Nov. 2, 1926. 1,605,583

J. K. HEYMER

DOUBLE GLAZED WINDOW

Filed April 19, 1926

Fig. 1.

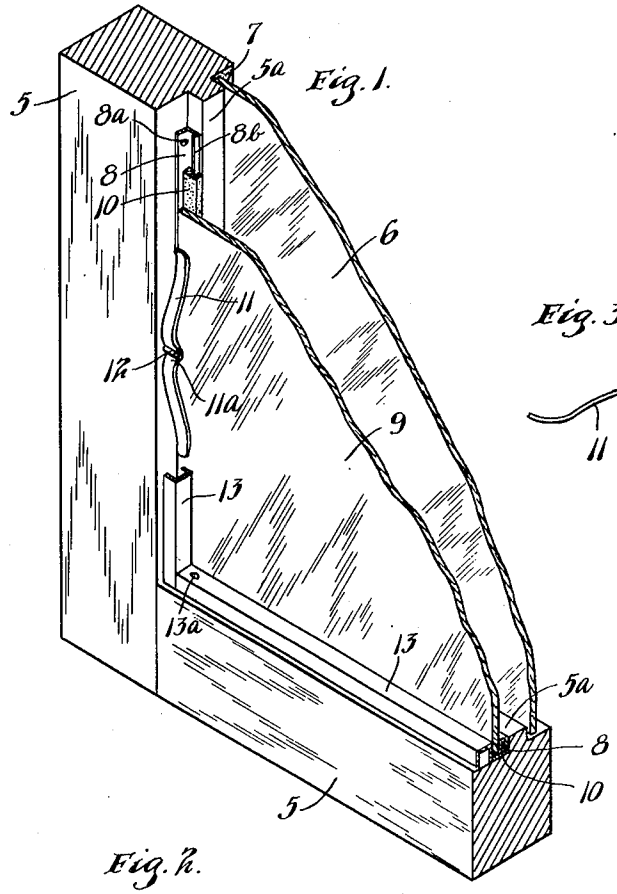


Fig. 3.



Fig. 2.

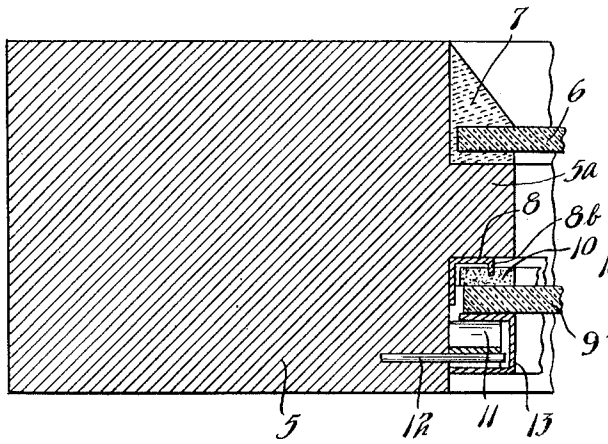
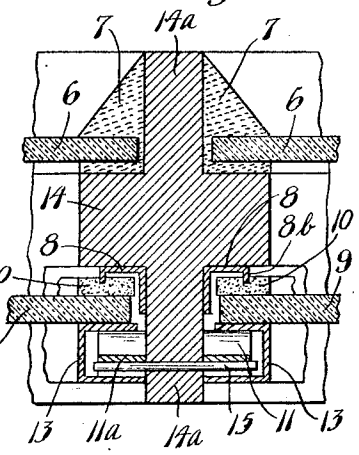


Fig. 4.



INVENTOR.
JAMES K HEYMER.
BY HIS ATTORNEYS.
Williamson Reif & Williamson

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UNITED STATES PATENT OFFICE.

JAMES K. HEYMER, OF MINNEAPOLIS, MINNESOTA.

DOUBLE-GLAZED WINDOW.

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This invention relates to windows and sashes and especially to a double glazed window structure capable of replacing the usual storm sash.

