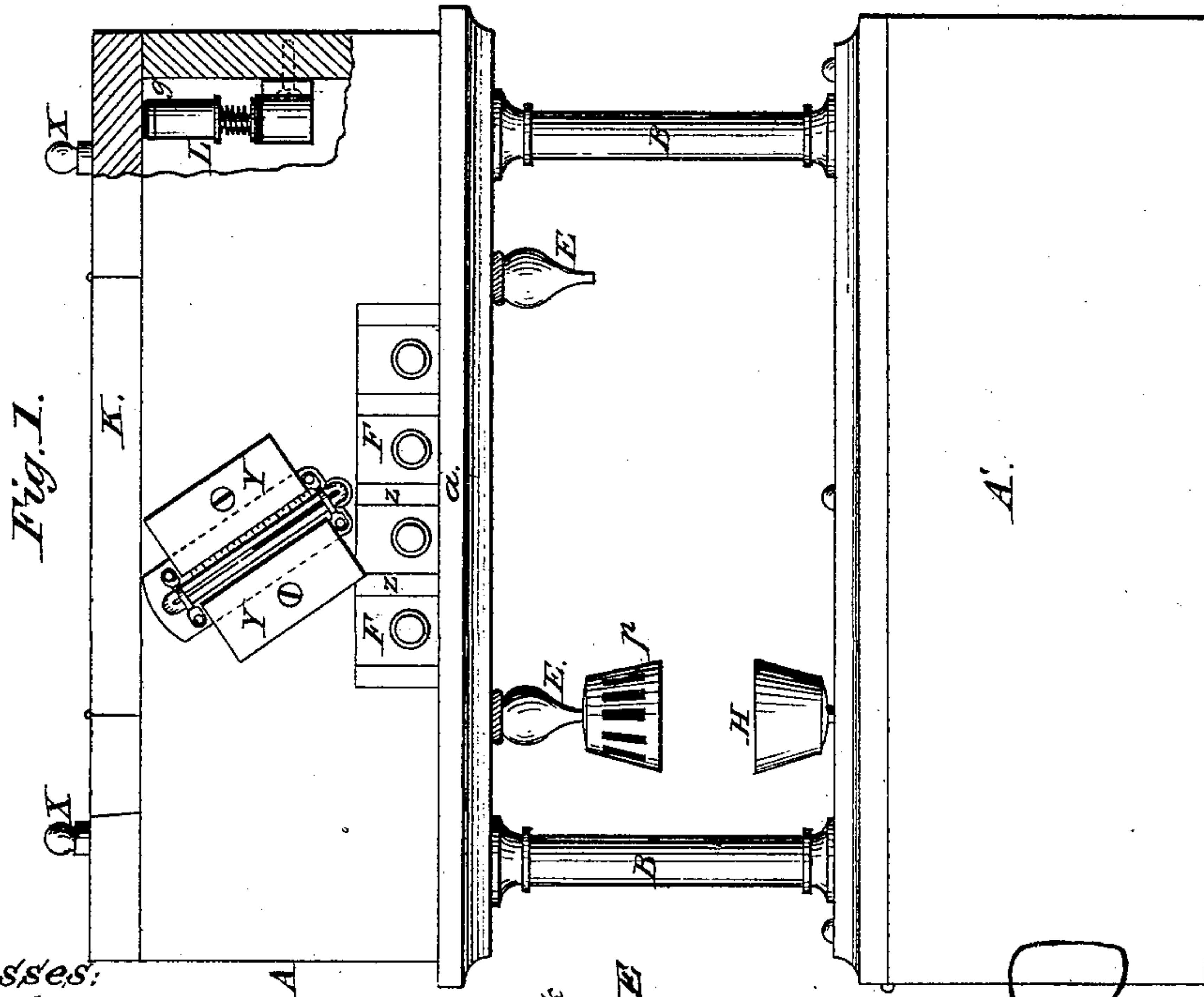
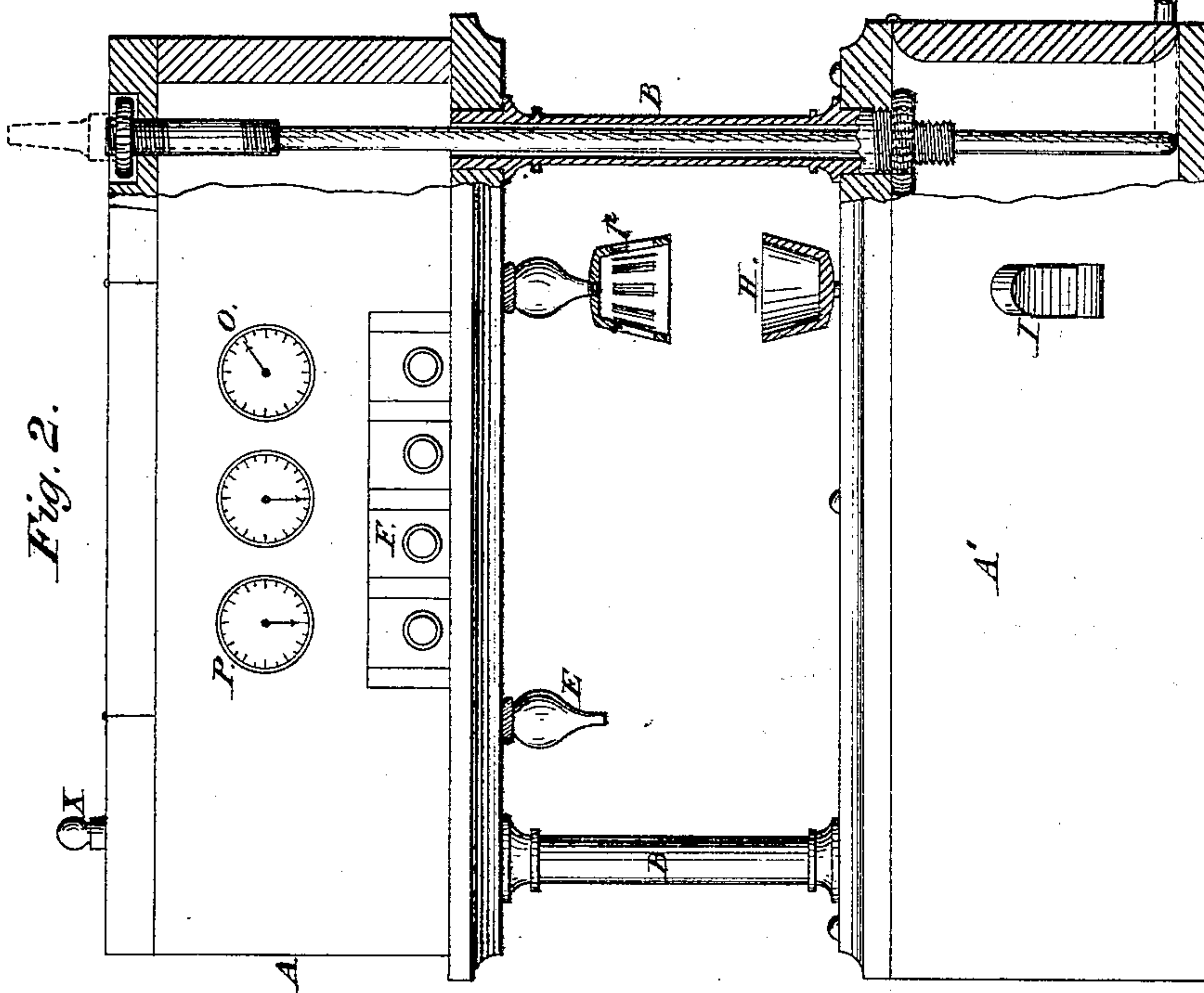


