July 1, 1947. D. BELCHER ET AL 2,423,080

BAG CLOSING MACHINE

Filed Nov. 10, 1944 7 Sheets-Sheet 1

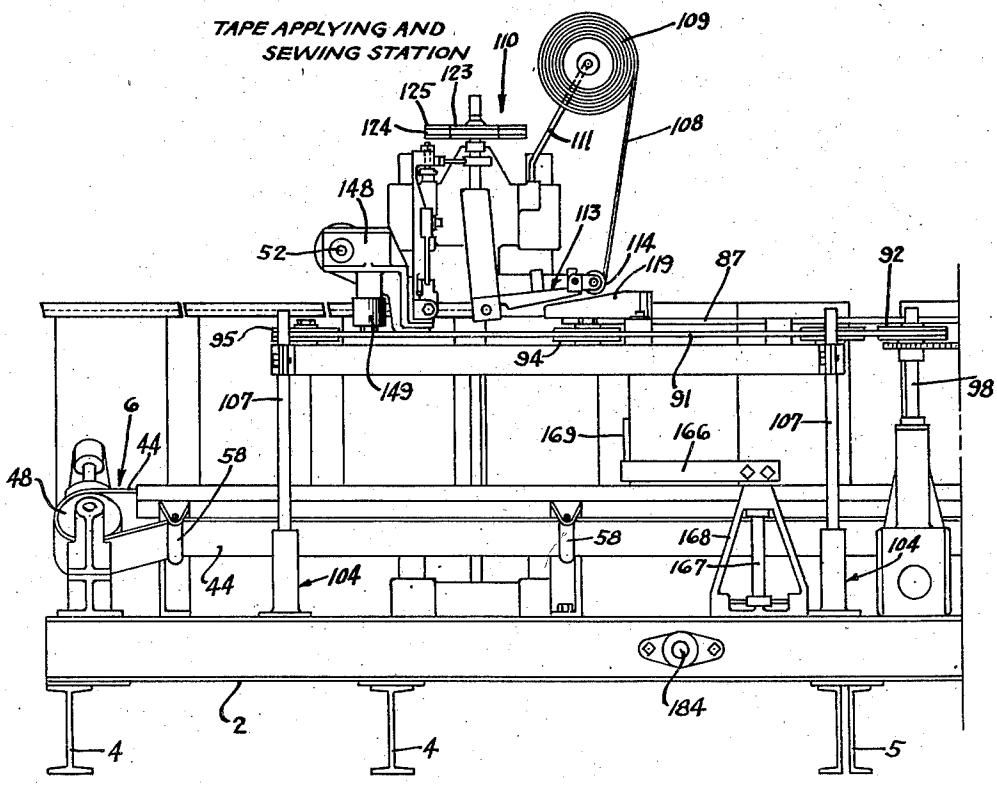


FIG. 1

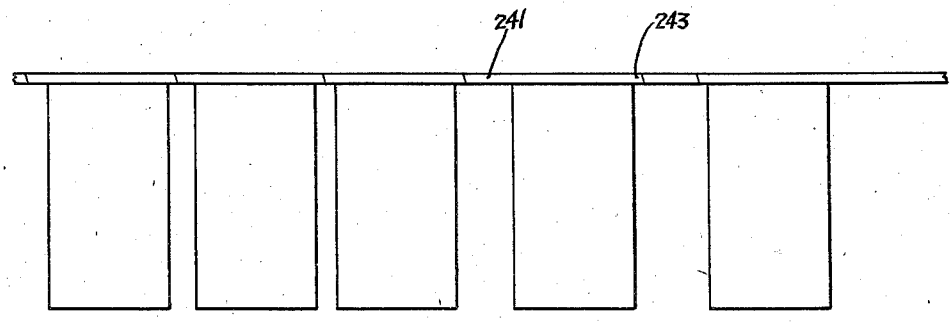


FIG. 14

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BAG CLOSING MACHINE

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TAPE APPLYING AND SEWING STATION

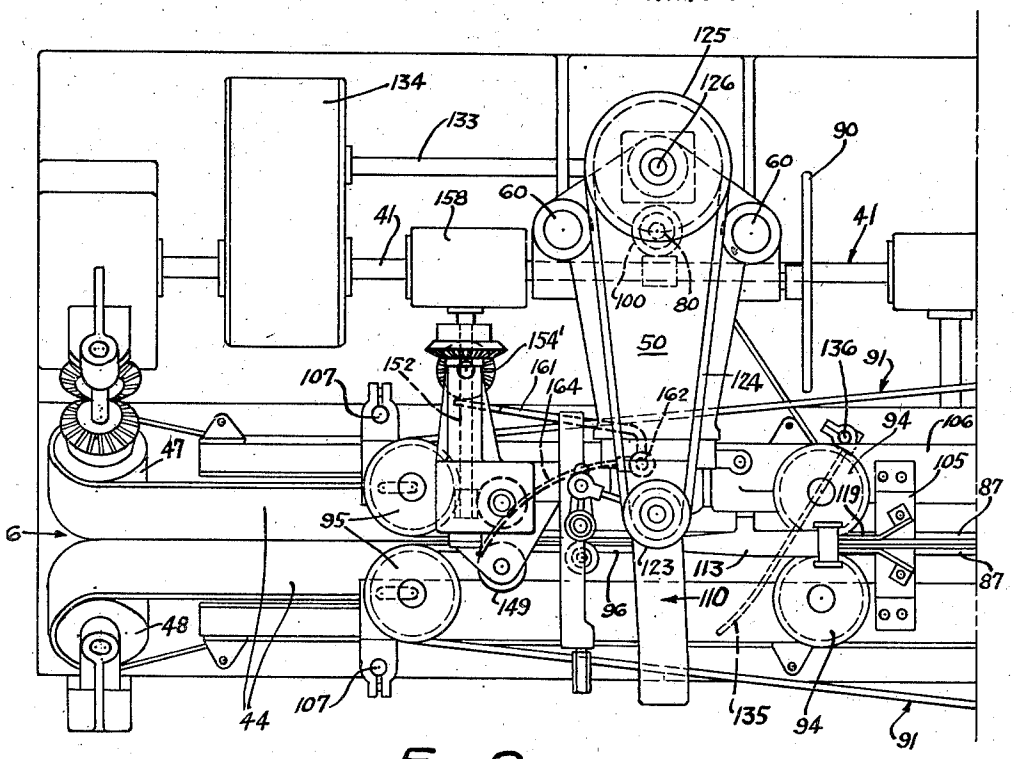


FIG. 2

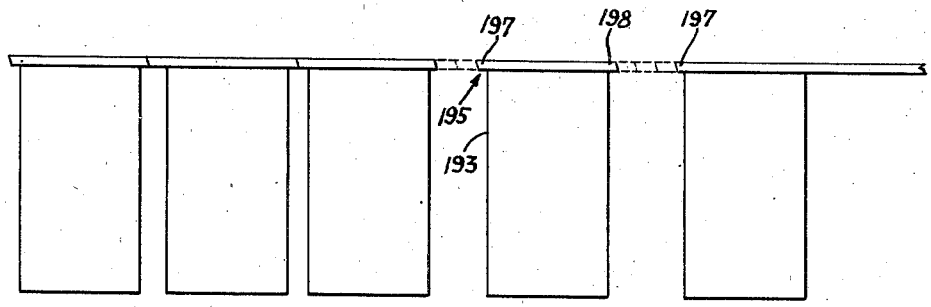


FIG. 15

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BAG CLOSING MACHINE

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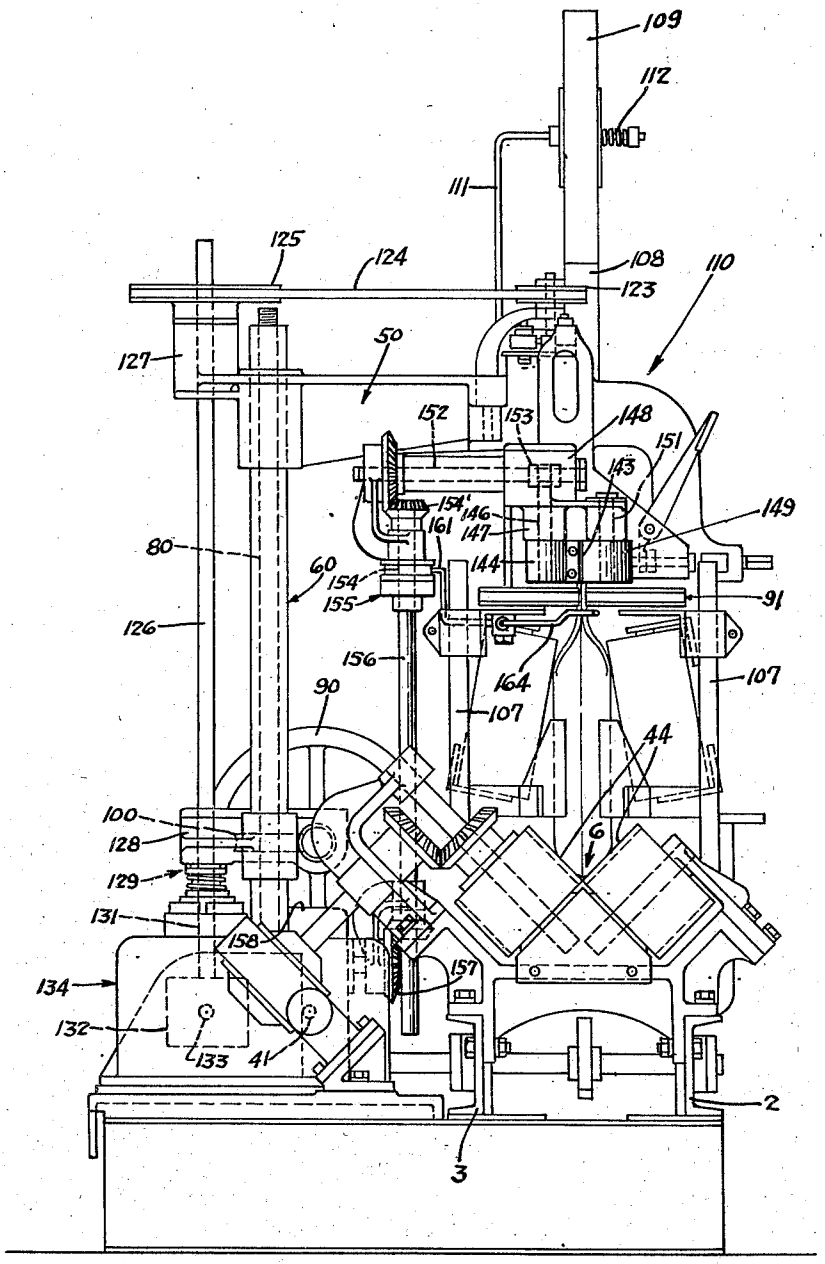


