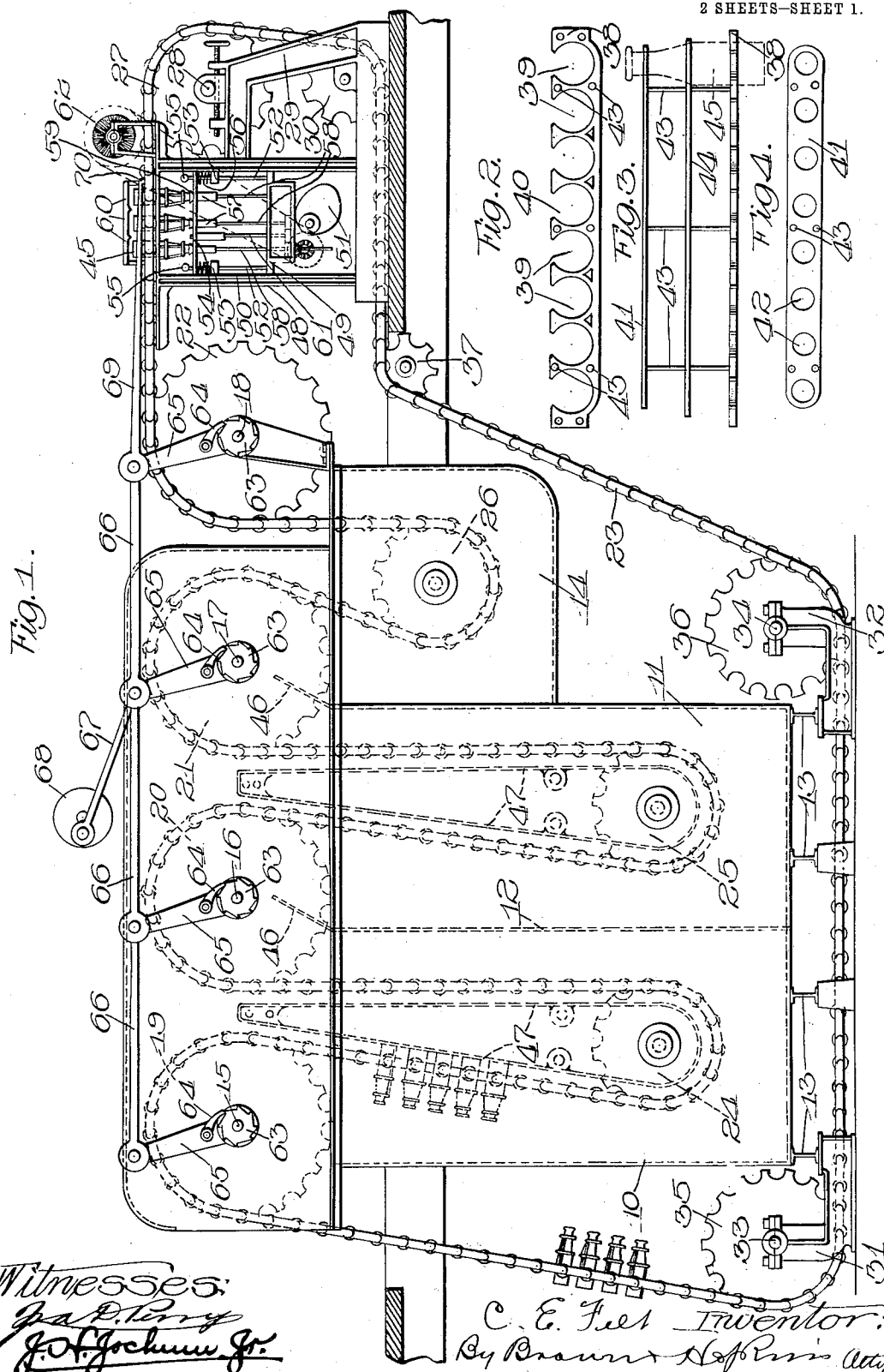


COMBINED BOTTLE SOAKING, RINSING, AND CLEANING MACHINE.

Patented Apr. 23, 1912.

1,023,829.

2 SHEETS—SHEET 1.



Witnesses:
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C. E. Felt Inventor:
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 COMBINED BOTTLE SOAKING, RINSING, AND CLEANING MACHINE.
 APPLICATION FILED OCT. 17, 1908.

