

Jan. 3, 1928.

1,654,871

J. A. GAGE ET AL

MACHINE FOR PUTTING UP TAMALES

Filed Feb. 3, 1925

4 Sheets-Sheet 1

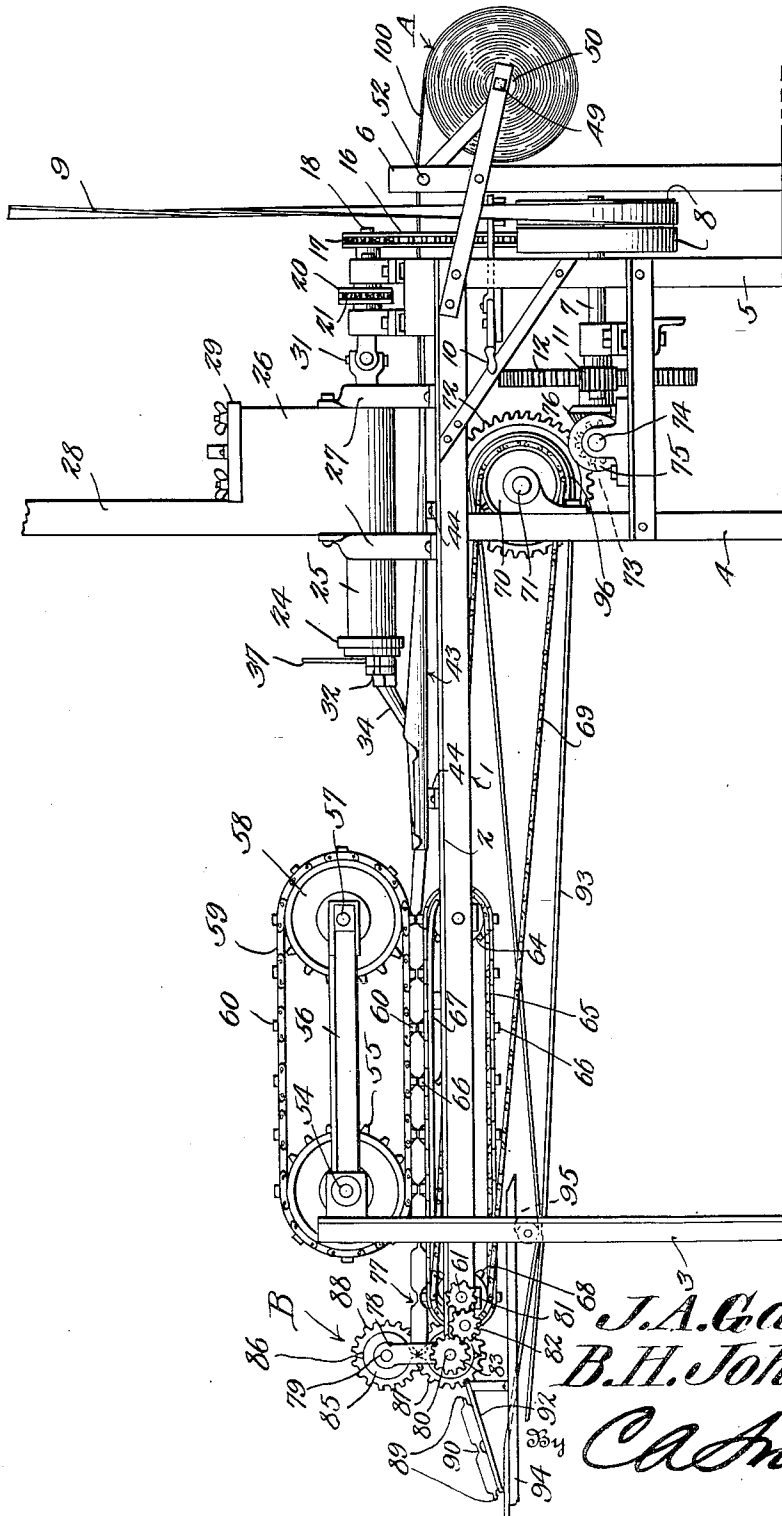


Fig. 1.

