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Herr

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[54] **OFFSET DECORATIVE WINDOW GRILL CONNECTION**

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[52] **U.S. Cl.**.....**52/456,** 52/31
[51] **Int. Cl.**.....**E04b 1/48,** E04b 1/58
[58] **Field of Search**.....52/456, 455, 311, 507

[56] **References Cited**

UNITED STATES PATENTS

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3,381,431	5/1968	Jacobson	52/455 X
3,386,219	6/1968	Beil	52/456
3,474,587	10/1969	Martin	52/456
3,645,058	2/1972	Jacobson	52/456

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Attorney—Karl L. Spivak

[57] **ABSTRACT**

An offset connector for removably affixing decorative window grills over a single light window sash employing a plurality of peripherally spaced sash affixed sockets and a plurality of offset connectors removably affixing within the sockets at one end thereof and connecting at the other end to the ends of decorative window grill bars for positioning and retaining the decorative window grill bars within the sash construction.

8 Claims, 3 Drawing Figures

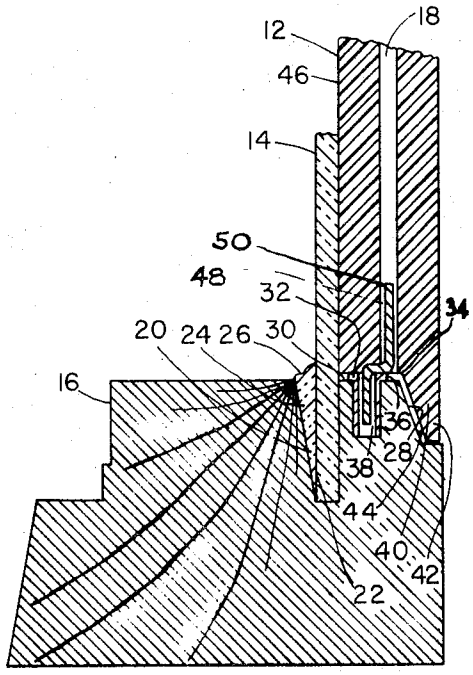
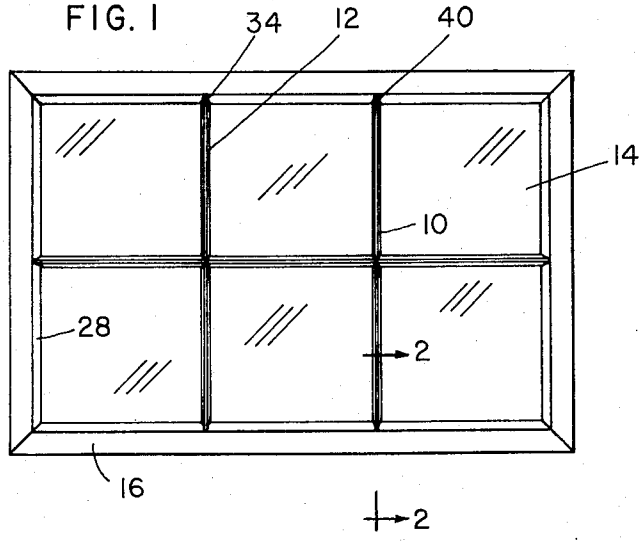


