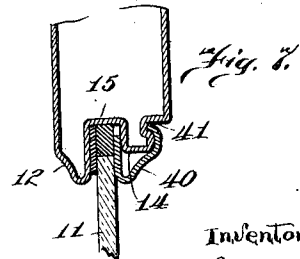
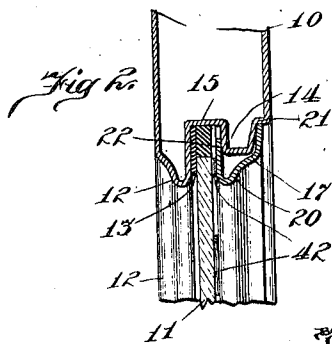
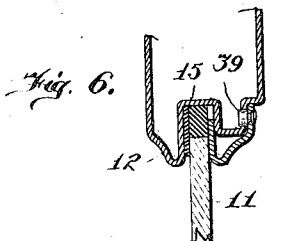
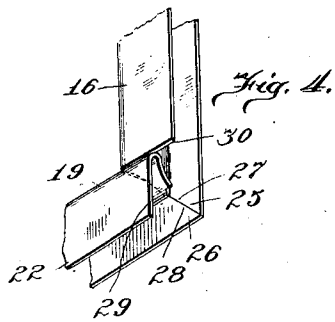
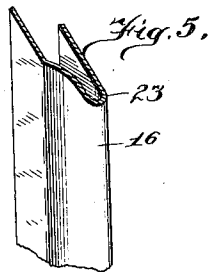
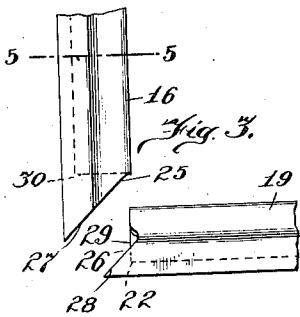
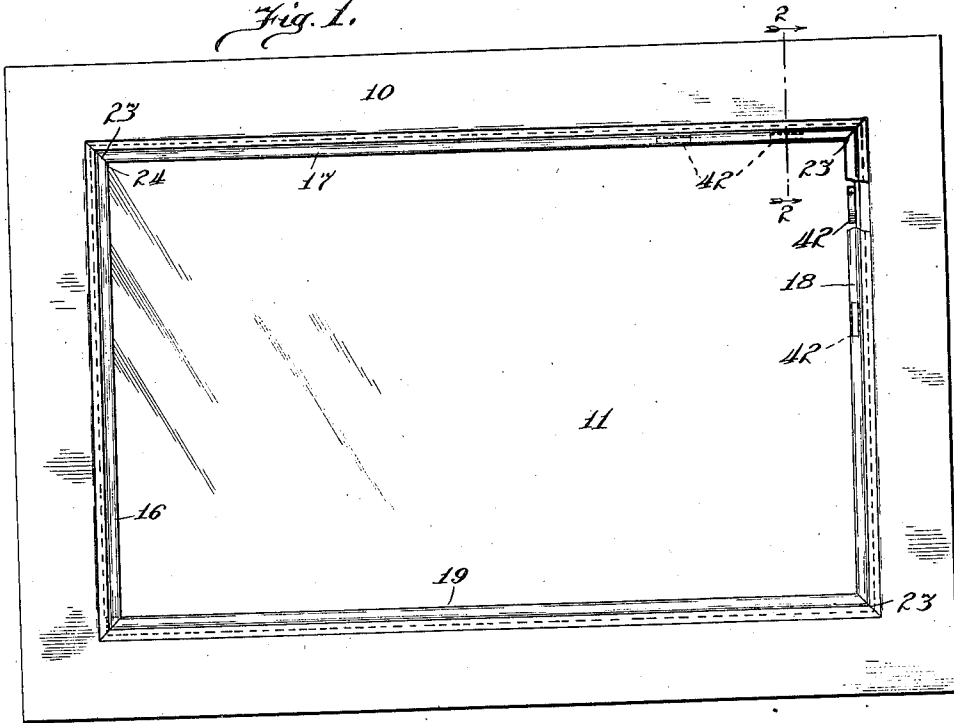


1,029,217.

Fig. 1.



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 WINDOW SASH.
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2 SHEETS-SHEET 2.

Fig. 8.

