(No Model.) 2 Sheets—Sheet 1.

D. DOYLE.

BOTTLING APPARATUS.

No. 526,773. Patented Oct. 2, 1894.

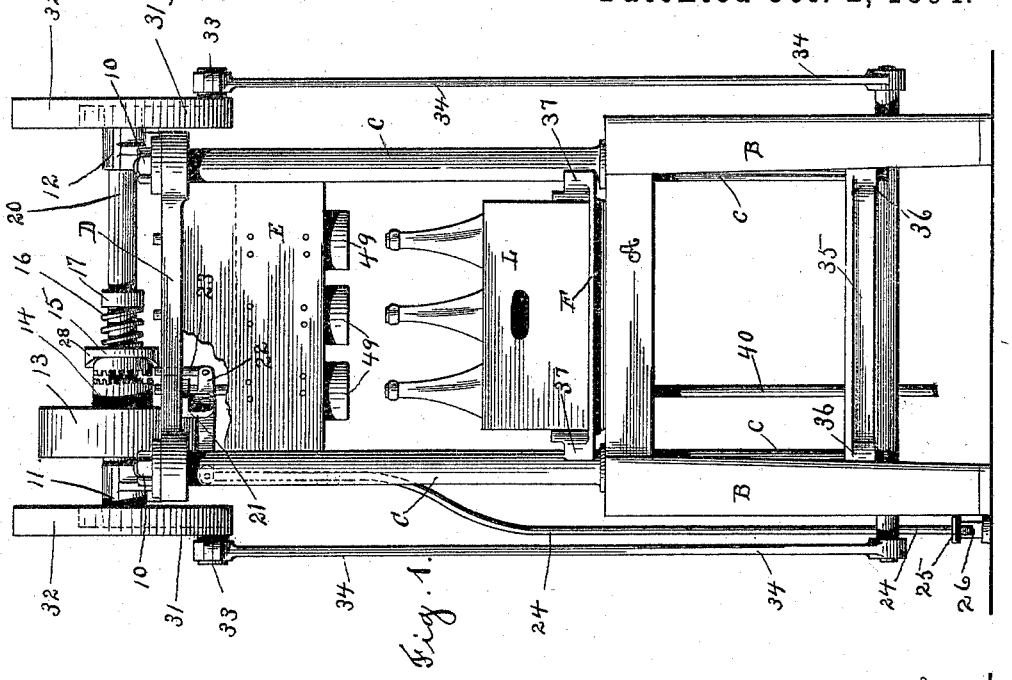

Fig. 1.

