May 25, 1965 G. H. FLETCHER 3,184,801

TRIM UNIT FOR FACILITATING THE INSTALLATION OF LIGHTWEIGHT WINDOW UNITS

Filed April 2, 1962 2 Sheets-Sheet 1

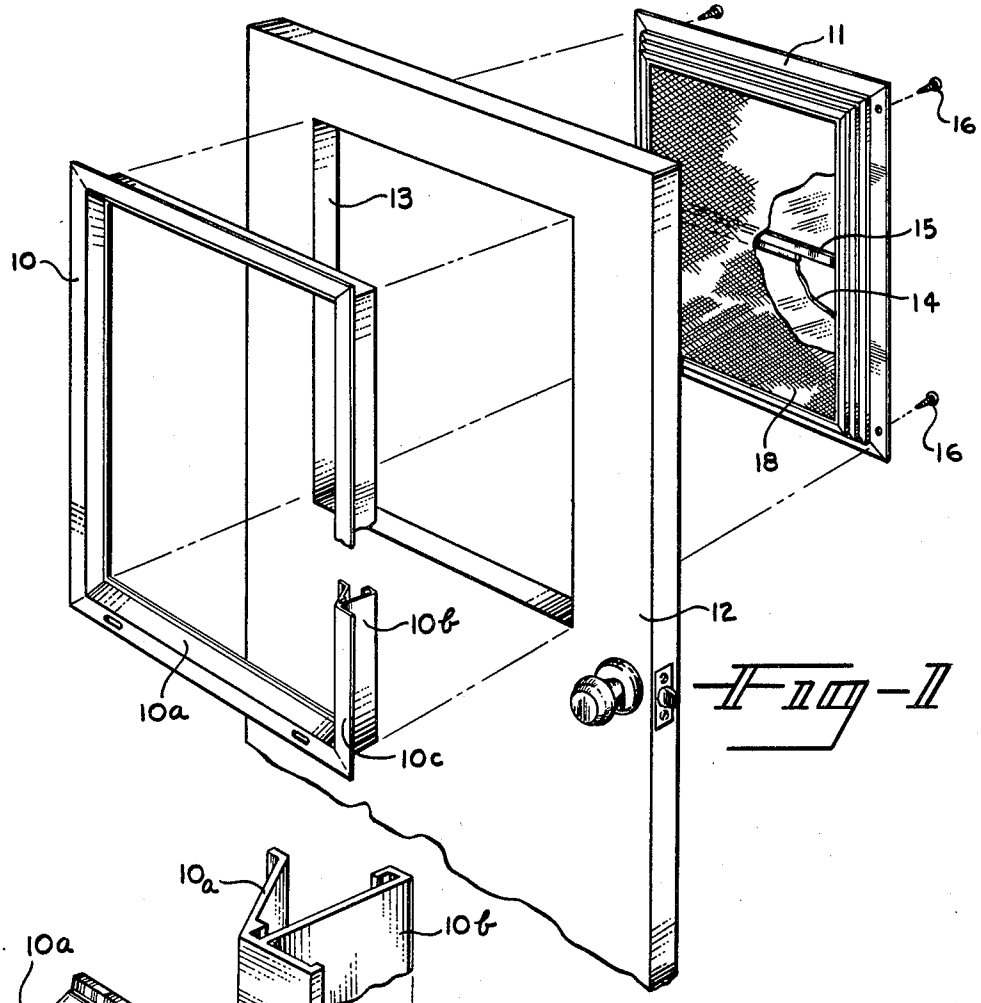


Fig-1

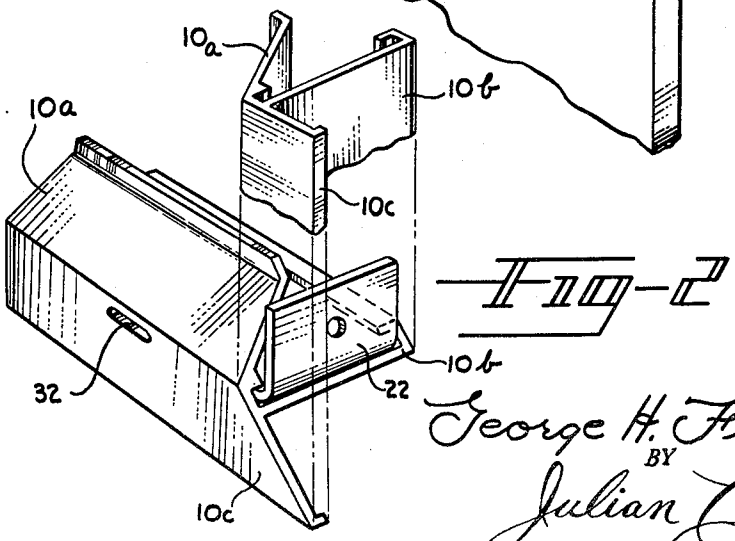


Fig-2

INVENTOR.

