Feb. 2, 1937. R. F. NICODEMUS 2,069,266

BAGGING MACHINE

Filed June 13, 1933 2 Sheets-Sheet 1

Fig. 1.

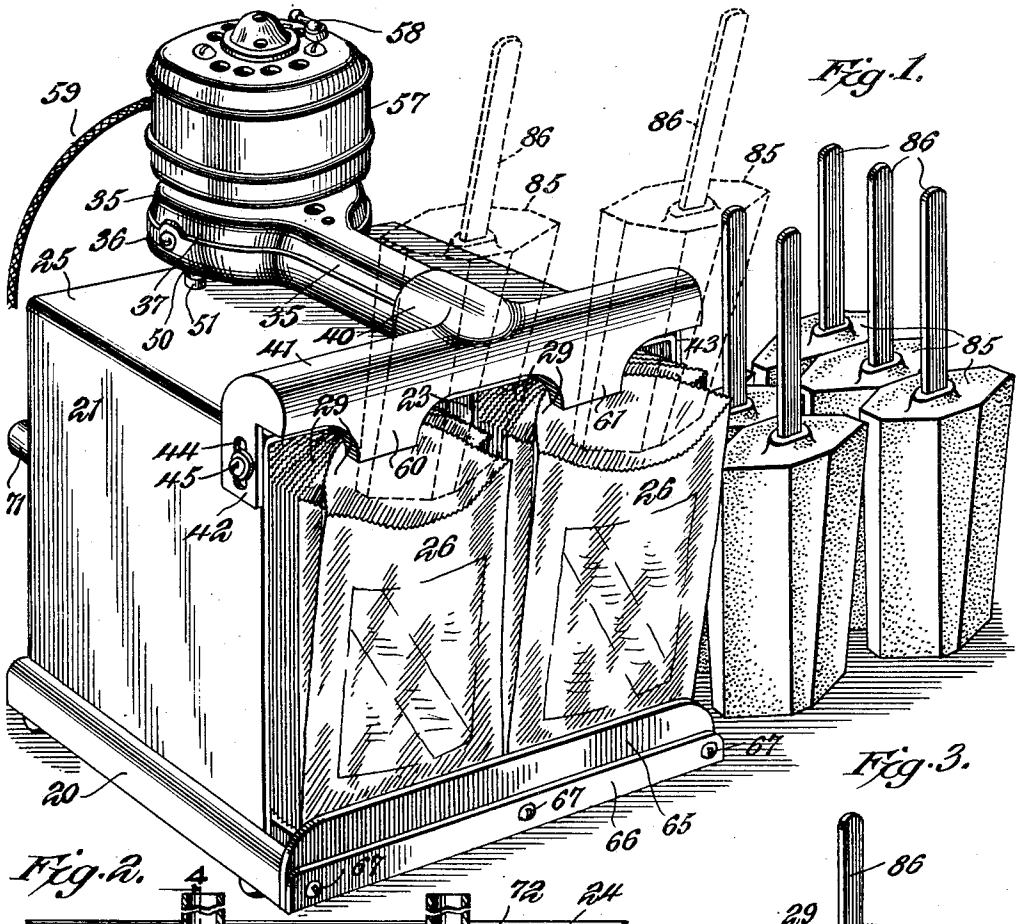


Fig. 3.

