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1,696,715

CAN FEEDING MACHINE

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2 Sheets-Sheet 1

Fig. 5.

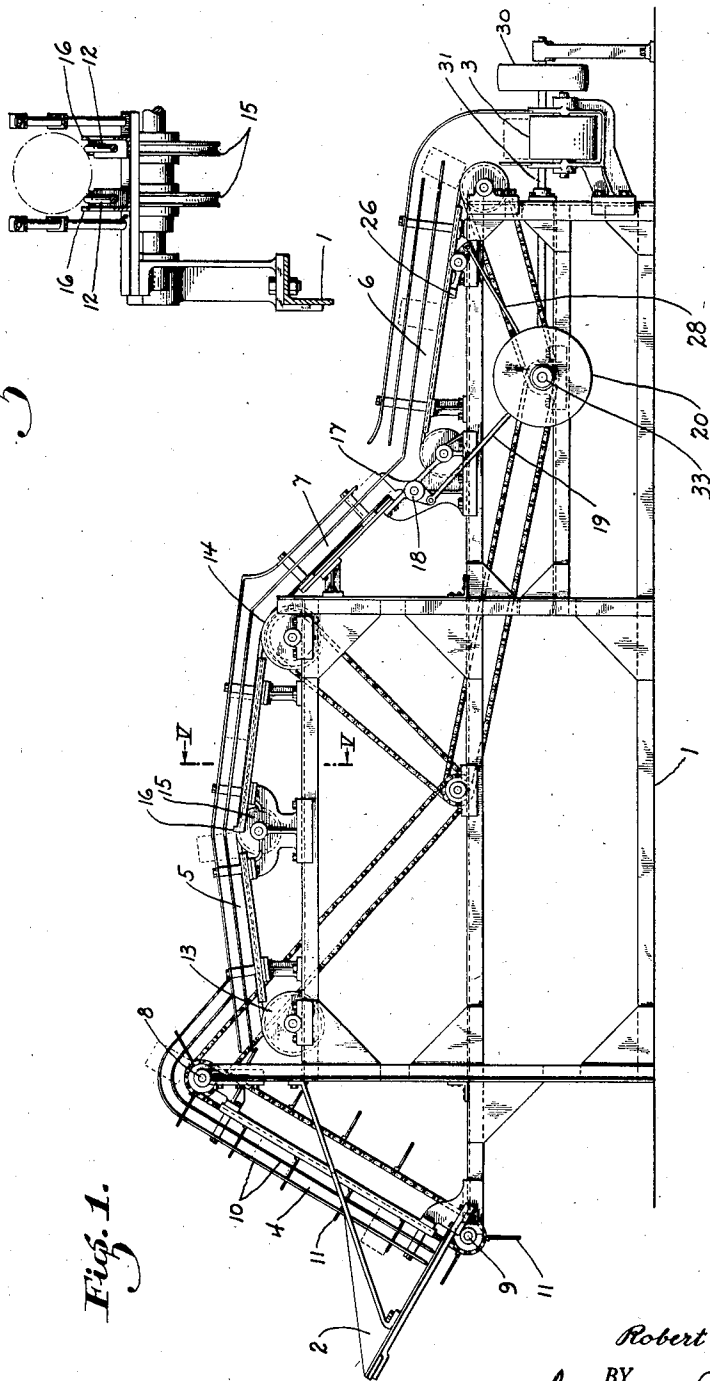


Fig. 1.