FIG. 3

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Filed Nov. 10, 1944 7 Sheets-Sheet 4

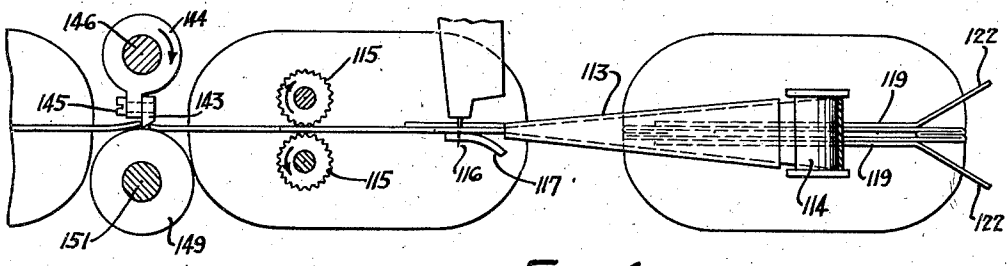


FIG. 4

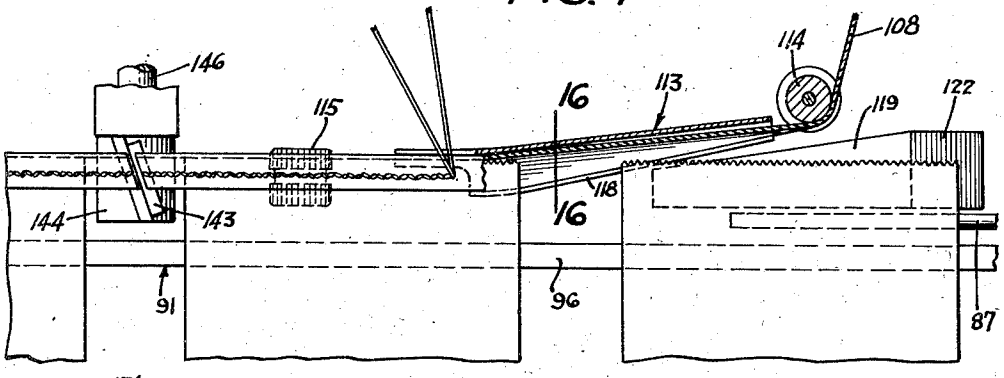


FIG. 5

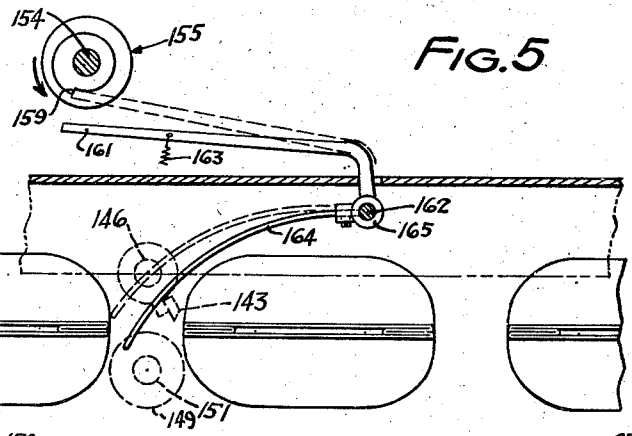


FIG. 6

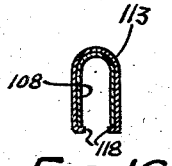


FIG. 16

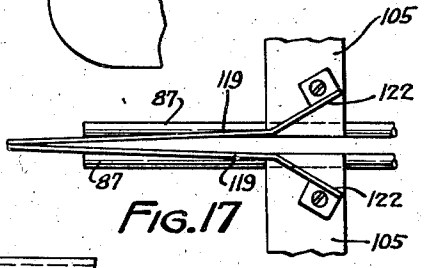


FIG. 17

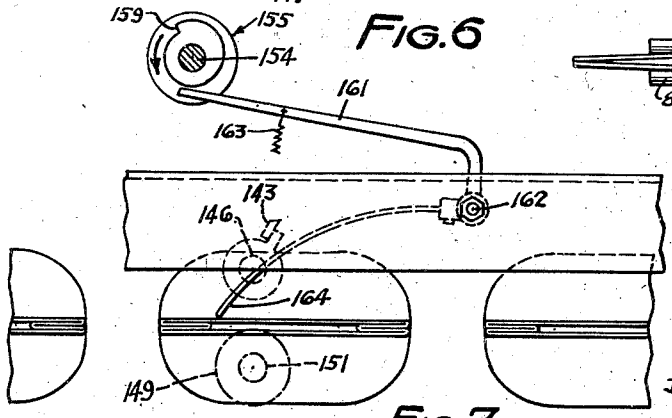


FIG. 7

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BAG CLOSING MACHINE

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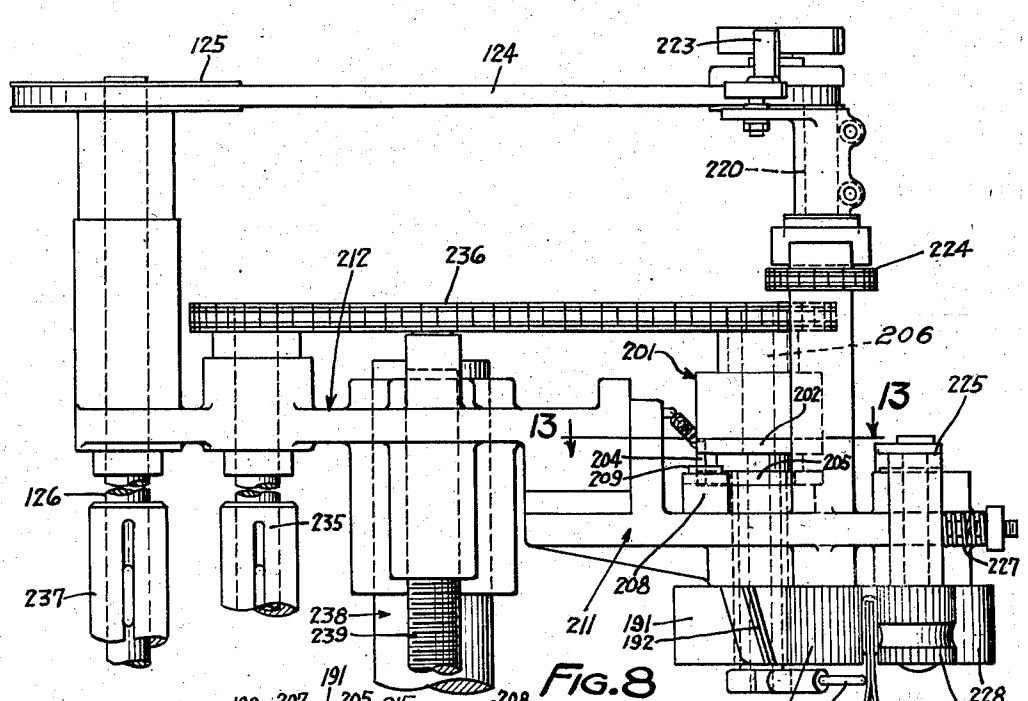


