

March 10, 1942.

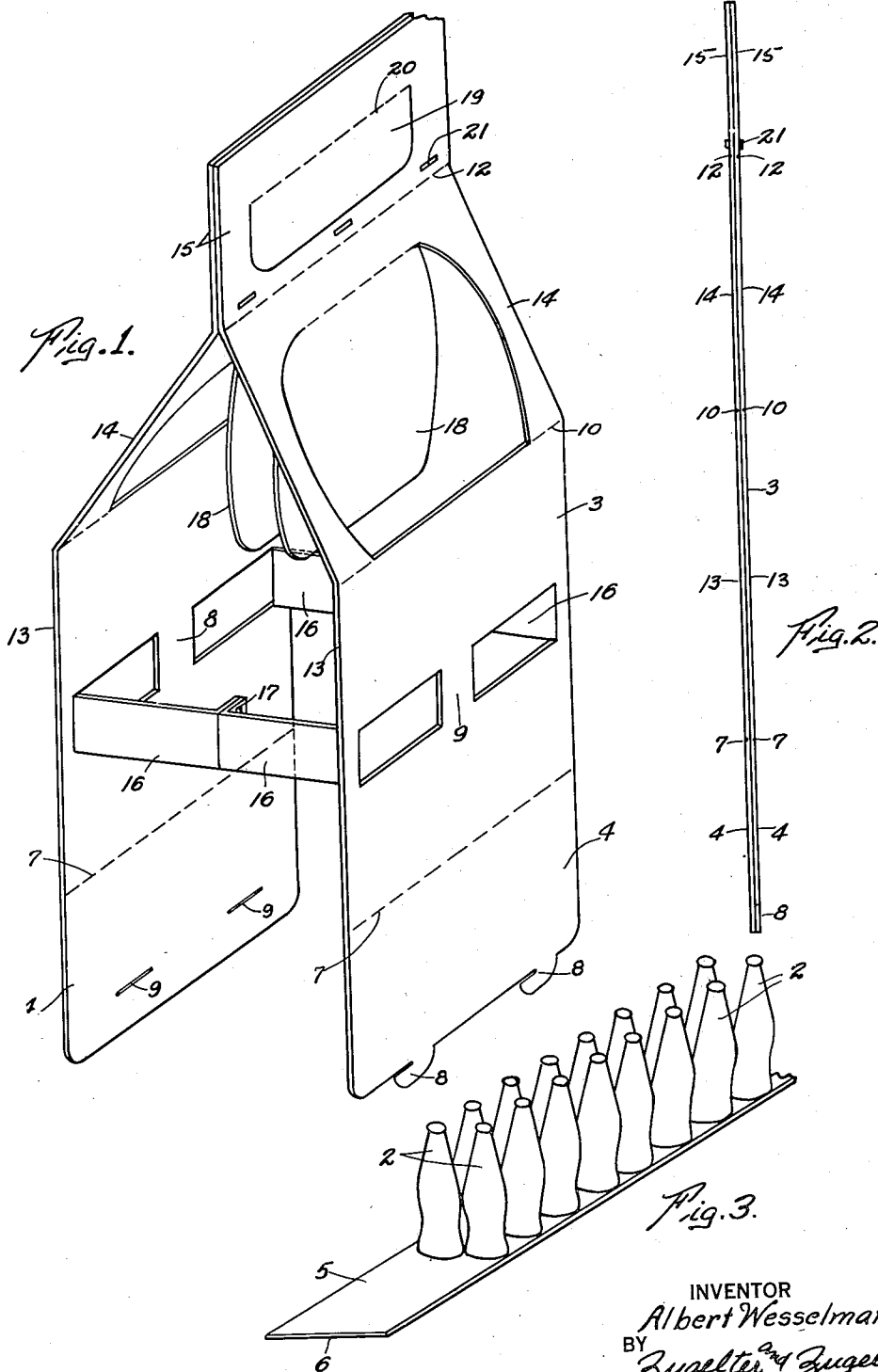
A. WESSELMAN

2,276,129

METHOD AND APPARATUS FOR PACKAGING

Filed Feb. 20, 1940

3 Sheets-Sheet 1



March 10, 1942.

