May 9, 1961 A. P. McEVOY ET AL 2,983,002

WINDOWS

Filed April 30, 1959

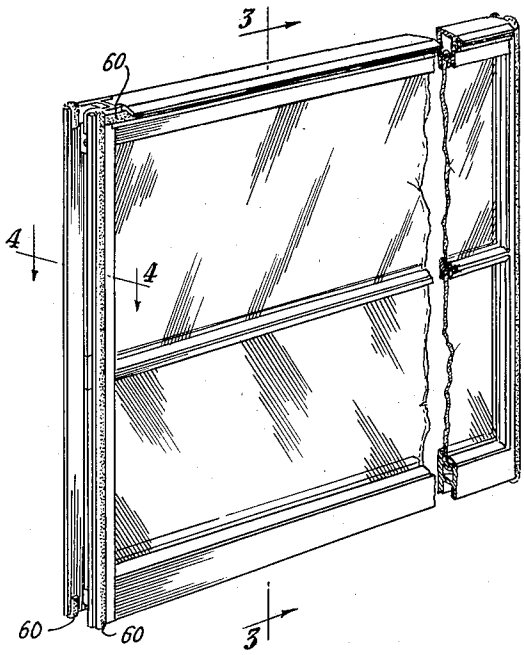


Fig. 1

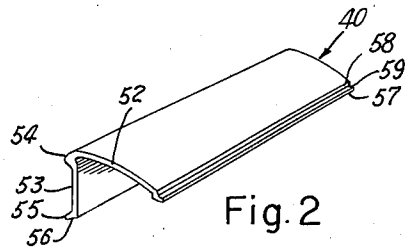


Fig. 2

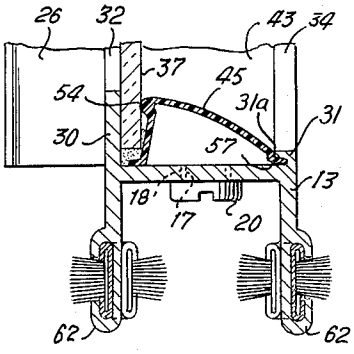


Fig. 4

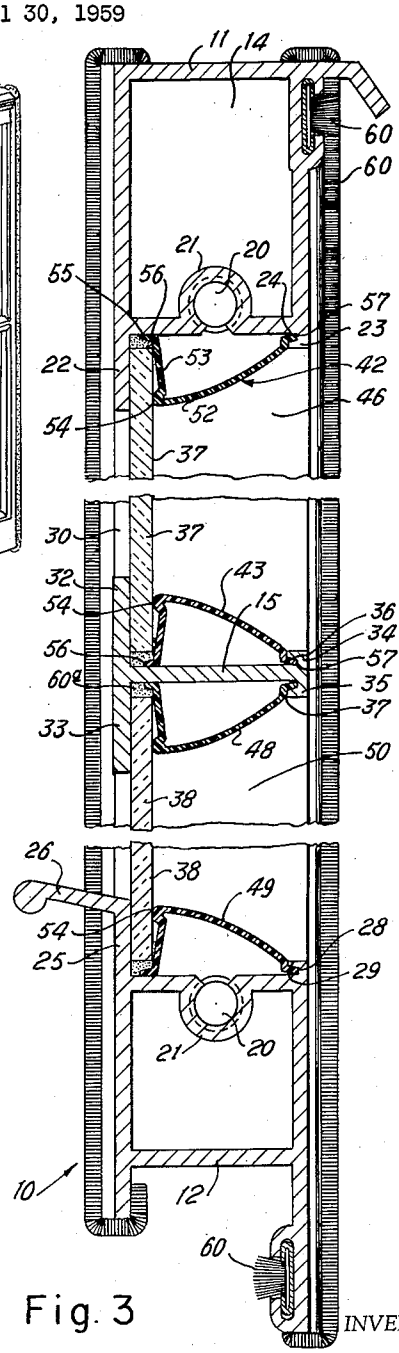


Fig. 3

INVENTORS

Alfred P. McEvoy

Tym F. Seay

BY Reynastings Ashley

ATTORNEY

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WINDOWS

Alfred P. McEvoy, 5534 Montrose, and Tym F. Seay, 4742 Elsby Ave., both of Dallas, Tex.

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This invention relates to windows and more particularly to window sashes and glazing strips therefor.

An object of this invention is to provide a new and improved window sash having a new and improved glazing strip for holding the panes of glass in the window sash.

