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2,201,058

METHOD OF SEPARATING CLOSURE MEMBERS STAMPED FROM A BAND

Filed July 12, 1938

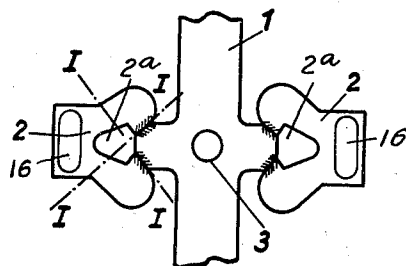


Fig. 1

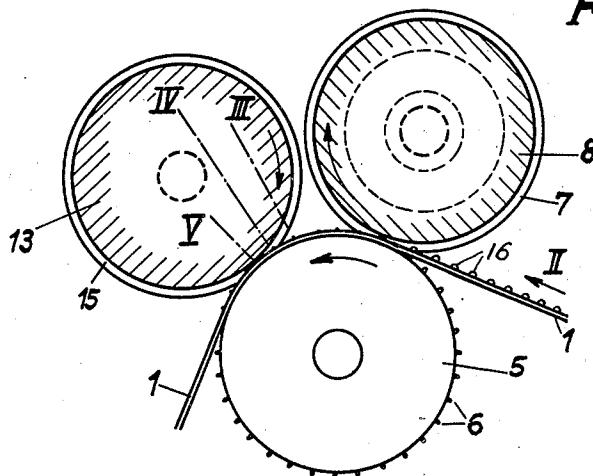


Fig. 2

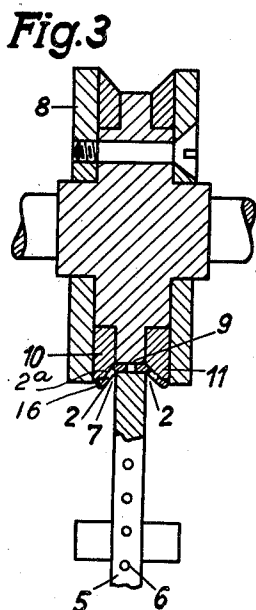


Fig. 3

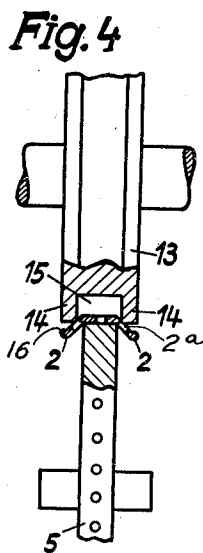


Fig. 4

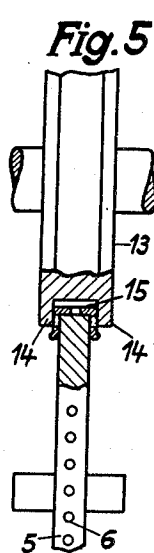


Fig. 5

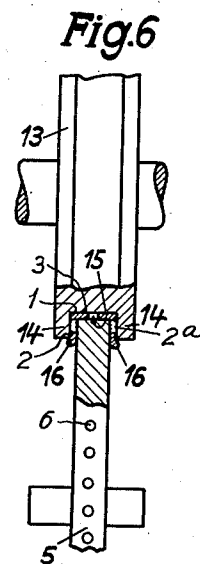


Fig. 6

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UNITED STATES PATENT OFFICE

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METHOD OF SEPARATING CLOSURE MEMBERS STAMPED FROM A BAND

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5 Claims. (Cl. 29—66)

In the production of closures capable of being broken off it is known to stamp closure parts from both sides of a band of sheet metal which are separated from the sheet metal band by a separate operation. The separation was effected solely by the methods known hitherto. Further a fair amount of waste also occurred, for example the parts when stamped out were frequently rough edged or were deformed, broken or the paint coating was damaged.

The present invention has for its object to eliminate these disadvantages and this result is obtained in that the sheet metal band, at the two sides of which there are stamped closure parts which are to be broken away and which parts are provided at their free ends with a head, is guided positively between rollers which bend the parts more and more relatively to the band and then separate them by pressure on the heads, the band and the parts being clamped or held while being separated.

The separation is thus effected during the uninterrupted passage of the sheet metal band between the rollers. In this manner not only the sheet metal band itself is firmly clamped but the closure parts to be separated therefrom are also clamped so that no change of shape of the closure parts can take place. In this manner no rough edge is formed which must be removed subsequently.

