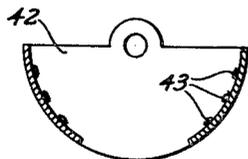
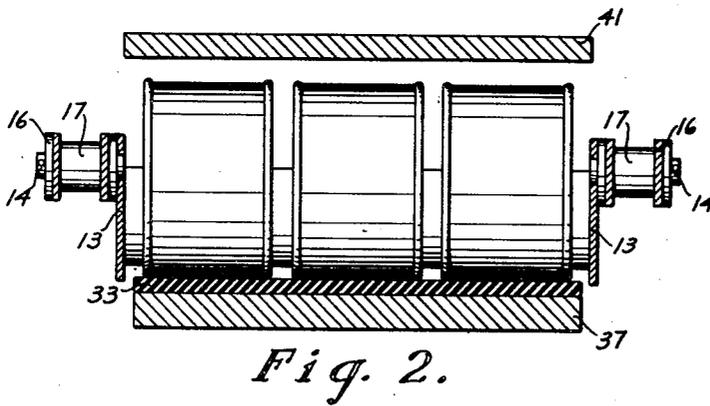
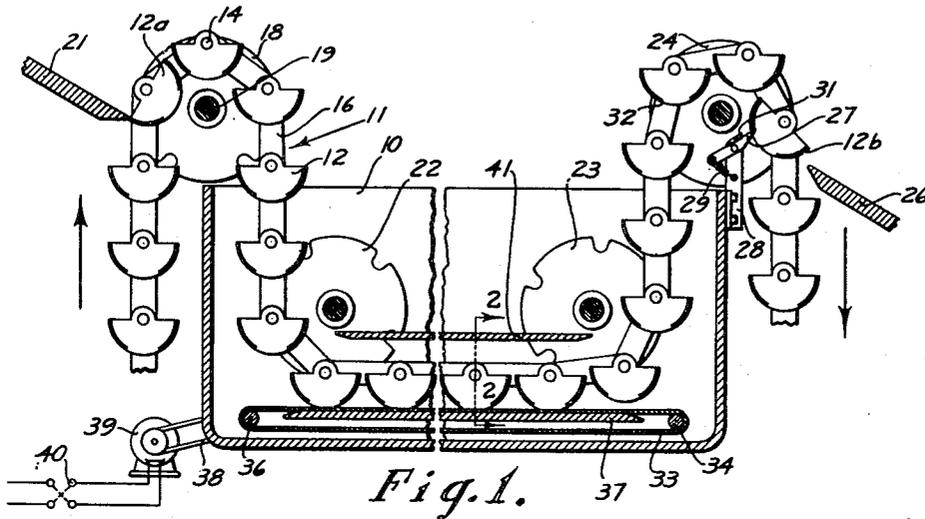


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PROCESSING APPARATUS  
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*Fig. 3.*

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## PROCESSING APPARATUS

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This invention relates to processing apparatus for the processing and handling of canned goods, and is concerned more particularly with the provision of improved apparatus of this character which facilitates feeding of the cans to the apparatus, treatment of the cans while in the apparatus, and discharge of the cans from the apparatus.

It is a general object of the invention to provide improved processing apparatus in which canned goods can be treated selectively in accordance with the desired character or process being performed.

Another object of the invention is to provide a processing apparatus including can carrying means which enables rotation of the cans while being processed.

Another object of the invention is to provide processing apparatus of the above character in which the rotation of the cans while being treated can be selectively controlled in accordance with the desired character of treatment.

A further object of the invention is to provide processing apparatus of the above character in which the cans may be cleaned while being processed.

Other objects and advantages of the invention will be apparent from the following description of certain preferred embodiments thereof as illustrated in the accompanying drawings in which:

Figure 1 is a longitudinal sectional view through processing apparatus employing the instant invention.

Figure 2 is a fragmentary transverse sectional view of the apparatus taken in a plane indicated by the line 2—2 in Figure 1.

Figure 3 is a detail section of a modified form of can carrier.

In the processing of canned foods by cooking, cooling, or washing of the cans, it is desirable with various products to effect rotation of the can during the process, so that the contents of the can are subjected to agitation. It is also desirable that the cans be fed and discharged in an expeditious manner by means of can conveyors or carriers which effect a bodily support of the can.

