course removed. To insert the breather it is merely necessary to force the readily penetratable ends of the needle-like tubes 35 and 43 through the soft rubber of the glazing strip 12. To facilitate penetration, the tip 45 of the tube 43 is preferably cut at a sharp angle to present a knife-like edge. The tip 37 of the tube 35 is preferably left blunt, however, as it is exposed and might otherwise cause injury. As soon as the outer face of the breather, when being inserted, has reached a position flush with the outer edge of the rail, the screw 31 can be inserted in the end of the chamber 30 and turned inwardly until it is brought tightly up against the sealing washer 39, flush with the face of the side plate 16.

I claim:

1. In a multiple glass sash, a metal rail, a rubber glazing strip mounted in the rail, two or more panes of glass mounted in the glazing strip, with an air pocket therebetween, said rail being provided at one point in its outer edge with a recess in which the back of the glazing strip is exposed, and a separate self-contained breather unit positioned in the recess, within the contour of the rail, said unit being provided with two fine needle-like tubes which upon insertion of the unit in the recess penetrate the glazing strip both inside and outside of the air pocket between the panes, whereby to effect through the tubes a venting of the air pocket to the atmosphere.

2. In a multiple glass sash, a metal rail, a rubber glazing strip mounted in the rail, two or more panes of glass mounted in the glazing strip, with an air pocket therebetween, said rail being provided at one point in its outer edge with a recess in which the back of the glazing strip is exposed, and a separate self-contained breather unit po-

sitioned in the recess, within the contour of the rail, said unit having a flat outer face which is disposed flush with the outer edge of the rail as a continuation of such edge, and said unit being provided with two fine needle-like tubes which upon insertion of the unit in the recess penetrate the glazing strip both inside and outside of the air pocket between the panes, whereby to effect through the tubes a venting of the air pocket to the atmosphere.

3. A breather for venting an air pocket between the panes of glass of a multiple glass sash, said breather comprising a hollow body, spaced parallel tubes opening into the body, one for extension into a pocket between two of the panes and the other for extension to the outside of said pocket, and a filtering medium confined within the body between the openings in the tubes.

4. A breather for venting an air pocket between the panes of glass of a multiple glass sash, said breather comprising a hollow body, spaced parallel tubes opening into the body, a compressible wad of filtering material confined within the body between the openings in the tubes, and means for compressing the wad, said means being adjustable to vary the permeability of the wad.

5. A breather for venting an air pocket between the panes of glass of a multiple glass sash, said breather comprising a hollow interiorly screw-threaded body, spaced parallel tubes opening into the end portions of the chamber in the body, a headed screw which closes one of the ends of the chamber in the body, with the threaded portion of the screw covering one of the tube openings, a headless screw in the other end of the body, and a wad of filtering material confined within the body between the opposed ends of the screws, the headless screw being adjustable toward and away from the headed screw to vary the pressure on the wad and thus control the permeability of the latter.

6. A breather for venting an air pocket between the panes of glass of a multiple glass sash, said breather comprising a hollow interiorly screw-threaded body, spaced parallel tubes opening into the end portions of the chamber in the body, a headed screw which is screwed into the body and closes one of the ends of the chamber in the body, with the threaded portion of the screw covering one of the tube openings, a headless screw which is also screwed into the body near the other end of the body, and a wad of filtering material confined within the body between the opposed ends of the screws, the threads on the screws being so proportioned with respect to the threads on the inside of the chamber of the body as to allow air to move along the threads from the tube openings to the wad of filtering material, and the headless screw being adjustable toward and away from the headed screw to vary the pressure on the wad and thus control the permeability of the latter.

7. In a multiple glass sash, a metal rail, a rubber glazing strip mounted in the rail, two or more panes of glass mounted in the glazing strip, with an air pocket therebetween, said rail being provided at one point in its outer edge with a recess in which the back of the glazing strip is exposed, and a separate self-contained breather unit positioned in the recess, said unit being provided with a fine needle-like tube which is considerably smaller than the recess and which upon insertion of the unit in the recess penetrates the relatively large exposed area of the glazing strip

to effect communication with the air pocket between the panes, and means extending through a second recess in one of the side faces of the rail into engagement with the breather unit for locking the latter in its operative position.

8. In a multiple glass sash, a metal rail, a rubber glazing strip mounted in the rail, two or more panes of glass mounted in the glazing strip, with an air pocket therebetween, said rail being provided at one point in its outer edge with a recess in which the back of the glazing strip is exposed, and a separate self-contained breather unit positioned in the recess, said unit being provided with

a fine needle-like tube which is considerably smaller than the recess and which upon insertion of the unit in the recess penetrates the relatively large exposed area of the glazing strip to effect communication with the air pocket between the panes, and means extending through a second recess in one of the side faces of the rail into engagement with the breather unit for locking the latter in its operative position, said locking means also constituting a removable side closure for the unit.

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