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2 SHEETS-SHEET 2.

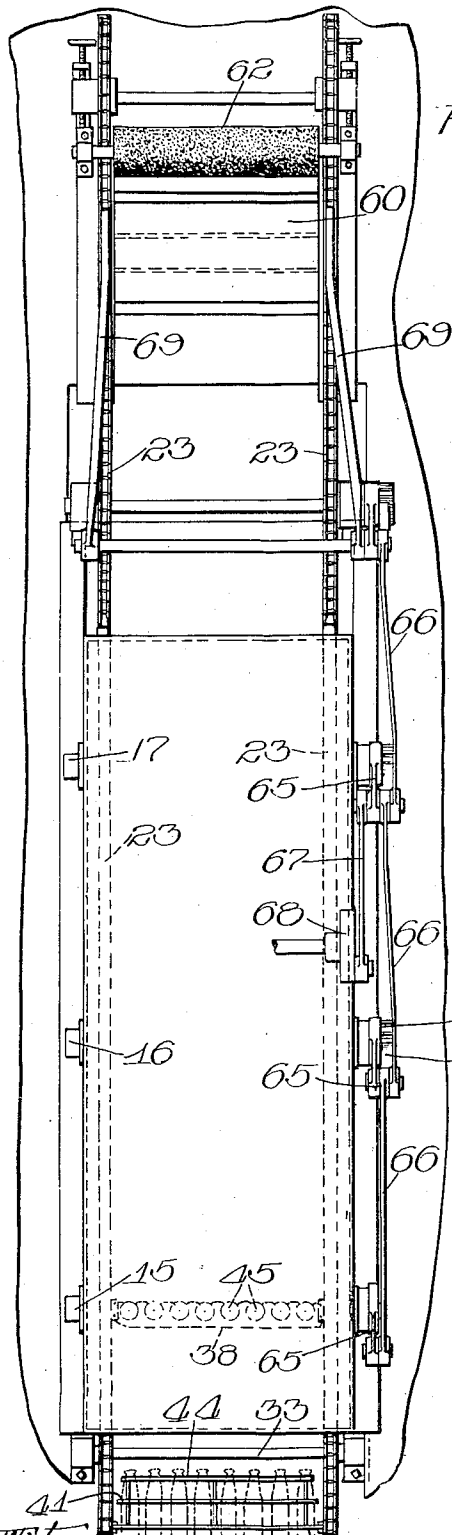


Fig. 5.

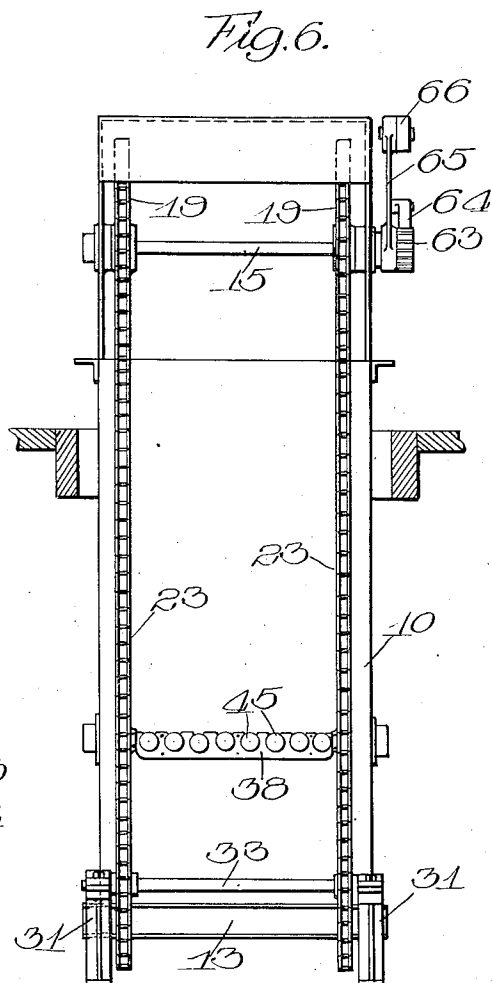


Fig. 6.

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UNITED STATES PATENT OFFICE.

