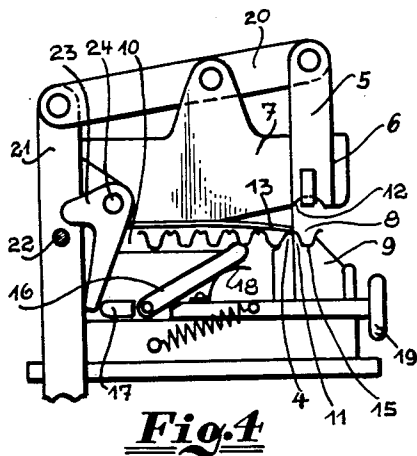
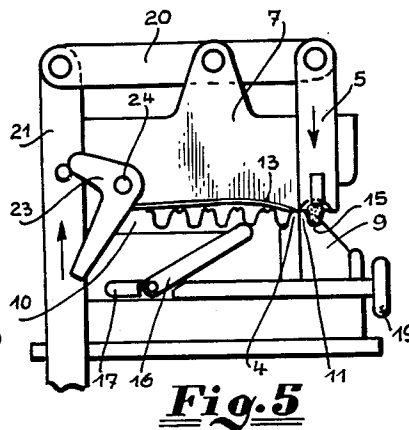
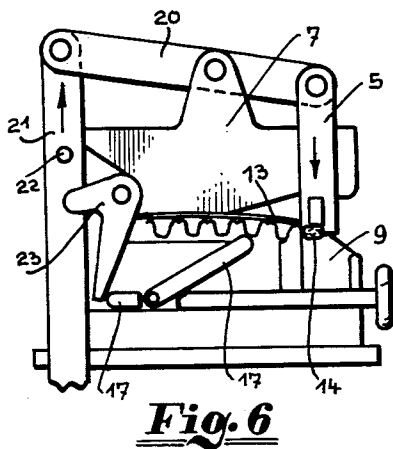
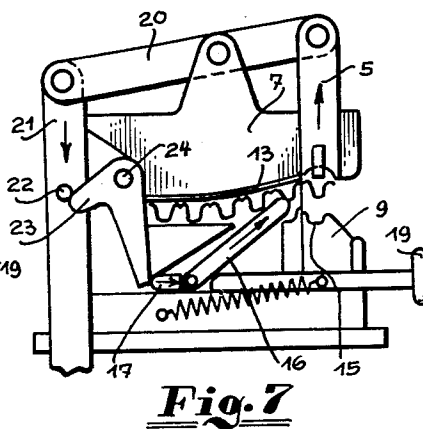


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CLIPS FOR SEALING BAGS IN AIRTIGHT MANNER, AND
DEVICE FOR ATTACHING SAID CLIPS
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CLIPS FOR SEALING BAGS IN AIRTIGHT MANNER, AND DEVICE FOR ATTACHING SAID CLIPS

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1 Claim. (Cl. 29—193.5)

This invention relates to staples and associated matters. Consumer goods are often packed in bags made of synthetic plastic material, the open end of each bag being twisted after the bag has been filled with material, and the twisted end being sealed by fastening a clip about it.

Before the bag end is twisted, it is general practice to produce a vacuum in the bag in order to allow the goods to lie against the wall of the bag so that the goods can be readily viewed, or else to extend the life of the goods which otherwise might easily be spoiled. It is necessary that the closure clips which hold together the twisted ends must press together the bag walls at the twisted end in an airtight manner. Also they should not damage the thin wall of the bag when being applied.

Hitherto these clips have been produced as individual elements, carefully de-burred and then fed to a sealing machine either individually or placed in rows on a carrier band. It is an object of invention to provide a novel construction for these clips which permits working directly with a strip pre-formed as a row of inter-connected clips, there being no need to de-burr individual clips and arrange them on a carrier band.

According to the invention, the novel clip is in the form of a U whose arms diverge from one another, the ends of the arms being bent over outwardly. When the arms of such a clip are folded over, the bent over arm ends bear against the outer surface of the arms. Therefore they cannot come into contact with the twisted top of the bag which is being sealed, so that the bag wall cannot be damaged. Thus there is no need to remove the parting burr on the arm ends of each individual clip.

According, the clips can be fed, in the form of a strip pre-formed as a row of clips connected to one another at their arm ends, into a sealing machine whose ram, in a manner known per se, severs the foremost clip during each working operation and, in continuing its downward movement, rolls up the said clip.

Constructing each clip in the form of a U whose arms diverge towards their ends, has the further advantage that the pre-formed strip of clips can be rolled up so as to form a storage reel in a space-saving manner. The arms of the clip are advantageously curved slightly outwards, thus facilitating the rolling-over of the said arms about the twisted end of the bag by the ram of the sealing machine.

In order to turn inwards the arms of these novel clips, the end face of the ram of an otherwise known sealing machine is recessed inwardly in a concave shape from its side edges, whereas the anvil forms an abutment, W-shaped in cross-section, for the clips. Thus the web of the clip is bent inwards centrally by the ram when the clip arms are being deformed, so that the nose thus produced presses into the twisted end of the bag which is to be surrounded by the clip and also, in the region of the apex of the concavity of the ram face, compresses the twisted end as is necessary for achieving an airtight closure. After the ram returns to its initial position, the strip is advanced by means of a feed lever by the amount of one clip division.

