

(No Model.)

4 Sheets—Sheet 1.

J. MATTHEWS, Dec'd.

E. & G. MATTHEWS, executors.

BOTTLING MACHINE.

No. 308,913.

Patented Dec. 9, 1884.

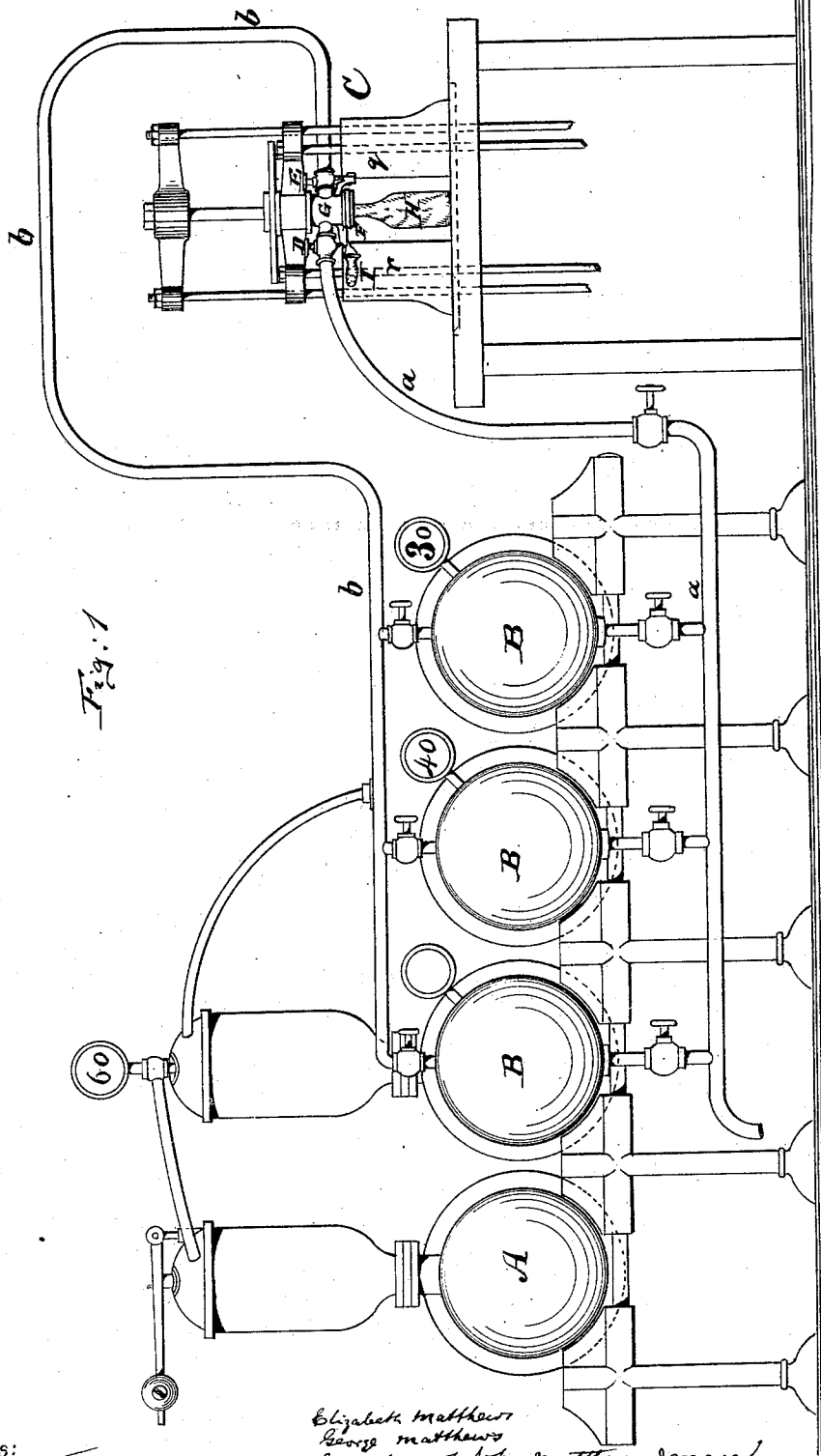


Fig. 1

