March 19, 1963 A. T. BUTTRISS 3,081,853

FASTENING DEVICES

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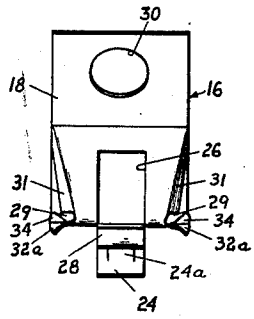


Fig. 1

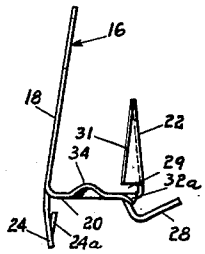
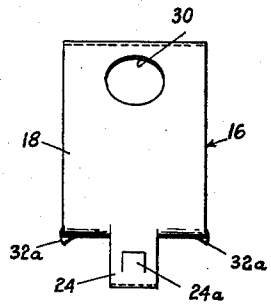


Fig. 2

Fig. 3



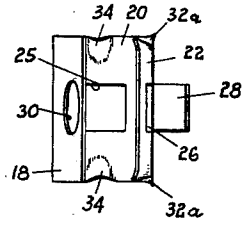


Fig. 4

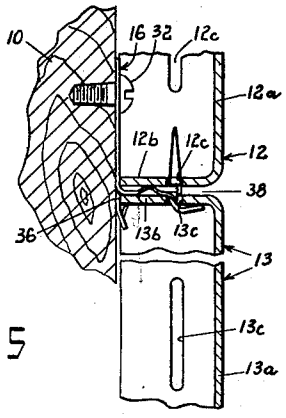


Fig. 5

INVENTOR.
ALBERT T. BUTTRISS

BY

Teare & Fetzer
ATTORNEYS

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FASTENING DEVICES

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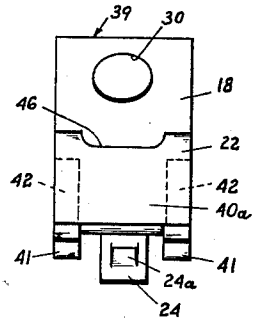


Fig. 6

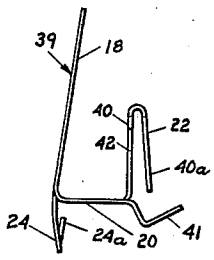


Fig. 7

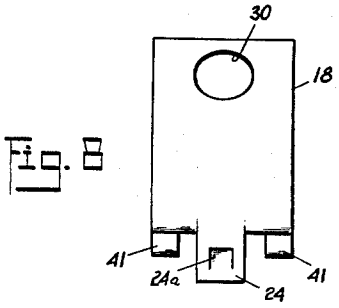


Fig. 8

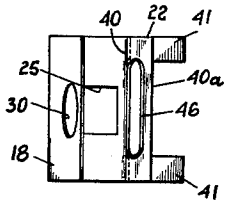


Fig. 9

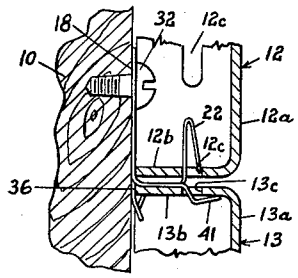


Fig. 10

INVENTOR.
ALBERT T. BUTTRISS

BY

Teare & Fetzer
ATTORNEYS

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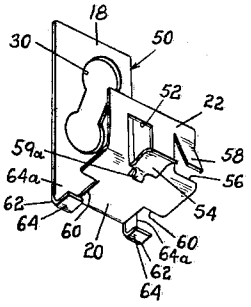


Fig. 11

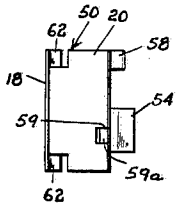


Fig. 12

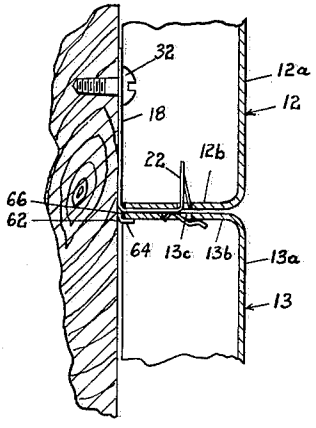


Fig. 13

INVENTOR.

