March 5, 1968 R. M. KEEGAN ETAL 3,371,702

STORM WINDOW CONSTRUCTION MEANS

Filed Sept. 23, 1965

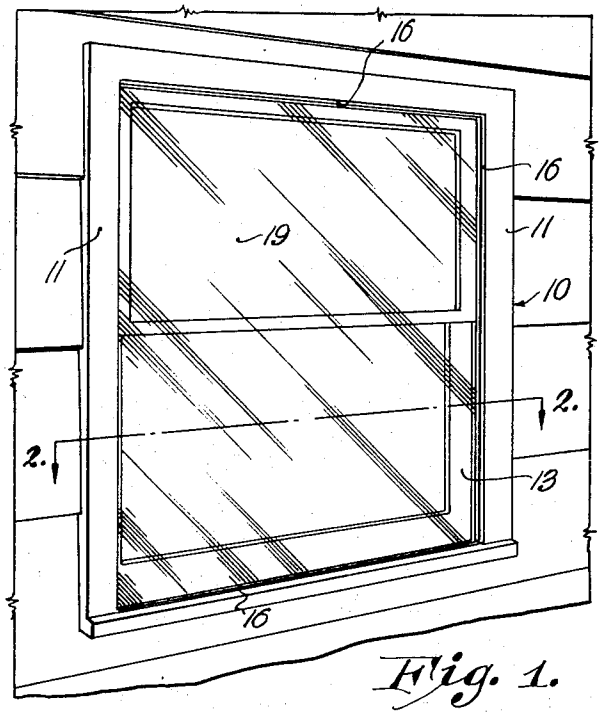

Fig. 1.

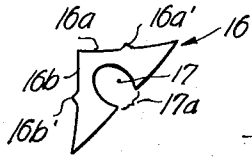

Fig. 3.

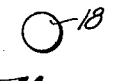

Fig. 5.

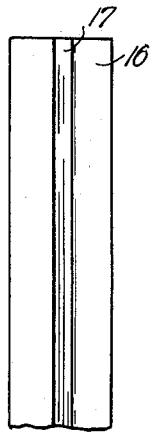

Fig. 4.

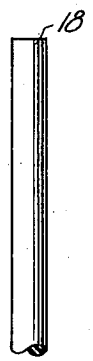

Fig. 6.

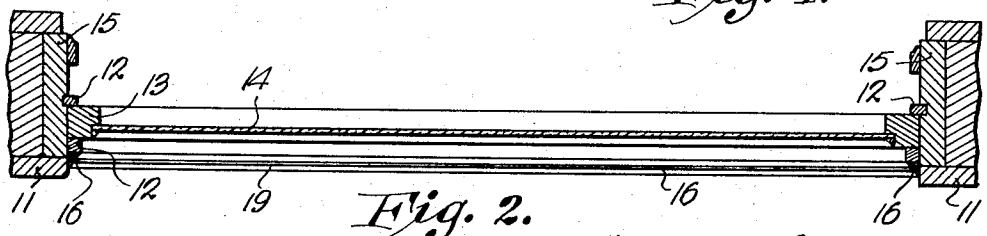

Fig. 2.

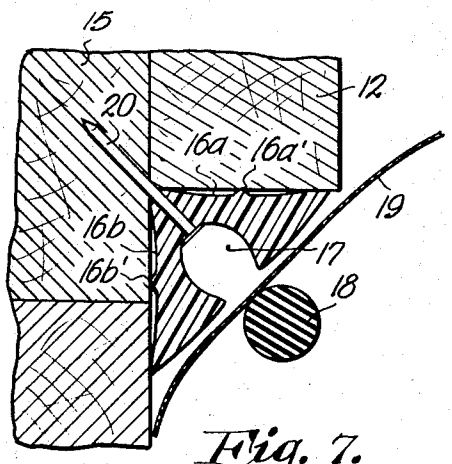

Fig. 7.

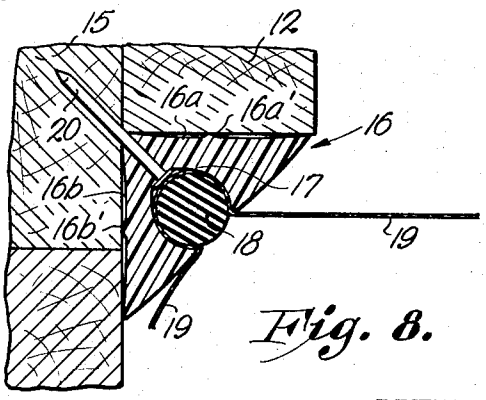

Fig. 8.

