

[54] **BAG FILLING DEVICE**

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Related U.S. Application Data

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[51] Int. Cl.B65b 43/36

[58] Field of Search.....53/384, 385, 386,
53/189, 190, 261

[56] **References Cited**

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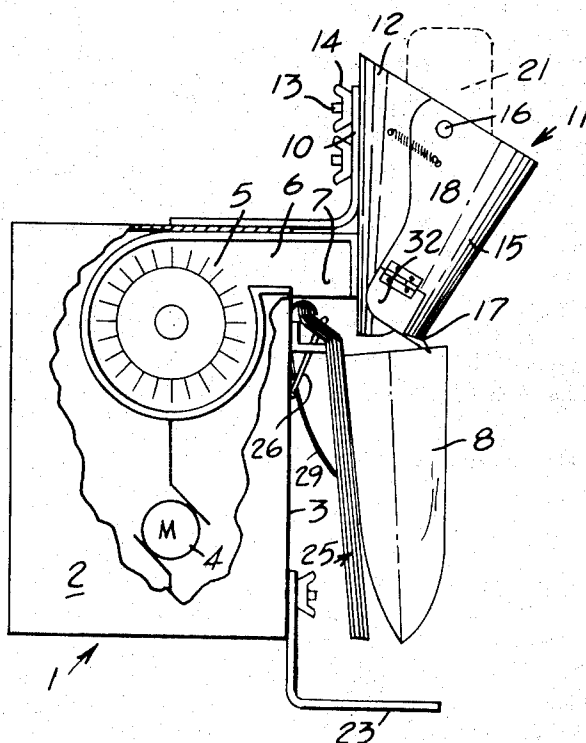
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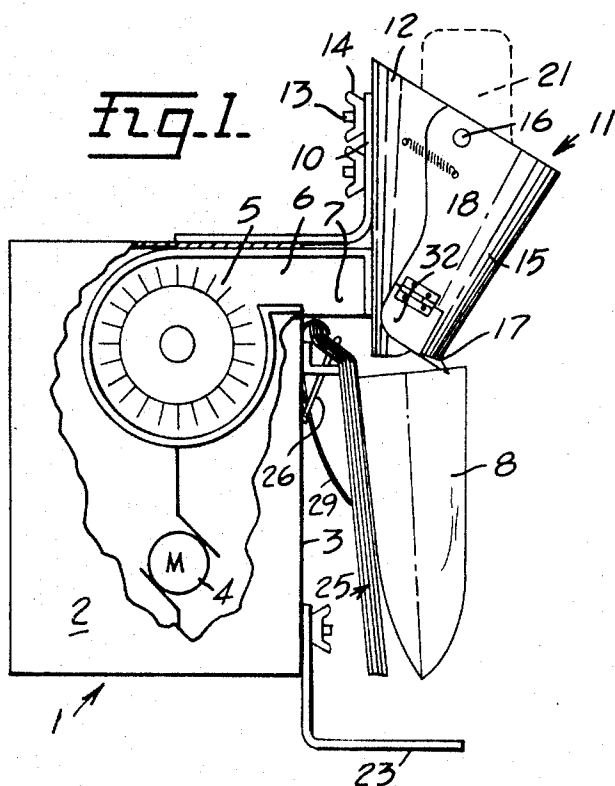
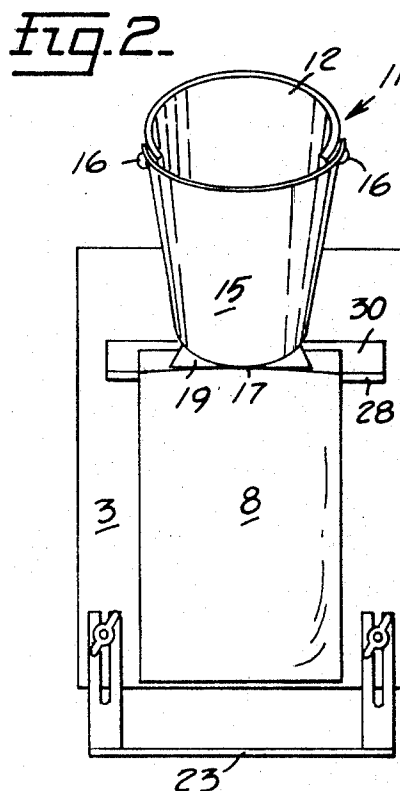
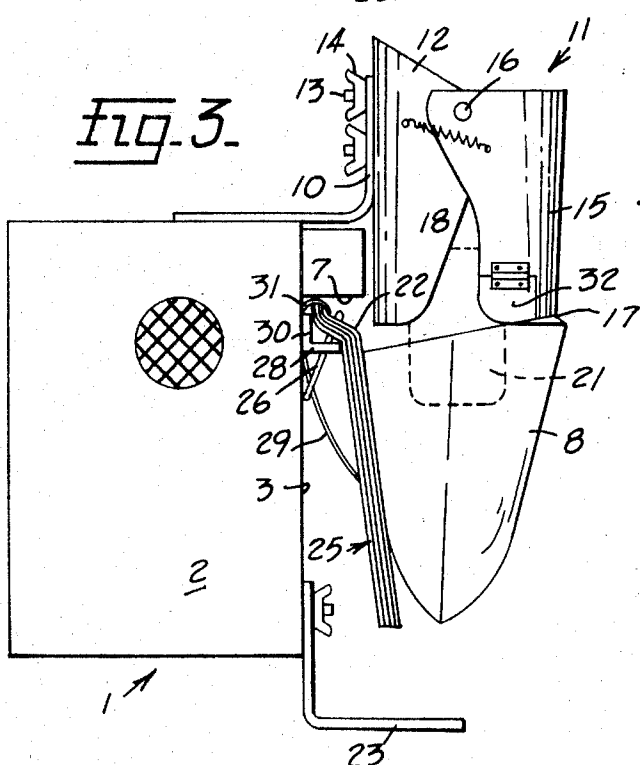
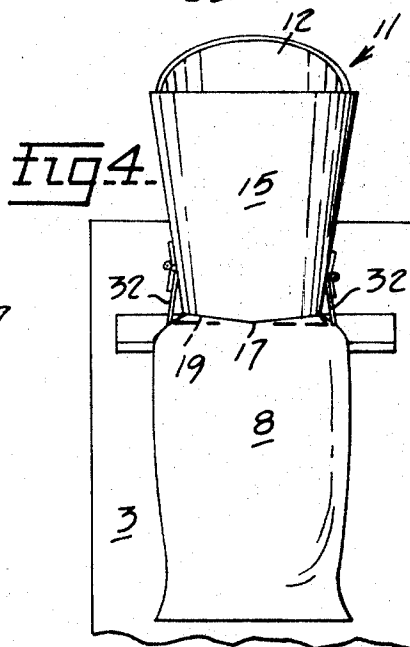
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[57] **ABSTRACT**

