Feb. 16, 1960 H. PAINE, JR 2,924,926

DEVICE FOR COVERING CONTAINERS

Filed Oct. 14, 1955

Fig. 1.

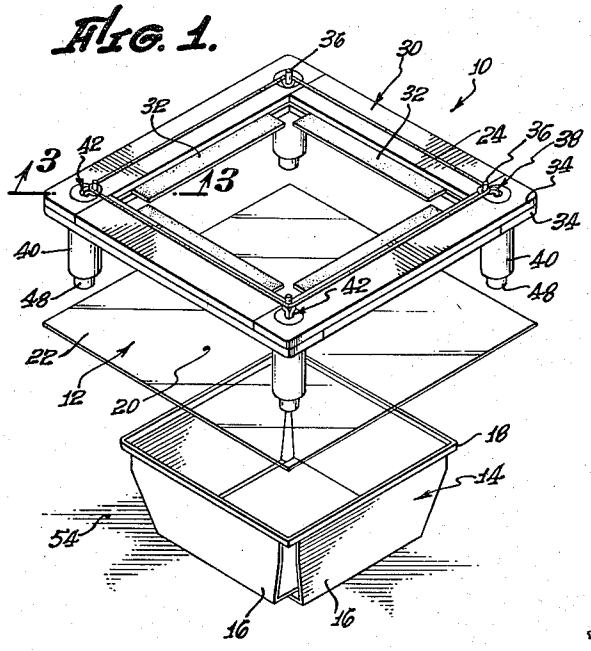


Fig. 3.

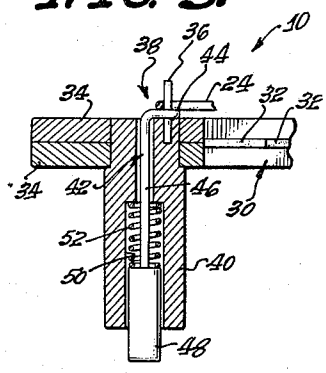


Fig. 4.

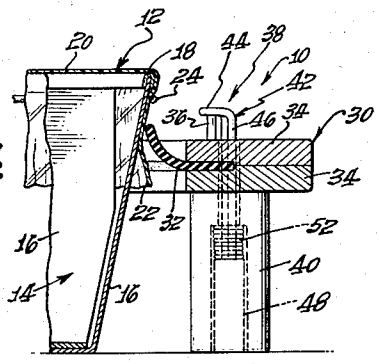


Fig. 2.

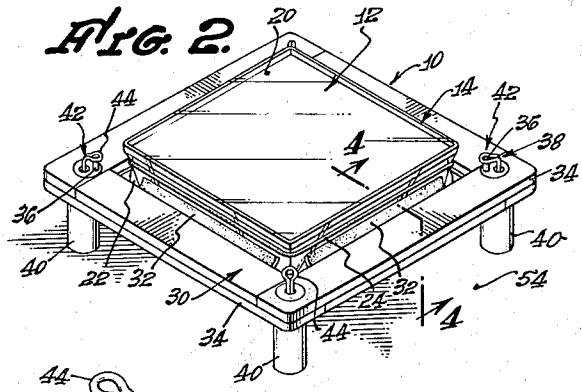


Fig. 6.

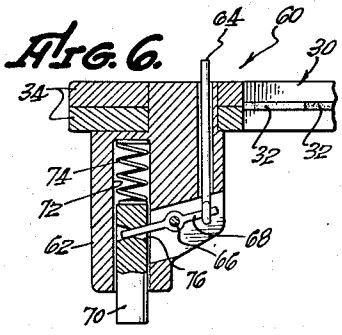
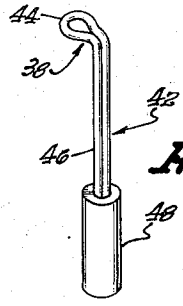


Fig. 5.



