Oct. 6, 1953 O. J. POUPITCH 2,654,131

FASTENING DEVICE

Original Filed June 11, 1945

Fig. 1.

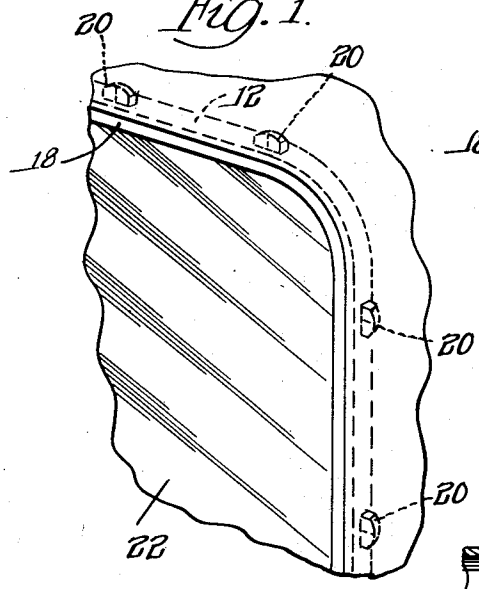


Fig. 2.

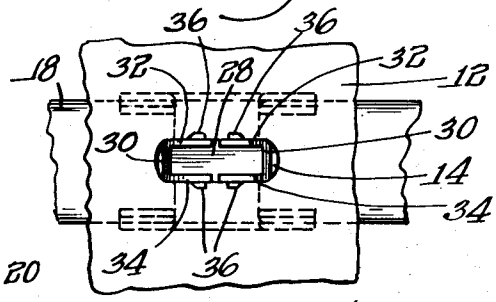


Fig. 3.

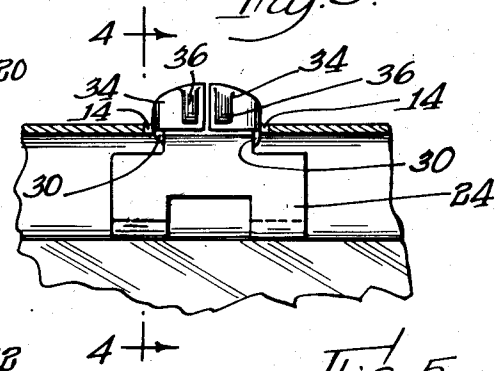


Fig. 4.

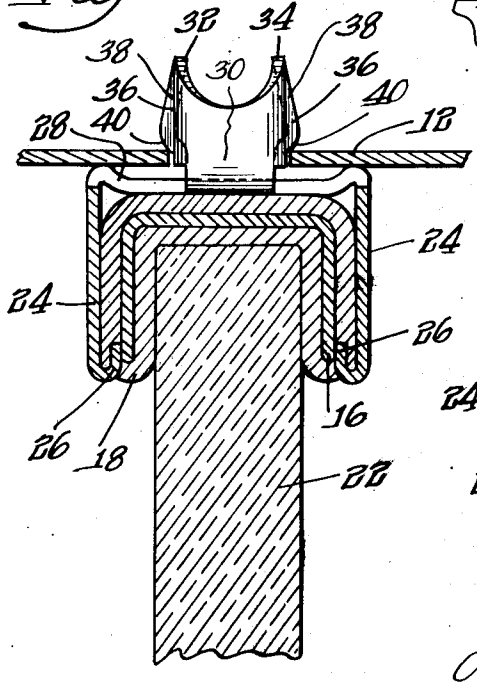
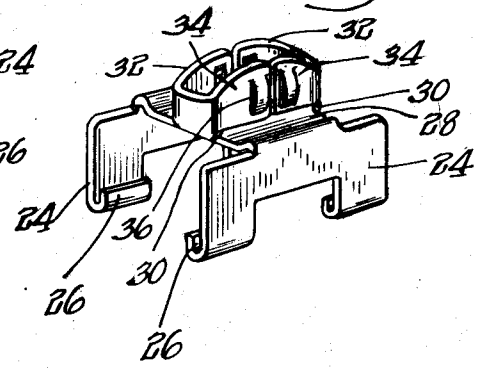


Fig. 5.



