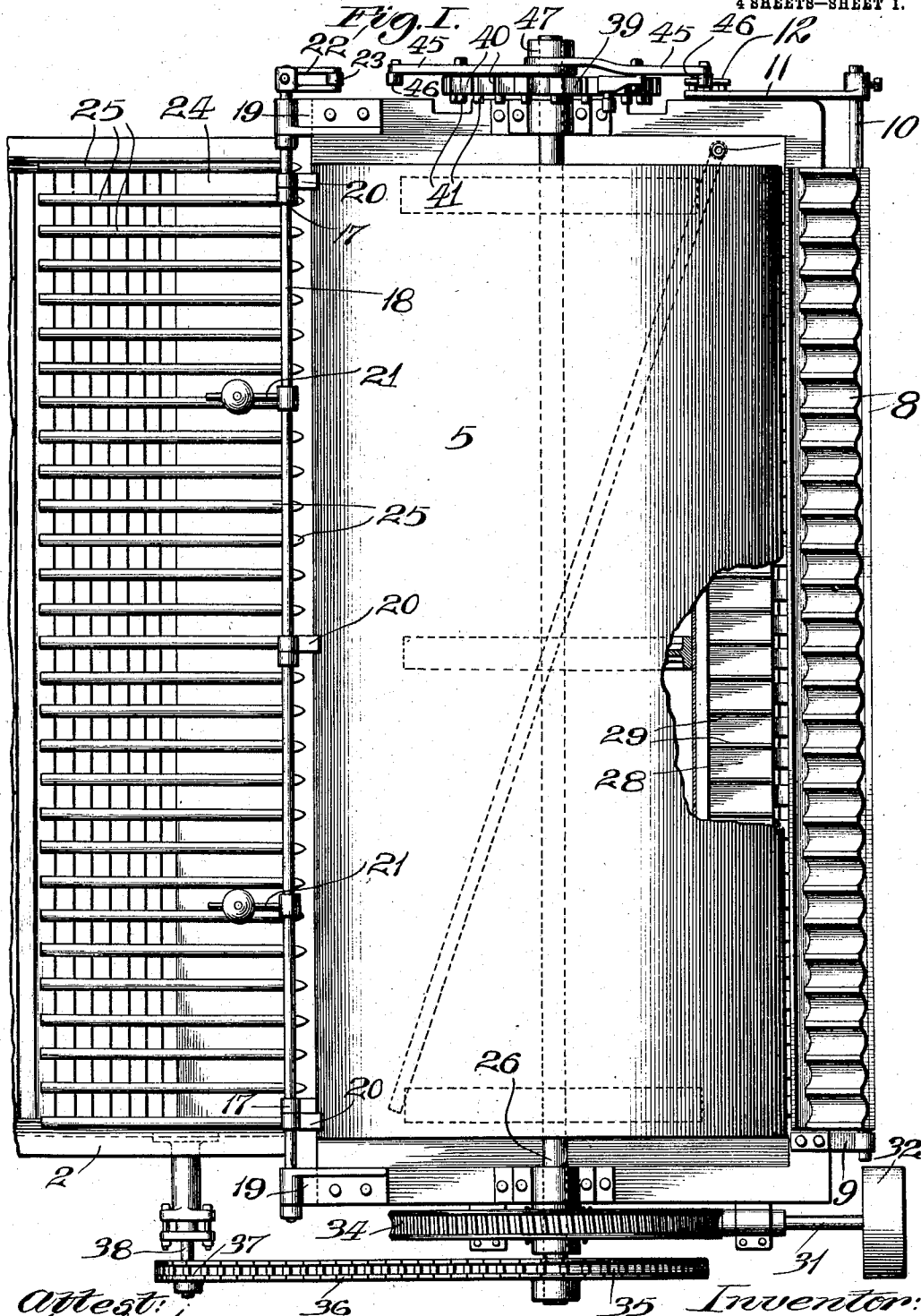


J. H. KINTZELE.
BOTTLE SOAKING AND RINSING MACHINE.
APPLICATION FILED AUG. 24, 1908.

937,444.

Patented Oct. 19, 1909.

4 SHEETS—SHEET 1.



Attest:
Wm. H. Scott.
L. G. Fletcher.

Inventor:
Julius H. Kintzele
by G. H. Wright atty.

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4 SHEETS—SHEET 2.

Fig. II.