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DEVICE FOR COVERING CONTAINERS

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Application October 14, 1955, Serial No. 540,426

3 Claims. (Cl. 53—135)

The present invention relates in general to devices for covering containers and, more particularly, to a device for securing a closure to a container by means of an elastomeric band encircling the container and engaging a peripheral portion of a closure of sheet material which covers one end of the container and overlies the sides of the container, the elastomeric band engaging the overlying peripheral portion of the closure to press same against the sides of the container. The elastomeric band may be an ordinary "rubber" band, the term "band," as used herein, meaning an endless band or loop.

While the present invention may be utilized for covering containers of various types, it has particular utility in covering a basket of the type in which strawberries are customarily packed, and the invention will be considered in connection with such a basket herein for convenience in effecting a disclosure thereof. After a strawberry basket has been filled, it is desirable to cover same to protect the contents thereof. The basket may be covered by a closure of sheet material, such as paper, or a suitable plastic such as cellophane, the central portion of the closure covering the open end of the basket and the peripheral portion thereof overlying the sides of the basket.

Such a closure is conveniently secured to the basket by means of an elastomeric band encircling the basket and engaging the peripheral portion of the closure to press same against the sides of the basket.

A primary object of the present invention is to provide a device for automatically applying a closure to a container in the foregoing manner, and for automatically securing the closure to the container with an elastomeric band in the manner indicated.

More particularly, an object of the invention is to provide a device having means for stretching the central portion of the closure tight over the open end of the container, and for pressing the peripheral portion of the closure against the sides of the container preparatory to securing the closure in place by means of an elastomeric band.

An important object of the invention is to provide a device having a plurality of retainers for maintaining an elastomeric band in a stretched condition around the container in register with the peripheral portion of the closure, and having means for releasing the stretched band from the retainers so that the band snaps inwardly into engagement with the peripheral portion of the closure to hold the same against the sides of the container.

Another object is to provide a device comprising a frame adapted to encircle the container and carrying the means for applying the closure to the container, such frame also carrying the retainers for the stretched elastomeric band and the means for releasing the band from the retainers.

Another object of the invention is to provide a releasing means for the stretched elastomeric band which includes means for pushing the stretched band off the retainers, whereby it snaps inwardly into engagement with

the peripheral portion of the closure to secure the closure to the container. A related object is to provide means of this nature comprising reciprocable push-off elements operable by reciprocable feet carried by the frame and engageable with a container-supporting surface, or the like, to actuate the push-off elements.

Another object is to provide a releasing means for the stretched elastomeric band which comprises retainers reciprocable between extended and retracted positions and which comprises reciprocable feet carried by the frame and engageable with a container-supporting surface for retracting the retainers into the frame so as to release the stretched elastomeric band. In this connection, an object is to provide a construction wherein the feet are connected to the retainers through pivoted levers so that movement of the feet in one direction produces retractive movement of the retainers in the opposite direction.

The foregoing objects, advantages, features and results of the present invention, together with various other objects, advantages, features, and results thereof which will become apparent, may be attained with the exemplary embodiments of the invention illustrated in the accompanying drawing and described in detail hereinafter.

Referring to the drawing:

Fig. 1 is an isometric view illustrating the device of the invention in position to apply and secure a closure to a container;

Fig. 2 is an isometric view illustrating the relative positions of the device of the invention, the container and the closure after the device has been utilized to apply and secure the closure to the container;

Figs. 3 and 4 are enlarged, segmentary sectional views respectively taken along the arrowed lines 3—3 and 4—4 of Figs. 1 and 2;

Fig. 5 is an isometric view of a push-off element incorporated in the embodiment of the invention illustrated in Figs. 1 to 4; and

Fig. 6 is a fragmentary sectional view similar to Fig. 3, but illustrating another embodiment of the invention.

Considering the embodiment illustrated in Figs. 1 to 5 of the drawing, the numeral **10** designates a device of the invention for applying and securing a closure **12** to a container **14**.

