(No Model.)

W. H. COMSTOCK.

BOTTLE FILLER.

No. 384,022. Patented June 5, 1888.

Fig. 1.

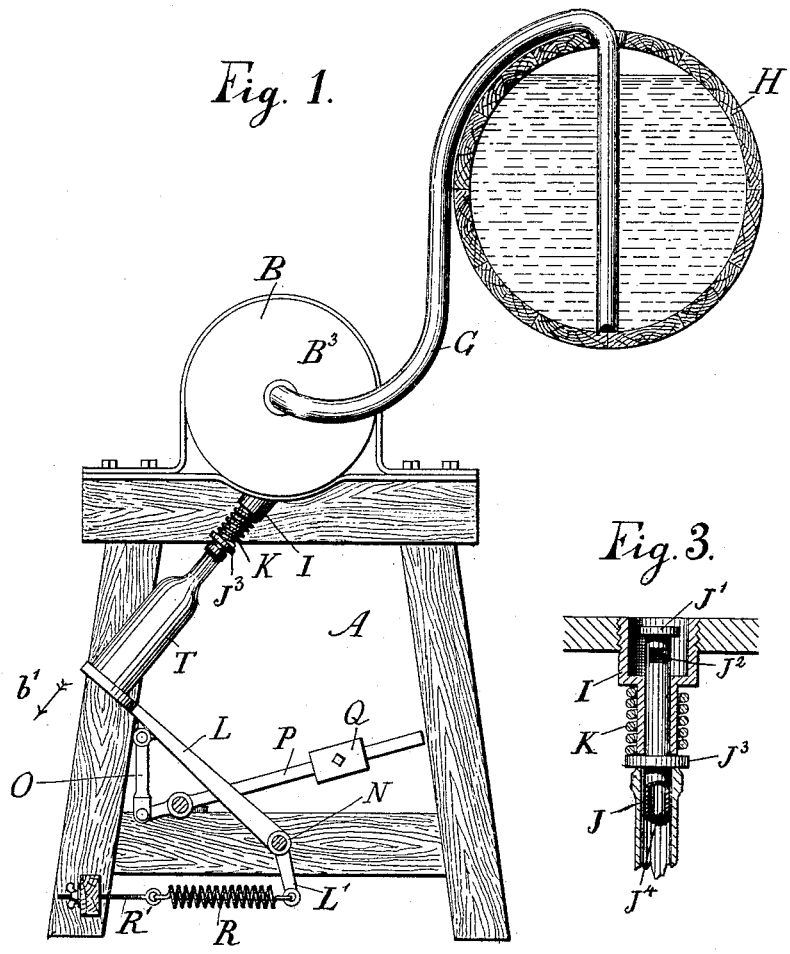
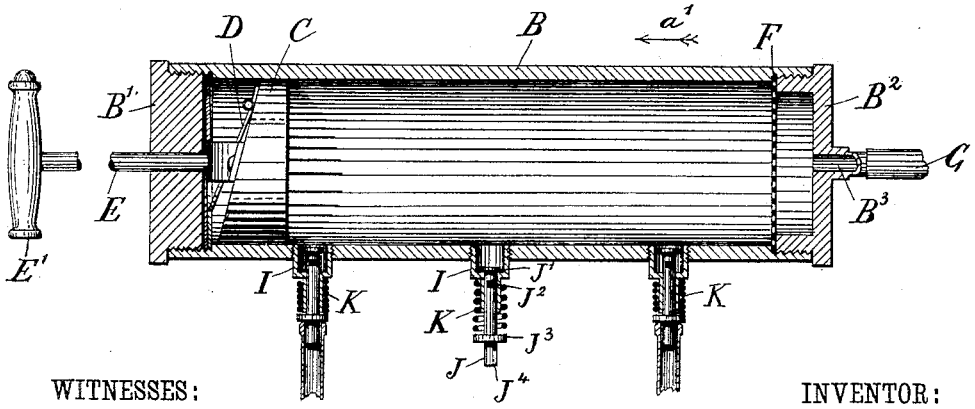


Fig. 3.

Fig. 2.



WITNESSES:

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BOTTLE-FILLER.

SPECIFICATION forming part of Letters Patent No. 384,022, dated June 5, 1888.

Application filed May 20, 1887. Serial No. 238,839. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. COMSTOCK, of Oskaloosa, in the county of Mahaska and State of Iowa, have invented a new and Improved Bottle-Filler, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved bottle-filler which is simple and durable in construction and very effective and automatic in operation.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is an end elevation of my improvement, with the supply barrel or tank in section. Fig. 2 is a longitudinal sectional elevation of the filling-cylinder, and Fig. 3 is an enlarged sectional elevation of the filling-valve.

On a suitably-constructed frame, A, is mounted longitudinally the filling-cylinder B, provided with the heads B′ and B². In the cylinder B travels the piston C, having a central aperture, over which operates a valve, D, hinged at its upper end to said piston C. The latter is connected with the piston-rod E, which extends through the cylinder-head B′, in which it has its bearing, and the rod E is provided at its outer end with a handle, E′, or other means for imparting a sliding motion to said piston C in the cylinder B.