J. MATTHEWS.

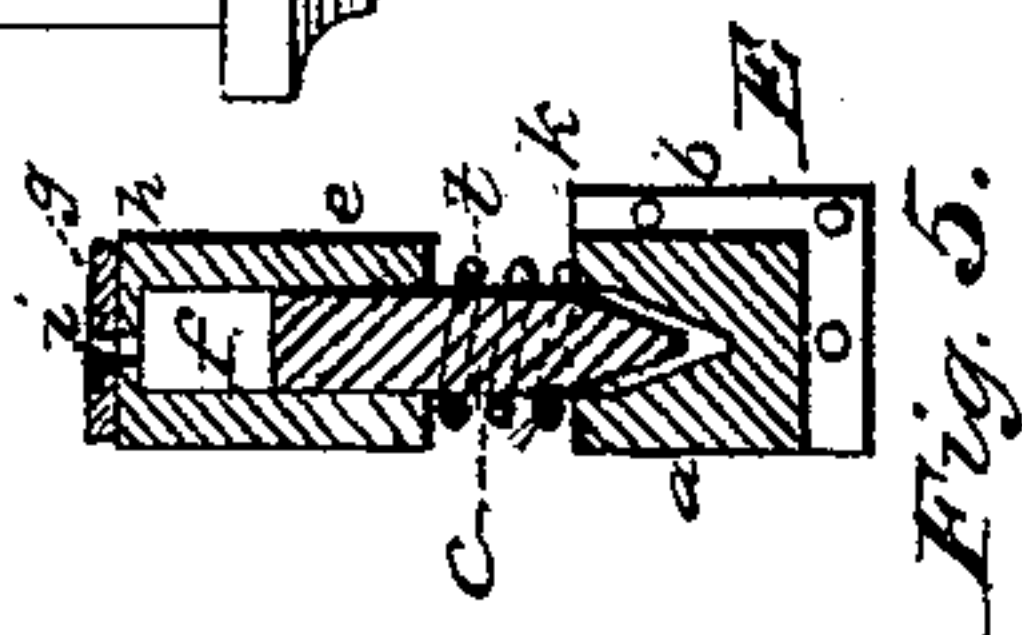
APPARATUS FOR DISPENSING SODA-WATER, &c.
No. 179,584.