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John H. Spier

Elizabeth Matthews
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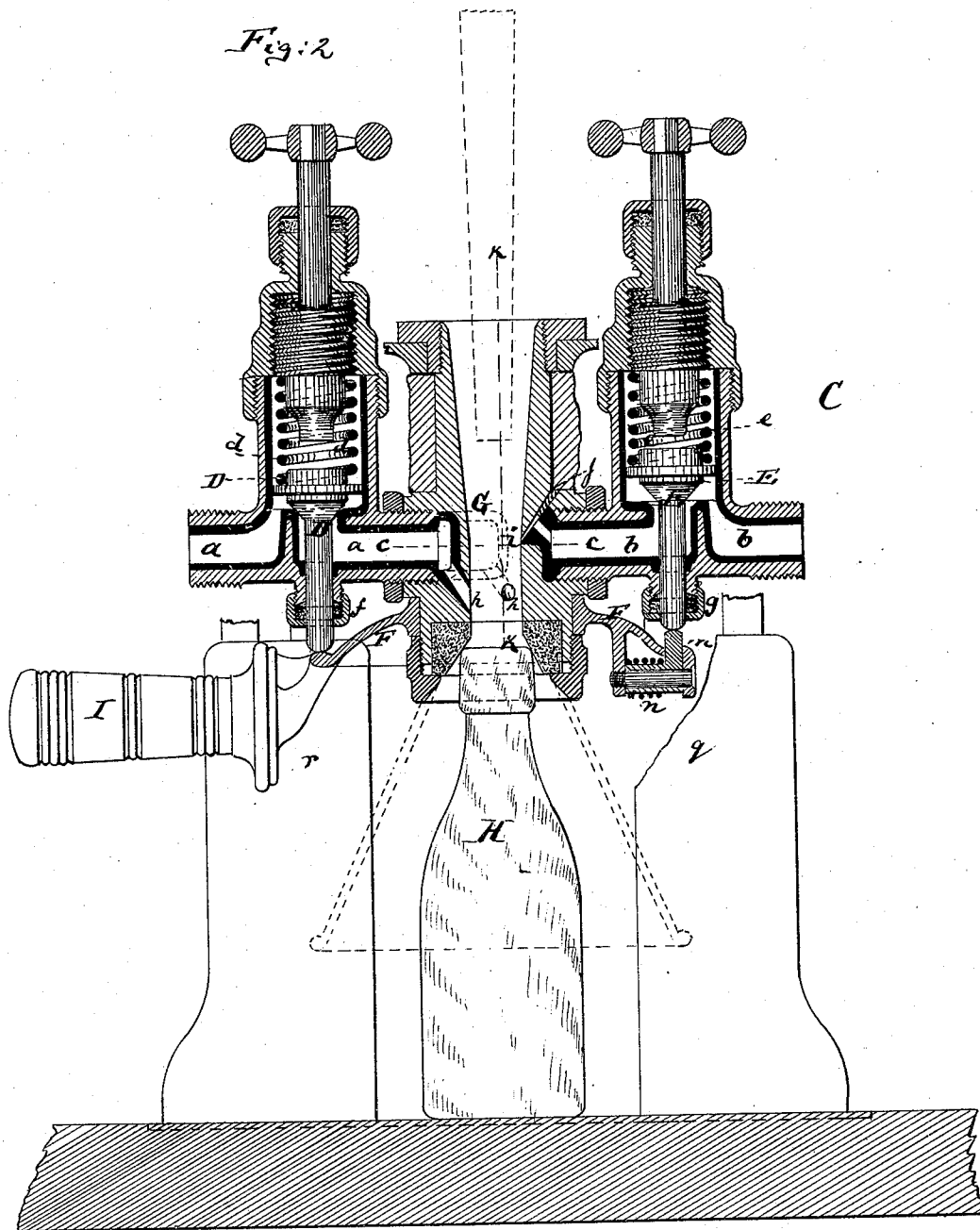
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4 Sheets—Sheet 3.