ALBERT T. BUTTRISS

BY

Teare & Fetzer

ATTORNEYS

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3,081,853

FASTENING DEVICES

Albert T. Buttriss, Westlake, Ohio, assignor to Tinnerman Products, Inc., Cleveland, Ohio, a corporation of Ohio

Filed Aug. 15, 1960, Ser. No. 49,696
17 Claims. (Cl. 189—88)

This invention relates in general to fastening devices for attaching panels on the surface of a support, and more particularly to fastening devices for metal panels which are adapted to be mounted on the exterior of a building wall to provide a finished, decorative appearance to the building exterior.

These panels are usually found in the form of a shallow pan-like member, formed by bending the edges of a piece of metal or the like at right angles, to form marginal flanges, and then finishing the exterior surface of the panel, as by vitreous enamel or the like. It is conventional practice in attaching panels of this type on a wall to use fastening means which is ordinarily concealed by the panel and to fill in the spaces between juxtaposed panels with some form of calking material.

An object of the present invention is to provide a novel clip for ready and secure mounting of panels of the aforementioned type on a wall.

A further object of the invention is to provide a clip of the latter mentioned type which is easier and faster to assemble with the panels than heretofore known clips adapted for similar purposes.

A more specific object of the invention is to provide a clip of the latter mentioned type which embodies means thereon for positively securing in interlocking relation the clip to one panel, and which includes means there on for holding an adjacent panel in predetermined positional but detachable or removable relation with respect to said one panel, and which is easier and faster to assemble with said one panel than heretofore known arrangements of such types of clip.

A still further object of the invention is to provide a clip of the latter mentioned type which can be readily manufactured from strip sheet metal stock, utilizing mass production procedures, and wherein a minimum waste of the stock material occurs.

Other objects and advantages of the invention will be apparent from the following description taken in conjunction with the accompanying drawings wherein:

FIG. 1 is an enlarged, front elevational view of one embodiment of the clip of the invention;

FIG. 2 is a side elevational view of the FIG. 1 clip;

FIG. 3 is a rear elevational view of the FIGS. 1 and 2 clip;

FIG. 4 is a top plan view of the FIGS. 1, 2 and 3 clips;

FIG. 5 is a fragmentary, partially broken, sectional view taken through a support, such as a wall, and panels secured thereto by means of the clip of FIGS. 1 to 4;

FIG. 6 is a front elevational view of a modified form of clip;

FIG. 7 is a side elevational view of the FIG. 6 clip;

FIG. 8 is a rear elevational view of the FIGS. 6 and 7 clip;

FIG. 9 is a top plan view of the FIGS. 6, 7 and 8 clip;

FIG. 10 is a fragmentary, sectional view taken through a support, such as a wall, and panels secured thereto by means of the clip device of FIGS. 6 to 9;

FIG. 11 is a generally perspective view of a further modification of the clip of the invention;

FIG. 12 is a top plan view of the FIG. 11 clip;

FIG. 13 is a fragmentary, sectional view taken through a support, such as a wall, and panels secured thereto, by means of the clip device of FIGS. 11 and 12.

Referring now again to the drawings and in particular to FIGS. 1 to 5 thereof, the support or wall **10** to which

the panels **12** and **13** are attached may be formed of blocks, brick, wood, metal, or any other construction material, which will provide a support for the panels. The panels **12** and **13** are usually of pressed sheet metal formed into a shallow pan-like configuration, presenting a main finish face **12***a* and **13***a* respectively, and marginal flanges **12***b* and **13***b* respectively, generally on the top, bottom and sides thereof. Each panel flange may have a plurality of elongated slots **12***c*, **13***c* therein, which are adapted to receive therethrough portions of the mounting clip.

The clip **16** of the invention is of generally L-shaped configuration comprising a main, relatively long, rearwardly disposed attaching or hanger portion **18** which is adapted to be mounted on or attached to the wall **10**, a supporting or base portion **20** disposed substantially normal to portion **18**, and a relatively short (as compared to hanger portion **18**), forwardly disposed panel retaining or wedge portion **22**, projecting upwardly (as viewed in FIGS. 1 and 2) from portion **20**. A leg **24** may be partially severed, as at **25**, FIG. 4, from portion **20** and bent downwardly therefrom so as to depend from the latter into more or less coplanar relation with portion **18**. Leg **24** is partially severed to provide an upwardly projecting tab **24***a* extending toward the front of the clip, and for a purpose to be hereinafter set forth.

