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W. E. MITTON

APPARATUS FOR SHAKING CANS

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Fig. 1

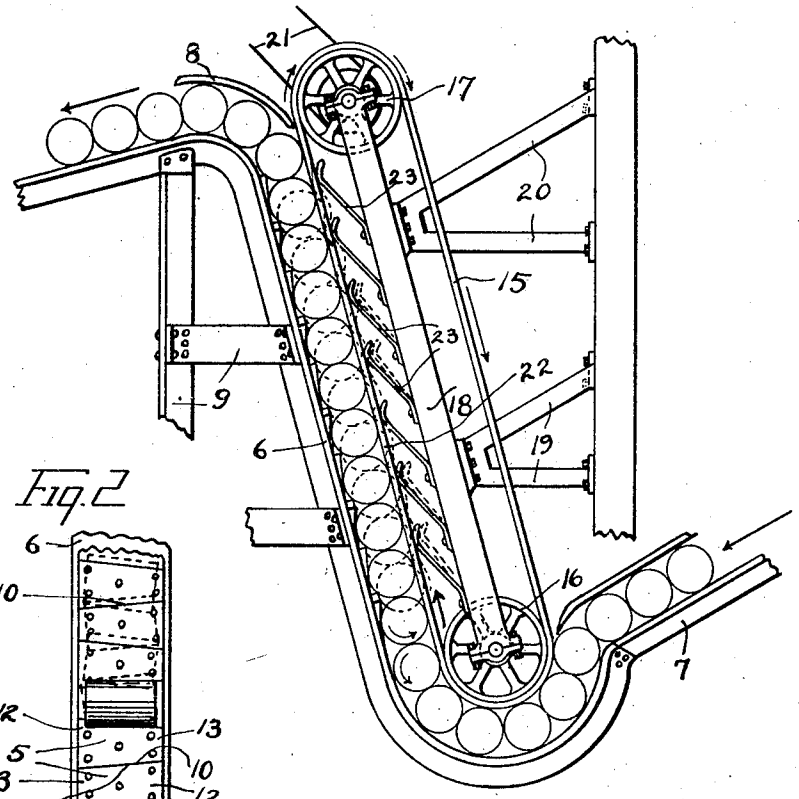
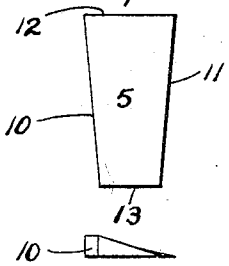


Fig. 2

Fig. 3



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR SHAKING CANS.

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To all whom it may concern:

Be it known that I, WILLIAM E. MITTON, a citizen of the United States, residing in New London, in the county of Waupaca, in the State of Wisconsin, have invented certain new and useful Improvements in Apparatus for Shaking Cans, of which the following is a specification.

The invention relates to an improvement in apparatus for shaking cans such as the cylindrical cans for containing evaporated milk and the like.

When evaporated milk (during the process of manufacture) has been put into the cans in which it is marketed it is the practice to shake the cans in order to subject the contents of the cans to agitation. The machines employed for this purpose are relatively expensive to make and operate. The object of the present invention is to produce a simple can shaking apparatus which will shake or agitate the cans in an efficient manner and which will reduce cost by eliminating the necessity for the manufacture and operation of the expensive can shaking machines heretofore used. The invention consists in the can shaking apparatus more fully described hereinafter and particularly pointed out in the appended claims.

In the accompanying drawings illustrating the preferred form of the invention Fig. 1 is a side elevation of the improved can shaking apparatus as applied to a can runway; Fig. 2 is a plan of a portion of the series of wedges which cause the shaking or agitation of the cans; and Fig. 3 shows a plan and an end view of one of the wedges.

The improved can shaking apparatus is of such construction that it may be installed at any point in a line of traveling cans, or it may be made as a separate machine. In the manufacture of evaporated milk, it is preferred to install the can shaking apparatus in the can run leading to the labelling machine. The can shaking apparatus comprises a series of alternating projections and depressions over which the cans are caused to travel, so that the contents of the cans will be properly shaken up. In the illustrated embodiment of the invention the projections are in the form of a series of inclined planes or wedges. The cans are fed forward and are caused to roll up the inclined plane of one wedge and then drop suddenly to the point of the next succeeding wedge. In order that the agitation may be more thorough, the rear edges of the tops or thick ends of the wedges are inclined transversely to the line of travel of the cans. This construction causes one end of the cans to advance beyond the other end. By alternating the arrangement of the rear sides of the thick ends of the wedges, the cans are caused to travel forward in a straight line, the two ends of the cans being advanced alternately the same amount.