INVENTOR.

Ouglješa Jules Poupitch

BY

Moore, Olson & Treplow

attys.

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FASTENING DEVICE

Ouglјesa Jules Poupitch, Itasca, Ill., assignor to Illinois Tool Works, Chicago, Ill., a corporation of Illinois

Original application June 11, 1945, Serial No. 598,820. Divided and this application December 30, 1950, Serial No. 203,683

3 Claims. (Cl. 24—73)

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This invention relates to fastener devices, and more particularly to sheet metal fastener devices for attaching articles to apertured work pieces.

It is an important object of the invention to provide a fastener for attaching articles to an apertured work piece, the fastener being adapted to be mounted on the work piece by means of a mounting portion formed integral on the fastener; more specifically, it is an object of the invention to provide in a fastener of the type set forth an improved mounting portion including latching means adapted to partake of diametrical motion upon insertion of the mounting portion in an aperture in the work piece.

Another object of the invention is to provide a fastener of the type set forth having improved gripping portions thereon for gripping elongated members, such as an elongated, flexible, sealing strip.

Yet another object of the invention is to provide in a fastener of the type set forth means for mounting the fastener on an apertured work piece so that the fastener can be removed without the use of special tools, the mounting portion, however, firmly holding the fastener on the work piece to prevent inadvertent removal of the fastener.

These and other objects and advantages of the invention will be better understood from the following description.

This application is a division of my application, Serial No. 598,820, filed June 11, 1945, now Patent No. 2,537,786.

In the drawings wherein like reference numerals have been used to indicate like parts throughout;

Figure 1 is a fragmentary perspective view of a door frame showing fasteners made in accordance with and embodying the principles of the invention mounted on the door frame for attaching an elongated sealing strip on the door frame;

Figure 2 is a partial plan showing a fastener of the present invention mounted on a door frame and holding an elongated sealing strip in position on the door frame;

Figure 3 is a side view of the assembly shown in Figure 2, the door frame having been cut away for purposes of illustration;

Figure 4 is a view in vertical section as seen in the direction of arrows on the line 4—4 of Figure 3;

Figure 5 is a perspective view of the fasteners shown in Figures 1 through 4.

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I will describe my invention for purposes of illustration in connection with its use for holding a flexible, resilient, sealing strip on the door frame of an automobile. In this manner, both the construction of my fastener and one of its many uses will become clear. It is to be understood, however, that the fastener can be used to advantage in other applications.

The frame 12 is formed with a plurality of apertures 14 formed around the periphery thereof, apertures 14 being elongated with the longer axis of the apertures in alignment around the periphery of the door. Elongated apertures are used to prevent rotation of the fastener in the aperture, the portion of the fastener extending through the apertures also being elongated so that this portion coacts with the apertures to prevent rotation of the fastener on the door frame 12.

A channel-shaped, sealing strip 16 has been illustrated as the article to be held in position on the door frame 12, the strip 16 being coated with rubber or other suitable flexible and resilient coating 18. The fasteners which hold the strip 16 on the frame are generally designated by the numeral 20. In the specific illustration shown, the window glass 22 of the automobile door is adapted to seal against the coating 18 of the strip 16.

The free end portion of arms 24, that is, the portion disposed away from the remaining portions of the fastener, is bent or turned inwardly and upwardly as at 26 to be imbedded in the coating or covering 18 and thus provide positive means for gripping the assembly of the strip and coating. Other forms of retaining and gripping means can be used instead of the turned up portions 26.

Means is provided for attaching fastener 20 to frame 12 and includes a body portion 28 from which depend arms 24 and a pair of neck portions 30 formed integral with body portion 28 and extending substantially perpendicular thereto and in a direction away from arms 24. Each of the neck portions 30 carries a pair of tongues 32 and 34 which are disposed substantially perpendicular to neck portions 30 and which have their inner and outer transverse edges free of the body portion. The tongues disposed on the opposed neck portions 30 extend inwardly toward each other whereby to form with the neck portions 30 substantially closed peripheral attaching portions adapted to be inserted into an aperture. In the form of the invention shown, the neck portion 30 and the tongues 32

and 34 form a substantially rectangularly shaped attaching portion which is particularly adapted for cooperating with the elongated apertures in the door frame.

