Feb. 28, 1956 J. F. EARP 2,736,149

CONTAINER NESTING MECHANISM

Filed Oct. 6, 1951 8 Sheets-Sheet 1

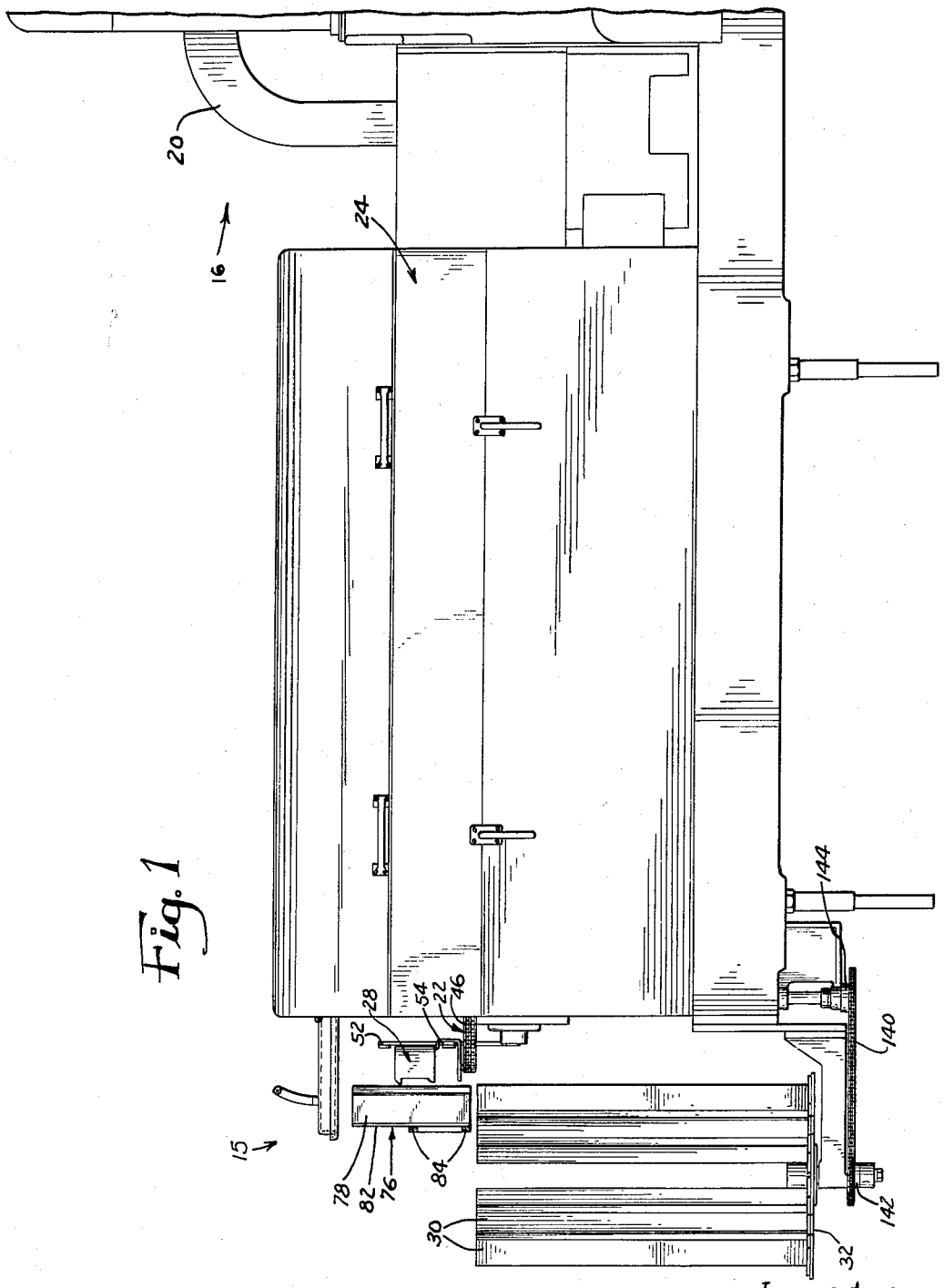


Fig. 1

Inventor
James F. Earp

by: Carlson, Pitzner, Hulbert & Wolfe
Attys.

Feb. 28, 1956 J. F. EARP 2,736,149

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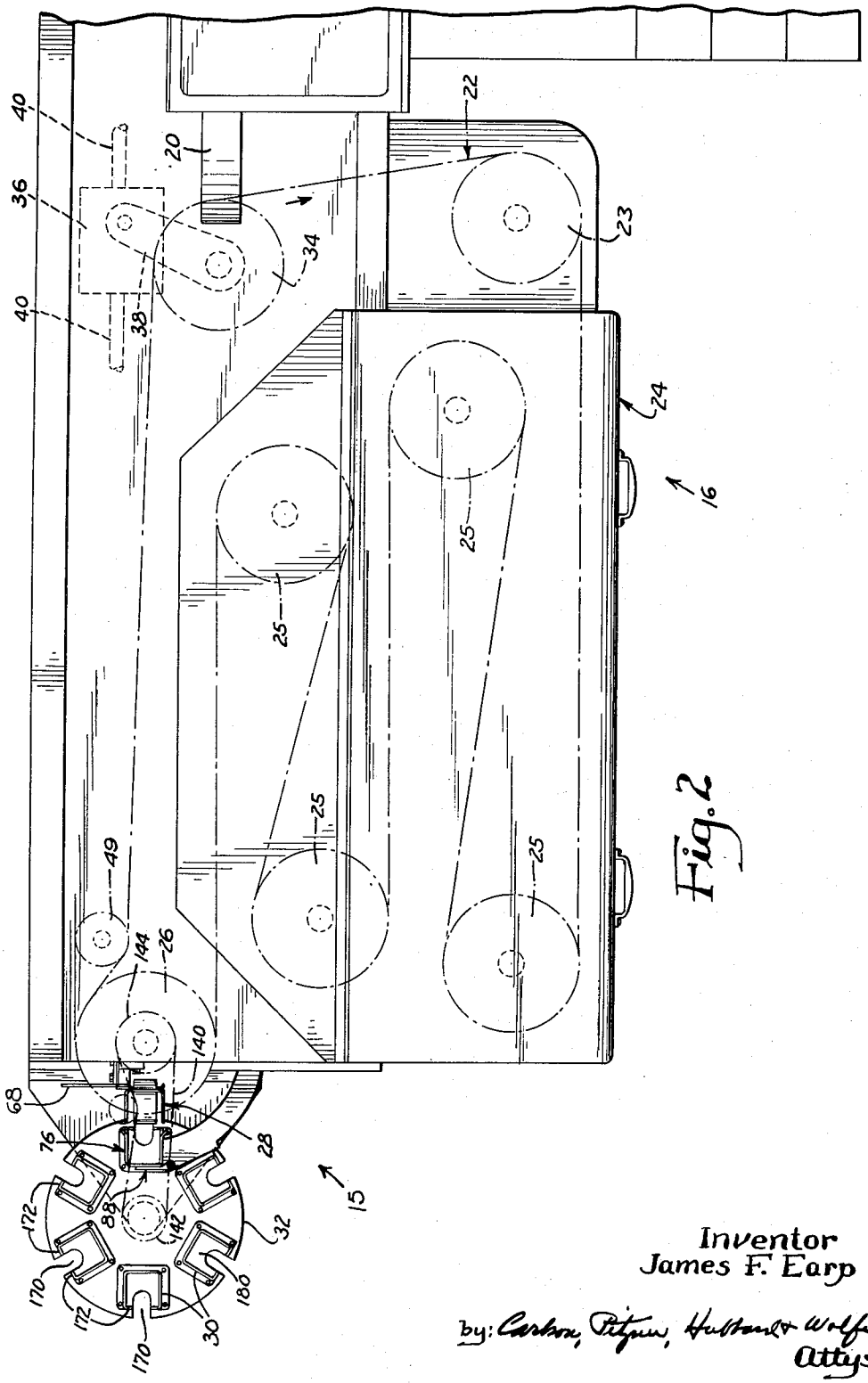


