July 9, 1968 J. D. KEENAN, JR., ET AL 3,391,519

BAG SUPPORTING AND RETAINING MEANS FOR A PACKING MACHINE

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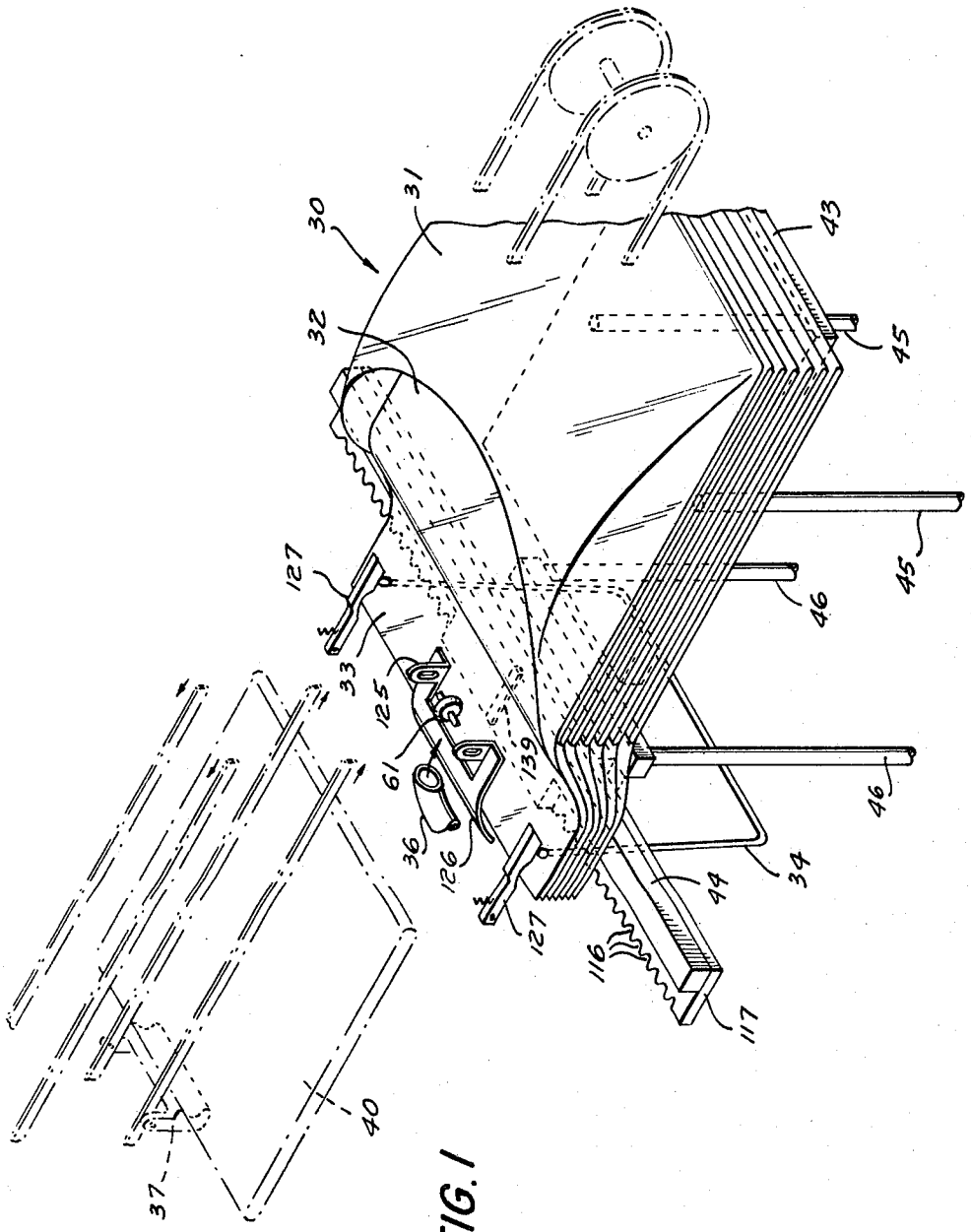


FIG. 1

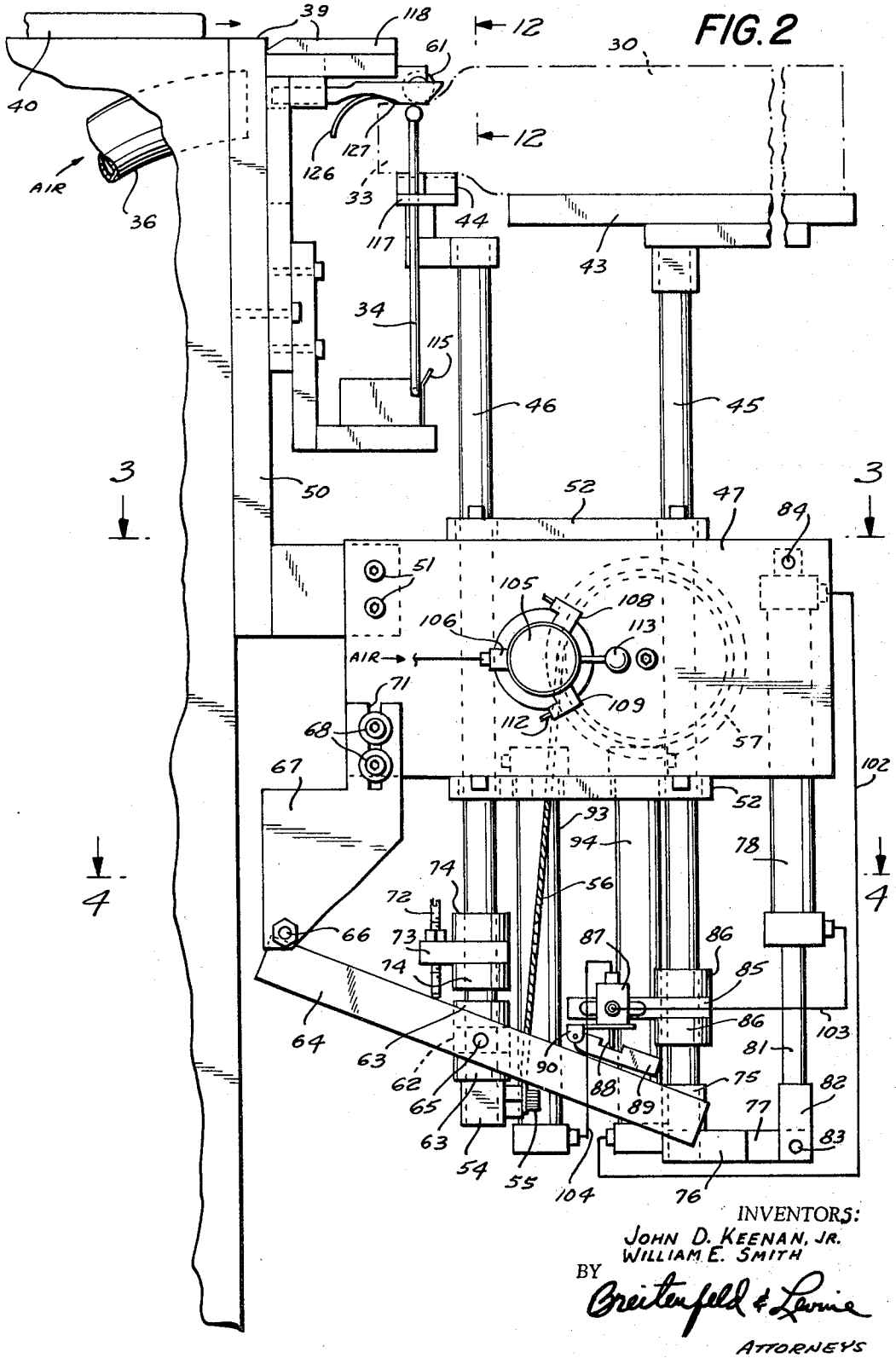
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FIG. 2