In the accompanying drawing there is shown diagrammatically by way of example a device for carrying out the method according to the invention, wherein

Fig. 1 shows in plan a portion of a sheet metal band with the stamped out closure parts.

Fig. 2 shows diagrammatically the rollers of the device, and

Figs. 3, 4, 5 and 6 show different positions of the co-operating rollers.

Closure parts 2 are stamped at both sides of a sheet metal band 1 and have openings 2a. Along the middle of the band there are provided uniformly spaced holes 3. The parts 2 must be separated from the sheet metal band 1 along the edges I—I. In carrying out my method the band 1 is passed over a feed roller 5. The latter is provided at its periphery with small pins 6 which are arranged at uniform intervals apart. The spacing of the pins 6 corresponds with the spacing of the holes 3 in the band 1. When turning the roller 5 in the direction of the arrow II the band 1 is driven positively and is guided in a groove 7 of the roller 8. The roller 8 is provided with an annular bar 9 which presses the

band against the roller 5. On both sides of the bar 9 there are provided resilient rings 10, 11, for example of rubber. These project beyond the periphery of the roller 5 so that the parts 2 stamped from the band 1 are bent downwardly (Fig. 3). The band 1 is then fed to a second roller 13 provided with two projecting flanges 14. Whilst the band 1 enters the groove 15 of the roller 13 the closure parts 2 which have already been bent downwardly are bent downwardly further (Fig. 4) at about the point III in Fig. 2 by the flanges 14. Whilst the band 1 continues to move the parts 2 are bent downwardly more sharply until they are at right angles to the band 1 (Fig. 5). This position of the parts 2 is reached at the point IV. When the parts 2 reach the position V the outer edges of the flanges 14 press against the heads 16 of the parts 2 (Fig. 6) and force the parts 2 toward the axis of roller 5, thereby detaching the parts 2 from the band 1. The band 1 is thus clamped between the rollers 13 and 5. The parts 2 are also held between the side walls of the roller 3 and the inner walls of the flanges 14. The parts 2 are thus separated from the sheet metal band without the possibility of any bending or rough edges occurring at the point of separation.

The operation is continuous. It is possible to operate at a comparatively high speed.

I claim:

1. Method for detaching closure parts, which are capable of being broken away and which are stamped on both side edges of a sheet metal band and are provided at their free ends with heads, from the band, consisting in passing the sheet metal band positively between rollers which bend the parts more and more relatively to the band and then separate the parts from the band by pressure upon the said heads, the band and the parts being clamped during the detachment.
2. Device for separating detachable closure members from a band of sheet metal from the two sides of which the said closure members are stamped, said closure members being provided at their free ends with heads, comprising in combination with a roller for conveying the sheet metal bands, of two further rollers co-operating with the first mentioned roller, one of said further rollers serving to bend said members, the second roller serving to effect the detachment of the members from the sheet metal band, the said two further rollers pressing the sheet metal band against the first mentioned roller during the operation.
3. The method of detaching laterally extended

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closure parts from continuous sheet metal bands, which consists in passing said bands through a plurality of rollers shaped to first bend over the parts to be detached to lie at approximately right angles to the plane of the bands, and upon further progress of the bands through the rollers to detach the bent-over parts from the body of the bands.

4. The method of detaching closure parts which project laterally from the side edges of a band, which parts are provided with heads, said method consisting in passing the band between rollers and progressively bending over the parts to be detached until they have been bent out of the plane of the band as a whole, and then while holding the band clamped between the rollers applying pressure against the heads of the parts to be detached to detach said parts from the body of the band while holding the parts during the act of detachment clamped between the rollers.

5. A means for separating detachable closure

members from a band of sheet metal from the two side edges of which said closure members project, said closure members being provided at their free ends with heads, comprising in combination with a feed roller for conveying the bands a preliminary grooved roller cooperating with the feed roller to effect an initial bending of the detachable closure members from the plane of the band, and a third grooved roller into the groove of which said feed roller projects and carries the band with the preliminarily bent-over closure members, said third roller and said feed roller being positioned to complete the bending-over of said detachable closure members, and thereafter by engagement of said third grooved roller with said heads break the closure members from the sheet metal band while the same is clamped in the groove of the third roller between the adjacent walls of the third grooved roller and the feed roller.

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