March 6, 1956 L. E. KIBLER ET AL 2,737,286

PICKLE FEEDER

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Fig. 2.

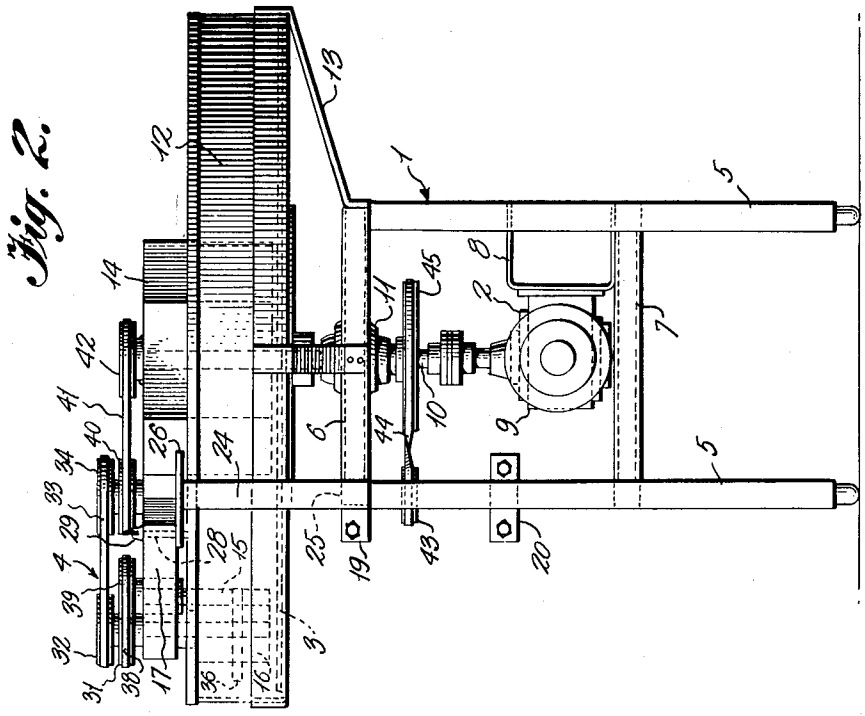
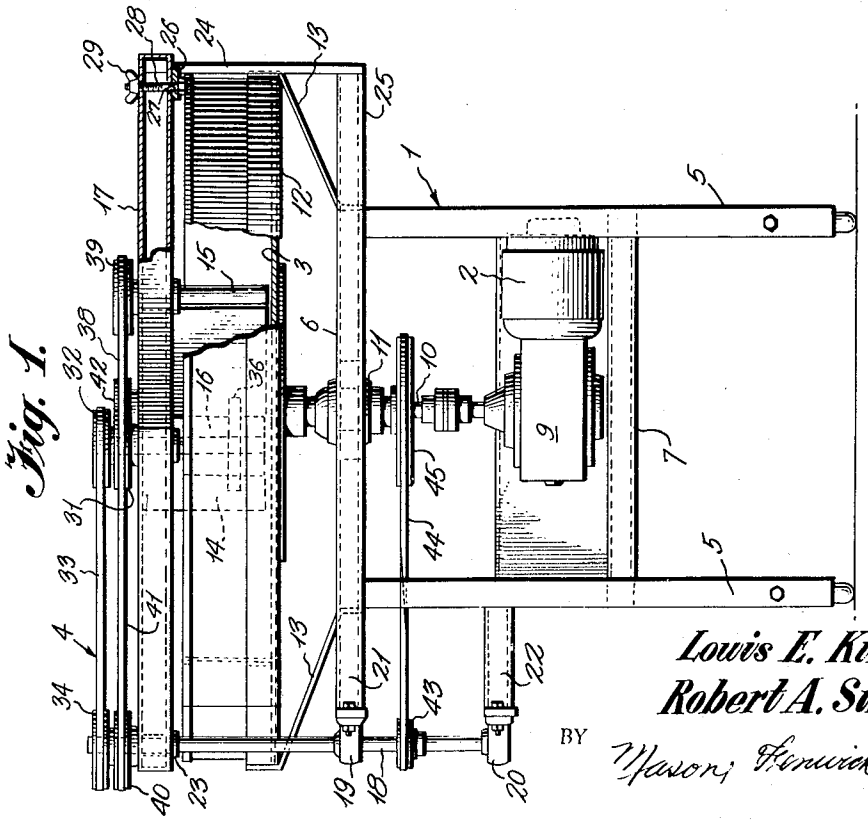


Fig. 1.



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Fig. 3.