CHARLES E. FELT, OF CHICAGO, ILLINOIS.

COMBINED BOTTLE SOAKING, RINSING, AND CLEANING MACHINE.

1,023,829.

Specification of Letters Patent.

Patented Apr. 23, 1912.

Application filed October 17, 1908. Serial No. 458,181.

To all whom it may concern:

Be it known that I, CHARLES E. FELT, 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 Combined Bottle Soaking, Rinsing, and Cleaning Machines, of which the following is a specification.

This invention relates to improvements in bottle soaking, rinsing and cleaning mechanisms, and the primary object of the invention is to provide an improved machine having these mechanisms combined and associated in a single machine equipped with means for carrying or advancing the bottles successively to the different mechanisms and through the machine.

A further object is to provide improved means for intermittently advancing the bottles.

A further object is to provide an improved carrier for the bottles and improved means for preventing accidental displacement of the bottles from the carrier.

To the attainment of these ends and the accomplishment of other new and useful objects, as will appear, the invention consists in the features of novelty in the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings, illustrating the embodiment of the invention, and in which—

Figure 1 is a side elevation of an improved machine of this character constructed in accordance with the principles of this invention. Fig. 2 is a detail top plan view of one of the members of the carrier or basket for holding the bottles. Fig. 3 is a side elevation of one of the baskets or holders. Fig. 4 is a detail top plan view of one of the intermediate members of the basket or holder. Fig. 5 is a detail top plan view of Fig. 1. Fig. 6 is a left hand end elevation of Fig. 1.

Referring more particularly to the drawings and in the present exemplification of the invention, the soaking tank preferably comprises two compartments 10 and 11, separated by a partition 12 and may be supported upon suitable supports 13, which are preferably arranged to hold the bottom of

the tank above the surface of the ground or floor. A rinsing tank 14 may be supported by the soaking tank in any desired or suitable manner and is preferably somewhat smaller than the soaking tank.

Journaled above and extending across the tanks 10, 11, and 14 are a plurality of intermittently rotated shafts 15, 16, 17 and 18, and secured for rotation with each of the shafts and adjacent their respective ends are sprocket wheels 19, 20, 21 and 22. These sprocket wheels are located adjacent each side of the tank and constitute a movable support for an endless chain or carrier 23. Said carrier or conveyer is thus moved by the sprocket wheels or movable supports on each end of the shafts and in consequence the chains comprising the endless conveyer will be spaced laterally from each other. The sprockets 19, 20, 21 and 22 furthermore constitute intermittently operated means for engaging the endless conveyer. Arranged within each of the compartments or tanks 10 and 11, preferably adjacent the bottom thereof, and below the respective sprocket wheels 19, 20 and 21, are sprocket wheels 24, 25, over which the endless chains or carriers 23 are adapted to pass, and similar sprockets 26 are also arranged within the tank 14 for carrying the flexible members 23 into the tank.

The sprocket wheels 19, 20, 21 and 22 are preferably arranged in the same horizontal plane and in tandem with relation to each other, and an additional sprocket 27 coöperates with the sprocket 22 and is spaced any desired or suitable distance therefrom. This sprocket 27 is secured for rotation with a shaft 28 journaled in a suitable support 29 and the sprocket 30 over which the flexible member or chain 23 passes when it leaves the sprocket 27 is arranged below the latter.

Journaled in suitable supports 31, 32 adjacent the bottom of the tanks 10, 11, are shafts 33, 34, secured to which are sprockets 35, 36. One of these shafts is arranged on each side of the tanks and one sprocket wheel is secured adjacent each extremity of the respective shafts and over these sprockets 35, 36, the flexible member or chain 23 is adapted to pass to be guided beneath the

tanks. If desired, a sprocket 37 may be disposed intermediate the sprockets 30 and 36 for guiding the flexible member from one of the sprockets to the other.

5 With this improved construction it will be apparent that the endless chains or flexible carriers 23 pass over the various sprockets and are directed into the tanks 10, 11 and 14 for conveying the bottles which are
10 secured thereto into and out of the tanks. The tanks may be of any desired width and the endless carriers 23 may be spaced from each other laterally any suitable distance. Secured to the endless carriers and extending
15 across the space therebetween are crates or bottle carriers, each of which preferably comprises a base member 38 having a plurality of bottle openings 39, which latter preferably open through one side of the
20 member 38, as at 40. A member 41 having a plurality of apertures 42 is secured to the member 38 and spaced therefrom preferably by means of uprights 43, any desired number of which latter may be provided and if
25 desired an intermediate member 44 similar in construction to the member 41 may be secured in position by means of the uprights 43 which latter are adapted to pass through the intermediate member.