Patented July 4, 1876.



Witnesses:

W. H. Hoan.
B. J. Hall.



Inventor:

John Matthews

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 APPARATUS FOR DISPENSING SODA-WATER, &c.
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Fig. 3.

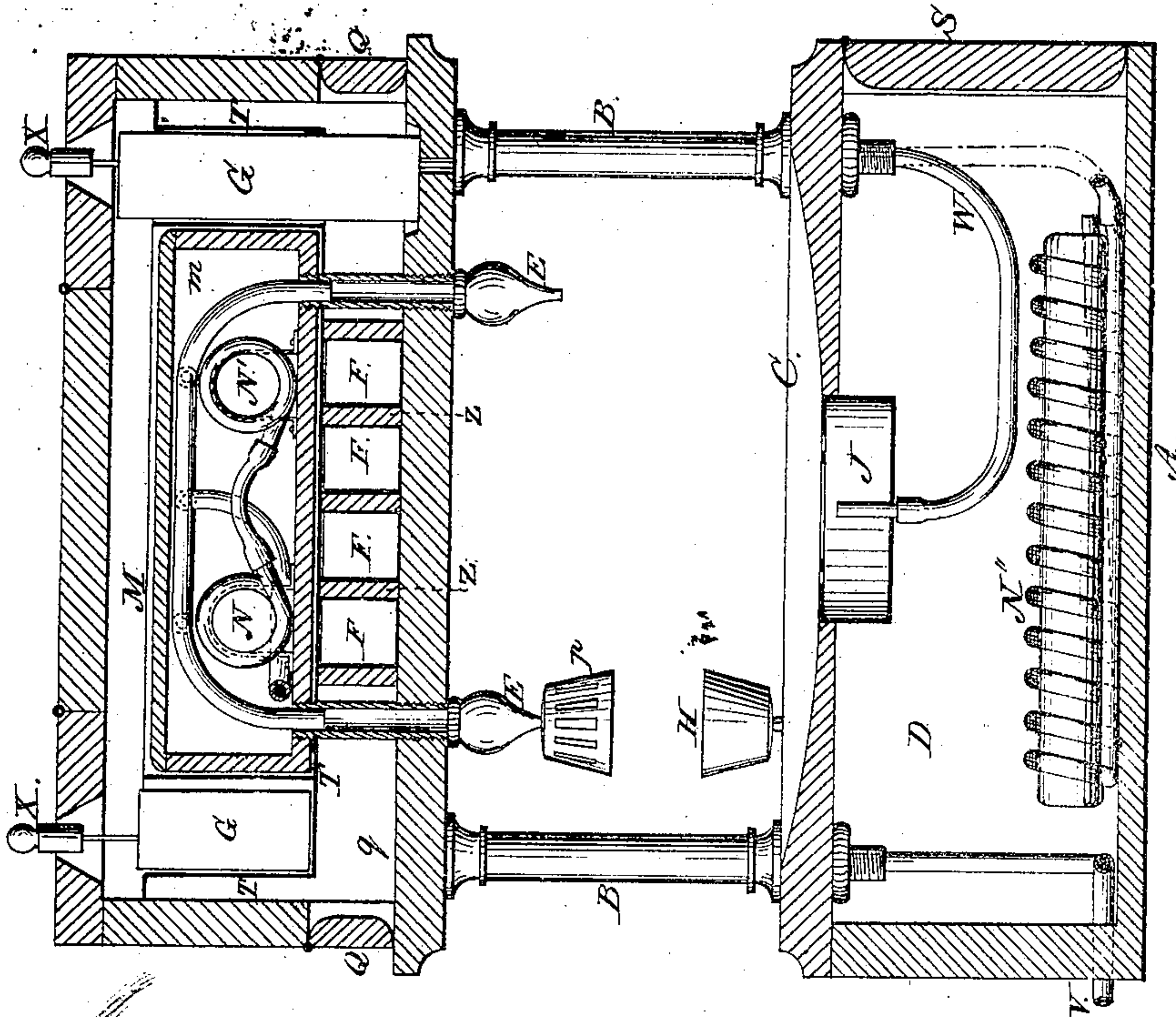
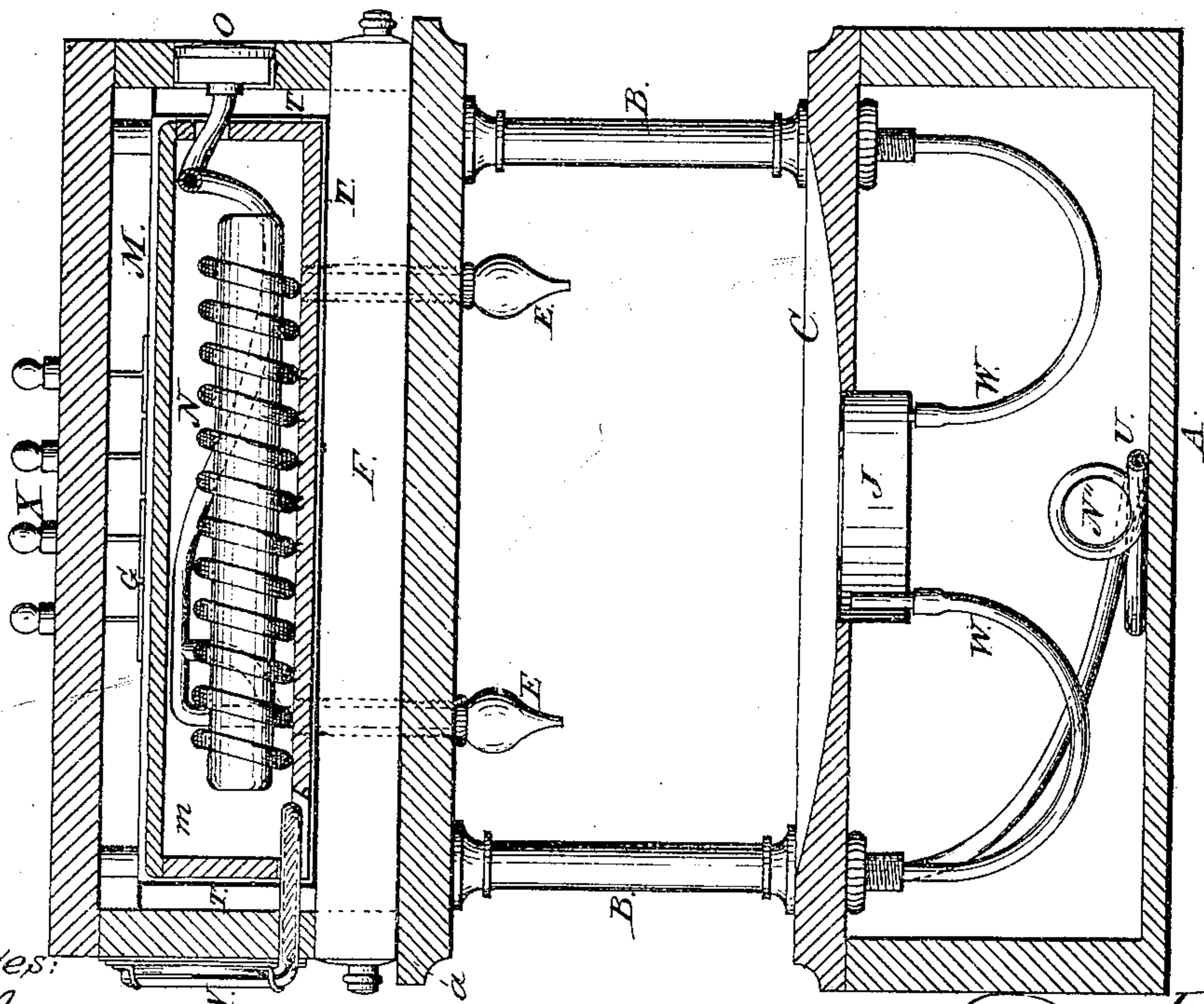


