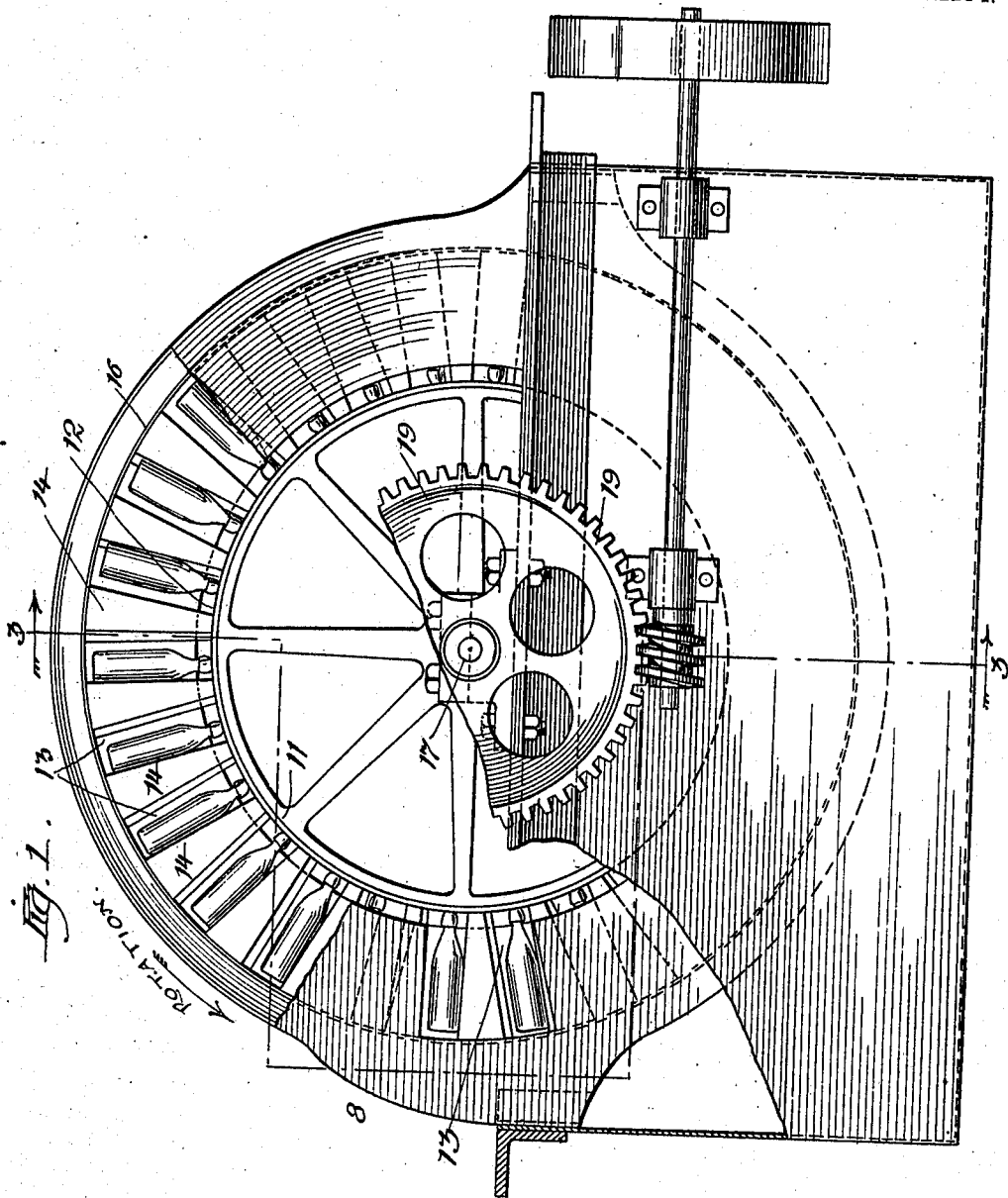


W. SEIDEL.  
BOTTLE WASHING MACHINE.  
APPLICATION FILED SEPT. 3, 1909.

970,758.

Patented Sept. 20, 1910.