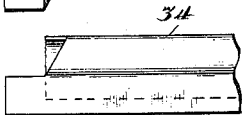
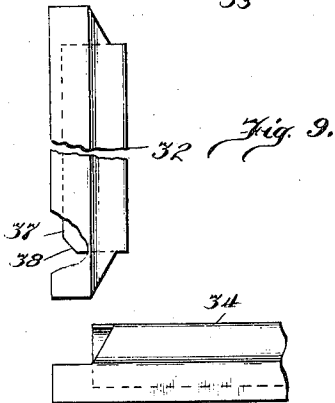
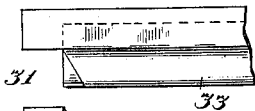
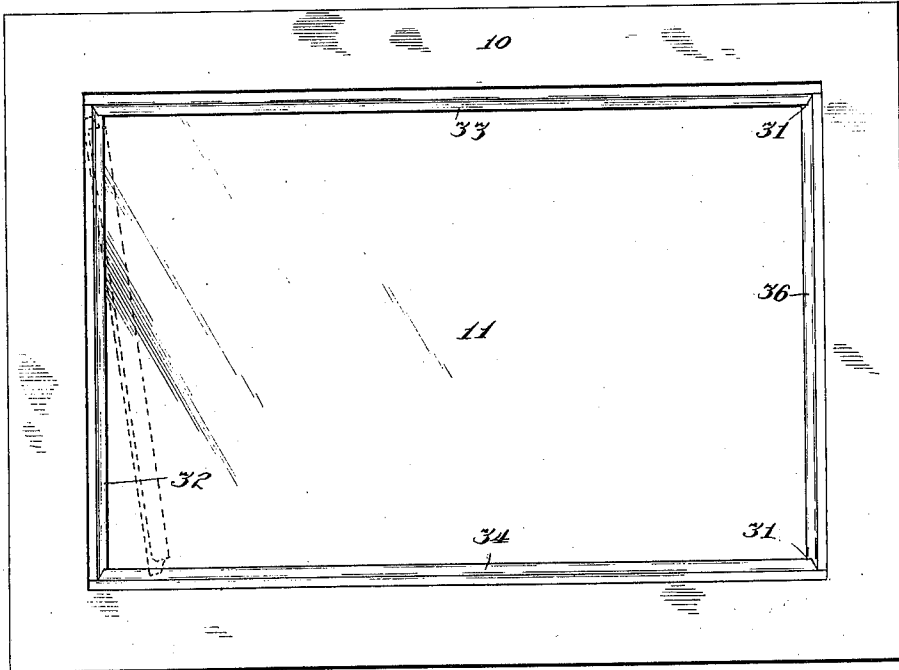


Fig. 10.

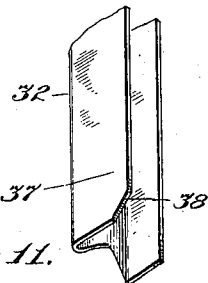
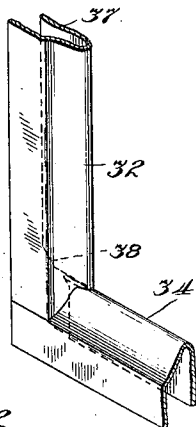


Fig. 11.

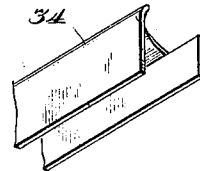


Fig. 12.



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WINDOW-SASH.

1,029,217.

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Application filed August 19, 1911. Serial No. 644,957.

To all whom it may concern:

Be it known that I, ALFRED H. NEWPHER, a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Window-Sash, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to means for securing a panel or pane of glass within the sash frame; its object being to provide means for securely holding the pane in place without the use of screws or nails.

The invention consists of a structure such as is hereinafter described and shown in two of the forms which it may assume, in the accompanying drawings, in which—

Figure 1 is a front elevation of the sash; Fig. 2 is a detail section on the line 2—2 of Fig. 1; Fig. 3 is a detail showing the outer faces of the end portions of two adjacent sash-retaining strips unassembled; Fig. 4 is a perspective view of the same parts as assembled, showing their inner faces; Fig. 5 is a detail transverse section through one of the strips on the line 5—5 of Fig. 3; Fig. 6 is a detail transverse section through one of the sash rails and retaining strips, intermediate of the ends thereof, and showing one means for preventing the sagging of the strip; Fig. 7 is a similar view showing modified means for preventing the strip from sagging; Fig. 8 is a front elevation of the sash showing a modified form of construction of the retaining strips, the position of one of the strips in assembling being indicated in dotted lines; Fig. 9 is a detail of the retaining strip shown in Fig. 8, unassembled; Fig. 10 is a detail perspective of the retaining strip; Fig. 11 is a detail in perspective of two adjacent retaining strips appearing in Fig. 8, unassembled, the inner faces of the strips being shown; and Fig. 12 is a perspective of a filling spring used in connection with the device.