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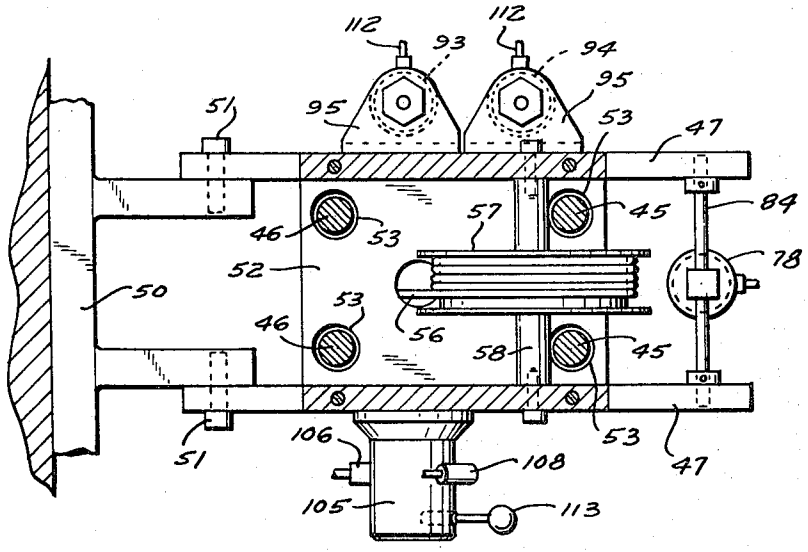
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BAG SUPPORTING AND RETAINING MEANS FOR A PACKING MACHINE

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FIG. 3



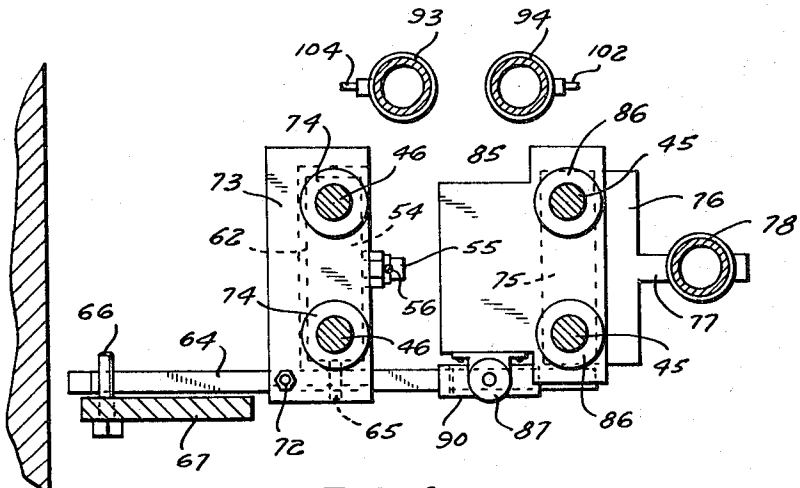


FIG. 4

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BAG SUPPORTING AND RETAINING MEANS FOR A PACKING MACHINE

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FIG. 6

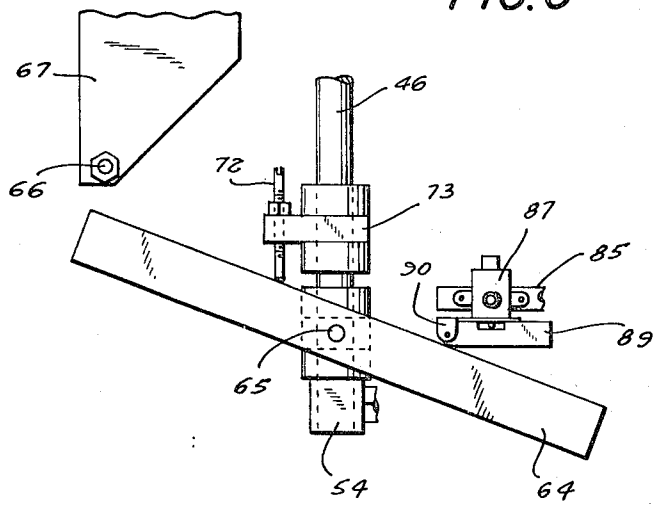
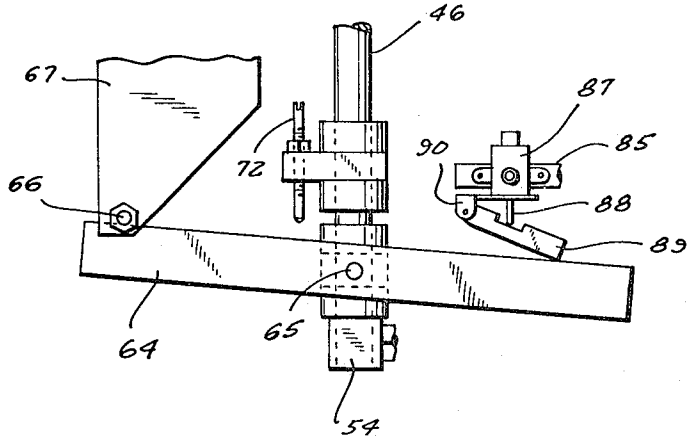