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4 Sheets-Sheet 2

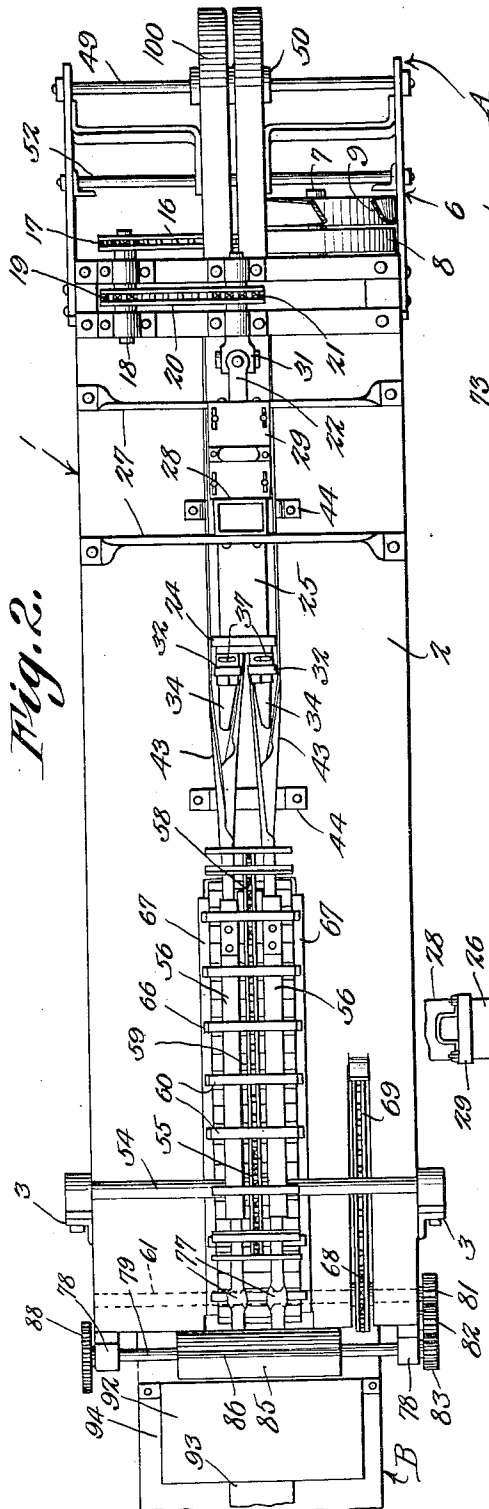


Fig. 2.

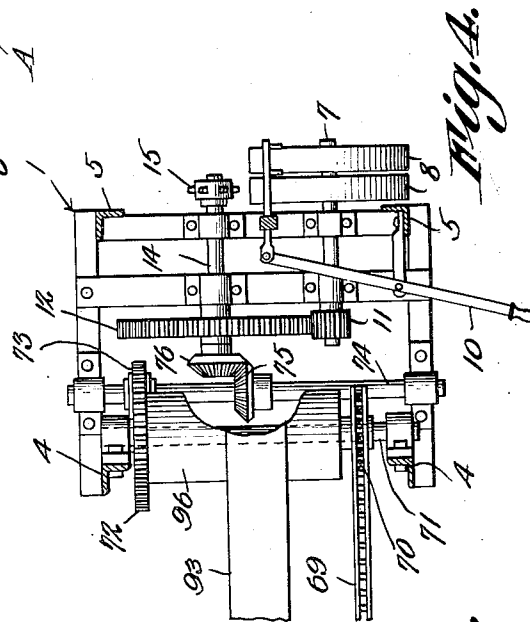


Fig. 4.