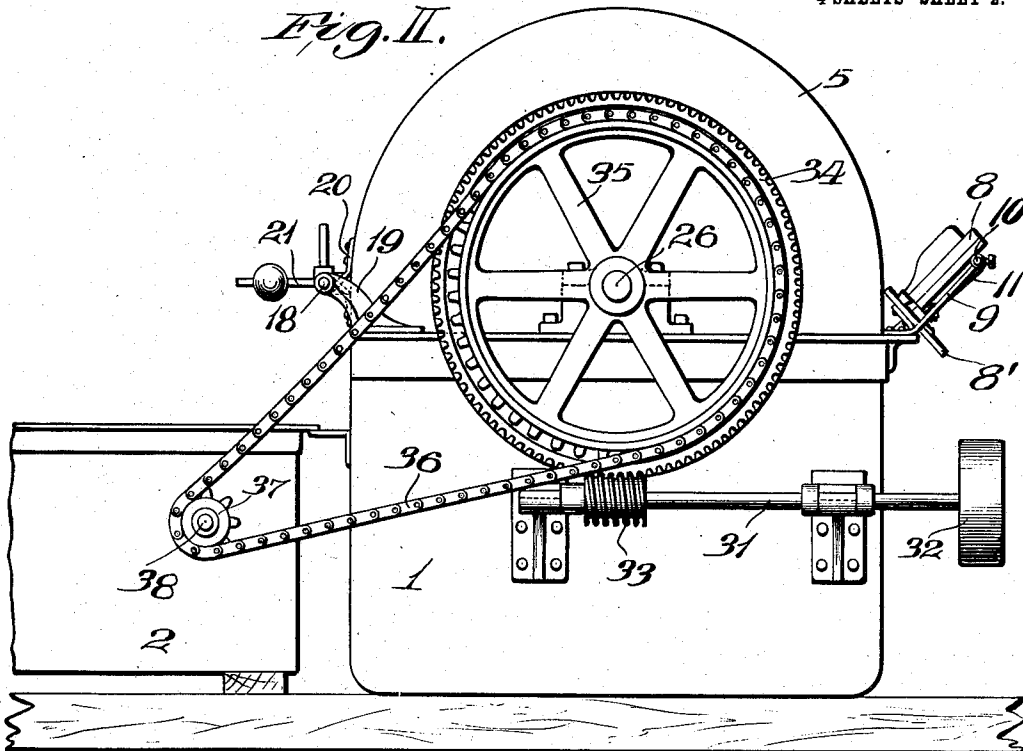
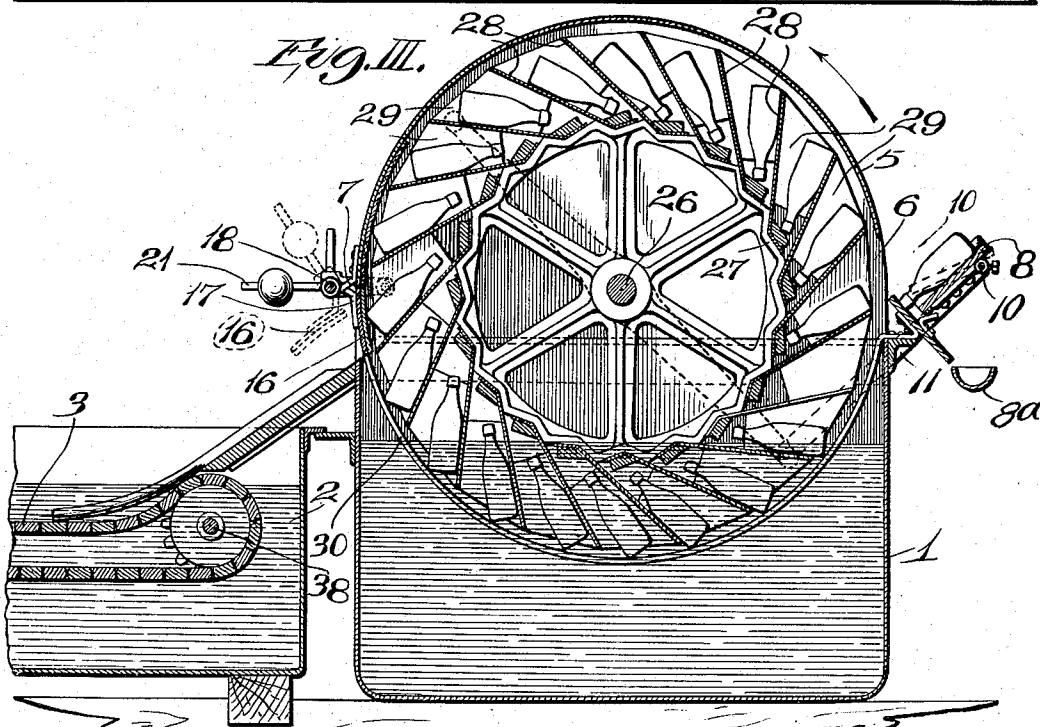


Fig. III.



