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W. R. WILEY

2,090,167

ATTACHING CLIP FOR METAL MOLDINGS

Filed Nov. 27, 1935

Fig. 1

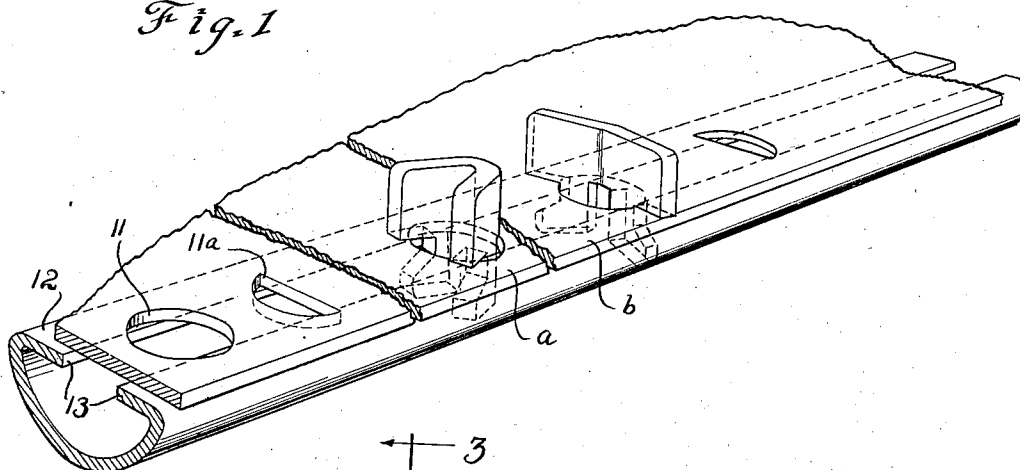


Fig. 2

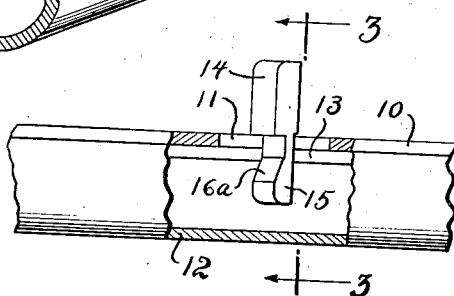


Fig. 3

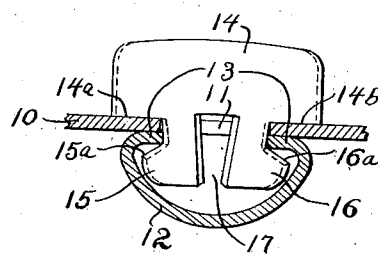


Fig. 4

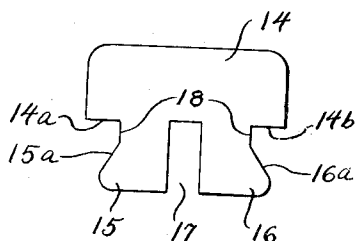


Fig. 5

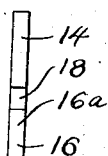
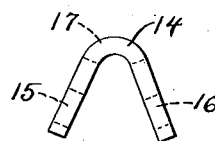


Fig. 6



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ATTACHING CLIP FOR METAL MOLDINGS

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2 Claims. (Cl. 85-5)

This invention relates to holding clips for attaching molding strips and the like to the surface of supporting sheet panels, and analogous assembly operations involving the securance of sheet metal parts, such as are encountered in constructing the body and hood portions of motor vehicles, and has for its object an improved and cheaply producible stamped metal fastener whose contourings and initial angularity are such as to lend themselves to quick and yet efficient clinching in place, so that union of the desired parts may rapidly proceed.

Other objects and advantages will appear from the following description wherein reference is made to the accompanying drawing illustrating a preferred embodiment of my invention and wherein similar reference numerals designate similar parts throughout the several views.

In the drawing:

Figure 1 is a perspective of a metal panel with a molding strip positioned against one surface thereof, and with the clip herein illustrated shown successively in the positions and shapes it assumes upon initial application to the work and after deformation has secured it in place.

Figure 2 is a side elevational view of the molding and installed fastener, partly broken away to show adjacent portions of the supporting panel and molding in section.

Figure 3 is a cross sectional view taken as indicated by the line 3-3 of Figure 2 and looking in the direction of the arrows there shown.

Figure 4 is a plan view of the stamped blank of which the clip is formed.

Figure 5 is an edge or side elevational view of the flat blank shown in Figure 4.

Figure 6 is a top view of the formed blank.

