March 11, 1947. W. J. BUFORD 2,417,233

WINDOW WIND BRACE

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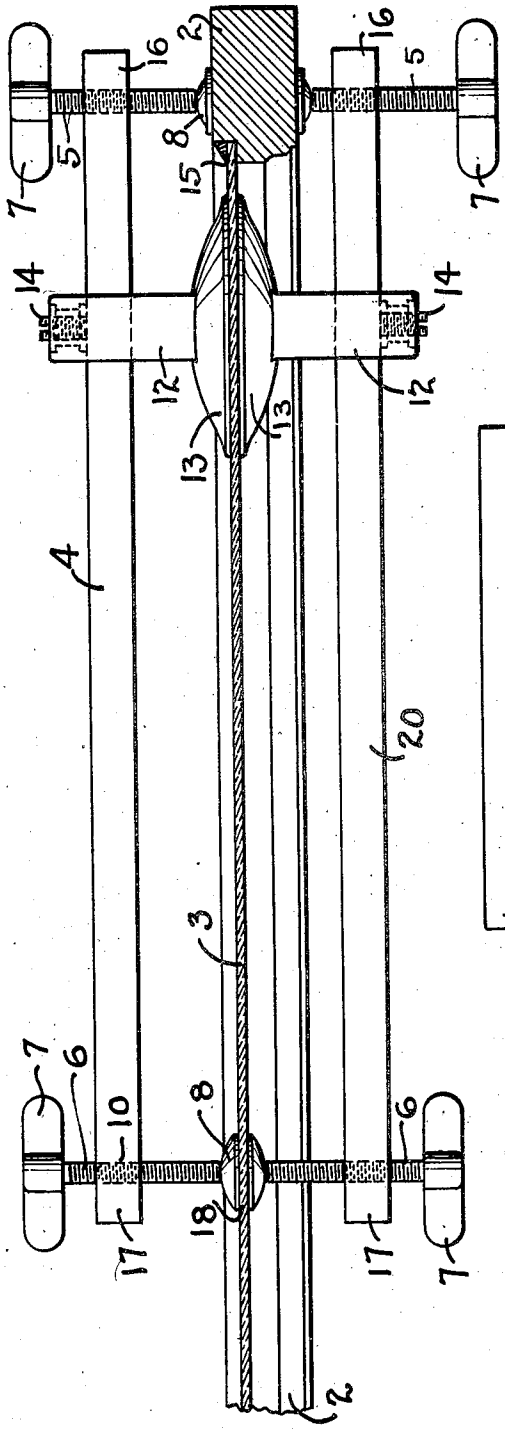


Fig. 1.

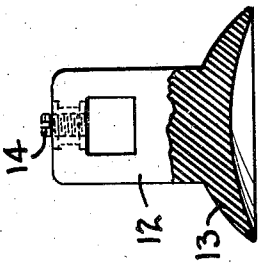


Fig. 2.

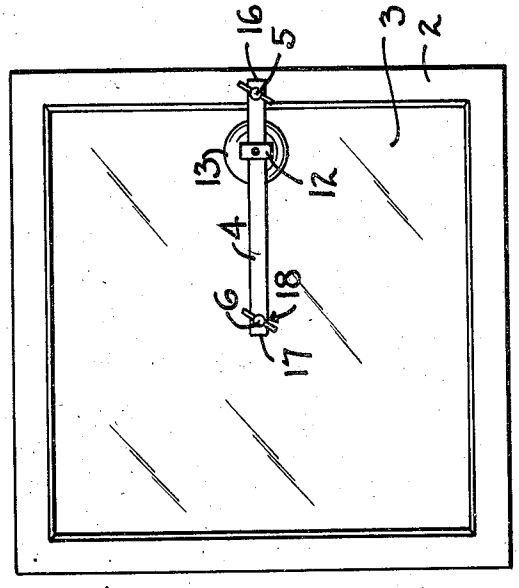


Fig. 3.

