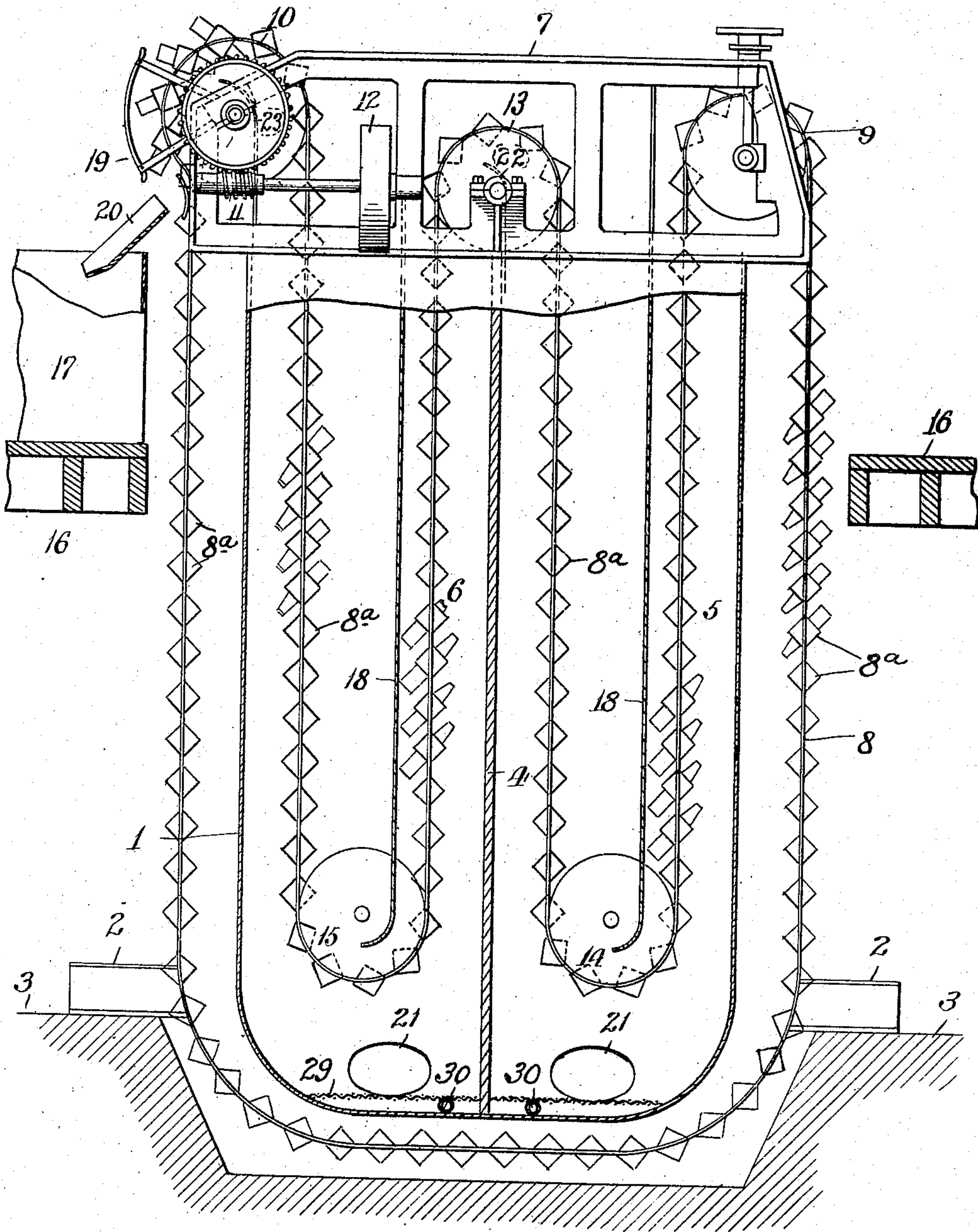


S. VOLZ.
BOTTLE SOAKING MACHINE.
APPLICATION FILED JAN. 29, 1903.

919,796.

Patented Apr. 27, 1909.
2 SHEETS—SHEET 1.

Fig. 1



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Simon Volz
By Rector & Nybber
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2 SHEETS—SHEET 2.

