June 24, 1958 E. T. HEHR 2,840,203

WINDOW FASTENER CONSTRUCTION

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FIG. 1.

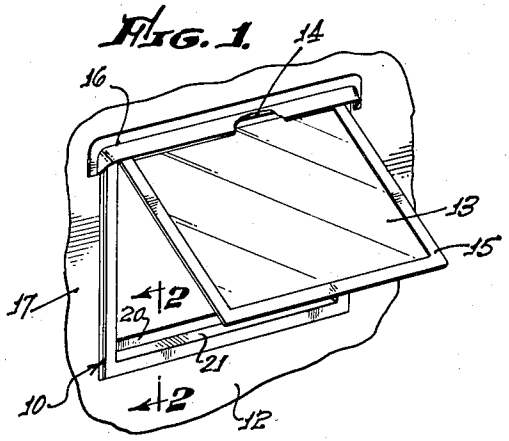
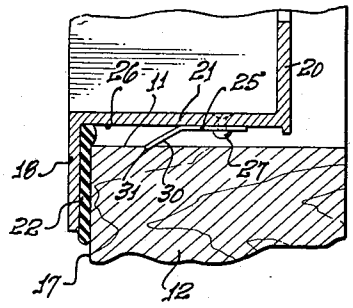


FIG. 2.



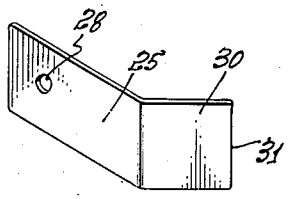


FIG. 3.

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WINDOW FASTENER CONSTRUCTION

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4 Claims. (Cl. 189—75)

The present invention relates generally to window frame fastening arrangements, and relates more particularly to such fastening arrangements wherein means are carried by a portion of the window frames or surrounding structure for permanently securing the frames in position in a wall section or the like.

When installing window frames, and particularly when fitting prefabricated types of window frames, serious problems have long existed relative to the methods for permanently securing these frames in place. It has been one usual practice to construct the window frames from individual components and to secure each of these components to a wall section as the frame is built up. Such a construction presents little difficulty from a securing standpoint, but is time consuming and expensive. Through use of prefabricated frame sections that are adapted for insertion into opposite sides of an opening in a wall section, considerable time is saved in the installation thereof. However, in order to secure these prefabricated frames permanently in position in a wall opening, it has heretofore been necessary to employ fastening means, such as nails, screws and the like, that not only required considerable time for the installation, but also detracted from the uninterrupted and smooth exterior appearance of the frame garnish.

Several attempts have been made heretofore in efforts to solve the fastening problems associated with the installation of prefabricated window frames. These attempts have taken the form of complex mechanical structures, many of which required the use of specially constructed openings in wall sections. The many components used in prior structures have necessarily made these structures expensive and have increased the possibilities that one or more of the components would be inoperative or poorly constructed. With increasing costs of construction labor, it is extremely important that installation time be reduced to a minimum commensurate with quality construction and reliable fastening means.

It is therefore one important object of the present invention to provide an improved fastening means for window frames.

It is a further object of the invention to provide a novel window frame fastening arrangement wherein extremely simple, reliable, efficient, and inexpensive fastening means are employed.

Another object of the invention is to provide improved means for securing a window frame to the wall forming an opening for a window.

A still further object of the invention is to provide a universal window frame fastening arrangement having means for continuously biasing fastening elements into tight engagement with the wall forming the window opening.

Other and further important objects of the invention will become apparent from the disclosures in the following detailed specification, appended claims, and accompanying drawing, wherein:

Figure 1 is a perspective view showing a typical window frame structure for employing the fastening arrangement of this invention;

Fig. 2 is an enlarged fragmentary sectional view showing details of the present fastening arrangement, taken substantially as indicated by the line 2—2 of Fig. 1; and

Fig. 3 is a detail perspective view showing the fastening clip employed with the present invention.

With reference to the drawing, Fig. 1 illustrates a type of window that may include the features of the present invention in regard to the fastening arrangement therefor. As shown in Fig. 1, a generally rectangular window frame **10** is adapted for disposition in a suitable, substantially rectangular opening **11** in a wall section **12**. The frame **10** has a window **13** hinged thereto as at **14**, with the window **13** having the usual binding frame **15** thereabout. A moisture-deflecting hood **16** may also be provided over the upper edge of the window and secured to an outer surface **17** of the wall section **12**.

With reference primarily to Fig. 2, the frame **10** may be made from any suitable material, as by extruding aluminum, or the like, and includes an outer flange portion **18** and an inner flange portion **20** that are integrally interconnected by means of a sill portion **21**. The flange portions **18** and **20** are disposed in opposite directions from the sill portion **21**, with the flange portion **18** being adapted to overlie the outer surface **17** of the wall section **12**. A sealing strip **22** is positioned between the surface **17** and an inner surface of the flange portion **18**, to provide a resilient urging of the flange portion away from the surface **17**, for a purpose that will be more fully described hereinafter.

As further shown in Fig. 2, a plurality of clips **25** are secured to an outer surface **26** of the sill portion of the frame **10**. The clips **25** are made from any suitable resilient material and are positioned at longitudinally spaced intervals, and each is secured to the sill portion **21** by means of a rivet **27**, or the like, that extends through a hole **28** in each of the clips into a hole in the sill portion. Each of the clips **25** is bent outwardly as at **30** to provide a free end portion thereof that forms an acute angle relative to the surface **26** of the sill portion **21**. The free edge of each clip portion **30** is indicated at **31** and is cut off at substantially a right angle to the portion **30**. Clips are similarly arranged on all sides of the frame member.

