

L. M. KEELER & J. RAMPP.
CARBONATOR.

APPLICATION FILED NOV. 20, 1908.

930,189.

Patented Aug. 3, 1909.

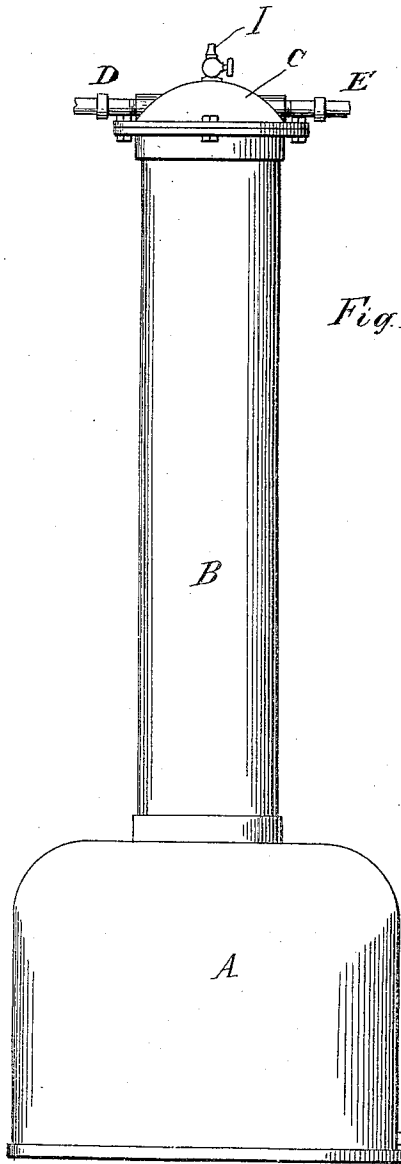


Fig. 1.

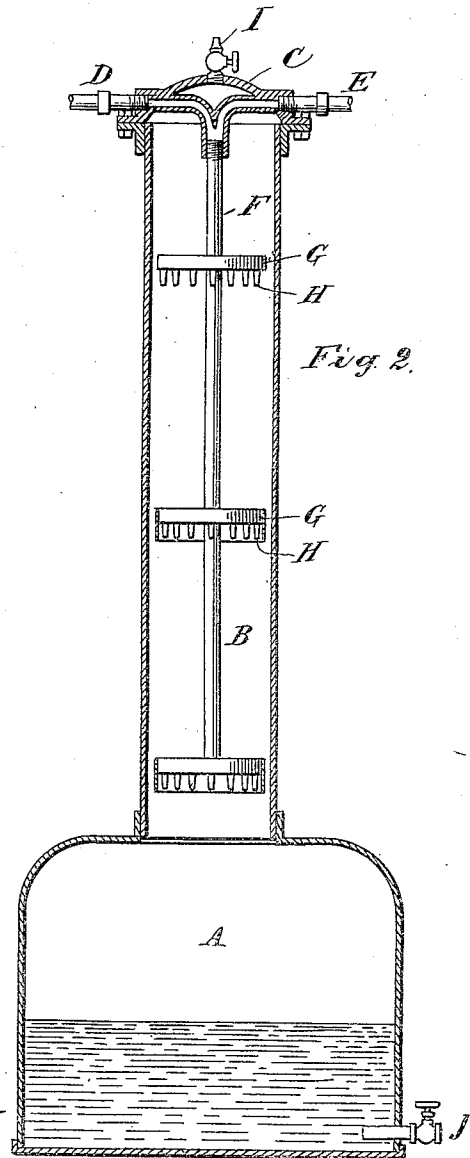
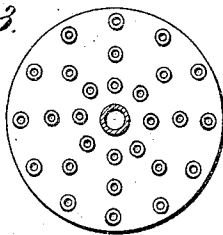


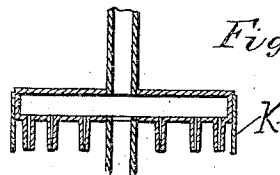
Fig. 2.

Fig. 3.



Witnesses:
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Fig. 4.



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UNITED STATES PATENT OFFICE.

LOUIS MINTON KEELER, OF SCARSDALE, AND JOHN RAMPP, OF NEW YORK, N. Y.

CARBONATOR.

No. 930,189.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed November 20, 1908. Serial No. 463,506.

To all whom it may concern:

Be it known that we, LOUIS MINTON KEELER and JOHN RAMPP, citizens of the United States, residing, respectively, at Scarsdale, Westchester county, New York, and New York city, New York county, New York State, have invented certain new and useful Improvements in Carbonators for Liquids, of which the following is a specification.