The wedges 5 are shown as secured to the inner surface of the wall 6 of a can run, into which the cans are fed at 7 and from which they are discharged at 8. The wedges project into the line of travel of the cans, and the cans are fed forward through the can run from a source of power not indicated in the drawings. The can run is supported in place from a framework 9. By reference to Fig. 2 it will be seen that the rear edge 10 of the thick end of each wedge is inclined or at an angle transversely to the parallel side edges of the wedges which are in alignment with the side edges of the wall 6 of the can run. The edge 11 of the thin front end of each wedge is inclined correspondingly to the rear edge of the wedge, so that when the wedges are in place, as shown in Fig. 2, the wide sides 12 of the wedges alternate with the narrow sides 13. This arrangement causes the cans to travel forward as shown by the dotted lines in Fig. 2, that is to say, each end of the can is advanced alternately beyond the other end. In this manner the shaking up of the contents of the cans is increased while the cans travel forward in a straight line.

The agitation of the contents of the cans is still further increased by rolling the cans up the inclined planes of the wedges. For this purpose an endless belt 15, traveling in the direction indicated by the arrows in Fig. 1, is provided. The belt 15 extends from the opening 7 to the point of discharge 8 and is mounted on the pulleys 16 and 17 journalled in the opposite ends of the bar 18 supported on the frames 19 and 20. The belt thus forms one of the walls of the can run. Power is supplied to the belt 15 from a convenient source by the belt 21. As the cans roll up the inclined

planes of the wedges, the section 22 of the belt yields, and as each can passes the thick end of the wedges it is pushed into the depression between the wedges and into contact with the thin end of the next succeeding wedge. This action of the flexible belt is aided and made more sudden by providing a series of leaf springs 23, the lower ends of which are secured to one side of the bar 18 and the upper free ends of which bear against the adjacent surface of the section 22 of the belt.

It will be apparent on a consideration of the illustrated embodiment of the invention that it may be otherwise embodied than as shown. In any case, the cans are rolled along and repeatedly and suddenly forced into a series of depressions, the depth of which will be determined by the size of the cans and the nature of their contents. The projections which form the sides of the depressions may be placed on the left-hand wall, as shown, or on the other wall of the can run, or they may be otherwise placed. For some purposes the abutting edges of the wedges may be at right angles to the travel of the cans. Other modifications may be made within the purview of the invention as defined by the claims.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:—

1. A can shaking apparatus comprising a series of projections forming a series of depressions, and means for causing the cans to ride over the projections and drop into the depressions successively, the projections being of such construction that the ends of the cans are advanced alternately.

2. A can shaking apparatus comprising a series of wedges, the thin end of each wedge abutting the thick end of the next succeeding wedge, and means for causing the cans to travel over the wedges successively and into the depressions between them, the wedges being of such construction that as the cans travel over them the ends of the cans are advanced alternately.

3. A can shaking apparatus comprising a series of wedges, the edges of the thin and thick ends of which are inclined to the side edges of the wedges, the thin end of each wedge abutting the thick end of the next preceding wedge, and means for causing the cans to travel over the wedges.

4. A can shaking apparatus comprising a series of wedges having one side wider than the other, the wide and narrow sides of the wedges being arranged alternately so as to cause one end and then the other of the cans traveling over the wedges to be advanced alternately, so that the cans will travel in a straight line, and means for causing the cans to travel over the wedges and drop into the depressions between them.

5. A can shaking apparatus comprising a series of wedges secured to one wall of a can run and projecting into the line of travel of the cans, and a belt forming the other side of the can run, said belt serving to cause the cans to roll up the inclined plane of the wedges and drop into the depressions between the wedges.

6. A can shaking apparatus comprising a series of wedges secured to one wall of a can run and projecting into the line of travel of the cans, a belt for causing the cans to roll up the inclined plane of the wedges and drop into the depressions between the wedges, and a series of springs bearing against the belt to supplement its action in forcing the cans into the depressions between the wedges.

7. A can shaking apparatus comprising a series of wedges secured to one wall of a can run and projecting into the line of travel of the cans, the rear edges of the thick ends of the wedges being inclined alternately to the side edges of the wedges, and an endless belt forming the other wall of one section of the can run for causing the cans to roll up the inclined planes of the wedges and drop into the depressions between the wedges.

8. A can shaking apparatus comprising a series of wedges secured to one wall of a can run and projecting into the line of travel of the cans, the rear edges of the thick ends of the wedges being inclined alternately to the side edges of the wedges, an endless belt forming the other wall of one section of the can run for causing the cans to roll up the inclined planes of the wedges and drop into the depressions between the wedges, and means for supplementing the action of the belt in forcing the cans into the depressions between the wedges.

WILLIAM E. MITTON.