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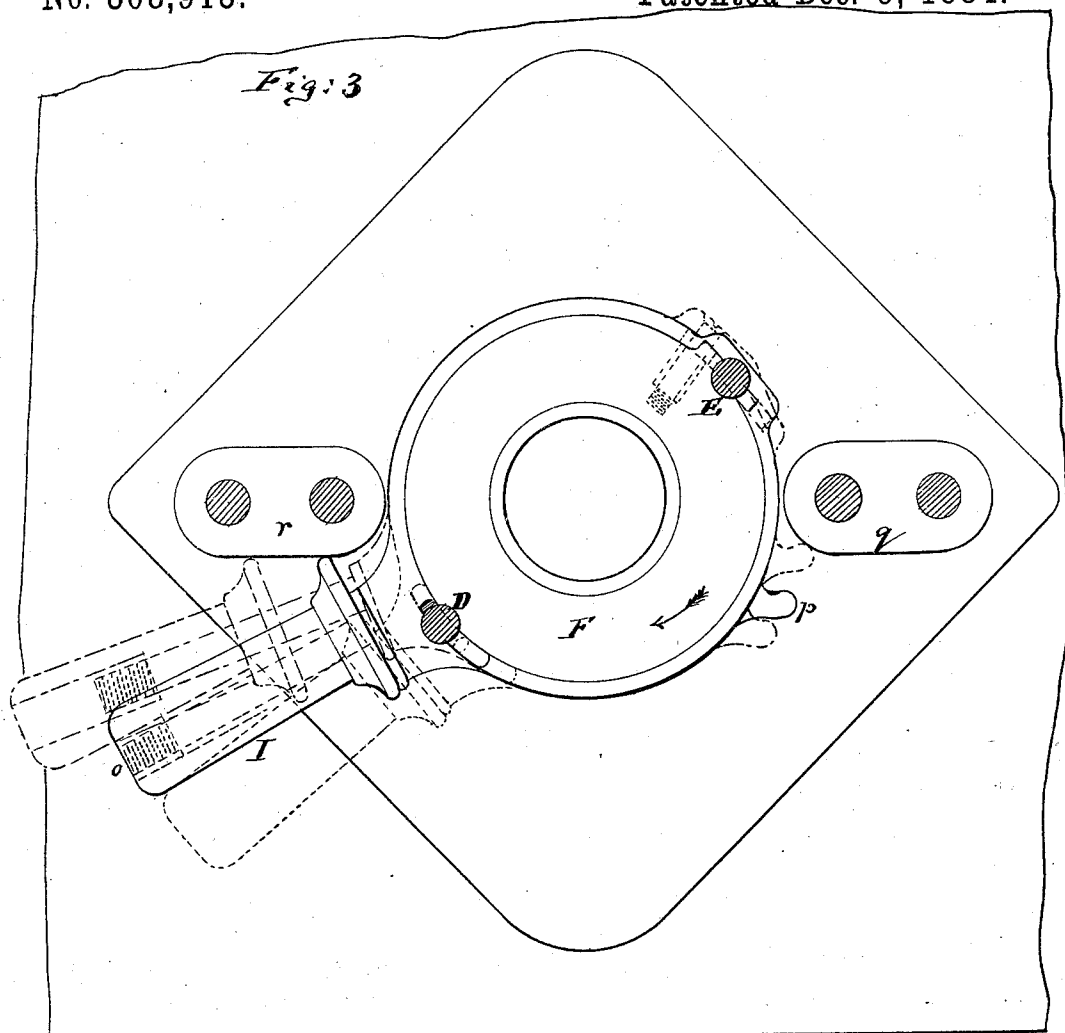


Fig: 4

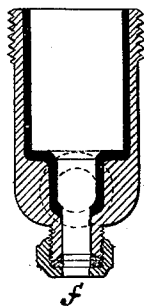


Fig: 5

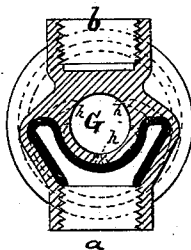
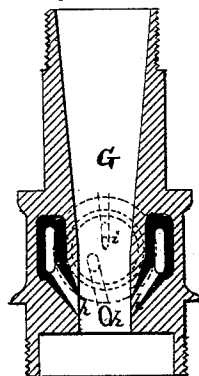


