P. J. COTE.

SALTING MACHINE.

APPLICATION FILED SEPT. 28, 1916.

1,244,471.

Patented Oct. 30, 1917.

2 SHEETS—SHEET 1.

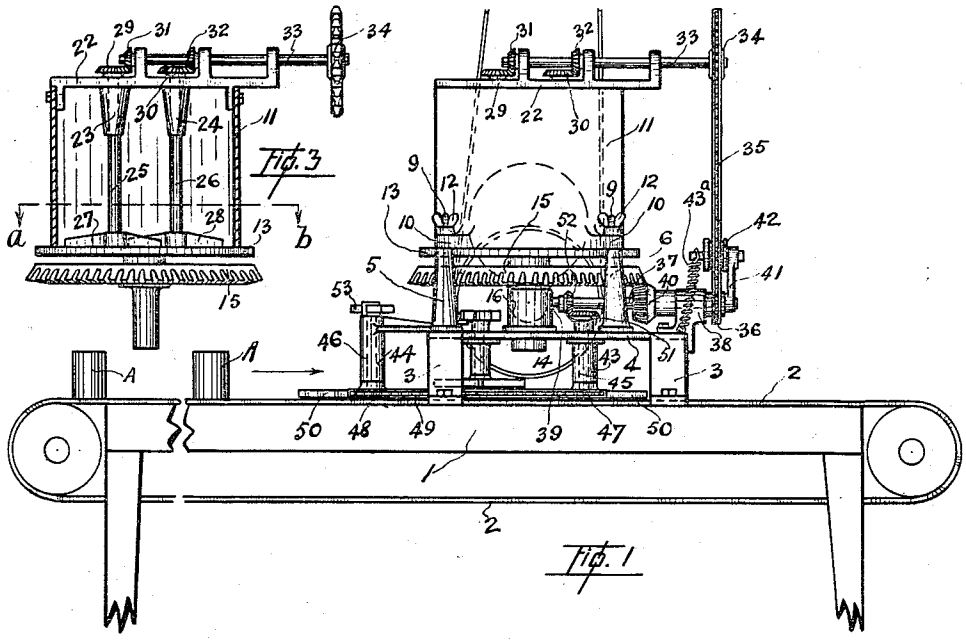


Fig. 1

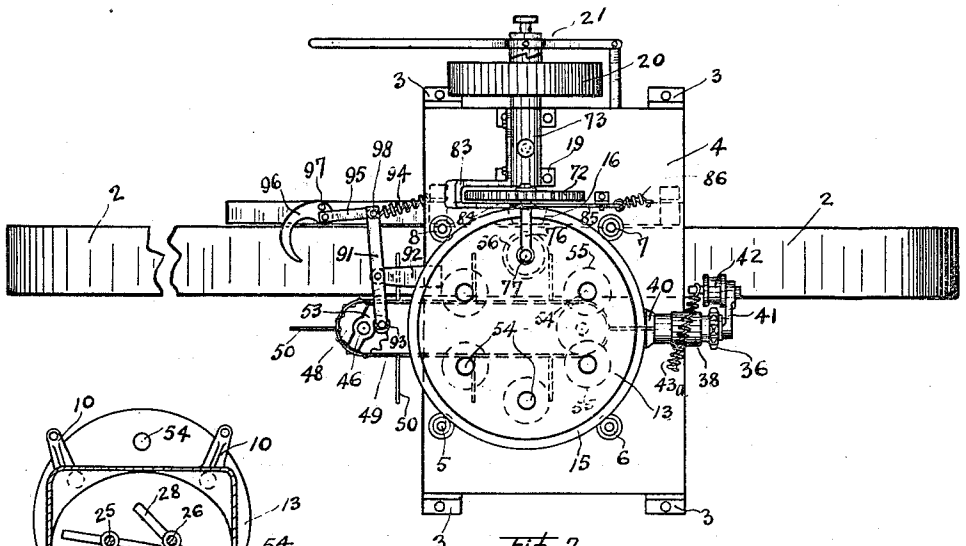


Fig. 2

Fig. 4

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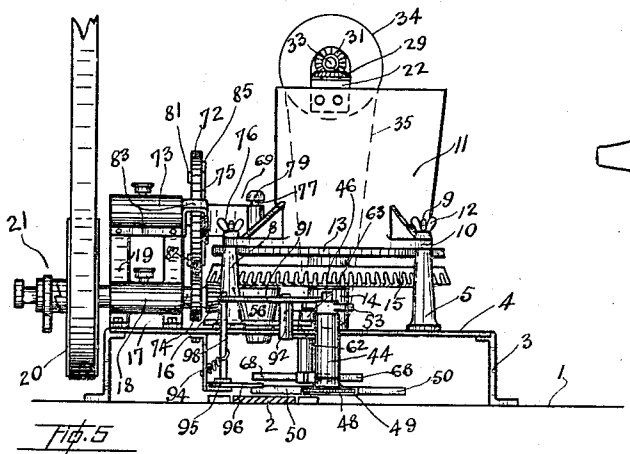


Fig. 5

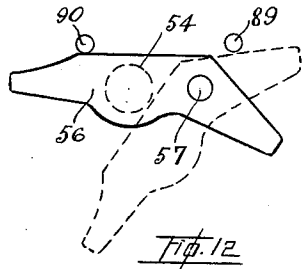


Fig. 12

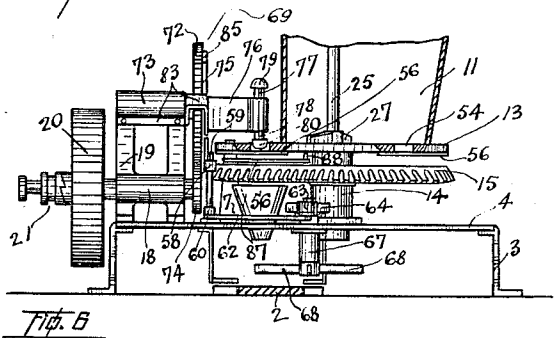


Fig. 6

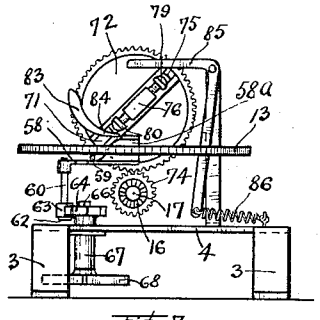


Fig. 7