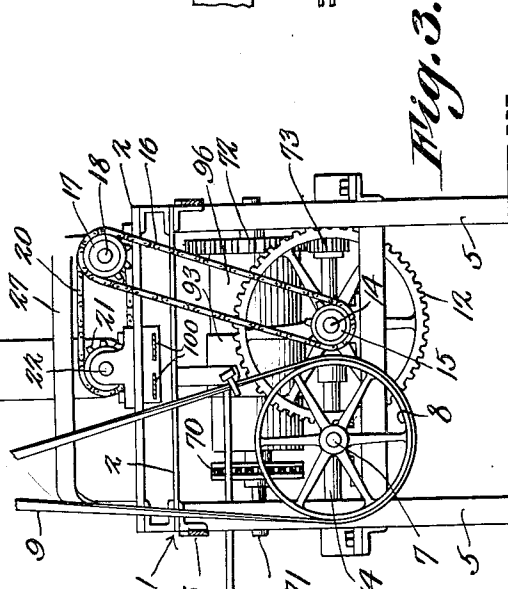


Fig. 3.

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4 Sheets-Sheet 3

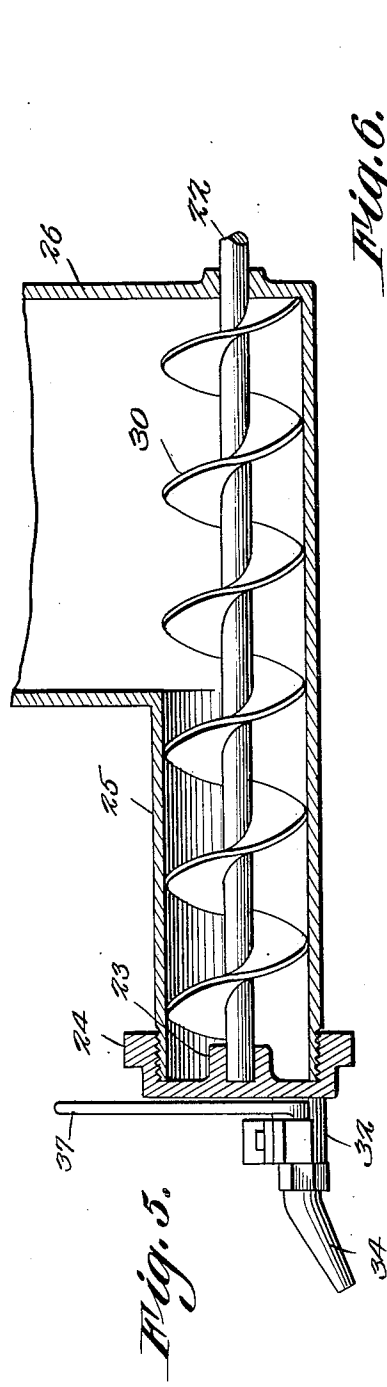


Fig. 5.

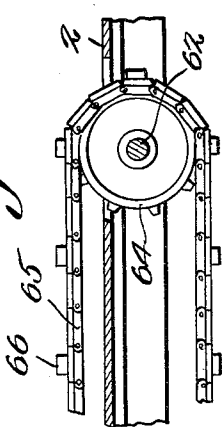


Fig. 6.

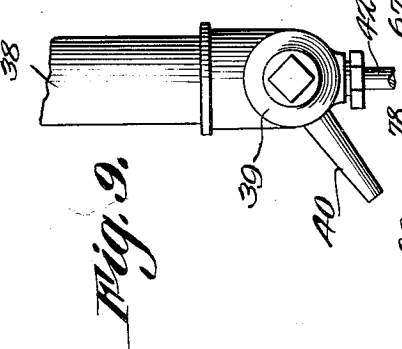


Fig. 9.

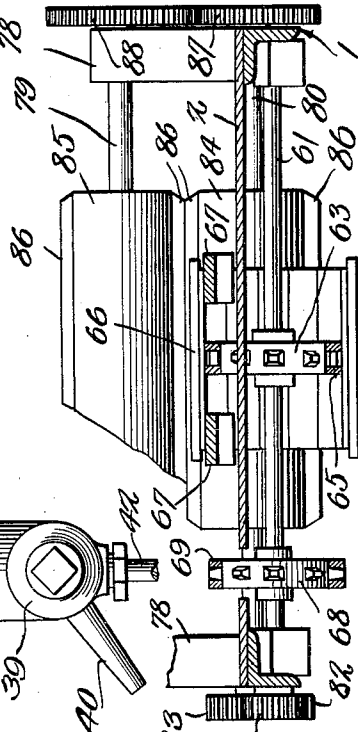


Fig. 7.