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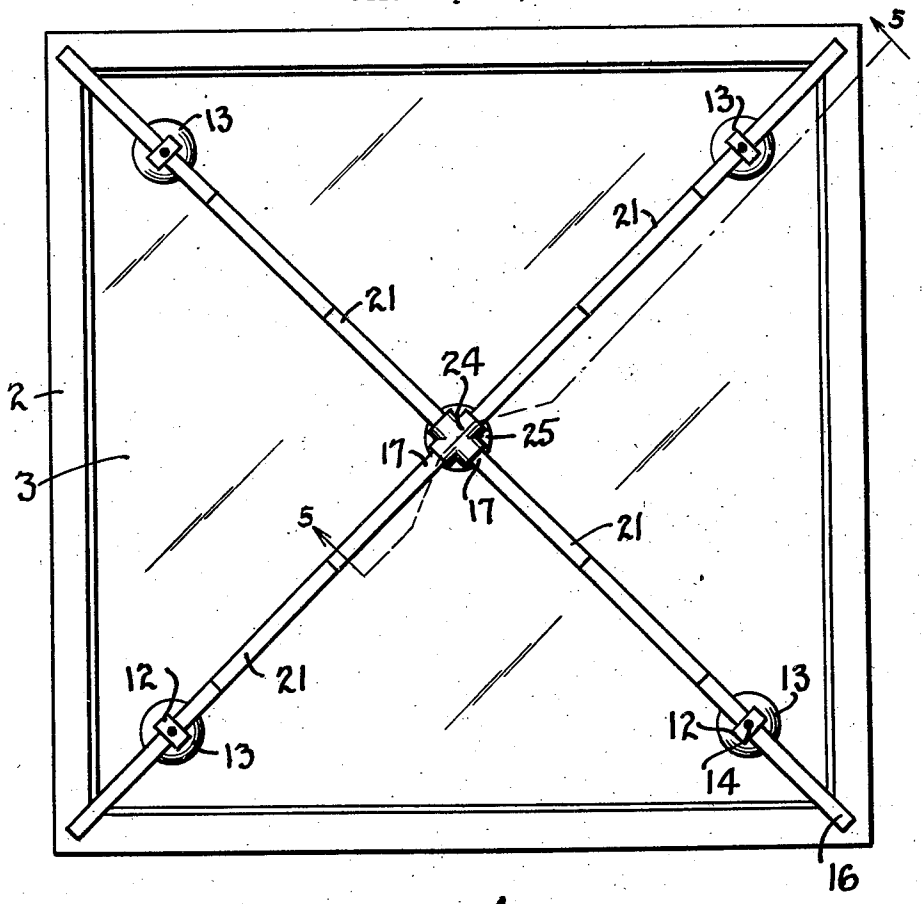


Fig. 4.

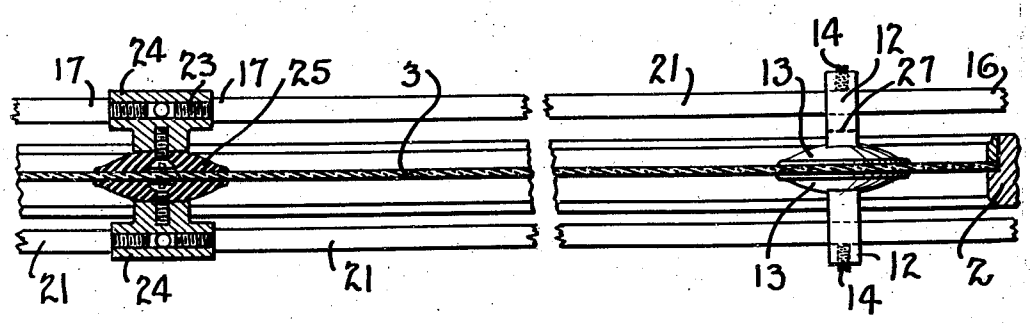


Fig. 5.

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WINDOW WIND BRACE

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Application September 6, 1943, Serial No. 501,379

1 Claim. (Cl. 20—40)

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The invention relates to a window brace which is particularly adapted for use in the bracing of the glass window pane in ordinary types of windows or in store fronts and the like.

It is conceded that a majority of the breakage of window glass due to wind pressure is caused by vibration and movement of the pane of glass and the present invention directs itself to an arrangement for bracing the glass by applying a pressure thereto at a point spaced from the area where the glass is ordinarily supported about its edge.

It is therefore one of the objects of the invention to provide a window wind brace in the form of an attachment which can be readily applied when needed and which may be as readily removed when the emergency and need therefor disappears.

Another object of the invention is to provide a window wind brace wherein a leverage mechanism may be attached to the window and adjusted so as to brace the glass at its most exposed position.

Another object of the invention is to provide a brace and suction members in combination with adjustable means to brace a window pane against itself and the frame which supports it so that it will withstand vibration and pressure thereon.