ATTEST:
Wm. H. Kintzele
A. G. Kintzele

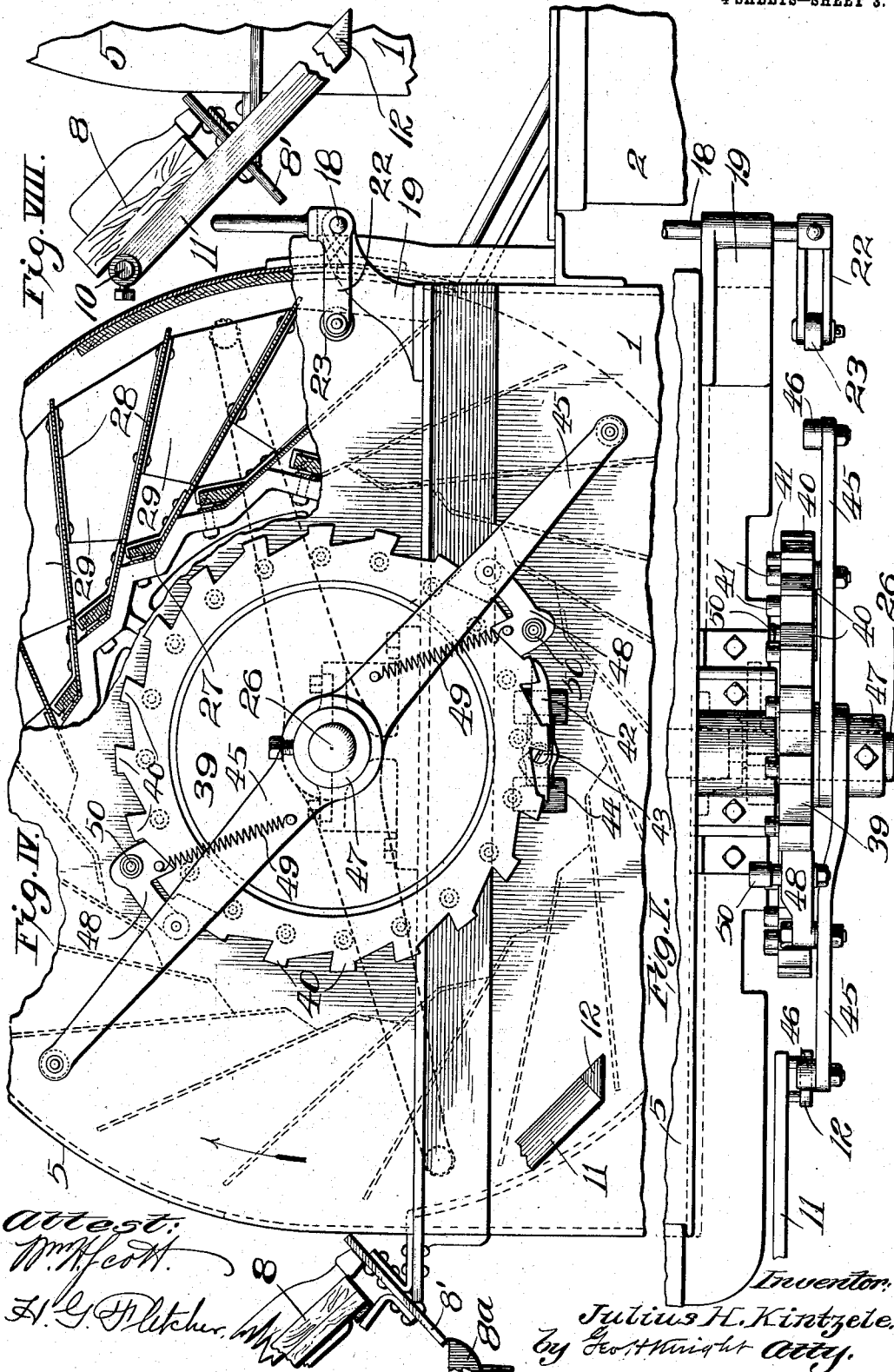
INVENTOR:
Julius H. Kintzele.
BY J. H. Kintzele ATTY.

