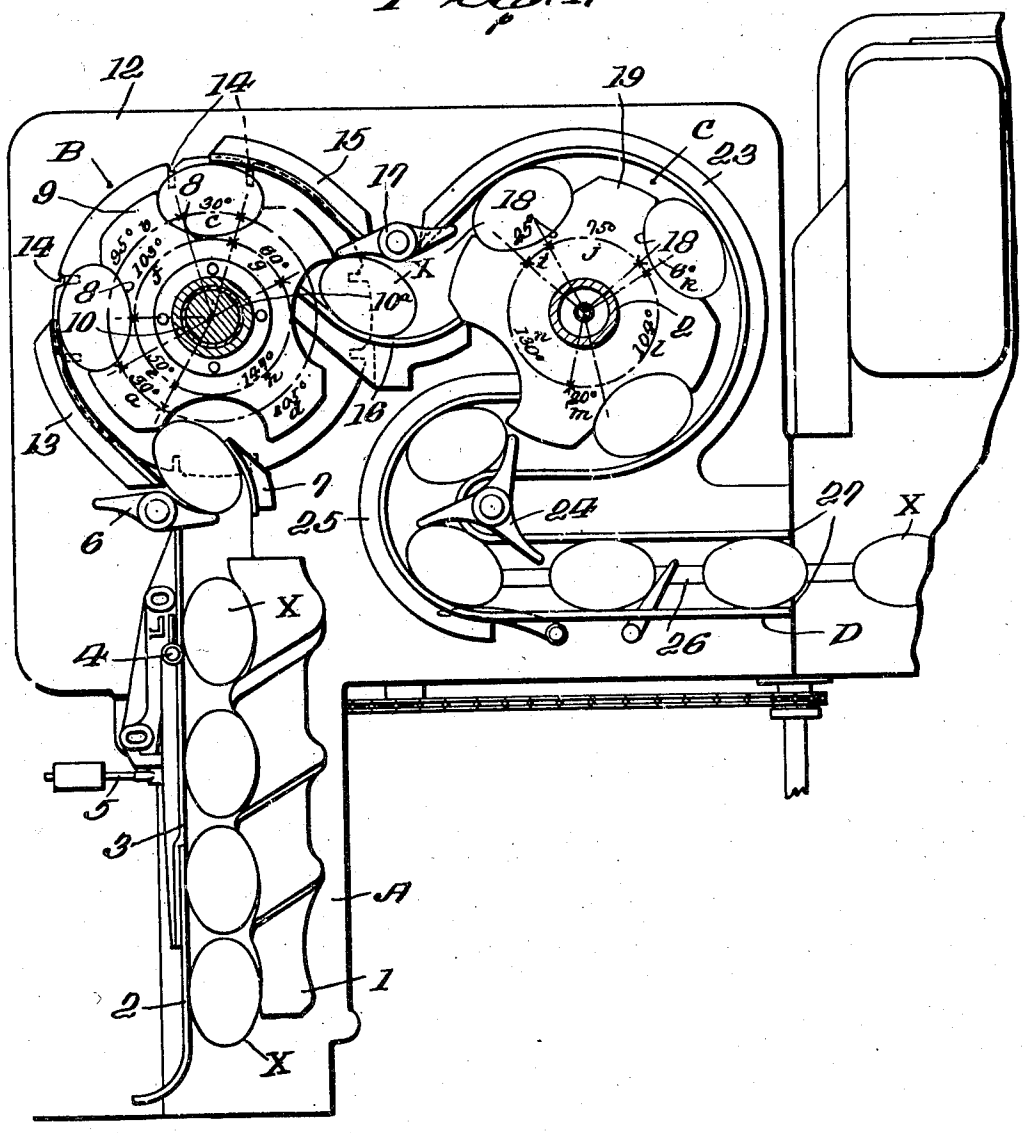
Dec. 7, 1948. G. L. ARDRON 2,455,723

RECEPTACLE-MOVEMENT CONTROLLED FILLING APPARATUS

Filed May 3, 1943 5 Sheets-Sheet 1

FIG. 1.



