

Oct. 27, 1959

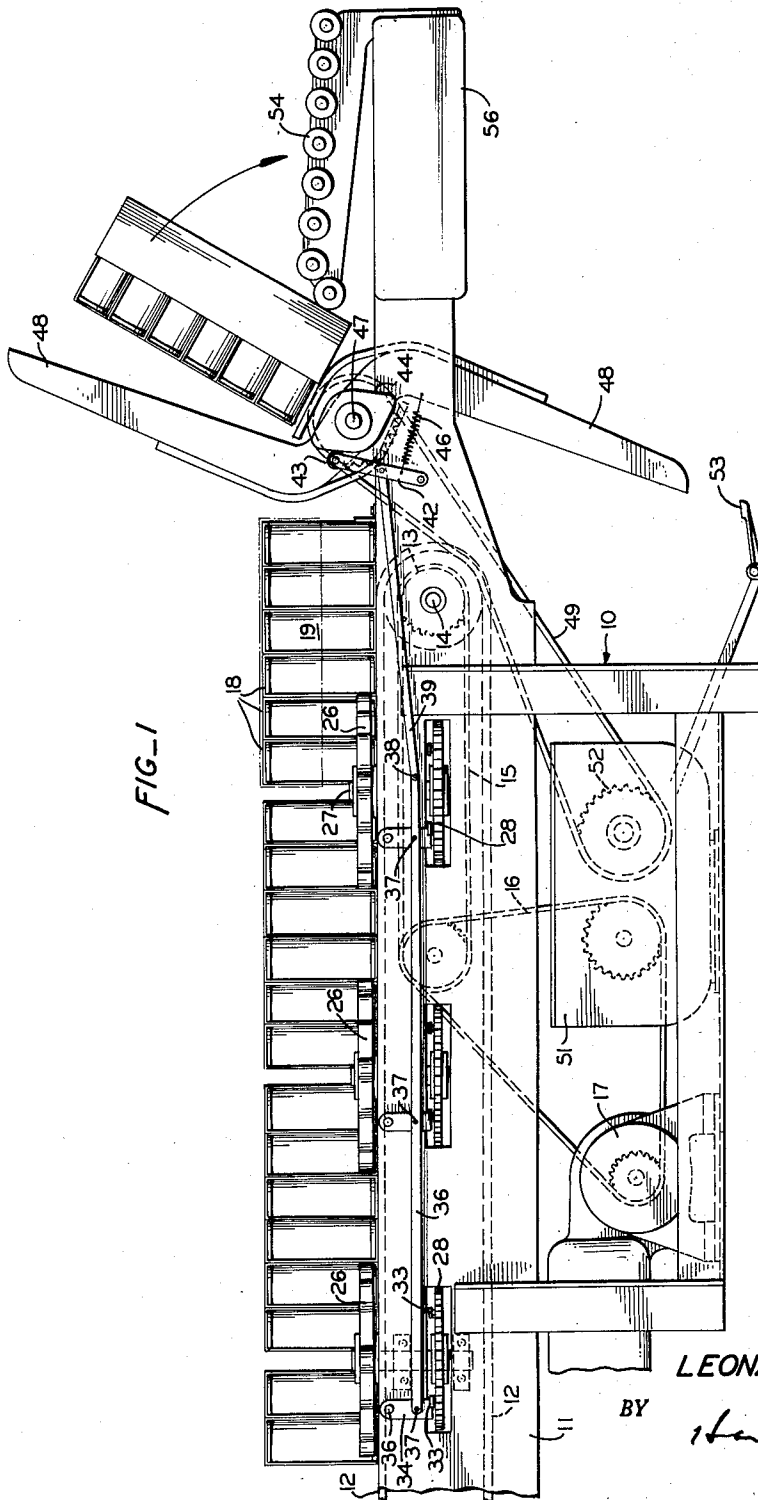
L. MCGIHON

2,909,876

CASING MACHINE FOR CARTONS

Filed Nov. 16, 1955

2 Sheets-Sheet 1



Oct. 27, 1959

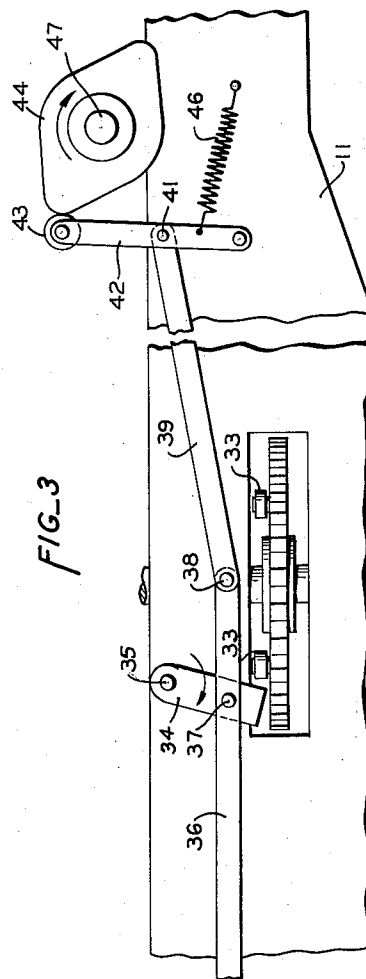
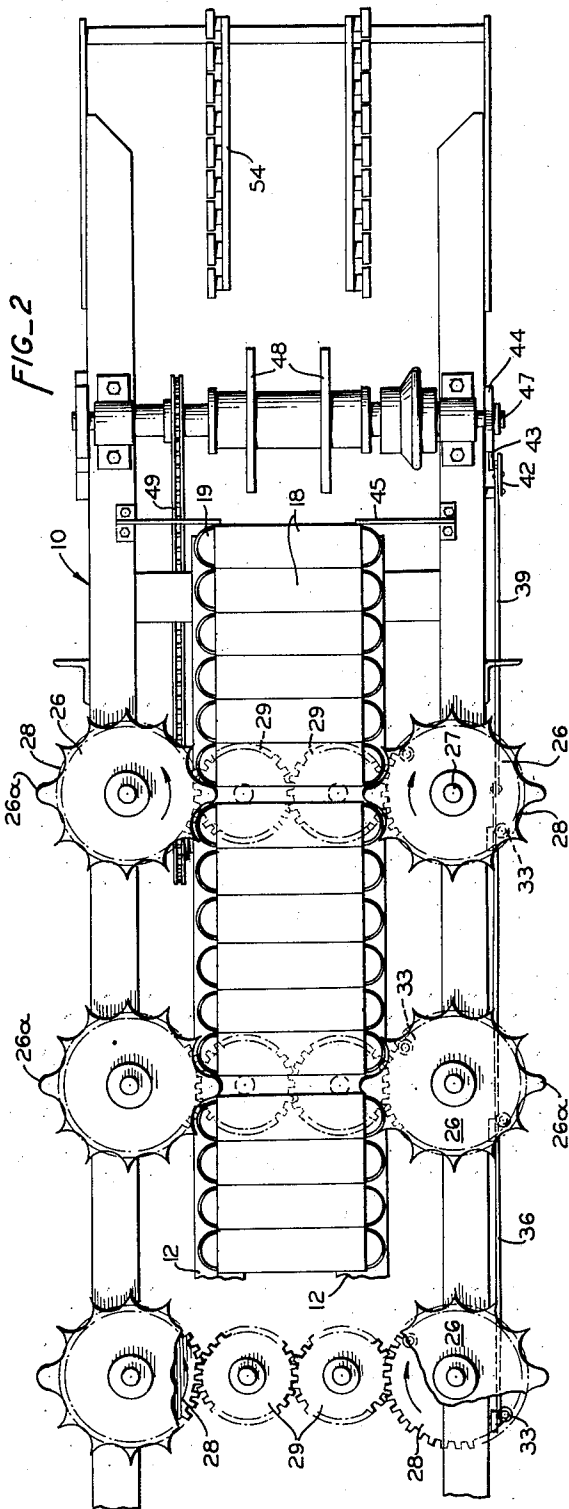
L. McGIHON

2,909,876

CASING MACHINE FOR CARTONS

Filed Nov. 16, 1955

2 Sheets-Sheet 2



INVENTOR.
LEONARD M^CGIHON

BY

Harper Allen

ATTORNEY

1

2,909,876

CASING MACHINE FOR CARTONS

Leonard McGihon, San Leandro, Calif., assignor to King Sales & Engineering Co., San Francisco, Calif.

