Jan. 29, 1963 H. L. BURKS ET AL 3,075,324

DISPENSER APPARATUS FOR PAPER CONTAINERS

Filed April 15, 1960 3 Sheets-Sheet 1

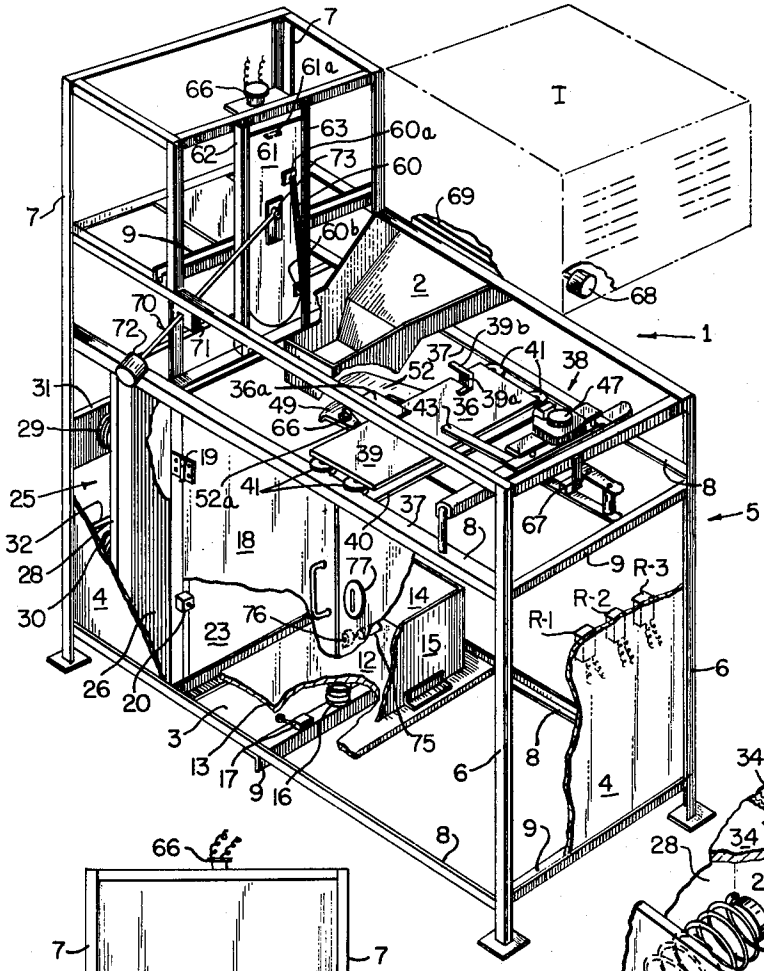

FIG-1

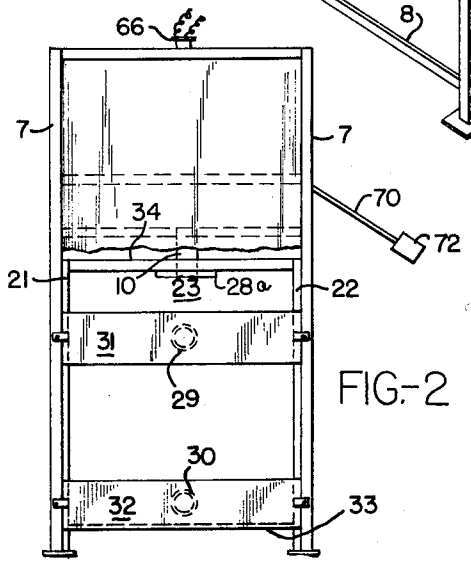

FIG-2

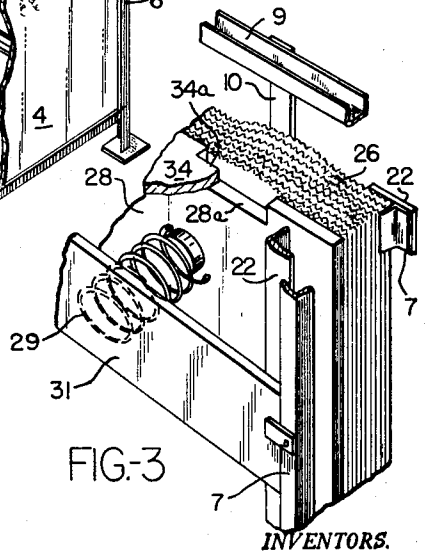

FIG-3

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DISPENSER APPARATUS FOR PAPER CONTAINERS

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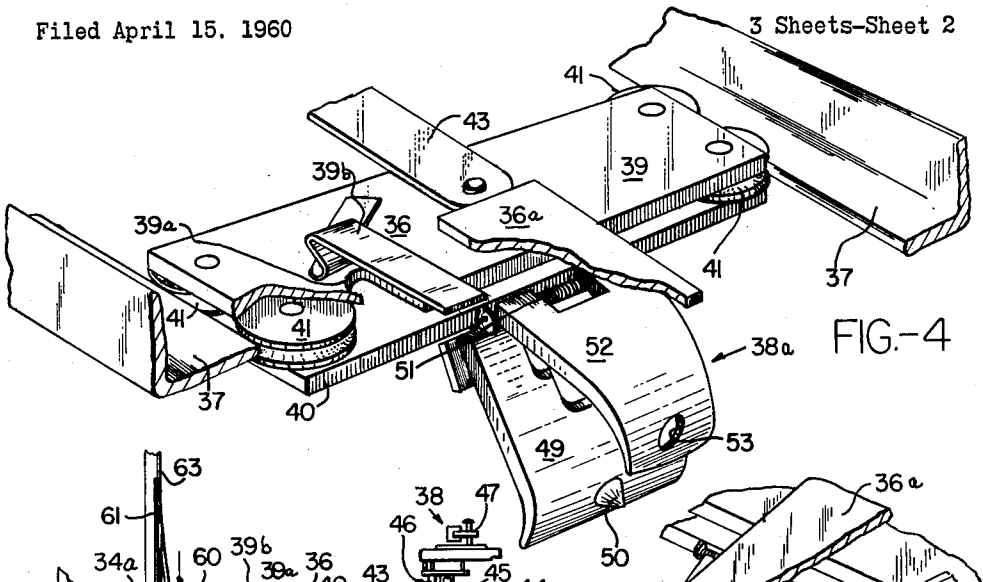