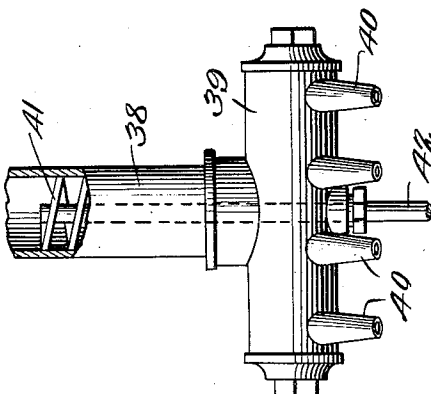


Fig. 8.

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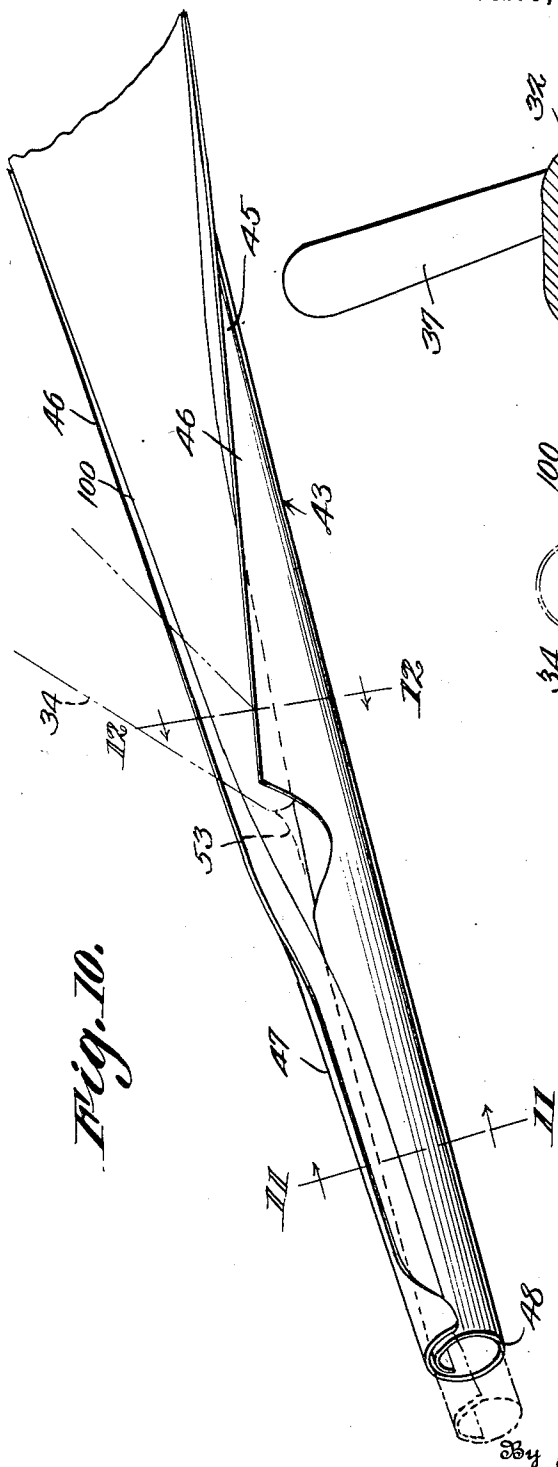


Fig. 10.

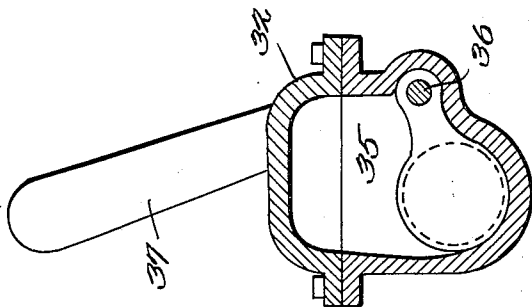


Fig. 13.