It is the main object of this invention to provide a simple but highly efficient double glazed window structure in the form of an attachment for a standard sash adapted to form an air space between two transparent panes and to effectively prevent heated air or moisture from entering said space.

A further object of the invention is to provide a double glazed attachment comprising a minimum number of parts and capable of being readily mounted or detached from a standard sash provided with the usual single pane.

Another object of the invention is to provide in such a device resilient means for holding the auxiliary pane against its stop, said means being entirely hidden from view within ornamental mountings.

My device is capable of application to a divided sash having the usual muntins and a plurality of panes as well as to the usual window sash.

These and other objects of the invention will be apparent from the following description in connection with the accompanying drawings, in which like characters refer to similar parts throughout the several views, and in which,

Fig. 1 is a fragmentary perspective view of a portion of a standard sash with a preferred embodiment of my invention mounted thereon.

Fig. 2 is a horizontal cross section through one side of the sash.

Fig. 3 is a detail elevation of one of the leaf springs employed, and

Fig. 4 is a horizontal cross section showing my device applied to one of the muntins in a divided sash.

In Figs. 1 and 2, a window sash 5 of standard construction is illustrated having the stop or molding 5^a formed about and encircling its inner sides. The window pane 6 is seated against the outer side of stop 5^a and secured in proper position by means of putty or molding 7 in the usual manner.

I prefer to provide the inner side of the stop or molding 5^a with a flat shoulder extending at right angles to the inside edges of the sash frame. Against each of the flat surfaces thus formed, on each of the frame members of the sash, strips or channel members 8 are secured. These may be secured in any manner and are shown as nailed at 8^a to the inner edges of the sash frame. Strips 8 carry outwardly projecting knife edges 8^b extending preferably at right angles to the adjacent surface of the stops 5^a. An auxiliary transparent pane 9 is provided of proper dimensions to snugly fit within the sash frame 5 and packing strips 10 constructed of relatively soft material are interposed between the side edges of pane 9 and adjacent knife edges 8^b, thereby forming a substantially air tight fitting between the auxiliary pane and the stop 5^a.

Auxiliary pane 9 is preferably resiliently held against packing strips 10 by means of a plurality of wing shaped springs 11 anchored by means of dowel pins 12 driven into the inner sides of the sash frame. A concavo-convex seat 11^a is provided centrally of spring 11 adapted to engage dowel pins 12 to hold the spring in proper operative position. Preferably one of the springs 11 is employed on each of the four sides of the sash frame, although, of course, in large size sashes additional springs may be utilized if necessary to hold the auxiliary pane in tight engagement against the packing strips. A narrow rectangular frame is formed to house the several springs comprising a plurality of channel members 13, one being disposed adjacent each side edge of the auxiliary pane 9, with its open end extending towards the inside edges of the sash. I slide one side of each of channel members 13 between its appropriate leaf spring 11 of the adjacent edge of auxiliary pane 9. The pressure from the springs is therefore exerted against the channel members uniformly pressing the pane or glass against the weather strip. The channel members finish off the appearance of the auxiliary pane and entirely hide the springs. If desired, two of the channel members 13 may be provided with small apertures 13^a to permit the insertion of a hook member for facilitating the removal thereof.

In applying my invention to a divided sash having the usual crossed muntins 14, as illustrated in Fig. 4, the construction is essentially the same for each relatively small pane of glass mounted in the sash. The frame formed between the muntins about each pane is provided with the strips

8, the packing strips 10 and the auxiliary panes 9, as described. The springs 11 are seated by means of an elongated dowel pin 15 extending through the stops 14ª formed in the muntins. Each dowel pin, therefore, in the muntins retains a spring at each side of the muntin.

While my construction practically prevents the entrance of any air, dust or moisture into the space between the panes, in a long period it becomes necessary to remove the auxiliary pane and wash the inner surface thereof, as well as the inner surface of the main window pane. This is readily accomplished by removing my channel members 13 and slipping out the springs 11 from engagement with the dowel pins.

