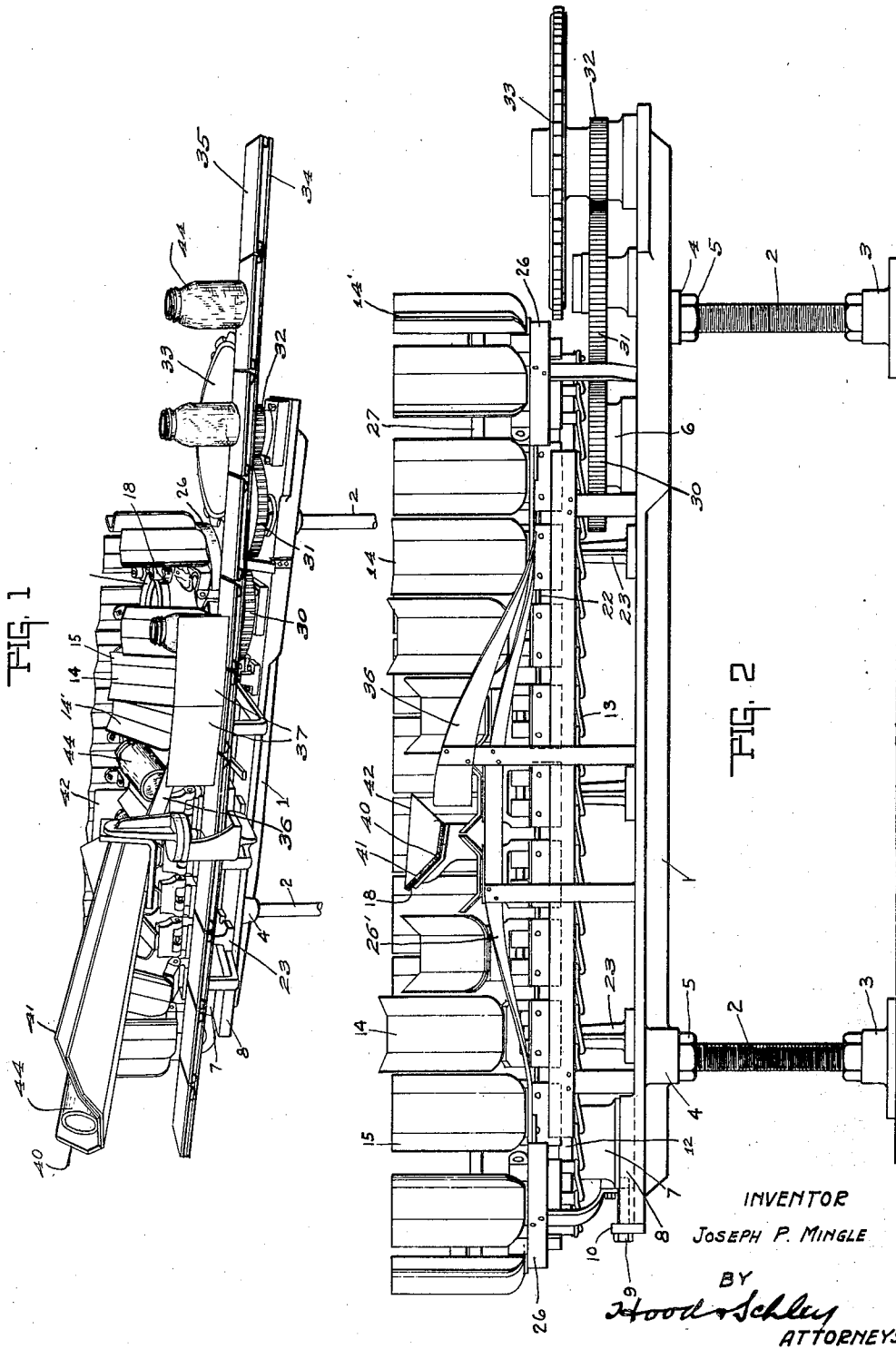


J. P. MINGLE.
GLASSWARE TRANSFERRING MACHINE.
APPLICATION FILED JULY 5, 1918.

1,325,527.

Patented Dec. 23, 1919.

