

Sept. 28, 1965

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3,208,193

APPARATUS FOR MAKING A SEALED EVACUATED PACKAGE

Filed Dec. 7, 1961

4 Sheets-Sheet 1

FIG. 2

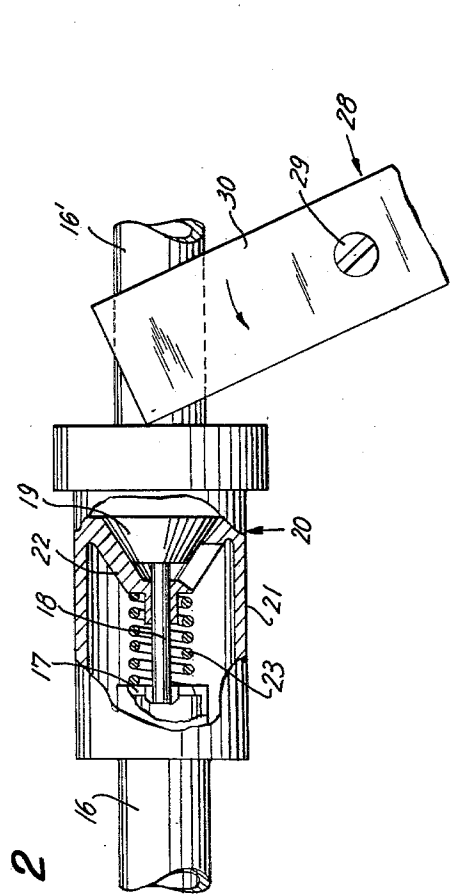
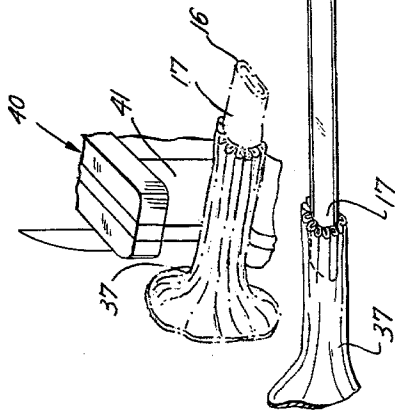


FIG. 1

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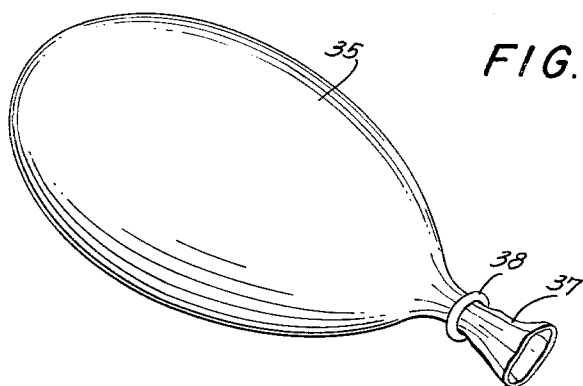


FIG. 3

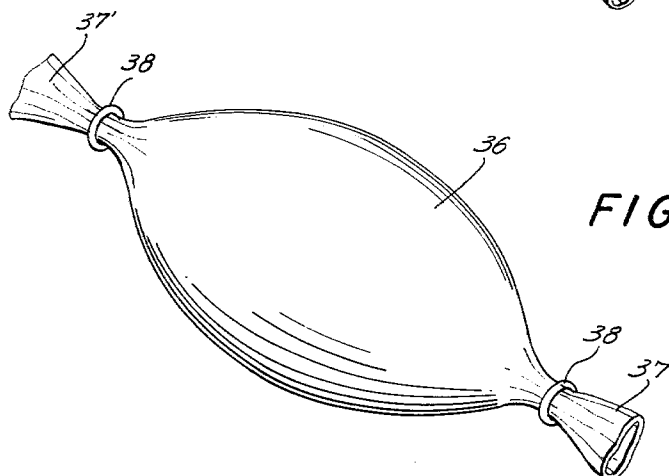


FIG. 4

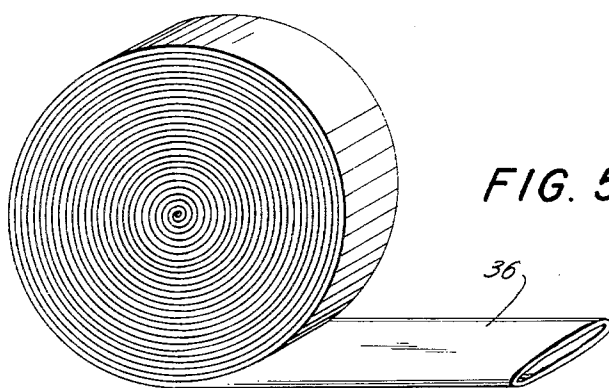


FIG. 5

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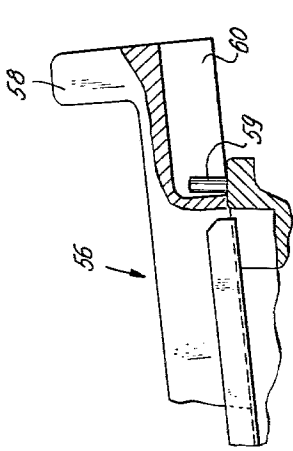


