

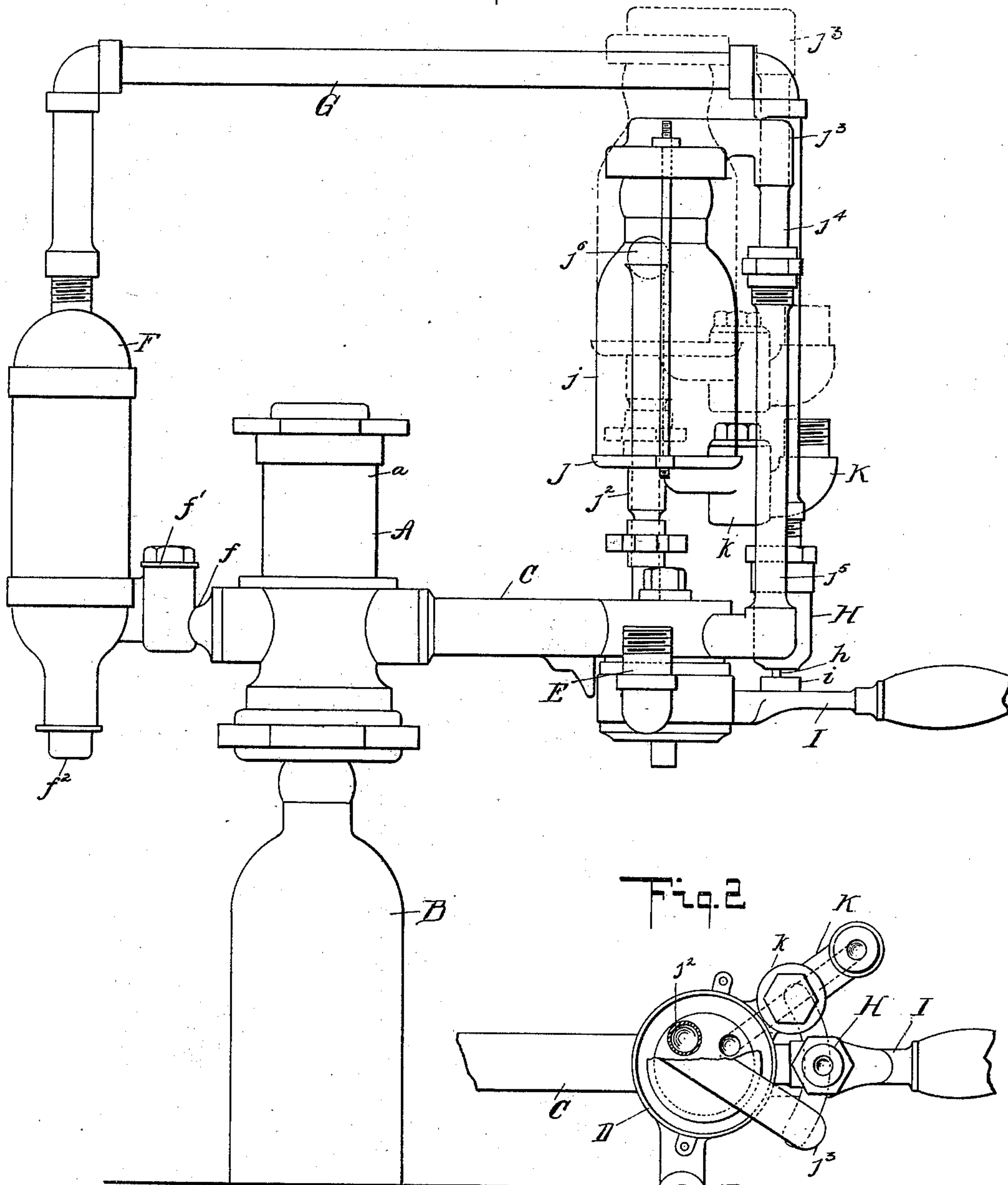
(No Model.)

2 Sheets—Sheet 1.

F. S. WALDO.
APPARATUS FOR SUPPLYING AERATED LIQUIDS WITH SYRUP
DURING BOTTLING.

No. 560,826.

Fig. 1 Patented May 26, 1896.