For this purpose, the feed lever is articulated to a slide,

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and the slide is adapted to be displaceable in opposition to the action of a restoring spring by a bell crank lever one arm of which is situated in the region of an entrainment nose of a driving lever for the ram. The construction is such that the driving lever for the ram, when returning to its initial position, entrains with it temporarily the bell crank lever for operating the slide together with the feed lever.

The driving lever may be operated by hand or by foot or by a power drive.

The novel clip construction together with the construction of a sealing machine advantageous for folding over said clip, will be explained hereinafter in more detail with reference to the accompanying drawing wherein:

FIGURE 1 is a side view of an individual clip,

FIGURE 2 is a perspective view of a strip of clips,

FIGURE 3 shows a clip in the closed position and

FIGURES 4-7 are diagrammatic views of the sealing machine with the working elements in various positions during the course of one working operation.

The novel closure clip comprises a web 1 with arms 2 which diverge from one another upwardly to form an open U, and which are curved outwards slightly and whose ends 3 are bent over outwardly in the shape of hooks. In order to close the clips, the two arms 2 are rolled inwardly in known manner on to the web or substantially flat central portion 1. In this operation the edges 4 of the bent over arm ends 3 come bear on the back of the arms 2, and thus do not come into contact with the material which is to be enclosed, i.e. the twisted top of a bag. Therefore the quality of these edges is not important, and after being severed from a strip they need no further treatment and more particularly do not need any de-burring. It is to be noted that the hook-shaped ends 3 of adjacent clips define a V-shaped opening 5' whereat the clips are adapted for being severed as will be seen below with reference to FIGS. 4-7.

Therefore the novel clips may also be fed in the form of a pre-formed strip of clips connected to one another in a row, to a sealing machine which consists conventionally of an anvil and a ram which is adapted to be advanced against the said anvil, the said clips being severed individually by the ram.

The upwardly divergent U-shape of the individual clips with outwardly curved arms affords the possibility of coiling up the pre-formed clip strip as so to save space, since the clips lying one above the other in the individual turns in the coil can lie inside one another.

It is convenient to use a sealing machine according to FIGURES 4-7.

The sealing machine comprises a housing 7 with a guide 6 for the ram 5, and in the mouth 8 of the housing 7 an anvil 9 is associated with the said ram. A feed channel 10 of the housing 7 opens into the mouth area 8. The anvil 9 is provided with an abutment or holding shoulder 11 on which the foremost clip of the strip fed through the channel 10, the clip which is to be severed and shaped in each case, is held in the correct position for severing. The shoulder 11 forms the counter-edge for co-operating with the cutting edge 12 of the ram 5. A spring 13 holds the strip of clips in a lower bearing position, in which the foremost clip is held in the anvil 9 and the parting zone 4 determined by opening 5' connecting this clip with the rest of the strip is held on the shoulder 11.

Following the shoulder 11, the anvil 9 is provided with an abutment 15 which is recessed in accordance with the shape of the clip.

The feed lever 16 is articulated on a slide 17 and is urged by a spring 18 towards the strip of clips. The slide 17 is adapted to be operated by a knob 19.

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The ram 5 is movable by a rocker arm 20 which is coupled to a control lever 21. The control lever 21 can be operated by hand, by way of a foot pedal or an impulse-controlled power drive. It carries an entrainment nose 22 with which is associated a bell crank lever 23 on the housing 7. The bell crank lever 23 is pivotable about a pin 24 on the housing 7. Its construction is such that one arm of the said bell crank lever lies in the path of movement of the control lever 21 and the other arm entrains the slide 17 when said other lever arm is pivoted in the clockwise direction.

As a result of this construction, when the control lever 21 carries out a working stroke, the bell crank lever 23 is in fact temporarily entrained by the nose 22 and is pivoted towards the left, but not influencing the slide 17.

But with the return of the lever 21 into the initial position after each working operation, the nose 22 engages against the bell crank lever 23 and rocks the latter in the counter-clockwise direction. In this movement the slide 17 is displaced towards the right and entrains the feed lever 16, whose movement advances the strip of clips by an amount corresponding to one clip.

The strip of clips is conveniently notched from both edges at the severing zones, so as to avoid having sharp parting edges which could lead to damaging the plastic bag which is being sealed.

What is claimed is:

A strip for a fastening machine comprising a plu-

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rality of serially arranged clips including end portions and being connected in end-to-end relation, each of said clips including a substantially flat central portion and diverging arms extending in opposite directions from said central portion, said arms being inclusive of said end portions, said end portions being hook-shaped, the end portions of adjacent clips being connected to define a V-shaped opening whereat the clips are adapted for being severed.

References Cited in the file of this patent

UNITED STATES PATENTS

301,294	Smith	July 1, 1884
1,357,319	Hadaway	Nov. 2, 1920
1,493,075	Hirschhorn	May 6, 1924
1,515,107	Goldberger	Nov. 11, 1924
1,517,633	Junkers	Dec. 2, 1924
1,700,147	Small	Jan. 29, 1929
1,731,667	Johnson	Oct. 15, 1929
1,982,281	Birkenmaier	Nov. 27, 1934
2,072,125	Novick	Mar. 2, 1937
2,325,322	Jackson	July 27, 1943
2,567,790	Schaffan	Sept. 11, 1951
2,700,805	Bedford	Feb. 1, 1955
2,735,149	Frank	Feb. 21, 1956
2,955,352	Wintriss	Oct. 11, 1960