

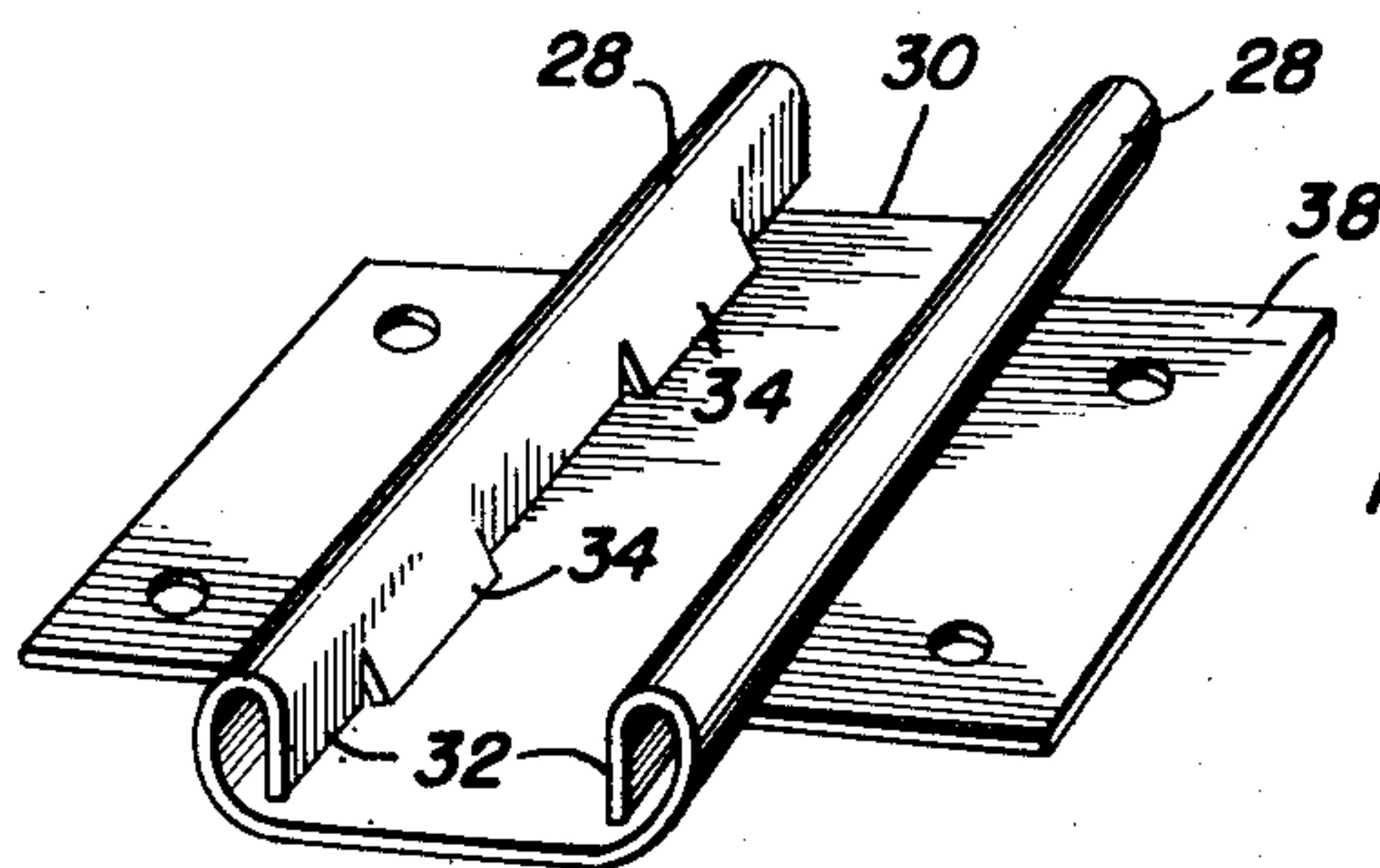
