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(54) **Trim clips and the assembly of trim clips on panels**

(57) A trim strip or moulding is assembled on a panel by means of a row of headed studs on which plastics clips 30 are received, the sliding of the trim strip being prevented by engagement of resilient fingers 42 on the clip with abutments 44 on the strip. In order to provide for manufacturing tolerances, the resilient fingers on the clip are arranged to co-operate with one of a series of longitudinally spaced abutments on the strip. Prevention of longitudinal displacement of the trim strip after assembly is thus ensured without additional cost or inconvenience in assembling the trim on the panel. The threaded studs are engaged in keyhole slots 32 and fingers 34 lock the clip on the studs.

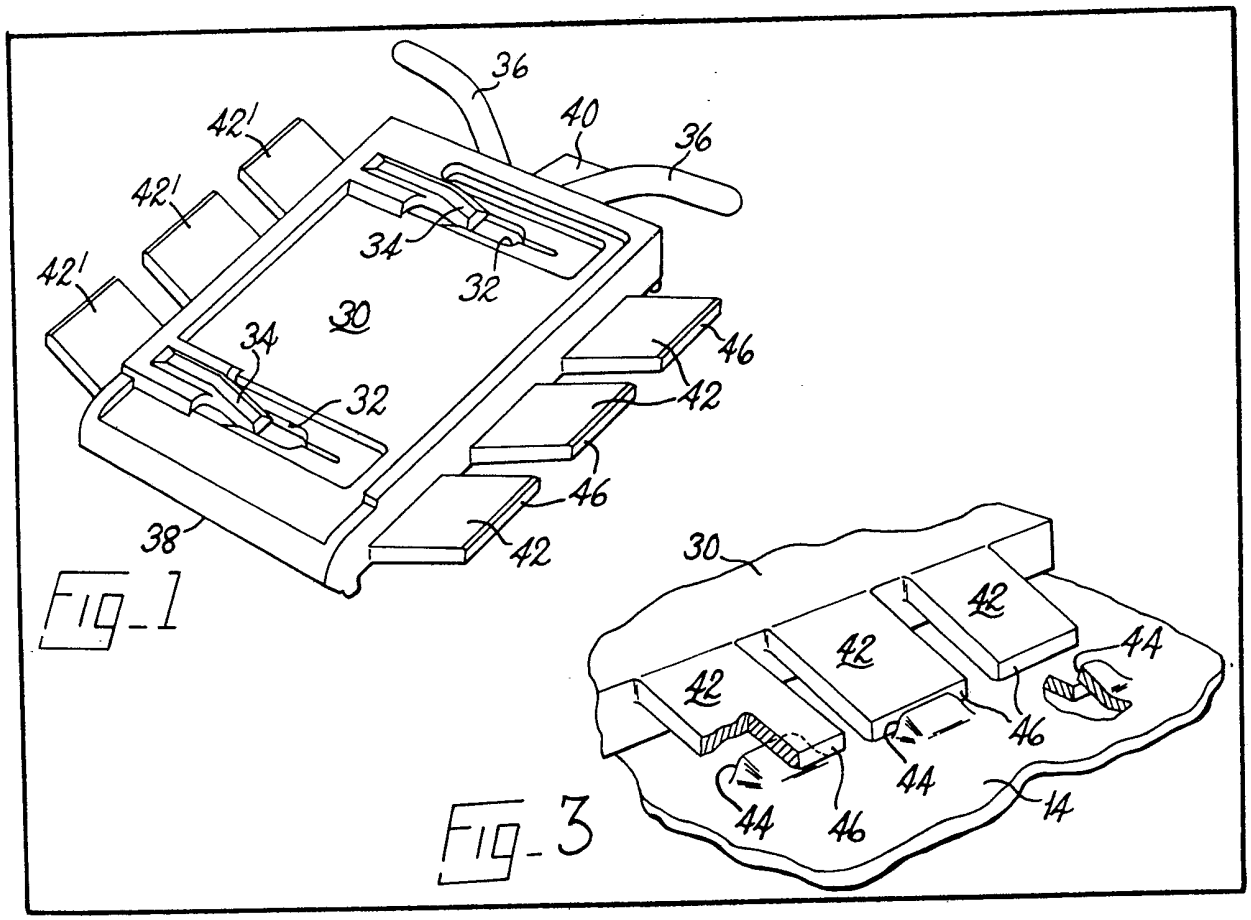

Fig_1

Fig_3

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The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

