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APPARATUS FOR PACKAGING COMMODITIES

Original Filed Feb. 17, 1955

2 Sheets-Sheet 1

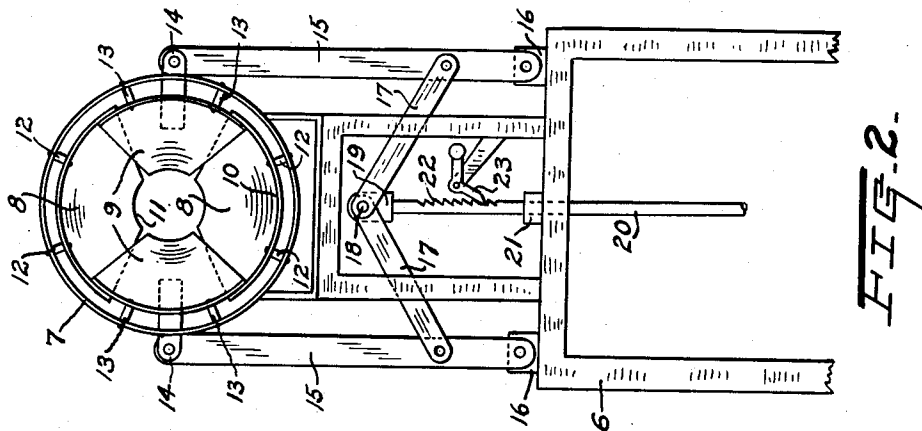


FIG. 2-

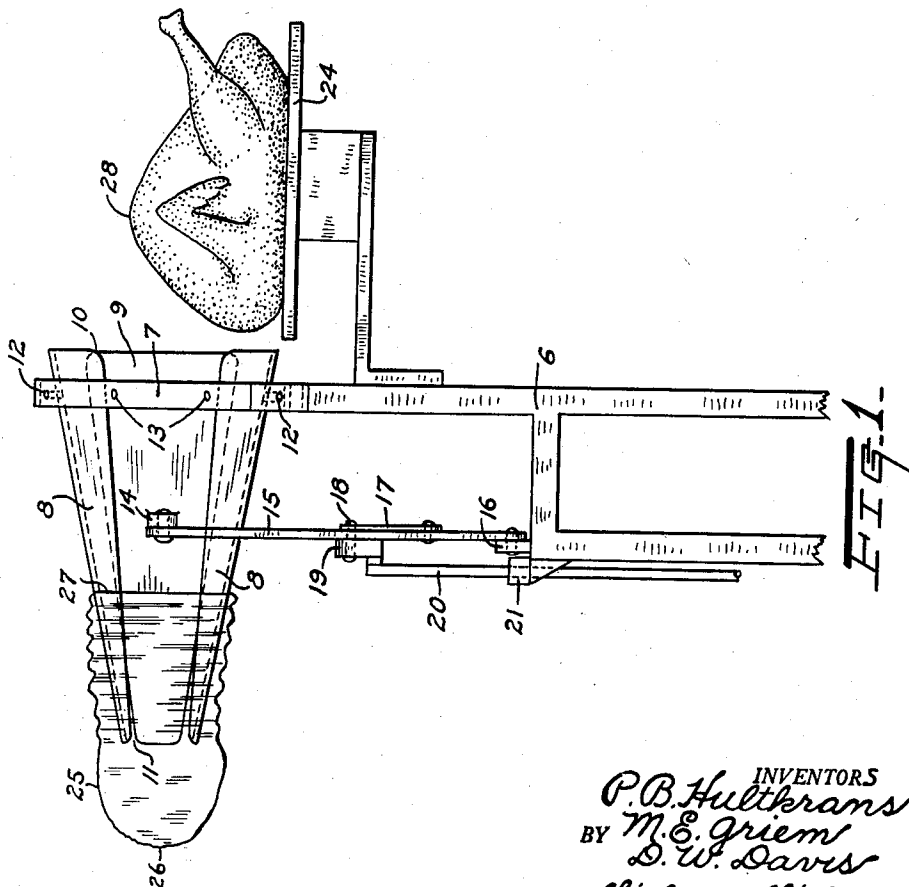


FIG. 1-

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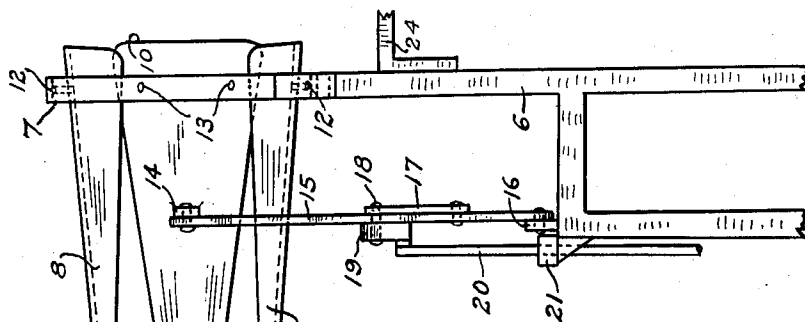


