Nov. 9, 1948. G. MERRYWEATHER 2,453,528

STORM WINDOW AND SCREEN COMBINATION

Filed Oct. 27, 1943

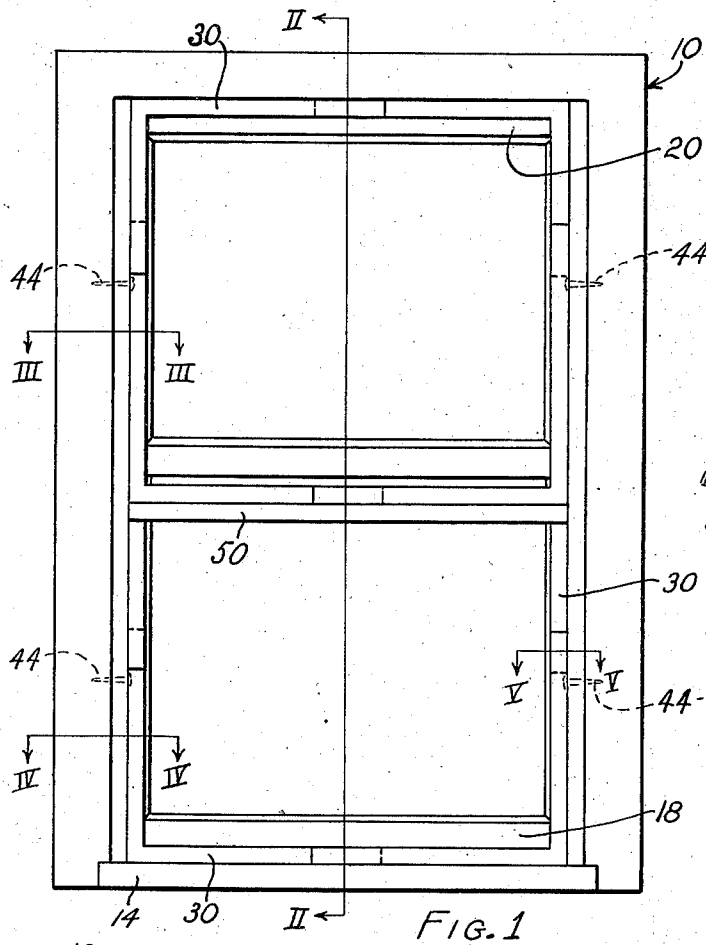


FIG. 1

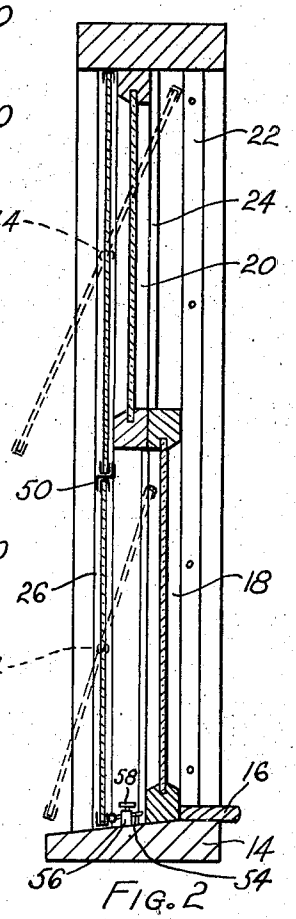


FIG. 2

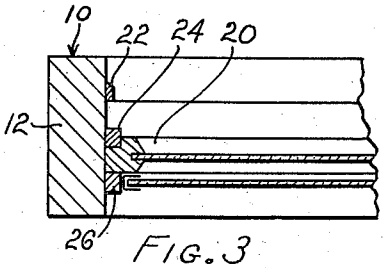


FIG. 3

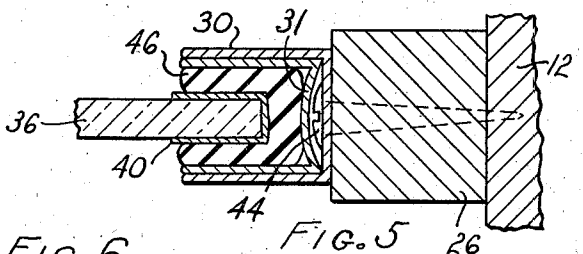


FIG. 5

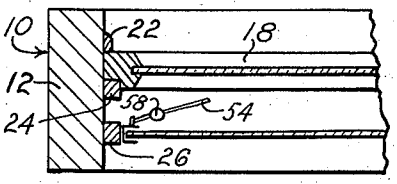


FIG. 4



FIG. 6

Inventor

GERALD MERRYWEATHER

By A. A. Oldham

Attorney

Patented Nov. 9, 1948

2,453,528

UNITED STATES PATENT OFFICE

2,453,528

STORM WINDOW AND SCREEN COMBINATION

Gerald Merryweather, Cuyahoga Falls, Ohio

Application October 27, 1943, Serial No. 507,796

6 Claims. (Cl. 20—55)

1

This invention relates to improved storm window and screen combinations.

