Feb. 18, 1947. J. G. VERGOBBI 2,415,978

PACKAGING MACHINE

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Fig. 1

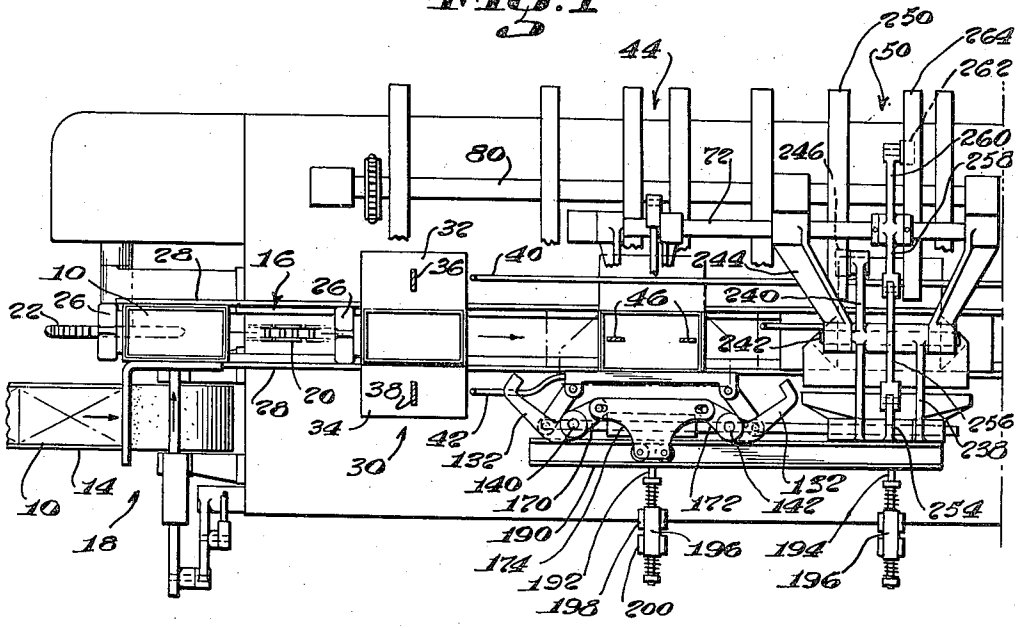
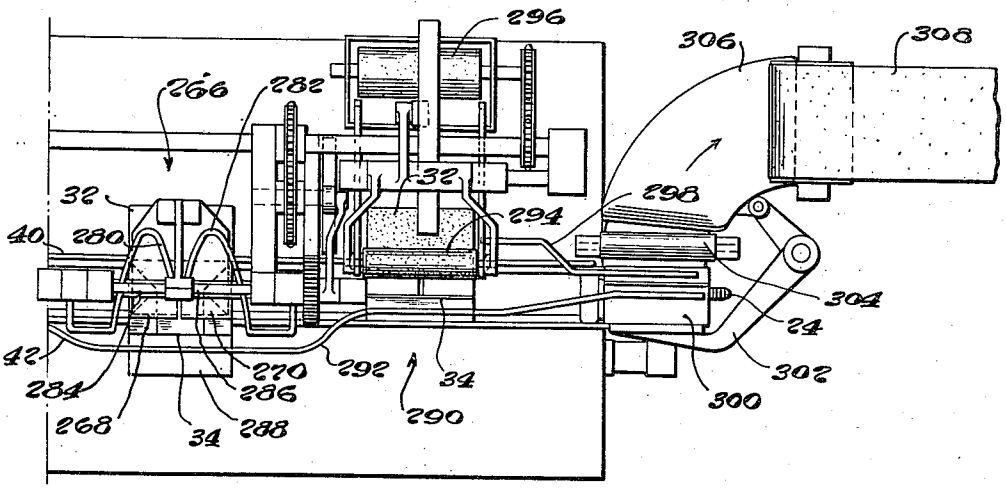