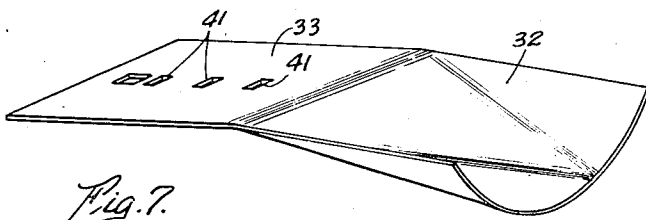
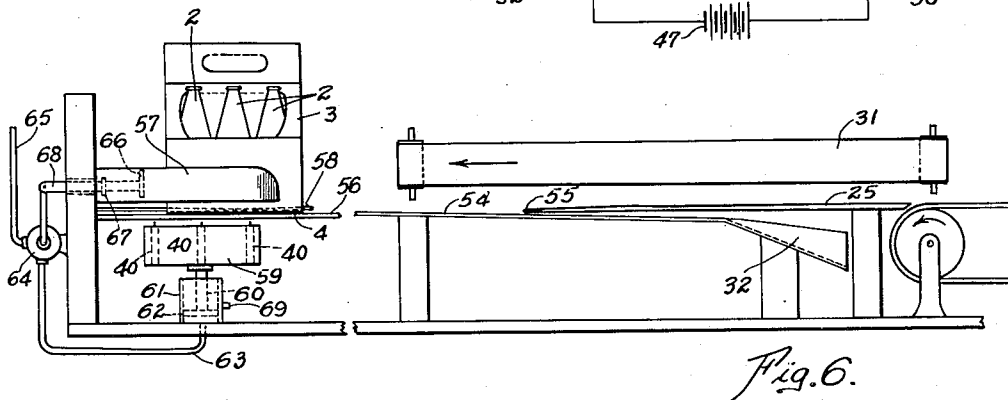
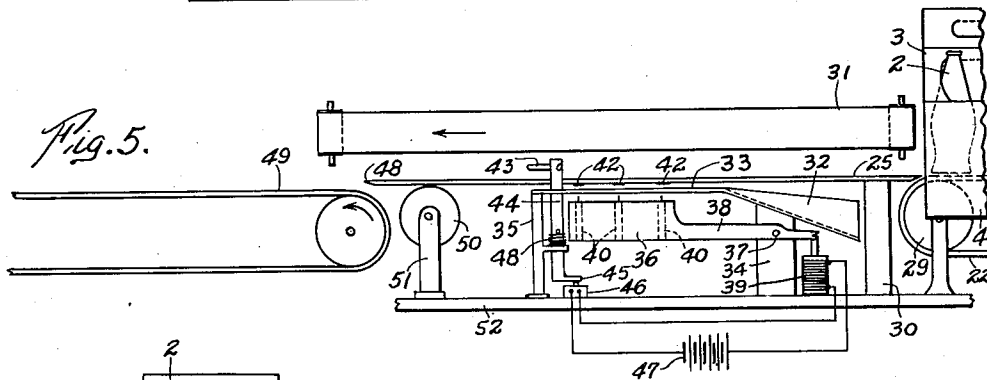
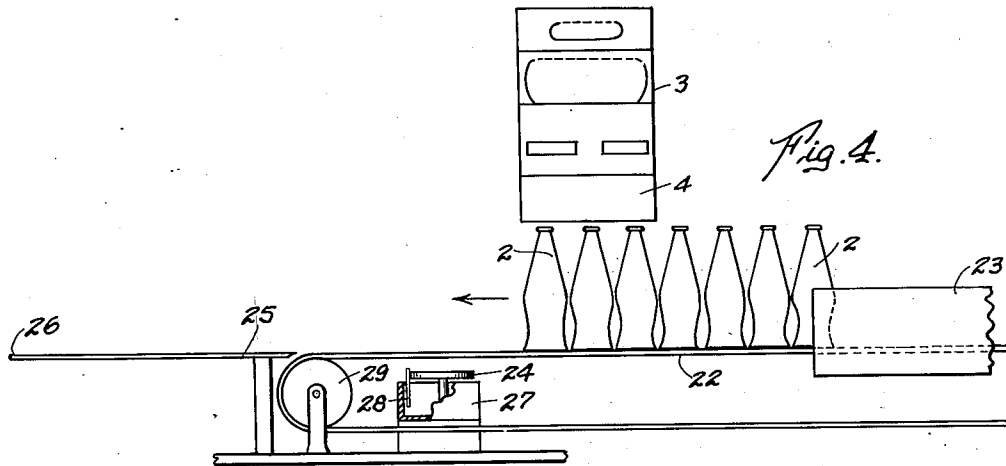
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METHOD AND APPARATUS FOR PACKAGING

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3 Sheets-Sheet 2



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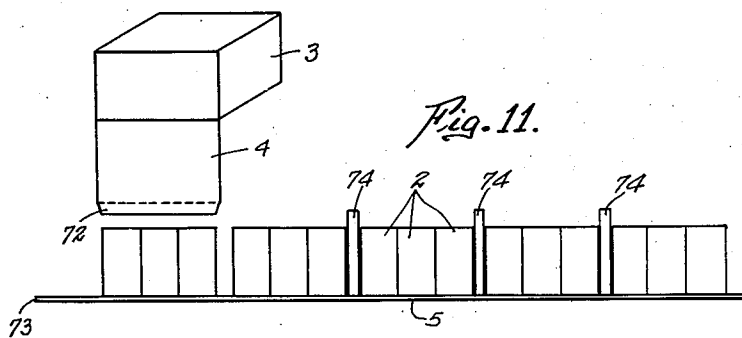
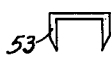
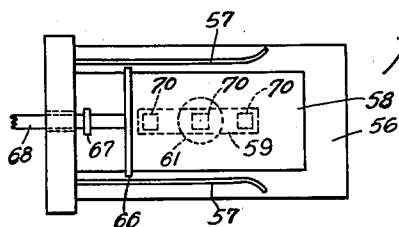
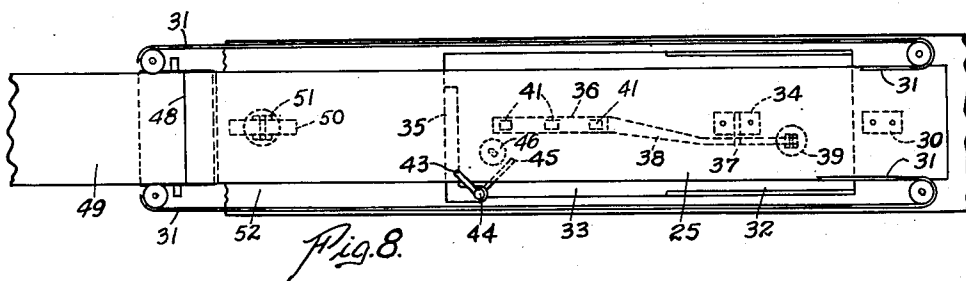
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METHOD AND APPARATUS FOR PACKAGING

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3 Sheets-Sheet 3



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METHOD AND APPARATUS FOR PACKAGING

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Application February 20, 1940, Serial No. 319,929

21 Claims. (Cl. 93—6)

This invention relates to a method and apparatus for the packaging of articles, and is of special advantage where it is necessary to pack articles into boxes, containers, or carriers with dispatch and at low cost. The invention, so far as the method is concerned, consists broadly in providing a container having an open bottom including closure flaps depending from the container sides, and in the planes thereof (Figs. 1 and 3), the container in that condition being adapted for placement like a hood over the tops of one or more articles to be packaged, and the flaps being subsequently wiped in or folded together, and fastened, to close the bottom of the container upon the bottom or bottoms of the articles thereby enveloped in the container. One or more articles may be packaged in a single container in this way, with a great saving of time, expense, and labor.