Other and further objects of the invention will be readily apparent when the foregoing description is considered in connection with the accompanying drawings wherein:

Fig. 1 is a transverse sectional view through a window frame and glass showing two of the braces as having been applied to opposite sides of the frame and glass.

Fig. 2 is a broken detail view illustrating one of the suction members used to cause the brace to adhere to the glass.

Fig. 3 is a front elevation of a window frame to which the brace has been applied.

Fig. 4 is a front elevation of a slightly modified form of the brace where a plurality of attaching points are provided so as to obtain a cross bracing.

Fig. 5 is a section taken on the line of 5—5 of Fig. 4 and looking in the direction of the arrows.

Fig. 1 the window frame 2 may be of conventional construction as illustrated or it may be a metal window frame or other support such as that used in store windows and store fronts, but in any event, such frame or support is arranged to contain the pane 3 of glass which is to be braced.

Fig. 1 shows two braces, one applied to each

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side of the glass 3 and each brace as including the brace member or rod 4 which is provided with an adjustable screw or clamp 5 at one end and 6 at the opposite end. Each of these screws has a winged head 7 thereon and the tiltable foot piece 8 which is arranged to abut the member against which the screw is to be adjusted. These screws are threaded through the openings 10 at each end of the brace and the brace is arranged to carry a shank 12 which is in turn connected to a suction member 13 which may be in the form of a suction cup as best seen in Fig. 2. The set screw 14 is arranged to adjust the beam in the shank 12 and to anchor it in any relative position.

With the parts as described the suction cup 13 is applied to the surface of the glass by bracing it firmly against the glass at a point closely adjacent the area 15 where the glass is supported. With the suction cup adhering firmly to the surface of the glass the screws 5 and 6 can be adjusted so that the shank 12 acts as a fulcrum whereby raising of the end 16 of the brace adjacent the frame or support of the window causes the oppostie end 17 to fulcrum about the shank 12 and move toward the glass 3. It seems obvious that by adjusting the screws 5 and 6 that any desired pressure can be applied against the glass at the point 18 spaced from the supported area 15 in such a manner as to prevent vibration of the pane of glass and to form a bridge from the frame to the exposed portion of the glass pane so as to brace the pane against any pressure or vibration applied to it. It seems obvious that one of these braces may be entirely sufficient to brace the pane of glass against pressure and vibration, but Fig. 1 shows an additional brace 20 as having been applied to the opposite side of the glass so as to result in complete bracing regardless of the direction of the pressure applied to the glass. It seems obvious that the screw 6 may be dispensed with and a suitable projection provided on the end 17 of the lever to abut the glass so that the entire adjustment can be made by the use of the screw 5 if desired.

Figs. 4 and 5 show a slightly modified arrangement of the bracing wherein the brace arm 21 is similar to the brace member 4 insofar as passing through the shank 12 of the suction member 13 is concerned. The adjusting screw 5 has been dispensed with adjacent the end 16 of the brace while the end 17 has been threaded at 23 and screwed into a head 24 which carries a pad or suction cup 25. As seen in Fig. 4 there are a plurality of these braces 21 all of which are

threaded into the head 24 so as to form a cross brace arrangement wherein the suction of the cups 13 tends to hold the ends of the braces in position, urging them toward the glass. The opening in the shank 12 for receiving the brace member may be somewhat deeper than the depth of the brace as shown by the dotted line at 27. In this manner adjustment of the set screw 14 tends to bow the opposite braces as regards the head 24 in such a manner as to cause the head to press against the glass and serve as a support or brace therefor. A duplicate brace is shown in Fig. 5 on the opposite side of the pane 3 of glass. The brace 21 may be made in sections connected together so that a number of sections coupled together will make a brace of the desired length to span the window to which it is to be attached.

The advantages of the structure just described seem apparent because a majority of the time no bracing of the windows is desired or necessary, but when a storm or high wind approaches these attachments can be readily applied to the windows in a few seconds' time so as to brace the windows against vibration and resist pressure.

Broadly the invention contemplates a window wind brace in the form of an attachment which can be readily applied and removed.

What is claimed is:

A window brace including a pressure member to bear against the glass at the point to be supported, a plurality of brace members extending therefrom, and adjustable means adhering to the glass at points spaced from the pressure member so as to cause said brace members to force the pressure member against the glass.

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The following references are of record in the file of this patent:

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