The flaps of a stack of plastic bags are clamped by a releasable clamp below the exhaust nozzle of the blower of a packing device, in such position that the airflow blows the top of the outermost bag open away from the stack; above the bag is a feed chute or guide adjustably mounted on the top of the blower, having a pivoted half on a transverse pivot so that it may swing outwardly away from the blower; skirt flanges extending from the lower edge of this pivoted half project into the opened bag so as to keep it open when the pivoted half is swung outwardly by the package or item to be packed; on each side of the pivoted half is a hinged flap swingable outwardly to hold the sides of the bag open when a wider package or article is dropped through the feeding guide; the pivoted half is sufficiently wide to extend substantially beyond the sides of the stationary half of the guide.

9 Claims, 12 Drawing Figures





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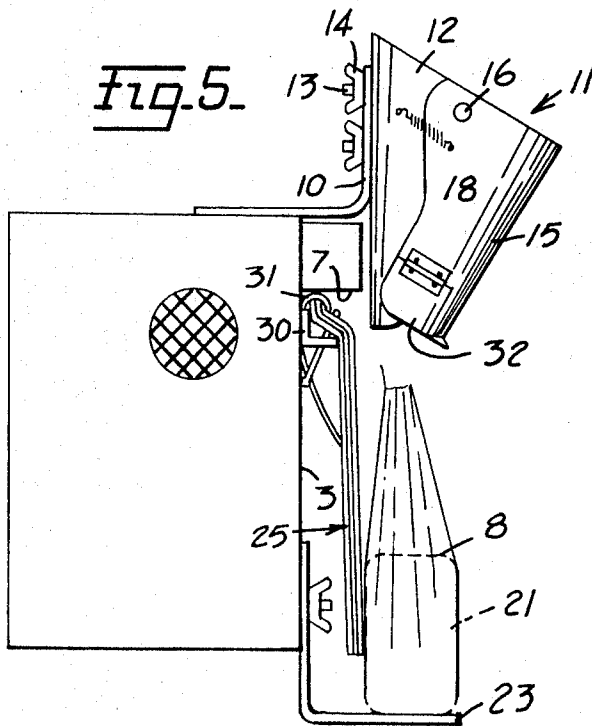
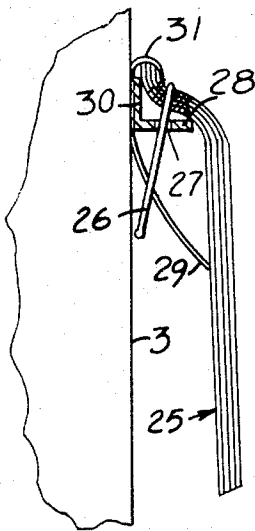