The two panes 6 and 9 are spaced the proper distance apart by means of the stops 5ª and the packing strips 10, leaving an air space therebetween which will form effective insulation. When the windows are provided with efficient weather strips it will not be necessary to employ storm sashes even in the coldest weather. The air tight engagement between the edges of the auxiliary pane at the stop 5ª prevent moisture or warm air entering between the panes and causing either of the panes to become frosted.

From the above description, it will be apparent that I have invented a simple but highly efficient double glazed window construction capable of being employed as an attachment on standard window sashes.

It will, of course, be understood that various changes may be made in the form, details, proportions and arrangement of parts without departing from the scope of the invention.

What is claimed is:

1. A double glazed window structure including an auxiliary pane adapted to be seated against the inner side of the stop or molding for the main pane of a window in spaced relation to said main pane, means for yieldingly holding said auxiliary pane against said stop and means enclosing and concealing said last mentioned means.

2. A double glazed window structure including a stop about the inner sides of a sash, an auxiliary pane seated against said stop in spaced relation to the main pane of said sash, elongated hollow members disposed about the outer edges of said auxiliary pane and means housed within said elongated members for yieldingly holding said pane against said stop.

3. A double glazed window structure comprising a main pane secured in a sash frame, a stop on the inner edges of said sash frame, an auxiliary pane seated against one side of said stop in spaced relation to said main pane, channel members on the outer side of said auxiliary pane and means disposed within said channel members for holding the same against said auxiliary pane.

4. A double glazed attachment for a window sash comprising a seat about the inner sides of a sash extending substantially parallel with the main pane of the sash, an auxiliary pane adapted to be held flush against said seat, a frame formed of channel members disposed along the outer edges of said auxiliary pane and a plurality of resilient members housed within said frame and adapted to yieldingly hold said frame against said pane.

5. A double glazed attachment for a window sash comprising strips secured to the inner edges of the stop or molding for the pane of the sash, said strips carrying outwardly projecting knife edges extending substantially normal to the pane of said sash, an auxiliary pane spaced from the main pane of said window, strips of relatively soft material disposed between the edges of said auxiliary pane and said knife edges, members engaging the outer edges of said auxiliary pane and means housed within said members for holding the same against said auxiliary pane.

6. A pane holding device for a window sash comprising a stop on said sash, means constituting a seat secured on the inner sides of a sash and having a portion extending substantially parallel to said stop, a pane adapted to be held against said seat and a plurality of spaced elongated removable resilient members pressed against the outer edges of said pane to snugly hold the same against its seat.

7. The structure set forth in claim 6, and strips disposed between said first mentioned means and the outer edges of said pane.

8. The structure set forth in claim 6, and a pluralty of channel members disposed with their open sides extending towards the inner sides of the sash and housing said resilient members.

9. In combination with a window sash having a molding or stop for the window pane, an auxiliary pane seated against the inner side of said stop in parallel relation to said main pane, a plurality of leaf springs bearing against the outer edges of said auxiliary pane to press the same against its stop and a plurality of pins secured to the inner edges of the sash adapted to retain said springs in operative position.

10. A double glazed attachment for a window sash comprising a seat about the inner edges of a sash, an auxiliary pane adapted to be held in said seat in spaced parallel relation to the main pane of the sash, a detachable frame rectangular in cross section disposed about the outer edges of said auxiliary pane and means housed by said frame for holding said auxiliary pane in tight engagement against its seat.

11. In a device for holding a pane in a window sash, having in combination means forming an abutting surface parallel to said pane, a member secured to said means forming a seat for the edges of said pane, detachable resilient means carried by said sash, engaging the other side of said pane at its edges for holding the same against said seat, and a hollow member with a closed interior surface extending about said sash and the edge of said pane enclosing and concealing said resilient means.

In testimony whereof I affix my signature.

JAMES K. HEYMER.