WITNESSES:
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Geo. O. Mowbray

INVENTOR
Francis S. Waldo
BY *Briesen, Knantz*
his ATTORNEYS

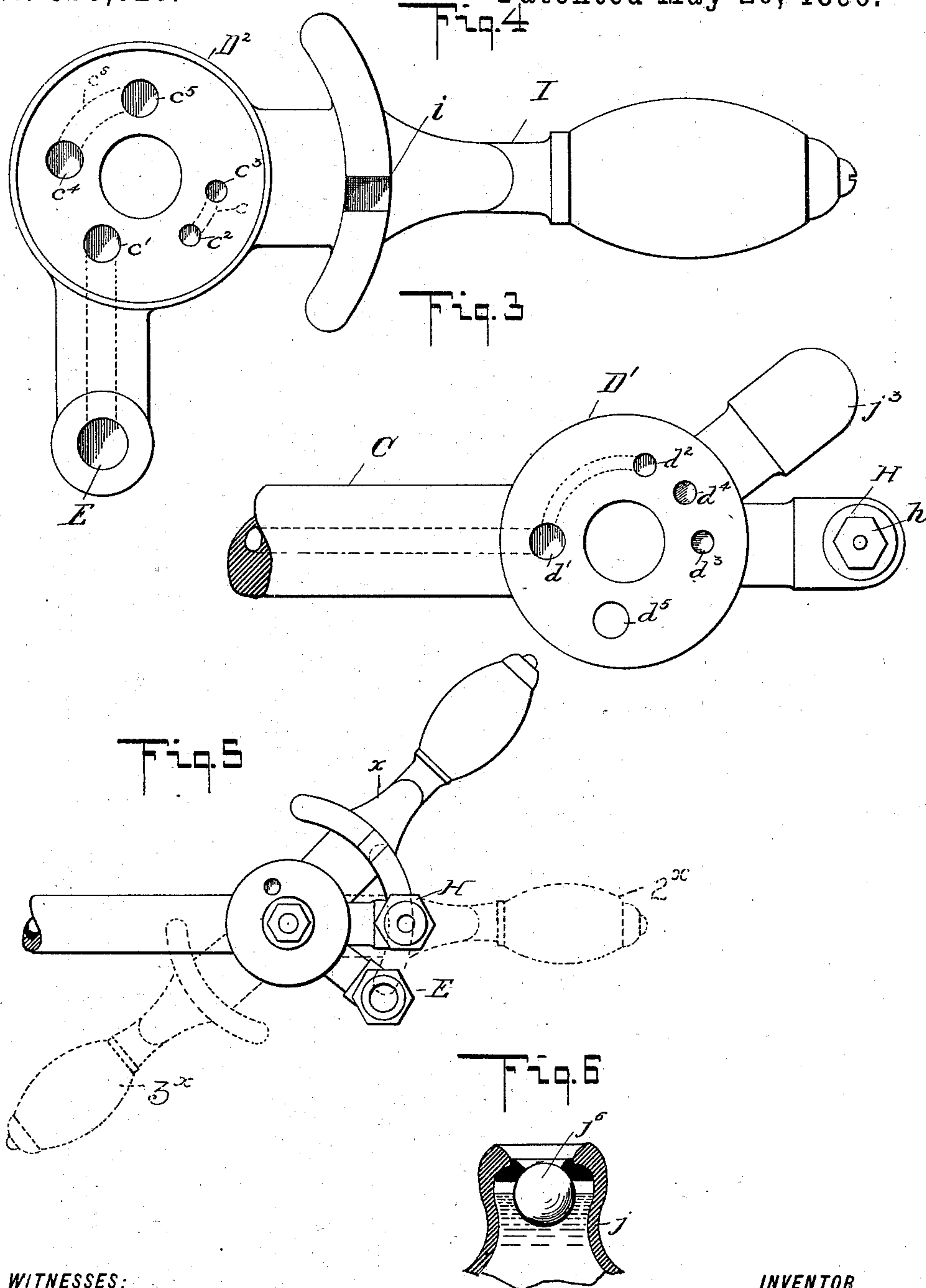
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WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANCIS S. WALDO, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF
TO WILLIAM J. CUNNINGHAM, OF SAME PLACE.

APPARATUS FOR SUPPLYING AERATED LIQUIDS WITH SYRUP DURING BOTTLING.

SPECIFICATION forming part of Letters Patent No. 560,826, dated May 26, 1896.

Application filed May 7, 1895. Serial No. 548,379. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS S. WALDO, a resident of Brooklyn, Kings county, State of New York, have invented a certain new and Improved Apparatus for Supplying Aerated Liquids with Syrup During Bottling, of which the following is a specification.