FIG. 8

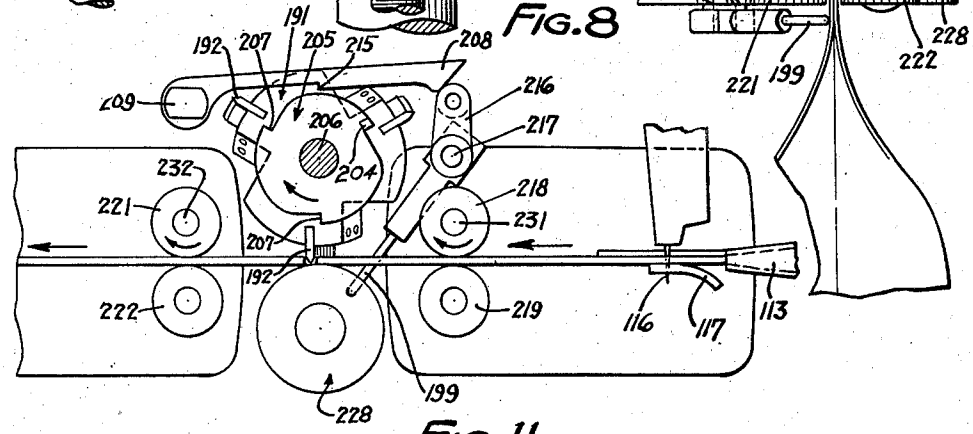


FIG. 11

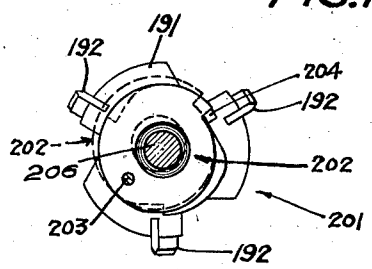


FIG. 13

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BAG CLOSING MACHINE

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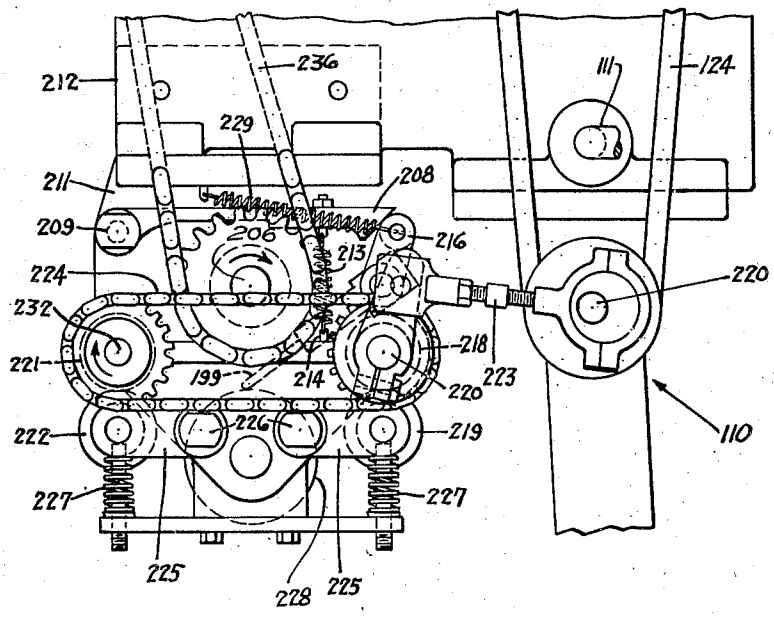


FIG. 9

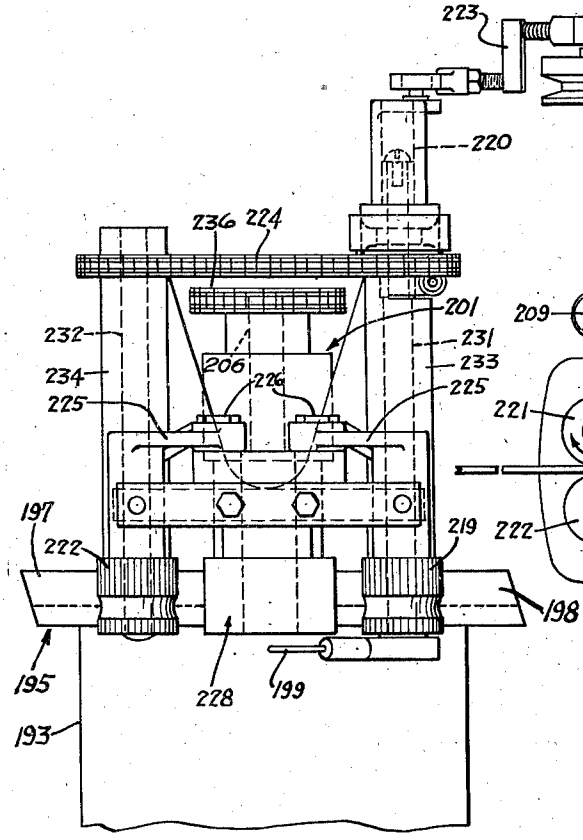


FIG. 10

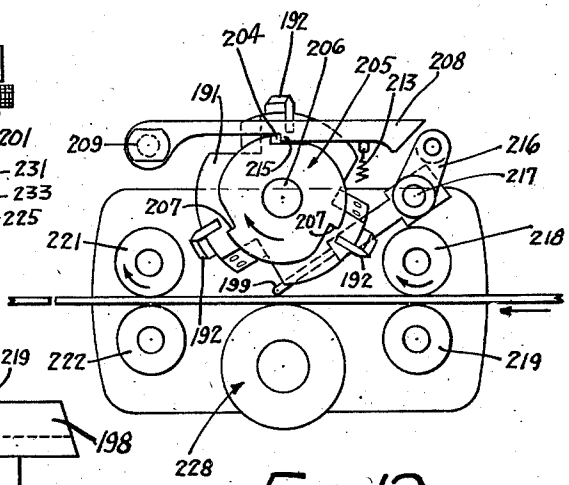


FIG. 12

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BAG CLOSING MACHINE

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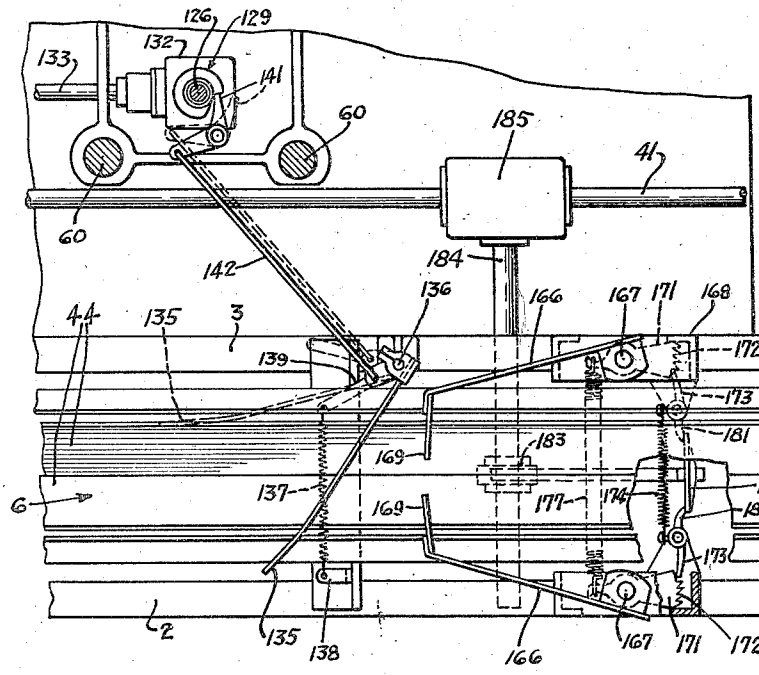


FIG. 18

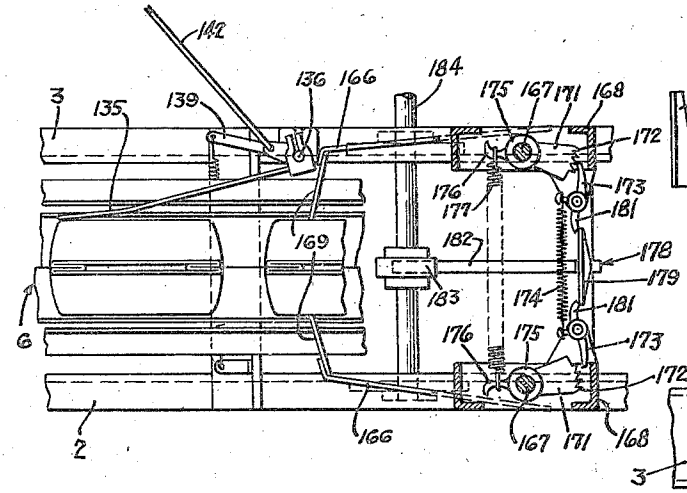


FIG. 19

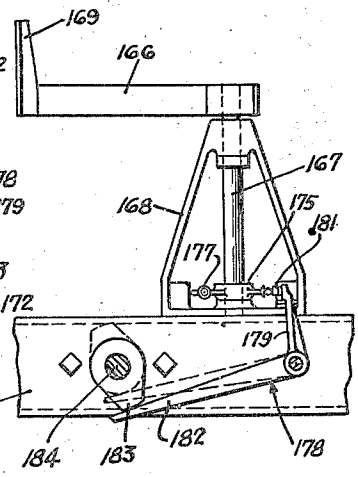


FIG. 20

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Patented July 1, 1947 2,423,080

UNITED STATES PATENT OFFICE

2,423,080

BAG CLOSING MACHINE

Daniel Belcher, Minneapolis, Minn., and Frank R. Linda, Washington, D. C., assignors to Bemis Bro. Bag Co., Minneapolis, Minn., a corporation of Missouri

Application November 10, 1944, Serial No. 562,834

21 Claims. (Cl. 112—11)

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This invention relates to new and useful improvements in machines for closing and sealing the open tops of flexible containers or bags, and more particularly to such a machine adapted to apply and secure a strip of sealing tape over the edges of the flattened bag top walls, after said walls have been pressed into flatwise relation.

The invention herein disclosed is directed more particularly to a machine or mechanism for applying a strip of sealing tape to the folded together walls of the top or end of a flexible walled container, and securing it thereto, after which the tape is transversely severed adjacent to each end of the sealed bag top, whereby each bag top is tightly sealed by a strip of sealing tape which completely conceals the upper marginal edges of the bag top walls. The present application is a continuation-in-part of our application Ser. No. 328,518, filed April 8, 1940, and which matured into Patent No. 2,362,462 on November 11, 1944.

An object of the present invention is to provide a novel tape severing mechanism including means for applying a strip of sealing tape to each bag top as the bags advance through the machine and without interrupting the traveling movement of the bags.

A further object of the invention is to provide a machine having means for advancing the filled bags therethrough without interruption, and means being provided over the bags for pressing the bag top walls into flatwise relation and thereafter folding a strip of sealing tape over the flattened bag top walls of each bag and stitching or otherwise sewing it thereto, and subsequently transversely severing the tape adjacent to each end of each sealed bag top.

A further object resides in the novel construction of the tape severing means which is so arranged as to operate in timed relation to the movement of the bags through the machine, and whereby the tape is severed in close proximity to the leading and trailing ends or edges of the sealed bag tops regardless of the spacing between adjacent bags as they advance through the machine.