Still another object is to provide a glazing strip for firmly but yieldably retaining a pane of glass in position in a window sash.

A further object of the invention is to provide a glazing strip of a resilient non-metallic substance which engages the window pane along two lines, one of which lines is spaced from the adjacent edge of the window pane and the other of which is along such edge to provide firm but yieldable support for the window pane.

Another object of the invention is to provide a glazing strip for window sashes to hold the window panes therein against rattling and which will accommodate to the expansion and contraction of the window sash.

Still another object of the invention is to provide an elongate glazing strip having an arcuate portion extending arcuately from the pane of glass and having a rear latch strip at its outermost edge engaging in an elongate latch recess of a window sash, and an angularly extending flat flange whose lower edge engages a window sash and whose intermediate portion is engaged by the edge of the pane of glass.

A further object is to provide a glazing strip wherein an arcuate flange is provided at the junction of the flat flange and of the arcuate portion for engaging the pane of glass along a line spaced from the adjacent edge thereof.

A still further object is to provide a glazing strip wherein the flat flange is provided at its free edge with an angularly extending support strip which engages a portion of the window sash and is disposed beneath an edge of the window pane.

Another object is to provide a glazing strip formed of non-metallic substance having good heat insulating properties and paint holding or bonding characteristics.

Still another object is to provide a glazing strip which provides a uniform smooth esthetically pleasing exposed surface when in operative position in a window pane.

Still another object is to provide a glazing strip which is resiliently deformable to facilitate installation thereof on a window sash.

Additional objects and advantages of the invention will be readily apparent from the reading of the following description of a device constructed in accordance with the invention, and reference to the accompanying drawings thereof, wherein:

Figure 1 is a fragmentary perspective view of a window sash provided with the glazing strip embodying the invention;

Figure 2 is an enlarged perspective view of the glazing strip;

Figure 3 is a vertical sectional view taken on line 3—3 of Figure 1; and,

Figure 4 is a fragmentary horizontal sectional view taken on line 4—4 of Figure 1.

Referring now to the drawing, the window sash **10** is formed of an upper box frame member **11** and a lower box frame member **12** which are connected at their ends by side frame members **13** and **14** to form the rectangular sash frame. A divider **15** extends between the side frame members and is secured thereto at opposite ends by any suitable means, as by lugs **17** which are received in the lateral apertures **18** of the side frame members. The side frame members are secured to the upper and lower of box frame members by means of bolts **20** which are received in suitable threaded bores provided in the bosses **21** of the box frame members.

The upper box frame member has a dependent front flange **22** and a rear dependent flange **23** which is provided with a forwardly opening latch recess **24**. The lower box frame member **12** has a similar upwardly extending flange **25** which is provided at its upper end with a forwardly extending ledge **26**. The lower box frame member also has a rear flange **28**, similar to the rear flange **23** of the upper box frame member, and which is also provided with a forwardly opening latch recess **29**. The end frame members **13** and **14** are provided with vertical forward flanges **30** and rear flanges **31** having forwardly opening latch recesses **31***a*.

The divider **15** is substantially T-shaped having upper and lower flanges **32** and **33** whose ends abut the edges of the forward flanges **30** of the side frame members and rear flanges **34** and **35** whose ends abut the rear flanges **31** of the end frame members **13** and **14**. The rear flanges of the divider **15** are also provided with internal latch recesses **36** and **37**, respectively.

It will thus be seen that the forward flanges **22** and **32** of the upper box frame member and of the divider and the forward flanges **30** of the end frame members provide an upper rectangular abutting surface for the upper pane **37**. Similarly the forward flanges **33** and **25** of the divider and of the lower box frame member form a rectangular surface against which the edge portions of the lower pane of glass **38** may abut.

The upper pane **37** is held in the position illustrated in the drawings by upper and lower sections **42** and **43** of the glazing strip and by side sections **45** and **46**. The lower pane of glass **38** is similarly held within the sash by upper and lower glazing strip sections **48** and **49** and by side sections **50**.

Each section of the glazing strip is identical with the others in sectional configuration and has an arcuate portion **52** which curves from a flat flange **53**. The adjacent edges of the flat flange and the arcuate portion are joined by an arcuate flange **54** which projects forwardly. The free edge of the flange is provided with a forward latch strip **55** which projects forwardly from the angular flange **53** and has a lower surface **56** adapted to engage a frame member. The lower surface of the latch strip is disposed at an angle greater than a right angle from the flat flange **53**.