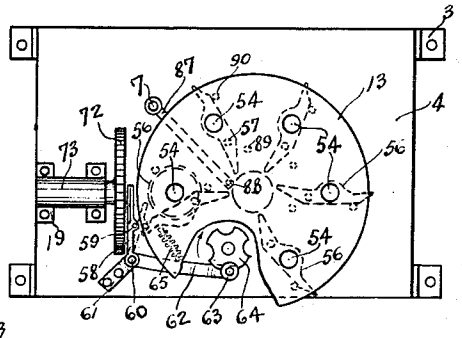


Fig. 8

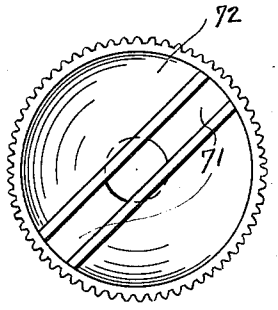


Fig. 9

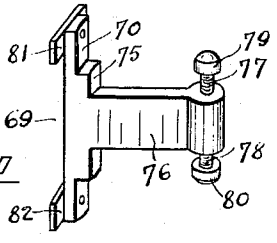


Fig. 10

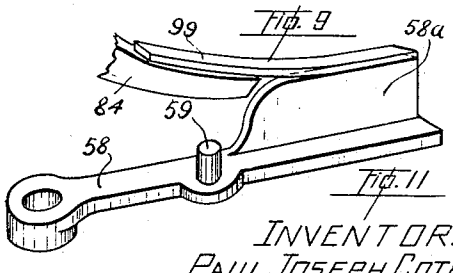


Fig. 11

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UNITED STATES PATENT OFFICE.

PAUL JOSEPH COTÉ, OF EBURNE, BRITISH COLUMBIA, CANADA.

SALTING-MACHINE.

1,244,471. Specification of Letters Patent. Patented Oct. 30, 1917.

Application filed September 28, 1916. Serial No. 122,710.