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United States Patent Office 3,371,702
Patented Mar. 5, 1968

3,371,702

STORM WINDOW CONSTRUCTION MEANS

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Filed Sept. 23, 1965, Ser. No. 489,489
5 Claims. (Cl. 160—392)

ABSTRACT OF THE DISCLOSURE

A flexible strip operable to be nailed to a frame supporting structure such as a window frame. The strip has a groove running longitudinally the length of one side with a deformable restricted throat for receiving and holding a cylindrical bead therein. A flexible plastic sheet is secured within the groove by the bead to facilitate the covering or enclosing of said structure.

It is common practice to tack or nail translucent flexible material to the exterior of a building over a window or screened porch to effect an inexpensive storm window. This method and means for installing the flexible material has serious drawbacks in that it is inconvenient to remove the film so that the windows can be usefully opened during warm weather. High velocity winds tend to tear or otherwise damage the plastic material at the nail points, and having once been nailed to an outside window, it is very difficult to reuse the flexible material due to the permanent nail and removing damage. In addition, it is difficult to hold the film in position while nailing or tacking it in place and the nails can mar a readily visible part of the window frame.

One of the principal objects of the invention is to provide a low cost, easily installed mounting means for mounting a flexible sheet across window frames, and in which are avoided substantially all of the problems outlined above. This object is achieved in general by providing a uniquely shaped flexible member having a groove which cooperates with a bead, the groove and bead capable of quick and easy installation on a window frame and through the use of which the sheet is secured in position without perforation of the sheet by nails or other fasteners.

It is another object of the invention to provide a groove and bead type of connector wherein the groove is located in a unique flexible wedge or triangular sectioned strip. The strip is designed to be nailed around the window guide blocks or on the exterior of a window unit with its grooved surface extending outwardly.

Another object of the invention is to provide a connector of the character described which utilizes the unique shape and structure of the strip to form an effective, airtight, and durable framing means when nailed in place. The strip as such has two slightly concaved sides with a ridge running longitudinally the length thereof. These two sides abut portions of the window frame and/or guide blocks.

A further object of the invention is to provide a framing means of the character described, including a strip and bead which are manufactured of a flexible material and as such may be packaged in convenient rolls and cut to appropriate sizes by ordinary household cutting tools.

A still further object of the invention is to provide a strip of the character described wherein the sealing bead has a diameter slightly larger than the dimension between the sharp edges of the entrance throat of the groove and as such results in a firm and secure holding when the bead, strip, and flexible material are joined.

Another object of the invention is to provide a simple, reusable, inexpensive and self-storing means for mounting flexible material over the outside of a window, said means being permanently affixed to the periphery of the window but allowing an easy and undamaged removal or slack correction of the flexible material covering the window.

Other and further objects of the invention, together with additional features of novelty whereby the objects are achieved, will appear in the course of the following description.

In the accompanying drawings, which form a part of the present specification and are to be read in conjunction therewith, and in which like reference numerals are employed to indicate like parts in the various views;

FIG. 1 is a perspective view of a window utilizing the present invention;

FIG. 2 is a sectional view taken along the line 2—2 of FIG. 1;

FIG. 3 is an end view of the strip containing the groove and the concave-ridged sides;

FIG. 4 is an elevational view of the groove side of the strip;

FIG. 5 is an end view of the bead used in the present invention;

FIG. 6 is a front elevational view of same;

FIG. 7 is a sectional view showing the strip nailed into place and the flexible material and bead prior to connection; and

FIG. 8 is a view similar to FIG. 7, showing the bead inserted into the groove with the flexible material connected therebetween.

Referring now more particularly to the drawings, reference numeral **10** designates a typical window which has been covered by a transparent material using the hereinafter described framing structure. The window as such includes a rectangular outer wooden frame **11** and wooden guide block **12** within which sash **13** holding glass **14** is movable up and down. Both guide block **12** and frame **11** are fixedly secured to the inner wooden frame **15**.

A fastener strip **16** according to the invention may be conveniently extruded of durable polyethylene and is in the form of a triangular cross-sectioned wedge. The strip as such is flexible and designed to be cut and nailed in lengths around the window on the exterior of the window unit. It is contemplated that strip **16** could be used with and nailed to different portions of windows, doors, or screened in areas.

