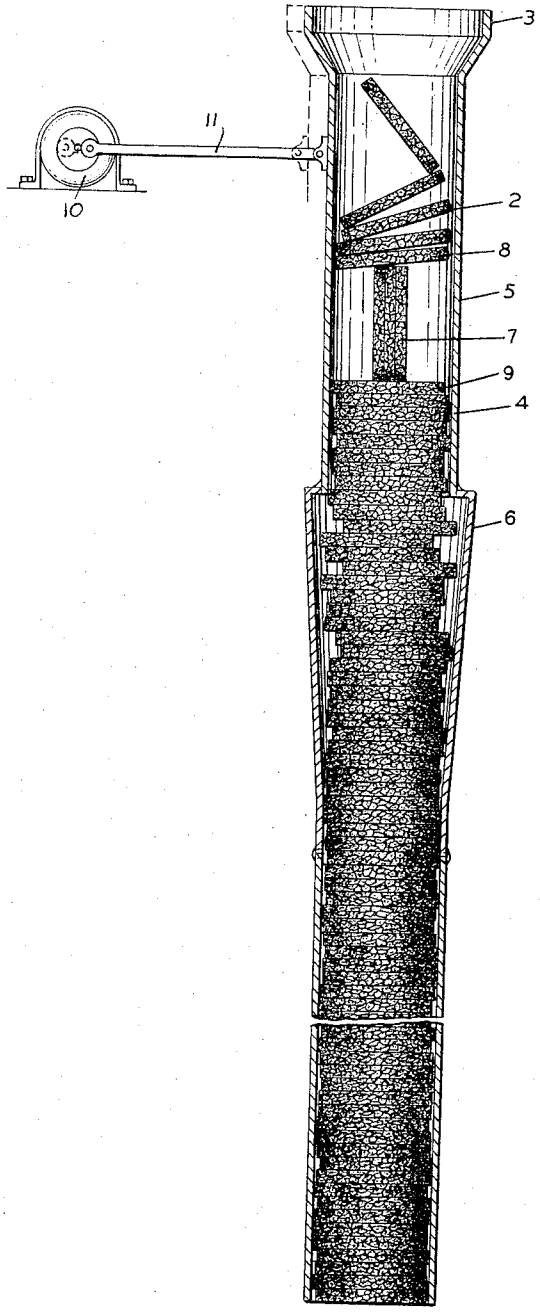
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ARTICLE ORIENTING DEVICE

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ARTICLE ORIENTING DEVICE

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2 Claims. (Cl. 193—43)

This invention relates to a device for feeding discs sequentially from a hopper to a processing operation, and more particularly to a device for feeding cork discs to a crown assembly machine.

In the assembly of crown closures, it has been common practice to feed cork discs from a hopper through an oscillating feeding tube to crown shells passing sequentially in a horizontal path of travel beneath said feeder tube. The feeder tube is of a diameter slightly greater than the diameter of the cork discs, and the rate of feeding is in the neighborhood of 400 discs per minute. In high speed operations of this kind, in handling materials having a high coefficient of friction such as cork discs, difficulties have been encountered by reason of the fact that a plurality of discs become oriented edgewise in the feeder tube with their flat surfaces parallel to the longitudinal axis of the tube rather than perpendicular as required for proper feeding to the crown shells. When this occurs, the entire assembly operation must be shut down until the difficulty is corrected. In order to overcome this difficulty, we have developed a feeder tube disclosed herein in which an enlarged portion is positioned immediately beneath the point where the discs are fed from the hopper into the oscillating tube.

In order that the invention may be more readily understood, it will be described in connection with the attached drawing, showing a longitudinal cross sectional view of a conventional feeder tube embodying the invention.

The discs 2 are fed from a hopper, not shown, into the enlarged end 3 of the tube 4. The upper portion 5 of the tube 4 immediately below the entrance is of a diameter slightly in excess of the diameter of the discs 2. As the discs pass down through the tube, they come to an enlarged portion 6, which is of a diameter large enough to permit a plurality of discs arranged in surface-to-surface relationship to orient themselves from a vertical position to a horizontal position, but the diameter of the enlarged portion 6 is limited to prevent discs from becoming oriented in edge-to-edge relationship across the diameter of the enlarged portion of the tube. In other words, the diameter of the enlarged portion is substantially greater than the diameter of the discs but is substantially less than double the diameter of the discs.

It will be seen from the drawing that the three discs 7, which are arranged vertically in the tube, are frictionally engaged at the top and bottom by the discs 8 and 9, and the size of the tube above the enlarged area is not sufficiently large to permit the discs 8 and 9 to oscillate enough to turn the discs 7 from their vertical position to a horizontal position; however, in the enlarged area 6 the oscillating movement of the discs 8 and 9 is of sufficient

magnitude to flip the discs 7 from their vertical position to a horizontal position, and the discs continue from there in proper alignment for feeding to the crown shells.

The oscillatory motion is imparted to the tube 4 by means of an eccentric 10 which is connected to the tube 4 by means of connecting rod 11. It will be obvious from this disclosure that the magnitude of oscillation is sufficient to properly orient the discs.

After the discs have been turned properly, they are usually displaced to one side of the tube. In order to guide the discs into the center of the tube and in order to prevent the presence of any obstruction on the inside of the tube which might impede the flow of discs, the sides of the tube are tapered from the enlarged part to the regular diameter of the tube. The enlarged portion 6 is placed close to the top of the feeder tube, because the orientation which takes place in the enlarged portion is aided by the oscillatory motion of the tube. The oscillator which oscillates the tube is located at the top, and the greatest arc of oscillation is at the top of the tube. Oscillation is progressively diminished as the liners pass down the tube. It will be seen, therefore, that if the enlarged portion is placed near the top of the tube, a greater amount of oscillation can be utilized in orienting the discs so that they will pass down the remainder of the tube in surface-to-surface relationship, with the flat surfaces of the discs disposed on a plane perpendicular to the path of travel of the discs in the tube.

It will be clear from the above that we have developed a feeding tube for properly orienting articles fed thereto in close relationship to one another.

We claim:

1. In a device for feeding a plurality of articles in proper orientation from a supply reservoir to a processing station, the elements comprising an oscillating feeder tube connecting said supply reservoir to said processing station, said feeder tube oscillating through an arc and being of a cross sectional size slightly larger than the cross sectional size of the articles passing therethrough, and an enlarged area in said tube positioned in proximity to the end of the tube passing through the greatest arc, said tube having a cross sectional size substantially greater than the cross sectional size of the articles to be fed but less than twice the cross sectional size of the articles to be fed.

2. In a device for feeding a plurality of articles in proper orientation from a supply reservoir to a processing station, the elements comprising an oscillating feeder tube connecting said supply reservoir to said processing station, said feeder tube oscillating through an arc and being of a cross sectional size slightly larger than the cross sectional size of the articles passing therethrough, and an enlarged area in said tube positioned in proximity to the end of the tube passing through the greatest arc, said tube having a cross sectional size substantially greater than the cross sectional size of the articles to be fed but less than twice the cross sectional size of the articles to be fed, the size of said tube tapering from said enlarged area to the exit end of the tube.

References Cited in the file of this patent

UNITED STATES PATENTS

869,509	Nelson	Oct. 29, 1907
1,476,224	Salfisberg	Dec. 4, 1923
2,696,285	Zenlea	Dec. 7, 1954