To all whom it may concern:

Be it known that I, PAUL JOSEPH COTÉ, a subject of the King of Great Britain, and a resident of the town of Eburne, in the Province of British Columbia, Canada, have invented certain new and useful Improvements in Salting-Machines, of which the following is a specification.

This invention relates to improvements in machines for salting fish or other foodstuffs in cans prior to sealing, and the object of the invention is to provide a simple and efficient means for carrying out the salting operation mechanically and automatically and which is comparatively inexpensive to construct and requires little attention, is economical, and enables a great saving in time and labor to be effected as compared with salting by hand.

I attain this object by the construction illustrated in the accompanying drawings in which—

Figure 1 is a side elevation of the machine.

Fig. 2 is a plan view of Fig. 1, the salt container being removed.

Fig. 3 is a sectional elevation of the salt container.

Fig. 4 is a sectional plan view of the salt container, taken on the line *a*—*b* of Fig. 3.

Fig. 5 is a front end elevation of the machine.

Fig. 6 is a partial front end elevation of the machine, in part section.

Fig. 7 is a detail view in elevation looking on the end of the knocker.

Fig. 8 is a detail plan view of the salt discharging means.

Fig. 9 is a front view of the knocker wheel.

Fig. 10 is a detail view of the knocker, in perspective.

Fig. 11 is a detail view of the gate opening arm, in perspective.

Fig. 12 is a detail view of one of the gates.

Similar figures of reference indicate similar parts throughout the several views.

1 indicates a table on which the machine is mounted, which table is provided with an endless belt 2 adapted to receive the filled cans A at one end and carry them in the direction indicated by the arrow in Fig. 1 to be transferred at the other end to the sealing machine. Mounted on the table in suitable position and at a suitable height above the belt 2 and supported on brackets 3 is a baseplate 4, on which baseplate are raised four pillars 5, 6, 7 and 8, provided with through bolts 9, the upper ends of which bolts extend through the lugs 10 of a salt container 11, the container being supported on the pillars, and detachably secured thereto by means of wing nuts 12 on the ends of the bolts 9, all as shown in Fig. 1.

The container 11 is open top and bottom, but when assembled in place the bottom is closed, so that a box for carrying salt is formed by a plate 13, which is mounted for rotation inside the pillars on a footstep bearing 14 secured to the baseplate and is actuated by means of a bevel gear 15 secured to its vertical shaft, the bevel gear meshing with a pinion 16 secured to a shaft 17 rotatably mounted in a bearing 18 of a bracket 19 secured to baseplate 4, the other end of which shaft is provided with a pulley 20 belt-connected to a suitable driving shaft (not shown), from all of which it will be seen that rotation of pulley 20 rotates pinion 16, bevel gear 15, and plate 13, see Figs. 1, 2 and more particularly Fig. 5. A suitable clutch mechanism, indicated by the numeral 21, is provided for throwing pulley 20 into or out of gear.

22 indicates a bracket secured to and extending across the upper end of the container 11 and provided with bearings 23 and 24 in which are rotatably mounted vertical shafts 25 and 26 the lower ends of which are provided with paddles or agitators 27 and 28 respectively adapted to traverse the surface of the plate 13 as the shafts rotate, the upper ends of the shafts being extended through the bracket 22 and provided with bevel pinions 29 and 30, which pinions mesh respectively with pinions 31 and 32 secured to a horizontally supported shaft 33 the outer end of which is provided with a sprocket 34 connected by a suitable link-belt 35 to a sprocket 36 secured to a shaft 37 rotatably supported by bearings 38 and 39, bearing 38 being secured to baseplate 4 and bearing 39 being formed in the side of the footstep bearing 14. A bevel pinion 40 meshing with bevel gear 15 is secured on the shaft 37, so that it will be seen that rotation of bevel gear 15 actuates the paddles 27 and 28, as will be more fully hereinafter described. 41 indicates an arm swingably mounted on the end of shaft 37 outside of the bearing 38, which arm carries a tension roller 42 on which the belt 35

travels, the roller being held against the belt by means of a spring 43ª, as shown in Figs. 1 and 2.

