Aug. 21, 1956 T. E. PIAZZE 2,759,648

METHOD AND APPARATUS FOR PACKAGING MERCHANDISE IN FLEXIBLE CONTAINERS

Filed June 15, 1953

Fig-1

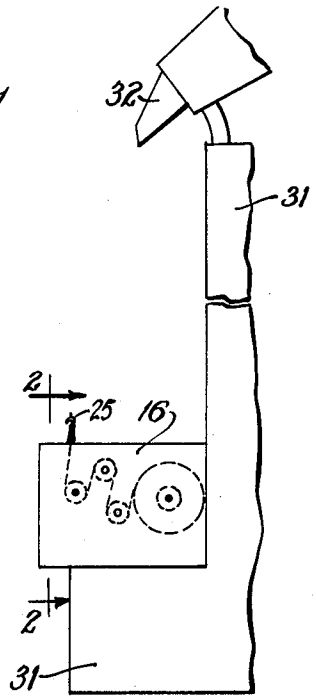


Fig-4

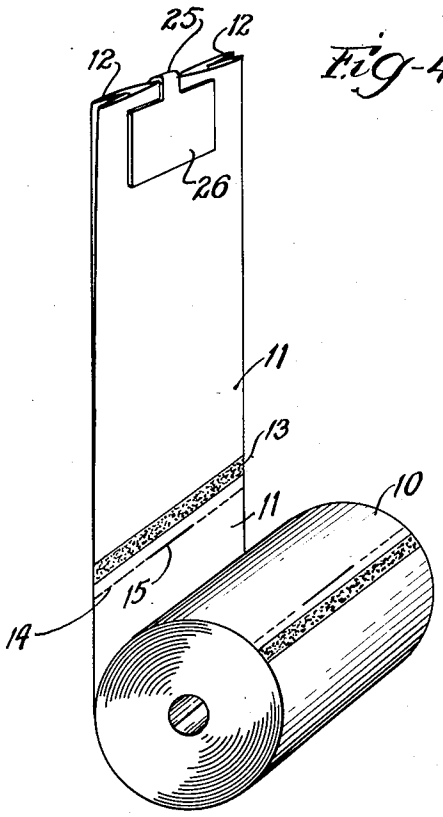


Fig-2

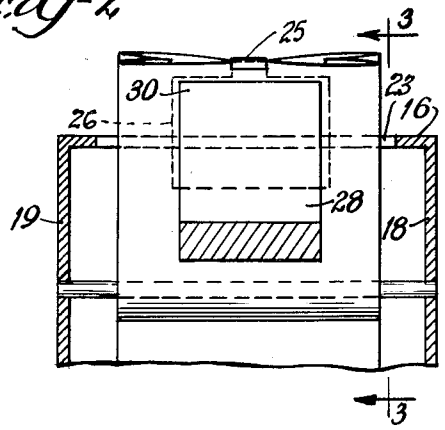
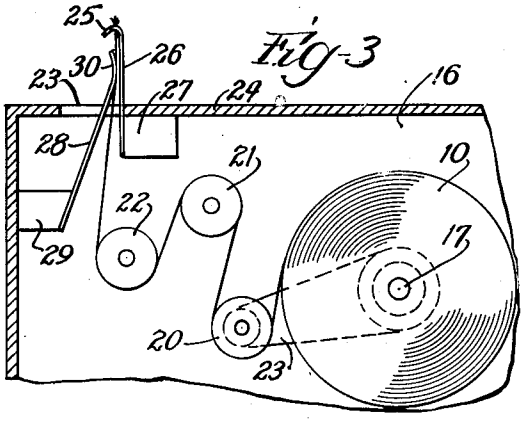


Fig-3



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METHOD AND APPARATUS FOR PACKAGING MERCHANDISE IN FLEXIBLE CONTAINERS

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11 Claims. (Cl. 226—61)

This invention relates to packaging and is more particularly concerned with improvements in a method of packaging merchandise in successive containers and in apparatus for carrying out the method in a rapid and efficient manner.