The sash frame 10 is shown as oblong rectangular in form, though the invention is not limited to this particular angular form. The sash frame is made of sheet metal, though the invention is applicable to sashes made of wood. The window pane is represented at 11 and as being seated against an instanding continuous shoulder 12 formed on the frame; preferably a gasket 13 of cushioning

or of a soft or plastic material, such as rubber or putty, is interposed between the pane and the shoulder 12 for the purpose of better excluding the weather.

A continuous rib 14 extends inwardly from the sash rails, and is spaced apart from the shoulder 12 a distance slightly greater than the thickness of the pane to be used; this rib is of less height than the shoulder 12, leaving a free space for the insertion of the pane. There is thus formed between the shoulder and the rib a continuous channel 15 in line with the edges of the pane, and this channel may, if desired, be filled with a packing material, such as putty, for preventing the edgewise movement of the pane.

Retaining strips 16, 17, 18 and 19, one for each side of the sash frame, are fitted upon the rib 14 formed on each rail. These strips are substantially U-shaped in cross section, though for the purpose of ornamentation the bowed portion of each may be beveled toward the face of the pane, as shown at 20. The outer leg of the U is of such length that the edge of the strip bears upon the shoulder 21 of the sash rail at the base of the rib 14. The inner leg 22 of the U is of less length, so that the inner edge of the strip does not reach the bottom of the channel 15. The strip thus formed being applied to the sash rib, and the latter being beveled on its outer face, tends to tilt inwardly against the face of the pane, and this tendency is accentuated when the several strips are in place, by their mutual engagement.

In the construction illustrated in Fig. 1 the ends of the several retaining strips, except at one corner of the sash, are mitered, as shown at 23, adjacent strips thus bearing one upon the other both laterally and longitudinally. In assembling the parts the retaining strips, as 17, 18, 19, are applied to the ribs 14 of the rails with which they cooperate. The remaining strip, as 16, is then applied by first fitting its mitered end, as 24, to the rib and then sliding its opposite end along the face of the strip 19. The end 25 of the strip 16 and the end 26 of the strip 19 cooperating therewith, are connected so as to form a joint which is in part mitered and in part coped.

The outer leg of each of the strips at the ends named is mitered, as shown at 27, 28. The inner leg of the strip 19 is continued beyond the line of the miter, as shown at 29, 110

and the inner leg of the strip 16 is cut away, as shown at 30, so that its end abuts against the bow of the strip 19. As the end 25 of the strip 16 is forced into place the end 30 of its inner leg slides along the bowed face of the strip 19 until the mitered portion 27 of the strip 16 springs over and engages the mitered portion 28 of the strip 19. The snug fit of the retaining strips upon the rib 14 prevents disengagement of the several mitered joints, and the pane is thus effectually held in place without requiring the use of either screws or nails. The several retaining strips being cut of full length so that pressure becomes necessary to force them to their seats, they are tilted inwardly toward the pane and securely hold it against rattling.

In the form of construction disclosed in Figs. 8 to 11, the joints uniting the several retaining strips are, as shown at 31, of the rabbeted type as distinguished from the mitered type; one of the strips, as 32, corresponding with the strip 16 (and which in either case may be called the key strip), having its inner leaf or leg shortened to abut against the bow of one of the adjacent strips.

The top and bottom strips 33, 34, are shown as of a length corresponding with the length of the shoulders 21 against which they seat. The inner portions of their outer leaves or legs are cut away adjacent their ends to a distance from their ends slightly less than the width of the side strips. These side strips have their ends cut to fit the cut-away portions of the top and bottom strips, the inner leaf or leg, as 37, of one of the side strips, as 32, at at least one end being shortened to fit against the bow of the adjacent strip, the outer portion of this cut being inclined backward, as shown at 38.

The parts are assembled, as in the other form of construction, by fitting in place three of the strips, as 33, 34 and 36, and then springing into place the key strip, as indicated by dotted lines in Fig. 8, the end portion of this key sliding over the outer leaf or leg of the adjacent strip until it falls into the joint cut to receive it. In either construction the key strip may be removed by raising its outer leaf by means of a suitable tool inserted beneath it.