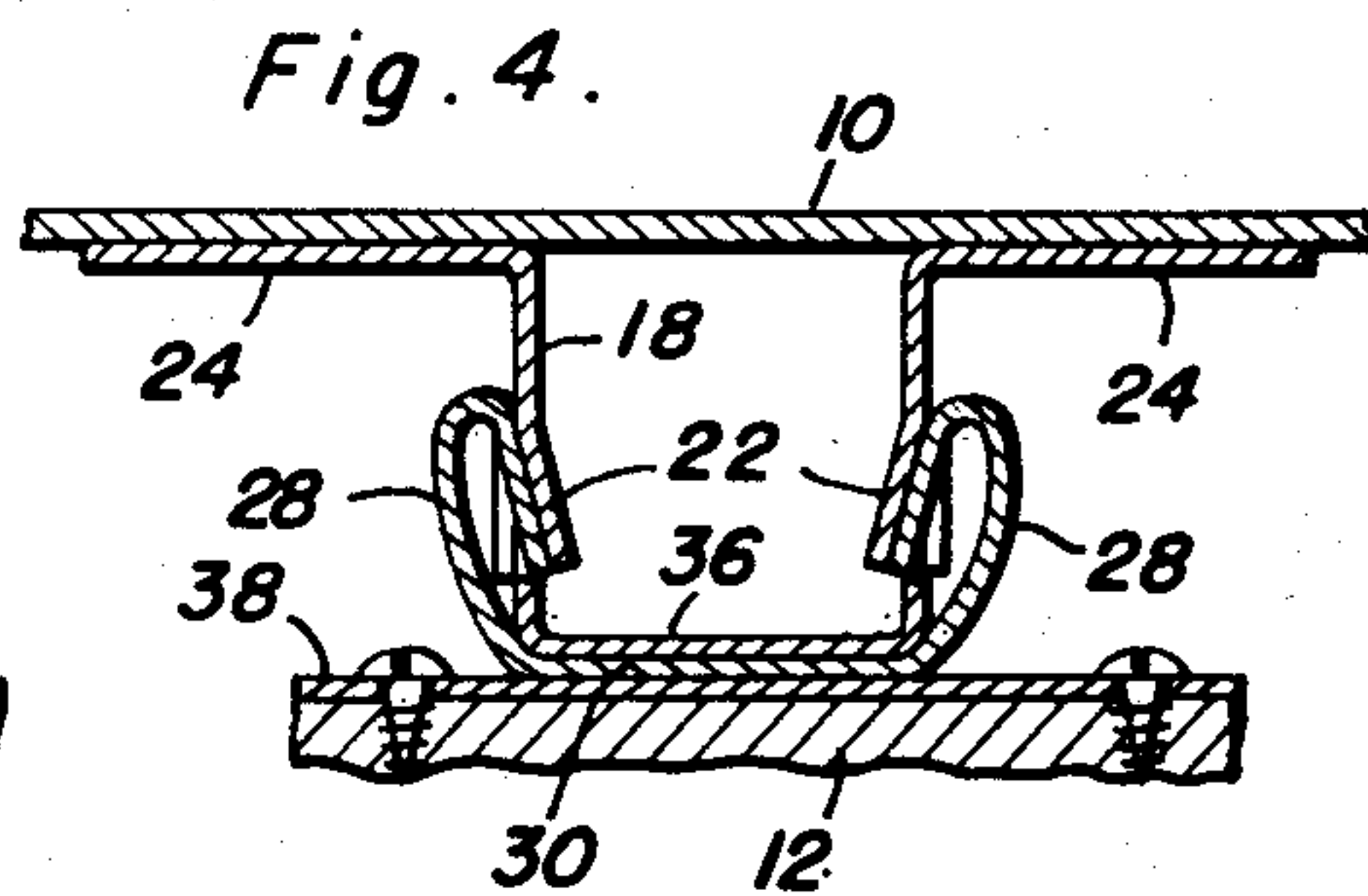
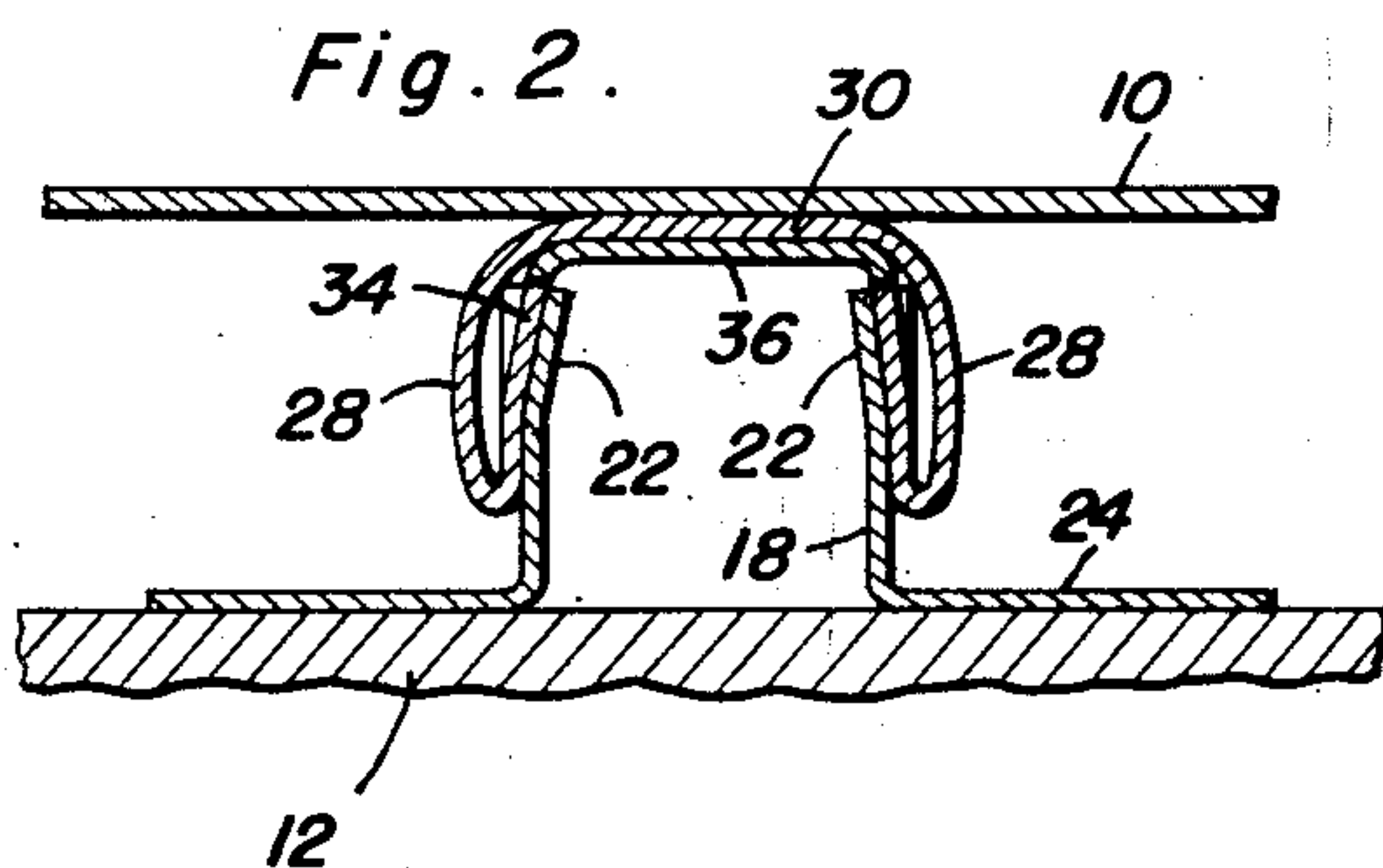