Fig: 6



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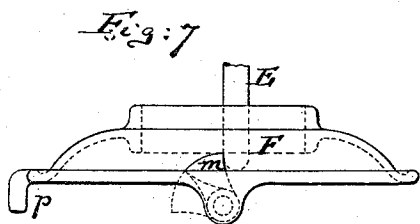
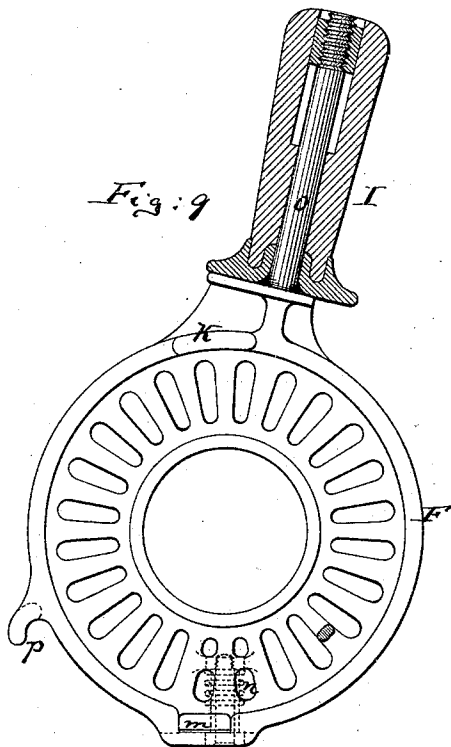
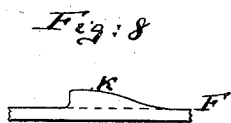
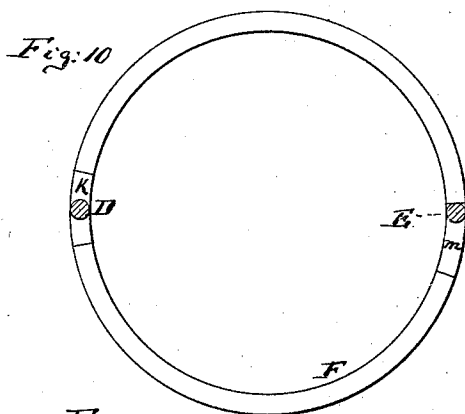
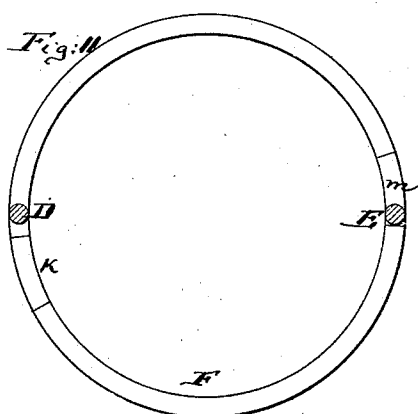
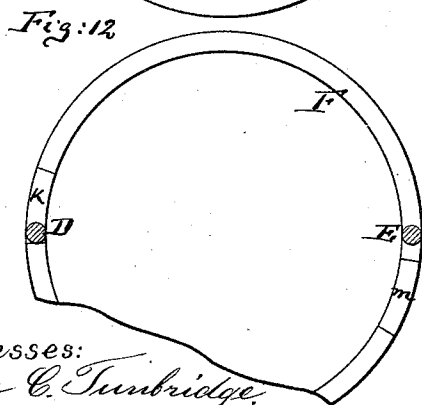
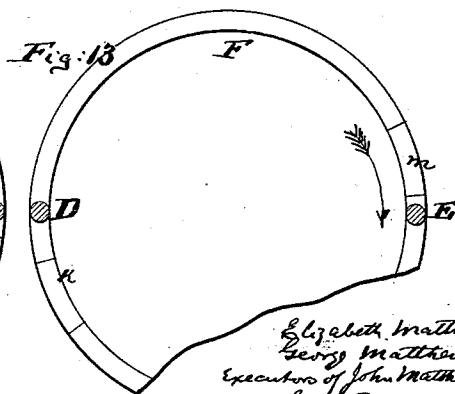
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UNITED STATES PATENT OFFICE.

ELIZABETH MATTHEWS AND GEORGE MATTHEWS, OF NEW YORK, N. Y.,
EXECUTORS OF JOHN MATTHEWS, DECEASED.

BOTTLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 308,913, dated December 9, 1884.

Application filed January 26, 1884. (No model.)

To all whom it may concern:

Be it known that JOHN MATTHEWS, late of the city of New York, in the county and State of New York, during his life-time did invent
5 Improvements in Bottling-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, in which—

Figure 1 represents a general side view of
10 the said improved bottling-machine. Fig. 2 is a vertical central section on an enlarged scale of the filling-head and its attachments. Fig. 3 is a plan or top view of the cam-disk for raising the valves that control the influx
15 of the beverage and the discharge of gas from said filling-head. Fig. 4 is a vertical central section of the lower part of one of the valve-chambers. Fig. 5 is a horizontal section on the line *c c*, Fig. 2. Fig. 6 is a vertical section
20 through the filling-head on the plane of the line *k k*, Fig. 2. Fig. 7 is a side view of the cam-disk, showing the automatic releasing-cam for controlling the gas-valve. Fig. 8 is a
25 detailed side view of part of said disk, showing the fixed cam for controlling the beverage-valve. Fig. 9 is a face view, partly in section, of said disk, showing how it is connected to its handle. Figs. 10, 11, 12, and 13 are diagrams
30 showing the several positions of the cams on said disk with respect to the valve-spindles.