It is a general object of the invention to provide a method of packaging merchandise in flexible containers, which containers are formed of a continuous plastic film material, or the like, and apparatus for supplying the containers in a convenient location for use in the packaging operation.

It is a further object of the invention to provide a method of packaging wherein containers formed of relatively flexible and limp material, such as a plastic film, are supplied to the operator in such a manner that they may be readily separated from the source of supply and presented, with the mouth thereof in open condition, to a filling funnel, or the like, for receiving therein a predetermined quantity of the merchandise which is to be packaged.

It is another object of the invention to provide an apparatus for facilitating the handling of a plurality of containers which are formed of plastic film material and which are supplied to the apparatus in connected series or roll form, which apparatus is so arranged that the operator is able to withdraw a single container from the supply thereof and separate the same from the next succeeding container by a tearing operation.

It is another object of the invention to provide a mechanism for use in dispensing merchandise containers or bags from a supply thereof in connected roll form which comprises a support for a roll of the bags and associated apparatus permitting the bags to be withdrawn and removed from the roll, which apparatus includes a hook-like abutment member adapted to project through an aperture in a perforated line separating each bag in the roll from the next succeeding bag as the bags are unwound from the roll and moved in a predetermined path adjacent the abutment member, whereby the endmost bag may be separated from the end of the roll by a tearing operation while the next succeeding bag is held against advancing movement by engagement with the abutment member.

These and other objects and advantages of the invention will be apparent from a consideration of the method and apparatus illustrated in the accompanying drawings, wherein:

Fig. 1 is an elevation showing apparatus arranged for supplying containers suitable for carrying out a method of packaging merchandise which embodies the principles of the invention;

Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1, to an enlarged scale;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2; and

Fig. 4 is a perspective view of a roll of the container material and the fixed abutment forming device employed in separating the individual containers from the roll.

Referring first to Fig, 4 of the drawings, there is illustrated a supply roll 10 of the containers 11 which are employed for the packaging operation. The roll 10 comprises a plurality of the connected containers 11, each of which is formed from a section of flat tubular material which is initially provided with infolded sides or bellows fold formations 12. Each of the containers 11 is separated from the adjoining container in the roll by a transverse seal formation 13 and a perforated transverse tearing line 14 which is provided adjacent the transverse seal 13. The perforated tearing line 14 comprises a center slit 15 of substantial width and a plurality of smaller slits or perforations extending from the center slit 15 to opposite side edges of the tube section.

The supply roll 10 is adapted to be supported in a compartment forming dispensing cabinet 16 (Figs. 2 and 3) on a transverse shaft 17 which is journaled between the side walls 18, 19 of the cabinet 16. The roll of containers is unwound and fed over a slack take-up roller 20 to a pair of idler rollers 21 and 22, each of the latter being supported in fixed relation in any suitable manner in the cabinet 16. The take-up roller 20 is supported on the ends of a pair of arms 23 which are pivoted at their opposite ends for movement about an axis coinciding with the axis of the shaft 17, with one of the arms having associated therewith a suitable brake mechanism (not shown) for controlling the rotation of the shaft 17 so that the shaft 17 is free to rotate to permit the bag material to unwind when there is little slack between the take-up roller 20 and the idler 21 and the brake is applied when there is a substantial amount of slack in the web of material, the position of the roll 20 controlling the application and release of the brake. The web of material is passed upwardly from the idler roll 22 through the slot 23 in the top 24 of the cabinet 16 and in front of an abutment forming hook 25 which is located on the end of the support plate 26, the latter extending above the aperture or slot 23 in the top 24 of the cabinet 16. The hook supporting plate 26 is secured on a suitable supporting block 27 which is mounted in the cabinet 16. A web engaging holding plate member 28 of spring material is supported in opposed relation to the plate 26 and extends upwardly, terminating short of the hook 25. It is mounted on a support block 29 with the curved end 30 engaging the web of material and holding it normally against the plate 26.