3 SHEETS—SHEET 1.



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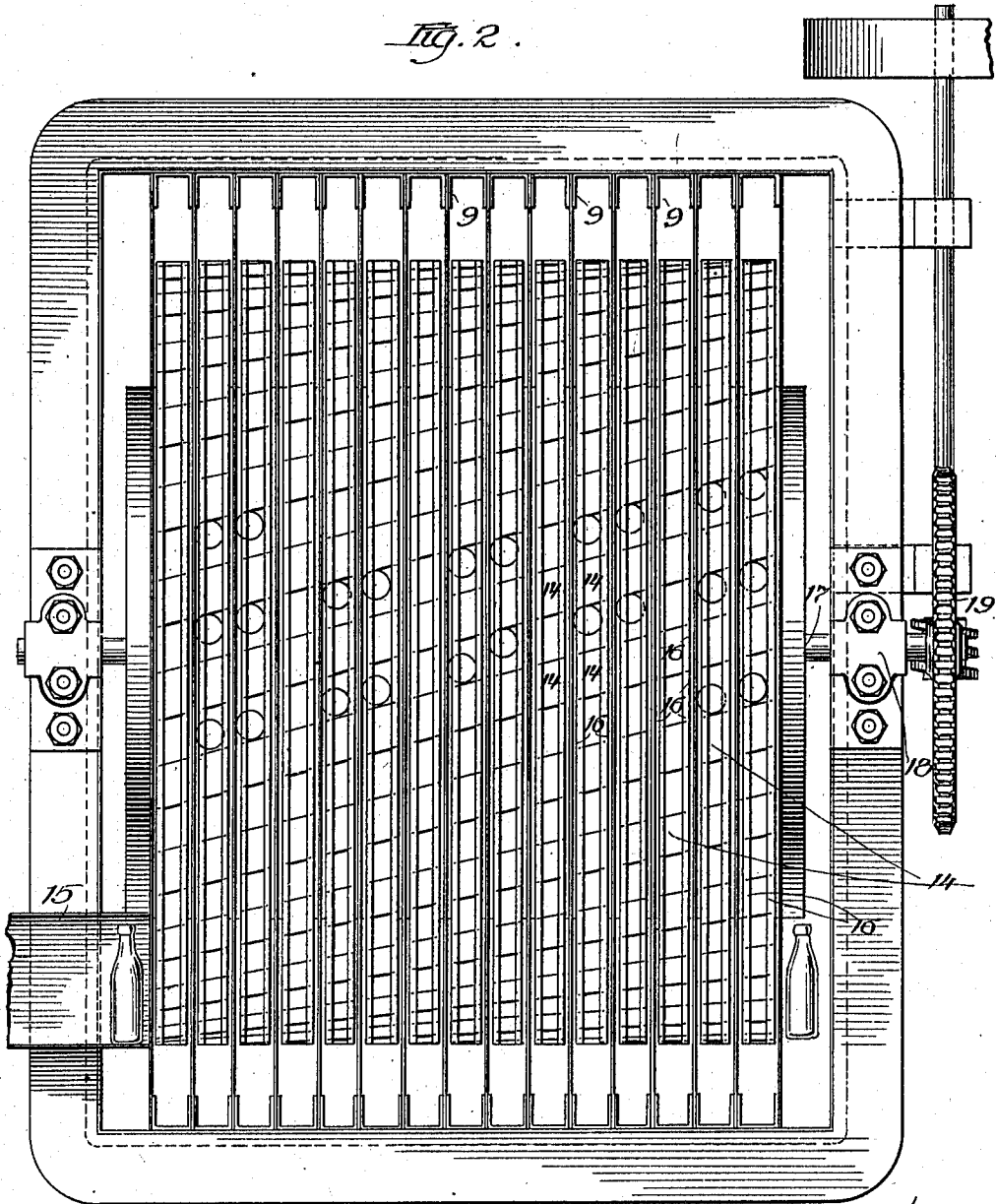
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Fig. 2.



