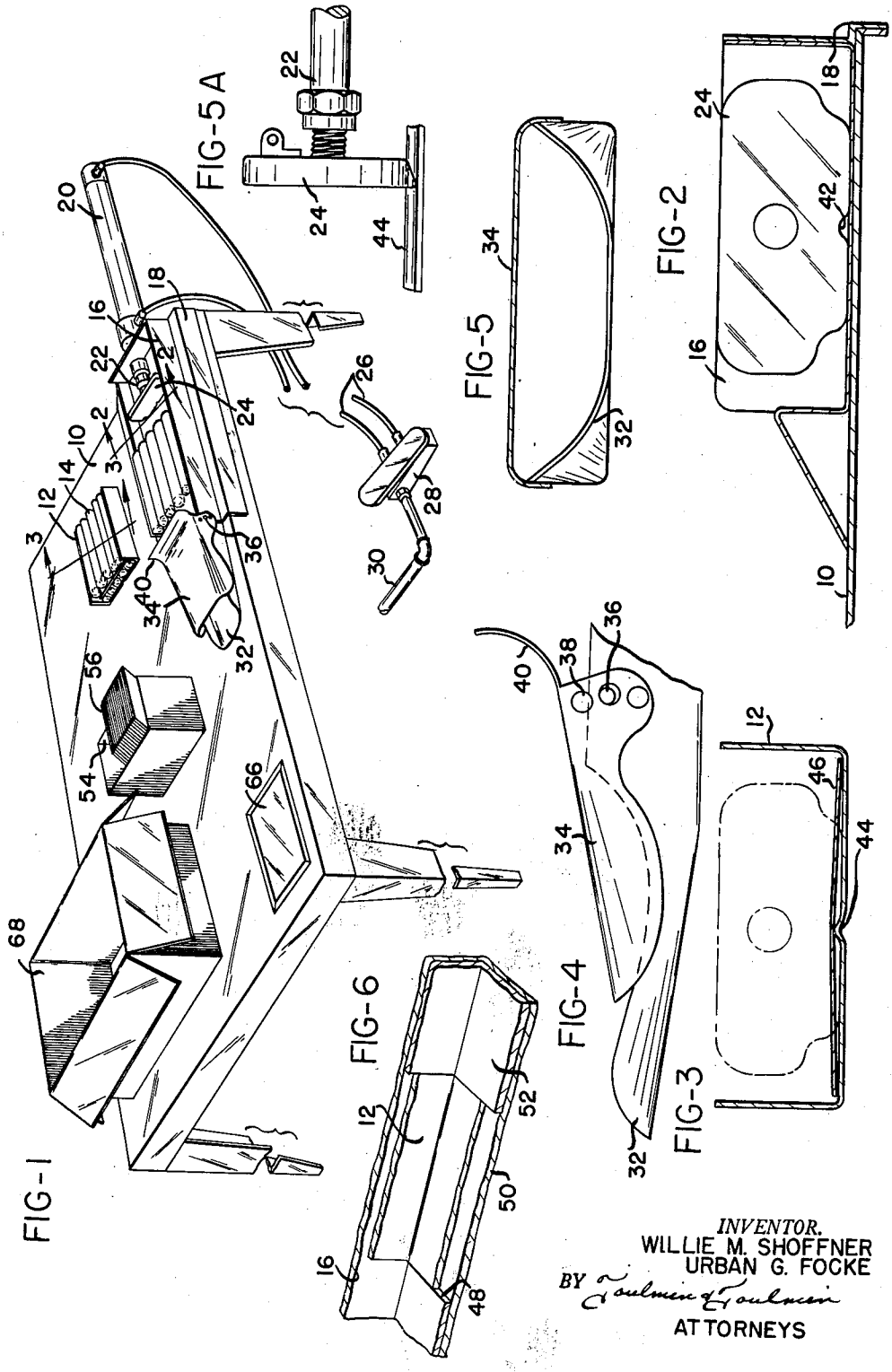
Aug. 10, 1954 W. M. SHOFFNER ET AL 2,685,996