Fig. 2



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PACKAGING MACHINE

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Fig. 3

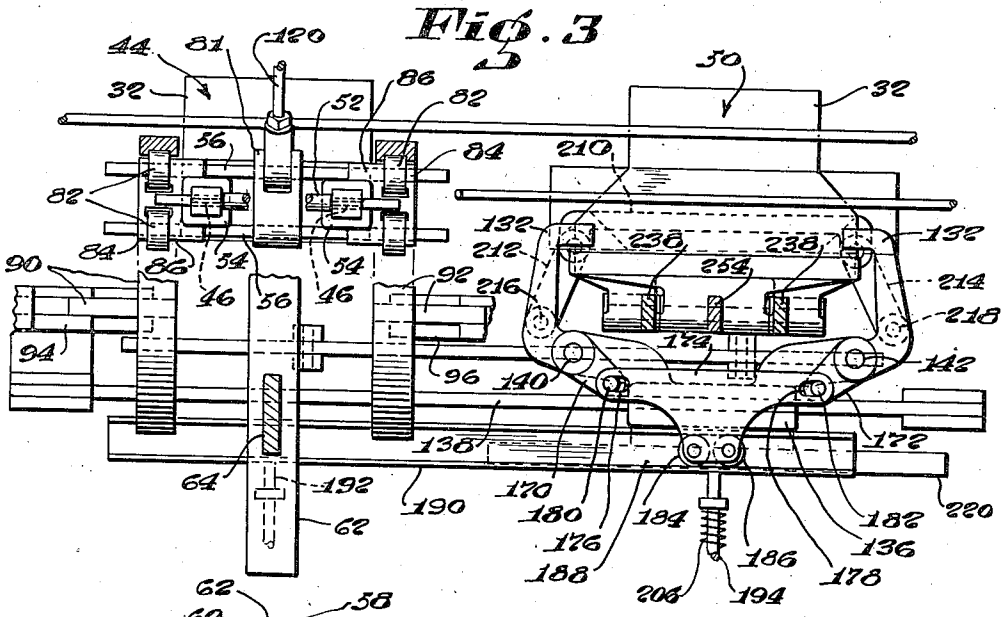
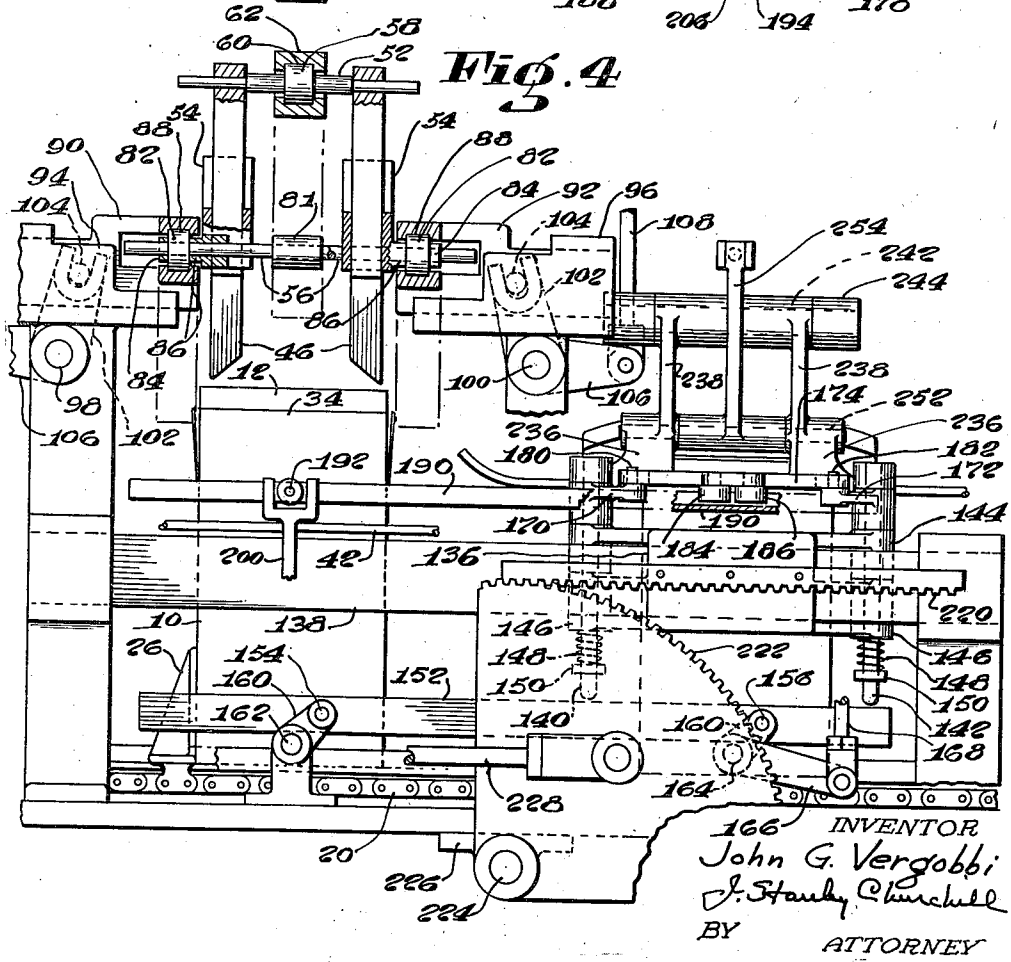


Fig. 4



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PACKAGING MACHINE

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Fig. 5

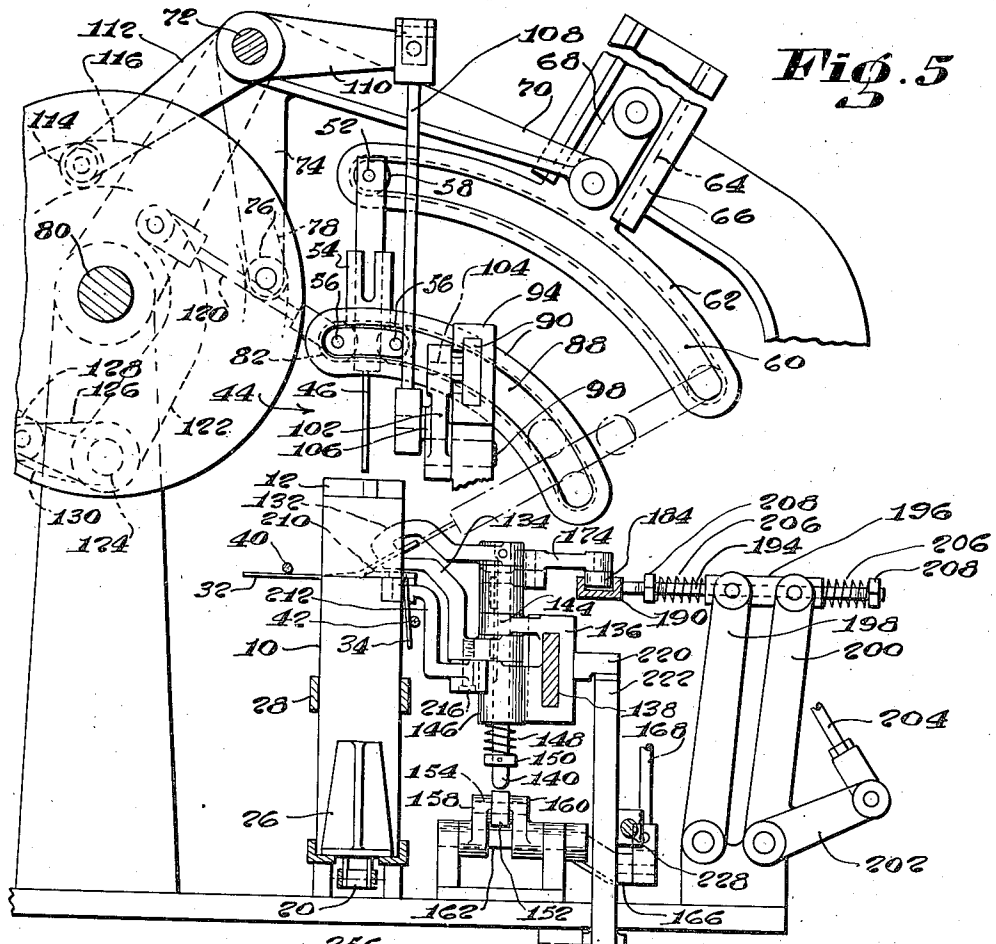
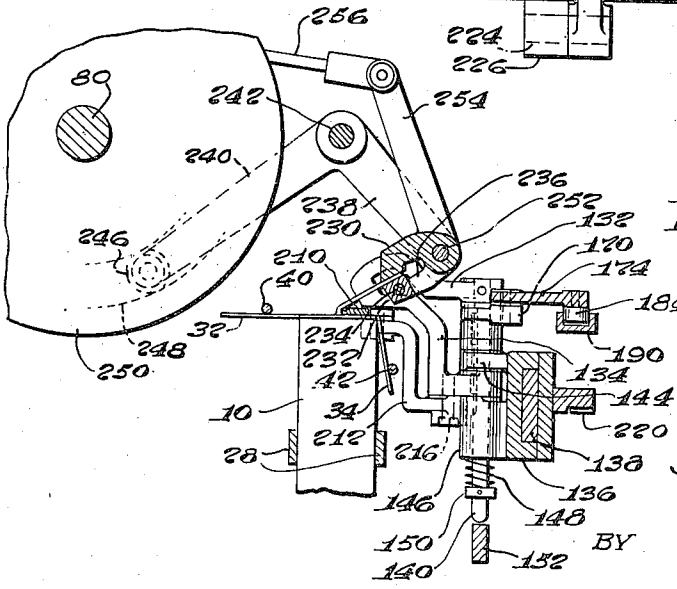