Application November 16, 1955, Serial No. 547,268

3 Claims. (Cl. 53—159)

The present invention relates to the casing machine for cartons of the "carry home" type, where the cartons are supplied as a series in side by side relation on a pair of conveyers, and is concerned more particularly with means for segregating the cartons in groups of the desired number for packing in a case to permit installation of the case thereon in inverted position, and lifting the group of cartons with a case thereover and discharging it in an inverted position for discharge to a point for storage or shipment.

It is a general object of the invention to provide an improved casing machine for cartons.

Another object of the invention is to provide a casing machine in which a plurality of groups of cartons are segregated for placing of cases thereover, and in which these cartons move as a group to a carton and case lifting station where they are picked up and placed in inverted position on a discharge conveyer.

Other objects and advantages of the invention will be apparent from the following description of a preferred embodiment thereof, taken in connection with the accompanying drawings, in which:

Figure 1 is a side elevational view of a casing machine embodying the invention.

Figure 2 is a plan view, partially broken away, of the casing machine as shown in Figure 1.

Figure 3 is an enlarged fragmentary view of a portion of Figure 1 illustrating another operating condition of the parts.

The present invention is concerned with the packing in cases of cartons of beer, for example, and for the purposes of illustration, the type of carton having a single row of cans with portions of the end cans projecting beyond the carton is selected. As shown the casing machine includes a frame 10 having respective interconnected side plates 11, on which the various operating parts of the machine are mounted. The machine includes a parallel pair of belt-type conveyers 12, which are trained about a suitable idler drum (not shown) and a pair of drive drums 13 carried by a transverse shaft 14, which is driven through a chain and sprocket arrangement 15 and 16 from a motor 17. Preferably the conveyers 12 operate continuously and have disposed thereon either manually or by suitable automatic means, a series of cartons 18 containing a file of cans 19 in side-by-side relation with the end cans projecting therefrom, and forming in effect teeth by means of which the position of the cartons can be controlled.

Automatic means is provided for separating the cartons into a series of groups, six cartons in a group as shown, and this means take the form of opposite sets of sprockets 26, carried by vertical shafts 27 suitably journaled on the frame and also carrying gears 28. Gears 28 are connected in each case for simultaneous timed rotation by a pair of idler gears 29. Each of the sprockets 26 have two (2) sets of six (6) teeth each, with a contour of the teeth space between the teeth substantially semi-circular to conform to the projecting portions of

2

the cans 19 so that for each one-half revolution of a pair of opposed sprockets 27, a group of six cartons will be permitted to pass by under the urgency of the conveyor 12, the cartons in fact driving the sprockets. Each of the sprockets has a pair of wide teeth 26a, which in the rest position of the mechanism are disposed between an adjacent pair of groups of cartons, only the side face of a tooth 26a adjacent the oncoming cartons being active to form a stop, the width being merely incidental.

To provide for a one-half revolution of each of the sprockets 26 simultaneously to control the advance or feeding of the groups of cartons, each of the gears 28 at one side of the machine has a pair of diametrically opposite rollers 33 journaled thereon for successive co-operation with a depending stop lever 34 pivoted by a pin 35 on the adjacent side frame plate 11. These stop levers 34 are interconnected by means of a link 36 pivoted to each lever at 37 and pivotally connected by a pin 38 at one end to a link 39 which is pivotally connected at its other end to a cam follower lever 42 having roller 43 engaged with a double cam 44 on a transverse shaft 47. A spring 46 is provided to urge the lever 42 into cooperative engagement with the cam 44.

From the above description it will be seen that respective sprockets 26 together with their gears 28 and the stop levers 34 form a series of releasable stops for the successive groups of cartons, the first group of cartons being formed by the sprockets 26 to the left of Figures 1 and 2. The group of cartons to the right of these figures is engaged with a pair of fixed stops 45 which extend inwardly from the frame.