Fig. 2

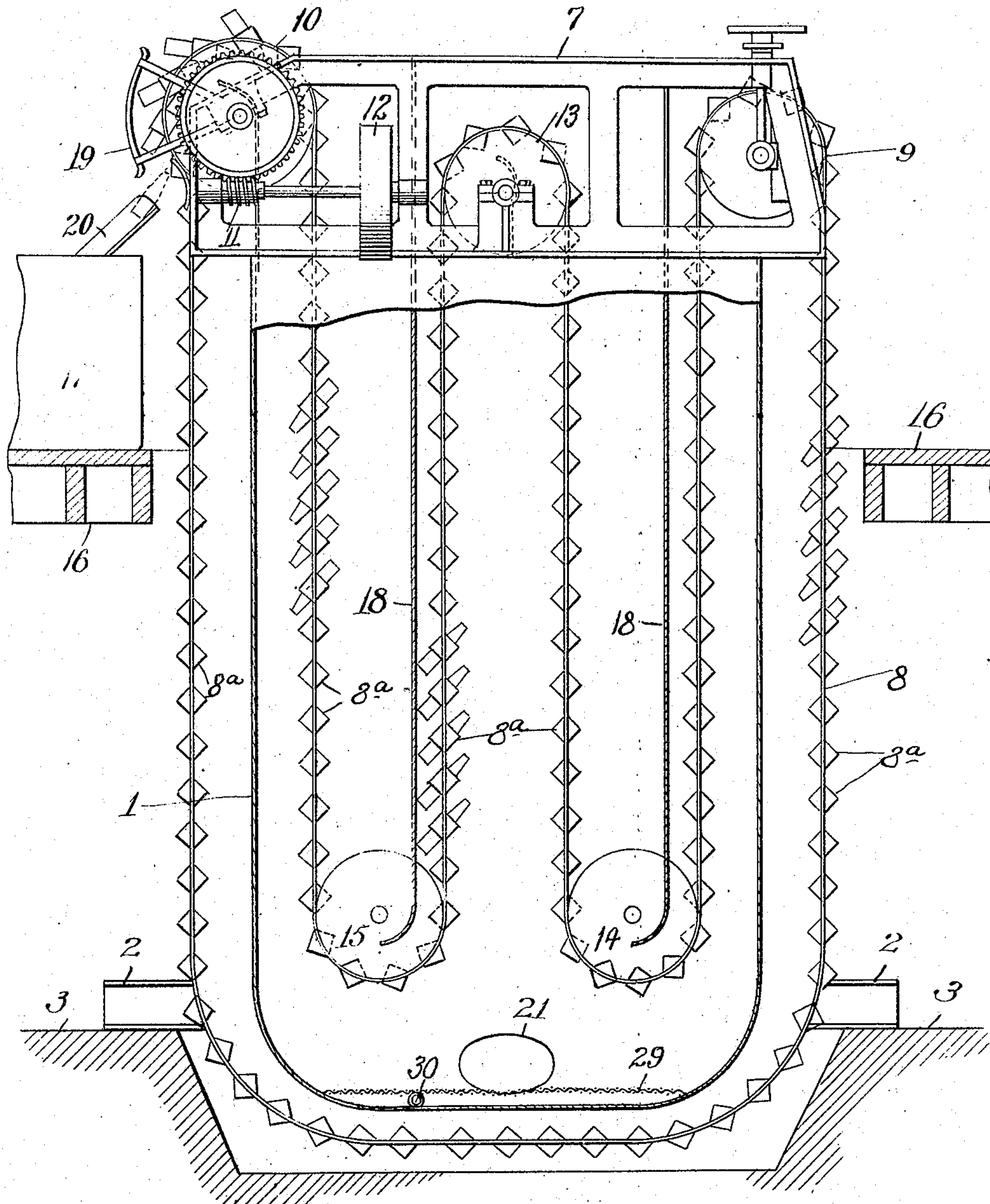