Fig. 2

Inventor
James F. Earp

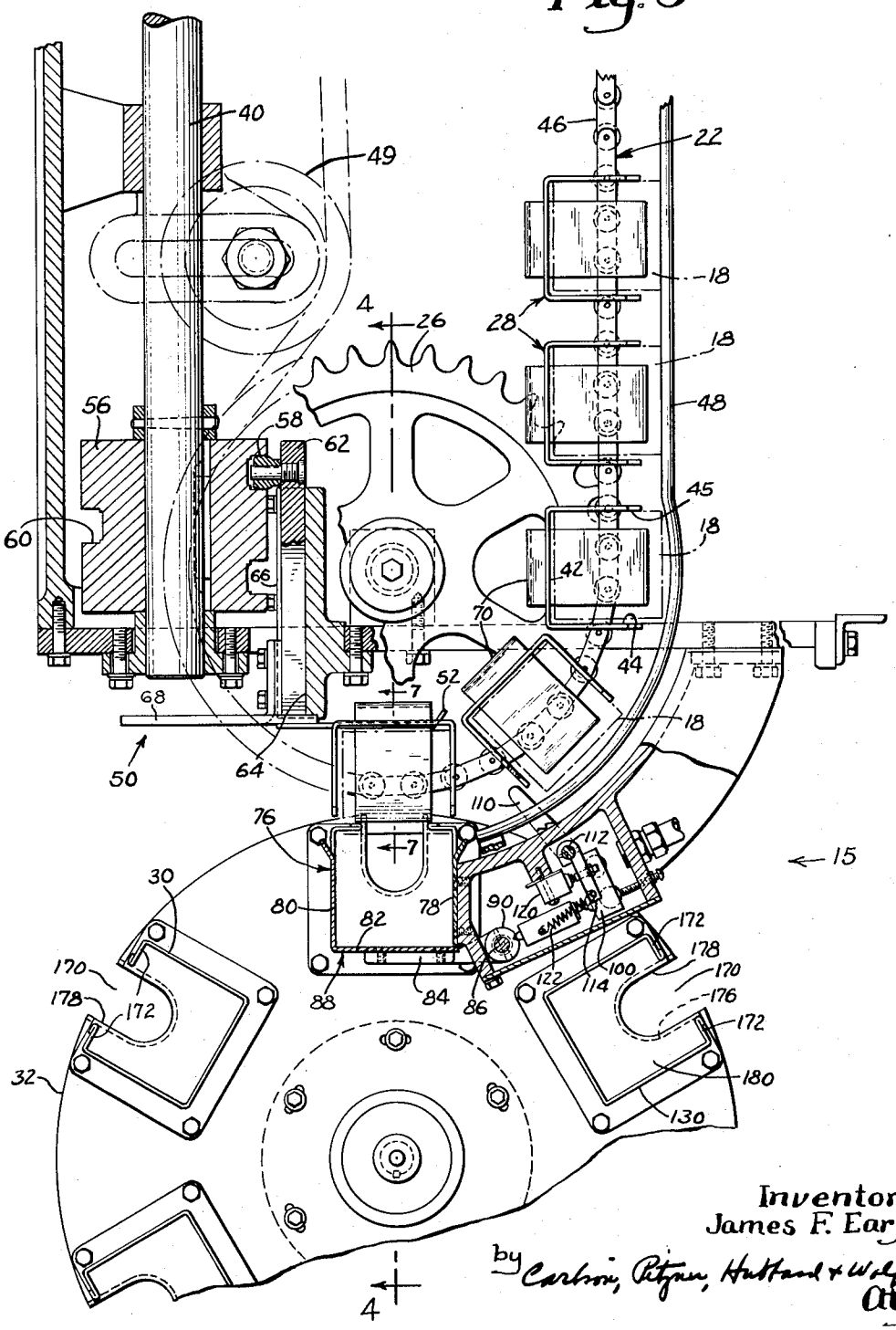
by: Carlson, Pitzer, Hubbard & Wolfe
Attys.

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CONTAINER NESTING MECHANISM

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Fig. 3



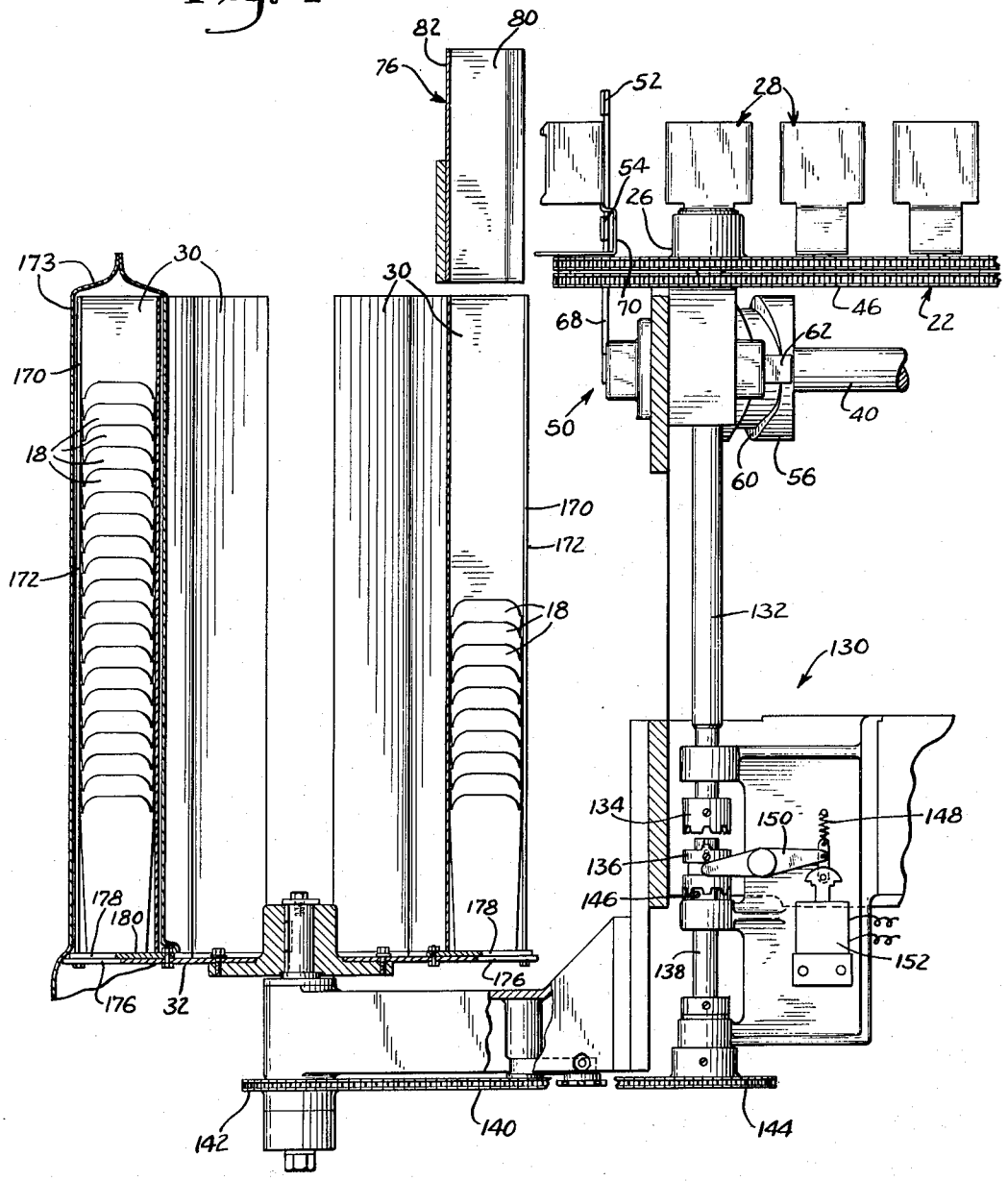
Inventor
James F. Earp
by Carlson, Pitzner, Hubbard & Wolfe
Attys.