Inventor

Gerald L. Ardron

By Mason, Porter & Dilles

Attorneys

Dec. 7, 1948. G. L. ARDRON 2,455,723

RECEPTACLE-MOVEMENT CONTROLLED FILLING APPARATUS

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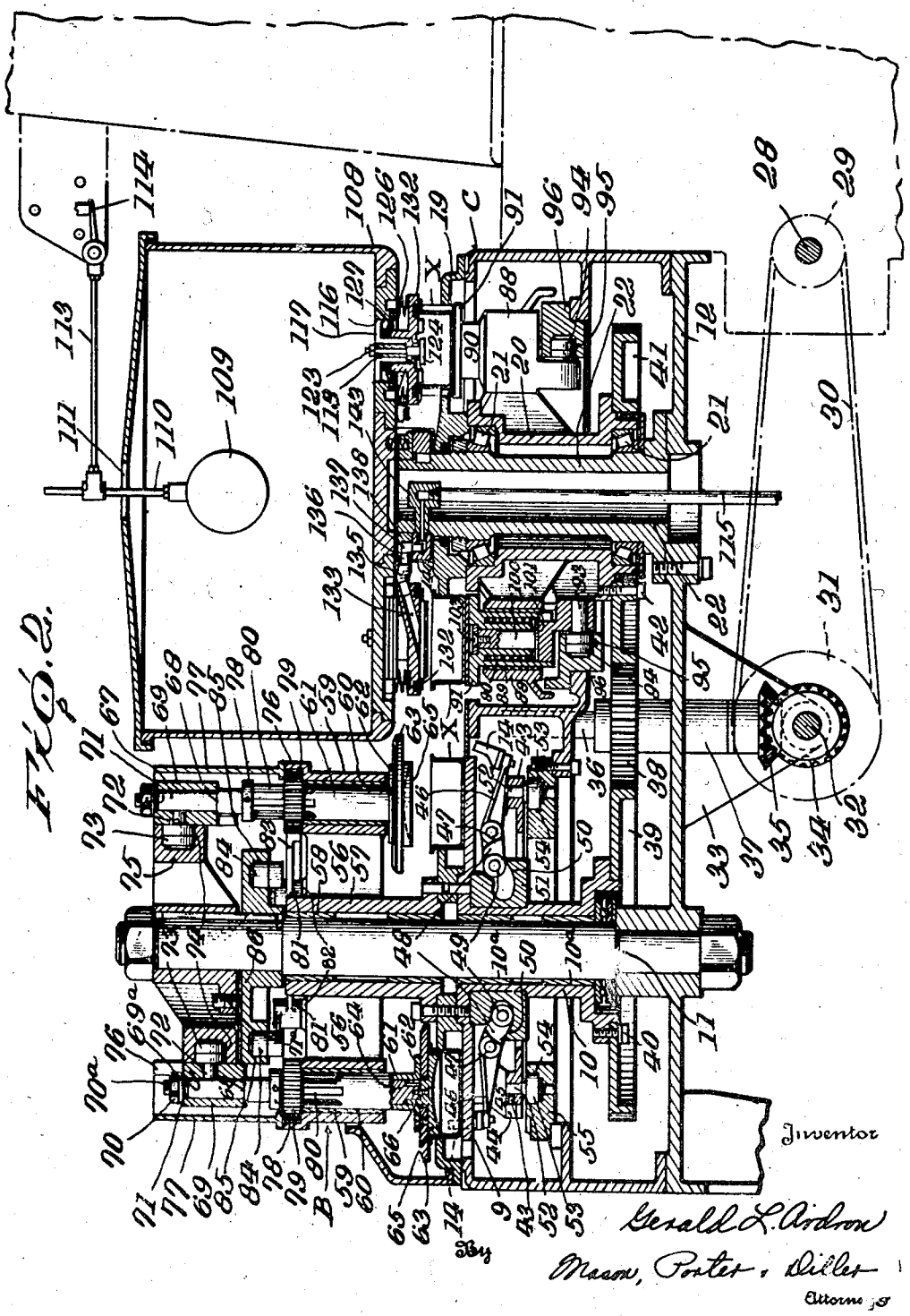


Fig. 2.

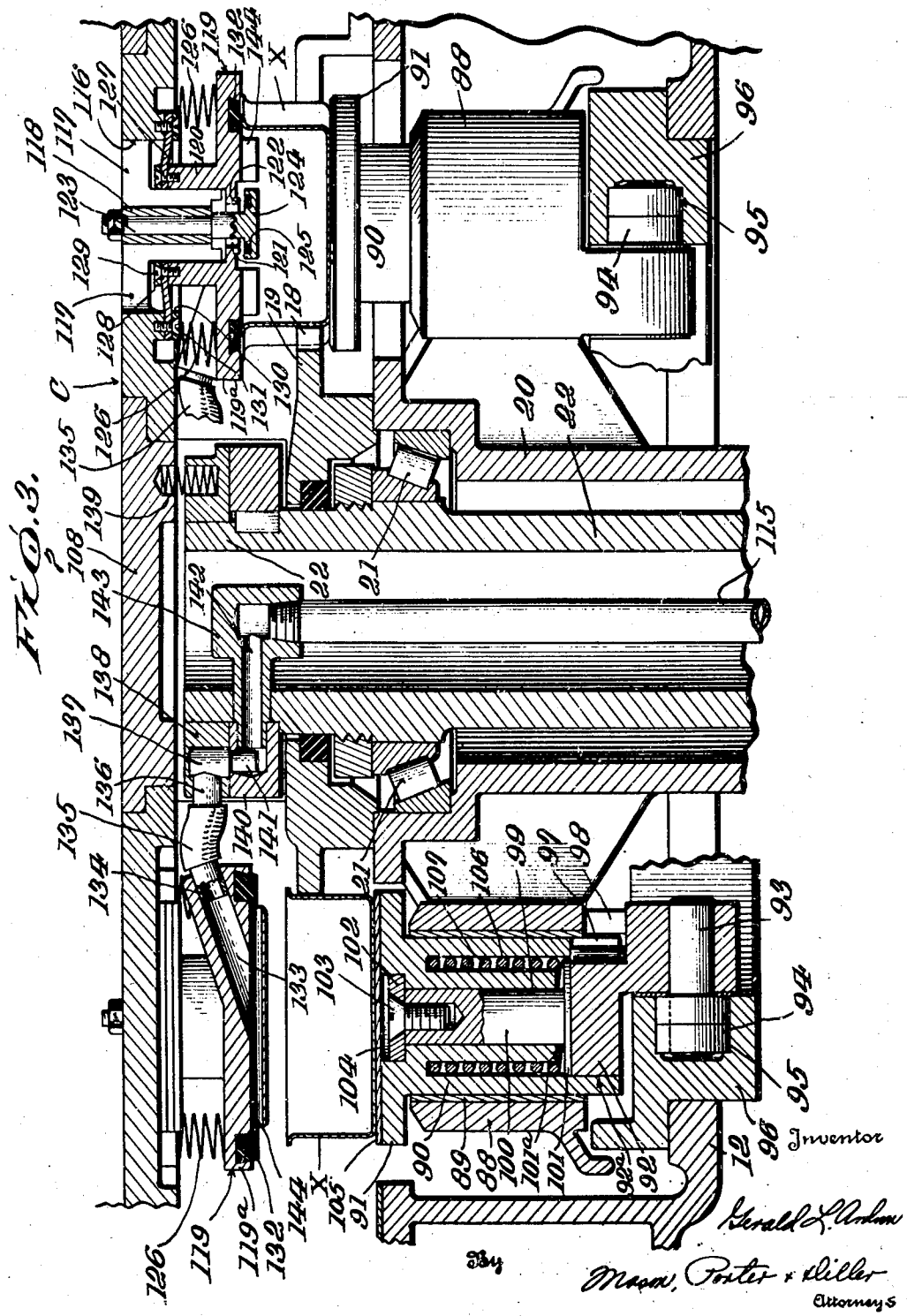
Inventor
Gerald L. Ardron
By Mason, Porter & Dillon
Attorneys

Dec. 7, 1948. G. L. ARDRON 2,455,723

RECEPTACLE-MOVEMENT CONTROLLED FILLING APPARATUS

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FIG. 3.