In using the bag material and the dispensing apparatus which is described herewith the cabinet 16 is arranged on a suitable support 31 beneath a filling spout 32 which is arranged at the upper end of the support 31. The hook formation 25 is located beneath the filling spout 32 so that the operator is able to grasp the container material on opposite sides of the hook 25 and with a forward motion release the leading edge of the end container from beneath the hook 25 after which the web may be advanced with an upward pull on the material. As the web of material moves upwardly the central slit 15 in the next cross perforation 14 approaches the hook 25 and the spring 30 holds the material against the plate 26 beneath the hook 25 so that the latter is engaged in or penetrates the slit 15. Continued pull on the end portion of the web of material results in tearing off the end container along the perforation line 14 which separates it from the succeeding container. Thereafter the upward movement of the operator is continued and the container is moved into the vicinity of the filling spout 32 with the operator opening up the end of the container 11 as it advances so that it is in condition to receive the charge of material from the filling spout 32, the operator having both hands free to manipulate the container top and open it as fully as required.

Use of the roll of containers with the perforated separating line facilitates the delivery of the containers into position for the filling operation and results in considerable saving of time. The perforated separating line 14 overcomes the tendency of materials, such as polyethylene, to stick or adhere along a cut edge and enables the operator to readily and easily open up the receiving or filling end of the container. A substantial supply of the containers can be furnished in the roll form 10 and stored or maintained in clean and readily available condition in the dispensing cabinet 16. The filling operation may be interrupted at any time and the next container on the end of the roll remains immediately available in proper position for resumption of the packaging operation.

While the abument hook formation which is shown in connection with the dispensing cabinet 16 is preferred, it will be appreciated that other means forming an abutment for engaging in the slot 15 may be employed to facilitate the separation of the individual containers 11 from the roll 10. Also, the dispensing cabinet 16 may be employed to dispense wrappers or other forms of containers which are supplied in connected strip or web form with longitudinally spaced transverse perforation lines, as described, or any equivalent separating lines.

I claim:

1. A method of packaging merchandise in tubular containers which are formed from flexible plastic film material which comprises providing a plurality of the containers in flattened or connected series, with cross perforation lines having a center slit portion separating each successive container from the next adjacent container, guiding the connected containers past a hook-like abutment formation, engaging the center slit portion of each successive cross perforation line between the leading container and the next adjacent container over the abutment formation, applying sufficient pull on the leading container to separate the same from the next succeeding container along said cross perforation line, opening the mouth of the separated container and advancing the same into position for receiving a predetermined quantity of the merchandise.

2. A method of packaging merchandise in initially flattened tubular containers which are formed from flexible plastic film material which comprises providing a plurality of the containers in connected roll form, with cross perforation lines having a center slit portion separating each successive container from the next adjacent container, guiding the connected containers past a fixed abutment hook, engaging the center slit portion of a cross perforation line between the leading container and the next adjacent container over the hook, applying sufficient pull on the leading container to separate the same from the next succeeding container along said cross perforation line, opening the mouth of the separated container, and simultaneously advancing the same into position for receiving a predetermined quantity of the merchandise.

3. A method of packaging merchandise in tubular containers which are formed from flexible plastic film material which comprises providing a plurality of containers in initially flattened connected roll form, with cross perforation lines having a center slit portion separating each successive container from the next adjacent container, guiding the containers toward a fixed abutment formation, advancing the containers relative to the abutment formation to engage the abutment formation in the center slit portion of a cross perforation line between the leading container and the next adjacent container, continuing the advancing movement of the leading container to separate the same from the next succeeding container by tearing along said cross perforation line, opening the mouth of the separated container and advancing the same to a filling station for receiving a predetermined quantity of the merchandise.

4. In a device for dispensing individual empty containers from a plurality thereof which are arranged in flattened and connected roll form and which are characterized by a transverse bottom seal and a transverse separating line comprising a center slit and side perforations adjacent thereto, means for supporting the roll of containers so that the end thereof may be unwound from the roll, means for guiding the same in a predetermined path, an abutment hook extending into the path of movement of the containers and a spring element engaging the opposite side of the containers and urging the same towards the hook whereby to engage the hook in the center slit of successive transverse separating perforation lines to permit the endmost container to be separated from the next adjacent container by tearing along the side perforations.