Fig. 4.



Witnesses:

M. H. Sloan.
 B. J. Hall.

Inventor:

John Matthews

UNITED STATES PATENT OFFICE.

JOHN MATTHEWS, OF NEW YORK, N. Y.

IMPROVEMENT IN APPARATUS FOR DISPENSING SODA-WATER, &c.

Specification forming part of Letters Patent No. **179,584**, dated July 4, 1876; application filed May 15, 1876.

To all whom it may concern:

Be it known that I, JOHN MATTHEWS, of the city, county, and State of New York, have invented certain new and useful Improvements in Apparatus for Dispensing Soda-Water, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to apparatus such as is employed by druggists and others who dispense soda-water and sirups at retail, and embraces instrumentalities by which, first, a great economy of space is secured on the dispensing-counter; second, instrumentalities by which the soda-water and other beverages are conveniently dispensed; third, to instrumentalities by which the soda-water tumbler is rapidly and conveniently pressed and held to the draft-cock, (particularly useful in cases where the aerated beverages are drawn into the tumbler under pressure;) fourth, to instrumentalities by which the refrigerating effect of the ice is applied so as to cool the sirups and beverages in large quantities, and more efficiently than in the devices now in use; fifth, to instrumentalities by which the ice-water from the ice-chamber of the apparatus is made available for washing and cooling the tumblers; sixth, to instrumentalities by which economy of ice is effected; seventh, to instrumentalities by which the effective temperature of the liquid serving as a cooling medium in the ice-chamber is indicated on the exterior of the apparatus; eighth, to instrumentalities by which the pressure of the beverages is registered on the exterior of the apparatus; ninth, to instrumentalities by which the fluids entering and discharged from the apparatus are neatly and conveniently conveyed; tenth, to instrumentalities by which the tumbler-washer is combined with the apparatus; eleventh, to instrumentalities by which the sirup can be expeditiously supplied and dispensed from the apparatus; twelfth, to instrumentalities by which economy of space in the disposition of the sirup-tanks and other parts of