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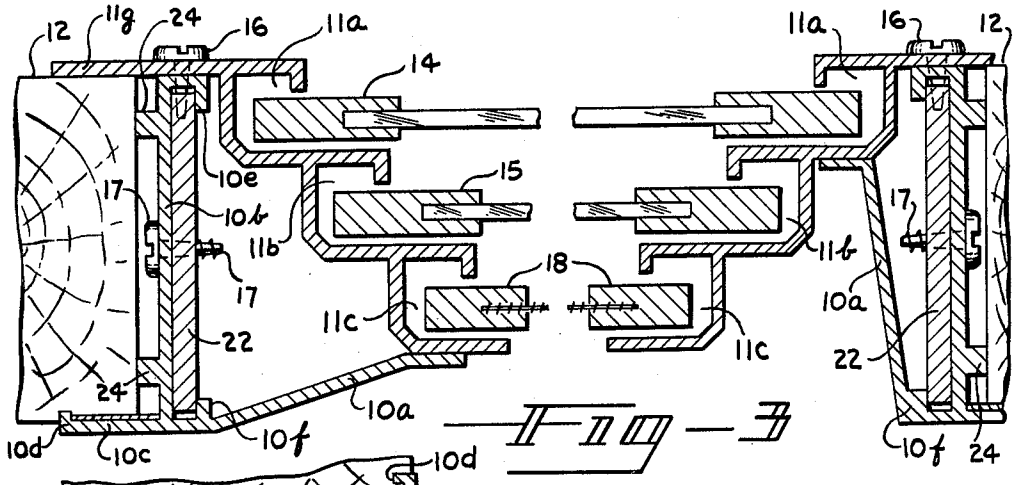
BY

Julian C. Renfro

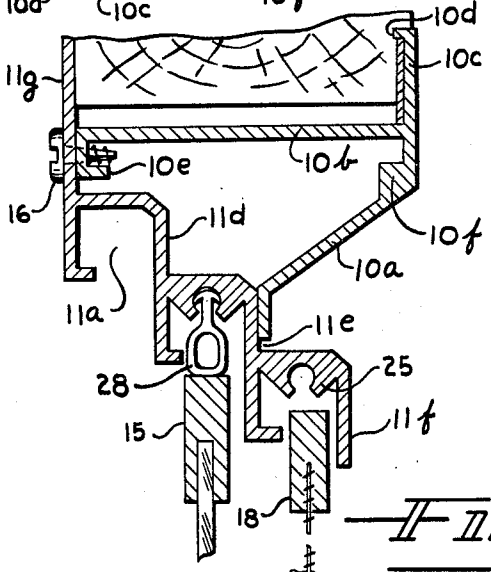
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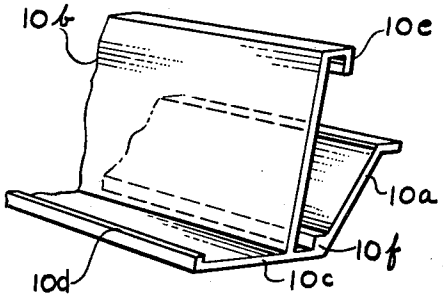
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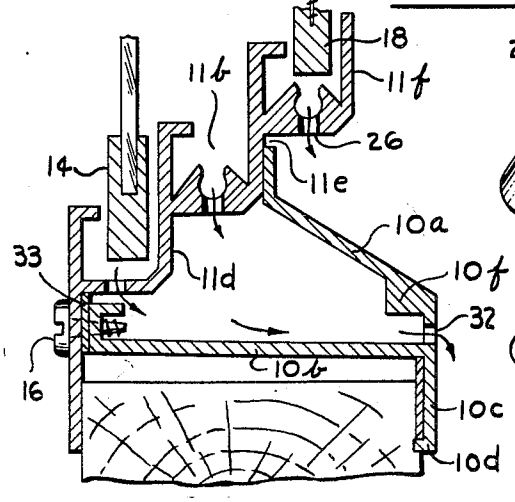
Fig—3

