Dec. 18, 1934. J. H. STOCK ET AL 1,985,218

CAN BOXING MACHINE

Filed April 1, 1933 2 Sheets-Sheet 1

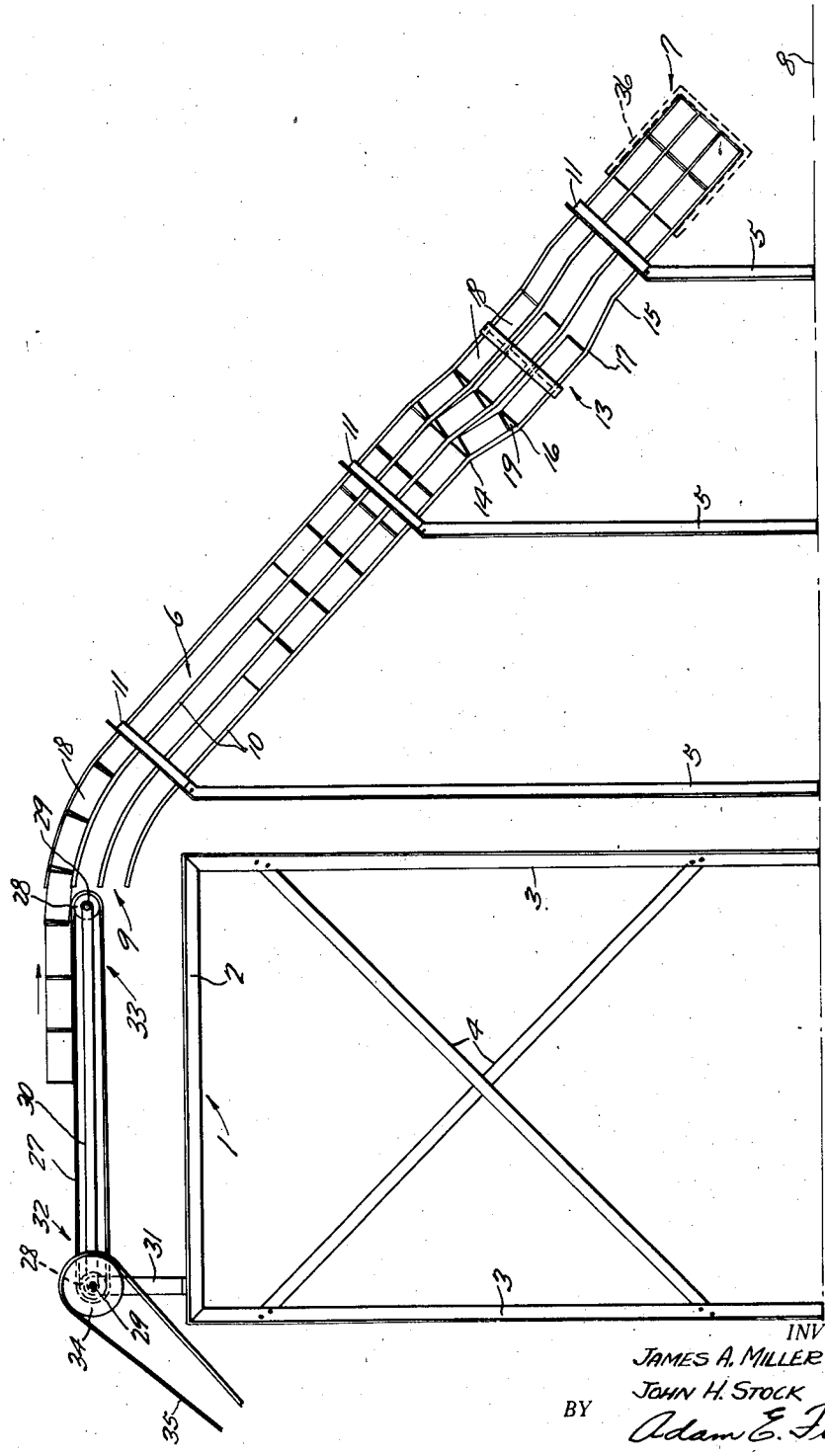


Fig. 1.

