

(No Model.)

J. C. BAUER.
BEER BOTTLING MACHINE.

No. 382,023.

Patented May 1, 1888.

Fig. 2.

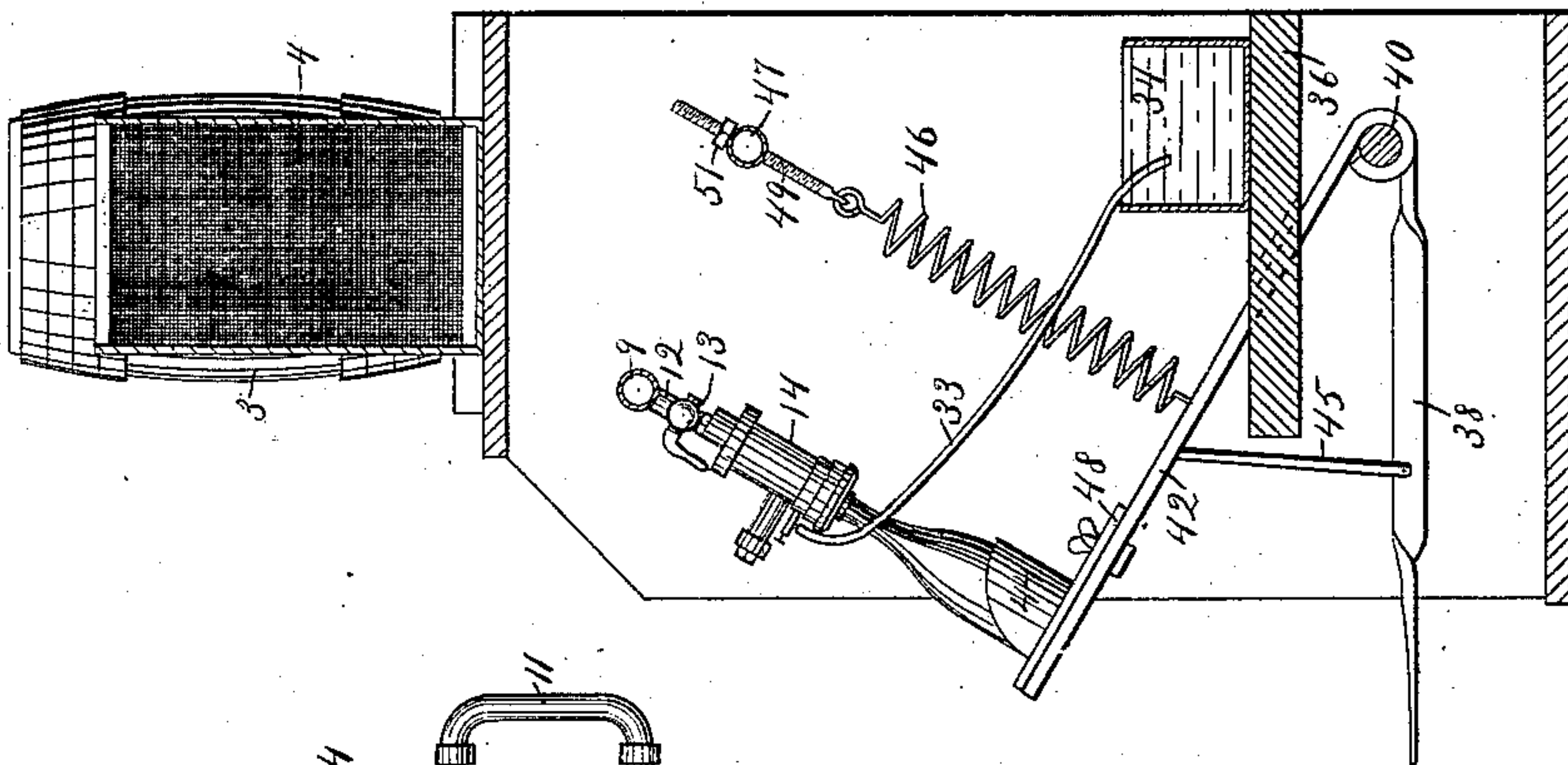


Fig. 1.