For the purpose of explanation of the invention, it is considered convenient to regard the articles as bottles, and to provide for packing them into a bottle carrier of a more or less open construction, although the invention in its broadest sense is to be considered applicable to boxes or containers of ordinary construction adapted for the packaging of articles of various kinds and shapes. Accordingly, the specific means and apparatus herein disclosed are to be considered exemplary only, of a solution to the packaging problem, and various applications of the invention to different circumstances and conditions will at once become manifest as the description proceeds.

One object of the invention is to provide improved method and apparatus for the packaging of articles quickly and inexpensively, with a substantial saving of time, labor, and operating space.

Another object is to secure the advantages above stated, using simple and inexpensive apparatus which may be semi-automatic or fully automatic, according to the magnitude or the nature of the packaging problem involved.

Another object of the invention is to provide a packaging method and/or apparatus wherein all of the essential operations may be of a continuous nature, rather than intermittent, thereby speeding the procedure and reducing hand work to a practical minimum. A predominantly manual procedure is offered also, for use under circumstances which do not require automatic means.

A further object is to provide a novel container

flap fastening apparatus adapted for continuous assembly line use.

Another object is to provide a novel container flap fastening apparatus which may be used apart from the continuous assembly line, or at the terminal end thereof, as desired.

The foregoing and other objects are attained by the means disclosed herein and illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of typical container or carrier which will be used by way of example in the explanation of the invention.

Fig. 2 is an end view of the device illustrated by Fig. 1, showing it in a collapsed condition.

Fig. 3 is a perspective view on a reduced scale, showing a group of bottles (articles to be packaged), arranged upon a support whose width approximates the sum of two bottle base diameters, to permit the container of Fig. 1 to be placed over a group of bottles without interfering with the container bottom flaps which latter are adapted for disposition beneath the level of the support as shown at the extreme right of Fig. 5.

Fig. 4 is a side elevational view of a predominantly manual means for packaging in accordance with the method of the invention.

Fig. 5 is a side elevational view of an extension apparatus which may be applied to the delivery end of the Fig. 4 apparatus, for the continuous packaging of articles by unidirectional assembly line method.

Fig. 6 is a side elevational view of a modified form of apparatus for practicing the method of the invention.

Fig. 7 is a perspective view of a flap guide which may comprise an element of each machine illustrated by Figs. 5 and 6.

Fig. 8 is a plan view of a portion of the machine of Fig. 5, portions of the side belts being broken away for clarity of disclosure.

Fig. 9 is a plan view of the apparatus shown at the extreme left of Fig. 6.

Fig. 10 is an elevational view of a staple or other fastener, such as may be used in place of the more common type of staple, if desired, in securing the bottom flaps of the container together.

Fig. 11 is a diagrammatical view illustrating a modification of the method and apparatus of the invention.

In all views of the accompanying drawings, articles in the form of bottles are identified by the reference characters 2, while 3 indicates generally a container or carrier having opposed bottom closing flaps 4 which are hingedly supported

from the sides of the container or carrier. As previously pointed out herein, the broad invention does not necessarily contemplate the use of bottles specifically, nor is it necessary that the container be of the specific form herein illustrated and described. So far as the broad invention is concerned, the present disclosure exemplifies but one of a number of applications to which the invention is suited. The description proceeds with that understanding.

As shown, the bottles have necks of a reduced size, so that they taper in general toward the bases of the bottles. In accordance with the invention, the bottles are prearranged upon a suitable support 5, which may be stationary or moving, as desired, and are so related that a predetermined number of bottles may be hooded over or enveloped within the confines of a carrier or other container 3 placed thereover. The carrier or container 3 may be dropped or placed over the bottles either by the use of mechanical means, or manually, as desired. In the example shown, the carrier or container is adapted to envelop or embrace six bottles, or two rows of three bottles each. Accordingly, the bottles will be seen to initially assume the arrangement of Fig. 3, wherein two rows of bottles are shown resting in side by side relationship upon the support 5, for an indeterminate distance along the support. The number of rows of bottles upon the support 5 is dependent upon the capacity, or the width, of the carrier or container 3. In the present illustration, the width of the carrier is sufficient to accommodate a double row of bottles or other articles.

From the illustrations of Figs. 1 and 3, it should be evident that one operator may manually place a series of open bottom carriers upon the bottles all along the support 5, the carriers assuming an end to end relationship along the support, while another operator may successively pull the carriers with their enclosed bottles forwardly, to the forward end 6 of the support, while at the same time folding in the bottom flaps 4 toward the under side of support 5, and fastening them together beneath the bottoms of the bottles contained within the carrier. As will be understood, the flaps 4 are intended for disposition vertically below the level of the horizontal support 5 when the carriers are applied over the bottles as above explained, so that the flaps may easily be turned in toward one another about their respective hinges 7, against the under face of the support 5, preparatory to locking or otherwise joining the flaps together.

The foregoing explanation outlines one of the simple modes of practicing the method of the invention. It includes the manual distention of the carrier, from the collapsed condition of Fig. 2 to the extended condition of Fig. 1. This distention of the carrier is accomplished easily and quickly by simply spreading the carrier sides slightly to enable the fingers of the operator's hands to grasp the struts 8 and 9, which then may be pulled in opposite directions to separate the carrier sides as in Fig. 1 for disposition of the carrier over a group of bottles. The particular manner or means for distending the carrier is immaterial, and may therefore be manual or mechanical, as desired. Immaterial also is the character of means employed for joining the flaps 4 in completing the package; and although a common form of lock means is disclosed at 8-9, comprising a locking lug and a slot, respectively, 75

it must be understood that the connection of the flaps may be effected with the use of stitching, stapling, or adhesive means, as well as any other form of fastening suitable for the purpose.

