Jan. 17, 1933. J. T. TUCKER 1,894,547

CAN FEEDER

Filed Aug. 8, 1931

FIG. 1

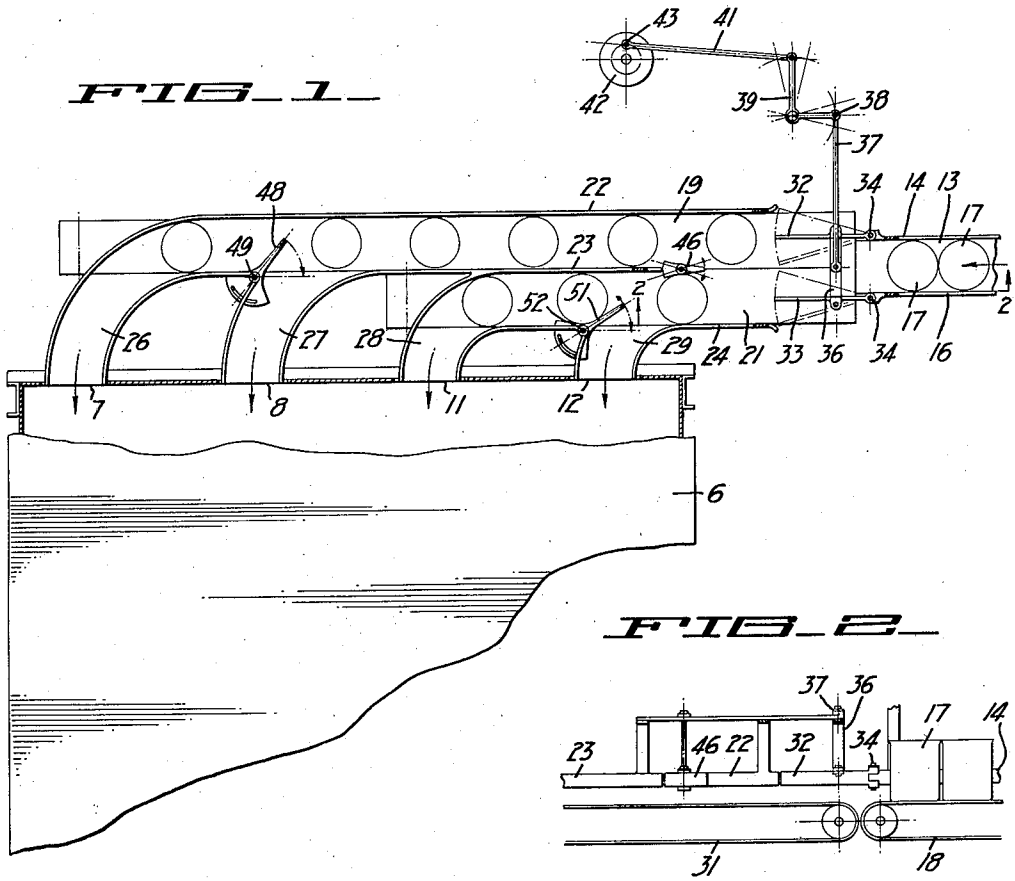


FIG. 2

FIG. 3

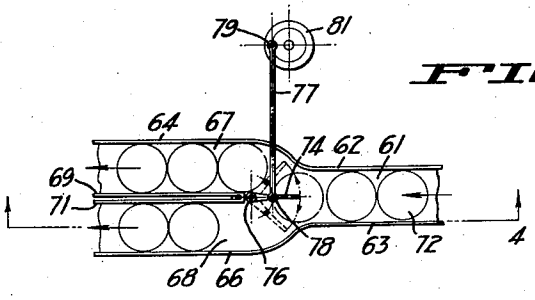
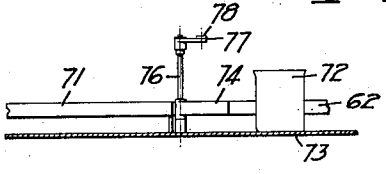


FIG. 4



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UNITED STATES PATENT OFFICE

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CAN FEEDER

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My invention relates to mechanisms primarily for use in canneries and is especially concerned with devices for handling a plurality of cans either empty or containing products such as fruit, which are destined for treatment in a mechanism such as an exhaust box, although the can feeder of my invention is adapted for use in other environments as well.

In order to increase the speed of operation in a cannery and to increase the facility of handling the cans, I have found that it is often desirable to divert cans from a single high speed line of advancement into a plurality of lines of advancement operating at a slower speed.

An object of my invention is to provide means for diverting a single row of cans advancing at a relatively high speed into a plurality of rows of cans advancing at a relatively low speed.

Another object of my invention is to provide a satisfactory means for handling open cans of products without spilling or discharging unnecessarily the products from the can.

An additional object of my invention is to provide means for handling the cans expeditiously.

Other objects as well as the foregoing are attained in the embodiment of the invention shown in the drawing, in which

Figure 1 is a plan showing the can feeder of my invention particularly as it is used in conjunction with an exhaust box.

Figure 2 is a cross section on the line 2—2 of Figure 1.

Figure 3 is a plan of a modified form of the can feeder of my invention.

Figure 4 is a cross section on the line 4—4 of Figure 3.