In accordance with the instant invention, processing apparatus is provided in which the cans are conveyed bodily into the processing or treating chamber where they may be subjected to a desired selective amount of movement or agitation and are thereafter conveyed bodily from the treating chamber.

Referring to Figures 1 and 2, a somewhat

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schematic showing of a treating chamber or tank 10 is provided having associated therewith an endless can conveyor 11 including a series of can carrier units 12 in the form of semi-cylindrical pockets having their end walls 13 secured to respective aligned pivot pins 14 of similar chains including links 16 and bearing sleeves 17 journaled about the pivot pins 14. This chain construction is of generally conventional form.

The conveyor 11 has its respective chains trained about similar sprockets 18 at the feed end of the chamber 10, only one of the sprockets 18 being shown. A supporting shaft 19 for the sprockets 18 may be journaled in any convenient manner adjacent the feed end of the tank 10. A feed ramp 21 is disposed adjacent an ascending portion of the conveyor 11 so that the lip of the ramp 21 overlies one edge of each of the pivoted carrier units 12 as its ascends and will tilt the same as shown at 12a in Figure 1 to permit a plurality of cans to roll into the carrier unit in end to end position therein.

Within the treating chamber 10 the chains of the conveyor 11 are trained about respective sprockets 22 and sprockets 23, both suitably journaled within the treating chamber to provide a lower stretch of the conveyor traveling through the treating chamber 10. At the discharge end of the treating chamber 10 the conveyor chains are trained about respective discharge sprockets 24, and the descending portion of the conveyor is disposed adjacent a discharge ramp 26 leading away from the treating chamber to a desired point of disposal for the cans.

To effect discharge of the cans from the carrier units 12, a pawl 27 is pivotally mounted upon a bracket 28 and urged by a spring 29 against a stop 31 integral with the bracket to lie in the path of the carrier units 12 as they descend in passing around the sprockets 24. The bottom portion of each carrier unit 12 is cut away at its lowest point 32 and the nose of the pawl 27 engages within the cut away portion to tilt a can carrier unit, as shown at 12b, to effect discharge of the cans therein onto the ramp 26.

To effect selective movement or agitation of the cans while being treated, an agitation or rolling means is provided in the bottom of the chamber 10 in the form of a belt 33 trained about respective drums 34 and 36 and having its upper stretch traveling over a support plate 37. The size of the carrier unit 12 and the width of its cut away bottom slot 32 are so selected with respect to the size of the can being treated that during movement of the cans along the lower

stretch of the conveyor 11 within the chamber 10 the cans are rollingly supported upon the belt 33; thus, if the belt is stationary the cans will be rolled in accordance with the speed of movement of the can conveyor 11.

In order to selectively vary the amount of rolling movement or agitation of the cans, the drive drum 36 for the belt 33 is connected by means including a drive belt 38 with a variable speed reversible electric motor 39 having reversing switch 40 connected in the supply lines thereto. By varying the speed of the motor 39 and consequently of the belt 33 and by controlling the direction of travel of the belt 33 the cans traveling through the treating chamber may be rotated faster than would be caused by their rate of travel or more slowly. If desired, the speed of the belt 33 can be made to equal the speed of the conveyor 11 so that the cans will travel through the treating chamber without being moved or rotated. Where the specific gravity of the cans is close to that of the treating solution, it may be desirable to employ a can retaining plate 41 disposed immediately above the lower stretch of the can conveyor 11 between the sprockets 22 and 23 to insure retention of the cans within the can carrier units 12.

In the processing of certain canned foods, such as canned fish, for example, it is often desirable to clean the cans, and for this purpose a carrier unit 42 of the character shown in Figure 3 may be employed having a plurality of brushes 43 projecting inwardly from the can supported surfaces thereof so that during rotation of the cans they will be cleaned by the brushes. In this type of operation it is desirable to provide either a bath of water or jets of water to assist in the cleaning operation.