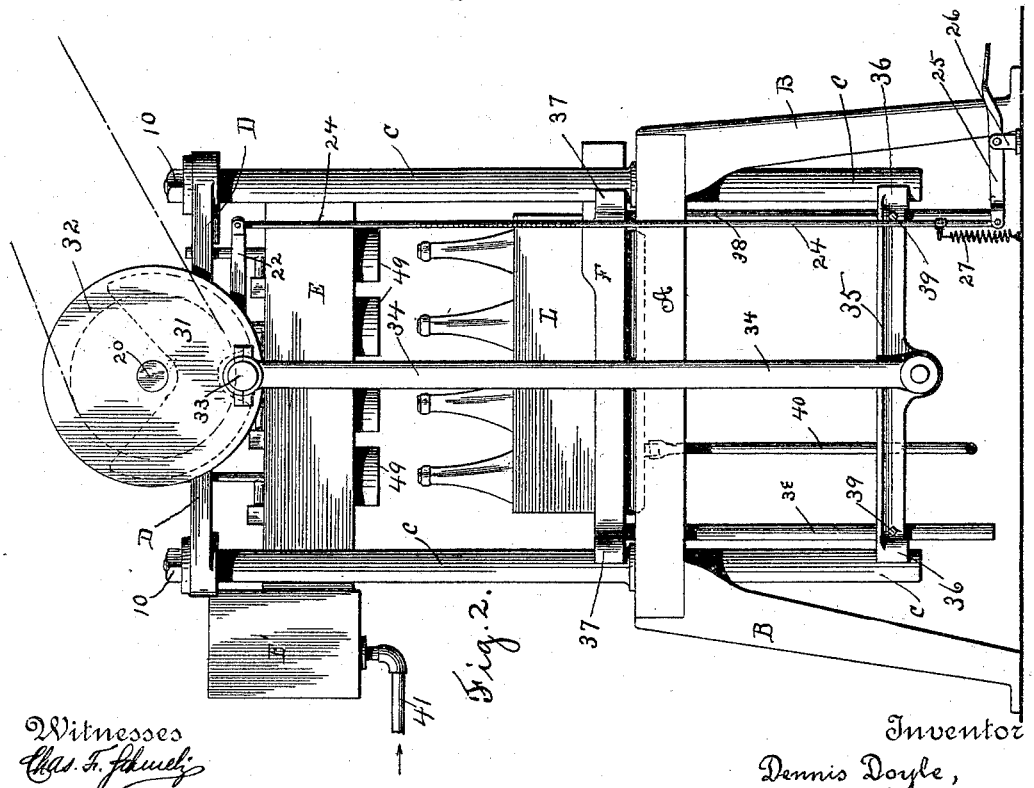

Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

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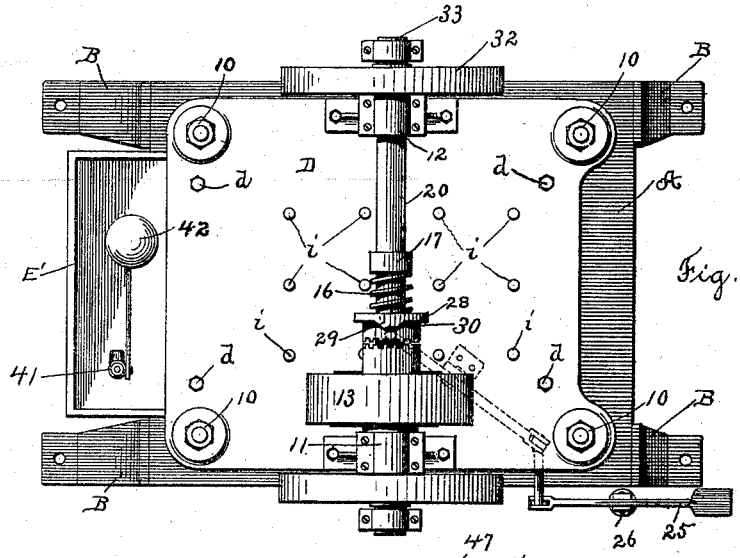


Fig. 3.

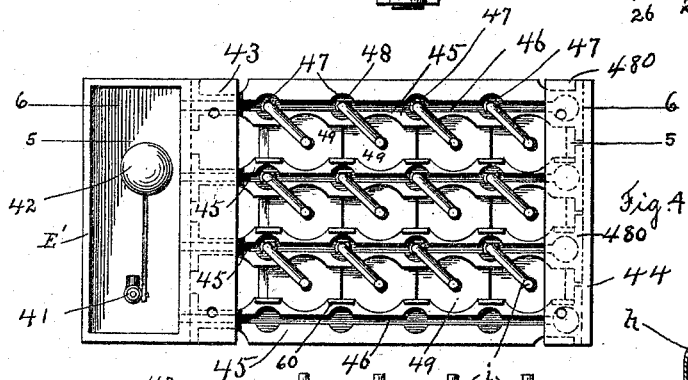


Fig. 4.

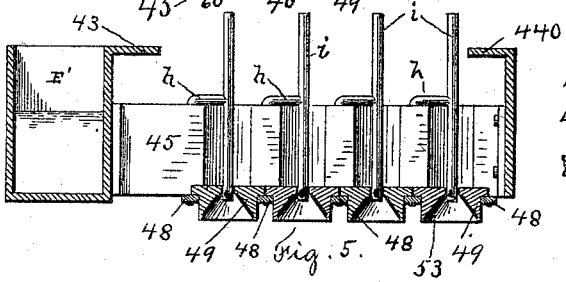


Fig. 5.

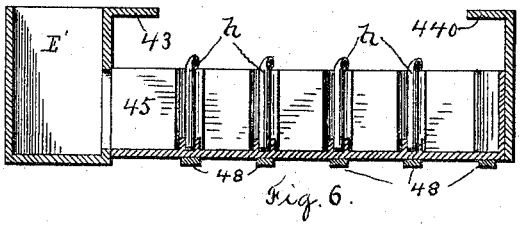
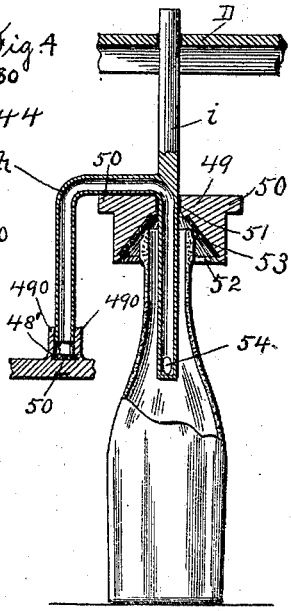


Fig. 6.