10 indicates a sheet metal panel provided with suitably spaced holes as 11; and 12 represents a hollow sheet metal molding strip of generally semi-cylindrical form, provided with inturned edge flanges 13. The clips for effecting attachment of the molding to the panel 10 are stamped from a blank, the initial configuration of which is illustrated in Figure 4. The blank is angularly bent about a mediate line, either in the drawing process or thereafter, substantially to the extent indicated in Figure 6. It will be noted that the head portion 14 of the clip is a plain web constituting the top. From spaced portions of this web there depend branches 15 and 16, separated by an intermediate slot or space 17. The outer edges of the portions 15a and 16a are quite sharply oblique, leaving immediately above them the straight bottom edges or shoulders 14a and 14b,

defining the bottom margin of web 14. Between the shoulders (14a-14b) and the inclined edges (15a-15b) are straight connecting portions 18 whose length is somewhat less than the combined thickness of panel 10 and molding flanges 13. Such connecting portion serves a double function, as will presently appear. It will also be noted that the spread of these parts 15 and 16 at their lowermost and widest points is preferably somewhat less than the breadth of the top portion 14. The angular form of the clips when finished and ready for use is well indicated in perspective in portion a of Figure 1, while portion b of that view shows the manner in which the clip is flattened, as by merely pressing the head with a pair of pliers, to secure it and the molding in place. The clips are of course formed of relatively malleable material, such as soft iron, and its gauge is preferably somewhat less than the combined thickness of the panel and the molding, but in any event the resistance to deformation of the finished clips is definitely less than that of the work. The importance of this factor will also appear when the functioning of the clip is considered.

The clips are applied from the opposite side of the panel to that against which the molding is to be secured, and with the molding strip held temporarily in position, so that the holes 11 are in registry with the longitudinal slot between molding flanges 13, one of the clips is inserted in each of the holes 11, the wings 15-16 being passed between the flanges and into the molding, while the shoulders 14a-14b come to rest against the back of the panel, as clearly indicated in the drawing. The head 14 is then flattened, as by means of pliers, which may of course also be used to insert the clip, so that the two operations of inserting and flattening may be virtually combined, and the fasteners may be applied as rapidly as the workmen can grasp the fastener heads with the pliers, thrust the wings through the openings, and by squeezing the pliers flatten the bent heads to more nearly coplanar condition. Such flattening of course spreads the wings, and wedges the molding flanges 13 and the panel stock between shoulders 14a-14b and the inclined edges 15a-16a of the wings, which tighten against the work before the clip is completely flattened, to thereby clamp the held elements tightly together. The slot 17 imparts to the wings a resiliency permitting them to move toward one another. Thus despite the engagement of their edges with the work they may and do move with the head during flattening, but are also driven toward one another by the reaction

of the work against such edges of the wings, to somewhat close the slot 17. The head may also be somewhat bowed upwardly by transmitted force as the wings move together, and the resultant strained condition, shown best in Figure 3, wedges the clip as well as the held parts tightly in place. It is to achieve such deformability that the clip is made more yielding than the work. The progressive flattening out of the clip from its initially angular form to the final clinched condition, with the halves of the top 14 nearly in alignment, is shown at positions *a* and *b* in Figure 1.

If instead of the round holes 11, non-concentric openings such as the semi-circular holes 11*a* are provided in the supporting panel, the insertion and operation of the clips remains the same, but if the connecting wall portions 18 are arranged to spread too far when the clip is flattened to permit turning of the clip in the irregular opening, an important advantage is provided in that the fasteners are locked against turning (and dislodgement in such fashion). In event a semi-circular hole is used, as shown, it is merely necessary to make the final distance between edges 18 greater than the radius.

Any force tending to displace the molding longitudinally is resisted by the tendency of such force to swing the wings and shoulders toward one another and more tightly wedge them against the work.

What I claim is:

1. A formed sheet metal clip for effecting the attachment of a plurality of initially separate sheet metal elements lying in generally parallel planes, each being provided with apertured portions which at certain points register with one another, said clip comprising a cross-sectionally V-shaped stamping adapted to be passed through registering apertured portions of the respective sheet metal elements in position of substantial perpendicularity to the planes thereof, each wing of said clip being provided with an incut kerf

adapted to be positioned substantially coincidently with the planes of the sheet metal elements whose union is desired, the upper section of the V-shaped stamping being then adapted to be subjected to applied pressure tending to bend its constituent wing portions into position in the same plane, and the deforming pressure thus exerted being transmitted through the central web of the clip to those similarly angled wing portions of the clip located on the other side of the kerfed portions thereof, to effect a similar distortion of those wing portions thereof to positions of non-coincidence with the apertured portions of the sheet metal elements, thus effecting their holding against displacement from their intended positions relatively to one another.

2. A deformable clip formed of sheet metal bent initially into V-shaped cross-sectional contour, having one portion of its length centrally kerfed along the line of angular bending of the clip as a whole, and each of the branches so formed being provided with a notch in its outer edge, the side of each notch toward the free end of the branch being inclined outwardly toward the free end, the branches being adapted to be passed through an aperture in a supporting panel and between the underbent flanges of a molding strip whose attachment to the panel is desired, and being adapted to be thereafter swung from their initial position of angularity to one another by flattening pressure applied to the initially angularly bent portion of the other constituent portion of the clip, which being transmitted to the branches causes the bending thereof from their initial V-shaped relation to one another toward a flattened out relation to one another, the notches being adapted to receive therein the edges of the panel adjacent the aperture and the flanges of the molding strip thus effecting the locking of the molding strip upon the supporting panel.

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