March 13, 1945. J. G. CURRY 2,371,225

EXTRUDER

Original Filed Dec. 15, 1941 2 Sheets-Sheet 1

Fig. 1.

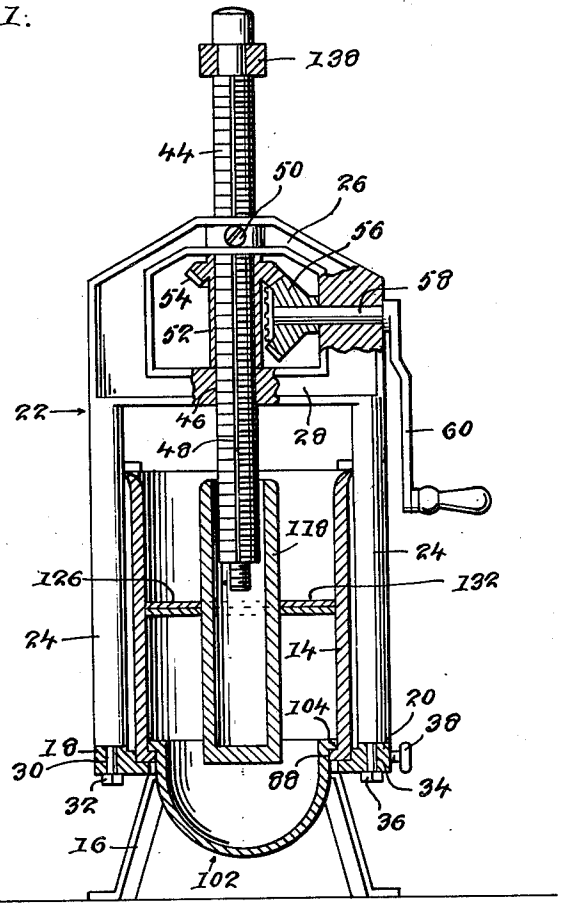
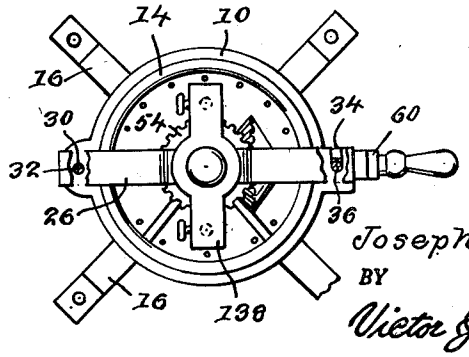


Fig. 2.



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Fig. 3.

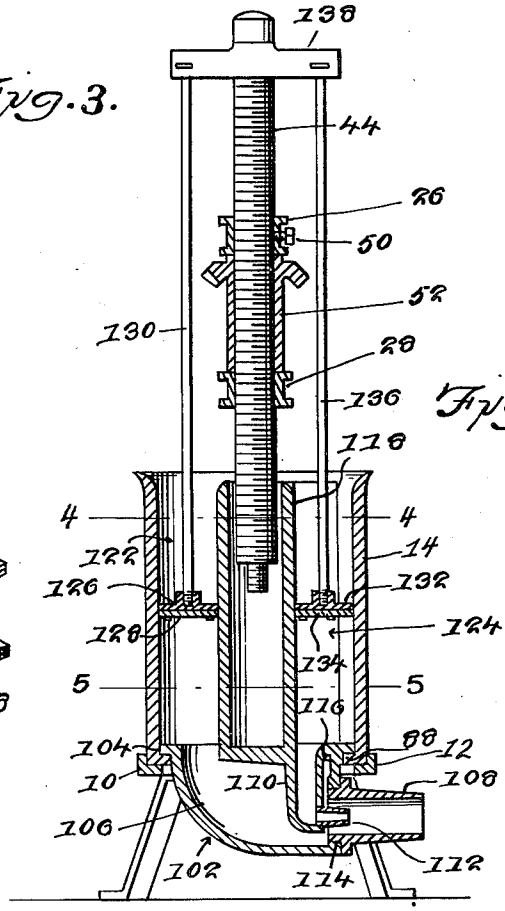


Fig. 7.

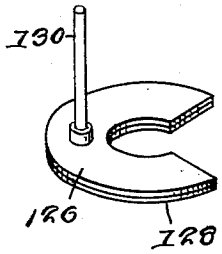


Fig. 8.

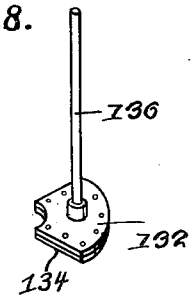


Fig. 4.