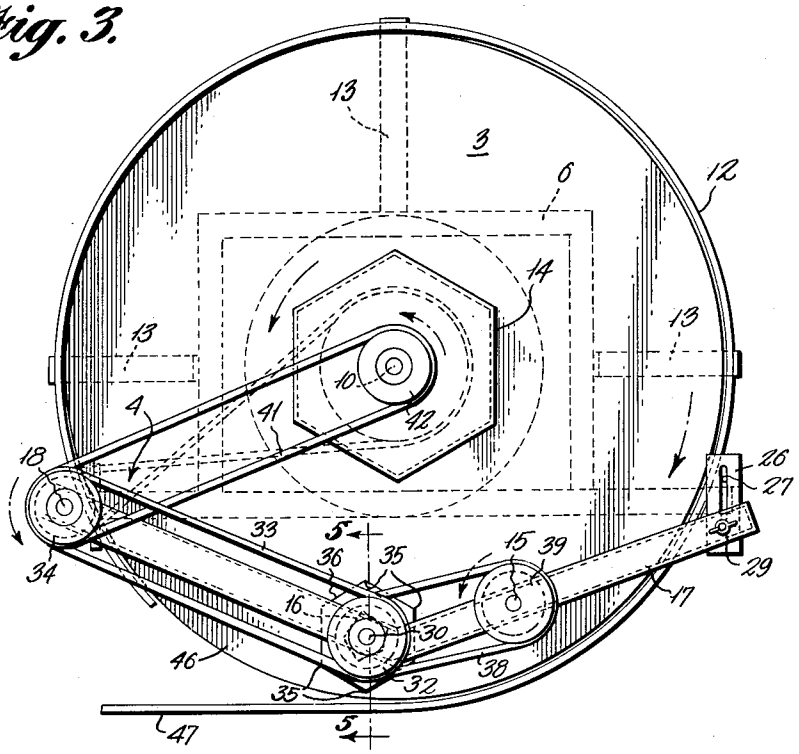


Fig. 4.

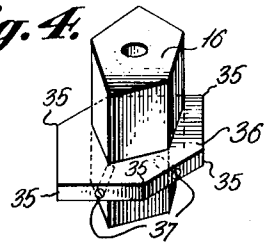
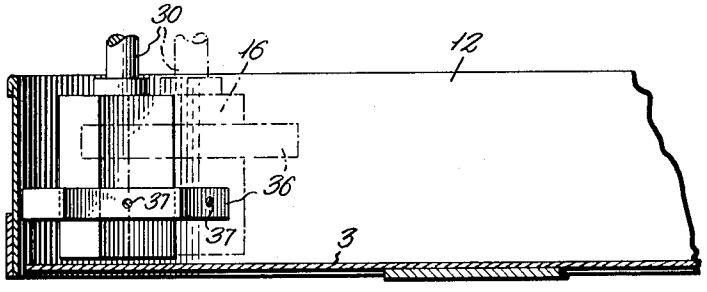


Fig. 5.



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United States Patent Office 2,737,286 Patented Mar. 6, 1956

2,737,286

PICKLE FEEDER

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Application February 11, 1953, Serial No. 336,254

7 Claims. (Cl. 198—30)

This invention relates to feeding machines, and more particularly to such machines designed to arrange and feed elongated objects, such as pickles and the like.

In the packing of certain products, it is necessary that the objects to be packed be singly fed to the packing means and when the objects are elongated, it is necessary that they be positioned with their long axis in the direction of travel, or it is impossible to meter the flow of objects through a machine to obtain single feeding.

The object of the present invention is to provide a machine upon which the elongated objects may be dumped, which will arrange and sort the objects so that they will be properly arranged for passage through a metering passage, and feed these objects in succession and in proper alignment from the machine.

Another object of the invention is to provide such a machine which may be adjusted to handle objects of different sizes.

Other objects of the invention will appear from the following description of a practical embodiment thereof, when taken in conjunction with the drawings which accompany, and form a part of, this specification.

In the drawings:

Fig. 1 is a front elevation of a feeding machine incorporating the principles of the present invention;

Fig. 2 is a side view of the machine shown in Fig. 1;

Fig. 3 is a plan view of the machine;

Fig. 4 is a perspective view of the metering member and the adjustable collar thereon which limits passage of only a single layer of the product through the metering passageway; and,

Fig. 5 is a vertical section through the rotatable feed table and its guard rim, showing the position of the metering member and is taken on the line 5—5 of Fig. 3.

Referring to the drawings in detail, the feeder is shown as having a base frame **1** which supports a motor **2** to drive a rotatable table **3**, and pickle sorter and metering means indicated generally at **4**.

The frame consists of four spaced legs **5**, which are joined by a rectangular horizontal top frame **6** and suitable intermediate bracing members **7**. A vertical panel **8** is supported between two of the legs to form a base upon which the motor **2** may be mounted. The motor is attached to the panel in any desired manner. The motor may carry a suitable gear box **9**, and a drive shaft **10** extends vertically upward from the gear box centrally of the frame. Shaft **10** is supported by means of a bearing **11** which is connected to the top frame **6**.