Our joint invention relates to carbonators for charging liquids with carbonic acid gas. The object of our joint invention is to produce a carbonating apparatus whereby liquid is thoroughly carbonated, the air is separated freely and perfectly from the liquid and ascends to the top of the apparatus and remains there undisturbed; to individualize the streams of liquid in their downward flow through the carbonic acid gas, and to expose the said streams of liquid to the action of said gas, also to introduce the liquid into the carbonator chamber from the upper part, and in a downward direction, whereby the air ascends to the top of the chamber, and remains there until discharged, because the air is lighter than the carbonic acid gas. Also to force the liquid into a mixing pipe with the inflow of carbonic acid gas and both together into the carbonator chamber through chambers, from the bottom of which the liquid and gas are forced through directing pipes which separate the liquid into fine individualized streams, and prevent the fine streams of liquid from concentrating again after leaving the distributing nozzles.

To this end our joint invention consists in certain elements and combinations fully set forth in the following specification and claimed at the end thereof.

In order that those skilled in the art to which our joint invention appertains may understand, construct and use our joint invention, we will proceed to describe it referring to the accompanying drawings forming part of this specification, in which—

Figure 1. shows an elevation of our invention. Fig. 2. shows a central vertical section of Fig. 1, with the central inflow pipe and distributing chambers, shown in elevation.

Fig. 3. shows a bottom view of one of the distributing chambers. Fig. 4. shows a central cross section of the same.

A shows the liquid chamber of the apparatus.

B shows the gas chamber or column.

C shows the cap of the gas column B.

D shows the liquid inflow pipe.

E shows the gas inflow pipe.

F shows the pipe for the combined inflow of liquid and gas closed at its bottom.

G, G, G. show distributing chambers into which pipe F discharges liquid and gas.

H shows short distributing pipes secured in the bottom of chambers G, having very fine openings in them.

I shows a valve at the top of column B to discharge air when desired.

J shows a valve to draw off carbonated liquid from the liquid chamber A.

K shows casing around chambers G to keep the jets of liquid from one chamber from contacting with the jets from the other chambers.

The operation of our joint invention is as follows: Liquid and carbonic acid gas are admitted to pipe F from pipes D and E, where they mix and flow downward to the chambers G, where they issue together into column B through the fine distributing pipes H in fine individual streams the length of each pipe being sufficient to give direction to said streams, and prevent the liquid from flowing from the openings in films in contact with metal surfaces, and as liquid which flows from a pipe opening vertically downward is of smaller diameter each degree of descent, the streams never contact with each other, but are at all times exposed to the carbonic acid gas and become thoroughly carbonated and fall into chamber A, from whence it is drawn off through valve J and air which has accumulated in the top of column B is drawn off through valve I when desired.

By this our joint invention the liquid is first mixed with carbonic acid gas in pipe F, while the air in the liquid is still in it, but when the liquid issues from distributing pipes H the gas has more or less perfectly mixed with the liquid and taken the place of the air so that the air being lighter than the

carbonic acid gas escapes to the top of column B and the liquid partially carbonated issues in fine streams into column B and is further charged with or absorbs gas before it drops into chamber A, and this takes place more readily from the fact that the liquid has been so finely divided and exposed on all sides of the individualized streams to the gas.

An important advantage which accrues from our apparatus is that the air is never disturbed after it has separated from the liquid by the incoming liquid, as in other apparatus. The general practice is to discharge the water to be carbonated directly into the air at the top of the carbonator.

Having now fully described our joint invention, what we claim as new and as our joint invention and desire to secure by Letters Patent is—

1. In an apparatus for carbonating liquid, the combination consisting of a carbonator chamber; a combined inlet for gas and liquid, at its top; a conduit depending into said carbonator chamber from said inlet pipe, having an enlargement or enlargements between

its upper and lower ends, and provided with small discharge pipes in their bottom surfaces, whereby the liquid which enters the carbonator, is discharged only through said small pipes in fine streams as and for the purposes specified.

2. In an apparatus for carbonating liquid in a closed chamber, the combination with the combined gas and liquid inlet pipe, of a series of chambers as circumferential enlargements of said inlet pipe, and provided with exit pipes in the base of said chambers, the lower chambers having circumferential rims extending below the under surface of said chambers, as and for the purposes specified.

In testimony whereof, we have signed our names to this specification in the presence of two subscribing witnesses, this 14th day of November 1908.

LOUIS MINTON KEELER.
JOHN RAMPP.

Witnesses:

JOHN A. HICKS,
LINCOLN A. STEWART.