43 and 44 indicate bearings secured to the baseplate at suitable points in which are rotatably supported vertical shafts 45 and 46, on the lower ends of which shafts are secured sprockets 47 and 48 around which extends an endless link-belt 49 provided at suitable intervals with arms 50 adapted to pass above the upper surface of belt 2 when link-belt 49 is in motion. The upper end of shaft 45 has secured thereon a bevel pinion 51 meshing with a pinion 52 secured to shaft 37, while the upper end of shaft 46 is provided with a short double-ended cam 53. Rotation of the bevel gear 15 thus sets the belt 49 in motion through pinions 40, 51 and 52.

Openings 54 are provided in the plate 13 and also openings 55 in the gear 15 central with the plate openings, through which the salt is discharged from the container 11 at a predetermined moment into a funnel 56 secured into and extending through the baseplate 4, the center of the funnel being in line with the center of the belt 2. The centers of the container 11 and of the plate 13 when the machine is viewed from the front end are eccentric, so that, as the plate rotates, the openings 54 will pass in succession through the container and become filled with salt carried in the container, the filled openings then passing to the outside of the container, as indicated in Fig. 6. These openings 54 are normally closed by means of gates 56 mounted on the underside of the plate 13 and fulcrumed on pins 57, as indicated in dotted lines in Fig. 8 and shown in detail in Fig. 12, so that receptacles for containing salt are formed, and each of them remains closed until it comes directly above the funnel 56, when it is then opened to allow the salt to fall out. In order to swing the gates 56 clear of their respective openings at the proper times a laterally swingable arm 58 is provided, as shown in Figs. 6, 7 and 8, on which arm is secured an upstanding pin 59 normally clear of the gates but which engages the outer end of each gate as it travels around with the plate 13 when the arm 58 is swung inwardly, as indicated dotted in Fig. 8, whereby the gate is swung on its fulcrum clear of the opening 54. Arm 58 is secured to a vertical shaft 60 rotatably mounted in a bearing 61 secured to the baseplate, the shaft acting as a pivot and having secured to its lower end a lever 62, on the outer end of which is mounted a roller 63 held in spring engagement with a cam wheel 64 by means of a spring 65 connected at one end to the lever 62 and having its other end secured to any suitable point of the machine. The cam wheel 64 is secured to the upper end of a vertical shaft 66 rotatably mounted in a bearing 67 secured to the underside of the baseplate 4, and secured to the lower end of the shaft 66 are four fingers 68, set at right angles to each other, these fingers being arranged above the belt 2 so that one of them will always lie in the path of the cans being transferred along the belt to be tripped thereby, the tripping of each finger causing partial rotation of the cam wheel 64, thus forcing lever 62 outwardly and swinging arm 58 and pin 59 inwardly to engage the gate 56 of the opening 54 the contents of which are to be discharged into the can which trips finger 68.

To insure the positive discharge of the salt from the openings 54 I provide a device for knocking the salt out of the openings, indicated generally by the numeral 69 and shown in detail in Fig. 10. This knocking device consists of a bar member 70 adapted to fit slidably a slot 71 formed in a spur gear 72 rotatably carried by a bearing 73 in the bracket 19 and meshing with a pinion 74 secured to shaft 17, as shown in Figs. 5 and 6. 75 indicates an outstanding portion formed on the bar member 70, from which portion extends centrally the arm 76 the outer end of which is provided on its upper and lower edges with the adjustable screws 77 and 78 having heads 79 and 80, rounded or otherwise formed and the diameter of which is slightly less than the diameter of the openings 54. 81 and 82 indicate plates adapted to be secured to the back of the bar member 70 when assembled to engage the back of the gear 72 and hold the bar in slidable engagement therewith and, as the bar is shorter than slot 71, it will be obvious that the knocking device, or "knocker", as it will be termed hereinafter, is capable of up and down movement in the slot 71 as the spur gear 72 rotates. To raise the "knocker" a bar 83 is secured to the bracket 19, which bar is bent to straddle gear 72, its end being curved as shown at 84 in Fig. 7, and carried partly across the face of the gear in way of the "knocker" so that the outstanding portion 75 will ride on the curved end 84 when the gear 72 is rotating and cause the "knocker" to be raised, the length of the curved end being such that when the "knocker" is in the vertical position it will then clear the end 84 and drop to the bottom of the slot 71, the head of screw 77, or 78, as the case may be, entering the opening 54 then in discharging position and knocking the salt out of it. In order to give greater force to the blow of the "knocker" an arm 85 is pivotally mounted in the path of the outstanding portion 75 so that it, the arm 85, will be raised thereby as the "knocker" comes to the vertical position, extending a spring 86 connected with arm 85, so that, when the "knocker" drops, the