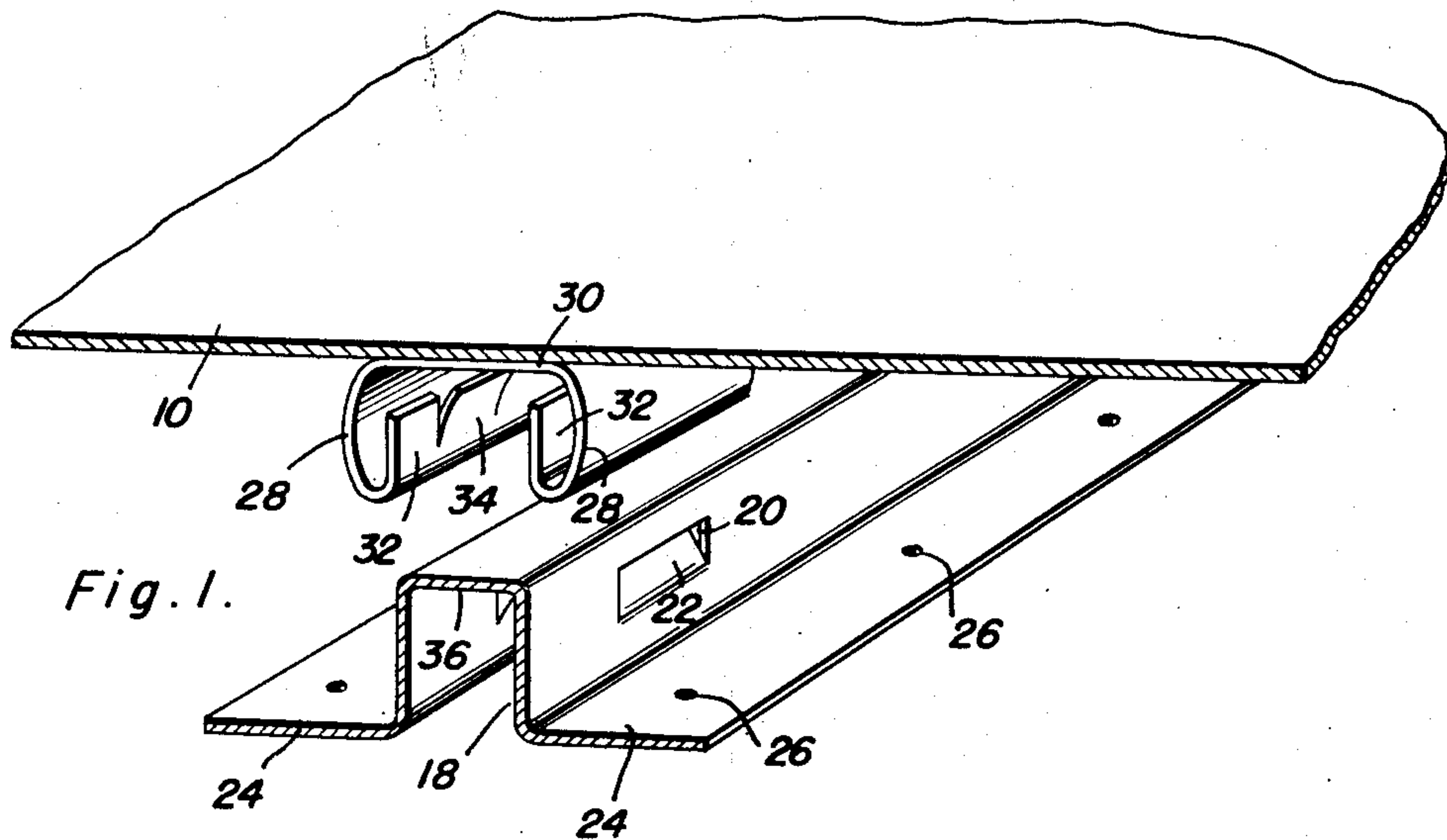
Sept. 29, 1953