Fig. 6.

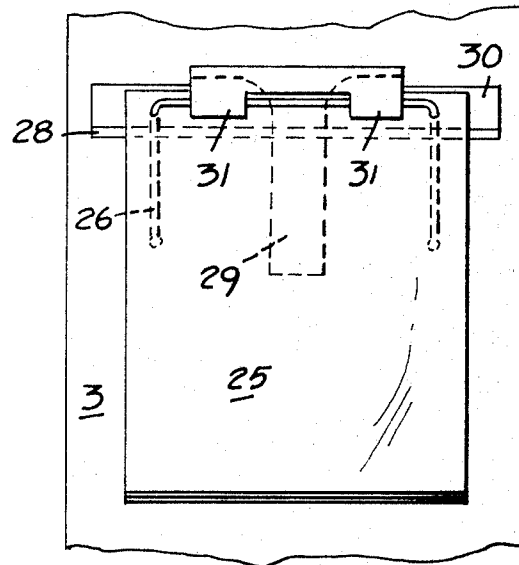


Fig. 7.

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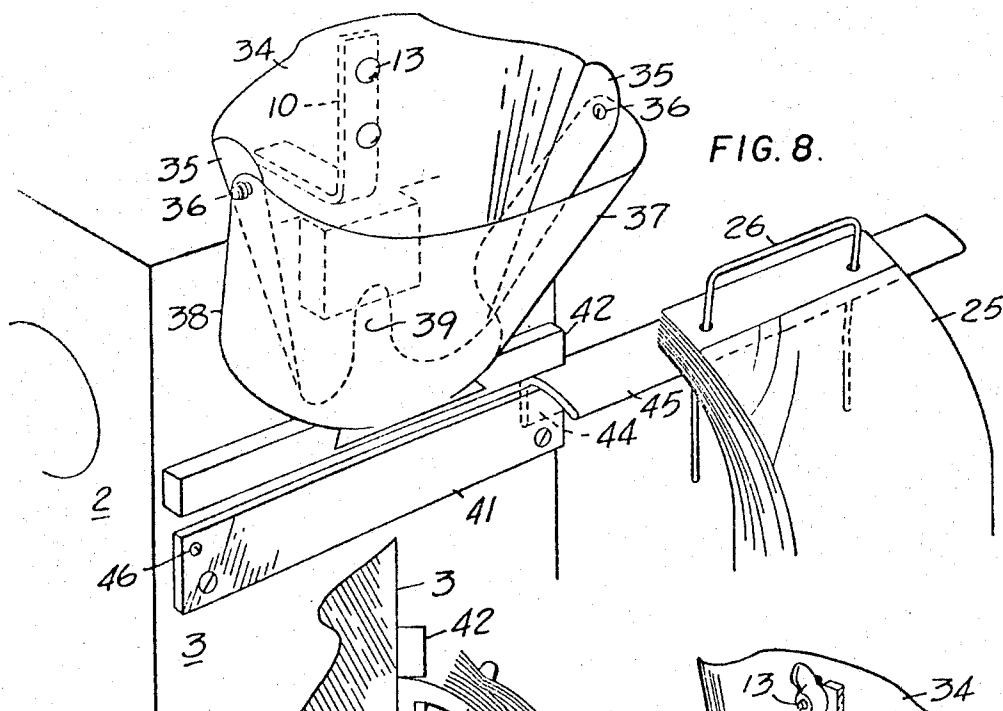


FIG. 8.