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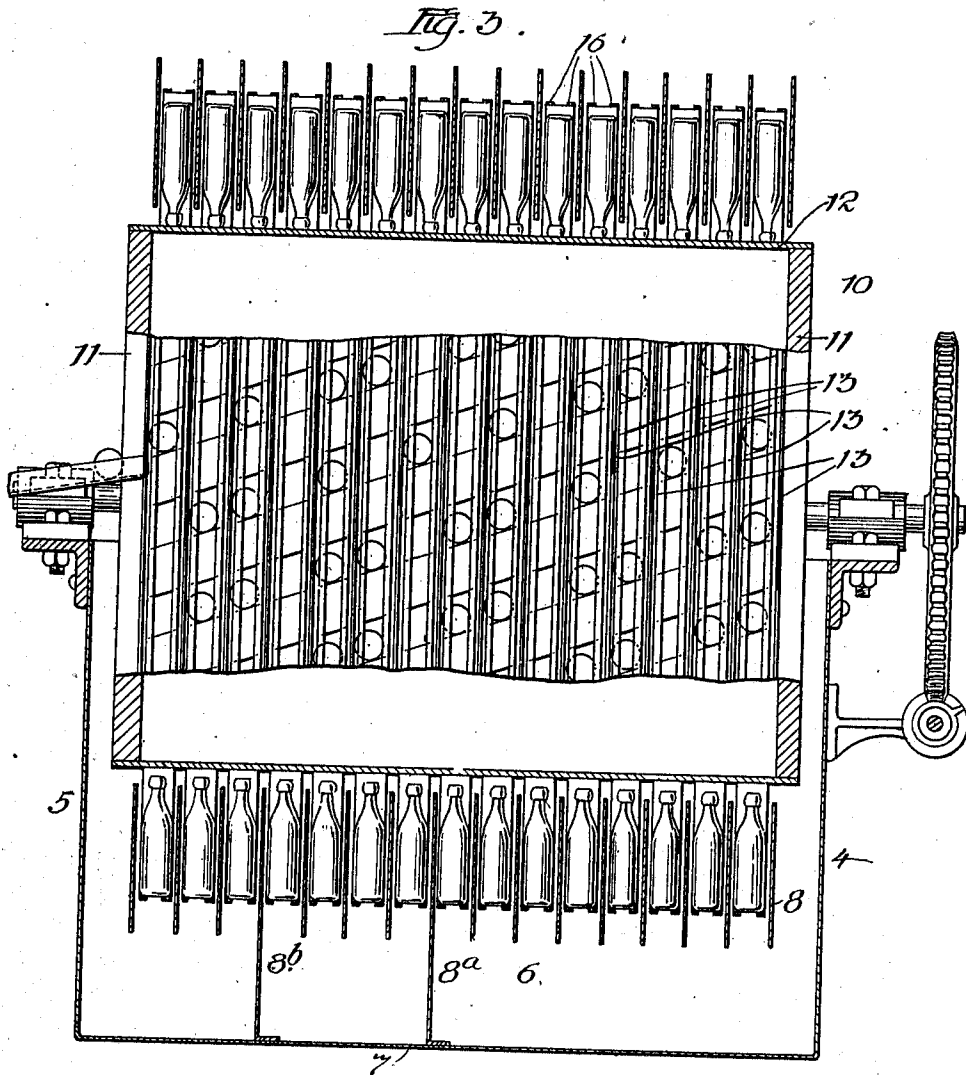
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# UNITED STATES PATENT OFFICE.

WILLIAM SEIDEL, OF CHICAGO, ILLINOIS, ASSIGNOR TO SEIDEL MACHINE COMPANY,  
OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## BOTTLE-WASHING MACHINE.

970,758.

Specification of Letters Patent. Patented Sept. 20, 1910.

Application filed September 3, 1909. Serial No. 516,087.

To all whom it may concern:

Be it known that I, WILLIAM SEIDEL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bottle-Washing Machines, of which the following is a specification.

This machine is intended to convey a bottle through all of the stages of a cleaning operation, such as the soaking, washing, and rinsing operations, and to discharge the cleaned bottle, without attention on the part of the operator, at the farther side of the machine.

A further object of the invention is to so construct the bottle washing machine that it will be extremely compact in form, having a capacity for washing a large number of bottles without difficulty and with but slight supervision on the part of the attendant.

Another object of the invention is to so arrange the machine that the bottles will automatically be fed along from one portion of the machine to the other without interruption in the washing operation.

Further objects will appear from a detailed description of the invention, which consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of the inlet end of the machine, showing the end wall of the tank partially broken away; Fig. 2, a top or plan view of the machine as a whole; and Fig. 3, a cross-sectional view of the tank, showing the drum partially in section and partially in elevation.

The machine, as a whole, is built into a tank, comprising end walls 4 and 5, side walls 6, and a floor 7. Mounted within the tank are a plurality of partition rings 8, most of which are suspended with their lower edges a considerable distance above the floor of the tank and in position to bring their upper edges a considerable distance above the top of the tank. The partition rings are supported, at their sides, by suitable brackets 9, which are fastened to the side walls of the tank, and the rings 8<sup>a</sup> and 8<sup>b</sup> are elongated or enlarged at the bottom to furnish complete cross walls, which serve to divide the tank into three separate, dis-

connected chambers, which may be termed the soaking, washing, and rinsing chambers.