Feb. 28, 1956 J. F. EARP 2,736,149

CONTAINER NESTING MECHANISM

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Fig. 4



Inventor
James F. Earp

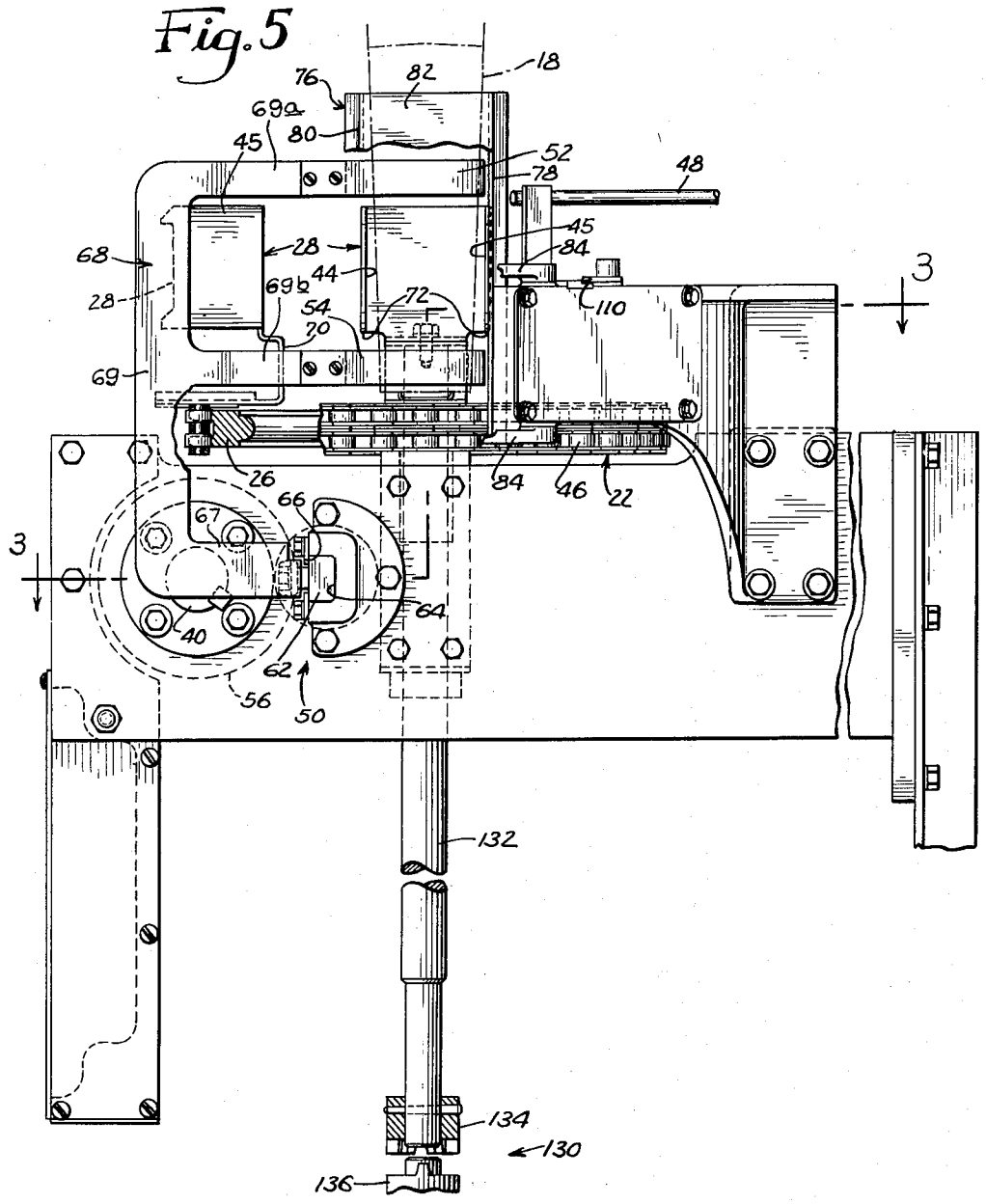
by: Carlson, Pitzner, Hubbard & Wolfe
Attys.

Feb. 28, 1956 J. F. EARP 2,736,149

CONTAINER NESTING MECHANISM

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Fig. 5



Inventor
James F. Earp
by: Carlson, Pitzer, Hubbard & Wolfe
Attys.