FIG.-4

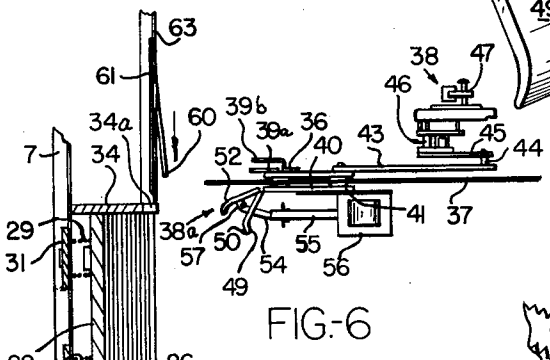

FIG.-6

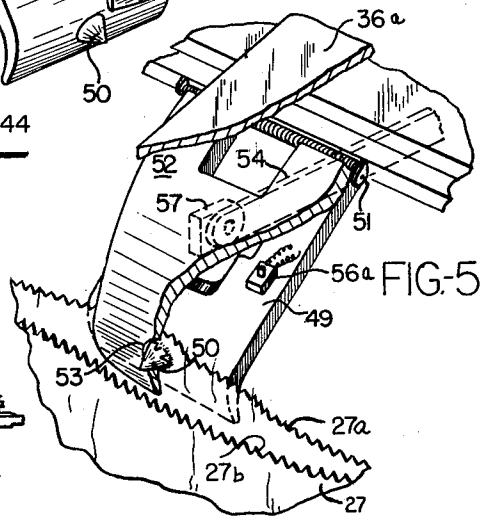

FIG.-5

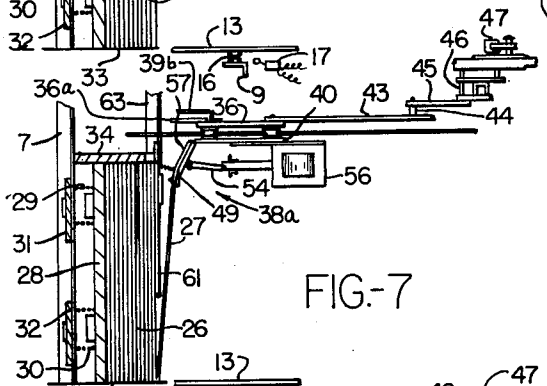

FIG.-7

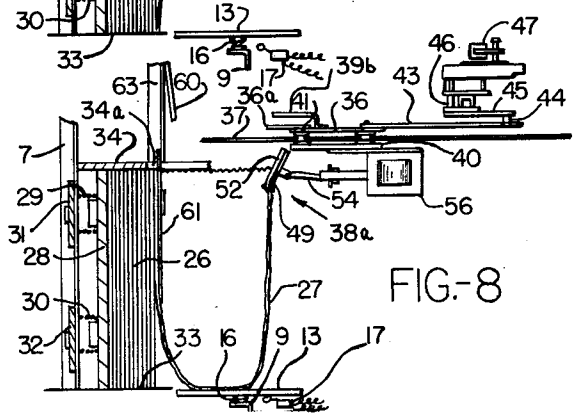

FIG.-8

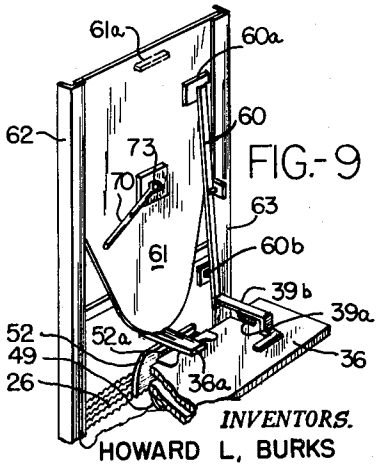

FIG.-9

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DISPENSER APPARATUS FOR PAPER CONTAINERS

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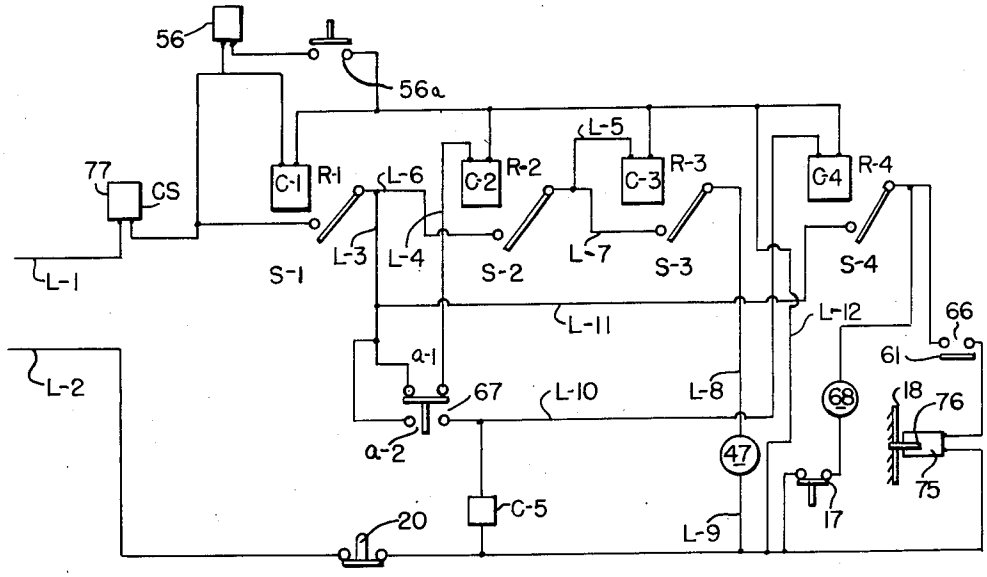

FIG.-10

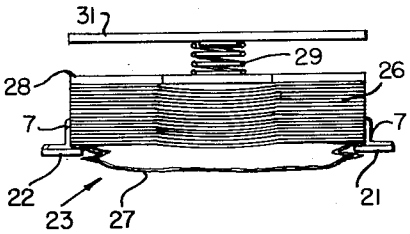

FIG.-11

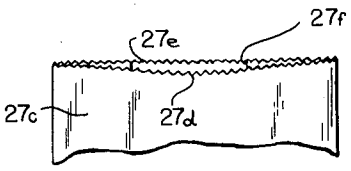

FIG.-13

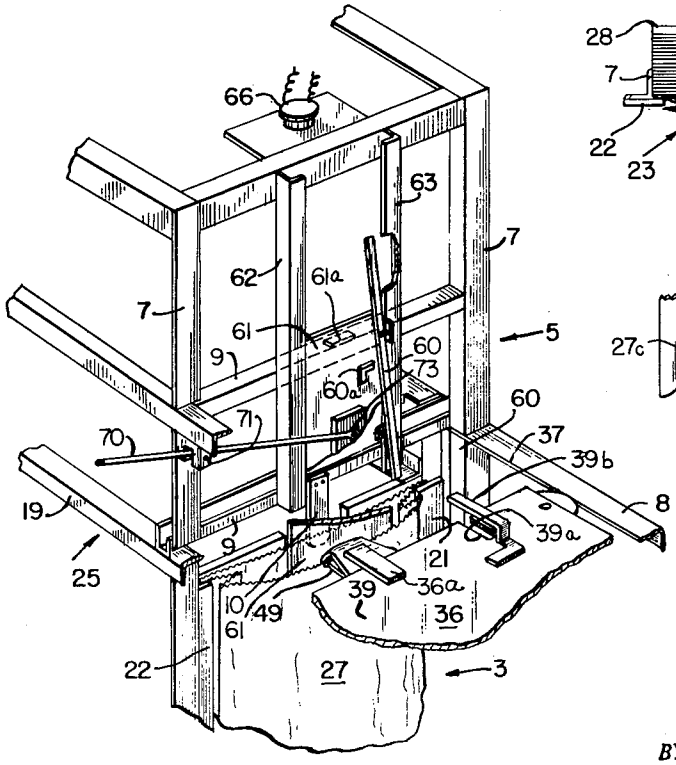

FIG.-12

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DISPENSER APPARATUS FOR PAPER CONTAINERS

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Filed Apr. 15, 1960, Ser. No. 22,446
11 Claims. (Cl. 53—29)

This invention relates to dispenser apparatus for sacks such as paper bags and the like; more particularly the invention relates to apparatus for dispensing an individual sack from a series of stacked folded sacks and to mechanism for presenting the individual sack in an open condition for filling.

A principal object of the invention is the provision in a method of dispensing openable sacks of novel procedural steps for presenting a sack to be opened in a partially opened in a partially opened condition such that it may be drawn to a fully opened condition.

A primary object of the invention is the provision in dispenser apparatus of a sack storage compartment and an adjacent sack filling compartment together with means to withdraw a sack from the storage compartment and to position the sack in open condition, ready for the receipt of material, in the sack filling compartment.

A further object of the invention is to provide means to fully expand the usual paper sack of commerce automatically, and in addition to provide means whereby a series of individual sacks may be expanded individually and consecutively.

An important object of the invention is to provide a novel method of dispensing sacks for filling, which method includes the withdrawal of a sack from storage, the partial expansion of the sack, the retention of the partially opened sack against movement as a unit, and the expansion of the sack to full capacity while it is so retained.