A further object is to provide a tape severing mechanism comprising a cutter head having one or more cutter blades mounted therein adapted to cooperate with a platten roll to sever the tape, each time a strip of tape has been secured to a bag top, the operation of said cutter head being controlled by a suitable control element mounted to be engaged by each bag as the bags successively pass through the cutter head, and whereby the operation of the cutter head is interrupted as each bag top passes between the cutter head and platten roll, said blades being operable to automatically sever the tape at each end of each bag top, regardless of variations in the length of the bag tops in the direction of bag travel, or in the spacing between adjacent bag tops as the bags pass the tape applying and severing mechanism.

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A further object resides in the means provided for accurately advancing the flattened bag tops through the sewing head, as the latter secures a strip of sealing tape to each bag top, and in the means for folding the continuously traveling web of sealing tape over the flattened bag tops in proper position thereon prior to being secured thereto by the sewing head.

Other objects of the invention reside in the novel construction of the cutter head which comprises a plurality of cutter blades having their cutting edges disposed at an angle to the axis of the cutter head whereby the tape is severed on a slight incline to the horizontal, thereby to facilitate the operation of severing the tape; in the construction of the cutter head and the means provided for drivingly connecting it to a constantly rotating clutch which driving connection is controlled by the movement of the bags as they advance uninterruptedly past the tape applying means and cutter head; in the latch means provided in connection with the cutter head for temporarily interrupting the cutter head each time a bag top passes between the cutter head and the platten roll, the control element being operatively associated with said latch member and positioned to be engaged by each bag as it approaches the cutter head, thereby to release the latch and permit it to engage a notched disk secured to the cutter head whereby the driving connection between the clutch and cutter head is temporarily interrupted while the bag top passes between the cutter head and the platten roll; and in the specific construction of the tape severing means and the control means therefor which parts are conveniently accessible to facilitate removing the cutter blades for sharpening and to make adjustments to accurately time the operation of the cutter head to the traveling movement of the bags through the machine.

Other objects of the invention will appear from the following description and the accompanying drawings and will be pointed out in the annexed claims.

In the accompanying drawings there has been disclosed a structure designed to carry out the various objects of the invention, but it is to be understood that the invention is not confined to the

exact features shown, as various changes may be made within the scope of the claims which follow.

In the drawings:

Figure 1 is a view showing a portion of a bag closing and sealing machine with the invention embodied therein;

Figure 2 is a plan view of Figure 1;

Figure 3 is an end view of Figure 1, showing the discharge end of the machine;

Figure 4 is a diagrammatic plan view showing the position of the bags as they travel beneath the tape applying and sewing mechanisms;

Figure 5 is a side view of Figure 4;

Figure 6 is a fragmentary detail view showing the control element for the cutter head in clutch operating position;

Figure 7 is a view similar to Figure 6, showing the clutch control element engaged with the bag top to temporarily interrupt the driving connection between the drive clutch and the cutter head;

Figure 8 is a fragmentary view, showing the bag top pulling or feed rolls which cooperate to press the tape firmly into engagement with the flattened bag top walls and to positively feed the bag tops past the sewing head and the tape severing means;

Figure 9 is a plan view of Figure 8;

Figure 10 is a side view of Figure 9, showing the platen roll positioned between the pressure rolls;

Figure 11 is a plan view of the tape severing mechanism showing the latch member disengaged from the notched disk to permit rotation of the cutter head;

Figure 12 is a view showing the control element actuated by the bag top thereby to release the latch whereby it will engage a tooth of the notched disk and thereby temporarily interrupt rotation of the cutter head;

Figure 13 is a sectional plan view substantially on the line 13—13 of Figure 8, showing the clutch control disk;

Figure 14 is a diagrammatic view indicating how the tape is severed by the bag tops with the cutting mechanism illustrated in Figures 4 and 5; and

Figure 15 is a diagrammatic view indicating how the tape is severed by the bag tops with a cutter head such as illustrated in Figures 11 and 12.

Figure 16 is a detail sectional view on the line 16—16 of Figure 5;

Figure 17 is a fragmentary view showing the resilient elements for firmly pressing the flattened bag top walls together and guiding them into the tape applying means;

Figure 18 is a fragmentary plan view of a portion of the conveyer, showing the means for controlling the delivery of the bags to the sewing head;

Figure 19 is a view similar to Figure 18 showing the parts after having been actuated to release a bag; and

Figure 20 is a detail sectional view showing the means for operating the gates for controlling the delivery of the bags to the sewing head.

The present invention, as hereinbefore stated, is a continuation in part of application Ser. No. 328,518, and there is therefore illustrated herein portions of the machine disclosed in said application. The structure illustrated in Figures 1, 2 and 3 represents the tape applying and sewing station, as shown in the above mentioned application, and discloses portions of the side rails 2 and 3 of the machine frame which are supported on suitable cross members 4 and 5. The bags are delivered to the tape applying and sewing station, with their top walls partially folded into flatwise relation, by a main conveyer generally designated by the numeral 6.

The conveyer 6 is shown comprising two endless flat belts 44 shown supported at one end of the machine by suitable rollers 47 and 48, as shown in Figures 1 and 2. The opposite ends of the belts 44 are mounted on similar rollers, not shown in the drawings. The belts 44, constituting the main conveyer 6, are disposed substantially in right angular relation, as shown in Figures 1, 2 and 3, whereby they cooperate to provide a trough-like conveyer which substantially corresponds to the shape of the bag bottoms, as will be noted by reference to Figure 3. The belts 44 are adapted to be continuously driven from a suitable source of power, not shown in the present case, and whereby the belts are simultaneously driven at the same speed when the machine is in operation.

The inner or bag supporting runs of the belts 44 are shown supported on a plurality of closely spaced rollers, not shown in the drawings, and the outer runs of the belts are supported on spaced rollers 53, shown in Figure 1.

In the machine disclosed in the application hereinbefore mentioned, the filled bags pass through a compacting station which serves to settle the contents in the bags, and as the bags advance to the tape applying and sewing station herein disclosed, the bag tops are partially pressed into flatwise relation by suitable means, not shown herein. A pair of spaced rods 87 are positioned at the receiving end of the tape applying station to receive the partially flattened bag tops, and cooperate with a pair of endless V-belts 91 whose inner runs 96 are shown disposed in spaced parallel relation directly below the rods 87. The spacing between the inner runs 96 of the V-belts 91 corresponds substantially to the spacing between the rods 87, and the traveling speed of said inner belt runs 96 corresponds to the traveling speed of the main conveyer 6, whereby the V belts 91 may cooperate with the main belt to feed the bags through the tape applying and sewing mechanisms. The V-belts 91 are shown supported at one end on pulleys 95 and the intermediate portions of their inner runs may be supported against outward pressure by pulleys 94, shown in Figure 2. The V-belts 91 are driven from an upright shaft 98 having its lower end connected to a suitable source of power such as the main drive shaft 41, indicated in Figure 2, by suitable means not shown in the drawings. The pulleys 92 which support the V-belts 91 on the upright shafts 98 are vertically adjustable on said shafts whereby the belts may be vertically adjusted with respect to the bag tops.

The rods 87 are disposed slightly above the inner runs 96 of the V-belts 91 and are supported at one end by suitable brackets 105 and at their opposite ends by similar brackets, not shown. The brackets 105 may be secured to a pair of upright frame members 106 adjustably secured to upright rods or posts 107 fixed to the side frame members 2 and 3, as indicated at 104 in Figure 1.

All of the above described mechanism is shown and described in detail in the aforementioned application, and, as it forms no part of the present invention, it is deemed unnecessary herein to describe the same in detail.

One of the important features of the present invention resides in the means provided for applying and securing a strip of sealing tape to each flattened bag top as the bags are advanced through the machine.

The means provided for thus applying a strip of tape 108 over the upper edges of the flattened bag top walls, is shown comprising a roll of tape 109 which, in the present instance, is shown mounted directly upon the sewing head, generally designated by the numeral 110, by a suitable supporting bracket 111 having its lower end suitably secured to the sewing head, as indicated in Figure 1. A tension device 112 prevents over-running of the tape roll 109 on the support 111. The sewing head 110 is of conventional design and construction and forms no part of the present invention and therefore need not be described in detail.

The sewing head is shown suitably supported on the outer end of a bracket 50 mounted for vertical adjustment upon upright posts 60 having their lower ends suitably secured to the machine frame. The bracket 50, it will be noted by reference to Figure 3, over hangs the main conveyer 6 whereby the sewing head is positioned directly over the travel path of the bags. The bracket 50 carrying the sewing head 110 may be vertically adjusted upon the upright posts 60 by rotation of an upright shaft 80 having its upper end portion received in threaded engagement with the bracket 50, as shown in Figure 3. The lower end of the shaft 80 is rotatably supported in a suitable bearing, not shown. The shaft 80 is operatively connected to a hand wheel 90 by a worm gear drive, indicated by the numeral 100 in Figure 3, whereby the shaft 80 may be readily rotated to vertically adjust the sewing head 110 with respect to the bag tops.

A tape folder or guide, generally indicated by the numeral 113, is shown suitably secured to the sewing head and is positioned over the path of travel of the bags as shown in Figures 4 and 5, whereby the flattened bag tops pass therethrough, as clearly illustrated in Figure 5. The strip of tape 108 is drawn from the roll 109 and passes around a flanged idler roller 114, suitably supported at the receiving end of the tape folder 113. The roller 114 guides the strip of tape into the folder 113 whereby the latter folds the tape over the top edge of each bag top, as the bag tops pass through the folder. The usual puller rolls 115 of the sewing head 110 then engage the opposite walls of the tape and presses said walls firmly into engagement with the bag top walls and, at the same time, the needle 116 of the sewing head and the usual presser foot 117, partially shown in Figure 4, cooperate to stitch or sew the tape to the bag top, as will readily be understood by reference to Figures 4 and 5. The puller rolls 115, as is well known, operate in timed relation to the needle 116 and the usual feed dog of the sewing head, not shown.

