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F. HUNTAR

1,985,897

CAN FEEDING MECHANISM

Filed Jan. 20, 1928

2 Sheets-Sheet 1

Fig. 1

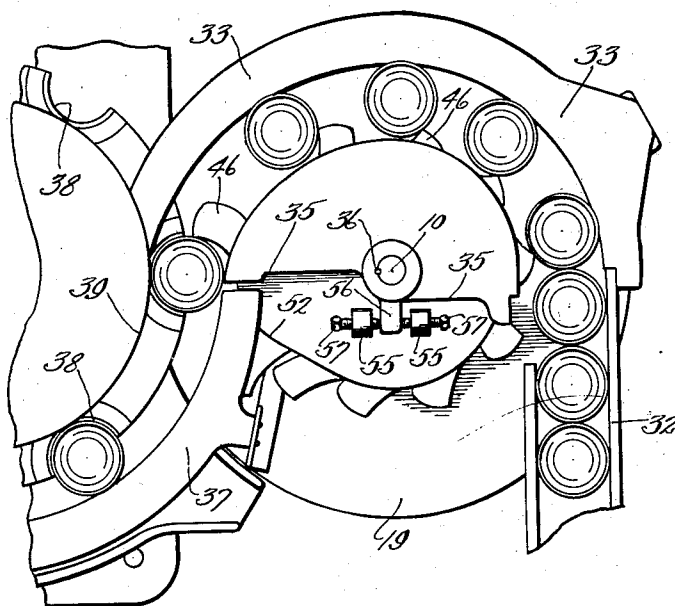
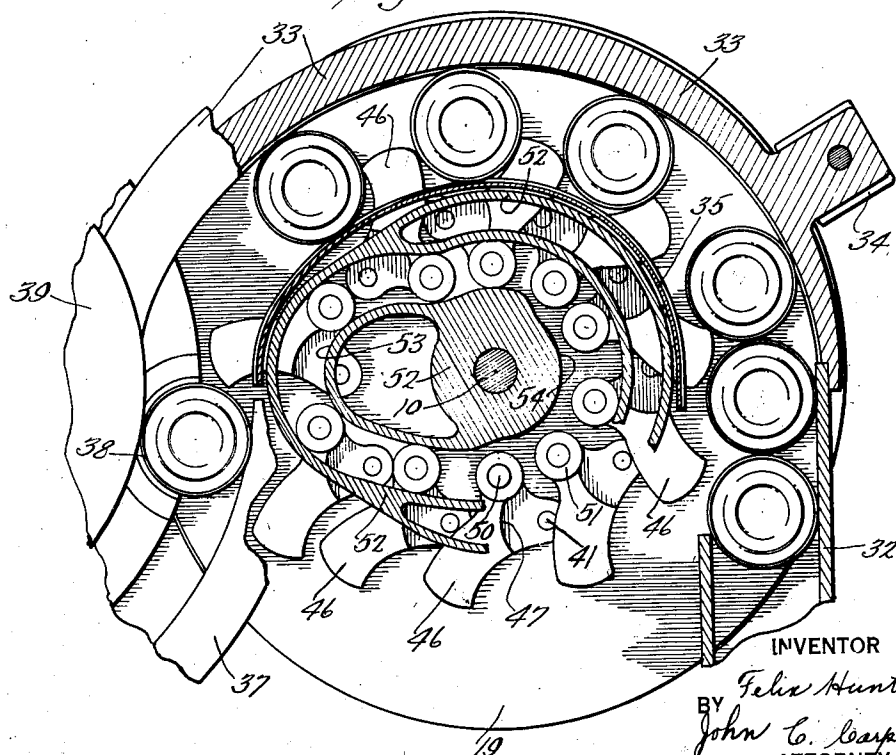