Portion **22** is also partially severed as at **26** to provide a hook or finger **28** projecting downwardly and then upwardly from portion **20**. As can be best seen in FIGS. 2 and 4, finger **28** projects forwardly from portion **22**. An opening **30** is provided in portion **18**, for receiving a fastening member, such as a headed screw **32** (FIG. 5) therethrough, to attach the fastening device to the wall **10**.

The lateral edges of portion **22** are severed as at **29** in a direction transverse of portion **22**, and then are bent inwardly and rearwardly commencing generally adjacent the upper end of portion **22** and extending downwardly in divergent relation therefrom, to provide wedge portions **31** on opposite sides of portion **22** of the clip. The front corners **32***a* of the base portion **20** of the clip are also bent obliquely downwardly to provide gripping means adapted to engage a confronting defining edge of the receiving slot **13***c* in panel **13**, for preventing relative lengthwise movement of the clip in the slot.

Portion **20** may also be provided with upwardly projecting protuberances **34**, disposed on opposite side edges thereof, which are preferably formed from the material of portion **20**, for providing abutment means for convenient spacing of a pair of adjacent panels a predetermined distance from one another, for receiving sealing material and the like therebetween. It will be noted that a clip of the aforementioned construction can be readily formed using mass production procedures, from a rectangular like blank of strip material and without waste of substantially any material in the blank.

The clip is readily assembled with panel **13** by inserting finger **28** through slot **13***c* in the panel, and then rotating the clip in a counterclockwise direction (with reference to FIG. 5) so that leg **24** passes behind flange **13***b* of the panel, while the tab **24***a* on leg **24** engages in camming coaction with the free end **36** of the flange **13***b* until the upper end of the tab snaps into interlocking relation with the underside of flange **13***b*. The clip is then secured in positive locked relation on the panel **13** with the aforementioned downwardly bent corners **32***a* engaging the confronting edge of slot **13***c*, to prevent any relative lengthwise movement of the clip in the slot. To remove the clip from panel **13**, the leg **24** may be merely urged rearwardly until the tab **24***a* thereon can clear the free end **36** of flange **13***b*, and then the clip may be rotated in a clockwise direction (with reference to FIG. 5) until the

leg 24 is disposed above the flange 13*b*, and then the finger 28 may be disengaged from the slot 13*c*.

When the clip is in interlocked assembled relation with the panel 13, a fastener, such as aforementioned screw 32, can be received through opening 30 in the clip, to secure the clip and associated panel to the wall 10. Then, another panel 12 can be readily held in secured juxtaposed relation with associated panel 13 by moving panel 12 so that projecting portion 22 on clip 16 passes through the slot 12*c* in flange 12*b* of panel 12 and with the width of the slot 12*c* therein being preferably such that the wedge portions 31 on portion 22 of the clip engage in snug frictional relation with the confronting defining surfaces of the slot, and thus hold the panel 12 in secured but removable relation with the clip 16 and in juxtaposed relation to the panel 13. As can be seen in FIG. 5, the protuberances 34 on clip 16 engage the confronting outer face of flange 12*b* of panel 12 to space panel 12 a predetermined distance from panel 13, and thereby provide a predetermined space 38 for receiving sealing material between the panels. This not only provides for a positive weather tight relation between adjacent panels but also provides an increased decorative appearance to the paneled structure.