The free ends of the tongues 32 and 34 have formed thereon bosses 36. Each of the bosses 36 has a pair of oppositely inclined surfaces which are best illustrated in Figure 4. The upper inclined surface 38 forms a lead-in section, the angle of inclination of surface 38 being relatively small so that the camming action resulting from the engagement between surface 38 and the edges of slot 14 will aid in placement of the fastener in operative position. The inwardly directed portion of boss 36 is inclined back toward the tongue to form a retaining section 40. The angle of inclination of section 40 is relatively sharp so that removal of the fastener from its associated apertured work piece is relatively difficult thus giving the fastener holding power. The inclination however is such that the fastener can be removed if desired by exertion of the necessary force to permit the inclined surfaces 40 to move the resilient tongues inwardly. This structure of the bosses 36 imparts diametral motion to the ends of tongues 32 and 34, that is, the free ends of the tongues 32 and 34 are moved in a direction perpendicular to the axis of insertion of the head or retaining portion in an apertured work piece.

Referring to Figs. 2, 3 and 4, it will be seen that the body portion 28 and the associated depending arms 24 form a channel or trough to receive the elongated sealing strip 16. Two of the arms 24 are disposed on one side of the strip 16 and two other arms 24 are disposed on the other side of strip 16. The arms disposed on each side of the strip 16 are spaced apart from each other longitudinally along the strip whereby to grip the strip at spaced apart points. More specifically the arms 24 are disposed on either side of the head or attaching portion including the neck portions 30 and the tongues 32 and 34, the arms 24 being disposed longitudinally away from the head portion along strip 16.

The fastener of this invention can be stamped from a piece of sheet metal or thin cold rolled metal and shaped to form the fastener. The resultant fastener is one piece in construction, light in weight, and has high holding power. At the same time the fastener is easy to apply to an apertured work piece and can be applied and removed without the use of special tools and can be applied and removed frequently without injury to the fastener or the apertured work piece on which the fastener is mounted.

It will be seen that there has been provided a fastener which fulfills all of the above described

objects and advantages. While a preferred form of the invention has been shown for purposes of illustration, it is to be understood that various changes and modifications can be made therein without departing from the spirit and scope of the invention. Accordingly the invention is only to be limited as set forth in the following claims.

The invention is hereby claimed as follows:

1. A one-piece sheet metal fastener for insertion into an aperture in a work piece and comprising a sheet metal body portion, means providing a neck projecting from said body portion substantially in the direction of the axis of insertion of the fastener into a work aperture, said neck including a pair of spaced substantially rigid neck portions extending substantially normal to said body portion along opposed outer margins thereof, a pair of tongues having the inner and outer transverse edges thereof free of said body portion and projecting from each neck portion across the adjacent surface of the body portion and with the free extremities of the tongues of one pair projecting toward the free extremities of the other pair, the tongues of each pair being normally spaced and transversely yieldable, locking projections extending laterally outwardly from the surface of each tongue in the vicinity of the free end thereof and adapted to be snapped into fastening association within a complementary aperture of a work piece, said projections being spaced from the intermediate part of the body portion a sufficient distance to permit a work piece to be secured there-between as an incident to telescopic association of the neck with a work aperture.

2. A one piece fastener as claimed in claim 1, wherein each neck portion forms with its pair of tongues a U-shaped section opening toward the U-shaped section formed by the other neck portion and its pair of tongues.

3. A one piece fastener as claimed in claim 1, wherein the tongues form with the neck portions a substantially closed rectangular neck.

OUGLJESA JULES POUPITCH.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,147,618	Dieckmann	July 20, 1915
2,142,429	Wiley	Jan. 3, 1939
2,181,966	Dean	Dec. 5, 1939
2,261,650	Kost	Nov. 4, 1941
2,329,688	Bedford	Sept. 21, 1943
2,438,499	Hartman	Mar. 30, 1948
2,454,894	Tatom	Nov. 30, 1948
2,467,604	Tinnerman	Apr. 19, 1949