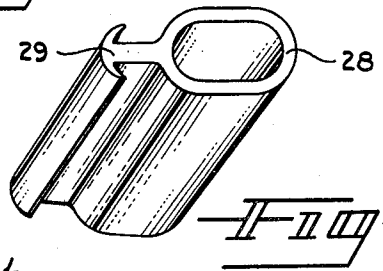


Fig—4



Fig—5





Fig—6

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TRIM UNIT FOR FACILITATING THE INSTALLATION OF LIGHTWEIGHT WINDOW UNITS

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7 Claims. (Cl. 20—11)

This invention relates to a trim unit for use with combination windows, and more particularly to the use of a novel trim unit utilized to hold multiple track window units more easily and securely in place in an aperture, as well as to provide a pleasing appearance for the rear side of such a window unit.

With the advent of the jalousie type of window utilized so extensively in modern building there has been a movement away from the use of heavy wooden window sash units with their proneness to rot and stick, as well as away from the use of large metal frame windows tiltable about their mid point, so exceedingly dangerous to pedestrians passing closeby.

The Olsen Patent No. 2,965,935 taught the use of highly satisfactory aluminum frame windows of very lightweight construction which have proven to be much more satisfactory than jalousie windows, in that latter windows are quite prone to leak cold air currents, and to prove quite cumbersome and space consuming when used in doors. The Olsen patent utilizes extruded aluminum material for the window frames in which trackways are formed directly therein to receive the upper and lower window sashes as well as the screens, this extruded material in one particular form being known as "triple track." Rogers Industries, Inc. of Detroit, Michigan, assignee of the Olsen patent, is a supplier of such material. However, a certain amount of additional labor has ordinarily been involved after a window constructed of such material has been installed, in decorating and insulating the cavity defined between the triple track and the aperture in the building or door in which the installation is made.

My invention advantageously provides a novel trim adaptor designed for use with windows particulary of the type made of extruded aluminum material, which adaptor enables the window unit to be held securely in the aperture with a minimum of fasteners, while at the same time providing a most pleasing appearance for the outside of the window, a detail often overlooked by the builder and homeowner alike. Also my trim adaptor is so designed as to assure proper drainage of precipitation. This unit is available in a variety of sizes and configurations to meet all normal and usual window installations, although in reality trim adaptor material need be extruded in only a few standard widths or wall thicknesses in order to make my invention available in conjunction with a wide range of aluminum window units to complement in a most effective manner the use of such units in wall openings and in doors.

A trim unit according to this invention is therefore to be seen to be designed for use with a window unit constructed of lightweight channeled material, in the channels of which at least one window panel is slidable. My trim unit is arranged to be received on the opposite side of the aperture in which the window unit is to be installed, with said trim unit comprising a frame-like device arranged to interfit with the side of the window unit opposite the channels thereof. Tightening means are provided for drawing together the trim and window units into clamping relation about the periphery of the aperture, and means integral with said trim unit are brought into contact with the window unit during the installation procedure, which serve to enhance the appearance of the side of the window unit nearest the trim unit.