Fig. 2



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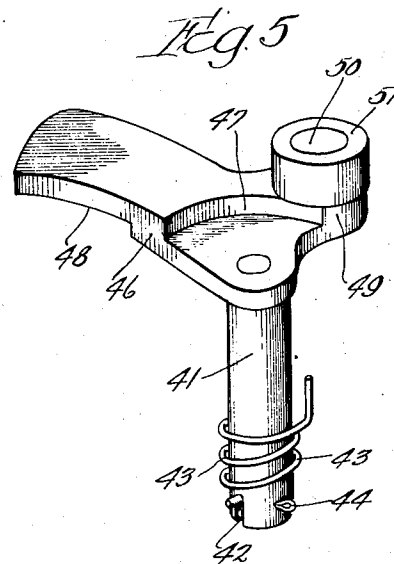
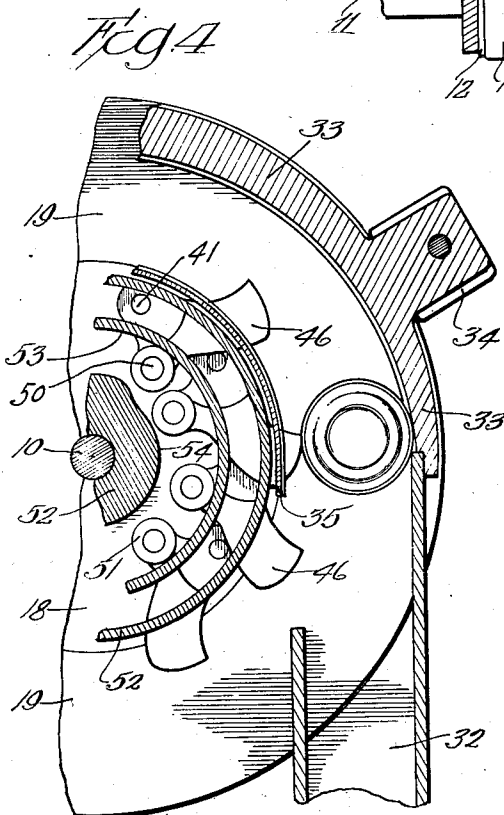
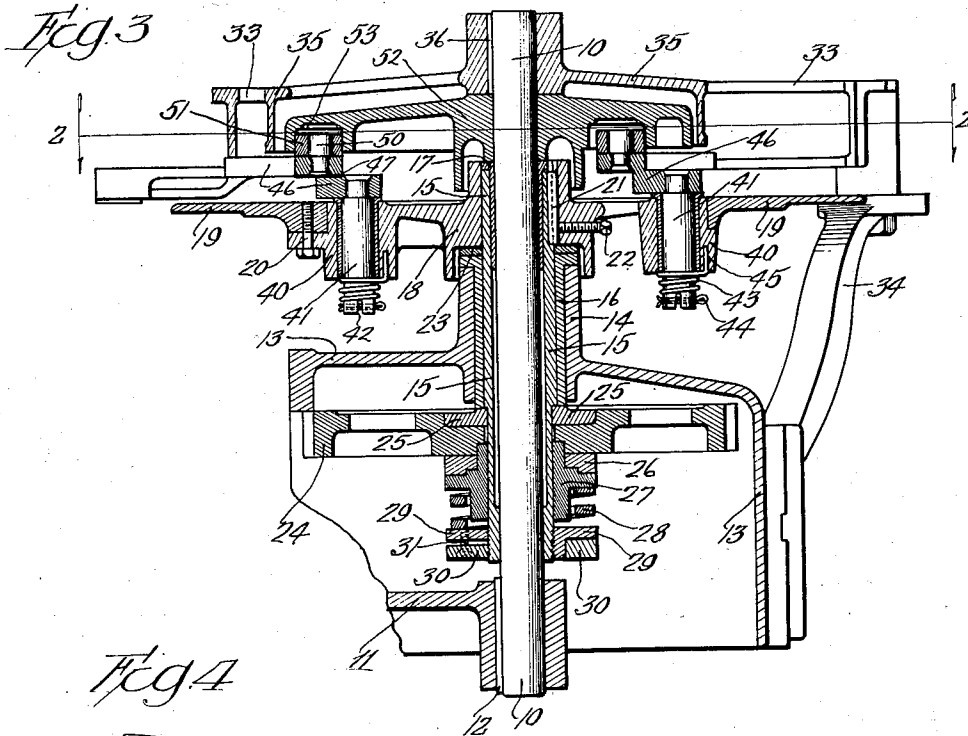
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CAN FEEDING MECHANISM