the apparatus is attained; thirteenth, to instrumentalities by which breakage of the doors of the apparatus is avoided, and the durability of the apparatus increased.

The following are defects in apparatus at present in use, which are obviated by the improvement herein described:

First. One great objection is the space occupied by apparatus. As generally constructed, a large and valuable counter-space is occupied by them, as the apparatus is substantially a box resting upon the counter top. If the apparatus is large, it cuts off the view of the interior of the store from the street, and obstructs the view of customers entering the store.

Second. The draft-arms and faucets on the ordinary apparatus generally project from the sides of the apparatus, and greatly increase the space necessary to operate the apparatus. The soda-water tubes generally pass between the sirup-tanks, and require an increased size of apparatus to admit these pipes.

Third. The ordinary apparatus is not provided with any efficient means of drainage for the drippings from the faucets, and the overflow of tumblers when operating the apparatus. The dripping extends over a large part of the counter, as the faucets project for a considerable distance from the apparatus.

Fourth. The ordinary apparatus is not provided with a tumbler-washer, which is usually placed at some distance from the apparatus on the counter. If the apparatus has faucets on different sides the tumbler-washer is not readily accessible to the operator, unless operating on one side.

Fifth. The draft-faucets in ordinary apparatus being necessarily arranged on different sides, in apparatus having a large number of such faucets soda-water, &c., cannot be as conveniently dispensed as would be possible if all the faucets were accessible to the operator without change of position.

Sixth. In dispensing soda-water according to my system, protected by Letters Patent issued to me January 25, 1872, and numbered 128,410, it is very convenient to have the drinking-tumbler carried and held to the draft-nozzle by means of a treadle operated by the foot. Such a means of operating would be attended

by great inconvenience in apparatus constructed according to the present system, owing to the strain brought on the apparatus by the leverage of the projecting draft-arms, and also because of the separate fittings required to adapt the apparatus to counters upon which such apparatus might be placed.

Seventh. In ordinary apparatus the ice-chamber is situated in a position so low relatively to the tumbler-washer that the drain-pipes cannot be connected with sufficient fall to effectually prevent a deposit of dirt in the pipe and an accumulation of water in the ice-chamber.

Eighth. In ordinary apparatus provided with coolers, either of the cylinder form or with coil and cylinder, the arrangement is not such as to contribute to the cooling of the beverage in the most efficient manner. The accumulation of gas in the cylinder-coolers, owing to the current being from end to end, only prevents the water from acting well on the ice, and if submerged in water, the water is rapidly warmed by the conduction of the metallic lining of the ice-chamber. In pipe coiled as a helix and lying upon the bottom of the ice-chamber no provision is made for the deposits of sand and other débris which flow from the melting ice, and is deposited upon the coil. Where the cylinders are of copper, superficially washed with tin, the copper contaminates the water as soon as the tin-wash is worn off. If jacketed with copper, the expense of manufacture is increased and its conducting power diminished; and if not jacketed, the tin, being a very soft metal, is liable to swell and burst under the pressure to which it is subjected.

Ninth. In ordinary apparatus the coolers, ice, and ice-water are in contact with the metallic lining of the ice-chamber, which, by its conducting power, contributes to the melting of the ice without useful effect, and prevents, to some extent, the cooling of the beverages.

Tenth. Apparatus of this description, as at present manufactured, are not provided with any devices by which the temperature of the ice-chamber can be readily ascertained, and frequently the ice-chamber is without ice, as its conditions can only be known by opening the ice-chamber.

Eleventh. Such apparatus as at present manufactured is not provided with any such means by which the pressure on the water is indicated. It frequently happens that, owing to leakage or to the neglect of the operator who aerates the waters, or the manufacturer who furnishes it, the pressure on the soda-water is insufficient to produce beverages of the required excellence as to aeration, pungency, &c. Such shortcomings can be known only by troublesome inspection and careful tests.

Twelfth. In apparatus as at present manufactured the sirups are dispensed from the sirup-tanks at an orifice which is necessarily above the tumbler. The space below the tanks in such apparatus cannot be used as a reservoir

for sirup, and is generally not utilized, making the case larger than is required if otherwise arranged so that the space can be utilized.