Inasmuch as a particular carrier is illustrated, and used in explaining the invention, a brief description thereof may properly be offered. It comprises a pair of flat sheets each scored transversely at 7, 10, and 12 to define bottom flaps 4, sides 13, inclined tops 14, and handle portions 15. The sides may be pierced as illustrated to form the end straps 16, each of which has an end hinged to a side of the carrier. The free ends of oppositely disposed straps are secured together as at 17, to limit expansive movement of the carrier sides. When the carrier is collapsed, the straps fit neatly within the openings from which the straps are struck, and are separated by the struts 8 and 9. The top sections 14 are perforated to receive the necks of bottles, and along the top edges of the perforations are hinged the separator flaps 18. Tabs 19 struck from the handle portions and hinged at 20 by means of score lines, provide a hand hole when the tabs are turned upwardly about their hinges. Staples or other suitable fastening means 21 may be employed to join the sheets together adjacent the juncture of the top sections 14.

In that form of carrier disclosed in Figs. 4, 5 and 6, the bottom flaps 4 are formed without locking means, in the event that it be desired to secure them together by means of adhesive, stitching, stapling, or the like.

It is of course evident that the carrier or container just described is quite elaborate and includes many elements and features which are unnecessary to the performance of the method constituting the invention. The bottom flaps are obviously necessary, as will appear with greater certainty hereinafter.

Referring to Fig. 4, 22 indicates a moving belt or conveyor for carrying the bottles 2 past an operator's station at which the containers or carriers 3 are distended and applied to successive groups of bottles as was explained in connection with Figs. 1 and 3. The bottles rest upon the upper run of the conveyor, the rows of bottles being kept straight through the agency of guides or side boards 23 located at opposite edges of the conveyor belt. When the carrier is placed over a group of bottles, its side flaps 4 will span the upper run of the conveyor and will extend vertically below it to a predetermined extent, which in the illustration is governed by the necks of the bottles, as shown in Fig. 5. As the conveyor of Fig. 4 moves the bottles forwardly in the direction of the arrow, the carrier being placed about the bottles, the lower edge of a flap 4 may engage an applicator 24 for applying an adhesive to one or both of the carrier flaps. When the assembly has reached the discharge end of the conveyor, and has moved onto the table 25, the operator may grasp the assembly, pull it toward the forward end 26 of the table, and at the same time manually wipe in or fold under the flaps so that one will adhere to the other for closing the bottom of the carrier and thereby completing the package. It should be understood that the adhesive applicator may be omitted if desired, in which event the operator stationed at the discharge end of the table may subject the inwardly folded flaps to the action of mechanism other than an adhesive applicator, for joining the flaps together with sufficient security to carry the weight of the bottles when the carrier is lifted by

means of the handle. Flap securing means other than an adhesive applicator will be referred to in the description of Figs. 5 and 6.

With further reference to Fig. 4 it is conceivable that the rows of bottles 2 might be advanced toward the discharge end of the machine, with the use of means other than a moving conveyor, for example, as was explained in connection with Fig. 3, wherein the support plate 5 was assumed to be sufficiently smooth for movement of the bottles frictionally along its upper surface. With guides such as 23 at either side of the support 22 (Fig. 4), it would be feasible to advance the rows of bottles by means of force applied at the rear of the bottle rows, so that the supporting element 22 need not be movable.

When an adhesive applicator is employed, it may be of any accepted type, although the applicator illustrated is seen to consist of a freely rotatable wheel 24 journaled for rotation in a horizontal plane, and supported over a tank 27 of adhesive, the adhesive being transferred to the wheel by means of a transfer disc 28 which contacts the wheel at its upper portion, while the lower portion of the disc is submerged in the adhesive material contained within the tank.

Fig. 5 discloses mechanism for automatically folding or wiping in the flaps of the carrier, after the carrier and its included bottles have passed the adhesive applicator 24. The mechanism of Fig. 5 includes also a mechanical device for clipping the flaps securely together, thereby to complete the package.

For the purpose of explanation, it may be assumed that the conveyor drum 29 is the same conveyor drum as is illustrated in Fig. 4, and beyond which is located the table 25 resting upon a suitable supporting standard 30. As the package with the bottles included leaves the upper run of conveyor 22, it is advanced onto the table 25, with its flaps 4 still depending downwardly in vertical parallel planes, and in that condition of the carrier it is advanced along the table 25 in any suitable manner such as by means of power-driven side belts 31 moving in substantially vertical parallel planes. The side belts are spaced apart the proper distance for assuring frictional contact thereof against the opposite sides of the carrier, so that the carrier will be advanced along with the bottles, the bottoms of the bottles resting upon and sliding over the upper face of table 25. The reader may refer to Fig. 8 for a plan view of the apparatus referred to.

Beneath the table 25 there is supported a flap guide 32, the receiving end of which is properly flared or shaped to engage the opposed flaps 4 of the carrier and turn them inwardly toward one another into substantial contact. Flap guides for the purpose are old and well known, wherefore it is immaterial whether one type or another be utilized in performance of the flap turning function. One form of guide that will operate with satisfaction is illustrated by Fig. 7. The guide may include a horizontal extension 33 lying in spaced parallelism with the under face of table 25. The flap guide may be supported in position beneath the table in any acceptable manner, such as by means of posts or other supports as indicated at 34 and 35.

