

United States Patent

Musser

[15] 3,679,096

[45] July 25, 1972

[54] BAG HOLDER AND OPENING APPARATUS

[72] Inventor: **Malcolm E. Musser**, P.O. Box 386,
Jackson Center, Ohio 45334

[22] Filed: **April 22, 1970**

[21] Appl. No.: **30,807**

[52] U.S. Cl. **221/56, 221/63**

[51] Int. Cl. **B65h 1/08**

[58] Field of Search **221/33-63, 304,**
221/307, 308, 309, 310; 312/61, 71

[56] References Cited

UNITED STATES PATENTS

3,087,647 4/1963 Heller 221/47

1,938,025	12/1933	Kelly.....	221/34 X
2,775,365	12/1956	Mestman et al.....	221/34 X
2,513,474	7/1950	Greer.....	221/47 UX
3,187,942	6/1965	Matteson.....	221/304

FOREIGN PATENTS OR APPLICATIONS

337,583 11/1930 Great Britain

Primary Examiner—Robert B. Reeves

Assistant Examiner—Francis J. Bartuska

Attorney—Jacox & Meckstroth

[57] ABSTRACT

Structure for retaining and supporting a supply of bags, such as paper bags or the like. As each bag is manually removed from the supply thereof, the bag is automatically opened by the means which retains the bag.

