March 14, 1939. C. M. KILLIAN 2,150,280

WINDOW PROTECTOR

Original Filed July 30, 1937

Fig. 1.

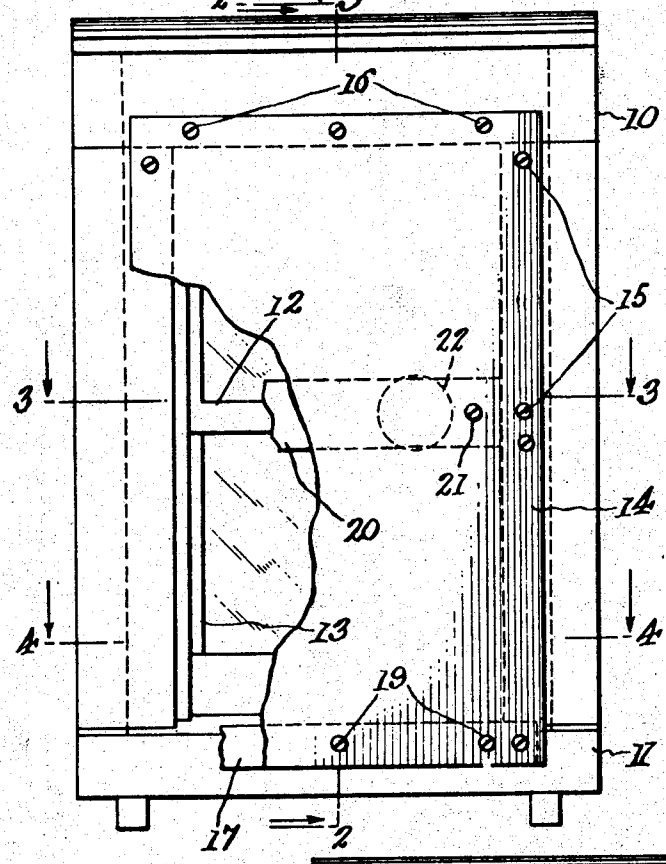


Fig. 2.

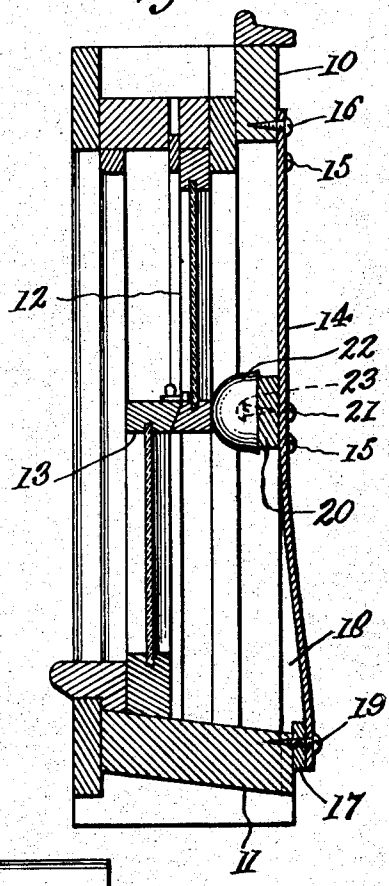


Fig. 3.

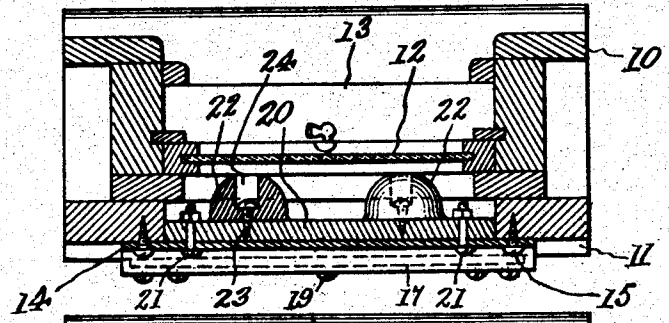
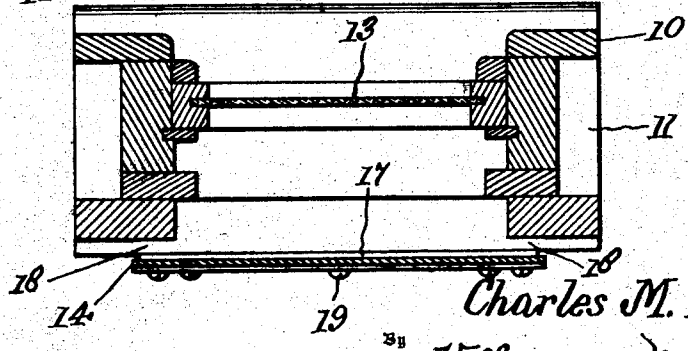


Fig. 4.