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CONTAINER NESTING MECHANISM

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Fig. 6

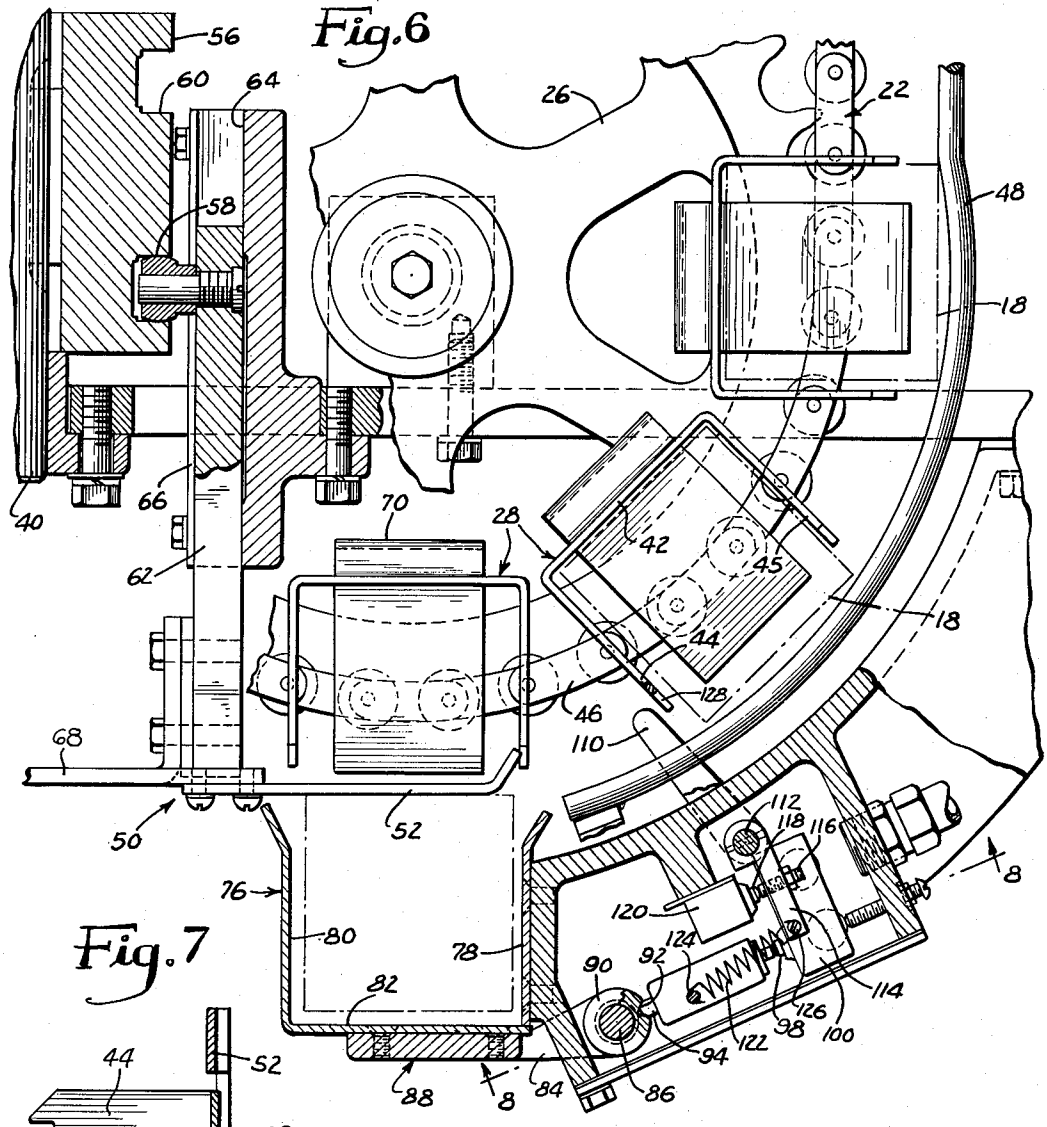
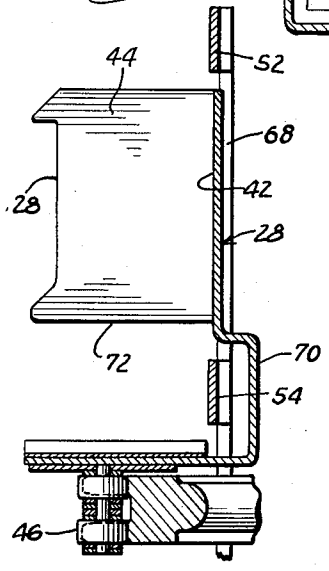


Fig. 7



Inventor
James F. Earp

by: Carlson, Pitney, Hubbard & Wolfe
Attys.

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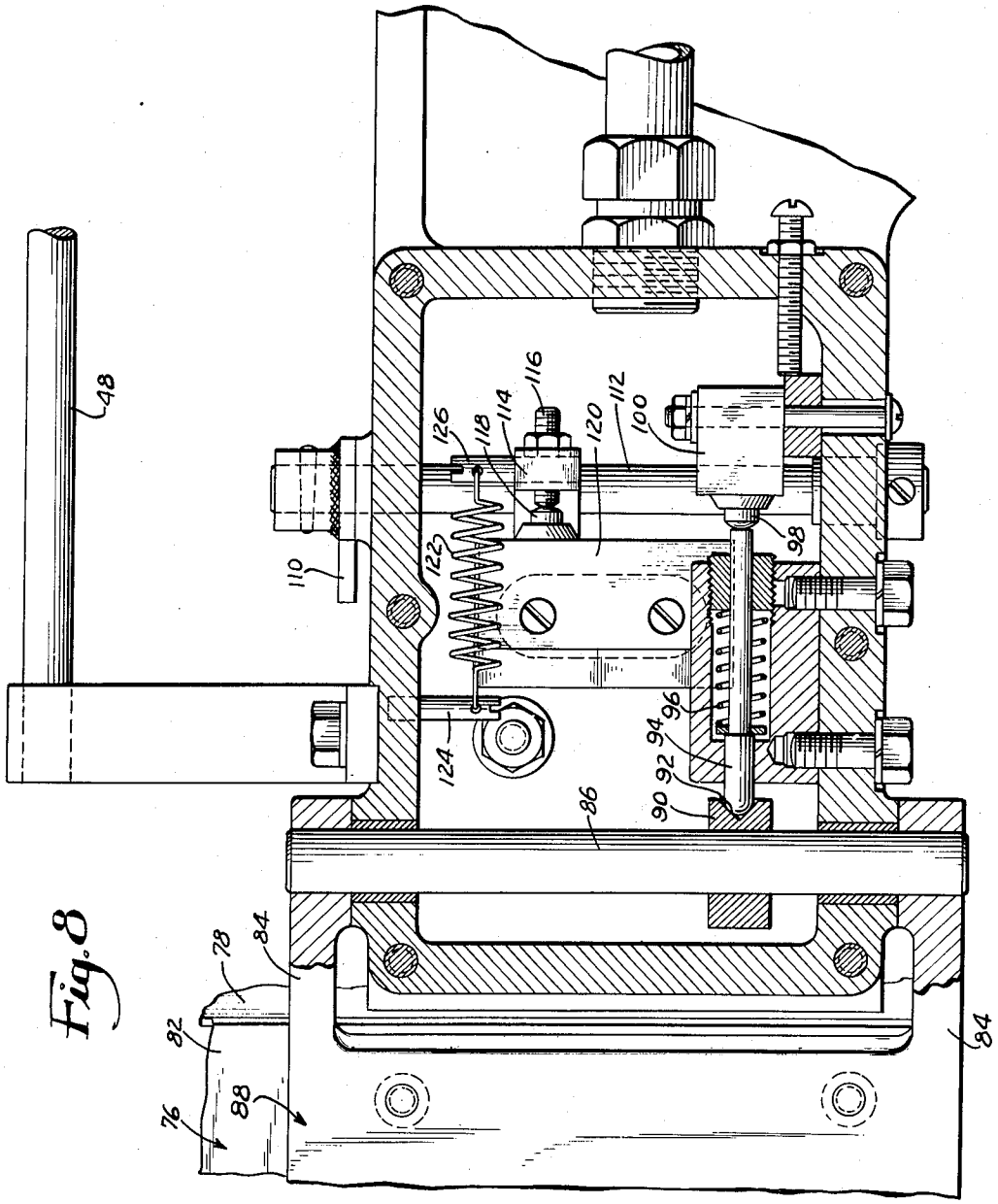


Fig. 8

Inventor
James F. Earp
by: Carlson, Peterson, Hubbard & Wolfe
Attys.