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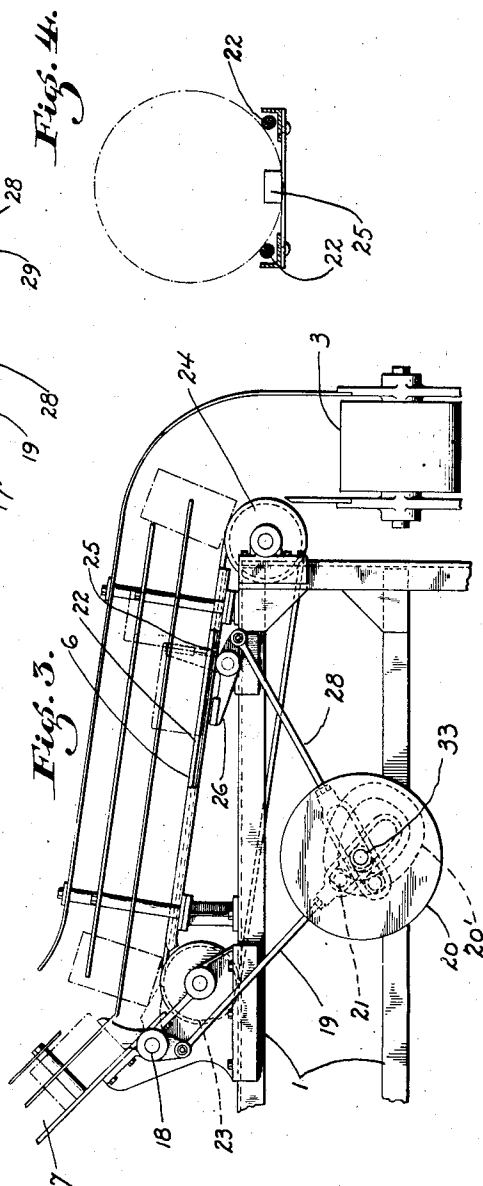
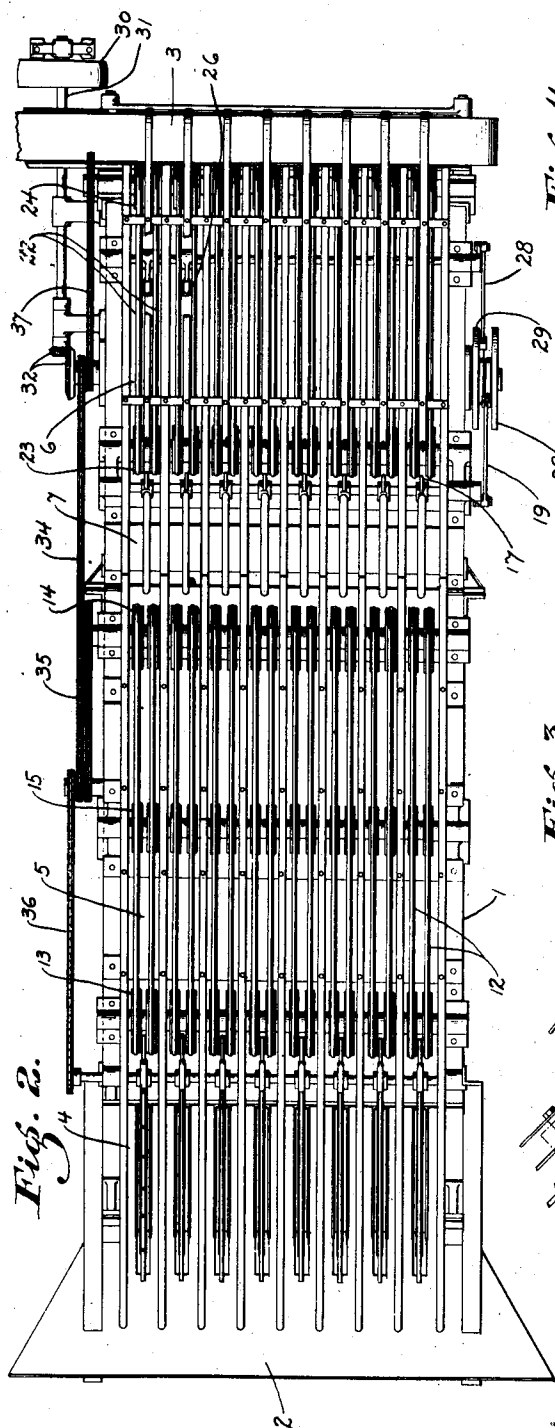
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2 Sheets-Sheet 2



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CAN-FEEDING MACHINE.

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This invention relates to can feeding machines and particularly to a machine for arranging open-ended cans and discharging the same with the open ends all pointing in the same direction. It is the primary object of my invention to provide an improved machine for performing this operation.

My improved machine herein comprises a hopper into which the cans may be dumped promiscuously. A conveyor is provided for taking these cans from the hopper in a definite arrangement and delivering the same to another conveyor, and cooperating mechanism which arranges the cans and discharges the same onto a further conveyor either in the upright position or with the open ends thereof pointing forwardly. Cooperating means are provided for lifting the down-turned cans to an upright position, whereby all the cans will be discharged from the last named conveyor with their ends all pointing in one direction. It is another object of my invention to provide an improved can feeding and arranging machine of this type.

In the accompanying drawings, I have illustrated one specific embodiment of my invention, but it will be understood that the invention can be otherwise embodied and that the drawings are not to be construed as defining or limiting the scope of the invention, the claims appended to this specification being relied upon for that purpose.

Referring to the figures of the drawing: Figure 1 is a side elevation of my improved machine.

Figure 2 is a plan view thereof.

Figure 3 is an enlarged fragmentary side elevation of the machine.

Figure 4 is an enlarged sectional view taken on line IV—IV of Fig. 3.

Figure 5 is an enlarged sectional view taken on line V—V of Fig. 1.

In the drawings, 1 indicates the frame of my machine, at one end of which is a hopper 2 for receiving the cans to be arranged and at the other end of which is a belt conveyor 3 for receiving the arranged cans. Intermediate the hopper 2 and belt 3 are three conveyors indicated at 4, 5 and 6 and a chute 7 between the conveyors 5 and 6.