Assuming that it is considered desirable to staple the bottom flaps of the carrier together, a stapling head 36 is provided beneath the extension 33 of the flap guide, said head being adapted for movement toward and from the un-

der face of table 25 each time that a carrier is disposed upon the table in vertical alignment with the stapler head. While it is immaterial how the stapler head be advanced and retracted vertically, there is shown by way of illustration a pivotal mounting 37 for supporting an arm 38 of the stapler head in such manner that electromagnetic means 39 may operate upon an outer extension of the arm to suddenly project the stapler head upwardly for driving one or more staples through the material of the flaps to be joined.

The characters 40 indicate staple magazines, from the top of which extend the staples or fasteners to be affixed to the material of the flaps. In order that the staples may reach the flaps as intended, the horizontal extension 33 of the flap guide may be provided with apertures 41 allowing the staples to pass through the extension and into the material of the flaps. The characters 42 indicate hardened dies or anvils affixed to the under face of table 25, and adapted for turning the prongs of the staples against the inner faces of the carrier flaps.

In order that the stapling operation may be rendered automatic if desired, a trigger 43 may be provided, extending into the path of movement of the carriers, and mounted upon a rotatable upright shaft 44 which has at its lower end a finger 45 for engaging the actuator of a momentary-contact electrical switch 46. Switches of this type are procurable on the market, wherefore it is deemed unnecessary to explain the details thereof, other than to state that such switch will close an electrical circuit only for an instant when actuated by the finger 45, in order that the magnetic device or solenoid 39 may suddenly project the stapler head upwardly for an instant, and permit it to return to the normal inoperative position immediately. A source of electrical energy together with the necessary wiring is indicated conventionally by the reference character 47. A spring 48 or equivalent means may be furnished, acting to yieldingly urge the trigger 43 against the carrier and into the path of advancement thereof.

After having been acted upon by the stapler 36, the package is carried forwardly by the side belts 31, and past the trigger 43, to a position in readiness for discharge as a completed assembly. It should be understood that so long as the package remains upon the table 25, its flaps will be disposed against the under face of the table while the bottoms of the bottles contained therein will rest upon the upper face thereof. Upon leaving the discharge end 48 of table 25, the package may be deposited upon any acceptable form of receiving element 49. This completes the packaging operation, and the package therefore may be lifted by means of its handle for transfer to cartons, trucks or other shipping devices.

The reference character 50 indicates a support for the free end of table 25, which by way of illustration may consist of a freely rotatable wheel or drum mounted upon a fixed standard 51 attached to the base or frame 52 of the apparatus. Should the free end of the table require no support, the device 50—51 may be omitted.

In the foregoing explanation, it was assumed that the apparatus of Fig. 5 was added onto the left end of the Fig. 4 apparatus, so that the complete machine included both adhesive applicator and the stapling mechanism, however, it is to be appreciated and understood that the adhesive applicator might not be required when a stapler

is employed, and conversely utilization of the adhesive applicator may render the stapling mechanism unnecessary. Both may be included in the machine, however, should a double fastening be deemed desirable.

As will be obvious to persons skilled in the art, the stapler head 36 represents but one of a number of clamping or securing devices that are available for joining carton flaps in the manner proposed. Accordingly, it is to be considered within the purview of this invention, to substitute any known type of stitching or riveting machine for the stapling mechanism herein proposed by way of example.

From the foregoing, it should at once be evident that the apparatus of Fig. 5 when coordinated with that of Fig. 4, furnishes means whereby bottles or other articles may be packaged as a continuous line operation, without interruption to steady straight-line advancement of the elements constituting the completed package.

By making use of self-clinching staples of the general type indicated at 53 of Fig. 10, the dies or anvils 42 included in the apparatus of Fig. 5, may be omitted.

Fig. 6 illustrates substantially the apparatus of Fig. 5, except that it omits the stapling or stitching mechanism, and has the flap guide extension elongated as at 54, so that the extension performs as a receiver comparable with the receiver indicated at 49 of Fig. 5. In this embodiment, Fig. 6, the carrier and its included articles or bottles will be advanced by the side belts 31, along the upper surface of the table 25, to place the depending flaps of the carrier under the influence of flap guide 32, and further advancement will bring the carrier and its included bottles to the terminal end 55, beyond which terminal end the bottles will rest directly upon the intumed bottom flaps of the carrier. Although at this stage of the assembly, the flaps may not be fastened together, the carrier nevertheless may be slid along the surface 54 to a remote station at which staples or stitching may be applied for joining the flaps together. Such station is indicated at the extreme left end of Fig. 6 where 56 indicates a remote section of the plate or surface 54. With the flaps 4 turned under, and with the bottoms of the bottles resting thereon, the carrier may be directed to a pair of vertically disposed guides 57 arranged in spaced parallelism, as shown in Fig. 9, for positioning the assembly relative to a stitching or stapling mechanism. Although a stitcher might readily be utilized, it is deemed sufficient to disclose a stapler for fastening the carrier flaps. This stapler includes a forwardly extending tongue or separator 58 arranged in spaced parallelism with the support surface 55, at an elevation such that it will enter the end of the carrier between the upper faces of the flaps and the lower faces of the bottles, thereby assuming the function of an anvil against which the staples of the stapler head 59 may impinge in deforming the staples to the clinched condition. To render the mechanism automatic in its action, a trip or trigger mechanism such as was disclosed in connection with Fig. 5 may be utilized. Alternatively, however, it is possible to utilize compressed fluid, such as air or liquid, in advancing the stapler head to lodge the staples in the flaps of the carrier. It is accordingly proposed that the stapler head 59 be mounted, with its staples upstanding, upon a plunger 60 that is supported within a cylinder 61 adapted for cooperation with a piston 62 on the plunger 60. A pipe 63 is

furnished for conveying compressed fluid into the cylinder beneath the piston each time that a valve 64 is moved to an open position. The character 65 indicates a source of fluid under pressure, leading to the valve, so that the valve may control passage of the fluid under pressure to the cylinder 61.