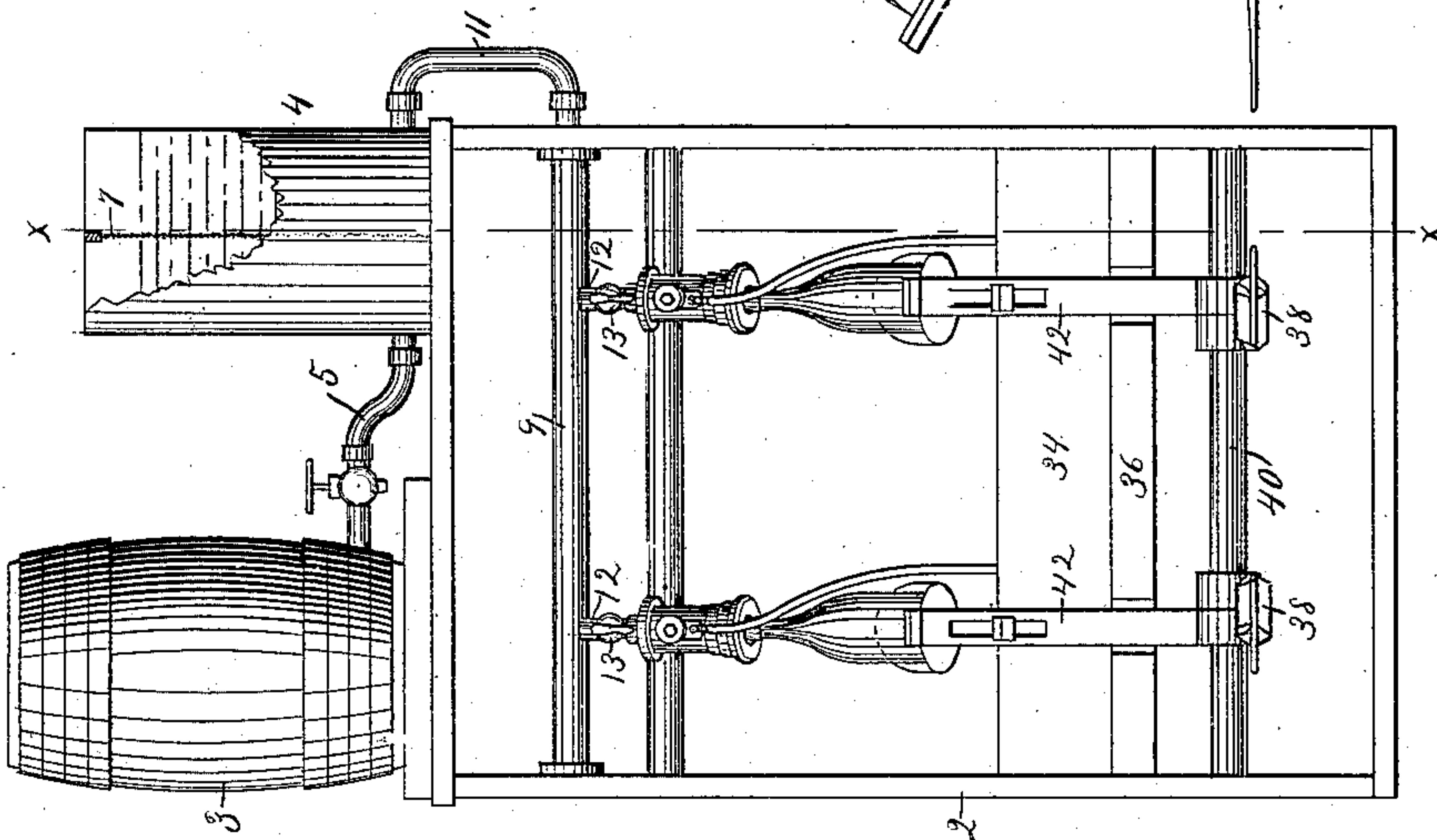