In the particular construction illustrated, the container **14** is a simple basket of the type used in packing strawberries, or other produce, the container comprising two U-shaped strips **16** of veneered wood secured together by a metallic band **18** crimped over the ends of the strips. The closure **12** comprises a sheet, preferably of transparent material, which is adapted to be placed over the open upper end of the container **14** and which is larger than the upper end of the container to provide a central portion **20** covering the upper end of the container, and a peripheral portion **22** adapted to be folded downwardly over the sides of the container, as shown in Figs. 2 and 4 of the drawing. The closure **12** is held in place by an elastomeric band **24**, preferably a common rubber band, circling the container beneath the band **18** and holding the peripheral portion **22** of the closure against the sides of the container. The device **10** automatically applies the closure **12** and the elastomeric band **24** to the container **14**, as will now be described.

The device **10** includes an open frame **30** conforming to the configuration of the container **14** and somewhat larger than the container so that the frame encircles the container, as best shown in Fig. 2 of the drawing, upon relative axial movement of the frame and the container. Carried by the frame **30** and extending inwardly to the space enclosed thereby are flexible wiping elements, shown as rubber strips **32**, which automatically position

the closure 12 on the container 14 in the desired manner in response to relative axial movement of the frame 30 and the container, as by moving the frame downwardly over the container. More particularly, the rubber strips 32 serve as a means for stretching the central portion 20 of the closure 12 and for pressing the peripheral portion 22 thereof against the sides of the container with a wiping action in response to relative axial movement of the frame 30 and the container 14. Thus, the rubber strips 32 automatically position the closure 12 on the container 14 preparatory to securing the closure to the container by means of the elastomeric band 24. In the particular construction illustrated, the frame 30 is of laminated construction, the rubber strips 32 being clamped between two laminae 34 of the frame, as best shown in Fig. 4 of the drawing, although other constructions may be used.

The frame 30 serves as a supporting structure for a plurality of retainers 36 spaced apart around the frame, the retainers being located at the corners of the frame with the particular frame and container configuration illustrated. The retainers 36 are adapted to hold the elastomeric band 24 in a stretched condition until such time as the frame 30 and the container 14 have been moved axially relative to each other to position the stretched elastomeric band in register with the peripheral portion 22 of the closure 12 beneath the band 18 of the container, means 38 for releasing the stretched band being provided to permit the band to snap inwardly into engagement with the peripheral portion 22 of the closure to retain the closure on the container.

In the particular construction illustrated, the retainers 36 are pins set in posts 40 at the corners of the frame 30, the elastomeric band 24 being adapted to be hooked over these pins, as shown in Figs. 1 and 3 of the drawing, to maintain it in a stretched condition until it is disengaged by the releasing means 38.

The releasing means 38 consist of means movable upwardly to releasing positions for pushing the stretched band 24 off the pins 36, and include push-off elements 42 at the respective pins. As best shown in Fig. 5, each push-off element 42 includes an eye 44, this eye encircling the corresponding pin 36 so that the eye pushes the stretched band 24 off the corresponding pin upon upward movement of the eye, as viewed in the drawing.

Considering the manner in which the push-off elements 42 are actuated, each of these elements includes a stem 46 carrying the corresponding eye 44. Connected to the stem 46 of each push-off element 42 is an actuator 48 reciprocable in a bore 50 in the corresponding post 40, each actuator being biased axially in the downward direction, as viewed in the drawing, by a compression spring 52. The actuators 48 act as feet for supporting the device 10 on a suitable container-supporting surface 54 until such time as the frame 30 is displaced toward such surface. As hereinafter described in more detail, the displacement of the frame 30 toward the surface 54 results in upward movement of the eyes 44 relative to the frame 30 to release the stretched elastomeric band 24 from the retainers 36.