APPARATUS FOR PACKAGING WIENERS AND THE LIKE

Filed Nov. 15, 1952

3 Sheets-Sheet 1



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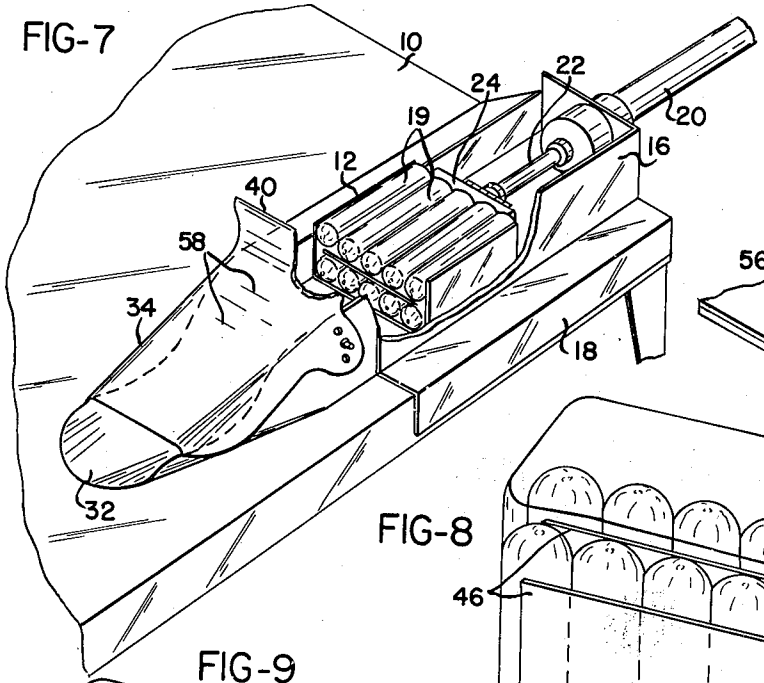
Aug. 10, 1954 W. M. SHOFFNER ET AL 2,685,996