The arcuate portion **52** of the glazing strip has a rear latch strip **57** which provides stop shoulders **58** and **59** which lie in planes angularly disposed relative to one another.

The window panes **37** and **38** are somewhat smaller in dimension than the rectangular surfaces provided by the forward flanges of the frame members of the sash so that the edges thereof do not contact the frame but are spaced therefrom to provide room for the insertion of putty or a sealing compound **60** between the edges of the panes and the window sash frame to seal therebetween. The putty or sealing compound is a flexible or resilient compound which does not become rigid but permits relative movement between the window panes and the frame to accommodate for variations in dimen-

sions of the frame and of the panes due to expansion and contraction caused by temperature changes.

The upper glazing strip section 42 has its rear latch strip 57 received in the latch recess 24 of the upper box frame 14. The shoulder 58 of the glazing strip abuts the forward end of the flange to limit outward movement of the latch strip into the recess and to provide a tight fit therebetween so that no unsightly gaps or cracks appear. The upper shoulder or surface 59 of the latch strip abuts the flange at the lower shoulder defining the recess. The forward latch strip 55 has its end surface 56 abutting the box frame when the forward latch strip extends between the box frame and the upper edge of the pane 37. The putty or sealing compound 60 disposed between the upper edge of the pane and the upper box frame member also seals between the upper box frame and the forward latch strip and the angular flange 53 of the glazing strip. Some of the sealing compound may be disposed between the flat flange 53 and the pane of glass below the upper edge of the pane.

The rear corner edge of the upper glass pane 37 makes contact with the flat flange 53 of the sealing strip between the forward latch strip and the arcuate flange. The arcuate flange 54 at the juncture of the arcuate portion of the strip and the flat flange contacts the pane of glass along a line spaced from the adjacent edge of the glass. The strip 40 is resilient and the arcuate portion and the flat flange are flexed towards each other when the upper section 42 is disposed as illustrated in the drawing so that the strip resiliently urges the upper edge portions of the upper glass pane against the forward flange 22 of the upper box section and against the forward flanges 30 of the side frame members 13 and 14. The provision of the arcuate flange at the juncture of the flat flange 53 and the arcuate portion 52 of the glazing strip provides a line of contact or applied force, spaced from the adjacent edge of the pane of glass which contacts the flat flange of the glazing strip, to establish another line of contact or applied force so that the glazing strip provides two spaced lines of contact which resiliently urge the pane of glass forwardly toward the forward flange portions of the window sash frame.

The lower glazing strip section 43 is similarly positioned in the window sash frame having its rear latch strip 57 disposed in the rear latch recess 36 of the divider 15 and having its arcuate flange 54 bearing against the pane of the glass spaced from the lower edge of the pane 37 and having its forward latch strip 55 disposed in the space between the lower edge of the pane of glass and the divider 15. The side glazing strip sections 45 and 46 are similarly disposed between the upper box frame member and the divider. The side sections above the divider similarly have their rear latch strips 57 received in the latch recesses 31*a* of the side frame members 13 and have their arcuate flanges 54 abutting the pane 37 along vertical lines spaced from the side edges of the pane. The side sections 45 and 46 may be inserted between the upper and lower strip sections 42 and 43 so that their end edges abut the arcuate portions 52 to form a neat joint therewith.

The lower pane 38 is similarly held by means of the upper and lower glazing strip sections 48 and 49 whose rear latch strips 57 are received in the latch recesses 37 and 29 of the divider and of the lower box frame member, respectively, and by the side glazing strip sections 50 whose rear latch strips are received in the latch recesses 31*a* of the side frame members. The forward latch strips 55 of the glazing strip sections 48, 49 and 50 abut the lower box frame member and the side frame members, respectively, so that the four rear corner edges of the pane 38 abut the flat flanges thereof and the arcuate flanges 54 abut the pane inwardly of these edges so that the pane is held resiliently in position in the frame.