3 SHEETS—SHEET 1.



INVENTOR
JOSEPH P. MINGLE

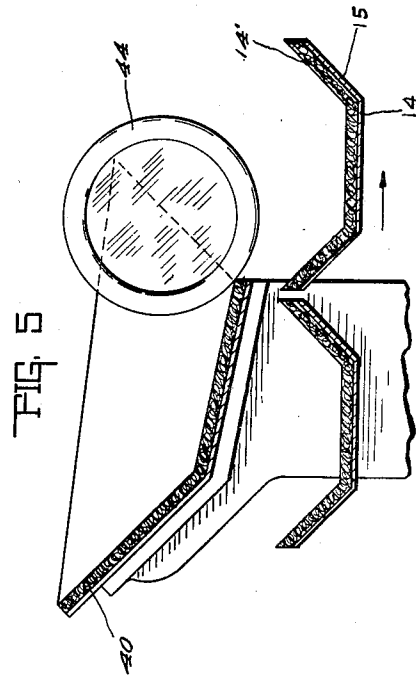
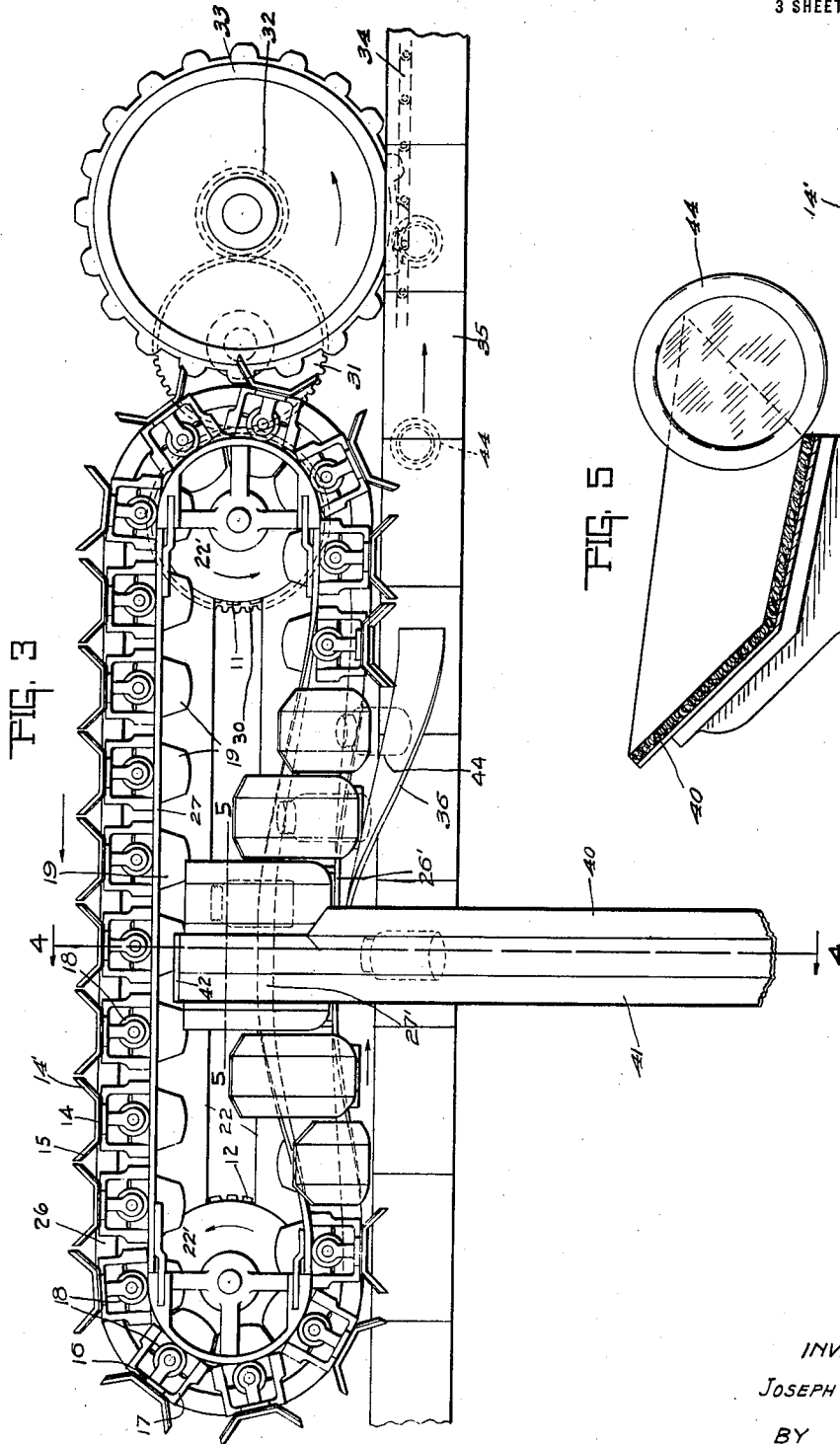
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3 SHEETS—SHEET 3.

