May 8, 1962 G. WHYTE 3,032,845

FASTENER

Filed May 28, 1959

Fig. 1

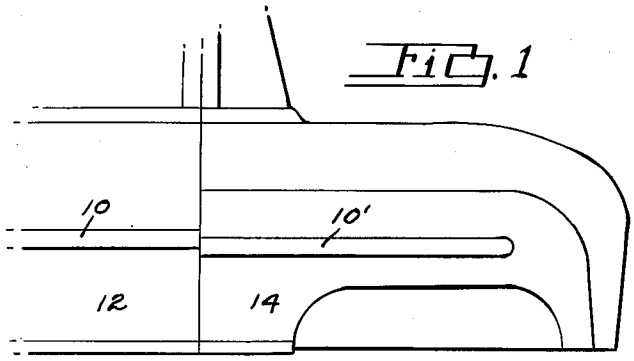


Fig. 2

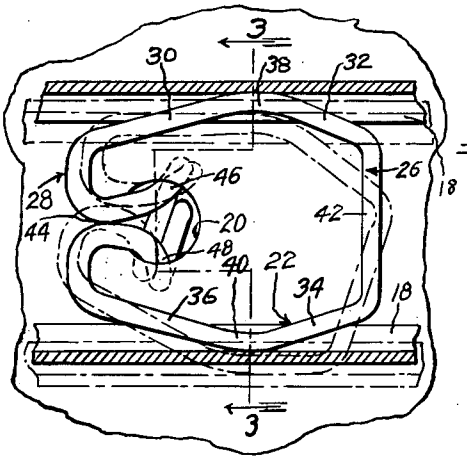


Fig. 3

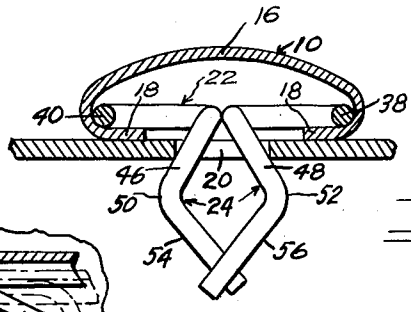
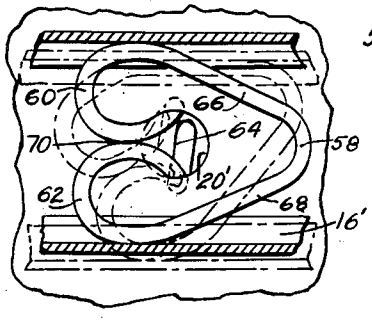


Fig. 4



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FASTENER

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This invention relates to a fastener and more particularly to a fastener which may be adjustably positioned after it has been assembled to its holding position.

Automobiles, particularly, are provided with moldings or other decorative materials which are applied to sectional parts such as a door panel, a portion of the body, or the fender. The panels of the door, body or fender are provided with apertures to receive fastening devices for supporting the moldings or decorative material. Often these apertures in the panels do not align with the apertures in another panel and as a consequence the moldings do not align.

It is therefore an object of the present invention to provide a fastener for such decorative material which may be readily adjusted to compensate for the misalignment of the apertures, bringing the decorative material into true alignment with an adjacent decorative material.

Another object of the invention is to provide molding or decorative holding devices as a part of the fastener which are offset from the center of the fastener holding means to the supporting panel such that, upon rotation of the fastener about its central holding means, the molding holding devices are shifted upwardly or downwardly to position the molding or decorative strip in alignment with the end of an adjacent strip.

A further object of the invention is to provide a snap or spring fastener made in one piece from spring wire stock and configured to support the molding in a manner to permit shifting of the molding holding means on a support by rotation about the center of its securing means to the supporting panel without causing variation in the width of the molding.

Other objects and advantages of the invention will be more fully understood from the following description taken in connection with the accompanying drawings, in which:

FIG. 1 illustrates a portion of an automobile body showing panel portions having mis-aligned moldings or decorative strips;

FIG. 2 is a top plan view of the fastener secured to one of the panels, and a molding to the fastener which is shown in cross section; the dot and dash lines showing the fastener rotated about its holding axis for aligning the abutting ends of the molding;

FIG. 3 is a cross sectional view of the panel, molding and fastener, taken on line 3—3 of FIG. 2; and

FIG. 4 is a top plan view, corresponding to FIG. 2, showing a modified form of the invention.