FIG. 1



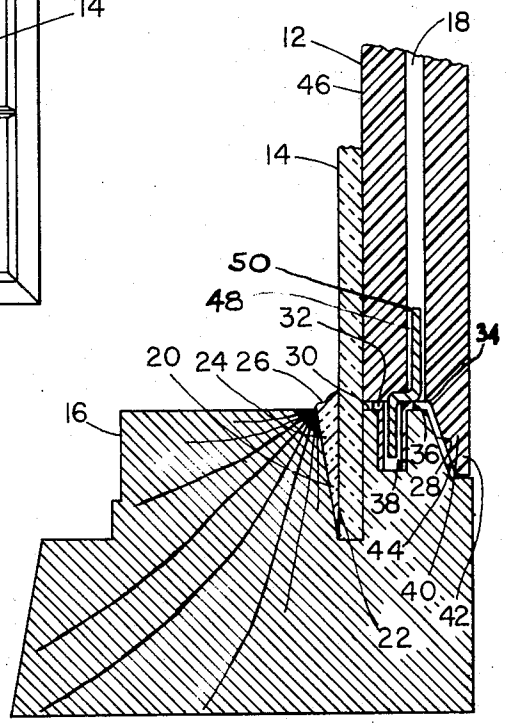


FIG. 2

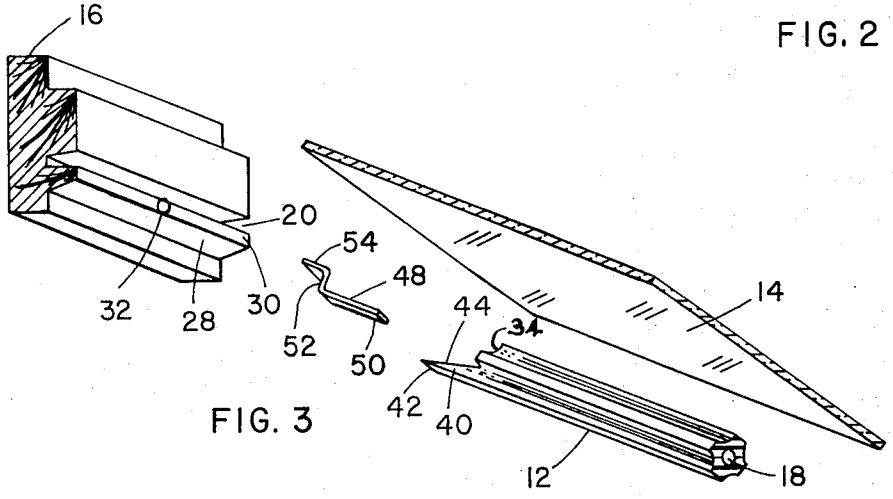


FIG. 3

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OFFSET DECORATIVE WINDOW GRILL CONNECTION

BACKGROUND OF THE DISCLOSURE

This invention relates in general to the building materials industry, and more particularly, is directed to an offset decorative window grill connection for removably affixing decorative window grills to a peripheral sash construction.

In view of the constantly rising costs in the building materials industry, it has become increasingly important for builders and material supply men to find suitable methods and substitute materials which may be employed in building construction to replace existing conventional materials and methods in order to effect economies in building construction without undue sacrifice in quality of construction and in the appearance of the finished product.

Particularly, in the manufacture of windows used primarily in residential construction, savings are now being realized in the fabrication of window sash by employing a single pane of glass and by eliminating the use of individual horizontal and vertical muntin bars and other window dividers. Window manufacturers have found that increased fabricating costs and increased labor costs result from the use of muntin bars and divided light windows. Accordingly, most producers have now almost universally changed fabrication methods to produce window sashes of various sizes having but a single light of glass. In this manner, a considerable manufacturing cost savings can be realized to thus continue to make such windows competitive in the building field by completely eliminating the expense of manufacturing and installing individual muntin bars and individual panes of glass in the sash.

In addition, newer methods of manufacture have resulted in procedures wherein glaziers can be almost entirely eliminated by utilizing wrap-around glazing and various vinyl plastic window sealing materials whereby no putty or other sealing materials will be required. In this manner, it is now possible to produce and assembly window units without former labor delays in glazing and without the expense occasioned by the previous individually glazing of a multiplicity of windows within a multilight sash. In instances wherein metal sash is employed, glass is now applied to the frame by utilizing hard vinyl or soft vinyl peripheral retaining strips, thereby also further reducing labor costs and the need for skilled glaziers.

Even though the initial cost savings realized in the new methods of manufacture have indeed been significant, the advantages gained are somewhat offset by the fact that the windows so produced all look alike and the individual characteristics of design that were available with prior art models can no longer be produced using the present methods. In order to offset this shortcoming, the use of removable type window bar assemblies fabricated either of wood or of a vinyl resin plastic has become increasingly more popular. The plastic and wood decorative window grill assemblies as presently manufactured usually comprise a plurality of intersecting grill bars, means to interconnect the individual grill bars to the window frame. Various methods have been employed by prior workers in the art to removably affix the decorative window grill assemblies over a single light of glass, for example by using collar pins as disclosed in U.S. Pat. No. 3,358,412 to Martin entitled Window Bar Assembly.

SUMMARY OF THE INVENTION

The present invention relates to decorative window grill assemblies in general, and more particularly, is directed to an offset connection that finds particular utility with a window sash of shallow available connection area.

The present invention discloses the combination of a plurality of sash frame affixed sockets for removably receiving grill connectors affixed to the ends of the individual bars comprising a decorative window grill assembly. A plurality of offset connectors endwardly insert within longitudinally outlined central bores extruded in the individual decorative grill bars for removable insertion within the sockets to thereby removably retain the decorative grill in position over the single light of glass. The present invention finds particular utility wherein the usual connecting means, such as disclosed in U.S. Pat. No. 3,358,412, cannot be employed because the frame construction is not sufficiently wide to receive the connecting pin or other grill connecting means.

It is therefore an object of the present invention to provide an improved offset decorative window grill connection of the type set forth.

It is another object of the present invention to provide a novel offset decorative window grill connection that includes both sash affixed connecting means and window grill affixed cooperating connecting means.