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Fig. 9

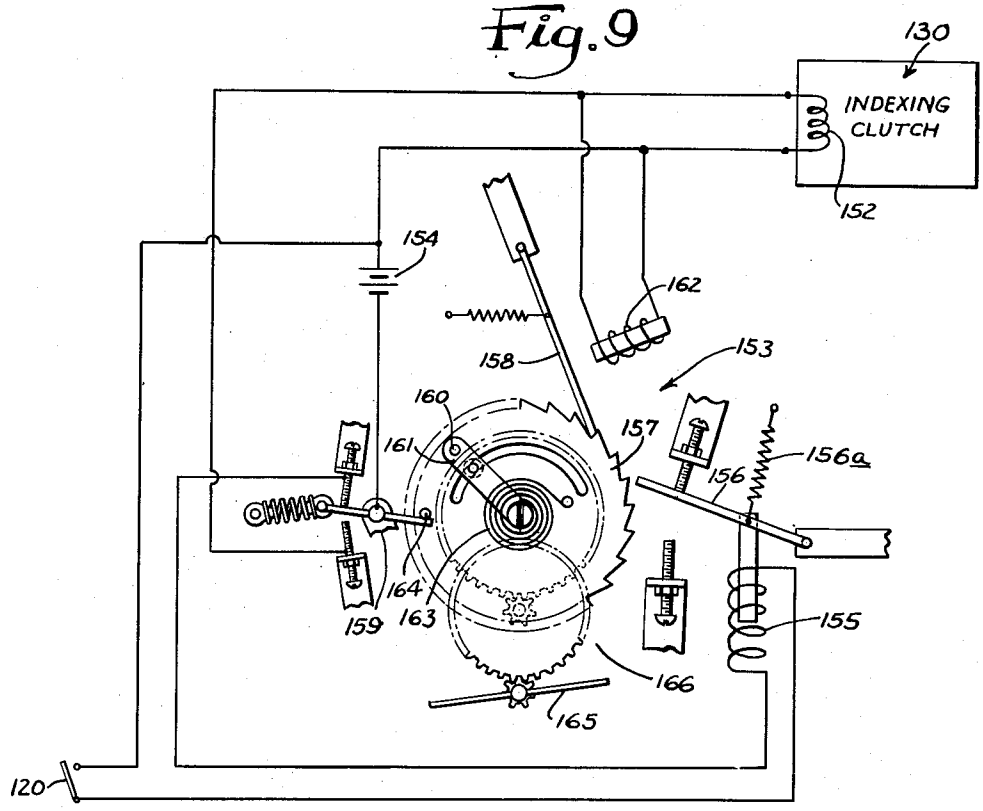
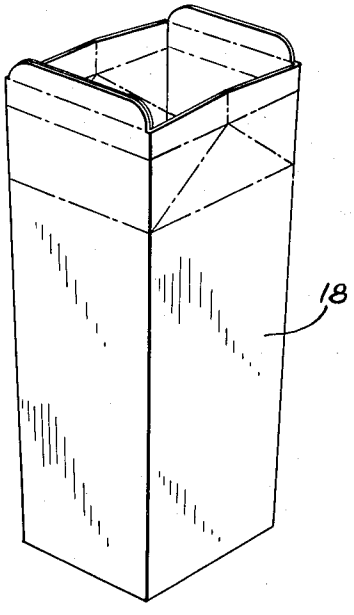


Fig. 10



Inventor
James F. Earp

by: Carlson, Quinn, Hubbard & Wolfe
Attys.

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2,736,149

CONTAINER NESTING MECHANISM

James F. Earp, Detroit, Mich., assignor to Ex-Cell-O Corporation, Detroit, Mich., a corporation of Michigan

Application October 6, 1951, Serial No. 250,170

8 Claims. (Cl. 53—7)

This invention relates in general to machines for manufacturing containers and, more specifically, to a novel mechanism for counting and nesting open-mouthed containers which taper slightly toward their closed ends. The invention finds particular, but not exclusive, utility when applied to the handling of tapered milk cartons of waxed paperboard made by a machine such as that disclosed in Patent No. 2,367,884 issued January 23, 1945, on the application of Charles Z. Monroe.

One object of the invention is to provide a mechanism for counting and nesting tapered containers to form stacks which may be readily packaged and transported to a remote point where the containers are to be filled and closed by a separate machine.

A further object is to provide a mechanism of the character set forth and which is adapted to nest counted quantities of containers in successive stacks without any interruption in the operation of the machine with which it is associated.

Another object is to provide a container nesting mechanism capable of accumulating containers in stacks which can be packaged without direct contact with human hands, thus eliminating danger of contamination and insuring the maintenance of completely sanitary conditions. A related object is to provide means which facilitates sanitary packaging of the stacked containers with ease and rapidity.

Further objects, advantages, and features of the invention will appear from the following description and the accompanying drawing which discloses an illustrative embodiment of the invention.

In the drawings:

Figure 1 is a front elevational view of an illustrative mechanism for counting and nesting waxed paperboard containers supplied by a fabricating machine, only the pertinent portion of which is shown.

Fig. 2 is a top view of the mechanism and machine shown in Fig. 1.

Fig. 3 is an enlarged fragmentary top view of the container nesting mechanism, the view being partly in section and taken along the line 3—3 of Fig. 5.

Fig. 4 is an enlarged fragmentary vertical sectional view of the nesting mechanism, taken along the line 4—4 in Fig. 3.

Fig. 5 is a left side view in enlarged fragmentary elevation of the nesting mechanism, taken from the left end, the means for receiving the nested containers being omitted and a container-guiding chute being broken away to reveal certain details which otherwise would be hidden.

Fig. 6 is an enlarged fragmentary top view similar to Fig. 3, showing details of the mechanism on a larger scale, the view being partly in section along the line 3—3 in Fig. 5.

Fig. 7 is an enlarged fragmentary vertical sectional view, taken as indicated by the line 7—7 in Fig. 3.

Fig. 8 is an enlarged fragmentary sectional view, taken in the plane indicated by the line 8—8 in Fig. 6.

Fig. 9 is a diagrammatic illustration of certain details of a container-counting arrangement; and

Fig. 10 is a perspective view of a container adapted to be handled by the illustrated apparatus.

While the invention is susceptible of various modifications and alternative constructions, there is shown in the drawings and will herein be described in detail the preferred embodiment, but it is to be understood that it is not thereby intended to limit the invention to the form disclosed, but it is intended to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

Referring more specifically to the drawings, the invention is there exemplified in an illustrative counting and nesting mechanism **15** (Figs. 1 and 2) which in this instance is adapted for incorporation as one unit of a container fabricating machine **16**. The latter is adapted to produce open-mouthed, tapered containers **18** which may, for example, be generally rectangular milk cartons of paraffin-coated paperboard as illustrated in Fig. 10, and to nest them in stacks for packaging and shipment. The mechanism **15** is arranged to receive a procession of the containers **18** supplied by the fabricating unit of the machine **16**, nesting predetermined quantities of them in stacks in such a manner that sanitary packaging of the containers is greatly facilitated.

The container fabricating unit of the machine **16** forms no part of the present invention and has not been illustrated herein. Suffice it to say that such unit may be constructed generally in accordance with the disclosure of Monroe Patent No. 2,367,884, referred to above. The fabricating unit is supplied with flattened tubular paper blanks having upright top and bottom flaps. This unit erects each blank successively into an open tubular form, closes and seals the bottom flaps, and coats the resulting carton with paraffin. An air stream is utilized to discharge the freshly paraffined cartons from the fabricating unit through a delivery tube **20** (Fig. 1) which presents them to an endless flexible conveyor **22**, the latter in this case comprising a part of the counting and nesting mechanism **15**.

