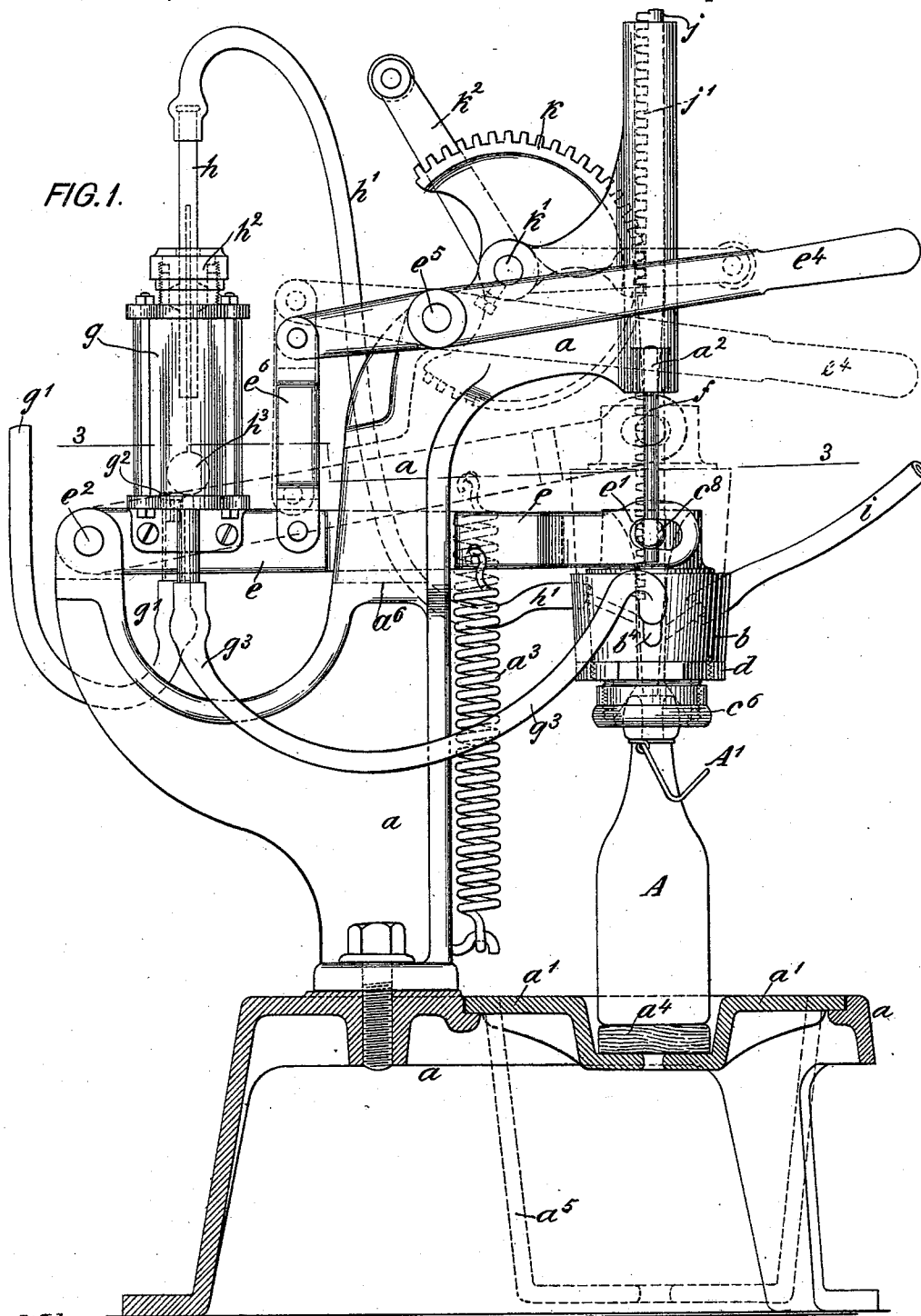


E. STAHL.
BOTTLING MACHINE.

No. 538,290.

Patented Apr. 30, 1895.