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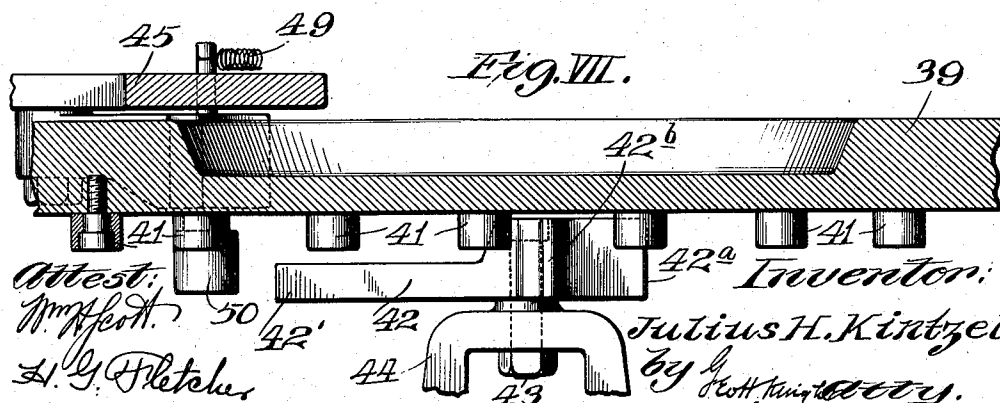
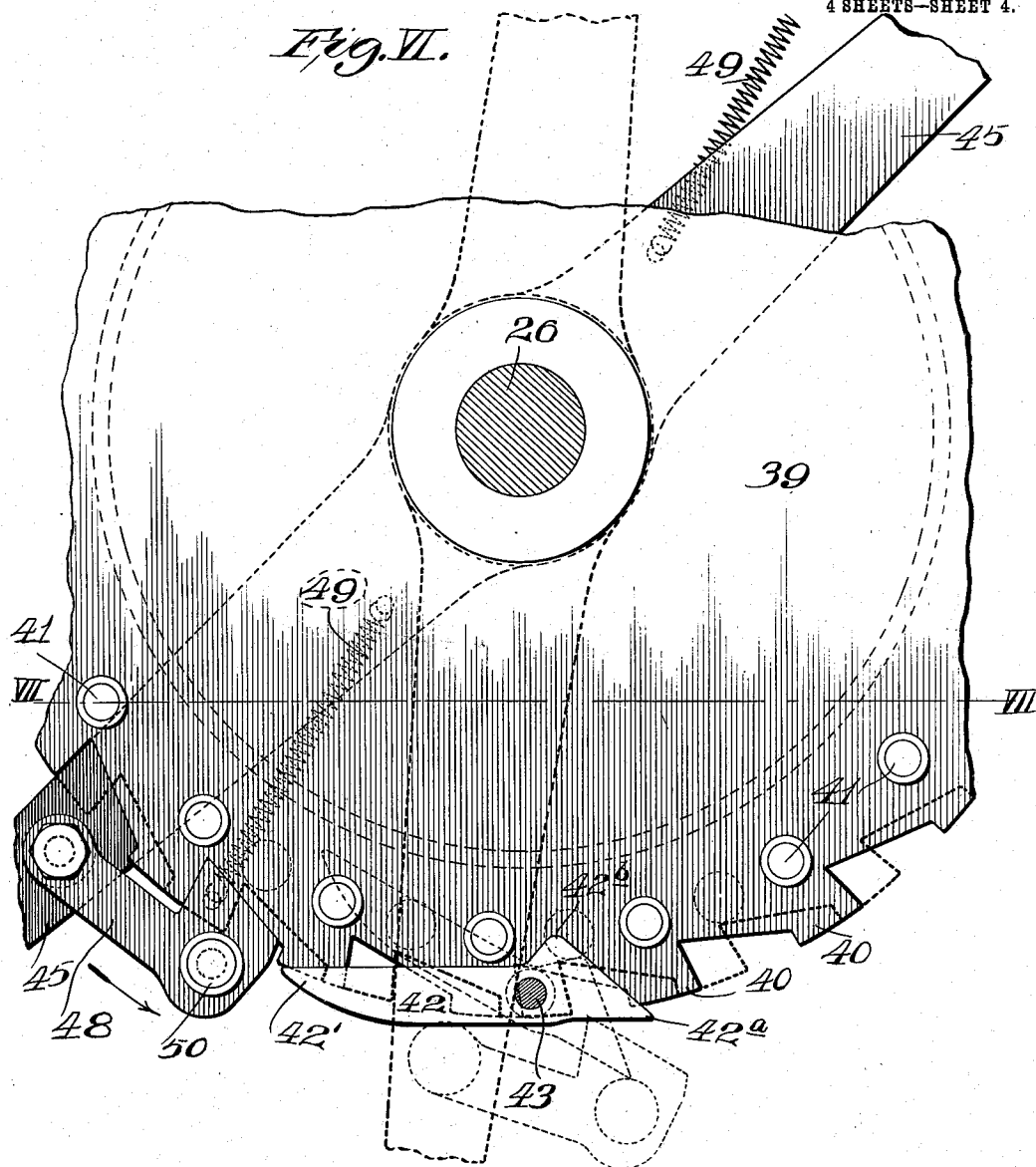
Patented Oct. 19, 1909.

4 SHEETS—SHEET 3.



937,444.

4 SHEETS—SHEET 4.



Attest:  50
Wm. Scott.
L. G. Fletcher

42^a *Inventor:*
Julius H. Kintzele.
by J. Scott King & Co.

UNITED STATES PATENT OFFICE.

JULIUS H. KINTZELE, OF ST. LOUIS, MISSOURI, ASSIGNOR TO MEYER SUPPLY COMPANY,
OF ST. LOUIS, MISSOURI, A CORPORATION.

BOTTLE SOAKING AND RINSING MACHINE.

937,444.

Specification of Letters Patent.

Patented Oct. 19, 1909.

Application filed August 24, 1908. Serial No. 450,025.

To all whom it may concern:

Be it known that I, JULIUS H. KINTZELE, a citizen of the United States of America, residing in the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Bottle Soaking and Rinsing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of machines used for soaking and rinsing bottles after they have been in use as containers in order that the labels applied thereto may be removed from the bottles and the bottles may be cleansed previous to their re-use.

The prime object in the present invention is to provide a machine in which the bottles may, after introduction into the machine, be conducted throughout one or a greater number of cycles or courses in the machine and in the soaking and cleansing fluid before they are discharged from the machine in order that they will be thoroughly soaked and cleansed.

A further object of the invention is to provide a machine of this character into which the bottles are automatically delivered and from which they are automatically discharged after the predetermined number of cycles of the bottles in the machine have taken place.

Figure I is a top or plan view of my machine with a portion of the housing broken out. Fig. II is an end elevation of the machine. Fig. III is a vertical cross section. Fig. IV is an enlarged view partly in end elevation and partly in vertical cross section illustrative of the means by which the introduction and delivery of the bottles are controlled. Fig. V is a top or plan view of the parts shown in Fig. IV. Fig. VI is an enlarged elevation of parts of the mechanism by which the introduction and delivery of the bottles are controlled. Fig. VII is a cross section on line VII—VII, Fig. VI. Fig. VIII is a detail side elevation of the bottle receiving shelf and its operating mechanism.