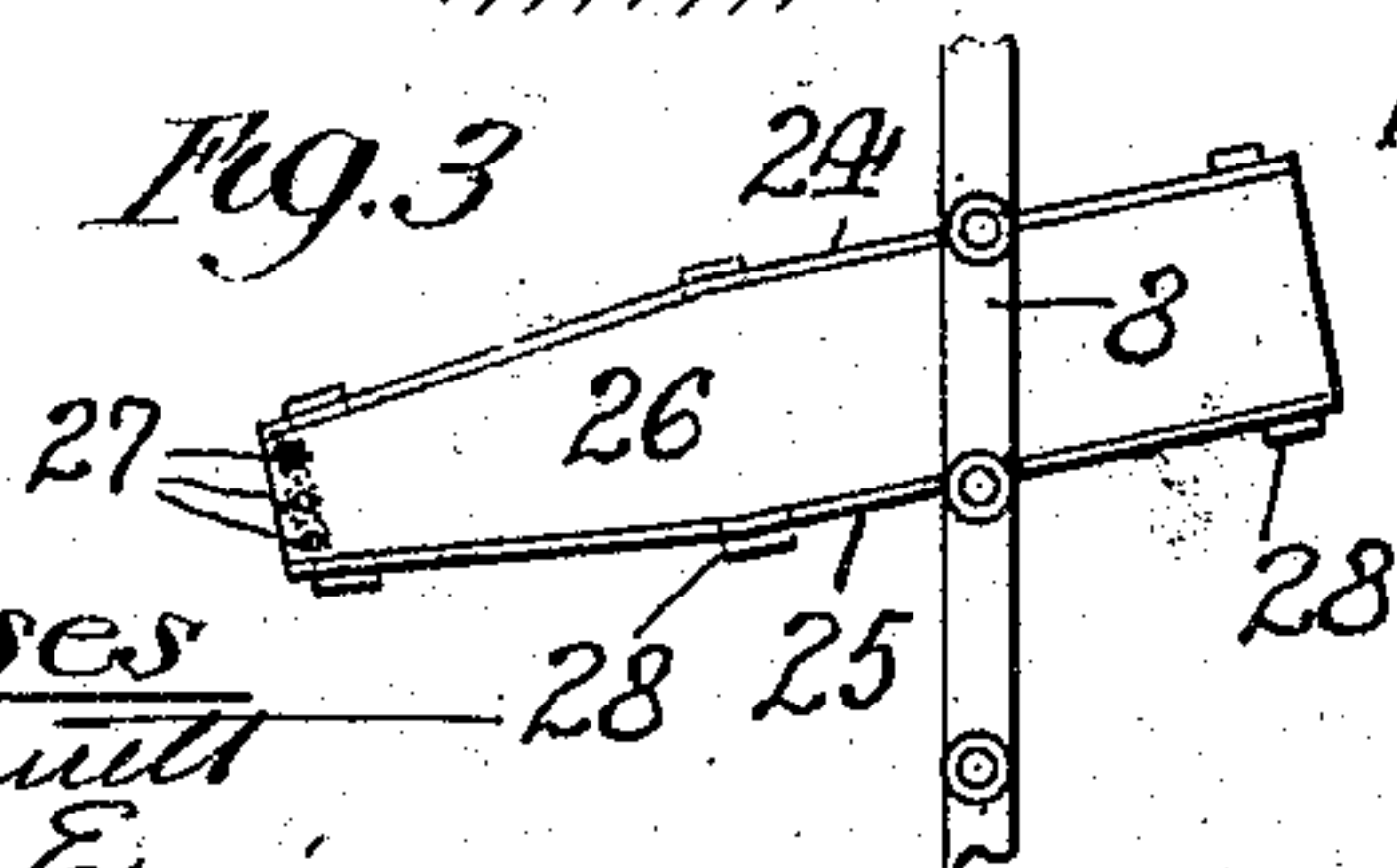
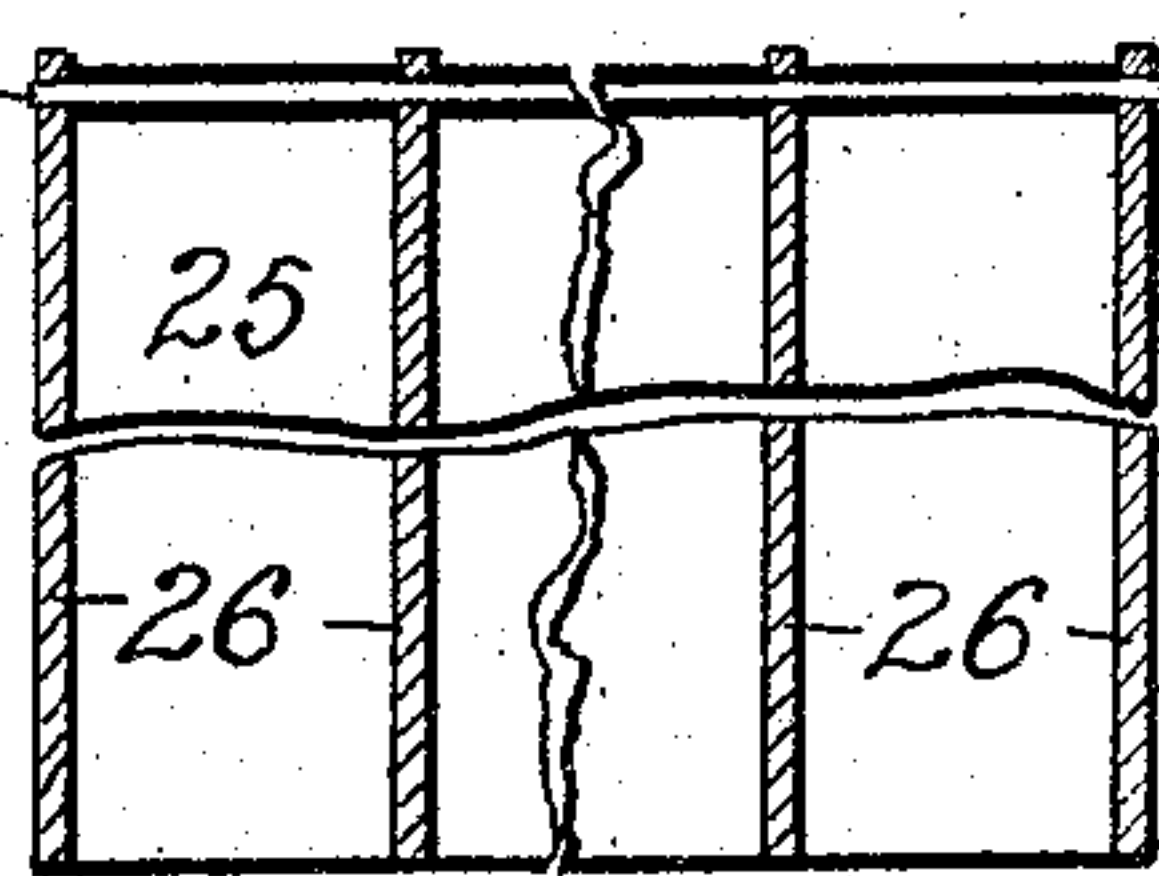