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Application January 20, 1928, Serial No. 248,046

10 Claims. (Cl. 198—22)

This invention relates in general to can feeding mechanism, and has more particular reference to the transfer of filled cans from a conveyor to a top seamer, and accelerating the cans without spilling the contents in such movement.

In feeding filled cans to a top seamer, it is the practice to deliver them in untimed relation at the end of a conveyor where they may accumulate without definite progressive movement, from whence they are to be fed in spaced, timed relation to the seamer without spilling the contents of the can. This requires a feeding movement to pick up the filled cans in succession from a position at rest or substantially so, and to gradually but positively accelerate them during the feeding movement, so that the contents will not be spilled or slopped from the containers which are delivered to the seaming mechanism at an increased speed.

A principal object of the invention is the provision of feeding mechanism for receiving cans in untimed relation, engaging them in succession and spacing them apart, accelerating them gradually and without spilling their contents for delivery at a higher speed to the seaming mechanism.

A further important object of the invention is in the provision of can feeding fingers which yield arcuately backwards in passing a can which is not properly engaged thereby.

The subject matter of this application was disclosed in the application resulting in United States Letters Patent No. 1,601,910, granted on October 5, 1926 to American Can Company for an improvement in Multispindle double seamer, jointly of myself and Paul Fleischer.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof:

In the drawings:

Figure 1 is a plan view of feeding mechanism constructed in accordance with the principles of this invention;

Fig. 2 is a sectional view taken substantially on line 2—2 of Fig. 3;

Fig. 3 is a vertical section of the feeding mechanism;

Fig. 4 is a partial plan section showing improper contact of a feeding finger with a can; and

Fig. 5 is a perspective of one of the feeding fingers.

Referring more particularly to the drawings, a

vertical bearing post 10 is secured at its bottom in a bearing frame 11 by means of a key 12 and surrounding the post is a frame extension 13 having a bearing sleeve 14. The frame extension 13 and the bearing frame 11 may be separate supporting parts or they may constitute cooperating parts of a complete operating unit of which this feeder is only a part.

A driving sleeve 15 is mounted for free rotation upon the bearing post 10 and has an anti-friction bearing sleeve 16 interposed between it and the bearing sleeve 14 of the frame extension 13. Between the upper end of the driving sleeve 15 and the post 10 is an anti-friction bearing sleeve 17.

A transfer disc comprising a central portion 18 and a separate rim portion 19 secured thereto by fastening bolts 20 is attached to the upper end of the driving sleeve 15 by a key 21 secured in place by a fastening bolt 22.

In order to hold the transfer disc and the driving sleeve in proper position, a bearing block or washer 23 is interposed between the hub of the disc and the top of the anti-friction sleeve 16 which extends outwardly over and is supported by the upper end of the bearing sleeve 14 of the frame, thereby supporting the transfer disc by its central portion 18 and upholding the bearing sleeve 15 which is keyed thereto.

In order to rotate the driving sleeve 15 about the post 10, a driving gear 24 is mounted loosely on a reduced portion of the lower end of the sleeve and has a recess for seating an anti-friction disc 25 which bears on its upper side against the lower end of the anti-friction sleeve 16.

The gear 24 is driven by a suitable pinion (not shown) and has a frictional driving connection with the driving sleeve 15, which comprises a friction disc 26 interposed between the lower face of the gear 24 and a collar 27 held against rotation on the sleeve but slidable lengthwise thereof. This collar is pressed upwardly against the friction disc by a spring 28 interposed between the collar 27 and an abutment 29 threaded on the lower end of the sleeve 15 for adjustment and having a part 30 for locking the abutment in any adjusted position by a tightening screw 31.