While the tape is herein shown stitched to the flattened bag top walls, it is to be understood that other means may be utilized for securing it thereto. For example, the tape may be adhesively secured to the bag top walls by a suitable adhesive, or the tape may previously have been treated with a suitable thermo-plastic material which may readily be activated by the application of heat thereto, whereby the sealing tape may be secured directly to the bag top walls by the application of heat and pressure thereto.

Another feature of the invention resides in the construction of the tape folder 113 whereby the strip of tape is accurately folded upon itself into an inverted U-shaped cross section, over the top edges of the bag top walls, with the assurance that both legs or walls of the folded strip of tape will be of uniform length. To thus accurately fold the tape upon itself, the lower edges of the side walls of the tape folder 113 are provided with inwardly turned ledges 118. The opposite edges of the folded strip of tape engage these ledges, as the tape travels through the folder, whereby the side walls of the strip of tape will be of uniform length.

Means is provided for guiding the bag top into the partially folded strip of tape, as shown in Figures 4 and 5, and comprises complemental resilient elements 119 which may be suitably secured to the brackets 105 supporting the tail ends of the rods 87, as shown in Figure 17. The receiving ends of the guide elements 119 are outwardly flared as shown at 122 in Figures 4 and 17, and are spaced apart at their receiving ends whereby the flattened bag tops may readily enter therebetween from the guide rods 87. The opposite free ends of the resilient elements 119 are normally positioned as shown in Figure 17, when no bag top is passing therebetween. Thus, when a bag top passes between the elements 119 the resilient free ends thereof will exert a pressure against the walls of the bag top, whereby the compressed bag top may readily enter into the folded strip of tape passing through the tape folder 113, as will be understood by reference to Figures 4 and 5. The receiving or outwardly flared ends 122 of the resilient elements 119 are mounted in fixed relation with respect to the rods 87, but the opposite ends thereof are free to flex to permit the bag tops to pass therebetween.

The sewing head 110 is shown provided with a pulley 123 driven by a belt 124 from a pulley 125 mounted on an upright shaft 126. The upper portion of the shaft 125 is rotatably supported in a bearing 127 provided in the bracket 50. The pulley 125 is splined to the shaft 126, whereby it may be vertically adjusted on the shaft 126 together with the bracket 50, when vertically adjusting the sewing head to the bag tops.

The lower end of the shaft 126 is shown supported in a bearing 128 and is provided with a clutch, generally designated by the numeral 129. The clutch 129 serves to operatively connect the shaft 126 to a short upright shaft 131, supported in a suitable gear box 132 which may be supported on the machine frame in any suitable manner. The upright shaft 131 is operatively connected to a horizontal shaft 133 by suitable gears, not shown, provided in the gear box 132. The shaft 133 is driven from a gear reducer indicated at 134 in Figure 3, which, in turn, is driven from the main drive shaft 41 indicated in Figure 2. The operation of the clutch 129 is controlled by the traveling movement of the bags through the machine, as will subsequently be described.

As shown in Figure 18, a control element or finger 135 is secured to the upright shaft 136 and is normally positioned across the path of the bags by a suitable spring 137 having one end anchored at 138. The opposite end of the spring 137 is connected to one end of an arm 139 whose opposite end is secured to the upright shaft 136. The shaft 136 is mounted in suitable bearings, not shown.

The control element or finger 135 is operatively connected to a dog 141 by a suitable connection

142, whereby the dog 141 may be moved into or out of operative engagement with the clutch 129 by swinging movement of the control element 135, as will be understood by reference to Figure 18.

When the dog 141 is in the position shown in Figure 18, the clutch 129 is rendered inoperative to drive the shaft 126, whereby the operation of the sewing head is interrupted. When a bag engages the control element 135 and swings it to the dotted line position shown in Figure 18 and the full line position shown in Figure 19, the dog 141 is moved out of engagement with the clutch, as indicated by the dotted lines in Figure 18, whereupon the clutch is made operative to drive the shaft 126. The sewing head is then operated to stitch the tape to a bag top, as shown in Figures 4 and 5. It will thus be noted that the operation of the sewing head is controlled entirely by the traveling movement of the bags through the machine.

The means for cutting or severing the tape between bags, is best shown in Figures 4 and 5, and comprises a cutting element or knife 143 shown mounted in a suitable collar or head 144 by screws 145. The cutting element or knife 143 is angularly disposed to the axis of the head 144, as shown in Figure 5, whereby a one point cut is substantially obtained between the cutting edge of the knife and a suitable platen roll 149, thereby to facilitate the operation of severing the tape. The head 144 is supported on an upright shaft 146 mounted in suitable bearings 147 provided in a housing 148, shown in Figure 3. The housing 148 may be secured to the supporting bracket 50 by suitable means, not shown in the drawings, and is therefore movable vertically with the bracket 50 when the sewing head is vertically adjusted with respect to the bag top.

The cutting edge of the cutting element or knife 143 is adapted to substantially engage the periphery of the platten bracket roll 149 which may be rotatably supported upon a suitable stud 151 depending from a portion of the housing 148, as indicated in Figure 3.

The shaft 146 of the tape cutter 143 is driven from one end of a horizontal shaft 152 by a suitable worm gear 153, indicated in dotted lines in Figure 3. The shaft 152 in turn is driven from a short upright shaft 154 by bevel gears 154'. A suitable clutch, generally designated by the numeral 155, is adapted to operatively connect the shaft 154 to the upper end of a shaft 156, whose lower end has a pair of bevel gears 157 operatively connecting it to a speed reducer 158 which, in turn, is driven from the main drive shaft 41, shown in Figure 2. The upright shaft 156 is adapted for continuous operation with the shaft 41, but the operation of the horizontal shaft 152 is controlled by the clutch 155, and the operation of the clutch is controlled by movement of the bags through the machine as will subsequently be described.

As best shown in Figures 6 and 7, the clutch 155 is provided with a shoulder 159 adapted to be engaged by one end of a clutch operating member or arm 161, pivotally mounted on a stud 162 and having a spring 163 normally tending to hold it out of engagement with the clutch 155, as shown in full lines in Figure 6. A clutch control finger or element 164 is secured to the hub 165 of the operating member 161, whereby it is adapted for oscillation simultaneously with the member 161. The clutch control element 164 is normally positioned as shown in full lines in Figure 6, wherein it will be noted it is positioned in the path of the bag tops whereby it will be engaged by each bag top, as shown in Figure 7, as the bags advance through the machine.

When the control element 164 is moved from the full to the dotted line position shown in Figure 6, the clutch operating member 161 is moved to the full line position shown in Figure 7, whereby the shoulder 159 of the clutch 155 will engage the end of the member 161 and render the clutch inoperative to drive the tape cutter. The moment the control element 164 disengages the bag top and returns to the full line position shown in Figure 6, the control member releases the clutch 155 whereupon the clutch is operative to rotate the tape cutter one revolution, whereby it will sever the tape between the bags as clearly illustrated in Figures 4 and 5. The tape cutter is so timed with relation to the travel of the bags and the operation of the sewing head that it will engage and sever the tape between adjacent bags as shown in Figure 4, without interrupting movement of the bags through the machine.

Means is provided for controlling the delivery of the bags to the sewing head whereby they will be delivered thereto in accurately spaced relation. As best shown in Figures 18 and 19 and 20, such means comprises a pair of oppositely disposed arms 166 secured to the upper ends of spaced shafts 167. The shaft 167 may be mounted in suitable brackets 168 secured to the side frame members 2 and 3 of the machine frame. The arms 166 are provided at their outward ends with upright plates 169 which may be termed "gates." These gates are adapted to be swung inwardly into the path of the bags to be engaged thereby as shown in full lines in Figure 18.

A suitable ratchet member 171 is secured to the lower end of each shaft 167. These ratchets are provided with spaced teeth 172 adapted to be engaged by a pair of spring-actuated dogs 173, having a spring 174 normally urging them into engagement with their respective ratchet members 171. The ratchet members 171 are shown provided with suitable hubs 175 for securing them to the shafts 167. Each hub 175 may be provided with a hook 176 to which the ends of a suitable tension spring 177 are connected. The spring 177 thus constantly exerts a force on the gates 169 to normally retain them in the position shown in Figure 18, whereby each bag engaging the gates may temporarily come to rest on the conveyer 6 until the gates are released.

Means is provided for intermittently releasing the gates 169, whereby the pressure of a bag thereagainst, caused by the feeding action of the conveyer 6, may swing the gates outwardly to the positions shown in Figure 19, whereby the bag interrupted thereby may pass on to the sewing head in accurately spaced relation to the preceding bag, as illustrated in Figure 19. The means provided for thus intermittently releasing the gates is shown comprising a bell crank generally designated by the numeral 178. This bell crank is shown having an upright arm 179 adapted to engage the inwardly extending portions 181 of the dogs 173, as shown in Figures 18 and 19. The long arm 182 of the bell crank 178 is adapted to be actuated by the cam 183 secured to a cross shaft 184 driven from the cam drive shaft 41 by a suitable speed reducer 185, indicated in Figure 18.

It will thus be noted that for each rotation of the cam 183, the bell crank 178 will be operated to release the dogs 173 from the ratchet members 171, as shown in Figure 19, whereby the

pressure of the bag against the gates 169 will cause the gates to swing outwardly and permit the bag to pass on. The action of the spring 174 on the dogs 173 will cause the inwardly extending portions or fingers 181 of the dogs to constantly exert a pressure against the upper arm of the bell crank 178 whereby the lower end of the arm 182 of the crank 178 may be constantly held in contact with the periphery of the cam 183.