Witnesses:
John Becker
Theodore Becker.

Inventor:
Emil Stahl
by his attorneys
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FIG. 2.

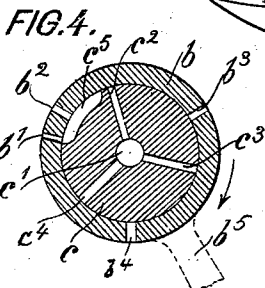
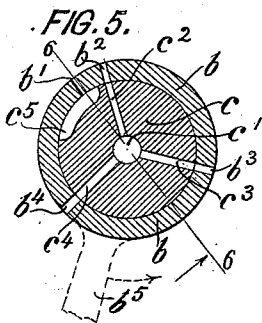
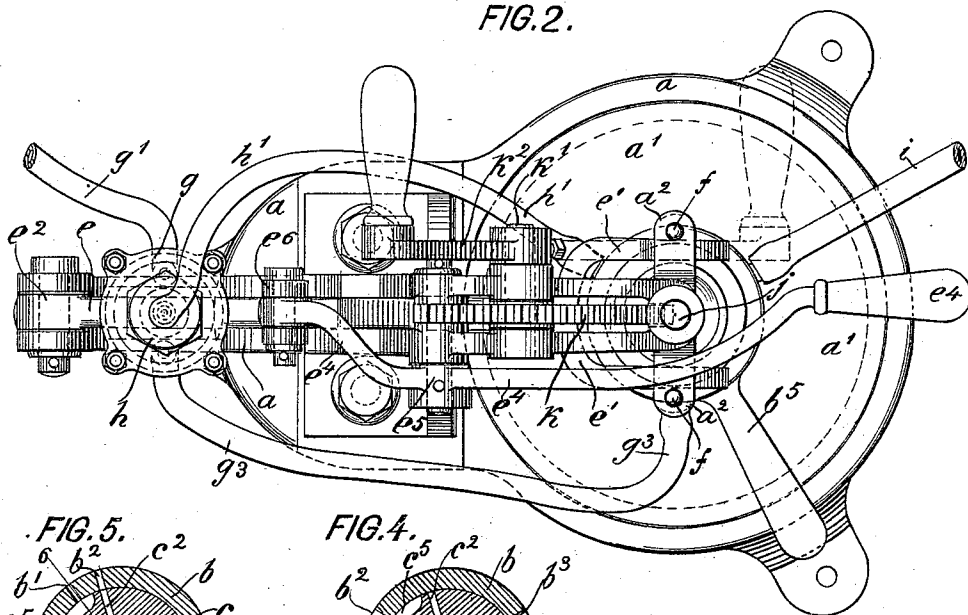


FIG. 3.

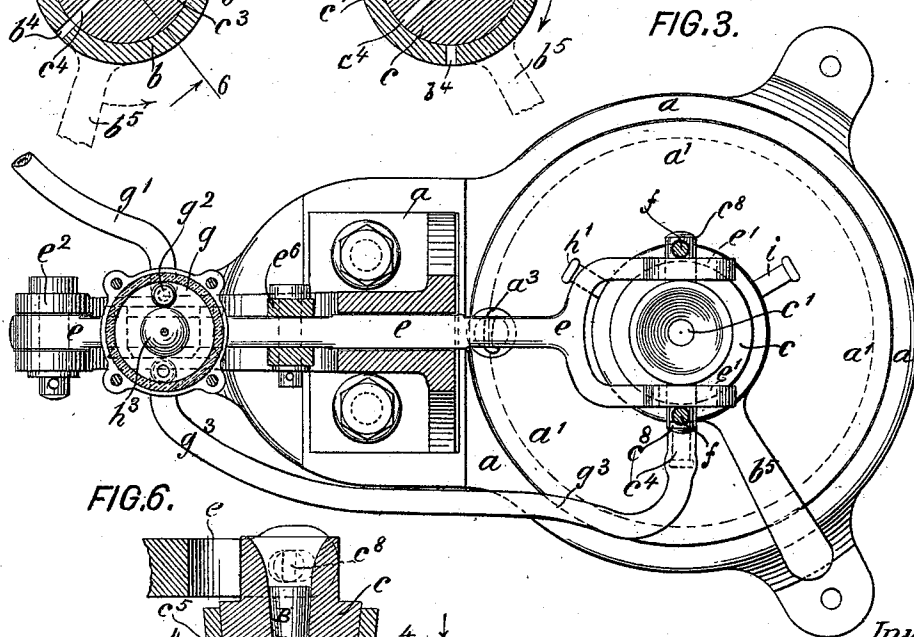
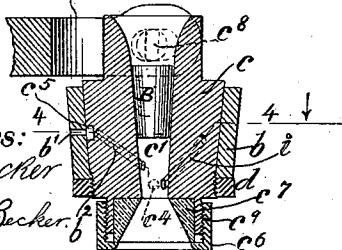