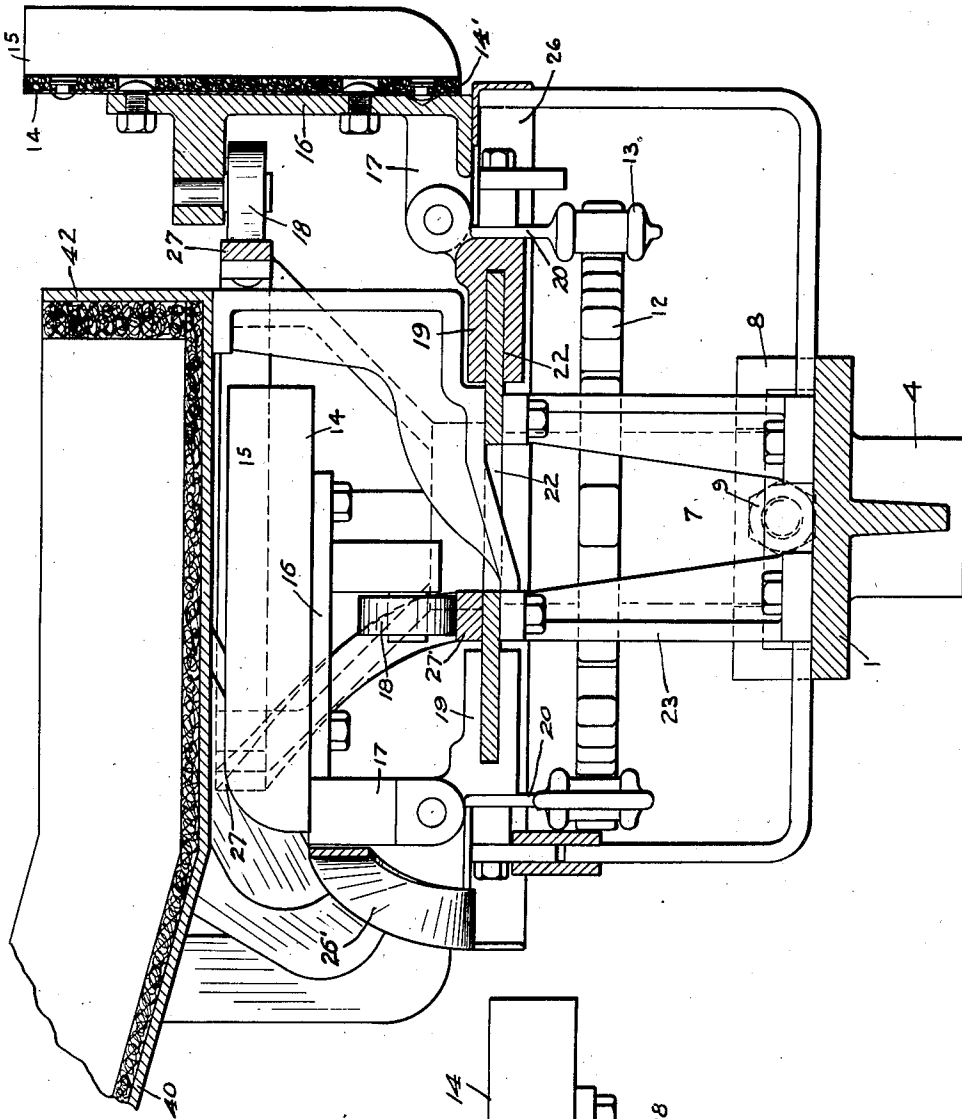


FIG. 4

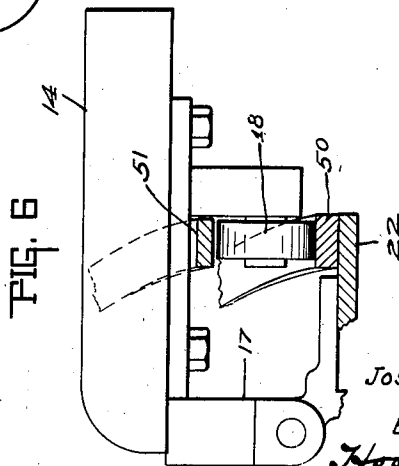


FIG. 6

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UNITED STATES PATENT OFFICE.

