J. MATTHEWS.

Apparatus for Carbonating Beverages.

No. 198,403. Patented Dec. 18, 1877.

Fig. 1.

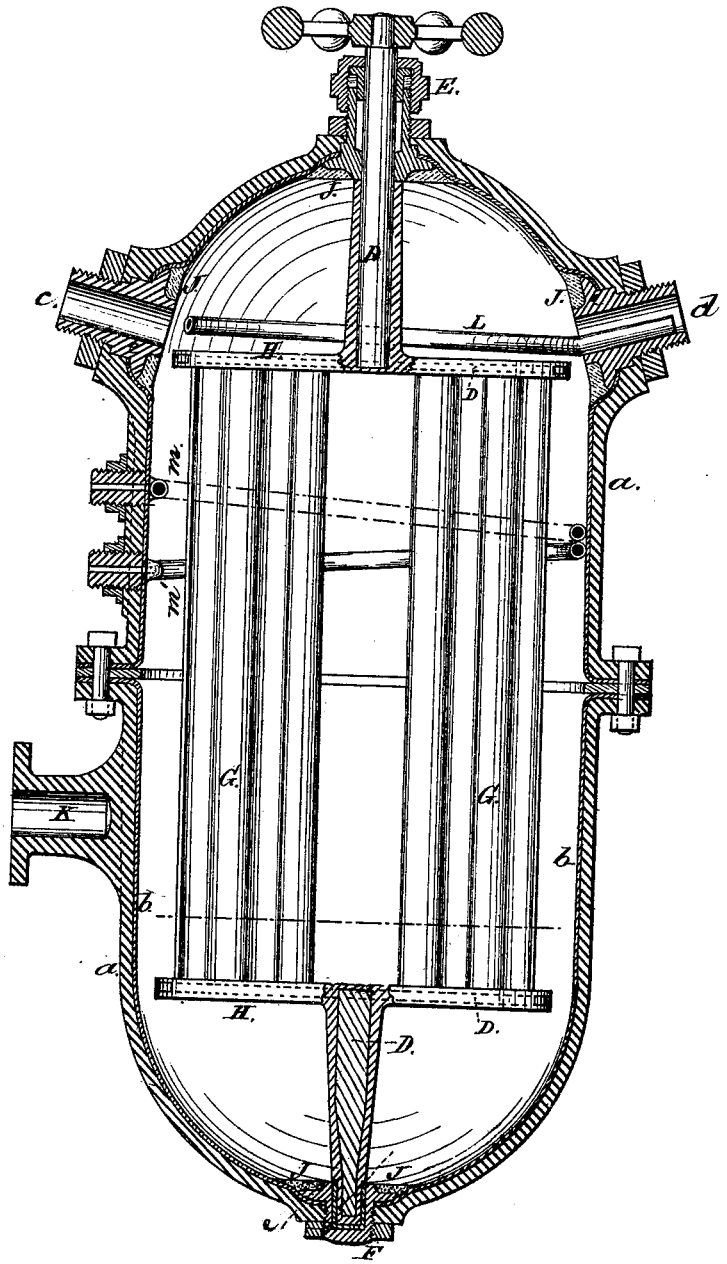
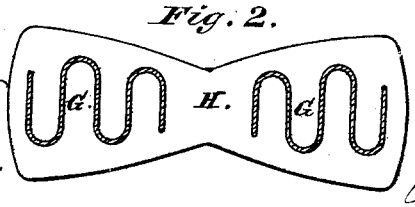


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN APPARATUS FOR CARBONATING BEVERAGES.

Specification forming part of Letters Patent No. **198,403**, dated December 18, 1877; application filed November 30, 1877.

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 Carbonating Beverages; 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 for carbonating beverages.

It consists of instrumentalities whereby the apparatus is more easily and substantially made; instrumentalities whereby the durability of such apparatus is increased; instrumentalities whereby the contents of such apparatus are more completely discharged; instrumentalities whereby the beverages are protected from metallic contamination and the purity of the beverage maintained; and instrumentalities whereby the apparatus can be operated with less labor and in less time.

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

In ordinary apparatus for carbonating beverages the charging-bungs, discharging-bungs, and other connections are made with flanges, whereby they are secured in position by soldering the flange fast to the interior case or lead lining. A good joint cannot thus be made, owing to the difficulty of confining the solder in its place during the process of soldering. Very often the joint is seemingly a good one, until the apparatus is put together, when it is found, on testing it, to leak, owing to some imperfection in the soldering, due to the difficulty incurred of making the joint hot enough in the process of soldering; for if the joint is made hot enough for this purpose, there is great danger of the solder running away from the joint, and also of burning the lining, which might render it useless.