arm 85 will be drawn downwardly to its normal position by the spring 86, thus accelerating the downward movement of the "knocker". In order to prevent the "knocker" from dropping until the proper moment and when there is no opening in the discharging position I provide a raised portion 58ª on the arm 58 on which the outstanding portion of the "knocker" bar rides as the spur gears rotates, this portion 58ª being withdrawn from the "knocker" when the arm 58 is swung inwardly to open gates 56.

87 indicates an arm secured to pillar 7 extending inwardly under plate 13 and provided on its inner end with an upstanding pin 88, as shown in Figs. 6 and 8, which pin is adapted to engage the inner ends of the several gates 56 after the contents of their respective openings have been discharged and swing them to their normal closed positions, while 89 and 90, shown dotted in Fig. 8, indicate pins secured into the underside of the plate 13 and positioned to limit the opening and closing movements of the gates. 91 indicates a lever fulcrumed on a suitable bracket 92, having one end provided with a roller 93 engaging the cam 53, hereinbefore mentioned, which roller is held against the cam by means of a spring 94 connected to the other end of the lever, this end also being connected by means of a vertical shaft 98 to a lever 95, the opposite end of which is connected to a hooked arm 96 termed the "timer," which arm is fulcrumed on a pin 97. The "timer" is normally disposed in the path of the cans, but is removable therefrom at predetermined intervals to allow the cans to feed into the arms 50 of the belt 49, being actuated by the rotation of cam 53, through levers 91, 95 and the spring 94.

Having thus indicated the principal parts of the invention I will now describe briefly its operation.

The container 11 is first of all filled with salt, the openings 54 of the plate 13 being normally closed by the gates 56. The belt conveyer 2 being set in motion, the cans are carried by it toward the machine, which is also set in operation by moving the clutch mechanism 21 to throw the pulley 20 into gear. The bevel gear 15 is thus rotated by pinion 16, setting in motion the plate 13 and the belt 49, the belt being operated through pinions 40, 51, and 52. The cam 53, mounted on shaft 46 of the belt 49, is now rotating, thus intermittently actuating lever 91 to swing the "timer" 96 clear of the approaching cans, which are thus free to pass on one after the other to be engaged in the rear by the arms 50 of the belt 49. When each can passes the "timer" the cam 53 is momentarily cut out of engagement with the lever 91, so that the "timer" is then returned to its normal position in way of the cans and thus crowding of the cans on the belt 49 is prevented, the cam 53 and its associated mechanism being arranged so that each can is engaged by arm 50 at the proper moment.

The can is now carried onward by the arm 50, and in its passage it comes in contact with one of the fingers 68, carrying it around to actuate cam wheel 64, thus partially rotating the wheel and forcing lever 62 outwardly and swinging arm 58 and pin 59 inwardly to engage and open the gate 56 of one of the openings 54 which is then in position for discharging and allowing the salt contained therein to fall out through the opening 55 in the bevel gear 15 and through the funnel 56 into the can, which is then directly below the funnel. Coincidently with the opening of the gate 56 the "knocker" drops into its lowest position so that the head of the screw 77 or 78, as the case may be, enters the opening 54 and effectually knocks all the salt out of it, so that there is no chance of the salt clogging the opening, as it might do if the salt was damp. The open gate 56 is then engaged and closed by the pin 88 as the plate 13 revolves so that the opening becomes filled with salt again as it passes through the container. The gate opening arm 58 and lever 62 are returned to their normal positions by means of the spring 65. The salt in the container is broken up and maintained in a loose condition by the action of the agitator arms 27 and 28 so that the filling of the openings 54 as they pass through is positively insured so that the device is as efficient with damp salt as it is with dry.

