

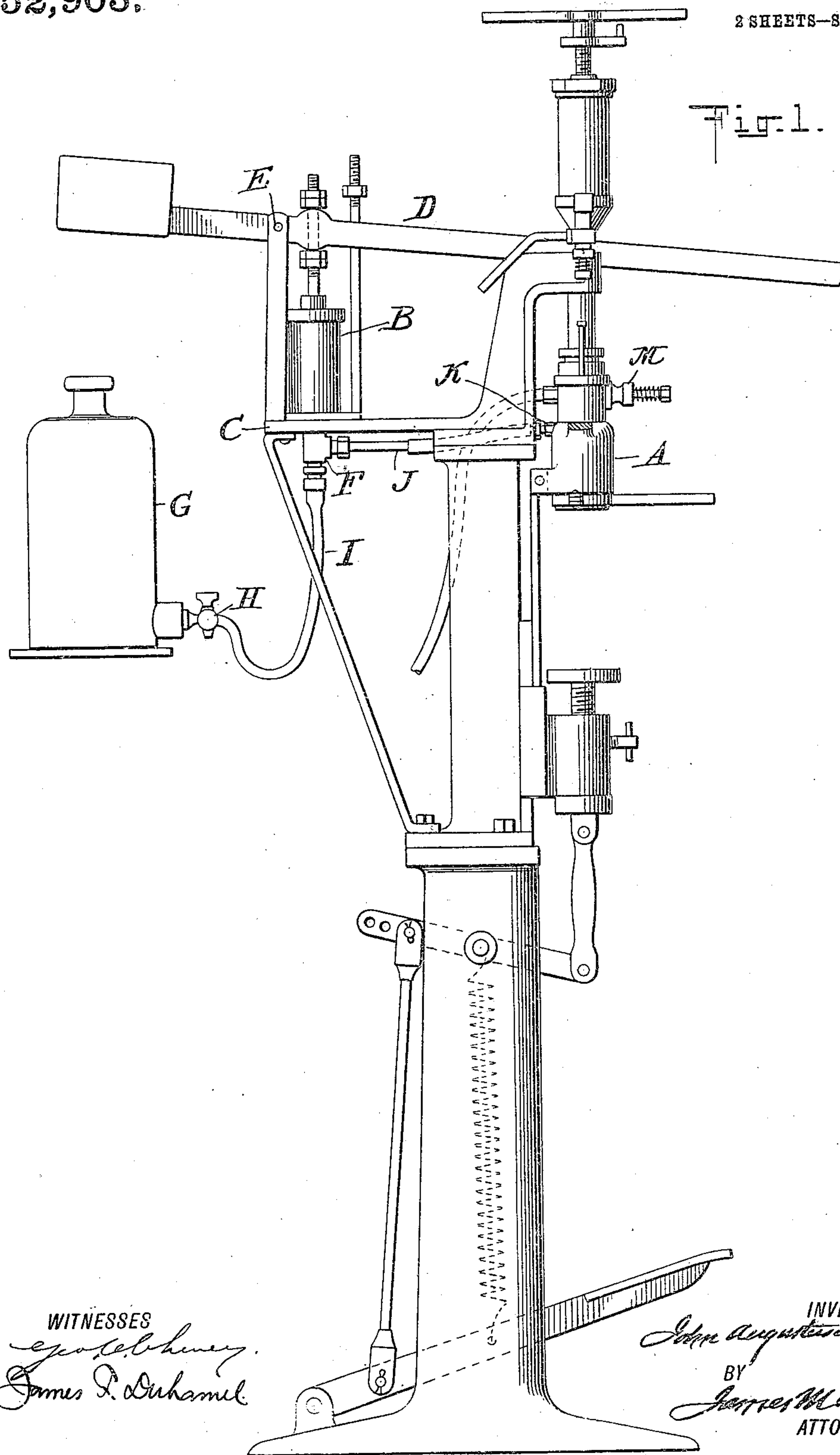
J. A. HICKS.  
PROCESS FOR CHARGING VESSELS WITH CARBONATED LIQUID AND FLAVORING SYRUP  
UNDER PRESSURE.