The cans to be transferred are received upon the outer rim portion 19 of the transfer disc from a delivery chute 32 or any other suitable means and are guided around the disc in a passage formed by an outer guide 33 supported by means of an arm 34 extending upward from the frame extension 13, and by an inner guide 35 which is secured to the upper end of the post 10

by means of a key 36. As the cans pass from this transfer mechanism they are received in timed relation between an outer guide 37 and recesses 38 in the edge of a rotating transfer disc 39. Thus a passage is provided from the delivery chute between the fixed guides 33 and 35, which are spaced slightly more apart at the receiving end to permit engagement of the cans by the feeding fingers.

10 In the central portion 18 of the receiving disc are a number of downwardly extending bosses 40 in which studs 41 are rotatable. The lower end of each stud is formed with a slot 42 and extends slightly below the boss 40 to provide a space for seating a coil spring 43, which extends around the stud with one end extending into the slot 42 and held in place by a cotter pin 44, and the other end extending into a recess 45 at the lower end of the boss 40.

20 At the upper end of each stud a can feeding finger 46 is secured having a cut-out recess 47 directly above the stud 41 and having an opposite under cut portion 48 at the extremity of the finger, so that adjacent feeding fingers may partially overlap at times, as shown more clearly in Figs. 2 and 4. Each finger is formed with an extension 49 and a stud 50 projects upwardly therefrom upon which is mounted an anti-friction roller 51 for engaging a cam member 52.

30 The cam member 52 is mounted above the can feeding disc and below the inner guide 35, preferably having a hub portion engaging the top of the bearing sleeve 17 surrounding the post 10. In the under side of the cam member 52 is a cam groove 53 which engages the rollers 51 of the feeding fingers on both sides thereof during a portion of their travel, but has a reduced portion 54 on the inside of the cam groove, as shown more clearly in Figs 2 and 4, which permits the rollers to swing inwardly during a portion of their travel to cause a yielding arcuate movement of the feeding fingers backwardly and inwardly for the purpose of passing a can which is not properly engaged, as shown more clearly 45 in Fig. 4. When the finger is not controlled by the cam the spring tends to turn the finger in an anti-clockwise direction viewing Fig. 2, which is forwardly in the direction of movement of the cans. The spring 43 is important in causing the 50 finger to tend to engage the cans, and permitting the finger to yield and pass the can when the latter is not sufficiently advanced.

Referring more particularly to Fig 2, it will be noted that just before the cans are delivered 55 to the transfer disc at the left of this figure, the fingers 46 are spaced more widely apart than at any other point. This is caused by the shape of the cam groove 53, it being bulged outwardly from the post 10 so that the extension 49 of each feeding finger 46 is moved quickly in an outward direction, causing a corresponding forward movement of the can engaging portion of the finger, thereby accelerating the movement of each can in the same direction of movement as that of the feeding disc, accelerating the can body just before 60 and as it is delivered from the feeding and timing mechanism.

In order to accurately adjust the position of the cam member 52, it is provided with two spaced 70 lugs 55 extending upwardly from the top thereof, as shown more clearly in Fig. 1, between which is a lug 56 extending laterally from the hub of the inner guide member 35, which is fixed to the upper end of the post 10. Adjusting screws 57 75 are threaded through the lugs 55 and engage

opposite sides of the lug 56 at their inner ends, so that a corresponding movement of these screws will cause a corresponding adjusting movement of the cam member 52.

With this construction the cans are received 5 at a relatively low speed, unspaced, and untimed; they are advanced, spaced apart, and timed; and they are accelerated with a predetermined action calculated to prevent spilling of the contents, to the speed of the transfer turret to which they 10 are delivered.

