F. H. BIGGS.

CAN HANDLING MECHANISM.

APPLICATION FILED MAR. 1, 1915.

1,290,055.

Patented Jan. 7, 1919.

3 SHEETS—SHEET 1.

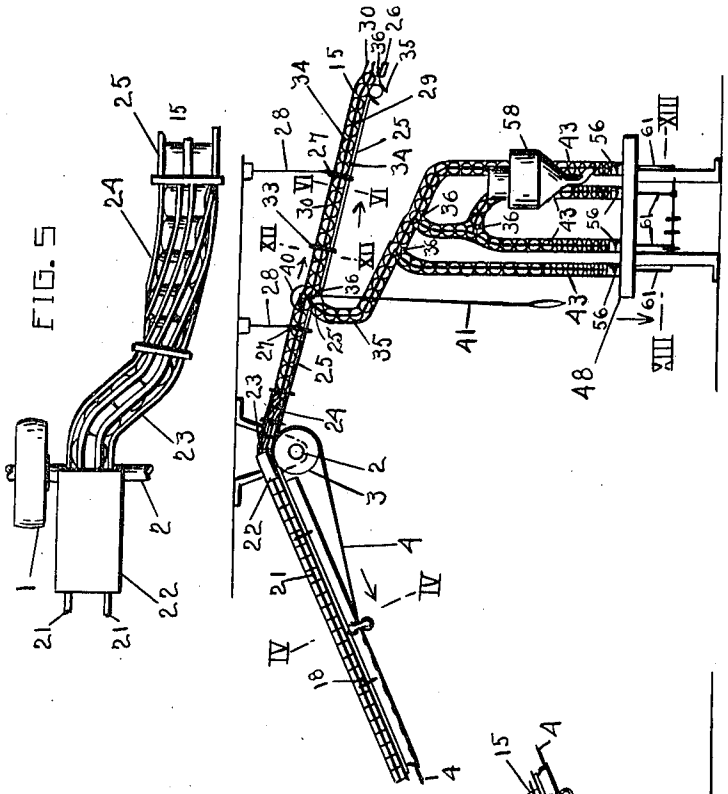


FIG. 1

FIG. 5

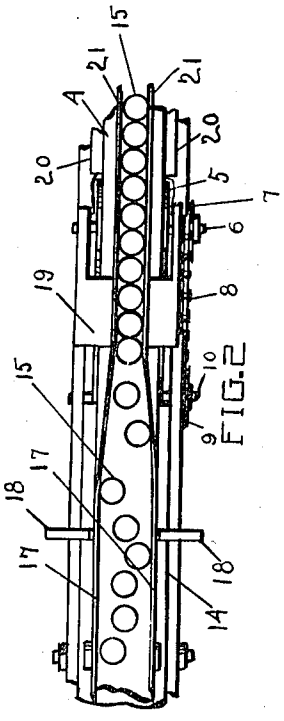


FIG. 2

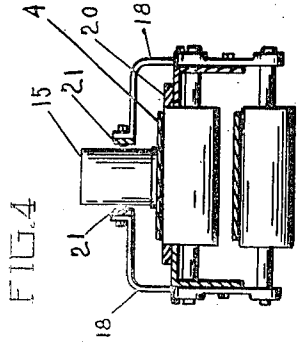
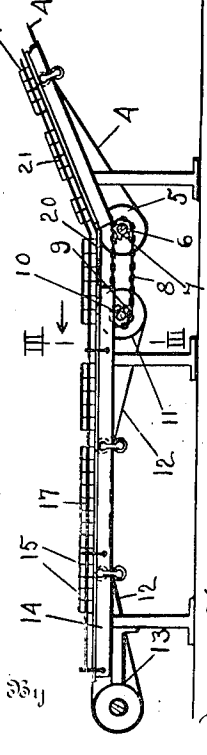


FIG. 4



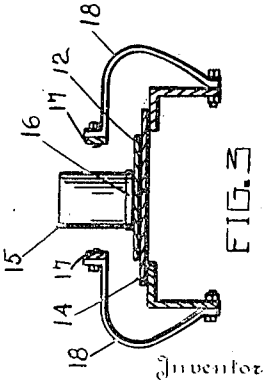


FIG. 3

Witnesses

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3 SHEETS—SHEET 2.

FIG. 6

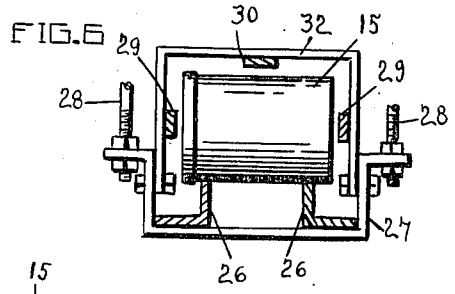


FIG. 7

FIG. 8

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3 SHEETS—SHEET 3.