APPLICATION FILED NOV. 9, 1907.

Patented Mar. 22, 1910.

952,903.

2 SHEETS—SHEET 1.



WITNESSES  
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Fig. 2.

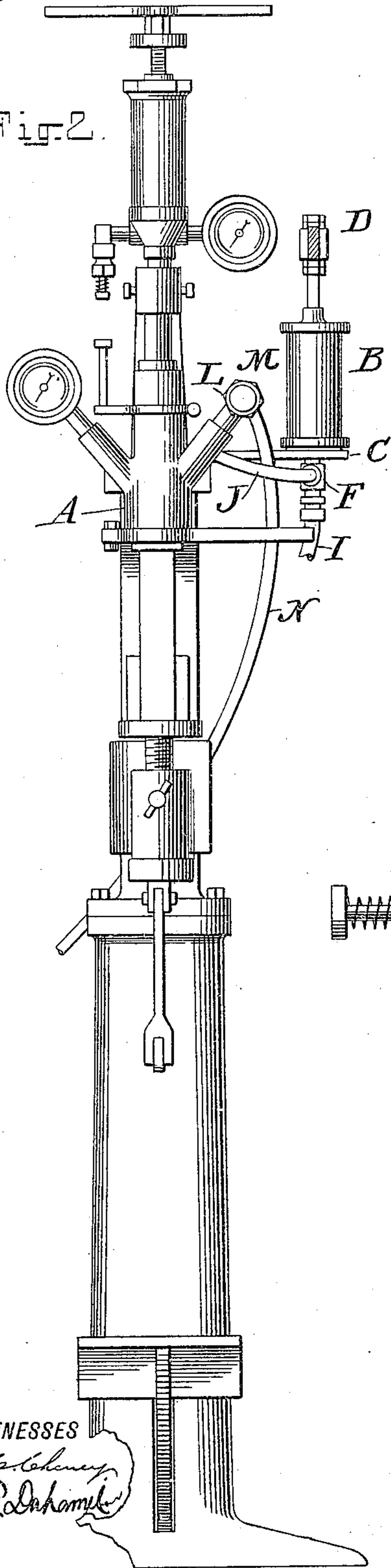


Fig. 3.