Considering the operation of the embodiment of the invention illustrated in Figs. 1 to 5 of the drawing, with the container 14 on the supporting surface 54, the closure 12 is placed over the upper end of the container, the central portion 20 of the closure covering the open upper end of the container and the peripheral portion 22 thereof projecting outwardly beyond the container. The device 10 is then moved downwardly over the container 14 with the elastomeric band 24 stretched around the retainers 36. As the device 10 is moved downwardly over the container 14, the rubber strips 32 engage the peripheral portion 22 of the closure 12 with a wiping action to stretch the central portion 20 of the closure over the open upper end of the container and to press the peripheral portion of the closure downwardly against the sides of the container, as best shown in Fig. 4 of the drawing. Continued downward movement of the device 10 toward the container-supporting surface 54 results in an engagement of the actuators or feet 48 with the surface 54, with the result that the actuators move the push-off elements 42 upwardly relative to the pins 36, i.e., the pin 36 moves downwardly relative to the push-off elements. As this occurs, the eyes 44 of the push-off elements 42 disengage the stretched band 24 from the pins 36, whereupon the band snaps inwardly into engagement with the peripheral portion 22 of the closure 12 just below the band 18 on the container 14 to press the peripheral portion of the closure firmly against the sides of the container, and thus secures the closure to the container.

It will be noted that the device 10 thus automatically applies the closure 12 to the container 14 and secures it thereto. All that is required of the operator is to place the closure 12 over the container 14 and to move the device 10 downwardly over the container until the lower ends of the posts 40 seat on the container-supporting surface 54, the device automatically crimping the closure over the upper end of the container and automatically releasing the elastomeric band 24 to secure the closure in place, which are important features of the invention.

Considering now the embodiment of the invention illustrated in Fig. 6 of the drawing, this embodiment, which is designated generally by the numeral 60, is basically similar to the device 10 except that it releases the elastomeric band in a different way. For convenience, corresponding reference numerals are applied to identical parts.

The device 60 includes at the corners of the frame 30 posts 62 having reciprocable retainers or pins 64 therein, these pins being movable to extended positions to retain a stretched elastomeric band and being movable to retracted positions to release the band. Mounted in each post 62 on a pivot pin 66 is a lever 68 which is pivotally connected at one end to the corresponding retainer or pin 64. The opposite end of the lever 68 is pivotally connected to an actuator or foot 70 which is reciprocable in a bore 72 in the corresponding post 62 and which is biased downwardly by a compression spring 74. The pivotal connection between the lever 68 and the foot 70 is provided by inserting the lever into a transverse opening 76 through the foot having approximately the configuration of an hourglass. With this construction, the lever 68 and the walls of the opening 76 co-operate to provide a stop means for limiting outward movement of the actuator under the influence of the spring 74 in a manner which will be apparent from Fig. 6 of the drawing.

Considering the operation of the device 60, the only difference between the operation of this device and that of the device 10 is that a stretched elastomeric band, not shown, retained by the pins 64 is released by retraction of these pins into the frame 30, instead of by pushing the band off the pins. In all other respects, the operation of the device 60 is identical to that of the device 10.

Although I have disclosed exemplary embodiments of my invention herein for purposes of illustration, it will be understood that various changes, modifications, and substitutions may be made without departing from the spirit of the invention as defined by the claims hereinafter appearing.

I claim as my invention:

1. In a device of the character described, the combination of: a frame means carried by said frame for holding a closure in engagement with a container; a plurality of retainers carried by said frame on one side thereof and adapted to retain an elastomeric band in stretched condition around the container; and a plurality of releasing means, each including a foot projecting from the opposite side of said frame, for releasing the stretched band

from the retainers, respectively, so that it snaps inwardly into engagement with the closure to secure it to the container.

2. In a device of the character described, the combination of: a frame adapted to surround a container; a plurality of pins carried by said frame on one side thereof and adapted to retain an elastomeric band in stretched condition around the container; and means for pushing the stretched band off said pins so that it snaps inwardly into engagement with the container, including push-off elements reciprocable axially along said pins, and including reciprocable feet projecting from the opposite side of said frame and connected to said push-off elements.

3. In a device of the character described, the combination of: a frame adapted to surround a container; a plurality of reciprocable pins carried by said frame on one side thereof and movable relative thereto between extended and retracted positions, said pins being adapted to retain an elastomeric band in stretched condition around the container when in their extended positions, and being adapted to release the stretched band when moved into their retracted positions so that the band snaps inwardly into engagement with the container; and means for moving said pins into their retracted positions to release the stretched band, including reciprocable feet projecting from the opposite side of said frame, and including levers pivotally connected to said frame and pivotally connected to said feet and said pins, respectively.

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