4 Claims, 23 Drawing Figures

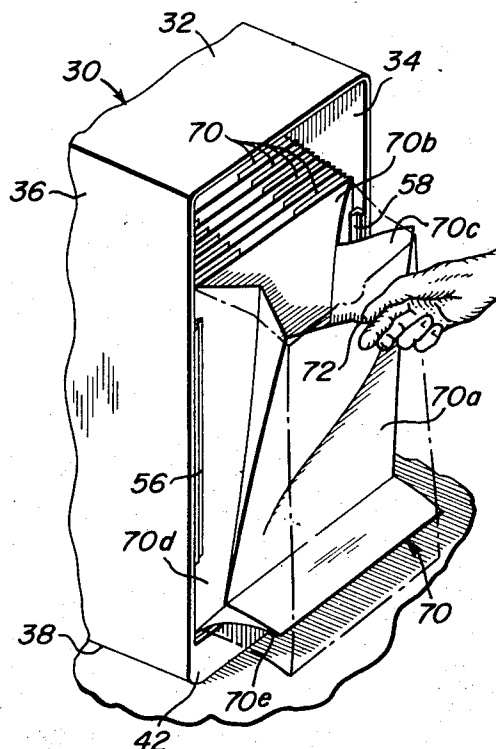


FIG-1

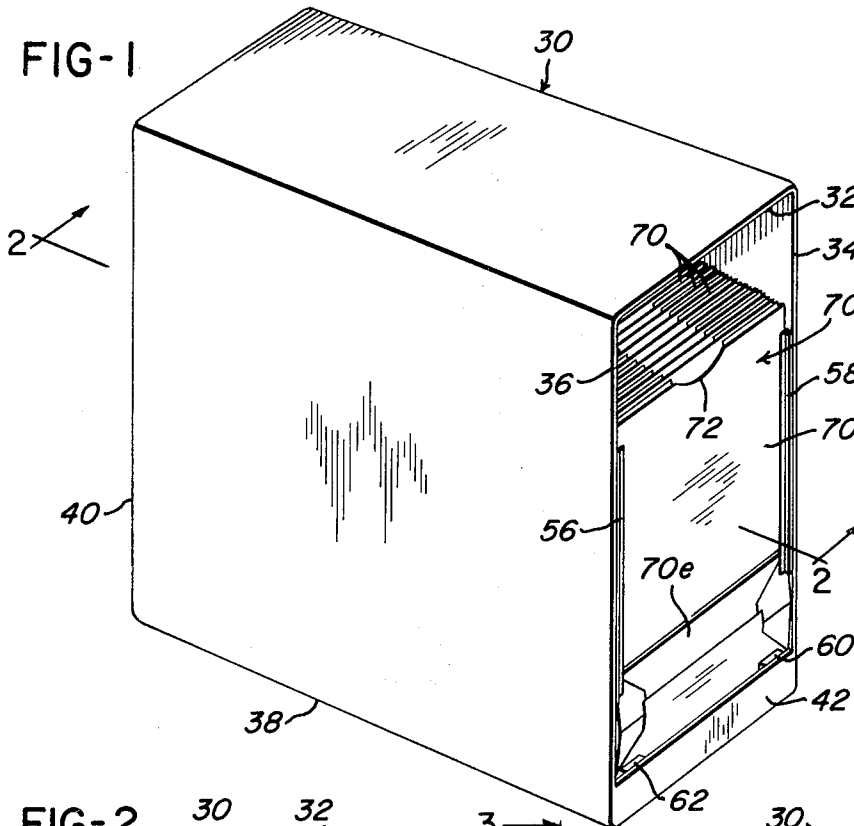


FIG-4

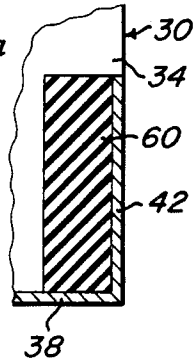


FIG-2

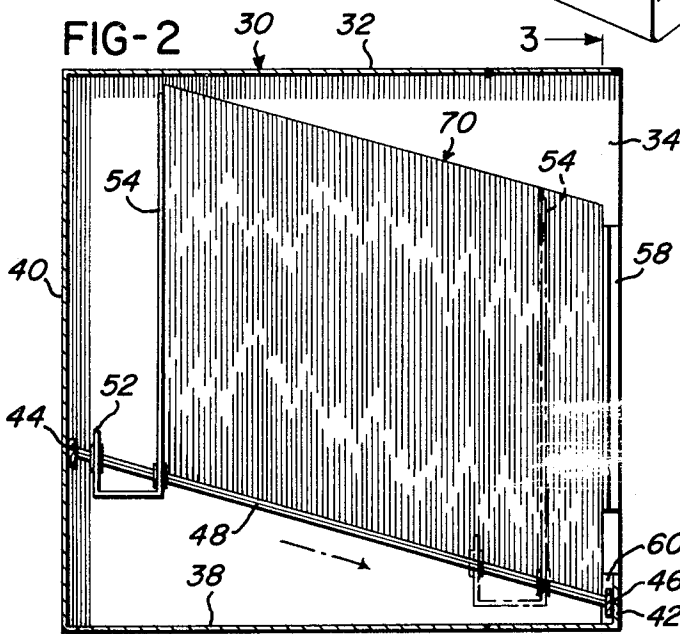


FIG-3

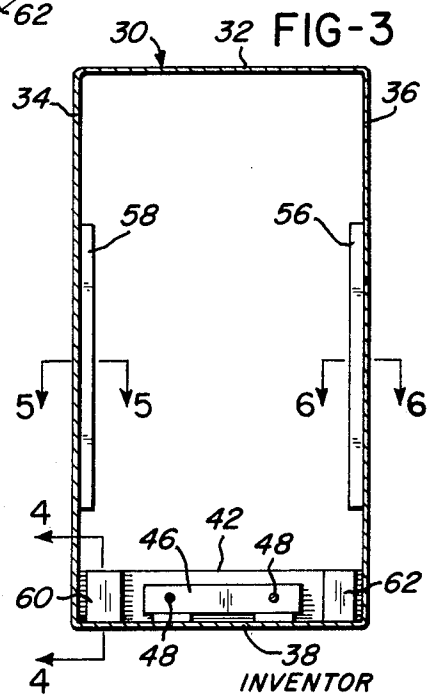