Thirteenth. In ordinary apparatus the sirup-tanks are arranged at the side of the ice-chamber. The cooling of the sirups is thus imperfectly accomplished, as, by the melting of the ice, the upper parts of the tanks are no longer in contact with the ice, and to keep the ice-chamber always full is difficult and impracticable in such apparatus.

Fourteenth. In the ordinary apparatus, as generally constructed, having covers and doors constructed of plates of marble, much breakage ensues, owing to the falling or slamming of these marble doors.

Fifteenth. In ordinary apparatus having faucets connected with the sirup-tanks, such faucets generally pass the marble walls of the apparatus. The attachment thus prevents the withdrawal of the tanks unless the faucets are first disconnected.

In the accompanying drawings, Figures 1 and 2 are side elevations of my apparatus, partly in section, and Figs. 3 and 4 cross vertical sections of Figs. 1 and 2, respectively, the same letters indicating like parts in all the figures.

A represents the main body of the apparatus; B, columns sustaining the main body; C, counter upon which the beverages are dispensed; D, supplementary ice-chamber of apparatus; E, the dispensing-valves for the aerated beverages; F, horizontal sirup-tanks; G, upright sirup-tanks; H, tumbler-carrier; *p*, cap or hood to connect tumbler with faucet; I, treadle to raise tumbler-carrier; J, tumbler-washer; K, covers of apparatus; L, dash-pot to prevent slamming of the marble covers of the apparatus; M, ice-chamber of non-absorbent and non-conducting material; N' N N'', coolers for cooling the aerated beverages; O, pressure-gage connected with cylinder of cooler; P, pressure-gage connected with tube leading to the draft-arm; Q, door of tumbler-chamber; S, door of supplementary cooling-chamber; T, metallic jacket-case exterior to non-conducting case in ice-chamber; U, supply-pipe for aerated beverage; V, supply-pipe for illuminating-gas; W, drain-pipes from the ice-chamber; X, knobs by which discharge-valves in upright sirup-tanks are operated; Y, thermometer to record temperature of liquid in cooling-chamber; Z, partitions of stalls for sirup-tanks; R, column for illuminating-gas.

First. I effect a great economy of space on the dispensing-counter by constructing the main body of the apparatus A so that it is sustained above its base by columns B. This renders the space upon the base beneath the apparatus available for a tumbler-washer, J, and tumblers, and brings the draft-faucets E beneath the body of the apparatus, thus enabling the base of the apparatus to form a drainer, by which all the drippings from the faucets may be kept within the space occu-

pieced by the apparatus. The view of the customers and of the store is less obstructed by this arrangement.

Second. The beverages are more conveniently dispensed by thus arranging the body of the apparatus above the counter, as all the dispensing-faucets are thus brought within a convenient space, and the tumbler washer and drainer are brought near to the dispensing-faucets, which have their outlets more equally accessible than in apparatus where the faucets are arranged on several sides of the apparatus. The beverage, when drawn, can be passed to the purchaser when in positions inaccessible in apparatus of ordinary construction.

Third. The draft-faucets being beneath the body of the apparatus enables the operator to use a tumbler-carrier, H, operated by a treadle, I, to hold the tumbler to the dispensing-nozzle, as shown at p. This is particularly useful where the soda-water is drawn in tumbler under pressure, as in my improvement protected by Letters Patent granted June 25, 1872, and numbered 128,410.

Fourth. By thus arranging the tumbler-washer beneath the ice-chamber of the apparatus a sufficient descent for the ice-water is obtained to enable it to be of use as a supply for the tumbler-washer, and also as a means of keeping the washing-water cool. The ice-water is conveyed by a tube, W, passing through the column upon which the body of the apparatus is sustained, and is connected with the tumbler-washer below the base. Great economy of water and advantage as to cooling the tumblers are thus obtained by uniting the tumbler and drainer J with the ice-chamber M.

Fifth. I construct the coolers of my apparatus as follows: N' is the storage-cylinder, issuing from one end of which is a tube coiled around the outside of the storage-cylinder. The beverage to be cooled enters the storage-cylinder at such an angle as to cause the stream to impinge against the inside of the cylinder-wall, sweeping around the cylinder as a flat helical current, and leaving the cylinder at the other end by the coiled tube, and passing around the cylinder through the tube, and from thence to another cooler, N, constructed in a similar manner, forming a series onto the dispensing-valve. The pipe coiled on the exterior of the storage-cylinder is coiled tightly against the cylinder, and secured to it by soldering, or other support, but sufficient space is left between each coil to allow the ice to penetrate between the coils to the cylinder, and so that the impurities contained in the ice are readily washed away by the ice-water, and not lodged between the coils, nor upon the cylinder, as these deposits greatly impair the refrigerating effect of the ice upon the beverages. The pipes thus coiled also assist in sustaining the pressure upon the walls of the storage-cylinder, and prevent the swelling of the cylinder by pressure. These coolers lie