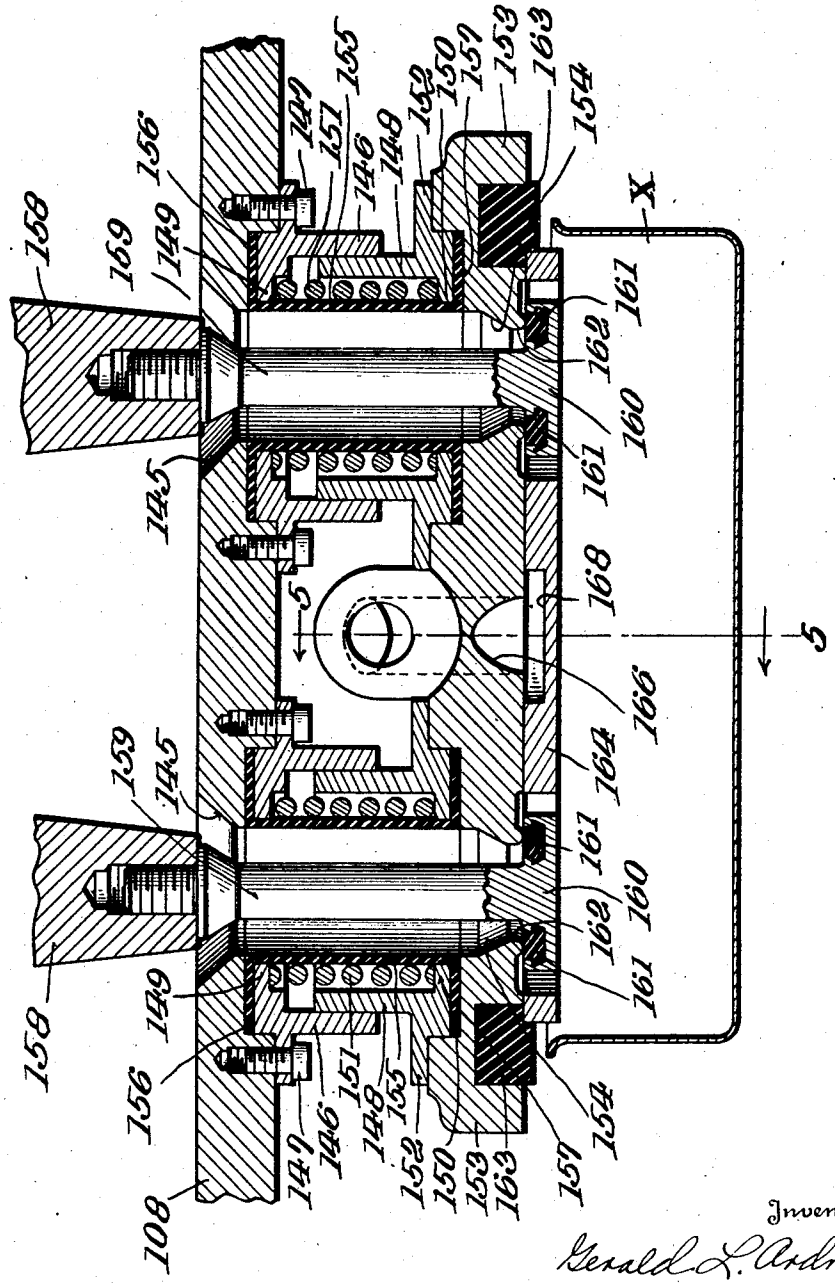


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RECEPTACLE-MOVEMENT CONTROLLED FILLING APPARATUS

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Fig. 4.



Inventor
Gerald L. Ardron

By Mason, Porter & Miller
Attorneys

Dec. 7, 1948. G. L. ARDRON 2,455,723

RECEPTACLE-MOVEMENT CONTROLLED FILLING APPARATUS

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FIG. 6.

