C. H. AYARS.

CAN FEEDING MECHANISM.

APPLICATION FILED JAN. 30, 1914.

1,190,235.

Patented July 4, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

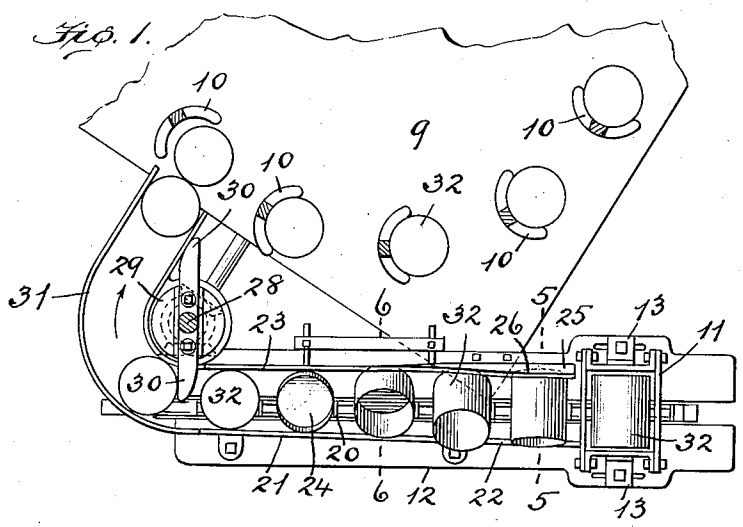
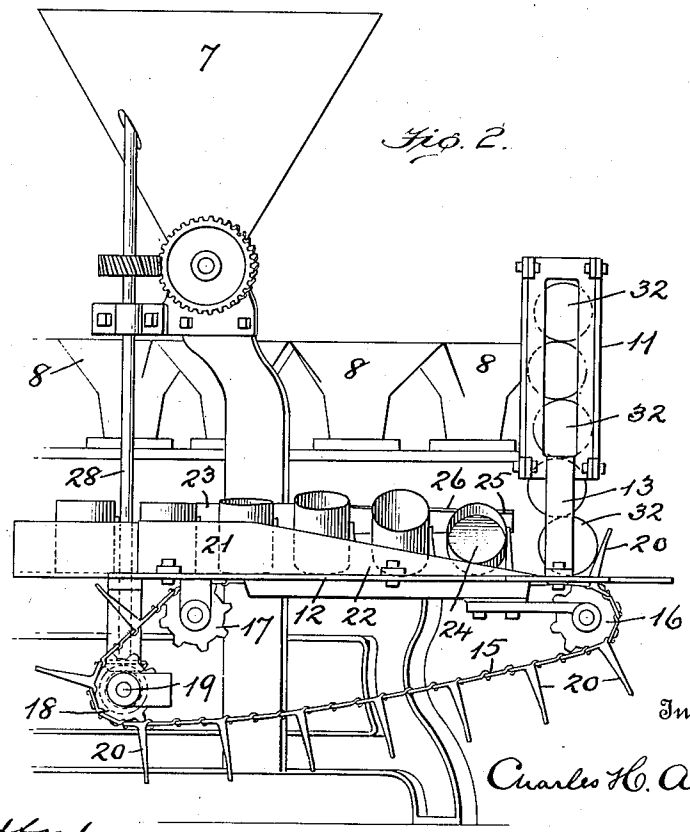


Fig. 2.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 3.