It is thought that this invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that many changes may be made in the form, 15 construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof. 20

I claim:

1. In a can feeding mechanism, a rotary can carrier, a plurality of fingers pivoted vertically to the carrier and adapted to engage the can bodies for spacing and feeding them, said fingers 25 being mounted to swing rearwardly and inwardly with respect to the carrier when the outer end of the finger improperly engages the can body, and means for positively moving said fingers forwardly and rearwardly relative to the direction 30 of travel of the cans.

2. In a can feeding mechanism, a rotatable can-supporting carrier, a plurality of can propelling fingers pivoted on the carrier, springs pressing said fingers forwardly and permitting 35 the fingers to yield rearwardly at a portion of their travel on the carrier where they first contact with the cans, and means for positively controlling the movement of the fingers forwardly to accelerate, and space apart, and deliver the 40 cans.

3. In a can feeder, a rotary carrier, a can engaging finger pivoted vertically on the carrier and swingable forward and rearward thereon, a spring pressing the finger forward, a cam arranged to engage the finger and to swing it 45 positively forward and outward into can-engaging position, said cam having a recessed portion to permit the finger to swing rearwardly and inwardly to pass by a can body. 50

4. In a can feeder, a rotatable can-supporting carrier, a plurality of fingers pivoted vertically on the carrier to engage can bodies, said fingers each having a projecting engagement roller, a fixed cam adapted to engage the rollers for positively controlling the movement of the fingers 55 throughout a portion of their travel, and the cam wall being recessed at another portion to permit the fingers to be rotated rearwardly and inwardly, and a spring continuously acting upon said finger and tending to force it outwardly and forwardly into can engaging position. 60

5. In a can feeder, a rotatable carrier, a plurality of fingers pivoted on the carrier and having a projecting cam engaging means, the fingers 65 being mounted close together and having oppositely recessed portions permitting each finger to partially overlie the other, and a cam for engaging said means operative to move the fingers in overlapping relation with respect to each other. 70

6. In a can feeding mechanism, the combination of a fixed bearing post, a can carrier rotatable around said post, can-propelling fingers pivoted on vertical axes to said carrier and having projections by which the fingers can be os- 75

5 cillated forwardly and rearwardly relative to the travel of the cans, a fixed cam having a groove enclosing said projections, and means for rotating said carrier, whereby said fingers accelerate the movement of the cans relative to their carrier.

10 7. In a can feeder, a rotatable carrier, can-propelling fingers arranged around the carrier and pivoted thereto by vertical pivots and having projecting cam-engaging means, and a cam having vertical inner and outer walls engageable by said means, and springs whereby said fingers are pressed forwardly relative to said carrier.

15 8. In a can feeder, a rotatable can support, a plurality of can-propelling fingers pivoted on the can support and having projecting cam-engaging means, and a cam having inner and outer walls engageable by said means, the inner wall of said cam having a reduced portion to allow of a rearward yielding of the fingers to enable them to pass by cans which have not arrived at the proper position for engagement and propulsion.

20 9. In a can feeder, means for supporting the cans, a rotatable member, can-propelling fingers
25 arranged around said rotary member and piv-

otally connected therewith, a cam-wall for swinging said fingers forwardly, a cam-wall for swinging said fingers rearwardly, said cam-walls being eccentric relative to said rotary member, and springs for pressing said fingers forwardly, the cam-wall for swinging the fingers forwardly being reduced at the place where said fingers first engage the cans to permit the fingers to yield backward and to pass by cans which are partially engaged by the fingers.

10 10. In a can feeder, rotatable means for supporting the cans, a rotatable member, can-propelling fingers arranged around said rotary member and pivotally connected therewith, a cam-wall for swinging said fingers forwardly, a cam-wall for swinging said fingers rearwardly, said cam-walls being eccentric relative to said rotary member, and springs for pressing said fingers forwardly, the cam-wall for swinging the fingers forwardly being reduced at the place where said fingers first engage the cans to permit the fingers to yield backward and to pass by cans which are partially engaged by the fingers.

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