

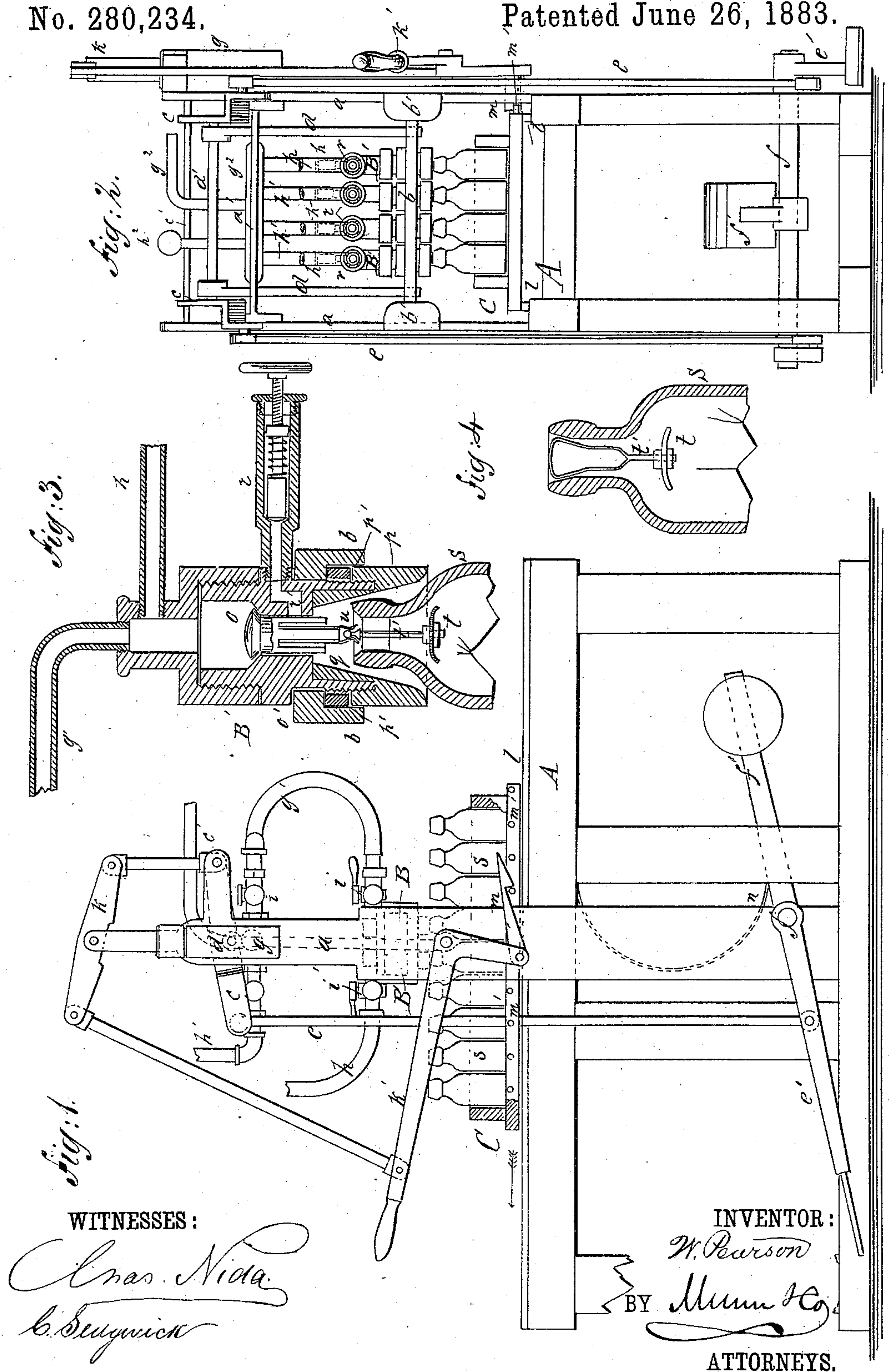
(No Model.)

2 Sheets—Sheet 1.

W. PEARSON.
BOTTLE FILLING MACHINE.

No. 280,234.

