Nov. 1, 1938. M. W. DUNNAM 2,134,862

TAMALE MACHINE

Filed Dec. 22, 1937 2 Sheets-Sheet 1

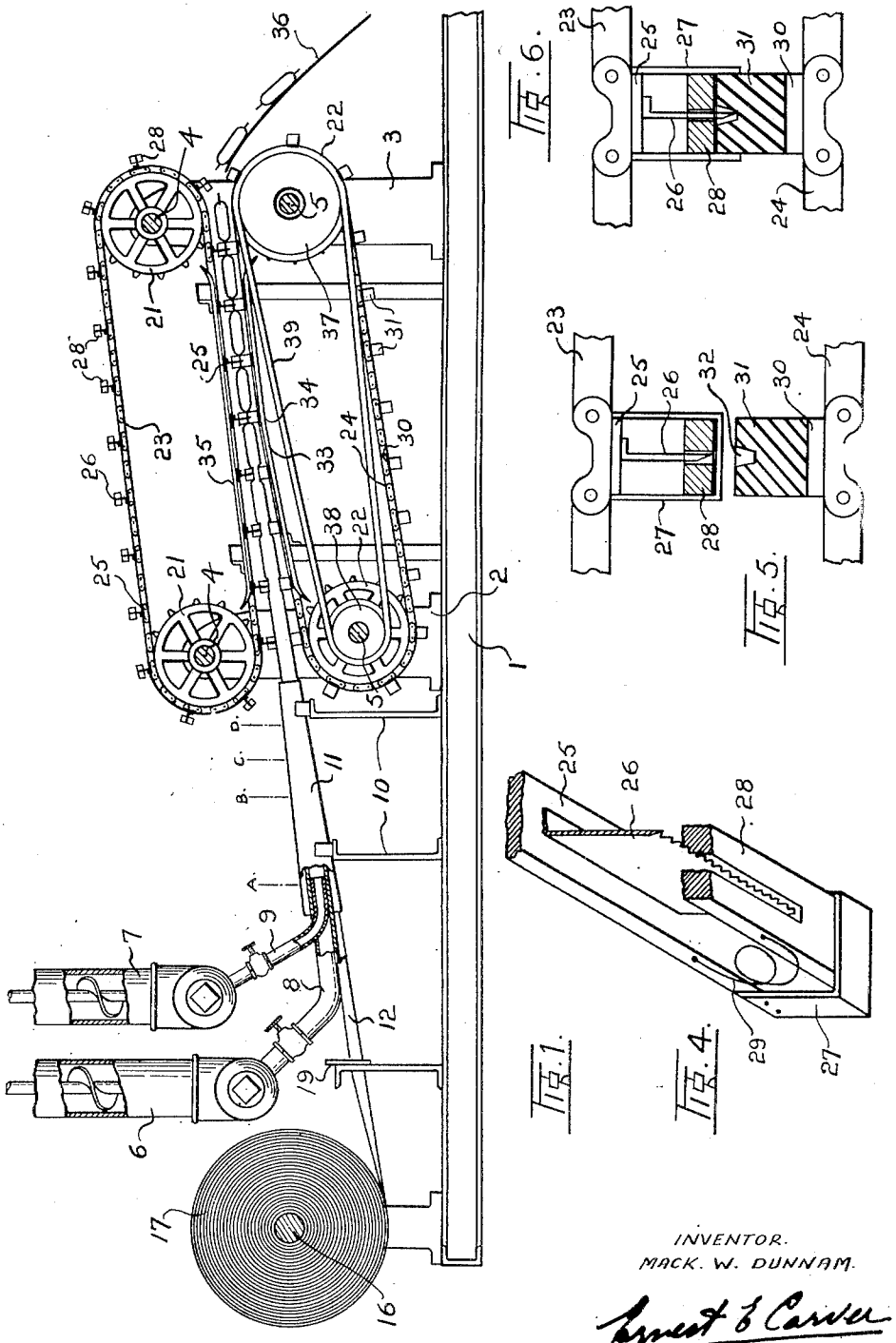


FIG. 1.

FIG. 6.

FIG. 5.

FIG. 4.