The operation of the processing apparatus shown in Figure 1 may be briefly summarized as follows: Cans traveling along the feed ramp 21 are received in the respective can carrier units 12a in end to end relation and are thereafter carried into the treating chamber 10. As the cans travel along the lower stretch of the conveyor within the treating chamber 10 they are selectively controlled in their movement by the operation of the belt 33 so that they can either travel through the chamber without substantial agitation or movement or can be subjected to a desired degree of agitation and movement by selectively controlling the speed and direction of movement of the belt 33. It will be appreciated, of course, that the time of treatment of the canned goods can be controlled by selecting an appropriate length for the treating chamber 10 with reference to the speed of travel of the conveyor 11.

After the treatment within the chamber 10 the cans are discharged by tilting of the carrier units 12, as shown at 12b in Figure 1, by means of the spring urged pawl 27 onto the ramp 26 for further treatment or packing.

While certain preferred embodiments of the invention have been shown and described, the invention is capable of further variation and modification within the scope of the claims appended hereto.

I claim:

1. A can carrier unit comprising a pivotally mounted support for a row of cans in end to end relation, said support including a partially open bottom portion through which the peripheries of the cans project.

2. A can carrier unit comprising a pivotally mounted support for a row of cans in end to end relation, said support including a bottom portion having a longitudinal slot through which a portion of the peripheries of the cans project.

3. A can carrier unit comprising a support for a row of cans in end to end relation, said support including a partially opened bottom portion through which the peripheries of the cans project, and brush means on the inner surface of said support to effect a cleaning action on cans upon rotation thereof within said support.

4. In a processing apparatus for canned goods, a conveyor for moving cans through a treating chamber comprising a plurality of pivotally mounted can carrier units, each unit having a slotted bottom portion to provide for projection of the cans below the carrier unit, and can rotating means disposed within the treating chamber along a stretch of said can conveyor for engaging the portions of the cans projecting below the conveyor and effecting rotation of the cans within the carrier unit.

5. In a processing apparatus for canned goods, a conveyor for moving cans through a treating chamber comprising a plurality of pivotally mounted can carrier units, each unit having a slotted bottom portion to provide for projection of the cans below the carrier unit, can rotating means disposed within the treating chamber along a stretch of said can conveyor for engaging the portions of the cans projecting below the conveyor and effecting rotation of the cans within the carrier unit, and means for varying the rate of movement of said can rotating means.

6. In a processing apparatus for canned goods, a conveyor for moving cans through a treating chamber comprising a plurality of pivotally mounted can carrier units, each unit having a slotted bottom portion to provide for projection of the cans below the carrier unit, can rotating means disposed within the treating chamber along a stretch of said can conveyor for engaging the portions of the cans projecting below the conveyor and effecting rotation of the cans within the carrier unit, and means for reversing the direction of operation of said can rotating means.

7. In a processing apparatus for canned goods, a conveyor for moving cans through a treating chamber of the apparatus, said conveyor including a plurality of can carrier units, each unit being provided with a slotted bottom portion for projection of the cans below the carrier unit, a belt disposed below a stretch of said can conveyor for engaging cans projecting below said can carrier unit, and means for driving said belt.

8. In a processing apparatus for canned goods, a conveyor for moving cans through a treating chamber of the apparatus, said conveyor including a plurality of can carrier units, each unit being provided with a slotted bottom portion for projection of the cans below the carrier unit, a belt disposed below a stretch of said can conveyor for engaging cans projecting below said can carrier unit, and controllable means for driving said belt at selected rates of travel.

9. In a processing apparatus for canned goods, a conveyor for moving cans through a treating chamber of the apparatus, said conveyor including a plurality of can carrier units, each unit being provided with a slotted bottom portion for projection of the cans below the carrier unit, a belt disposed below a stretch of said can conveyor

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for engaging cans projecting below said can carrier unit, and reversible means for driving said belt.

10. In a processing apparatus for canned goods, a conveyor for moving canned goods through a treating chamber including a plurality of can carrier units, each unit having a slotted bottom portion through which the cans project, brush means on the inner surface of each of said carrier units, and means disposed below a stretch of said conveyor for effecting movement of the cans with respect to said brush means.

11. Processing apparatus for canned goods comprising a conveyor having a plurality of pivotally supported can carrier units, each unit having an open top for entry and discharge of cans and having a slotted bottom for projection of the cans through the slotted opening in the bottom, and means for effecting rotative movement of said units at a selected point in the travel thereof to move the units between the can

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carrying and can discharging positions thereof respectively.

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