Within or adjacent to the guide means 57, a valve actuator 66 may be located, and this may be in the form of a plate so located as to be struck and moved by the carrier as the carrier is advanced between the guides. A stop 67 may limit the movement of the actuator 66, to assure an open position of the valve 64 when the rod or shaft 68 is advanced by the force with which the carrier 3 contacts the actuator or plate 66.

Each opening movement of the valve resulting from insertion of a carrier fully within the guide means 59, results in a sudden upward projection of the stapler head 59, to lodge one or more staples in the flaps of the carrier. By providing a relief port 69 or equivalent means, the stapler head will be permitted to descend or retract to the normal inoperative position of Fig. 6, immediately after each projectile movement thereof. If necessary or desirable, the stapler head may be spring-returned to the normal position.

In order that the staples at the upper ends of the magazines 40 may reach the carrier flaps, the supporting plate or table 56 may be apertured as indicated at 70 of Fig. 9. It will be noted that the tongue or separator 58 shall be of limited width such as to be received inside the carrier, between the limits of its sides. The distance between guides 57 will preferably be slightly in excess of the width of the carrier. In the event that the bottoms of the bottles be sufficiently flat and heavy to serve as anvils for turning the prongs of the staples, the tongue or separator 58 may be omitted. With other types of staples, it may be necessary to equip the tongue or separator 58 with hardened anvils or dies as indicated at 42 of Fig. 5.

The apparatus of Fig. 6 does not possess the advantage of continuous line operation which characterizes the Fig. 5 apparatus, due to the fact that the final operation requires a reciprocating movement of the carrier and its included bottles or articles for joining the bottom flaps. However, it is possible to operate the apparatus at the right of Fig. 6 at a high speed such as to keep supplied two or more of the final fastening devices last described, and in that manner secure a high speed output of completed packages. It is considered that the stapling machines illustrated and described herein are the full equivalents of wire stitching machines that are available for use in connection with the present invention, with equal results, and the scope of the invention is to be measured in view of that consideration.

Although gang stapler heads are illustrated herein to perform the final securing operation upon the carrier flaps, it will readily be understood that single action staplers may be utilized, by imparting thereto the requisite number of stapling impulses to fix the flaps with the desired degree of security.

The illustration of Fig. 11 offers a slight variation of the method and apparatus previously disclosed herein with reference to Figs. 1 and 3. Here, the container 3 may be of a more conventional type than the container of Fig. 1, and may include a single bottom closing flap 4, if desired. The free lower end of the flap may be

scored as indicated, to furnish a tab or leaf 72 to be inserted into the body of the container, or secured to the far side thereof in performing the final closing operation. The articles 2 in Fig. 11 are shown conventionally to indicate cans, boxes, or the like units requiring packaging within a container such as 3. Like the bottles of Fig. 3, the articles 2 of Fig. 11 are prearranged upon a supporting plate or the like 5, closely adjacent to a longitudinal side edge thereof, in order that the container 3 may be placed over groups of the articles as a hood, with the closure flap 4 disposed beneath the level of the support 5 and the bottoms of the articles. Subsequently to such disposition of the container over the articles, the flap 4 may be wiped under or turned to substantial parallelism with and against the under face of the support 5, and the tab or insert 72 fixed to the far side wall of the container, so that the container with the articles therein may be slid to the left and removed from the discharge end 73 of the support to permit the bottoms of the articles to rest upon the inner face of flap 4. As was explained in connection with Figs. 1 and 3, the flap need not be so fixed until the container and the articles therein have been disassociated from the discharge end of support 5, although the flap will be in closing position relative to the open bottom of the container.

If desired, the articles 2 may be prearranged in groups to facilitate application of the container thereto, by utilizing spacer boards 74 between selected articles or groups of articles, said spacer boards to be removed prior to application of the container over the articles. Other spacing means known in the art of transferring or conveying might be resorted to, if desired, for the spacing apart of the articles to be packaged. It will at once be evident that the container disclosed in Fig. 11 might just as well include a pair of oppositely disposed flaps, as represented in Figs. 1 and 4. When the container includes more than one closure flap, it is preferable to limit the width of support 5 to the width of a group of articles to be packaged, in order that the flaps may depend downwardly at opposite longitudinal side edges of the support. The width of the support 5 in Fig. 11 likewise may be so limited, although it will be observed that this structural feature of the support is not so critical when a single flap 4 is provided on the container 3. It is necessary, however, that the articles 2 be so arranged upon the support that they rest thereon close to, or in overhanging relationship to one of the side longitudinal edges of the support.

By changing the location of the adhesive applicator or of the stitcher or stapler, so that the fixation of tab 72 may be accomplished at the rear side of container 3, the same apparatus may be employed for automatically closing the container as was explained with reference to the type of container and articles referred to hereinbefore. So far as the method of packaging is concerned, the modification disclosed in Fig. 11 requires no alteration or change in the procedure.

What is claimed is:

1. The herein described method of packaging, which comprises providing a thin substantially flat table having an overhanging unsupported end, and an open bottomed container having flaps at its opposite sides for closing the container bottom, applying the open bottomed container upon the table end as a hood over an article to be enveloped by the container as the article stands

upright upon the table end, while the flaps extend beneath the plane of the table and the bottom of said article, and then with the elevation of the article remaining fixed, turning the flaps inwardly and securing them together in substantial parallelism, with the thin table end interposed between the article bottom and the connected flaps, after which the assembly is withdrawn lengthwise of and out of association with the unsupported end of the table.

2. The herein described method of packaging, which comprises providing a thin substantially flat table having an overhanging unsupported end, and an open bottomed container having a flap at a side thereof for closing the container bottom, applying the open bottomed container upon the table end as a hood over an article to be enveloped by the container as the article rests upon the table end, while the flap extends beneath the plane of the table and the bottom of said article, and then turning the flap inwardly toward the article bottom and fastening said flap to the container in position to confine the article within the container, with the thin table end interposed between the article bottom and the inwardly turned flap, after which the assembly is withdrawn lengthwise of and out of association with the unsupported end of the table.

