

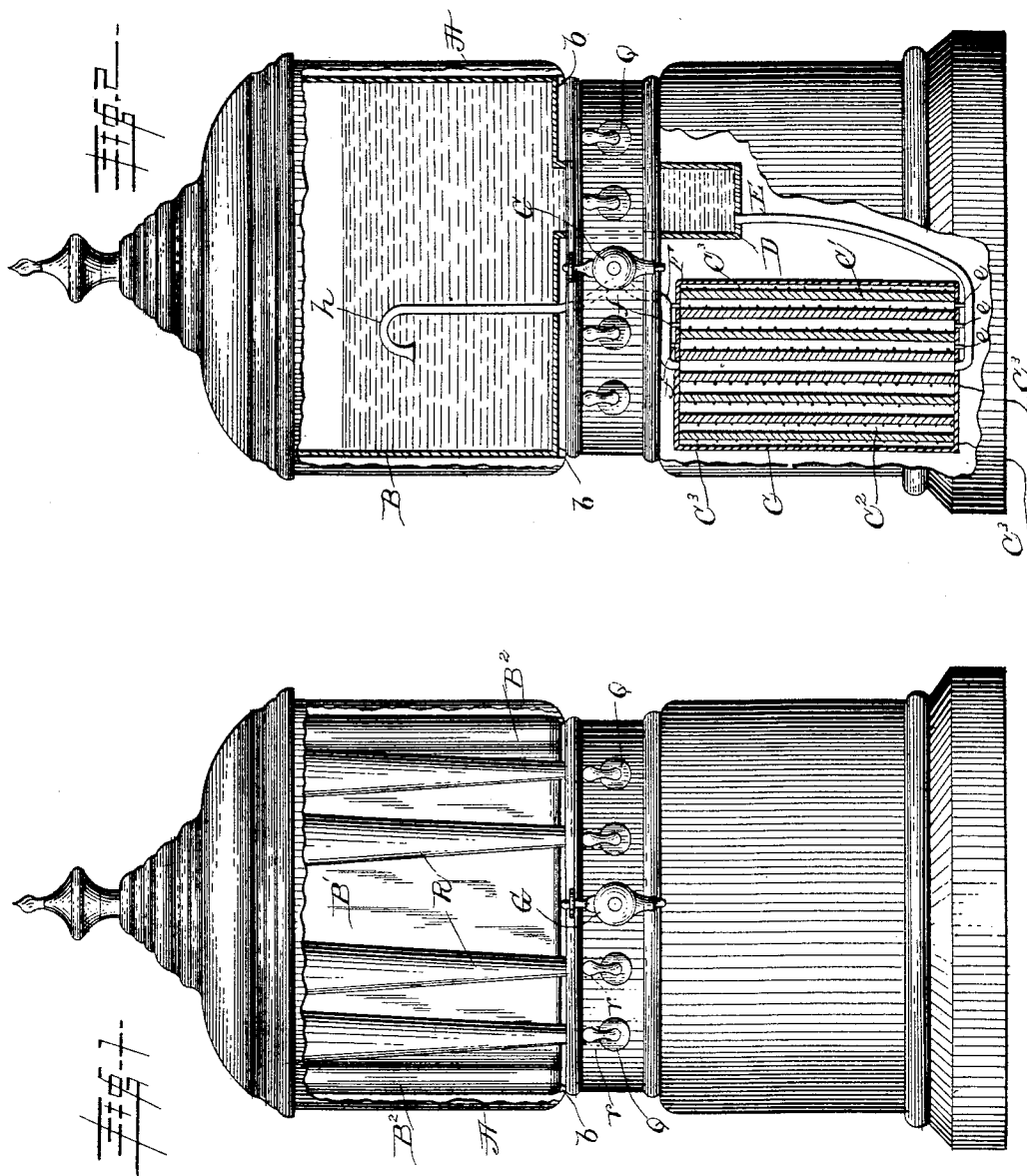
(No Model.)

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W. MITCHELL.
ELECTRIC SODA FOUNTAIN.

No. 460,979.