FIG. 8

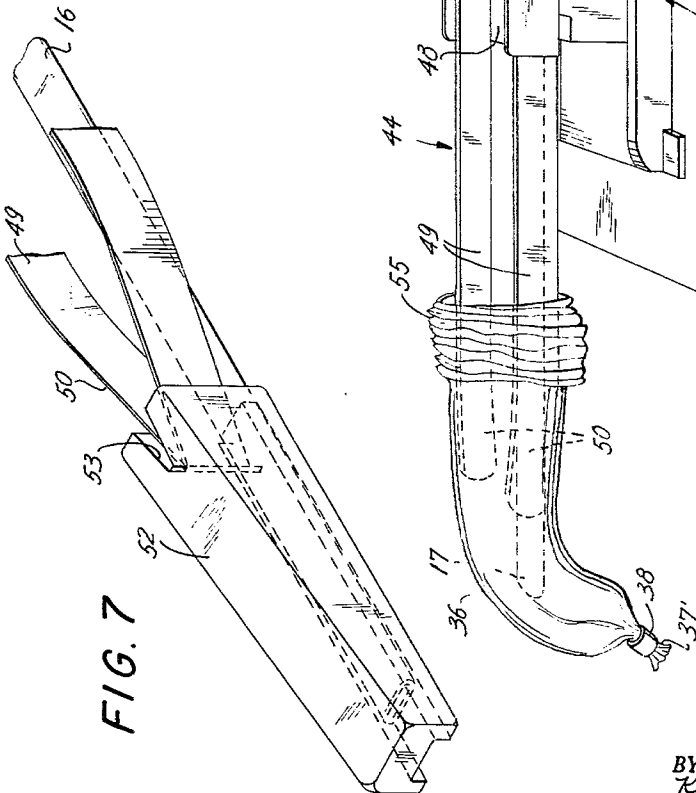


FIG. 7

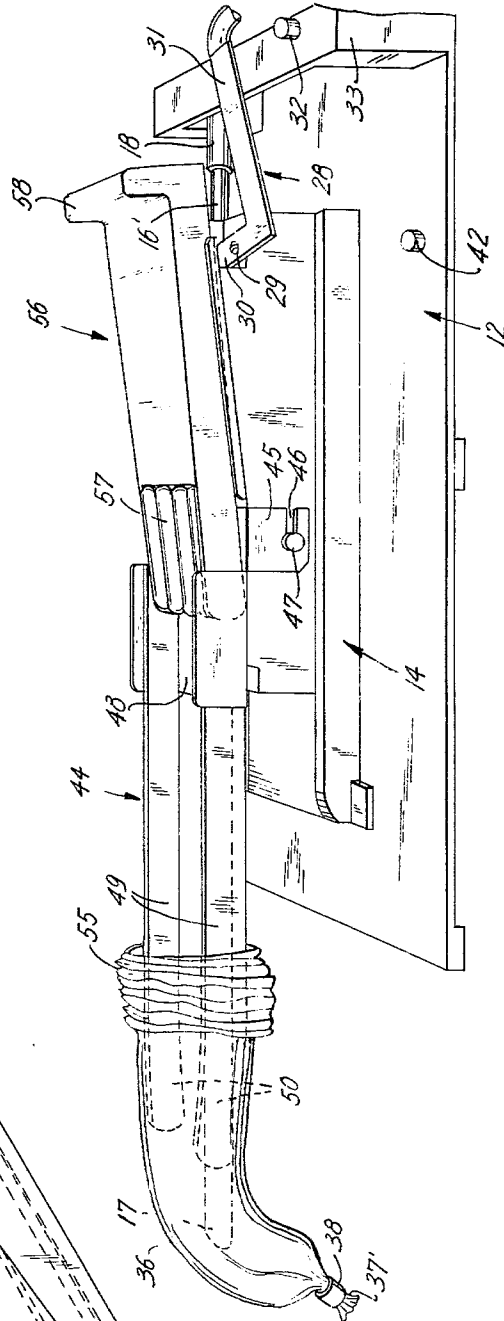


FIG. 6

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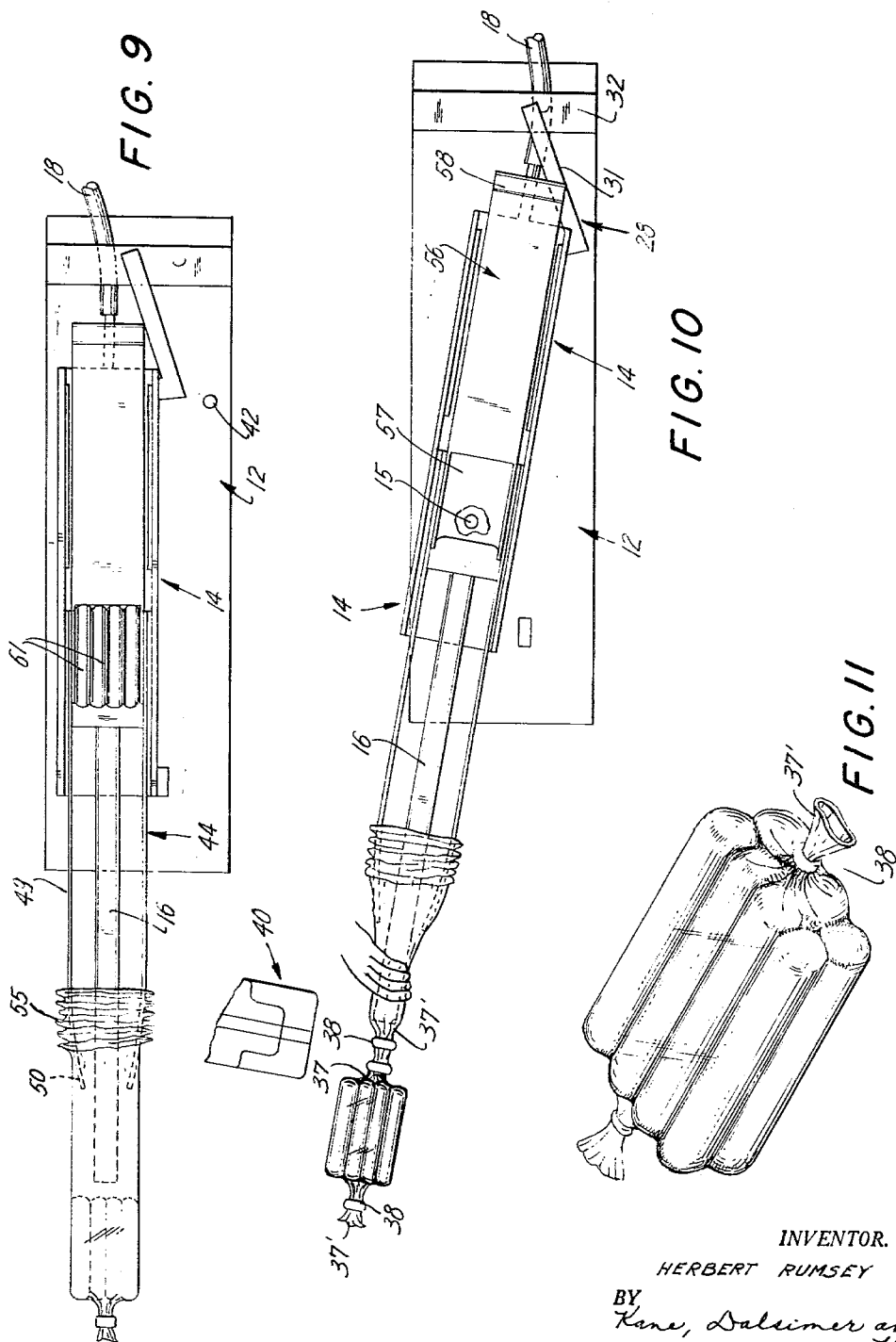
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4 Sheets-Sheet 4



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APPARATUS FOR MAKING A SEALED EVACUATED PACKAGE

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7 Claims. (Cl. 53—112)

This invention relates to an improved apparatus and method for making a sealed, evacuated package.

In the commercial packaging of many products, particularly food products, it is common practice to encase the package contents in a protective wrapping to at least partially evacuate the air from inside the wrapping and to then seal the wrapping. The apparatus and method presently employed for making such package present recognized difficulties and disadvantages.

Thus, in one type package a preformed envelope of plastic material is provided, the package contents are placed therein and the open end of the package is applied to a nozzle which serves to evacuate the package and also to twist the open end thereof. Thereafter, the twisted end of the envelope must be sealed by heat or some other means. Apparatus of this type is expensive and cumbersome and is relatively difficult and time consuming to use. In addition, preformed envelopes of this type are wasteful in that they are necessarily oversized for a large number of packages and also excess material is required for the purposes of drawing a vacuum.