FIG. 4-

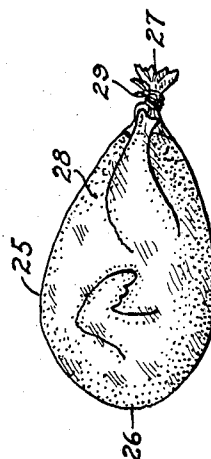


FIG. 5-

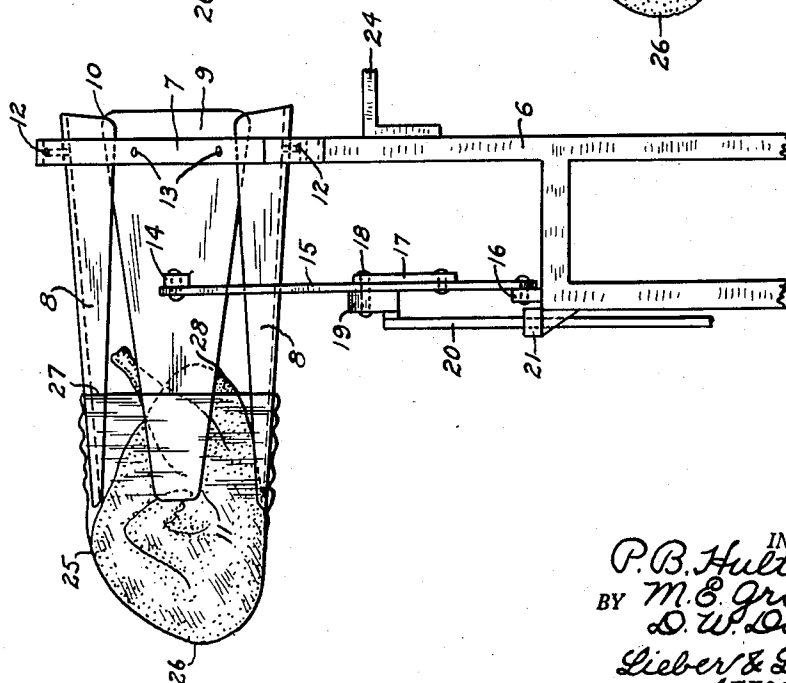


FIG. 3-

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APPARATUS FOR PACKAGING COMMODITIES

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Original application February 17, 1955, Serial No. 488,806. Divided and this application January 18, 1956, Serial No. 559,797

5 Claims. (Cl. 53—261)

The present invention relates generally to improvements in the art of packaging diverse commodities, and relates more specifically to the provision of an improved apparatus for enclosing relatively irregular shaped articles such as poultry in tight fitting flexible wrappers.

This application is a division of our co-pending application Serial No. 488,806, filed February 17, 1955, now abandoned, and the primary object of the invention is to provide improved instrumentalities for packaging relatively pliant and irregular shaped bodies in snug fitting and shape conforming flexible wrappers.

As set forth in our co-pending application identified above, it is customary in the art of packaging fresh dressed poultry such as turkeys and other fowl, to subject each body to a so-called squatting operation so as to shorten the bird and to broaden its girth in order to give it a more plump and fuller breast appearance. This squatting has heretofore been universally accomplished before the final wrapper was applied, and was performed with the aid of a pair of clamps one of which coated with the neck area while the other engaged the tail and leg area, these clamps being adapted to be brought toward each other to press the pliant intervening body into the desired shorter and laterally expanded shape.

After this squatting was accomplished with the previous method, each medially expanded bird was inserted within a rather large and loosely fitting bag-like wrapper formed of shrinkable film which was substantially devoid of inherent elasticity but was adapted to be contracted by variations in temperature and by the removal of air from its interior as with the aid of a vacuum pump. This prior method of wrapping poultry is not entirely satisfactory even if wrapping materials which are capable of considerable expansion and contraction are employed, because the variation in size of the wrapper is not sufficient to cause the same to engage the article with enough tension to eliminate surface irregularities and air confining pockets. Then too, this prior poultry packaging method requires excessive handling of the commodity due to the necessity of providing separate squatting equipment, and it also required the provision of special means for initially expanding the wrapper bags and for finally contracting them about the commodity.