Fig. 6



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PACKAGING MACHINE

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Fig. 7

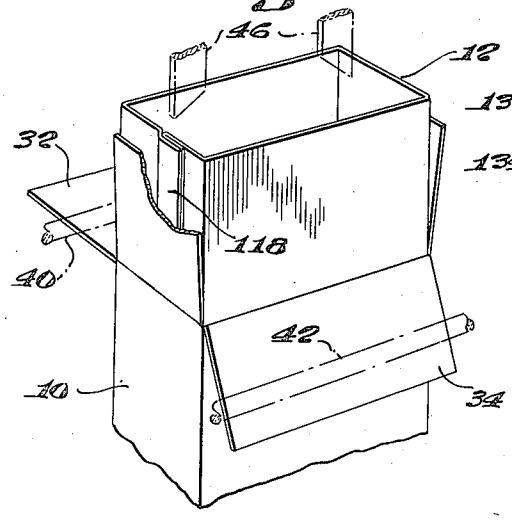
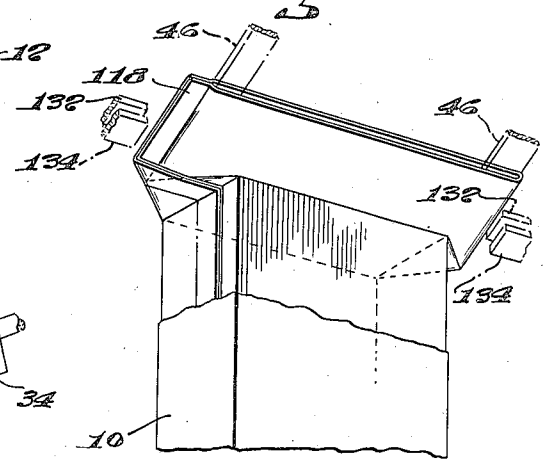


Fig. 8



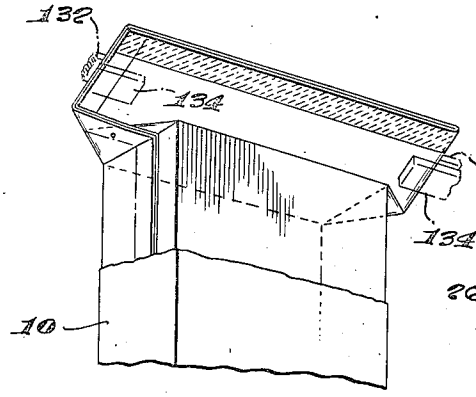


Fig. 9

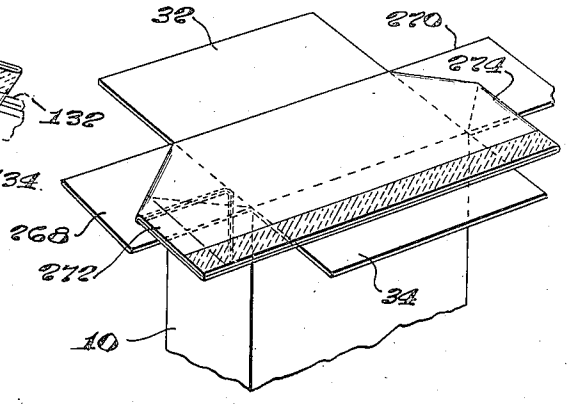


Fig. 10

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2,415,978

UNITED STATES PATENT OFFICE

2,415,978

PACKAGING MACHINE

John G. Vergobbi, Quincy, Mass., assignor to Pneumatic Scale Corporation, Limited, Quincy, Mass., a corporation of Massachusetts

Application December 2, 1943, Serial No. 512,579

17 Claims. (Cl. 93—6)

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This invention relates to a packaging machine and particularly to a machine for forming a closure for the mouth of a container to provide a substantially hermetically sealed container.