FIG-5

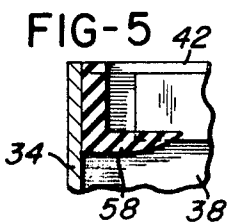
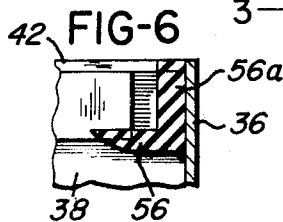
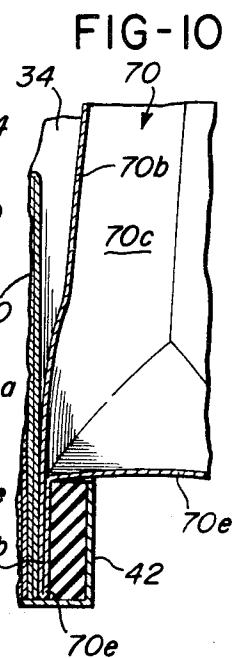
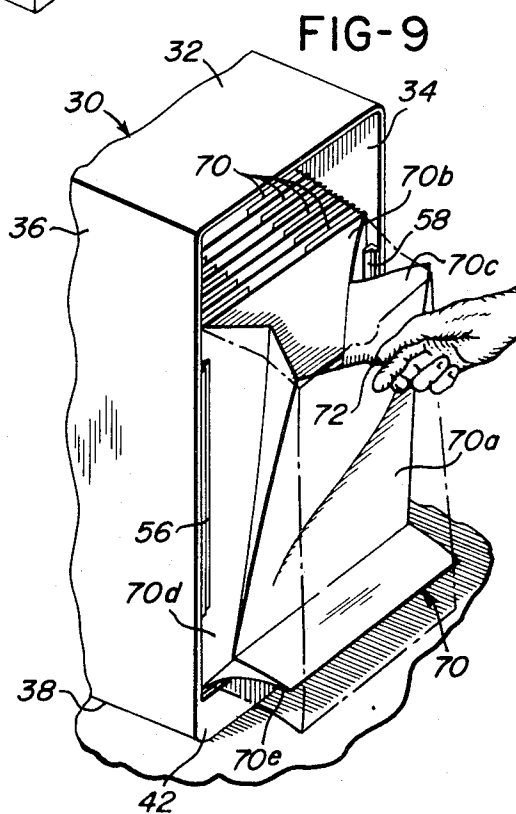
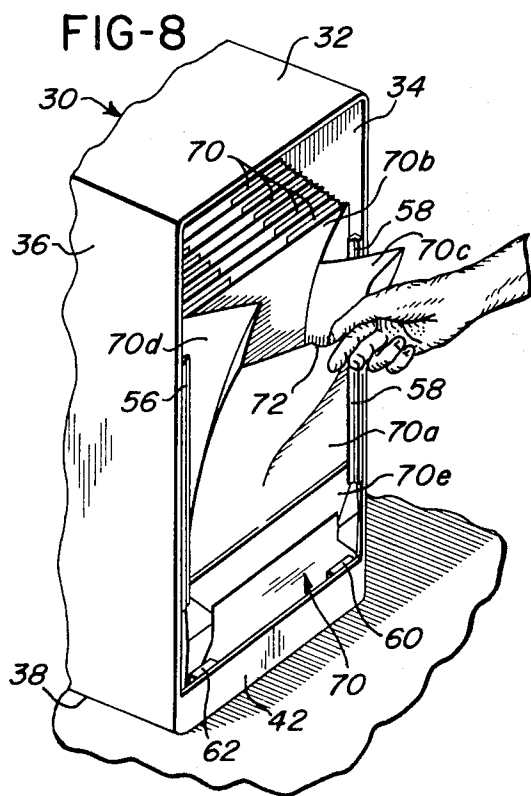
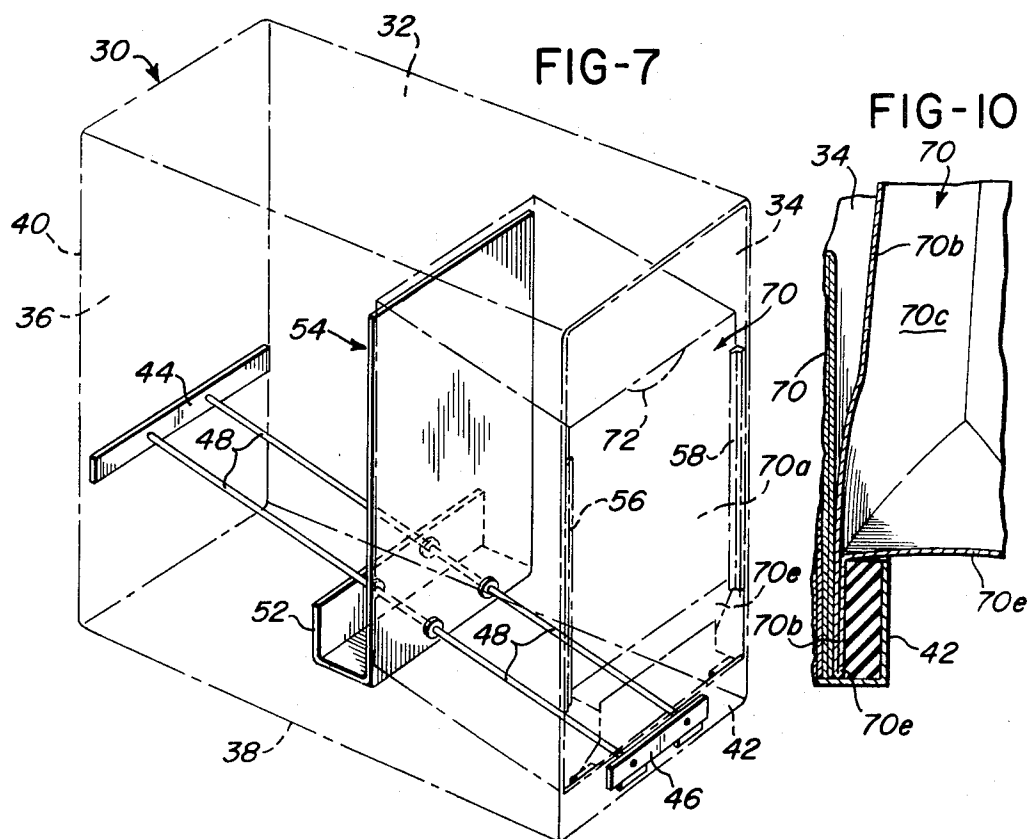