As shown in FIG. 3, sides **16***a* and **16***b* are obtusely angled from each other (lines drawn from edge to edge of sides **16***a* and **16***b* should intersect at approximately 110°) and are slightly concave. Additionally, sides **16***a* and **16***b* include ridges **16***a'* and **16***b'* running longitudinally the length thereof. The third side **16***c* is substantially flat and has a longitudinal groove **17** also running the length of the strip. Groove **17** is rounded in shape, having the dimensions between the sharp but deformable edges of the entrance throat **17***a* slightly smaller than the maximum diameter of groove **17**.

The fastener unit includes lengths of flexible sealing bead **18** designed to be pressed into groove **17** when the unit functions as a fastener. Bead **18** has an outer diameter slightly greater than the dimension of the entrance throat **17***a* of groove **17**, and is preferably a solid, cylindrical bead of flexible material, for example, a vinyl or polyethylene.

In actual use, the plastic strips **6** are cut to the appropriate window dimension. It is usual for framing purposes that lengths of the holding strip **16** are secured to all four sides of the window, as seen in FIG. 1. If such is the case, the lengths are appropriate sized and cut then nailed at the window sides so that side **16***a* of the strip length abuts guide block **12** while side **16***b* abuts the inner and outer frame portions **15** and **11** respectively. The nail **20** will be driven through the bottom of groove **17** and as

the nail draws in, ridges **16***a'* and **16***b'* forcibly contact the abutting guide blocks and frame, best seen in FIGS. 7 and 8. The concaved and obtusely angle sides **16***a* and **16***b* are forced to flatten somewhat against the wooden members and as such cooperate with the ridges to result in a sealed strip which is extremely secure and weather-tight.

The securing of the flexible material **19** to the outside of window **10** is done with the cooperation of strip **16** and bead **18**. With the flexible material cut and sized, its correctly oriented edge portions are placed over each elongated mounted strip **16** as shown in FIG. 7. Bead **18** is then pressed against flexible material **19**, forcing the bead and material into groove **17**. As the diameter of the plastic bead is slightly greater than the dimension of the entrance throat **17***a*, it is necessary to slightly deform the sharp edges at the throat so that the combined width of the bead and flexible material may be pressed through the throat **17***a* and into groove **17**. By using strip **16**, which is constructed of a deformable material such as plastic, the sharp edges at throat **17***a* will sufficiently separate to allow the passage of the bead and flexible material. When the bead and flexible material are positioned within groove **17**, the sharp edges again present a restricted entrance throat and substantially lock or grip the bead. The resulting gripping forces, exerted against the flexible material and the sealing bead by the sharp edges substantially preclude any unwanted slippage of the material.

When warm weather comes, one need only remove bead **18** from groove **17** and store the reusable plastic film or flexible material. The strip containing the groove may be left intact and the bead **18** either stored with the material or replaced in groove **17** until it is needed again.

From the foregoing description it will be seen that this invention is one well adapted to attain all of the ends and objects hereinabove set forth together with other advantages which are obvious and which are inherent to the structure.

It will be understood that certain features and subcombinations are of utility and may be employed without reference to other features and subcombinations. This is contemplated by and is within the scope of the claims.

Since many possible embodiments may be made of the invention without departing from the scope thereof, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described our invention, we claim:

1. Means for framing and supporting flexible sheet material comprising, a wedge shaped strip having a groove running longitudinally the length thereof, said groove having a deformable restricted entrance throat defined in one side of the strip, a bead of slightly greater thickness than the dimension of the entrance throat, said bead adapted to be pressed into said groove to secure a portion of the flexible sheet material therein, said wedge shaped strip being triangular in cross-sectional shape, and having two sides slightly concaved.

2. The invention of claim **1** wherein said concaved sides include a ridge running longitudinally the length thereof.

3. The invention of claim **2** wherein said concaved sides meet at an obtuse angle.

4. A wedge shaped strip for receiving a cylindrical bead,

said strip having two concaved sides meeting at an obtuse angle and at least a third side,

said concaved sides including a ridge running longitudinally the length thereof,

a groove running longitudinally the length of said strip in said third side,

said groove having a deformable restricted entrance throat with two acutely angled edges for receiving and holding said bead.

5. In a frame supporting structure capable of receiving nails therein, a flexible strip operable to be nailed to said structure, said strip having a groove running longitudinally the length of one side for receiving and holding a cylindrical bead therein, said strip being nailed to said structure by driving nails at spaced intervals through said grooved portion of said strip into said structure, and said groove having a deformable restricted entrance throat with two acutely angled edges to facilitate the receiving and holding of said bead.

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