FIG. 1 illustrates a decorative molding in two parts 10 and 10' applied to the side of an automobile body. One portion of the molding 10 is applied to the door 12 of the body and the other portion 10' is applied to the fender 14. Fastener receiving apertures are provided in the door panel and in the fender. The aligned apertures in the door are supposed to be in alignment with the aligned apertures in the fender but often, due to inaccuracies in assembly, the apertures in the door do not align with the apertures in the fender. The result is that when the two part moldings are applied to the door and fender, the abutting ends of the moldings are out of alignment, as indicated in FIG. 1. To overcome this objection, I have provided a shiftable fastening means for securing the molding to its supporting panel which may be rotated about its holding axis to move the moldings into true alignment.

The trim molding 10—10', as shown, comprises a sheet metal channel strip having a concave central portion 16 and oppositely disposed, inwardly extending flanges 18 along its outer edges. The inturned flanges 18 are held against the supporting panel 12 by the improved fastener which is spring pressed into an aperture 20 in the panel.

The fastener is formed from a single strip of wire, bent to the desired shape, comprising a head portion 22 and a depending shank portion 24. The head portion 22 is formed by bending the central portion of the wire strip into a loop of generally elongated polygonal shape having opposite end portions 26 and 28 and intermediate straight side portions 30, 32, 34 and 36. The side portions 30 and 32 forming one leg of the fastener are joined by an arcuate, intermediate portion 38 and the opposite side portions 34 and 36 forming an oppositely disposed leg are joined by an arcuate, intermediate portion 40. The two portions 30 and 34 extend in parallel directions, spaced apart a distance substantially equal to the inner width of the molding, and the portions 32 and 36 extend in parallel, directions, also spaced apart a distance substantially equal to the inner width of the molding. The portions 30 and 36 extend in outwardly convergent directions toward the end 28 of the head portion and the portions 32 and 34 extend in outwardly convergent directions toward the opposite end 26 of the head portion 22. A portion 42, forming the end 26, joins the portions 32 and 34. At the opposite end 28 of the head portion 22, the portions 30 and 36 are bent toward each other and meet at 44 adjacent the center of the end 28 where they extend inwardly and downwardly, being bowed toward the portions 30 and 36, forming downwardly divergent portions 46 and 48. Knee portions 50 and 52 connect convergent portions 54 and 56 with the portions 46 and 48. The outer free ends of the portions 54 and 56 are in overlapping relation. The portions 46 through 56 form the shank portion 24 of the fastener and constitute a spring clip portion for securing the fastener to the apertured support. The shank portion 24 of the fastener is pressed through the aperture 20, with the knee portions springing toward each other to permit insertion, and the portions 46 and 48 form shoulders for retaining the shank within the apertures.

The shank portion is located adjacent one end of the head portion, that is, intermediate a transverse line through the arcuate portions 38 and 40 of the head and end of the head, here shown as the end 28. The shank portion and head portion are rotatable in the aperture 20, and when rotated, the arcuate portions 38 and 40, normally molding holding portions, are moved upwardly or downwardly because they are eccentric to the axis of rotation. If they are rotated upwardly the portions 32 and 36 become the molding holding portions, but if rotated downwardly the portions 30 and 34 become the molding holding portions, as indicated by the dot and dash lines in FIG. 2. This action moves the molding 10 upwardly or downwardly, thus aligning the adjacent ends of the two part molding.

Referring to the form shown in FIG. 4, the head portion is formed to a generally heart shape design having three arcuate portions 58, 60 and 62. The central portion 58 is spaced a predetermined distance longitudinally from the shank portion 64, which is similar to the shank portion 24 shown in FIGS. 2 and 3. The arcuate portions 60 and 62 are spaced longitudinally from the opposite side of the shank portion 64 a distance less than the spacing of the portion 58 from the shank 64. The arcuate portions 60 and 62 are spaced apart transversely from a longitudinally extending line passing through the center of the arcuate central portion 58 and between the two transversely arranged arcuate portions 60 and 62. The adjacent ends of the portions 60 and 62 which contact

one another at 70, are connected to the shank portion 64, and the outer ends of the arcuate portions 60 and 62 are connected through straight portions 66 and 68, converging inwardly, to the ends of the central arcuate portion 58. These straight portions 66 and 68 form stops, when in contact with the inner sides of the molding 16', limiting the rotary movement of the fastener in the aperture 20', similar to the portions 30—36 and portions 32—34 shown in FIG. 2.

