Feb. 20, 1962 G. R. HARRIS 3,021,654

DEVICE FOR PLACING PLASTIC CLIPS ON BAGS

Filed May 12, 1961

Fig. 1

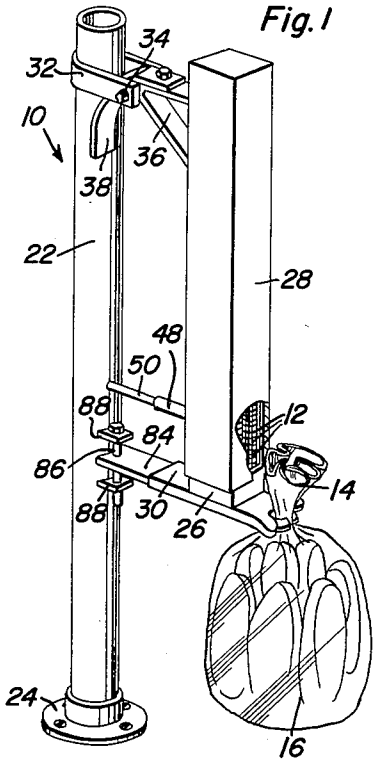


Fig. 2

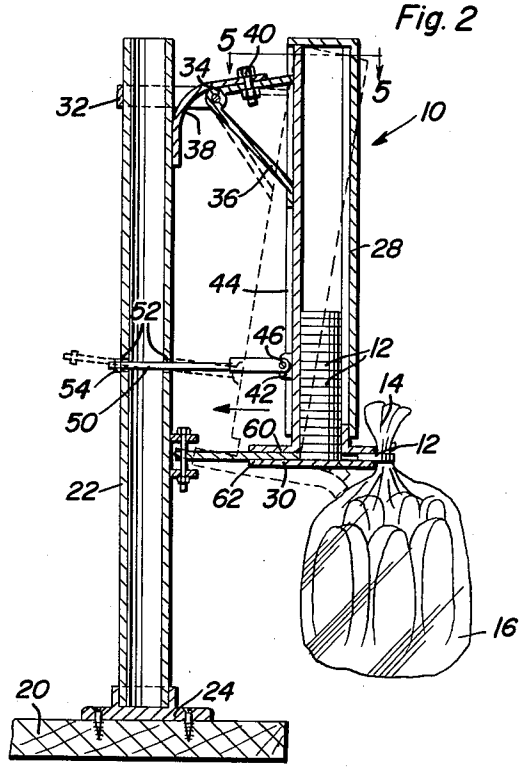


Fig. 3

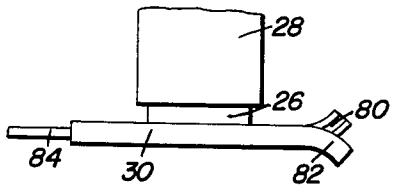


Fig. 4

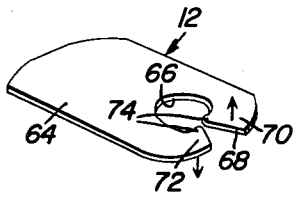
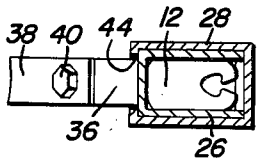


Fig. 5



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DEVICE FOR PLACING PLASTIC CLIPS ON BAGS

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8 Claims. (Cl. 53—138)

This invention comprises a novel and useful device for placing plastic clips on bags and more particularly relates to an automatic bag fastening device by which the closing and fastening of plastic bags with a flat tab-like plastic clip is greatly facilitated and improved.

In certain types of plastic containers, and particularly the type in which the container is a bag of a relatively thin plastic film for use in protectively storing relatively soft and perishable food products, it is important to provide a fastening means for securely closing the neck of the bag. A very satisfactory type of fastener now employed for this purpose consists of a flat clip having a slotted end into which the gathered or twisted neck of the bag is adapted to be placed through distorting the slotted end of the clip, whereby the natural inherent resiliency of the clip will retain its grasp upon the neck of the bag and thus effect a secure closure or seal for the bag.

Heretofore bag fasteners of this nature have been laboriously applied by hand in an operation requiring the operator to take the plastic bag in one hand, the fastener in the other hand and attempt to fasten it around the neck of he bag. Considerable time is required for this process.

It is therefore the primary purpose of this invention to provide an apparatus which will greatly facilitate the applying of plastic tab-like clips about the necks of plastic film bags.

It is a further object of the invention to provide a device in accordance with the foregoing object wherein the operator can manipulate the apparatus by one hand only and without any necessity for the operator in any way handling the plastic clip during its application to the bag.