The conveyor **22** shown herein happens to be in the form of an endless chain with a plurality of evenly spaced container-carrying baskets **28** fixed thereon. This conveyor carries the containers in the direction of the arrow in Fig. 2 around an idler sprocket **23** into a cooling box **24** which chills the containers to solidify the paraffin completely. The conveyor **22** passes over four additional idler sprockets **25** inside the cooling box **24**. Shortly after the containers emerge from the cooling box they pass part way around an idler sprocket **26** to the delivery point. One of the baskets **28** of the conveyor **22** is illustrated in Fig. 2 in the delivery position.

As each conveyor basket **28** reaches the delivery point, the container in the basket is pushed out so that it falls into one of a plurality of accumulator pockets **30** which are spaced around a horizontal rotatable table **32**. When a predetermined number of containers has been stacked in one accumulator pocket, the rotatable table **32** is indexed one step so that the next accumulator pocket is rotated into registration with the delivery point. The completed stack of nested containers is then transferred manually into a shipping bag.

The conveyor **22** is advanced in step-by-step fashion by means which may include a conveyor sprocket **34** which is rotated intermittently by means of a drive **36** connected to the sprocket **34** by a chain **38**. The drive **36** is operated by a continuously rotating main shaft **40** and may be constructed in a well-known manner to convert the constant speed rotary motion of a main shaft **40** into step-by-step intermittent rotary motion. For ex-

ample, the drive 36 may be constructed in much the same manner as a certain mechanism disclosed in the above mentioned Monroe Patent No. 2,367,884, the particular mechanism referred to being the one which converts the constant speed rotation of the barrel cam 26 of the patent into the intermittent step-by-step advancing rotation of the mandrel-carrying sleeve 23 of the patent. Another suitable construction for the step-by-step drive 36 is shown in Patent No. 2,368,483, issued January 30, 1945, on the application of Charles Z. Monroe, the mechanism of the patent serving to convert the continuous rotation of the barrel cam 55 of the patent into intermittent rotation of the conveyor drive shaft 61 (see particularly Fig. 3 of Patent No. 2,368,483).

The drive 36 operates the conveyor 22 in such a way that there are alternate dwell and advance periods. During each dwell period one of the conveyor baskets 28 is alined with the lower end of the discharge tube 20 which loads the conveyor. The fabricating unit (not shown) is driven by the main shaft 40 in timed relationship with the movement of the conveyor 22, so that containers are discharged from the tube 20 into successive conveyor baskets during successive dwell periods.

As best shown in Figs. 6 and 7, the conveyor baskets 28 may be three-sided structures each having a rear wall 42 and side walls 44 and 45. The baskets 28 have open fronts to facilitate ejection of the containers. As shown in Fig. 7, the conveyor 22 includes a chain 46 which carries the baskets. As the conveyor 22 moves along its path, the containers are retained in the baskets by a guard rail 48 which has its terminus just short of the delivery point.

By virtue of the step-by-step movement of the conveyor 22, the conveyor baskets 28 are successively advanced around the delivery sprocket 26 to the delivery point. The particular basket 28 which is at the delivery point is positioned opposite one of the accumulating pockets 30. An adjustment of the position of the basket which is at the delivery point is provided by an adjustable take-up sprocket 49 which is located along the conveyor 22 between the idler sprocket 26 and the drive sprocket 34. During the successive conveyor dwell period occurring after the conveyor baskets 28 reach the delivery point, the containers positioned in the basket are discharged into one of the pockets 30 by means of an ejecting mechanism 50 operated by the main shaft 40.

The ejecting mechanism 50 may include upper and lower horizontal pusher fingers 52 and 54 (Figs. 3–7) which are operated by a suitable mechanism, including, for example, a barrel cam 56 mounted on the constant speed shaft 40. The continuously rotating cam 56 imparts a reciprocating movement to a follower roller 58 riding in a cam groove 60 in the cam, the follower roller 58 being mounted on a slide 62 which carries the pusher fingers. The pusher fingers are thereby advanced during the dwell periods of the conveyor operation and retracted during the periods in which the conveyor advances. The advanced and retracted positions of the fingers are illustrated in Figs. 6 and 7 respectively. As shown particularly in Fig. 5, the slide 62 is retained in a stationary slideway groove 64 by means of gib plates 66. The pusher fingers are carried by a member 68 which is so constructed as to provide clearance for the conveyor baskets 28 as they move away from the delivery point. In this instance the member 68 is generally E-shaped and is provided with a horizontal leg 67 mounted on the slide 62, a vertical leg 69 carried by the horizontal leg, and a pair of finger-carrying horizontal arms 69*a* and 69*b* extending from the vertical leg. The vertical leg 69 of the member 68 is positioned a considerable distance off to one side of the delivery point so that the empty conveyor baskets 28 can move away from the delivery point between the upper and lower pusher fingers. When the pusher fingers are retracted as shown in Fig. 7, the upper pusher finger 52 is positioned above the rear of the particular basket 28 which is in the delivery position, the lower pusher finger 54 being positioned in a recess formed by a rearwardly offset portion 70 of the rear wall 42 of the basket. The side walls 44 and 45 of the basket have lower edges 72 which terminate above the lower pusher finger 54 so that the latter is not obstructed in its ejecting movement.

After each container is ejected from its conveyor basket 28, it falls through a chute 76 into one of the accumulating pockets 30. The chute 76 may be generally in the form of a rectangular tube having an open side facing toward the adjacent conveyor basket 28. In this instance the chute has a pair of side walls 78 and 80 and a rear wall 82. The side wall 78 is fixed, but the walls 80 and 82 are carried on a pair of arms 84 which are mounted on a rotatable vertical pivot pin 86. The walls 80 and 82 of the chute serve as a jam gate, generally indicated by the character 88, which stops the operation of the machine in the event that a carton fails to drop into the accumulating pocket 30 in the normal manner. Latching means is provided to latch the jam gate 88 in its normal position shown in Figs. 3 and 6. In this instance the latching means includes a collar 90 rigidly mounted on the pivot pin 86, the collar having a generally conical latching recess or depression 92 in its periphery. The head of a plunger 94 normally is positioned in the latching recess 92, the plunger being urged toward the collar 90 by means of a compression coil spring 96. The opposite end of the plunger 94 engages the operating plunger 98 of a limit switch 100. If a container becomes jammed in the chute 76, the ejection of the next container from the conveyor swings the jam gate 88 out of its normal position so that the collar 90 is rotated and the plunger 94 rides up out of the latching recess 92 onto the periphery of the collar. The plunger 94 is thereby moved to the right as seen in Fig. 8 so that the switch 100 is operated to stop the machine. After the machine is cleared, the jam gate is reset manually into its normal position.

Means is provided to count the containers as they are carried by the conveyor into the position from which they are to be ejected into one of the accumulating pockets 30. In this instance, the counting means includes a counter finger 110 secured to a rotatable pivot shaft 112 on which a switch-operating arm 114 is mounted. An adjusting screw 116 on the arm 114 engages the operating plunger 118 of a switch 120. By means of a tension coil spring 122, the switch-operating arm 114 is biased so as normally to depress the plunger 118, the spring 122 being stretched between a stationary post 124 and a post 126 carried by the switch-operating arm. The side walls 44 and 45 of the conveyor baskets have respective notches 128 to provide clearance for the end of the counter finger 110. The containers protrude beyond the notches 128 as shown in Fig. 6, so that each container rotates the counter finger 110 in a counterclockwise direction, as seen in Fig. 6, as the container is indexed into the delivery position. After the container has passed, the spring 122 returns the counter finger 110 into its initial position. The switch-operating arm 114 reciprocates the switch plunger 118 back and forth through a complete cycle as each container moves into the delivery position.

