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3,046,713

COMBINATION VACUUM LIFTER AND BAG CLIPPING ASSEMBLY

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2 Sheets-Sheet 2

Fig. 2.

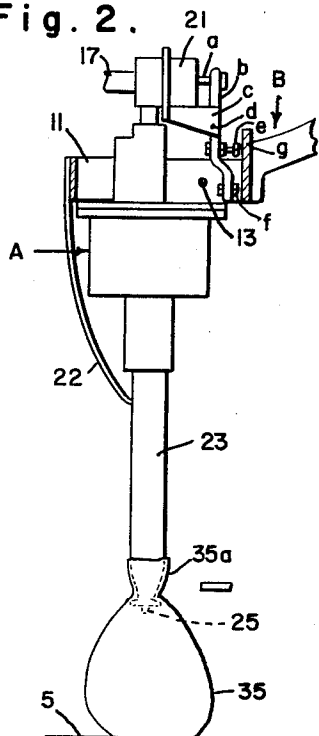


Fig. 3.

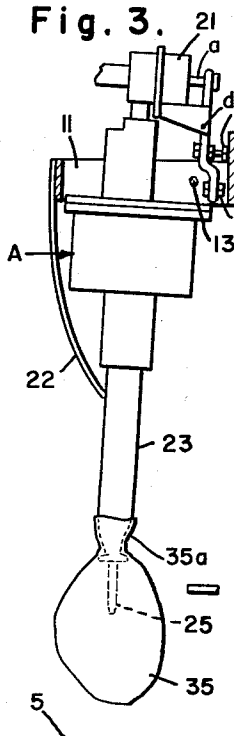


Fig. 4.

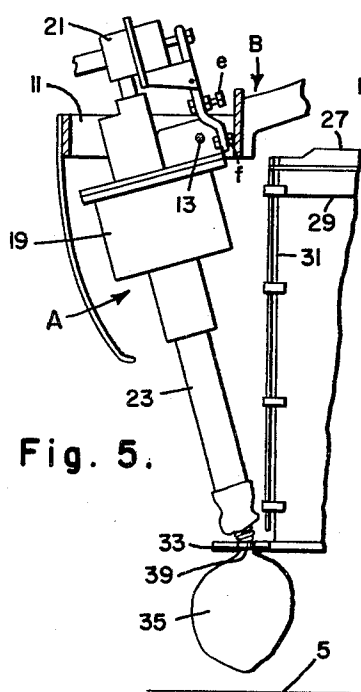
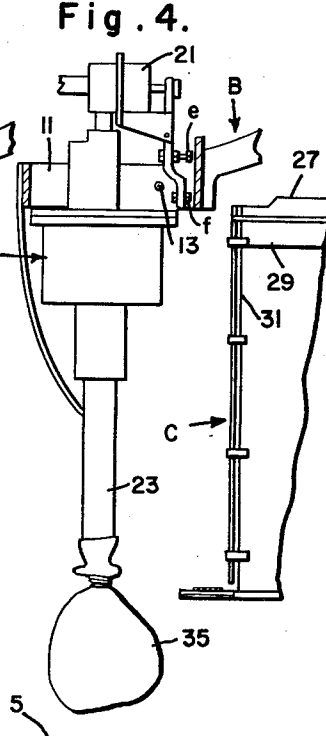


Fig. 5.

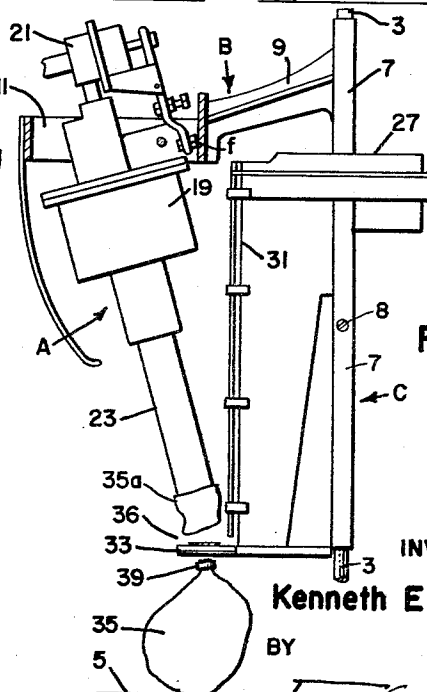


Fig. 6.

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1

3,046,713

COMBINATION VACUUM LIFTER AND BAG CLIPPING ASSEMBLY

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This invention relates to new and useful improvements in devices for vacuum packing poultry and the like. More particularly, this invention involves the correlation of a vacuum lifter assembly with the function of a bag clipping and trimming unit.