Fig. 7.



Witnesses
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E. M. Healy

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UNITED STATES PATENT OFFICE.

DENNIS DOYLE, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO JOHN H. DEVLIN, OF SAME PLACE.

BOTTLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 526,773, dated October 2, 1894.

Application filed December 28, 1893. Serial No. 494,941. (No model.)

To all whom it may concern:

Be it known that I, DENNIS DOYLE, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Bottling Apparatus, of which the following is a specification.

The object of my invention is to provide a strong, simple, and efficient bottling machine, which may be operated by power, and the especial object of my invention is to provide a machine for filling a number of bottles, which are held in an ordinary case or package, and to thus render it unnecessary to handle each individual bottle, an ordinary commercial case of bottles being simply placed in the machine, and being removed when the bottles are filled.

To these ends, my invention consists of the parts and combinations of parts as hereinafter described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying two sheets of drawings, Figure 1 is a side elevation of a bottling machine constructed according to my invention. Fig. 2 is an end elevation of the same. Fig. 3 is a top plan view of the machine. Fig. 4 is a plan view of the tank, which I employ, removed from the machine. Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4. Fig. 6 is a sectional view taken on the line 6—6 of Fig. 4, and Fig. 7 is an enlarged detail view illustrating the operation of my machine.

Referring to the drawings and in detail, A designates the base-plate or frame of my machine, which is supported upon legs B, which may be bolted to the floor, if desired.

C designates four upright cylindrical posts or guides, which are carried by the plate A, and are extended both above and below the same. At their upper ends, the posts C carry a top-plate D, which is fastened securely in place by means of the nuts 10.

Mounted near the sides of the top plate D are suitable split boxes 11 and 12, in which is mounted a horizontal shaft 20.

13 designates a pulley, which may be driven from any suitable source of power, and which is normally free to rotate upon the shaft 20.

The hub 14 of the pulley 13 is extended, and forms part of a clutch for connecting the pulley 13 and the shaft 20.

15 designates a clutch which is splined so as to rotate with the shaft 20, but may be moved longitudinally upon the same, and co-operates with the hub 14.

16 designates a coiled spring which bears against a collar 17, and normally tends to move the clutch 15 into engagement with the hub 14.

Mounted in a bracket 21, which is fastened to the under side of the top-plate D is a lever 22, which carries at one end a vertical pin 23, which is extended through the top plate D, and co-operates with the clutch 15. At its other end, the lever 22 is connected to a vertical link or rod 24, and the rod 24 is pivoted to a treadle 25 mounted in a bracket 26 at one side of the machine.

27 designates a coiled spring, which is fastened to the rod 24, and normally tends to actuate the lever 22 to hold the pin 23 in its raised position.

The clutch 15, heretofore referred to, is provided with an integral collar 28, and formed with the collar 28 are two similar cam sections 29, which are each provided at their apices with a slight notch or depression 30, as most clearly shown in Fig. 3.

If now the treadle 25 is operated, the pin 23 will be depressed, the clutch 15 will engage the hub 14, and the shaft 20 will revolve in unison with the pulley 13. As soon as the shaft begins to revolve, the treadle is released, and the pin 23 is raised by means of the spring 27. One of the cams 29 will then engage the pin 23, and will disengage the clutch 15 and the hub 14. As the shaft 20 completes one-half of a whole revolution, the depression or notch 30 will engage the pin 23, and it will thus be seen that every time the treadle 25 is operated the shaft 20 will be allowed to make exactly one-half of a complete revolution.

At each end of the horizontal shaft 20, I provide crank-disks 31, which are preferably cored out, as shown in dotted lines in Figs. 1 and 2, to form the counter-weights 32.

33 designates crank-pins, which are carried by the crank disks 31, and are connected to the upper end of pitmen 34. At their lower ends, the pitmen 34 are pivoted to a platform or table 35, which is provided with four guides 36, which bear upon the lower parts of the cylindrical columns or guides C.