The invention particularly contemplates the provision of means for dispensing, in response to a coin deposit, a packaged quantity of material, such as ice cubes; this dispensing mechanism thus avoids handling of the ice, minimizes loss and sticking together of ice cubes, and contributes to the health factor since such cubes are frequently directed to human consumption.

The invention will be more fully understood by reference to the following detailed description and accompanying drawings wherein:

FIGURE 1 is a perspective view of a preferred embodiment of the invention with parts removed and other parts broken away to illustrate operating mechanism;

FIGURE 2 is an end view of the apparatus of FIGURE 1;

FIGURE 3 is a fragmentary and perspective view illustrating the arrangement of the sack storage compartment of the structure of FIGURE 1;

FIGURE 4 is an enlarged, fragmentary view in perspective, with parts broken away, illustrating mechanism for gripping and drawing of the sacks from the sack storage compartment;

FIGURE 5 is an enlarged, fragmentary and perspective view illustrating the gripping engagement of mechanism of FIGURE 4 with a common sack of commerce wherein the side of the sack which is gripped is relieved relative to the rearward side of the sack;

FIGURE 6 illustrates a first step in the operation of the device with the gripping mechanism beginning to move into position to grip a sack;

FIGURE 7 illustrates a succeeding step in the operation of the device with the gripping mechanism drawing the sack and the retaining means within the sack;

FIGURE 8 illustrates the sack of FIGURES 6 and 7 in fully opened condition;

FIGURE 9 illustrates a step intermediate between the steps of FIGURES 6 and 7 and which step is employed in timing the mechanism;

FIGURE 10 is a schematic diagram of one electrical circuit arrangement for the practice of the invention;

FIGURE 11 is a fragmentary and somewhat exaggerated view in plan particularly illustrating a sack extending partially through the passageway of the sack storage compartment and showing the manner in which a sack opens;

FIGURE 12 is a fragmentary view in perspective illustrating the action of the withdrawal mechanism and particularly the position of elements of the mechanism as the step of withdrawal of a sack from a compartment is nearing full expansion of the sack; and

FIGURE 13 is a front view of another form of conventional sack.

Referring to the drawings the numeral 1 in FIGURE 1 designates generally apparatus for the making and dispensing of ice cubes packaged in sacks, such as conventional paper bags. The ice making unit shown in dot-dash outline at 1 may be of conventional structure and accordingly is not shown in detail. Chute 2 conveys the ice cubes from the unit 1 towards a sack filling and delivery compartment 3, the control being effected automatically, as will be noted hereinafter.

The apparatus 1 is provided with an enclosing casing which extends over the mechanism including the chute 2; fragmentary portions of the casing are designated by the numeral 4. This casing is of conventional material such as sheet metal, but may be provided with insulating material as desired.

The casing material 4 is supported on a frame designated generally at 5 which may be of any convenient arrangement; as shown in FIGURE 1 frame 5 includes a plurality of vertically extending angle irons 6 and 7, longitudinal and horizontally extending angle irons 8, and cross members 9. Angle irons 7 are of somewhat greater height to provide the left end of the frame 5 (FIGURE 1) above the remainder of the apparatus.

Compartment 3 has therein a weight table generally designated at 12 and formed with a bottom wall 13, a rear wall 14 and one side wall 15. Weight table 12 is resiliently mounted on a coil spring 16, itself supported by a cross member 9. Cross member 9 also carries a switch 17 adapted to be engaged by the weight table in a fully loaded condition of the table and to which reference will be made in connection with the electric circuit diagram (FIGURE 10). It is sufficient here to note that through switch 17 the quantity of material delivered on the weight table is limited; other means of controlling the dispensing of a quantity of material, known to the art, may of course be employed.

Compartment 3 is provided forwardly with a door 18, hinged as indicated at 19 in any convenient manner, and the position of which door serves to control a normally closed switch 20 (FIGURE 1).

Compartment 3 leftwardly is bordered by (FIGURE 12) vertically extending spaced strips 21, 22 of the frame and which strips define therebetween a passageway 23 extending transversely between sack filling compartment 3 and sack storage compartment 25 and communicating these compartments.

Storage compartment 25 is adapted to receive a supply body 26 of sacks arranged in a stack as a series of individual sacks, one of which is shown at 27 (FIGURES 5 and 11). The supply body 26 is constantly urged toward the strips 21, 22 and passageway 23; the strips 21, 22 are located to engage the sacks laterally longitudinally and the strips restrict the passageway such that sacks may be withdrawn through it with the application of slight force. A combination of a movable wall member 28 in

the form of a plate and a pair of coil springs 29, 30 urge the sacks to the strips and passageway 23. The springs 29, 30 are themselves supported by straps 31, 32, respectively, the straps being mounted conveniently on the frame 1 (FIGURES 2 and 3). The stack of sacks is rigidly supported rearwardly by wall member 28 and accordingly, pressure towards passageway 23 is exerted on the sacks, which in turn, engenders counter-pressure by an abutment element which will result in partly opening of a sack as will be explained further below.

Storage compartment 25 is closed by a bottom wall member 33 and an upper wall member 34 having cutouts 34*a* and which wall members also serve to guide the sacks (FIGURE 6) and to maintain positioning of the supply.