APPARATUS FOR PACKAGING WIENERS AND THE LIKE

Filed Nov. 15, 1952

3 Sheets-Sheet 2

FIG-7



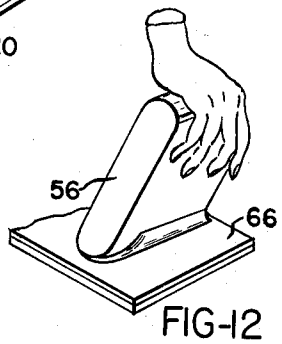


FIG-12

FIG-8

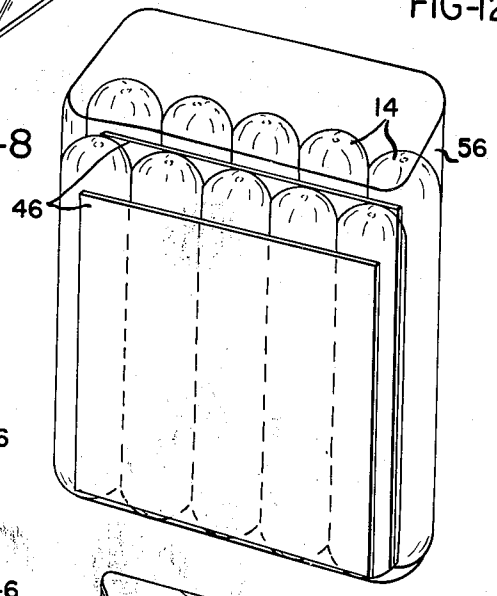


FIG-9

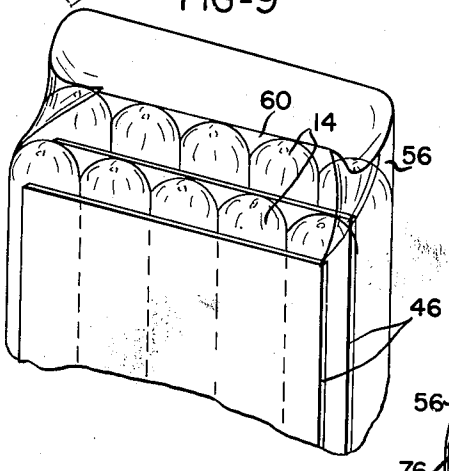


FIG-10

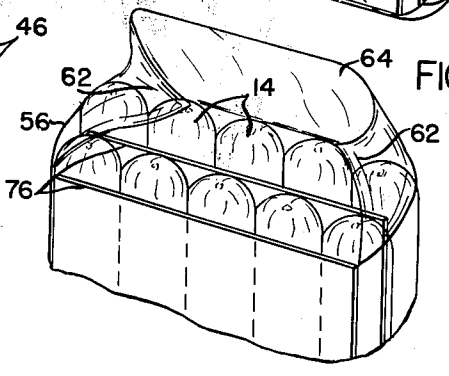
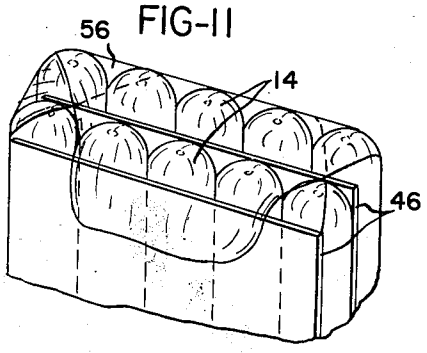