When it is desired to install a pane, such as the pane 37, in the sash frame, the sash frame is first laid down on a flat surface with the forward flanges thereof disposed downwardly so that the pane may be inserted through the rectangular opening defined by the rear flanges of the upper box frame member 14 and the divider 15 and of the side frame members to rest on the rectangular supporting surface provided by the forward flanges of these members. The pane is then properly centered in the frame and the putty or sealing compound 60 is introduced into the space between the edges of the pane and the frame. The glazing strip sections are then individually installed by bending their resilient arcuate portions to move the latch strips 55 and 57 towards each other whereby they may be inserted to the positions illustrated in the drawing. When each glazing strip section while deformed is placed into such position that its latch strips are aligned with the rear latch recesses of the frame members and with the space between the adjacent edge of the glass and the frame member, the strip is released to permit it to move toward its inherent configuration or shape shown in Figure 2 of the drawing. During such movement of the forward latch strip 55, some of the sealing compound or putty 60 is forced outwardly between the adjacent edge of the pane and the flat flange 53 of the strip as is indicated in the drawing. The glazing strip section then abuts and resiliently holds the adjacent edge portion of the glass in position in the window sash. Each glazing strip section is consecutively placed in position until all four sections are in position. Should it ever be desired to remove the pane of glass, the glazing strips can again be deformed to move their rear latch strip out of the latch recess of the frame to permit the removal of the glazing strip sections.

The glazing strip may be made of any suitable resilient non-weathering plastic, such as polyvinyl plastic, to which paint may be easily bonded, and which is a good heat insulator. The polyvinyl itself may be provided with a suitable color so that no painting thereof may be necessary but if desired the glazing strips may be painted.

The glazing strip is thicker in cross section at the arcuate flange 54 than at the arcuate portion 52 or the flat flange 53. This strengthens the glazing strip along the line between the flat flange and the arcuate portion to prevent plastic fatigue and cracking of the strip resulting from flexing of the strip during installation or removal of the glazing strip in or from a window sash, since during such operation the flat flange is flexed toward the arcuate portion. The arcuate flange portion is thus prevented from taking a "set" due to excess bending at that portion of the strip and flexing principally occurs in the arcuate portion 52 during installation or removal, and after installation the arcuate portion 52 remains flexed and presses the arcuate flange 54 tightly and yieldingly against the window pane and causes the flat flange to contact the adjacent edge of the pane. When the flat flange abuts the lower edge of a pane it resists downward displacement of the pane in the sash.

The window sash, of course, is provided with the usual sealing strips 60 which extend about the side frame members and around one side of the upper box member to seal between the sash frame and the window frame in which it is installable. The side frame members 13 and 14 have vertical flanges 62 engageable in such window frame, not shown, to guide the movement of the window sash in the window frame.

It will now be apparent that a new and improved glazing strip for window sashes has been illustrated and described which is formed of a plastic substance so that there will be no metallic noise in the event a pane should for some reason become loosened even if movement is imparted to such pane.

It will further be seen that the glazing strip is formed of a resilient substance and has an arcuate portion

provided at one end with a rear latch strip and at the other end with a flat flange which extends angularly from such end.

It will further be seen that the glazing strip has an arcuate flange at the juncture of the flat flange and the arcuate portion whereby the pane of glass is contacted at spaced lines by both the flat flange and the arcuate flange when the rear latch strip is received in a latch recess of the window sash frame to hold the window pane against displacement in the window sash frame.

It will further be seen that the flat flange is also provided with a forward latch strip which is insertable between an edge of the glass and the frame so that the edge of the glass can never come into contact with the window sash frame even should there be no sealing compound, or insufficient sealing compound, in the spaces between the edge of the glass and the frame.

It will further be seen that the glazing strip is easily and quickly installable in the window sash to retain a pane of glass in position therein and that it resiliently holds the pane of glass against a rectangular surface of the window sash frame.

It will further be seen that, since the window strip is of a non-metallic substance and is a good heat insulator, that heat loss through such a glazing strip will be held to a minimum and that no metallic rattling of the glass pane due to contact with the glazing strip can take place.

The foregoing description of the invention is explanatory only, and changes in the details of the construction illustrated may be made by those skilled in the art, within the scope of the appended claims, without departing from the spirit of the invention.

What is claimed and desired to be secured by Letters Patent is:

1. A glazing strip for a window sash having a rectangular abutment surface against which a pane of glass may be disposed with the edges of the pane being spaced from the sash and having a latch recess opening toward said abutment surface including: an elongate arcuate portion; a first latch strip along one longitudinal edge of the arcuate portion receivable in said latch recess; and a flange extending angularly from the other longitudinal edge of the arcuate portion, the flange abutting an edge of the pane to hold the pane in engagement with said rectangular abutment surface when the glazing strip is disposed in said sash, said glazing strip having an arcuate flange at the juncture of said flange and said arcuate portion for engaging the pane of glass.