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Patented Mar. 14, 1939 2,150,280

UNITED STATES PATENT OFFICE

2,150,280

WINDOW PROTECTOR

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Application July 30, 1937, Serial No. 156,567
Renewed February 1, 1939

8 Claims. (Cl. 20—58)

The present invention relates to improvements in window protectors and more particularly has for an object to provide a storm protector for windows for use especially in localities where hurricanes are of sufficiently frequent occurrence to require some covering for the windows to prevent the wind at high velocity and with entrained particles from coming directly into contact with the window glass or the sashes.

It is the principal object of the present invention to provide a protector of this general character which will afford an increased degree of protection together with easy and convenient means for attaching the protector to the window.

Another object of the invention resides in providing such a protector with means to securely hold the same in place and at the same time facilitate quick application and removal of the protectors.

A further object of the invention is to provide an inexpensive but effective protection to windows when buildings are closed for an indefinite time; and also to provide a protector which will present a pleasing appearance; and which can be manufactured and installed at a very low cost, thus putting the protector within the reach of the small home owner. Such protectors as are now on the market are not available to the small home owner on account of the prohibitive cost, thus leaving the majority of home owners unable to protect the property from storms.

A still further object of the invention is to provide an improved protector which will guard and shield the window against the violence of high winds, and the débris and foreign matter entrained with such high winds; and at the same time providing for a degree of ventilation. Such ventilation is necessary to prevent high pressure and vacuum during hurricanes. The ventilation is also necessary for buildings that are temporarily closed for any length of time, inasmuch as such ventilating prevents mildew and musty smells.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawing, wherein like symbols refer to like or corresponding parts throughout the several views,

Figure 1 is a front elevation, with parts broken away, of a window casing showing the improved protector applied thereto in a position of use.

Figure 2 is a vertical section taken on the line 2—2 in Figure 1.

Figure 3 is a horizontal section taken on the line 3—3 in Figure 1, and

Figure 4 is also a horizontal section taken on the line 4—4 of Figure 1.

Referring more particularly to the drawing, 10 designates a window frame and 11 a window sill. At 12 and 13 are represented the window sashes.

In accordance with the invention I provide a protector plate 14 which is wider in horizontal dimension than the window opening so that it may overlap at both of its edges upon the sides of the window frame 10 to which it may be affixed strongly adjacent its upper and intermediate portions by any appropriate fastenings, for instance by the screws 15. These fastenings may be in any suitable number and may be spaced apart at suitable distances. The protector plate may be of wood, steel or any other appropriate material, the same being preferably of sufficient strength to resist the violence of tropical storms, and at the same time possessing a relatively high degree of lightness to facilitate the putting up and the taking down of such protectors and the carrying of the same to and from storage.

The protector plate 14 is sufficiently high vertically in order that its upper edge may overlap the top part of the window frame to which it is affixed by appropriate fastenings 16 in any desired number and in any desired spacing.

The lower edge of the protector plate 14 is also arranged to overlap the window sill 11. A horizontal bar or strip of wood 17 is mounted along the lower inner edge of the protector plate 14 and is positioned to bear along the outer edge of the window sill 11. A plurality of screws 19 or other suitable fastening means are arranged horizontally spaced apart and passed through the lower edge of the protector plate 14 and the strip 17 to hold these members attached to the window sill 11. The downwardly projecting portion of the protector plate below the portion thereof which is held firmly to the window frame 10 by the lowermost screws 15 is caused to bulge gradually outward from the window frame by having its lower edge passed over the outer face of the strip 17 to which it is secured by the screws 19 to the window sill 11. In having a part of the protector plate 14 bulged outwardly or spaced from the window frame 10 ventilation slots 18 are formed which may be readily varied in size or length as desired by moving the lowermost screws 15 downwardly along the outer vertical edge of the plate 14. These ventilating slots communicate with the external atmosphere and

also with the room atmosphere through the window opening establishing communication between the outside and the inside atmospheres and allowing ready and constant interchange of air between the two to avoid mildew and musty smell in closed houses equipped with the improved protectors, and also preventing vacuum and pressure in and about the window in case of storms.