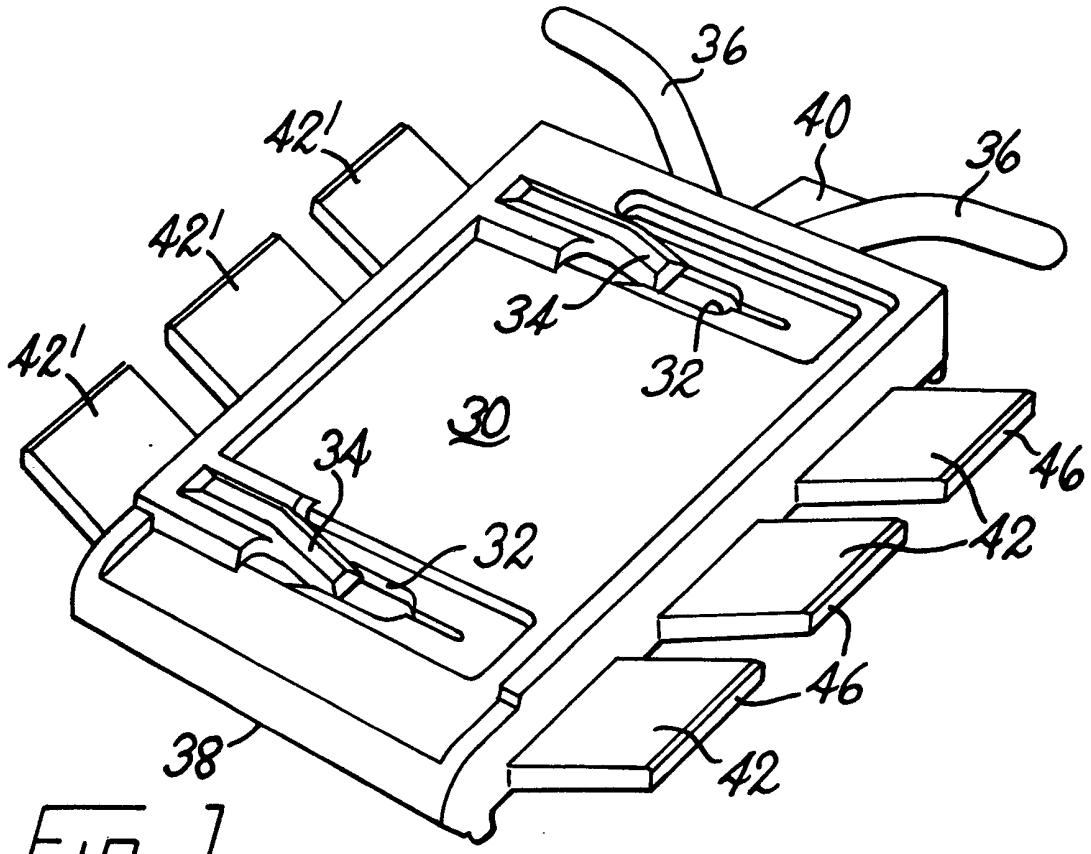
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Fig_1