It is an object of the present invention to overcome the difficulties and disadvantages heretofore encountered and to provide an improved apparatus and method for forming a package which is relatively simple and inexpensive in construction; and which can be used not only in wrapping packages in conventional, preformed envelopes or in sheet wrapping material but also for wrapping package contents in elongated, tubular wrapping material and thereafter cutting the tubular material to the length required by the package contents. By using tubular wrapping material, the waste of material resulting from using envelopes is eliminated since the tubular material can be cut to the exact package size after the package has been evacuated and sealed.

My invention contemplates the provision at one station of a package having an open-ended wrapper applied to the end of an evacuating tube. The package and the end of the evacuating tube are shifted towards a closing and sealing station and simultaneously air is evacuated from inside the package through the evacuating tube. At the sealing station the wrapper is closed and sealed at a point between the package contents and the end of the evacuating tube.

My invention also contemplates the provision of an improved method and apparatus for wrapping a package in flexible tubular wrapping material wherein a piece of tubular wrapping material of greater length than a plurality of packages is arranged in longitudinally crimped and transversely extended relationship. Thereafter, a package length of the tubular material is withdrawn and after the outer end thereof is sealed the package is formed by inserting the package contents through the longitudinally crimped transversely extended portion of the tubular wrapper and air is evacuated from inside the package. Thereafter, the wrapper is closed and sealed between the package contents and the longitudinally crimped transversely extended portion of the wrapper.

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To accomplish this result, I provide a stuffing horn in parallel relationship with an evacuating tube with the evacuating tube disposed in a plane between the sides of the stuffing horn and extending outwardly beyond the forward end thereof. The tubular wrapping material may be arranged in longitudinally crimped, transversely extended relationship over the stuffing horn and a package length is withdrawn forwardly beyond the forward end of the evacuating tube. After the package contents are inserted inside the package portion of the wrapper through the stuffing horn, the evacuating tube is used for evacuating air from inside the package. A control valve is provided for the evacuating tube whereby the connection between the evacuating tube and the source of vacuum is shut off at an initial station in which the wrapping material is arranged around the end of the evacuating tube and the valve is opened as the package and evacuating tube are shifted towards a second station in which the wrapper is closed and sealed.

In the accompanying drawings:

FIG. 1 is a perspective view of apparatus embodying my invention showing the basic apparatus for use in evacuating the package and which is shiftable between an initial station and a second wrapper closing and sealing station;

FIG. 2 is a detailed view, partially in section, showing the valve assembly for controlling the connection between the evacuating tube and the source of vacuum;

FIG. 3 is a perspective view of one type of package embodying my invention having a wrapper in the form of an envelope;

FIG. 4 is a perspective view of another form of package embodying my invention in which the wrapper is made from open-ended tubular wrapping material;

FIG. 5 is a perspective view of a roll of tubular wrapping material which may be used in carrying out my invention;

FIG. 6 is a perspective view of the apparatus shown in FIG. 1 having a stuffing horn and filling shuttle associated therewith;

FIG. 7 is a perspective view of a guide mechanism that may be used in association with the stuffing horn to facilitate the assembly of the tubular wrapper thereover;

FIG. 8 is a detailed view, partially in side elevation and partially in section, showing the interengagement between the filling shuttle and the remainder of the apparatus;

FIG. 9 is a top plan view of the apparatus shown in FIG. 6 illustrating it in its initial position;

FIG. 10 is a similar perspective view of the apparatus but showing it in a position midway between its initial position and its wrapper closing and sealing position; and

FIG. 11 is a perspective view of a package of frankfurts or sausage products made pursuant to my invention.

My apparatus may be used in evacuating, closing and sealing individual packages or it may be used for forming, filling, evacuating, closing and sealing successive packages. The apparatus shown in FIG. 1 is particularly suitable for evacuating, closing and sealing individual packages. The apparatus shown in FIGS. 6-10 is particularly suitable for forming, filling, evacuating, closing and sealing successive packages.

The basic apparatus shown in FIG. 1 and in FIGS. 6-10 is the same. Thus, the apparatus comprises a supporting structure or base member 12 having a carriage 14 pivotally mounted thereon as at 15 so that the carriage may

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shift between an initial station and a package closing and sealing station. Mounted on the carriage 14 and projecting outwardly beyond the forward end thereof is evacuating tube 16 having an open forward end 17 which is preferably transversely flattened or substantially rectangular so as to facilitate the sealing or gripping of the tubular wrapping material therearound. The opposite end of the evacuating tube is suitably connected as by flexible tubing 18 to a source of vacuum.