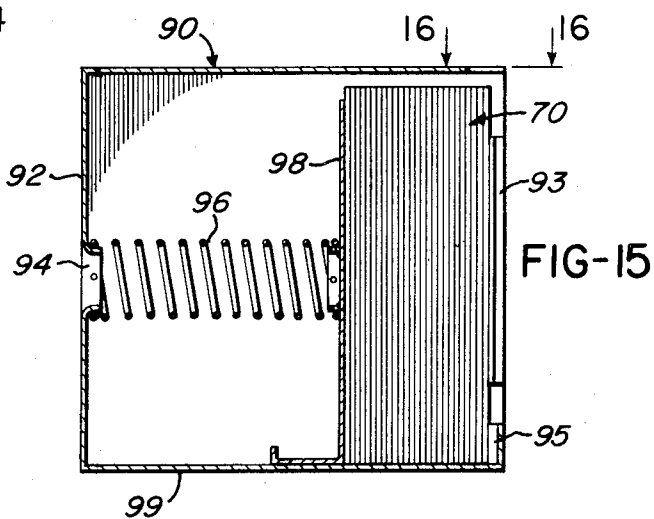
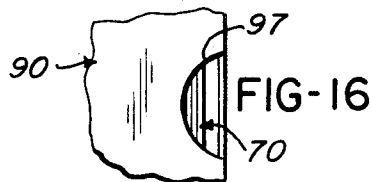
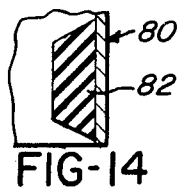
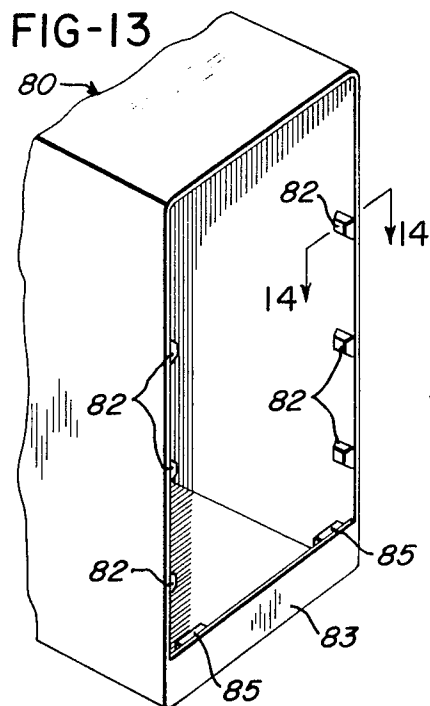
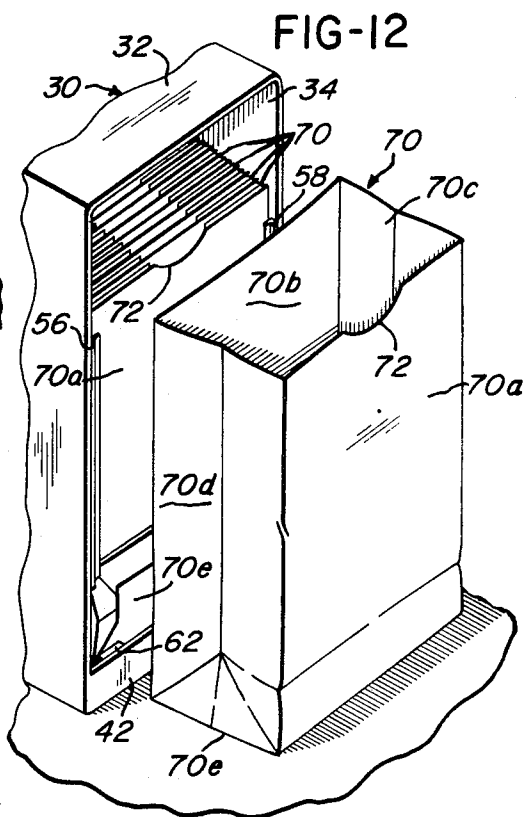
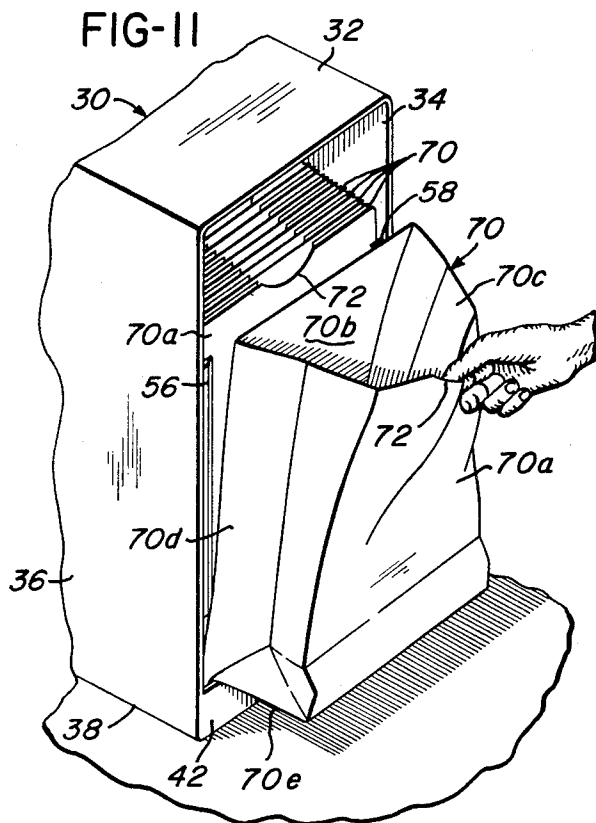
FIG-6