JOSEPH P. MINGLE, OF MUNCIE, INDIANA, ASSIGNOR TO BALL BROTHERS GLASS MANUFACTURING COMPANY, OF MUNCIE, INDIANA, A CORPORATION OF INDIANA.

GLASSWARE-TRANSFERRING MACHINE.

1,325,527.

Specification of Letters Patent.

Patented Dec. 23, 1919.

Application filed July 5, 1918. Serial No. 243,365.

To all whom it may concern:

Be it known that I, JOSEPH P. MINGLE, a citizen of the United States, residing at Muncie, in the county of Delaware and State of Indiana, have invented a new and useful Glassware-Transferring Machine, of which the following is a specification.

The object of my invention is to produce a simple and efficient apparatus, capable of receiving articles from a forming machine and delivering the same in an upright condition to an off-bearing belt or carrier.

The machine has been primarily designed for receiving and handling glass fruit jars produced by that type of machine which delivers the jars in an inclined or horizontal position, but it will be readily understood that the apparatus is by no means limited to such use.

The accompanying drawings illustrate my invention. Figure 1 is a perspective view of my apparatus; Fig. 2 a side elevation; Fig. 3 a plan; Fig. 4 a section on line 4—4 of Fig. 3 on an enlarged scale; Fig. 5 a section on line 5—5 of Fig. 3 on an enlarged scale; and Fig. 6 a fragmentary view of a slight modification.

In the drawings, 1 indicates a main base plate or bar supported on threaded rods 2 which may be vertically adjusted, by means of check nuts 5, in feet 3 and bosses 4 of the bar 1 so as to permit vertical adjustment of the machine.

Mounted on the bar 1 are journal boxes 6 and 7, the box 7 being laterally adjustable in ways 8, by means of a temper screw 9. The journals 6 and 7 support horizontally arranged sprocket wheels 11 and 12, respectively, and running over these sprockets is an endless chain 13 which carries a plurality of vertical receiving shoes 14, each of which is provided with upwardly and outwardly flaring sides 15. Each of the shoes 14 is preferably lined with a heat-resistant material 14'. Each shoe 14 is carried by a carrier 16 which is provided with a hinge ear 17 and a roller 18. Each of the hinge ears 17 is hinged to a block 19 attached to one of a series of special links 20 forming part of chain 13 and these blocks 19 are slidably mounted upon and supported by a horizontally arranged track 22 which is supported by pedestals 23 from plate 1. The heel of each carrier 16 is adapted to slide upon a cam track 26, where roller 18 rolls

upon a cam track 27, said two tracks being coördinated in such manner that, for the major portion of the orbit of chain 13, the shoes 14 will stand vertically, as clearly shown in the drawings. At one point, however, as indicated in the drawings, at 26' and 27', respectively, the cam tracks 26 and 27 are distorted so that, as the chain 13 advances, the shoes 14 will be successively swung down from vertical to horizontal and back and vertically again, this operation taking place as the chain is advanced by rotation of sprocket wheel 11. The sprocket wheel 11 may be driven in any suitable manner, as, for instance, by means of a gear 30 meshed with a gear 31 which, in turn, meshes with gear 32, carried by a driving sprocket 33.

Sprocket 33 may be driven, or may drive, a chain 34 which carries a plurality of horizontally arranged plates 35 which form a horizontal off-bearing chain which is arranged substantially on a level with the horizontal portion of track 26. Adjacent the point where the cam tracks 26 and 27 are distorted at 26' and 27', I arrange a cam plate 36 which, at its initial portion, is substantially vertical and arranged closely adjacent the discharge ends of shoes 14 when they are in their horizontal position (Figs. 2 and 3). At its discharge end, the cam plate 36 is depressed and twisted into a horizontal position immediately overlying the plates 35 and adjacent this portion of the cam plate 36 a vertical guard 37 (Fig. 1) may be provided, if desired.

It is desirable that it be unnecessary to accurately time the movement of the belt 13 with relation to the machine from which articles are to be received, it being preferable that the driving speed of the belt 13 be perhaps slightly greater than the maximum delivery to be expected, thus avoiding the necessity of accurate registration of the shoes 17 with the article-producing machinery.