A valve assembly 20 is interposed in the evacuating tube 16 so as to open or close communication between the source of vacuum and the open end of the evacuating tube. The valve assembly is of the type in which the valve is normally closed. I have illustrated one type of valve assembly comprising a shiftable actuating sleeve 21 having a conical valve seat 22 mounted thereon. The valve sleeve 21 has sliding sealing engagement with evacuating tube 16 and the evacuating tube has a spider 17 formed at its inner end fixedly supporting the valve stem 18 which in turn has conical valve body 19 mounted thereon. Helical spring 23 extending between spider 17 and valve seat 22 normally urges the valve sleeve 21 towards the right, as viewed in the figures of the drawing so as to cause the valve seat and valve to be in engagement with each other. When the valve sleeve is shifted to the left, as viewed in the figures of the drawing, the valve is opened. The assembly is so arranged that when the carriage is in its initial position the valve is in its closed position and when the carriage is shifted away from its initial position or station towards the wrapper closing and sealing station the valve is caused to open so as to provide communication between the source of vacuum and the open end of the evacuating tube. In this connection, tube portion 16' has sealing engagement with the right hand end of the valve sleeve and is connected by flexible tube 18 to the source of vacuum (not shown).

Carriage 14 is provided with angularly disposed side walls 25 and evacuating tube 16 is mounted in a strap or bridge 26 extending between the forward ends of the side wall and tube section 16' is mounted in end wall 27 connecting the side walls 25.

Suitable valve operating mechanism is operatively connected between the carriage and the supporting base 12. Thus, I provide a lever 28 pivotally mounted on the carriage at 29 and having one arm 30 engageable with the end of the valve sleeve and another arm 31 engageable with a fixed pin or stop 32 mounted on the upwardly extending bracket 33 on the base 12.

When the carriage is arranged parallel with the base with the evacuating tube projecting forwardly from the front edge thereof, the operating lever 28 does not exert any force on the valve and the valve remains in closed position. However, when the carriage is pivoted in a clockwise direction towards the closing and sealing station, as indicated in FIG. 10, then the arm 31 of the lever is engaged against the stop 32 and the arm 30 is caused to exert a force against the valve sleeve in the direction of the arrow shown in FIG. 2 so as to cause the sleeve to shift to the left and open the valve.

The basic apparatus as thus described is particularly suitable for evacuating, closing and sealing individual packages of the type shown in FIG. 3. The package in FIG. 3 is encased in an envelope 35. The basic apparatus may also be used in forming a package of the type shown in FIG. 4 which is encased in a tubular wrapper 36.

The envelope shown at 35 normally has one end 37 through which the package contents are inserted. Thereafter, the package is evacuated through the open end 37 and the open end is then sealed in some suitable fashion, as for instance by applying a metal staple or sealing ring 38 tightly therearound. The open end may, of course, be sealed in some other suitable fashion, as for instance by heat sealing. In the form of package shown in FIG. 4, the tubular wrapping material 36 is originally

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open at both ends 37 and 37'. The end 37' is first suitably closed and sealed, as by a staple or sealing ring 38 or some other suitable means. The package contents are then placed inside of the wrapper, the package is then evacuated through open end 37 and the open end is then closed and sealed, as by staple or sealing ring 38.

In either form of package the wrapper is preferably made of a suitable thermoplastic sheet wrapping material of the type which shrinks when subjected to an elevated temperature lower than its fusing or melting point. For this purpose I may employ tensilized polyvinyl-chloride or the copolymers thereof, tensilized rubber hydrochloride or tensilized polyethylene.

The tubular wrapping material may be provided in roll form, as illustrated in FIG. 5, and the desired length of wrapper can be withdrawn from the roll and severed.

In using the basic form of apparatus, the package contents are placed in the envelope 35 or are placed in the cut length of tubular wrapping material 36 having the one end 37' closed and sealed as by the staple or sealing ring 38. The open end of the wrapper 37 is then assembled around the open end 17 of the evacuating tube 16 and is tightly held around the open end to minimize or prevent leakage at that point. The package evacuating assembly is in its initial position when the open end of the package is thus assembled around the open end of the evacuating tube, as shown in the complete view in the lower portion of FIG. 1.

Thereafter, the package and the package evacuating assembly are shifted from the initial position towards the package closing and sealing position forming the second station in the operation of the apparatus. As the assembly is shifted, the valve operating lever engages the fixed member 32 causing the valve sleeve to be shifted to the left, as shown in FIG. 2, with the result that the valve is opened and communication is provided between the source of vacuum and the open end of the evacuating tube. As indicated above, the open end 37 of the wrapper is tightly gripped by the operator around the end 17 of the evacuating tube in order to prevent leakage at this point. Thus, air from inside the package is evacuated through the evacuating tube.

Suitable wrapper closing and sealing apparatus 40 is provided at the wrapper closing and sealing station. The particular form of wrapper closing and sealing apparatus forms no part of the present invention. Any suitable bag closing and sealing apparatus may be employed, as for instance the Amfast Model #100-A bag and casing fastener made by the American Fastener Corporation of Manasquan, New Jersey. This apparatus is fully described in the operating instructions for the Amfast Model #100-A published January 1961. Apparatus of this type applies a suitable sealing staple, ring or clip 38 around the gathered open end of a wrapper. In FIGS. 1 and 10 I have simply shown the portion 41 of the apparatus which serves to gather the open end of the wrapper and apply the clip staple or sealing ring therearound.

