April 20, 1965 A. C. KISSLING 3,179,131

METHOD AND MACHINE FOR PACKAGING SHREDDED, COMPRESSIBLE MATERIAL

Filed Aug. 27, 1962 2 Sheets-Sheet 1

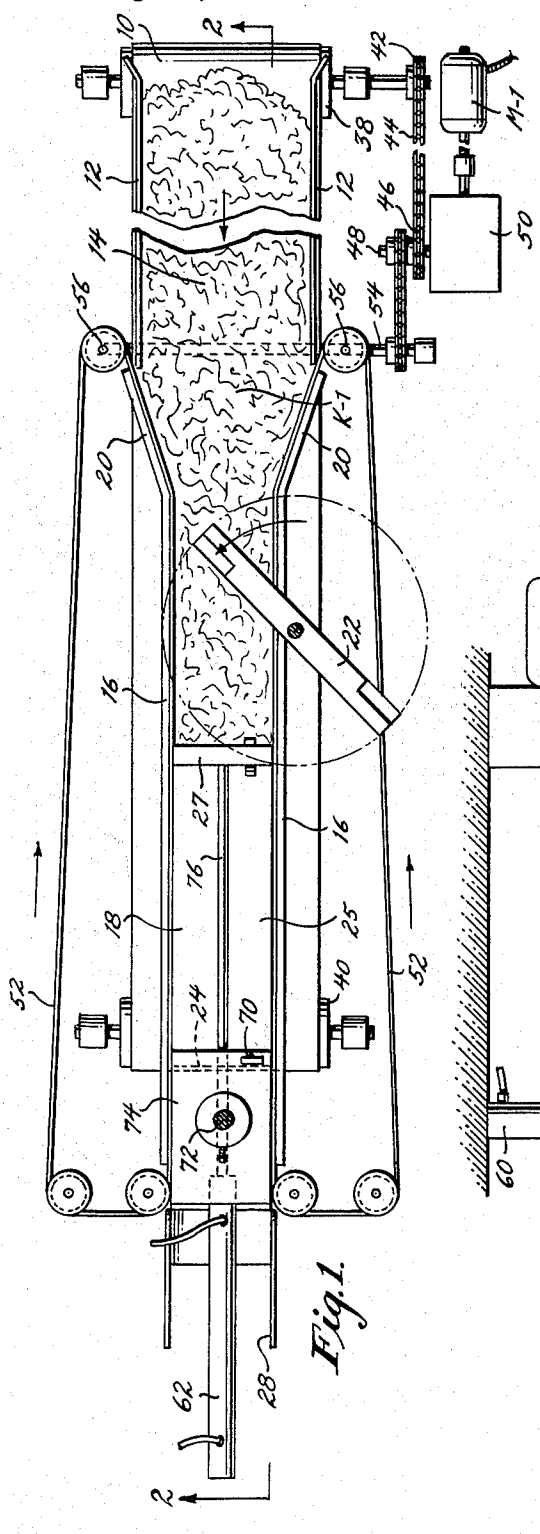

Fig. 1.