The invention has for an object to provide a novel and improved packaging machine of the character specified having provision for forming an elongated fold in the mouth of a container in a novel and superior manner designed to minimize leakage in the heat sealed closure.

Another object of the invention is to provide a novel and improved packaging machine of the character specified for closing and sealing a package comprising a carton embodying an inner container or liner and in which provision is made for closing the mouth of the liner to provide an hermetic seal in a novel manner and for thereafter closing the top flaps of the carton to complete the package.

With these general objects in view and such others as may hereinafter appear, the invention consists in the packaging machine and in the various structures, arrangements and combinations of parts hereinafter described and particularly defined in the claims at the end of this specification.

In the drawings illustrating the preferred embodiment of the invention, Fig. 1 is a plan view of the receiving end of a packaging machine embodying the present invention; Fig. 2 is a continuation of Fig. 1 showing a plan view of the discharging end of the machine; Fig. 3 is an enlarged plan view of the closure forming and heat sealing mechanism, some of the parts being broken away and shown in cross section for clearness of illustration; Fig. 4 is a front elevation of the mechanisms shown in Fig. 3; Fig. 5 is an end view of the closure forming and supporting mechanism; Fig. 6 is a cross sectional side elevation of the heat sealing mechanism; and Figs. 7, 8, 9 and 10 are perspective views of a carton having an inner liner illustrating the manner in which the mouth of the liner is closed and heat sealed in the present apparatus.

In general, the present invention contemplates a novel and improved packaging machine having provision for sealing the mouth of a container and is particularly designed for sealing the mouth portion of a carton lining bag of the so-called "fin" seal type formed by folding a single sheet of bag forming material once upon itself and sealing the adjacent inner faces along the bottom and side marginal edges. The flat open mouth bag thus prepared is then shaped into rectangular form and inserted in a carton which, upon

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being filled with the material being packaged, is fed into the present machine to be closed and sealed. The lining bag preferably comprises an air-tight, non-porous heat sealable material such as "Pliofilm," adjacent faces of which are capable of being joined together by the application of heat and pressure to provide a fluid-tight container.

The top closure for the extended mouth of the lining bag is preferably formed by spreading apart the opposing end walls of the mouth portion to bring together the remaining opposing walls thus forming an elongated mouth portion which may be heat sealed to seal the lining bag.

One of the difficulties encountered in sealing the mouth of a lining bag of the character specified has been due to slight variations in the thickness and evenness of opposing walls of the mouth portion, causing wrinkling which resulted in the formation of minute channels between adjacent faces of the completed seal, thus destroying its value as a fluid-tight seal. This condition has been further aggravated by the projecting seam portion adjacent one side of the mouth which tended to curl over during formation of the elongated closure.

In order to overcome these difficulties provision is made in the present packaging machine for moving the elongated mouth portion to an angular position with relation to the top of the bag and in a direction such as to accommodate the natural bend of the projecting seam portion so that the latter may be aligned with the remainder of the mouth. Provision is then made for grasping the ends of the elongated closure and stretching the closure to even out any wrinkles prior to the application of heat and pressure thus enabling a smooth and a complete seal to be obtained to provide an hermetically sealed container which, among other uses, may be used with advantage in the packaging of dehydrated foods.

Referring now to the drawings, as illustrated in Fig. 1, the filled cartons 10 with their lining bags 12 having their mouth portions extending above the top score lines of the cartons are arranged to be successively transferred from a delivery conveyer 14 onto an intermittently operated conveyer 16 by known pusher mechanism indicated generally at 18. The intermittently operated conveyer as herein shown comprises a chain 20 running over sprockets 22, 24 and which is provided with a plurality of carrier arms 26 arranged to engage and advance successive cartons between guide rails 28 to the various operating stations for closing and sealing the con-

tainer. The chain 20 may be driven through any usual or preferred mechanism, not shown, for effecting intermittent movement of the conveyer. The pusher mechanism 18 may and preferably will be operated in timed relation to the intermittently movable conveyer 16 to present a carton in the path of each successive carrier arm 26.

The first station of operation, indicated generally at 30, Fig. 1, comprises a flap spreading station, at which the upstanding side flaps 32, 34 of the carton are moved to a substantially horizontal position by spreader arms 36, 38 in a known manner to present the side flaps in a position to be received under stationary flap retaining rods 40, 42 upon movement of the carton to the next station of operation. Thus the side flaps are moved out of the way during the closure forming and sealing operations, the front rod 42 being shaped to move the flap 34 down substantially 180° from its upstanding position, as best shown in Figs. 5 and 6.

Referring now to Figs. 3, 4 and 5 the mechanism for spreading the mouth of the lining bag, indicated generally at 44, Fig. 1, includes a pair of blades 46 arranged to be lowered in a vertical position into the mouth of the lining bag, then spread apart laterally to form an elongated mouth portion, and then rocked forward bodily to present the elongated mouth portion in an angular position where the ends of the elongated mouth are grasped by a laterally movable gripper mechanism indicated generally at 48. The latter mechanism, as will be hereinafter more fully described, is arranged to be reciprocated bodily between station 44 where the elongated mouth is formed, and the heat sealing station, indicated generally at 50, and serves to support the mouth portion in operative position to be heat sealed.