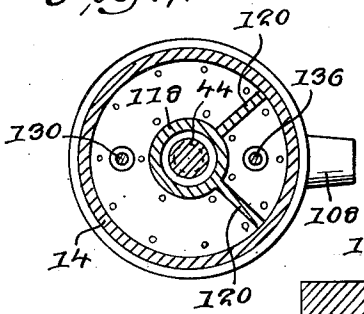


Fig. 5.

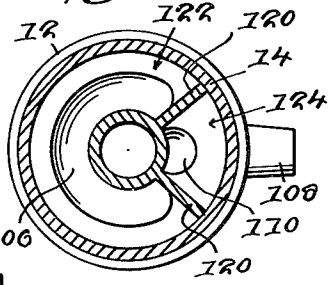
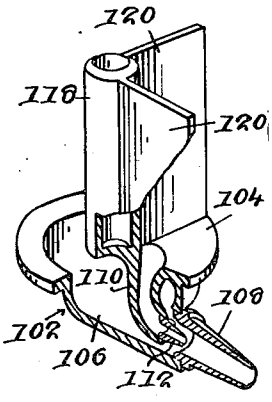


Fig. 6.



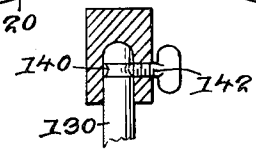


Fig. 9.

WITNESSES:

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Patented Mar. 13, 1945 2,371,225

UNITED STATES PATENT OFFICE

2,371,225

EXTRUDER

Joseph G. Curry, San Antonio, Tex.

Original application December 15, 1941, Serial No. 423,095. Divided and this application November 19, 1943, Serial No. 510,991

3 Claims. (Cl. 107—1)

The present invention relates to machines for making filling containing products such as tamales. And the present application is a division of my application Serial No. 423,095, filed December 15, 1941.

An object of the invention is the provision of a machine designed to produce filling containing food products and the like rapidly and of uniform character.

Another object of the invention is the provision of a machine of the aforesaid character which is relatively simple and durable in construction and efficient in operation.

Other objects and advantages of the invention will become apparent as the description progresses.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate corresponding parts throughout:

Figure 1 is a vertical sectional view through the machine with parts broken away to illustrate the interior construction,

Figure 2 is a top plan view of the machine with parts broken away to illustrate lower structure,

Figure 3 is a vertical sectional view through the machine taken at right angles to the view of Figure 1,

Figure 4 is a transverse section through the machine taken on line 4—4 of Figure 3,

Figure 5 is a transverse section through a lower part of the machine taken on line 5—5 of Figure 3,

Figure 6 is a perspective view of a part of the machine structure with a portion thereof broken away,

Figure 7 is a perspective view of one of the pistons,

Figure 8 is a perspective view of another piston of the machine, and

Figure 9 is an enlarged detail sectional view of a piston rod connection.

Referring to the drawings, wherein for the purpose of illustration is shown a preferred example of the invention, 10 designates a support ring normally assuming a horizontal position and provided with an upstanding annular flange 12. This ring is designed to support thereon and within the flange a hollow cylindrical body 14. A plurality of, in the present example 4, legs 16 secured to and depending from the ring 10 serve to support the latter above a table, bench or the like. At diametrically opposed parts of the ring 10 are provided a pair of protruding ears 18 and 20, the former having a bore vertically therethrough and the latter provided with a slot extending transversely inward from one side edge.

On the ears of the support ring is mounted a vertically disposed frame 22 embodying a pair of vertical bars 24 interconnected at their upper ends by an upper transverse yoke member 26 and a lower connecting bar 28. The ear 18, having the bore 30, supports one of the vertical bars 24 which is connected to the ear by a bolt 32 threaded into the bottom end of the bar. The opposite ear 20, having the slot 34, supports the complementary vertical bar 24 having a bolt 36 threaded into its lower end and engaging the slot. This construction enables horizontal swinging of the frame 22 about the bolt 32. A screw 38 threaded horizontally into the ear 20 functions to releasably fasten the bolt 36 in the slot 34 of the ear 20.

A screw 44 is mounted for axial sliding movement through guide openings in the upper and lower transverse members 26 and 28 and is provided with a longitudinal straight groove 48 into which projects the shank of a key screw 50 to prevent rotation of the screw 44.

An interiorly threaded sleeve 52 rotatably mounted between the upper and lower cross members 26 and 28 threadedly engages the main screw 44 and is formed at its upper part with a beveled gear 54 in meshing engagement with a complementary beveled gear 56 fixed on the inner end portion of a horizontal shaft 58 journaled on one side of the frame 22. The shaft 58 is manually rotatable through the medium of a hand crank 60 connected to the outer end thereof.