Fig. 3



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Fig. 4



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UNITED STATES PATENT OFFICE.

SIMON VOLZ, OF MILWAUKEE, WISCONSIN, ASSIGNOR OF ONE-HALF TO HENRY SCARBOROUGH, OF CHICAGO, ILLINOIS.

BOTTLE-SOAKING MACHINE.

No. 919,796.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed January 29, 1903. Serial No. 141,025.

To all whom it may concern:

Be it known that I, SIMON VOLZ, residing at Milwaukee, Milwaukee county, Wisconsin, have invented certain new and useful
5 Improvements in Bottle-Soaking Machines, of which the following is a specification.

My invention relates to that general class of machines illustrated in my former patent No. 736037, dated August 11, 1903, and the
10 object thereof is to provide a machine of this character whose endless bottle conveyer is given increased length of travel in the washing or solution tank, and a further object is to divide the tank into two compart-
15 ments, both to be filled with water or the same solution, or one with the solution and the other with water; the conveyer first traversing one compartment and then the other.

20 In the drawings, Figure 1 is a sectional elevation of my preferred form of machine; Fig. 2 a similar view of a modified form, and Figs. 3 and 4 detail views of a bottle rack.

Referring first to the machine of Fig. 1,
25 the tank 1 is of suitable shape and dimensions and, by preference, is supported by the beams 2 resting upon the foundations 3, although the particular manner of support is entirely immaterial. The tank is divided
30 by a vertical partition 4 into two compartments 5 and 6, preferably equal. Upon or adjacent the upper end of the tank is arranged a suitable frame work 7 in which are mounted some of the rolling supports or
35 sprocket wheels for the endless conveyer and in which is also mounted the mechanism for driving them.

As in my said prior patent the bottle conveyer 8 has a series of bottle racks 8^a in
40 which the bottles are inserted and carried through the tank and around suitable rolling supports. In the present instance, I arrange a rolling support or wheel 9 at one side of the tank above the wall thereof and a
45 similar rolling support or wheel 10 on the other side, the latter wheel being driven as shown in my prior application, that is, by the worm 11, itself driven by pulley 12.