Patented June 26, 1883.



WITNESSES:

Chas. Nida
C. S. Sweeney

INVENTOR:

W. Pearson

BY

Mum & Co.

ATTORNEYS.

(No Model.)

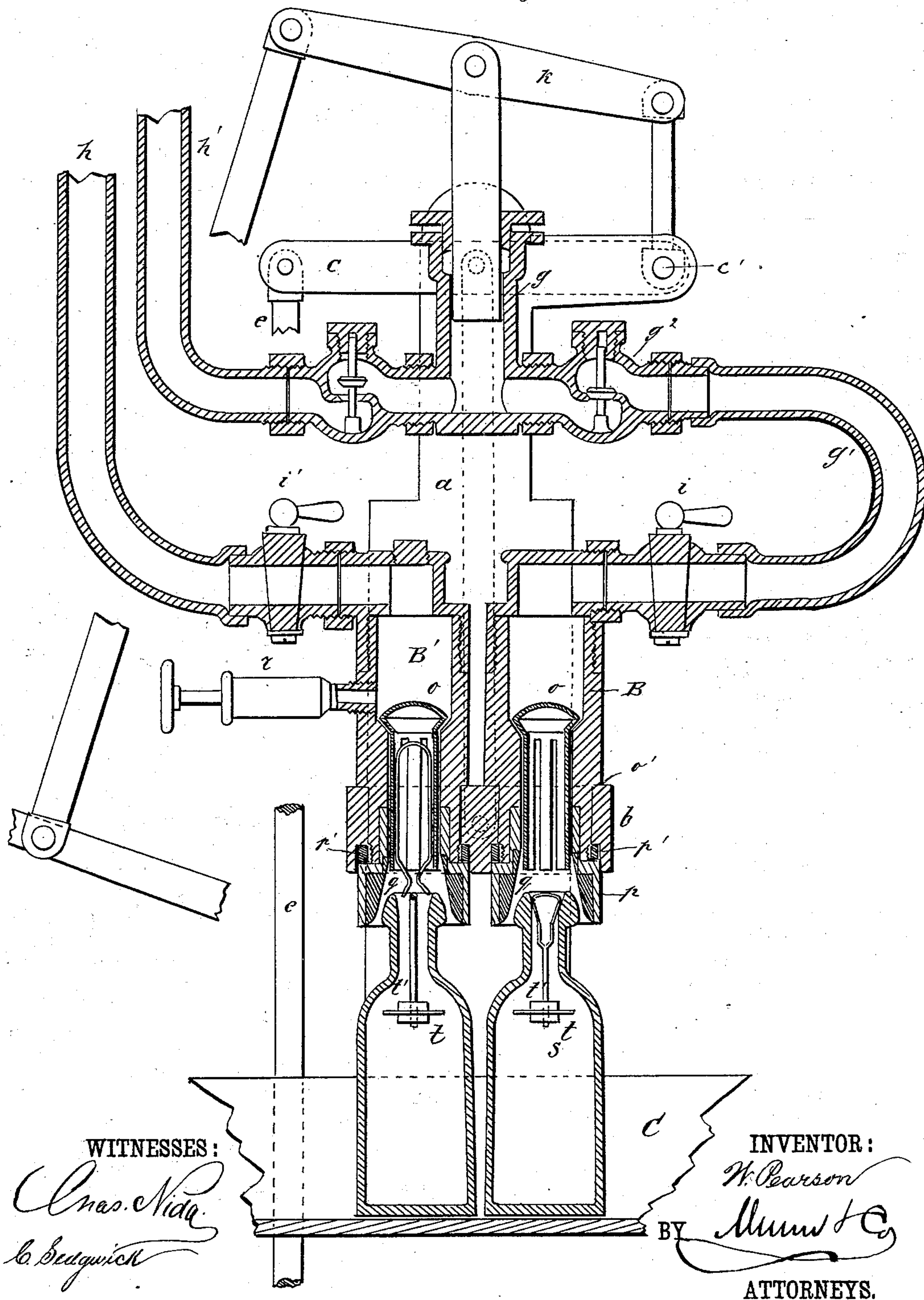
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Fig. 5.



WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

WILLIAM PEARSON, OF CARSON CITY, NEVADA, ASSIGNOR TO JOHN McF. PEARSON, OF PLACERVILLE, CALIFORNIA.

BOTTLE-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 280,234, dated June 26, 1883.

Application filed April 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PEARSON, of Carson City, in the county of Ormsby and State of Nevada, have invented certain new and useful Improvements in Bottle-Filling Machines, of which the following is a full, clear, and exact description.

My improvements relate to machines for bottling soda and other gaseous liquids; and it consists in certain novel features, and in the arrangement and combination of the mechanism, whereby one or more bottles can be filled at once with great facility, all as hereinafter described and claimed.

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

Figure 1 is a side elevation of my improved machine, partially in section. Fig. 2 is an end view, partly in section; and Fig. 3 is a detail section of one valve-chamber. Fig. 4 is a detail view of the bottle-valve, and Fig. 5 is a vertical sectional view of my machine.

A is the main frame or bed of the machine.

a a are side frames rising above the bed, and connected near their upper ends by a cross-bar, *a'*.

b is a cross-head provided at its ends with gibs *b'*, that engage the frames *a*, on which the cross-head moves up and down.

c c are levers hung on a cross-rod, *c'*, and connected by a cross-rod, *d'*, from which rods *d d* extend to the cross-head *b*.

e e are rods connecting levers *c* with a foot-lever, *e'*, and rock-shaft *f*.

f' is a weighted arm on the rock-shaft *f*.

B B' are valve-chambers carried by cross-head *b*.

g is a force-pump—one or two—sustained on one of the standards *a*, and connected to the several valve-chambers B by a pipe, *g'*, and flexible tubes *g''*.

*h*² is an air-chamber connected on pipe *g'*.

h h are flexible tubes connecting to the valve-chambers B' for supplying water from the fountain. *h'* is the suction-pipe of the pump.

i i' are cocks in the tubes *g'* and *h*, respectively, for regulating the supply of material to the valve-chambers.

k is a pivoted beam connected to the piston

or pistons of pump *g*, or pumps, as the case may be, and also connected to a hand-lever, *k'*, for operation of the pump or pumps.

C is the box for containing the bottles, fitted to slide on rails *l* on bed A, and constructed of a size to receive four bottles transversely of the box, or other number corresponding to the number of valve-chambers.

m is a hook hung on the inner end of hand-lever *k'* for engagement with pins *m'* on the side of box C.

n is a spring fitted to act on foot-lever *e'* to assist the upward movement of the cross-head.

The construction of the valve-chambers is shown most clearly in Fig. 3. The water-supply tube *h* and supply-tube *g'* for sirup enter the upper part of the hollow chamber, and the chamber is formed with a seat for a valve, *o*, which, when closed, cuts off the material from the lower part of the chamber. The chamber is formed with shoulders *o'*, that rest on the cross-head *b*, and below the valve *o* the chamber is recessed or formed with a depending flange, on which is a concave nut, *p*. A ring, *p'*, of rubber, is interposed between the nut *p* and head *b*, so that while the nut clamps the chamber to the head the rubber ring allows a slight vertical movement sufficient to equalize the height of the bottles. The nut *p* serves also to retain a beveled ring, *q*, of elastic material, which is for the purpose of guiding the neck of the bottle to place and holding it water-tight while being filled.

r is an escape-valve fitted on the side of the valve-chamber, and communicating by a passage, *r'*, to the interior space below valve *o*, being closed when the valve *o* is on its seat.

The bottles shown at *s* are provided, as shown most clearly in Fig. 3, with valves *t*, that are disks of concavo-convex form, shaped to fit the interior of the bottle-necks. The valves *t* are on the ends of stems *t'*, that extend up to the mouth of the bottles for contact with valves *o*, and the stems *t'* are provided with loops or ends taking on the bevel of the bottle-mouth to limit the inward movement of the valve.

