J. MATTHEWS.

Fountains for Aerated Liquids.

No. 152,856. Patented July 7, 1874.

Fig. 1.

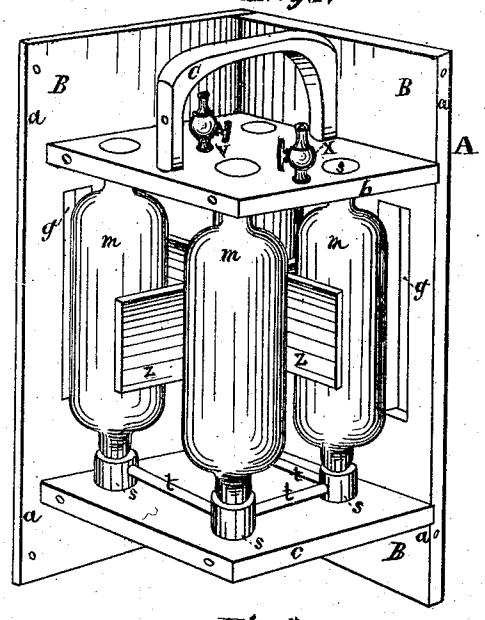


Fig. 2.

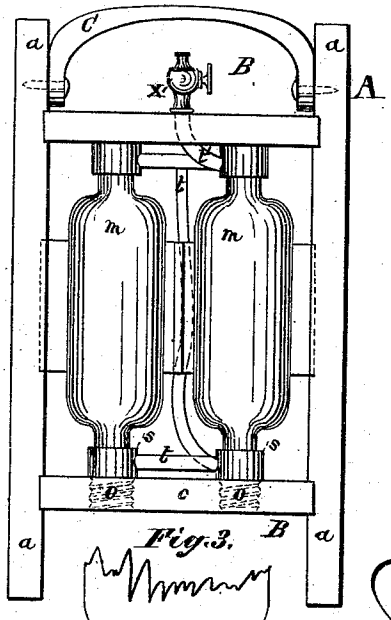
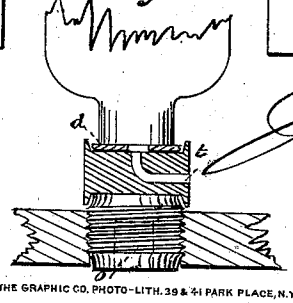


Fig. 3.



Witnesses.

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IMPROVEMENTS IN FOUNTAINS FOR AERATED LIQUIDS.

Specification forming part of Letters Patent No. **152,856**, dated July 7, 1874; application filed April 28, 1874.

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 Fountains for Aerated Beverages and Liquids; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification, in which—

Figure 1 is a perspective view with two sides of the case removed; Fig. 2, an elevation with one side removed; and Fig. 3, a detached view of one of the cells with the socket in section, exposing the communicating tube or pipe *t* and a set-screw, *o*, in elevation as in actual use.

This invention consists of a glass multicellular fountain for holding aerated beverages and liquids.

The improvement relates to a novel construction of soda-water fountain or reservoir, by which, when ceramic glassware, or any other non-metallic reservoirs are used, the necessity of a jacket for sustaining the great pressure required is obviated; to an improved case for sustaining and transporting such fountains; to novel instrumentalities for preventing damage in case of explosion of one or more cells; to the means whereby accidental damage to the faucets or connections is avoided; to means whereby the height of liquid in each fountain is readily ascertained.

The serious objection to the metallic fountains, as ordinarily constructed for dispensing aerated waters, have been long known, and cases of poisoning by drinking from copper fountains are common.

Numerous devices have been employed by which ceramic ware, glass, or any other innocuous material might be substituted for the old style of fountain.

In all these cases, owing to the weakness of these otherwise preferable materials, it has been found necessary to retain the metallic case in order to resist the great pressure required. This case adds much to the weight and also to the expense of construction.

Moreover, it has been found in practice that it was impossible to pack the glass vessel in the jacket by means of cement or filling so closely as to avoid fracture of the interior vessel when submitted to pressure.

To remedy this difficulty great improvement was afterward effected, by which the pressure was admitted to the space between the exterior of the glass vessel and the metallic jacket, the pressure being thus equalized on the exterior and interior of the glass.

Notwithstanding much ingenuity has been devoted to this construction, it has been found necessary to protect the interior of the metallic jacket from all corrosive action, as the beverage would often come in contact with the metal jacket, and if it was not permanently protected, would sooner or later render the fountain liable to the objections urged against the ordinary fountains.

This necessity of making first a perfect metallic fountain of the jacket, and then to sustain the glass vessel on the interior so protected from shocks in transportation, is attended by greater expense than most dealers are able to incur. Moreover, to economize space it is necessary to adjust the size and shape of the vessel with great exactness to the jacket, leaving only a small space sufficient for the elastic packing or supports to sustain the glass vessel.

To make suitable glass vessels for fountains of ordinary capacity, very large and expensive molds are necessary, a different mold being required for each size. This increases the cost of such fountains materially.

Moreover, in glass fountains having a single cell of large capacity, even if constructed with the greatest skill, it is impossible to avoid frequent fracture of the glass vessel, owing to the weight of the liquid contents. A shock or blow on the exterior of the glass fountain, or the arrested momentum of the contents in setting the fountain down suddenly, is often sufficient to fracture the glass vessel. It is also very difficult to blow glass vessels of a large size in molds, as by long exposure to the air in blowing, and by contact with the mold, the glass becomes unequally chilled, causing uneven distribution

of the material and consequent liability to fracture by variations of temperature, which the annealing process only partially obviates.