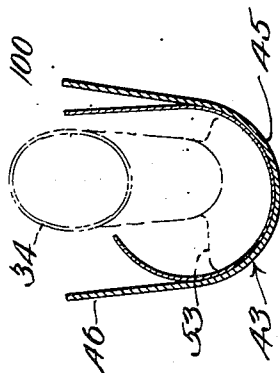


Fig. 12.

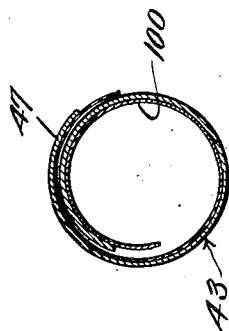


Fig. 11.

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# UNITED STATES PATENT OFFICE.

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## MACHINE FOR PUTTING UP TAMALES.

Application filed February 3, 1925. Serial No. 6,619.

This invention aims to provide novel means for shaping, wrapping, creasing, severing and delivering material. The machine is of general application, but, in order to avoid useless repetition, it will be pre-supposed that the device is to be used in connection with the making of tamales.

The machine is so constructed that it will deliver the material in a stream upon a continuous wrapper in the form of a strip. The wrapper and the material are advanced through a folder to engage the wrapper about the stream of material transversely. The wrapped material is creased crosswise at intervals. The wrapped material is severed at spaced creases, to form a product which may be doubled, to bring its ends together, before it is inserted into a can, and finally, the material, after it has been severed, is conveyed away to any accessible place where the packing in cans may be carried out conveniently.

Broadly stated, the object of the invention is to carry out some or all of the foregoing steps in properly timed relation, a mechanism being provided whereby this may be done. Structural features will be emphasized, as the description proceeds and as the claims develop. It is within the province of the disclosure to improve generally, and to enhance the utility of, devices of that sort to which the invention appertains.

In the accompanying drawing:—Figure 1 shows in side elevation, a tamale machine constructed in accordance with the invention; Figure 2 is a top plan; Figure 3 is an end elevation wherein parts are omitted; Figure 4 is a fragmental horizontal section showing one end of the frame and the driving mechanism, which is carried thereby; Figure 5 is a vertical longitudinal section taken through the hopper; Figure 6 is a fragmental longitudinal section showing a portion of the mechanism whereby the product is creased transversely; Figure 7 is a transverse section illustrating the cutting mechanism and parts which are adjacent thereto; Figure 8 is an elevation showing a slight modification in the hopper and delivery mechanism; Figure 9 is an elevation wherein the device of Figure 8 is viewed at right angles to the showing of that figure; Figure 10 is a perspective view of the folder; Figure 11 is a cross section on the line 11—11 of Figure 10; Figure 12 is a cross section on the line 12—12 of Figure 10;

Figure 13 is a section taken through the valve mechanism which controls the flow of the material as it passes upon the wrapper as the wrapper traverses the folder of Figure 10.

The device forming the subject matter of this application comprises a frame 1 which may be variously constructed. It is not necessary to describe in detail all of the structural elements of the frame. Let it suffice to state that the frame, generally considered, is in the form of a table, including a platform 2 carried by pairs of legs 3—3, 4—4 and 5—5. For convenience in locating and describing the various parts of the machine, that end of the frame 1 to which the reference letter A is applied will be considered the forward end of the frame, whereas that end of the frame which is designated by the reference letter B will be considered as the rear end of the frame. The forward end of the frame 1 has an extension 6.