After a predetermined number of containers has been nested in the particular accumulating tube 30 which is alined with the delivery chute 76, the rotatable table 32 is indexed so that an empty pocket is brought into position under the chute. In this instance, the table is indexed by means including a clutch 130 which is operated at the proper time to complete a driving connection between the conveyor sprocket 26 and the table 32, the table being indexed through one step as the sprocket is advanced to move the next conveyor basket into the delivery position. In the illustrated construction, the conveyor sprocket 26 is fixed on the upper end of a vertical shaft 132 which carries a notched clutch member

134 at its lower end. A shiftable toothed clutch member 136 is splined to a shaft 138 alined with the shaft 132, the shaft 138 being connected to the rotatable table 32 by means of a driving chain 140 running on sprockets 142 and 144 connected respectively to the table and the shaft 138. The toothed clutch member 136 is normally biased downwardly into a position in which it interlocks with a stationary notched abutment member 146, the toothed member being held in this position by a tension coil spring 148 which acts upon one end of a clutch actuating rocker 150. A solenoid 152 is provided to shift the toothed clutch member 136 into a position in which it interlocks with the notched clutch member 134 carried by the sprocket shaft 132.

As shown in Fig. 9, the clutch solenoid 152 is energized by a counter 153 controlled by the switch 120 which is operated by the counter finger 110. Operation of the switch 120 supplies voltage impulses to the counter 153 from a voltage source 154, shown as a battery, normally connected in series with the switch. After a predetermined number of impulses has been supplied to the counter, the clutch solenoid 152 is energized for a brief interval to connect the rotatable table 32 with the conveyor sprocket 26 while the latter is being advanced one step by the conveyor. After the rotatable table is indexed, the clutch solenoid is de-energized to lock the rotatable table in a stationary position.

Various well known counter mechanisms are suitable for the counter 153. For the sake of completeness, a suitable counter mechanism is shown diagrammatically in Fig. 9. When the switch 120 is closed, a solenoid 155 is energized from the source 154 to operate a pawl 156 having a return spring 156*a*. Each operation of the pawl 156 advances a ratchet wheel 157 one step. A spring pressed pawl 158 prevents retrograde movement of the ratchet wheel. After the ratchet wheel has been advanced a predetermined number of steps, a snapover toggle switch 159 is operated to connect the clutch solenoid 152 to the voltage source 154, the switch being operated by a pin 160 mounted on an adjustable arm 161 carried by the ratchet wheel. The angular position of the arm relative to the wheel determines the number of containers which is nested into each pocket 30. When the switch 159 is operated, the pawl 158 is withdrawn from the ratchet wheel 157 by a solenoid 162 connected across the clutch solenoid. A spiral spring 163 thereupon produces return rotation of the ratchet wheel. The operation of the switch 159 also disconnects the voltage source from the solenoid 155 so that the pawl 156 does not impede the return of the wheel 157. At the completion of the return rotation of the wheel, the switch 159 is snapped back to its original position by a pin 164 on the wheel. This de-energizes the clutch solenoid 152 and the pawl-withdrawing solenoid 162. In order to engage the indexing clutch for a timed period sufficient to complete the indexing of the table 32, the return rotation of the ratchet wheel may be retarded by suitable means such as a windvane 165 driven at a high speed by the ratchet wheel 157 through a speed multiplying gear train 166. The interval for which the clutch 130 is engaged may be adjusted by changing the tension of the spring 163.

For sanitary reasons, the accumulating pockets 30 are constructed so that stacks of containers can be transferred manually from the pockets into shipping bags without direct contact with human hands and resulting contamination of the containers. The accumulating pockets are in the form of elongated tubes having a cross section corresponding in shape to that of the containers to be nested in the pockets. In the present instance, the pockets are rectangular. A slot 170 extends the full length of one wall of each of the pockets 30 on the side remote from the center of the rotatable table 32, the slotted wall comprising merely a pair of inwardly directed flanges 172 for retaining the nest of containers in the pockets. The pockets include bottom walls 180 having notches 178 which are alined with the slots 170. Notches 176 in the edge of the table are alined with the notches 178. When a stack of containers is to be removed from a pocket 30, a bag 173 (Fig. 4) is drawn downward over the pocket so that the open edge of the bag extends below the lower end of the lowermost container. The operator bends one side of the open end of the bag underneath the stack of containers so that he can lift the stack without touching the containers. In lifting the stack, the operator's finger passes through the notches 176 and 178, and then upwardly along the slot 170 in the outer wall of the pocket 30. When the stack and the bag have been removed from the pocket, the bag may be sealed by ordinary means, such as a heat sealing machine.

The nesting apparatus will handle various sizes of containers, such as half-pints, pints, and quarts. Pint containers are shown stacked in the accumulating pocket in Fig. 4. A quart container is shown in the conveyor basket in Fig. 5. The different sizes of containers differ only in their height. The pusher fingers 52 and 54 are positioned so as to eject the various sizes of containers without tipping them. The exact number of containers which can be nested in each accumulator pocket depends upon the particular size of containers being handled, and the counter 153 is adjusted accordingly.

Although the operation of the container handling machine will be apparent from the preceding description, a brief summary might be helpful at this point. The conveyor drive 36 translates the continuous rotary motion of the main shaft 40 into step-by-step advancing movement of the endless chain conveyor 22, each advancing step of the conveyor being followed by a dwell period. During the successive dwell periods, tapered containers are deposited in upright position into the conveyor baskets 28 by the delivery tube 20, through which the containers are conveyed by an air stream from the container-fabricating unit (not shown). The containers are carried on the conveyor through the cooling box 24 in order to solidify the paraffin with which the containers were impregnated by the fabricating mechanism.

The containers emerge from the cooling box 24 and are carried part way around the idler sprocket 26. During the advancing steps of the conveyor, the conveyor baskets 28 are successively brought to the ejection point at which they are positioned opposite the chute 76. During the dwell period following the arrival of each conveyor basket at the ejection point, the pusher 50 is advanced by the continuously rotating barrel cam 56 so that the pusher fingers 52 and 54 eject the container from the basket into the particular container accumulating receptacle 30 which is positioned below the chute. The pusher 50 is then retracted and the next conveyor basket is advanced into the delivery position.

Normally the containers fall, mouth upward, into the particular accumulator pocket 30 which is positioned opposite the ejection point. If a container accidentally becomes caught in the chute 76, the ejection of the next container swings the jam gate 88 on its pivot shaft 86 so that the switch 100 is operated and the machine is stopped until the difficulty can be corrected.