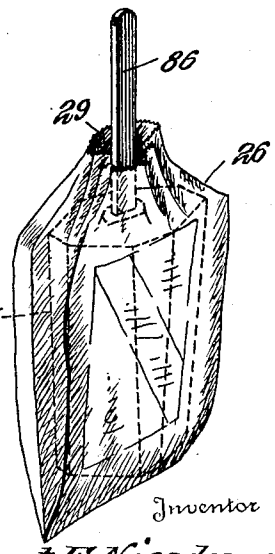
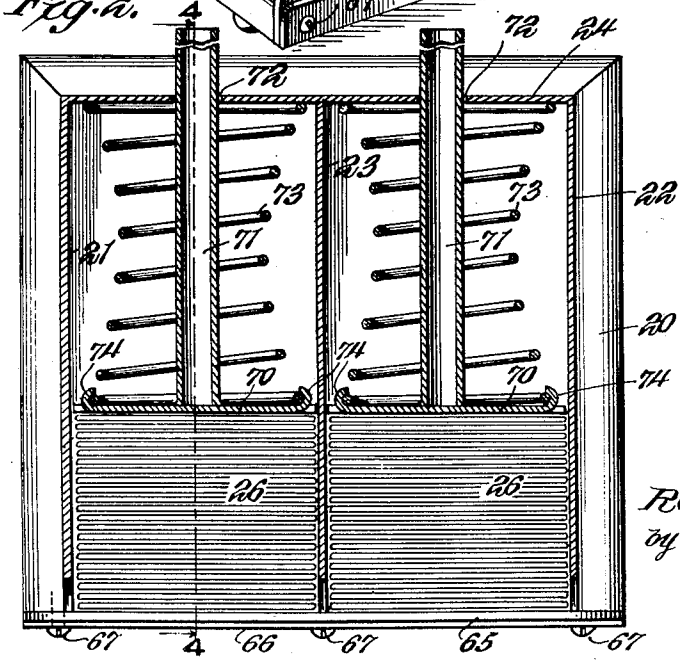


Fig. 2.



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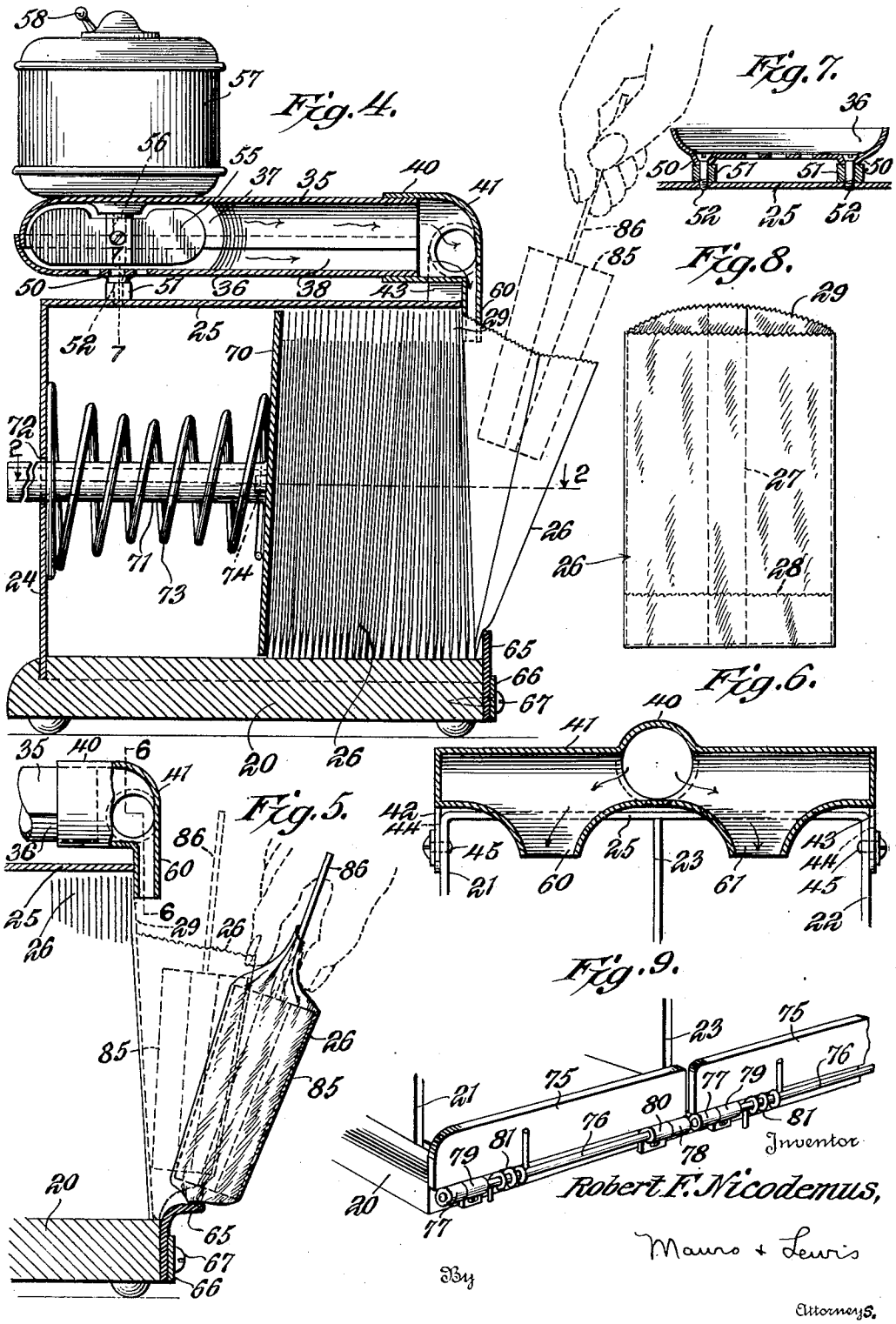
BAGGING MACHINE