F designates a platform or table, which is provided with a raised rib extending around three of its sides, as most clearly shown in Fig. 1, and the platform or table F is designed to receive an ordinary or commercial case of bottles. The platform or table F is provided with guides 37 which bear upon the columns C.

38 designates four adjustable connecting rods, which connect the table or platform F with the lower table or platform 35. The rods 38 may be secured in their adjusted positions by means of set-screws 39, and it is evident that by means of this adjustment, the machine is adapted to receive bottles of different heights.

Primarily, the machine is designed for handling cases of quart bottles, but the platform F may be adjusted so that pint bottles may be filled, if desired, by the same machine.

Whatever leakage or drip collects on the table F may be led from a depression in said table, or through a suitable drip pipe 40 to any desired receptacle.

When a case of bottles has been properly placed upon the table or platform F, the treadle 25 is depressed, and the shaft 20 through the crank-disks and pitmen, raises the platform F to its highest position. The liquid is then allowed to flow into the bottles by means of devices hereinafter described, and when the bottles are filled, the treadle 25 is again operated, and the platform F is lowered.

The devices for filling the bottles with liquid are most clearly illustrated in Figs. 4 to 7. Referring to these figures, E designates a peculiar form of tank, which is provided at one end with a supply tank E′. Liquid is admitted into the supply tank E′ through the inlet pipe 41, and is maintained at a constant level by means of the float-valve 42. 45 designates a series of corrugated castings, which are properly secured at one end to the tank E′, and at the other end to an end-plate 44. The tank E, which is thus formed, is secured to the top-plate D by means of bolts *d*, which pass through the top-plate and are secured in a flange 43 carried by the supply tank E′, and in a flange 480 carried by the end plate 44. Each of the castings 45 is provided with a channel 46, and located concentrically with the channel 46 is a series of cells 47, each casting 45, as shown, being provided with four cells. Transverse metal strips 48 are secured to the under side of the castings 45, as most clearly shown in Fig. 5, and resting on the strips 48, I provide a number of guide pieces 49, which are curved or suitably shaped to fit into the corrugations formed in the castings 45.

The guide pieces 49 are most clearly shown in Fig. 7. Referring to this figure, it will be seen that the pieces 49 are provided with ears or projections 50 adapted to rest on the strips 48, and are provided with a central bore or hole 51. The pieces 49 are counter-sunk on their bottom faces, as at 52, and in the depression 52, I preferably mount a rubber bushing or washer 53, which is adapted to engage the top of the bottle, when said bottle is raised, as shown in Fig. 7. *h* designates siphons, as many siphons being provided as there are guide pieces 49, or as there are bottles in the case which it is desired to fill. One leg of each siphon *h* extends into one of the cells 47 formed in one of the castings 45, and the other leg of the siphon fits into the central aperture in one of the guide pieces 49. When in its lowest position, each siphon is adapted to rest upon, and be closed by a suitable valve-seat 48′ formed at the bottom of each of the cells 47, as most clearly shown in Fig. 7. Referring to said figure, 48′ designates the valve-seat, which is formed by two arc-shaped guide-wings 490, which are adapted to engage and guide the lower end of one leg of the siphon *h*, and by a rubber disk 50, which is secured in a socket formed in the guides 490. Each of the siphons *h* is provided with a vertical guide-pin *i*, which passes through a suitable aperture formed in the top-plate D. The mouth formed in the siphon leg, which is adapted to fit into the bottle, is preferably formed in the side of the pipe or leg, in order to direct the liquid against the side of the bottle, and prevent the same from foaming. When it is desired to use the machine, the tank E is filled with the liquid which it is desired to bottle, and the siphons *h* are filled with liquid, which can be done in any preferred way, and a case of bottles is placed in the machine upon the platform or table F. The treadle 25 is then operated, and the case of bottles is raised. The top of each bottle engages a guide piece 49, and, as the bottles rise, the guide-piece 49 moves up upon the outlet leg of the siphon, until in the position most clearly shown in Fig. 7, when it raises the siphon bodily a short distance away from its valve-seat, and the liquid is allowed to flow into the bottle, being directed against the side of the same by means of the location of the orifice 54.