I construct my improved fountain as follows: A A is an external case, of wood, the sides of which, *a a a*, extend above and below the top *b* and the bottom *c* of the case, forming recesses B B. At the top of the case is attached a swinging handle or bail, C, for convenience for transportation. Within the case and at the top or bottom is a series of sockets, *s s*, made of tin, hard rubber, or other strong and innocuous material. These sockets are perforated and connected by tubes *t t*, the last socket *s* on the bottom having a tube, which passes to the top of the case, and is connected with the liquid-valve V. The last socket *s* at the top of the case also has a tube, *t'*, which terminates in a vent-valve, K. A series of set-screws, *o o*, passing through the bottom of the case, impinge upon the lower sockets and force them in when the screws are turned in a proper direction. A series of glass vessels or cells, *m m*, each end being perforated, are inserted, so that their ends rest upon rubber paddings *d d* in the sockets, and the set-screws being turned so as to bring the sockets together, the glass cells are firmly secured in the sockets, and the orifices in the tubes are thus connected, so that the cavities in the cells are connected and made continuous at the top and bottom of the case.

If both valves are now opened, liquid may be run in through the liquid-valve, passing through the lower sockets and connecting-tubes into the cells, and will rise to an equal height in all the cells, the contained air passing through the upper sockets and connecting-tubes issuing from the vent-valve.

To fill this multicellular fountain, I connect a charging-pipe from the bottom of the fountain of the generating apparatus to the liquid-tube leading through the lower sockets to the cells and open the vent-valve. The communications being opened between the fountain of the generating apparatus and the multicellular fountains, the aerated liquid enters the lower part of the cells, and drives out the atmospheric air contained in the cells through the vent-tubes and vent-valves. As soon as the atmospheric air is displaced the vent-tube is connected with the gas-space in the fountain of the generating apparatus and communication established. As soon as the liquid rises in the cells to the required height, which may be known by inspecting one or more of the cells through the openings in the external case, the vent-valve and the liquid-valve are closed, and the fountain being disconnected may be transported wherever required. To discharge the water from the fountain, a dispensing-tube is to be attached at the liquid-valve, which, on being opened, will discharge the aerated liquid from time to time, as may be required, from all the cells in the same manner as from a single fountain or vessel, the compressed gas in the spaces above the liquid in the cells acting as a spring to force out the liquid in the usual manner.

Although many of the advantages possessed by fountains of this construction are perhaps obvious to persons skilled in the art, I will enumerate these advantages, all of which may not at once occur even to persons thus familiar with such apparatus.

First, in such cellular glass fountains all danger from poisonous metallic contamination is avoided, and permanent purity is obtained. Second, this construction admits of great economy, as the expense of a metallic jacket is avoided. Third, the glass cells are more cheaply constructed than a single large cell of ordinary capacity. Fourth, the cells, being of small capacity, are of greater strength. Fifth, in case of fracture, the single cell can be readily replaced, and at small cost. Sixth, from cells made in a single mold fountains of any required capacity can be constructed by adding more cells. The required strength is not diminished with increase of capacity. Seventh, the cells, being of small size, can be much more perfectly made than the ordinary large cell. Eighth, the case in which the cells of this fountain are sustained protect them from injury, and admits of cheap construction. Ninth, the cells, being arranged in partitioned stalls, are secure from injury in the case of explosion of neighboring cells. Tenth, the liquid-tubes and vent-tube permit the filling of the fountain from other reservoirs retaining the aeration perfectly under the graduated pressure controlled by the vent-valve. Eleventh, the shape of this case forming the exterior of this fountain permits the fountains to be stacked, without injury, one above the other. Twelfth, the perforations in the external case permit an inspection of the contents of the fountain. Thirteenth, as a substitute for the ordinary siphon, the construction is not attended by the same danger in case of explosion. Fourteenth, by the use of this fountain, families may keep always among their stores a supply of aerated waters, as the vessel is not liable to injury by careless servants, and is less expensive than siphons, and waters may remain a long time on draft and still be entirely wholesome. Fifteenth, the transportation of these cells from the glass-house to the place where the fountains are manufactured is attended with much less loss by breakage in transportation than single cells of large capacity. Sixteenth, the fountains are more compactly loaded in wagons, and will be less liable to derangement and injury in transportation than ordinary fountains.

I am aware that siphon-bottles for aerated liquids have been made of glass and of ceramic ware, and that fountains have been made with a glass lining and a metallic covering or case. The former are too small, as heretofore made, to serve the purpose of my invention, and the latter are difficult to construct, and are very heavy.

I claim—

1. A cellular fountain composed of a series

of cells made of glass or porcelain connected to each other by pipes or tubes, all substantially as set forth.

2. The sockets *s s* and connecting-tubes *t t*, arranged and operating substantially as described.

3. The vent-tube *t'*, and vent-valve X, and liquid-tube *t*, and liquid-valve V, arranged and operating substantially as described.

4. A series of cells forming a fountain or reservoir, arranged within a protecting-case, substantially as described.

5. The combination of the perforated sockets, packing connecting-tubes, and set-screws, so as to join together and form into one vessel or fountain a series of cells, substantially as set forth.

6. The case constructed with top and bottom, in combination with the sockets *s s*, for securing the cells of a soda-fountain, as described.

In testimony that I claim the foregoing I have hereunto set my hand.

JOHN MATTHEWS.

Witnesses:
W. W. BISHOP,
A. G. SHERMAN.