The sacks of the series are preferably arranged in vertical position with their openable ends upward. With most commercial sacks one side, termed herein the forward side, is relieved or notched to present in the folded condition a view of the opposite rearward side. In the practice of the invention the sacks are suitably stacked to always present the relieved forward side to the passageway 23.

It will be noted that the sack advantageously has a rearward side slightly projecting beyond the forward side at the openable end of the sack so as to assure contact between the abutment element 10 and the rearward side only, as will be explained further below. (See, for example, the forward edge 27*d* and the slightly projecting rearward edge 27*e* in FIGURE 13.) Thus, the relieved side is presented to the passageway and comes first in the process of urging the sacks towards the same, whereas the rearward side with the slightly projecting portion at the openable end of the sack comes second. The arrangement is important for the initial partial opening of the sacks, as will be set forth presently.

Projecting downwardly from a cross member 9 (FIGURES 2, 3 and 12) into the passageway 23 transversely to the direction in which wall member 28 moves is an abutment element 10, which element is positioned and arranged to perform a plurality of functions. Initially it should be noted that the abutment element is in alignment with (FIGURE 3) a relieved portion 28*a* of wall member 28. Also abutment element 10 is of such a length that it permits the forward side 27*a* or 27*d* of a sack to pass therebeneath, the rearward side 27*b* or 27*e*, slightly projecting beyond the forward side, on its inner surface of the sack being pressured against the abutment element. As the sacks are urged toward the passageway 23 and the abutment element 10 by wall member 28, the aligned relieved portion 28*a* and the abutment element then cooperate to tend to urge the rearward upper openable edge of the first sack of the series away from the forward side of the same sack to thus bulge the sack to an open condition. This opening need only be slight, sufficient that a finger or gripping element may be inserted into the sack. Thus the effect of the pressuring by the movable wall member, the retention by the strips 21, 22 and that of the abutment element 10 is to present the first sack of a series always in a partially open condition; that is, there is a relative separating displacement of the forward and rearward sides of the first sack of the series.

For the purpose of further opening the sack withdrawal means which include gripping means are provided; the gripping means, as will be noted, cooperate with the abutment element which serves as a guide for entry of the gripping means to the partially open sack.

In FIGURE 13 another conventional form of sack 27*c* has a lower forward edge 27*d*, a rearward edge 27*e* and opposed folds 27*f* between which the abutting element readily passes.

Thus in the embodiment illustrated in the drawings the withdrawal means include a carriage 36, a track for the carriage formed by base portions 37 of the angles 8

(FIGURE 4), means indicated generally at 38 (FIGURE 1) to propel the carriage in reciprocation, and gripping finger means generally designated at 38*a* (FIGURE 4).

Carriage 36 comprises upper and lower plates 39, 40, respectively, between which grooved wheels 41 are supported in engagement with the track means 37. Since the track means are constituted by base portions of the horizontally extending angle irons 8 the track means extend substantially to the vertical angles 7 from the right hand end of the apparatus (FIGURE 1).

Upper plate 39 has projecting therefrom a fixed trip arm 39*b*; a slot 39*a* is provided for a purpose noted hereinafter. Also projecting from upper plate 39 is a pivotally mounted bar 43 to which is pivoted on pin 44 (FIGURE 6) a link 45. Link 45 is itself securely fixed to a motor shaft 46 of a motor 47, herein termed a carriage motor, Accordingly, actuation of motor 47 drives shaft 46 and link 45 in a circular path and bar 43 and the carriage 36 are constrained to move along the track means in reciprocation.

Depending well downwardly and somewhat forwardly from lower plate 40 and securely fixed to plate 40 is a first finger 49 having a prong 50 for piercing a sack. Also extending forwardly from and spring hinged to the plate 40 at 51 is a second finger 52 provided forwardly at 53 with a circular passage for prong 50. Finger 52 moves relatively to finger 49 to close the gripping means and for this purpose a link 54 (FIGURE 6) extends between the solenoid core 55 of solenoid 56 and an eye 57 fixedly carried by finger 52. As will be apparent energization of the solenoid causes the fingers 52 to close on finger 49 providing gripping means.

The gripping means 38*a* are in alignment with the abutment and guide element 10 on the side of element 10 remote from the sack storage compartment. The downwardly projecting finger 49 is arranged to engage the outer surface of the forward side of a sack at the passageway 23, in leftward movement of the carriage 36 (FIGURE 1). The upper spring biased finger 52 passes over the forward edge of a sack to engage the abutment and guide element 10 and to be cammed thereby into the sack and toward the lower finger 49.

Mounted on lower finger 49 is a switch 56*a* which is actuated by the camming together of the fingers. Switch 56*a* controls the energization of solenoid 56 and accordingly the fingers are snapped closed on the forward side of the first sack as indicated in FIGURE 5 by actuation of switch 56*a*.

In the embodiment described the reciprocating carriage 36 of the withdrawal means is in continuous motion and is reversing with the fingers closed thereby drawing the sack through the passageway 23.

Adjacent the leftward end of the track means (FIGURE 1) a trip 60 is provided to be engaged by the trip arm 39*b*. Trip 60 engages against a stop 60*a* carried by a panel 61 in the static condition of the dispenser apparatus. Panel 61 is mounted in guideways 62, 63 for sliding movement under the influence of gravity. Engagement by trip arm 39*b*, in the movement of the carriage 36, with the trip 60, causes trip 60 to pivot at 60 and to release panel 61 from stop 60*a*. Slot 39*a* is provided in plate 39 to accommodate the extremity of a trip 60 in instances where the trip may be so long as to be actuated by the plate 39 itself.