Patented Oct. 13, 1891.



Witnesses

W. C. Bowen
W. Harvey Muzzey

Inventor

Willis Mitchell

By his Attorney W. H. Babcock.

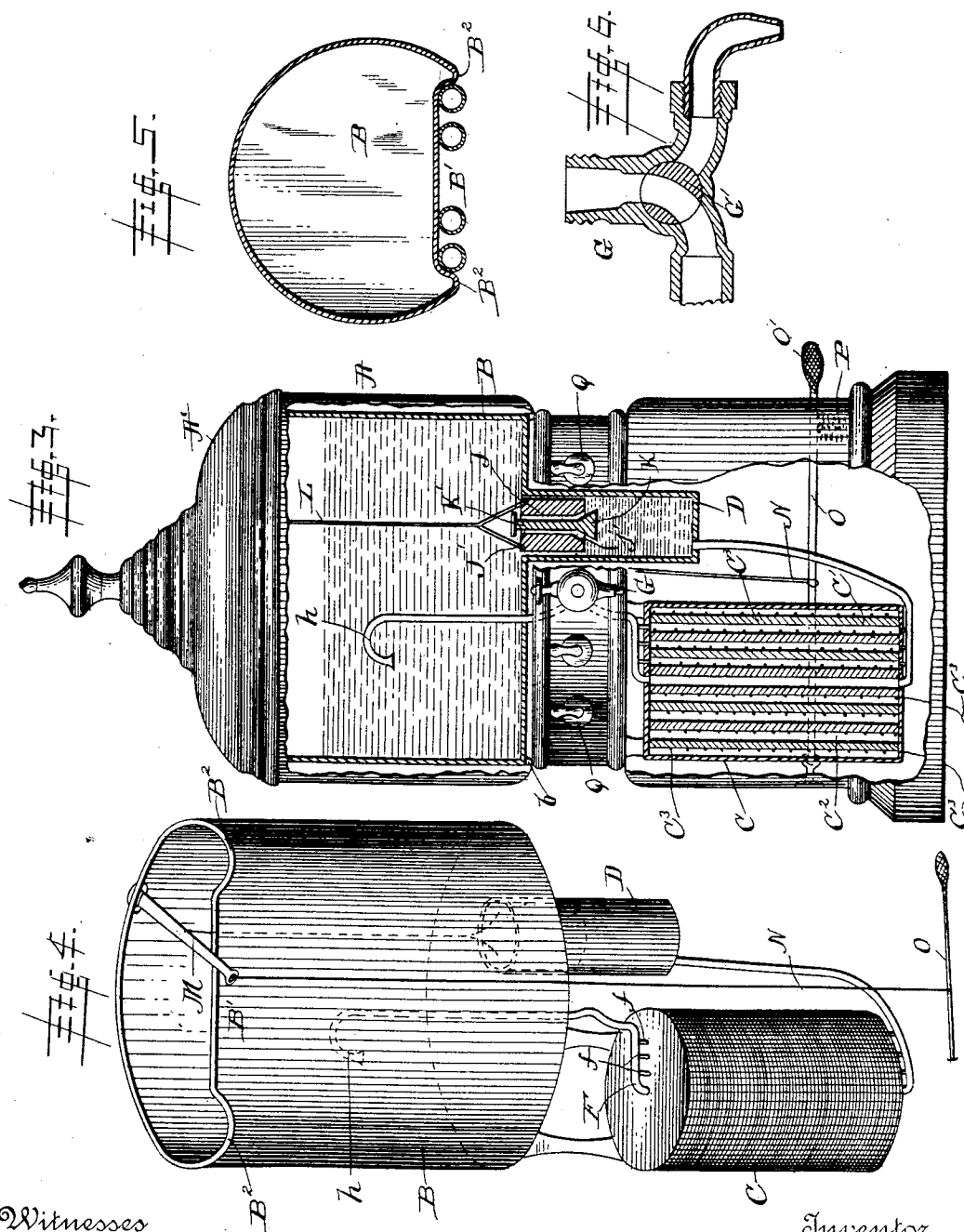
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UNITED STATES PATENT OFFICE.

