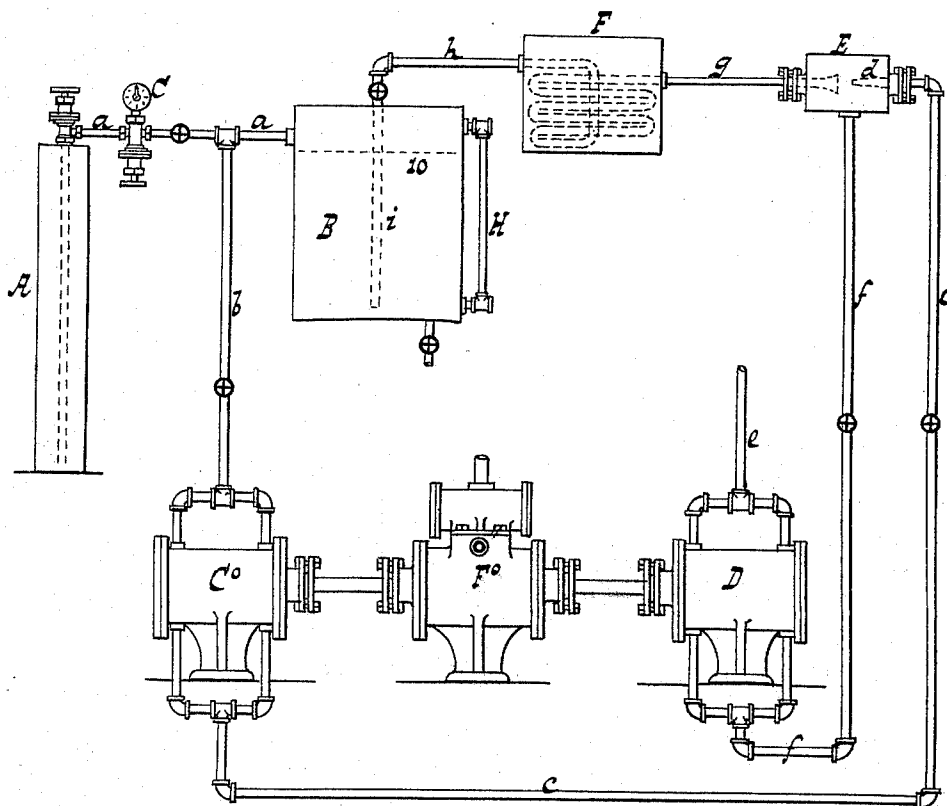


(No Model.)

E. RUEFF.
APPARATUS FOR CHARGING LIQUIDS WITH GAS.
No. 518,514. Patented Apr. 17, 1894.



WITNESSES:

William Miller
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UNITED STATES PATENT OFFICE.

EMIL RUEFF, OF NEW YORK, N. Y.

APPARATUS FOR CHARGING LIQUIDS WITH GAS.

SPECIFICATION forming part of Letters Patent No. 518,514, dated April 17, 1894.

Application filed April 13, 1893. Serial No. 470,231. (No model.)

To all whom it may concern:

Be it known that I, EMIL RUEFF, a citizen of the United States, residing at New York, in the county and State of New York, have
5 invented new and useful Improvements in Apparatus for Charging Liquids with Gas, of which the following is a specification.

My invention has for its object to provide a new and improved apparatus for charging
10 liquids with gas, and it consists in the features of construction and the combination or arrangement of devices hereinafter described and claimed, reference being made to the accompanying drawing, in which the figure is
15 an elevation of an apparatus embodying my invention.

In the drawing the letter A designates a fountain containing liquid carbonic acid.

B is a receptacle which is intended to contain the aerated liquid and from which said
20 liquid is to be dispensed. This receptacle connects with the fountain A by means of a pipe *a*, a suitable pressure regulator C being provided, so that the pressure of the gas in
25 the receptacle B can be adjusted to the required point. After the pressure in the receptacle B has reached the desired point, the connection with the fountain A is closed and the pumps C° and D are started. The pump
30 C° is a gas pump which connects by a pipe *b* with the receptacle B and from which extends the delivery pipe *c* which connects with a nozzle *d* situated in the interior of a closed chamber E which may be termed the mixing
35 chamber. The pump D connects by a pipe *e* with a vessel containing the liquid to be aerated or charged with gas and the delivery pipe *f* of this pump extends into the mixing chamber E. The pumps C° and D connect
40 with and are actuated by a steam engine or other motor F°. From the mixing chamber E extends a pipe *g* into the aerating chamber F and from this aerating chamber extends a pipe *h* which connects with a pipe *i*
45 leading down near to the bottom of the receptacle B. The pipes *g h* may be made to lead into the aerating chamber F without being connected, but I prefer to connect these two pipes by means of a coil *j* situated in the
50 interior of the aerating chamber. When the

pumps C° and D are in operation, the gas which is drawn by the pump C° from the top part of the receptacle B, is injected through the pipe *c* and nozzle *d* into the mixing chamber E, while the liquid which is drawn in by
55 the pump D, is forced through the pipe *f* into the mixing chamber E, where it comes in contact with the gas flowing from the nozzle *d* and both the gas and liquid are forced through the pipe *g* into the aerating chamber F, where
60 the same have time to become intimately mixed and then the aerated liquid being impelled by the action of the pumps C° D flows from the aerating chamber through the pipes *h i* down to the bottom part of the receptacle
65 B. In its flow through the aerating chamber the liquid and gas become intimately mixed and in order to facilitate this mixture, the coil *j* may be introduced. When the aerated liquid in the receptacle B has reached the
70 level indicated by the dotted line 10 (which can be observed by the gage H), the action of the pumps C° D is stopped, the receptacle B is removed and replaced by another and then this new receptacle is charged first with gas
75 under pressure and then with the aerated liquid as above described.

By referring to the drawing it will be seen that the receptacle B after having been charged with aerated liquid up to the line 10
80 still contains a quantity of gas which is not mixed with liquid and which has sufficient pressure to cause the aerated liquid to discharge freely from the receptacle. When all the aerated liquid has been withdrawn from
85 the receptacle, a quantity of unmixed gas remains therein and if the receptacle is recharged, according to my invention, this quantity of unmixed gas is utilized since it forms part of the new charge of the receptacle.

I do not herein claim the process or method described for charging liquids with carbonic acid, as such constitutes the subject matter of a separate application for patent filed by me
September 28, 1893, Serial No. 486,705.

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

1. An improved apparatus for aerating or charging liquids with gas, which is composed of a fountain A, a receptacle B, connections
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between the fountain and the receptacle, a gas pump C°, and a mixing chamber E, connection between the receptacle and the gas pump and between the gas pump and the mixing chamber, a liquid pump D, a liquid supply pipe *e* connected to this pump, a delivery pipe *f* leading from this pump to the mixing chamber and connection between the mixing chamber and the said receptacle, substantially as described.

2. An improved apparatus for aerating or charging liquids with gas which is composed of a fountain A, a receptacle B, connections between the fountain and the receptacle, a gas pump C° and a mixing chamber E, connection between the receptacle and the gas

pump and between the gas pump and the mixing chamber, a liquid pump D, a liquid supply pipe *e* connected to this pump, a delivery pipe *f* leading from this pump to the mixing chamber, the aerating chamber F and connections between the mixing chamber and aerating chamber and also between the aerating chamber and the receptacle B substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EMIL RUEFF.

Witnesses:

WM. C. HAUFF,
E. F. KASTENHUBER.