FIG. 5



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FIG. 11

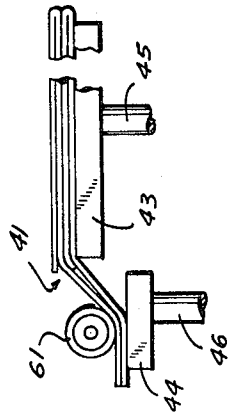


FIG. 10

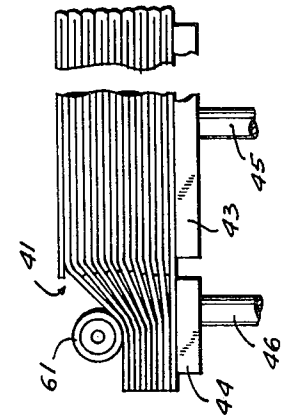


FIG. 9

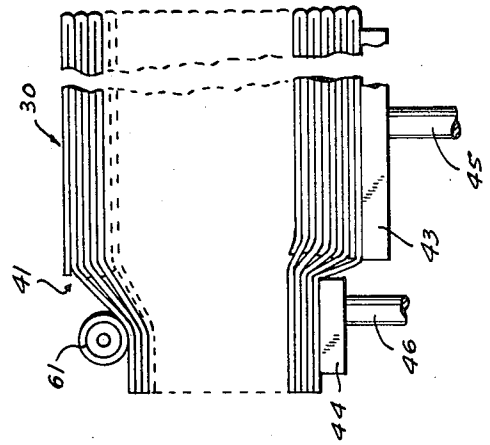


FIG. 7

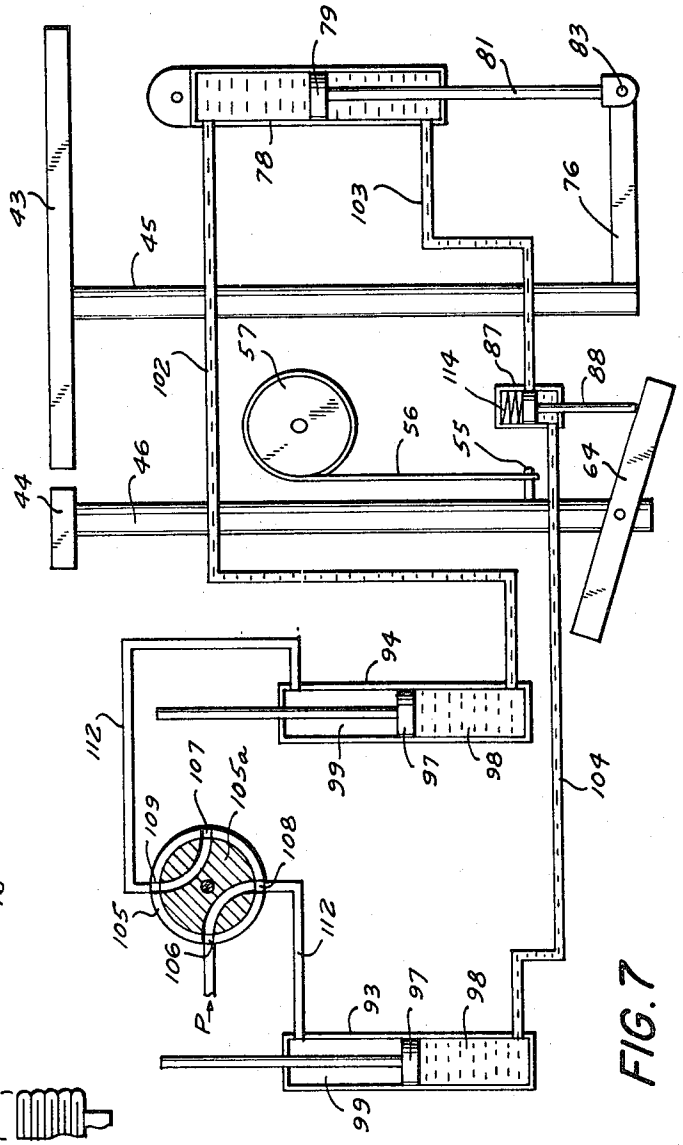
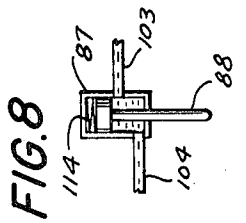


FIG. 8



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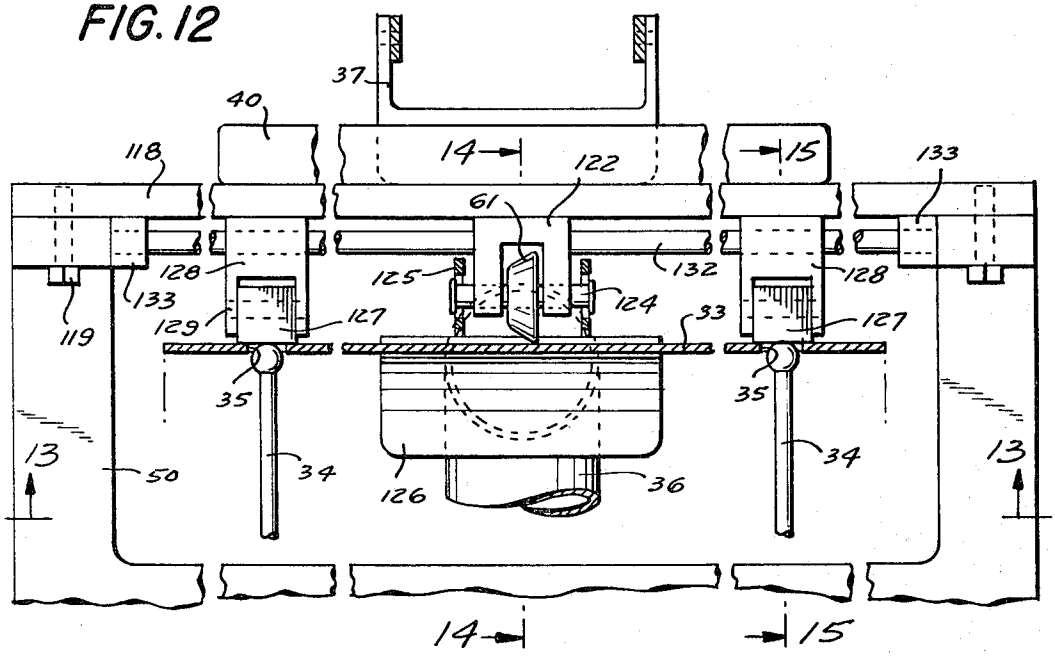
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BAG SUPPORTING AND RETAINING MEANS FOR A PACKING MACHINE