The trim unit according to this invention is constructed of extruded material in which the cross section thereof comprises a plurality of portions secured integrally together but angularly disposed with respect to each other. A first of these portions is designed to reside generally along a side of the aperture in which the installation is being made, and to be drawn toward the window unit during the installation procedure, whereas a second of these portions is disposed at approximately a right angle with respect to said first portion, and serves to reside against the outer surface about the aperture, so that the window unit will be held firmly in place. A third portion of the extruded material is disposed on the opposite side of the said first portion with respect to said second portion, with said third portion serving to contact the side of the window unit nearest said trim unit for the accomplishment of the beautification of the window unit.

These and other objects, features and advantages will be apparent from a study of the enclosed drawings in which:

FIGURE 1 illustrates in exploded relation the use of a trim unit according to this invention, utilized in conjunction with a modern lightweight window unit for holding securely and effectively in the correct installed position in a door;

FIGURE 2 is a perspective view representing to a somewhat larger scale the lower right hand corner of the trim adaptor unit, this view exemplifying the trim material according to my invention as well as a typical constructional technique utilized in each corner of the adaptor unit;

FIGURE 3 represents a cross sectional view taken substantially horizontally through left and right side frames of similar windows, revealing the use of different configuration trim material according to my invention, with central portions of the windows and screen removed in these views in the interest of clarity;

FIGURE 4 reveals the cross sectional appearance of top and bottom portions of a window the length of which has been foreshortened by the removal of the central portions of the windows and screen, with the trim material according to this invention used at both the top and bottom of this window being of a different configuration from that shown in either portion of FIGURE 3;

FIGURE 5 is a perspective view revealing the configuration of a preferred embodiment of trim material in accordance with this invention; and

FIGURE 6 is a considerably enlarged view of the insulating material that may be used above the upper window as shown in FIGURE 4.

Referring to FIGURE 1, the outside unit or trim unit **10** and the inside unit **11** are shown in exploded relation with respect to a door **12** in which an installation according to this invention is to be made, with the units **10** and **11** being of a configuration as to be received and secured in interfitting relation in the aperture **13** of the door. Inside unit **11** represents a window and screen unit in accordance with certain prior art, and as revealed in FIGURES 3 and 4, the unit **11** may be constructed of extruded material of metal or plastic known as "triple track." The window side frames shown in FIGURE 3 as well as the upper and lower portions of the window of FIGURE 4 reveal that the opposite aligned portions of triple track material form channels **11***a* for lower window panel **14**, form channels **11***b* for receiving upper window panel **15**, and form channels **11***c* for receiving screen **18** of the window unit, it being understood that in accordance with state of the art techniques for lightweight metal windows, the windows are easily slidable in the pairs of channels in which they are installed, and each

of the windows as well as the screen is easily removable for the purpose of cleaning or repair. These figures will be discussed at greater length as the description proceeds.

My invention is principally concerned with trim unit **10** which is a frame-like structure typically made from trim material such as extruded aluminum, and which has been carefully configured and constructed to interfit with certain portions of the inside unit **11**. As perhaps best seen in FIGURES 2 and *5*, the extruded trim material from which the outside unit **10** is constructed is, according to my design, arranged to have an angled trim member **10***a*, a connecting leg member **10***b*, and an outer surface contacting member **10***c*. As will be noted from the several figures of drawings, these three members or portions are angularly disposed with respect to each other, substantially about a common juncture. The members **10***b* and **10***c*, hereinafter referred to as first and second portions, are preferably disposed at substantially right angles to each other, with third portion **10***a* disposed at an acute angle to portion **10***b*. When this material has been constructed into substantially the configuration shown in FIGURE 1, the connecting leg members **10***b* of each of the four sides of the frame are designed to fit fairly closely into the aperture **13** of the door into which the installation is being made. Members **10***c* are arranged to contact the outer surface of door **12** about the aperture **13**, when unit **10** has been disposed in interfitting relation with unit **11** as seen in FIGURE 3. Surface contacting member **11***g* of inside unit **11** is arranged to contact the inner surface of door **12** about aperture **13**, with tightening means being provided for drawing units **10** and **11** tightly together so as to cause surface contacting members **10***c* and **11***g* to tightly grip the door.