A. ROUTT
STRUCTURAL JOINT

2,653,686

Filed Oct. 18, 1948

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

Fig. 5.

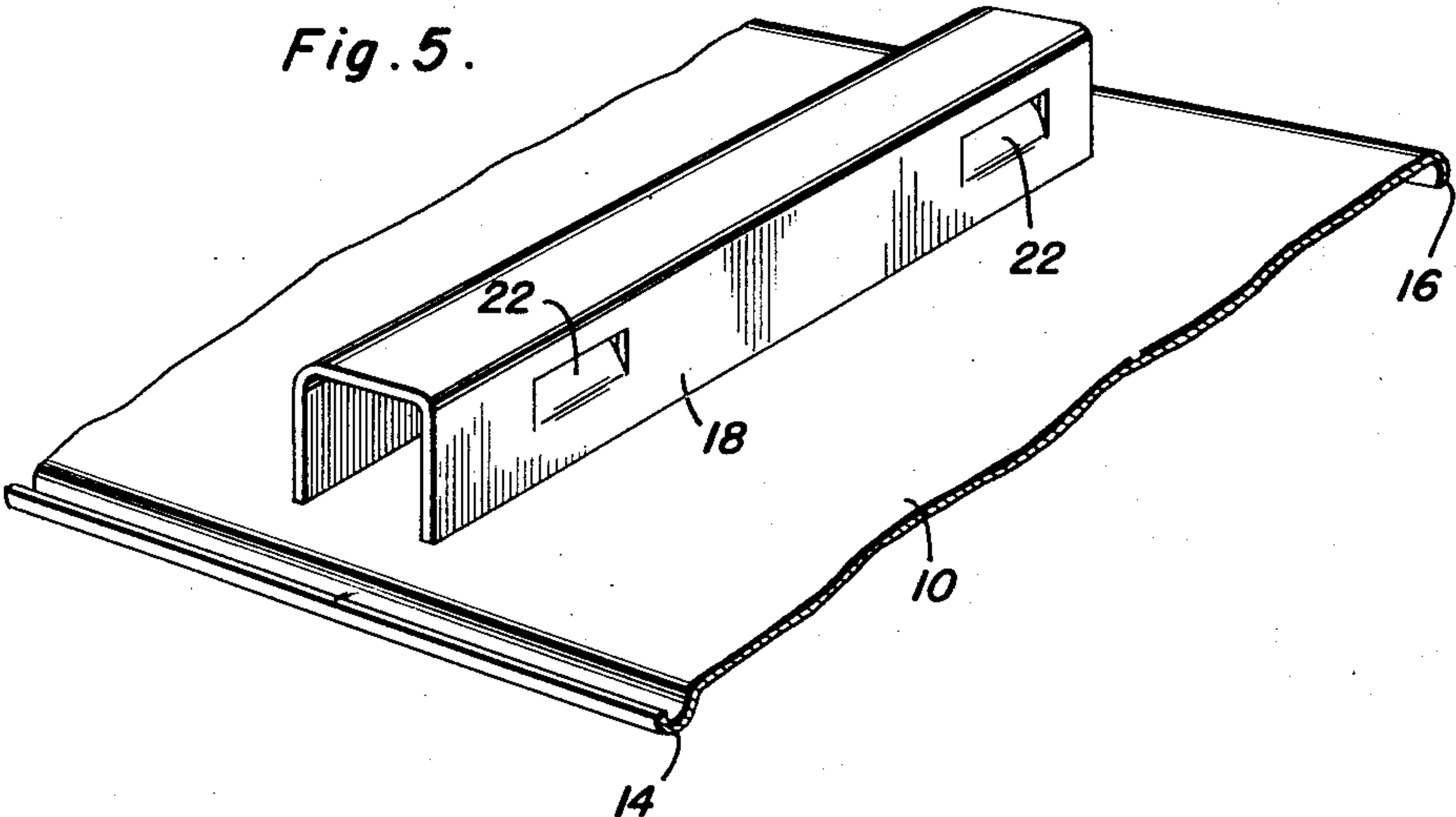


Fig. 6.