Panel 61 when released may fall directly downward but preferably the fall is timed with relation to carriage movement by permitting the panel 61 to fall against a projection 36*a* (FIGURES 4 and 9) of the carriage plate 36. As may be clearly noted from FIGURE 9 the fall of panel 61 is impeded until the carriage 36 withdraws.

As the carriage 36 withdraws rightwardly from the position of FIGURE 9 the panel slips into the first sack which is being opened by the gripping means in the course of

withdrawal. Panel 61 is forwardly of abutment element 9 and on the delivery compartment side of passageway 23; further it is restricted from movement with the gripping means by the guideways 62, 63 with which it remains engaged. Extreme downward movement of panel 61 is prevented by engagement of stop 61*a* with a cross member 9 (FIGURE 12).

As the gripping means continue to withdrawn, the first sack of the series, the rearward upper edge of the first sack is pulled under the abutment element 9 and the inner rearward surface of the first sack engages against the panel; continued withdrawal with the rearward inner surface of the sack restrained by the panel causes the sack to open fully. The sack is then within the delivery compartment beneath chute 2.

The foregoing is illustrated in FIGURES 6 to 9, inclusive. As shown in FIGURE 6 the carriage is positioned to move leftwardly towards the sack storage compartment; FIGURE 9 shows the panel in the restricted position in its fall as already described; FIGURE 7 illustrates the panel fully within the sack with the sack being opened; and FIGURE 8 illustrates the sack in fully opened condition.

Adjacent the right hand end of track means 37 switch 67 (FIGURE 1) is positioned to be engaged by the carriage; as will be noted hereinafter in connection with the description of FIGURE 10, the effect of such engagement is to shut off the carriage motor 47 and to cause energization of a conveyor motor 68 housed in I and arranged (not shown) for driving of a conveyor belt 69 to feed chute 2 from the source of ice at I. Other feed means for the chute 2 may be employed; in fact, any convenient means may be employed to supply the material to be packaged to the opened sack in the filling and delivery compartments.

The weight table as the sack in the delivery compartment fills moves downwardly against the spring 16 and opens under a predetermined weight the switch 17 (FIGURE 10) to thereby open the electric circuit and de-energize conveyor motor 68 and stop the filling of the sack in compartment 3.

In the embodiment shown in FIGURE 1 panel 61 has secured thereto a lever arm 70 which is pivoted at 73 and carries at 72 a counterweight. The panel may be raised manually from its downward position to the original position shown in FIGURE 1. Such movement is effected by pulling the counterweight downwardly to its FIGURE 1 position; such movement may also, of course, be effected automatically if desired by providing a suitable drive for the counterweight.

Raising of panel 61 causes re-engagement of the panel with switch 66; switch 66 controls the actuation of a solenoid 75 and solenoid core 76 which normally effects locking of door 18 (FIGURE 1). Switch 66 when actuated permits opening of the door 18 and removal of the filled sack.

FIGURE 10 illustrates one form of electrical circuit arrangement useful in the practice of the invention. L–1 and L–2 indicate power line leads; a coin switch 77, designated at CS in FIGURE 10, is actuated by the deposit of a coin to provide for application of power to the coil C–1 of relay R–1, thereby closing contacts at S–1; switch 77 remains closed until the circuit is broken as described hereinafter. Closing of relay R–1 applies power through L–3 and the normally closed contacts of two-way carriage switch 67 to coil C–2 of relay R–2 through L–4 thereby closing the contacts at S–2. Closure of contacts at S–2 applies power through L–6 and L–5 to coil C–3 of relay R–3 thereby closing contacts at S–3. Carriage or sack motor 47 is thereby energized through L–8 and L–9 and movement of the carriage commences as already described. It will be appreciated that in practice closure of the relays and energization of the motor occur almost instantaneously.

When the gripping fingers are cammed closed on the forward side of the sack switch 56*a* closes energizing coil 56 to thereby hold the fingers closed for withdrawal of the sack; in this connection it is to be noted that the prong 50 merely serves to increase friction and is not required for operation; also other friction increasing means may be employed on the gripping fingers if desired.

As the carriage continues to move the panel trip is actuated and falls to the carriage; when the carriage reverses it engages switch 67 causing the contacts at A–1 to open and the contacts at A–2 to close, thus energizing coil C–5 which holds the switch 67 closed on contacts A–2. With the opening of contacts A–1 relays R–2 and R–3 are opened due to de-energization of coils C–2 and C–3, and thereby the carriage motor 47 is stopped.

With the closure of contacts A–2 power is applied through L–10 to coil C–4 to close relay R–4 (FIGURE 10) at S–4 thereby energizing conveyor motor 64 through switch 17 (see FIGURE 1 and FIGURE 10). Operation of the conveyor motor delivers material (ice cubes) to the now opened sack; motor 68 is de-energized when switch 17 opens under the weight of the filled sack as already noted.

Raising of the panel 61 to close switch 66 contacts applies power through the still closed relay R–4 to solenoid 75 to effect withdrawal of solenoid core-locking bolt 76 to permit door 18 to be opened. Removal of the filled sack from the delivery compartment 3 may then be effected.