In the accompanying drawings: 1 designates a soaking or rinsing tank that is adapted to contain any suitable fluid which may be water although I preferably utilize

in said tank a suitable solution in which the bottles placed in my machine may be immersed during the operation of the machine.

2 is a receiving tank into which the bottles are discharged as they are delivered from my machine and in which is arranged a suitable conveyer 3 that conducts the bottles away from the point of entry into the receiving tank.

The fluid in the soaking or rinsing tank 1 may be heated by suitable means such as by the introduction of steam thereinto through a steam conducting pipe 4, see Fig. I.

5 designates a housing surmounting the soaking or rinsing tank and provided at one side with an inlet opening 6 and at its other side with an outlet opening 7. The bottles to be soaked and rinsed are introduced through the housing by passing through the inlet opening and discharged therefrom through the outlet opening.

8 designates a shelf, preferably provided with bottle receiving pockets, and which is located alongside of the housing 5 at the opening 6 therein. This shelf is supported by bracket arms 9, inclined upwardly from the housing or soaking tank, and by a rock shaft 10 in said bracket arms (see Figs. I to III inclusive.) The rock shaft 10 extends longitudinally of the machine and the shelf 8 is fastened to said shaft to provide for said shelf being raised and lowered when the shaft is rotated by means to be set forth. Fixed to the rock shaft at one of its ends is a trip arm 11 that projects inwardly from the rock shaft and is provided at its inner free end with a laterally extending finger 12. The finger 12 is adapted to be engaged by a member, to be hereinafter more particularly mentioned, whereby the trip arm 11 is moved upwardly to rotate the rock shaft and elevate the shelf 8 attached thereto.

8' is a rest plate beneath the inner edge of the shelf 8 and against which the mouth ends of the bottles may rest while the bottles are lying in inclined positions upon the shelf, before they are delivered into the soaking tank, to permit of the bottles being drained if any of their previous contents remain in them when they are placed on the shelf.

8^a is a trough into which the matter discharged from the bottles falls.

When the rock shaft 10 is rotated, by the

trip arm 11 and parts with which these members are coöperable, the shelf 8 is elevated by said rock shaft to the position seen in dotted lines Fig. III, whereby the bottles are permitted to slide over the top of the rest plates 8' and through the opening 6 in the housing 5 into the soaking tank 1.

8'' is an L-shaped bar attached to rest member 8' and of the same length.

16 designates a door that controls the outlet opening 7 in the housing 5 and which is connected by hangers 17 to a rock shaft 18 located adjacent to the top of said opening. The rock shaft is partially supported by end bearing brackets 19 mounted on the tank 1 and hanger brackets 20 fixed to the housing 5 above the outlet opening 7, as seen most clearly in Fig. I. The rock shaft has secured to it weighted arms 21 that act upon the rock shaft and serve to normally so hold the shaft that the door 16 will be normally in a lowered position to close the outlet opening 7 in the housing of the machine.

22 is a lever arm fixed to the rock shaft 18 at the end of the machine at which the trip arm 11 is located.

23 is an antifriction roller mounted in the free end of the lever arm 22.

The bottles that are soaked and rinsed in my machine are adapted to be discharged through the outlet opening 7 in the housing 5 when the door 16 is automatically opened in the manner to be hereinafter explained and the bottles pass to the receiving tank 2 upon a runway 24 that preferably has mounted upon it division pieces 25 preferably of pliable material and which serve to furnish a plurality of pathways through which the bottles travel out of contact with each other in moving to the receiving tank.

I will next proceed with the description of the bottle carrier which is located in the housing 5 of my machine and is adapted to move through the fluid in the soaking and rinsing tank 1 during the operation of the machine and the means by which said bottle carrier is operated.

26 is a shaft that passes longitudinally through the housing 5 and is mounted in suitable bearing boxes preferably supported by the soaking and rinsing tank of the machine. This shaft has fixed to it any desirable number of spiders 27 to which are attached longitudinal pocket plates 28 that extend radially from the spiders and have interposed between them division pieces 29, see Fig. IV, whereby the spaces between the pocket plates are subdivided to provide rows of pockets into which bottles may be delivered to be conducted by the bottle carrier into and out of the soaking and rinsing tank. The pockets just mentioned are opened at their outer ends in order that the bottles may readily enter thereinto when they are discharged from the tilting shelf 8 through the

inlet opening 6 in the housing of the machine and from the pockets through the outlet opening 7 at the proper time as hereinafter particularly specified. During the passage of the bottles through the soaking and rinsing tank in the carrier they are held from escape from the pockets by curved guards 30, see Fig. III, mounted in the soaking and rinsing tank beneath the bottle carrier and between and above which the fluid in said tank is present in order that the bottles in the carrier may pass through said fluid.

The bottle carrier of my machine may be rotated by any suitable driving means, such as that shown in the drawings and which comprises the following parts. 31 is a drive shaft provided with a belt wheel 32 to which power may be applied and a worm 33, the shaft being mounted in suitable bearing boxes secured to one end of the tank 1. 34 is a worm wheel fixed to the carrier shaft 26 and arranged in mesh with the worm 33 to provide for the rotation of said shaft when the drive shaft 31 is in operation. 35 is a sprocket wheel fixed to the carrier shaft 26 and upon which operates an endless chain 36 that extends to a sprocket wheel 37 fixed to a shaft 38 and by which the conveyer in the receiving tank is operated.