FIG-11



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APPARATUS FOR PACKAGING WIENERS AND THE LIKE

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FIG-14

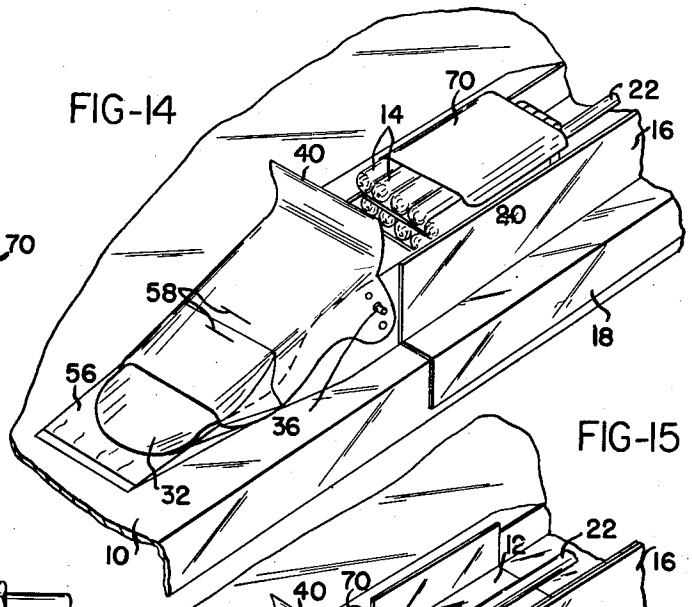


FIG-13

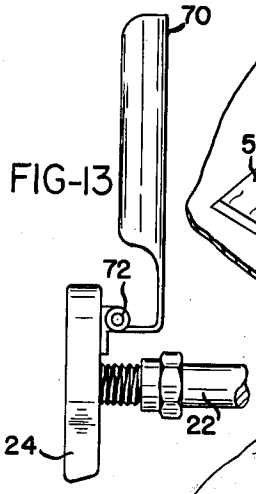


FIG-15

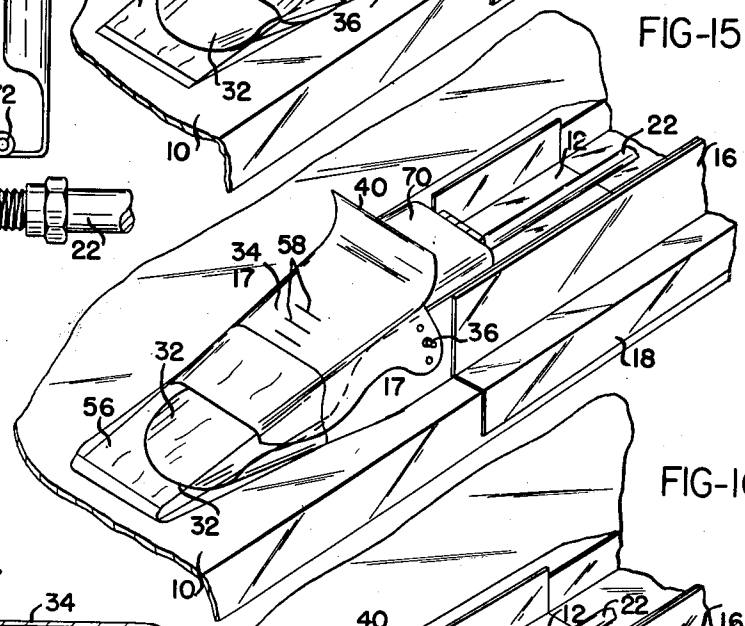


FIG-16

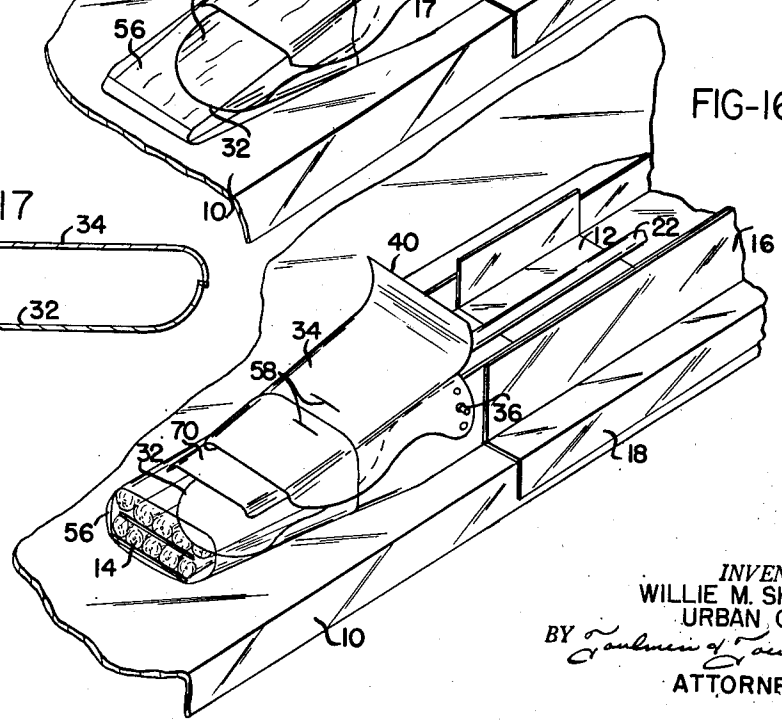


FIG-17

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Patented Aug. 10, 1954

2,685,996

UNITED STATES PATENT OFFICE

2,685,996

APPARATUS FOR PACKAGING WIENERS AND THE LIKE

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Application November 15, 1952, Serial No. 320,716

10 Claims. (Cl. 226—18)

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This invention relates to an apparatus for packaging, and especially to the packaging of articles of foodstuff such as wieners, frankfurters, little sausages, and the like.

Heretofore, in the packaging of articles of the nature referred to above, a flat wrapper was employed which was wrapped around the articles and then closed and sealed.

This method of packaging has a number of virtues in that considerable labor and skill is required in effecting the wrapping and sealing of the package, and the end result of this sort of packaging operation is somewhat at fault in that it is extremely difficult to effect an airtight closure about the article.

According to modern merchandising methods it is convenient to display the articles of foodstuff such as the meat products referred to above in cases, these cases being refrigerated for meat products, but in any case being exposed so that the prospective purchaser can inspect the items on display.

The packaging methods referred to above, wherein a flat wrapper is employed, is particularly at fault for the packaging of meat products and the like for display in open cases because the packages are not very sturdy against being torn or very stable as to shape, and by being open to the atmosphere permit the drying out of the product.

Having the foregoing in mind, it is a primary object of this invention to provide an improved method and apparatus for packaging articles of the nature described, particularly meat products, which will result in a much better package, and which methods require considerably less labor than prior art methods.

A still further object of this invention is the provision of a method and apparatus for packaging of the nature referred to in which substantially all of the air is eliminated from the package and the package is completely sealed, thereby enhancing the keeping qualities of the articles so packaged.

A still further object is the provision of a method and apparatus for packaging which will be extremely rapid, thus requiring a great deal less labor than heretofore, and likewise eliminating a great deal of manual handling of the articles.

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It is also an object of this invention to provide a method of packaging wieners and the like such that bags can be employed for the packaging operation which heretofore has been an impractical thing even though the bags are somewhat cheaper and more easily handled than the flat wrappers heretofore employed.