The depositing of the successive containers in the accumulator pocket 30 builds up a stack of nested containers (Fig. 4). When the stack of containers builds up to a desired point, the pocket-supporting table 32 is indexed to bring an unfilled pocket into container-receiving position. In this instance, the indexing of the table is accomplished by means which counts the containers as they approach the ejection position. The containers oscillate the pivoted counter finger 110 which protrudes into their path, and the finger 110 produces successive cycles of operation of the counting switch 120. After a predetermined number of containers has been moved to the ejection position, the counting apparatus 153 of Fig. 9 energizes the operating solenoid

152 of the indexing clutch 130. The toothed clutch member 136, which is connected to the table 32, is thereby shifted upwardly out of engagement with the stationary clutch member 146 and into engagement with the notched clutch member 134, which is connected to the sprocket 26. In this way, the rotatable table is connected to the conveyor, so that as the conveyor is advanced one step, the table is indexed to bring the next accumulating pocket into container-receiving position. After the table has been indexed the counter mechanism 153 de-energizes the solenoid 152 so that the toothed clutch member 136 is moved back into engagement with the stationary notched member 146 to lock the rotatable table. The container which has just been advanced into the ejection position is then ejected into the empty pocket 30 so that the operation of the machine continues without any interruption.

The stack of nested containers is transferred from the nesting pocket to the shipping bag 163 by slipping the bag, mouth downward, over the pocket, bending the mouth of the bag under the stack with one finger, and lifting the bag and the stack out of the pocket. During the lifting operation, the operator's finger passes through the notches 176 and 178, in the table 32 and the lower wall 180 of the accumulator pocket, respectively, and then upwardly through the slot 170 in the outer wall of the pocket.

I claim as my invention:

1. In a machine for handling open-mouthed tapered containers, the combination of a generally horizontal conveyor to receive and convey the containers, a drive to advance the conveyor step-by-step, upright guides along said conveyor for maintaining the containers in upright position thereon, each advancing step being followed by a period of dwell, a generally horizontal rotatable table adjacent the conveyor having a plurality of generally vertical tubular accumulator pockets spaced around a vertical rotary axis, means supporting said table for rotation about said axis, a pusher to eject successive containers from the conveyor into one of the pockets, means to advance the pusher during each successive dwell period of the conveyor, a generally vertical channel-shaped guide member to guide the containers into the pockets, a container counter operable by movement of the containers in the conveyor to the ejection point, and a clutch operable by the counter to connect the table to the conveyor after a predetermined number of containers has been nested in each pocket, the table thereby being indexed to bring an unfilled pocket into container-receiving position during the next advancing step of the conveyor.

2. In a machine for handling open-mouthed tapered containers, the combination of an endless horizontal chain conveyor having a plurality of upright baskets for receiving and conveying successive containers in upright position, a drive to advance the conveyor step-by-step, each advancing step being followed by a period of dwell, an idler sprocket to support the conveyor, a generally horizontal rotatable table adjacent the sprocket and having a plurality of generally vertical tubular accumulator pockets spaced around a generally vertical rotary axis, means supporting said table for rotation about said axis, a pusher to eject successive containers from the conveyor baskets into one of the pockets, each of the baskets having an opening in one side to facilitate ejection, means connected to the conveyor drive to advance the pusher during each successive dwell period of the conveyor, a generally vertical channel-shaped guide member to guide the containers into the pockets, a container counter including a finger operable by movement of the containers in the conveyor to the ejection point, and a clutch operable by the counter to connect the table to the sprocket after a predetermined number of containers has been nested in each pocket, the table thereby being indexed to bring an unfilled pocket into position during the next advancing step of the conveyor, the pockets having slotted outer walls and notched lower walls to facilitate removal of the containers from the pockets.

3. In a machine for handling open-mouthed tapered containers, the combination of a conveyor having a plurality of baskets to receive and carry the containers, container-receiving means, a pusher finger to eject the containers into the receiving means at an ejection position, each of the baskets having a rear wall with a lower, rearwardly offset portion to admit the pusher finger, the baskets including side walls having openings to provide an unobstructed path for the pusher finger.

4. In a mechanism for handling containers, the combination comprising a conveyor having a plurality of spaced baskets for carrying the containers, each of said baskets having an inner wall on one side of said conveyor and side walls adjacent said inner wall, each of said baskets having an open side opposite said inner wall and on the opposite side of said conveyor, said conveyor having means for moving said baskets along an arcuate path, an elongated pusher member extending generally tangentially of said arcuate path, each of said baskets having generally horizontal slots in its side walls and an inwardly offset portion on its inner wall for receiving said pusher member so that the latter will move between said inner wall of said basket and the container therein as said basket is advanced along said arcuate path, and means for reciprocating said pusher member radially of said arcuate path through said slots in each of said baskets successively and thereby ejecting the containers therefrom.

5. In a mechanism for nesting tapered containers, the combination comprising a vertical rotatable shaft, a sprocket mounted on the upper end of said shaft, a horizontal chain conveyor running in an arcuate path around said sprocket having spaced container baskets for carrying the containers in an upright file, means for intermittently rotating said sprocket and successively advancing said conveyor baskets to a discharge station on the periphery of said sprocket, a rotatable accumulator having a plurality of generally tubular upright pockets spaced around a vertical axis for movement into position opposite said sprocket, means for ejecting the containers successively horizontally outward with respect to said sprocket from said conveyor baskets at said discharge station so that the containers will fall into one of said pockets on said accumulator, the containers being accumulated in nested relation in said pockets, a vertical drive shaft disposed coaxially below said vertical shaft and connected to said rotatable accumulator, a clutch for interconnecting said shafts, and means for periodically engaging said clutch to index said accumulator and thereby move said pockets successively into container-receiving position.

6. In a mechanism for accumulating tapered containers in nested stacks and transferring the stacks to elongated bags, the combination comprising a conveyor for receiving and carrying the containers in single file, means for ejecting the containers successively from the conveyor at a predetermined point, an accumulator having a plurality of elongated tubular pockets movable into a position adjacent said point for successively receiving containers from said conveyor, said accumulator having a movable supporting member, each of said tubular pockets having one end fixed to said supporting member and the other end standing entirely free of all support and spaced from the other pockets for receiving one of the bags, the bag being slipped over the outside of the pocket so as to enclose the containers therein, each of the pockets being provided with a side wall having a longitudinal slot therethrough extending for substantially the entire length of said pocket for receiving a fingerlike element adapted to be inserted under the containers in the pocket and then moved outwardly through the slot so as to remove the containers and the enclosing bag from the pocket.

7. A method of packaging tapered containers, comprising the operations of providing an upright generally tubular open-topped pocket having side walls and a lower sup-

porting wall, said pocket having a slot extending longitudinally for the full length of said side walls and part way into said lower wall, stacking the tapered containers in said pocket in nested relation, providing elongated bags adapted to slip over said pocket, telescoping one of said bags over said pocket in inverted position, providing a fingerlike element and inserting said element under the inverted mouth of said bag through the lower end of said slot and underneath the lowermost of the nested containers in said pocket, moving said element upwardly through said slot so as to remove the nested containers and the bag from the pocket, the containers remaining inside said bag, and closing the mouth of said bag.

8. A method of packaging tapered containers, comprising the steps of providing a generally tubular pocket open at one end and having a slot extending longitudinally for its full length, assembling a stack of the tapered containers in said pocket in nested relation, providing an elongated bag and telescoping said bag over the open end of said pocket, providing an instrumentality and inserting

said instrumentality through said slot and between the inner end of said stack and said pocket, moving said instrumentality outwardly along said slot and thus pushing said stack out of said pocket and also removing said bag therefrom, said stack remaining within said bag, and closing the open end of said bag.

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