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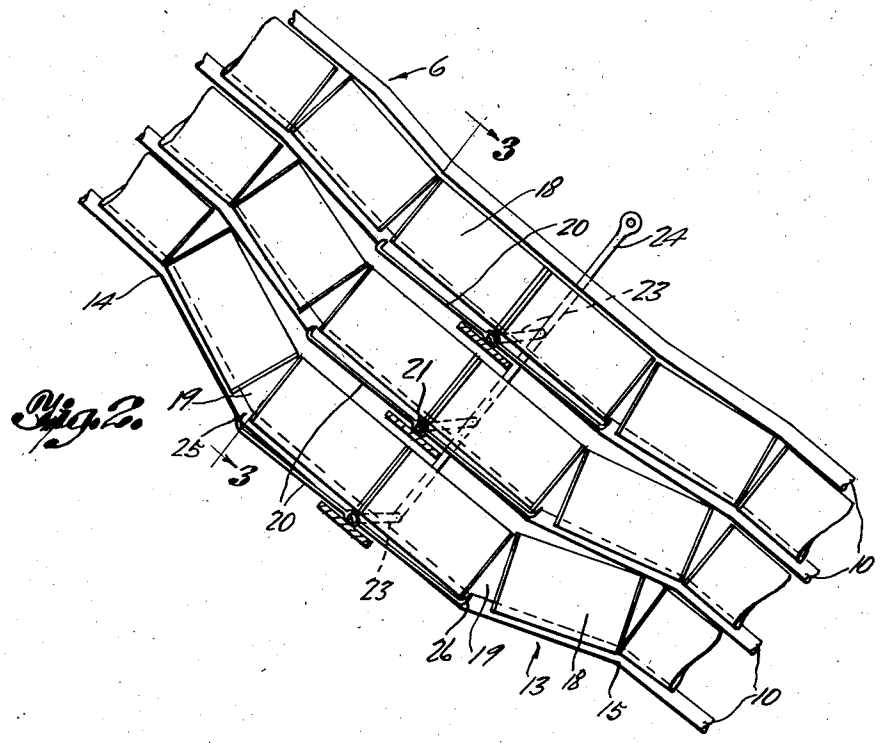


Fig. 2.

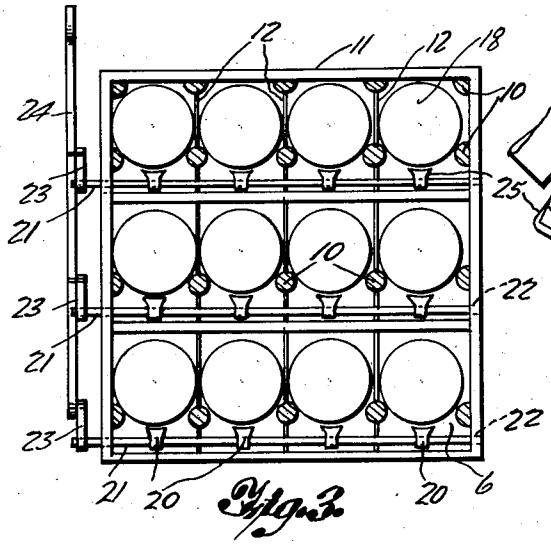


Fig. 3.

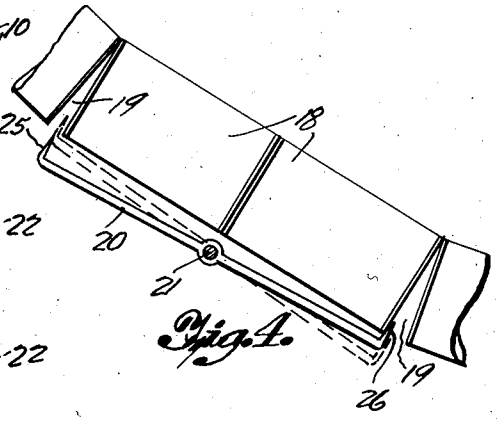


Fig. 4.

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UNITED STATES PATENT OFFICE

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CAN BOXING MACHINE

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Application April 1, 1933, Serial No. 663,924

1 Claim. (Cl. 193—40)

This invention relates to machines for boxing cans or canned goods.

The prime object of the invention is to provide a machine for handling canned goods of a standard form and size and depositing a predetermined number thereof in boxes adapted to receive and hold such quantity.

Another object is to provide a machine of the kind referred to, embodying a gang of can chutes angularly positioned so as to allow cans inserted in the upper ends of the chutes to glide down to and out of the lower end thereof through the operation of gravity, with means for feeding cans in at the upper ends of the chutes as may be required; and means at the lower ends of the chutes for blocking off or intermittently stopping the flow of cans for the purpose of removing the filled boxes and replacing with empty boxes, successively.

With these and such other objects and advantages in view as may be developed in the course of the following specification, attention is directed to the accompanying drawings wherein is embodied one practical form of the invention, and wherein

Figure 1 is a side elevation of the machine, a portion of the drive belt being shown broken away.

Figure 2 is an enlarged side elevation of a medial section of the gang of can chutes.

Figure 3 is a section on the line 3—3 of Figure 2.

Figure 4 is a detail on an enlarged scale of the can blocking-off mechanism.