The partition rings all surround or encircle a drum 10, which comprises drum heads 11 and a surrounding cylindrical wall 12, which latter lies closely adjacent to the inner edges of the partition rings. Each of the partition rings is provided at a suitable point with a passage hole or opening, one of which holes or openings is indicated by the numeral 13 in Fig. 1. The hole or opening thus shown is formed in the outer partition ring and furnishes the inlet hole through which the bottles are fed into the machine. This inlet hole is preferably of greater width than a single bottle, to facilitate the introduction of the bottles through the hole, and it will be understood that each of the partition rings is provided at one point with a similar hole, furnishing a passage to the channel between the next adjacent partition rings. The holes in the intermediate partition rings are preferably of less width than the hole 13 shown in Fig. 1, being of a width to easily accommodate the passage of a bottle therethrough. The holes are not arranged in a straight line, extending from side to side of the machine, since this would permit a bottle to roll directly through from side to side of the machine when first introduced; but the partition holes are arranged in step formation, as shown in Fig. 3, so that it will be necessary for a bottle to be carried almost entirely, but not quite, around the machine before it finds its discharge into the next adjacent channel or passageway.

Referring to Fig. 3, it will be seen that the holes are arranged diagonally in series of three, and that the fourth hole—the first of the next series of three—lies in the same plane as the first hole of the preceding series, so that the diagonal arrangement is not in a continuous line, from side to side of the machine, but in a broken, or zigzag, line. This arrangement is desirable for the reason that if the holes were arranged in one continuous diagonal line, the holes toward the discharge end of the machine would occupy a position at or close to the top of the machine, so that the bottles would not readily roll through said last row of holes. It is, therefore, desirable to keep all of the holes close to the horizontal plane at which the bottles are first introduced into the machine.

It will be understood that the bottles are carried around by the rotatable drum and that the partition rings are stationary, so that each bottle will be held in position in a given channel until it reaches a point adjacent to the discharge opening into the next channel, at which point it will roll thereinto in preparation for its next revolution.

The drum is provided, on its cylindrical surface, with a plurality of circumferentially extending rows of spacing blocks 14 of segmental shape, which furnish spaces for the reception of individual bottles, and these blocks are provided with diagonally extending or beveled faces, against which the rounded sides of the bottle lie, and these faces are cut or beveled in such a manner as to facilitate the progress of the bottle toward the discharging end of the machine, the action of gravity serving to roll the bottles from one channel into the next adjacent channel when the bottles are brought into register with the holes in the partition rings. The arrangement is one which will carry the bottles in an uninterrupted path of travel successively through the respective channels furnished between the partition rings, until the bottles are finally discharged through the last ring and into a chute 15, best shown in Fig. 2. In order to hold the bottles against endwise movement, which would cause them to fall out from between the blocks, a plurality of circumferential bands 16 are provided, two bands for each circumferentially extending row of partition blocks, which bands are so arranged that they will overlie the bottoms of the bottles slightly without materially interfering with the ingress of water from the tank into the bottles. These strips are fastened so as to revolve with the rows of blocks which they surround.

The drum, as a whole, is mounted upon a shaft 17, journaled in bearings 18, and revolved by any suitable mechanism, such as a worm and gear 19, or other equivalent means.

In operation, the bottles will be fed by any suitable means through the openings 13, with their mouths inwardly extending toward the center of the drum. The revolution of the drum in the direction of the arrow in Fig. 1 carries the bottles thus inserted around the first circumferentially extending channel, within which channel the bottles will remain until the cycle of revolution has been almost completed, at which point the bottles in the first channel will reach the partition hole in the next adjacent partition ring, through which the bottles will roll, and this progression of the bottles will continue uninterruptedly, and through different channels, until the point of discharge is reached.

It will be understood that in most cases,

the bottle is discharged into the next adjacent channel shortly before a complete revolution is made, so that the bottles will be discharged without interfering with the ingress of the oncoming bottles. The bottles in every third channel, however, will travel but a very short distance before they are discharged into the fourth channels, so that every third channel constitutes merely a conveying passage and does not serve in the cleansing operation of the bottles. This arrangement is necessary by reason of the zigzag arrangement of the holes 13, previously referred to. The initial portion of each revolution of the drum carries the bottles, mouth upward, down into the water of the tank, so that the bottles will be initially filled during the first portion of their revolution, and thereafter emptied, when they emerge from the tank. The tank being divided into different chambers, the water in the different portions of the tank can be discharged at will, so that the relatively dirty water in the soaking portion of the tank will not contaminate the relatively clean water in the rinsing portion of the tank.

The machine, as a whole, is extremely compact and is so arranged that a relatively large number of bottles can be handled without difficulty and with but slight attention on the part of the operator.