For the propulsion of the various movable parts of the device, an actuating mechanism is supplied, the same comprising a drive shaft 7, extended longitudinally of the machine and journaled on the frame 1, below the platform 2, at the forward end of the frame. There are pulleys 8 on the shaft 7, one pulley being a fixed pulley, and the other pulley being a loose pulley, a belt 9 coacting with the pulleys 8, one at a time, under the direction of a belt shifter 10, carried by the frame 1 and under the control of an operator. Figure 4 shows that a pinion 11 on the inner end of the drive shaft 7 meshes with a gear wheel 12 on an auxiliary shaft 14, located parallel to the shaft 7 and journaled on the frame below the platform 2. The forward end of the shaft 14 carries a sprocket wheel 15 which is engaged by a chain 16 cooperating, as per Figure 3, with a sprocket wheel 17 on the rear end of a shaft 18, which may be called a supplementary shaft, the shaft 18 being located parallel to the shafts 7 and 14 and being journaled above the platform 2. A sprocket wheel 19 on the shaft 18 receives a chain 20 extended inwardly toward the longitudinal center of the frame 1 and engaged about a sprocket wheel 21 on a shaft 22 extended longitudinally of the frame 1 at the median line thereof. The shaft 22 is journaled at one end in bearings located above the platform 2, as shown in Figure 2, the rear end of the shaft being journaled in a bearing 23 (Fig-

ure 5) forming part of a cap 24 on the horizontal neck 25 of an upstanding hopper 26, the hopper being held above the platform 2 (Figure 1) by brackets 27 (Figure 2). The hopper 26 has a vertical inlet 28 and is provided, in front of the inlet, with a removable closure 29. The shaft 22 carries a screw conveyor 30, operating in the lower portion of the hopper 26 (Figure 5) and in the neck 25 of the hopper. A universal joint 31 (Figs. 1 and 2) is interposed in the shaft 22 and is located in front of the hopper 26. The neck 25 of the hopper 26 carries, at its rear end, any desired number of valve casings 32 assembled with the cap 24. The valve casings 32 are equipped with rearwardly-extended and downwardly inclined spouts 34—of which there may be as many or as few as is considered expedient. Valves 35 (Figure 13) operate in the casings 32 and regulate the flow of material through the spouts 34, the valves being carried by shafts 36, mounted to rock in the valve casings 32, and under the governance of handles 37 which extend from the shafts 36, externally of the valve casings 32.

The mechanism as thus far described, embodies means whereby a stream of tamale material may be delivered. The operation of the aforesaid portion of the machine is as follows:—

The tamale material enters the hopper 26 through the inlet 28 and is advanced by the screw conveyor 30 through the neck 25, the material flowing through the spouts 34, under the control of the valves 35. The driving train for the screw conveyor shaft 22 embodies the following elements: the belt 9, one of the pulleys 8, the shaft 7, the pinion 11, the gear wheel 12, the auxiliary shaft 14, the sprocket wheel 15, the sprocket chain 16, the sprocket wheel 17, the supplementary shaft 18, the sprocket wheel 19, the chain 20, and the sprocket wheel 21, which is carried by the shaft 22.

In the modification disclosed in Figures 8 and 9, the extension 38 of the hopper is vertically disposed, and is provided at its lower end with a transverse head 39 having a plurality of downwardly and rearwardly inclined spouts 40, there being four of the spouts, and Figures 8 and 9 emphasizing the fact that there may be any desired number of spouts. The screw conveyor in the part 38 is designated by the numeral 41 and is operated by a shaft 42.

Folders 43 are provided, one of the folders being shown in detail in Figure 10. The folders 43 are mounted on the platform 2 by means of brackets 44 and extend longitudinally of the platform, the folders projecting forwardly beneath the hopper 26. The forward end of each folder 43 is slightly trough-shaped as shown at 45. The side walls of the folder 43 are divergent at the

forward end of the folder, but as they extend rearwardly, the side walls, denoted by the numeral 46, assume a converging relation with respect to each other, and at the rear end of the folder are overlapped and spaced, as shown at 47 in Figures 10 and 11, so that the rear end of the folder takes the form of a tube 48. The extension 6 of the frame 1 carries a shaft 49 whereon are journaled spools 50 carrying the rolls of wrapper 100 wherein the tamale material is inclosed, the wrapper being flexible, and being made of any desired substance, either edible or inedible. The wrapper, proceeding from the spools 50, passes across a support 52 on the extension 6 on the frame 1, and, thence, runs beneath the hopper 26 and extends lengthwise of the folder 43. From the spout 34, the tamale material is delivered as indicated at 53 in Figure 10, upon the wrapper 100 as the wrapper traverses the folder 43. Figures 10, 11 and 12 make it evident that when the wrapper and the tamale material are advanced through the folder 43, the wrapper will be engaged about the material transversely, the product, up to this point, being in the form of a cylinder which moves continuously through the folder 43, toward the rear end B of the machine. The means whereby the wrapper and the tamale material are caused to move longitudinally of the folder 43 will be described hereinafter.