Above the partition 4 and a suitable distance above the tank or line of liquid there-
50 in to permit of time for the bottles to empty themselves, are arranged rolling supports or wheels 13, over which the endless conveyer runs. Near the lower ends of the compart-

ments 5 and 6 are journaled additional roll- 55 ing supports or wheels 14 and 15. The conveyer, which receives the bottles either at the lower floor near the base of the tank at the right hand side (Fig. 1) or at an upper floor, represented at 16, passes over the
60 wheels 9, downwardly into the first compartment 5, under wheels 14, around the wheels 13, thence downwardly into the second compartment 6, under wheels 15, and over wheels 10, at which point the bottles
65 are automatically delivered to a rinsing tank 17, or other desirable place. The conveyer then runs around the tank in the same manner as described in my prior application.

In order to keep the bottles from falling 70 out of their racks while on the descending stretch in the tank, I arrange in each compartment a guide or grating 18 against which the bottom of the bottles will abut and slide and be thereby confined in their racks. 75 With the same object, a curved guide 19 is arranged adjacent the wheels 10 near the delivery point, so that the bottles are kept within the racks until they have passed beyond the lower end of the guide, whereupon
80 they are free to drop out and upon the inclined delivery board 20, by which they are conducted to the rinsing tank. To enable sediment, washed-off labels, etc., to be removed, each compartment of the tank is
85 provided with a suitable hand-hole 21.

In describing one complete cycle of operation, it will be assumed that a bottle rack on the movable conveyer has just been filled or loaded with bottles at the lower floor on the
90 right hand side of the tank. The rack is carried upwardly by the conveyer and over and around the wheels 9. When the rack has reached the liquid in compartment 5, the bottom of the bottles will press against the
95 right hand side or surface of the guide 18, and the neck and mouth of the bottles will be directed obliquely upward, with the result that the bottles will be filled with the liquid as they descend. The rack is carried down- 100 wardly through substantially the entire height or length of the tank, around the wheels 14, and then upwardly so that the length of the tank is again traversed.

When the rack approaches the central up- 105 per wheels 13, it is so inclined as that the bottles have their necks directed downwardly with the result that the bottles are

emptied of their contents before being carried around the wheels 13. In order to conduct all drain from the bottles at this point to the compartment, a drain plate 22 is provided. The rack now begins its downward traverse in the compartment 6, the bottles being again filled as they enter the liquid therein. The rack is carried around the wheels 15 in the lower end of the tank and thence upwardly and around wheels 10. Before the bottles reach these wheels 10 they are emptied, and all dripping is caught by the drain plate 23 and conducted back to the compartment 6. At the wheels 10 the bottles are discharged upon the board 20 and by it delivered to the rinsing tank.

As hereinbefore suggested, the two compartments of the tank may be supplied with the same kind of liquid, or soaking solution, or two different kinds of liquid, as for instance, a soaking solution in compartment 5 and water in the other compartment. Or the compartments may contain the same kind of soaking solution, such as soda solution, but of different strength. The first compartment is utilized to do the major portion of the cleansing while the second compartment is utilized to finish the work, inasmuch as the contents of the latter compartment remain purer and cleaner for a greater length of time than the first compartment. Obviously, the contents of this first compartment may, if desired, be renewed without necessarily renewing the contents of the second compartment.

The machine of Fig. 2 of the drawings is similar in construction to that already described with the exception that it is unprovided with the partition 4, so that, while it fails to secure the advantage resulting in having two separate bodies of liquid in the tank, yet it secures the advantage of the extended length of traverse of the endless conveyer and bottles through the tank.

The bottle racks which I prefer to use are illustrated in the detail views. Each rack, which is preferably formed of sheet metal, comprises a top plate 24 and bottom plate 25, separated by a series of upright and parallel partitions 26, which form the desired number of bottle compartments. Each rack is attached at its ends to the chains in such manner that it is positioned obliquely, and projects on both sides, of the chains. As illustrated, the inner ends of the partitions 26 are beveled or inclined as to their top and bottom edges, so that the compartments partake of a general form corresponding to that of the bottles. The inner ends of the racks have a series of wires 27 which form an open abutment or grating for the tops of the bottles. In order to prevent cracking or chipping of the bottles, these wires are covered with rubber or the like. As a convenient method of assembling the several parts of

the rack, the partitions 26 thereof have a series of projections or tongues 28 which extend through the top and bottom plates.