Referring now to FIGS. 6 to 10 inclusive, there is shown a modified form of the invention. In this modification, the relatively short portion 22 of the clip 39 is bent into an inverted U-shaped configuration (in side elevation) comprising anchored section 40 and free ended, relatively resilient section 40*a*, and fingers 41 are partially severed as at 42 out of the lateral edge portions of section 40 of portion 22. The top of portion 22 is also preferably slotted as at 46 to facilitate the bending of portion 22 into inverted U-shaped configuration and to increase the resiliency of section 40*a* for a purpose to be hereinafter set forth. The assembly of clip 39 with the panel 13 is generally similar to that described for the first embodiment of the invention, with the laterally spaced fingers 41 on the clip being received through the slot 13*c* and with the tab 24*a* on arm 24 being received in snap fastening interlocking coaction with the underside of the flange 13*b* on panel 13. Such spaced fingers 41 provide for greater stability of the clip when in assembled relation with a panel. Portion 22 is received through opening or slot 12*c* in the adjacent panel 12 in a similar manner as the first described embodiment of the invention, and it will be seen that due to the inherent resiliency of section 40*a* thereof, the necessity for accurate alignment of the slots in adjacent panels is not as great as in the first described embodiment of the invention, since section 40*a* of the inverted U-shaped portion 22 of the clip can be cammed toward anchored section 40 thereof by the confronting defining surfaces of slot 12*c* upon movement of portion 22 through the receiving slot in panel 12. There have been no protuberances illustrated on portion 20 of clip 39 for increased spacing of the adjacent panels with respect to one another, but it will be understood that such protuberances could be provided if so desired.

Referring now to FIGS. 11, 12 and 13, there is shown a further modification of the invention. In this modification, the portion 22 of the clip 50 is partially severed as at 52 to provide a finger 54 extending downwardly and then upwardly, similarly to those of the aforedescribed embodiments of clip. Moreover portion 22 is partially severed as at 56 to provide a wedge portion 58 for a purpose similar to portions 31 and portions 40, 40*a* of the first and second described embodiments of the invention. Base portion 20 of the clip 50 is also partially severed as at 59 to provide a downwardly and rearwardly extending resilient tab 59*a* for a purpose to be hereinafter set forth. The lateral edges of the rearward section of the base portion 20 are also partially severed as at 60 and are bent downwardly and then forwardly to provide transversely spaced hook-like legs 62. The assembly of clip 50 to panel 14 is slightly different as compared to the first and second described embodiments of the invention. In this connection, finger 54 and tab 59*a* are first fed through slot 13*c*′ in flange 13*b* of the panel 13, and then the clip is drawn rearwardly against the resistance of resilient tab 59*a*, the latter abutting against the confronting defining surface of the slot, until the portions 64 of legs 62 clear the free end 66 of flange 13*b*, after which the clip is rocked downwardly (or in a counterclockwise direction as viewed in FIG. 13) and then is released, whereby the resilient tab 59*a* drives the clip forwardly until engagement occurs between the end 66 of the flange portion and portions 64*a* of legs 62. The clip is then mounted in secured relation with panel 13 and is ready to receive panel 12 in juxtaposed relation therewith, with portion 22 extending through the confronting slot 12*c* in panel 12, with wedge portion 58 of portion 22 engaging in snug frictional holding relation with the defining surfaces of slot 12*c* in panel 12.

The clips of the invention may be made from any suitable sheet metal material, but preferably of a spring metal nature, such as spring steel or cold rolled metal having spring-like characteristics, and preferably of a stainless steel nature.

From the foregoing description and accompanying drawings it will be seen that the clips or fasteners of the invention represent a simplified inexpensive article of manufacture which may be readily provided from sheet metal strip stock with little loss or waste of material, and which provide a clip for effectively mounting panels on a support, and which are readily and easily assembled with the panels, and which hold the panels in secured juxtaposed relation with respect to one another.

The terms and expressions which have been employed are used as terms of description and not of limitation, and there is no intention in the use of such terms and expressions of excluding any equivalents of the features shown or described, or portions thereof, but it is recognized that various modifications are possible within the scope of the invention claimed.

I claim:

1. A fastener for mounting wall panels or the like having marginal apertured flanges, in juxtaposed relation on a support, comprising, a hanger portion for attachment to the support, a generally planar base portion projecting outwardly in generally normal relation to said hanger portion, and a wedge portion extending outwardly from said base portion in the general direction of extension of said hanger portion, and means on said base portion spaced lengthwise thereof for positive interlocking coaction with a flange of an associated panel for securing the clip thereto, said means extending in a direction generally opposite to the direction of extension of said wedge portion and including a finger spaced from said hanger portion and initially extending away from said base portion and then reversing to extend back toward the plane of said base portion, said finger terminating in spaced relation to said base portion, said finger being adapted to be fed through the aperture in the flange of the associated panel from the exterior of the flange and to engage the underside of the flange, said wedge portion being adapted for wedging coaction with defining edges of an aperture in the flange of an adjacent panel.