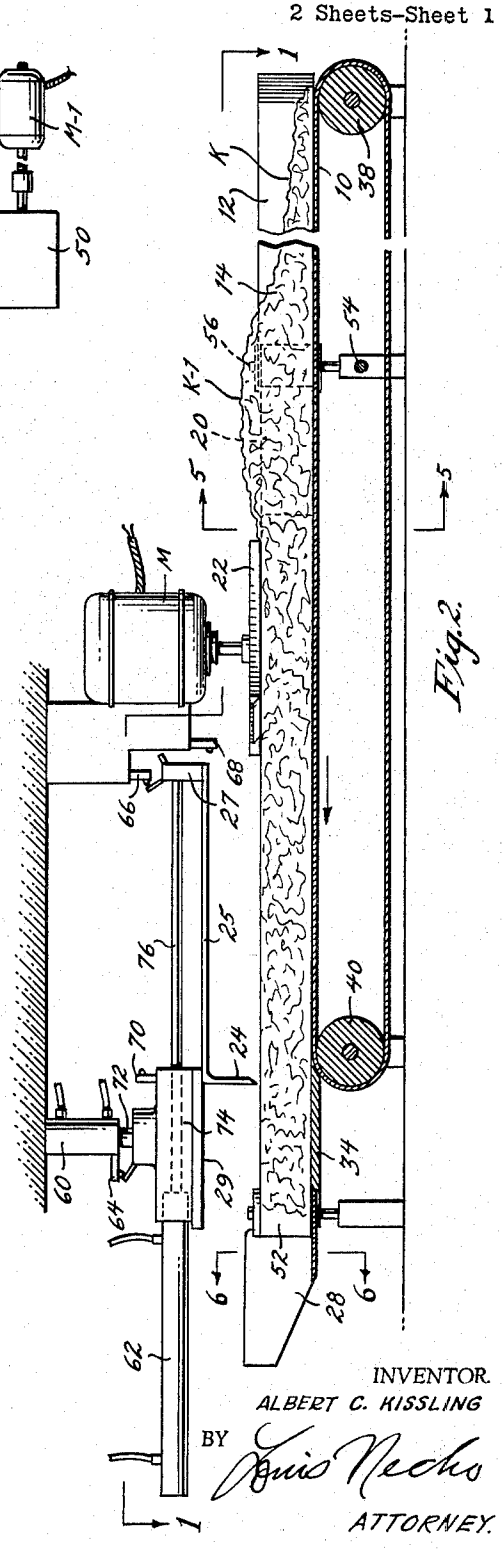

Fig. 2.

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Fig. 3.

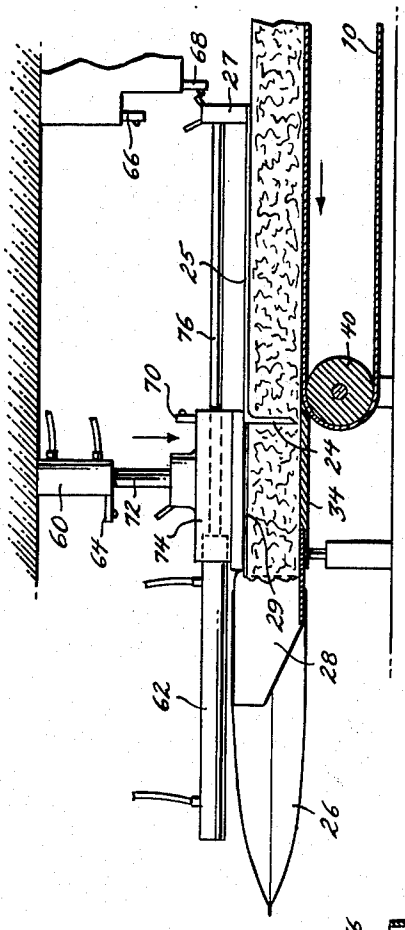


Fig. 4.

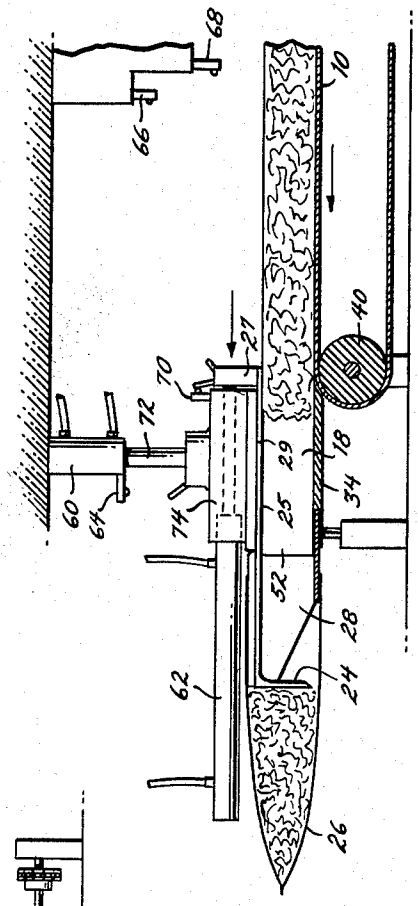


Fig. 6.