Where the size of the window is considerable it is desirable to provide means for preventing the retaining strips from sagging or bowing outwardly. In Fig. 6 the strip, as 17, is shown as being provided with an instanding stud 39, adapted to engage a suitable recess formed in the outer face of the rib 14. This stud will be placed intermediate of the ends of the strip to which it is affixed, and while a single one will usually be found sufficient a plurality of such studs may, of course, be employed if desired.

In Fig. 7 the provision made for preventing such sagging or bowing consists in providing the retaining strip, as 40, with an instanding lip 41, by turning its outer leg inwardly throughout all or a portion of its length, for engaging a recess 42 in the outer face of the rib 14.

In either form of construction, as illustrated in Figs. 6 and 7, the instanding element 39 or 41 springs into the recess in the rib as the retaining strip is adjusted to its seat, and is retained therein by the elasticity of the metal of which the strip is formed.

It not infrequently happens that the thickness of the glass used in glazing windows is not uniform. It is important that the glass fit snugly against the seat which is at the inner side of the window and to this end I propose to insert short bowed springs between the retaining strips and the glass where the latter is thin, these springs being of sufficient strength to bend the glass and force it against the seat. One of such springs 42 is shown in Fig. 12. In Fig. 2 such a spring is shown in place and a plurality of them are shown in Fig. 1. These springs are short, being preferably about one inch in length and are of such width that they will not project beyond the inner edge or bow of the retaining strip. They are preferably so placed that their ends bear against the glass and are easily inserted by applying pressure to flatten them and then bearing down upon their outer edges. The space between the retaining strips and the thin portions of the glass is preferably filled with putty. The springs are thus hidden from sight. They retain their place because of their own elasticity.

I claim as my invention—

1. In a window sash, in combination, an angular frame having a pair of instanding parallel ribs extending along its several sides, one thereof being a pane seat, a pane-retaining frame U-shaped in cross-section fitted astride the other of said ribs and comprising a plurality of strips, the adjacent strips bearing laterally each upon the other, the inner leaf of one of said strips being cut away at one end to bear against the inner face of the adjacent strip.

2. In a window sash, in combination, an angular frame having instanding parallel ribs extending along its several sides, one thereof being a pane seat, a pane-retaining frame U-shaped in cross-section fitted upon the other of said ribs and comprising a plurality of strips, the inner leaf of such strips being of less width than the outer leaf, the adjacent strips bearing laterally each upon the other, the inner leaf of one of said strips being cut away at one end to bear against the inner face of the adjacent strip.

3. In a window sash, in combination, an

angular frame having instanding parallel ribs extending along its several sides, one thereof being a pane seat, the other rib having a recess in its outer face, a pane-retaining frame U-shaped in cross-section fitted upon the other of said ribs and comprising a plurality of strips, the adjacent strips bearing laterally each upon the other, the inner leaf of one of said strips being cut away at one end to bear against the inner face of the adjacent strip, such retaining frame having an instanding projection for entering the recess in the rib.

4. In a window sash, in combination, an angular frame having instanding parallel ribs extending along its several sides, one thereof being a pane seat, the other rib having a recess in its outer face, a pane-retaining frame U-shaped in cross-section fitted upon the other of said ribs and comprising a plurality of strips, the adjacent strips bearing laterally each upon the other, the inner leaf of one of said strips being cut away at one end to bear against the inner face of the adjacent strip, one of the strips having the edge of its outer leaf mitered to enter the rib recess.

5. In a window sash, in combination, an

angular frame having a shouldered pane seat and an instanding rib on its several sides spaced apart from the pane seat, a U-shaped retaining strip mounted astride the rib on each side of the frame, the several strips having a lateral bearing each upon the other, one of the strips having in part a longitudinal bearing upon one adjacent strip.

6. In a window sash, in combination, an angular frame having a pair of instanding parallel ribs extending along its several sides, one thereof being a pane seat, the other rib having its outer face beveled, a pane-retaining frame U-shaped in cross-section and having its outer leaf of greater width than its inner leaf and being fitted upon the other of said ribs and comprising a plurality of strips, the adjacent strips bearing laterally each upon the other, the inner leaf of one of said strips being cut away at one end to bear against the inner face of the adjacent strip.

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