When the evacuating assembly and package are shifted to the wrapper closing and sealing station, the projecting end of the wrapper is inserted into the portion 41 of the wrapper closing and sealing apparatus and the staple is applied therearound. A suitable stop 42 is preferably provided on base 12 so as to engage the carriage 14 when the evacuating assembly has been shifted to the package closing and sealing station.

When my apparatus is employed for wrapping packages in a wrapper made of tubular material open at both ends, as shown at 36, I may employ a stuffing horn in association therewith so that a protracted length of tubular wrapping material may be assembled thereon in longitudinally shirred and transversely extended relationship. In this fashion, a package length of the tubular wrapping material may be withdrawn from the end of the assembly, the outer end thereof closed and sealed and the package contents can then be inserted inside the wrapper through

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the longitudinally shirred, transversely extended portion thereof. Thus, in FIGS. 6-10 I have shown a stuffing horn 44 mounted parallel with evacuating tube 16 so that the evacuating tube is disposed in a plane intermediate the sides of the stuffing horn and projects longitudinally beyond the outer end thereof.

The stuffing horn rests on the evacuating assembly and is held in place thereon by means of a base plate 48 and a pair of flanges 45 extending downwardly and having longitudinal slots 46 formed therein which engage with the pins 47 projecting outwardly from opposite sides of the evacuating assembly. Flexible side walls 49 are also provided along the two sides of the stuffing horn and the flexible side walls preferably bow inwardly to a slight degree at the forward end of the stuffing horn, as shown at 50. The stuffing horn is of sufficient length to hold in longitudinally crimped relationship a strip of tubular wrapping material of greater length than a plurality of packages, as shown in FIGS. 6, 9 and 10.

To facilitate the assembly of the tubular wrapping material around the stuffing horn, I preferably provide a guide block 52 of tapered construction, as shown in FIG. 7, and having a tapered wedge shaped notch 53 extending inwardly from the rear face thereof. The flexible forward ends 50 of the side walls 49 of the stuffing horn are inserted in the notch 53 prior to assembly of the tubular wrapping material thereon. A strip of tubular wrapping material of suitable length can then be drawn over the guide block 52 and assembled around the stuffing horn 44 in longitudinally crimped, transversely extended relationship. Thereafter, the guide block is removed from the end of the stuffing horn.

In forming a package when the stuffing horn is assembled with the apparatus, the package forming and evacuating assembly is shifted to its initial station so that the valve connecting the evacuating tube with the source of vacuum is closed. A package length of tubular wrapping material is then withdrawn from the outer end of the stuffing horn and the open outer end of the wrapping material is suitably closed and sealed, as by a staple, clip or sealing ring 38. The package contents can then be inserted into the portion of the wrapper which has been thus withdrawn through the longitudinally shirred, transversely extended portion thereof shown at 55 in FIGS. 6, 9 and 10.

After the package contents have thus been inserted, the wrapper 36 is tightly gripped by the operator around the evacuating tube as shown in FIG. 10 to prevent leakage and the package forming and evacuating assembly is then shifted from its initial station towards the package closing and sealing station with the result that valve operating lever 28 causes the valve to open and the package is evacuated by means of evacuating tube 16.

When the assembly is shifted to its second station, then the wrapping material is closed and sealed at a point between the package contents and the open end 17 of the evacuating tube. In this connection, it should be noted that while the closing and sealing take place, the operator continues to grip the wrapper around the tube 16 and the evacuating tube continues to suck air from inside the wrapper so as to prevent any leakage of air into the package during the closing and sealing operation.

After the package has thus been closed and sealed, the wrapper can be severed between the sealed portion thereof and the evacuating tube. Preferably, however, I withdraw a short additional length of wrapping material from the end of the stuffing horn and apply a second package closing and sealing staple, clip or ring 38 therearound so as to form the terminal end 37' of the next succeeding package. The wrapper can then be severed between the two sealed portions so as to separate the package from the remainder of the strip of tubular wrapping material.

To aid in inserting the package contents inside the tubular wrapper through the longitudinally shirred, transversely extended portion thereof, I preferably provide a suit-

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able shuttle or shoe 56 which slides between the side walls of the stuffing horn along the upper surface of the evacuating tube so as to transport the package contents from a position outside the wrapper to a position inside the longitudinally withdrawn portion of the wrapper. The forward portion of the shuttle is recessed as at 57 so that the package contents can be placed therein while the shuttle is outside the wrapper. A handle portion 58, by which the shuttle may be shifted back and forth along the stuffing horn, projects upwardly at the rear portion of the shuttle. A suitable stop 59 projects upwardly from the package evacuating assembly, as shown in FIG. 8, and engages with a recess formed on the undersurface of the rear portion of the shuttle so as to limit the outward shifting thereof when the shuttle is withdrawn from inside the tubular wrapper.