30 When the members 38, 44 and 41 are assembled, they may be spaced from each other any suitable distance according to the size or height of the bottle to be cleaned and when so assembled the apertures 42 in the
35 members 41 and 44 will register with the respective openings 39 in the member 38, the apertures 39 being of a somewhat larger diameter than the apertures in the members 41 and 44 and into these apertures 39
40 the body of the bottle 45 rests, while the apertures in the respective members 44, 41, will surround the neck of the bottle. When the carriers or baskets thus formed are secured by their extremities to the respective
45 endless carrier or chain 23, they will stand between the chains and when the bottles are in position therein, as shown in Fig. 1, the latter will be held in an inclined plane with respect to the horizontal. When the bottles
50 are placed in position and the endless chains or carriers 23 are advanced, the bottles will be carried first into the tank 10 and around the sprocket 24. During this movement through the tank 10 they will be held in an
55 inclined position with respect to the horizontal, thereby permitting the cleaning or soaking liquid in the tank to readily enter the bottle. As the bottles pass from the tank 10 they will be held in an inclined position
60 with their mouths extending downwardly so that as they leave the tank the liquid therein will be discharged and will flow back into the tank. If desired, suitable baffle or deflector plates 46 may be provided

for directing the fluid back into the tanks 10 65 and 11. After the bottles pass from the tank 11 in the same manner as from the tank 10, they will pass into the rinsing tank 14 to be rinsed in the same manner.

Any suitable means may be provided for 70 holding the bottles against displacement with relation to the crates or baskets while they are passing through the tanks. A simple and efficient means for accomplishing this result comprises tracks or guides 47 75 arranged adjacent each of the flexible members or chains 23 and against which the bottoms of the bottles are adapted to move as they pass through the tanks.

Arranged adjacent the tank 14 and preferably 80 intermediate the sprockets 22, 27, is a cleaning apparatus designated generally by the reference numeral 48, the specific construction of which forms no part of the present invention. This cleaning apparatus 85 preferably comprises a support 49 movable between suitable guides 50 by means of a suitable operating cam 51 to which motion is imparted in any desired or suitable manner. Projecting above the support 49 are a 90 pair of uprights 52 which pass through suitable guides 53 and a member 54. The extremities of the uprights 52 are preferably provided with enlargements 55 beyond the member 54 and disposed between the guides 95 53 and the member 54 are suitable elastic members 56, such as coil springs or the like. Supported by the member 54 are guides 57 into which the extremities of cleaning members 58, such as brushes or the like, are 100 adapted to be housed and surrounding the extremities of the brushes are cup-shaped members 59 into which the mouths of the bottles are adapted to rest when the bottles are in position in the cleaning mechanism. 105

As the bottles are advanced from the tank 14, they will pass under a suitable guide 60 which is arranged above the member 54 and when in this position, the elastic members 56 will cause the member 54 to move toward the 110 mouths of the bottle so that the cups 59 will pass thereover. When the movement of the member 54 is arrested by the contact of the cups 59 with the mouths of the bottles, the rotation of the cam 51 will raise the support 115 49, members 54 and the bottles 45 until the movement of the latter is arrested. A continued movement of the cam 51 in the same direction will shove the brushes or cleaning devices 58 out of the respective housings 57 120 to force the extremities of the brushes or cleaning devices into the respective bottles, and at the same time a similar brush or cleaning device 61 will be forced between the bottles of two adjacent carriers or baskets. 125 The bottles and the cleaning device will be held in their adjusted positions until the cam 51 is rotated sufficiently to permit the

member 49 to descend by gravity assisted by the elasticity of the flexible members 56 until the bottles 45 have become seated in the baskets and a continued movement of the cam 51 in the same direction will permit the support 49 to descend sufficiently to cause the enlargements 55 on the uprights 52 to engage the member 54 and pull it downwardly against the tension of the elastic members 56 so that the cups 59 will disengage the bottles 45 to permit the latter to be advanced one step.