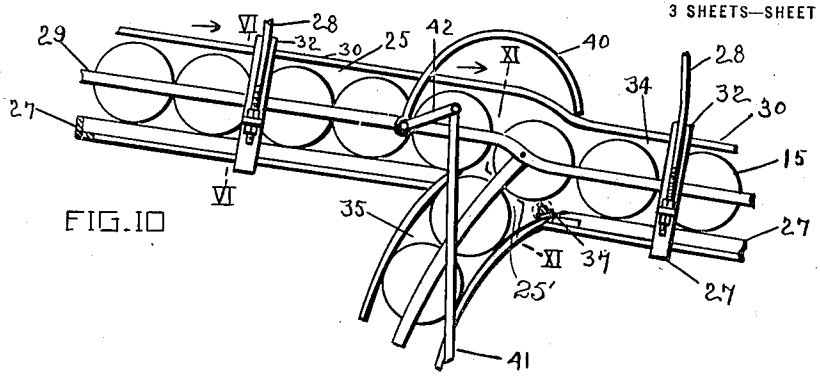


FIG. 10

FIG. 9

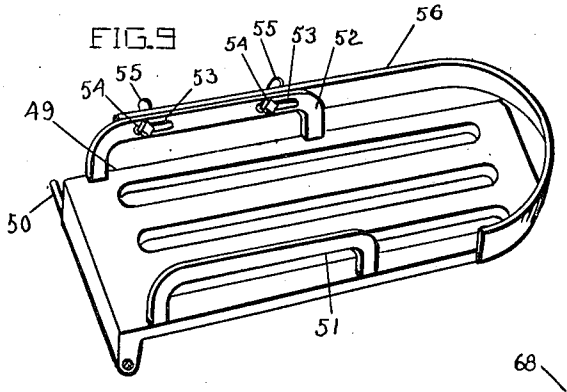


FIG. 11

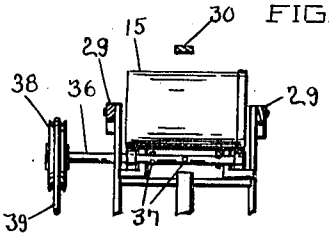


FIG. 13

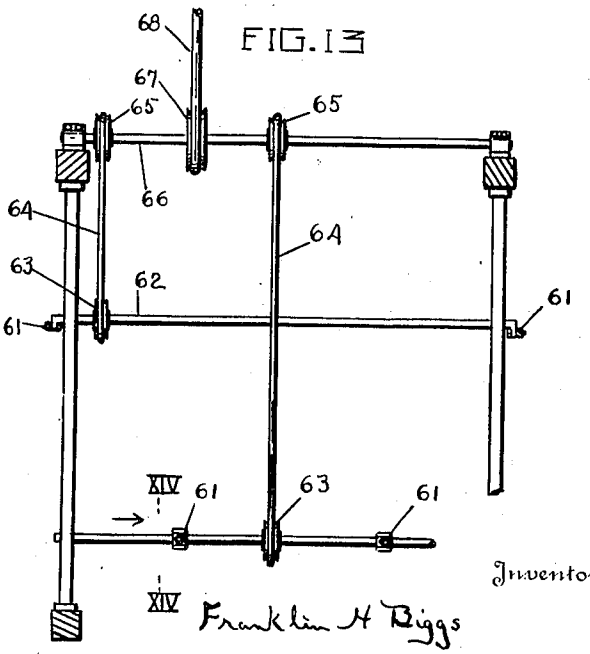


FIG. 12

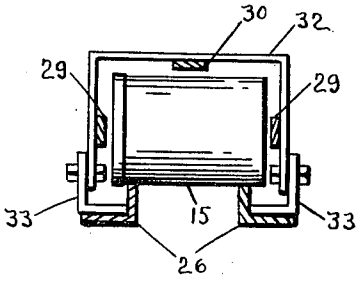


FIG. 14



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UNITED STATES PATENT OFFICE.

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CAN-HANDLING MECHANISM.

1,290,055. Specification of Letters Patent. Patented Jan. 7, 1919.

Application filed March 1, 1915. Serial No. 11,172.

To all whom it may concern:

Be it known that I, FRANKLIN H. BIGGS, of Toledo, Lucas county, Ohio, a citizen of the United States of America, have invented new and useful Can-Handling Mechanisms, of which the following is a specification.

This invention relates to mechanisms for handling articles, especially for delivering articles to a plurality of places in varying quantities or at independent rates.

This invention has utility when incorporated in can handling mechanisms, say for bringing from a ware house to a packing room and delivering to different packing or filling machines.