As herein shown, the mouth spreading blades 46 are pivotally supported at their upper ends upon either end of a shouldered stud 52 upon which the blades are mounted for lateral movement, see Fig. 4, and the blades are longitudinally supported in slide bearings 54 which are mounted for lateral movement upon horizontally extended parallel rods 56. The stud 52 is supported in a roller bearing 58 arranged to run in an arcuate path 60 formed in a centrally disposed guide member 62 which is arranged to be raised and lowered to effect reciprocation of the blades 46 in the slide bearings 54. The arcuate guide member 62 is provided with an extension 64 received in a slide bracket 66 attached to the machine frame, and as best shown in Fig. 5, the member 62 is arranged to be reciprocated in the slide bracket 66 through connections including a link 68 connected to one arm 70 of a bell crank pivotally mounted on a shaft 72, and a second arm 74 of the bell crank which carries a roller 76 arranged to run in a cam path 78 of a cam fast on the cam shaft 80. The arcuate path 60 is provided to permit the blades to be rocked forwardly as will be hereinafter described.

The slide bearings 54 are arranged to be moved apart laterally upon the parallel rods 56 in order to spread the mouth of the liner, and as herein shown, the rods 56 are held fast in a centrally disposed tie piece 81. Each rod has slidingly mounted thereon at either end, a pair of rollers 82 which are interposed between bearing portions 84, 86 of the slide members 54. The rollers 82 are received in arcuate paths 88 of horizontally reciprocal carriers 90, 92 as best shown in Figs. 3 and 4 so that, in operation, upon lateral movement of the carriers 90, 92 the slide members 54 will be reciprocated on the rods 56. As herein shown, the carriers 90, 92 are arranged to be horizontally reciprocated in bearing brackets 94, 96 respectively, attached to the machine frame. Each carrier 90, 92 is reciprocated through connections including bell cranks pivotally mounted upon studs 98, 100 supported in the brackets 94, 96 respectively. One arm 102 of each bell crank is provided with a slotted end arranged to embrace a pin 104 extending from each carrier 90, 92. The second arm 106 of each bell crank is connected by a link 108 to arms 110 fast upon the rocker shaft 72. A cam lever 112, also fast on the rocker shaft 72 carries a roller 114 arranged to run in a cam path 116 formed in a cam fast upon the cam shaft 80.

From the description thus far it will be observed that in the operation of the machine, when a carton with its extended liner is brought into operative position to the mouth spreading station 55, the blades 46 may be lowered into the mouth portion by the descent of the guide member 62 and that after the blades have been thus lowered the slide members 54 are spread apart laterally through the connections described to form an elongated mouth portion in the extended liner. With the elongated mouth portion extended in its vertical position, the projecting side seam 118 of the liner, see Figs. 7 and 8, tends to curl over at right angles to the elongated mouth portion thus making it impractical to seal the closure in this position since the distorted portion of the side seam interferes with obtaining a tight seal in the adjacent walls of the mouth portion of the liner.

In order to overcome this difficulty provision is made for rocking the blade unit bodily forward to present the mouth portion in an angular position as shown in Fig. 8 in the direction to release the tension in the side seam. As illustrated in Figs. 3, 4 and 5, the blade unit 46 is arranged to be rocked through the arc defined by the guideways 60, 88 by connections to the tie piece 81 including a link 120 connected to one arm 122 of a cam lever pivoted at 124, and a second arm 126 of the cam lever which carries a cam roll 128 arranged to cooperate with the cam path 130 as illustrated in Fig. 5.

Thus, in operation, when the blades 46 have been moved to elongate the mouth of the closure, the mechanism above described operates to push the blade unit forward, the rollers 58, 82 being guided in their respective paths 60, 88 to rock the blades from a vertical position to the angular position shown in dotted lines in Fig. 5. It will be observed that the spaced rollers 82 running in the arcuate track 88 operate to support and guide the blade unit in a radial position with relation to the elongated mouth portion.

While the elongated mouth portion is held in this position provision is made for grasping the side edges of the elongated mouth in order to stretch the latter to its fullest extent thereby removing any wrinkles or unevenness between the walls of the mouth portion and to thus assure a completely wrinkle free seal. As herein shown, the gripper mechanism 48 comprises a pair of grippers including an upper gripper arm 132 and a lower gripper arm 134 carried at each end of a horizontally reciprocal bracket 136 slidingly mounted upon a cross bar 138 attached to the machine frame, see Fig. 4.

The gripper arms 132, 134 are secured to vertical rocker shafts 140, 142 journaled in bearings

144, 146 in the slide bracket 136. The upper arm 132 of each pair of grippers is arranged to be raised and lowered with respect to the lower gripper 134 and, as herein shown, the upper arms are pinned to the upper ends of the vertical shafts which latter are arranged to be vertically reciprocated in their bearings 144, 146. As illustrated in Figs. 4 and 5 each vertical rocker shaft 140, 142 is provided with a coil spring 148 at its lower end interposed between the lower bearing member 146 and a collar 150 fast on the shaft. With this construction it will be observed that the springs 148 urge the shafts 140, 142 downwardly to present the upper gripper arms 132 into operative engagement with the lower gripper arms 134. The lower gripper arms are held relatively stationary with respect to the upper arms, being interposed between the bearings 144, 146 of the slide bracket 136.

In order to periodically raise the shafts 140, 142 in their bearings to disengage the gripper arms, the rounded lower ends of the shafts are arranged to be engaged by an elongated bar 152 mounted to be moved in a horizontal plane. As herein shown, the bar 152 is supported upon pins 154, 156 carried between arms 158, 160 which latter are pivotally mounted upon studs 162, 164 journaled in suitable bearing members attached to the machine frame. Upon rocking movement of the arms 158, 160 the bar 152 is raised and lowered in a horizontal parallel plane and, as herein illustrated, the arms are arranged to be rocked through connections including a lever 166 fast on the stud 164 connected by a rod 168 to suitable cam operated linkage, not shown.