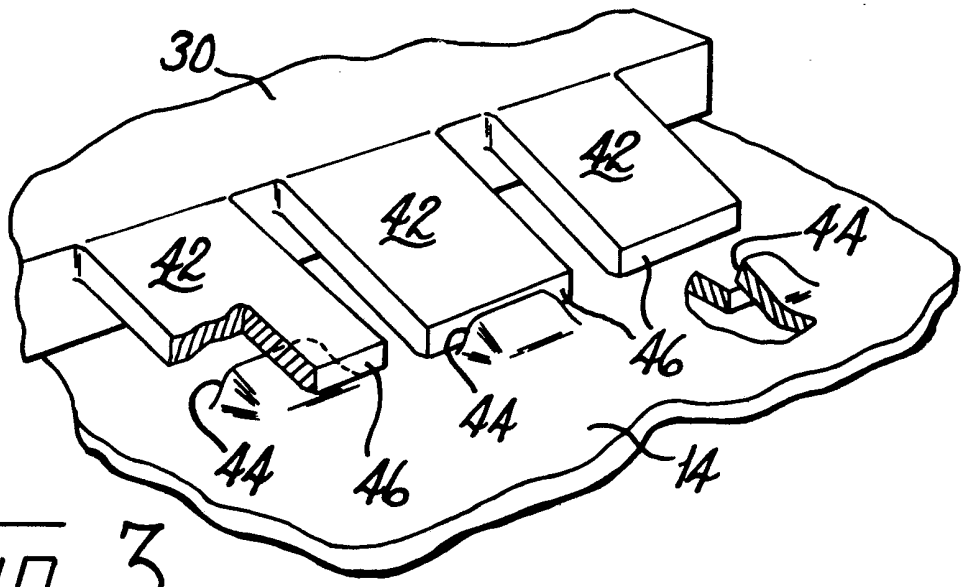
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Fig_3