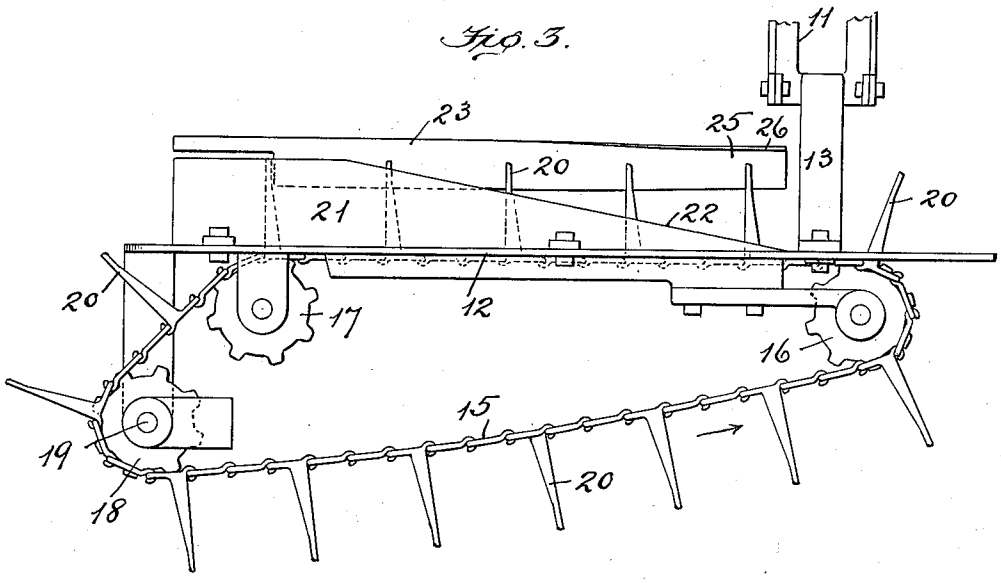


Fig. 4.

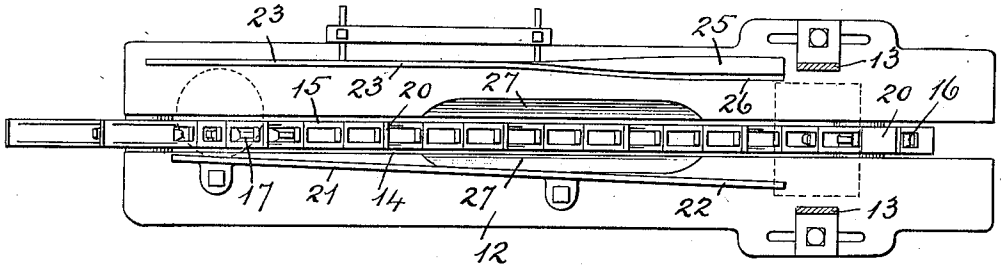


Fig. 5.

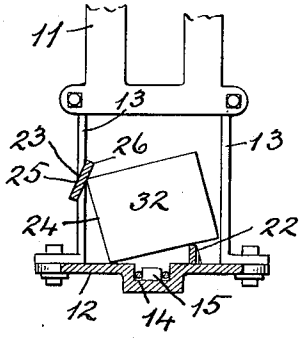
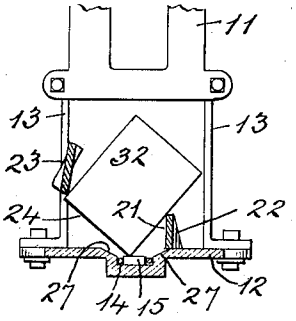


Fig. 6.



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UNITED STATES PATENT OFFICE.

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CAN-FEEDING MECHANISM.

1,190,235. Specification of Letters Patent. Patented July 4, 1916.

Application filed January 30, 1914. Serial No. 815,396.

To all whom it may concern:

Be it known that I, CHARLES H. AYARS, a citizen of the United States, residing at Salem, in the county of Salem and State of New Jersey, have invented certain new and useful Improvements in Can-Feeding Mechanism, of which the following is a specification.

This invention relates to improvements in can-filling machinery and particularly to improved mechanism for feeding empty cans to filling mechanism.

In packing canned goods, many packers make use of cans having one end entirely closed and the other entirely open, while others use cans one end of which is closed and the other end is provided with a head with a central filling opening through which the material is filled into the can. The former, or entirely open-end cans, are troublesome to handle in bringing them into position to be filled because they must be upright during filling, and they are generally rolled on their side through a chute toward the filling machine, which requires them to be transferred and turned on their ends. In many instances it is desirable to drop the empty cans vertically into position to be fed into the filler, but if the cans are entirely open at one end they are liable to telescope if fed end-on-end through a vertical chute and thereby give considerable annoyance.

