

R. L. REYNOLDS
BAGGING APPARATUS

Filed March 27, 1963

Fig. 1

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Fig. 1

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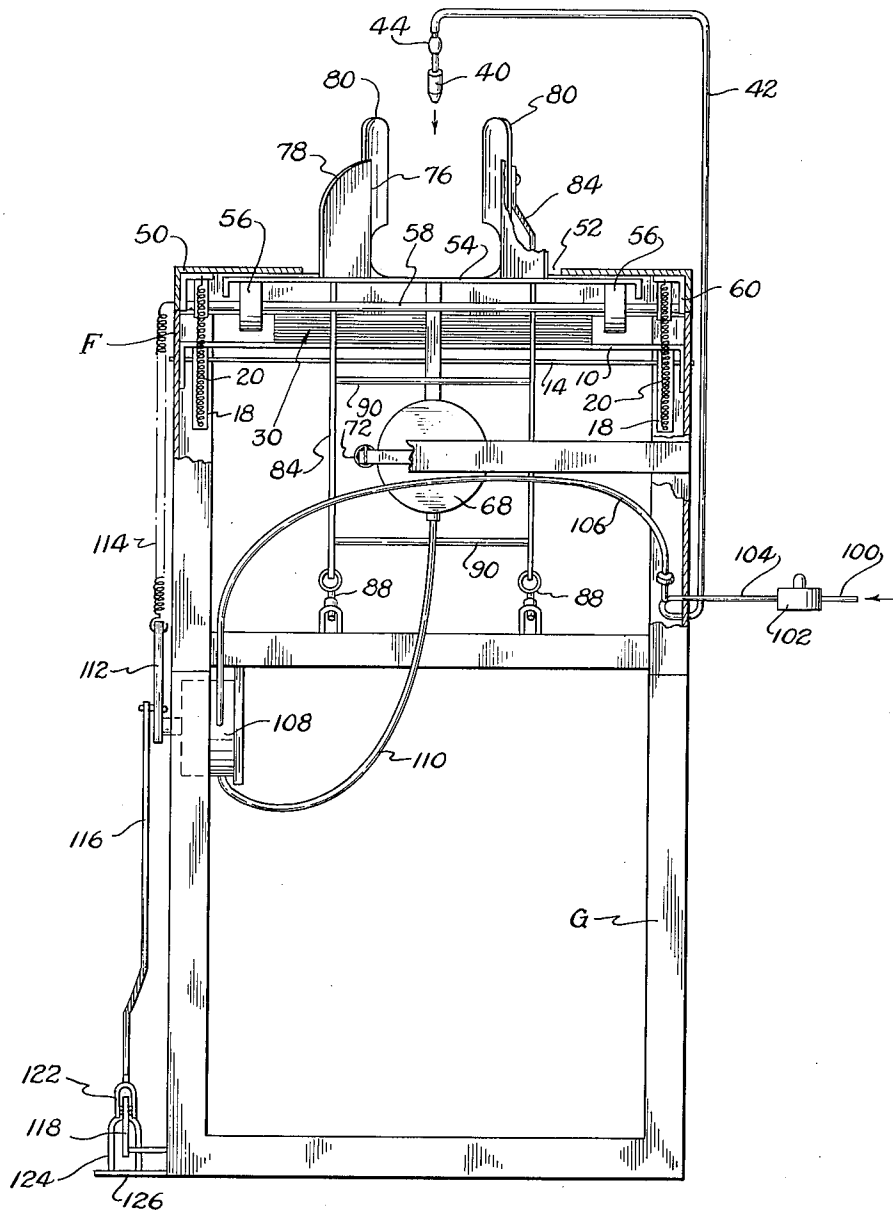


Fig. 2

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Jan. 11, 1966

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BAGGING APPARATUS

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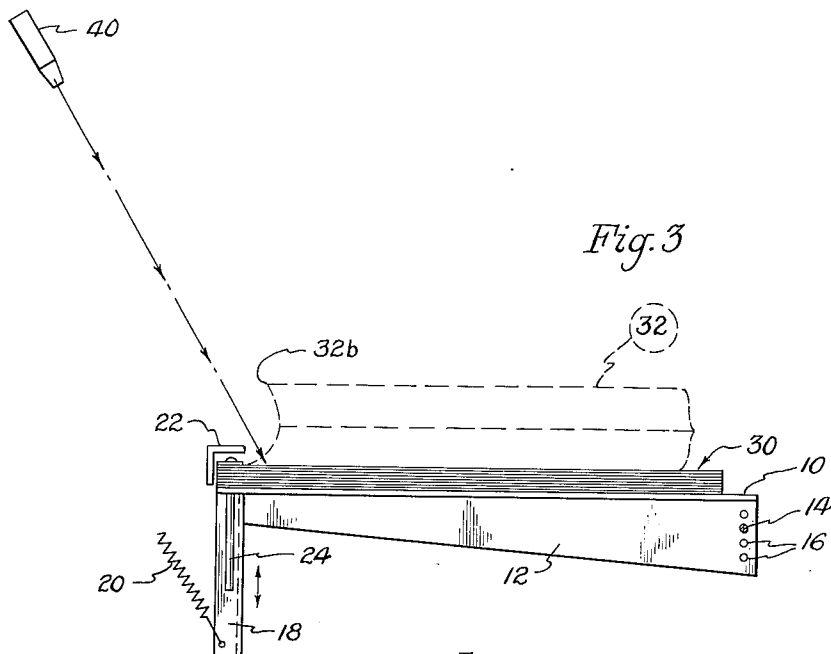