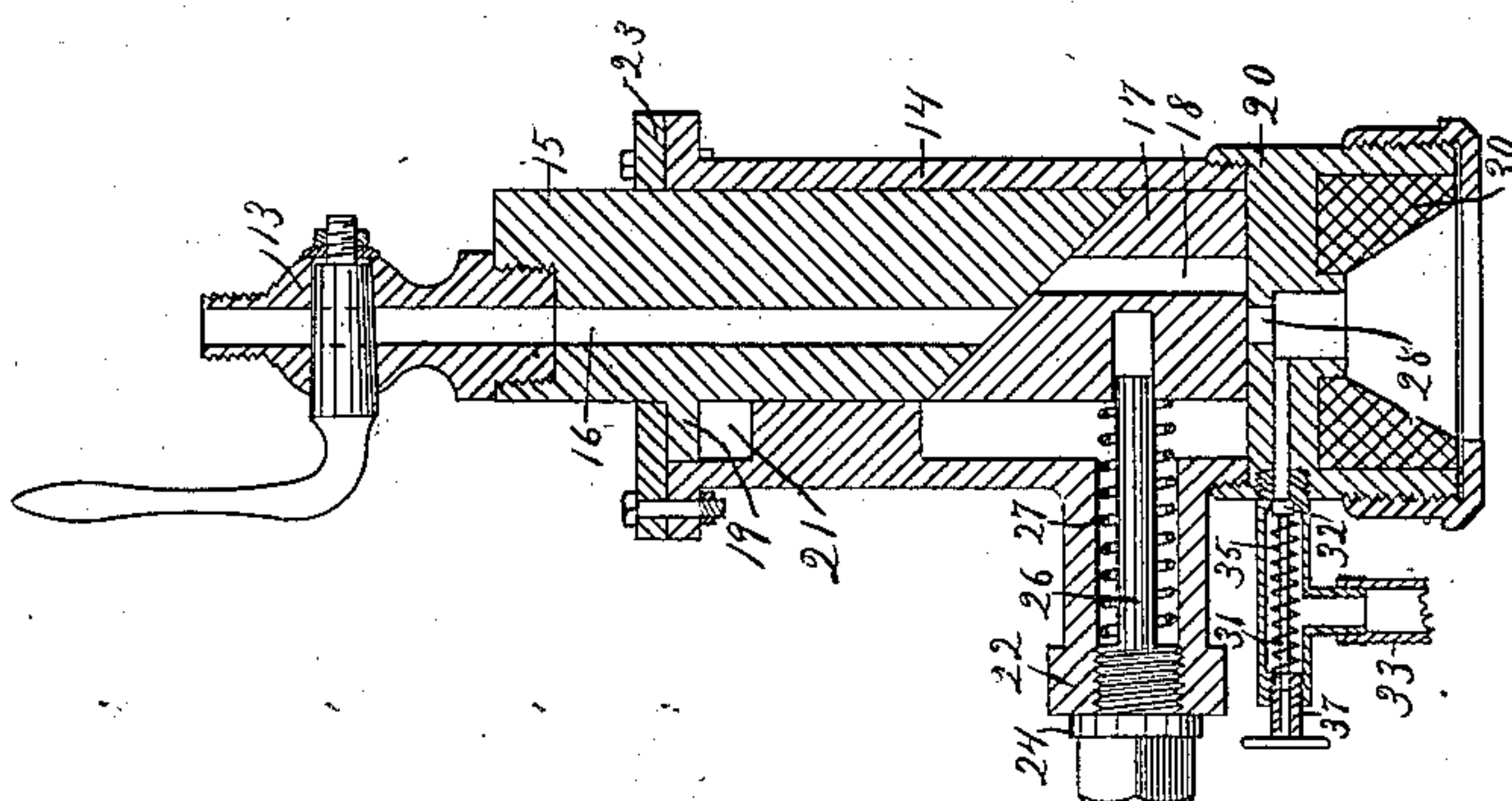