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FIG. 12



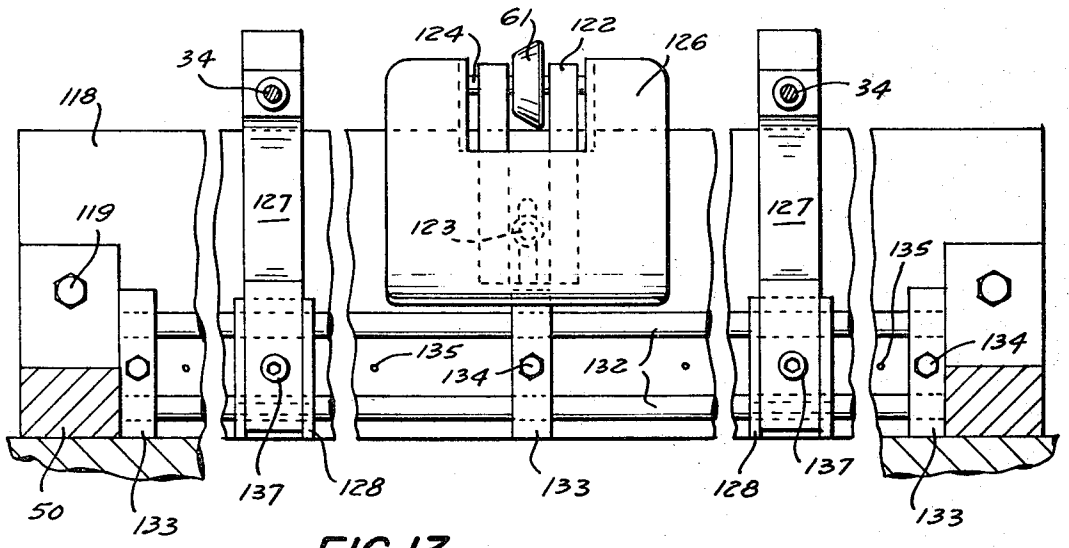


FIG. 13

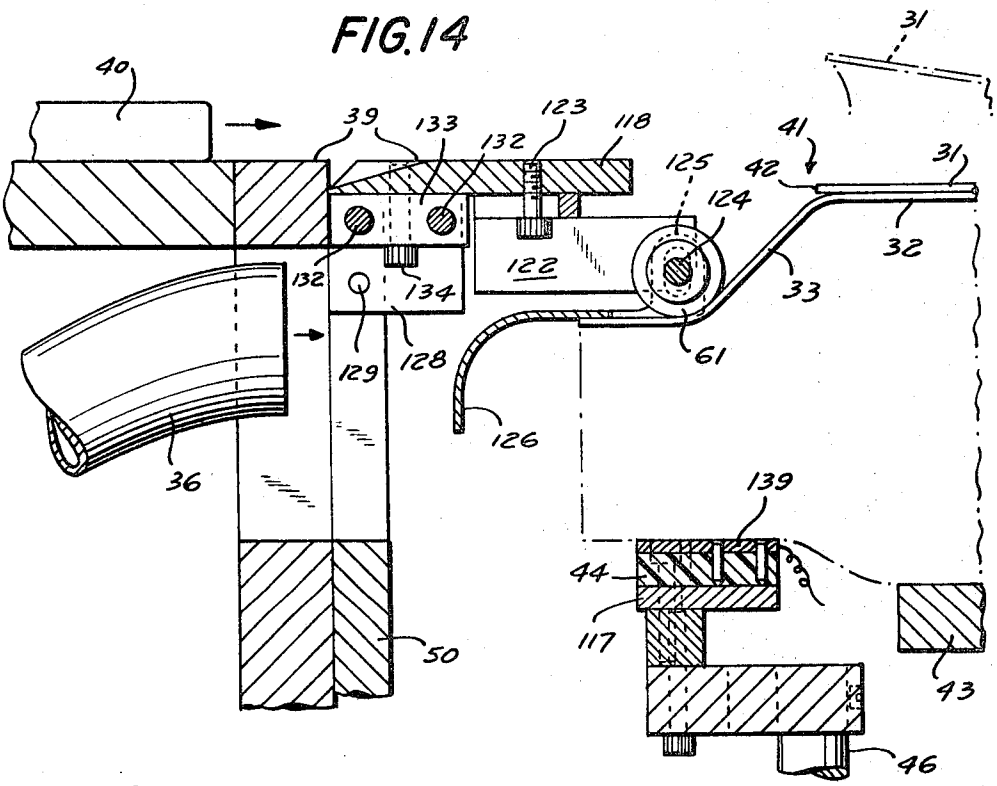
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FIG. 14



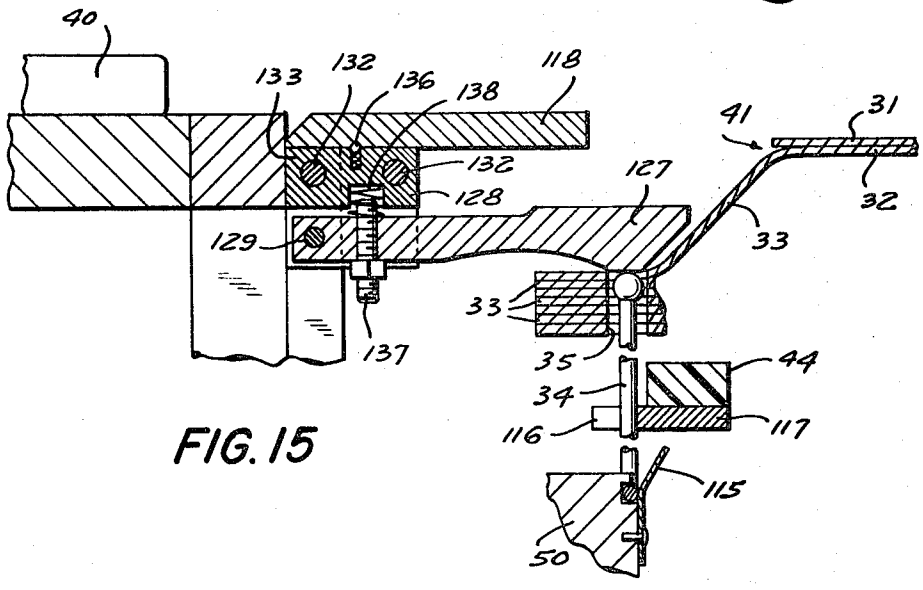


FIG. 15

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United States Patent Office 3,391,519 Patented July 9, 1968

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BAG SUPPORTING AND RETAINING MEANS FOR A PACKING MACHINE

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Filed Oct. 18, 1965, Ser. No. 497,163
9 Claims. (Cl. 53—189)

ABSTRACT OF THE DISCLOSURE

Platform supports bag bodies and table supports bag lips. Table continuously urged upwardly by a spring. Hydraulic device, independent of spring but responsive to movement of table, moves platform upwardly at a rate faster than table rate of movement.