In our co-pending application, we have described a simple and unique method of snugly confining poultry and other pliant commodities having irregular external surfaces in flexible tubular wrappers in a manner whereby undesirable surface irregularities and air pockets are eliminated, and it is an important object of this invention to provide simple, durable and highly efficient apparatus for most effectively performing the method steps.

Another important object of this invention is to provide a simple, highly flexible and readily manipulable apparatus for facilitating effective commercial exploitation of our improved poultry packaging method.

A further important object of the invention is to provide a mode of and apparatus for squatting and pack-

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ing poultry and the like in elastic bag-like wrappers with minimum effort and handling of the commodity to produce highly attractive and merchandisable final packages.

Still another important object of this invention is to provide an improved device for packaging pliant batches of meat or the like having external surface irregularities in transparent flexible wrappers which have inherent stretching and contracting characteristics enabling them to effectively eliminate such irregularities in the final packages.

An additional important object of the invention is to provide improved instrumentalities for facilitating most efficient packing of fresh dressed poultry and other similar commodities in an expeditious manner and so as to eliminate confinement of excess air within the final packages.

Another important object of this invention is to provide an improved apparatus for packaging poultry in elastic containers whereby the squatting and wrapping operations are simultaneously performed while the wrapper is being applied, thereby reducing the handling of the commodity to a minimum and expediting the work.

These and other more specific objects and advantages of the present invention will be apparent from the following detailed description.

A clear conception of the construction and operation of typical practical apparatus for facilitating exploitation of the method set forth and described in application Serial No. 488,806 may be had by referring to the drawing accompanying and forming a part of this specification wherein like reference characters designate the same or similar parts in the various views.

Fig. 1 is a diagrammatic side elevation of typical equipment embodying the features of the present invention and showing a wrapper expander and poultry guide having the mouth and major portion of an elastic bag-like wrapper applied to its delivery end in folded but unstretched condition, and also showing a fresh dressed turkey adjacent to the receiving end of the expander;

Fig. 2 is an end view of the assemblage shown in Fig. 1, looking toward its poultry inlet;

Fig. 3 is another side view of the assembly similar to that shown in Fig. 1, but with the poultry guides swung outwardly to expand the bag portions which embrace the stuffer delivery end, and also showing the bird being stuffed into the wrapper bag;

Fig. 4 is a side view of the apparatus similar to that shown in Fig. 2, but with the bird stuffed free of the expander into the stretched bag-like wrapper and ready for removal of the latter from the mechanism; and

Fig. 5 is a side elevation of the completed final poultry confining package.

While the invention has been shown and described herein as being especially advantageously applicable for the purpose of packaging fresh dressed poultry such as turkeys with the aid of the improved type of expanding and guiding device, it is not intended to unnecessarily restrict the improvement to such usage or to the specific details of this apparatus; and it is also contemplated that specific descriptive terms employed herein shall be given the broadest possible interpretation consistent with the actual disclosure.

Referring to Figs. 1, 2, 3 and 4 of the drawing, the typical apparatus for packaging commodities in snug fitting wrappers of elastic material comprises, in general, an expansible guide assembly mounted upon a suitable upright frame 6 having a rigid annulus or ring member 7 at its upper end which supports an annular series of outer and inner guide plates 8, 9 forming a tapered passage or conduit provided with an enlarged inlet end opening 10 of relatively fixed diameter and with an opposite delivery end opening 11 of variable diameter. The top and

bottom plates 8 may be supported from the ring member 7 to swing about fulcrums or pivots 12, while the opposite side plates 9 are likewise supported from the member 7 to swing about other fulcrums or pivots 13. The opposed edges of the outer upper and lower guide plates 8 overlap the adjacent top and bottom edges of the inner side plates 9 so that outward swinging movement of the inner plates 9 about their pivots 13 will cause simultaneous outward swinging of the outer plates 8.

The exteriors of the side plates 9 are provided with integral lugs 14 which are swingably connected by levers 15 with fixed fulcrum lugs 16 on the frame 6, as shown in Fig. 2. The medial portions of the levers 15 are connected by means of toggle links 17 and a pivot pin 18 with a fitting 19 secured to the upper end of a reciprocable upright rod 20 which is guided for vertical movement in a bearing 21 carried by the frame 6. The portion of the rod 20 between the fitting 19 and the bearing 21 is provided with a series of notches or teeth 22 with which a gravity actuated pawl 23 pivotally suspended from the frame 6 is cooperable, and a loading platform 24 for the poultry may also be supported from the frame 6 near the inlet opening 10 of the unit.