In the operation of the machine, the partially flattened bag tops enter between the guide rods 87 and the inner adjacent runs of the V-belts 91, as the bags are advanced through the machine by the main conveyer 6. When the bag tops enter between the rods 87 and the inner runs of the V-belts 91, they are further compressed, and the V-belts 91 simultaneously cooperate with the main conveyer 6 to feed the bags toward the sewing head, whereby the bag bodies are maintained in true upright position as they are successively delivered to the sewing head.

As each bag approaches the sewing head it engages the gates 169, which normally are positioned in the path of the bags, whereby the traveling movement of each bag is momentarily interrupted, until the gates are swung outwardly by the action of the cam 183, shown in Figures 19 and 20. The bag top then passes through the resilient guide members 119 which further compress the bag top walls and pull out any wrinkles which may be present therein, so that the compressed bag top may readily enter the partially folded strip of tape passing through the tape folder 113 as shown in Figure 5. The strip of tape is constantly being drawn from the supply roll 109 as the bag top advances through the sewing head which stitches the tape to the traveling bag tops, as will be understood by reference to Figures 4 and 5.

During the sewing of the strip of tape to the bag top, the puller rolls 115 of the sewing head, which operate in timed relation to the travel of the main conveyer 6, feed the bag top through the sewing head in timed relation to the operation of the sewing needle 116 and the action of the usual feed dog of the sewing head, not shown. The gates 169 serve to accurately space the bags apart as shown in Figure 5, when they approach the sewing head, whereby a strip of tape may be uniformly applied to the top of each bag.

The operation of the sewing head is controlled by actuation of the control finger 135 by each bag as it passes the sewing head. The control finger 135 is preferably so arranged with respect to the travel of the bags that so long as the bags are delivered thereto in accurately spaced relation, as shown in Figures 4 and 5, the operation of the sewing head may be substantially continuous. When, however, the delivery of the bags to the sewing head is interrupted, as when the operator fails to deliver bags to the machine, the control finger 135 will return to the full line position shown in Figure 18, whereby the clutch 129 is rendered inoperative to drive the sewing head.

The final operation in completing and sealing the bag top resides in severing the strip of sealing tape between adjacent bags, as shown in Figures 4 and 5. As shown in these two figures the cutter head 144 is controlled entirely by the traveling movement of the bags through the machine. To thus control the operation of the cutter head, the clutch control finger 164 is mounted to be actuated by the leading edge of each bag top, as shown in Figures 6 and 7. When the control finger 164 of the clutch 155 is engaged by a bag top, it is moved to the position shown in Figure 7, whereby the arm 161 is swung into the path of the shoulder 159 of the clutch 155, whereby the driving connection between the clutch and the cutter head 144 is subsequently interrupted. When the control finger 164 disengages the bag top, as shown in Figure 6, it moves the clutch arm 161 out of engagement with the shoulder 159 of the clutch 155, whereby the clutch is again rendered operative to drive the cutter head. By thus controlling the operation of the tape cutter, the severing of the tape between adjacent bags is accurately accomplished so that all sealed bag tops will be substantially uniform in appearance, provided the spacing between adjacent bags on the main conveyer is maintained substantially uniform as the bags approach the tape applying mechanism and the tape cutter.

Should the spacing between adjacent bags on the main conveyer vary as a result of slippage, or for other reasons, the projecting end portion 241 of the tape at the leading end of the bag top may be somewhat longer than the projecting end portion 243 at the trailing end of the bag top. The projecting ends 243 at the tape at the trailing ends of the bag tops will always be uniform in length on all bags, because when the control finger 164 is in engagement with a bag top, as shown in Figure 7, the cutter head is at rest.

The moment, however, that the control finger 164 drops out of engagement with the trailing end of the bag, as indicated by the dotted and full lines in Figure 6, the driving connection between the clutch 155 and cutter head 144 is rendered operative, so that the cutter blade 143 will engage and sever the tape a predetermined distance from the trailing end of the bag top. The length of the projecting end portion 243 of the tape may be varied, if desired.

In Figures 8 to 13, inclusive, there is disclosed a tape cutter of somewhat different construction from the one shown in the previous figures. The tape cutter herein shown comprises a cutter head 191 provided with three cutter blades 192, although it is to be understood that more or less such cutter blades may be utilized, if desired. By providing the cutter head 191 with a plurality of cutter blades, should the spacing between the bags on the main conveyer vary, as the bags pass through the sewing head and tape cutter, the tape will be severed in proximity to the leading end 193 of the bag tops as indicated at 195 in Figure 15.

Ordinarily, under normal operating conditions, the spacing between bags on the main conveyer as the bags pass through the sewing head and tape cutter is more or less uniform. At times, however, such spacing may vary due to slippage or irregularities in delivering the filled bags to the main conveyer, whereby when a single blade is utilized as shown for example in Figures 4, 5 and 6, the projecting end portion 197 of the tape at the leading end 193 of the bag may be relatively longer than the projecting end portion 198 of the tape at the trailing end of each bag. The projecting end portion 198 at the trailing end of each bag top will always be of the same length because the operation of the cutter head being controlled by actuation of the control element 164 by the bag top, as hereinbefore described.

The cutter head 191 is intermittently driven by a suitable clutch, generally designated by the numeral 201 shown in Figure 8. The clutch 201 is secured to a shaft 206 having an operative connection with the driving means (not shown) be-

tween the clutch 201 and cutter head 191. The clutch comprises a clutch control plate 202 secured to a small control shaft 203 mounted in the clutch in laterally spaced relation to the clutch drive shaft 206, as best shown in Figure 13. The clutch 201 is of well known construction, and its driving connection to the cutter head is controlled by manipulation of the control plate 202.

The control plate 202 is adapted for limited oscillatory movement about the axis of the control shaft 203, as indicated by the full and dotted lines in Figure 13. Spring means, not shown, is operatively engaged with the control shaft 203 within the clutch 201 and normally retains the control plate in the full line position shown in Figure 13 whereby the cutter head 191 will rotate with the clutch.

To prevent damage to the bag top by the cutter head as each bag top passes the cutter head, shown in Figure 12, means is provided for momentarily rendering inoperative the driving connection between the clutch 201 and the cutter head 191. To thus render the driving connection between the clutch and cutter head inoperative, the control plate 202 of the clutch must be relatively rotated about the axis of the clutch control shaft 203 from the full to the dotted line position shown in Figure 13. Such actuation of the clutch control plate 202 is shown comprising a detent 204 secured to a plate or disk, generally designated by the numeral 205, shown having a plurality of peripheral teeth 207, one for each cutter blade 192. The teeth 207 bear a definite relation to the cutter blades, as illustrated in Figures 12 and 13. The detent 204 is secured to the disk 205, and in the present instance, serves as a tooth 207 of said disk.

A latch 208 is pivotally mounted on a stud 209 secured to a bracket 211 which in turn is secured to a main supporting bracket 212 which supports the clutch and cutter head and associated mechanisms, including the sewing head 110.

A suitable spring 213 has one end connected to the latch 208 and its opposite end to a fixed part of the bracket 211, as indicated at 214 in Figure 9, whereby the latch is constantly urged in a direction towards the notched disk 205. The latch has an abutment shoulder 215 adapted to engage a tooth 207 of the disk 205, thereby to interrupt rotation of the cutter head 191.

The operation of the latch 208 is controlled by an arm 216 pivotally mounted on a stud 217 suitably secured to the bracket 211. The clutch control finger or element 199 shown in Figures 11 and 12, is adjustably secured to the arm 216 whereby the angular relation between the control element 199 and the arm 216 may be varied to accurately time the operation of the cutter head to the traveling movement of the bags. The finger 199 is adapted to engage the bag tops in a manner similar to the finger 164, as shown in Figures 4, 5 and 6.

Spaced pairs of puller rolls 218—219 and 221—222 engage the tape-sealed bag tops and draw or feed them past the cutter head, as will be understood by reference to Figures 11 and 12. The puller rolls 218 and 221 are power driven through a connection 223 from the shaft 226 of the sewing head, as best indicated in Figure 9, and whereby the puller rolls are operated in timed relation to the operation of the usual presser foot 117 of the sewing head, thereby to avoid any possible danger of slippage between the bag top advancing means and the bag top, as the latter passes through the sewing head and tape cutter. A suitable chain 224 provides a driving connection between the puller rolls 218 and 221.

The puller rolls 219 and 222 are yieldably held in contact with the bag tops by spring actuated arms 225 pivoted at 226 to the bracket 211. Each arm 225 has a spring 227 exerting a pressure thereon to hold the puller rolls 219 and 222 in driving engagement with the bag tops, as will be understood by reference to Figure 9. A platten roll 228, similar to the roll 149 shown in Figure 4, is mounted between the spaced pairs of puller rolls as shown in Figures 11 and 12, and has its periphery disposed in cutting relation to the cutting edges of the blades 192 of the cutter head 191. A suitable spring 229 has one end secured to the arm 216 of the control element 199 and its opposite end to the bracket 211, whereby the control element is constantly urged in a direction into the path of the traveling bag tops, as will be understood by reference to Figures 9, 11 and 12.

The power driven puller rolls 218 and 221 are secured to shafts 231 and 232, respectively, mounted in bearings 233 and 234 provided on the bracket 211, as best shown in Figure 10.

The clutch 201 is constantly driven from an upright telescoping shaft 235 by a suitable chain 236, shown in Figure 8. The lower end of the telescoping shaft 235 may be driven from the main drive shaft 41 by suitable means, not shown. The shaft 126 of the sewing head drive 124—125 is shown driven from a tubular member or sleeve 237 whose lower end is operatively connected to the clutch 129 in a manner similar to the structure illustrated in Figure 3. The main supporting bracket 212 for the sewing head 110 and the tape cutting mechanism is vertically slidable on a suitable upright column 238, having its lower end suitably fixed to the machine frame. An upright adjusting screw 239, corresponding to the adjusting screw or shaft 80 in Figure 3, provides means for vertically adjusting the sewing head and tape cutting mechanism with relation to the bag top, as will be understood.