This invention relates to packaging machines of the type in which bags arranged in a stack are individually filled, through a filling opening, with merchandise to be packaged, and the filled bags then delivered to a sealing apparatus which closes the filling opening. More particularly, the invention relates to the portion of the packaging machine which supports the stack of bags in flat condition with the uppermost bag in the stack in position to be filled with merchandise and for lifting the stack as the bags are consumed to bring successive uppermost bags to the filling position.

The bags with which the present invention is concerned are the type having a pair of opposed walls joined together along three sides and unconnected along the fourth side to define a filling opening or bag mouth. One of the walls is longer than the other to provide a lip extending from the bag mouth, the lip serving to facilitate opening of the mouth preparatory to the insertion of merchandise into the bag. When the bags are stacked, it will be appreciated that the height of the stack of bag lips is less than the height of the bag bodies inasmuch as each lip includes only a single ply of material whereas each bag body includes two plies of material. As a result, in any stack comprising a substantial number of bags, a hump is formed at the top of the stack in the region of the bag mouth of the uppermost bag. This hump is desirable since it aids in opening the bag by causing the lip and lower wall of the bag to be bent downwardly away from the free edge of the upper wall. Consequently, the adhesion between the walls is broken, and the edge of the upper wall is exposed so that a blast of air can be directed beneath it and lift the entire upper wall off the lower wall of the bag.

The stack dwindles as bags are filled and removed from it, and the hump diminishes as well until it is almost imperceptible even though a relatively large number of bags still remain in the stack. The reason is that the bag walls are so thin, particularly the walls of so-called "plastic" bags, that a great number of bags are required to produce a hump which is of any help in opening the bag. To overcome this difficulty, the present invention supports the single-ply portions of the bags, i.e., the lips, and the two-ply portions of the bags, i.e., the bag bodies, on two separate carriers which rise at different rates of speed as the bags are used.

Specifically, the carrier supporting the bag bodies moves upwardly at a faster rate than the other carrier. In this way, the top level of the bag bodies is maintained substantially higher than the top level of the lips throughout the life of the stack of bags, and a hump is provided at the bag mouth of every bag, even the last bag in the stack.

A two-part bag support has been suggested in the past,

but has presented certain problems. The chief difficulty resides in the fact that a single spring has been employed to raise both carriers. An abutment is provided, fixed to the machine frame, against which the top of the stack of bag lips is pressed by the spring. The abutment, therefore, limits the upward movement of the carriers and causes the uppermost bag in the stack to be located in proper position for filling with merchandise. The spring must of course be strong enough to lift both carriers supporting a full complement of bags. As the bags are consumed and the weight of the stack decreases, the spring presses the bag lips against the abutment with a constantly increasing force. Ultimately, the lips become clamped so tightly between the carrier which supports the lips and the abutment that the bags have a tendency to tear as they are removed from the stack after being filled.

It is a general object of the present invention to provide a two-carrier support for a stack of bags which overcomes the problem outlined above, as well as other problems.

It is a more specific object of the invention to provide a two-carrier support for a stack of bags wherein each of the carriers is raised by an independent lifting means.

It is another object of the invention to provide a means for correlating the operation of the two independent lifting means so that the carrier which supports the bag bodies moves up more rapidly than the carrier for the bag lips.

A feature of the invention involves the provision of special retaining means for maintaining all the bags in an orderly stack, but for readily releasing each bag when it comes to the top of the stack and is filled with merchandise.

In brief, the preferred embodiment of the invention includes a table structure for supporting the bag lips, and a separate platform structure for carrying the bag bodies. A lifting means, such as a spring, continuously urges the table structure upwardly, and an independent lifting means, such as an hydraulic piston-cylinder device, is adapted to raise the platform structure. A valve for controlling the flow of hydraulic fluid to the piston-cylinder device is mounted on the platform structure, and is arranged to be actuated by one arm of a lever pivotally mounted between its ends on the table structure. The other arm of the lever engages an abutment fixed to the machine. Consequently, as the table structure rises, the lever pivots about the abutment and actuates the hydraulic valve causing the platform structure to rise until the valve moves out of contact with the lever. Since the point on the lever which contacts the valve is spaced further from the abutment than the point at which the lever is mounted on the table structure, the former rises faster than the latter and hence the platform structure supporting the bag bodies rises faster than the table structure supporting the bag lips.

Inasmuch as the lifting spring need be strong enough to raise only the table structure and the bag lips, the great majority of the weight of the bags being lifted by the piston-cylinder device, the force with which the spring presses the lips against an abutment located above the table does not vary appreciably as the stack is consumed, and hence the bags do not become tightly clamped between the table and the abutment. Furthermore, the abutment is preferably a roller having an attenuated edge, thus contributing to the ease of removing bags from the stack.

The special retaining means for the stack preferably include a U-shaped wire, or wicket, the vertical arms of which extend through aligned holes in all the bag lips. The arms terminate at about the level of the uppermost lip in the stack, and a clip is spring biased toward the upper end of each arm to minimize the possibility of

accidental removal of the bags from the wicket. The clips, however, do not prevent removal of the bags from the stack as the bags are filled.

Additional features and advantages of the invention will be apparent from the following detailed description in which reference is made to the accompanying drawings.

In the drawings:

FIG. 1 is a perspective view of a stack of bags on a support, the uppermost bag of the stack about to be filled with an article of merchandise;

FIG. 2 is an elevational view of a bag supporting and raising means according to the present invention, supporting a full stack of bags;

FIG. 3 is a horizontal cross-sectional view taken along line 3—3 of FIG. 2;

FIG. 4 is a horizontal cross-sectional view taken along line 4—4 of FIG. 2;

FIG. 5 is a view similar to FIG. 6 after about one-half of the stack of bags has been consumed;

FIG. 6 is a view of some of the parts in the lower portion of FIG. 2 when the bag supporting means is in position to be loaded with a new stack of bags;

FIG. 7 is a schematic view of the hydraulic circuit for moving the platform structure of the bag supporting means, the hydraulic valve being shown closed;

FIG. 8 is a schematic view of the hydraulic valve of FIG. 7 in open position;

FIGS. 9–11 are schematic views showing the relationship between the table and the platform with different numbers of bags resting upon them;

FIG. 12 is an elevational view along the line 12—12 of FIG. 2;

FIG. 13 is an underneath view taken along the line 13—13 of FIG. 12;

FIG. 14 is a vertical cross-sectional view taken along line 14—14 of FIG. 12;

FIG. 15 is a vertical cross-sectional view taken along line 15—15 of FIG. 12.