horizontally within the ice-chamber, and are immersed in the water from the melting ice to an extent equal to about one-half their diameter. The level of the water is maintained by an overflow-pipe. This water is cooled by the water rotating in the cylinder and coiled pipe, and acts as a reservoir of cold in a most effectual cooling medium. In coolers of ordinary construction such a reservoir cannot be effectively used, because those portions of water reduced to a low temperature by the ice are not swept through the reservoir of water by currents which alternately reach those portions of the coolers in direct contact with the ice and the reservoir of water. A cooler constructed according to my improvement is efficient as a cooler on all sides, because the water in which the cooler is partly or wholly immersed is kept cold by currents in the cylinder and coil, which act alternately upon the ice and the ice-water reservoir. The presence of water in the ice-chamber is generally objectionable, as by reason of its extensive contact with the metallic lining of the ice-chamber much heat is conveyed to it, and, though ice is thus rapidly melted, but little useful effect is obtained, and generally the beverages cannot be drawn as cold as when the ice-water is absent.

Sixth. I avoid these difficulties by a lining of non-absorbent and non-conducting material, M, placed within the external case and water-tight lining, such non-absorbent and non-conducting material being directly in contact with the coolers and ice, and forming the walls of the ice-chamber. For this purpose I use, preferably, a light wood, or other porous or fibrous material, well dried and saturated with paraffine, or other equivalent material, or any material—such as gutta-percha, india-rubber—which is non-absorbent, and a poor conductor of heat. In my improvement the metal jacket T acts as the water-tight receptacle, the non-absorbent lining being simply placed within it, or the non-absorbent lining may itself be made water-tight, and thus dispense with the metallic jacket. As the wood, if saturated with paraffine or other oily or equivalent substance, where used against the marble, might stain it, I cover the prepared wood with a metallic foil or sheet where it is in contact with the marble.

Seventh. For reasons already stated, and indeed obvious, it is desirable to know the effective temperature of the ice-chamber without the difficulty of opening the apparatus. I therefore construct my apparatus with a thermometer, Y, having its bulb immersed in the ice-water reservoir, and protected by a casing to prevent fracture, and its graduated scale so exposed as to read on the exterior of the apparatus.

Eighth. It is very desirable to have some means by which the pressure of the beverages, upon which their good quality largely depends, is registered upon the apparatus. By this means the escape of gas is readily detected, and

oversights and disputes avoided. I therefore construct my apparatus with a pressure-gage, O P, connected with the coolers or conducting-pipes in the apparatus, and having its dial arranged so that it may be read on the exterior of the apparatus.

Ninth. The columns or walls sustaining my apparatus serve as a means by which the fluids entering the apparatus, and the drainage water from the ice-chamber, and condensed water which may lodge upon the plate of the apparatus, are conveyed in a neat and convenient style to and from the apparatus.

Tenth. To bring the tumbler-washer J within a convenient space, and to make it a useful part of my apparatus, I construct the base A' of my apparatus with the upper surface, having inclination toward that part of the base where the tumbler-washer is placed, so that all drip from the faucets is conveyed to the tumbler-washer. The tumbler-washer is supplied with water in the usual manner, and, besides, is connected by the pipe or pipes W, which conveys the water from the ice-chamber and other parts of the apparatus. This serves to keep the water in the tumbler-washer, and furnishes a considerable quantity of water for washing purposes. The tumblers are thus kept cooler and cleaner than without such additional source of water. And the connections with the drain-pipes is simplified, as the same pipe as is used for the tumbler-washer serves to discharge all the drainage-water from the apparatus.

Eleventh. In my improved apparatus I arrange the sirup-cans as follows: F F F F are the horizontal sirup-tanks, which lie below the ice-chamber and rest upon the plate of the apparatus. These tanks are provided with faucets at one end, from which the sirups are dispensed, and at the top at either end are perforated with an orifice. To fill with sirups, the tanks are drawn out till the supply-orifice is accessible. To dispense the sirups, the tanks may be drawn out a short distance to bring the discharge-vent over the tumbler. The plate *a* may be perforated to permit the discharge of sirups through the plate, in which case the discharge-valve is operated within the tank by means of a lever or connecting-rod, accessible from the outside, or the sirup-faucets may project from the tanks sufficiently to permit the tumblers to be supplied with sirup from the sirup-discharge vents. This arrangement of sirup-tanks permits the use of a portable tank, and which can readily be removed for cleansing, &c.