2. A fastener in accordance with claim 1 wherein said means on said base portion includes a leg spaced from said finger and disposed substantially in alignment with said hanger portion, said leg including means thereon for interlocking coaction with the flange of the associated panel, which in combination with said finger is adapted to interlock said fastener to the associated panel.

3. A fastener for mounting wall panels or the like having marginal apertured flanges, in juxtaposed relation on a support, comprising, a hanger portion for attachment to the support, a generally planar base portion projecting outwardly in generally normal relation to said

hanger portion, and a wedge portion extending outwardly from said base portion in the general direction of extension of said hanger portion, a generally U-shaped, in side elevation, finger adjacent one end of said base portion disposed in spaced relation to said hanger portion and extending outwardly from said base portion in a direction generally opposite to the direction of extension of said wedge portion, said finger terminating in spaced relation to said base portion, said finger being adapted to be received through an aperture in the flange of an associated panel from the exterior of the flange, and a leg adjacent the other end of said base portion extending outwardly therefrom in a direction generally opposite to the direction of extension of said wedge portion, and means on said leg adapted for positive interlocking coaction with the underside of the flange of the associated panel for securing said fastener to the panel, said wedge portion being adapted for wedging coaction with defining edges of an aperture in the flange of an adjacent panel.

4. A fastener in accordance with claim 3 including gripping means on said base portion adapted for holding engagement with a defining edge of the aperture in the flange of the associated panel, for resisting relative lengthwise movement of the fastener in the latter aperture.

5. A fastener in accordance with claim 3 including raised abutment means on said base portion for spacing adjacent panels a predetermined distance apart.

6. A sheet metal fastener for mounting wall panels or the like having marginal apertured flanges, in juxtaposed relation on a support, said fastener being formed from a rectangular blank and being bent into finalized generally L-shaped configuration, said fastener comprising, a hanger portion, a base portion disposed generally normal to said hanger portion, and a wedge portion projecting outwardly from said base portion in the general direction of extension of said hanger portion, the lateral extremities of said wedge portion being bent inwardly in downwardly divergent relation commencing generally adjacent the free end of said wedge portion to form wedge surfaces on the last mentioned portion, said wedge portion intermediate its lateral extremities being partially severed top rovide an outwardly projecting finger extending from said base portion in a general direction opposite that of said wedge portion, and initially projecting downwardly and then upwardly with respect to said base portion, said base portion being partially severed adjacent said hanger portion to provide a downwardly projecting lege disposed substantially coplanar with said hanger portion, said leg being partially severed to provide an upwardly projecting resilient tab, said finger being adapted to be received through the aperture in the flange of an associated panel from the exterior of the flange for engagement with the underside of the flange, and said tab being adapted for snap fastening interlocking coaction with the underside of the flange of the associated panel, to attach the fastener in secured relation to the associated panel, said wedge portion being adapted to be received through a complementary aperture in the flange of an adjacent panel to hold the panels together in secured relation.

7. A sheet metal fastener in accordance with claim 6 including upwardly extending protuberances on said base portion adapted for engagement with a marginal flange of the adjacent panel for spacing the panels a predetermined distance apart from one another.

8. A fastener in accordance with claim 6 including gripping means on said base portion formed by bending the corners of said base portion downwardly, for holding engagement with a defining edge of the aperture in the associated supporting panel, to prevent relative lengthwise movement of the fastener in the aperture.

9. In combination with a support, such as a building wall, and finished surface panels having marginal apertured flanges, of a fastener for mounting the panels in

juxtaposed relation on the support, said fastener comprising, a generally L-shaped clip having a hanger portion disposed generally parallel to the main faces of the panels and being secured to the support, a base portion extending generally normal to said hanger portion and extending outwardly from said support, a wedge portion projecting outwardly from said base portion in the general direction of extension of said hanger portion, means on said base portion projecting outwardly therefrom in a direction generally opposite to the direction of projection of said wedge portion and attaching said clip in secured interlocked relation to the flange of one of the panels, said means including a finger spaced from said hanger portion lengthwise of said base portion and extending through the aperture in said flange from the exterior of said flange, said finger engaging the underside of said flange, said wedge portion extending through a complementary aperture in the flange of an adjacent panel to hold a pair of said panels in assembled relation on the support.