Referring to FIG. 1, a stack of bags 30 is shown, each bag comprising an upper wall 31 and a lower wall 32, the lower wall being elongated to form a lip 33 adjacent to the mouth of the bag. Each bag lip is provided with a pair of spaced apart holes aligned with corresponding holes in the other bag lips, and the two vertical arms of a U-shaped wire retainer or wicket 34 extend through the two sets of aligned holes. (The holes 35 in the bag lips are best shown in FIGS. 12 and 15.) At the beginning of each bag-filling cycle, air is blown through a tube 36 (also shown in FIGS. 2, 12, and 14) toward the mouth of the uppermost bag in the stack in order to balloon the upper wall 31 upwardly away from the lower wall 32 (FIG. 1). Then, a pair of channel-shaped arms (not shown) are pivoted into the air-filled bag against the inner side edges of the bag in order to hold it open, and one of a series of pusher members 37, carried by a pair of endless chains, slides an article of merchandise 40, such as a folded shirt, along a support surface 39 (FIG. 2) into the open bag. After the article 40 reaches the edge of the bag opposite the bag mouth, continued movement of the pusher member causes the bag to move off the top of the stack 30 to a delivery point from which it is transported to a bag sealing station (not shown).

A stack of bags of the type described, containing a substantial number of bags, is inherently formed at its top with a hump 41 (see FIGS. 1, 9, 10, 14, and 15) in the region where the single-ply lip portions 33 of the bags join the double-ply body portions 31, 32 of the bags. It should be mentioned that in the drawings the thickness of the bag walls has been exaggerated for the sake of clarity, and hence each stack actually contains many more bags than are shown. As a result of the hump 41, the lower bag wall 32 of the uppermost bag in the stack is bent away from the upper bag wall 31 in the region of the bag mouth (see for example FIG. 14), leaving the inner surface of the upper wall 31 adjacent to the edge 42 exposed. Thus, when air is blown from tube 36 toward the bag mouth it flows beneath the edge 42 and lifts the bag wall 31 to the position shown in dot-dash lines in FIG. 14.

Referring to FIGS. 1 and 2, the stack of bags 30 rests on a two-part supporting and lifting mechanism including a platform 43 carrying the bag bodies, and a table 44 carrying the bag lips. The platform 43 is mounted on the upper ends of a pair of vertical rods 45, and the table 44 is mounted on the upper ends of a pair of vertical rods 46. The rods 45 and 46 are guided in their vertical movements by a stationary framework comprising a pair of spaced-apart vertical plates 47 (see FIG. 3), secured to the machine frame 50 by bolts 51, and upper and lower horizontal guide plates 52 secured to the top and bottom edges, respectively, of the plates 47. Four bushing-lined holes 53 are provided in each of the guide plates 52 for slidably accommodating one each of the four rods 45 and 46.

Interconnecting the lower ends of the table rods 46 is a block 54 (see FIGS. 2 and 4) having a stud 55 projecting from it. The lower end of a cable 56 is secured to the stud 55, and the cable extends upwardly and is wound around a reel 57 (FIGS. 2 and 3) rotatably mounted on a horizontal shaft 58 extending between the plates 47. The reel 57 is, in well-known fashion, spring biased to rotate in the direction tending to wind up the cable. Consequently, the spring biased reel serves to constantly urge the rods 46, table 44, and the bag lips 33 upwardly. This upward movement is limited by an abutment, in the form of a roller 61 (FIGS. 1 and 2) located above the table 44 and against which the bag lips are pressed. The roller 61 will be described in more detail below.

Directly above the block 54, the table rods 46 pass through a plate 62 extending between the rods, the plate being fixed with respect to the rods by means of collars 63 fastened to each rod above and below the plate 62. A lever 64 is pivotally secured, at about its midpoint, to one end of the plate 62 by means of a horizontal stud 65. Thus, the lever 64 is arranged to move with the rods 46. An abutment in the form of a stationary pin 66 (FIGS. 2 and 4) is disposed in the path of upward movement of one end of the lever 64. The pin 66 is located in the lower end of a frame extension 67 depending from one of the plates 47 and secured to the latter by means of screws 68. The screws 68 pass through an elongated slot 71 in the extension 67 which allows the position of the extension and hence the pin 66 to be adjusted. It will be appreciated that as the table rods 46 rise, the lever 64 pivots in a counterclockwise direction about the pin 66. For a reason to be described below, rotation of the lever in a clockwise direction about the stud 65 is limited by a set screw 72. The set screw is carried by a plate 73 carried by the rods 46 above the plate 62, the plate 73 being fixed to the rods 46 by means of collars 74 fastened to each rod above and below the plate 73.

The lower ends of the platform rods 45 are interconnected (FIGS. 2 and 4) by a block 75 and a plate 76 arranged below the block, the plate being formed with a narrow, horizontally projecting arm 77 through which the movement of a piston 79 (FIG. 7) within an hydraulic cylinder 78 is transmitted to the rods 45. The lower end of the piston rod 81 carries a yoke 82 which straddles the arm 77 and is fixed to it by a pin 83. The upper end of the cylinder 78 is secured to a stationary horizontal member 84 (FIG. 3) mounted between the plates 47. The rods 45 pass through a plate 85 located above the block 75, the plate being fixed to the rods by means of collars 86 fastened to each rod 45 above and below the plate. Secured to one edge of the plate 85 is a control valve 87 forming part of the hydraulic system for lifting the rods 45 and hence the platform 43. The valve 87, which moves with the rods 45, is located directly above a point on the lever 64 which is on the side of the pivot stud 65 opposite to the stationary pin 66. The operating pin 88 of the

valve 87 projects downwardly toward the lever 64, and is actuated by movement of the lever 64 via a short lever 89 arranged between the valve and lever 64 and pivotally mounted at one of its ends to a bracket 90 carried by the valve.

In addition to the piston-cylinder device 78, 81, and the valve 87, the hydraulic system includes (see FIGS. 2–4 and 7) a pair of reservoir cylinders 93 and 94 mounted on stationary brackets 95 fixed to the outer face of one of the plates 47. Each of the reservoir cylinders is provided with a plunger 97 separating the liquid space 98 within the cylinder from the air space 99 above it. Flexible conduits, which for the sake of clarity are represented by single solid lines in FIG. 2 interconnect the parts of the hydraulic system. Thus, a conduit 102 connects the space above the piston 79 within cylinder 78 to the fluid space 98 within reservoir cylinder 94, a conduit 103 connects the space below the piston 79 within cylinder 78 to the control valve 87, and a conduit 104 connects the control valve to the fluid space 98 within reservoir cylinder 93. Therefore, when the control valve 87 is open, as shown in FIG. 8, the cylinders 78 and 93 are in fluid communication, and when the valve 87 is closed, as shown in FIG. 7, this communication is blocked.