These and other objects and advantages of this invention will become more apparent upon reference to the following specification taken in connection with the accompanying drawings, in which:

Figure 1 is a perspective view of a typical packaging arrangement, according to the present invention;

Figure 2 is a transverse section indicated by line 2—2 on Figure 1 showing the pusher element or trough forming a part of the packaging device of this invention;

Figure 3 is a cross-sectional view indicated by line 3—3 on Figure 1;

Figure 4 is a side elevational view of the left end of the device where the bag is placed, into which the articles are pushed by the pusher;

Figure 5 is an end view looking at the left end of Figure 4;

Figure 5–A is a side elevational view of the pusher showing the manner in which it rests on the floor of the trough;

Figure 6 is a perspective view showing how the tray in which the articles are placed in the trough is adapted for fitting within a recess in the trough;

Figure 7 is a perspective view similar to Figure 1, but showing more in detail the position of the articles within the trough as they are engaged by the pusher immediately before being moved thereby;

Figure 8 is a perspective view showing the appearance of a group of articles after they have been pushed into a bag in accordance with the teachings of this invention;

Figure 9 is a view showing the step in the process immediately following the removal of the bag from the end of the device, and which consists of folding the front flap of the bag backward;

Figure 10 is a view like Figure 9 but showing the next step in the process, which consists of tucking in the sides of the bag;

Figure 11 is a view like Figure 10 but shows

the bag after the back flap has been folded across the front and sealed thereto;

Figure 12 is a perspective view showing the manner in which the bag is drawn across a hot plate to effect the sealing of the back flap as it is illustrated in Figure 11;

Figure 13 is a view similar to Figure 5, but shows in addition to the pusher an auxiliary element adapted for bearing on top of the articles being packaged;

Figure 14 is a perspective view like Figure 7, but showing the packaging device at the beginning of a packaging cycle utilizing the holddown elements;

Figure 15 is a perspective view like Figure 14, but showing the packaging operation after it has commenced;

Figure 16 is a view like Figure 15, but shows the articles pushed completely into the receiving bag; and

Figure 17 is a sectional view indicated by line 17—17 on Figure 15, showing the manner in which the spout of the device over which the bag is placed for receiving the articles is shaped so that no sharp corners are present to tear the bag.

Referring to the drawings somewhat more in detail, and particularly to Figure 1, there is illustrated therein a table 10 to which trays 12 of the articles 14 to be packaged are delivered.

The trays 12 contain pre-weighed groups of the articles, say, one pound thereof, and the weighing operation and the placing of the articles in the tray, in themselves, form no part of this invention except in combination with other steps to be described hereinafter.

The tray 12 is adapted for being received in an elongated trough member 16 which is preferably secured closely adjacent one edge of table 10 as by a bracket 18. The right end of trough 16 supports an air cylinder 20 in which is a ram 22 having a pusher member 24 thereon within the tray.

Conduits 26 leading to a foot operating valve 28 that is connected with the air compressor conduit 30 provide the means whereby pusher element 24 can be moved to and fro in trough 16.

The left end of trough 16, as it is viewed in Figure 1, terminates in a somewhat upwardly directed spout portion 32, as will be seen in Figures 4 and 5. This spout portion is overlaid by a movable spout portion 34 pivoted to the side walls of the trough by pivot pins 36 adapted for engaging any of a plurality of apertures 38 in the sides of the said movable spout member. The left end of spout member 34 is shaped to form a downwardly concave configuration that matches with the upwardly concave configuration of spout portion 32 thereof defining a channel through which the articles to be packaged are pushed. Rightwardly of pivot pin 36, the upper wall of movable spout portion 34 is bent upwardly as at 40 so as to define a tapering inlet opening for the channel.

Referring to Figure 2, it will be seen that pusher element 24 is formed with a notch 42 in its lower edge, and this notch is availed of for pushing a supporting cardboard or the like with the articles being packaged by virtue of a raised portion 44 in the bottom wall of tray 12. When the articles 14 to be packaged are placed in tray 12 a cardboard 46 is laid on the bottom wall of the tray and then, after the tray has been placed in trough 16, movement of pusher element 24 to push the articles through the spout of the device will also push cardboard 46.

In order to insure that the tray 12 will be properly positioned within the trough 16 and that the pusher element 24 will not stagger on the edge of the tray, trough 16 is formed with a transverse opening 48 in its lower wall as illustrated in Figure 6 in which tray 12 sets when placed in the trough. A lower member 50 may be provided extending along underneath tray 16, and in this manner a single integral unit is constructed having the opening 48 in which the tray 12 is disposed.