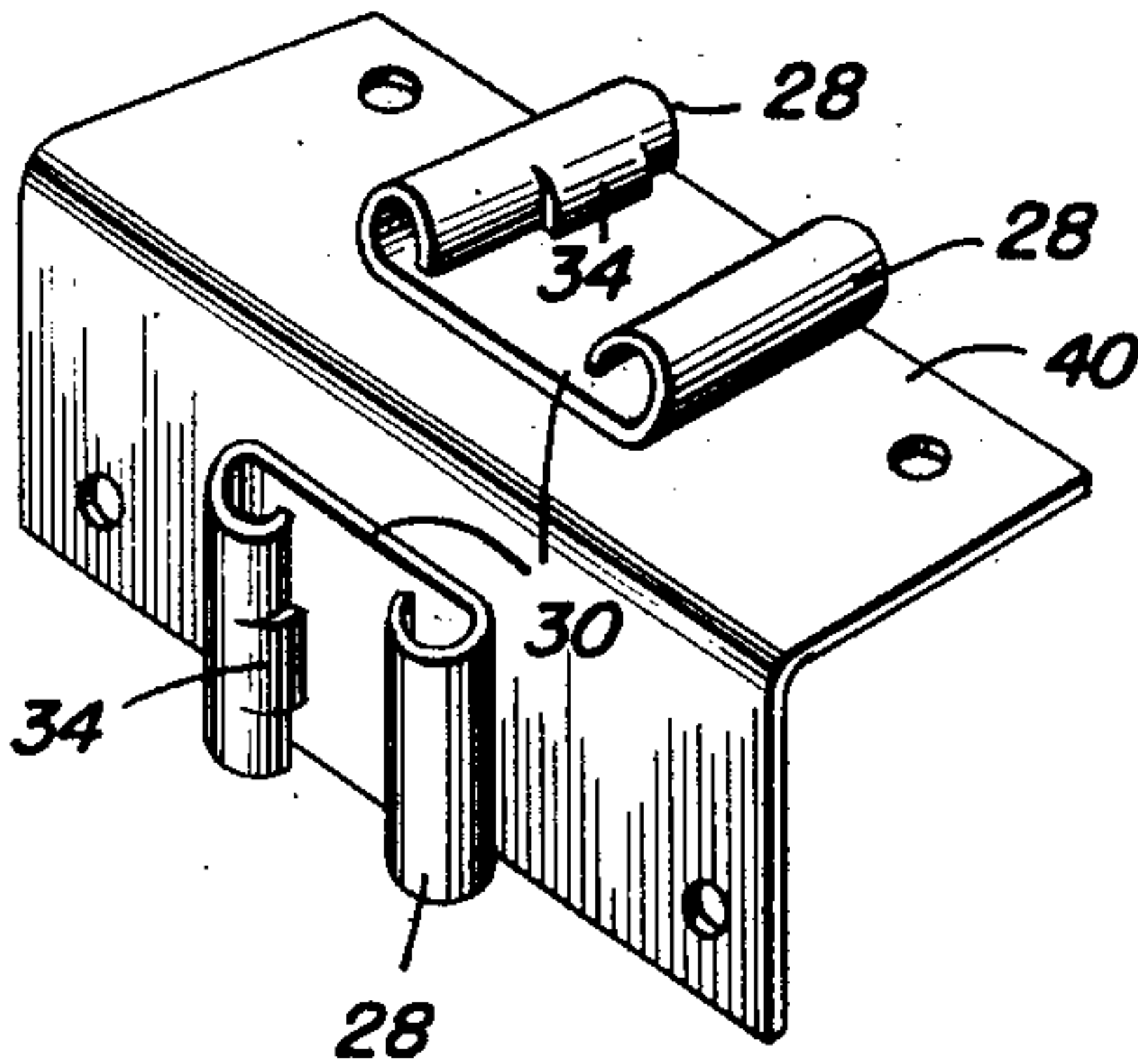


Fig. 7.