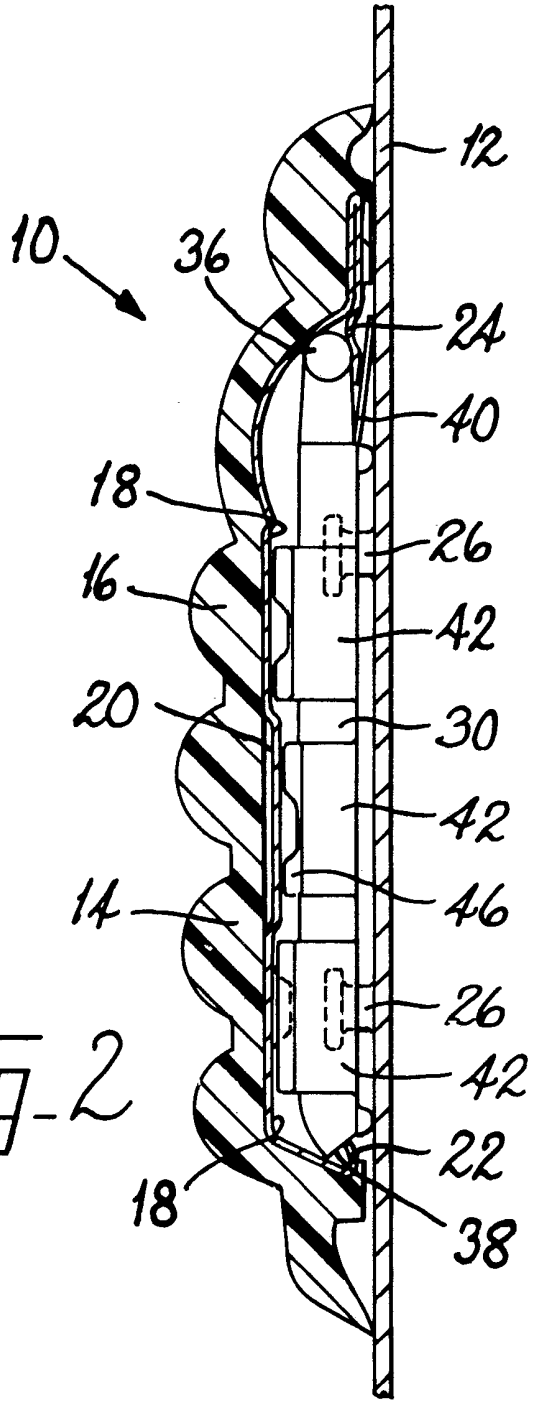

Fig_2

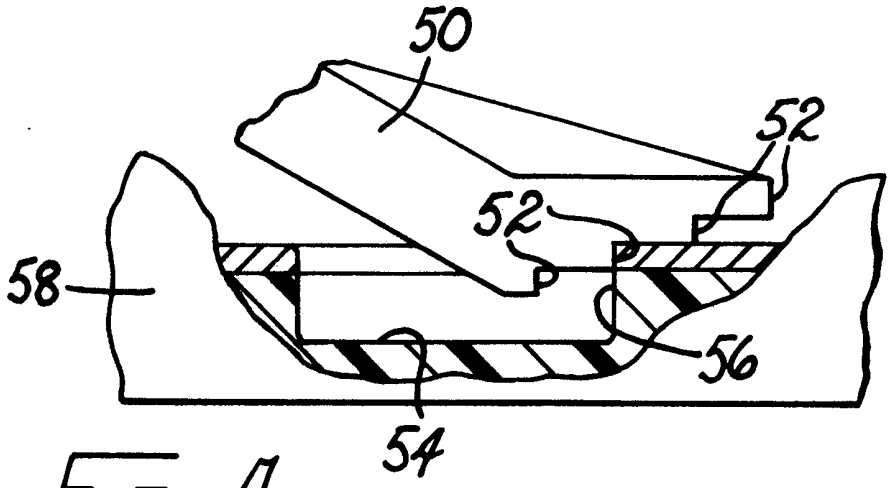

Fig. 4

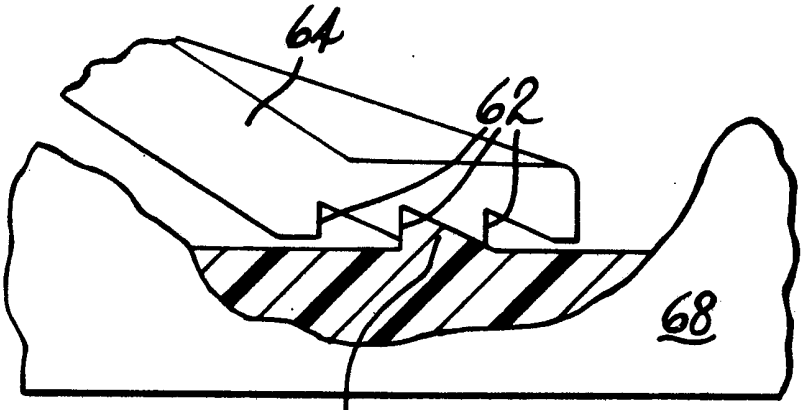

Fig. 5

SPECIFICATION

Trim clips and the assembly of trim clips on panels

This invention is concerned with plastics trim clips of the kind having means for engaging a headed stud projecting from a panel, and means to retain a trim strip, and with a method of assembling a trim strip on a panel which comprises the steps of providing a row of headed studs on the panel, applying to the studs clips adapted to retain the trim strip and assembling the strip on the clips.

There is a known procedure for assembling trim strips on panels, for example in the manufacture of automobiles, in which headed studs of T-shaped cross section are welded on a row across a panel, a plastics clip is mounted on each stud, and the trim strip is then clipped on to the row of clips. Clips suitable for use in such a procedure are described in West German Gebrauchsmuster 7805870 for example.

A problem that sometimes arises from the foregoing procedure is that the assembled trim strip may tend to slide lengthwise on the clips under conditions of vibration such as occur in the use of automobiles, or, if the trim strip is on a door panel, when the door is banged.

Ways of overcoming the foregoing problems have been adopted in the past, for example by providing teeth along the edge of the trim strip which co-operate with similar teeth moulded on the adjacent margins of the trim clips and thereby affording some limited resistance to longitudinal displacement of the strip. An alternative procedure has been to bolt the strip in place. These ways of overcoming the problem have suffered from one or more of the following shortcomings, namely inadequate resistance to displacement of the strip, longer assembly time, more difficulty in assembling or removing the strip, the risk of damage to paintwork on the panel or high cost.

It is accordingly an object of the invention to provide improved means for preventing longitudinal displacement of an assembled trim strip over the clip by which it is retained.

It is another object of the invention to achieve such prevention of displacement without having to tighten up the dimensional tolerances customarily permitted for the assembly of trim strips in the manufacture of automobiles.