Fig. 3

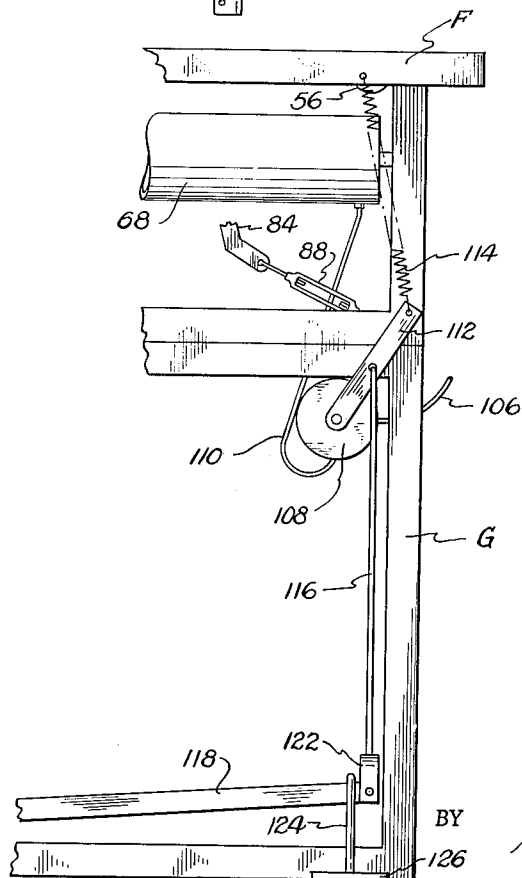


Fig. 6

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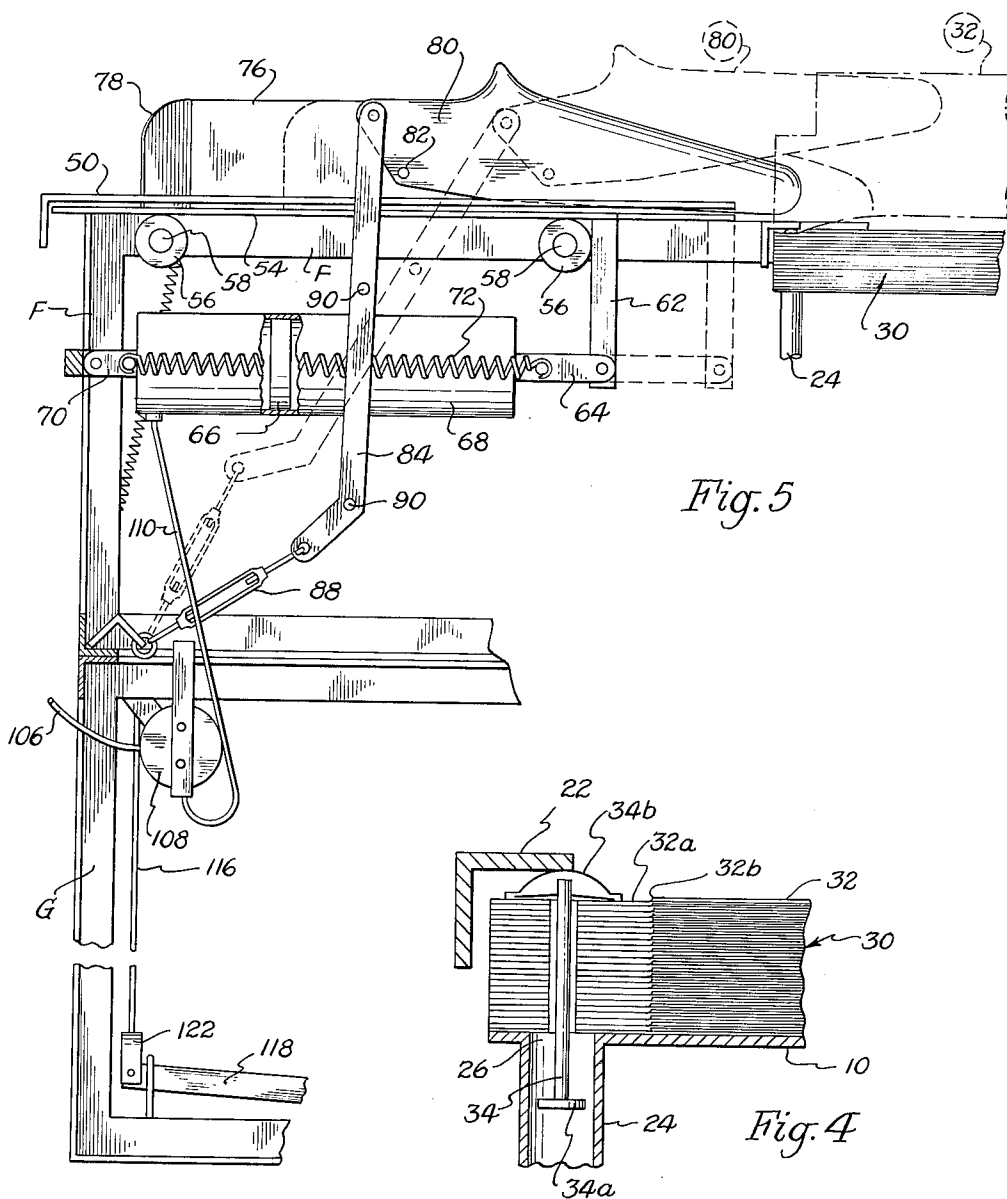