Opening of door 18 breaks the circuit restoring the components to the position of FIGURE 10; door 18 is itself again closed by urging it against locking bolt 76 which yields under pressure.

The dispensing device is then ready for deposit of another coin.

It is readily apparent that the sack dispenser is itself useful in conjunction with the dispensing of many materials and is of particular value in application involving the dispensing of materials wherein it is desirable to avoid contact with the hands or where the material is subject to deterioration. The sack dispenser is, of course, useful in and of itself for manual withdrawal of sacks since a finger may readily be inserted between the opened sides of the first sack of a series.

It will be understood that this invention is susceptible to modification in order to adapt it to different usages and conditions and accordingly, it is desired to comprehend such modifications within this invention as may fall within the scope of the appended claims.

What is claimed is:

1. In a method for dispensing a sack from a series of sacks having openable ends and stacked in a storage compartment with their openable ends in aligned relation, the steps of pressuring a body of the sacks stacked in the storage compartment towards a restricted sack withdrawal passageway from the compartment while retaining the sacks laterally of the width of the body of sacks and leaving the openable end of a first sack adjacent the passageway substantially free centrally to cause a forward side of the said first sack of the series to displace toward the said passageway and away from the rearward side of said first sack while restricting the rearward side of the first sack adjacent the openable end against movement whereby said first sack is at least partially opened, gripping the said forward side of the first and open sack, withdrawing said forward side of the first sack from the rearward side and said compartment to further open said first sack of the series, introducing into said first sack as it opens a retainer to limit movement of the rearward side of the first sack, and withdrawing the forward side from the rearward side of the first sack to a fully opened condition of the first sack while said rearward side is retained by said retainer.

2. In a method for dispensing a sack from a series of sacks having relieved forward sides and openable ends

and stacked in a storage compartment with their openable ends in aligned relation, the steps of pressuring a body of the sacks stacked in the storage compartment towards a restricted sack withdrawal passageway from the compartment while retaining the sacks laterally of the width of the body of sacks and leaving the openable end of a first sack adjacent the passageway substantially free centrally to cause a forward side of said first sack of the series to displace toward the said passageway and away from the rearward side of said first sack while restricting movement of the rearward side of the first sack of the series by engaging the inner surface of said rearward side at a said openable end while leaving the forward side free to bulge from the rearward side, gripping the said forward side of the first and open sack, withdrawing said forward side of the first sack from the rearward side to further open said first sack of the series, introducing into said sack a retainer to limit movement of the rearward side of the sack, and withdrawing said sack to a fully opened condition with said retainer therein.

3. In dispenser apparatus having a sack storage compartment for sacks having an openable end, a forward side and a rearward side, the latter having a portion at said openable end slightly projecting beyond said forward side, means defining a restricted passageway from said compartment for withdrawal of a sack through said passageway, an abutment element in the form of a short finger projecting into said passageway, a wall member of said compartment movable toward said means and said passageway and said abutment element projecting into the latter, said wall member having a cut-out portion in alignment with said abutment element, whereby a sack may be pressured between said means and said wall member with an openable end of the sack in engagement with said abutment element and said cut-out portion so relieves the pressure in the area of said abutment member that said sack is distorted to a partially open condition under the action of counter-pressure exerted by said abutment member whenever said wall member is moved toward the latter.

4. In sack dispensing apparatus for sacks having an openable end, a forward side and a rearward side, the latter having a portion at said openable end slightly projecting beyond said forward side, in combination, a frame having a storage compartment for sacks and including means defining a restricted passageway from said compartment for sack withdrawal from the compartment, a wall member of said compartment movable toward said means and between which wall member and said means sacks are pressured toward said restricted passageway, said wall member having a relieved portion, and an abutment element projecting into said passageway transversely to the direction of movement of said wall member in alignment with said relieved portion of said wall member and engaging the projecting portion of the rear side of a first one of said sacks, said abutment member exerting counter-pressure against the rear side whenever said sacks are pressured toward said passageway, and with said relieved portion so relieving pressure as to enable said rearward side and said forward side of said first one of said sacks to partly open the said sack.

5. In sack dispensing apparatus for sacks having an openable end, a forward side and a rearward side, the latter having a portion at said openable end slightly projecting beyond said forward side, in combination, a frame having a sack storage compartment for sacks and including means defining a restricted passageway from said compartment for sack withdrawal from the compartment, a delivery compartment for sacks communicating with said sack storage compartment through said passageway, a wall member of said sack storage compartment movable toward said means and between which wall member and said means sacks are pressured toward said restricted passageway, said wall member having a relieved portion, an abutment element projecting into said passageway transversely to the direction of movement of said wall member in alignment with said relieved portion of said wall member, and engaging the projecting portion of the rear side of a first one of said sacks, said abutment member exerting counter-pressure against the rear side whenever said sacks are pressured toward said passageway, and with said relieved portion so relieving pressure as to enable said rearward side and said forward side of said first one of said sacks to partly open the said sack, and a panel supported by said frame, said panel being movable into said delivery compartment adjacent said passageway and also tranversely to the direction of movement of said wall member.