While in the forms illustrated, the free ends of the wire terminate within the shank portion, it is apparent that they may terminate within the head portion.

It will be observed that with both forms of fastener illustrated the head forms a closed, substantially non-yielding loop. For example in the form illustrated in FIG. 2 the two legs of the loop 30, 32 and 34, 36 are rigidly interconnected at one end by the portion 42 and at their opposite ends these legs are rendered rigid and substantially non-yielding by contacting one another as at 44. Thus with the two forms of fasteners shown herein vertical adjustment of the molding retained by the fasteners is effected, not by resiliently distorting the fasteners, but rather by bodily rotation of the head portions of the fasteners.

Various changes including the size, shape and arrangement of parts may be made without departing from the spirit of the invention and it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpretated as illustrative and not in a limiting sense, and that the scope thereof should not be limited to the specific disclosures, but limited only by the scope of the appended claims.

I claim:

1. A one-piece spring wire fastener having a constrictible shank portion adapted to be forced into an aperture in a supporting panel, and a head portion in the form of a loop adapted to press opposite inturned flanges of a channel trim molding toward its support when the shank portion is in the aperture, said head portion being formed as a closed polygon having two pairs of sides, each pair of sides converging outwardly in opposite directions from intermediate arcuate portions which are spaced apart a distance substantially equal to the inner width of the trim molding with which the fastener is to be used, means forming a rigid connection between the outer ends of one pair of said convering sides, the outer ends of the other pair of converging sides being turned inwardly toward one another into contacting relation in the plane of said polygon and then being extended in a direction perpendicular to the plane of said polygon to form said shank portion, said shank portion being spaced intermediate one pair of sides and spaced from a line passing through the intermediate arcuate portions.

2. A fastener for mounting a channel molding having inturned flanges along its longitudinal edges on an apertured supporting panel in a laterally shiftable condition to permit alignment of the adjacent ends of a pair of moldings arranged in end-to-end relation on the supporting panel comprising a length of spring wire formed into a head member and a connected shank member lying in generally perpendicularly related planes, said head member being formed as a closed polygon having opposite end portions and opposed side portions, said side portions having two oppositely disposed, inwardly curved arcuate portions, the laterally outermost portions of said arcuate portions being spaced apart a distance corresponding to the width of the molding to be used with the fastener, the diagonally opposite portions of the two arcuate portions adjacent said outermost portions also being spaced apart a distance corresponding to the width of the channel molding, whereby, when the arcuate portions are engaged within the molding, the fastener may be rotated through a substantial arc with the diagonally opposite portions of the arcuate portions successively engaging the molding spaced apart uniformly, one set of corresponding ing ends of said two arcuate portions being extended in converging relation and turning inwardly toward each other at one end of said head member into contacting relation and then extending generally perpendicular to the plane of said head member to form said shank member, the opposite set of ends of said arcuate portions also converging together to form a closed loop at the other end of said head member, said shank being offset substantially from a transverse line connecting said outermost portions, whereby, when the fastener is rotated about said shank member as an axis through a substantial arc, the molding engaged therewith is shifted laterally on the panel while remaining engaged with said arcuate portions of the head member.

3. A fastener as called for in claim 2 wherein said last mentioned set of ends of the two arcuate portions converge along straight lines which are generally tangent to the ends of said arcuate portions and are inclined to said transverse line at an angle of substantially less than 90°.

4. A fastener as called for in claim 2 wherein the diagonally opposite extended ends of the two arcuate portions comprise straight runs which are parallel and spaced apart a distance corresponding to the width of the molding to be used with the fastener.

5. A fastener as called for in claim 2 wherein said polygon is generally heart shaped, the two straight sides of the heart being generally tangent to and forming extensions of said arcuate portions.

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