A shaft 54 extends transversely of the machine near to the rear end thereof and is mounted on the upper ends of the legs 3, above the platform 2. The shaft 54 carries a sprocket wheel 55. Radius arms 56 extend forwardly from the shaft 54 and are mounted at their rear ends to swing on the shaft 54. The forward ends of the radius arms 56 carry a shaft 57 supporting a sprocket wheel 58, a sprocket chain 59 being engaged about the sprocket wheels 55 and 58, the chain 59 having transverse cleats 60.

A shaft 61 (Figs. 1 and 7) is journaled in the frame 1 at a point closely adjacent to the rear end of the frame. A shaft 62 (Figs. 1 and 6) is mounted in the frame 1 at a point near the rear ends of the folders 43, the shaft 62 carrying a sprocket wheel 64, and there being a sprocket wheel 63 on the shaft 61. The sprocket wheels 63 and 64 operate a sprocket chain 65 having transverse cleats 66 supported at their ends (Figure 7) on guides 67 which extend longitudinally of the platform 2 (Figs. 1 and 2). The cleats 66 of the chain 65 cooperate with the cleats 60 of the chain 59.

A sprocket wheel 68 is carried by the shaft 61 near to one end of the shaft (Fig. 7) a sprocket chain 69 (Fig. 1) being engaged with the sprocket wheel 68, the sprocket chain 69 cooperating with a sprocket wheel 70 (Fig. 1) on a shaft 71, supported for

rotation on the legs 4 of the frame. Figure 4 shows that a gear wheel 72 on the shaft 71 meshes with a pinion 73 (Fig. 3) on a transverse shaft 74 journaled on the frame, a beveled pinion 75 on the shaft 74 meshing with a beveled pinion 76 on the rear end of the shaft 14.

When the chains 59 and 65 are operated, the cleats 60 on the chain 59 and cleats 66 on the chain 65 cooperate to advance the wrapped material through the folder 43 and, further, they serve to crease the wrapped material transversely, as indicated at 77 in Figure 1. The material, being interposed between the cleats 66 of the chain 65, and the cleats 60 of the chain 59, imparts movement to the chain 59 from the chain 65. Because the sprocket wheel 58 is carried by the radius arms 56 which, in turn, are mounted to swing on the shaft 54, the lower run of the sprocket chain 59 is held down securely on the wrapped material, so as to embed the cleats 60 of the chain 59 in the wrapped material. Further, should occasion demand, the operator may swing the radius arms 56 upwardly and backwardly on the shaft 54, thereby exposing the material, and those parts of the machine which are below the radius arms 56 and the chain 59.

The drive for the lower sprocket chain 65 comprises the belt 9, one of the pulleys 8, the shaft 7, the pinion 11, the gear wheel 12, the shaft 14, the beveled pinion 76, the beveled pinion 75, the shaft 74, the pinion 73, the gear wheel 72, the shaft 71, the sprocket wheel 70, the chain 69, the sprocket wheel 68, the shaft 61, and the sprocket wheel 63.

The mechanism last above described constitutes means for creasing the wrapped tamale material transversely, at intervals, and for advancing the material through the folder 43.