Attention is directed to Fig. 11, in which I have shown a curved strip of plate 99 overlapping the curved end 84 of the bar 83. This strip is not absolutely necessary but it is preferable to use it so as to insure the positive opening of the gates under all circumstances. It might happen that a can would trip a finger 68 so quickly that arm 58 would be swung inwardly and returned to its normal position before the pin 59 engaged the gate to open same, but this is prevented by the use of strip 99. When this member is used the "knocker" rides partly on the curved end 84 and on the strip 99, which is disposed about one-eighth of an inch above the end 84. Now, when the arm 58 is swung inwardly, it will be obvious that the "knocker" will drop a distance of one-eighth of an inch on to the curved end 84 and that the strip 99 will then be to the outside of the "knocker" so that it will be held in its outmost position and cannot return to its normal position until the "knocker" has passed on clear.

What I claim as my invention is:

1. A salting machine comprising a hori-

zontally disposed plate mounted for rotation, said plate being provided with a series of openings arranged circularly equidistant from each other and a horizontal gear adjacent its underside, said gear having a series of openings arranged centrally of the plate openings, gates pivotally mounted on the underside of the plate normally closing the plate openings, means for actuating said gear to rotate said plate, means for filling the normally closed openings, and means for opening said gates one after the other at predetermined intervals whereby the contents of the plate openings are discharged through the gear openings.

2. In a salting machine, the combination with a belt for conveying cans, of a baseplate straddling the said belt provided with a funnel shaped opening located above the center of the belt, a plurality of normally closed circularly arranged salt receptacles rotatably mounted above said plate and adapted to register in turn with the mouth of the said opening, means for rotating said receptacles, means for filling said receptacles, and means for emptying each receptacle into the said funnel shaped opening as it registers therewith, said means being automatically operated by the said cans.

3. In a salting machine, the combination with a belt for conveying cans, of a baseplate straddling said belt provided with a funnel shaped opening located above the center of the belt, a horizontally disposed plate rotatably mounted on said baseplate, said plate being provided with a series of openings arranged circularly equidistant from each other and adapted to register in turn with the mouth of the funnel shaped opening, gates pivotally mounted on the underside of said plate normally closing said openings, means for rotating said plate, means for filling the normally closed openings, fingers rotatably mounted in the path of the cans conveyed by the belt, means for forcing the cans against the fingers to trip same, a cam wheel coacting with said fingers and adapted to be partially rotated by the tripping of each of the said fingers, a pivotally mounted arm provided with an upstanding pin and a lever in connection with said arm having its free end in spring engagement with said cam wheel and adapted to be forced outwardly by the partial rotation thereof so as to swing the said arm inwardly to carry the said pin into the path of said gates to open same as each opening registers with the funnel shaped opening.

4. In a salting machine, the combination with a belt for conveying cans, of a baseplate straddling said belt provided with a funnel shaped opening located above the center of the belt, a horizontally disposed plate rotatably mounted on said baseplate, said plate being provided with a series of openings arranged circularly equidistant from each other and adapted to register in turn with the mouth of the funnel shaped opening, gates pivotally mounted on the underside of said plate normally closing said openings, means for rotating said plate, means for filling the normally closed openings, fingers rotatably mounted in the path of the conveyed cans, an endless belt arranged horizontally at one side of the conveying belt provided with spaced fingers adapted to engage the cans one by one and force them against the rotatably mounted fingers to trip same, and means operated by the tripping of said fingers for opening said gates as each opening registers with the funnel shaped opening.

5. In a salting machine, the combination with a belt for conveying cans, of a baseplate straddling said belt provided with a funnel shaped opening located above the center of the belt, a horizontally disposed plate rotatably mounted on said baseplate, said plate being provided with a series of openings arranged circularly equidistant from each other and adapted to register in turn with the mouth of the funnel shaped opening, gates pivotally mounted on the underside of said plate normally closing said openings, means for rotating said plate, means for filling the normally closed openings, fingers rotatably mounted in the path of the conveyed cans, an endless belt arranged horizontally at one side of the conveying belt in gear connection with the plate rotating means and provided with spaced fingers adapted to engage the cans one by one and force them against the rotatably mounted fingers to trip same, means operated by the tripping of said fingers for opening said gates as each opening registers with the funnel shaped opening, and means for timing the feeding of the cans to the endless belt fingers.