The hydraulic system just described is pneumatically actuated, the flow of air to the system being controlled by a four-way pneumatic valve 105 mounted on the outer face of one of the plates 47. One port 106 of the valve 105 communicates with a source of air under pressure (not shown), and another port 107 is open to the atmosphere. The remaining two ports 108 and 109 of the valve communicate with the air spaces 99 within the cylinders 93 and 94, respectively, via the air lines 112. With the valve member 105*a* in the position shown in FIG. 7, the air space 99 of cylinder 93 is pressurized and the air space of cylinder 94 exhausted. Consequently, when control valve 87 is open, the piston 79 will rise within the cylinder 78 and lift the rods 45 and platform 43 with it. When the valve member 105*a* is rotated 90° in either direction, by means of handle 113, the cylinder 93 is exhausted and cylinder 94 is pressurized. Hence, when the control valve 87 is open, the piston 79 will descend and move the platform 43 down with it.

To explain the operation of the illustrative bag supporting and lifting mechanism described above, assume first that the apparatus is in the position shown in FIGS. 2 and 9. In this position, a full stack of bags 30 is in place on the mechanism, the lips 33 of the bags being held between the table 44 and roller 61. As illustrated, the full stack of bags contains such a large number of bags that if it were placed on a level surface the natural hump formed would be greater than desirable. Hence, the platform 43 is initially lower than the table 44 to reduce the hump 41 to desired size. The lever 64 is in contact with the pin 66, and the valve 87, carried by the platform rods 45, is located just far enough above the lever 64 to permit the pin 88 to assume its lower position wherein the valve 87 is closed, as shown in FIG. 7. In addition, the valve 105 is arranged as shown in FIG. 7, wherein the reservoir cylinder 93 is pressurized and the cylinder 94 is exhausted.

As bags are filled with articles of merchandise 40, and removed from the stack 30, the height of the stack of lips 33 diminishes, and the spring-biased reel 57, by means of cable 56, lifts the rods 46 and table 44 to maintain the lips 33 in contact with the roller 61. As a result of the upward movement of the rods 46, the lever 64 moves upwardly and pivots in a counterclockwise direction about the pin 66. The lever 64 thus pushes the pin 88 of the valve 87 upwardly, via the short lever 89, and opens the valve as shown in FIG. 8. In consequence, hydraulic fluid under pressure flows from the reservoir cylinder 93 (FIG. 7) through conduit 104, valve 87, and conduit 103 into the cylinder 78 below the piston 79, thus moving the piston 79 upwardly. The displaced fluid above the piston 79 flows through the conduit 102 into the reservoir cylinder 94. Upward movement of the piston 79 is transmitted to the rods 45 by means of the piston rod 81 and plate 76, whereby the platform 43, carrying the stack of two-ply bag bodies, rises. The rods 45 and platform 43 continue to rise until the valve 87 moves far enough above lever 64 to permit the valve to close, under the influence of the valve spring 114, whereupon upward movement of the platform stops. Thereafter, as the stack of bags 30 continues to be consumed, the table rods 46 rise causing additional upward pivotal movement of the lever 64 about pin 66 thereby opening the valve 87 again to effect a rise in the platform 43.

Since the valve 87 is spaced farther from the pin 66 than the stud 65, by means of which the lever 64 is pivotally mounted to the table rods 46, the point on the lever which actuates the valve 87 will rise at a faster rate, i.e., will move through a longer arc in a given period of time, than the stud 65. Hence, the platform 43 will rise at a faster rate than the table 44, the difference in the rates depending, of course, upon the relationship between the pin 66—stud 65 spacing the pin 66—valve 87 spacing. As a result, by the time the stack of bags has been depleted to some extend, as shown in FIG. 10, the table 44 and platform 43 become disposed at the same level. In this condition of the table and platform, the lever 64 and its associated parts are in the position shown in FIG. 5. By the time the stack is almost entirely consumed, as shown in FIG. 11, the platform 43 has risen above the level of the table 44 in order to provide the hump 41 for the few remaining bags.

When all the bags are gone, and it is desired to reload the bag supporting and lifting device, the valve member 105*a* is rotated 90° from the position shown in FIG. 7 by means of the handle 113 in order to exhaust the reservoir cylinder 93 and pressurize the cylinder 94. Consequently, pressure is applied above the piston 79 causing the piston, and hence the rods 45, to move downwardly. The downward movement of the rods 45 causes the short lever 89 to press against the lever 64 and assume the position shown in FIG. 6, wherein the upper face of the short lever engages the lower face of the bracket 90. The short lever thereby protects the valve 87, since if the short lever were not present the downward movement of the rods 45 would be transmitted to the lever 64 via the valve pin 88. Furthermore, the short lever holds the pin 88 in its upper position, with the result that the valve 87 remains open constantly and the lever 64 is pivoted downwardly, or in a clockwise direction, about the pin 66, pulling the table rods 46 down with it. The parts move downwardly until the piston 79 completes its downward stroke within the cylinder 78. This represents a position of the parts lower than that shown in FIG. 2, in order to permit a new stack of bag lips 33 to be conveniently placed upon the table 44 without obstruction from the roller 61. As the parts pass the position of FIG. 2 during their downward movement, the lever 64 comes into engagement with the set screw 72, as shown in FIG. 6. The set screw prevents further clockwise rotation of the lever 64 and hence the latter moves downwardly away from the pin 66. As a result, the relative levels of the table 44 and platform 43 remain constant throughout the movement of the parts after the lever 64 moves out of contact with the pin 66. The table and platform are thus in the most desirable relative positions for receiving a new stack of bags when the parts come to a halt at the termination of the stroke of the piston 79. After the new stack of bags is in place, the pneumatic valve is returned to the condition shown in FIG. 7, and the parts rise until they reach the position shown in FIG. 2; the bag filling operation can then be resumed.

The means for retaining the bags in an orderly stack as they wait to be filled, and for readily releasing each bag when its turn to be filled arrives, will be described

with reference to FIGS. 1, 2, and 12–15. The bags are supplied to the bag user mounted on a U-shaped wire holder or wicket **34**, referred to above, the vertical arms of the wicket extending through two sets of aligned holes **35** in the bag lips **33**. After a new stack **30** is laid on the platform **43** and table **44**, the horizontal cross bar of the wicket is snapped into a groove in a portion of the machine frame **50** (see FIGS. 2 and 15) behind a resilient clip **115**. The vertical arms of the wicket pass through, and are supported by, two of a series of notches **116** provided along one edge of a plate **117** forming part of the table **44**. Provision of the plurality of notches **116** permits the plate **117** to accommodate wickets of varying widths. During the operation of the apparatus, the wicket **34** remains stationary, and the plate **117** and bag lips **33** slide upwardly along the vertical arms of the wicket.