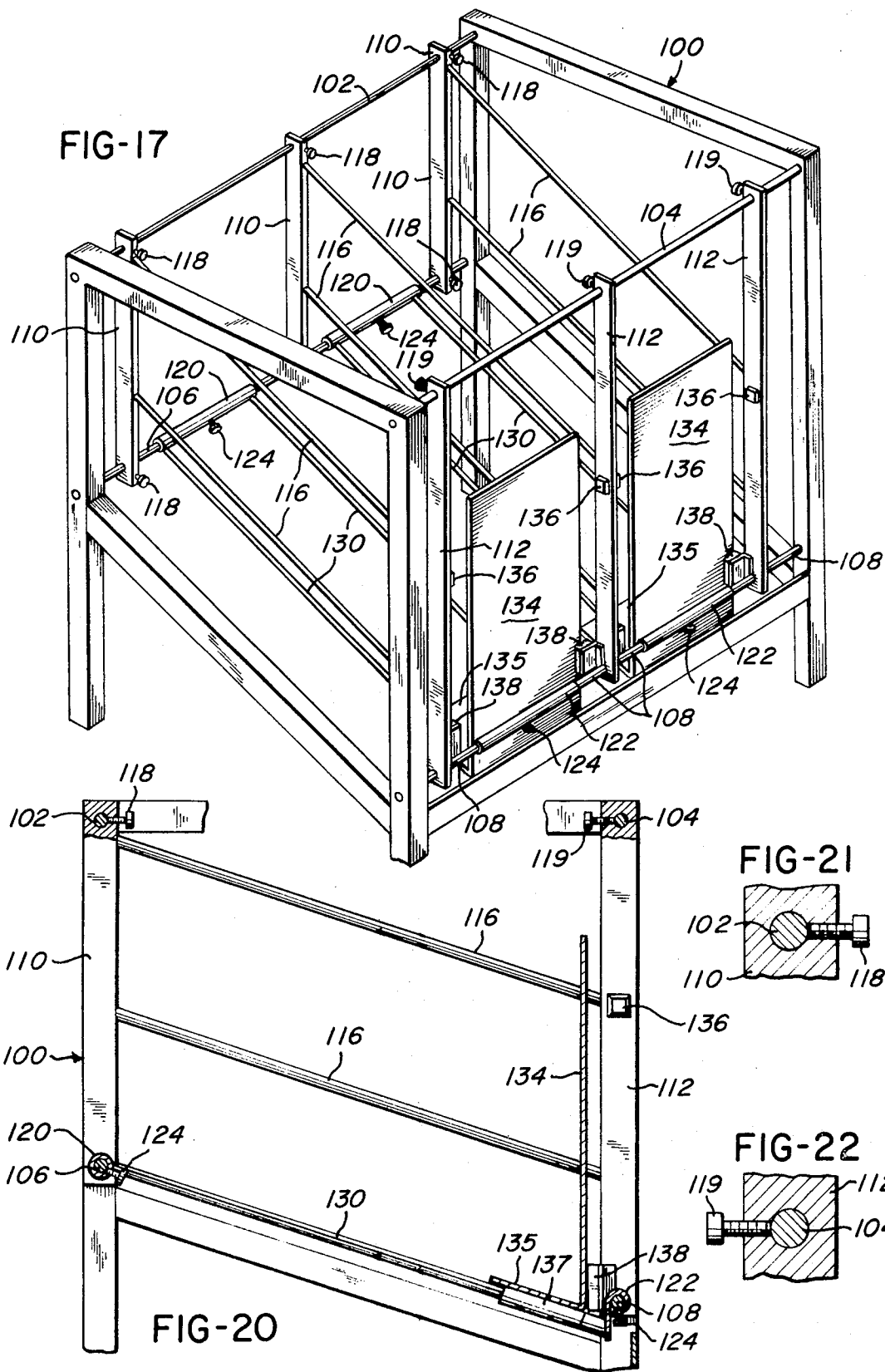


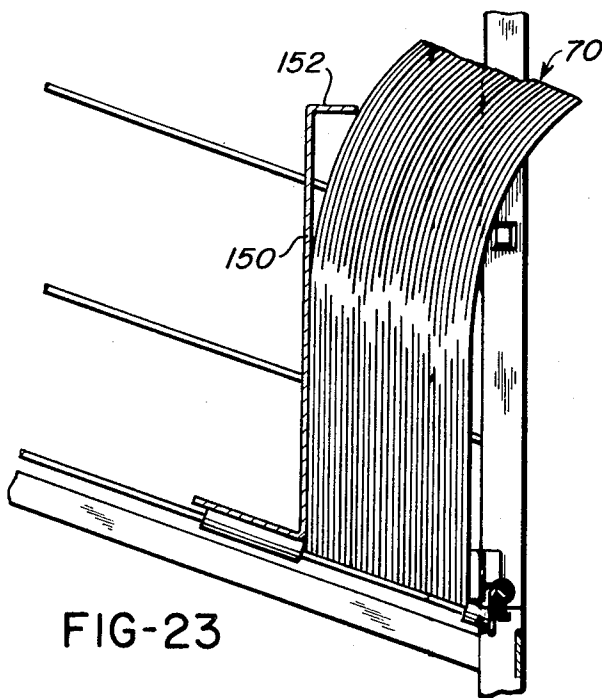
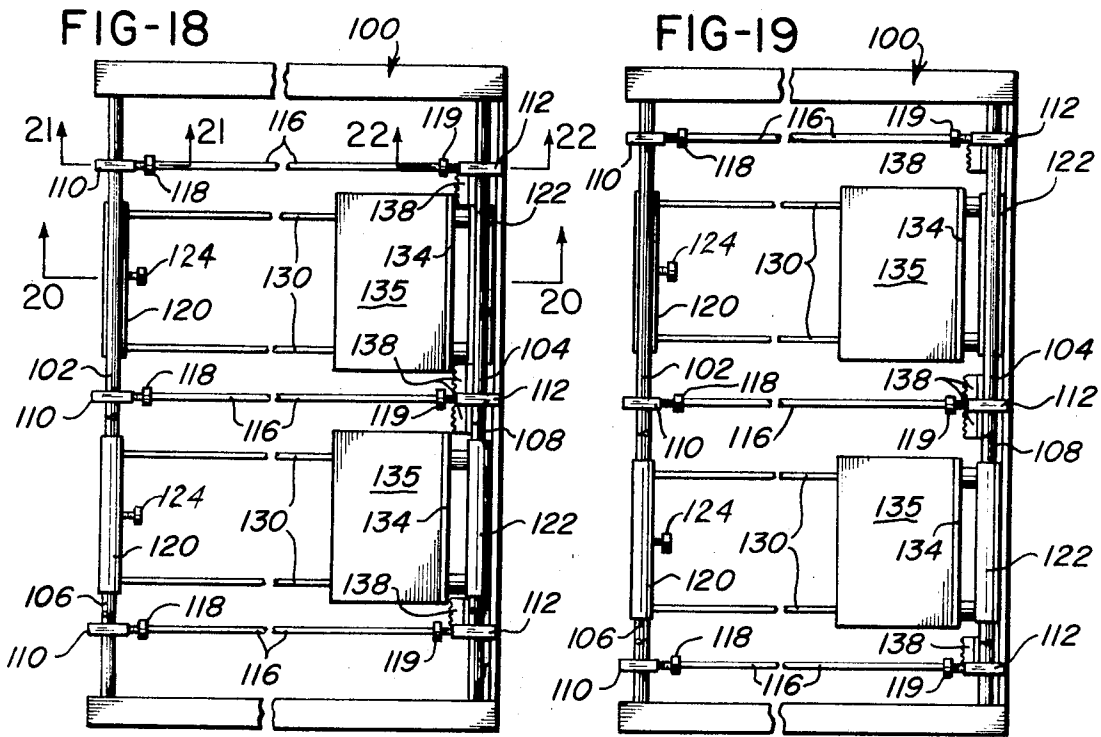
INVENTOR
MALCOLM E. MUSSER

BY *William R. Jacox*
ATTORNEY









BAG HOLDER AND OPENING APPARATUS

BACKGROUND OF THE INVENTION

Customarily, a supply of paper bags in a retail store, such as a supermarket or the like, is maintained in a stack. When a person wishes to use one of the bags, he removes a bag from the stack. Then he opens the bag by holding a part of the bag with one hand while thrusting the other hand into the bag, or the person opens the bag by gripping an edge portion thereof, followed by quickly moving the bag through the air, to cause air to enter the bag for opening thereof.