5. Apparatus for dispensing a roll of web material which is cross perforated at longitudinally spaced intervals, with the individual perforation lines each having a center slit formation, said apparatus comprising, a support for the roll of material, means for guiding the end of the material in a predetermined path, a hook-like abutment member extending into the path of movement of the material, and a spring plate engaging the opposite side of the material and urging the material against said hook-like abutment member to cause the end of the abutment member to engage in the center slit formation of successive cross perforations, whereby to permit the successive endmost portions of the material to be separated from the remaining material by the application of pulling force in the direction of advancing movement of the material.

6. Apparatus for dispensing a roll of material which is cross perforated at longitudinally spaced intervals, with the individual perforation lines each having a center slit formation, said apparatus comprising a support for the roll of material, means for guiding the end of the material in a predetermined path, a relatively narrow curved blade member mounted with an abutment forming end portion projecting into the path of the material, and resilient means for urging the material against said blade member to cause the blade member to engage in the transversely extending center slit formation of successive cross perforations, whereby to permit the successive endmost portions of the material to be separated from the remaining material by the application of pulling force in the direction of advancing movement of the material while the remaining material is held against advancing movement by engagement with the abutment forming end portion of said curved blade member.

7. Apparatus for dispensing a roll of material which is cross perforated at longitudinally spaced intervals, with the individual perforation lines each having a center slit formation, said apparatus comprising a support for the roll of material, means for guiding the end of the material in a predetermined path, a fixed abutment member supported adjacent the path of the material, and means for urging the material against said abutment member to cause said abutment member to engage in the center slit formation of successive cross perforations, whereby to permit the successive endmost portions of the material to be separated from the remaining material by the application of pulling force in the direction of advancing movement of the material while the remaining material is held against advancing movement by the engagement of said abutment member in said slit.

8. In a device for dispensing individual containers from a plurality thereof which are arranged in connected form and which are characterized by a transverse bottom seal and a transverse separating line having a center slit and side perforations adjacent thereto, means for supporting the containers so that the end is free to advance in a predetermined path, a hook-like abutment formation positioned to extend transversely of the path of movement of the containers and facing in the direction opposite to the direction of advancing movement thereof, and means for urging the connected containers against the abutment formation whereby to successively engage thereover the center slit of successive transverse perforation lines to permit the endmost container to be severed from the next

adjacent container by tearing along the side perforations separating the same.

9. Apparatus for dispensing a web of material which is cross perforated at longitudinally spaced intervals, with the individual perforation lines each having a center slit formation, said apparatus comprising a support for the web of material, means for guiding the end of the material in a predetermined path, an abutment forming member supported along said path and extending laterally thereof in position to engage with one face of the material, and means for urging the material against the abutment forming member to cause the abutment forming member to engage in the center slit formation of successive cross perforations, whereby to permit the successive endmost portions of the material to be removed from the remaining material by the application of pulling force in the direction of advancing movement of the material.

10. A method of packaging merchandise in containers which are formed from flexible plastic film material which comprises providing a plurality of the containers in flattened and connected series with cross perforation lines separating each successive container from the next adjacent container, advancing and guiding the connected containers past an abutment formation which projects transversely of the path of advancing movement of the containers, urging the containers against the abutment formation to cause the abutment formation to penetrate and project through the perforation line between the

leading container and the next adjacent container, applying sufficient pull on the leading container to separate the same from the next succeeding container along said cross perforation line, and advancing the separated container into position for receiving a predetermined quantity of the merchandise.

11. Apparatus for packaging merchandise in containers which are formed from flexible film material and which are supplied in connected series with cross perforation lines separating each successive container from the next adjacent container, said apparatus comprising means for guiding the connected containers in a predetermined path, an abutment formation mounted to project into the path of advancing movement of the containers, and means for urging the containers against the abutment formation to cause the abutment formation to engage with each successive cross perforation line and penetrate the same whereby sufficient pull may be applied to each successive leading container to separate the same from the next succeeding container along the cross perforation line separating the same therefrom.

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