3. The herein described method of packaging, which comprises providing an open bottomed container having flaps at its opposite sides for closing the container bottom, applying the open bottomed container as a hood over an article resting upon a supporting surface, disposing the flaps below the level of the supporting surface and the article resting thereon, and then with the elevation of the supporting surface unaltered, folding the flaps inwardly against the bottom of the article and fastening the flaps in said folded relationship.

4. The herein described method of packaging, which comprises providing an open bottomed container having a flap at a side thereof for closing the container bottom, applying the open bottomed container as a hood over an article resting upon a supporting surface, disposing the flap below the level of the supporting surface and the article resting thereon, thereafter turning the flap beneath the supporting surface into substantial parallelism with the bottom of the article enveloped in the container, while the article remains upon the supporting surface, and then securing the flap to the container in the turned position stated.

5. The herein described method of packaging, which comprises providing an open bottomed container having a flap at a side thereof for closing the container bottom, applying the open bottomed container as a hood over an article resting upon a supporting surface, disposing the flap below the level of the supporting surface and the article resting thereon, thereafter turning the flap beneath the supporting surface into substantial parallelism with the bottom of the article enveloped in the container, then securing the flap to the container in the turned position stated, and thereafter withdrawing the assembled package from the supporting surface in substantially the plane of the latter, to free the package therefrom.

6. The herein described method of packaging, which comprises providing an open bottomed container having a flap at a side thereof for closing the container bottom, applying the open bottomed container as a hood over an article rest-

ing upon a supporting surface, disposing the flap below the level of the supporting surface and the article resting thereon, thereafter turning the flap beneath the supporting surface into substantial parallelism with the bottom of the article enveloped in the container, then withdrawing the assembled package from the supporting surface in substantially the plane of the latter, to free the package therefrom and allow the article bottom to rest upon the flap, and thereafter securing the flap in spanning relationship to the container bottom for supporting the weight of the enclosed article.

7. An apparatus of the class described, comprising in combination a support for articles to be packaged by applying thereover, as a hood, an open bottomed container having sides and a bottom closure flap, the articles being prearranged close to a longitudinal edge of the support whereby the flap of the container when so applied will pass the edge of the support and depend below the level thereof, while the container embraces the article, the support being of a reduced thickness such that the flap may be turned beneath the support into substantial parallelism therewith and the whole assembly advanced off a terminal end of the support, for transfer of the weight of the article from the support to the container flap, and means for securing the flap in spanning relationship to the bottom of the container.

8. An apparatus of the class described, comprising in combination a support for articles to be packaged by applying thereover, as a hood, an open bottomed container having sides and opposed bottom closure flaps depending therefrom, said support being of a width not substantially in excess of the combined widths of a group of articles resting thereon, so that the container flaps when depending from the container sides in substantial parallelism will pass the group of articles and assume positions at opposite sides of the support, at a level beneath the support, means for advancing the container and the articles hooded thereby toward a terminal end of the support, means operative during the advancing movement aforesaid for wiping in the flaps underneath the support, to dispose the flaps in bottom-closing relationship to the container, and means fixing the flaps to one another while the group of articles remain in contact upon the support, thereby conditioning the flaps for assuming the weight of the articles after the advancing means aforesaid has displaced the assembled container and articles beyond said terminal end of the support.

9. An apparatus of the class described, comprising in combination a thin support for an article to be packaged by applying thereover, as a hood, an open bottomed container having sides and opposed bottom closure flaps depending therefrom, said support being of a width not substantially greater than the distance between the container flaps when parallel to the container sides, whereby the flaps may pass below the level of the support when the container is dropped over the article to enclose it therein, a terminal end on the support, a flap guide beneath the support for wiping in the container flaps to closed position beneath the thin support, and a delivery table having a portion disposed beneath the level of the terminal end of the support, said portion providing an area upon which the wiped-in flaps will rest after leaving the flap guide, so that advancement of the con-

tainer and its contents past the terminal end of the support results in transfer of the contents from the support to the flaps of the container, and means for fixing the flaps in spanning relationship to the bottom of the container.

10. An apparatus of the class described, comprising in combination a moving conveyor for a series of articles to be packaged by applying thereover, as hoods, open bottomed containers each having opposed sides and bottom closure flaps depending from their respective sides in the planes thereof, said conveyor being of a limited width such as to permit, without interference, disposition of the container flaps to positions of dependency below the level of the side edges of the conveyor, a support likewise limited in width and arranged to receive the hooded articles, said support being of a reduced thickness and having a delivery end, means for moving the hooded articles along the support and toward the delivery end thereof, with the flaps depending as stated, a flap guide beneath the support and including means for folding the flaps inwardly toward each other substantially flatwise against the under face of the support, means operated incident to movement of the container along the support for joining the flaps together beneath the support while the articles within the container rest upon the support in their movement toward the delivery end thereof.

11. A clamping machine which comprises in combination, a frame including an apertured table for supporting open-ended incomplete article carriers having bottom flaps to be clamped together subsequently to filling the carriers with articles, a clamping head beneath the table and including a clamp magazine located below the table aperture, and means for projecting said head upwardly to lodge a clamp in the flaps for completing assembly of the article carrier package.

12. A clamping machine which comprises in combination, a frame including an apertured table for supporting incomplete open-ended article carriers having bottom flaps to be clamped together subsequently to filling the carriers with articles, a clamping head beneath the table and including a clamp magazine located below the table aperture, means for guiding the carrier to a location over the aperture and the clamping head, a clamp deforming anvil plate overlying the table aperture and having one end fixed to the frame and an opposite free end, said free end being spaced from the table a distance approximating the thickness of the container bottom, and the width of the anvil plate being less than the width of the open end of the carrier, so as to be receivable in said open end between the articles of the carrier and the bottom flaps thereof, and means operated by movement of the carrier relative to the guide means aforesaid, for elevating the clamping head and projecting a clamp through the carrier flaps and against the anvil plate.