Heretofore, many combinations of this character have been proposed, but, substantially without exception, such known combinations have been open to one or more objections. For example, they are either quite expensive to manufacture, or difficult to install, or are adapted to only fixed window sizes, or are not readily ventilated, or are not readily changed from glass to screen or vice-versa, or are not efficient.

In is the general object of my invention to avoid and overcome the foregoing and other objections to or difficulties of prior structures by the provision of less expensive and better storm window screen combinations.

Another object of my invention is to provide a storm window screen assembly which can be readily adjusted by the layman to fit any given window.

Another object of my invention is the provision of a structure of the character described which can be quickly and easily installed from the inside of the house by the ordinary home owner and which can be readily changed from screen to storm window glass or back again from the inside of the house with a minimum of effort and with perfect safety and good comfort.

Another object of my invention is to provide storm window and screen combinations which are light in weight and durable and attractive in use, and which can be manufactured and sold at a price within the reach of the home owner's pocket-book.

The foregoing objects of my invention, and other objects which will become apparent as the description proceeds, are achieved by the provision of a pair of storm windows for a double sash or like window, each storm window comprising an adjustable frame, a closure member removably carried by each frame, means mounting one frame in the lower part of the window for movement about a horizontal pivot, means similarly mounting the second frame in the upper part of the window, and bar means extending horizontally of the window and providing a stop for the upper edge of the lower frame and for the lower edge of the upper frame. In a double sash window the storm window frames are mounted on the blind stop of the window, and often means are incorporated with the assembly for locking at least one window in a tilted ventilating position.

For a better understanding of my invention, reference should be had to the accompanying

2

drawings, wherein Fig. 1 is a front elevation from outside of a storm window-window combination embodying the principles of my invention; Fig. 2 is a vertical cross-sectional view taken on line II—II of Fig. 1; Fig. 3 is a fragmentary horizontal cross-sectional view taken on line III—III of Fig. 1; Fig. 4 is a view similar to Fig. 3 and taken on line IV—IV of Fig. 1; Fig. 5 is an enlarged fragmentary horizontal sectional view taken on line V—V of Fig. 1; and Fig. 6 is a fragmentary cross-sectional view showing the screen rather than the storm window glass pane.

In the drawings, the numeral 10 indicates, as a whole, a typical window frame adapted to receive the storm window and screen combination of my invention. The window frame is shown as standard and includes jambs 12, sill 14, stool 16, lower sash 18, upper sash 20, inside stops 22, parting stops 24, and blind stops 26. For purposes of simplification, I have only diagrammatically shown the outside of the window frame 10 and the jambs as solid one-piece portions, although actually these are usually made up of several parts. Of course, my improved storm window and screen arrangement may be used with other types of windows than that shown, and while retaining many of the advantages of the invention. However, my improved structure is particularly designed to operate in conjunction with a double sash window, and, I have so illustrated and will so describe my invention.

Turning now to the structure of the storm window and screen combination of the invention, the numeral 30 indicates an adjustable frame preferably but not necessarily made of light gauge sheet metal or metal extrusions and preferably but not necessarily made of four parts, each part comprising a corner. When the frame comprises four corners, two of the corners are large in cross-section (as shown, the lower right and the upper left of each frame may be large), and two of the corners are slightly smaller in cross-section. Each corner is made channeled i. e. substantially U-shaped in cross-sectional contour, as best seen in Fig. 5 of the drawings, with the smaller corners sliding inside the larger corners for an overlap of several inches. The bottoms of the smaller corners may be formed on a curve 31 to provide a resilient base which compensates for any slight difference in size of the channels and which will keep the frame to any adjusted size. By making the channeled corners adjustable as to size, each storm window frame 30 can be fitted readily to any of a plurality of window frame sizes including both verti-

cal and lateral dimension differences. Accordingly, it is a simple matter for the ordinary home owner to adjust the storm window frames to particular window frame sizes.