The lift shaft 47 is suitably journaled on the frame and carries a pair of parallel lift arms 48, of the type shown and described in my co-pending application, Serial No. 441,350, filed July 6, 1954, for Casing Machine. The lift arms 48 are formed in opposite pairs as shown in the drawings, and are driven through a chain and sprocket mechanism 49 from a gear case 51 receiving its drive from the chain sprocket mechanism 16 from the motor 17. The drive for the sprocket 52 of the sprocket mechanism 49 is under control of a half revolution clutch of conventional construction and controlled by a suitable control pedal 53. Suitable roller conveyers 54 are provided on the extension 56 of the frame for discharge of inverted cases as disclosed in said application.

In general the operation of the mechanism is as follows: The oncoming row or file of cartons 18 under the drive of the belts 12 engages the stop teeth 26a of the endmost pair of sprockets 26, and when the stop levers 34 are released a first group of six cartons is fed through. Successive operations of the stop levers 34 serves to form successive spaced apart groups as shown in Figure 3.

After the operator has placed a case in an inverted position over the endmost group of cartons, he steps on the pedal 53 and engages the half-cycle clutch so as to effect a one-half revolution of the lift arms 48 and lift the endmost group of cartons with the case thereover from the adjacent support of the conveyers 12. The spacing of the arms 48 is such that they pass between the conveyers 12 in overlapping relation thereto at the instant of pickup of the next adjacent group of cartons. As the lift arms 48 and their shaft 47 revolve in clockwise direction, toward the end of the cycle, the cam 44 becomes active to operate the cam follower 42, and the links 39 and 36 to move the stop levers 34 out from engagement with the rollers 33 so that the entire group of sprockets 26 are free to rotate one-half revolution under the urgency of the conveyor 12. This operation will move the successive groups of cartons 18 one position to the right as viewed in Figure 2 ready for another casing operation. It will be noted that because of the spacing apart of a se-

ries of groups of cartons 13 that the operator is allowed a certain liberty as to when he places a case thereover.

While I have shown and described a preferred embodiment of the invention, it will be apparent that the invention is capable of variation and modification from the form shown so that the scope thereof should be limited only by the scope of the claims appended hereto.

I claim:

1. In a casing machine for cartons having containers therein, conveying means for supporting a series of cartons thereon, a series of pairs of sprockets spaced equidistant along opposite sides of said conveying means, the first of said pairs of sprockets engaged by cartons on said conveyor serving to separate the cartons into groups of the required number and array for placement of a case thereover, the succeeding of said pairs of sprockets serving to maintain the cartons in the case array thereof by preventing displacement of cartons from the carton array in either direction along said carton conveyor, said series of pairs of sprockets and their control over the carton groups providing a plurality of carton groups for placement of a case thereover, discharge means for the endmost carton group, and rotation control means operative under control of said discharge means and providing for advancement of each remaining carton group from one portion to the next along said conveyor.

2. In a casing machine for cartons having containers therein, conveying means for supporting a series of cartons thereon, a series of pairs of sprockets spaced equidistant along opposite sides of said conveying means,

means connecting opposite sprockets of a pair for simultaneous opposed rotation, the first of said pairs of sprockets engaged by cartons on said conveyor serving to separate the cartons into groups of the required number and array for placement of a case thereover, the succeeding of said pairs of sprockets serving to maintain the cartons in the case array thereof by preventing displacement of cartons from the carton array in either direction along said carton conveyor, said series of pairs of sprockets and their control over the carton groups providing a plurality of carton groups for placement of a case thereover, discharge means for the endmost carton group, and control means for said sprockets for determining cyclic operation thereof including a common control connection.

3. In a casing machine as recited in claim 2 in which said common control connection includes a stop pin mounted for rotation with each sprocket wheel, a stop control link extending past at least one row of said sprocket wheels, a stop link pivotally mounted on the machine and pivotally connected to said stop control link, the end of each stop link being disposed in the path of a stop pin, operated in time with said discharge means, and cam means for controlling movement of said control link.

References Cited in the file of this patent

UNITED STATES PATENTS

2,351,596	Brogden	June 20, 1944
2,646,197	Silva	July 21, 1953
2,746,226	Donald	May 22, 1956