This invention relates to improvements in machines for bottling carbonated beverages, being more particularly applicable to machines by which the gas and air usually discharged from the vent-valve on the filling-head
35 are returned to the carbonating apparatus and saved, and by which the bottle is filled without allowing the liquid to lose its gas, and by which the foaming of the beverage during the
40 act of bottling is avoided.

The invention consists, principally, in the use of a certain disk which surrounds the lower part of the filling-head, and which is swiveled
45 thereon so that it can be turned with the assistance of a suitable handle. The said disk carries protuberances or cams, by means of which the valves that control the influx of the beverage and the outflow of gas and air can be
50 raised and lowered at will, either jointly or

separately. The invention also consists in further details of improvement that will be hereinafter more fully specified.

The general plan of the machine, which is indicated in Fig. 1 of the drawings, shows the
55 carbonating apparatus to consist of the generator A, of the series of fountains B B, and of the bottling-machine proper, C. The beverage flows from the fountains B by a pipe, *a*,
60 to the bottling-machine proper, C.

b is a pipe which leads from the upper parts of the fountains to the bottling-machine C. The ends of these pipes *a* and *b* are shown in
Fig. 2 of the drawings.

D is a valve which is pressed by a spring, *d*,
65 upon a proper seat in the pipe *a*, so as to close said pipe and prevent beverage flowing through it. In like manner another valve, E, closes, under the influence of the spring *e*, the
70 pipe *b*. The lower ends of the spindles of these valves D and E project downward through packed apertures, as is shown at *f* and *g* in Fig. 2, and are, when said valves are
75 closed, in contact with a disk, F, that is swiveled around the lower part of the filling-head G.

The filling-head G is of the usual construction at its upper and lower parts, and adapted to receive the mouth of the bottle H, which is
80 to be filled. It communicates, by a series of apertures or inlet-openings, *h*, with the beverage-supply pipe *a*, and also by an aperture, *i*, with the gas-pipe *b*. The end of the filling-head, which is opposite to the bottle when the
85 same is in its proper position, is adapted to receive a plunger for driving home the cork with which the bottle is to be closed.

It will clearly appear from an inspection of Fig. 2, and from the sectional views, Figs. 5
90 and 6, that the inner end of the pipe *a* is bifurcated, and has its discharge-openings *h*, which are the supply-openings for the filling-head, formed on three sides of the filling-head, and that said discharge-openings project downwardly, so that the liquid will receive the
95 proper direction toward the bottle, and will not be liable to strike the opposite wall of the filling-head while it flows toward the bottle. By dividing the discharge end of the pipe *a* into several branches and furnishing a series
100

of inlet-openings, *h*, better results in filling the bottle are likewise obtained, and the foaming of the beverage is entirely avoided.

Fig. 2 likewise shows that the communication between the pipe *b* and the filling-head is by a very fine aperture, *i*, which slants upward from the filling-head, and which can be regulated as to its size by a plug, *j*, that is inserted from the outside before the filling-head *G* is placed into the suspending cross-head to close the outer part of the aperture, which is drilled in the filling-head from the outside. By this means and arrangement of apertures *h* and *i* proper flow of liquid and gas is obtained during or before the descent of the cork, which is driven home to the bottle, and the cork will not be cut during its descent by the edges of said apertures. When the plug *j* is to be further adjusted, the filling-head must first be disengaged from the cross-head, which holds it suspended.

The cam-disk *F*, which is to regulate the position of the valves, has a fixed projection, *k*, (see Figs. 8 and 9,) for lifting the beverage-valve *D*, and a pivoted cam, *m*, for lifting the gas and air valve *E*. This cam *m* is more clearly shown in Figs. 2 and 7, and is connected with a spring, *n*, which tends to hold it in the position that is shown by full lines in Fig. 7, but allows it to be crowded into the position which is shown by dotted lines in the same figure. In the full-line position this cam *m* holds the spindle *E* raised, as in Fig. 2. The disk *F* is also provided with a handle, *I*, which is adapted to slide on its shank, *o*. (See Fig. 9.) The cam-disk *F* is likewise provided with a projection or hook, *p*, which is more clearly shown in Fig. 3.