On the lower end of valve *o* are spring-fingers *u* for clutching the valve-stems *t'*, so as to raise the valves *t* at the upward movement of the valve-chamber. These spring-fingers are used when the bottles are being filled with

slightly-gased liquids not having force enough to throw the bottle-valves upward. With highly-gased liquids, the sudden force on the concave under side of the bottle-valves being
5 sufficient to close the valves, the spring-fingers may be dispensed with.

The operation of the machine is as follows: The first row of bottles in box C being in position below the valve-chambers B, and hand-lever *k'* raised, and thereby lifting the piston
10 of pump *g* and charging the pump with sirup from suction-pipe *h'*, the foot-lever *e'* is then to be depressed, which brings the cross-head *b* and valve-chambers B down, and the lower
15 portions of the valve-chambers pressing upon the bottle-heads, the valves *o* of the chambers are pressed open. The hand-lever *k'* is then moved downward. The pump-piston is thereby brought down and the sirup forced through
20 the valve-chamber into the bottles. At the same time the hook *m* is carried to the next pin *m'* on box C. The foot-lever *e'* is then allowed to rise, thereby raising the valve-chambers and allowing their valves *o* to close
25 the bottle being charged, and the hand-lever is then raised, with the effect to move the box *b* forward and bring the first row of bottles beneath valve-chambers B' or second row of chambers, while another row of bottles is brought be-
30 neath chambers B. The next depression of the foot-lever and descent of the cross-head sirups the second row of bottles, and the first row is in the same manner filled with the water supplied to chambers B' by pipe *h*.

35 In filling the bottles with liquid not liable to foam, both the water and sirup may be put in through one valve-chamber and one set of valves. In that case the sirup-pipes *g'* will connect to chambers B', as shown in Fig. 3, by
40 any suitable connection, and the hook *m* will be reversed in position, so as to move box C in the reverse direction of the arrow. The pump will force the sirup into the valve-chamber and drive the water back, and, being more
45 dense than water, will lie at the bottom of the valve-chambers, so as to enter the bottles first when the valves are opened, the water following.

The machine can be made of any required
50 capacity, and four or more bottles filled at each operation.

The stem or loops *t'* of the bottle-valves *t*

are shaped to the form of the bottle-mouth, as shown most clearly in Fig. 4, so that they prevent the valves falling into the bottles. This
55 arrangement is to be distinguished from loops heretofore used, extending above the bottle-mouths, and which could not be used in this machine, as they would prevent the coming together of the valve-chambers and bottle-heads
60 close enough to form water and gas tight joints by contact with the beveled rings *q*.

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

65 1. In bottle-filling machines, the reciprocating head *b*, valve-chambers B B', sirup-pump *g*, water and sirup tubes *g'* *h*, and the sliding box C for containing the bottles, substantially as described, combined for operation by levers,
70 as specified.

2. In bottle-filling machines, the sliding box C, having pins *m'*, and the hand-lever *k'*, carrying the pawl *m*, in combination with the reciprocating valve-chambers B B', substantially
75 as shown and described.

3. The combination, with the valve-chamber B', having valve *o*, and recessed lower portions for receiving the upper end of a bottle, and an elastic ring, of means, substantially
80 as described, for reciprocating said valve-chamber, a beveled elastic ring, *q*, and a bed supporting the bottle, substantially as described, and for the purpose set forth.

4. The combination of the head *b*, carrying
85 the valve-chambers, the levers *e*, rods *d e*, and foot-lever *e'*, substantially as described, for operation as specified.

5. The combination of the pump *g*, beam *k*, hand-lever *k'*, and connections, substantially
90 as shown, with the valve-chambers B, for operation as specified.

6. The combination, with the filling-head, of the valve *o*, provided with fingers *u*, which are adapted to grasp the bottle-stopper and
95 assist its closing, substantially as set forth.

7. The spring-fingers *u*, combined with the valves *o* and chambers B', substantially as and for the purposes set forth.

WILLIAM PEARSON.

Witnesses:

JOHN R. NAWNHAN,
JAMES R. SCOTT.