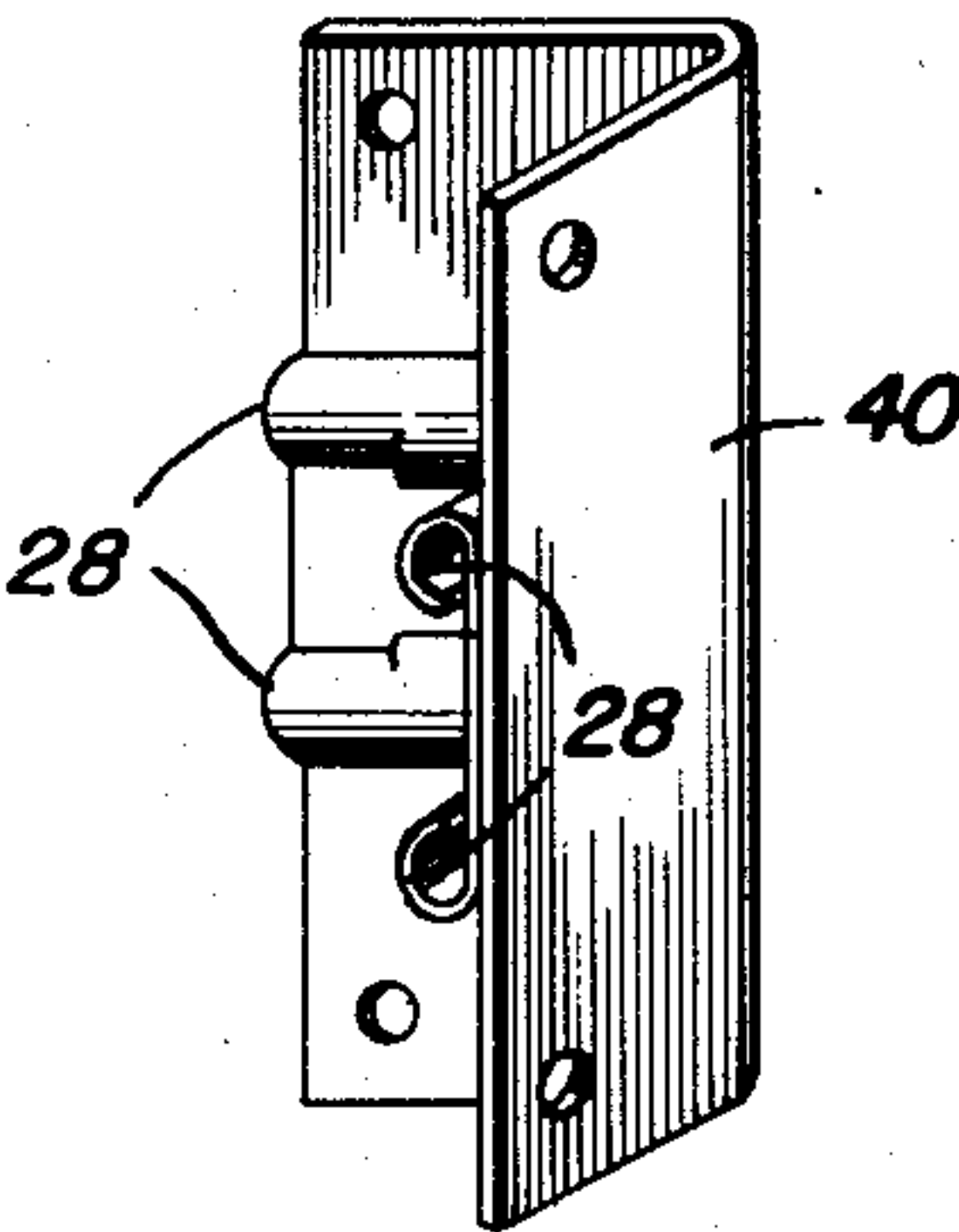
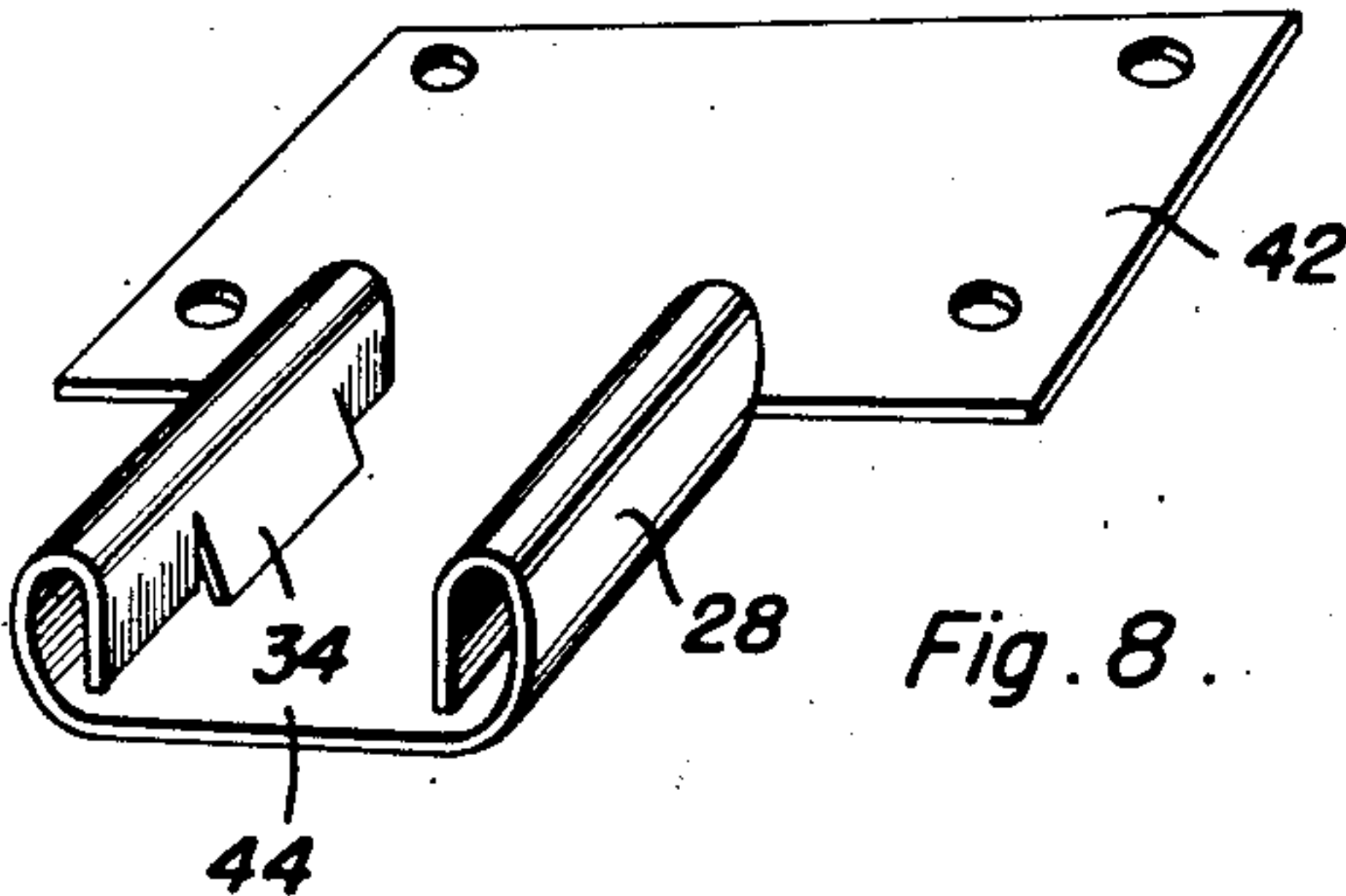