I prefer to use sheet metal screws **16** for drawing the units together, such as #6 SMS, ⅜" ling. As seen in FIGURE 1, the screws **16** may be inserted in holes drilled in surface contacting member **11***g* near the corners of the unit **11**, with the threads of these screws being arranged to enter undersized holes located in the corresponding positions on unit **10**, being located at the ends of the connecting leg members **10***b*. As will be seen from FIGURES 3 and 4, the threads of screws **16** are preferably received in configured end portions **10***e* on the extreme ends of the connecting legs.

It is significant to note that the trim material according to my invention may be extruded so as to dispose the angled trim member **10***a* in any of several standard or pre-established positions, so that upon the units **10** and **11** being drawn together by screws **16**, the outermost portion of the angled trim member will be brought into firm contact either with the shoulder **11***d* on the back side of channel **11***a* in the manner to be seen in the right hand side of FIGURE 3; or with the shoulder **11***e* disposed on the back side of channel **11***b* as shown in FIGURE 4; or in contact with shoulder **11***f* disposed on the back side of channel **11***c* as shown on the left hand side of FIGURE 3. This is to say, that the portion of my trim material principally concerned with beautifying the back side of the triple track material can leave exposed two tracks, one track or none of the tracks, as may be preferred. It is to be understood that although two different types of trim material are shown in FIGURE 3, trim material of more than one type is never used on a given window. I prefer the configuration shown in FIGURES 4 and 5 wherein the angled trim member **10***a* is in contact with shoulder **11***e* of the middle track.

Referring to FIGURES 1 and 2 a trim unit according to my invention is preferably constructed by cutting the extruded trim material to desired length using 45° angle cuts, so that portions **10***a*, **10***b* and **10***c* of adjacent portions of the outer unit may fit in desired alignment. To this end I preferably employ corner angles **22** disposed at each of the four corners, which are right-angle members which interfit with adjacent trim unit members in the

general manner shown in FIGURE 2. Considerable rigidity is afforded by having the corner angles **22** of a dimension in width that generally corresponds with the dimension of leg **10***b* on the side nearest **10***a*, as perhaps best seen in FIGURES 2 and 3. By disposing the curved end **10***e* of leg **10***b* into a somewhat encircling configuration, and by disposing a shoulder **10***f* at a location on member **10***a* spaced a short distance from **10***b*, a rather wide slot between **10***e* and **10***f* is defined along the length of all four members constituting a trim unit according to my invention, with each corner portion of such a unit being arranged to receive the corner members **22** in a close fitting relationship of the general nature of that shown in FIGURES 2 and 3. A screw **17** is used to secure each half of each member **22** to the connecting leg member **10***b* of the respective trim member. Inasmuch as the members **22** are not of substantial lengthwise dimension, each slot defined between portions **10***e* and **10***f* is empty throughout most of its length as seen in FIGURE 4. Although the members **22** could conceivably be disposed on the opposite or outer side of members **10***b*, such would cause large corners on the window unit and would also cause interference with the members **24** now to be described.

It will be appreciated that typically no screws are driven into the wood of the door **12** in order to secure the units **10** and **11** into interfitting relation, for the four screws are generally being employed in the manner shown in FIGURE 1 for drawing the units together.