In its preferred form, the can feeder of my invention comprises means defining a channel branching into a plurality of suitably defined paths adapted for the advancement of cans therein and combined with means situated at the junction of the channel and the paths for diverting successive ones of the cans in a predetermined manner to the selected ones of the paths.

As shown in Figures 1 and 2, the can feeder of my invention is particularly useful in conjunction with an exhaust box 6 which is provided with a plurality of inlets 7, 8, 11 and 12. In order to lead the cans to the exhaust box, there is provided a channel 13 defined by a pair of walls 14 and 16, respectively, within which a plurality of cans 17 are adapted to be advanced by a conveyor 18 of any suitable kind, in the present instance a belt conveyor being disclosed. The channel 13 merges with or branches into a plurality of paths 19 and 21, respectively, defined or bounded by abutments 22, 23 and 24, respectively. The path 19 in turn is divided into a pair of ducts 26 and 27 while the path 21 is divided into ducts 28 and 29 extending to the inlets 11 and 12, respectively. The cans are adapted to be advanced in the paths 19 and 21 by any suitable means, such as a belt conveyor 31.

In order that the succession of cans 17 advancing in the channel 13 may be distributed or directed as desired into the paths 19 and 21, I preferably situate at the junction of the channel 13 and of the paths 19 and 21, a pair of guides 32 and 33 respectively, each of which is pivoted as at 34 adjacent the extremity of the associated one of the walls 14 and 16. The guides 32 and 33 are joined together by an arched link 36 and are adapted to move in unison between the dotted line positions shown in Figure 1 and in one of which the guides 32 and 33 are in registry with the pair of abutments 22 and 23, and in the other of which the guides 32 and 33 are in registry with the pair of abutments 23 and 24.

In order to drive the guide plates 32 and 33, preferably with a simple, harmonic motion, I pivotally mount on the link 36 an arm 37 also pivoted, as at 38, to a bell crank 39. Attached to the bell crank is a similar arm 41 driven by a rotating plate 42 carrying a pin 43. By virtue of this arrangement, the guide plates 32 and 33 move very slowly adjacent their extreme positions but move more rapidly intermediate the extreme positions and serve to block communication between the paths 19 and 21 and the channel 13 in a predetermined fashion.

Although it is not necessary in every instance, I prefer to mount at the extremity of the abutment 23 a pivoted blade 46 which is relatively thin at its leading edge and thick at its trailing edge. The dimensions of the paths 19 and 21 and the thickness of the plate 46 are such that as the cans 17 pass through the path 21, for instance, they oscillate the blade 46 about its pivot and locate it in such a fashion that the succeeding can 17 is deflected to the path 19 whereupon the cans again rotate or oscillate the plate 46 to a sufficient extent to bring it back to its original position.

A variation of this scheme is employed in conjunction with the ducts 26 and 27 inasmuch as a plate 48 is therein provided and is pivoted as at 49 and acts in a similar fashion, that is, each can 17 as it passes through the duct 27 for instance deflects the plate 48 so that the succeeding can is deflected into the duct 26. In exactly the same way a plate 51 is pivoted as at 52 intermediate the ducts 28 and 29 and divides the cans entering the path 21 and destined for the inlets 11 and 12.

In Figures 3 and 4 I have shown a modification of my invention in which the channel 61 is defined by walls 62 and 63 which in this instance merge with abutments 64 and 66 defining the outer extremities of the paths 67 and 68, the inner extremities of which are defined by a pair of abutments 69 and 71. The cams 72 are advanced in the channel 61 by a suitable conveyor 73 and at the junction of the channel 61 with the paths 67 and 68 are suitably directed or deflected by means of a blade 74 pivoted as at 76 and adapted to be oscillated with a simple harmonic motion by virtue of the attachment of an arm 77 at one end pivoted as at 78 to the plate 74 and at the other end connected to a pin 79 mounted on a rotating disc 81. This mechanism likewise produces motion of the plate 74 such that at each extreme position the plate moves relatively slowly while in the central portion of its path the plate moves relatively fast.

In both forms of the can feeder of my invention there is provided a mechanism for distributing a succession of cans to the predetermined ones of a plurality of selected paths in such a fashion that the cans are not only evenly distributed but are advanced at a rate less rapid than the rate of advance of the cans arriving for distribution.

It is to be understood that I do not limit myself to the form of the can feeder shown and described herein, as the invention, as set forth in the following claims may be embodied in a plurality of forms.

I claim:

1. A can feeder comprising a pair of walls defining a channel, a plurality of abutments defining a plurality of paths, a conveyor underlying said channel and said paths for propelling articles from said channel to said paths, a pair of parallel guides each pivoted at one end to the extremity of one of said walls, a link pivoted to both of said guides, and means connected to said link for moving said guides so that their free ends register alternately with said abutments.

2. A can feeder comprising a pair of walls defining a channel, a plurality of abutments defining a plurality of paths, a conveyor underlying said channel and said paths for propelling articles from said channel to said paths, a pair of guide plates each pivoted at its leading edge in the plane of one of said walls, a link pivoted to both of said guides and holding them in parallelism, and means for moving said link so that the trailing edges of said guides register alternately with said abutments.

In testimony whereof, I have hereunto set my hand.

JOHN T. TUCKER.