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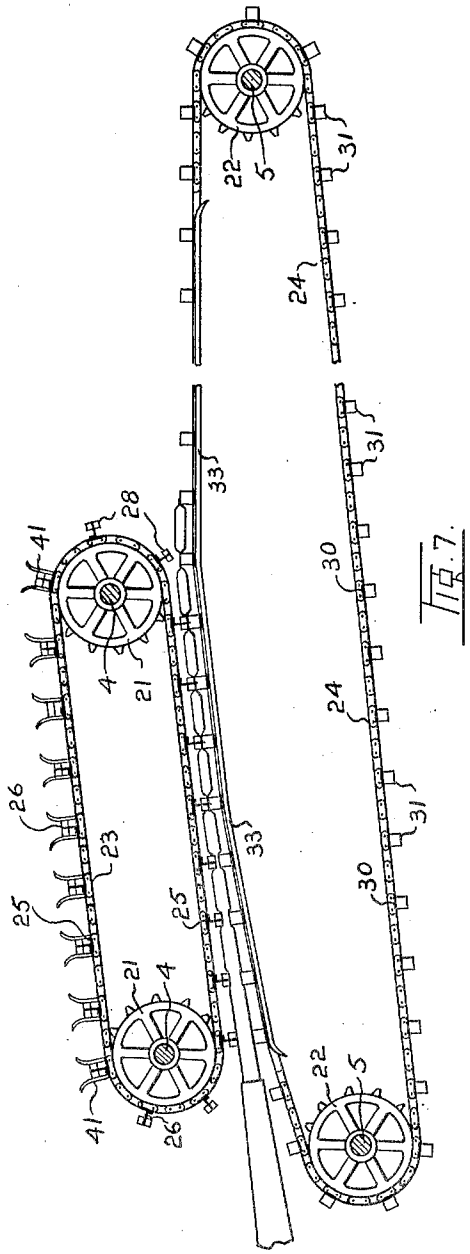


FIG. 7.

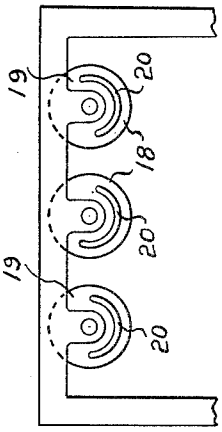


FIG. 2.

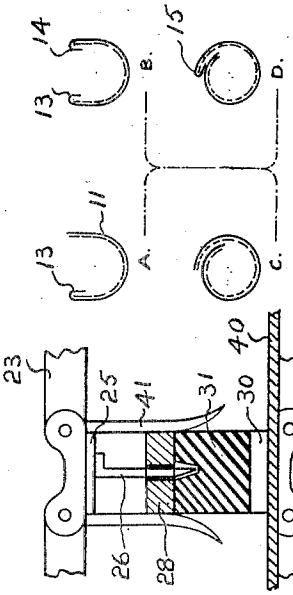


FIG. 3.

FIG. 8.

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TAMALE MACHINE

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Application December 22, 1937, Serial No. 181,236

8 Claims. (Cl. 93—3)

My invention relates to improvements in tamale machines, the objects of which are to provide means for continuously folding a paper wrapping upon the tamale filler as it leaves the feed jet; to provide for drawing the wrapped material away from the jet, for pressing the food ingredients in opposite directions to provide food free lengths to the wrapper and for severing the wrapped tamale filler intermediate the length of the food free portions of the wrapper.

The invention consists essentially of a tamale machine provided with a filler jet, a wrapper folding structure and coacting members for gripping and compressing the tamale as it is wrapped and of severing it into separate lengths, as will be more fully described in the following specification and shown in the accompanying drawings, in which:—

Fig. 1 is a longitudinal sectional view of the invention.

Fig. 2 is a detail elevational view of the wrapper strip guide.

Figs. 3A, B, C and D are detail sectional views of the paper folding tube taken on the lines A, B, C and D of Figure 1.

Fig. 4 is a perspective view of a part of the knife structure.

Figs. 5 and 6 are sectional views of the squeezing pads and knives with the squeezing pads in partly open and fully closed positions respectively.

Fig. 7 is a longitudinal view of a modified form of the machine.

Fig. 8 is a view showing the knife aligning forks of the modification.

In the drawings like characters of reference indicate corresponding parts in each figure.

The numeral 1 indicates a base frame upon which bearing standards 2 and 3 are erected to journal suitably driven shafts 4 and 5 of the conveyor squeezing and cutting mechanism to be hereinafter described. Mounted above the base are feed conveyors 6 and 7 which deliver the food content of the tamale to the machine, the conveyor 6 being provided with a plurality of valved feed pipes 8 arranged parallel to each other and extending downwardly and forwardly. Leading from the feed conveyor 7 are smaller valved feed pipes 9, each of which enters through the peripheral wall of one of the pipes 8 and extends concentrically therewith, so that food material exuding from the end of the pipe 8 will consist of a core of the meat from the conveyor 7 and an outer layer of corn or other material from the conveyor 6.