To the inner side of the head B² is held the sieve F, and said head B² is provided with an inlet-pipe, B³, which connects with one end of a flexible tube, G, leading upward and extending into the barrel or tank H, containing the liquid to be filled into the bottles. The tube G extends to the bottom of the barrel H and is passed into the barrel through its bung-hole. Into the interior of the cylinder B lead a number of pipes, I, secured to the cylinder-wall and extending outward and being provided with an enlarged inner end. In the smaller part of each pipe I is fitted to slide a valve, J, provided at its inner end with a head, J′, held in the enlarged part of the pipe I and being seated on the shoulder formed between the enlarged part and the smaller part of the pipe I. The valve J is provided with a central opening which leads from the outer end to the side opening, J², adapted to open into the enlarged part of the pipe I when the valve J is pressed inward, as shown in Fig. 3. Near the outer end of the valve J is formed a collar, J³, against which presses one end of a spring, K, coiled on the reduced part of the pipe I and pressing with its other end against the shoulder formed between the enlarged part and the small part of the pipe I. The spring K forces the valve J to its outer position, so that the inner head, J′, is seated in the enlarged part of the pipe I, as shown in the middle part of Fig. 2.

Directly below each valve J is placed a bottle-rest, L, pivoted on a shaft or rod, N, mounted on the main frame A. A link, O, connects pivotally the bottle-rest L with the lever P, fulcrumed on the main frame A and provided with a weight, Q, held adjustably on said lever P, so as to increase or diminish the pressure of the lever on the bottle-rest L. The latter may also be provided with an extension, L′, connected with one end of the spring R, connected at its other end with an adjustable bolt, R′, held in suitable bearings on the main frame A and adapted to increase or diminish the tension of the spring R.

The operation is as follows: The supply barrel or tank H is held above the filling-cylinder B, and is connected with the latter by the flexible tube G, one end of which extends to the bottom of the supply-barrel H, its other end connecting with the pipe B³, leading to the interior of the cylinder B. When the operator starts the machine, he moves the piston C to its extreme inner position near the sieve F, and then pulls the piston C outward in the direction of the arrow *a′* a sufficient distance to create a suction in the cylinder and thereby start the siphon. The operator now grasps the flexible pipe G with one hand and with the other hand forces the piston inward adjacent to the sieve and out of his way, when the pipe is released and the liquid allowed to flow into the cylinder through the valve D. The liquid discharged into the cylinder B is strained by the sieve F and then passes through the piston C, filling the cylinder completely on both sides of the piston C, the valve D open-

ing outward, as shown in Fig. 2. The valves J remain in a closed position by the pressure of the spring K until the operator places the mouth of the bottle T upon the extreme outer end, J^4, of the valve J and rests the bottom of the bottle on the bottle-rest L, as shown in Fig. 1. The weight Q and the spring R are so adjusted as to move the bottle-rest L inward, so that the mouth of the bottle, resting against the collar J^3, forces the valve inward into the position shown in Fig. 3, whereby the aperture J^2 opens into the enlarged part of the pipe I and permits the liquid in the cylinder B to flow through the hollow stem of the valve J into the bottle T. When the latter is filled, it overbalances the weight Q and the spring R, so that the bottle-rest L swings downward in the direction of the arrow *b'* a short distance until the head J' of the valve J is again seated in the pipe I and the flow of the liquid from the cylinder into the bottle ceases. The filled bottle is then removed and an empty bottle is placed on the bottle-rest L, and the above-described operation is repeated.

By the use of the spring and weight the one so modifies the action of the other that the weight of the filled bottle will not depress the rest too suddenly, as would be the case if a weighted lever only were used, nor will it depress it too slowly and cause the liquid to overflow, as would be the case if the spring R was used alone. Empty bottles, which are supposed to be alike in every respect, vary in weight, and therefore in capacity; hence some will be quite full and will depress the rest L in the absence of the spring so suddenly as to cause the liquid to be forced out and wasted by the jar, and when the bottle is removed the weight comes down with a clatter, causing a great deal of noise, and, moreover, the parts soon get out of order; but by combining the spring with the weight the above objections are overcome.

Any number of pipes I and corresponding valves J may be connected with the valve-cylinder B. It will be seen that as the flexible pipe or tube G acts as a siphon after the piston C is moved, as above described, the liquid in the supply barrel or tank will be entirely discharged into the filling-cylinder B. It will also be seen that by my improved bottle-filler I dispense with the use of faucets for connecting the supply-tank H with the filling-cylinder B, thus avoiding all waste of the liquid to be bottled. The filling-cylinder B is held filled with the liquid, so that the atmospheric air cannot come in contact with the liquid while it is being bottled. The sieve F can easily be taken out and replaced by unscrewing or removing the cylinder-head B^2.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

The combination, with the frame, the filling cylinder or tank, and the valve, of the bottle-rest L, pivoted at N and having an extension, L', below its pivotal point, the adjustable spring R, connected with the frame and the said extension, the lever P, pivoted to the frame between its ends and having a weight on its long arm, and the link O, connecting the short arm of said lever with the bottle-rest above its pivotal point, substantially as set forth.

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Witnesses:
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CHARLES P. SEARLE.