In order to accomplish this result, I provide an inclined trough 40 down which the articles may slide from the producing machine, and this trough 40 is provided with upwardly and outwardly flaring sides 41. The lower end of trough 40 is brought into a substantially horizontal position, as indicated in Fig. 4, and is closed by an end wall 42, this horizontal portion of the trough be-

ing brought immediately above and substantially parallel with, the receiving shoes 14 when they are in their horizontal position. At its delivery end, the trough 40 has its bottom slightly forwardly and downwardly inclined (Fig. 2) and enough of the forward flange 41 removed to be slightly greater than the length of the article 44 which is to be handled.

10 The operation is as follows: Sprocket wheel 11 being driven in the direction indicated by the arrow in Fig. 3, shoes 14 are brought successively into a horizontal position and caused to pass in that position
15 beneath the delivery end of the trough 40. Any articles sliding down the trough 40 will be stopped by the end wall 42 and will then roll sidewise from the trough and will drop into one of the shoes 14 as it passes beneath
20 the trough, this operation taking place in due course whether a trough happens to be in exact position to receive the article at the immediate time of its arrival at the end of the trough or not. As the chain 13 continues its regular forward movement, the
25 shoes 14 are successively brought toward and to vertical position and the articles within the shoes will gradually slip outwardly, being retained in the shoes by the cam plate
30 36 until the shoes have been brought entirely to vertical position, at which time the article 44 has been brought into upright position and is delivered upon the off-carrying plate 35 and carried off to any desired point.
35 The operation is entirely automatic and needs no skilled attention.

If two articles 44 follow each other in the trough 40 in close succession, they will be nevertheless delivered into successive shoes
40 14 because of the close proximity of the adjacent downwardly and inwardly flaring sides of adjacent shoes.

The trough 40 will be preferably lined with a suitable heat resistant lining, as indicated.

45 The track 22 is most conveniently formed by two straight parallel plates supplemented by two rotary disks 22', 22' carried by the sprocket wheels 11 and 12, said disks having
50 the same thickness as the track 22 and forming a connection between their ends, as clearly shown in Fig. 3. By this arrangement, the blocks 19 are firmly maintained, during their transportation, in a horizontal plane.

55 It will be readily understood that, if desired, the cam track 26 may be eliminated and two properly formed cam tracks 50 and 51 arranged to receive the roller 18 between
60 them (Fig. 6).

I claim as my invention:

1. A transferring mechanism comprising an endless chain mounted to move in a substantially horizontal plane, a plurality of
65 article-receiving shoes hinged to said chain

upon substantially horizontal axes, means for successively swinging said shoes to and from substantially horizontal positions as the chain travels, a feed trough lying transversely of the line of shoe travel and arranged to overlie said shoes when in a horizontal position and to deliver articles laterally to said shoes as they pass beneath the trough, and means coöperating with said shoes to retain articles within the shoes until
75 said shoes have reached substantially vertical positions.

2. A transferring mechanism comprising an endless chain mounted to move in a substantially horizontal plane, a plurality of
80 article-receiving shoes hinged to said chain upon substantially horizontal axes, means for successively swinging said shoes to and from substantially horizontal positions as the chain travels, and a feed trough lying
85 transversely of the line of shoe travel and arranged to overlie said shoes when in a horizontal position and to deliver articles laterally to said shoes as they pass beneath the trough.

3. A transferring mechanism comprising an endless chain mounted to move in a substantially horizontal plane, a plurality of
90 article-receiving shoes hinged to said chain upon substantially horizontal axes, means for successively swinging said shoes to and from substantially horizontal positions as the chain travels, a feed trough lying transversely of the line of shoe travel and arranged to overlie said shoes when in a horizontal position and to deliver articles laterally to said shoes as they pass beneath the trough, means coöperating with said shoes to retain articles within the shoes until said shoes have reached substantially vertical positions, and a horizontally-arranged endless carrier arranged to receive articles from the shoes successively as they are brought to verticalism.

4. A transferring mechanism comprising
110 an endless chain mounted to move in a substantially horizontal plane, a plurality of article-receiving shoes hinged to said chain upon substantially horizontal axes, means for successively swinging said shoes to and
115 from substantially horizontal positions as the chain travels, a feed trough lying transversely of the line of shoe travel and arranged to overlie said shoes when in a horizontal position and to deliver articles laterally to said shoes as they pass beneath the trough, and a horizontally-arranged endless carrier arranged to receive articles from the shoes successively as they are brought to verticalism.

120 In witness whereof, I, JOSEPH P. MINGLE, have hereunto set my hand at Muncie, Indiana, this first day of July, A. D. one thousand nine hundred and eighteen.

JOSEPH P. MINGLE.