The frame of the bottling-machine carries on suitable supports a stop or block, *q*, and another stop or block, *r*, which are respectively in the way of the hook *p* and handle *I*—that is to say, (as appears by full lines in Fig. 3,) the disk *F* can be turned in one direction until the handle strikes the block *r*, and then in the other direction until the hook *p* strikes the block *q*. When the hook *p* strikes the block *q*, both cam-projections *k* and *m* on the disk will be out of the way of the valve-spindles, as shown by the diagram, Fig. 13, and both said valve-spindles will be closed. Now, as the disk is turned in the direction of the arrow shown in Figs. 3 and 13, the cam *m* first gets under the valve-spindle *E*, lifting the gas-valve and allowing a certain amount of gas to flow into the bottle *H*. This position is shown in Fig. 11. The disk being turned along in the same direction, the cam *k* gets under the valve-spindle *D* and lifts that also, so as to admit beverage, which in its fountains is contained under greater pressure than is the gas that enters through the pipe *b*, and such beverage will now flow into the bottle *H* and will crowd out the surplus gas, which will flow back through the pipe *b*. This position of parts is shown in Fig. 10, and also by full lines in Fig. 3.

In order, now, to finish the operation, the handle *I* is slid on its shank, as indicated in Fig. 3, thereby allowing the disk to be turned a little farther in the direction indicated, so as now to get the cam *m* out of the way of the spindle *E* and close the gas-valve, leaving the beverage-valve still open, as indicated in Fig. 12. In this position the attendant holds the handle of the cam-disk until he finds the bottle properly charged, under pressure, with the beverage, which compresses the gas that remained in the bottle after the gas-valve was closed, and when the bottle has been filled the handle is swung back into the original position—that is, until the hook *p* strikes the stop *q*—when both valves are again closed, and at the same time the handle *I* is slid back on its shank to come as near the disk as possible. It will be seen that as the disk is thus turned back to a position where the hook *p* strikes the block *q* the fixed cam *k*, which held the beverage-valve open before the disk was started on its backward rotation, will allow said beverage-valve to gradually slide down on its inclined face until it (the beverage-valve) shall be closed, for, as the diagrams, Figs. 10 to 13, inclusive, show, the cam *k* never passes beyond the beverage-valve, when the disk is turned in the direction of the arrow that is shown in Fig. 13, but the pivoted cam *m* does pass beyond the gas-valve spindle and reaches the position shown in Fig. 12, which position is also indicated in Fig. 7 by full lines. As the disk is turned back to its starting position this pivoted cam *m* strikes the side of the valve-spindle *E*, and is turned on its pivot into the position shown by dotted lines in Fig. 7, so that it will pass beneath said valve-spindle without lifting the valve *E*; hence the backward motion of the disk will not cause the valves to be opened, and when the cam *m* has passed beyond the spindle *E* and reached the position shown in Fig. 13 it will be so positioned that when afterward the disk is turned in the direction of the arrow shown in Fig. 13 the gas-valve will be raised, the spring *n* serving to throw the cam *m* into its upright position again as soon as it has passed under said spindle *E* during the back-stroke of the disk. The cork is thrust into the bottle as soon as the operation of filling it shall have been completed.

No claim is made herein for anything shown in the Gee patent of December 19, 1876.

We claim—

1. The combination of the filling-head *G* with the beverage-pipe *a* and gas-pipe *b*, swiveled disk *F*, having cams *m* and *k*, and handle *I*, substantially as and for the purpose herein shown and described.

2. The beverage-supply pipe *a*, formed into downwardly-extending bifurcated branches *h*, in combination with the filling-head *G*, and with the gas-pipe *b* and communicating passage *i*, substantially as described.

3. The combination, with the filling-head

G, having aperture *i*, of the gas-pipe *b* and movable plug *j*, substantially as and for the purpose specified.

4. The combination of the disk F with the
5 pivoted cam *m*, and spring *n*, and valve E, substantially as and for the purpose specified.

5. The combination of the filling-head G, pipes *a b*, and valves D and E with the disk F, having cams *k* and *m*, sliding handle I, pro-
10 jection *p*, and the table having the blocks *q* and *r*, substantially as and for the purpose herein shown and described.

6. In a machine for filling bottles with aerated beverage, the combination of the valve-

spindles D and E with the pipes *a b*, and with 15 the disk F, having cams *k* and *m*, for opening the gas-valve and the beverage-valve D in succession, substantially as herein shown and described.

This specification of the invention of the said 20 JOHN MATTHEWS, deceased, signed by us this 30th day of August, 1883.

ELIZABETH MATTHEWS,
GEORGE MATTHEWS,

Executors of John Matthews, deceased.

Witnesses:

EMILY MATTHEWS,
GEORGE HEALY.