The last portion of the surface **39** (FIGS. 2 and 14) over which the merchandise **40** slides before it is delivered to a waiting bag is defined by a plate **118** mounted on the machine frame **50** by means of screws **119** (FIGS. 12 and 13). The roller **61** is mounted below the plate **118** by means of a block **122** (FIGS. 12–14) secured to the under surface of the plate by a screw **123**. The roller is located within a slot formed in the block **122** and is rotatably carried by a shaft **124** extending across the slot. The roller **61** is attenuated so that only a relatively sharp edge engages the upper lip **33** of the stack. Consequently, although the roller serves to limit the upward movement of the stack under the influence of the table **44**, it offers very little resistance to the horizontal movement of the uppermost bag off the stack after it has been filled. The end portions of the shaft **124** extend beyond the block **122**, and pass through openings in a pair of ears **125** (FIGS. 1, 12, and 14) projecting upwardly from a curved baffle **126**. The baffle is adapted to rest upon the top of the stack of bag lips **33**, and in this position it curves downwardly in front of the air tube **36** and directs the air toward the edge **42** of the uppermost bag in the stack.

The bag lips **33** are maintained in flat condition by means of a pair of horizontal, resiliently-biased fingers **127** supported beneath the plate **118**, one end of each finger being positioned directly over the upper end of one of the arms of the wicket **34**. The other end of each finger is located within a slot formed in the lower face of a block **128**, and is pivotally mounted on a pin **129** extending across the slot and having its ends supported by the block **128**. Each block **128** is slidably mounted on a pair of parallel rods **132** spaced slightly below, and extending along the length of, the plate **118**, the rods passing through holes in the blocks **128**. The rods **132** are held in place by means of supports **133** fastened to the under face of the plate **118** by means of screws **134**. The block **128** and the fingers **127** carried by them can be adjusted along the length of the rods **132** to position the fingers for cooperation with the arms of different sized wickets **34**. To aid the positioning of the fingers, the under face of the plate **118** is provided with a series of small depressions **135** (FIG. 13), and a spring-backed ball **136** (FIG. 15) projects from the upper face of each block **128** and cooperates with the depressions **135**.

Extending vertically through a threaded hole in each finger **127** is a threaded pin **137**, the pin projecting above the finger and into a hole in the block **128**. A compression spring **138** within the hole surrounds the pin **137** and extends between the top wall of the hole and the upper surface of the finger **127**, thereby constantly urging the finger downwardly toward the upper end of the wicket arm directly below the finger. Thus, the fingers **127**, under the influence of their respective springs **138**, serve to press down against the upper lip **33** in the stack and keep it flat, but due to the relatively long moment arm between each of the pins **129** and the arms of the wicket **34**, the fingers **127** offer very little resistance to the removal of the lips **33** in a horizontal direction from beneath the fingers.

An electrical contact **139** (FIGS. 1 and 14) may be provided on the table **44**, preferably in a recess in the upper surface of the table so that it is flush with the table top. The contact **139** is insulated from the machine frame and is in vertical alignment with the roller **61**, which is in electrical contact with the machine frame. By means of suitable circuitry, not shown, connected between the machine frame and the contact **139**, the machine can be automatically shut off when the last bag in the stack is removed from the table **44** and the roller **61** comes into engagement with the contact **139**.

The invention has been shown and described in preferred form only, and by way of example, and many variations may be made in the invention which will still be comprised within its spirit. It is understood, therefore, that the invention is not limited to any specific form or embodiment except insofar as such limitations are included in the appended claims.

What is claimed is:

1. In a packaging machine for filling bags of the type having a pair of opposed walls, one wall being longer than the other to provide a lip extending from the mouth of the bag; means for supporting a stack of bags in flat condition with the uppermost bag in the stack in position to be filled with merchandise to be packaged and for lifting the stack as the bags are consumed to bring successive uppermost bags to the filling position, said means comprising a table structure for supporting the single-ply lip portions of the bags and a platform structure for supporting the two-ply portions of the bags, means for continuously urging said table structure upwardly, means independent of said table-urging means adapted to raise said platform, and means for correlating the movements of said table structure and platform structure so that said platform rises at a faster rate than said table.

2. In a packaging machine, the elements defined in claim **1** wherein said last-named means comprises mechanism operatively interposed between said table structure and said platform-raising means and controlling the latter in response to table movement.

3. In a packaging machine, the elements defined in claim **1** wherein said platform-raising means includes a control device mounted on said platform structure, and said movement-correlating means includes mechanism operatively interposed between said table structure and said control device and actuating the latter in response to table movement.

4. In a packaging machine, the elements defined in claim **3** wherein said platform-raising means includes an hydraulically-actuated device, and said control device is a valve for controlling fluid flow to said device.

5. In a packaging machine, the elements defined in claim **4** wherein said hydraulically-actuated device is a piston-cylinder device arranged between said platform structure and the machine frame.

6. In a packaging machine, the elements defined in claim **5** including a hydraulic circuit connected to said cylinder on each side of said piston, one of said circuits including said valve, and means for pressurizing said one circuit and relieving the other when it is desired to raise said platform and for relieving said one circuit and pressurizing the other when it is desired to lower said platform.

7. In a packaging machine, the elements defined in claim **3** wherein said mechanism comprises a lever arranged to pivot upwardly about a point fixed with respect to the machine frame as said table structure rises, said control device being arranged to be acted upon by a portion of said lever spaced farther from said fixed point than said table structure, whereby the lever portion which actuates said control device moves upwardly at a faster rate than said table structure.

8. In a packaging machine, the elements defined in

claim 3 wherein said mechanism comprises a lever pivotally mounted at a point intermediate its ends to said table structure, and relatively fixed means for preventing the upward movement of a point on said lever spaced from said intermediate point, whereby as said table structure rises said lever pivots upwardly about said fixed means, said control device being arranged to be acted upon by the portion of the lever on the side of said intermediate point opposite said fixed means.

9. In a packaging machine, the elements defined in claim 8 wherein said fixed means is an abutment mounted on the machine frame in the path of upward movement of said lever, and including means for limiting the downward rotation of said lever, and means for moving said platform structure downwardly preparatory to placing a

fresh stack of bags on said supporting means, said lever coming into contact with said limiting means during said downward movement whereby said lever discontinues rotating and said structures thereafter continue to move downwardly at the same rate.

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