6. In a salting machine, the combination with a belt for conveying cans, of a baseplate straddling said belt provided with a funnel shaped opening located above the center of the belt, a horizontally disposed plate rotatably mounted on said baseplate, said plate being provided with a series of openings arranged circularly equidistant from each other and adapted to register in turn with the mouth of the funnel shaped opening, gates pivotally mounted on the underside of said plate normally closing said openings, means for rotating said plate, means for filling the normally closed openings, fingers rotatably mounted in the path of the conveyed cans, an endless belt arranged horizontally at one side of the conveyer belt in gear connection with the plate rotating means and provided with spaced fingers adapted to engage the cans one by one and force them against the rotatably

mounted fingers to trip same, means operated by the tripping of said fingers for opening said gates as each opening registers with the funnel shaped opening, a pivotally mounted arm extending partly across the conveyer bolt, and means operated by the endless belt for swinging the said arm alternately in front or clear of the conveyed cans.

7. A salting machine comprising a horizontally disposed plate mounted for rotation, said plate being provided with a series of normally closed receptacles arranged circularly equidistant from each other, an open ended salt container the lower end of which is closed by the said plate disposed so that the said receptacles will be carried alternately in and out of the container to be filled therefrom, means for rotating said plate, means for emptying said receptacles, and means for agitating the contents of the container, said means comprising vertical shafts rotatably mounted in the container and gear connected to the plate rotating means, and arms on the lower ends of said shafts adapted to operate adjacent the surface of said plate.

8. In a device of the character described, a salt containing receptacle, and means for conveying salt therefrom in predetermined quantities to the delivery position.

9. In a device of the character described, a salt containing receptacle, means for conveying salt therefrom in predetermined quantities, and means automatically operated by a can for opening the conveying means whereby salt is dumped therefrom when the delivery position is reached.

10. In a device of the character described, a knocking device comprising an arm having projecting members on each edge at one end, and means for imparting rotary reciprocating motion to said arm.

11. In a device of the character described, a knocking device comprising an arm having adjustable projecting members on each edge at one end, and means for imparting rotary reciprocating motion to said arm.

12. In a device of the character described, a knocking device comprising an arm having projecting members on each edge at one end, means for imparting rotary reciprocating motion to said arm, and means for accelerating the downward movements of the arm.

13. In a device of the character described, a knocking device comprising a bar member having an outstanding portion and an arm extending outwardly at right angles from said portion and centrally of said bar, projecting members on said arm on each edge at its outer end, and means for imparting rotary reciprocating motion to said bar.

14. In a device of the character described, a knocking device comprising a rotatably mounted slotted gear, a bar member having an outstanding portion and an arm extending outwardly at right angles from said portion and centrally of said bar and provided with projecting members on each edge at its outer end, said bar being slidably mounted in the slot of said gear and of shorter length than the slot, means for rotating said gear, and a curved arm on which the said outstanding portion rides as the gear rotates, said arm being adapted to raise the bar in the slot and to allow it to drop therein when it reaches the vertical position.

15. In a device of the character described, a knocking device comprising a rotatably mounted slotted gear, a bar member having an outstanding portion and an arm extending outwardly at right angles from said portion and centrally of said bar and provided with projecting members on each edge at its outer end, said bar being slidably mounted in the slot of said gear and of shorter length than the slot, means for rotating said gear, a curved arm on which the said outstanding portion rides as the gear rotates, said arm being adapted to raise the bar in the slot and to allow it to drop when it reaches the vertical position, and a spring pressed arm adapted to be raised by the said outstanding portion as the bar reaches the vertical position and to return to its normal position as the bar drops in the slot.

16. In a device of the character described, a knocking device comprising a rotatably mounted slotted gear, a bar member having an outstanding portion and an arm extending outwardly at right angles from said portion and centrally of said bar and provided with projecting members on each edge at its outer end, said bar being slidably mounted in the slot of said gear and of shorter length than the slot, means for rotating said gear, a curved arm on which the said outstanding portion rides as the gear rotates, said arm being adapted to raise the bar in the slot and to allow it to drop therein when it reaches the vertical position, and means for maintaining the bar in the raised position for a predetermined interval, said means being adapted for withdrawal so that the bar may drop at the termination of said interval.

Dated at Vancouver, B. C., this 21st day of September, 1916.

PAUL JOSEPH COTÉ.