Fig. 3.



Witnesses.

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BEER-BOTTLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 382,023, dated May 1, 1888.

Application filed June 22, 1887. Serial No. 242,093. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. BAUER, of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain Improvements in Beer-Bottling Machines, of which the following is a specification.

My invention relates to improvements in machines for filling bottles with beer or other effervescent liquid; and it consists, generally, in an automatic cut-off valve which is opened by the bottle as it is brought in contact with it, and the liquid is allowed to pass into the bottle without being exposed to the atmosphere, thereby retaining the gases which would otherwise pass off and deteriorate the liquid, and be closed and the flow of the liquid stopped when the bottle is removed.

My invention further consists in the combination and arrangement hereinafter described, and particularly pointed out in the claims.

In the drawings which form a part of this specification, Figure 1 is a front elevation of my improved bottling-machine, the wall of the filter being partly broken away. Fig. 2 is a vertical section through line X X of Fig. 1. Fig. 3 is a longitudinal section showing the construction of the cut-off valve.

In the drawings, 2 represents the frame of the machine, which supports the parts of the operating mechanism. This frame is preferably composed of side pieces of any convenient size, which are preferably connected together at the top by a shelf or other suitable framework, which forms a support for the keg or reservoir 3, in which the liquid is stored, and the filter or strainer 4, through which it passes in order to free it from impurities before entering the bottle. This strainer or filter is preferably formed of a cylindrical case connected to the reservoir 3 by a flexible tube or pipe, 5. This pipe enters the filter-case at or near the bottom in order to avoid a fall of the liquid as it passes into the said filter, and thus prevent it from foaming. For this purpose, also, I place the wire gauze 7, through which the liquid is strained, perpendicularly in the filter-case, so that the liquid will pass from one side of it to the other without agitation. The filter-case may be placed on the same level as the reservoir or slightly below it, (in order to draw all the liquid from the said reservoir,) and the liquid will gradually pass into the

filter and fill it or rise to the level of that in the reservoir. By using this device the liquid may be drawn from the keg or other receptacle and passed through the filter without agitating it.

9 represents a pipe or tube, which preferably passes horizontally through the frame 2. One end of this tube is closed and the other is connected to the filter by the flexible tube 11. The pipe 9 is preferably provided with two or more branches or T's, 12, which are internally screw-threaded and receive one end of a faucet, 13. The opposite end of this faucet is attached to and supports the cut-off valve. The object of the faucet 13 is to provide a means of stopping off the flow of liquid from any one of the cut-off valves without interfering with the operation of the others.

The construction of the cut-off valve will be more clearly seen by reference to Fig. 3. A plunger, 15, is provided with an eccentric collar, 19, formed upon it, which fits in a corresponding recess in the valve-case. The cover 23 of the valve-case fits the body of the plunger above the said collar, and the recess 21 is bored to a sufficient depth to allow the required reciprocating movement of the valve-case upon the plunger, and also prevents the case from turning on the plunger. The body of the plunger is preferably provided with an internal screw-thread at its upper end and receives the end of the faucet 13, and an opening, 16, corresponding to the opening in the said faucet, extends longitudinally through it. The lower end of the plunger is cut diagonally across at an angle of about forty-five degrees, and is carefully fitted to a slide-valve, 17, also provided with an opening, 18, corresponding in size and direction to the opening in the plunger, but only in line with the said opening when the slide is forced up and back to its farthest position. The lower end of the slide is fitted to form a flat joint upon the cap 20, which covers the lower end of the valve-case. The upper end of this case is closely fitted to and slides vertically upon the plunger 15, the movement being limited by the collar on said plunger, as described.

22 represents a projection upon one side of the case 14. This projection is bored out and its outer end is screw-threaded and receives a cap or cover, 24.

26 represents a rod secured to the cover 24 and extending into the opening formed in the projection 22. This rod forms a guide to the spring 27, one end of which bears against the cover 24, and the other end is in contact with the slide-valve 17. The object of this spring is to force the said slide-valve forward and downward upon the inclined face of the plunger and cause its normal position to be that represented in Fig. 3, with the opening in the plunger closed by the solid part of the valve.

The cap 20 is provided with an opening, 28, which is in direct line with the opening in the plunger.

It will be seen that as the valve-case 14 is forced upward the slide-valve 17 will also be carried in the same direction and will travel upward upon the inclined face of the plunger, which will force it back against the tension of the spring 27 until it reaches its upward limit, when the opening 18 in the slide-valve will be in line with the openings 16 and 28 in the plunger and the cap and a continuous opening will be formed through the entire valve. As soon, however, as the case is released, the spring 27 acts upon the slide and causes it to return to its original position and the opening is again closed.

The lower surface of the cap 20 is preferably formed cup shaped and receives a rubber or other flexible concave washer, 30. This washer receives the nose of the bottle and forms an air tight joint to prevent the escape of the liquid and gases. It is necessary, however, to provide a means for the air to escape from the bottle before it can be filled. I prefer to do this by means of a spring-valve, 32, provided with a spindle, 31, and a spiral spring, 35. This spring bears against the valve and against the screw-cap 37. By turning this cap the tension on the spring can be regulated. The valve is attached in such a manner as to connect with the opening above the point where the liquid enters the bottles. This valve may be provided with a flexible tube, 33, one end of which is immersed in water to prevent the escape of heavier gases. This water may for convenience be placed in a receptacle, 34, upon a support, 36, placed at the back of the machine and secured to the frame 2. The spring 35, acting upon the valve 32, determines the pressure at which the air is expelled from the bottle. It is an advantage to cause the air to pass out under as great a pressure as possible and allow the liquid to fill the bottle. By so doing more of the gases are retained in the liquid, and the air, being lighter than the gas, will rise and pass off first, and by immersing the outlet-tube in water it will serve to a great extent to prevent any escape of gas. The tube will be sealed by the water and all contact between the outside air and the contents of the bottle be prevented.