Rotatable table **3**, mounted upon the top of shaft **10**, is in the form of a flat disk, and its upper surface forms a moving platform upon which the pickles are arranged for feeding. Shaft **10** rotates to move the table in a clockwise direction when viewed from above, as shown in Fig. 3. A guard rail or rim **12** is positioned about the periphery of the table, and extends a considerable distance above the table, to confine pickles in the machine and prevent them from falling from the table. The guard rim is supported by braces **13** which are connected to the side rails of the top member of the frame and secured to the bottom portions of the rim.

Shaft **10** extends through, and projects above, the top of table **3** and a drum **14** is rotatably mounted on this projecting portion. The drum is hexagonal in cross section and of sufficient length to extend from the top of the table to a point above the top of the guard rim **12**. Drum **14** is adapted to be rotated in a direction contra to that of the table by drive means which will be described.

A rotatable sorter **15** and a rotatable metering member **16** are mounted so as to project downwardly from an adjustable arm **17** which is positioned above the table **3**. Arm **17** is pivotally mounted upon a shaft **18** which extends vertically along one side of the rim **12**, and is journaled in bearings **19** and **20** which are carried at the ends of an extension of one of the top frame members **21** and a brace **22** which extends horizontally outward from one of the legs **5** of the frame. Arm **17** has an opening at one end which fits over the shaft **18** and the arm rests upon a collar **23** fixed upon the shaft **18** at a point above the plane of the top of the guard rim **12**. At the opposite side of the machine a support **24** extends vertically upward from an extension **25** of one of the top frame members. Support **24** carries a horizontal bracket **26** at its upper end, which bracket is provided with an elongated slot **27** and a threaded bolt **28** passes through the slot and through the end of arm **17**. A wing nut **29** is threaded on the bolt and serves to clamp the end of the arm to the bracket **26**. It will be obvious that the position of the arm in relation to the periphery of the table may be changed by loosening the wing nut and moving the arm around its pivot on shaft **18**. When the desired position of adustment has been reached, the wing nut will be tightened to hold the arm in position. It will be noted that arm **17** extends horizontally across the machine, and that it is bent in a horizontal plane so that its end sections are angularly related. The metering member is attached to the arm adjacent the bend in the arm, and the sorter to the outer section. This places the metering member in a more advanced position toward the periphery of the table. It is rotated by means of a belt **33** which passes around the pulley **31** and also a pulley **34** mounted upon the countershaft **18**. The metering member is an elongated element, and its cross-sectional shape is that of a regular polygon. It is shown in the drawing as pentagonal, and has the lengthwise extending corners **35** at the intersections of the five faces. A hexagonal collar **36** is mounted on the pentagonal element and is vertically adjustable thereon. It is held in positions of adjustment by means of set screw **37**.

Sorter **15** is formed from a cylindrical rod which is journaled in the arm **17** and is driven by means of a belt **38** which passes around a pulley **32** on the shaft of the metering member and a pulley **39** fixedly connected to the sorter rod **15**. Countershaft **18** carries a second pulley **40**, below the pulley **34**, and a belt **41** from this pulley drives the drum **14** by passing around a pulley **42** fixedly connected to the top of the drum. The countershaft is driven by means of a pulley **43** which is mounted on the shaft **18**, belt **44** and drive pulley **45** which is fixed to the central shaft **10**. Belt **44** is given a half-twist so that the direction of rotation of the countershaft and the drum, sorter and metering members, driven thereby, will be in a direction opposite that of the rotatable table.

In order to permit discharge of the objects being fed, the peripheral guard rim **12** is discontinuous in the region of the metering member to form an outlet **46**. An extension of the guard rim projects tangentially to the circular portion of the rim from a point adjacent the meter-

ing member, to form a straight guard wall 47 to guide the objects as they leave the rotating table and are deposited into a discharge chute or upon a belt or other means to carry the objects from the machine.