Either of these two methods for opening a paper bag is time consuming and exhibits wasteful motions. In any retail store, such as a supermarket or the like, such a time consuming operation is objectionable.

Therefore, it is an object of this invention to provide apparatus which retains a supply of paper bags or the like and which causes a bag to be opened as the bag is removed therefrom.

It is another object of this invention to provide such apparatus which is adjustable for retaining and dispensing bags of various dimensions.

It is another object of this invention to provide such apparatus which has a minimum number of moving parts.

It is another object of this invention to provide such apparatus which can be constructed at relatively low costs and which is long-lived.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of structure of this invention as the structure retains a supply of bags.

FIG. 2 is a sectional view, taken substantially on line 2—2 of FIG. 1.

FIG. 3 is a sectional view, taken substantially on line 3—3 of FIG. 2.

FIG. 4 is an enlarged sectional view, taken substantially on line 4—4 of FIG. 3.

FIG. 5 is an enlarged sectional view, taken substantially on line 5—5 of FIG. 3.

FIG. 6 is an enlarged sectional view, taken substantially on line 6—6 of FIG. 3.

FIG. 7 is a perspective view, similar to FIG. 1, but showing exterior portions of the structure in broken lines and showing interior portions of the structure in solid lines.

FIG. 8 is a fragmentary perspective view, drawn on substantially the same scale as FIG. 1, illustrating an initial step in removal of a bag from the structure.

FIG. 9 is a fragmentary perspective view, similar to FIG. 8, illustrating a succeeding step in removal of a bag from the structure.

FIG. 10 is a fragmentary sectional view, similar to FIG. 4, but drawn on a slightly smaller scale than FIG. 4, illustrating a position of a portion of a bag during a step in removal thereof.

FIG. 11 is a fragmentary perspective view, similar to FIGS. 8 and 9, illustrating a succeeding step in removal of a bag from the structure.

FIG. 12 is a fragmentary perspective view, similar to FIGS. 8, 9, and 10, illustrating a succeeding step in removal of a bag from the structure.

FIG. 13 is a fragmentary perspective view, drawn on substantially the same scale as FIG. 1, showing a modification in a portion of the structure or apparatus of this invention.

FIG. 14 is an enlarged sectional view, taken substantially on line 14—14 of FIG. 13.

FIG. 15 is a side sectional view, of other structure or apparatus of this invention.

FIG. 16 is an enlarged fragmentary plan view, taken substantially on line 16—16 of FIG. 15.

FIG. 17 is a perspective view of other bag retention and opening apparatus or structure of this invention.

FIG. 18 is a top plan view, drawn on a slightly smaller scale than FIG. 17, with parts broken away, of the apparatus or structure of FIG. 17.

FIG. 19 is a top plan view, similar to FIG. 18, showing elements of the structure or apparatus in another position.

FIG. 20 is a sectional view, drawn on substantially the same scale as FIG. 17, taken substantially on line 20—20 of FIG. 18.

FIG. 21 is an enlarged sectional view, taken substantially on line 21—21 of FIG. 18.

FIG. 22 is an enlarged sectional view, taken substantially on line 22—22 of FIG. 18.

FIG. 23 is a fragmentary side view, with parts broken away and shown in section, of other apparatus or structure of this invention, showing a supply of bags retained thereby.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Structure or apparatus of this invention, as illustrated in FIGS. 1—12, comprises support structure in the form of a housing or compartment 30 which has a top wall 32, side walls 34 and 36, a bottom wall 38, and a back wall 40.

The front of the housing 30 is open, except for a small front portion 42 which extends between the side walls 34 and 36 at the lower part thereof.

Within the housing 30, a connector 44 is attached to the back wall 40 and is spaced from the bottom wall 38. A connector 46 is attached to the front portion 42. A plurality of rods 48 is attached to the connectors 44 and 46 and extend therebetween. The rods 48 are substantially parallel one with the other, but slope downwardly from the back wall 40 to the front portion member 42, as shown in FIGS. 2 and 7.

A bias member in the form of a plate 54 is mounted upon the rods 48 and is slidably movable therealong, as the rods 48 extend through a bracket portion 52 of the plate 54. The plate 54 extends upwardly from the rods 48 and is substantially parallel with the back wall 40. Preferably, the plate 54 with the bracket portion 52 thereof has significant weight.

At the front portion of the housing 30, a vertically extending strip 56 is attached to the side wall 36 and extends inwardly therefrom. A vertically extending strip 58 is attached to the side wall 34 and extends inwardly therefrom. Preferably, the strips 56 and 58 are of resilient material, such as elastomeric material or the like. The strips 56 and 58 are shown in FIGS. 5 and 6 as being substantially L-shape in cross-section, having a base 56a and a base 58a, respectively, and attached to the side walls 36 and 34, respectively.

Attached to the front portion 42, within the housing 30, are resilient pads 60 and 62, which are spaced apart and separated by the connector member 46. The pads 60 are preferably of elastomeric material or the like.

OPERATION

As stated above, the plate 54 has significant weight and tends to slide downwardly upon the inclined rods 48. A plurality of bags 70, such as paper bags or the like, in a folded condition, are disposed between the plate 54 and the front portion 42.

Each bag 70 has the opening thereof in an uppermost position. Each bag 70 is shown as having a front panel 70a, a back panel 70b, a side panel 70c, a side panel 70d, and a bottom panel 70e. The front panel 70a has a notch 72 therein at the upper portion thereof. When each bag 70 is retained within the housing 30, each of the side panels 70c and 70d is folded along a vertical line into two portions, a part of the front panel 70a is folded upwardly against itself, and the bottom panel 70e is folded upwardly and against parts of the other panels. It is to be understood, however, that any other folding arrangement of the bags 70 may exist.