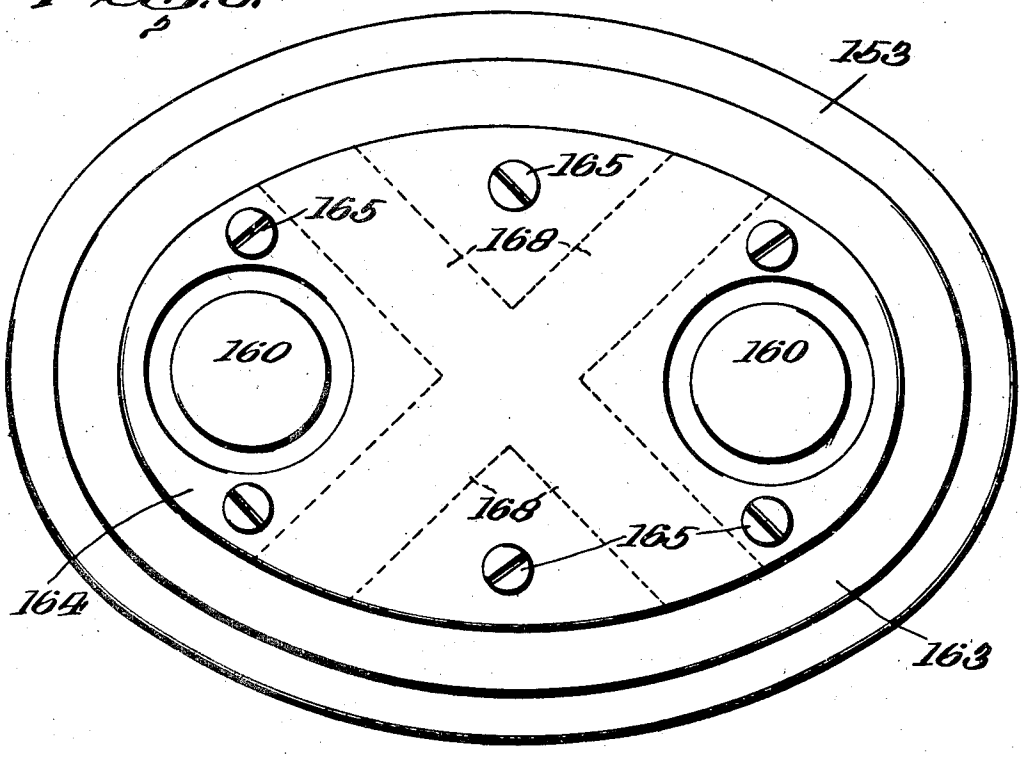
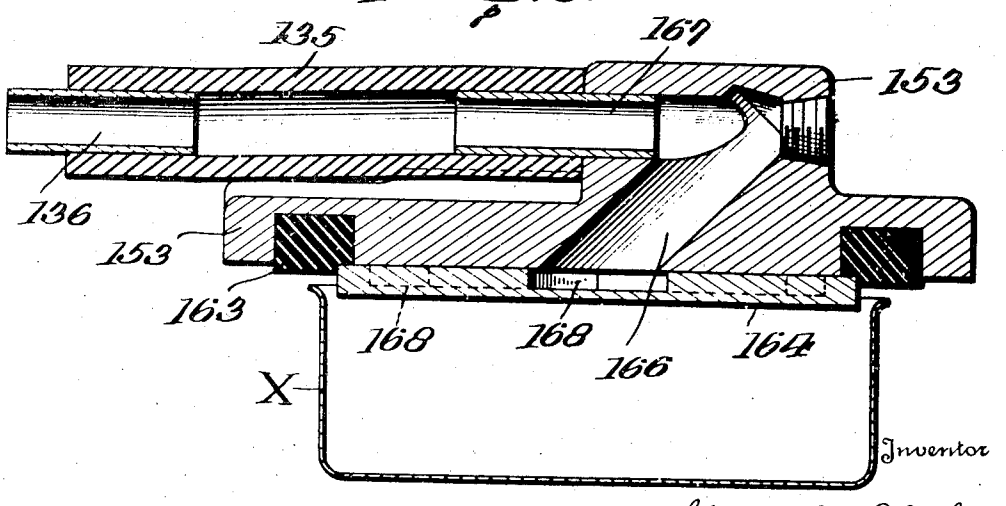


FIG. 5.



Inventor

Gerald L. Ardron

By Mason, Porter & Miller

Attorneys

Patented Dec. 7, 1948 2,455,723

UNITED STATES PATENT OFFICE

2,455,723

RECEPTACLE-MOVEMENT CONTROLLED FILLING APPARATUS

Gerald L. Ardron, Seattle, Wash., assignor to Continental Can Company, Inc., New York, N. Y., a corporation of New York

Application May 3, 1943, Serial No. 485,511

5 Claims. (Cl. 226—99)

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This invention relates to container filling apparatus and more particularly to apparatus for delivering liquid to containers which previously have received charges of solid material.

In the packing of certain classes of foods, for example fish, it is usual to fill the containers, e. g. cans, with the solid material, then compress the charge of solid material to provide a space or void in the top of the container, and then deliver liquid such as sauce to the space or void before sealing the container. The liquid or sauce has to seep down into the interstices between the solid food particles and then fill up substantially to the top of the container. Fish often is packed in elongated or oval shaped cans and it is important that the liquid or sauce be delivered in a manner to become quickly and evenly distributed throughout and above the solid material.

An object of the present invention is to provide apparatus including novel valve mechanism for delivering liquid or sauce to containers previously charged with solid material in such manner that the liquid or sauce will find its way to all parts of the container very quickly and evenly.

Another object of the invention is to provide apparatus of the character referred to in which a plurality of liquid delivery devices controlled by improved valve mechanism are so mounted and operated as to deliver the liquid simultaneously adjacent both ends of an oval shaped container.

Another object of the invention is to provide apparatus of the character referred to in which the means for delivering and controlling the delivery of the fluid includes an improved valve construction and diaphragm seal between a liquid supply means e. g. a tank, and the valve means.

A further object of the invention is to provide a new and improved mechanism for trimming off any solid material from the top edges of the containers so as to leave the edges clear and unobstructed, thereby preparing them for being brought into proper sealing contact with a filler head.

Other objects will become apparent from a reading of the following description, the appended claims, and the accompanying drawings.

In the drawings:

Figure 1 is a top view partially in plan and partially in horizontal section showing parts of an apparatus embodying the invention and illustrating more particularly the path followed by cans or containers while being prepared for being filled and while being filled.

Figure 2 is a vertical sectional view.

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Figure 3 is a fragmentary sectional view showing on an enlarged scale mechanism for vacuumizing and delivering liquid or sauce to containers which previously have been charged with solid material.

Figure 4 is a longitudinal vertical section of a modified filling head construction applied to a tank of which only portions are shown;

Figure 5 is a section on the line 5—5 of Figure 4 with the tank portions not being shown; and

Figure 6 is a bottom plan view of the filling head shown in Figures 4 and 5.

The illustrative embodiment of the invention shown in the accompanying drawings includes container feeding mechanism generally designated A, a combined packer and trimmer unit B, a saucing or filling unit C, and a container discharging mechanism D. Cans X, elongated in plan, are first received by the mechanism A which delivers them to the packing and trimmer unit B for having the solid material which previously was placed in the cans compressed or packed and for cutting or trimming off any particles of the solid material which overhang the top edges of the cans. After the packing and trimming operations have been performed, the cans are delivered to the filler unit C in which they are vacuumized and filled with a sauce or other suitable liquid. The filled containers are then discharged on the conveyor D which may deliver them to a suitable mechanism (not shown) for seaming tops or ends on the filled containers.