A further important object of the invention is to provide an apparatus in accordance with the preceding objects wherein a magazine of the plastic clips may be indivdually dispensed and applied to the bag in a single easy operation requiring only one hand of the operator.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a perspective view of a preferred apparatus in accordance with this invention, a part of the magazine being broken away to show the supply of plastic clips therein;

FIGURE 2 is a view in vertical longitudinal section through the apparatus of FIGURE 1 illustrating further details of the structure of the machine, an alternative position of the parts being shown in dotted lines therein;

FIGURE 3 is a fragmentary elevational view showing from the side the lower end of the clip magazine, and of the clip applying head of the device;

FIGURE 4 is a perspective view of one of the plastic clips, the direction of the flexing of the slotted end portions of the clip during its application to the neck of the bag being indicated by arrows therein; and

FIGURE 5 is a detail view in horizontal section taken substantially upon the plane indicated by the section line 5—5 of FIGURE 1 and showing certain details of the magazine of the apparatus.

Referring first to FIGURES 1 and 2 it will be observed that the clip applying device is indicated generally by the numeral 10 and is shown therein as applying a flexible plastic clip 12, see also FIGURE 4, about the twisted or gathered neck portion 14 of a bag 16. Although various types of bags may be fastened by this apparatus, the device is particularly adapted for and useful in connection with the fastening of the necks of bags formed of a thin plastic film-like material such as is commonly employed for the packaging of articles of food and the like.

In a convenient form of apparatus, there is provided a base 20 upon which a support in the form of a tubular rod or standard 22 is fixedly secured as by a mounting member 24 so that the standard or post 22 is secured in a relatively stationary and fixed vertical position with the upper end of the support being unobstructed. The magazine 10, as shown best in FIGURES 1 and 5, consists of a pair of telescoping tubular members which are substantially rectangular in cross section, comprising an inner tubular member or housing 26 over which is telescopingly received a complementary exterior member or magazine cover 28. The member 26, at its lower end is fixedly secured to and rests upon a plate-like body 30 which comprises a clip dispenser or dispenser head as set forth hereinafter. The magazine is supported by means of a suitable mounting bracket 32 which embraces the upper end of the support 22 and which is provided with a pivot or hinge pin 34. The side of the cover 28 has a mounting bracket 36 thereon which is pivotally secured to the bracket 32 by the pivot pin 34 previously mentioned. A leaf spring 38 is secured as by a fastener 40 to this bracket, is bent over the pivot pin 34, and at its extremity bears against the side of the support 22 to thereby exert a resilient pressure upon the magazine yieldingly urging the latter away from the support. This movement of the magazine is indicated in FIGURE 2 and it will be readily apparent from a consideration of the dotted and full line showing therein.

A combined guide and stop means for the movement of the magazine towards and from the support post 22 is provided. This consists of a pivot lug 42 which is carried by and projects laterally from the side of the magazine 26, passing through a longitudinally extending slot 44 in the side of the cover 28. Pivotally secured to this lug as by a pivot pin 46 is a sleeve or tube 48 and a guide rod 50 extending through the sleeve and likewise extending through corresponding bores 52 in the diametrically opposite sides of the tube 22, there being provided a fastening nut or the like 54 by means of which adjustment of the amplitude of swinging movement of the magazine may be effected.

As will be noted from a consideration of FIGURE 2, the nut limits the swinging movement of the magazine away from the support 22 to the full line position shown therein, at which time the nut 54 abuts against the side of the support 22. As the magazine is swung towards the post, its inward movement is limited by engagement of the sleeve 48 which constitutes a stop against the side of the post 22, with the rod 50 thus extending from the other side of the post 22 as shown in dotted lines in FIGURE 2.

It will thus be apparent that the concentric members 48 and 50 comprise both a guide which restrains the direction of the swinging movement of the magazine relative to the stationary support and a stop means which limits the swinging movement towards and from the support.

The dispenser member 30 as above-mentioned is a plate-like body but is hollow, having a top wall 60 which is apertured to register with the open lower end of the magazine 26 and a bottom wall 62 which is imperforate and upon the top surface of which is slidably received a clip 12 to be dispensed. The magazine is initially filled

with a supply of the clips 12 as shown in FIGURE 2 and the space in-between the top and bottom walls 60 and 62 is such that a single clip may be received therein and dispensed therefrom.

The clip as shown in FIGURE 4 consists of a flat sheet 64 of a suitable plastic material having sufficient inherent resiliency to cause the same to be inherently biased to a flat plate configuration. At one end, the body is provided with an opening 66 therethrough which is adapted to embrace and is of a sufficient size to constrictively embrace and retain therein the gathered or twisted neck 14 of the bag 16. An entranceway to this opening is provided by means of an inwardly convergent slot 68, the V-shaped lips of which provide a guide means to facilitate movement of the neck of the bag towards the retaining opening 66. By means of the slot 68, the end of the clip 12 is bifurcated and the two furcations of the bifurcated end indicated at 70 and 72 thus provide hook-like portions as at 74 at the entrance of the slot into the opening 66.