10. In the combination of claim 9 wherein said means includes a leg extending outwardly from said base portion in a direction generally opposite to the direction of extension of said wedge portion, said leg including a resilient tab engaging in snap fastening interlocking coaction with the underside of the flange of said one panel adjacent the extremity of the latter flange, and wherein said base portion includes outwardly extending projections engaging the confronting flange of the wedge portion engaging panel, for spacing the panels a predetermined distance apart.

11. A fastener for mounting wall panels or the like having marginal apertured flanges, in juxtaposed relation on a support, comprising, a hanger portion for attachment to the support, a base portion projecting outwardly in generally normal relation to said hanger portion, and a wedge portion extending outwardly from said base portion in the general direction of extension of said hanger portion, and means on said base portion for positive interlocking coaction with a flange of an associated panel for securing the fastener thereto, said wedge portion being adapted for wedging coaction with the defining edges of an aperture in the flange of an adjacent panel to hold a pair of panels in assembled relation, said wedge portion being of inverted U-shaped configuration, said U-shape defining an anchored section secured to said base portion and a relatively flexible section spaced longitudinally from said anchored section.

12. A fastener in accordance with claim 11 wherein said means includes a pair of laterally spaced fingers projecting outwardly from said base portion in a direction generally opposite to the direction of extension of said wedge portion.

13. A fastener in accordance with claim 12 wherein the bend in said inverted U-shaped wedge portion is slotted in a direction transversely thereof to increase the resiliency of said flexible section.

14. A fastener for mounting wall panels or the like having marginal apertured flanges, in juxtaposed relation on a support comprising, a hanger portion for attachment to the support, a base portion projecting outwardly in generally normal relation to said hanger portion, and a wedge portion extending outwardly from said base portion in the general direction of extension of said hanger portion, and means on said base portion for positive interlocking coaction with a flange of an associated panel for securing the fastener thereto, said means comprising a hook-shaped leg adjacent one end of said base portion, partially severed from the material of said base portion, and a finger adjacent the other end of said base portion partially severed from the material of said wedge portion, and a resilient tab on said base portion partially severed from the material thereof and depending downwardly therefrom, said tab and finger being adapted to be re-

ceived through the aperture in the flange of the associated panel and said leg being adapted to engage in overlapping interlocking coaction with the underside of the latter flange in the mounted condition of said fastener on the associated panel, said wedge portion being adapted for wedging coaction with defining surfaces of an aperture in the flange of an adjacent panel, to secure the panels together.

15. A fastener in accordance with claim 14 wherein a pair of said legs are formed from said base portion, said pair of legs being disposed in transversely spaced relation with respect to said fastener, and projecting outwardly therefrom in a direction generally opposite to the direction of extension of said wedge portion.

16. A fastener in accordance with claim 14 wherein said wedge portion is partially severed to form a shorter tongue, the latter being bent to extend outwardly and diagonally downwardly from the upper end of said wedge portion to provide wedge surfaces thereon.

17. In combination with a support, such as a building wall, and finished surface panels having marginal apertured flanges, of a fastener for mounting the panels in juxtaposed secured relation on the support, said fastener comprising a generally L-shaped clip having a relatively long hanger portion disposed generally parallel to the main faces of the panels and being secured to the support, a base portion extending generally normal to said hanger portion and extending outwardly from the support, and a relatively shorter portion, with reference to

said hanger portion, extending outwardly from said base portion in the general direction of extension of said hanger portion, said relatively shorter portion being partially severed to provide an obliquely disposed tongue extending obliquely outwardly and downwardly from the upper end of said relatively shorter portion, means on said base portion projecting outwardly therefrom in a direction generally opposite to the direction of extension of said shorter portion and attaching said clip in secured interlocked relation to the flange of one of the panels, said means comprising at least one finger extending through the aperture in the flange and coacting in abutting relation with the underside of the flange, and at least one leg extending downwardly from the base portion and engaging the underside of the flange adjacent the free end of the latter, and a resilient tab extending downwardly and rearwardly from said base portion and being received in said aperture in engaged relation with the confronting defining surface thereof, said shorter portion being received through the aperture in the flange of an adjacent panel with said tongue being disposed in wedging coaction with a defining edge thereof to hold a pair of said panels in assembled secured relation on the support.

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