The present invention therefore has for its object to provide an improved can-feed for can filling machines which will handle cans having one end entirely open or partly open and which will enable the cans to be rolled on their sides in the desirable way and then turn said cans onto their ends with the filling end uppermost.

One practical application of the invention is illustrated in the accompanying drawings, wherein—

Figure 1, shows a top plan view of a portion of a can-filling machine and a like view of the improved can-feed and righting mechanism attached thereto. Fig. 2, illustrates in side elevation, a portion of a can-filling machine and the improved can-feed and righting mechanism. Fig. 3, shows an enlarged side elevation of the can-feed and righting mechanism. Fig. 4, illustrates the same in top plan and on an enlarged scale. Fig. 5, shows an enlarged vertical cross-section through the feed and righting mechanism, as taken on the line 5—5 of Fig. 1, and Fig. 6, is a similar view as though taken on the line 6—6 of Fig. 1.

While the improved can-feeding and righting mechanism may be employed in filling mechanisms of various forms, I have elected to show the same in connection with a filling mechanism like that shown and described in U. S. Patent 944,354 granted to me December 21st, 1909, wherein the material to be packed is placed in a main hopper, 7, from which it is intermittently fed in suitable quantities and deposited into traveling hoppers, 8, which successively pass the main hopper. Below the traveling hoppers there is a table, 9, and an endless series of can-engaging arms, 10, travel below and at the same speed as the hoppers, 8, so as to receive the cans fed to the filling mechanism and convey them while in register with the discharge-ends of the traveling hoppers so as to receive the measured material from the latter hoppers while the cans and hoppers are both in motion.

In my said prior patent the cans are fed end-on-end because one end of the cans therein employed is entirely closed and the other end has a head with a filling opening. In my present invention however, I prefer to utilize a vertical chute, 11, but of such size and shape as to receive the cans horizontally, or on their sides. To do this I provide a horizontal conveyer table, 12, which is suitably sustained at one side of the filling machine proper, and at one end of which there are two vertically-extending legs or supports, 13, on which the vertical chute, 11, is sustained in a somewhat elevated position. The table, 12, has a central longitudinal guide groove, 14, in which the upper stretch of an endless belt or chain-conveyer, 15, travels. At opposite ends, the table has sprockets, 16, and, 17, respectively,—the former to guide and direct the endless conveyer into the groove, 14, and the latter to guide said conveyer as it leaves said groove. A driving sprocket, 18, is driven from a shaft, 19, of the filler mechanism and imparts an endless conveying motion to the conveyer. The conveyer is provided with a series of can-engaging arms, 20, which extend vertically as they are drawn over the table and push the empty cans along as they advance. On the outer side, the conveyer

table has an upwardly-extending guide wall, 21, whose forward end, 22, inclines upwardly as it extends away from beneath the hopper, and at the opposite or inner side, said table has a guide-rail, 23, which is elevated with respect to the table. This guide-rail, 23, has an elevated position so as to engage the uppermost portion of the circular closed end, 24, of the can, as shown in Fig. 5, and the foremost end, 25, of this guide-rail is tilted so its upper edge, 26, will slightly overhang or project over the cylindric wall of the can-body as clearly shown in Figs. 1 and 5. As the guide-rail extends away from the vertical hopper it gradually straightens and finally becomes vertical.

By referring to Fig. 4, of the drawing it will be noted that the outer guide wall, 21, does not extend parallel with the conveyer and the guide groove, 14, in the table, but approaches and nears the said conveyer and groove as it recedes from the vertical feed chute.

It will also be noted by referring to Figs. 4 and 6 of the drawings, that for a portion of its length, the upper surface of the table, 12, has a beveled edge, 27, at opposite sides of the guide groove, 14, and conveyer. The purpose of these beveled surfaces is to permit the edge of the can, when turning from the horizontal to the vertical position to readily pass over the groove and conveyer without catching on said edges, as can be seen best in Fig. 6, of the drawing.