WILLIS MITCHELL, OF MALDEN, ASSIGNOR TO THE BUTTERFIELD-MITCHELL
ELECTRIC HEATING COMPANY, OF BOSTON, MASSACHUSETTS.

ELECTRIC SODA-FOUNTAIN.

SPECIFICATION forming part of Letters Patent No. 460,979, dated October 13, 1891.

Application filed February 9, 1891. Serial No. 380,802. (No model.)

To all whom it may concern:

Be it known that I, WILLIS MITCHELL, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Electric Soda-Fountains; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The chief object of this invention is to provide convenient, satisfactory, and efficient means for heating a soda-water fountain by electricity and to adapt the various parts of the fountain to such method of heating. To this end I make use of the construction and combination of devices hereinafter described. My invention consists in them and in certain additional features, all set forth in the appended claims.

In the accompanying drawings, Figure 1 represents a front elevation of my heater partly broken away. Fig. 2 represents a vertical section of the same, the sirup-jars and pump-piston being removed. Fig. 3 represents a similar view of the entire fountain, the sirup-jars being removed. Fig. 4 represents a detail perspective view of the water-tank, heater-pump, and the operating-lever of the latter with attachments. Fig. 5 represents a detail horizontal section of the water-tank and sirup-jars, and Fig. 6 represents a detail vertical section of the two-way cock.

A designates the exterior casing of the fountain; B, a removable water-tank, preferably, though not necessarily, of metal and set into the upper part of said casing, but supported by an annular ledge *b* of the latter. An electric heating-cylinder C and a pump-cylinder D are suspended from the bottom of said tank, all preferably arranged to be lifted out from said casing together. To permit this the cap or cover A' of said casing is itself made removable. The said electric heating-cylinder or heater C is substantially identical in structure with that forming, in part, the subject-matter of my application, Serial No. 373,087, where such a heater is used as a steam-generator. On the present drawings I indicate

the successive layers or cylinders of asbestos by C', the intervening water-spaces by C², and the wire wound alternately upward and downward on the successive layers C' by C³. An inlet-pipe E communicates through branch pipes *e*, as shown in Fig. 2, with the said spaces C' at the closed bottom of said heater. In like manner, through branch pipes *f*, the said spaces communicate at the closed top of said heater with outlet-pipe F. The latter extends to a hot-water two-way spigot G, having a valve-plug G', which opens at will into the discharge-tube of said spigot or into a bent tube *h*, that extends upwardly through the bottom of the water-tank B, opening within the same preferably downward. This water-tank, through an opening *b'* in its bottom, communicates with the open upper end of the pump-cylinder D. A piston J, having an aperture J', fits the interior of said cylinder and works up and down therein when desired. This piston is provided with an upwardly-closing valve K, which converts the device into a force-pump. As shown, the valve is loose and has a stem K' within aperture J', both of these being central with respect to the wall of the pump-cylinder. Moreover, the said valve has a conical upward face and said piston a valve-seat *j* in its lower end fitting the same; but I attach no importance to these especial features of form. Any other old valve and valve-seat acting similarly would answer. The tube E extends from the lower end of said pump-cylinder D to its branches *e*.

When the spigot-plug G' opens communication between the tubes F and *h*, and the valve K is also open, the hot water from electric heater C circulates through tubes *f* F, spigot G, tube *h*, tank B, pump-cylinder D, and tubes E *e* to said heating-cylinder C again. When said spigot-plug is turned to cut off communication between tubes F and *h* and open it between tube F and the discharge-tube of the spigot, hot water will flow from the latter provided the pressure is sufficient. As this will not generally be the case, I provide the piston J with an upwardly-extending piston-rod L. The upper end of this rod is pivoted to the middle part of an arm