My invention relates to filling apparatus, and has for its object to produce an apparatus which may be used for bottling aerated liquids and supplying the same with syrup during bottling, the said syrup supply being preferably automatically regulated by the excessive gas-pressure in the bottle.

To this end my invention consists in the construction and arrangement hereinafter set forth and claimed.

My invention will be understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a form of apparatus embodying my invention, parts being shown in dotted lines and certain other parts being shown in adjusted positions by means of dotted lines. Fig. 2 is a broken-away detail plan view of a portion of the apparatus hereinafter more fully set forth. Fig. 3 is a broken-away plan view, looking upward, of the seat of the three-way valve employed in my apparatus. Fig. 4 is a plan view of the valve-disk. Fig. 5 is a plan view of the valve, showing it in its various positions in dotted lines; and Fig. 6 is a detail sectional view of the upper portion of the syrup-cup, showing the means of preventing the overflow of the syrup or other liquid through the vent and so through the corking-cylinder.

In the drawings, A is an ordinary filling or bottling head which is intended to close over the open mouth of the bottle, as B, which it is intended to fill with soda-water and the like and to contain a cork or stopper in its upper portion *a*, which cork or stopper is driven through the filling or bottling head and into the bottle at the proper time. This cylinder connects at one side with the water-supply vessel through the pipe C and valve D and pipe E. The water vessel and the connection between the pipe E and the water vessel are omitted for the purpose of clearer

illustration. The valve D controls the flow of water to the filling device in a manner which will be fully set forth.

F is a gas-reservoir which preferably connects with the filling device A through a pipe *f*, containing a check-valve *f'*. The gas-reservoir may be and by preference is provided with a blow-off *f*². Leading from the gas-reservoir F is a pipe G, which communicates with the pipe H, which enters the three-way valve. In this pipe H is a valve, (not shown,) which is controlled by a valve-stem *h*, which is operated by a cam *i* in the handle I, which serves to control the main valve D. Mounted upon an adjustable platform J is a syrup-cup *j*, and passing through the platform and into the bottle is a stationary stand-pipe *j*². This stand-pipe connects with the main valve D and serves to convey syrup from the syrup-cup *j* to the main valve, and thence through the pipe C to the bottle to be filled. In communication with the top of the syrup-cup *j* is a feed-pipe *j*³, which communicates with the main valve D. There is also a syrup-supply pipe K, having therein a check-valve to prevent back flow and in communication with a supply of syrup. The main valve D consists of two parts, one the seat D' and the other the valve-disk D², which are provided with suitable ports. In the present instance the valve-seat D' is provided with a port *d'*, which communicates with the pipe C, which leads to the filling-head and through the core of the valve-seat D' with an outlet-port *d*². The valve-seat D' is also provided with a port *d*³, which is in communication with the pipe H, which is in communication with the gas-reservoir F through the pipe G. The valve-seat D' is also provided with a port *d*⁴, which is in communication with the pipe *j*³, which leads to the top of the syrup-cup. This pipe *j*³ is made in two telescoping sections *j*⁴ and *j*⁵, which sections slide within one another when the syrup-cup is raised or lowered. This raising or lowering of the syrup-cup is for the purpose of entering more or less of the stationary stand-pipe *j*² into the syrup-cup, so as to regulate the quantity of syrup to be injected into the bottle B, which is to be filled. This stand-pipe *j*² is preferably provided at its upper end with a seat for a

ball-float valve j^6 , the said ball-float valve j^6 being adapted to also close the upper end of the syrup-cup j and to measure the syrup and gas used. There is a port d^5 in the valve-seat D' , which communicates with the stand-pipe j^2 , which enters the bottle j . In the valve D^2 there is a port c' , which communicates with the pipe E , which brings the gas and water supply to the valve D ; but it will be understood that the gas and water may be brought by separate pipes, if desired. There are also in the valve D^2 ports c^2 c^3 , which are in communication with each other through the core of the valve by a passage c . The valve D^2 is also provided with ports c^4 c^5 , which are in communication with each other through the valve-core by a passage c^6 . It will be readily apparent that the parts D' D^2 fit together, the faces of these parts (shown in Figs. 3 and 4) coming in contact, so that as the handle I is turned the various ports in the valve-seat D' and valve D^2 will be placed in communication with each other in order to carry out the function of the apparatus.