It will be appreciated that if aperture **13** is of considerable dimension in a door or wall, the side members of the trim unit may tend in use to bow outwardly somewhat, and to prevent this I may employ a screw on each side of member **10**, driven into the wood of the door **12** or the wall at about the midpoint of the length of the side members. Alternatively, it is within the purview of my invention to employ extruded trim material that is configured to have a pair of spaced ridges **24** on member **10***b*, extending for the full length of the material. As will be obvious, and as shown in FIGURE 3, the trim material cannot bow toward the side of the aperture inasmuch as the ridges **24** effectively prevent this.

Referring to FIGURE 4, it will be noted that the triple track material employed in the top and bottom portions of the trim unit have screw bosses **25** disposed therein. The manufacturer of the triple track material may provide these screw bosses in the top and bottom portions of the window unit in order to receive the threads of metal cutting screws inserted into holes disposed in the upper and lower portions of the side members of triple track material. This is to say that the side members of unit **11** are designed to receive a pair of horizontally disposed screws at each upper and lower corner, with these screws extending through the thickness of the triple track material at channels **11***b* and **11***c*, with threads of the screws cutting into and somewhat enlarging the slots of the screw bosses illustrated in channels **11***b* and **11***c* in FIGURE 4. This information is presented by way of background, for the details associated with the construction of triple track windows per se is not a part of this invention.

Inasmuch as it is usually desirable for window panel **15** to remain in its uppermost position, I have found that a desirable amount of insulation may be inexpensively and yet effectively incorporated into the triple track window by the utilization of vinyl weatherstrip, which may be of the configuration shown in FIGURE 6. By virtue of the weatherstrip **29** being hollow, it can easily deform as shown in FIGURE 4 upon being contacted by the upper portion of window panel **15**. The provision of a spearhead shaped locking portion **29** makes it quite a simple matter to secure the weatherstrip at the upper portion of the middle track of the window by simply inserting the locking portion **29** into the groove formed in the screw boss of upper channel **11***b* as shown in FIG-

URE 4. It should be noted that the screws extending into the screw bosses do not interfere with the weatherstrip **28**, for the screws extend only for a short distance into the upper and lower members, and leave the entire central portion of the screw boss material unusued.

In some installations it may be found that precipitation may tend to accumulate in screen channel **11***c*, and accordingly I may provide one or more drain holes **26** disposed through the central portion of the screw boss so as to allow water to drain from the lower channel **11***c*, as shown in FIGURE 4. As will be noted in this figure, this water will tend to drain along the exterior portion of the angled trim member **10***a* of the lower portion of the window and thence fall to the ground.

Water may also tend to accumulate in lower channel **11***b* and in some rigorous climatic conditions, it may be desirable to drill drain holes **26** in channel **11***b* as well as in channel **11***a* to permit water to drain into the space at the bottom of the window defined between the outside unit **10** and the inside unit **11**. Because it is very undesirable for water to accumulate in the window unit, I provide so called "weep holes" **32** to be seen in FIGURE 4 as well as in FIGURE 1, whose function is to carry off any water before it can accumulate. Inasmuch as it may be desirable to extrude trim material specifically for top and bottom member service as well as specifically for side member service, the trim material extruded for top and bottom member use may have the connecting leg member **10***b* sloped at a slight angle, say 2°, toward the weep holes **32**, or in other words, the leg **10***b* may preferably make a 92° angle with member **10***c* instead of a right angle therewith. By no means, however, is my invention to be limited to applications wherein different material is required for side member, or top and bottom member use, for obviously the use of ridges **24** is optional, but in any event would not interfere, even in top and bottom locations. Similarly, the two degree slant would not interfere in side member locations, although obviously if a ridge **24** is used near position **10***e* of the connecting leg, it would have to be of a slightly larger dimension than ridge nearer member **10***c* in order to prevent a non-symmetrical juncture with the aperture in the door or wall in which it is mounted.