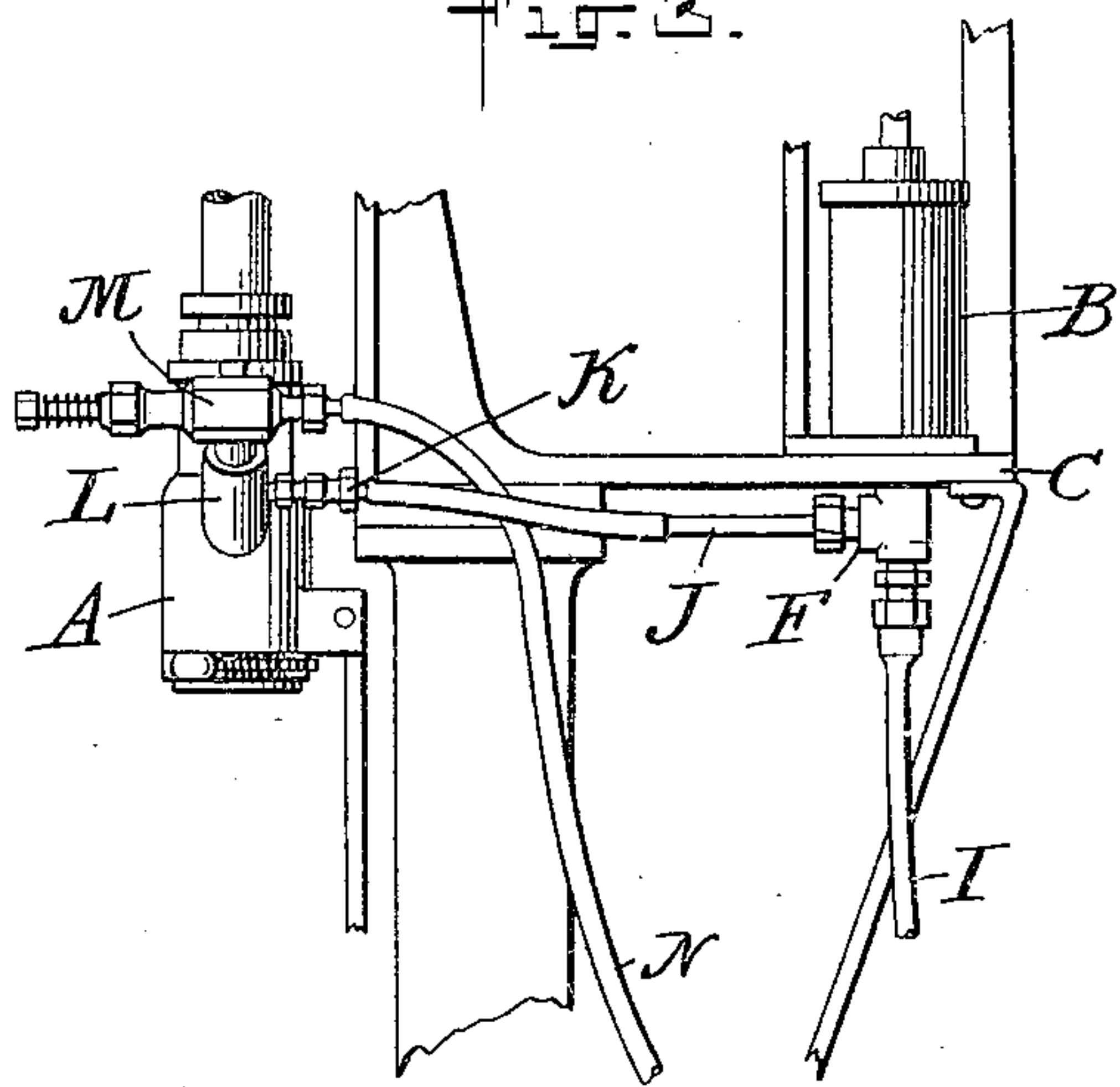
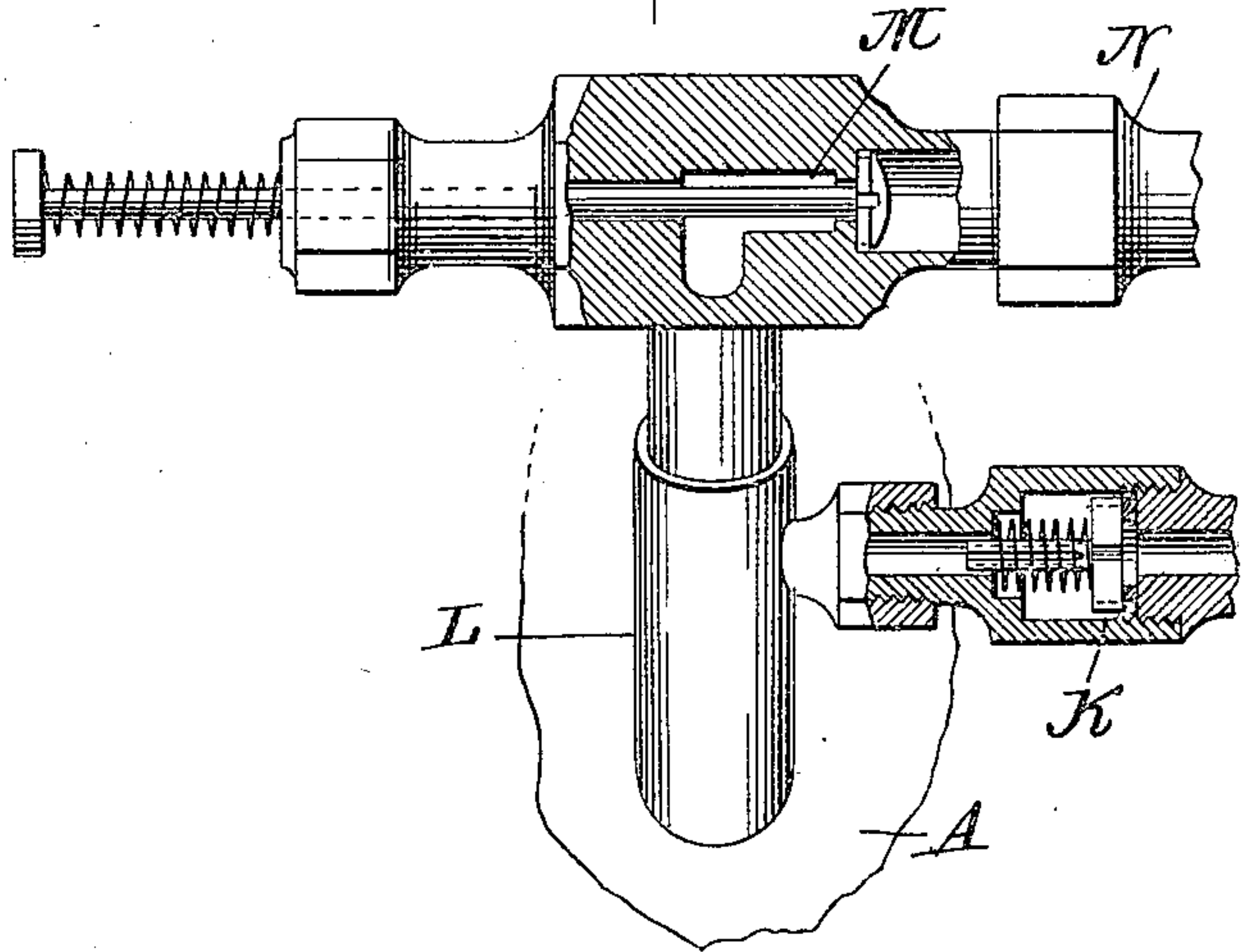