Filed June 13, 1933 2 Sheets-Sheet 2



Patented Feb. 2, 1937 2,069,266

UNITED STATES PATENT OFFICE

2,069,266

BAGGING MACHINE

Robert F. Nicodemus, Frederick, Md.

Application June 13, 1933, Serial No. 675,619

9 Claims. (Cl. 226—49)

This invention relates to a bagging machine, by which term is meant a machine for automatically presenting bags or envelopes one after another with the mouth thereof distended or spread open to facilitate and speed the introduction of the article or product which is to be enclosed by the bag.

While the invention has especially in view the production of a machine for the bagging of frozen confections each having a stick handle, such as the well known "Popsicle", it is obviously applicable to machines for bagging other articles and products.

The general objects of the invention are the production of a machine of the character above indicated. Other objects and advantages realized by the invention will be understood from the drawings and the detailed description thereof here following. In said drawings, illustrating a machine especially designed for the bagging of frozen confections such as mentioned above—

Fig. 1 is a perspective view of the complete machine and showing also a number of frozen confections;

Fig. 2 is a horizontal section on line 2—2 of Fig. 4, but with the foremost bag in each holder in collapsed condition (that is, not distended or inflated as in Fig. 1);

Fig. 3 shows in perspective a bagged confection with the mouth or open end of the bag closely gathered or pinched about the stick of the confection;

Fig. 4 is a vertical and irregular section, the upper part thereof being through the air conduit leading from the fan of the blower and the lower part thereof being on the line 4—4 of Fig. 2, but with the foremost bag distended by the air current;

Fig. 5 is a fragmentary vertical section, similar to Fig. 4, but with a frozen confection fully inserted into the foremost bag and the latter in the act of being released or withdrawn from the machine;

Fig. 6 is a vertical section through the air conduits on line 6—6 of Fig. 5;

Fig. 7 is a detail sectional view on line 7—7 of Fig. 4;

Fig. 8 is a view in elevation of one of the bags such as shown in the other views; and

Fig. 9 is a fragmentary perspective view showing a modification of the yielding detent means for the bags in the holders.

Referring to the drawings, 20 is the base or bottom, preferably of wood, of an open front casing or box having side walls 21, 22, a dividing wall or partition 23 parallel to and positioned midway between said side walls, a rear wall 24 and a top wall 25, all preferably of sheet metal. The lower edges of the side walls 21, 22, partition wal. 23 and rear wall 24, all engage in grooves in the wooden base 20 and are secured therein in any suitable manner.

The casing or box thus forms two side-by-side bag holders or chambers each open at its front, of a width and height slightly larger than the corresponding dimensions of bags 26 (of paper or other suitable material) which it is adapted to receive, and of a depth to accommodate a large number of said bags in collapsed condition and arranged one in front of another in a horizontal column with their open ends upward and with the foremost bag of the column positioned at the open front end of the holder or chamber.