I now come to the means by which the bottle carrier is caused to be operated one or a greater number of cycles after each insertion of bottles into the carrier and previous to the discharge of the bottles after they have been soaked and rinsed.

39 designates a toothed wheel fixed to the bottle carrier shaft 26 and the teeth 40 of which may be of any desirable number, there being twenty of such teeth shown in the wheel illustrated in the drawings. The wheel 39 is located at the end of the machine at which the means for operating the tilting shelf 8 for the introduction of the bottles and the means for operating the discharge door 16 are located. At one side of the wheel 39 are trip members 41, see Figs. I and IV to VII inclusive, that preferably comprise studs fixed to the wheel and antifriction rollers surrounding said studs. The trip members are of a number corresponding to the number of teeth upon the wheel 39.

42 is a dog, see Figs. IV, VI and VII, that is provided with a heel 42', a toe 42^a and a nose 42^b. This dog is supported in a horizontal position beneath the toothed wheel 39 by a pivot member 43 mounted in a suitable support 44 attached to the soaking and rinsing tank of the machine. The dog is located at the side of the toothed wheel occupied by the trip members 41 and the nose of the dog, which is located at its upper side, is arranged in the path of travel of said trip members in order that when the wheel 39 is rotated with the bottle car-

rier, said nose will be struck by each trip member and the toe of the dog will be lowered, as indicated in dotted lines Fig. VI.

45 designates arms loosely mounted upon the bottle carrier shaft 26 alongside of the toothed wheel 39 and which, as will hereinafter more particularly appear, are arranged for engagement with the trip arm 11 to cause the tilting shelf 8 to be operated and for engagement with the arm 22 for the purpose of opening the discharge door 16. I preferably apply to the outer free ends of said arms antifriction rollers 46 that are adapted to contact with the trip arm and lever arm just mentioned. The arms 45 are held in position upon the bottle carrier shaft by a collar 47.

48 designates pawls pivoted to the arms 45 adjacent to the perimeter of the toothed wheel 39. These pawls are normally held in engagement with teeth of the wheel 39 by draw springs 49 each having one end attached to the pawl to which it applies and the other end attached to the arm by which the pawl is carried, see Fig. IV. It will be seen that inasmuch as the pawls 48 engage teeth of the toothed wheel 39 said pawls serve as means for causing the arms 45 to be normally rotated with the toothed wheel and the bottle carrier notwithstanding the fact that the arms 45 are loosely mounted upon the shaft of said bottle carrier. Each pawl 48 is however, provided at one of its sides with a stud or other suitable member 50, see Figs. V and VI, that is adapted to engage or be engaged by the dog 42 whenever the pawl is moved into juxtaposition with said dog and the stud of the pawl is moving in a course past the dog.

In the practical use of my soaking and rinsing machine the operation is as follows: The bottle carrier is placed in motion by the application of power to the carrier shaft 26 and the carrier is therefore caused to rotate within the housing 5 of the machine and with the result of the bottles being conducted into and out of the fluid in the soaking and rinsing tank 1. The arms 45 are carried in a circular path by the bottle carrier, due to the connection between the arms and the bottle carrier provided by the toothed wheel 39 and the pawls 48 and these arms are therefore caused to strike the trip arm 11 that serves to operate the tilting bottle shelf 8 and the lever arm 22 that serves to operate the discharge door 16 upon each rotation of the bottle carrier. The arms 45 are, however, arranged for a certain lost motion during their travel for the purpose that will be hereinafter explained. In so far as the initial filling of the pockets in the bottle carrier is concerned at this point in the description, it is sufficient to state that each arm 45 engages in its travel with the trip arm 11 to move said

trip arm outwardly and impart rotation to the rock shaft 10 to lift the bottle receiving shelf 8 in order that bottles placed thereon may move from the shelf into a series of alining pockets in the bottle carrier. During the rotation of the bottle carrier and the toothed wheel 39, each trip member 41 carried by said toothed wheel strikes the nose 42^b of the dog 42 as it moves to said dog with the result of tilting the dog during the time of engagement between the parts mentioned, but this operation of the dog 42 is of no consequence until such time as one of the pawls 48 carried by the arms 45 has moved into juxtaposition with said dog. When one of said pawls has so moved, its stud 50 traverses the dog by moving longitudinally thereof while remaining in engagement with the tooth of the toothed wheel with which it has previously been in engagement. The pawl proceeds in its movement until its stud has reached the toe 42^a of the dog or what may be considered the forward end of the dog, and which is the end that is provided with the nose 42^b. The trip member 41 of the toothed wheel, which is at this time in juxtaposition to the nose of the dog, presses against said nose in its movement and by so doing acts to move the toe of the dog in a direction away from the perimeter or axis of the toothed wheel, and said toe, by pressing against the stud 50 of the dog 48, so moves said dog as to withdraw it, as indicated by dotted lines, Fig. VI, from the tooth it previously engaged and cause it to rest for the time being upon the perimeter of the toothed wheel between the tooth it previously engaged and the tooth immediately at the rear of said first named tooth. The seating of the pawl upon the perimeter of the toothed wheel between two of the teeth is rendered possible due to the continued rotation of the toothed wheel and the fact that the arm 45 is loosely mounted upon the bottle carrier shaft. The disengagement of the pawl from the toothed wheel as just explained preferably occurs while the arm 45 is positioned vertically beneath the bottle carrier shaft and the dog 42 is preferably located beneath said shaft in order that the disengagement may occur at this point. Now, as the rotation of the bottle carrier and the toothed wheel 39 continue in the direction indicated by the arrow Figs. IV and VI, one of which views is obverse and the other reverse of the carrier operating mechanism, the arm 45 moves upwardly in a circular path with its pawl disengaged from a tooth as explained, until the arm has moved upwardly sufficiently out of a vertical plane to cause said arm 45 to descend by gravity, with the result of carrying the pawl carried thereby, and which is free of engagement with the toothed wheel, into engagement with the tooth of the toothed wheel next