At its rear end, the frame 1 is provided at its sides (Figure 2) with standards 78 (Figure 1) wherein is journaled (Figure 7) an upper shaft 79, a lower shaft 80 being journaled in the standards, below the upper shaft 79. There is a gear wheel 81 on one end of the shaft 61, and this gear wheel meshes with a reversing pinion 82 journaled on the frame, the reversing pinion meshing with a gear wheel 83 on one end of the lower shaft 80. The opposite end of the shaft 80 carries a gear wheel 87 meshing with a gear wheel 88 on the corresponding end of the shaft 79, as shown in Figure 7. A roller 85 is mounted on the shaft 79, and the shaft 80 carries a roller 84, the rollers 84 and 85 being equipped with cooperating cutter blades. The blades 86 may be of any desired number, and may be located as desired on the respective rollers. It is preferred, however, that the blades 86 be so located that they will sever the wrapped tamale material at spaced creases 89, (Figure 1) so that the

product, as it leaves the machine, is in such shape that it may be folded or doubled at an intermediate crease 90, to bring its ends together, before the product is inserted endwise, in doubled form, into a can.

It has been pointed out hereinbefore how the shaft 61 is driven, and at this point it is necessary to state no more than that when the shaft 61 is rotated, the gear wheel 81, cooperating with the pinion 82, imparts rotation to the gear wheel 83, the lower shaft 80 being rotated, and rotation being imparted to the upper shaft 79 by the intermeshing gear wheels 87 and 88 of Figure 7, the rollers 84 and 85 turning in fixed relation with respect to each other, so that the cutters 86 on the rollers will coact to sever the wrapped material, into the form shown at the extreme right hand end of Figure 1.

Finally, the device embodies mechanism for carrying away the wrapped and severed tamale. Having this end in mind, the tamale passes upon a downwardly inclined chute 92, located at the rear end of the machine, the tamale moving from the chute 92 upon the upper run of a conveyor belt 93, the upper run of the conveyor belt passing through and traversing a support 94 which extends from the rear end of the machine. The conveyor belt 93 moves beneath a guide roller 95 which is journaled on the legs 3. The conveyor belt 93 is engaged about a roller 96 on the shaft 71, and since the drive for the shaft 71 has been explained already, that portion of the operation of the device need not be repeated.

The operation of the machine has been outlined hereinbefore, step by step, in connection with the various component mechanisms, but, by way of résumé, it will be understood that the plastic tamale material is forced out through the spout 34 by the conveyor or feed screw 30. The plastic material is delivered in a continuous stream on the wrapper 100, which moves in a continuous length from the reel-spool 50, the folder 43 engaging the wrapper 100 about the tamale strip, as the strip and the wrapper are advanced by the action of the cooperating chain cleats 60 and 66, these cleats creasing the wrapped material, as at 77 in Figure 1, the cutters 86 severing the wrapped material to form the product which is shown on the chute 92 at the right hand end of Figure 1.

Having thus described the invention, what is claimed is:—

1. In a machine of the class described, means for delivering a continuous strip of material on a continuous length of wrapper, a folder comprising parts which engage the wrapper about the material when the wrapper and the material are advanced, and mechanism for creasing the wrapped material at points spaced apart longitudinally of the wrapped material, the creasing

mechanism embodying endless belt-like members carrying creasing elements, means for driving one of said members, and means for mounting one of said members for swinging movement toward and away from the other of said member and toward and away from the material to be creased.

2. In a machine of the class described, mechanism for carrying a continuous length of wrapper, mechanism for feeding a continuous length of material on the wrapper, a folder along which the wrapper and the material pass, the folder embodying means for engaging the wrapper about the material when the wrapper and the material are advanced, and driven means for shifting the material within the wrapper and with respect to the wrapper, thereby to form creases in both the wrapper and the material at spaced points, said driven means constituting mechanism for advancing the wrapper and the material through the folder.

3. In a machine of the class described, mechanism for carrying a continuous length of wrapper, mechanism for feeding a continuous length of material on the wrapper, a folder along which the wrapper and the material pass, the folder embodying means for engaging the wrapper about the material when the wrapper and the material are advanced, driven means for shifting the material within the wrapper and with respect to the wrapper, thereby to form creases in both the wrapper and the material at spaced points, and means for severing the wrapped material at divers of the creases, said driven means constituting mechanism for advancing the wrapper and the material through the folder and with respect to the severing means.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures.

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BEN H. JOHNSON.