The tubular wrapper 25 employed in conjunction with the improved packaging apparatus and method, must be formed of rather tenacious and highly elastic sheet material such as certain commercially available films, capable of being forcibly stretched or expanded to a considerable extent, but adapted to return to approximately original condition upon release of the expanding force, without subjecting the wrapper to temperature changes or other treatment other than releasing the expanding force. These wrappers 25 are preferably formed as bags having closed bottoms 26 and open mouth portions 27, and may be formed of transparent or opaque sheet stock in any well known manner. The exteriors of the wrapper bags 25 may also be provided with identifying indicia and ornamental printing in order to enhance the aesthetic appearance of the final packages, but the only essential requirement is that they be produced from highly elastic stock capable of being increased by approximately twenty five percent when stretched at normal temperatures and of returning to their original condition when the stretching or expanding force is released.

When the stuffer has been constructed and assembled as hereinabove described, it may be utilized in the following manner. With the upright rod 20 of the unit positioned as in Figs. 1 and 2, the discharge opening 11 will be contracted sufficiently so that the mouth portion 27 of a bag-like wrapper 25 may be freely applied to the delivery ends of the plates 8, 9 and a considerable portion of the side wall of the bag may be collected or gathered as illustrated in Fig. 1. A fresh dressed turkey 28 or similar fowl of suitable size and properly prepared but necessarily previously squatted may then be removed from the platform 24 and inserted into the guide plate assembly through the inlet opening 10. The turkey 28 should thereafter be forcibly urged along the plates 8, 9 by pressure applied to its tail portion, toward the outlet opening 11, thereby causing the guide plates to swing about their pivots 12, 13 and simultaneously causing the free ends of these plates to spread and to forcibly stretch the mouth portion 27 of the wrapper 25 as illustrated in Fig. 2.

During this forcible advancement of the turkey 28 and outward spreading of the guide plates 8, 9 to enlarge the discharge opening 11 and to stretch the mouth portion 11 of the elastic wrapper 25, the upper ends of the levers 15 will be swung outwardly and the toggle formed by the pivotally interconnected links 17 will be straightened thereby causing the pivot pin 18 and the fitting 19 to quickly lower the toothed rod 20. The gravity actuated pawl 23 will ride over more or less of the teeth 22 formed on the rod depending upon the girth of the turkey 28 being forced through the stuffer, and this pawl 23 will

eventually hold the rod 20 in lowered position and will thus hold the guide plates 8, 9 in the position shown in Figs. 3 and 4 thus maintaining the bag mouth portion 27 stretched or expanded so that any release of the pressure being exerted against the turkey carcass from the rear will still retain the bird snugly confined between the free ends of the guide plates.

The turkey 28 should subsequently be advanced into the stretched wrapper 25 and beyond the free ends of the distended guide plates as illustrated in Fig. 4, until all of the folded mouth portion 27 of the bag has been withdrawn from the stuffer plates 8, 9 whereupon the elastic side walls of the wrapper 25 will promptly contract into snug engagement with the major portion of the pliant carcass and will cause the wings and shanks to be substantially embedded in the body of the bird while the neck and front portions of the commodity will be forced into smoothly rounded shape as illustrated in Figs. 4 and 5. It is to be noted that while the relatively soft and pliable fresh turkey is being forcibly injected into the elastic wrapper 25, this wrapper will be stretched and will create lateral pressure on the body which cooperates with the advancing pressure being applied through the stuffer, so as to effectively squat the bird without necessity of providing special squatting apparatus such as the clamps heretofore utilized. When the mouth portion 27 of the bag-like wrapper 25 has been completely removed from the stuffer, it may be gathered and contracted and sealed with a band or cord 29 as depicted in Fig. 5, to complete the package, either with or without subjecting the bag interior to vacuum.

After each fowl and its wrapper 25 have been removed from the stuffer, the pawl 23 may be released from the teeth 22, and the rod 20 may be pushed upwardly to cause the guide plates 8, 9 to assume their contracted position as shown in Figs. 1 and 2, whereupon the apparatus will be in condition for subsequent packaging operations. The improved equipment functions automatically to carry on the successive steps of the improved method and will readily accommodate carcasses of various sizes since the extent of outward swinging of the plates 8, 9 is automatically regulated by the size of the carcass. However, when packaging birds of larger dimensions larger bag wrappers 25 should be utilized than when packaging smaller fowl, so that final packages having the bodies snugly embraced by the elastic wrappers and which are devoid of external air pockets, will definitely result.