To assemble the present window frame arrangement in the opening **11**, it is only necessary to insert the side of the frame **10**, having the flange portion **20**, into the opening. For this purpose, the opening **11** is made slightly larger than the outer dimensions of the frame and, when installed, the frame is disposed in spaced relationship to the peripheral surface of the opening. The portions **30** of the clips **25** normally have their outer edges disposed beyond the dimensions of the opening **11** in the wall section **12**. Thus, when the frame **10** is inserted into the opening **11**, the portions **30** of the clips **25** are deformed inwardly toward the surface **26** of the sill portion and bite into the material of the wall section **12** or into the material of any framing structure built to define the opening **11**. The resilient force of the clips **25** is such as to cause the edges **31** to be slightly embedded in the material of the wall section and to deform the same, thus providing a secure retaining means for the frame member and normally preventing removal thereof from the opening **11**. The force of the sealing strip **22**, when under compression, serves to bias the edges **31** of the several clips into permanent continuous tight deformable engagement with the material of the wall section. This window retaining arrangement is particularly effective when the surface of the wall engaged by the clips **25** is

formed by wood or other deformable material adapted to yield to the bite of the clips to provide a deformable engagement therewith and to retain the clips in position.

Thus, there has been provided a reliable, efficient, and extremely simple method and apparatus for fastening a window frame arrangement into a building structure and for providing a permanent installation of the frame. Through use of the present arrangement, it is therefore possible to install window frames in a minimum amount of time and thereby to enable reduced labor costs.

Although only one particular form of this invention has been specifically described herein in detail, it will be obvious that the invention is not limited thereto, but is capable of a wide variety of mechanical embodiments. Accordingly, various changes which will now suggest themselves to those skilled in the art may be made in the material, form, details of construction, and arrangement of the elements without departing from the scope of the invention as defined by the appended claims.

The invention claimed is:

1. An arrangement for permanently securing a window frame within an opening in a wall comprising, in combination: a generally rectangular frame structure; a wall having a finite thickness and structural components of deformable material arranged to define said opening, peripheral surfaces of said opening being disposed substantially at right angles to inner and outer side surfaces of said wall; an outwardly extending flange forming one integral portion of said frame structure and engageable with one of said side surfaces of said wall; a sill portion in said frame structure, said sill portion being disposed in parallel spaced relationship relative to said surfaces of said opening; and plural clip means carried by said sill portion of said frame structure and adapted for deformable engagement with said material of said structural components and said surfaces of said opening whereby to secure said frame structure in said opening and said flange in permanent engagement with said one side surface of said wall.

2. An arrangement for permanently securing a window frame within an opening in a wall comprising, in combination: a generally rectangular frame structure; a wall having a finite thickness and structural components of deformable material arranged to define said opening, peripheral surfaces of said opening being disposed substantially at right angles to inner and outer side surfaces of said wall; an outwardly extending flange forming one integral portion of said frame structure and engageable with one of said side surfaces of said wall; a sill portion in said frame structure, said sill portion being disposed in parallel spaced relationship relative to said surfaces of said opening; a plurality of clips carried by an outer peripheral surface of said sill portion; and means for securing one end of each said clip to said sill portion, the free ends of said clips being disposed at an acute angle to said surface of said sill portion and adapted for deformable engagement with said material of said structural components at said surfaces of said opening, thereby to retain said frame structure in said opening and said flange in permanent tight engagement with said one side surface of said wall.

3. An arrangement for permanently securing a window frame within an opening in a wall comprising, in combination: a generally rectangular frame structure; a wall having a finite thickness and structural components of deformable material arranged to define said opening, peripheral surfaces of said opening being disposed substantially at right angles to inner and outer side surfaces of said wall; an outwardly extending flange forming one integral portion of said frame structure and engageable with one of said side surfaces of said wall; an integral sill portion in said frame structure, said sill portion being disposed in parallel spaced relationship relative to said surfaces of said opening; a plurality of clips disposed about the outer periphery of said sill portion; rivet means for securing one of the ends of each said clip to said sill portion; and an outwardly bent portion on the free end of each said clip, said bent portions forming an acute angle with said sill portion and having an outer edge disposed normally beyond the dimensional limits of said opening whereby to permit deformable engagement thereof with the material surrounding said opening upon insertion of said frame structure therein to permanently retain said frame structure in said opening and said flange in tight permanent engagement with said one side surface of said wall.

4. An arrangement for permanently securing a window frame within an opening in a wall comprising, in combination: a generally rectangular frame structure; a wall having a finite thickness and structural components of deformable material arranged to define said opening, peripheral surfaces of said opening being disposed substantially at right angles to inner and outer side surfaces of said wall; an outwardly extending flange forming one integral portion of said frame structure and engageable with one of said surfaces of said wall; a sill portion in said frame structure, said sill portion being disposed in parallel spaced relationship relative to said surfaces of said opening; a sealing strip disposed between said flange and said one of said side surfaces of said wall; a plurality of resilient clips disposed about an outer periphery of said sill portion; rivet means for securing one of the ends of each said clip to said sill porton; and an outwardly bent portion on the free end of each said clip, said bent portions being generally directed toward said flange and forming an acute angle relative to said sill portion, the outer edges of said free ends being disposed normally beyond the dimensional limits of said opening whereby to permit deformable engagement thereof with the structural material surrounding said opening upon insertion of said frame structure into said opening to permanently retain said frame structure in said opening and said flange in tight permanent engagement with said one side surface of said wall.

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