The invention comprises a suitably elevated platform or scaffold 1 including a top 2, legs 3 and braces 4. A series of supports 5 are arranged in spaced relation outwardly from the said platform, the same being of successively less length or height as they progress outwardly. A gang of can chutes 6 is mounted upon these supports, the lower ends 7 thereof being brought adjacent the floor 8 and the upper and open ends 9 being curved up over the platform 1. As here shown, this gang of chutes comprises twenty horizontally and vertically spaced bars or rods 10 arranged in a rectangular formation, and so held by rectangular supporting frames 11 and thin connecting strips 12 vertically extended between and connecting the several bars 10 comprised in each horizontally arranged row. This arrangement of the said bars form can chutes or run-ways between each pair of horizontally adjacent bars, the total comprising the gang 6 referred to. Cans 18 as fed into the upper ends of these chutes will slide by gravity down to the lower end. It will be noted that near the lower end of the structure, the rods or bars 10 are all depressed, as shown at 13, between the points 14 and 15, the lower portions of such depressions being straight portions between the points 16 and 17, just long enough to cover two of the cans 18 end to end, in each chute, as the cans pass down therethrough. It will also be noted that in the process of traveling over these depressions of the rods 10, the several trains of cans 18 are caused to break apart at their lower margins, forming openings 19 at the points of entering and leaving the said depressions, that is, at the ends of the straight portions between the points 16 and 17, carrying each two cans as above stated. Series of oscillating stop levers 20 are rigidly mounted at their medial points upon shafts 21 which are passed transversely through the structure below each horizontal row of cans, and are journaled at their ends in one of the frames 11, as shown at 22. Cranks 23 are mounted at the outer extended ends of these levers, the cranks in turn being connected by a connecting rod 24. Thus all of the levers 20 may be operated by a reciprocatory movement of the rod 24. The levers 20 are of the requisite length and are provided at their ends with upturned fingers 25 and 26 adapted to enter the openings 19 formed as aforesaid between the cans within the chutes as the cans pass over the depressed portion 13. Thus as the levers 20 oscillate up and down at their ends under the impulse of the rod 24, either series of lever fingers 25 or 26, as may be desired, may be caused to enter the adjacent openings 19. It is apparent that with the upwardly positioned fingers 25 entered in said openings, the travel of the trains of cans through their respective chutes will be stopped, the cans abutting upon the said fingers 25. At the same time, the fingers 26 at the opposite ends of the lever being depressed, the cans below the fingers 25 will pass by gravity on out through the said chutes. It is also apparent that with the levers 20 oscillated to their opposite positions, whereby the fingers 25 are withdrawn and the fingers 26 are entered in their turn into the adjacent openings 19, a new supply of cans will flow down until they strike upon the fingers 26. Thus the mere reciprocation of the rod 24 will cause, throughout the entire transverse section of the gang of chutes, defined between the points 16 and 17, two cans in each chute simultaneously to be segregated from its train, and to be ejected at the lower end 7 of the structure, making according to the representation of the present drawings, a total of

twenty-four cans ejected at each cyclic reciprocation of the said rod. The cans are fed into the chutes by means of an endless apron 27 trained over rollers 28 mounted upon shafts 29 having their extended ends journaled through the side bars of a frame 30. The ends of the rearmost shaft are also journaled through the upper ends of posts 31 extended up from the top 2 of the platform 1, and whereby the entire frame is adapted for pivotal movement in a vertical plane at its rear end 32, so that the forward end 33 may be raised or lowered across the upper and aligned ends 9 of the gang of chutes 6. A pulley 34 upon an outer extended end of the rear shaft 29 engages a drive belt 35, whereby the upper side of the apron 27 is kept continuously moving towards the ends 9 of the chutes.

In operation, the filled and sealed cans 18 are placed by operators in rows, end to end, upon the traveling apron 27, and the forward end of the frame 30 is raised or lowered as may be required to deliver cans into the open ends or mouths 9 of the gang of chutes 6, whence they flow or slide down through, in manner already described. An operator at the lower or boxing end of the apparatus, simply telescopes boxes (one of which is represented in dotted lines at 36), one at a time over the lower end 7 of the gang of chutes, and as the cans are released into a box, the rod 24 is operated to stop the flow of boxes pending the removal of the box in hand, as just filled. Thereafter another box is positioned over the end 7, and the operation is repeated indefinitely.

The boxes 36 are, of course, made to an appropriate size for holding, as here shown, just twenty-four cans. By increasing the number of chutes, the machine may be readily adapted for delivering a greater number of cans at each reciprocation of the rod 24, in which case larger boxes would, of course, be provided.

While we have herein described a certain specific manner and method of constructing and assembling the elements of our invention, it is understood that we may vary from the same in minor details, not departing from the spirit of our invention, so as best to construct a practical device for the purpose intended, as defined in the appended claim.

We claim:

In an apparatus of the kind described, an inclined gang of can chutes arranged for receiving at the upper end and delivering by gravity at the lower end trains of cans fed end-wise thereinto, a cross-sectional portion of the gang adjacent the lower end thereof being depressed in offset relation, for causing the several trains of cans to break open at their lower margins in passing over said depressed portion, and means co-operating with said breaks in the trains of cans for blocking off regularly predetermined quantities of the cans for delivery at the lower end of the gang.

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