Fig. 5

Fig. 4

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BAGGING APPARATUS

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4 Claims. (Cl. 53—385)

This invention relates to a bagging apparatus and, in particular, is directed to the insertion of pre-sliced loaves of bread into bags.

It is currently popular to package loaves of pre-sliced bread in bags composed of synthetic materials such as polyethylene and the like. These bags are composed of very thin material and difficulties arise in opening the bags and then inserting a loaf of bread slices into the bag.

The object of this invention is to produce an apparatus by means of which the bags are quickly opened and held open while a loaf of bread is inserted into the bag.

In general, the objects of the invention are obtained by using an air blast to open a bag held firmly on a table. A chute is then inserted partially into the blown open bag and movable jaws joined to the chute serve to hold the bag in open expanded shape while the loaf of bread is guided through the chute into the bag. Means are thus provided for automatically opening the bag and for inserting the bread guiding chute into the bag. This permits the loaf of bread slices to be kept compact and snugly fitted into the bag.

The means by which the objects of the invention are obtained are described more fully with reference to the accompanying drawings, in which:

FIGURE 1 is a perspective view of the bagging apparatus of this invention;

FIGURE 2 is an end view of FIGURE 1;

FIGURE 3 is a cross-sectional view of a portion of FIGURE 1 showing the stack of bags on a table;

FIGURE 4 is an enlarged detail view of a portion of FIGURE 3;

FIGURE 5 is a cross-sectional view through a portion of FIGURE 1 and showing the bread guide chute; and

FIGURE 6 is a view of a portion of FIGURE 1 showing the treadle for operating the air valve.

As shown in FIGURE 1, the apparatus is formed on a rectangular box-like frame F which is supported at a suitable height above the floor level by a base frame G. A table 10 has downwardly extending side flanges 12, the outer ends of which are hinged to frame F by means of a hinge pin 14. A plurality of hinge holes 16 permit the selective positioning of the pivot point for table 10. The opposite end of table 10 has a pair of downwardly extending struts 18 which are urged upwardly by springs 20 connecting the free end of struts 18 to the frame F. A bearing member 22 extending transversely of frame F limits the upward movement of the table as urged by springs 20. Also joined to the undersurface of the table 10, note FIGURE 4, are a pair of tubes 24 communicating with holes 26 through table 10. A pair of angle irons 28 fastened to the upper surface of the table serve to position a stack 30 of individual bags 32, note FIGURES 3 and 4. The mouth of each bag has a lower lip 32a extending beyond an upper lip 32b. The lower lips have a pair of aligned perforations so that the stack is held in a bundle by a pair of pins 34, each having a lower head 34a and an upper snap fastener head 34b. The bundle of bags is laid on the table 10 between the flanges 28 and with the pins dropped into their corresponding guide tubes 24. This is done by depressing the spring held end of the table 10 and results in that the heads 34b are pressed upwardly against the bearing member 22, thus firmly holding the lower lips 32a.