The foregoing objective is achieved in accordance with the invention in that there is provided a method of assembling a trim strip on a panel which comprises the steps of providing a row of headed studs on the panel, applying to the studs clips adapted to retain the trim strip and assembling the strip on the clips characterised in that, to prevent undue relative lengthwise movement occurring between the panel and the assembled strip, interengageable abutments are provided on the strip and clips, those on the clip being in the form of resilient fingers, either the fingers of the clips or the strip having a plurality of abutments at spaced intervals lengthwise of the strip to ensure interengagement in a corresponding variety of relative positions of strip and studs to allow for manufacturing tolerances when the strip is accurately positioned on the panel.

In another aspect, the invention also provides a plastics trim clip having means for engaging a headed stud projecting from a panel, and means to retain a trim strip, characterised in that the clip has a resilient finger for engagement with an abutment of the trim strip to prevent relative movement between the strip and the panel.

There now follows a description, to be read with reference to the accompanying drawings, of a method of assembling a trim strip on a panel in accordance with the invention and illustrative thereof by way of example and of trim clips used in carrying out such method.

In the accompanying drawings:

Figure 1 is a view in perspective of one form of trim clip, illustrative of the invention, which may be used in co-operation with a trim strip having staggered abutments for engagement by fingers of the clip;

Figure 2 is a view in transverse section of a trim strip assembled on a panel by means of welded studs and the trim clip shown in Figure 1;

Figure 3 is a fragmentary perspective view of interengaging fingers and shoulders of the illustrative clip and trim strip, shown in Figure 2;

Figure 4 is a fragmentary view showing a finger of an alternative form of clip which may be used where a single co-operative abutment is provided on the trim strip; and

Figure 5 is a fragmentary view, similar to Figure 4, of a similar clip.

In Figure 2, there is shown in cross section a trim strip 10 (or decorative moulding, as it is sometimes called) a side panel 12 of an automobile, for example a car door, the strip 10 consisting of a sheet metal base 14 over which is moulded a contoured plastics external cover 16. The base 14 is channelled longitudinally for strength so that, as viewed from the inside, there are two shallow flat bottomed channels 18 separated by a flat rib 20. A lower margin (as viewed in Figure 2) of the base has an inturned lip 22, and the upper margin a lip 24.

As shown in Figure 2, the trim strip 10 is retained on the panel 12 by means of a pair of T-studs 26 welded to the panel and a trim clip 30 mounted on the studs. One clip on a pair of studs only is shown in the drawing, but it is to be assumed that the panel has two rows of studs with a similar clip on each pair to retain the strip at intervals.

The illustrative clip 30 is shown in perspective in Figure 1. It has two keyhole slots 32 of conventional configuration arranged parallel to one another to enable the clips to be slid under the heads of the studs 26 (see Figure 2), pawls being arranged to latch behind the stud heads after assembly to prevent the clip sliding off the studs again. At one end of the clip 30, resilient

ears 36 are provided to be received behind the upper lip 24 of the base of the trim strip while at the other there is a shoulder 38 over which the lower lip 22 can be sprung. A flap 40 prevents paintwork of the panel being marred by the metal strip 24 of the strip 12. The trim clip 30 is shown in Figure 2 mounted on the studs 26 and the strip 12 mounted on the clip 30.

As thus far described, the clip 30 is similar to ones that are in common use, but in addition to the features referred to, the illustrative clip 30 has along one side three similar flat flexible and resilient fingers 42 inclined upwardly (regarding the bottom of the clip as that which engages the panel 12) so that they can reach as far as the bottom of the channels 18 in the base 14 of the strip 10. Each channel 18 of the base of the strip and the rib 20 has punched and pressed out of it near one end of the strip three inwardly displaced pieces of metal to provide abutments 44 (Figure 3) in longitudinal alignment with the fingers 42 when the strip 10 is mounted on the clip 30. The three abutments, however, are staggered lengthwise of the strip at 1.5 mm spacing so that, in relative positions within a range of 3 mm, an abutment face 46 at the end of one finger is bound to be able to abut one of the shoulders 44. The abutment faces 46 of the three fingers 42 are aligned transversely of the strip 10; the flexibility of the fingers 42 ensures that the two fingers which are not in use to engage their corresponding shoulder can be accommodated even if they have to rest on the tops of the shoulders 44 (as is the case with the one which appears on the left of Figure 3).