The conveyor 4 is carried on shafts 8 and 9 and as illustrated, is adapted to carry eight rows of cans upwardly from the hopper 2. Guide rails 10 are provided between the adjacent rows and as illustrated, such rails are provided along the entire conveying

mechanism 4, 5, 6 and 7. Can-engaging paddles 11 on the conveyor 4 are adapted to lift cans from the hopper and carry the same upwardly to the conveyor 5. It will be noted that the conveyor 4 and rails 10 so cooperate that these cans in each row are arranged and carried with their longitudinal axes in a vertical plane coincident with the line of the conveyor movement.

The conveyor 5 comprises a plurality of pairs of belts 12 running over wheels 13 and 14 and intermediate wheels 15. A pair of abutment plates 16 are provided above the wheels 15 just outside the belts (Figs. 1 and 5). The arrangement of these plates is such that a can in the downward position shown in Fig. 5 does not touch the same, but a can on end would be engaged against these plates and, due to the inertia of the can, would be tipped downward forwardly. Therefore, all the cans are in the downward position after they pass the wheels 15.

The chute 7 receives the cans from the conveyor and carries the same downward until they strike against a foot 17 pivoted at 18. A rod 19 connects the foot with a quick acting cam 20, a roller 21 on the rod engaging in the cam groove 20'. The cam rocks the foot clockwise in a manner depositing the can onto the conveyor 6, and the operation is such that the can is deposited onto the conveyor either in upright position with the open end uppermost or with the open end thereof pointing toward the feed end of the machine.

The operation of the foot 17 is shown in Fig. 3. Should a can come down the chute 7 bottom foremost, the bottom will rest against the foot and when the foot pivots to the position illustrated in broken lines (Fig. 3), the can will slide downward onto the conveyor 5, either resting in an upright position on the conveyor or tipping towards the front of the machine. In actual practice, most of the cans will tip rearwardly, due to the quick movement of the belts 6. Should a can come down the chute 7 open end foremost, the open end will engage over the foot and pivotal movement of the foot will throw the can through an arc onto the conveyor 6 open end towards the front of the machine.

The conveyor 6 comprises a plurality of pairs of belts 22 running over wheels 23 and 24. Each can is moved on these belts in the manner shown in Fig. 4, until it engages against a stop 25. A can lifting lever 26 is pivoted

at 27 just forwardly of the stop 25 and beneath the conveyor. A rod 28 connects this lever with a quick acting cam 29 like the cam 20. The cam pivots the lever upwardly in a manner lifting the can thereabove to upright position. If the can is already in upright position, then the lever 26 will serve merely to push it past the stops 25. The belts then continue the movement of the can and discharge the same onto the conveyor 3. It will be noted that all the cans fall off the conveyor 6 and onto the conveyor 3 with their open ends pointing outwardly.

The various mechanisms described may be driven from a power pulley 30 on a shaft 31, bevel gears 32, and shaft 33 on which are mounted the cams 20 and 29. The conveyors 4, 5 and 6 may be driven from the shaft 33 through linked belts 34, 35, 36 and 37.

It is believed that the operation of my machine will be clear without further description herein.

Having thus described my invention, what I claim is:

1. A machine for arranging open-ended cans comprising the combination of a hopper, a conveyor for carrying the cans from the hopper, conveyor means for receiving cans from the said conveyor, means cooperating with the said conveyor means for tipping any upright cans thereon onto their sides, and cam-actuated means for receiving the cans from the conveyor means and so arranging the cans that the same will be discharged with their open ends all pointing in the same direction.

2. A machine for arranging open-ended cans comprising the combination of a hopper, conveyor means for carrying cans from the hopper, a conveyor, means for receiving the cans from the said conveyor means and discharging the same onto the said conveyor with the open ends thereof pointing upwardly or towards the feed end of the machine, and means cooperating with the said conveyor for lifting the downwardly turned cans to an upright position on their closed ends whereby all the cans will be discharged with their open ends pointing in one direction.

3. In a machine for arranging open-ended cans, a feed hopper, a delivery conveyor, and intermediate mechanism for arranging the cans so that their open ends are directed upwardly or towards the feed end of the machine, and means for arranging the cans in upright position prior to depositing them on the delivery conveyor, said delivery conveyor being arranged below the intermediate mechanism and adapted to receive the cans on their sides with the open ends all pointing in the same direction.

4. In a machine for arranging open-ended cans, a feed hopper, a delivery conveyor, conveyor mechanism arranged between said hopper and delivery conveyor, cam-operated means for positioning the cans, so that their open ends are directed upwardly or towards the hopper, and other cam-operated means for positioning the cans in upright position with their open ends uppermost, prior to depositing them on the delivery conveyor.

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