As shown to advantage at Figures 1 and 3, the bottom end of the body 14 is formed with an inwardly directed flange 88 for a purpose which will be described hereinafter.

Removably associated with the body 14 is a head section 102 having a circular flange 104 disposed to seat upon the body flange 88. The head 102 is essentially bowl shaped and is provided with a circular outlet 114 at one side thereof, this outlet being interiorly threaded to receive the inner threaded end of an extruding nozzle 108 extending horizontally from the outlet. A tubular duct 110 depending vertically into the bowl of the body 102 has a threaded opening in the lower side portion in registration with the outlet 114 and has an outwardly projecting nozzle 112 threadedly connected thereto. As shown at Figure 3, the nozzle 112 has an interior diameter substantially smaller than the interior diameter of the nozzle 108 with the smaller nozzle mounted concentrically of the larger. The head member

102 is also formed with a centraly disposed upstanding tube 118 closed at the bottom within the bowl and open at the top. Projecting radially from the tube 118 are a pair of partitions or wings 120 extending the full length of the tube in positions to divide the annular chamber between the tube and the circumferential wall of the body 14 into a major chamber 122 and a minor chamber 124. The latter chamber is in communication with the extruding duct 110 of relatively small diameter while the major chamber opens into the bottom bowl structure 106. A flat piston 126 is mounted transversely in and conforms to the cross sectional area of the major chamber 122 and is mounted to reciprocate therein while a second piston 132 conforming to the area of the minor chamber 124 reciprocates in the latter. These pistons may advantageously be covered by rubber facing as indicated at 128 and 134 respectively. To the piston member 126 is secured the lower end of an upstanding piston rod 130 while a similarly disposed piston rod 136 connects with the smaller piston 132. The upper ends of the piston rods are provided with circumferential grooves 140 and are slidably fitted in openings in the opposed end portions of a cross arm 138 attached to the upper end of the main screw 44, for example in the manner shown at Figure 1. A set screw 142 is threaded transversely through the cross arm to releasably engage the annular groove 140 of each piston rod for detachable connection of the rods with the cross arm.

To fill the respective chambers 122 and 124 with the material to be extruded and also for the purpose of cleaning the same, the frame 122 is swung from its normal position straddling the cylindrical body to an out-of-the-way position. In producing tamales the dough is placed in the major chamber 122 while the spiced meat is placed in the smaller chamber 124. By rotation of the crank 60 the main screw 44 is, through the operation of the beveled gears 54 and 56 lowered axially from its upraised position so as to cause simultaneous downward movement of the pistons 126 and 132. The piston 126 functions to force the dough downwardly in the dough chamber through the bottom of the extruding sections 102 and laterally through the nozzle 108. Simultaneously therewith the smaller piston forces the meat downwardly in the smaller chamber through the passage provided by the depending duct 110 and eventually discharges the same through the small nozzle 112 into the central portion of the dough. Thus, a continuous discharge through the nozzles forms a product in which the meat filling is in the form of a center core in a cylindrical body of dough which may be cut in suitable lengths and prepared in a desired manner.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes relative to the material, size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. In a machine of the character described, a hollow body, a member disposed centrally of the body, partitions in the body dividing the chamber therein about the central member into a pair of separated chambers, a member forming a passage from one of said separated chambers and provided with an outlet, a discharge nozzle projecting from said outlet, a conduit leading from the other separated chamber having an outlet, a nozzle attached to and projecting from the last mentioned outlet concentrically with the first mentioned nozzle, and means for forcing material from said separated chambers through said nozzles.

2. In a machine of the character described, a hollow body, a member disposed centrally of the body, partitions in the body dividing the chamber therein about the central member into a pair of separated chambers, a member forming a passage from one of said separated chambers and provided with an outlet, a discharge nozzle projecting from said outlet, a conduit leading from the other separated chamber having an outlet, a nozzle attached to and projecting from the last mentioned outlet concentrically with the first mentioned nozzle, a piston mounted in each of said separated chambers for forcing material therefrom and through the nozzles, and mechanism for actuating said pistons.

3. In a device of the type described, an upright cylinder having an inwardly extending shoulder at its lower end, a head having a flange resting on said shoulder and provided with first and second coaxial nozzles, said head being provided with first and second chambers communicating with said cylinder, said head having an upstanding tubular member inside said cylinder, radial wings on said tubular member coacting with said cylinder to divide the latter into third and fourth chambers respectively communicating with said first and second chambers, pistons slidable in said third and fourth chambers, a screw connected with said pistons to impart movement thereto longitudinally of said third and fourth chambers, and rotary means for imparting longitudinal movement to said screw, said screw being movable freely in said tubular member.

JOSEPH G. CURRY.