The vacuum lifter may be according to that described in my copending application Serial No. 24,169, filed on April 21, 1960, and entitled Retractable Cavity Nozzle for Vacuum Packing and Lifting Device, and a bag clipping and trimming unit such as that described in United States Patent Number 2,907,494, entitled Automatic Packaging, Clip Feeding and Fastening Device issued on October 6, 1959.

After the poultry packager has vacuumized the bag containing a turkey or chicken, it is more or less conventional practice to turn the bag at the end of the vacuum tube to form a rope-like portion at the neck of the bag. Then the operator removes the bag from the vacuum tube and manually inserts the neck of the closed bag in the bag clipping and trimming device where it receives a clip and the neck portion above the clip is trimmed off by a cutter.

This procedure has the attendant disadvantages of being time consuming and also requiring considerable physical exertion on the part of the operator, who must lift a large number of heavy birds from the vacuumizing unit to the clipping unit in rapid succession.

It is a primary object of the within invention to provide means for mechanically moving the vacuumized closed bag into the clipping and trimming unit. Accordingly, a frame member is provided which pivotally supports a vacuum lifter and holds it in spaced apart relationship to a clipping and trimming unit. The space between the two assemblies and the pivotal arc of the lifter is such that when the lifter is swung toward the clipper it will align the closed bag neck with the jaws of the clipper.

A feature and advantage of the within invention resides in the fact that both units are connected to the same secondary support which in turn is mounted on a vertical support post for reciprocal movement thereon. When the lifter is raised or lowered from the packing table for adjustment to birds of various sizes, the clipper is simultaneously moved the same distance and the lift tube will always pivot the bag into proper clipping and trimming position.

Other objects and advantages of the invention will become apparent upon reading the following specifications and referring to the accompanying drawings in which similar characters of reference represent corresponding parts in each of the several views.

In the drawings:

FIG. 1 is a schematic side elevation view of the within invention showing a bag lifting assembly and a bag clipping assembly mounted on a common frame.

FIGS. 2-6 are schematic side elevational views of the embodiment of FIG. 1 showing the different positions of operation with the bag clipping assembly.

Referring now more particularly to the drawings in the embodiment of FIG. 1, there is shown, indicated generally at A, a vacuum lifting assembly, a secondary support bracket or frame B and a bag clipper assembly C.

A vertical primary support or post 3 extends from the packing table 5 and the support bracket B has a sleeve portion 7 slidably mounted on the post 3 for reciprocating movement thereon. Extending outwardly from the sleeve

2

7 is an arm 9 which terminates in a bracket 11. The vacuum lifter assembly A is pivotally mounted to the bracket 11 as at 13, and is swingable from the dotted line position 15 toward the bag clipping machine C.

The major components of the lifter assembly are: a vacuum source 17; a lift motor 19; a valve means 21 for opening and closing communication between the motor 19 and source 17; a depending bag lift tube 23; and an inner retractable vacuum nozzle 25 (better seen in the dotted line portion).

The valve means 21 includes a movable rod *a*, having a cap (not shown) on its inner end to open and close a vacuum port in communication with vacuum source 17 when rod *a* is moved. This rod is actuated by arm *b* pivotally attached to frame *c* as at *d*. Extending from the arm are stops *e* and *f*. Stop *e* abuts plate *g* pivoting arm *b* causing rod *a* to open the valve when the lifter assembly is pivoted to the left. When the lifter assembly is pivoted to the right, stop *f* also abuts plate *g* thereby opening the valve.

The lift tube 23 is connected to a vacuum actuated lift motor (not shown) and houses the inner retractable vacuum nozzle 25. Vacuum tube 25 and bag lift tube 23 are slidably axially movable relative to one another such that when the lifter assembly is pivoted to the left causing valve 21 to open, the lift motor raises bag lift tube 23 but the retractable inner vacuum tube 25 retains its normal position by reason of retaining action by arm 22, which extends through a slotted portion in tube 23 and engages a ring (not shown) connected to inner tube 25. Since the neck of the poultry-containing bag is held against the end of tube 23, it becomes raised. Thus, as seen in FIG. 3, the inner vacuum tube 25 is caused to project substantially below the end of tube 23 and into the body cavity of the poultry within the bag. Then, when the lifter assembly is pivoted to the right and arm 22 becomes disengaged, the lower end of inner tube 25, under influence of spring means, retracts from the interior of the fowl to its normal position proximate the end of tube 23. This permits the bag neck to be sealed and cut when the lifter is pivoted into the bag clipper device. When the lifter assembly is returned to its neutral position wherein both stops *e* and *f* are out of contact with plate *g*, valve 21 closes and both tubes 23 and 25 return to their lowermost operation position illustrated at FIG. 2.