The frames **30** each are adapted to hold in a quickly removable manner a suitable closure member in the form of either a pane of glass **36** or a screen **38**. The edge of the glass **36** is generally covered with paper or cloth tape **40** to prevent any sharp corners from cutting the hands, and the edge of the screen **38** is secured to a wire frame **42**. It will be understood that the glass and screen are cut or formed to proper size to be received within each storm window from **30** when it is adjusted to proper size. This operation is not as difficult as it sounds, inasmuch as many windows fall within standard sizes, particularly as to width, so that cutting of the glass along one edge only is necessary. The frame **30** compensates for any minor differences of window frame dimensions. With respect to the screens **38**, these may be plastic or metal, but, in any event, it is a simple operation to form the wire frame **42** to the same size as the glass **36** and to then cut the screen slightly bigger than the frame and fold the screen edges around the frame and fasten them in place.

The closure members, namely, the glass **36** and the screen **38**, are received alternatively in each storm window frame **30** in a quickly removable manner, as noted above, and this is usually accomplished by removing the two upper corners of the frame **30**. This is easily done before or after the storm window frame is fastened in place in the window frame. The manner in which it can be accomplished before it is obvious, and the operation is facilitated after the frame **30** is secured in the window frame because of the simple way in which the frame **30** is fastened in place. Particularly, each frame **30** is mounted in the window frame **10** by a single pair of screws **44** extending oppositely through the upper ends of the lower corners of the frame **30** so that each frame **30** is mounted for tilting movement around a horizontal pivot.

This horizontal tilting movement is rendered possible in the standard double sash window shown by securing each frame **30** to the blind stops **26** of the window frame so that the stops will not interfere with the tilting movement of the storm window frames **30**. Of course, it is necessary to drop the upper sash **20** down to permit tilting of the upper storm window frame, and the lower sash **18** must be raised to permit full tilting of the lower storm window frame. Accordingly, it is evident that changing from a glass pane **36** to a screen **38** is a very simple matter from the inside of the house merely by dropping the upper sash and tilting the upper storm window, or by raising the lower sash and tilting the lower storm window. In either case, the two upper corners of the storm window frame can be easily slid off and the relative small glass panes **36** and screens **38** can be interchanged without being incumbered by the weight or size of frames and without requiring that the person doing the job subject himself to personal danger or discomfort by leaning out of the window or by climbing a ladder from the outside. The procedure is reversed in getting the storm window frames **30** back in position with the exchanged closure members therein.

I have illustrated sealing means **46** between the frame **30** and the closure members **36** or **38**, such means taking the form of rubber or felt,

and while such means are often preferred, many of the advantages of the invention may be retained even though the sealing means are eliminated from the combination, with the channel-shape of the frame being correspondingly reduced in cross section.

Generally and preferably I provide a bar **50** which extends horizontally between the storm window frames, with such a bar functioning to provide a stop or shelf for the upper edge of the lower frame and for the lower edge of the upper frame. Conveniently, the bar **50** takes the form of a Z in cross section, as best seen in Fig. 2, and is secured at its ends to the blind stops **26**.

One further noteworthy advantage of my improved structure is that it is particularly and simply adapted to adequate ventilation. The lower sash **18** can be raised or the upper sash **20** can be lowered, and, depending upon the position of the sash, the storm window frames can be tilted to a greater or lesser ventilating angle to provide a much more satisfactory ventilating action than the usual storm window. It is usually desirable to provide means for holding at least the lower storm window frame at an adjustable tilted angle, and, although these means can obviously take a variety of forms, one such means is illustrated in the drawings as including a rod **54** pivotally fastened to the frame **30** near the sill **14**. The rod **54** extends through a hole in a block **56** fastened to the sill **14** and the rod **54** is locked therein by a thumb screw **58**.

From the foregoing, it is believed apparent that the objects of the invention have been achieved by the provision of a cheaper and better storm window screen combination which is adapted to fit a wide variety of window frame sizes and which can be easily installed by the average home owner without special skill, training, or tools. Changing from glass to screens, or the reverse, is a particularly facile operation with complete safety and comfort. Ventilation and good visibility are other advantages. Additionally, handling and particularly storing of the storm windows and screens is facilitated due to lightness, relative smallness, and the absence of bulky frames.