In operation, the table 3 will be rotated in a clockwise direction and the drum 14, sorter 15 and metering member 16 will be rotated in a counter-clock direction. Objects, such as pickles or other elongated products, to be fed by the machine are placed, or dumped, upon the table 3 in heterogeneous arrangement. As the table rotates, centrifugal force will cause the pickles to move outwardly toward the periphery of the table and against the guard rim. The revolving table will carry the mass of pickles toward the sorter 15 which is positioned sufficiently close to the peripheral edge of the table to permit only two pickles to pass between it and the guard rim. The pickles must be positioned so that their long axes extend in the direction of rotation of the disk in order for two of them to pass the sorter simultaneously. Those which are not properly positioned and those in excess of the two will be pushed aside by the rapidly moving surface of the sorter which, as mentioned above, is traveling in a direction counter to that of the table. The sorter will throw these excess pickles toward the center of the table so that they will be carried past the sorting and metering device to again assume a position against the guard rim and be properly aligned for passage by the sorter on the next revolution of the table. Those pickles which are permitted to pass the sorter are next presented to the metering member. The metering device is set sufficiently close to the peripheral edge of the table so that only one pickle at a time may pass between the member and the guard rim. As the metering member is also rotating counter to the movement of the table, the corners of the member will strike any pickle which is not against the guard rim and throw it away from the rim toward the center of the table. The member is made polygonal so that the corners between the faces will strike positive blows against the pickles to drive them backwardly and inwardly to prevent any possible jamming at the metering point.

The collar 36 is fixed in adjusted position above the surface of the table sufficient to allow only one pickle to pass. If pickles should arrive at the metering point superimposed upon one another, the upper pickles will be struck by the rotating hexagonal collar and prevented from moving through the metering passage. In this way single delivery of pickles is assured.

Drum 14 serves to give initial outward impetus to pickles which land on the table near the center thereof, so that centrifugal force will carry them to the periphery of the table. By having the drum at the center of the table, pickles are prevented from falling on the center, or so near to the center, that centrifugal force will have little or no effect upon them.

The position of the sorter and metering member may be changed by adjusting the position of the arm 17 when pickles of different size are to be fed to the machine. Due to the fact that the sorter is located further from the pivotal point of the arm than the metering member, the sorter will be moved a greater distance toward, and from the guard rim than will the metering member. This will maintain the proper ratio of distance of the two members from the guard rail. When this adjustment is made, it is also necessary to change the position of the hexagonal collar on the metering element. This collar will be set above the table a distance substantially equal to that of the distance of the metering element from the guard rim.

While in the above one practical embodiment of the invention has been shown and described, it will be understood that the specific structure disclosed is merely by way of illustration and that many details may be changed within the scope of the invention, as defined in the appended claims.

What is claimed:

1. In a machine for receiving elongated objects in a heterogeneous mass and arranging and feeding said objects singly, a table to receive said objects rotatable in a horizontal plane to cause said objects to move outwardly toward the periphery thereof under the urge of centrifugal force, an upstanding rim about the periphery of said table and extending above the upper surface thereof, a rotatable metering member vertically positioned above said table and having its lower end in close proximity to the top of said table and spaced from said rim a distance slightly greater than the widthwise dimension of the objects to be fed, said metering member being of uniform cross section throughout and having a collar of greater cross section vertically adjustable thereon to different distances from the table and means to rotate said table in one direction and said metering member in the opposite direction.

2. In a machine as claimed in claim 1, means to adjust the distance of said metering member from the said rim.

3. In a machine as claimed in claim 1, a sorter above said table and having its bottom closely adjacent said table and rotatable about a vertical axis, said sorter being located ahead of said metering member in the path of travel of objects on said table, and spaced farther from said rim than said metering member, and means to rotate said sorter in a direction opposite to that of said table.

4. In a machine as claimed in claim 1, a sorter above said table and having its bottom closely adjacent said table and rotatable about a vertical axis, said sorter being located ahead of said metering member in the path of travel of objects on the table and spaced farther from said rim than said metering member, means to simultaneously adjust the relative distances of said metering member and said sorter from said rim, and means to rotate said sorter in a direction opposite to that of said table.

5. In a machine as claimed in claim 1, a sorter above said table and having its bottom closely adjacent said table and rotatable about a vertical axis, said sorter being located ahead of said metering member in the direction of travel of objects on the table and spaced farther from said rim than said metering member, means to simultaneously adjust the relative distances of said metering member and said sorter from said rim, and means to rotate said sorter in a direction opposite to that of said table.

6. In a machine as claimed in claim 1, a sorter above said table and having its bottom closely adjacent said table and rotatable about a vertical axis, said sorter being located ahead of said metering member in the direction of travel of objects on the table and spaced farther from said rim than said metering member, means to simultaneously adjust the relative distances of said metering member and said sorter from said rim, a drum centrally positioned above said table, and means to rotate said sorter and said drum in a direction opposite to that of said table.

7. In a machine as claimed in claim 1, a sorter above said table and having its bottom closely adjacent said table and rotatable about a vertical axis, said sorter being located ahead of said metering member in the direction of travel of objects on the table and spaced farther from said rim than said metering member, an arm pivotly mounted at one side of said table and extending across said table and movable in a horizontal plane, said arm supporting said metering member and sorter, means to hold said arm in selected positions of adjustment, and means to rotate said sorter in a direction opposite to that of said table.

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