The feeding mechanism A includes a timing or feeding screw 1, juxtaposed to guide means comprising yieldable parts 2 and 3 pivotally mounted as at 4. The yieldable guide means is of a known construction and does not require detailed description. A weighted arm 5 is provided for yieldably urging the guide part 3 to hold the cans X in contact with the feeding screw 1.

When the cans X are discharged by the screw 1, they are engaged by a two-armed transfer turret 6 which cooperates with a fixed arcuate guide 7 to deliver the cans into pockets 8 of a turret 9. The turret 9 is formed with a hub 10 mounted to rotate on bearing liners 10a surrounding a stationary spindle 11 mounted on a main frame 12. The turret 9 rotates clockwise as viewed in Figure 1 and during the first part of a can's travel with the turret, the can is held in the associated pocket 8 by a stationary arcuate guide 13. When a can X moves beyond the guide 13, two gripper arms 14 are moved into engagement with the outside of the can for pressing it firmly into the pocket 8. While being held by the arms 14,

mechanism to be described operates to compress the solid material and operate the edge trimmer. After these operations have been completed, the arms 14 are retracted and the can continues to move around, being held in its associated pocket 8 by a stationary arcuate guide 15. After the can moves beyond the guide 15 it is displaced from the turret 9 by a deflecting guide 16 and a two-armed transfer turret 17 which feeds the can along the guide 16 and into one of a plurality of pockets 18 formed in a rotatable filler turret 19. The turret 19 has a hub 20 journaled by roller bearings 21 to rotate about a stationary hollow spindle 22 fixed to the main frame 12. The turret 19 also rotates clockwise as viewed in Figure 1 and during the travel of the cans with the turret 19, they are held in their associated pockets 18 by a fixed arcuate guide 23. While being carried around by the turret 19 the cans are vacuumized and filled with sauce or other liquid. Thereafter they are displaced from the pockets 18 by a three-armed transfer turret 24 which moves the cans in contact with a fixed arcuate guide 25 and thence onto a discharge conveyor 26 which carries the filled cans off between fixed parallel guides 27.

The combined packing and trimming unit B and filler unit C are driven in timed relation from a shaft 28 to which is fixed a sprocket 29. A chain 30 engaging the sprocket 29 is trained around a sprocket 31 fast with a shaft 32 journaled on a bracket 33 carried by the main frame 12. A bevel gear 34 fast with the shaft 32 meshes with a bevel gear 35 secured to a vertical shaft 36 journaled in a frame carried bearing 37. A gear 38 fast with the shaft 36 meshes with a gear 39 secured by screws 40 to the hub 10 of the turret 9. A gear 41 also meshing with the gear 38 is secured by screws 42 to the hub 20 of the turret 19. Both turrets 9 and 19 are driven from the same power source and therefore in timed relation. The feed screw 1, the transfer turrets 6, 17 and 24, and the conveyor 26 also are driven in time with the turrets 9 and 19 by any suitable drive transmission mechanism (not shown).

As previously stated cans being carried around with the packer and trimmer turret 9 are held firmly in the pockets 8 by the gripper arms 14 during the packing and trimming operations. For this purpose there is associated with each pocket 8 a block 43 slidable in grooves 44 formed in a bracket 45 which is fixed with respect to the turret 9.

An arm 46 carrying two spaced gripper fingers 14 at its outer end is pivoted as at 47 on each bracket 45. Normally, that is, when a pocket 8 is not passing through the packing and trimming zone, the associated arm 46 and fingers 14 will be lowered as shown at the right hand side of the turret 9 in Figure 2. Mechanism for moving each arm 46 and gripper finger 14 assembly to cause the finger 14 to grip the can X includes an extension 48 carrying at its inner end a pair of cam follower rollers 49 adapted to operate in a groove 50 formed in a cam 51 which is fixed to the turret 9 and is rotatable therewith. The cross sectional contour of the groove 50 is such that when a block 43 moves inwardly toward the spindle 11, the associated rollers 49 will follow the groove 50 and rock the lever 46 in such a manner that the gripper arm 14 first is moved upwardly alongside the associated can X after which the arm 46 and gripper arms 15 move in a substantially horizontal direction so as to engage the can X and hold it firmly in the pocket 8 without, however, tending to lift the can. The arm 46 and gripper arms 14 shown at the left of the spindle 11 in Figure 2 are in elevated can holding positions whereas the arm 46 and grippers 14 shown at the right of the spindle in Figure 2 are in their retracted positions disengaged from the associated container.

Means are provided for sliding the blocks 43 radially in response to rotation of the turret 9 so as to bring about the cam actuated rocking of the arms 46 referred to above. In the embodiment shown, the sliding of the blocks 43 is effected by cam mechanism which includes in association with each of the blocks 43 a pin 52 secured to the block and equipped at its lower end with a cam follower roller 53 operable in a groove 54 formed in a cam member 55 fixed to the frame 12.

The timing of the sequence of operations of the arm and fingers assemblies 46—14 with reference to travel of the turret 9 is indicated in Figure 1. During the travel of the turret through the angle *a* the assemblies 46—14 rise, during the travel through the angle *b* the parts 46—14 are up, during the travel through the angle *c* the parts 46—14 are being lowered, and during travel through the angle *d* the parts 46—14 are down.

Referring now to the mechanism for compressing or packing the solid material previously placed in the containers and for trimming off any solid material which may overhang the top edges of the containers, a spider 56 including a hub 57 is rotatable on bearings 58 surrounding the stationary spindle 11. Above each pocket 8 the spider 56 is provided with a sleeve 59 fitted with a bearing liner 60 which journals a sleeve 61 formed at its lower end with a flange 62 on which trimming arms 63—63 are mounted.

The stem 64 extends through the sleeve 61 and at its lower end carries a packer pad or compressor 65 secured to the spindle by a screw 66, the packer pad 65 underlying the trimming arms 63. The pad 65 is shaped to fit closely within cans of elliptical or oval shape and so that the space formed by the packing will be deepest adjacent the two ends of the cans.