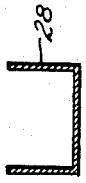
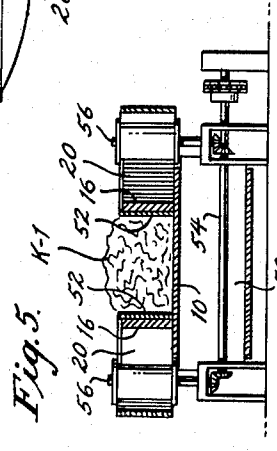


Fig. 5.



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METHOD AND MACHINE FOR PACKAGING SHREDDED, COMPRESSIBLE MATERIAL

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4 Claims. (Cl. 141—12)

This invention relates to an improved method for dispensing and bagging uniform quantities of sauerkraut, coleslaw and similar material, and to an improved machine for carrying out said method.

Sauerkraut, coleslaw, and other products which consist of solid long shreds and a liquid dressing are difficult to package for sale to the public because shreds tend to tangle together, thus making it difficult to achieve exact weight. For example, if an operator wants to weigh one pound of kraut, the bunch he starts out with is, for practical purposes, never exactly right. This means that the operator must remove, or add, some kraut, as may be indicated. In the case of beans, sugar, or the like this presents no problem because the operator can "pour" additional material until the scale indicates the right weight. But, because in the case of kraut, and the like, the shreds are tangled, it is impossible, with one try, to remove or to add exactly the quantity needed to achieve the desired balance. Because repeated efforts to achieve an exact balance cost more in labor than a small excess weight of kraut, and to be on the safe side of the law and to retain the good will of the public, the operator must lean toward excess weight rather than spend the time needed to make the weight exactly right. When it is remembered that a manufacturer can sell hundreds of thousands of bags of kraut annually, it will be seen that even a small fraction of an ounce, or less, in excess weight per bag will add up to a considerable loss.

It is therefore the object of this invention to provide an improved method and an improved apparatus whereby sauerkraut, coleslaw and similarly shredded products can be automatically and rapidly packed in uniformly exact quantities and without the use of scales.

According to this invention, the kraut is formed into a continuous stream which moves at a uniform rate of speed and has a uniform cross-section and a uniform consistency and then cutting segments of uniform length and stuffing them into individual receptacles.

The full nature of the invention is set forth in the following specification and in the accompanying drawings in which:

FIG. 1 is a top plan view of a sauerkraut measuring and dispensing machine embodying this invention.

FIG. 2 is a sectional view looking in the direction of line 2—2 on FIG. 1.

FIGS. 3 and 4 are views of the left-hand portion of FIG. 2 illustrating one mode of operating a machine embodying the invention.

FIG. 5 is a sectional view looking in the direction of line 5—5 on FIG. 2 showing details of construction.

FIG. 6 is a sectional view looking in the direction of line 6—6 on FIG. 2.

Generally speaking, a machine embodying this invention includes a mechanism for receiving and conveying the kraut in a continuous stream at a uniform rate of speed, a mechanism for imparting a uniform consistency to the kraut, and cross-section of a mechanism for severing segments of uniform lengths from said stream and stuffing said segments into bags.

The kraut packaging machine of this invention includes an endless conveyor 10; fixed, parallel side walls 12 which coact with the portion of the conveyor therebetween to form a relatively wide, large capacity receiving and feeding mechanism 14 for receiving kraut to be packed; fixed side walls 16 which coact with the portion of the conveyor 10 therebetween to form a relatively narrow mold 18, converging side walls 20 which serve to guide the kraut from the wide receiving and feeding mechanism 14 to narrow mold 18; a cutter 22 for removing the kraut above the vertical edges of side walls 16 and a combined severing blade and pusher 24 for severing uniform, predetermined lengths of the kraut moving in trough 18 and pushing it through the mouth of bag 26 which the operator pulls over the outer tapered ends of members 28 which support the receiving end of the bag while the kraut is being pushed into the bag.