While any bags, suitable to the particular merchandise to be enclosed thereby, may be used, the paper bags 26 shown in the drawings are of a construction best illustrated in Fig. 8, closed longitudinally by an overlapping sealed joint 27, closed at its bottom by an upwardly folded and sealed joint 28, and at its upper open end having its rear wall or side extended somewhat beyond the front wall, said extension constituting what may be termed a flap 29.

Means are provided whereby the foremost bag in each holder may be distended or expanded, especially at its mouth, by an air current or blast directed into the open end thereof, thereby facilitating and expediting introduction into the bag of the merchandise which is to be enclosed thereby.

35 and 36 are the upper and lower members of a combined fan chamber 37 and air conduit 38, the lower edge of said upper member 35 making a telescoping lap-joint within the upper edge of the lower member 36. Conduit 38, which opens at its inner end into fan chamber 37, at its outer end fits within the tubular arm 40 of a hollow air conduit member 41, which latter is closed at both ends and extends, at right angles to the air conduit 38, across the casing just above the top front edge thereof.

At opposite ends respectively of member 41 there are depending supporting plates or brackets 42, 43, each having therein a vertical adjusting slot 44 through which a clamping screw 45 passes and makes threaded engagement with an opening in the end wall of the casing. On the underside of the before-mentioned member 36 (of the combined fan chamber and air conduit) there are two depending projections 50, 50 rest-

ing against tubular parts 51, 51 which latter are seated against the top wall 25 of the casing, as best shown in Fig. 7. Screws 52, 52 passing through member 36, and the parts 51, 51 respectively, make screw-threaded engagement in openings in wall 25 and thereby secure the parts together.

55 is a fan in the fan chamber 37 and secured to the shaft 56 of a small electric motor 57 mounted on the upper side of member 35. The motor is controlled by a switch 58 and is supplied with electric current through conductors of a cord 59, Fig. 1.

60 and 61 are air discharge nozzles depending at the under side of air conduit member 41 and in position to deliver currents of air created by the fan into the foremost bag in each bag holder. At its lower extremity each nozzle extends over or/and projects into the path of the flaps 29 of the bags 26, whereby, in addition to its normal function of directing a current of air into the foremost bag, each nozzle serves also as a detent or stop at the upper edge of the column of bags in each holder, from which detent the foremost bag may be readily released for withdrawal of the bag from the holder.

Extending across the lower edge of both bag-holders or compartments, at the open fronts thereof, there is an upstanding detent flange or lip 65, preferably formed of a strip of relatively thick sheet rubber fastened against the vertical front edge of the base 20 by means of a metal strip 66 and screws 67.

The column or collection of collapsed bags in each bag holder is automatically fed toward the open front of the holder as the bags at the front are removed one by one. For this purpose there is a follower plate 70 in each holder making contact with the rearmost bag and secured to the forward end of a tubular bar or stem 71 which extends through an opening 72 in the rear wall 24 of the casing. A coiled spring 73 surrounds the stem 72, bears at one end against said rear wall 24, and at its other end against follower plate 70 to which it is secured by two lugs 74, 74 formed out of said plate and bent over the spring. Spring 73 constantly tends to feed plate 70, and the bags in front of it, formed until stopped by the engagement of the foremost bag with the nozzle 60 (or 61) at its upper edge and the detent flange or lip 75 at its lower edge. The follower plate 70 is secured to its stem 72 in a relatively slanting position, that is, the plate stands further forward at its top than at its bottom, thereby compensating for the greater aggregate thickness of the column of bags at the bottom thereof than at the top.

While a resiliently yieldable and movable detent flange or lip made of rubber (as in Figs. 1 to 5) is deemed to be preferable, it is believed that satisfactory results may be obtained by using the modified construction illustrated in Fig. 9, wherein there is a detent member or lip 75 for each holder made of metal, wood, or other suitable rigid material, hinged at its lower edge to the base 20 and normally held in its upright position by spring pressure. As shown, there is a hinge pin or rod 76 engaging at opposite ends in lugs or eyelets 77, 78 on the detent 75 and intermediate of said eyelets passing through other lugs or eyelets 79 and 80 secured to the base 20. A spring 81, coiled about rod 76, bears at one end against base 20 and at its other end against the detent 75, thereby normally but yieldingly holding the latter in its upright position.