FIG. 6.



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EMIL STAHL, OF NEW YORK, N. Y.

BOTTLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 538,290, dated April 30, 1895.

Application filed August 23, 1894. Serial No. 521,082. (No model.)

To all whom it may concern:

Be it known that I, EMIL STAHL, of New York city, New York, have invented an Improved Bottling-Machine, of which the following is a specification.

This invention relates to an improved machine for charging bottles with sirup and aerated water, and also for corking the bottles.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of my improved bottling machine. Fig. 2 is a plan thereof; Fig. 3, a horizontal section on line 3-3, Fig. 1. Figs. 4 and 5 are horizontal sections of the valve *b* on line 4-4, Fig. 6. Fig. 6 is a vertical section of the valve on line 6-6, Fig. 5.

The letter *a*, represents the frame of the bottling machine provided with a seat *a'*, adapted for the reception of the bottle *A* to be charged.

b, is the filling head or valve, provided with four ports *b'*, *b²*, *b³*, *b⁴*, and containing a fixed valve plug *c*, which is provided with a central bore *c'*, three radial ports *c²*, *c³*, *c⁴*, and a cut away section *c⁵*. The valve *b*, may be revolved backward and forward by a handle *b⁵*, and is supported upon an annular seat *d* (Fig. 6), screwed upon the lower end of plug *c*. The plug *c*, is provided with a downwardly extending threaded tube *c⁶*, engaging a cup *c⁶*, and containing a packing *c⁷*, adapted to engage the head of the bottle *A*. At its upper end, the plug *c*, is provided with perforated trunnions *c⁸*, hung in the slotted arms *e'*, of a forked lever *e*, which is pivoted to frame *a*, at *e²*. The lever *e*, is normally held down by a spring *a³*, and may be raised by a hand lever *e⁴*, pivoted to frame *a*, at *e⁵*, and connected to the lever *e*, by link *e⁶*. A rest *a⁶*, limits the downward motion of lever *e*. Through the perforated trunnions *c⁸*, pass the fixed guide rods *f*, secured to the laterally extending lugs *a³*, of frame *a*, and adapted to guide the plug *c*, and consequently the valve *b*, in a vertical direction.

g, is a sirup gage, connected to the sirup tank (not shown in the drawings) by tube *g'*, that contains check valve *g²*. The gage *g*, is also connected to the port *b⁴*, of valve *b*, by tube *g³*. Into the top of gage *g*, projects a vent tube *h*, connected by flexible pipe *h'*, to the port *b²*, of valve *b*. The tube *h*, is verti-

cally adjustable, so that it may be projected into the gage *g*, to any desired distance, in order to alter the capacity of the gage and the quantity of sirup charged into the bottles. To this effect the tube *h*, passes through a stuffing box *h²*, secured to the upper end of the gage and within which it may be slid up or down. The end of tube *h*, constitutes the seat for a float or ball valve *h³*.

The aerated or charged water is fed from a carbonator (not shown in the drawings) by tube *i*, to the port *b³*, of valve *b*.

j, is the corking plunger which is adapted to enter the central perforation *c'*, of plug *c*, and which is provided with teeth *j'*, to constitute a rack. This rack is engaged by a toothed segment *k*, adapted to be oscillated around its pivot *k'*, by handle *k²*.

