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FASTENING DEVICE FOR PANELS

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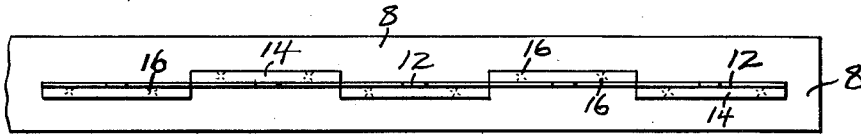


Fig. 1.

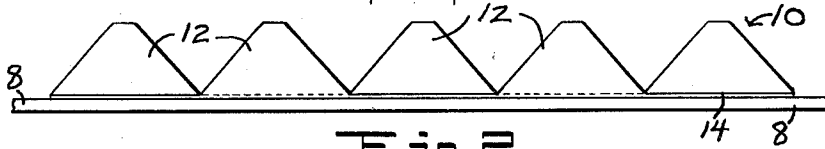


Fig. 2.

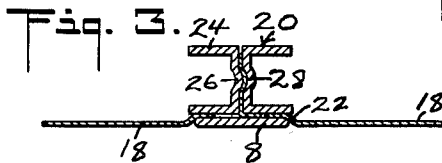


Fig. 3.

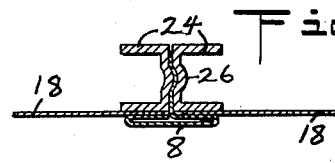


Fig. 7.

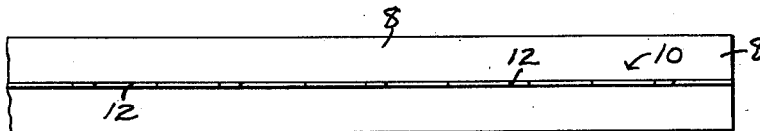


Fig. 4.

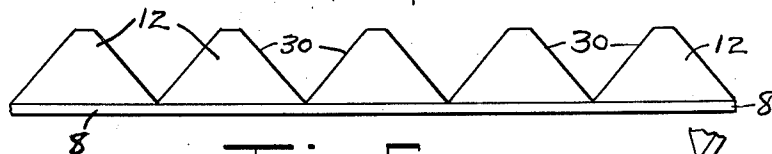


Fig. 6.

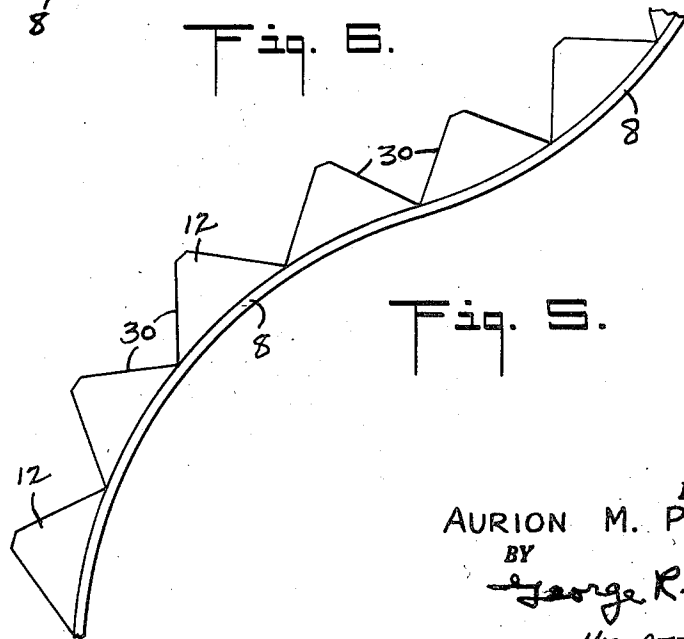


Fig. 5.

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## FASTENING DEVICE FOR PANELS

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1 Claim. (Cl. 189—88)

This invention relates to an improved fastening device for installing wall and ceiling panels or lining in rooms, railway cars, buses and the like.

Fastening devices or strips of the "snap-on" type have heretofore been used having variously shaped lugs or ribs adapted to interfit with correspondingly shaped mating elements on the structural frame members to which the panels are to be secured. This type of fastening strip is expensive to manufacture and limited to use only with a specially made frame member, thus further increasing the cost of the panel installation. In addition, flexing of the strip when applied around curves or corners frequently causes buckling, resulting in insecure fastening of the panels at such locations and unsightly appearance of the wall surface. Nailing strips have also been used formed with separate grooves or channels necessary to properly guide each nail as it is driven into the strip, which obviously increases the cost of manufacture. Further, such an arrangement requires the use of a separate moulding strip for covering the nail heads and meeting edges of adjoining panels to provide a finished appearance for the wall surface.

It is an object of the present invention to provide a fastening device for securing wall panels and lining in place which is of simple design, inexpensive to manufacture and easily and quickly applied.

Another object of the invention is to provide a fastening device adapted for use with any type of structural frame member having a sinuous slot therein, and which serves also as a finish moulding strip covering the juncture between adjacent edges of adjoining panels.

Still another object of the invention is the provision of a fastening device which may be flexed or bent for application around curves or corners without buckling and which insures proper securement of the panels or lining in such areas.

A further object of the invention is to provide a unitary fastening device having a deformable metal web portion adapted to be driven in and permanently bent to the shape of the sinuous slots of the frame members to clinchingly retain the fastening device in panel securing position.