The valve actuating mechanism and the vacuum tube assemblies, schematically shown and described herein, are disclosed in more specific detail in my copending application above mentioned, and said valve actuating means and tube assemblies do not per se constitute any part of the present invention. Further, it is appreciated that other types of suitable valve actuating mechanisms and vacuum lift tubes within the skill of the art may be employed in conjunction with this invention if so desired.

The bag clipping unit generally may comprise a hopper 27 from which metal clips or bands are vibrated by pneumatic motor 29 into magazine 31. The magazine loads a clip into the jaws 33 of the machine, which when triggered clamps a band around the closed neck of the collapsible bag 35 and trims it. The arrangement of the clip jaws 33 and the cutter blade 36 may be according to that described in U.S. Patent No. 2,866,975.

The clipping and trimming mechanism can be manually actuated, or as described in my above mentioned patent mechanical means such as an air cylinder 37 or a solenoid may be mounted on the clipping assembly so that the bag neck can be sealed and trimmed following insertion of the bag neck between the jaws 33 of the clipping means and application of a clip around the bag neck by the jaws.

The mount bracket B is provided with set screws or clamps 8 along its sleeve portion 7 and is slidably movable to any desired position along post 3. As is obvious, up-

ward or downward movement of the lift causes identical movement of the clipping assembly which is mounted on the same frame member B.

Referring now to FIGS. 2-6, the operation of the new combination will now be described more particularly.

FIG. 2 illustrates a bag lifter assembly in its neutral or at rest position prior to establishment of vacuum communication with lift motor 19. The lift sleeve 23 extends into the mouth of the collapsible bag 35 containing a turkey. In this position the bag rests on the packing table 5, and the lifter has been adjusted to the proper elevation for the poultry illustrated in this view. During all sequences of operations shown in FIGS. 2-6, it is understood that an operator would hold the upper bag portion 35a clapsed around the lower end of vacuum tube 23 by one hand (not shown) encircling the bag and tube.

In the position shown at FIG. 3, the operator has pivoted the lifter slightly to the left establishing vacuum communication between source 17 and motor 19. As previously described, the motor raises tube 23 lifting the bag 35 and contents above the table 5. Air is then evacuated from the bag.

After the bag is vacuumized, the operator pivots the machine A in the opposite direction causing the cavity nozzle 25 to withdraw from the interior of the fowl and then twists or turns the bag to rope seal the neck as shown in FIG. 4.

FIG. 5 illustrates the position of the lifter unit after it has been pivoted all the way to the right. The sealed portion of the bag neck is placed into the jaws 33 of the bag clipper machine, which clamp a metal band 39 tightly around the neck of the bag. The communication of vacuum with the lift motor has been re-established in this position so that the bag is held elevated above the packing table 5.

FIG. 6 shows the bag resting on the packing table after the cutter 36 has trimmed the neck portion of the bag above the banded portion.

The views of FIGS. 5 and 6 show the bag clipping and trimming members of the clipping machine in sealing and trimming alignment with the end of the lift, even though as mentioned above, the lift was adjusted to the height necessary for vacuumizing the bird.

After the bag has been trimmed, the lift machine may be returned to the position of FIG. 2 where it is in readiness for another operating cycle.

Although the foregoing invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be practiced within

the spirit of the invention as limited only by the scope of the appended claims.

I claim:

1. In a vacuum packing and lifting device of the type adapted to raise and carry a collapsible air tight bag containing poultry or the like at the lower end thereof for evacuating the air therefrom, the improvements comprising: means for mounting said vacuum packing device and a bag clipping and trimming device for simultaneous and equidistant vertical reciprocal movement on a primary support; a bracket on said mount for suspending said vacuum packing device and bag clipping device in spaced apart relationship; pivotal means located at a position removed from the vertical axis of said packing device and connecting said packing device to said bracket for swingable movement of said packing device when carrying a collapsible air tight bag containing poultry to a first position away from vertical at which the neck of a collapsible bag at the lower end thereof is in bag clipping and trimming position.

2. In a vacuum packing device of the type having a vacuum actuated lift motor, a depending lift tube for raising a collapsible bag containing poultry or the like above a packing table, and an inner retractable vacuum nozzle adapted to be received by the mouth of a collapsible bag for withdrawing air therefrom, the improvements comprising: bag clipping and trimming means; support means carrying said vacuum packing device and bag clipping and trimming means in spaced apart relationship, said support means including a pivot member located at a point removed from the vertical axis of said packing device and attaching said device to said support member for swingable movement of said packing device to a first position away from vertical at which the end of the depending lift tube and inner retracted nozzle align with and are disposed above said bag clipping and trimming means.

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