The spout member 32 is also advantageously constructed separate from the trough member proper, and the back end of the spout portion is telescopingly disposed within the end of the trough member as illustrated at 52 in Figure 6, and this construction provides for the abutment extending across in front of tray 12 as it is disposed within trough 16.

Turning now to Figures 7 through 12, Figure 7 illustrates the appearance of the device according to the present invention after a tray 12 of the articles 14 to be packaged has been placed in position in trough 16. The pusher elements 24 in Figure 7 has been advanced to the position where it engages the right ends of the articles to be packaged, and further movement leftwardly of the pusher element will result in movement of the articles to be packaged from the tray into the trough and then through the spout portion into the receiving bag.

In Figure 7 it will be noted that the articles are arranged in tray 12 with a cardboard beneath the articles and a second cardboard between the articles. In this manner the articles are held in two regular and horizontal rows.

For receiving the articles there is provided bags, preferably of cellophane or plio-film or the like, which may be located in a box 54 on table 10 in a position convenient to the operator's left hand. The bags 56 are removed from box 54 one at a time and are then opened at the mouth end and are slipped over the spout portion of the device until the edge of the bag is disposed somewhere between the gage marks 57 on the movable portion 34 of the spout. The operator then retains the bag in its located position on the spout by pressure on the opposite sides of the spout and at the same time actuates foot switch 26, thus bringing about leftward movement of the pusher element 24. The pusher element 24 now moves the articles to be packaged leftwardly into the channel formed by the two spout members 32 and 34. The spout members are so located relative to each other in vertical direction that they exert a predetermined compressive force on the articles, and this maintains the articles in closely packed relation so that they are received within the bag 56 in a very compact condition. This permits the smallest possible bag to be used so that there is a minimum amount of air in the bag with the articles.

A feature of our invention resides in the pivoted upper spout member which pivots upwardly about its connection with the lower spout member as the articles are pressed therethrough, thereby extending the receiving bag and permitting the articles to be thrust completely against the bottom of the bag.

As will be seen in Figure 17, the spout portions 32 and 34 are so formed that there are no sharp corners about which the bags are drawn and there is no tendency for the bags to be torn. This permits the use of a relatively light material

in the construction of the bag so that the greatest possible economy can be practiced as far as the packaging material is concerned.

After the articles being packaged have been pushed completely through the spout so that they are clear of the upper spout portion **34**, they will be disposed completely within the bag and the bag can then be removed from the spout for the next step in the packaging operation.

It might be pointed out that the upward inclination of the lower spout **32** is of importance in making it easy to slip the receiving bag on the spout as well as serving to support and direct the articles being packaged so that they are in an elevated position, thus insuring that the articles and the bag in which they are deposited are above the top of the table **10** and in a position where they can easily be removed from the spout.

When the bag with the articles therein is removed from the spout, it is then turned so the lowermost cardboard is toward the operator and its position or appearance will then be as illustrated in Figure 8. The next step in the packaging operation is that of pushing back the front flap of the package as illustrated at **60** in Figure 9.

The next step is the tucking in of the ends of the package as at **62** in Figure 10. This leaves the package with only the back flap **64** upstanding and this is then pressed over the top of the bag. The entire package is then lifted and drawn across the heating plate **66** set in the table **10**, preferably flush with the top thereof as illustrated in Figure 12. The bag is either of a thermo-plastic material or is provided with a heat sensitive cement so that in the act of drawing the bag across the heating plate in such a manner that flap **64** is pressed downwardly across the top of the bag and then across the cardboard **46**, the said flap will be cemented and sealed to the bag, thus resulting in a tightly closed package which will not easily become open.

The sealed bag can then be immediately placed in a packaging carton **68** by the operator and the packaging cycle is completed.

In connection with the steps illustrated in Figures 8 through 12, it is to be noted that the bag is drawn and placed tightly around the articles being packaged and substantially all air is forced therefrom. This feature, in combination with the fact that the articles are compressed and pushed into the smallest possible bag, insures an absolutely minimum amount of air being entrapped within the bag thereby greatly enhancing the keeping quality of the articles packaged according to this invention.