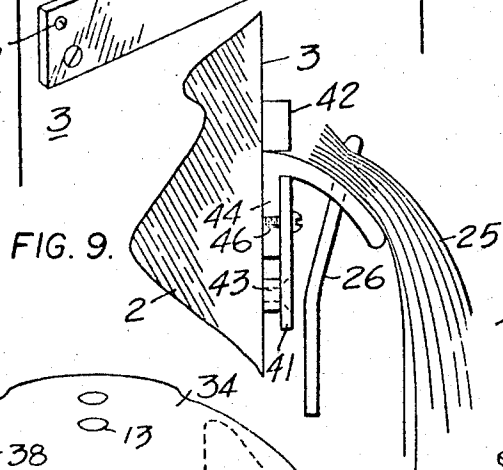


FIG. 9.

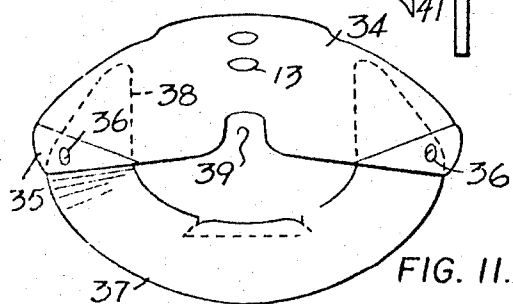


FIG. 11.

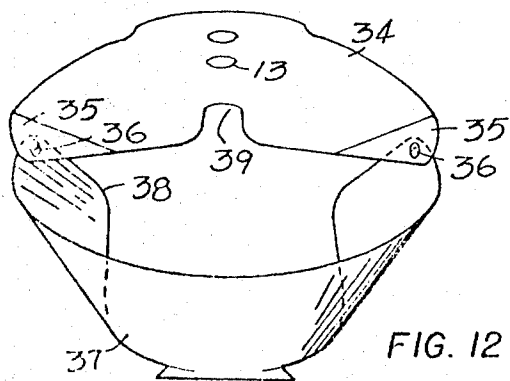


FIG. 12

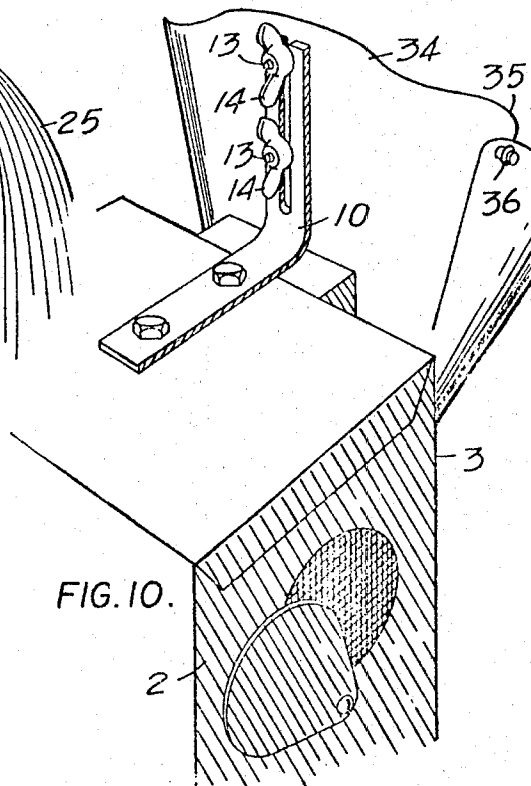


FIG. 10.

BAG FILLING DEVICE

This is a continuation-in-part application of copending application Ser. No. 869,431, filed Sept. 11, 1969.

BACKGROUND OF THE INVENTION

Previously on bag fillers of the type wherein compressed air is utilized for blowing a bag open, the feeding guides or chutes above the bags were actuated by complicated rocker arms and devices, frequently involving complicated control systems with many movable parts. In another type of apparatus the bags are stacked horizontally and blown open and mechanical feeders are utilized to push the items into the bags.

The primary object of the invention is to furnish a guide in which the pivoted half of the guide is swung open by the weight of the item to be bagged, and wherein this swingable portion is adapted to hold the top of the bag open for receiving the item to be bagged.

Another object of the invention is to provide a feeding guide and also a convenient support for the stack of bags below the guide which can be easily adapted or mounted on blowers for perpendicular bagging.

BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a side view partly in section showing the feeding guide and the bag in coacting position.

FIG. 2 is a front view of the bagging device.

FIG. 3 is a side view of the bagging device showing the item to be bagged in broken lines passing from the feeding line into the bag.