Within the protector plate **14** and held thereby, so as to constitute therewith a completely transportable unit, is a cross-piece **20** secured to the inner face of the protector plate **14** either integrally or by separate fastenings **21** in any suitable number and at any suitable spacing. On the cross-piece are rubber or resilient bumpers **22** projecting inwardly for the purpose of engaging the cross-rail of the outer sash. These bumpers are in any suitable number and of any suitable diameter. Preferably the bumpers will be sufficiently large in diameter so as to engage the sash rail whether the sash is in the completely closed or slightly open position, it being understood that to cooperate with the ventilating slot heretofore described it may be desirable under certain circumstances to leave the window slightly open at the bottom whereby the advantages of the ventilation afforded by the slots may be had in the room to avoid mildew and musty conditions of the furniture and atmosphere. Ordinarily the inner sash is the lower sash and the bumpers being on the outer side of the window will engage the cross rail of the upper or outer sash. It is not so important that the outer sash be lowered for ventilation. Therefore, the bumpers **22** will in their fixed position ordinarily be placed properly to engage the cross rail of the upper outer sash and these rubber or resilient bumpers will project inwardly from the inner face of the protector plate sufficiently far to require a slight compression of the bumpers against the sash when the protector is put in place and the fastenings driven home. Thus the upper outer sash will be pressed by the resilient force of the bumpers inwardly against the inner lower sash which may be closed down tight upon the window sill or lifted slightly for ventilation purposes as previously referred to. In either position the resilient pressure of the bumpers will be transferred through the upper outer sash against the lower sash either directly through the top cross rail of the lower inner sash or against the side stile bars of the lower inner sash in case the same is raised sufficiently high to cause the top rail thereof to be moved upwardly out of alinement with the lower rail of the upper outer sash. In any event the rubber bumpers will effectively hold both sashes against rattling in the window frame and against any movement of any kind and will tend to stabilize the sashes and consequently the glass panes therein so as to avoid the setting up of pressures and counter-pressures or vacuum conditions due to high wind velocities.

It will also be noted that the cross-piece **20** is of substantial vertical depth and that at its ends it fits snugly within the side walls of the window casing or frame **10**. In other words the cross-piece **20** is of a length substantially equal to the width of the window frame whereby its ends substantially engage the side walls of the window frame. This will facilitate the centering of the protector plate **14** when the plate is being put in place from the outside of the building against the window frame. The strip **17**, which may be carried by the protector plate **14**, also centers the plate with respect to the vertical dimension of the window casing. Thus the strip **17** in combination with the cross-piece **20** conjointly act to a rapid centering of the protector plate in and upon the window frame with the screw openings in the protector plate **14** lining up with the screw holes in the window frame. Thereafter the screws or other fastenings may be very rapidly put in place, it being understood that rapidity of application of the protector plates is essential in time of short storm warnings in order to protect property and to secure the advantages for which the present protector has been devised.

The cross-piece **20** has another function in that it will prevent lateral or horizontal creeping of the protector plate **14** or the movement of this plate by the wind. The strip **17** serves a like purpose in preventing the descent of the protector plate **14**. By virtue of its fastening to the window sill the strip **17** also assists the other fastenings to avoid the protector plate **14** warping or casually shifting upwardly or being driven upwardly by window pressure. The width of the strip **17** determines and preserves the maximum width of the lower ends of the vertical slots or openings **18** which afford ventilating means that can be varied in size to control the inlet or wind currents as previously explained.

The invention is especially applicable to wood sashes, but it is intended that the same be applied to various types of windows in which other materials are used.

The substantial vertical depth of the cross-piece **20** and its engagement throughout this long vertical distance at both ends also prevents any tendency of the cross-piece to rotate about a central horizontal axis and therefore to prevent any similar rotary shifting movement in the protector plate; at the same time the resistance to rotary movement in the cross-piece **20** tends to prevent shearing off of the fastenings **21**. This stabilizing of the cross-piece **20** also prevents the bumpers from getting out of line with the sash rail. The cross-piece **20** also tends to reinforce the shield or protector plate **14** at a point where it is least supported whereby a relatively thin shield may be used, securing lightness for the device, without having any tendency to succumb to the ravages of the storm.

The protectors are easily and quickly installed inasmuch as each window and protector will carry the same number whereby there will be no confusion in installing the protectors on notice of the approaching hurricane.