Referring to the drawings:

Figure 1 is a side elevation with parts broken away of an embodiment of the invention in a can handling mechanism;

Fig. 2 is a fragmentary plan view of the mechanism of Fig. 1 where one belt delivers to the succeeding belt;

Fig. 3 is a section on an enlarged scale on the line III—III Fig. 1;

Fig. 4 is a section on the line IV—IV, Fig. 1;

Fig. 5 is a fragmentary plan view on an enlarged scale of the transfer and turning device or delivery from the belt to a gravity way;

Fig. 6 is a view on the line VI—VI, Figs. 1 and 10;

Fig. 7 is a fragmentary view of a delivery station portion of the mechanism at the weighing and filling machine;

Fig. 8 is a section on the line VIII—VIII, Fig. 7, looking in the direction of the arrow;

Fig. 9 is a perspective view of the terminal can holder and vibrator at the filling station;

Fig. 10 is a fragmentary view on an enlarged scale of the gravity way and offset branch sections thereof;

Fig. 11 is a view on the line XI—XI Fig. 10, showing the agitator for coacting in effecting distribution of articles to the different branches;

Fig. 12 is an enlarged section on the line XII—XII Fig. 1;

Fig. 13 is a section on the line XIII—XIII Figs. 1 and 7, looking in the direction of the arrow; and

Fig. 14 is a section on the line XIV—XIV Fig. 13, looking in the direction of the arrow.

The driving pulley 1 mounted on the shaft 2 (Fig. 5) coacts to drive the pulley 3 (Fig. 1) and thus actuate the belt 4 passing over the pulley 5 mounted on the shaft 6 having the sprocket wheel 7 to drive the sprocket chain 8 to actuate the sprocket wheel 9 on the shaft 10 carrying the belt pulley 11 to actuate the belt 12 passing over the pulley 13. The upper reach of this belt 12 is along the way 14 upon which may be placed cylindrical articles or cans 15 having the closed flat end 16 disposed on the belt 12. These cans or articles 15 may be variously placed in position between the bars 17 yieldably mounted upon the spring brackets 18 to urge the cans 15 into single file travel toward the guide section 19.

The cans on the reach of the belt 12 will follow this guide section 19 and urge the cans thereon across to the upwardly inclined top reach of the belt 4, with which belt 4, on the way 20, the cans 15 travel in single file between the guides 21.

Delivery is then had of the cans through the housing or box guide section 22 and the bend section 23 into the twist or 90° turn section 24 (Fig. 5), which turning section 24 swings the cans to rest sidewise so that they may roll down the gravity way 25. This gravity way 25 comprises angle bars 26 (Fig. 6) upon which the can 15 may rest. These angle bars 26 are carried by the bracket member 27 supported by the bolts 28 suspending the way in position.

To maintain the cans in single file travel lateral guide strips 29 and a top guide strip 30 are mounted by the straps 32 on the bracket member 27. At positions between the bracket members 27, minor brackets 33 (Fig. 12) are provided to carry the top arch member 32 carrying the guide pieces 29 and 30.

To care for the distribution of this mechanism, the way may be offset (Fig. 10) having the continuous branch 34 and the plurality of lateral branches or offsets 35. In position at the entrance to the lateral branches may be disposed the shaft 36 having projections 37 thereon operable toward the branches 35 to provide agitators to engage the cans 15 and effect distribution of

the cans between the branches 34 and 35 by first filling the branch 35. This shaft 36 may be driven by the pulley 38 actuated by the belt 39 (Fig. 11.) As shown in Figs. 1 and 10 the ways from which the branches lead off are provided with offsets or drop portions 25′ marking a division between the successive same incline portions of the main ways. This insures supply of articles to the branch, and when such branch is filled, the article position in the branch has no tendency to interfere with free supply of articles therebeyond.

Considering the continuous section 34 of the way as the succeeding section, this section may be cut out or rendered inoperative by the arm 40 swung into the section 34 by the handle 41 actuating through the crank 42. This arm 40 enters the way 34 to one side of the guide member 30. When the way 34 is thus cut off the supply from the section 25 passes to the plurality of sections 35. These sections 35 may be branches successively by offsets similar to the offset shown in Fig. 10 to supply cans to the delivery stations, and vibrators, of which but one is illustrated.

In the way section adjacent the terminal section the way is curved to bring the cans from the rolling position to the open end up position. This way 43 (Figs. 7, 8) comprises the lower guide member 44, the two pairs of side guide members 45 and the top guide member 46 embraced by the yoke member 47. This curved chute or gravity way may terminate at the filling platform 48 and have a terminal can holder 49 having the hinged pin 50 to swingably connect this terminal section 49 to the way section 43. This terminal section carries the side guides 51, 52. The guide 52 has the slots 53 through which bolts 54 extend to wing nuts 55 to engage adjustably the yoke 56 to position the terminal can so that at the offset branch the way 43 when filled will have a can at the branch in such a position that the succeeding branch way is not clogged thereby. With this adjustment, each way or branch may be kept fully charged with cans and the separate ways may have their supplies of cans varying in rate or quantities independent of the quantities taken by any other delivery station.