It is another object of the present invention to provide a novel offset decorative window grill connection having a plurality of peripherally spaced, frame affixed sockets and a plurality of cooperating, offset grill connectors removably inserted therein for retaining a decorative window grill assembly over a single light window construction.

It is another object of the present invention to provide a novel offset decorative window grill connection which may be readily positioned and used without requiring the use of special tools.

It is another object of the present invention to provide a novel offset decorative window grill connection that is inexpensive in manufacture, rugged in construction and trouble-free when in use.

Other objects and a fuller understanding of the invention will be had by referring to the following description and claims of a preferred embodiment thereof, taken in conjunction with the accompanying drawings wherein like reference characters refer to similar parts throughout the several views and in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of a window and frame wherein a decorative window grill has been positioned utilizing a plurality of offset grill connectors in accordance with the present invention.

FIG. 2 is a cross sectional view taken along Line 2—2 of FIG. 1, looking in the direction of the arrows.

FIG. 3 is a partial, exploded perspective view showing the arrangement of co-acting parts.

DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

Although specific terms are used in the following description for the sake of clarity, these terms are intended to refer only to the particular structure of my invention selected for illustration in the drawings and are not intended to define or limit the scope of the invention.

Referring now to the drawings, I show a decorative window grill **10** comprising a plurality of intersecting, extruded plastic grill bars **12** applied over a single light window **14** retained within a peripheral frame **16**, which preferably is fabricated of wood. As best seen in FIGS. **2** and **3**, each grill bar **12** is fabricated with an axially aligned, central bore **18** which finds utility both in interconnecting intersecting grill bars as disclosed in U.S. Pat. No. 3,474,587 to Martin entitled "Decorative Window Grilles" and also in connecting the respective ends **34** of grill bars to the peripheral frame for removable installation of the decorative grill assembly **10** within the window frame **16**.

In the present assembly, the frame **16** is provided with a continuous trough **20** which receives the peripheral edges **22** of the glass **14** therein during the frame fabrication process. The trough **20** flairs outwardly slightly to both facilitate glass installation and to provide an area **24** to receive the peripherally applied sealing compound **26** therein to render the entire assembly waterproof. The frame **16** extends inwardly from the inner edge of the trough **20** a distance approximately seven thirty-seconds of an inch to form a peripheral, flat grill connecting surface **30**. The grill connecting surface **30** terminates in an angular face **28** of pleasing design for interior decorative purposes which depends from the surface **30** at a highly inclined, acute angle.

Referring now to FIGS. **1** and **2**, I show the grill connecting surface **30** carrying a plurality of recessed, grill retaining grommets **32** spaced about the periphery of the frame **16** in alignment with the ends **34** of each respective decorative bar **12**. The grommets **32** recess into the connecting surface **30** up to the respective flanges **36** to thereby terminate substantially flush with the grill connecting surface **30**. Each grommet **32** provides an interior hollow space **38** for releasable retention of the offset connector pins **48** as hereinafter more fully set forth.

Each decorative grill bar **12** terminates at its outer end **34** in an extending finger **40** which is a continuation of one peripheral edge of the bar. As best seen in FIG. **2**, the finger **40** returns at an acute angle from its outermost extremity **42** to the grill bar end **34** to provide an angular surface **44** angularly corresponding substantially identically with the angular face **28** of the peripheral frame **16**. As indicated, the angular surface **44** joins the grill bar end **34** outwardly from the axial bore **18**. The angular surface **44** is designed and machined to closely overlie the angular face **28** of the frame when the inner surface **46** of each grill bar **12** positions against the surface of the glass **14**. It will be noted that when the bar angular surface **44** overlies the frame angular face **28** and the bar inner surface **46** contacts the surface of the glass **14**, the bar axial bore **18** offsets from the grill connecting surface positioned grommet **32** because of the relatively narrow space available for seating the grommet in the grill connecting surface **30**.

In order to provide a convenient method for removably affixing a decorative window grill assembly **10** to a window frame **16** having a relatively narrow grill connecting surface **30**, an offset pin **48** of relatively flat configuration has been provided. Each pin **48** is preferably fabricated of brass or other corrosion resistant material to a generally Z-shaped configuration as best seen in FIG. **3**. Each offset pin **48** includes a rod insertion end **50** for end insertion within each respective axial bore **18**. It is preferable to fabricate the width of each pin **48** substantially equal to or slightly greater than the diameter of the axial bore **18** to thereby permit the insertion end **50** to be a press fit within the bore **18** by slightly deforming the plastic bar construction about the axial bore **18**. Pressing the pins **48** within the respective bores **18** serves to retain the pins at the ends **34** of the decorative grill bars **12** during the grill installation and removable procedures.