As shown, the forwardmost bag 70 within the housing 30 has opposed edges of the front panel 70a in engagement with the strips 56 and 58, and the bottom panel 70e has a part thereof in engagement with the pads 60 and 62. The weight of the plate 54 applies pressure upon all of the bags 70 within the housing 30. Thus a compressing force is applied to the bags 70 as they are disposed between the plate 54 and the strips 56 and 58 and the pads 60 and 62. Thus, the forwardmost bag 70 is in

firm engagement with the strips 56 and 58 and the pads 60 and 62.

When it is desired to remove a bag 70 from within the housing 30, the front panel 70a of the forwardmost bag 70 is manually grasped adjacent the notch 72 thereof, as illustrated in FIG. 8 and the upper portion of the front panel 70a is pulled outwardly from the housing 30. The front panel 70a is gradually pulled from engagement with the strips 56 and 58, as the strips 56 and 58 yieldingly release the front panel 70a. Thus, the front panel 70a is pulled completely from the housing 30, as shown in FIG. 9. As this occurs, the part of the bottom panel 70e which is in engagement with the strips 56 and 58 is removed from engagement with the strips 56 and 58. However, a portion of the bottom panel 70e is then folded against the back panel 70b and remains in engagement with the pads 60 and 62, as illustrated in FIGS. 9 and 10. Thus, at this time, a part of each of the side panels 70c and 70d is in engagement with the strips 56 and 58, as illustrated in FIG. 9.

As the front panel 70a is pulled farther in a direction from the housing 30, the bag 70 is opened to a greater degree as the side panels 70c and 70d, from the top to the bottom thereof, are pulled from engagement with the strips 56 and 58. Then the bottom portion of the side panels 70c and 70d and the remaining portion of the bottom panel 70e are pulled from engagement with the pads 60 and 62, as shown in FIG. 11. Thus, the bag 70 is completely open, as illustrated in FIG. 12.

The plate 54, as it is mounted upon the inclined rods 48 continuously applies pressure upon the supply of bags 70 which are disposed within the housing 30, regardless of the number of bags 70 within the housing 30. Therefore, as a forwardmost bag 70 is removed from the housing 30, a succeeding bag 70 is moved into engagement with the strips 56 and 58 and with the pads 60 and 62.

Thus, the structure of this invention provides means for retaining a supply of bags. The structure also provides means for causing a bag to be opened automatically as the bag is removed from the supply thereof.

FIGS. 13 AND 14

FIGS. 13 and 14 show a modification of this invention in which a housing 80, which may be similar to the housing 30 has resilient pads 82, along the walls thereof, adjacent the forward portion thereof. Thus, these pads 82 are used instead of the strips 56 and 58, as shown in FIGS. 1-12. The housing 80 has a front portion 83 to which pads 85 are attached. The pads 85 may be similar to the pads 60 and 62 discussed above.

FIGS. 15 AND 16

FIGS. 15 and 16 show another modification in which a housing 90, which may be similar to the housings 30 and 80, has a rear wall 92 which is provided with a spring seat portion 94 which is encompassed by one end of a helical spring 96. The spring 96 also engages a plate or bracket 98, which engages a supply of bags 70. The plate 98 is shown as being movable along a floor 99 of the housing 90. Thus, the spring 96 and the plate 98 serve as bias means and apply pressure upon the supply of bags 70. The forwardmost bag 70 is forced into engagement with strips 93 and pads 95, which may be similar to the strips 56 and 58 and the pads 60 and 62, shown in the structure of FIGS. 1-12. Thus, the spring 96 and the plate 98 serve in substantially the same manner as the plate 54 and the rods 48 upon which the plate 54 is mounted. The housing 90 at the upper forward portion thereof is shown as having a notch 97, which may serve to provide easier access to the upper parts of the bags 70.

FIGS. 17-22

FIGS. 17-22 illustrate an embodiment of this invention in which the width of a bag holder compartment is adjustable.

Support structure 100 is provided with an upper transverse support rod 102 at the rear portion thereof and an upper transverse support rod 104 at the forward portion thereof. A

lower transverse support rod 106 extends across the lower part of the rear portion of the support structure 100, and a transverse support rod 108 extends across the lower part of the forward portion of the support structure 100.

Vertically extending connector bars 110 are slidably mounted upon the support rods 102 and 106 and extend therebetween. Vertically extending connector bars 112 are slidably mounted upon the rods 104 and 108 and extend therebetween. The connector bars 110 and 112 are arranged in pairs and have attached thereto rods 116, there being plurality of rods 116 extending between a connector bar 110 and a connector bar 112. Thus, a connector bar 110 and its corresponding connector bar 112, with the rods 116 which are carried therebetween form an adjustable divider or retention element which is movable along the support rods 102, 104, 106, and 108.

Clamping screws 118 are threadedly carried by each connector bar 110 and are engageable with the support rods 102 and 106 to secure the position of the connector bar 110 with respect to the support rods 102 and 106. Clamping screws 119 are threadedly carried by each connector bar 112 and are engageable with the rods 104 and 108 to secure the position of the connector bar 112 with respect to the support rods 104 and 108.

A plurality of sleeves 120 is carried by the rod 106, there being a sleeve 120 positioned between adjacent connector bars 110. A plurality of sleeves 122 is slidably carried by the rod 108, there being a sleeve 122 positioned between adjacent connector bars 112.