38 represents a foot-treadle, which extends outward from a shaft or rod, 40, upon which it oscillates. A lever, 42, is also arranged to

swing upon this shaft, and upon the outer end of this lever I prefer to place a bottle-holder, 44, which is attached to the lever by means of an adjustable plate, 48, and is held in position by the bolt and thumb-nut passing through a slotted hole in the lever, and by this means allowing the bottle-holder to be adjusted to suit the position of the cut-off valve for bottles of varying sizes. A rod or brace, 45, connects the lever 42 with the treadle 38. A spring, 46, is attached to the lever and adjustably secured to a rod or bar, 47, at the back of the machine. This adjustment may be made as shown in the drawings, in which 49 represents a screw-threaded rod passing through the bar 47 and held in position by the nut 51, thus providing a means for putting more tension on the spring and adjusting the said spring to suit bottles of different heights. The spring itself is for the purpose of forcing the bottle against the end of the cut-off valve and holding it in this position until filled.

The operation of my device is as follows: The keg or reservoir is filled and placed in position and connected to the filter, as before described. The faucets 13 are turned to allow the flow of liquid to as many of the cut-off valves as are required. The foot is placed upon the treadle and the lever drawn forward against the tension of the spring 46, which has been previously adjusted to suit the length of the bottle to be used. The bottle is now placed in the bottle-holder 44, which has been adjusted upon the lever to bring the bottle in line with the cut-off valve. The treadle is now released and the spring draws the lever and bottle upward until the nose of the bottle comes in contact with the concave rubber washer 30 upon the under side of the cut off valve. The outer case of the valve will be raised by the tension of the spring and the slide-valve 17 forced back, as before described, and the opening completed from the filling-pipe 9 to the bottle. The air in the bottle passes out through the spring-valve 32 under sufficient pressure to prevent, as far as possible, the escape of the gas from the liquid and is conveyed to the tank and exhausted under water, which will have a further tendency to prevent the escape of the gases and will absolutely prevent any inlet of air to the bottle, and the liquid will flow into the bottle until it is filled, when by a pressure upon the treadle the bottle will be removed and the slide 17 in the cut-off valve will immediately close the opening 16 and the flow will be stopped. The bottle while being filled will be held against the rubber washer and be kept air-tight, and the liquid will pass in without being exposed to any ill effects from coming in contact with the outside air.

I claim as my invention—

1. In a bottle-filling machine, the combination, with the filling-pipe, of the plunger 15, having an opening through it and having the inclined lower face, the slide-valve 17, having the opening 18 and having the inclined

face bearing against the inclined face of the plunger, and the spring 27, bearing against said slide, all substantially as described.

2. The combination, in a bottling-machine, 5 with the filling-pipe, of the plunger 15, having an opening, 16, communicating with said pipe, the valve-case sliding on said plunger, and the cut-off slide 17, arranged in said case and provided with the opening 18, all substantially as 10 described.

3. The combination, in a bottle-filling machine, with the plunger 15, having the inclined lower end, and the slide 17, having the inclined face bearing against the lower end of 15 said plunger, of the vertically-sliding valve-case 14, provided with the opening 28, and the rubber gasket 30, all substantially as described.

4. The combination, in a bottle-filling machine, of a stationary plunger, a movable case 20 surrounding said plunger and adapted to receive the end of a bottle-neck, the cut-off slide located in said case, and the spring-valve connected with the case below said slide, substantially as described.

25 5. The combination, in a bottle-filling machine, with the filling pipe, of the sliding cut-off valve, the air-outlet valve 32, connected

therewith and provided with the pipe 33, and a bottle-support, substantially as described.

6. The combination, in a bottle-filling machine, of a cut-off valve adapted to be opened 30 by the pressure of a bottle-neck against it, an adjustable bottle-support, an adjustable spring connected with said bottle-support and drawing it toward said valve, and a treadle con- 35 nected with said lever for withdrawing the same, all substantially as described.

7. The combination, in a bottle-filling machine, of a cut-off valve having its lower end provided with a conical cushion or packing 40 and adapted to make an air-tight joint with a bottle-mouth, and an escape-valve arranged below the cut-off and provided with a tube extending into a suitable receptacle adapted to contain a supply of water, whereby the air 45 in the bottle may be allowed to escape while the carbonic-acid gas is retained and the outside air is prevented from coming in contact with the liquid, substantially as described.

JOHN C. BAUER.

In presence of—

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A. M. GASKELL.