Mounted upon supports 10 and extending from the free end of each of the feed tubes 8 is a wrapper folding tube 11, see Figures 3A, B, C and D, this tube is made of a strip of sheet material and is curved transversely, so that its section at the points A, B, C and D of Figure 1 are as the sections A, B, C and D of the Figure 3. In the section A the wrapper strip indicated by the numeral 12 is held against upward movement to the left by an inturned fold 13, at the point B the section 3B shows also an inturned fold 14 which serves to prevent an upward movement of the wrapper strip to the right. The tube 11 at the point C of Figure 3 is a single convolution which causes the left side edge of the wrapper strip to fold in beneath the right side edge and at the point D an inturned edge 15 is provided on the right free edge, which prevents the over fold of the right side edge of the wrapper from moving beyond the longitudinal centre line of the wrapped tamale rod and tends to force the left side edge further inwards.

A shaft 16 is journalled above the base which is adapted to support a roll 17 of each of the wrappers 12. Interposed between each wrapper roll 17 and its folding tube 11 is a wrapper strip guide 18 which consists of a frictionally held rotatable disc 19 having a concentric slot 20 of similar length to the width of the wrapper. The wrapper strip passes through this slot which on being properly adjusted about its axis holds the wrapper against side sway and ensures a perfect fold being made about the tamale.

The shafts 4 and 5 are fitted with upper and lower spaced sprockets 21 and 22 respectively, the upper sprockets carrying conveyor chains 23 and the lower sprockets carrying chains 24. The chains 23 are cross connected with flights 25 each of which supports a fixed paper knife 26 intermediate its length and a box guide 27 at each end, see Figures 4, 5 and 6. Carried in each pair of box guides 27 is a slotted presser foot or squeezer 28 which is thrust outwardly from the flight 25 by springs 29, the outward movement of said squeezer being limited to the outer edge of the knife. The chains 24 are cross connected by flights 30 which carry resilient pads 31, such as rubber, which are preferably slotted as at 32 to receive the cutting edge of the coacting knife 26 when it is outwardly thrust from the squeezer. Below the flights 30 of the upper run of the chain 24 a cam plate 33 is supported, which is slightly offset from the straight intermediate its length as at 34 and a straight plate 35 is provided above the flights 25 of the lower run of the chain 23 which prevents the flights 25 from being lifted by

the material passing between the squeezer and pads, above a line drawn between the periphery of the sprockets 21.

The cam plate 33 is disposed at such angles that the tamale lengths entering between the squeezers 28 and the pads 31 are slightly gripped, and are progressively gripped and squeezed until the curve 34 or angle deviation of the cam plate is reached and from said curve to the upper end the inclination of said cam plate will still further narrow the space between said cam plate and the plate 35.

A delivery plate or conveyor 36 is provided for taking away the tamales after they have been cut to length.

In order to provide a moving support for the cut to length tamales when being carried between the pads 31 and between the end of the cam plate 33 and the delivery plate 36 I provide the adjacent shaft 5 with a fixed pulley 37 and the other shaft 5 with a loose pulley 38 of smaller diameter and connect them with an endless conveyor belt 39.

In the modification shown in Figure 8, a conveyor belt 40 extends between the chains and is connected to the inner side of all the flights 30 and forms a support for the tamales after they have been cut to length. The chains 23 may not be gear driven and consequently I provide forks 41 at the ends of the chain flights 30, which engage corresponding pads 31 or other suitable members, so that as the one set of chains is driven the drive is communicated to the other through said forks and the knives 26 are definitely aligned with their pads 31.

In operating the machine appropriate food material is supplied to the conveyors 6 and 7, rolls 17 of wrapper strips 12 are mounted upon the shaft 16 and each strip is fed through a slot 20 of one of the wrapper strip guide discs 18. The transversely curved strip is then fed through the wrapper folding tube 11 and between the chains 23 and 24. Food from the conveyors 6 and 7 is then forced through the pipes 8 and 9 into the wrapper as it is being folded within the tube, which wrapper closes tight upon the food material. From the end of the folding tube the tamale is drawn between the conveyor chains 23 and 24 and their respective parts and is gradually squeezed at intervals of predetermined length by the squeezers 28 and their corresponding pads 31 until the food material is pressed out of the portion of the wrapper so engaged, until each cooperating squeezer and wrapper reaches the angle 34 of the cam plate. The squeezer will remain at its outermost position due to the strength of its springs 29, but as the squeezer and pad pass along the cam plate beyond the angle 34 the squeezer will be urged inwardly against its springs while the knife is carried down below the face of the pad and severs the wrapper, thus severing the tamale into lengths which are finally discharged onto the delivery plate or conveyor 36.