From the foregoing detailed description it should be apparent that the present improvement in fact provides simple but highly effective apparatus for producing very attractive and neat poultry packages or the like in which the initially irregular pliant bodies are pressed into squatted shape with relatively smooth external surfaces, without the aid of a special squatter and wrapper pre-treating equipment. The apparatus may be readily manually manipulated to operate on fowl or the like and produce packages in rapid succession with the successive elastic casings or wrappers 25 being conveniently applied for initial stretching, and the improved stuffer positively holds the wrapper bags in laterally stretched condition while they are also being stretched longitudinally by the advancing commodity. The improved device has proven highly satisfactory and successful in actual use, and may obviously be utilized for the packaging of any pliant and irregular commodity batches having characteristics simulating those of fresh dressed fowl.

It should be understood that it is not desired to limit this invention to the precise details of construction of the apparatus herein shown and described, for various modifications within the scope of the appended claims may occur to persons skilled in the packaging art.

We claim:

1. In an apparatus for packaging commodity batches

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within flexible tubular containers, an annular series of plates forming a tapered conduit, means for mounting said plates in edge overlapping relation to provide a conduit inlet of relatively fixed area for receiving a commodity to be packaged and an outlet of variable area for receiving a tubular wrapper, said edge overlapping plates being cooperable upon passage of the commodity through the conduit formed thereby to increase the area of the outlet and expand the tubular wrapper, and means coacting with and actuated by said plates for maintaining the conduit outlet at the area to which it is increased by the commodity passing therethrough.

2. In an apparatus for packaging commodity batches within flexible tubular containers, an annular series of plates forming a tapered conduit, means adjacent one end of said plate for swingably mounting the same in edge overlapping relation to provide a conduit inlet of relatively fixed area for receiving a commodity to be packaged and an outlet of variable area for receiving a tubular wrapper, said edge overlapping plates being cooperable upon passage of the commodity through the conduit formed thereby to progressively increase the area of the outlet and simultaneously expand the tubular wrapper, and means coacting with and actuated by the swinging portions of said plates for successively maintaining the conduit outlet at the corresponding area to which it is progressively increased by the commodity passing therethrough.

3. In an apparatus for packaging commodity batches within flexible tubular containers, an annular series of transversely arcuate and longitudinally tapered plates forming a tapered conduit, means for mounting said plates with adjacent plates in edge overlapping relation to provide a conduit inlet of relatively fixed area for receiving a commodity to be packaged and an outlet of variable area for receiving a tubular wrapper, said edge overlapping plates being cooperable upon passage of the commodity through the conduit formed thereby to vary the length of overlap while increasing the area of the outlet and simultaneously expanding the tubular wrapper, and pawl and ratchet means connected by cooperating links to certain of said plates for maintaining the conduit outlet at the area to which it is increased by the commodity passing therethrough.

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4. In an apparatus for packaging commodity batches within flexible tubular containers, an annular series of transversely arcuate and longitudinally tapered plates forming a tapered conduit, means for swingably mounting said plates adjacent to the widest ends thereof with adjacent plates in edge overlapping relation to provide a conduit inlet of relatively fixed area for receiving a commodity to be packaged and an outlet of variable area for receiving a tubular wrapper, said edge overlapping plates being cooperable upon passage of the commodity through the conduit formed thereby to vary the length of overlap while increasing the area of the outlet and simultaneously expanding the tubular wrapper, and means connected to the reduced swinging portions of certain of said plates for automatically locking the conduit outlet at the area to which it is increased by the commodity passing therethrough.

5. In an apparatus for packaging commodity batches within flexible tubular containers, a pair of opposed transversely arcuate and longitudinally tapered side plates and upper and lower transversely arcuate and longitudinally tapered plates cooperating to form a tapered conduit, means for swingably mounting said plates with the edges of the upper and lower plates outwardly overlapping the adjacent edges of the side plates to provide a conduit inlet of relatively fixed area for receiving a commodity to be packaged and an outlet of variable area for receiving a tubular wrapper, said plates being cooperable upon passage of the commodity through the conduit formed thereby to increase the area of the outlet and simultaneously expand the tubular wrapper, and means connected to said side plates for automatically locking all of said plates forming the conduit outlet at the area to which the conduit is increased by the commodity passing therethrough.

References Cited in the file of this patent

UNITED STATES PATENTS

1,467,323	Jewell	Sept. 11, 1923
1,611,268	Colby	Dec. 21, 1926
2,348,144	Opie	May 2, 1944
2,584,497	Poole	Feb. 5, 1952