A suitable brush 62 may be arranged adjacent the cleaning mechanism 48 and above the flexible members or carriers 23 so as to engage and clean the bottoms of the bottles 45 as they pass out of the cleaning device. After the bottles have passed beyond the brush 62 they may be removed from the carrier in any suitable manner.

Any suitable means may be provided for intermittently advancing the chains or flexible members 23 and the crates or baskets. For accomplishing this purpose in a suitable and efficient manner, means are provided for imparting an intermittent rotation to the sprockets 19, 20, 21 and 22, said means comprising ratchet wheels 63 which are secured to one extremity of each of the shafts 15, 16, 17 and 18, and ratchet dogs 64 pivotally supported upon oscillating arms or members 65, which latter are pivotally supported by one extremity adjacent the ratchets 63.

Suitable connecting means or links 66 may be provided for coöperatively connecting the free extremities of the arms 65 and an oscillatory motion may be imparted to the arms 65 by any suitable means, preferably by means of a link 67 one extremity of which may be connected to the links 66 and the other extremity to a crank 68 which may be continuously rotated in any desired or suitable manner to produce a reciprocatory movement of the connecting means 66.

In order to properly determine the position of the bottles in the cleaning apparatus 48 and to assist in imparting an intermittent advancement to the chain or flexible carrier 23, there may be provided in the form of a pair of arms 69, each having a depending extremity 70. One of these arms is arranged above each of the flexible members or chains 23 so that the depending portion 70 thereof will engage the links of the chains and the other extremity of these arms being pivotally connected with the reciprocated connecting means in any suitable manner, preferably at the extremity of one of the arms 65 so that when the arm 65 is oscillated, a reciprocating motion will be imparted to the arms 69 so that during the forward movement of the arms 69, the ex-

tremity 70 thereof will engage the pivot pins of the links to assist the sprockets in advancing the chain and to properly determine the position of the bottles in the cleaning device. During the movement of the arms 69 in the opposite direction they will ride over the pivot pins of the succeeding links and into another link so that when the arms 65 are again moved forward the arms 69 will again assist in moving the chains.

With this improved apparatus it will be apparent that a compact apparatus will be produced and one in which there is combined a plurality of mechanisms which co-operate to produce a single result, thereby obviating the necessity of employing different machines for the different steps of cleaning and also the removal of the bottles from one machine after one step and placing them into another machine for another step, and so on.

By the provision of an open frame or crate for holding the bottles, it will be apparent that as the bottles are immersed and pass through the tank, the liquid will contact with and surround the outside of the bottle to thoroughly soak the labels therefrom, the open frame forming no obstruction for the liquid.

In order that the invention might be fully understood, the details of the foregoing embodiment thereof have been thus specifically described, but

What I claim as new is:

1. In an apparatus of the character described, the combination with a plurality of immersing tanks, of an endless chain conveyer, a plurality of sprocket wheels for movably supporting the conveyer, each of said sprockets having a ratchet secured thereto, pawl-carrying arms oscillatable respectively about the axes of said sprockets, a plurality of links connecting the outer ends of the pawl-carrying arms whereby said arms are caused to operate in unison, a bottle cleaning device, and a registering arm moving in unison with the pawl-carrying arms and engaging the links of said conveyer to cause the bottles to register with said bottle-cleaning device.

2. In an apparatus of the character described, the combination with a plurality of immersing tanks, sprockets mounted within said tanks, sprockets above the tanks, a ratchet lever for each of the latter said sprockets, a plurality of alined links connecting the outer ends of said ratchet levers, means for imparting a reciprocatory movement to said links, an endless conveyer supported by said sprockets, said conveyer having a horizontal portion extending from the last ratchet lever, a bottle cleaning mechanism arranged below said horizontal

portion, and a registering arm pivotally
connected to the last ratchet lever, said arm
being provided with an extremity adapting
it to engage the links of the endless con-
5 veyer.

In testimony whereof I have signed my
name to this specification, in the presence of

two subscribing witnesses, on this 9th day
of October A. D. 1908.

CHARLES E. FELT.

Witnesses:

J. H. JOCHUM, Jr.,
M. W. CANTWELL.