In FIGS. 6, 9 and 10 I have illustrated the successive steps in using my improved package forming and evacuating apparatus having the stuffing horn assembled therewith. Thus, it will be seen that in FIG. 6 the strip of tubular wrapping material has been accumulated in longitudinally shirred and transversely extended fashion around the stuffing horn, as shown at 55, and a package length has been withdrawn from the outer end thereof with the terminal end 37' closed and sealed by a suitable clip, staple or sealing ring 38.

My improved apparatus is suitable for the packaging of many different types of products, such as food products, and is particularly suitable for the packaging of meat products. In FIGS. 3 and 4 I have shown rounded cylindrical types of packages suitable for packaging pork butts, meat loaf and various bologna type products. In FIGS. 6-11 I have illustrated the packaging of sausage products, particularly frankfurts.

Thus, it will be seen that a number of frankfurts are placed in the recess 57 of shuttle 56. The shuttle 56 is then shifted to the left, as viewed in FIGS. 6, 9 and 10, until the frankfurts are in the package length portion of the wrapper which has been withdrawn from the stuffing horn. The operator engages the frankfurts with his fingers from the exterior of the wrapper and the shuttle is withdrawn with the result that the frankfurts are retained within the package, as shown in FIG. 9.

The operator grips the tubular wrapper around the end of evacuating tube 16 and the assembly is then shifted from its initial station in which the vacuum valve is closed towards the package closing and sealing station with the result that the valve operating lever 28 causes the valve to open and the inside of the package portion of the wrapper is evacuated through the evacuating tube 16. Finally, the package and assembly are shifted to the package closing and sealing station. The portion of the wrapper between the package contents and the end 17 of the evacuating tube is then closed and sealed, as by applying a staple, clip or sealing ring therearound by suitable apparatus such as shown at 40. As previously pointed out, the operator continues to grip the wrapper and tube 16 continues to evacuate the interior of the wrapper as the wrapper is being closed and sealed with the result that there can be no leakage back into the package. Immediately thereafter, as shown in FIG. 10, a second sealing clip, staple or ring can be applied around the wrapper a spaced distance from the first sealing ring so as to form the terminal portion 37' of the next succeeding package. Thereafter, the wrapper can be severed between the two sealing rings 38 so as to provide a separate package.

Thereafter, the process of forming evacuating, closing and sealing the packages is repeated until the entire strip of tubular wrapping material assembled around the stuffing horn has been utilized. At this point, the guide block 52 can again be applied to the flexible ends 50 of the sides 49 of the stuffing horn and a new strip of tubular wrapping material can be assembled around the stuffing

horn in longitudinally crimped, transversely extended relationship.

In FIG. 11 I have shown a completed frankfurt package made in accordance with the successive steps shown in FIGS. 6-10. In each of the packages shown in FIGS. 3, 4 and 11 as a final step I preferably heat shrink the wrapping material around the package so as to substantially eliminate all wrinkles in the wrapping material and cause it to stretch tightly around the package contents. Thus, the finished package presents an attractive appearance suitably displaying the package contents there-through.

The heat shrinking may be accomplished by immersing the package in a heated liquid, such as hot water, at a temperature of approximately between 180° and 212° F. or by spraying hot water over the package or by directing heated air of the same temperature over the wrapper.

It will thus be seen that I have provided an improved apparatus and method for forming, evacuating and sealing a package. It will also be seen that my apparatus is of relatively inexpensive construction and that the apparatus and method are relatively simple to employ to produce a package providing adequate protection to the contents and presenting an attractive appearance.

Modifications may be made in the illustrated and described embodiment of the invention without departing from the invention as set forth in the accompanying claims.

I claim:

1. Packaging apparatus for use in making a package having a flexible wrapper which is at least partially evacuated and sealed comprising: a supporting structure; a package evacuating assembly including an evacuating tube having an open end arranged so that the wrapper of a package to be evacuated can be assembled therearound and having means for connecting the other end of the tube to a vacuum source; vertically disposed pivotal mounting means for mounting the package evacuating assembly on the supporting structure so that it is shiftable relative thereto in a horizontal plane between a first position in which the package is arranged adjacent the open end of the tube with the wrapper assembled around the package and the open end of the tube and a second position spaced from the first position in which the portion of the wrapper between the package and the end of the tube is sealed; valve mechanism connected to said package evacuating tube and shiftable between open position providing communication with the vacuum source and closed position closing communication with the vacuum source, said valve means being provided with spring means normally holding it in closed position; and valve operating means engaging the valve to cause the operation thereof and having interengagement with the supporting structure and the package evacuating assembly to cause the valve to remain closed when the package evacuating assembly is in said first position and to cause said valve to open when the package evacuating assembly is shifted towards said second position, said valve operating means including a lever pivoted on said package evacuating assembly and having a first arm engageable with the valve and a second arm engageable with a fixed portion of the supporting structure.