As an alternative to providing three staggered shoulders to determine the lengthwise position of the trim strip relative to the panel, a single abutment may be provided and one finger only on one side of the trim clip to engage it, the finger having the desired number (for example four) of abutments faces to engage the shoulder. Figures 4 and 5 show such arrangements. In Figure 4, the finger 50 has four abutment faces 52 provided by a stepped configuration and is adapted to engage the wall 56 of the recess 54 in a trim strip 58. In Figure 5, the abutment faces 62 provided by teeth of the finger 64 are adapted to engage an abutment afforded by an upstanding tooth 66 on the inner surface of a trim strip 68.

Thus, with any of the foregoing arrangements, with the selected range of relative positions of the trim strip and clip, displacement of the strip in one direction along the panel is prevented by interengagement of the abutment or abutments of the strip and clip. The selected range is such as to accommodate the manufacturing tolerances usually permitted in assembling trim strips on automobile bodies, including the manufacture of the parts of their assembly, for example the welding of the studs.

Whatever arrangement is chosen to prevent relative displacement in one direction, the same is incorporated to prevent it in the opposite direction, and in order to avoid moulding left and right clips, the aforementioned features of the clip are integrally moulded on the opposite side of the clip body whether they will be used or not. Thus, in Figure 1, fingers 42′ are shown along the opposite side of the clip 30 to the fingers 42. Co-operative shoulders may be formed on the base 42 of the trim strip either at opposite ends of the strip to engage the endmost clips, or to co-operate with intermediate clips, or if, preferred, to co-operate with the fingers on opposite sides of one and the same clip.

The abutments on a trim strip for use in carrying out a method in accordance with the invention can usually be provided without an additional manufacturing operation, either by punching or pressing when stamping out sheet metal or by integrally moulding a cavity or tooth if the part is wholly plastics. The flexible resilient fingers to provide the abutments on the clip can likewise be moulded integrally as part of the clip. Thus, additional cost is negligible. Nor is any difficulty or lonver time incurred in assembling the trim strip on the panel in order to prevent longitudinal displacement than the customary procedure which affords no such advantage.

Claims

1. A method of assembling a trim strip on a panel which comprises the steps of providing a row of headed studs on the panel, applying to the studs clips adapted to retain the trim strip and assembling the strip on the clips characterised in that, to prevent undue relative lengthwise movement occurring between the panel and the assembled strip interengageable abutments are provided on the strip and clips, those on the clip being in the form of resilient fingers either the fingers of the clips or the strip having a plurality of abutments at spaced intervals lengthwise of the strip to ensure interengagement in a corresponding variety of relative positions of strip and studs to allow for manufacturing tolerances when the strip is accurately positioned on the panel.

2. A method according to claim 1 further characterised in that each clip has individual fingers with abutment faces aligned across the width of the strip, and the strip has a series of staggered abutments disposed across the width of the strip.

3. A method according to claim 1 further characterised in that the strip has one abutment to arrest movement in one direction, and a second abutment facing in the opposite direction to arrest movement in the other, each abutment being engaged by one of a series of abutment faces of the finger of a clip.

4. A plastics trim clip having means for engaging a headed stud projecting from a panel, and means to retain a trim strip, characterised in that the clip has a resilient finger for engagement with an abutment of the trim strip to prevent relative movement between the strip and the panel.

5. A clip according to claim 4 further

characterised in that the finger of the clip has a series of abutment faces for selective engagement with an abutment of the strip.

6. A clip according to claim 4 further characterised in that the clip has two such fingers pointing in opposite directions.

7. A clip according to claim 4 further characterised in that the clip has a plurality of individual resilient fingers with abutment faces aligned widthwise of the strip it is to retain for engagement selectively with staggered abutments of the strip.

8. A trim strip assembled on a panel by means of plastics clips retained by headed studs characterised in that endwise movement of the strip is prevented by interengagement of abutments of the strip with resilient fingers of the clips.

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