M, which is hinged on the top edge of the wall of tank B, and extends across the latter from rear to front. A connecting-rod N extends downward from the free forward end of said rod in front of said tank to a treadle-lever O. This is pivoted to one side of said casing within the same and extends transversely through the opposite side, having a treadle or handle O' on its outer end. When this treadle is pressed down, the same motion is transmitted through the connecting-rod N, hinged arm M, and piston-rod L to the said piston, and the latter will be forced down against the water in pump-cylinder D for closing the valve K against valve-seat j, so as to cut off all upward flow of water through aperture J', and will force the hot water out of the upper end of the heater C through pipe F and spigot G, the force and duration of the discharge from said spigot depending on the force and duration of the pressure on said treadle. To allow this action and make the discharge instantaneous, the supply of water must be sufficient to fill said heater, the pipes E and F, and the pump-cylinder to the bottom of the piston, and the tank B affords a convenient means of insuring this. Gravity will cause the water to pass from said tank into the upper end of said pump-cylinder when the piston-valve is off its seat, and then, there being no obstruction, to fill the connected parts E C F also. It is necessary only to keep the said tank adequately supplied, and this is best done by occasionally pouring in from above, the cover A' first being removed. A spiral spring P, arranged under the said treadle-lever, replaces the treadle, the piston K, and the connected parts in their first position when the pressure on the said treadle is removed.

The hot-water spigot G of course extends through the casing A. So, too, do the sirup-spigots Q, which are preferably arranged on each side of it, as shown, all being together in a row at the front of the fountain. These spigots Q open and close the outlets r of sirup-jars R, which are arranged vertically and by preference funnel-shaped, as shown, containing sirups of different flavors, as usual. To make room for these and for the connecting-rod N, while retaining the greatest possible space for holding water in reserve, the tank B is formed in front with a broad inset or recess B', formed by bending in the wall of said tank, or in any other convenient way. In this recess the said sirup-jars are arranged vertically side by side, as shown, almost filling it. The said tank extends out forward on each side of said recess, forming broad hollow horns B² in cross-section, which give additional water-space. Of course this tank and the pump, with their connections, might be used in combination with any other electric heater which would allow a flow of water through it; also any other water-forcing device might be substituted for the pump, and the pipe connections and treadle mechanism

may be varied at will, the conditions essential to operativeness being retained.

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

1. In a soda-water fountain, an electric heater, a hot-water spigot, a tube conveying the water to said spigot after being acted on by said heater, and a forcing device for keeping up the flow of the water while thus being heated and while being discharged by the said spigot, substantially as set forth.

2. In a soda-water fountain, an electric heater adapted to allow the flow of water through it, in combination with a spigot, a tube conveying the hot water from said heater to said spigot, an inlet-pipe supplying said heater, and a forcing device for causing the flow of water through said inlet-tube, substantially as set forth.

3. In a soda-water fountain, an electric heater adapted to allow the flow of water through it, in combination with a tank, tubular connections completing the hydraulic circuit between said tank and heater, a pump for maintaining the flow of water in said circuit, and a spigot arranged between the said heater and the said tank and adapted to divert the hot water at will from the latter and discharge it, substantially as set forth.

4. In a soda-water fountain, the combination of an electric heater, a tank, a pump supplied by said tank and forcing water toward said heater, a spigot arranged to divert at will the flow of hot water and discharge it, as stated, and tubular connections maintaining a hydraulic circuit, except when thus diverted, through said pump and said tank, the water being heated by said electric heater on its way from said pump to said tank or spigot, substantially as set forth.

5. In combination with the casing A of a soda-water fountain, having a removable cover A' and annular ledge a, the water-tank, pump-cylinder, and electric heating-cylinder, all attached and removable together, substantially as described.

6. In a soda-water fountain, the combination of an electric heater and tubular connections maintaining a hydraulic circuit, a hot-water spigot located in said circuit beyond the outlet end of said electric heater, a pump-cylinder located in said circuit before the inlet end of said electric heater, a piston and its valve working in said cylinder as a force-pump, a piston-rod, a pivoted arm to which it is attached, a connecting-rod and treadle-lever for operating said arm and piston-rod, and a replacing-spring for said lever, piston, and attached parts, all substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIS MITCHELL.

Witnesses:

PELATIAH R. TRIPP,
W. P. CUTLER.