succeeding that or at this time beneath the tooth it previously engaged. The engagement of the pawl with a tooth of the wheel 39 is accomplished upon the descent of the arm 45, due to the pull exerted by the draw spring connected to the pawl. It will be seen that this causes a lost step in the forward movement of the arm and this lost step is also occasioned in the same manner when the other arm 45 moves through the particular portion of the course of its travel just recited.

After either of the arms 45 reach the trip arm 11 and cause the bottle shelf 8 to be elevated and bottles to be delivered into a particular series of pockets in the bottle carrier, the bottle carrier continues to rotate with the result of the other arm 45 being in turn brought into such position that its dog 48 is disengaged from the toothed wheel 39 for a short period and in the same manner as that previously explained, whereby a step in the advance of the second arm is lost by the rearward movement of its pawl and therefore the arm does not operate the bottle shelf elevating members for the introduction of the next set of bottles until a series of pockets in the bottle carrier, into which the bottles would be deposited if the arm continued in an interrupted movement, has passed the inlet opening of the machine and another succeeding series of pockets is brought to said opening. This operation of the parts of the machine whereby loss is occasioned in the movement of the arms 45 takes place at each half revolution of the machine as herein illustrated, due to there being two of the arms 45, and the bottles are delivered first into one series of pockets in the bottle carrier and next into a series of said pockets approximately diametrically opposite the first named series of pockets after the second arm 45 has moved into position to elevate the bottle shelf 8.

In my machine as illustrated in the drawings, there are twenty rows of pockets in the bottle carrier and upon each complete rotation of the bottle carrier a lost step occurs during the movement of each arm 45. It will therefore be seen that previous to each introduction of bottles into the carrier there occurs a lost step after which the bottles are introduced. Then the bottle carrier partakes of a half revolution when bottles will be introduced into the eleventh row of pockets counting from the first bottle receiving row. Upon the next rotation of the carrier the bottles will be delivered into the row of pockets in advance of the first named at the beginning of the rotation and at the latter part of the rotation the row of pockets preceding the eleventh row, or more specifically the tenth pocket. This rotation in filling the pockets is continued until all of them are filled and the bottles are retained in the

pockets of the carrier until all of them have been carried throughout ten complete rotations of the carrier.

During the rotations of the bottle carrier, the arms 45 engage the lever arms 22 by which the discharge door 16 is operated each time that said arms are moved to the lever arm, but due to the lost steps in the operations of the arms 45 neither of the rows of pockets containing bottles is brought into registration with the outlet opening in the housing 5 until each row of pockets has made the prescribed number of complete cycles within the housing and when this number of cycles has occurred each row of pockets registers properly with the outlet opening and the bottles are discharged automatically from the machine, due to the actuation of the door 16 by the proper arm 45.

While I have shown and described two of the arms 45 and their companion pawls 48, it is obvious that a single arm 45 or a number of arms greater than two may be utilized and also that a less or greater number of rows of pockets may be present in the bottle carrier.

I claim:

1. In a machine of the character described, a bottle carrier, means for operating said carrier, a member independent of said carrier for controlling the discharge of bottles from said carrier, discharge controlling member actuating means, means for operating said last named means, and means for temporarily throwing the discharge controlling member actuating means out of action at intervals, thereby providing for said discharge controlling member actuating means partaking of less movement than said carrier and providing for the operation of the discharge controlling member only after each bottle has remained in the carrier during a plurality of complete courses of movement of the bottle carrier.

2. In a machine of the character described, a rotatable bottle carrier, means for rotating said carrier, a member independent of said carrier, for controlling the discharge of bottles from said carrier, discharge controlling member actuating means, means for operating said last named means, and means for temporarily throwing the discharge controlling member actuating means out of action at intervals, thereby providing for said discharge controlling member actuating means partaking of less movement than said carrier and providing for the operation of the discharge controlling member only after each bottle has remained in the carrier during a plurality of cycles of movement of the bottle carrier.