The rod insertion end **50** of each offset pin **48** terminates forwardly in an offset section **52** which bends at substantially right angles to the insertion end **50** and extends a distance equal to the distance between the central axis of the grommet **32** and the central axis of the axially bore **18** when the bar angular surface **44** closely overlies the frame angular face **28** with the inner surface **46** of the bars **12** in contact with the surface of the glass **14**. The offset section **52** terminates in a grommet insertion end **54** which is shorter in length than the depth of each grommet space **38**. The relationship between the width of the grommet end **54** and the width of the grommet space **38** is such that the insertion end **54** easily fits within the space **38** without binding, jamming or other cramming effect. In this manner, the grommet insertion end **54** may be readily positioned into and removed from the grommet space **38** whenever it is desired to install or remove the decorative window grill **10**.

It is thus seen that the interrelation between the bar axial bore **18**, the central axis of the grommet **32**, the offset **52** of the pin **48**, the relationship between the inner bar surface **46**, the glass **14**, and the opposing surfaces of the rod angular surface **44** and the frame angular face **28** all serve to provide a readily removably, easily reinstallable decorative window grill assembly for use with frame constructions having insufficient grill connecting surfaces **30** to allow aligned grill attaching means.

In order to use my invention, a decorative window grill **10** is assembled by interconnecting decorative bars **12** and extending fingers **40** projecting beyond the ends **34** of each bar are milled or otherwise provided. Each finger **40** is machined to provide an angular surface **44** corresponding in angular relation to the angular face **28** of the window frame **16** being decorated. A plurality of grommets **32** position about the periphery of the frame **16** in axial alignment with the ends **34** of each grill bar **12** and the grommets countersink into the grill connecting surface **30** up to the respective flanges **36** thereof. Offset pins of the type herein described inwardly insert into each grill bar **12** by pressing the rod insertion end **50** into the respective axial bores **18** in a manner to set the pin **48** within the end **34** of each bar

12. The pin offset section **52** extends exteriorly from the grill bar finger **40** positioning within the interior space **38** of each grommet **32**. In accordance with usual practice the grill bars **12** may be readily flexed due to the nature of the extruded plastic material to position the respective grommet insertion ends **54** within the grommet space **38** of each respective grommet **32**. The natural resiliency of the bar plastic material returns the bars **12** to their unstressed initial form whereby the decorative grill **10** is removably retained within the peripheral frame **16** by the interaction of each grommet insertion end **54** within its respective grommet interior space **38**.

I claim:

1. In an offset decorative window grill connection for use with a decorative grill of the type wherein a plurality of extruded plastic bars intersect to form a decorative window grill wherein each of the bars is provided with an axially aligned central bore, and wherein the grill is applied over a single light of glass retained within a peripheral frame, the combination of

A. a plurality of grommets spaced about the periphery of the frame in alignment with the ends of the said bars,
   1. each grommet being recessed into the frame to provide a recessed socket therein;

B. a plurality of offset, substantially Z-shaped pins removably insertable within the said grommet sockets,
   1. each said pin including a rod insertion end and a grommet insertion end,
      a. the said rod insertion end and said grommet insertion end being interconnected by an offset section extending in a plane substantially perpendicular to planes through the grommet insertion end and rod insertion end,
   2. each rod insertion end respectively inserting within each axial bore, and
   3. each grommet end respectively inserting within the socket provided in each grommet, whereby a decorative window grill may removably applied to a peripheral window frame with the said centrally aligned axial bores offset from the said grommets.

2. The invention of claim **1** wherein the said frame extends inwardly from the glass to provide a peripheral grill connecting surface, the said grommets inserting into the said grill connecting surface about the periphery of the frame.

3. The invention of claim **2** wherein the said grill connecting surface terminates inwardly in an angular face.

4. The invention of claim **3** wherein each of the said bars is provided at the ends thereof with an extending finger, the said finger overlying a portion of the said frame.

5. The invention of claim **4** wherein the extending finger includes an angular surface formed to the same angle as the said angular face of the peripheral frame and wherein the angular surface overlies the angular face when the grill is applied over the glass.

6. The invention of claim **1** wherein the said grommet insertion end of the offset pin is less in width and height then the width and depth of the said grommet space.

7. The invention of claim **1** wherein the width of the said rod insertion end of the offset pin is slightly greater than the diameter of the said axial bore of each decorative bar whereby the pin is a press fit within the bore.

8. The invention of claim **2** wherein one-half of the width of the said grill bar is greater than the width of the said grill connecting surface whereby the said axial bore positions out of alignment with the frame connected grommets and wherein the said offset pin extends between each rod axial bore and each said grommet.

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