The packaging operation is quite simple and only a single operator is required to do the entire packaging, including the sealing of the bags and the placing of the bags in the shipping carton. This represents a considerable economy over previous practices when several persons are required for the complete operation of weighing, packaging, sealing and placing the bags in the shipping carton.

The process, as it has been described to the present point, is useful for the packaging for more or less conventional wieners and little sausages. We have found, however, that for larger type wieners, frankfurters and similar products which might generally be referred to as sausages, and which articles are different from wieners and small sausages in that they are of greater bulk and are thus of somewhat more resilient and elastic nature, an additional holddown member of the nature illustrated in Figures 13 through 16 is of benefit. This holddown member, indicated at **70**, is pivoted at **72** to a bracket mounted on the back of pusher element **24** so that it can be raised up to its Figure 13 position to permit the lowering of tray **12** into trough **16** and then folded down to its Figure 14 position preparatory to the commencing of a packaging operation.

Thereafter, when the pusher element is advanced to its Figure 15 position and then to its Figure 16 position, the upper spout member **24** will engage the holddown member **70** and press it downwardly so as to compress the articles being packaged to the maximum degree, and at the same time no localized stresses will be imposed on the articles which might tend to rupture them and destroy their market value.

In connection with the use of the holddown member **70**, the same advantages obtain in that the articles are compressed to the maximum degree and thus can be thrust into the smallest possible bag whereby a minimum amount of air is contained within the bag together with the articles. The steps in the process subsequent to the placing of the articles in the bag, namely, the folding over of the mouth of the bag and the sealing of the back flap thereof across the top of the bag and across the front wall, also contributes to the forming of the smallest and tightest possible packages, substantially presses all of the air therefrom, and the package is substantially sealed against the entrance of other air so that a neat package having the best possible conditions established for preserving the articles therein is produced.

The same advantages also obtain in connection with the last described modification with great rapidity of operation, in the small amount of labor required, and in the uniformity of the end product.

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.

We claim:

1. In a device of the nature described; a horizontal trough having its one end inclined upwardly and generally concave upwardly and the side edges of the trough at the said one end tapered downwardly toward the extreme end of the trough, a member generally concave downwardly positioned over the said one end of the trough and pivotally supported so that the outer end of the member will normally rest on the upwardly inclined end portion of the trough to define a tapering discharge channel, but will raise upwardly when articles are pushed through the discharge channel, a pusher element reciprocable in the trough for pushing elongated articles such as wieners and the like endwise through said discharge channel, the said one end of the trough and the said member being adapted for being received in the mouth of a bag in which the articles are to be pushed, and means in the trough to receive a tray containing the said articles and to retain the tray in the trough during movement of said pusher element.

2. In a device of the nature described; a horizontal trough having one end inclined upwardly and concave upwardly with the side walls of the said one end tapered downwardly to the extreme outer end, a member concave downwardly and overlying the rear portion of the said upwardly

inclined one end of the trough and pivoted at its rear end to the side walls of the trough, a pusher element movable lengthwise of the trough from the other end thereof to push articles along the trough and between said member and the said upwardly inclined end of the trough into a bag, said trough intermediate its ends having a recess for receiving a tray holding the articles to be moved by said pusher element, said recess accommodating said tray so that the pusher element will not engage the tray during its reciprocating movements.

3. In a device of the nature described; a horizontal trough having one end inclined upwardly and concave upwardly with the side walls of the said one end tapered downwardly to the extreme outer end, a member concave downwardly and overlying the rear portion of the said upwardly inclined one end of the trough and pivoted at its rear end to the side walls of the trough, a pusher element movable lengthwise of the trough from the other end thereof to push articles along the trough and between said member and the said upwardly inclined end of the trough into a bag, said trough intermediate its ends having a recess for receiving a tray holding the articles to be moved by said pusher element, said recess accommodating said tray so that the pusher element will not engage the tray during its reciprocating movements, said tray being provided with a projection upstanding from its bottom wall and extending in the direction of the length of the tray, and said pusher element being provided with a notch in its lower edge for receiving said projection whereby a supporting cardboard or the like placed beneath the articles in the tray will be engaged by the pusher element and pushed along the trough with the said articles.