In some cases, where the bottles used vary materially in height, it may happen that some of the guide pieces 49 may be raised to an undue height, and may be displaced so that they will not return to the proper position when the bottles are lowered. In order to

prevent this, I provide the castings 45 with vertical guide-wings 60, as shown in Fig. 4, which will insure the guide pieces 49 returning to their normal position.

I am aware that many changes may be made in the construction of my device by those who are skilled in the art, and I do not wish to be limited to the construction which I have shown and described, but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. In a bottling apparatus, the combination of pieces or castings having supply channels, siphons of equal length each having one leg extending into a supply channel and the other leg extending between said pieces or castings, means for rendering the siphons inoperative when in their lowest position, and means for starting said siphons when raised from their lowest position, substantially as described.

2. In a bottling apparatus, the combination of pieces or castings having supply channels, guide pieces adapted to fit between said castings and to be guided by the same as they are moved up and down, a series of similar siphons each having one leg extending into a supply channel, and the other leg passing through an aperture in one of the guide pieces, substantially as described.

3. In a bottling apparatus, the combination of a supply tank, channels connected with said tank, a series of similar siphons having vertically extending guide pins for guiding the siphons as they are moved up and down, means for rendering the siphons inoperative when in their lowest position, and means for starting the siphons when raised from their lowest position, substantially as described.

4. In a bottling apparatus, the combination of a top plate, a supply tank secured to said top plate, a series of siphons connected to said supply tank, guide pins carried by said siphons and extending through the top plate, substantially as described.

5. In a bottling apparatus, the combination of pieces or castings having supply channels, siphons of equal length, each having one leg extending into a supply channel, and the other leg extending between said pieces or castings, and adapted to be rendered inoperative when in their lowest position by means of valve-seats located at the bottom of the supply channels, substantially as described.

6. In a bottling apparatus, the combination of pieces or castings having supply channels and cells, siphons of equal length, each having one leg extending into a supply cell, and the other leg extending between said pieces or castings, and valve seats consisting of rubber disks with arc shaped guides located at the bottom of the supply cells for rendering the siphons inoperative when in their lowest position, substantially as described.

7. In a bottling machine, the combination of a vertically movable table adapted to receive a case of bottles, means for filling the bottles when in their raised position, a shaft, a constantly running source of power, means for connecting the shaft with said constantly running source of power, and for allowing the shaft to make one-half of a complete revolution, substantially as described.

8. In a bottling machine, the combination of a horizontal shaft, a constantly running source of power, means for intermittently connecting said shaft with said constantly running source of power, cranks and pitmen connecting said shaft with a vertically movable table, and means for filling a case of bottles, when the table is in its raised position, substantially as described.

9. In a bottling machine, the combination of a vertically movable table, means for filling a case of bottles when the table is in its raised position, a shaft connected to said table, a constantly running pulley, a clutch adapted to connect said pulley and shaft, and means for disengaging the pulley and shaft when the shaft has made one-half of a complete revolution, substantially as described.

10. The combination of a vertically movable table, means for filling a case of bottles when in its raised position, a horizontal shaft, a crank disk carried by said shaft suitably cored out to form counter weights, and connected to said table by means of crank pins and pitmen, substantially as described.

11. The combination in a bottling machine of four vertical columns or guides, a lower platform engaging said vertical guides, a horizontal shaft connected to said lower platform by means of cranks and pitmen, an upper vertically movable table or platform also engaging said guides, vertical rods and set-screws for adjustably connecting the upper and lower platforms, and means for filling a case of bottles when the platforms are raised, substantially as described.

12. In a bottling machine, the combination of a constantly running source of power, a vertically movable platform or table adapted to receive an ordinary commercial case of bottles, means for filling the bottles when in their raised position, and means for intermittently connecting said vertically movable platform or table with said constantly running source of power, substantially as described.

13. In a bottling machine, the combination of a vertically movable table, means for filling a case of bottles carried by said table, a horizontal shaft connected to operate said table, a constantly rotating pulley mounted on said shaft, and a clutch for intermittently connecting said pulley and shaft, substantially as described.

14. The combination of a vertically movable platform or table, means for filling a case of bottles carried by said table, a shaft connected to actuate said table, a constantly running pulley mounted on said shaft, a clutch

for connecting said shaft to the pulley, a spring normally tending to move the clutch into engagement, and a vertically movable pin adapted to engage cams carried by the clutch to disengage the same, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

DENNIS DOYLE.

Witnesses:
E. M. HEALY,
PHILIP W. SOUTHGATE.