At the inner end of the guide-rail, 23, there is provided a vertical shaft, 28, on which a rotary can-feed device, 29, is mounted. In the present instance this feed device consists of a head having a plurality of arms 30, which swing through a circular path and project over the end of conveyer table, 12. The revolution of these arms is so timed as to insure that an arm will swing across the table and conveyer, 15, between each two can-pusher arms, 20, of the conveyer, so as to engage the cans just as the conveyer arms, 20, disengage them and feed them around through a guide-way, 31, and push one can at a time onto the table, 9, of the filling machine and in the path of one of the can-engaging arms, 10, as shown in Fig. 1.

In operation, the empty cans, 32, are preferably rolled from a source of supply and turned into the vertical chute, 11, while being maintained on their cylindric walls. The lowermost can will rest on the table, 12, between two conveyer arms, 20, so that as the conveyer travels the arm behind said lowermost can will push and roll the latter from beneath the vertical stack of cans. When the cans are deposited on the table, 12, the open or partly open ends will face outward, and as the arms, 20, push the cans forward, rolling them while doing so, the open or filling ends will ride up onto the inclined forward end, 22, of the guide wall, 21, while the closed end, 24, will roll in contact with the tilted end, 25, of the elevated guide rail, 23, at the inner side of the table. As the cans are rolled forward, their filling ends will be elevated more and more by the guide wall, 21, and the closed ends, 24, will be depressed by the tilted portion of the guide rail, 23, at the inner side. When the cans reach the beveled edges, 27, of the table they are practically balanced on their closed ends and as they advance a little farther the contacting lower edge sweeps across the conveyer and up the beveled edge at the opposite side whereupon the further and complete righting will be effected by gravity. As the righted cans are then advanced they are pushed laterally by guide wall, 21, so as to make room for the arms, 30, of the rotary feed device to swing behind them without striking the conveyer arms, 20, and as the latter arms disengage the cans the arms, 30, sweep them into and around the curved guide-way, 31. In practice, it has been found desirable to have a can last fed remain in the end of guide-way, 31, until the next can is fed around, which latter can will engage said last fed can and push it onto the table, 9, of the filling machine.

Having thus described my invention what I claim and desire to secure by Letters Patent is:—

1. In a can-feeding and righting mechanism the combination with a chute, of a conveyer moving in a straight line from beneath the chute, said conveyer to receive empty cans on their sides; means for actuating the conveyer and means at one side and independent of the convever for righting the cans as they are advanced with the conveyer.

2. In a can-feeding and righting mechanism the combination with a flexible conveyer moving in a straight line to receive empty cans on their sides, of stationary means at one side and independent of the conveyer for raising one end of each can in succession and stationary means at the other side and independent of the conveyer for engaging the other end of each can while the first-named end is being raised.

3. In a can-feeding and righting mechanism the combination with a flexible straight conveyer to receive empty cans on their sides, of stationary means independent of and at one side of the flexible conveyer for engaging and gradually raising one end of each can as it advances and stationary means also independent of and at the opposite side of the flexible conveyer for engaging the other end of each can while its first-named end is being raised.

4. In a can-feeding and righting mechanism the combination with a horizontal

table to receive empty cans on their sides, of a flexible conveyer extending longitudinally of the table and depressed with respect to the latter; can-engaging arms attached to and carried by the conveyer and projecting above the table and means for engaging and turning one end of each can uppermost as the cans are moved over the table by the said arms.

5. In a can-feeding and righting mechanism the combination with a horizontal table to receive empty cans on their sides, of a flexible conveyer extending longitudinally of the table and depressed with respect to the latter; can-engaging arms attached to and carried by the flexible conveyer and projecting above the table; an inclined guide wall extending longitudinally at one side of the conveyer for engaging and turning one end of the cans uppermost as they are moved longitudinally over the table, and means at the opposite side of the flexible conveyer for engaging the other ends of the cans.

6. In a can-feeding and righting mechanism the combination with a horizontal table to receive empty cans on their sides and having a longitudinal passage for a conveyer and also provided with beveled surfaces at opposite sides of the passage, of a conveyer movable through the table-passage and between said beveled surfaces and means for turning the cans from their sides and onto their ends as they pass the beveled surfaces.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. AYARS.

Witnesses:
O. N. VICTOR,
MARY D. BANKS.