The operation is as follows:

The kraut is delivered in a controlled stream into wide, receiving and feeding mechanism 14 where it forms a relatively shallow layer, as at K in FIG. 2. As the conveyor 10 moves to the left, as viewed in the drawings, converging walls 20 guide the kraut into relatively narrow mold 18 where it piles up, as at K–1 in FIG. 2. The rate of feed of the kraut is so related to the flow capacity of mold 18 that the level of the kraut to the right of cutter 22 is always higher than the upper edges of mold 18. It will be noted that the incidental, or a positively induced, vibration of conveyor 10 "shakes down" the kraut to a uniform consistency and that all free liquid drains off. As the kraut moves in mold 18, rotary cutter 22, which is driven by motor M, removes all kraut above side walls 16 so as to impart a uniform cross-section to the kraut. After the kraut passes cutter 22, combined severing blade and pusher 24 descends into contact with cutting board 34 to sever a segment of the kraut stream of a predetermined length and moves to the left to push the kraut into bag 26, which is shown applied to nozzle 28 in the manner shown in FIGS. 2, 3 and 4. Since the cross-section of narrow mold 18 is uniform and since the consistency of the kraut is uniform, it follows that segments of equal length will be of equal weight. By this arrangement, the operator simply removes a full bag and applies an empty one to nozzle 28 during each back stroke of the severing blade 24. The full bag is then placed on a conveyor which removes it to another station where brine is added and the bag sealed.

In the embodiment illustrated, conveyor 10 is formed of a belt, or the like, and travels endlessly on rolls 38 and 40. One of these rolls, such as roll 38, is driven by means of a sprocket 42 which is engaged by sprocket chain 44 which also engages a sprocket 46 on the shaft 48 of a conventional variable speed drive 50 which is driven by motor M–1.

In order to eliminate friction and to insure uniform movement of the kraut in narrow mold 18, I provide vertical endless belts 52 which travel against the inner surfaces of fixed walls 16 to provide endless moving lining for mold 18. Belts 52 are driven synchronously with the conveyor by means of a shaft 54 which is driven by variable speed 50 and which is suitably geared to the shafts 56 of rolls over which belts 52 travel, as best shown in FIG. 1. Side walls 12, 16 and 20 can be made separate, or they can be in one piece. In the former case, belts 52 pass through a small space between walls 12 and 20. In the latter case, belts 52 pass through slots formed at the junction of walls 12 and 20.

Combined severing blade and pusher 24 may be moved downwardly, into contact with cutting board 34, and to the left to push the severed portion of kraut into bag 26 by a Pittman movement, or by a combination of cams. But, in the diagrammatical illustration shown in the drawings, I use a vertically disposed, double acting hydraulic, or pneumatic cylinder 60; a horizontally disposed, hydraulic or pneumatic cylinder 62 and limit switches 64,

66, 68 and 70 which are conventionally wired to operate as follows:

When a main switch, not shown, is closed, current is made available to the circuits which include switches mentioned. With the piston 72 of vertical cylinder 60 retracted, block 74, which carries horizontal cylinder 62, is raised and limit switch 64 is closed. Closing switch 64 activates horizontal cylinder 62 to move its piston 76 to the right, or to the position shown in FIG. 2, to retract blade 24 which is carried by piston 76 to the position shown in FIG. 2, or to the point at which its cycle begins. Movement of piston 76 to the right closes switch 66 and activates vertical cylinder 60 to move block 74 downwardly, or from the position of FIG. 2 to the position of FIG. 3, in which blade 24 comes to rest on cutting board 34. This downward movement of block 74 closes switch 68 which now activates horizontal cylinder 62 to move its piston 76 to the left, or to the position shown in FIG. 4 in which blade 24 pushes the kraut to the left thereof into bag 26. The movement of piston 76 to the left closes switch 70 which now activates vertical cylinder 60 to raise block 74 back to the position of FIGS. 2 and 4 to begin a new cycle.