2. Packaging apparatus for use in making a package having a flexible wrapper which is at least partially evacuated and sealed comprising: a supporting structure; a package forming and evacuating assembly including an evacuating tube having an open end arranged so that the wrapper of a package to be evacuated can be assembled therearound and having means for connecting the other end of the tube to a vacuum source and also including a stuffing horn parallel to said evacuating tube to hold the wrapping material in transversely extended relation so that the package contents may be inserted into the wrapper; mounting means for mounting the package evacuating assembly on the supporting structure so that

it is shiftable relative thereto between a first position in which the package is arranged adjacent the open end of the tube with the wrapper assembled around the package and the open end of the tube and a second position spaced from the first position in which the portion of the wrapper between the package and the end of the tube is sealed; valve mechanism connected to said package evacuating tube and shiftable between open position providing communication with the vacuum source and closed position closing communication with the vacuum source; and valve operating means operatively connected to said valve to cause it to remain closed when the package forming and evacuating assembly is in said first position and to cause it to open when the package forming and evacuating assembly is shifted towards said second position.

3. Packaging apparatus for use in making a package having a flexible wrapper which is at least partially evacuated and sealed as set forth in claim 2 in which the stuffing horn is of sufficient length to retain thereon in crimped form tubular wrapping material of sufficient length to form a plurality of packages and in which the evacuating tube is positioned intermediate the two side edges of the stuffing horn and projects forwardly beyond the forward end thereof so that wrapping material projecting forwardly beyond the forward end of the stuffing horn and tube can be tightly gripped around the tube to facilitate the evacuation thereof.

4. Packaging apparatus for use in making a package having a flexible wrapper which is at least partially evacuated and sealed as set forth in claim 3 in which the side edges of the forward portion of the stuffing horn are flexible so that they can be flexed inwardly to facilitate the assembly of tubular wrapping material therearound.

5. Packaging apparatus for use in making a package having a flexible wrapper which is at least partially evacuated and sealed comprising: a supporting structure; a package forming and evacuating assembly including an evacuating tube having an open end arranged so that the wrapper of a package to be evacuated can be assembled therearound and also including a stuffing horn parallel to said evacuating tube of sufficient length to retain tubular wrapping material thereon in crimped form of sufficient length to form a plurality of packages and of sufficient width to hold said tubular wrapping material in transversely extended relation so that package contents may be inserted in the wrapper said evacuating tube being positioned in a plane between the side edges of the stuffing horn and the open end thereof projecting beyond the forward end of the stuffing horn and the forward end of the side edges of the stuffing horn being flexible so that they can be flexed inwardly to facilitate the assembly of the tubular wrapping material therearound; mounting means for mounting the package forming and evacuating assembly on the supporting structure so that it is shiftable relative thereto between a first position in which the package is arranged adjacent the open end of the tube with the wrapper assembled around the package and the open end of the tube and extending over the stuffing horn and a second position spaced from the first position in which the portion of the wrapper between the package and the end of the tube is sealed; a wrapper sealing station positioned a short distance from the open end of the tube when it is in said second position; valve mechanism connected to said package evacuating tube and shiftable between open position providing communication with the vacuum source and closed position closing communication with the vacuum source; and valve operating means engaging the valve to cause the operation thereof and having interengagement with the supporting structure and the package forming and evacuating assembly to cause the valve to remain closed when the package evacuating assembly is in said first position and to cause the valve to open when the package evacuating assembly is shifted towards said second position.

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6. Packaging apparatus for use in making a package having a flexible wrapper which is at least partially evacuated and sealed as set forth in claim 5 in which a shuttle is provided for said stuffing horn so as to shift longitudinally thereof to transfer package contents to a position inside a tubular wrapper assembled around the stuffing horn.

7. Packaging apparatus for use in making a package having a flexible wrapper which is at least partially evacuated and sealed as set forth in claim 5 in which a releasable guide member is provided for retaining the forward end of the flexible side edges of the stuffing horn in inwardly flexed relationship to facilitate the assembly of a tubular wrapper therearound.

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References Cited by the Examiner

UNITED STATES PATENTS

2,292,295	8/42	Royal	53—22
2,838,894	6/58	Paikens et al.	53—112 X
2,889,673	6/59	Rockland et al.	53—112
2,916,059	12/59	Wong	53—112 X
2,934,865	5/60	Pfeiffer	53—22
3,046,713	7/62	Belknap	53—112

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