Insulation of window units constructed in accordance with my invention is typically not required, although insulation between the units **10** and **11** may of course be used if desired. The portion **10***e* may be fitted directly against the inner portion of surface contacting member **11***g* as seen in FIGURE 3, as in the upper portion of FIGURE 4. However, inasmuch as water may tend to accumulate in the bottom member, I prefer to run a seam of caulking material on the inner portion of member **11***g* as seen in FIGURE 4 at **33**, so that when portion **10***e* of the connecting leg is drawn close by the tightening of screw **16**, a water tight joint will be effected. I also prefer to run a seam of caulk along the inner portion of surface contacting member **10***c* where all four sides of the outer window unit are in contact with the wood of the door.

As is known, doors typically are supplied in standard thicknesses of 1⅜ inches and 1¾ inches, so by extruding the trim material to be of a dimension to be used properly with the thickness of a selected door, my trim material may easily adapt a multiple track type window for use with the door. As will be apparent, an important dimension of the trim material is the dimension of the connecting leg **10***b*, which must be more or less in agreement with the thickness of the door or wall with which it is to be used. It is also desirable, however, to have the angled trim member **10***a* be disposed to contact the desired shoulder of the triple track material when the screws **16** have been tightened to draw the units **10** and **11** together in the aperture of the door.

Portion **10***d* of the trim material, which I prefer to call the "return" is designed to compensate for slight differences in door or wall thicknesses. This is to say, that if a standard thickness door is slightly too thick, the return **10***d* will dig into the wood of the door to some extent, as indicated in the upper portion of FIGURE 4, whereas if the door is slightly undersize in thickness, the return **10***d* will not dig into the wood of the door but rather will only slightly contact the wood and serve to compensate for the discrepancy.

It will thus be seen that by my highly advantageous trim material, the use of multiple track windows can be vastly extended, and each utilization of such windows be considerably enhanced aesthetically as well as be more utilitarian. By stocking complementary inside and outside units in standard sizes it will be possible for the retailer to easily furnish window units for apertures of widths say 21½" or 22" and of a height of 34" or 54¾". However, by maintaining a supply of extruded trim material on hand, the retailer can prepare custom made units in any nonstandard size as well.

Furthermore, it should be noted that my trim material may be employed in conjunction with windows designed to slide horizontally rather than in the vertical direction as illustrated, and in these instances it should be noted that the trim unit is virtually unchanged, except for perhaps the repositioning of drain holes therein.

Additional versatility of window units utilizing my invention is borne out by the fact that a plurality of windows can be mulled together by use of standard 1¾ inch "H" mull material in the event that two or more windows are to be grouped together.

As to the physical data of preferred trim material used in the construction of trim units in accordance with my invention, I prefer to use an extrudable aluminum such as 63 ST5 or similar, and when such material is extruded in the configurations illustrated in the drawings, weighs approximately .211 pound per foot in the dimension appropriate for 1⅜" doors, and .271 pound per foot for 1¾" doors. This is typically .050 guage aluminum, with portion **10***a* being typically ¾" for 1⅜" doors, and 1⅜" for 1¾" doors, in instances in which the configuration of FIGS. 4 and 5 is employed. Member **10***b* is approximately door thickness.

I claim:

1. A trim unit of pleasing appearance adapted to be secured to a window unit so as to hold the window unit in an aperture, said trim unit being frame-like in construction involving top, bottom and side edges, and being constituted of extruded material which in cross section comprises a plurality of portions secured together in an integral manner, each of said portions being angularly disposed with respect to each other substantially about a common juncture, one of said portions being designed to reside generally along the sides of an aperture in which a window unit is being installed, a second of said portions being disposed at approximately a right angle with respect to said first portion, and by contact with a peripheral portion about the aperture serving to hold the window unit firmly in installed position, and a third of said portions immediately adjacent to the first mentioned of said portions and disposed at an acute angle with respect thereto, said third portion being adapted to be brought into firm abutting contact with a window unit so as to remove from view the side of the window unit nearest said trim unit.