For individually raising and lowering each packer pad and trimming arm assembly the associated stems 64 are reduced as at 67 to provide shoulders 68. Mounted on each stem reduced portion 67 is a sleeve bracket 69 held against the associated shoulder 68 by a nut 70 screwed onto a threaded projection 70*a* and against a washer 71. The spindle reduced portion 67 preferably is a little shorter than the bore in the sleeve bracket 69 so as to enable adjustment of the height of the bracket 69 relative to the spindle by interposing a shim or shims between the bottom of the bracket 69 and the shoulder 68.

Each bracket 69 carries a pin 72 equipped with a pair of cam follower rollers 73 operable in a groove 74 formed in a cam 75 fixed to the stationary spindle 11. Each sleeve bracket 69 is formed with a guide portion 69*a* which extends through a guide slot 76 in a shield 77 carried by and rotatable with the turret 9. A collar 78 secured to each stem 64 engages the upper end of the associated sleeve 61 and prevents movement of the stem 64 downwardly with respect to the sleeve 61. Thus the collar 78 at the upper end of the sleeve 61 and the trimming arms 63 and pad 65 at the lower end of the sleeve 61 maintain the sleeve 61 and the stem 64 against relative endwise movement.

In operation as the pockets 8 and associated trimming and packing mechanism move around with the turret 9 the cam rollers 73 carried by

the stems 64 will be moved downwardly to lower the stems 64 and spindles 61, thereby projecting the packer pads 65 into the containers X and bringing the trimming arms 63 into engagement with the top edges of the cans.

When the packing pad 65 and trimming arm 63 have been thus positioned, the arms 63 are oscillated back and forth through an angle of about 100°. This back and forth movement of the arms 63 while engaging the top edges of the cans is particularly effective in removing any overhanging bits of material, such as fish meat, bones, or skin. The reversal of movement incident to the oscillation of the trimming arms is effective to dislodge any particles which otherwise could have a tendency to be moved along the edge of the cans without being dislodged during movement of the arms 63 in one direction only.

The mechanism for operating the trimmer arms 63 associated with each pocket 8 includes a gear 79 splined as at 80 on the trimming arm sleeve 61. The gear is constrained to rotate with the sleeve and is maintained against vertical movement by being mounted in an annular seat conjointly provided by the relatively fixed sleeve 58 and the bottom of the shield 77. A lever 81 pivoted as at 82 on the turret spider 56 is formed with a gear sector 83 meshing with the gear 79. An arm fast with the lever 81 mounts a cam follower roller 84 which is operable in a groove 85 formed in a cam 86 secured to the stationary spindle 11. It will be understood that for each station or pocket 8 there is provided packing and trimming mechanism of the kind described above, each mechanism including operating means comprising a gear 79, lever 81, gear sector 83, and roller 84 operating in the cam groove 85.

The packer pad and trimming arm assemblies may be adjusted simultaneously for height by means of a screw 71*a* having threaded engagement with the cam 75 and having its end bearing on the cam 86.

In operation, rotation of the turret 9 about the spindle 11 will cause the rollers 84 to be moved by the cam 86 so as to rock the levers 81 and gear sectors 83, thereby rotating the gears 79, sleeves 61, and trimming arms 63. As the rollers travel around the cam 86 the rocking of the levers 81 will be reversed so as to rotate the gears 79, sleeves 61, and trimming arms 63 in the opposite direction thereby effecting the desired back and forth oscillatory movement.

The timing of the operation of the packer and trimming mechanism with reference to the rotation of the turret 9 is indicated in Figure 1. During the travel of the packer pads 65 and trimming arms 63 through the angle *e* the pads and trimming arms descend, during travel through the angle *f* they are down in operative position, during travel through the angle *g* they rise, and during travel through the angle *h* they are up.

After the packing and trimming operations have been performed, the cam rollers 73 follow the groove 74 and lift the packing pads 65 and trimming arms 63 away from the associated cans X which will be in readiness to be delivered to the filling unit C.

The packed and trimmed cans will be moved to the turret 19 in the manner previously described and will be deposited successively upon can pads for supporting the cans in predetermined positions. Below each pocket 18 is a sleeve bracket 88 rotatable with the turret 19. A bearing liner 89 mounted within each bracket 88 mounts for sliding movements a can support 90 formed at its upper end with a horizontal pad 91. A lifter 92 mounted to slide in a bore 92*a* in each support 90 is equipped with a pin 93 mounting cam follower rollers 94 operable in a groove 95 formed in a cam 96 fixed to the frame 12. The lifter projects through a slot 97 in the support 90 and through a slot 98 in the bracket 88, having sliding engagement with the walls of the slots for preventing turning of the lifter and the support 90. During rotation of the turret 19 the rollers 94 following the cam groove 95 will raise and lower the lifter 92.

Connections between the lifters 92 and the associated can supports 90 provide for raising and lowering of the supports 90 in response to the rotation of the turret 19. In the illustrated embodiment of the invention these connections include yieldable force transmitting means and means for positively transmitting force, so arranged that during the first upward movement of the lifters 92, the supports 90 will be moved upwardly by a yielding or impositive force transmitting connection until upward movement of the supports is resisted, whereupon the supports will be driven positively upwardly to effect the opening of a filling valve to be described later. For this purpose each pad 90 is formed with a bore 99 which receives for sliding movement a rod 100 having at its lower end a flange 101 normally spaced from an abutment face 101*a* on the support 90. A disk 102 secured to the upper end of the rod 100 by a screw 103 is mounted to slide in a counter-bore 104 in the support pad 91. A cover 105 is mounted on top of the support pad 91 and extends across the counter-bore 104. The thickness of the disk 102 is somewhat less than the depth of the counter-bore 104 so that normally there is clearance between the top of the disk and the bottom of the cover 105. A spring 106 housed in a recess 107 in the support 90 has its opposite ends engaging respectively with the root of the recess 107 and the flange 101.