4. In a device of the nature described; a horizontal trough generally rectangular in cross section, a spout portion extending outwardly and upwardly from one end of the trough and having its trough end fitting within and attached to the trough thereby forming a shoulder about the trough, said shoulder being adapted for abutting a tray placed in the trough containing articles to be packaged, a pusher element reciprocable along the trough for pushing the articles from the tray and along the spout into a bag, and the bottom wall of the said trough rearwardly of the tray being in the same plane as the bottom wall of the tray when it is placed in the trough.

5. In a device of the nature described; a horizontal trough generally rectangular in cross section, a spout portion extending outwardly and upwardly from one end of the trough and having its trough end fitting within and attached to the trough thereby forming a shoulder about the trough, said shoulder being adapted for abutting a tray placed in the trough containing articles to be packaged, a pusher element reciprocable along the trough for pushing the articles from the tray and along the spout into a bag, and the bottom wall of the said trough rearwardly of the tray being in the same plane as the bottom wall of the tray when it is placed in the trough, said spout portion being concave upwardly, and there being a member concave downwardly overlying a portion of said spout and pivoted to the adjacent end of the trough, said spout portion and member defining an inwardly tapering discharge channel, and also providing means adapted for being received in the mouth of a bag to receive the articles to be packaged.

6. In a device of the nature described; a horizontal trough having one end inclined upwardly and concave upwardly with the side walls of the said one end tapered downwardly to the extreme outer end, a member concave downwardly and overlying the rear portion of the said upwardly inclined one end of the trough and pivoted at its rear end to the side walls of the trough, a pusher element movable lengthwise of the trough from the other end thereof to push articles along the trough and between said member and the said upwardly inclined end of the trough into a bag, said trough intermediate its ends having a recess for receiving a tray holding the articles to be moved by said pusher element, said recess accommodating said tray so that the pusher element will not engage the tray during its reciprocating movements, one side wall of said trough being formed with an external incline so the said trays can be readily moved into the trough by a sliding motion.

7. In a device of the nature described; a horizontal trough having one end inclined upwardly and concave upwardly with the side walls of the said one end tapered downwardly to the extreme outer end, a member concave downwardly and overlying the rear portion of the said upwardly inclined one end of the trough and pivoted at its rear end to the side walls of the trough, a pusher element movable lengthwise of the trough from the other end thereof to push articles along the trough and between said member and the said upwardly inclined end of the trough into a bag, said trough intermediate its ends having a recess for receiving a tray holding the articles to be moved by said pusher element, said recess accommodating said tray so that the pusher element will not engage the tray during its reciprocating movements, a motor to reciprocate said pusher element, and a foot operated control device for controlling said motion.

8. In a device of the nature described; a trough, an upwardly concave spout portion at one end of the trough, a pusher element in the trough to push articles out the said one end of the trough, a downwardly concave member pivotally supported adjacent the said one end of the trough overlying the trough end of said spout portion, said member normally resting on said spout portion so a bag to receive the said articles can readily be slipped on the spout portion and member and pivoting upwardly as articles are pushed out of the trough by the pusher element to distend the bag to receive the articles, and a hold-down member pivoted to the pusher element to overly and hold down the articles being moved by the pusher element adapted for passing beneath said downwardly concave member, and means in the trough to receive and retain a tray containing articles to be packaged.

9. In a device of the nature described; a horizontal trough having one end inclined upwardly and concave upwardly with the side walls of the said one end tapered downwardly to the extreme outer end, a hold-down member concave downwardly and overlying the rear portion of the said upwardly inclined one end of the trough and pivoted at its rear end to the side walls of the trough, a pusher element movable lengthwise of the trough from the other end thereof to push articles along the trough and between said member and the said upwardly inclined end of the trough into a bag, said trough intermediate its ends having a recess for receiving a tray holding the articles to be moved by said pusher element,

said recess accommodating said tray so that the pusher element will not engage the tray during its reciprocating movements, one side wall of said trough being formed with an external incline so the said tray can readily be moved into the trough by a sliding motion, said hold-down member being downwardly concave and being adapted for sliding under the first said member when articles are pushed out of the trough by the pusher element.

10. A device according to claim 8 in which the said downwardly concave member is arranged for vertical adjustment at the point of pivotal

support thereof to accommodate the device to loads of different thickness that are to be inserted in a bag by the device.

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