In apparatus for carbonating beverages thus made, the solder and the flange of the connection project into the interior of the apparatus, thereby lessening its working capacity, by preventing it from being thoroughly discharged of its contents.

In apparatus for carbonating beverages as now constructed the interior is made of sheet-tin, protected by an exterior case of cast-iron or steel, which serves only as a resistance to the pressure inside of the apparatus. Around the bungs or connections the air has free access between the exterior and interior cases.

If the operator discharges the contents of the apparatus without venting it by first opening the charging-bung, a partial vacuum is created in the apparatus, and the interior case or lining is liable to collapse, by reason of the air entering between the exterior and interior case and pressing on the lining, necessitating the taking apart and relining of the apparatus.

In apparatus for carbonating beverages as now constructed, the agitator that mixes the gas with the liquid is generally made of brass, copper, or other poisonous metal, washed with tin. This tin-wash soon wears off, leaving the base metal to contaminate the beverage after it remains in the apparatus a short time. Agitators are also made with beaters of porcelain, as described in my patent of August 5, 1873, numbered 141,571. These agitators are not well adapted for transportation, as they are more easily broken than metallic ones. Ordinary agitators are generally of such form that they cut through the gas and liquid more or less, without thoroughly mixing them together, thereby taking more time and labor to make the carbonated drink.

In the accompanying drawings, Figure 1 is a lengthwise section of my apparatus, and Fig. 2 is an end section.

a represents the exterior metal case; *b*, interior tin case or lining; *c*, charging-bung; *d*, discharging-bung; *e*, flange-connections; E, stuffing-box; F, agitator-supporter; G G, agitator-beaters; H H, cast-tin agitator-heads; D D, strengthening rods and ribs; J J J J, the solder holding the brass pieces in position; K, gas-washer supporter; L, vent-tube; *m m'*, two pipes connected with plugs in the side of the shell.

I construct the external case of my appa-

ratus for carbonating beverages with recesses, in which the flanges of the brass connections rest, as in *e*. I am thus enabled to more thoroughly solder the connections to the lining with greater ease, and without waste of material, as the recess confines the solder to its proper place. In making fast the bungs, the recess is filled with solder flush with the interior of the apparatus, so that the apparatus can be thoroughly discharged of its contents without lessening its capacity. In forming the joints in the recess, I am enabled to make them thoroughly hot without danger of burning the lining. To avoid a collapse of the lining when the contents are discharged, I introduce a vent-tube, L, into the apparatus, which projects into the discharge-bung *d*, and extends inwardly nearly to the top of the apparatus, so that when the discharge-bung is opened to empty the apparatus the air will enter the vent-tube, preventing the partial vacuum which might cause the lining to collapse.

I construct the agitator of my apparatus with ends H H of tin, cast around the strengthening rods and ribs D D D D. These ends have serpentine openings, in which the beaters G G are fitted. The beaters G G are made of sheet-copper, cased on both sides with sheet-tin, sweated to the copper. They are then corrugated to fit the serpentine openings, into which they are sweated with pure tin.

By making the beaters of corrugated form, I secure the advantage of more thoroughly agitating the gas and liquid, as the corrugations retain the gas, and carry it beneath the liquid when the agitator is revolved.

It is obvious that the agitator cannot contaminate the beverage, as nothing but pure tin comes in contact with it. The corrugated form of the beaters also gives great strength to the agitator. I incase the back agitator-bearing with tin, and the stuffing-box E is also incased with pure tin.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In apparatus for carbonating liquids, the external case *a*, provided with recesses to secure the flange-connections *e* and solder J, as and for the purpose set forth.

2. The agitator composed of the strengthening rods and ribs D, with head H and beaters G, substantially as set forth.

3. The agitator-beater G, of corrugated form, as shown, inserted in a corresponding groove in the agitator-head H, and supported by bearings resting in support F, and stuffing-box E, as set forth.

4. The discharge-bung *d*, provided with the vent-tube L, so as to prevent a collapse in drawing off the contents of the vessel.

5. The combination, as a whole, of the case *a*, with lining *b*, stuffing-box E, agitator-supporter F, and recesses to contain flanges *e* and solder J, all substantially 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:

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A. F. BUTLER.