In its preferred form, the tank is provided near the bottom with a suitable screen or grating 29, which is arranged at about the level or slightly below the level of the hand hole but above the valve governed outlet 30. The purpose of this screen is to separate or strain the labels, washed off of the bottles, and permit of their convenient removal through the hand hole. The form of tank having the double compartment is of course provided with separate screens and separate outlets, as well as separate hand holes as already described.

A bottle soaking machine made in accordance with my invention is simple in construction and operation, and affords the greatest length of traverse by the bottles through the liquids in proportion to the size of the machine.

I claim:

1. A bottle soaking machine comprising a vertically arranged tank, a rotatable support or wheel arranged above each of two opposite sides of the tank, a third rotatable support or wheel arranged intermediate said two supports, two rotatable supports or wheels arranged in the lower end of the tank, and an endless conveyer having a series of bottle holders or receptacles arranged to receive and carry the bottles and to discharge the same at the proper point by gravity, said conveyer being arranged to travel through the tank in substantially vertical reaches and also to travel on opposite sides of the tank and around the bottom of the tank in the open air; said tank having vertical guides cooperating with the conveyer to prevent the falling out of the bottles in the descending reaches of the conveyer.

2. A bottle soaking machine comprising a vertically arranged tank divided by a vertical partition into two separate compartments, two rotatable supports or wheels arranged above the two opposite sides of the tank, a third rotatable support or wheel arranged intermediate said two supports and above said partition, two rotatable supports or wheels arranged one in the lower end of each compartment, and an endless conveyer having a series of bottle holders or receptacles arranged to receive and carry the bottles and to automatically discharge the same by gravity after they have passed through the tank, said conveyer being arranged to travel upon said rotatable supports to carry the bottles successively through both compartments of the tank in substantially vertical reaches, said tank being provided with a vertical guide in each compartment cooperating with the conveyer to prevent the falling out of the bottles in the descending reaches of the conveyer.

3. A bottle soaking machine comprising a tank divided by vertical partitions into separate compartments, two rotatable supports or wheels arranged above the two opposite sides of the tank, a rotatable wheel or support above each partition, a series of rotatable supports or wheels arranged one in the lower end of each compartment, and an endless conveyer having a series of bottle holders or receptacles arranged to receive and carry the bottles and to automatically discharge the same after they have passed through the tank, said conveyer being arranged to travel upon said rotatable supports to carry the bottles successively through all the compartments of the tank in substantially vertical reaches, said tank being provided with a vertical guide in each compartment cooperating with the conveyer to prevent the falling out of the bottles in the descending reaches of the conveyer.

4. A bottle soaking machine comprising a vertically arranged tank divided vertically into separate compartments, and an endless conveyer provided with a series of open ended bottle holders or racks adapted to receive and carry the bottles with their bottom ends toward the open ends of the holders successively into and out of said compartments in substantially vertical reaches and to automatically discharge the bottles by gravity after they have passed out of the last compartment, said bottle holders or racks being arranged upon the conveyer at such an inclination from the horizontal as to hold their open ends upwardly and retain the bottles therein by gravity in the upward reaches of their travel through the machine, and verti-

cal guides or guards adjacent the path of the open ends of the bottle holders for preventing the bottles from dropping out of said bottle holders in the descending reaches of the conveyer.

5. A bottle soaking machine comprising a tank, an endless conveyer traveling therein and a series of bottle racks, each consisting of a frame attached to the conveyer and formed in a series of bottle receiving compartments, and a series of rubber covered wires or rods covered with a flexible material and arranged transversely of the inner end of the rack.

6. A bottle soaking machine comprising a tank, an endless conveyer traveling therein, and a series of bottle racks attached to the conveyer, each rack consisting of a top and a bottom plate convergingly disposed at their inner ends, a series of wires covered with cushioning material at such inner ends for preventing the projecting of the bottles therefrom, and a series of partitions connected with said plates and forming a series of bottle compartments.

7. A bottle soaking machine comprising a tank, an endless conveyer traveling therein, and a series of bottle racks attached to the conveyer, each rack consisting of a top and a bottom plate, a series of upright partitions forming bottle-receiving compartments, and a series of rubber covered wires arranged transversely of the inner ends of the rack.

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Witnesses:

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