3. In a machine of the character described, a bottle carrier, means for operating said carrier, a movable barrier independent of said carrier for controlling the discharge of

bottles from said carrier, barrier actuating means coöperable with said carrier, and means whereby said barrier actuating means is temporarily displaced from coöperation with said carrier at intervals, and caused to partake of less movement than the bottle carrier, thereby providing for actuation of said barrier to permit the discharge of each bottle only after it has remained in the carrier during a plurality of complete courses of movement of the bottle carrier.

4. In a machine of the character described, a bottle carrier, means for operating said carrier, a member independent of said carrier for delivering bottles into said carrier, means whereby said delivery member is actuated, means for operating said last named means, and means for temporarily throwing the means whereby the discharge controlling member is actuated out of action at intervals, thereby providing for said means whereby the delivery member is actuated partaking of less movement than said carrier and providing for the operation of the delivery member only after the bottle carrier has partaken of a plurality of complete courses of movement.

5. In a machine of the character described, a rotatable bottle carrier, means for rotating said carrier, a member independent of said carrier for delivering bottles into said carrier, delivery member actuating means, means for operating said last named means, and means for temporarily throwing the delivery member actuating means out of action at intervals, thereby providing for said delivery member actuating means partaking of less movement than said carrier and providing for the operation of the delivery member only after the bottle carrier has partaken of a plurality of cycles of movement.

6. In a machine of the character described, a bottle carrier, means for operating said carrier, a member independent of said carrier for delivering bottles into the carrier, means coöperable with said carrier for actuating said delivery member, and means whereby said delivery member actuating means is temporarily displaced at intervals from coöperation with said carrier and caused to partake of less movement than the bottle carrier, thereby providing for actuation of said delivery member only after the bottle carrier has partaken of a plurality of courses of movement.

7. In a machine of the character described, a housing having a discharge opening, a bottle carrier in said housing, movable means at the discharge opening of said housing for controlling the discharge of bottles from said carrier, means operable by said carrier for actuating said means for controlling the discharge of bottles, and means whereby said last named means is thrown out of coöperation with said carrier at intervals to provide

vide for said means partaking of less movement than said carrier, substantially as set forth.

8. In a machine of the character described, a bottle carrier, movable means for controlling the discharge of bottles from said carrier, a member loosely associated with said carrier and arranged for coöperation with the means for controlling the discharge of bottles, means operable by said carrier to which said loose member is operably connected, and means whereby said loose member is disconnected at intervals from the means by which it is operated, substantially as set forth.

9. In a machine of the character described, a bottle carrier, movable means for controlling the discharge of bottles from said carrier, an arm having loose connection with said carrier and adapted to operate the means for controlling the discharge of bottles, a member carried by said carrier and with which said arms is adapted to coöperate, and means whereby said arm is thrown out of coöperation with said carrier member at intervals, substantially as set forth.

10. In a machine of the character described, a bottle carrier, movable means for controlling the discharge of bottles from said carrier, an arm having loose connection with said carrier, a member carried by said carrier, a pawl carried by said arm and engaging said member, and a dog whereby said pawl is thrown out of engagement with said carrier member at intervals during the movement of the carrier, substantially as set forth.

11. In a machine of the character described, a bottle carrier, movable means for controlling the discharge of bottles from said carrier, an arm having loose connection with said carrier and arranged to operate the means for controlling the discharge of bottles, a toothed wheel associated with said carrier, a pawl carried by said arm and arranged to engage said toothed wheel, and a dog whereby said pawl is disengaged from said wheel at intervals during the movement of said carrier, substantially as set forth.

12. In a machine of the character described, a bottle carrier, movable means for controlling the discharge of bottles from said carrier, an arm having loose connection with said carrier and arranged to operate the means for controlling the discharge of bottles, a toothed wheel associated with said carrier, a pawl carried by said arm and arranged to engage said toothed wheel, and a dog whereby said pawl is disengaged from said wheel at intervals during the movement of said carrier; said toothed wheel being provided with means for actuating said dog, substantially as set forth.

13. In a machine of the character described, a bottle carrier, movable means for

controlling the discharge of bottles from
said carrier, an arm having loose connection
with said carrier and arranged to operate
the means for controlling the discharge of
5 bottles, a toothed wheel associated with said
carrier, a pawl carried by said arm and ar-
ranged to engage said toothed wheel, and
a dog whereby said pawl is disengaged from
said wheel at intervals during the movement
10 of said carrier; said toothed wheel being
provided with studs for engagement with
said dog to throw it into engagement with
said pawl, substantially as set forth.

14. In a machine of the character de-
15 scribed, a bottle carrier, a tiltable support
for the bottles to be delivered into said car-
rier, a rest against which the mouth ends of
the bottles may bear previous to delivery

thereof into said carrier, means for operat-
ing said carrier, and means whereby said 20
bottle support is moved to separate the bot-
tles from said rest and deliver them to said
carrier.

15. In a machine of the character de-
scribed, a bottle carrier, a tiltable and nor- 25
mally inclined bottle support, a rest adja-
cent to said bottle support against which the
mouth ends of the bottles bear previous to
their delivery to said carrier, means for op-
erating said carrier, and means for moving 30
said support to separate the bottles from
said rest and deliver them to said carrier.

JULIUS H. KINTZELE.

In the presence of—

H. G. COOK,

E. M. HARRINGTON.