Before proceeding to describe the operations of my device I will have it understood that during bottling the air and excess of gas escape from the filling-head A through the pipe f into the reservoir F through the check-valve f' . Here it is designed to be held to serve as an expeller to drive syrup out of the syrup-cup j through the valve D and into the bottle B , which is to be filled. This will be fully explained hereinafter. The supply of syrup comes to the syrup-cup j by way of the pipe K , and is withdrawn from the syrup-cup j by the stand-pipe j^2 , whence it flows into the valve D , and at the proper time is directed into the bottle through the pipe C by properly manipulating the handle I .

I will now proceed to describe the detailed operation of my device. In starting the apparatus it is necessary that the reservoir F should be charged with gas, a cork being previously inserted in the filling-head. This is most efficiently done in the present instance by turning the handle into the dotted position 3^x in Fig. 5. This brings the ports c' and d' into registry and allows gas and water to flow through the pipe C into the filling-head A and bottle B , the surplus gas escaping by way of pipe f and check-valve f' into the reservoir F . The bottle B is now removed and replaced by another bottle B , the main valve having been previously turned so that nothing enters the pipe C . A new bottle B now being in position and a cork or stopper being in the upper part of the filling-head, the operations of injecting the quantity of syrup into the bottle B , allowing the gas to escape from the bottle B , and the filling of the bottle B with water will now be described.

The first operation is to supply the bottle B with syrup. This syrup is contained in the syrup-cup j , being introduced therein by the pipe K , which preferably brings a

continuous supply of syrup to this syrup-cup. The syrup-cup j is adjusted to such a height as corresponds to the amount of syrup which it is desired to inject into the bottle B , and the handle I of the main valve is turned into the position x of Fig. 5. In this position the ports c^5 and d^5 will register, and the ports c^2 , d^4 , and c^3 and d^3 will likewise register. As soon as the handle has been turned to this described position the gas from the gas-reservoir F will flow through the pipes G and H , ports d^3 c^3 , core c , ports c^2 d^4 , pipe j^2 , into the top of the syrup-cup, where it will force out the syrup through the stand-pipe j^2 by the port d^5 , core c^6 , port d' , and pipe C through the filling-head A into the bottle B . When this has been accomplished, the bottle has been supplied with syrup. The gas and water are now introduced into the bottle. This is accomplished by turning the handle into the position 3^x in Fig. 5; but in this position the port c' and d' are in communication, and the gas and water come by the pipe E through the ports c' d' and pipe C into the bottling-head and bottle B . The bottle is filled with gas and water, the excessive gas escaping through the pipe f into the reservoir F , where it remains until it is desired to charge the next bottle with syrup, after which the stopper is driven into the bottle. It is now necessary to remove from the syrup-cup the gas which passed from the gas-reservoir into the top of the syrup-cup. This is accomplished by turning the handle I into the position 2^x of Fig. 5. When the handle is in this position, the gas escapes from the syrup-cup through the pipe f^3 to the valve D into the pipe C , and thence to the filling-head out of the apparatus. This occurs when the full bottle is taken away. This is the detailed operation of the form of invention which I have illustrated, but it will, of course, be understood that the apparatus and its application may be greatly varied without departing from the spirit of my invention, and consequently the operation will vary with the varying constructions; so, therefore, I do not limit myself to the construction and arrangement herein shown; but

What I claim, and desire to secure by Letters Patent, is—

1. In a filling device, the combination of an adjustable syrup vessel in communication with a stationary stand-pipe entering it, and with means substantially as described for expelling its liquid contents by gaseous pressure, substantially as described.

2. The combination in a filling device, of a syrup vessel and a gas-reservoir in communication therewith, the said syrup vessel being adapted to be placed in communication with the filling device.

3. The combination of a filling-head, a syrup vessel and a gas-reservoir interposed between the filling-head and syrup vessel and in connection therewith, substantially as described.

4. The combination in a filling device, of a

gas-reservoir, a syrup vessel connecting the gas-reservoir and the filling device, a water supply and means for alternately connecting the water supply and the syrup vessel with the filling device.

means for measuring out the syrup to each vessel to be filled and means for alternately connecting the syrup supply and the water supply with the filling device.

FRANCIS S. WALDO.

Witnesses:

GEORGE E. MORSE,
MAURICE BLOCK.

5. The combination in a filling device of a water supply, a syrup supply, a gas-reservoir in communication with the syrup supply,