In operation, when each lifter 92 is raised it will push upwardly on the flange 101 and the spring 106 which in turn yieldably pushes upwardly on the support 90. After the support has been lifted a predetermined distance, its further upward movement will be resisted by engagement with a filler head to be described, and the spring 106 will yield to permit the support to remain stationary while the lifter 92 continues to move upwardly. When the flange 101 engages the abutment face 101*a*, the support 90 will be raised positively to raise the filler head and open a filler valve as will be described later.

A tank 108 for containing the sauce or other liquid to be delivered to the cans is mounted above the turret 19 so as to rotate therewith. The desired liquid level is maintained in the tank by any suitable means such as a float 109 carried by the lower end of a rod 110 extending through an opening 111 in the top of the tank and being connected to a lever 113 arranged to operate a valve 114. The valve 114 is adapted to control the supply of sauce or liquid through a pipe (not shown) which may be arranged to extend downwardly through the opening 111.

Distribution of the sauce throughout the containers previously charged with solid material is facilitated and made more even by drawing a vacuum in each container before the sauce is delivered. For this purpose, a main vacuum passage 115 is mounted within the stationary hollow spindle 22 and means are provided for connecting the vacuum passage to the containers and

then delivering the sauce. Such means includes for each station or pocket 18 a filler head adapted temporarily to seal the container and valve means for successively connecting the container with the vacuum passage 115 and the tank 108.

Directly above each support pad 91 the tank 108 is formed with two vertical openings 116 so disposed that their centers are located between the center of the oval shaped container X and its opposite ends respectively. Integral with the tank bottom and extending into each opening 116 is a plurality of guide ribs 117 supporting a boss 118. A filler head 119 extending under the pair of openings 116 associated with each turret pocket 18 includes a horizontal plate-like portion 119a and two upstanding annular flanges 120. The inner wall of each flange 120 has sliding engagement with the lower portions of the associated ribs 117 so that the flanges 120 and consequently the filler heads 116 are guided for vertical movements.

Each filler head 119 is formed with two valve ports 121 respectively located coaxially with respect to the flanges 120 and being respectively in communication with the openings 116. The ports 121 are located respectively at points between the middle of an associated can X and the opposite ends of the can, both ports 121 being disposed above the major axis of the can. A valve seat 122 surrounding each port 121 is cooperable with a valve member comprising a stem 123 and a valve head 124 provided with resilient facing material 125 engageable with the associated seat 122. The valve stems 123 are mounted fixedly in the bosses 118.

Normally the heads 119 are held downwardly by springs 126 so that the valve seats 122 are closed on the valve heads 124. When the filler heads 119 are raised, the valve seats 122 will be moved away from the stationary valve heads 124 thereby providing communication between the tank 108, the openings 116, the valve ports 121 and the containers X positioned under the filling heads 119.

It is necessary that the spaces between the filling heads 119 and their associated openings 116 be sealed. For this purpose a diaphragm 127 of rubber or other resilient material is disposed between the walls of each opening 116 and the associated filler head flange 120. The inner edges of the diaphragms 127 are secured to the filler head flanges 120 by rings 128 held in place by screws 129. The outer edges of the diaphragms are connected to the tank adjacent the openings 116 by rings 130 held in place by screws 131. The raising and lowering of the heads 119 for opening and closing the liquid delivery devices 122—124 can be effected without disturbing the diaphragm seal between the bottom of the tank and the filler heads. The heads 119 are raised by upward movement of the cans X positioned on the supports 90 which are lifted and lowered by the lifters 92 in the manner previously described. Preferably the filler heads 119 are equipped with sealing rings 132 of rubber or other suitable resilient material adapted to be engaged by the top edges of the containers X.

Vacuumizing of the cans X is effected after the cans have moved into engagement with the filling heads 119 but before the heads 119 have been lifted. For this purpose each head 119 is formed with a vacuum port 133 equipped with a fitting 134 to which is attached a flexible conduit, such as a rubber hose 135. Each conduit 135 is connected in turn to a fitting 136 communicating with

a port 137 in a distributor ring 138 mounted to rotate with the turret 19. Springs 139 interposed between the bottom of the tank 108 and the ring 138 press the ring against a stationary ring 140 formed with a port 141 communicating with a passage 142 in a fitting 143 connected to the upper end of the main vacuum pipe 115. The arrangement is such that as the turret 19 rotates, the ports 137 associated with the respective heads 119 register successively with the port 141 so as to connect the vacuum passages 133 with the main vacuum passage 115 successively. The mechanism is so timed that each vacuum passage 133 will be placed in communication with the main vacuum passage 115 just after the associated can X has been moved into sealing engagement with the filler head 119, but before the head has been lifted sufficiently to open the filler valve ports 121. The respective ports 137 move out of registry with the port 141 a little before or at about the time that the valve port 121 is opened so that drawing of sauce back through the vacuum line is avoided. The lag in opening of the port 121 following engagement of the can with the filler head 119 is provided by the yielding of the springs 126 which permits the support 90 and associated can X to remain stationary after the can engages the filler head 119 and until the flange 101 moves into contact with the abutment face 101*a*.

Preferably each filler head 119 is provided with displacer pads 144 which limit the amount of sauce that can be delivered to the can and insure that when the can is moved down from the filler head 119 a small predetermined space will be left between the level of the sauce in the can and the top edge of the can.

The timing of the movements of the can pads 90, the vacuumizing, and the saucing is indicated in Figure 1. During travel of a filler head 119 and associated pad 90 through the angles *i* and *k* the can pad is raised, during travel through the angle *j* the can is vacuumized, during travel through the angle *l* the can pad is up and the filler valve devices are open for saucing, during travel through the angle *m* the pad descends, and during travel through the angle *n* the can pad is down.

Figures 4, 5 and 6 show a modified filler head construction which may be used in place of the head construction 119 previously described. Directly above each support pad 91 the tank 108 is formed with two vertical openings 145 located similarly to the openings 116. Aligned with each opening 145 is a fixed guide member 146 held in place by screws 147. Slidable in each guide member 146 is a movable guide member 148. The guide members 146 and 148 respectively are formed with flanges 149 and 150 engaged by the opposite ends of springs 151 tending to hold the movable guide members down. The guide members 148 also are formed with flanges 152 which bear against the top of a sealing head plate 153 formed with valve port openings 154 aligned with the openings 145. Rubber throat members 155 extend between the openings 145 and 154 and have anchoring portions 156 and 157 clamped respectively between the flanges 149 and the tank 108, and between the flanges 150 and the head plate 153. The throat members prevent sauce from coming into contact with the springs 151 and the sliding metal-to-metal contact between the guide members 146 and 148.