13. In an apparatus for clamping together the bottom closing flaps of an article carrier containing one or more articles prior to closing of the carrier bottom, which apparatus comprises a supporting table having a fixed end and a free end, the table being of a width not in excess of the width of the carrier, and thereby capable of supporting the article and the carrier upon its upper surface while the flaps depend below the table, guide means beneath the table including a flap in-wiper for turning the flaps flatwise

against the under face of the table, a secondary guide means having an opening therein and supported in closely spaced parallelism with the under face of the table to keep the carrier flaps in substantially the in-turned condition beneath the table, means for moving the carrier and its included article in the condition stated, toward the free end of the table for delivery, a projectable clamping head including a clamp magazine located beneath the opening of the secondary flap guide means, in position to project a flap-securing clamp upwardly through the carrier flaps and against the under face of the table, and means for so projecting the clamping head each time that a carrier is located over said head.

14. In an apparatus for clamping together the bottom closing flaps of an article carrier containing one or more articles prior to closing of the carrier bottom, which apparatus comprises a supporting table having a fixed end and a free end, the table being of a width not in excess of the width of the carrier, and thereby capable of supporting the article and the carrier upon its upper surface while the flaps depend below the table, guide means beneath the table including a flap in-wiper for turning the flaps flatwise against the under face of the table, a secondary guide means having an opening therein and supported in closely spaced parallelism with the under face of the table to keep the carrier flaps in substantially the in-turned condition beneath the table, means for moving the carrier and its included article in the condition stated, toward the free end of the table for delivery, a projectable clamping head including a clamp magazine located beneath the opening of the secondary flap guide means, in position to project a flap-securing clamp upwardly through the carrier flaps and against the under face of the table, means for so projecting the clamping head each time that a carrier is located over said head, and a support for the free end of the table adapted to press the carrier flaps against the under face of the table as the carrier moves away from the clamping head.

15. An apparatus of the class described, comprising in combination a thin support for an article to be packaged by applying thereover, as a hood, an open bottomed container having sides and a bottom closure flap depending from one of the sides, said support having an edge past which the flap may project when the container is placed over the article to be enclosed thereby, a terminal end on the support, a flap guide beneath the support for wiping-in the container flap to closed position beneath the thin support, and a delivery table having a portion disposed beneath the level of the terminal end of the support, said portion providing an area upon which the wiped-in flaps will rest after leaving the flap guide, so that advancement of the container and its contents past the terminal end of the support results in transfer of the contents from the support to the flap of the container, and means for fixing the flap in spanning relationship to the container sides.

16. An apparatus of the class described, comprising in combination a thin support for an article to be packaged by applying thereover, as a hood, an open bottomed container having sides and a bottom closure flap depending from one of the sides, said support having an edge past which the flap may project when the container is placed over the article to be enclosed thereby, the thickness of the support being such as to allow turning of the flap underneath the support into span-

ning relationship to the container sides while the container sides and the article embraced thereby remain upon the support.

17. An apparatus of the class described, comprising in combination a thin support for an article to be packaged by applying thereover, as a hood, an open bottomed container having sides and a bottom closure flap depending from one of the sides, said support having an edge past which the flap may project when the container is placed over the article to be enclosed thereby, with its sides embracing the article while resting edgewise upon the support, the support having a terminal end off of which the container and the article therein may be advanced by movement in the plane of the support, and means for turning the flap at right angles to the sides in spanning relationship thereto, while the article remains in contact with the support.

18. An apparatus of the class described, comprising in combination a thin support for an article to be packaged by applying thereover, as a hood, an open bottomed container having sides and a bottom closure flap depending from one of the sides, said support having an edge past which the flap may project when the container is placed over the article to be enclosed thereby, with its sides embracing the article while resting edgewise upon the support, the support having a terminal end off of which the container and the article therein may be advanced by movement in the plane of the support, and means for turning the flap at right angles to the sides in spanning relationship thereto, while the article remains in contact with the support, and means for fixing the flap in the spanning relationship stated.

19. An apparatus of the class described, comprising in combination a moving conveyor including a supporting bottom plate having a smooth upper surface and a side edge, said surface supporting an article to be advanced by the conveyor and packaged by applying thereover, as a hood, an open bottomed container having upright sides and a bottom closure flap depending from one of the container sides past and below said side edge as the container sides rest edgewise upon the plate in embracing relationship to the article, the supporting plate having a terminal end off of which the container and the article therein may be advanced by unitary movement in the plane of the supporting plate, and means for turning the flap beneath the supporting plate into spanning relationship with the container sides, while the article within the container remains in contact with the supporting plate.

20. The herein described method of packaging, which comprises providing an open bottomed container having upright sides with a flap depending from one of said sides and adapted for closing the container bottom, applying the open bottomed container as a hood over an article resting upon a supporting surface, with the upright sides standing edgewise upon the supporting surface and the flap depending below the level of said surface, thereafter turning the flap beneath the supporting surface into spanning relationship to the container sides, and then sliding the container with the article therein longitudinally of the plate, to disassociate the assembly from the plate and thereby dispose the article to a position of contact with the flap.

21. The herein described method of assembling packages, which comprises advancing along a supporting surface a succession of groups of ar-

ticles with separators between successive groups, removing the separators and applying as a hood over each article group an open bottomed container having upright sides in edgewise contact upon the surface, with a flap depending from one of the sides to a level below the plane of the supporting surface, then turning the flap be-

neath the supporting surface into spanning relationship to the container sides, and thereafter sliding the container with its group of enclosed articles longitudinally of the plate, to disassociate the assembly from the plate and thereby expose the articles to contact with the turned flap.

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