The operation of the machine is as follows:

The lever *e*, is raised by handle *e⁴*, and a bottle *A* is placed upon a cushion *a⁴*, of seat *a'*, after which the handle is released, so that the valve is pressed upon the bottle neck by spring *a³*. The cork *B* is then pressed into the bore *c'*, of plug *c*, (Fig. 6) by a partial descent of the plunger *j*, but without obstructing the ports in the plug. The valve *b*, is next revolved into the position shown in Fig. 5, in which the sirup from gage *g*, is admitted by tube *g³*, and ports *b⁴*, *c⁴*, while the aerated water is admitted from tube *i*, and ports *b³*, *c³*, into the lower end of bore *c'*, and thence into the bottle *A*. As the bottle is thus filled, the displaced air is ejected from the bottle through bore *c'*, ports *c²*, *b²*, and tubes *h'*, *h*, into gage *g*, to bear upon the sirup and force it through pipe *g³*, into the bottle, while it will also serve to keep valve *g²*, closed. Of course, the float *h³*, will gradually descend with the level of the sirup in the gage to open the vent *h*. After the bottle has been properly charged, the valve *b*, is revolved into the position shown in Fig. 4, so as to close the ports *b⁴*, *b³*, and cut off the supply of sirup and of aerated water. At the same time, the vent *h*, *h'*, is made to communicate by port *b²*, cut away section *c⁵*, and port *b'*, with the atmospheric air. Thus the pressure of the sirup in the sirup tank will be free to open check valve *g²*, and the sirup will flow into gage *g*, until the float *h³*, is raised against the vent *h*, when the further ingress of sirup will be stopped.

Thus the gage has been charged with the desired quantity of sirup, ready to be discharged during the next filling operation. While the gage is filled, as described, the corking plunger *j*, is pressed down to its full extent, to force the cork B out of the perforation *c'*, and into the bottle neck. The lever *e*, is then raised by means of its handle *e'*, to raise valve *b*, off the bottle neck, without however raising the plunger. Thus the cork is held in the bottle by the plunger and may be secured by the usual bail A', when the plunger is raised and the operation is completed.

In order to adapt the machine to fill bottles of different sizes, I prefer to use interchangeable seats *a'*, *a''*, having bottoms sunk to a greater or less depth, to accommodate bottles of different heights.

The principal advantages of my machine are, that it utilizes the displaced air from the bottles to force the sirup into the bottle. Moreover the quantity of sirup to be filled into the bottle is accurately gaged, and may be readily varied.

The machine works rapidly, requires little power and creates no waste.

What I claim is—

1. The combination in a bottling machine of a rotary filling head having four ports with a sirup tube, a water tube and a vent tube connected to three of the ports, and with a valve plug having radial ports adapted to register with three of the valve ports, and a

cut-away section, adapted to connect two of the valve ports, substantially as specified. 35

2. The combination of a valve, with a lever *e*, a pivoted valve plug having perforated trunnions, guide rods engaging the trunnions, a corking plunger engaging the plug, and charging tubes connected to the valve ports, substantially as specified. 40

3. The combination of a valve, with a lever *e*, a valve plug pivoted thereto, a corking plunger engaging the plug, and with a vent tube, a sirup pipe and a water pipe connected to the valve ports, substantially as specified. 45

4. The combination in a bottling machine, of a sirup gage with a vertically adjustable vent pipe entering the same, and adapted to be projected to a greater or less extent into the gage, and a float adapted to close the mouth of the vent pipe, substantially as specified. 50

5. In a bottling machine the combination of the following elements: a rotary valve, an inclosed plug, a corking plunger, a water tube, sirup tube and vent tube connected to the valve ports, a sirup gage connected to the vent tube and sirup tube, and a float within the sirup gage that is adapted to close against the mouth of the vent tube, substantially as specified. 60

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Witnesses:

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