The operation of the tape cutting mechanism shown in Figures 8 to 13, inclusive, is very similar to the mechanism described in the previous figures with the exception that should the bags not be uniformly fed to the sewing head and tape applying and cutting mechanism, as shown at the right hand side of Figure 15, the strip of tape which normally joins adjacent bags before the tape is severed will be cut or severed into a plurality of pieces the length of such pieces being determined by the speed of the cutter head 191 and the spacing between the cutting blades thereof.

The operation of the cutter head, is so controlled by actuation of the control element 199 by the bag tops, that the cutter head is always interrupted before a bag top reaches a position between the puller rolls 218 and 219 and the platten roll 228, to prevent the blades of the cutter head from directly engaging and damaging the bag tops. During the period that the clutch control element 199 is positioned in the path of the bag tops, as shown in Figure 11, the cutter head will continue to rotate and thus sever the strip of tape between adjacent bags into one or more pieces depending upon the spacing between the bags on the main conveyer.

Thus by using three or more blades in the cutter head, the projecting end portion 197 at the leading end of each bag top will be of sub-

stantially the same size as the projecting end portion 198 at the trailing end of each bag top, whereas, when using a single blade cutter head as illustrated in Figures 4 and 5, the projecting end portion 241 of the tape at the leading end of the bag top may be considerably longer than the projecting end portion 243 at the trailing end of the bag, as shown in Figure 14, should the spacing of the bags on the main conveyer vary.

Ordinarily, under normal operating conditions, the bags are continuously fed to the sewing head and tape applying and severing mechanisms in uniformly spaced relation, as shown in Figures 4 and 5, and under such operating conditions the tape ends on the completely sealed bag tops will be substantially uniform in length at both ends of the bag top.

While we have herein described the bags as traveling uninterruptedly through the machine, it is to be understood that each bag may pause slightly just before reaching the tape applying mechanism, as a result of being engaged by the gates 169 which momentarily interrupt the movement of each bag to accurately space it from the proceeding bag. The operation of the main conveyer 6, however, is continuous so that if the bags are delivered to the sewing head in closely spaced relation, the bags pass through the machine substantially without interruption.

It will be apparent to those skilled in the art that we have accomplished at least the principal objects of our invention, and it will also be apparent to those skilled in the art that the embodiments herein described may be variously changed and modified without departing from the spirit of the invention, and that the invention is capable of uses and has advantages not herein specifically described; hence it will be appreciated that the herein disclosed embodiments are illustrative only, and that our invention is not limited thereto.

We claim as our invention:

1. In a machine of the class described, a conveyer for conveying filled bags along a predetermined path without interruption, means for pressing the bag top walls into flatwise relation, means for longitudinally folding a strip of sealing tape upon itself and successively applying the tape to the flattened bag top walls of each bag as the bags advance through the machine, means for securing the tape to the bag top walls, co-acting rotary tape cutting elements having vertical axes of rotation, and means made operable by movement of the bags through the machine to cause said cutting elements to operate and sever the tape between adjacent bag tops.

2. In a machine of the class described, a conveyer for advancing filled bags along a predetermined path without interruption, means for pressing the bag top walls into flatwise relation, means for longitudinally folding a strip of sealing tape over the flattened bag top walls of each bag and securing it thereto, a platten roll mounted at one side of the travel path of the bag tops, a shaft mounted at the opposite side of said travel path, and a knife rotatable with said shaft and having its cutting edge disposed at an incline to the axis of said shaft, said roll and knife cooperating to sever the tape between adjacent bag tops.

3. In a machine of the class described, a conveyer for advancing filled bags along a predetermined path, means for pressing the bag top walls into flatwise relation, means for longitudinally folding a strip of sealing tape over the flattened bag top walls of each bag and securing it thereto, a platten roll mounted at one side of the travel path of the bag tops with its periphery substantially engaging the tape secured to each bag top, a shaft mounted at the opposite side of the travel path of the tape, and a knife secured to and rotatable with said shaft and cooperating with said roll to sever the tape between adjacent bag tops.

4. In a machine of the class described, a conveyer for advancing filled bags along a predetermined path, means for pressing the bag top walls into flatwise relation, means for longitudinally folding a strip of sealing tape over the flattened bag top walls of each bag and securing it thereto, a platten roll mounted at one side of the travel path of the tape, a shaft mounted at the opposite side of said travel path whereby the tape passes between said roll and shaft, a knife mounted on said shaft and having its cutting edge arranged in cutting relation to the periphery of the roll, whereby the tape is severed between bag tops, each time the knife moves into cutting engagement with the roll, and means for controlling the operation of the knife in timed relation to the travel of the bags.

5. In a machine of the class described, a conveyer for advancing filled bags along a predetermined path, means for pressing the bag top walls into flatwise relation, means for longitudinally folding a strip of sealing tape over the flattened bag top walls of each bag and securing it thereto, a platten roll mounted at one side of the travel path of the tape, a shaft mounted at the opposite side of said travel path whereby the tape passes between said roll and shaft, a knife mounted on said shaft and having its cutting edge arranged in cutting relation to the periphery of the roll whereby the tape is severed between bag tops, each time the knife moves into cutting engagement with the roll, means for controlling the operation of the knife in timed relation to the travel of the bags, and the cutting edge of said knife being disposed at an angle to the axis of the platten roll, whereby the knife edge will engage the periphery of said roll with substantially a point contact.

6. In a machine of the class described, a conveyer for advancing filled bags along a predetermined path, means for pressing the bag top walls into flatwise relation preparatory to receiving a strip of sealing tape, means for supporting a roll of tape, means for guiding the tape into position over the flattened bag tops and longitudinally folding the tape over the bag top walls of each bag, means for firmly pressing the folded tape into engagement with the flattened bag top walls of each bag and suitably securing it thereto, a platten roll mounted at one side of the travel path of the tape and having its periphery arranged to substantially engage a side wall of the tape, a shaft mounted at the opposite side of said travel path, a knife secured to and rotatable with said shaft and having its cutting edge disposed in cutting relation to the periphery of said roll, a clutch for operating the knife, and a control member for the clutch positioned to be engaged by each bag, whereby the knife is intermittently rotated to sever the tape between adjacent bag tops.

7. In a machine of the class described, a conveyer for advancing filled bags along a predetermined path, means for pressing the bag top walls into flatwise relation preparatory to receiving a

strip of sealing tape, means for supporting a roll of tape, a tape folder mounted over the bag tops and adapted to fold the tape longitudinally and guide the tape into sealing position over the flattened bag tops, means for securing the tape to the flattened bag top walls of each bag, a platten roll mounted at one side of the travel path of the tape and having its periphery substantially engaging the tape secured to each bag top, a shaft mounted at the opposite side of said travel path, a knife secured to said shaft and having its cutting edge disposed at an angle to the axis of said roll, a clutch for operating the knife, and control means for the clutch including a member normally positioned in the path of the flattened bag tops whereby said member is actuated by each bag to thereby cause the knife to be intermittently rotated to sever the tape between adjacent bag tops.

8. In a machine of the class described, means for advancing filled bags along a predetermined path, means for pressing the top walls of each bag into flatwise relation, a U-shaped tape folder mounted over the flattened bag tops and arranged to guide and fold the tape over the flattened bag tops, complemental pressure rolls engaging the opposed walls of the tape and pressing the tape walls firmly into contact with the bag top walls, means for securing the tape in sealing engagement with the walls of the bag top, tape cutting means including a platten roll and a rotary knife, said roll and knife having vertical axes of rotation and between which the tape-sealed bag tops pass, clutch means for intermittently operating the knife, and a clutch control element positioned to be engaged by each bag top whereby the knife is intermittently operated in timed relation to the travel of the bags to sever the tape between adjacent bag tops.

9. In a machine of the class described, means for advancing filled bags along a predetermined path, means for pressing the bag top walls of each bag into flatwise relation, a U-shaped tape folder mounted over the flattened bag tops and arranged to guide and fold the tape over the flattened bag top walls, complemental pressure rolls engaging the opposed walls of the tape and pressing the tape walls firmly into contact with the bag top walls, means for securing the tape in sealing engagement with the walls of the bag top, tape cutting means including a platten roll and a rotary knife between which the tape-sealed bag tops pass, the cutting edge of said knife being disposed at an angle to the axis of the platten roll to facilitate the operation of severing the tape, clutch means for intermittently operating the knife, and a clutch control element mounted to be actuated by each bag top whereby the knife is operated in timed relation to the travel of the bags thereby to sever the tape between adjacent bag tops.

10. In a machine of the class described, a conveyer for advancing filled bags along a predetermined path, means for pressing the bag top walls into flatwise relation, means for longitudinally folding a strip of sealing tape and applying it to the flattened bag top walls of each bag, means for sewing the tape to the bag tops, a platten roll mounted at one side of the travel path of the tape-sealed bag tops, a shaft mounted at the opposite side of said travel path and carrying a knife having its cutting edge disposed at an incline to the axis of said roll and in tape cutting relation to the periphery thereof, and clutch means for intermittently operating the knife to sever the tape between adjacent bag tops.

11. In a machine of the class described, a conveyer for advancing filled bags along a predetermined path, means for pressing the bag top walls into flatwise relation, means for folding a strip of sealing tape over the flattened bag top walls of each bag, a sewing head for sewing the tape to the flattened bag top walls, puller rolls for drawing the bag tops and tape through the sewing head in timed relation to the travel of the bag bodies, a platten roll mounted adjacent to one side of the bag tops and having its periphery substantially engaging the tape secured to each bag top, a shaft mounted at the opposite side of the bag tops, a knife secured to said shaft and having its cutting edge disposed at an incline to the axis of said shaft and in cutting relation to the periphery of the platten roll and cooperating with said roll to sever the tapes between adjacent bag tops, and means engageable with the bag tops for controlling the operation of the knife in timed relation to the travel of the bags.