FIG. 4 is a front view of the guide in the position shown in FIG. 3.

FIG. 5 is a side view of the bagging device after the bagged item is dropped on a support below.

FIG. 6 is a fragmental partly sectional view showing the clamping of the top flaps of a stack of bags in position.

FIG. 7 is a front view of the stack of bags clamped in position.

FIG. 8 is a fragmental perspective view showing the bag support in bag loading position.

FIG. 9 is a fragmental view showing the slideable bag support.

FIG. 10 is a fragmental perspective view showing the detail of the adjustable mounting of the feeding guide.

FIG. 11 is a top view of the feeding guide collapsed.

FIG. 12 is a top view of the feeding guide extended.

DETAILED DESCRIPTION

A usual blower 1 has a casing 2 with a front wall 3. In the casing is the usual electric motor 4 which drives a fan or blower 5, as shown in FIG. 1. The air blown passes through an outlet passage 6 and through a nozzle opening 7 for blowing open the top of a bag 8 positioned below the nozzle 7.

One of the improvements in this invention is a feeding guide 11, a fixed half 12 of which is provided with a pair of studs 13 and wing nuts 14 for engagement with forked brackets 10 shown in FIG. 2 to support the feeding guide 11 in suitable adjusted position relatively to the open top of the bag 8.

A swinging or pivoted guide 15 is pivoted on a pivot 16 transverse relatively to the position of the bag 8 thereunder and of the fixed guide 11 so that the swingable guide 15 swings from the top pivot 16 outwardly on

an arc which will bring its lower edge 17 substantially into the open bag 8 to further stretch it open into the position shown in FIG. 3. A comparatively light spring 18 anchored at one end of the fixed guide 12 and at the other end to the swinging guide 15 below the pivot 16, as shown in FIG. 1, urges the swinging guide into the initial collapsed position shown in FIG. 1, in which position the swinging guide converges downwardly toward the bottom of the fixed guide 11 so that the article to be bagged drops on the inclined swinging guide.

The lower edge 17 of the swinging guide 15 has a lip 19 extending laterally and downwardly into the top of the bag 8 substantially as shown in broken lines in FIG. 4 to engage the adjacent top edge of the bag 8 and stretch the bag fully open so that the item, such as meat, food products, or other goods to be packaged, represented by the article 21 indicated in broken lines in FIG. 1 and FIG. 3, can freely drop into the open bag 8. The weight of the article 21 dropping into the bag 8 tears the bag 8 off the flap 22 so that the bagged article drops down onto a suitable support, such as an adjustable bracket 23 mounted on the wall 3 of the blower 1, or upon any other support on conveyor that may carry away the packaged article.

The bags 8 are provided in a stack 25, the flaps of which are suitably perforated. The legs 26 of a U-shaped loop extend through holes in the flaps 22 of the stack 25 and then are inserted in holes 27 in a horizontal flange 28 of an angle bracket 30 mounted on the vertical wall 3 of the blower 1 below the nozzle 7. The middle portion of the bracket 30 adjacent the wall 3 is suitably slotted for slideably receiving a spring bow 29 the top of which is formed into claws 31 fitting over the stack of flaps 22.

The feed chute or guide is formed generally in a frusto-conical shape with a narrow end nearer to the bag 8. In order to accommodate larger articles of substantially rectangular cross-section, the swinging guide 15 is provided with pivoted flanges 32 on each side thereof. The hinged flanges 32 are adapted to be pushed outwardly into the position shown in FIG. 4 to further spread the bag laterally in order to accommodate a larger package.

In operation the fixed guide 12 is mounted at a suitable height by the adjustable studs 13 and wing nuts 14 and is fixed in the adjusted position, so that the lip 19 at the bottom edge 17 of the swinging guide 15 is in proper position to project into the top of the open bag 8.

The flaps 22 of the stack 25 are placed on the flange 28 so that the legs of the loop 26 are inserted in the holes 27 of the horizontal flange 28. Thereupon the claws 31 of the spring bow 29 are pressed down over the flaps 22 to hold bags 8 in proper relation below the nozzle 7. Then the meat or other product or article is simply dropped into the top of the feed chute or guide 11 and by its weight pushes the swinging guide 15 outwardly thereby to stretch the open top of the uppermost bag 8 of the stack 25, previously blown open, to the extent necessary to receive the article 21 to be packed.