Fig. 8.



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STRUCTURAL JOINT

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1 Claim. (Cl. 189—36)

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This invention relates generally to building structures, more particularly to retaining means for securing sheet metal roofing and siding sections to fixed structure such as sheeting, rafters, studding, and the like.

A primary object of this invention is to provide retaining means for sheet metal which will facilitate and accelerate the attachment thereof to fixed structure, while providing for permanent and rigid mounting of the sheet metal.

Another object of this invention is to provide retaining means for sheet metal which will completely avoid the disadvantages of construction in which the heads of the attaching nails are exposed to the weather. In most types of metal roofing and the like, developed heretofore, the attaching nails are exposed in part to the weather and when the sheet metal expands and contracts due to changes in temperature, the holes for the nails are enlarged. Water seeping into the holes will cause the roof to leak and the roofing to become loosened. The instant invention allows for contraction and expansion of the sheet metal without loosening of the retaining means.

Another object of this invention is to provide means of the type mentioned above which will be usable without the provision of sheeting, if desired, thus saving lumber, and labor.

Still another object of this invention is to provide a means for retaining sheet metal which can be rigidly secured to the sheet metal prior to the delivery of the same at the site of the construction, the retaining means being such as to facilitate the stacking of the sheet metal sections.

And a last object to be mentioned specifically is to provide retaining means for sheet metal, and the like, which will be relatively inexpensive and practicable to manufacture, which is simple to use, and which will give generally efficient and durable service.

With these objects definitely in view, this invention resides in certain novel features of construction, combination and arrangement of elements and portions as will be hereinafter described in detail in the specification, particularly pointed out in the appended claim, and illustrated in the accompanying drawings which form a material part of this application, and in which:

Figure 1 is a grouped view of a section of sheet metal with a preferred form of this invention operatively associated therewith;

Figure 2 is a vertical sectional view of the elements shown in Figure 1, the parts hereinafter referred to as resilient saddle cleats being illustrated as sprung into position on the part hereinafter referred to as the channel member;

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Figure 3 is a three dimensional view of the modified form of this invention in which a nailing plate is secured directly to the saddle cleat;

Figure 4 is a vertical cross sectional view of the structure shown in Figure 3, this structure being shown operatively confined with a fragmentary section of sheet metal and a channel member constructed according to that illustrated in Figures 1 and 2;

Figure 5 is a three dimensional view of a fragmentary section of sheet metal with a channel member secured directly thereto, that is, without a nailing plate being employed;

Figures 6 and 7 are three dimensional views of angle plates with saddle cleats mounted thereon, used for mounting sheet metal on corners; and

Figure 8 is a three dimensional view of still another slightly modified form of this invention in which a saddle cleat is integrally fabricated with a nailing plate and with the bight portion of the saddle cleat co-planar with the nailing plate and disposed at one side thereof.

Similar characters designate similar or identical elements and portions throughout the specification and throughout the different views of the drawings.

Referring now to the drawings in detail, this invention resides in structures which are illustrated as associated with an environment including sheet metal such as the fragmentary section 10 of sheet metal which may be thought of as representing either roofings, sidings, or the like, and fixed supporting structure 12 which may be of the nature of rafters, studding, or wooden siding of a building. The sheet metal sections will ordinarily have marginal coacting flange portions 14 and 16, although the particular configuration of these sheet metal sections is of small material significance in this application.

An elongated channel member 18 is formed with apertures 20 in the parallel side portions of the channel member, preferably formed by parting and inwardly bending portions 22. The channel member 18 will have a nailing plate 24 on either side thereof, which nailing plate will ordinarily be apertured as at 26 to receive attaching nails, whereby the channel member will be secured to fixed structure such as mentioned above.

A plurality of saddle cleats, constructed of resilient sheet metal, will be secured, in the preferred embodiment of this invention, to the sheet metal section 10, these saddle cleats having the slightly curved arm portions 28 preferably integral with a bight portion 30 which is welded or otherwise directly secured to the sheet metal 10. Inwardly turned longitudinal marginal por-

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tions 32 of the parts 28 are parted at intervals along the length of the parts 32 and portions 34 are bent inwardly, these portions 34 being spaced apart to correspond with the spacing of the apertures 20 in the channel member 18, so that the saddle cleats may be sprung over the channel member and the portions 34 will snap into the apertures 20. The portions 34 will preferably frictionally engage the intumed portions 22 of the channel members. The bight portion 36 of the channel member will preferably abut the corresponding portion 30 of the cleats.