Lugs 158 fast with the tank 108 are threaded to receive fixed valve stems 159 formed at their lower ends with the valve heads 160 equipped

with resilient facings 161 engageable with valve seats 162 surrounding the ports 154. The springs 151 normally hold the plate 153 down so as to press the valve seats 162 into contact with the facings 161, but are yieldable to permit the plate 153 to be raised to thereby open the valves.

The heads 153 are adapted to be lifted by raising of the cans X in the same manner as the heads 119 shown in Figures 2 and 3. Each head plate 153 is equipped with a sealing ring 163 partially overlapped and held in place by a head bottom plate 164 secured to the plate 153 by screws 165. When a can X is raised it will first move into sealing contact with the ring 163, it will then be vacuumized, and finally continued raising of the can will lift the head 153 to open the filler valves.

The heads 153 are constructed similarly to the heads 119 for vacuumizing the cans prior to saucing. Thus, as shown in Figure 5, the head 153 has a vacuum passage 166 equipped with a fitting 167 to which is attached the flexible conduit 135 in turn connected to the fitting 136. The bottom plate 164 is formed with channels providing vacuumizing passages 168 communicating with the passage 166 and opening at the periphery of the plate 164 so as to effect quick and equalized evacuation of the cans.

The apparatus disclosed herein embodies the invention in the form now preferred, but it will be understood that changes may be made in the construction and arrangement of the parts without departing from the invention as defined in the claims.

I claim:

1. In apparatus for delivering liquid to containers, a relatively fixed part formed with a vertical opening through which fluid may be delivered; a filler head under said fixed part; a movable guide member on said filler head; a fixed guide member on said fixed part and having sliding engagement with said movable guide member; a spring interposed between said guide members and urging said filler head downwardly away from said fixed part; a valve port extending through said filler head under said opening; a valve seat on the bottom of said filler head and surrounding said port; a valve member carried by said fixed part and being engageable by said valve seat; and an axially resilient throat member interposed between said vertical opening and said valve port, said throat member engaging said relatively fixed part adjacent said vertical opening and engaging said filler head adjacent said valve port and serving to prevent liquid passing from said opening to said port from contacting said spring and said guide members.

2. In apparatus for delivering liquid to containers, a relatively fixed part formed with a vertical opening through which fluid may be delivered; a filler head under said fixed part; a movable guide member bearing on the top of said filler head; a fixed guide member attached to the bottom of said fixed part and having sliding engagement with said movable guide member; a spring interposed between said guide members and urging said filler head downwardly away from said fixed part; a valve port extending through said filler head under said opening; a valve seat on the bottom of said filler head and surrounding said port; a valve member carried by said fixed part and being engageable by said valve seat; and a resilient throat member interposed between said vertical opening and said valve port and serving to prevent liquid passing from said opening to said port from contacting said spring and said guide members, said throat member having flanges at its upper and lower ends clamped respectively between said fixed guide member and said fixed part, and between said movable guide member and said filler head.

3. In apparatus for delivering liquid to containers, a relatively fixed part formed with a vertical opening through which fluid may be delivered; a filler head under said fixed part; a movable guide part on said filler head; a fixed guide part on said fixed part and having sliding engagement with said movable guide part; spring means interposed between said fixed part and said head and urging said head downwardly away from said fixed part; a valve port extending through said filler head under said opening; a valve seat on the bottom of said filler head and surrounding said port; a valve member carried by said fixed part and being engageable by said valve seat; and a resilient rubber member fixed respectively to said fixed part and to said head and being between said spring means and the vertical opening in said fixed part whereby to prevent contact of the liquid with said spring means.

4. An apparatus for delivering liquid to containers which are oval in plan, comprising a tank having a pair of spaced discharge openings in the bottom thereof, a rigid filler head associated with said openings beneath the tank and having a pair of similarly disposed filler openings in said filler head, means for directing fluid from the openings in the tank to the openings in the filler head, a valve seat surrounding each opening in the filler head at the lower side thereof, a stationary valve disposed beneath each valve seat, means for yieldingly pressing the filler head downward and the seats thereon against said valves, a gasket mounted on the under side of the filler head and surrounding said openings therethrough, said gasket being shaped to conform to the open end of an oval container, and said filler openings being disposed along the major axis of the container, a container support beneath said filler head, and means for raising said container support for moving the container into sealing engagement with the gasket on the filler head and for raising the filler head from said valves for discharging liquid into the container.

5. An apparatus for delivering liquid to containers which are oval in plan, comprising a tank having a pair of spaced discharge openings in the bottom thereof, a rigid filler head associated with said openings beneath the tank and having a pair of similarly disposed filler openings in said filler head, means for directing fluid from the openings in the tank to the openings in the filler head, a valve seat surrounding each opening in the filler head at the lower side thereof, a stationary valve disposed beneath each valve seat, means for yieldingly pressing the filler head downward and the seats thereon against said valves, a gasket mounted on the under side of the filler head and surrounding said openings therethrough, said gasket being shaped to conform to the open end of an oval container, said filler openings being disposed along the major axis of the container, a container support beneath said filler head, means for raising said container support for moving the container into sealing engagement with the gasket on the filler head and for raising the filler head from said valves for discharging liquid into the container, said filler head having a port opening at the bottom thereof and at

a point between the delivery devices, means for connecting said port to a vacuum line for drawing a vacuum on the container, and means for controlling the port leading to the vacuum line so that said port will be connected to the vacuum line after the can has been moved into sealing engagement with the gasket and before the filler head is raised for opening he valves.

GERALD L. ARDRON.

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