A clamping screw 124 is threadedly attached to each sleeve 120 and 122 and is engageable with the rod 106 and 108 to secure the position of the sleeves 120 and 122 upon the rods 106 and 108, respectively. A plurality of rods 130 is attached to each sleeve 120 and to each sleeve 122 and extend therebetween. The rods 130 are inclined from the sleeve 120 to the sleeve 122. Thus, a sleeve 120 and a sleeve 122 with the rods 130 which extend therebetween form a support element which is slidably movable along the rods 106 and 108, and which is secured in position by means of the clamping screws 124 which are carried by the sleeves 120 and 122.

The rods 130 which extend between the sleeves 120 and 122 carry a bias member in the form of a plate 134 which is slidable thereupon. The plate 134 may be similar to the plate 54, of the apparatus of FIGS. 1-12, or may be any other suitable bias member or engagement member, slidably movable upon the rods 130. Each plate 134 has a bracket 135 the lower surface of which is provided with tubular slide members 137 which encompass the rods 130.

Thus, the rods 130 serve as support means and bags such as the bags 70, or the like, are positioned upon the rods 130, forwardly of the plate 134. The rearwardmost bag 70 is in engagement with the plate 134 and the forwardmost bag 70 has the edges thereof in engagement with resilient blocks or pads 136 and 138 which are carried by the connector bars 112. A bag 70 is removed from the apparatus of FIGS. 17-22 in a manner similar to that shown in FIGS. 8-12, and after the bag 70 is completely removed from the apparatus, the bag 70 is open, as shown in FIG. 12.

As discussed above, the connector bars 110 and 112 and the sleeves 120 and 122 are adjustably movable along the support rods 102, 106, 104, and 108, respectively. Therefore, the apparatus is adjustable to accommodate larger bags and smaller bags. If it is desired to accommodate smaller bags, adjacent connector bars 110 and 112 are moved one toward the other. Each connector bar 110 is adjustably movable after the clamping screws 118, attached thereto, are loosened from engagement with the rods 102 and 106. Each connector bar 112 is adjustably movable after the clamping screws 119, attached thereto, are loosened from engagement with the rods 104 and 108.

With such adjustment of the connector bars 110 and 112, the sleeves 120 and 122 are slidably moved to maintain a substantially central position between adjacent connector bars

110 and 112. Each sleeve 120 has the clamping screw 124 attached thereto, which is loosened for movement of the sleeve 120 along the rod 106. The sleeve 122, attached to the sleeve 120 through the rods 116, moves axially with axial movement of the sleeve 120.

Thus, the apparatus shown in FIGS. 17-22 comprises one or more bag holders and dispenser mechanisms. Each mechanism is adjustable in width for accommodation of larger or smaller bags.

FIG. 18 shows each mechanism adjusted for accommodation for smaller bags, and FIG. 19 shows each mechanism adjusted for accommodation of larger bags.

FIG. 23

FIG. 23 shows a bias member in the form of a plate 150 which generally may be similar to the plates or bias members 54, 98, and 134, discussed above. However, the plate 150 is provided with a forwardly extending flange 152 at the upper portion thereof. The flange 152 engages the top part of the rearwardmost bag 70 and urges the top part of all of the bags 70 forwardly so that the top part of the forwardmost bag 70 is in a position to be easily manually grasped for removal thereof.

It is to be understood that each bias member 54, 98, 134, or 150, may, rather than a plate, comprise a grid or block or set of stems or the like or any other suitable pressure or engagement or abutment means.

Although the preferred embodiment of the device has been described, it will be understood that within the purview of this invention various changes may be made in the form, details, proportion and arrangement of parts, the combination thereof and mode of operation, which generally stated consist in a device capable of carrying out the objects set forth, as disclosed and defined in the appended claims.

The invention having thus been described, the following is claimed:

1. Apparatus for successively dispensing paper-like bags each having opposite side walls and opposite end walls connected by a bottom wall and being foldable between an open condition and a collapsed condition with the end walls folded

between the side walls and the bottom wall folded against one of the side walls, said apparatus comprising a box-like cabinet having a rectangular front opening and means for supporting a stack of substantially vertical collapsed bags with the upper end portion of said one side wall of the front bag in the stack exposed for manual gripping, means adjacent the sides of the front opening for restraining the other side wall of the front bag when said one side wall is pulled from said supporting means, at least one resilient rubber-like gripping member disposed adjacent the bottom of said front opening and having a gripping surface, said gripping surface extending above the lower folded edge of the front bag and engaging and gripping the bottom surface of the folded bottom wall of the front bag, a pressure member supported within said cabinet in back of the stack of bags for movement towards said front opening and cooperating with said gripping member to cause said gripping surface to press the folded bottom wall of the front bag against the adjacent side wall of the bag, and said gripping surface having a coefficient of friction sufficient to restrain and pull downwardly on the bottom wall of the front bag when said top end portion of said one side wall is pulled from the stack to cause unfolding of the bottom wall and automatic opening of the bag as the bag is removed from the stack.

2. Apparatus as defined in claim 1, wherein said means for supporting a stack of bags include a plurality of parallel spaced guide rods within the bottom portion of said cabinet and sloping downwardly to the bottom of said front opening, said guide rods being positioned to engage the lower folded edges of the bags within the stack, said gripping member is located adjacent the lower ends of said rods, and said pressure member is slidably mounted on said rods.

3. Apparatus as defined in claim 1, wherein said means for restraining the other side wall of each bag include a set of resilient restraining members mounted on said cabinet and positioned on opposite sides of said front opening to engage opposite end walls of each folded bag.

4. Apparatus as defined in claim 1, including a compression coil spring extending between said cabinet and said pressure member for urging said pressure member towards said front opening.

* * * * *

45

50

55

60

65

70

75