A yet further object of the invention is the provision of an integral fastening device which may be formed of a single sheet of deformable metal, thus simplifying and reducing the cost of manufacture.

These and other objects of the invention will be apparent to those skilled in the art from a study of the following description taken with the accompanying drawings, in which:

Fig. 1 is a plan view showing one form of the fastening device of the present invention;

Fig. 2 is a side view of the fastening device shown in Fig. 1;

Fig. 3 is a cross-sectional view showing application of the fastening device in securing panels having offset marginal edge portions to a structural frame member;

Fig. 4 is a plan view similar to Fig. 1, but showing another form of the fastening device;

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Fig. 5 is a side view of the fastening device of Fig. 4 showing it when flexed for application around curves;

Fig. 6 is a side view similar to Fig. 2 of the fastening device of Fig. 4, and

Fig. 7 is a cross-sectional view similar to Fig. 3 showing the fastening device of Figs. 4-6 as applied for securing flat panels to the frame member.

Referring now more in detail to the drawings, the fastening device comprises a continuous flat base strip 8 and an upstanding web portion 10 projecting right-angul- 10 arly from the longitudinal center line of the base strip to form a T-shaped in cross-section structure. The base strip 8 may be made of any suitable sheet or flexible plate metal, but the web portion is made of deformable sheet metal in order to be permanently bendable for a purpose hereinafter explained. As shown in Figs. 1-3, the up- 15 standing web portion 10 of the fastening device comprises a row of aligned truncated serrations 12. In this form of the invention, the serrations 12 are separate members arranged with flanges 14 extending alternately from op- 20 posite sides of their lower edges and welded at 16 centrally on the flat base strip 8, forming a unitary fastening device.

Fig. 3 shows the fastening device as applied in posi- 25 tion to secure adjoining panels or sheets of lining 18 along their adjacent marginal edge portions to the framing member 20. The panels 18 of Fig. 3 have offset edge portions 22, but this is merely by way of illustration, since the fastening device is equally adapted for use with 30 flat panels, as shown in Fig. 7, or various other types of panels. The frame member 20 may be the studding of a building or a side post or carline of a railway car, being shown in the present instance as comprising a pair of opposed channels 24 having their webs closely spaced 35 from each other and formed with cooperating beads or grooves 26 to provide a sinuous longitudinal slot 28. The form of the frame member 20 shown is merely representative, since any type of structural frame member may be used having a longitudinal slot of varying shape 40 or contour. As shown in Fig. 3, the panels 18 are applied in position to leave a slight space or gap between the adjacent edges of adjoining panels in line with the sinuous slot 28 of the frame member 20 to which they are to be secured. The fastening device is then inserted 45 between the edges of the panels and the upstanding serrated web portion 10 thereof driven by a hammer or mallet applied to base 8 into the sinuous slot 28. The serrations or web members 12 are thus permanently bent to the shape or contour of the slot to clinchingly retain the 50 fastening device in panel securing position with its flat base strip 8 overlying the adjacent offset marginal edge portions of adjoining panels. Thus the fastening device not only secures the panels or lining to the frame members, but also provides a finish moulding strip covering the slight gap between the adjacent edges of adjoining panels, eliminating the necessity of a separate moulding strip for this purpose, as is the case with the use of nail- 55 ing strips.

The fastening device may also be formed integral from 60 a single sheet of deformable metal, as shown in Figs. 4-7. In this modified form of the invention, the sheet of metal is folded over on itself at one side to form the flat base portion 8, the other side then being bent right-angul- 65 arly to extend from substantially the longitudinal center line of the base portion 8 to provide the upstanding web portion 10. As shown, spaced V-shaped notches 30 are cut in the web portion to form the truncated serrations 12, but it will be understood the notches may be of various other shapes and arrangement to provide serrations of 70 different form, such as triangular or rectangular. As shown in Fig. 7, the integral type of fastening device is applied in the same way as previously described for that

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of Figs. 1-3, the adjoining panels 18 in this instance being flat with the base portion 8 overlapping the adjacent marginal edge portions thereof. It will be seen that especially this form of the invention provides a panel fastening device of simple design and inexpensive to manufacture.

Fig. 5 shows the fastening device flexed for application around curves extending in opposite directions. The spaced serrations or web members 12 are free to move toward or away from each other, depending on the direction of the curve with respect thereto. It will thus be seen that stretching or compression of the metal is avoided, consequently eliminating the cause of buckling inherent in conventional types of fastening devices when applied around curves or corners.

The invention may be modified in various respects as will occur to those skilled in the art and the exclusive use of all modifications as come within the scope of the appended claim is contemplated.

What is claimed is:

In a wall or ceiling structure, a supporting frame member having an elongated sinuous slot therein and opposite plane portions, a pair of adjoining panels formed with offset adjacent marginal edge portions arranged at opposite sides of said sinuous slot and in engagement with said frame member plane portions, and a fastening device

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securing said panel edge portions to said frame member comprising, a continuous flat metal base strip having a series of contiguously arranged truncated triangular deformable metal web members secured thereto and co-extensive with and extending normal to the longitudinal center line of said base strip, said deformable metal web members being drivingly received in and permanently bent to the shape of said sinuous slot whereby said device is clinchingly secured to the frame member in panel fastening position with the base strip thereof overlying said offset panel edge portions and lying flush with the surface of said wall or ceiling structure.

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