85 is a frozen confection having a handle or stick 86 to which it is affixed in the freezing process. In Fig. 1 two of such confections are shown in dotted lines, as they are about to be inserted in the two foremost distended bags in the two holders; five other confections are shown in full lines at the right hand side of the view.

In using the machine, it is preferable to place it near the forward edge of a suitable table or bench, leaving table space at the right hand side of the machine for a number of confections in upstanding position (as shown in Fig. 1), and at the left hand side of the machine table space for cartons to receive the bagged confections. It is customary to use paste board cartons of a size to contain a dozen confections arranged flatwise in two layers. Each holder is charged with a column of bags which may be readily inserted from the front open end of the holder; and to facilitate introduction of the bags the operator may grasp the end of each follower stem 71, where it projects beyond the back wall 24 of the holder, and pull the stem and its follower plate rearwardly in its holder. The air nozzles 60 and 61 should be positioned preferably to extend downwardly upon, or lap over, the flaps 29 of the bags a distance of about one quarter of an inch and to that end the two screws 45 may be loosened and the position of the air nozzles adjusted as desired by a slight tilting of the fan unit and associated air conduits on the two members 51 (Fig. 7). Incidental to such tilting it may be necessary to first slightly loosen the two screws 52.

The motor switch 58 being turned on, currents of air are delivered from the nozzles 60 and 61 into the foremost bags respectively in the holders. Using both hands, the operator picks up two confections, grasping the handle of each and thereby (for sanitary reasons) avoiding touching or contact with the edible portion. By a downward motion, indicated progressively by the dotted line positions of the confections as shown in Figs. 1, 4 and 5, the two confections are simultaneously introduced into the two foremost bags of the two holders, said bags having been distended by air currents. As each confection reaches the bottom of its bag there has been a downward sliding of the flap of the bag disengaging it from beneath the detent-nozzle 60 or 61, whereupon by a slight forward pull the operator displaces the lower detent lip 65, in a manner approximately shown in Fig. 5, thereby entirely releasing the bag from its holder. In the act of passing the two bagged confections from the machine to a carton positioned at the left of the machine, the operator pinches or gathers the upper end of each bag against the projecting stick or handle 86, in the manner indicated in Figs. 3 and 5.

It has been demonstrated that by such procedure and use of the machine an operator may bag and place the bagged confections in cartons at the rate of as many as one hundred and twenty-five (125) dozen per hour.

What is claimed is:

1. In a bagging machine, the combination of a holder for a plurality of bags collected together all in the same position and in collapsed condition; detent means engaging over the edge of the open side or mouth of the foremost bag in the holder and permitting release of said bag for its withdrawal from the holder without injury to the bag; a yielding detent lip adapted in normal position to engage over the edge of said foremost

bag opposite the open side thereof and to be displaced in removing the bag and to then automatically resume its said normal position; and means for injecting an air current into each bag when it becomes the foremost bag in the holder and thereby distendig the mouth of the bag.

2. In a bagging machine, the combination of a holder for a plurality of bags collected together face to face all in the same position and in collapsed condition; a hollow detent engaging over the edge of the open side or mouth of the foremost bag in the holder and permitting release of said bag for its withdrawal from the holder; a yielding detent lip adapted in normal position to engage over the edge of said foremost bag opposite the open side thereof and to be displaced in removing the bag and to then automatically resume its said normal position; and means for delivering a current of air through said hollow detent into the foremost bag in the holder to thereby distend the mouth of said bag.