12. In a machine of the class described, a conveyer for advancing filled bags along a predetermined path, means for pressing the bag top walls into flatwise relation, means for longitudinally folding a strip of sealing tape and applying it to the flattened bag top walls of each bag, means for securing the tape to the bag top walls, a platten roll, a shaft mounted in spaced relation to said roll, a cutter head secured to said shaft, a plurality of cutter blades secured to said head and having their cutting edges disposed in cutting relation to the periphery of said roll, said roll and cutter head being disposed at opposite sides of the tape whereby the tape passes therebetween, a clutch for driving the cutter head, stop means for interrupting rotation of the cutter head independently of the clutch, and a control element having an operative connection with the stop means and positioned to be actuated by each bag, whereby the operation of the cutter head is controlled by movement of the bags through the machine, thereby to cause the blades of the cutter head to sever the tape in proximity to the leading and trailing ends of each bag top, regardless of the spacing between bags.

13. In a machine of the class described, a conveyer for advancing filled bags through the machine, means for pressing the bag top walls into flatwise relation, means for longitudinally folding a strip of sealing tape and applying it to the flattened bag top walls of each bag, means for securing the tape to the bag top walls, a platten roll, a shaft mounted in spaced relation to said roll, a cutter head secured to said shaft, a plurality of cutter blades secured to said head and having their cutting edges disposed in cutting relation to the periphery of the platten roll, said roll and cutter head being disposed at opposite sides of the tape whereby the tape passes therebetween, a disk secured to the cutter head and having a plurality of teeth in its periphery, one for each cutter blade a constantly rotating clutch for driving the cutter head, a pivoted latch for engaging said teeth to temporarily interrupt rotation of the cutter head, and a control element having an operative connection with said latch and positioned to be actuated by each bag whereby the latch is released to engage a tooth of said disk and thereby interrupt rotation of the cutter head each time a bag top

passes the cutter head, and whereby the blades of the cutter head will sever the tape adjacent to the leading and trailing ends of each bag top, regardless of the spacing between bags as they are advanced through the machine.

14. In a machine of the class described, a conveyer for advancing filled bags through the machine, means for pressing the bag top walls into flatwise relation, means for longitudinally folding a strip of sealing tape over the flattened bag top walls of each bag and securing it thereto, a platten roll, a shaft mounted in spaced relation to said roll, a cutter head secured to said shaft, a plurality of cutter blades secured to said head and having their cutting edges disposed at an angle to the axis of said shaft and in cutting relation to the periphery of the platten roll, said roll and cutter head being disposed at opposite sides of the tape whereby the tape passes between said roll and shaft, a peripherally notched disk associated with the cutter head, a pivoted latch normally operatively engaged with said disk to interrupt rotation of the cutter head, a constantly rotating clutch for driving the cutter head, and a control element operatively engaged with the latch and positioned to be actuated by each bag top, as the bags successively pass the cutter head, said control member normally holding the latch member out of engagement with said disk and being operable upon engagement with each bag top to release the latch, whereby the latch will engage a tooth of the disk and thereby temporarily interrupt rotation of the cutter head, as each bag top passes by the cutter head, thereby causing the blades of the cutter head to sever the tape in proximity to the leading and trailing ends of each bag top, regardless of the spacing between the bags as they are advanced through the machine.

15. In a machine of the class described, a conveyer for advancing filled bags through the machine, means for pressing the bag top walls into flatwise relation, means for longitudinally folding a strip of sealing tape over the flattened bag top walls, a sewing head for sewing the tape to the bag tops, coacting puller rolls engageable with the opposed walls of the tape applied to each bag top for positively advancing the tape and bag tops through the sewing head in timed relation to the traveling movement of the bags, and means for severing the tape between the adjacent bag tops without interrupting the travel movement of the bags, said severing means comprising a rotary cutter head having a plurality of cutter blades mounted thereon, and a platten roll, said blades having their knife edges disposed in cutting relation to the periphery of the platten roll.

16. In a machine of the class described, a conveyer for advancing filled bags through the machine, means for pressing the bag top walls into flatwise relation, a supply of sealing tape, a tape folder positioned over the flattened bag tops adapted to longitudinally fold and guide the tape into position on the flattened bag tops, a sewing head for sewing the tape to the bag tops, coacting puller rolls engageable with opposite walls of the tape applied to each top for positively advancing the tape and bag tops through the sewing head in timed relation to the traveling movement of the bags, a rotary cutter head having a plurality of cutter blades secured thereto with their cutting edges disposed at an incline to the axis of the cutter head, a platten roll having its periphery disposed in cutting relation to said cutter blades, said cutter head and platten roll cooperating to sever the tape between adjacent bag tops, clutch means for driving the cutter head, and a control element for the clutch means positioned to be engaged by each bag top passing through the sewing head, whereby the operation of the cutter head is dependent upon the movement of the bags through the machine.

17. In a machine of the class described, conveyer means for advancing filled bags, means for partially pressing the bag top walls into flatwise relation, coacting resilient guide members for receiving the partially flattened bag top walls, means for supporting a roll of tape, a tape folder supported over the path of travel of the bag tops and comprising spaced walls between which the flattened bag top walls are received from said guide means, inwardly extending ledges on the lower edges of the walls of the tape folder adapted to be engaged by the opposite edges of the tape passing therethrough, thereby to accurately fold the tape over the bag top walls, a sewing head made operable by movement of the bags through the machine for stitching the tape to the bag tops, and a rotary tape cutter operating in timed relation to the movement of the bags thereby to sever the tape adjacent to each end of each bag top, said cutter comprising a platten roll and a cutter head between which the tape is fed, and said cutter head having a plurality of inclined knives secured thereto in circumferentially spaced relation.

18. In a machine of the class described, a conveyer for advancing filled bags through the machine, means for partially compressing the bag top walls into flatwise relation, a pair of coacting belts having adjacent runs arranged to receive the partially flattened bag tops and press them firmly together, a supply of sealing tape, a tape folder mounted over said coacting belt runs, means for guiding the upper marginal edge portions of the partially flattened bag top walls into the tape folder, means for uniformly spacing apart the bags as they enter the tape folder, a sewing head for stitching the tape to the bag top walls, a rotary tape cutter comprising spaced pairs of complemental puller rolls, one pair engaging the bag tops forwardly of the tape cutter and the other pair rearwardly thereof, means for operating the puller rolls in timed relation to the sewing head, and means engageable with the leading edge of each bag top for controlling the operation of the cutter and whereby the tape is transversely severed adjacent to each end of the sealed bag top, said cutter comprising a platten roll and a cutter head between which the tape is fed, and said cutter head having a plurality of knives secured to the periphery thereof in spaced relation.

19. In a machine of the class described, a conveyer for advancing filled bags through the machine, means for partially compressing the bag top walls into flatwise relation, a pair of coacting belts, having adjacent runs arranged to receive the partially flattened bag tops and press them firmly together, a supply of sealing tape, a tape folder mounted over said coacting belt runs, means for guiding the upper marginal edge portions of the partially flattened bag top walls into the tape folder, means intermittently movable into and out of the path of each bag, thereby to uniformly space apart the bags as they enter the tape folder, a sewing head for stitching the tape to the bag top walls, a rotary tape cutter including a cutter head and comprising spaced pairs of complemental puller rolls, one pair en-

gaging the bag tops forwardly of the cutter head and the other pair engaging the bag tops rearwardly of the cutter head, clutch means for operating the tape cutter in timed relation to the sewing head, and a clutch control element positioned to be engaged by the leading edge of each bag top, thereby to control the operation of the cutter head and whereby the tape is transversely severed adjacent to each end of the sealed bag top.

20. In a machine of the class described, a conveyer for advancing filled bags through the machine, means for partially compressing the bag top walls into flatwise relation, a pair of coacting belts having adjacent runs arranged to receive the partially flattened bag tops and press them firmly together, a supply of sealing tape, a tape folder mounted over said coacting belt runs, means for guiding the upper marginal edge portions of the bag top walls into the tape folder, a pair of bag spacing gates movable into and out of the path of the bags to uniformly space apart the bags as they enter the tape folder, a sewing head for stitching the tape to the bag top walls, a rotary tape cutter comprising spaced pairs of complemental puller rolls, one pair engaging the bag tops forwardly of the tape cutter and the other pair engaging the bag tops rearwardly of the tape cutter, a constantly operating clutch for operating the tape cutter in timed relation to the sewing head, a clutch control element positioned to be engaged by the leading edge of each bag top, thereby to control the operating of the cutter head and whereby the tape is transversely severed adjacent to each end of the sealed bag top, and means drivingly connecting the puller rolls with the sewing head whereby the puller rolls operate in timed relation to the sewing head.

21. In a machine of the class described, a conveyer for advancing filled bags through the machine, means for partially pressing the bag

top walls into flatwise relation, a pair of endless belts having adjacent runs arranged in spaced parallel relation and adapted to receive the partially flattened bag tops and press the walls of each bag top firmly together, a U-shaped tape folder mounted over the path of travel of the bags and having its side walls tapering inwardly in the direction of bag travel, a supply of tape, coacting means for guiding the flattened bag tops into the tape folder whereby the tape is accurately folded over the upper marginal edges of the walls of each bag top, a sewing head for stitching the tape to the bag top walls, as each bag top leaves the tape folder, spaced pairs of coacting puller rolls mounted to receive each tape sealed bag top, a cutter head and platten roll mounted between said pairs of puller rolls whereby the tape sealed bag tops must pass between the cutter head and platten roll, said cutter head comprising a plurality of cutter blades having their cutting edges disposed at an incline to the axis of the cutter head, clutch means for driving the cutter head, and a clutch control element positioned to be engaged by each bag top whereby the cutter head is intermittently rotated in timed relation to the travel of the bags, thereby to sever the tape adjacent to each edge of the sealed bag top.

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