Provision is made for simultaneously rocking the vertical shafts 140, 142 in order to effect movement of the gripper arms 132, 134 into and out of operative position to grasp the edges of the elongated closure, and as herein shown, each vertical shaft is provided with an arm 170, 172 fast thereon. The arms 170, 172 are connected by a link 174 provided with elongated openings 176, 178 arranged to receive studs 180, 182 extending upwardly from the ends of the arms 170, 172 respectively. In order to impart a forward and retracting movement to the link 174, a pair of rollers 184, 186 carried intermediate the ends of the link are arranged to be received in a track 188 formed in an elongated guide bar 190. The bar 190 is provided with a pair of studs 192, 194 each of which is arranged to be slidingly received in its individual link member 196 carried by parallel arms 198, 200 as clearly shown in Fig. 5. The parallel arms may be rocked to effect forward and retracting movement of the bar 190 by a cam, not shown, through connections including an arm 202 and a link 204. As herein shown, a yielding connection is preferably provided between the parallel linkage and the bar 190, which comprises the springs 206 interposed between the ends of the link members 196 and nuts 208 provided on the studs 192, 194. As thus constructed, the rocking movement of the gripper arms 132, 134 is limited in either direction by the extent of the outer ends of the elongated openings 176, 178 as will be observed by the different positions of the mechanism as illustrated in Figs. 1 and 3. However, in practice, when the arms have been moved inwardly to their fullest extent and have grasped the side edges as described, the cam operated bar 190 is advanced slightly in order to effect stretching of the closure in preparation for the heat sealing operation.

Referring now particularly to Fig. 5, provision is made for tucking or folding in the portion of the lining adjacent the front of and lying beneath the elongated angularly disposed closure so that such portion will lie flat on top of the material in the carton or flush with the top score line thereof. This operation is preferably performed simultaneously with the movement of and through connections from the gripper arms 132, 134 as the latter are moved into operative position to grasp the closure. As herein shown, the folding operation is performed by a flat elongated blade 210 supported at either end by offset links 212, 214, pivotally connected to studs 216, 218 carried by the lower gripper arms 134. Thus, in operation, when the arms 132, 134 are rocked into operative position, the links 212, 214 are extended to move the folding blade 210 forward to perform the tucking operation. Conversely, when the arms 132, 134 are rocked outwardly, the folding blade will be retracted.

From the description thus far it will be observed that the angularly disposed elongated closure formed by the spreader blades 46 may be grasped at each end of the closure at the spreader or closure forming station, and the front portion of the lining tucked in as above described, while the spreader blades are still disposed within the closure. As illustrated in Fig. 5, the gripper arms 132, 134 are preferably arranged to grasp the ends of the closure a suitable distance below the top edge of the closure so as to avoid grasping the inserted spreader blades and also so as to leave the upper edge portion free to be heat sealed at the next station of operation.

In the continued operation of the machine, the spreader blades 46 are now withdrawn and returned to their vertical position whereupon the gripper mechanism is arranged to be moved bodily with the carton and in timed relation with the intermittent movement of the latter from the closure forming station 44 to the heat sealing station 50. As above described, the gripper mechanism is mounted to slide on the cross bar 138, and as illustrated in Figs. 4 and 5, the mechanism is reciprocated through connections including a rack 220 attached to the front of the slide bracket 136 and a cooperating segmental gear 222 pivotally mounted on a stud 224 carried in a bearing 226 attached to the machine frame. The segmental gear 222 may be rocked to effect reciprocation of the slide bracket 136 by a suitable cam, not shown, through connections including a link 228 pivotally connected to the gear as illustrated in Fig. 4. Upon movement of the gripper mechanism to the heat sealing station, the gripper arms 132, 134 may be yieldingly urged outwardly as above described in order to stretch the closure in preparation for the heat sealing operation.

Referring now to Fig. 6, the heat sealing mechanism 50 may comprise a pair of presser jaws including an upper jaw 230 and a lower jaw 232, the latter being provided with an electrical heating element 234 suitably connected to effect heating of the lower jaw. The lower jaw 232 extends between arms 236 formed integrally with spaced parallel arms 238 forming part of a cam lever 240 pivotally mounted on a shaft 242 which is supported between spaced brackets 244, as clearly shown in Fig. 1. The cam lever 240 is provided with a roller 246 which cooperates with a cam path 248 in a cam 250 arranged to rock the presser jaw unit into and out of operative position. The upper presser jaw 230 is pivotally mounted on a shaft 252 journaled in and ex-

tending between the arms 236 and is provided with a second arm 254 connected by a link 256 to one arm 258 of a cam lever pivotally mounted on the rocker shaft 72. The second arm 260 of the cam lever is provided with a roller 262 cooperating with a cam 264 fast on the cam shaft 80, see Fig. 1.

In the operation of the heat sealing device, the cam 250 is designed to effect rocking of the unit into and out of operative position to perform the heat sealing operation. When rocked into operative position, as shown in Fig. 6, the lower jaw 232 is disposed beneath the marginal edge of the mouth portion to be sealed, the upper jaw 230 being in its open position at this time. The upper jaw 230 is then rocked by the cam 264 to close the jaw over the portion to be heat sealed in cooperation with the lower jaw, sufficient heat and pressure being applied to effect a fluid tight seal and while the closure is being stretched as above described.

The gripper jaws 132, 134 are now caused to release their grip on the elongated closure and to be rocked back to their inoperative position whereupon the gripper unit is moved back to the closure forming station 44 in readiness to grasp the closure of the next succeeding carton already in position at such station as illustrated in Fig. 1. The heat sealing and pressure applying jaws 230, 232 are then released and rocked upwardly out of the way, and upon intermittent movement of the carrier, the carton with its angularly disposed sealed lining closure is moved to the next station of operation, indicated generally at 266 where provision is made for folding the extended closure down flat over the outspread carton flaps as illustrated in Fig. 10, and for closing the end flaps 268, 270 of the carton together with the adjacent projecting portions 272, 274 of the lining so as to cause them to lie flat on top of the carton.