Fig. 4.



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# UNITED STATES PATENT OFFICE.

JOHN AUGUSTUS HICKS, OF SUMMIT, NEW JERSEY, ASSIGNOR TO AUTO STOPPER COMPANY, OF NEW YORK, N. Y.

## PROCESS FOR CHARGING VESSELS WITH CARBONATED LIQUID AND FLAVORING-SYRUP UNDER PRESSURE.

952,903.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed November 9, 1907. Serial No. 401,528.

*To all whom it may concern:*

Be it known that I, JOHN AUGUSTUS HICKS, a citizen of the United States, residing at Summit, Union county, New Jersey, have invented a certain new and useful Process for Charging Vessels with Carbonated Liquid and Flavoring-Syrup Under Pressure, of which the following is a specification.

This invention is an improved process of charging vessels, such as bottles, with carbonated liquid, such as soda water, and a flavoring syrup, the object of the invention being to charge such vessels with such liquid and syrup without diminishing the pressure of the liquid and without causing the same to foam during the charging process, and to close or seal the vessels when thus charged and while the contents are under pressure.

To this end my improved method consists in excluding the mouth and interior of the vessel or bottle to be charged from the outer air, and while the vessel is in such condition, first charging the same with the carbonated liquid under pressure, against the counter-pressure of the air in the vessel, secondly; forcing the syrup into the vessel under a pressure greater than that of the carbonated liquid, and finally hermetically closing the inlet of the vessel while the contents of the same are under such pressure.