What I claim as my invention is:

1. In a tamale machine having a food material feed tube, means for folding a wrapper continuously about the tamale expressed from the tube and means for severing the tamale into lengths, a wrapper guide comprising a member rotatable about an axis and having an arcuate slot concentric to said axis, said slot being substantially the same length as the transverse width of the wrapper.

2. In a tamale machine having a food material feed tube, means for folding a wrapper continuously about the tamale expressed from the tube, and means for severing the tamale into lengths, a wrapper guide comprising a member rotatable about an axis and having an arcuate slot concentric to said axis, said slot being substantially the same length as the transverse width of the wrapper, and means for frictionally holding said member against rotation.

3. In a tamale machine having a food material feed tube and means for continuously wrapping the food emerging from said tube, a conveyor comprising upper and lower endless conveyor members coacting to present a tamale receiving gap at one end, and unitary means carried by the members for progressively gripping the tamale emerging from the tube for drawing the wrapped tamale into the gap for squeezing the food material endwise of the wrapper at intervals of the length of the tamale and a knife coacting with the gripping and squeezing means for severing the tamale intermediate each of the squeezed portions.

4. In a tamale machine having a food material feed tube and means for continuously wrapping the food emerging from said tube, a conveyor comprising upper and lower endless conveyor members coacting to present a tamale receiving gap at one end and means carried by the members for progressively gripping the tamale emerging from the tube for drawing the tamale into the gap between the members for squeezing the food material endwise of the wrapper at intervals of the length of the wrapper until said food material is substantially separated and a knife coacting with the gripping and squeezing means for subsequently severing the substantially food free wrapper portions intermediate their lengths.

5. In a tamale machine having a food material feed tube and means for continuously wrapping the food emerging from said tube, a conveyor comprising upper and lower endless conveyor members coacting to present a tamale receiving gap at one end and means carried by the members for progressively gripping the tamale emerging from the tube for drawing the tamale into the gap between the members for squeezing the food material endwise of the wrapper at intervals of the length of the wrapper until said food material is substantially separated and a knife coacting with the gripping and squeezing means for subsequently severing the substantially food free wrapper portions intermediate their lengths while said food free wrapper portions are under gripping pressure.

6. In a tamale machine having a food material feed tube and means for continuously wrapping the food emerging from said tube, a conveyor comprising upper and lower endless conveyor members coacting to present a tamale receiving gap at one end, and means carried by the members for progressively gripping the tamale emerging from the tube for drawing the wrapped tamale into the gap for squeezing the food material endwise of the wrapper at intervals of the length of the tamale and a knife coacting with the gripping and squeezing means for severing the tamale intermediate each of the squeezed portions, and means for supporting said squeezed portions as they emerge from the endless conveyor members.

7. In a tamale machine having a food material feed tube and means for continuously wrapping the food emerging from said tube, a conveyor comprising upper and lower endless conveyor members coacting to present a tamale receiving gap at one end, and means carried by the mem-

bers for progressively gripping the tamale emerging from the tube for drawing the wrapped tamale into the gap for squeezing the food material endwise of the wrapper at intervals of the length of the tamale and a knife coacting with the gripping and squeezing means for severing the tamale intermediate each of the squeezed portions, and a conveyor belt substantially contacting with the underside of the lower conveyor member and adapted to support severed tamale lengths as they emerge from the endless conveyor members.

8. In a tamale machine having a food material feed tube and means for continuously wrapping the food emerging from said tube, a conveyor comprising upper and lower endless conveyor members through which the tamale is drawn, coacting tamale squeezing and severing means carried by the conveyor members consisting of a resilient squeezer, a pad and a knife, and means for supporting the lower conveyor member whereby the coacting runs of the conveyor define a gap to receive the tamale, to reduce said gap during the entering portion of the coacting run until the squeezer and pad are substantially in contact and to exert pressure between the squeezer and pad towards the outer portion of said runs whereby the knife is forced beyond the meeting face of the squeezer and the pad to sever the tamale.

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