The end flap folding operations above described may and preferably will be performed by flap folding mechanism of the type illustrated and described in the patent to Robert W. Vergobbi, No. 2,328,758, September 7, 1943, and which, as herein shown, may comprise a pair of helically or spirally wound folding members 280, 282, see Fig. 2, supported in a closure engaging member 284 mounted to rotate with a shaft 286 and arranged to cooperate with a flat folding plate 288 arranged to be moved into and out of engagement with the top of the carton. In the operation of the machine, after the closed mouth of the lining has been laid down flat as shown in Fig. 10, the plate 288 is moved on top of the carton to retain the folded portions of the lining closure intermediate the side flaps in their folded condition. As the spiral folding members 280, 282 are rotated they are arranged to engage the underside of the horizontally extended end flaps 268, 270 and to progressively turn the flaps through 180 degrees, the plate 288 serving as a mandrel over which the end flaps and the extended triangular portions 272, 274 of the lining may be folded. The plate 288 is then withdrawn preparatory to movement of the carton to the next succeeding station 290, where provision is made for applying adhesive to the flaps for the carton sealing operation.

As the carton passes from the end flap folding station 266 to the adhesive applying station 290, the side flap 34 is engaged by an extension 292 of the stationary rod 42 which operates to raise such side flap and to partially fold it into its closed position, as indicated at station 290, during the movement of the carton. The remaining side flap 32 is retained in its extended position to be provided with a coating of adhesive as illustrated in Fig. 2. The adhesive applying mechanism may be of any usual or preferred form and, as herein shown, includes an adhesive applying roller 294 adapted to be moved from engagement with a supply roller 296 to the top of the extended side flap 32. During subsequent movement of the carton, the side flap 34 is completely folded down on top of the end flaps 268, 270, also folding in the extended portion of the mouth of the lining with it, and the adhesively coated flap 32 is thereafter closed by the extension 298 of the stationary rod 40 to complete the sealing of the carton. As shown in Fig. 2, the completely closed carton is arranged to come to rest upon a stationary platform 300 and in front of a pusher arm 302 arranged to transfer the carton under a roller 304 and between stationary curved guides 306 to be received by the usual dryer 308 by which pressure may be applied to the top of the carton to firmly set the sealed flaps.

From the above description of the preferred form of closure forming and heat sealing device as embodied in a packaging machine it will be observed that the present machine is adapted to form an efficient seal for the mouth portion of a fin seal bag or liner in a manner such as to produce a smooth and substantially wrinkle free seal to obtain an hermetically sealed container which, among other uses, may be used to advantage in the packaging of dehydrated foods.

While the preferred embodiment of the invention has been herein illustrated and described, it will be understood that the invention may be embodied in other forms within the scope of the following claims.

Having thus described the invention, what is claimed is:

1. In a packaging machine of the character described, in combination, means for forming a fluid tight closure for the mouth of a bag comprising means for supporting the bag, means for forming an elongated closure in said mouth, including a pair of spreader blades, means for lowering the blades into the open mouth of the bag, means for moving the blades apart laterally to cause opposed walls of the mouth of the bag to be brought together, means for swinging said blades to present the latter at an acute angle with respect to the top of the bag, means for grasping the ends of said elongated closure and stretching the same to provide a substantially wrinkle free contact between the opposed walls of the closure, and means for sealing the closure while it is maintained in its stretched condition.

2. In a packaging machine of the character described, in combination, means for forming a fluid tight closure for the mouth of a bag having a projecting side seam comprising means for forming an elongated closure in said mouth, means for moving said closure to an angular position in a direction such as to permit said projecting side seam to extend in substantial alignment with the elongated closure, means for grasping the ends of said closure and stretching the latter to provide a substantially wrinkle free contact between the opposed walls of the closure, and means for sealing the closure while maintained in its stretched condition.

3. In a packaging machine of the character described, in combination, means for providing a fluid tight closure for the mouth of a bag, in-

cluding a closure forming station and a sealing station, means for forming an elongated closure in the mouth at said forming station, means for stretching the closure to provide a substantially wrinkle free contact of the opposed walls of the closure, means for bodily moving the bag and said last named means from the closure forming station to the sealing station, and means for sealing the mouth of said closure while maintained in its stretched condition.

4. In a packaging machine of the character described, in combination, means for providing a fluid tight closure for the mouth of a bag having a projecting side seam including a closure forming station and a sealing station, means for forming an elongated closure in the mouth at said forming station and for moving said closure to an angular position in a direction such as to permit said projecting side seam to extend in substantial alignment with said closure, means for stretching the closure to provide a substantially wrinkle free contact of the opposed walls of the closure, means for bodily moving the bag and said last named means from the closure forming station to the sealing station, and means for sealing the mouth of said closure while maintained in its stretched condition.

5. In a packaging machine of the character described, in combination, means for supporting a bag having an outwardly projecting side seam, means for forming an elongated closure in the mouth portion of said bag, means for moving said closure to an angular position in a direction such as to permit said projecting side seam to extend in substantial alignment with the elongated closure, and means for sealing said closure while held in said angular position.

6. In a packaging machine of the character described, in combination, means for supporting a bag, means for forming an elongated closure in the mouth of the bag, a pair of grippers adapted to grasp opposed ends of said elongated closure a short distance below the top edge thereof, means for urging said grippers apart to stretch said closure whereby to provide a substantially wrinkle free contact between the opposed walls of the closure, and means for sealing the portion of the closure above said grippers while it is maintained in its stretched condition.