2. A window sash comprising: a frame having a longitudinal abutment surface; a pane of glass having edge portions in abutting relation with said abutment surface, said pane having edges spaced from the frame; a sealing substance disposed between the edges of the pane and the sash, said sash having a latch recess opening toward said abutment surface; a glazing strip disposed in said frame and having an elongate arcuate portion, a first latch strip along one edge of the arcuate portion disposed in said latch recess; and a flange expanding angularly from the other longitudinal edge of the arcuate portion, said flange having a second longitudinal latch strip extending toward the abutment surface of the sash and into said sealing substance between the edge of the pane and the sash frame, said glazing strip having an arcuate flange at the juncture of said flange and said arcuate portion abutting said pane.

3. A window sash comprising: a frame having a longitudinal abutment surface; a pane of glass having edge portions in abutting relation with said abutment surface, said pane having edges spaced from the frame; a sealing substance disposed between the edges of the pane and the sash, said sash having a latch recess opening toward said abutment surface; a glazing strip disposed in said frame and having an elongate arcuate portion, a first latch strip along one edge of the arcuate portion disposed in said latch recess; and a flange expanding angularly from the other longitudinal edge of the arcuate portion, said flange having a second longitudinal latch strip extending toward the abutment surface of the sash and into said sealing substance between the edge of the pane and the sash frame, said glazing strip having an arcuate flange at the juncture of said flange and said arcuate portion abutting said pane, said edge of the pane abutting the flange between said arcuate flange and said second latch strip.

4. A glazing strip for a window sash having a rectangular abutment surface against which a pane of glass may be disposed with the edges of the pane being spaced from the sash and having a latch recess opening toward said abutment surface including: an elongate arcuate portion; a first latch strip along one longitudinal edge of the arcuate portion receivable in said latch recess; and a flange extending angularly from the other longitudinal edge of the arcuate portion, said flange having a second longitudinal latch strip extendable toward the abutment surface between an edge of the pane and the sash when the first latch strip is disposed in said arcuate recess, said glazing strip having an arcuate flange at the juncture of said flange and said arcuate portion for engaging the pane of glass.

5. A glazing strip for a window sash having a pane abutment surface and a latch recess opening toward said abutment surface including: an elongate arcuate portion; a first latch strip along one longitudinal edge of the arcuate portion receivable in said latch recess; a first flange extending angularly from the other longitudinal edge of the arcuate portion; and an arcuate flange extending forwardly of the arcuate portion at the juncture of said first flange and said arcuate portion, said first flange having a second longitudinal latch strip spaced from said arcuate flange and extending toward the abutment surface of the sash when the first latch strip is disposted in said recess, said arcuate flange being thicker in cross section than said arcuate portion and said first flange.

6. A glazing strip for a window sash having a pane abutment surface and a latch recess opening toward said abutment surface including: an elongate arcuate portion; a first latch strip along one longitudinal edge of the arcuate portion receivable in said latch recess; a first flange extending angularly from the other longitudinal edge of the arcuate portion; and an arcuate flange extending forwardly of the arcuate portion at the juncture of said first flange and said arcuate portion, said first flange having a second longitudinal latch strip spaced from said arcuate flange and extending toward the abutment surface of the sash when the first latch strip is disposed in said recess, said first latch strip being displaced from said one longitudinal edge of the arcuate portion to provide a shoulder engageable with a stop shoulder of the window sash to limit movement of said first latch strip into said latch recess, said arcuate flange being thicker in cross section than said arcuate portion and said first flange.

7. A window sash comprising: a frame having a longitudinal abutment surface; a pane of glass having edge portions in abutting relation with said abutment surface, said pane having edges spaced from the frame; a sealing substance disposed between the edges of the pane and the sash, said sash having a latch recess opening toward said abutment surface; a glazing strip disposed in said frame and having an elongate arcuate portion, a first latch strip along one edge of the arcuate portion disposed in said latch recess; and a flange extending angularly from the other longitudinal edge of the arcuate portion, said flange having a second longitudinal latch strip extending toward the abutment surface of the sash and into said sealing substance between the edge of the pane and the sash frame, said glazing strip having an arcuate flange at the juncture of said flange and said arcuate portion abutting said pane, said edge of the pane abutting the flange between said arcuate flange and said second latch

strip, said arcuate flange being thicker in cross section than said arcuate portion and said first flange.

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