I claim:

1. In a bottle washing machine, the combination of a drum, provided around its periphery with circumferentially extending rows of blocks separated from one another and having a continuous upper and lower edge extending parallel with one another and at an angle with respect to the sides and ends, the recesses produced by the separation of the blocks affording chambers for the reception of bottles, the bottle contacting faces of the blocks being beveled with respect to the axis of the drum, and fixed partitions surrounding the drum and lying intermediate the rows of blocks, and provided with passage holes arranged to allow the bottles to successively roll through the holes in the successive partitions, substantially as described.

2. In a bottle washing machine, the combination of a drum, provided around its periphery with circumferentially extending rows of blocks separated from one another and having a continuous upper and lower edge extending parallel with one another and at an angle with respect to the sides and ends, the recesses produced by the separation of the blocks affording chambers for the reception of bottles, fixed partitions surrounding the drum and lying intermediate the rows of blocks, and provided with passage holes arranged to allow the bottles to successively roll through the holes in the successive partitions, and a tank within

which the drum is rotatably mounted, said tank being divided to furnish water-tight compartments, substantially as described.

3. In a bottle washing machine, the combination of a drum, provided around its periphery with circumferentially extending rows of blocks separated from one another, the recesses affording chambers for the reception of bottles, the bottle contacting faces of the blocks extending continuously and in a parallel plane with one another and beveled with respect to the axis of the drum, fixed partitions surrounding the drum and lying intermediate the rows of blocks, and provided with passage holes arranged to allow the bottles to successively roll through the holes in the successive partitions, and a tank within which the drum is rotatably mounted, said tank being divided to furnish water-tight compartments, substantially as described.

4. In a bottle washing machine, the combination of a tank, a drum rotatably mounted on the tank and provided around its periphery with rows of members separated from one another, the recesses thus produced furnishing spaces for the reception of bottles, the bottle-contacting faces of the blocks extending continuously and in parallel relation with one another, and beveled with respect to the axis of the drum, and a plurality of partition rings surrounding the drum intermediate said members, said rings being rigidly secured to the tank, and said rings being provided with passage holes, the passage holes of adjacent partition rings being in different planes to facilitate the progression of the bottles through the machine, substantially as described.

5. In a bottle washing machine, the combination of a tank, a drum rotatably mounted on the tank and provided around its periphery with rows of members separated from one another, the recesses thus produced furnishing spaces for the reception of bottles, the bottle-contacting faces of the blocks extending continuously and in parallel relation with one another, and beveled with respect to the axis of the drum, a plurality of partition rings surrounding the drum intermediate said members, said rings being rigidly secured to the tank, and said rings being provided with passage holes, the passage holes of adjacent partition rings being in different planes to facilitate the progression of the bottles through the machine, and one of the partition rings being downwardly extended to furnish a partition wall for the tank, dividing the tank into water-tight compartments, substantially as described.

6. In a bottle washing machine, the combination of a tank, a drum rotatably mounted on the tank and provided around its periphery with rows of members separated from one another, the recesses thus produced furnishing spaces for the reception of bottles, the bottle-contacting faces of the blocks extending continuously in parallel planes with one another, and beveled with respect to the axis of the drum, and a plurality of partition rings surrounding the drum intermediate said members, said rings being rigidly secured to the tank, and said rings being provided with passage holes, the passage holes of adjacent partition rings being in different planes to facilitate the progression of the bottles through the machine, substantially as described.

7. In a bottle washing machine, the combination of a tank, a drum rotatably mounted on the tank and provided around its periphery with rows of members separated from one another, the recesses thus produced furnishing spaces for the reception of bottles, the bottle-contacting faces of the blocks extending continuously in parallel planes with one another, and beveled with respect to the axis of the drum and a plurality of partition rings surrounding the drum intermediate said members, said rings being rigidly secured to the tank, and said rings being provided with passage holes, the passage holes of adjacent partition rings being in different planes to facilitate the progression of the bottles through the machine, and one of the partition rings being downwardly extended to furnish a partition wall for the tank, dividing the tank into water-tight compartments, substantially as described.

8. In a bottle-washing machine, the combination of a drum provided around its periphery with circumferentially extending rows of blocks separated from one another and having continuously extending upper and lower edges lying parallel with one another and at an angle with respect to the sides and ends of said block, the recesses produced by the separation affording chambers for the reception of bottles, and fixed partitions surrounding the drum and lying intermediate the rows of blocks, and provided with passage holes arranged to allow the bottles to successively roll through the holes in the successive partitions, substantially as described.

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