2. The trim unit as defined in claim 1 in which said one portion is disposed at less than a right angle with respect to the plane of said trim unit, such portion in the bottom edge of said trim unit being angled so as to carry away from said window unit any water tending to accummulate, and drainage means provided on said bottom edge of said trim unit for providing egress for accummulated water.

3. A trim unit for use with a window unit constructed of lightweight channeled material, in the channels of which at least one window panel is slidable, said trim unit and said window unit being received on opposite sides of an aperture in which a window unit is to be installed, said trim unit comprising a frame-like device involving top,

bottom and side edges and arranged to interfit with the side of said window unit opposite the channels thereof, tightening means extending between said units at spaced locations for selectively drawing said units together into clamping relation about opposite peripheries of said aperture, said trim unit in cross section comprising a plurality of portions secured together in an integral manner and angularly disposed with respect to each other about a common juncture, one of said portions being disposed at an angle with respect to the plane of said trim unit and being brought into contact with said window unit during the drawing together of the pair of units, for enhancing the appearance of the side of the window unit nearest the trim unit.

4. The trim unit as defined in claim 3 in which said trim unit is constructed of extruded material which in cross section comprises a plurality of portions secured integrally together but angularly disposed with respect to each other, a first of said portions being designed to reside generally along the sides of the aperture in which the installation is being made, a second of said portions being disposed at approximately a right angle with respect to the said first portion, and a third portion corresponding to said one portion is disposed at an acute angle with respect to said first portion and serving to contact the side of the window unit nearest said trim unit for the beautification of the window unit.

5. The trim unit as defined in claim 4 in which said first portion defines a slot extending the length of each side of said trim unit, said trim unit also including corner members for securing together at each corner of said trim unit, the members constituting the frame of said trim unit, each corner member being of a width as to be received in the slot of both members coming together at each corner of said trim unit.

6. A window arrangement adapted for rapid installation in window openings in doors or walls of varying thicknesses, comprising inner and outer units adapted to be placed on opposite sides of an aperture generally in telescopic relation to each other, said inner unit being a window unit constructed of lightweight channeled material, in the channels of which at least one window panel is slidable, said outer unit being a trim unit comprising a framelike device arranged to interfit with the side of the window unit opposite the channels thereof, tightening means at spaced locations between said units for selectively drawing said inner and outer units together in clamping relation about opposite sides of the aperture, an angled trim member on said trim unit which, upon said trim unit being brought into close proximity with said window unit, moves into abutting contact with a portion of said window unit on the side thereof opposite that in which a window panel may be disposed, said angled trim member serving to remove the rear sides of said channels from

view and thereby to beautify the appearance of the window arrangement as viewed from the outer side thereof.

7. A window arrangement utilizing a window unit and a trim unit adapted to be inserted into opposite sides of an aperture and secured together without it being necessary for fastening means to penetrate the material in which the aperture is disposed, said window unit comprising at least one slidable sash, said trim unit being framelike in construction, involving top, bottom and side edges, and of comparable size to said window unit, means for selectively drawing said window and trim units together into clamping relationship so as to prevent dislocation of said window unit from the aperture in which it is disposed, said trim unit being constructed of material which in cross section comprises a plurality of portions secured together in an integral manner and angularly disposed with respect to each other substantially about a common juncture, one of said portions being designed to reside generally along the sides of the aperture in which the window unit is to be installed, a second of said portions being disposed at approximately a right angle with respect to the first portion and by virtue of contact with a peripheral portion about the aperture, serving to hold the window unit firmly in installed position when said units have been secured together, and a third of said portions located immediately adjacent the first mentioned of said portions and disposed at an acute angle with respect thereto, said one portion, at least at the location along the bottom edge of said trim unit, being angled slightly so as to tend to carry away from said window unit any water tending to accummulate, said third portion, upon being drawn into contact with said window unit, serving to remove from view the side of said window unit nearest said trim unit.

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