The clip is of inherent flexibility and resiliency such that when its two furcations 70 and 72 are flexed in opposite directions, as shown by the arrows in FIGURE 4, the opening of the slot 68 into the opening 66 is thus widened or enlarged sufficiently to permit ready passage of the neck 14 therethrough.

The outer or dispensing end of the dispensing head 30 is likewise similarly slotted and bifurcated, and the two furcations thereby provided, as exaggeratedly shown at 80 and 82, are curved in opposite directions and are open across their entire width to provide guide channels. The plate-like body 30 of the dispensing head is thus open throughout its length or axial thereof so that when a clip is fed successively from the magazine into the space between the upper and lower walls 60 and 62 of the body 30, it may be subsequently pushed through this body and towards the bifurcated extremity thereof. When the furcations 70 and 72 of the clip are received in the furcations 80 and 82 of the dispensing head, the guide means thus provided flex the furcations of the clip in opposite directions, thereby enabling the operator to readily insert the twisted or gathered neck 14 of a bag into the opening 66. As will be appreciated, when the flexing force upon the furcations of the clip is released, the clip will revert to its natural flat position, and the neck of the bag will thereby be retained in the opening 66 thus securely closing the bag.

In order to effect the passage of the clip through the dispensing head and through the guide surfaces of the latter, there is provided an ejecting means in the form of a flat blade 84. At its rear end, the latter is pivoted to a pivot pin 86 extending through a pair of apertured lugs 88 each carried by and projecting laterally from the support 22 so that this ejecting blade is free to move vertically on its pivot pin 86 and also to swing horizontally thereon if necessary. At the same time, ejecting blade 84 is of a resilient or spring steel nature so that the same can readily flex upwardly or downwardly as necessary. This blade is of sufficient thickness and width to substantially completely fill the passageway extending through the dispenser head.

The arrangement is such that in the normal position of the magazine, which is away from the support 22 under the impetus of its spring 38, and is limited by the stop 54, the ejecting end of the ejector blade 84 will clear the opening in the top wall 60 so that the lowermost clip of the stack of clips in the magazine can descend into the dispensing head.

In a single operation the user of the device will insert the twisted or gathered neck 14 of a bag into the opening of the dispenser head, between the furcations 80 and 82 thereof, and also between the furcations 70 and 72 of the clip which is flexed in the dispenser head. Continued further inward movement then moves the entire magazine in a swinging movement towards the support, thus driving the ejector blade 84 through the dispenser and forcing the clip from the end of the latter. This inward movement is limited by engagement of the tube 48 abuttingly against the support 22. As the clip is discharged from the end of the dispensing head, the distorting force of the guide means formed by the furcations 80 and 82 is released and the clip flexes back to its normal position shown in FIGURE 4 to retain the bag closed. The spring 38 then returns the magazine from the dotted line position of FIGURE 2 to the full line position thereof, the next clip drops down into position and the device is ready for further use.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A device for applying plastic clips having a bifurcated end about the necks of bags for closing the latter comprising, a support, a vertical clip magazine, means mounting said magazine upon said support for movement towards and from the latter, a dispensing head on the lower end of said magazine for successively receiving clips therefrom, said head having a bifurcated end for receiving the neck of a bag therein and for discharging clips therefrom, the furcations of said head comprising guide means for reversely flexing the furcations on said clips to thereby facilitate passage of the clip furcations about the neck of a bag, ejecting means connected to said support and slidable in said head for moving clips through said head and into said guide means when said magazine and head are moved toward said support.

2. The combination of claim 1 wherein said magazine is pivoted to said support for swinging movement towards and from the latter.

3. The combination of claim 2 including resilient means engaging said magazine, said support and said mounting means for yieldingly urging the magazine away from said support.

4. The combination of claim 1 including a combined stop and guide means connected to said magazine and support for limiting and for guiding swinging movement of said support.

5. The combination of claim 1 including a cover for said magazine, said magazine and cover comprising slidably telescoping members of U-shaped cross section and with their web portions disposed in opposed relation to each other.

6. The combination of claim 1 wherein said dispensing head has a passage therethrough, said ejecting means including a blade portion slidably received in said passage for ejecting clips therefrom.

7. The combination of claim 1 including mounting means on said support pivotally and slidably supporting said ejecting means.

8. The combination of claim 1 wherein said dispensing head comprises a hollow plate-like body having an opening therein communicating with said magazine and receiving clips therefrom and dispensing said clips and receiving said ejecting means.

No references cited.