6. In sack dispensing apparatus for sacks having an openable end, a forward side and a rearward side, the latter having a portion at said openable end slightly projecting beyond said forward side, in combination, a frame having a storage compartment for openable sacks and including means defining a restricted passageway from said compartment for sack withdrawal from the compartment, a wall member of said compartment movable toward said means and between which wall member and said means sacks are pressured toward said restricted passageway, said wall member having a relieved portion, an abutment and guide element projecting into said passageway transversely to the direction of movement of said wall member in alignment with said relieved portion of said wall member, and engaging the projecting portion of the rear side of a first one of said sacks, said abutment member exerting counter-pressure against the rear side whenever said sacks are pressured toward said passageway, and with said relieved portion so relieving pressure as to enable said rearward side and said forward side of said first one of said sacks to partly open the said sack, sack withdrawal means including gripping means in alignment with said abutment and guide element on the side of said guide element remote from said storage compartment, and a panel supported by said frame movably and arranged to be interposed between said gripping means and said abutment and guide element said panel being dimensioned to enter a sack to be dispensed.

7. In sack dispensing apparatus for sacks having an openable end, a forward side and a rearward side, the latter having a portion at said openable end slightly projecting beyond said forward side, in combination, a frame having a storage compartment for openable sacks and including means defining a restricted passageway from said compartment for sack withdrawal from the compartment, a wall member of said compartment movable toward said means and between which wall member and said means sacks are pressured toward said restricted passageway, said wall member having a relieved portion, an abutment element projecting into said passageway transversely to the direction of movement of said wall member in alignment with said relieved portion of said wall member, and engaging the projecting portion of the rear side of a first one of said sacks, said abutment member exerting counter-pressure against the rear side whenever said sacks are pressured toward said passageway, and with said relieved portion so relieving pressure as to enable said rearward side and said forward side of said first one of said sacks to partly open the said sack, reciprocating sack withdrawal means including gripping means in alignment with said abutment and guide element on the side of said guide element remote from said storage compartment, means to drive said withdrawal means in reciprocation relative to said abutment and guide element, a panel movably supported by said frame and arranged to be interposed between said gripping means and said abutment and guide element, a trigger to retain said panel, and means carried by said reciprocating withdrawal means to actuate said trigger to permit said panel to move.

8. In dispensing apparatus for sacks having an openable end and which apparatus also opens the sacks, a storage

compartment for receipt of a series of said sacks to be dispensed, said storage compartment having means defining a passageway for the dispensing of sacks from said storage compartment, means to present a first sack of a series to said passageway in partially open condition, reciprocating withdrawal means including gripping means which in the reciprocating movement enter said passageway and grip a forward side of a first sack of the said series of sacks, means for guiding said gripping means into contact with said forward side of said first sack, and retainer means disposed to enter a sack as it is withdrawn through the said passageway and itself restrained against movement in the direction of withdrawal of the sack, said apparatus having means for causing said retainer means to enter a said sack by movement of said withdrawal means, whereby a said sack is opened as it is withdrawn from the said storage compartment.

9. In dispensing apparatus for sacks having an openable end and which apparatus also opens the sacks, a storage compartment for receipt of a series of said sacks to be dispensed, said storage compartment having means defining a passageway for the dispensing of sacks from said storage compartment, means to present a first sack of a series to said passageway in partially open condition, reciprocating withdrawal means including a reciprocable carriage and gripping means projecting from the carriage, which gripping means in the reciprocating movement of the carriage enter said passageway and grip a forward side of a first sack of the said series of sacks, means for guiding said gripping means into contact with said forward side of said first sack, and retainer means in the form of a panel disposed to enter a sack as it is withdrawn through the said passageway and itself restrained against movement in the direction of withdrawal of the sack, said apparatus having means to time the movement of said panel and for causing said retainer means to enter a said sack by movement of said withdrawal means, whereby a said sack is opened as it is withdrawn from the said storage compartment.

10. In gripping apparatus, gripping means comprising a pair of fingers which are closable upon each other to grip material therebetween, means fixedly supporting a first one of the fingers which first finger projects in a substantially vertical direction, means hingedly supporting a second one of said fingers which second finger projects forwardly from said first finger, a solenoid having a core and linkage means connecting said core with said second finger, a cam element engageable with said second finger to hingedly move said second fiinger into contact with said first finger, a switch carried by one of the fingers and having means for causing it to be actuated by movement of the second finger toward the first finger, electric circuit means associated with the said solenoid and said switch for energizing the solenoid when said switch is actuated, and means for moving said fingers and cam element relatively into engagement.

11. In gripping apparatus, gripping means comprising a pair of fingers which are closable upon each other to grip material therebetween, means fixedly supporting a first one of the fingers which first finger projects in a substantially vertical direction, means hingedly supporting a second one of said fingers which second finger projects forwardly from said first finger, a solenoid having a core and linkage means connecting said core with said second finger, a cam element enagageable with said second finger to hingedly move said second finger into contact with said first finger, a switch carried by one of the fingers and having means for causing it to be actuated by movement of the second finger toward the first finger, electric circuit means associated with the said solenoid and said switch for energizing the solenoid when said switch is actuated, means for moving said fingers toward said cam element, and means supporting said cam element above a material to be gripped, whereby said first finger may move against said material while said second finger moves over the material into engagement with said cam element.

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