3. In a bagging machine, the combination of a holder for a plurality of bags each having a flap at its open end and collected together face to face all in the same position and in collapsed condition; a hollow detent engaging the flap portion only of the foremost bag in the holder and permitting release of said bag for its withdrawal from the holder; a yielding detent lip adapted in normal position to engage over the edge of the closed end of said foremost bag and to be displaced in removing the bag and to then automatically resume its said normal position; and means for delivering a current of air through said hollow detent into the foremost bag in the holder to thereby distend the mouth of said bag.

4. In a bagging machine, the combination of a holder adapted to hold a column of bags in collapsed condition; a hollow detent engaging over the edge of the open side or mouth of the foremost bag in the holder but permitting release of said bag for its withdrawal from the holder; a yielding detent lip adapted in normal position to engage over the edge of the foremost bag in the holder opposite the open side of the bag and to be displaced in removing the bag and to then automatically resume its said normal position; means for delivering a current of air through said hollow detent into the foremost bag in the holder to thereby distend the mouth of said bag; and feeding means for automatically advancing the column of bags in the holder as the foremost bags are removed.

5. In a bagging machine, the combination of a holder having a bottom portion adapted to support a column of bags each having a flap at its open end and collected together face to face all in the same position and in collapsed condition with their flaps uppermost; a hollow detent extending downwardly and engaging the flap only of the foremost bag in the holder but permitting release of said bag for its withdrawal from the holder; a yielding detent lip adapted in normal position to engage over the lower edge of the foremost bag in the holder and to be displaced in removing the bag and to then automatically resume its said normal position; means for delivering a current of air through said hollow detent into the foremost bag in the holder to thereby distend the mouth of said bag; and feeding means for automatically advancing the column of bags in the holder as the foremost bags are removed.

6. An unitary bagging machine including in combination two holders positioned side by side with their delivery ends facing in the same direction and each adapted to hold a plurality of bags collected together all in the same position and in collapsed condition; a yielding detent member or lip for each holder engaging over the edge of the closed end of the foremost bag in the holder adapted to be displaced for and permitting release of said bag for its withdrawal from the holder; and means for injecting an air current into the open end or mouth of each bag when it becomes the foremost bag in its holder and thereby distending the mouth of the bag.

7. An unitary bagging machine including in combination two holders positioned side by side with their delivery ends facing in the same direction and each adapted to hold a column of bags in collapsed condition; a hollow detent for each holder engaging over an edge of the mouth or open side of the foremost bag in the holder but permitting release of said bag for its withdrawal from the holder; a yielding detent member or lip for each holder adapted in normal position to engage over an edge of the foremost bag in the holder opposite the open side thereof and to be displaced in removing the bag and to then automatically resume its said normal position; means for delivering a current of air through said hollow detent for each holder into the foremost bag in the holder to thereby distend the mouth of the bag; and feeding means for automatically advancing the column of bags in each holder as the foremost bags are removed.

8. An unitary bagging machine including in combination two holders positioned side by side with their delivery ends facing in the same direction and each having a bottom portion adapted to support a column of bags each of which has a flap at its open end and the bags being collected together face to face all in the same position and in collapsed condition with their flaps uppermost; a hollow detent for each holder extending downwardly and engaging the flap only of the foremost bag in its holder but permitting release of said bag for its withdrawal from the holder; a yielding detent member or lip for each holder adapted in normal position to engage over the lower edge of the foremost bag in the holder and to be displaced in removing the bag and to then automatically resume its said normal position; means for delivering a current of air through said hollow detent for each holder into the foremost bag in the holder to thereby distend the mouth of the bag; and feeding means for automatically advancing the column of bags in each holder as the foremost bags are removed.

9. In a bagging machine, the combination of a holder for a plurality of bags collected together all in the same position and in collapsed condition; detent means engaging over the edge of the open side or mouth of the foremost bag in the holder and permitting release of said bag for its withdrawal from the holder without injury to the bag; a yielding detent lip of rubber-like material adapted in normal position to engage over the edge of said foremost bag opposite the open side thereof and to be displaced in removing the bag and to then automatically resume its said normal position; and means for injecting an air current into each bag when it becomes the foremost bag in the holder and thereby distending the mouth of the bag.

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