7. In a packaging machine of the character described, in combination, means for supporting a filled bag having a projecting side seam, a pair of blades adapted to be lowered within the mouth of the bag and spread outwardly to form an elongated closure in said mouth, means for moving said blades in a direction such as to permit said projecting side seam to extend in alignment with said closure, a pair of grippers arranged to grasp opposed ends of said elongated closure, a folding blade for tucking inwardly the portion of the bag immediately beneath the elongated closure, means for yieldingly urging said grippers apart to stretch said closure, and means for sealing the closure while it is maintained in its stretched condition.

8. In a packaging machine of the character described, in combination, means for grasping and stretching an elongated closure including a pair of grippers engageable solely with the exterior of said closure, each pair of grippers comprising an upper member and a lower member, means for rocking the grippers into operative position to engage the ends of said closure, means for closing said gripper members to grasp the ends of the closure, and means for yieldingly urging said grippers apart to stretch the closure.

9. In a packaging machine of the character described, in combination, means for forming a fluid tight closure for the mouth of a bag of the fin seal type having an outwardly projecting side seam comprising means for supporting the bag, means for bringing together opposed walls of the mouth to form an elongated upstanding closure, means for moving the upstanding closure to an angular position to relieve the tension in the projecting side seam and permit the latter to extend in substantial alignment with said closure, means for grasping the ends of said angularly disposed closure and for stretching the same, and means for sealing the closure while maintained in its stretched condition whereby to provide a substantially hermetically sealed container.

10. In a packaging machine of the character described, in combination, means for providing a fluid tight closure for the mouth of a bag having a projecting side seam including a closure forming station and a sealing station, means for forming an elongated closure in the mouth at said forming station and for moving said closure to an angular position in a direction such as to permit said projecting side seam to extend in substantial alignment with said closure, means for stretching the closure to provide a substantially wrinkle free contact of the opposed walls of the closure, means for bodily moving the bag and said last named means from the closure forming station to the sealing station, and means for sealing the mouth of said closure while maintained in its stretched condition, said heat sealing means comprising a pair of pivotally mounted pressure jaws, one of said jaws being provided with a heating element, a rockingly mounted arm in which said jaws are carried, means for rocking said arm to present the jaws in operative position to seal the closure, and means for closing the jaws upon the closure to perform the heat sealing operation.

11. In a packaging machine of the character described, in combination, means for supporting a filled package comprising a carton provided with a lining of the fin seal type and having a projecting side seam, the mouth portion of said lining extending a substantial distance above the top score line of the carton, means for forming an elongated upstanding closure in said mouth portion, means for moving the upstanding closure to an angular position to relieve the tension in the projecting side seam and to permit the latter to extend in substantial alignment with said closure, a pair of pivotally mounted grippers arranged to be rocked into operative position to grasp the ends of said closure and to be yieldingly urged apart to stretch the same, a folding blade carried by and operated simultaneously with said grippers for folding inwardly the portion of the bag immediately beneath said angular disposed closure, and means for sealing the closure while maintained in its stretched condition.

12. In a packaging machine of the character described, in combination, means for supporting a filled package comprising a carton provided with a lining of the fin seal type and having a projecting side seam, the mouth portion of said lining extending a substantial distance above the top score line of the carton, a closure forming station including means for forming an elongated upstanding closure in said mouth portion, means for moving the upstanding closure to an angular position to relieve the tension in the

projecting side seam and to permit the latter to extend in substantial alignment with said closure, a closure sealing station spaced from said closure forming station, means for moving the carton from the forming station to the sealing station, reciprocable means mounted for movement between said stations, means carried by said reciprocable means for grasping and stretching said elongated closure at the closure forming station whereby to provide a substantially wrinkle free contact between the opposed walls of the closure, means for moving the reciprocable means in timed relation to the movement of the carton to present the latter with the mouth portion of the angularly disposed elongated closure in its stretched condition to the sealing station, and means for sealing the closure while maintained in its stretched condition.

13. In a packaging machine of the character described, in combination, means for supporting a bag having an outwardly projecting side seam, means for forming an elongated closure in the mouth portion of the bag, means for moving said closure to an angular position in a direction such as to relieve the tension in the side seam, and means for sealing said closure while held in said angular position.

14. In a packaging machine of the character described, in combination, means for supporting a bag having an outwardly projecting side seam, means for forming an elongated closure in the mouth portion of the bag including a pair of members insertible into the mouth of the bag, means for swinging the closure and said members to move the closure into an angular position in a direction such as to relieve the tension in the side seam, means for grasping the exterior of the closure at each end thereof while the closure is in said angular position, means for thereafter withdrawing said members, means for moving said gripping means to effect stretching of the closure, and means for sealing said closure while held in its stretched condition.

15. In a packaging machine of the character described, in combination, means for supporting a bag having an outwardly projecting side seam, means for forming an elongated closure in the mouth portion of the bag including a pair of

members insertible into the mouth of the bag, means for moving the closure and said members in a direction to relieve the tension in the projecting side seam, means for exteriorly grasping each end of the closure, means for withdrawing said members from the mouth of the bag, means for moving said gripping means to effect stretching of the mouth of the bag, and means for sealing said closure while held in said stretched condition.

16. In a packaging machine of the character described, in combination, means for supporting a bag, means for forming an elongated closure in the mouth of the bag including a pair of blades insertible into said mouth and arranged to be moved apart to form said elongated closure, gripping means for exteriorly gripping the closure at each end thereof, means for moving said gripping means to effect stretching of the closure, means for withdrawing said blades from the mouth of the bag, and means for sealing the closure while it is maintained in its stretched condition.

17. In a packaging machine of the character described, in combination, means for supporting a bag, means for forming an elongated closure in the mouth of the bag including a pair of blades insertible into said mouth and arranged to be moved apart to form said elongated closure, gripping means for exteriorly gripping the closure at each end thereof, means for moving the gripping means to effect stretching of the closure, means for withdrawing the blades from the mouth of the bag, and means for sealing the closure above said gripping means and while it is in a stretched condition.

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