With this yoke 56 adjusted, the filling spout 57 may be swung into proper position thereover so that the supply of fine or dry material, say coffee, from the magazine 58 may be delivered to the weighing machine 59 and be supplied to can 15 in position under the spout 57. During this filling operation the guide 60 below the free end of the terminal section 49 has reciprocating therethrough to vibrate the section 49 the pin 61 eccentrically mounted as to the shaft 62 carrying pulley 63 driven by the belt 64 from the pulley 65 on the shaft 66 actuated by the pulley 67 driven by the belt 68. With the material thus automatically shaken down into the can 15, the attendant may place the cover or lid thereon, put the can on the inclined way 69 so that the filled covered can 70 may be delivered to the labeling machine 71 or otherwise carried away for packing.

In the operation of this device the cans may be placed upon the belt 12 in the factory warehouse or at some remote place from the filling room and with the belts 12 and 4 operated, a constant supply of cans may be provided for the way 25. With the way 25 fully charged, the cans are held back on the belt 4 so that with a supply of a few cans on the belt 4, it is possible to keep the way 25, with its branches, adequately supplied with cans at many points where the demands may be different and when any can is taken from any station the automatic switching immediately brings another can into position and the belt 4 moves up one can all along the mechanism leading to the station from which a can has been removed.

The belt 4 is a sort of magazine or surplus can or vessel holding section which will bring up new cans but still may retain cans thereon notwithstanding the belt moves relatively to the cans. This, of course, is a driven section, while for the automatic independent supply the cans are turned to permit rolling down as urged by the belt pushing under the cans thereon. The offsets or branches are adjusted by adjusting the yokes 56 at the terminals. Further, these offsets 25′ may be provided with agitators 37 coacting with the cans to effect distribution to the several branches so that the ways are filled throughout. The device of the disclosure accordingly affords a continuous supply of containers with the floor space adjacent the filling machines kept free thereof. One man readily supplies cans for many filling machines. There is accordingly no occasion for litter from containers in the filling machine room. The cans are delivered exactly in the position desired by the attendant. In fact, with the cans thus automatically delivered, all the attendant at the filling station has to do is to remove the filled can when the material is shaken down therein.

There is great saving in floor space as well as increased efficiency in handling machines at a greatly reduced labor cost.

When articles, which have walls rather light and accordingly liable to be crushed when pressure is applied thereto, are vessels of the kind handled in this machine, it is desirable to relieve any excess of pressure which might accrue in the chute 43 leading to the yoke 56. This may be accomplished

as shown in Fig. 1 by the reverse curve section 35 having an incline or delivery to the chute 43. The extent of this section 35 and the proportioning of the chute 43 may be according to the character of the articles handled. With very rigid articles the chute 43 might be of greater extent to stand greater pressure even up to direct connection to the way 25.

What is claimed and it is desired to secure by Letters Patent is:

1. Mechanism for handling cylindrical articles each having a flat end, comprising a delivery way, a chute connected with the delivery way for turning the articles to flat end supporting position, and an adjustable terminal for the chute for determining the position of the article in the chute at the terminal.

2. Mechanism for handling cylindrical articles each having a flat end, comprising a delivery way, a chute connected with the delivery way for turning the articles to flat end supporting position, said chute comprising a movable section, and a vibrator for the movable section of the chute.

3. Mechanism for handling cylindrical articles each having a flat end, comprising a delivery way, a chute connected with the delivery way for turning the articles to a flat end supporting position, there being an adjustable terminal for the chute, and a vibrator for the adjustable terminal of the chute.

4. Mechanism for handling vessels, comprising a plurality of stations, a way having branches, one branch leading to each station, and means for adjusting each branch terminus to permit an article in the branch adjacent the way to clear the way.

5. Mechanism for handling vessels comprising a plurality of stations, a common way having a vessel delivering branch leading to each station, each branch including a movable section, and a vibrator for such movable section.

6. Mechanism for handling articles, comprising a station, an article handling inclined gravity way provided with a drop offset from the incline thereof, an agitator adjacent the offset, and a branch to connect the station with the way, said agitator operable toward the branch to distribute articles from the way to the branch for maintaining a supply of articles at the station.

In testimony whereof I affix my signature in the presence of two witnesses.

FRANKLIN H. BIGGS.

Witnesses:

GEO. E. KIRK,

GLADYS JAMESON.