After the hurricane has passed, the protectors can be easily removed and put back in storage for future use. The screw holes in the window frames may be filled with plastic wood and when dry smoothed and repainted, leaving no sign of screw holes or damage in the window casings.

The rubber bumpers may be secured to the cross-piece **20** by means of screws or other fastenings **23**. The screws will compress the material of the rubber bumpers within the heads of the screws, and preferably cavities **24** will be formed in the outer portions of the bumpers **22** to admit the screws **23**, whereby the heads of the screws will be countersunk, thus avoiding any likelihood of marring the sashes by the screw heads. Thus the screw heads are embedded deeply within the rubber. Moreover the formation of the cavities **24** increases the flexibility of the outer portions of the bumpers **22** to enable

same to take up the compressive forces urged upon the bumpers by the act of putting the plate 14 in place. Thus the bumpers may be firmly compressed, and they will admit of a firm compression while avoiding the plate 14 bulging out in the middle. The cavities 24 permit the spreading of the outer ends of the bumpers when put under this compression.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:

1. In combination with a window frame having a window opening and sashes slidable in said opening, a protector plate removably mounted over said window opening, means to secure said protector plate to the window frame, a cross-piece carried by the protector plate at an intermediate portion thereof and having its end portions engaging within and against said window frame, and resilient bumpers carried by said cross-piece for engaging a window sash.

2. In combination with a window frame having a window opening therethrough, and sashes slidable in said window opening, of a protector plate removably mounted against the outside of said protector frame, removable fastening means for securing the margin portions of said protector plate to said window frame, a cross-piece carried by the intermediate portion of said protector plate, said cross-piece being of substantial vertical depth and having its end portions snugly received within the window opening and engaging against the window frame, and rubber bumpers carried upon the inside face of said cross-piece and being horizontally deeper than the space between the adjacent sash and the inner face of said cross-piece whereby to cause said rubber bumpers to be compressed against the sash when the protector plate is put into place.

3. In combination with a window frame having a window opening therethrough, and sashes slidable in said window opening, of a protector plate adapted to be mounted over the window opening, means to space the lower outer edges only of said protector plate from the lower part of the window opening to provide a ventilating slot, said means shielding the bottom of said slot from wind violence but leaving the ends of said slot open, and means to secure the protector plate removably to the window frame.

4. In combination with a window frame having a window opening therein, and sashes slidable in the window opening, of a protector plate adapted to be secured to the outside of said window frame, fastening means for securing said protector plate to the window frame with the lower outer edges of the plate spaced from the bottom of the window opening whereby to provide a ventilating slot along the lower outer edges of the plate, and means lying within said slot to shield the bottom of said slot from wind violence but leaving the ends of said ventilating slot open.

5. In combination with a window frame having an opening therethrough, and sashes movably mounted in said frame, a light thin protector plate removably placed over said window frame, fastening means for securing the plate to the window frame with the lower outer edges of the plate spaced from the bottom of the window opening, a strip secured to the lower edge of the plate and positioned between the window frame and the lower edge of the plate to shield the space below such lower edge of the plate along its length from wind violence but leaving the ends of such space open, a cross-piece secured to the inner portion of said plate at an intermediate part and engaging against the window frame at its ends, and resilient bumper means carried by said cross-piece for engaging one of the sashes and forcing by the resilient pressure the one sash against the other into binding relation.

6. In combination with a window frame having a window opening therein, and sashes movably mounted in the window opening, of a protector plate, means for securing said protector plate over the outer side of the window opening, bumpers carried by an intermediate portion of said plate and having their outer surfaces engaging against the adjacent sash, said bumpers having cavities opening outwardly against the sash for increasing the flexibility of the outer free surface portions of said bumpers, and fastening means for suspending the bumpers from the plate having heads countersunk within said cavities.

7. In combination with a window frame having a window opening, a protector plate removably mounted over said window opening, cooperating means on the window frame and the plate for removably securing the plate to the window frame, means carried by the plate for effecting horizontal centering of the plate with respect to the window frame, and means carried by the plate and the horizontal centering means for effecting a rough vertical centering of the plate with respect to the window frame, the last two mentioned means effecting a rough lining up of the cooperating securing means.

8. In combination with a window frame having a window opening and inner and outer sashes vertically slidable in said opening, a protector plate mounted over said window opening, a bumper disposed between the outer sash and the plate and engaging the outer sash, said bumper being of such a height as to permit it to engage the outer sash when the latter is in closed position and when in slightly open position.

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