Cylinders 60 and 62 may be operated by suitable, motorized pneumatic or hydraulic pumps which are driven by reversible motors, both not shown. Since these expedients have been in common use for many years and are not claimed, it is thought unnecessary to show and describe them, or the wiring circuits of the switches in detail. It is also thought that the foregoing description is enough to enable a person skilled in the art to practice the invention which resides in (*a*) delivering the kraut to a large capacity receiving and feeding mechanism; (*b*) shaking down the kraut and allowing free liquid to drain off to produce a damp dry mass of uniform cross-section; (*c*) moving it into a relatively small mold so as to raise its level above the level of the upper edges of the small mold; (*d*) cutting off and removing the kraut above the level of said upper edges; and (*e*) moving the mass at a uniform rate of speed, cutting off segment of said mass of uniform lengths and stuffing said segments into bags.

Blade 24 can be attached to piston 76 in any desired manner, but as shown, it is carried by a plate 25, which is carried by a bracket 27 which depends from the end of piston rod 76.

What I claim is:

1. The method of dividing a mass of relatively short flexible and readily compressible material into portions of predetermined volume, said method including

delivering the material into an open top mold of a uniform predetermined cross-section in an amount in excess of the capacity of said mold whereby the material piles up above the open top of said mold,

removing the excess material to make the level of the material flush with said open top,

propelling the material through said mold, vibrating the material during its travel through said mold, and severing successive, equal portions of said mold.

2. Apparatus for measuring equal quantities of relatively short flexible and readily compressible material including

a horizontal conveyor,

substantially vertical conveyor side walls coacting therewith to form a continuous open top moving mold of a uniform cross-section and flow capacity,

means feeding a continuous stream of material to said mold at a rate in excess of its capacity whereby the material piles up above the open top of said mold,

means for removing excess material to make the level of the material flush with said open top to produce a body of material of a uniform cross-section, and

means for severing and separating successive measured portions of said body.

3. Apparatus for dividing a mass of relatively short, flexible and readily compressible material into equal portions, including

a horizontal conveyor,

a pair of spaced, parallel, vertical conveyors coacting with the upper surface of said horizontal conveyor to form an open top mold,

means for propelling said conveyors to form a moving mold,

feed means for delivering material to one end of said mold in quantities exceeding the flow capacity of said mold, whereby the material piles up above the open top of said mold,

a rotary blade located substantially flush with the upper edges of said vertical conveyors, and disposed in the path of flow of the material and substantially flush with said open top for removing the material above said open top to produce a moving body of material of a uniform cross-section, and

means for severing equal successive portions of said body of material.

4. The method of dividing a mass of short, flexible and readily compressible material into portions of predetermined volume and density, which method includes:

delivering the material to a first open top moving mold of a predetermined cross section, in an amount sufficient to fill said mold,

moving said material from said first mold to a second open top moving mold of a smaller cross section at a rate to cause said material to pile up above the open top of said second mold,

removing excess material from the top of said second mold to bring the level of the material flush with the top of said second mold, propelling this material through, and out of, said second mold, and

severing successive equal portions of said material as said material emerges from said second mold.

References Cited by the Examiner

UNITED STATES PATENTS

1,093,668	4/14	Weinberg	52—123
1,810,864	6/31	Vogt	52—23
2,020,645	11/35	Hook	99—186
2,390,468	12/45	Schroder	99—186
2,410,015	10/46	Cook	141—251
2,567,052	9/51	Carruthers	141—12
2,676,739	4/54	Nettekoven et al.	141—252
3,088,499	5/63	Rieger	141—81
3,123,958	3/64	Carruthers	53—123

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