Within the scope of this invention any suitable bottle filling machine or other means may be employed to carry out my improved process, but for the purposes of this specification a suitable machine for this purpose is illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of a bottle filling and capping machine. Fig. 2 is a front elevation of the same. Fig. 3 is a partial elevation of the reverse side of the machine from that shown in Fig. 1, and Fig. 4 is a detail view, partly in elevation and partly in section, and showing the admission valves for admitting the carbonated liquid and the syrup from the supply tanks to the filling chamber of the machine and hence to the bottle.

The filling and capping head of the machine is shown at A, supported on a standard. The cylinder of a pump for charging syrup from a tank G, is shown at B, the pump lever at D, and its fulcrum at E. A

pipe I leads from the syrup tank to the lower end of the pump cylinder and has a cock H. A check valve is indicated at F. A pipe J connects the pump cylinder B with the filling head A, and has a check valve K, to close against back pressure. A pipe N, which leads from a carbonator or reservoir of carbonated liquid under pressure, connects with the filling head A through a spud L, in which is a controlling valve M which is normally closed by a spring.

In carrying out my improved process, I proceed as follows: A bottle is first placed in the machine with its mouth in the filling head, sealed therein hermetically to exclude the outer air from the mouth and interior of this vessel or bottle and while the bottle is thus held, it is first charged with the carbonated liquid under pressure to the desired extent, the carbonated liquid as it enters the bottle displacing the air therein and causing the pressure of the carbonated liquid to progressively increase the pressure of the air originally in the vessel until the pressure of such compressed air equals that of the carbonated liquid in the vessel. The required charge of the syrup is then forced into the bottle by the operation of the pump and it is obvious that in order to force the syrup into the vessel, it must be under a pressure greater than that of the carbonated liquid in the bottle. Gas will not leave the water on a rising pressure and hence by introducing the syrup to the bottle under a pressure greater than that of the carbonated liquid in the bottle, foaming is entirely prevented. Flavoring syrups are largely composed of sugar and if introduced in a bottle first and the bottle then filled with carbonated liquid the mixture is caused to foam. My improved process of partially charging the vessel with carbonated liquid under pressure and completing the charging thereof with syrup under a higher pressure prevents gas from leaving the liquid while the syrup is being introduced and effectually prevents foaming and enables the desired quantity of syrup to be placed in the bottle or vessel as well as the desired quantity of carbonated liquid. Should the syrup be first introduced into the bottle and the carbonated liquid afterward introduced, foaming would result. I avoid foaming by first introducing the carbonated liquid under pres-



sure and then introducing the syrup under a higher pressure, my improved process constituting an important improvement in the art of charging vessels with carbonated liquid and flavoring syrup as heretofore known and practiced. While the vessel is still closed against the outer air and its contents are under the pressure of the carbonated liquid, increased by the higher pressure of the flavoring syrup last introduced, the machine is operated to cap the vessel or bottle and seal the same permanently and preserve the contents thereof under such increased pressure.

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

1. The herein described method of charging a vessel with a carbonated liquid and a flavoring syrup, and preventing foaming while so doing, the said method consisting in excluding the mouth and interior of the vessel from the outer air, and while the vessel is in such condition, first; charging the vessel with the carbonated liquid under pressure, against the counter pressure of the air in the vessel, secondly; forcing the syrup into the vessel under a pressure greater than

that of the carbonated liquid, and finally hermetically closing the inlet of the vessel while the contents of the vessel are under such pressure.

2. The herein described method of charging a vessel with a carbonated liquid and a flavoring syrup, said method consisting in excluding the vessel inlet from the outer air, introducing the carbonated liquid under pressure into the vessel, to displace the air therein and cause the pressure of the carbonated liquid to progressively increase the pressure of the air originally in the vessel until the pressure of such compressed air equals that of the carbonated liquid in the vessel, forcing the syrup into the vessel under a pressure greater than that of the carbonated liquid therein, and sealing such vessel while the contents thereof are under such increased pressure.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN AUGUSTUS HICKS.

Witnesses:

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N. P. BARR.