I might note that many prior known types of storm windows have been very concerned with extreme tightness of seal between storm window and window frame. However, it is now fairly well recognized that the main source of heat radiation is through the glass itself, and any minute cracks which might occur around the edges of my improved frame **30** instead of hindering the storm window action merely serve to provide a necessary ventilation.

While, in accordance with the patent statutes I have particularly illustrated and described one embodiment of my invention, it will be understood that I am not to be limited thereto or thereby, but that the scope of my invention is defined in the appended claims.

I claim:

1. A window assembly comprising four panel-supporting members each inherently form-retaining and shaped to extend about a corner of a light-admitting panel, and of channel shape in cross-section for removably receiving the margin of the panel, the channel portions of adjacent ones of said members having telescopic connection, and means intermediate their height for hinging the lower two of said members on a horizontal axis in embraced relation to side members of a window-frame structure, so that the

said embracing side members hold them in position on the panel, the upper two of said members having gravity and frictional engagement as their only essential provision for keeping them in proper relation to the lower two.

2. A window assembly comprising a plurality of panel-supporting members each inherently form-retaining, shaped to extend about at least one corner of a light-admitting panel, and of channel shape in cross-section for removably receiving the margin of the panel, the channel portions of adjacent ones of said members having telescopic connection, means for supporting a relatively low one of said members from a window-frame structure, and a light-admitting panel mounted in said members, a higher one of said members having gravity and frictional engagement as its only essential provision for keeping it in proper relation to the said lower one of the members.

3. A storm-window assembly comprising an upper section and a lower section, each of said sections comprising a plurality of panel-supporting members each inherently form-retaining, shaped to extend about at least one corner of a light-admitting panel, and of channel shape in cross-section for removably receiving the margin of the panel, the channel portions of adjacent ones of said members having telescopic connection, means for supporting a relatively low one of said members from a window-frame structure, and a light-admitting panel mounted in said members, a higher one of said members having gravity and frictional engagement as its only essential provision for keeping it in proper relation to the said lower one of the members.

4. In combination with a window-frame structure having vertical side members which present toward each other, as their nearest faces, parallel plane surfaces which are continuous substantially throughout the height of the window, a window assembly comprising a pair of half-frame structures each of channel shape in cross-section for receiving a side margin and parts of the top and bottom margins of a single light-admitting panel, said structures having telescopic connection with each other at their tops and at their bottoms, and means at a substantial distance from their tops and from their bottoms for hinging them on a horizontal axis in embraced relation to the said plane surfaces of the said side members, so that the said side members constitute means for holding them in position on the said panel, the said half-frame structures lying wholly between the planes of the aforesaid plane surfaces.

5. In combination with a window-frame structure including a sliding sash and having vertical blind stops which present toward each other, as their nearest faces, parallel plane surfaces which are continuous substantially throughout the height of the window, a storm window assembly comprising a pair of half-frame structures each of channel shape in cross-section for receiving a side margin and parts of the top and bottom margins of a single light-admitting panel, said structures having telescopic connection with each other at their tops and at their bottoms, and means at a substantial distance from their tops and from their bottoms for hinging them on a horizontal axis in embraced relation to the said plane surfaces of the said blind stops, so that the said blind stops constitute means for holding them in position on the said panel, the said hinged-frame structures lying wholly between the planes of the aforesaid plane surfaces.

6. In combination with a window-frame structure including a sliding sash and having vertical blind stops which present toward each other as their nearest faces parallel plane surfaces which are continuous substantially throughout the height of the window, a storm window assembly comprising a hinged-frame structure having means therein for receiving and supporting alternatively a storm panel and a screen panel, and means at a substantial distance from the top and from the bottom of said hinged-frame structure for hinging it on a horizontal axis in embraced relation to the said plane surfaces of the said blind stops, the said hinged-frame structure lying wholly between the planes of the aforesaid plane surfaces.

GERALD MERRYWEATHER.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
262,367	Burk	Aug. 8, 1882
908,856	Goddard	Jan. 5, 1909
1,287,409	Paige	Dec. 10, 1918
1,372,687	Hargadine	Mar. 29, 1921
1,503,018	Beechler	July 29, 1924
1,595,018	Mills	Aug. 3, 1926
1,625,220	Mesker	Apr. 19, 1927
1,935,020	Dietz	Nov. 14, 1933
2,145,357	Kelly	Jan. 31, 1939
2,258,318	Cross	Oct. 7, 1941