In the modified form of this invention illustrated in Figures 3 and 4, a nailing plate 38 is rigidly secured to the saddle cleat instead of to the channel member as illustrated in Figures 1 and 2. This nailing plate 38 will be apertured to receive nails or screws, and a cleat with a nailing plate thereon is used to cooperate with a channel member similar to that described, although the holes 26 may be deleted, if desired, and the plate 24 will be welded or soldered directly to the sheet metal 18. It may be noted that more than one inwardly turned lug 34 may be formed on each side of a cleat, as illustrated in Figure 3. The lugs 34 may be spaced apart longitudinally of the cleat so that a pair of channel members 18 may be secured to a single cleat when disposed collinearly, the cleat serving as a joining member for the two channel members. A very similar construction is represented in Figures 6, 7 and in these last mentioned figures an angle plate 40 has cleats rigidly secured exteriorly and interiorly of the angle plate, respectively. Obviously, the angle plates with the cleats thereon represented in Figures 6 and 7 may be used to secure terminal portions of the channel members, at corners of a building, the angle plates 40 corresponding closely in function with the nailing plates 38, represented in Figures 3 and 4. A nailing plate 42, represented in Figure 8, may be formed integral with and in co-planar relationship with the bight portion 44 of a cleat. In this form of the invention the cleat may be formed, as disclosed hereinbefore, with lug portions 34 parted and turned inwardly from portions 28, this particular arrangement of nailing plate and cleat being useful when it is desired to terminate a channel member at the side of fixed structure to which the nailing plate will be fastened.

Finally, the channel member 18 may be secured directly to sheet metal 10, as illustrated in Figure 5, the nailing plate 24 being completely deleted in this instance, although a nailing plate will be associated with a cleat used to cooperate with structure illustrated in Figure 5. It may be noted that the structures illustrated in Figures 5 and 8 may be used together. Furthermore, the structures illustrated in Figures 3, 4, 6 and 7 may be considered a single modification in which the nailing plate is associated with two single cleats or with a single double cleat. In the preferred form illustrated in Figures 1 and 2, the first modified form illustrated in Figures 3, 4, 6 and 7 and finally in the form represented by combining Figures 5 and 8, the principle of construction does not depart from the spirit of this invention, and still other modifications are thought to be possible within the scope of this invention. The method of operation will be obvious from a consideration of the foregoing description of the mechanical details of this invention, taken in connection with the drawings and the recitation of objects sought to be achieved by the invention. It will be clear that roofing, siding and the like

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sheet metal sections may be secured easily, rapidly and permanently by employment of this invention.

The foregoing description will indicate that this invention is intended not only for holding sheet metal roofing and siding but it is also suitable for holding roofing and siding constructed of different materials including plastics and similar compositions, plywoods, asbestos and asbestos cement, glass and slate panels, tile, wallboards, plasterboards, metal and other ceiling materials, as well as trimmings and mouldings. It is also conceivable that this invention may be used for holding signs, pictures and like structures.

When made as indicated in Figure 1, the saddle cleats may be fastened directly to the siding or other structure to be supported, and the channel portion may be used in the place of studding for holding both the siding and the plaster board or wallboards. When so used, the holes in the flanges accommodate bolts or screws instead of nails. The saddle cleats and the modified channel portion as shown in Figure 5 may be welded, riveted, soldered, glued, bolted or otherwise secured to the part they are to support.

Still another advantage of this invention which will now be clear in the light of the foregoing description, is the provision of insulation space between the outer wall and the inner wall, and also between the roofing and the sheeting or ceiling, when this invention is used. If desired, the nailing plate shown in Figure 8 may be integrally fabricated with a saddle cleat on either side thereof, rather than with the single saddle cleat as represented in this figure.

It will be understood that the flanges on the channel portion shown in Figure 1 are for fastening wallboard, plasterboard and such like to the opposite side when the channel portion is used in place of studding as in the construction of cabins, trailers and the like. The flanges are so constructed that the wallboards, plasterboards and the like may be spliced at the channel portions used to support the walls.

Proportionment of the various elements may be varied from the embodiments illustrated in this disclosure, and the scope of this invention should be determined only in accordance with a proper interpretation of the terms used in the subjoined claim.

Having described the invention, what is claimed as new is:

Means for securing two building structures together comprising a channel member secured to one structure in inverted position and having pairs of opposite side apertures therein provided in each pair with a pair of portions bent at the lower edges of the apertures out of the same and into the channel member clear of the top edges of the apertures so that said top edges are adapted to function as shoulders, and a plurality of saddle members secured to the outer structure in straddling relation to the channel member and having top webs and resilient sides with resilient marginal portions bent inwardly and extending upwardly toward said webs, said marginal portions being flat and gripping the sides of said channel members and having portions bent therefrom inwardly of the saddle members and extending into said apertures, said last named portions engaging said first named portions flatly and being engaged by said shoulders.

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