The bracket 23 is adjusted to the desired height as heretofore described. When the bag is to be filled with unpackaged loose items, such as string beans or like produce, then the adjustable bracket 23 is raised to

support the bottom of the opened bag until the bag is filled, whereupon the bag is pulled off the flap 22 manually.

The modified form shown in FIGS. 8 to 12 shows the fixed half 34 with inwardly bent flanges 35 to accommodate pivots 36 in more truly transverse position with respect to the guide. The swinging guide 37 is considerably wider and is provided with straight edges 38 to overlap the outside of the flanges 35 to a considerable extent thereby to reduce the possibility of spilling sidewise. The lower end of the fixed guide is provided with a wide notch 39 at about the nozzle opening 7 to direct the air inwardly of the guide and downwardly to accelerate the spreading open of the bag.

The bag support in this form includes a guide plate 41 spaced below a guide bar 42 and also spaced from the face of the front wall 3 of the casing 2 by spacing washers 43 as shown in FIG. 9.

The bag support has a sliding flange 44 and a curved support flange 45, which latter is located in the space between the guide 41 and guide bar 42 as shown in FIGS. 8 and 9.

The flange 44 fits in the space between the guide 41 and the front wall 3 and the sliding of the flange 44 is limited by a limit screw 46. The curved flange 45 has a pair of spaced holes through which extends the loop 26 heretofore described, which also extends through holes in the bags. For loading the bags, therefore, it is not necessary to reach under the fixed guide, or even to raise the feeding guide to permit the loading of the bags. The sliding flange and support 45 are simply pulled out as shown in FIG. 8 and the legs of the loop 26 are extended through the holes in the stack as heretofore described. Thereafter the entire support can be slid into position beneath the feeding guide.

I claim:

1. An attachment for a packaging device having a downwardly blowing blower nozzle on a casing having a substantially perpendicular wall below said blower nozzle, and a stack of bags supported on said wall below the nozzle, said bags being held with their open ends adjacent said nozzle so that the outermost bag is partially blown open and being separable from said stack,

said attachment comprising,
a stationary generally perpendicular guide of substantially semi-circular cross-section,
vertically adjustable means for mounting said stationary guide on said casing above and adjacent said nozzle and in registry with said outermost bag so that the concave side of said guide faces away from said casing and the lower end of said guide extends below said blower nozzle,

the vertical edge portions of the concave side of said guide being adapted to accommodate opposite pivots near the top of said stationary guide,

a swingable guide opposite the concave side of said stationary guide being pivoted near its top on said opposite pivots so as to normally hang over and

cover said concave side and overlap the outside of said stationary guide and be swingable away from said perpendicular wall,

said swingable guide in its initial position being inclined downwardly and converging towards the lower end of said stationary guide so as to be engaged by an article dropping through said guide and be swung away from said stationary guide by the weight of said article thereby to accommodate the size of said article.

2. The invention specified in claim 1, and said vertically adjustable means including, a bracket on the top of said casing having a vertical forked portion,

and fastening means extended from said stationary guide through said forked portion, and being slideable in said forked portion for securing said stationary guide at an adjusted height.

3. The invention specified in claim 1, and spring means below said pivots having its ends anchored respectively on the stationary guide and on the swingable guide for normally drawing said swingable guide into overlapping relation over the outside of said stationary guide.

4. The invention specified in claim 1, and the sides of said swingable guide being of sufficient width to overlap the entire lower portion of said stationary guide in the closed position.

5. The invention specified in claim 4, and the free edges of said stationary guide being formed into opposite generally parallel flanges, and said pivots being in the upper portion of said flanges on an axis parallel with the adjacent face of said casing.

6. The invention specified in claim 1, and means supporting a stack of bags on said perpendicular wall including,

a guide below said nozzle transverse with respect to said wall,

a bag support slideable longitudinally into said guide, and releasable means to hold a stack of bags on said support.

7. The invention specified in claim 6, and said slideable support having a curved flange with spaced holes therethrough extended away from said perpendicular wall, and being adapted to accommodate a U-shaped leg extensible through holes of said stack of bags.

8. The invention specified in claim 1, and swingable side flanges on opposite sides of the lower portion of said swingable guide being swingable laterally outwardly by the article dropped on said swingable guide for spreading the bag laterally to accommodate said article.

9. The invention specified in claim 1, and said stationary guide having an opening therethrough adjacent said nozzle to direct air from said nozzle for accelerating the spreading open of the bag.

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