G G G G represent upright portable tanks, with two methods of operating the same in the long series. The sirups are dispensed through orifices in the plate, the valve being operated by stems X passing through projections in the apparatus provided with covers. The other upright portable tanks are shorter, and dispense the sirup in a tumbler-chamber, *g*, which is accessible by means of a door, Q, the tumblers being brought in each case to the re-

quired position by means of a tumbler-guide, as shown in my patent dated October 3d, 1865, and numbered 50,225. The upright portable tanks of both series operate as described in that patent.

Twelfth. This disposition of the sirup-tanks permits of their disposition so as to occupy all space in the apparatus not needed for other portions, and makes available the space usually lost in apparatus resting on the counter in the usual manner.

Thirteenth. I avoid the breakage of the covers and doors of the apparatus, which, in ordinary apparatus, is of frequent occurrence, by providing the apparatus with a dash-pot, which receives the covers, and permits them to close gradually, thus avoiding all shock to the marble portions.

I construct the dash-pot as follows: *d* represents a socket firmly secured to the apparatus. *b* is the flange by which it is secured. *c* is the piston of the dash-pot, its lower end resting in the socket-body so as to permit a slight movement upon the pin. *K* is a flange which supports the spring *t*. *E* is the cylinder, fitting close upon the piston, although not absolutely air-tight. *g* is a buffer, of india-rubber or other elastic material, to receive the cover or door. The upper part of the cylinder is perforated by a small orifice, which is also carried through the rubber buffer. *f* is the air-space within the cylinder when it is raised upon the piston by the spring *d*.

The operation of the dash-pot is as follows: The door being open the cylinder is raised by the spring *d*, the air passing through the orifice *i* at the top of the cylinder, the door of the apparatus being closed, it first strikes the rubber buffer *g*, and closes the air-orifice *i*. The weight or pressure of the door forces down the cylinder and compresses the air within the space *f*, and the cover or door slowly settles to its place without shock, as the air gradually escapes between the piston and the cylinder. In some cases I prefer to bore a small hole in the cylinder, to permit the air to escape more freely. The pin and socket at the lower end permit a small movement of the dash-pot, which, owing to the arc described by the door working on hinges, requires this equivalent mode of compensation or adjustment of the dash-pot. When the door is raised, the cylinder of the dash-pot is raised by the spring. The air entering through the orifice *i* permits the dash-pot to rise quickly, in order that it may be at once ready to receive the cover or door, if it should soon be closed. The dash-pot would rise very slowly if not vented, and in some cases would not in time receive sufficient air to cushion the door.

I have shown only two draft-faucets. Any required number may be used to accommodate the different kinds or amounts of liquids to be drawn. So of the pressure-gages, coolers, tumbler-washers, dash-pots, and other individual parts of the apparatus.

Having thus described my invention, what

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

1. The arrangement of the body of the dispensing apparatus for aerated beverages above the counter or table, in the manner described, so as to secure economy of space, substantially as described.

2. In apparatus for dispensing soda-water and other beverages the combination and arrangement of the draft-faucets, sirup-cocks, tumbler-washers, and other like parts used in dispensing the beverages, either wholly or in part beneath a case elevated above a counter or platform, substantially as set forth.

3. The combination of a tumbler-carrier, provided with elevating mechanism, with a draft-faucet, so as to draw the liquid into the tumbler under pressure, substantially as described.

4. The arrangement of the tumbler-washer below the cooling-chamber, so as to allow working space between the two, as set forth.

5. In a soda-water apparatus the cooler herein described, composed of one or more reservoirs, N, surrounded by a coiled pipe, and placed in a cooling medium, substantially as described.

6. The ice-chamber, composed of a non-absorbent and non-conducting lining placed within a metallic case, and the whole surrounded by a casing containing the several parts of a soda-water apparatus, as described.

7. In combination with the cooling-chamber of a soda-water apparatus a thermometer, having its bulb inside the cooling-chamber,

and its stem or index outside in a protecting-casing, so as to be easily read by the attendant, as set forth.

8. In combination with the soda-fountain one or more pressure-gages, arranged so as to indicate the pressure of the gas within the fountain and detect any leakage, as set forth.

9. The hollow columns B, connecting the apparatus and counter or base, so as to serve as receptacles for the pipes for liquids and gas, and as supports for the body of the apparatus, as set forth.

10. The tumbler-washer J arranged in the top of the base and beneath the cooler, so as to receive the ice-water, as set forth.

11. The portable sirup-tanks G G, with or without the horizontal tanks F F, arranged around the cooler, as set forth.

12. The combination, in a box or chest of a soda-water apparatus, of the case M with coolers N and sirup-fountains F G, as set forth.

13. One or more dash-pots, L, arranged under the covers of the ice-chamber, so as to prevent breakage, substantially as set forth.

14. The combination of treadle I, tumbler-holder H, and hood h, as set forth.

15. The combination of the tumbler-washer J, tubes W, and ice-chamber M, as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN MATTHEWS.

Witnesses:

W. D. SLOAN,
B. F. HALL.