An air blast nozzle 40, mounted on the end of an air

pipe 42 and controlled by a manually operated valve 44, note FIGURE 3, is mounted above frame F and set at an angle such that a jet of compressed air will strike the mouth of the uppermost bag 32 on the stack of bags 30 between lower lip 32a and upper lip 32b. This air jet inflates or blows open bag 32.

A plate 50 is fastened to the upper surface of frame F and extends from bearing member 22 to the opposite end of the frame. This plate has a generally rectangular cut out 52 opening toward bearing member 22. Beneath plate 50 is mounted a slide 54, supported by pairs of rollers 56 mounted on shaft 58 which, in turn, is journalled in brackets 60 secured to frame F. A vertical bar 62 is rigidly secured to the underside of the slide 54 on its center line. The lower end of this strut is joined to the connecting rod 64 of an air driven piston 66 mounted in cylinder 68. This cylinder is connected by a bar 70 to frame F. A spring 72 is fastened at one end to connecting rod 64 and at the other end to cylinder 68. When air pressure is applied to piston 66, it will move to the right in FIGURE 5 and likewise move slide 54. When the air pressure is released, the piston is returned by spring 72.

An article guide chute 76 is fastened to the upper surface of slide 54. The entrance end of this chute is provided with wings 78 to facilitate the entrance of an article into the chute. A pair of jaws 80 is fastened to the chute by pivot pins 82. A pair of links 84, one for each jaw 80, extends downwardly through a slot 86 in slide 54 and are secured by toggles 88 to frame F. Cross rods 90 join links 84 so that the jaws 80 are actuated evenly. As shown in FIGURE 5, when slide 54 moves to the right, it pushes chute 76 into the blown open mouth of bag 32. Jaws 80 are at the same time pushed into the bag while being raised upwardly to hold the mouth of the bag open.

The air pressure for operating the apparatus comes from a compressed air source through pipe 100 into a pressure reducer 102 into pipe 104. Pipe 42 is branched off pipe 104 for supplying compressed air to nozzle 40. Air hose 106 is also branched off pipe 104 and furnishes air to air valve 108. This valve is joined by tube 110 to air cylinder 68. Air valve 108 is actuated by a lever 112, the free end of which is attached to a spring 114 secured to frame F for holding valve 108 closed. A rod 116 attached to lever 112 extends downwardly and is fastened to a treadle 118. One end of the treadle is secured by a pivot pin 120 to the bottom of lower frame G while a clevis 122 pivotally joins the lower end of rod 116 to treadle 118. Movement of the treadle is confined by the hair pin 124 welded to a plate 126 attached to frame G.

In operation, a stack of bags is first placed on table 10 by depressing the inner end of the table against spring 20 and dropping the pins 34 into the tubes 24. Air valve 44 is then manually opened and the air blast immediately blows open the upper bag 42. An article, such as a sliced loaf of bread, is then thrust between wing 78 into chute 76. The operator then steps on treadle 118 to open air valve 108 and thus actuate piston 66 to push slide 54 carrying chute 76 to the right. The end of the chute extends partially into the open mouth of the bag along with the jaws 80, which jaws rise and hold the bag in stretched open position with a shape approximating that of the article held in the chute. The article is then pushed manually from the chute into the bag and the treadle then released to shut off the air in cylinder 68 so that the slide and chute are retracted by spring 72. The filled bag 32 is then pulled loose from pin 34 and removed from the apparatus. If air valve 44 has remained open, the jet of air issuing from nozzle 40 immediately opens the next bag on top of the stack of bags so that it is inflated and

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ready to receive its article upon operation of the slide 54.
Having now described the means by which the objects of the invention are obtained, I claim:

1. A bagging apparatus comprising a supporting frame, means for holding the lower lip of a mouth of a bag on said frame, air blast means directed between the lower and upper lips of the bag for blowing the bag open, a chute slidably mounted on said frame in alignment with the mouth of the bag, a pair of jaws pivoted to opposite sides of said chute, driving means for sliding said chute and jaws into the blown open bag, and means actuated by the movement of said chute for simultaneously lifting said jaws within the bag for holding the bag open while an article is pushed through said chute and into said bag.

2. A bagging apparatus as in claim 1, said driving means comprising an air driven piston connected to said chute, link means joined between said jaws and said frame for actuating said jaws upon movement of said chute, compressed air supply means joined to said air blast means and said air driven piston and valve means in said air supply means for intermittently driving said piston.

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3. A bagging apparatus as in claim 2, further comprising treadle means joined to said valve means for operating said valve means.

4. A bagging apparatus as in claim 3, said means for holding the lower lip of a bag comprising a table for supporting the bag and having its bag bottom end portion hinged to said frame, a frame bearing member secured to said frame across the lower bag lip portion of said table, and spring means for urging the lower lip portion of said table toward said bearing member to hold the lower lip of said bag.

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