No. 721,671. PATENTED MAR. 3, 1903.

R. COLLINGS & A. C. GRISCOM.

CARBONATOR.

APPLICATION FILED DEC. 31, 1901.

NO MODEL.

Fig. 1.

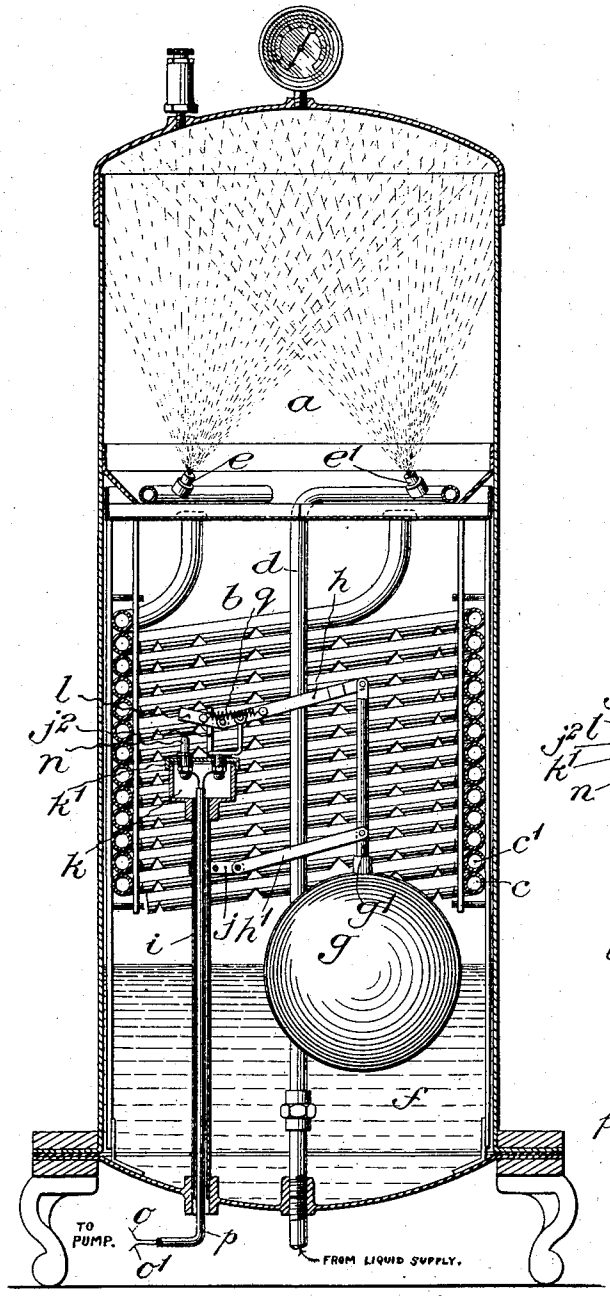


Fig. 3.

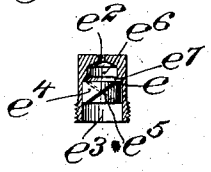
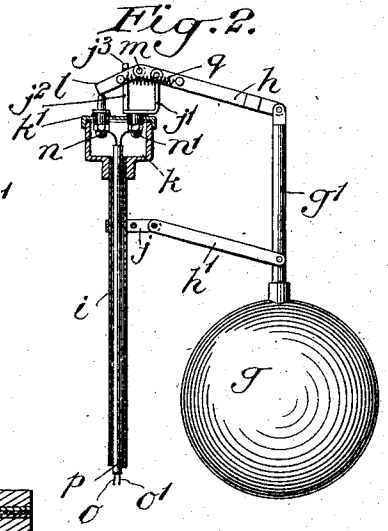


Fig. 2.



Witnesses:-
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

RICHARD COLLINGS AND ALFRED C. GRISCOM, OF NEW YORK, N. Y.

CARBONATOR.

SPECIFICATION forming part of Letters Patent No. 721,671, dated March 3, 1903.

Application filed December 31, 1901. Serial No. 87,882. (No model.)

To all whom it may concern:

Be it known that we, RICHARD COLLINGS and ALFRED C. GRISCOM, citizens of the United States, and residents of the borough of Manhattan, in the city and State of New York, have invented a new and useful Carbonator, of which the following is a specification.

Our invention relates to a carbonator, and more particularly to means for automatically starting a liquid-supply pump when the liquid in the carbonator reaches a predetermined level and for stopping the pump when the liquid within the carbonator reaches a predetermined height.

Our invention further relates to a spraying-nozzle for spraying the liquid to be carbonated into the mixing-chamber.

Our invention contemplates an arrangement of mechanism in connection with the carbonator by which the effect of movable parts within the carbonator is transmitted to the exterior of the carbonator to start a supply-pump without requiring any movable transmission device through the wall of the chamber in which the carbonated liquid is held under pressure.

A practical embodiment of our invention is represented in the accompanying drawings, in which—

Figure 1 is a view in vertical section of a carbonator, showing the position of the parts therein when the pump for supplying the liquid is out of action. Fig. 2 is a view in detail, showing the position of the parts when the pump is in action; and Fig. 3 is an enlarged view in detail, showing the spraying-nozzle in longitudinal section.

The mixing-chamber of the carbonator is denoted by *a*, the receiving-chamber for the carbonated liquid by *b*, the pipe-coils down which the liquid travels from the mixing-chamber *a* to the bottom of the receiving-chamber *b* by *c c'*, and the pipe for introducing liquid into the mixing-chamber by *d*. The latter is provided with one or more spraying-nozzles within the mixing-chamber *a*, two such nozzles *e e'* being designated in the accompanying drawings. As the body of the liquid *f* accumulates in the bottom of the chamber *b* it becomes desirable to cut off the supply through the pipe *d* until the body of carbonated liquid *f* shall have been reduced by use. When it is desirable to again start the discharge of liquid into the mixing-chamber and increase the body of the carbonated liquid *f*, the control of the pump (not shown) for supplying the liquid to the mixing-chamber is accomplished by means of a float *g*, located within the chamber *b*, which float is arranged to make and break an electric circuit leading to an electric pump of any well-known or approved form. (Not shown.) The position of the float in Fig. 1 is that which it assumes just as the electric circuit has been broken while there is still sufficient pressure from the pump to produce spray from the nozzles *e e'*.

The float *g* is held laterally in position within the chamber *b* by means of arms *h h'*, jointed at one end to a stem *g'*, extending upwardly from the float *g*, and at their opposite ends pivoted to brackets on a stationary hollow standard *i*, extending upwardly from the bottom of the carbonator.

The bracket to which the arm *h'* is secured is denoted by *j* and is fixed to the body of the standard *i*, while the bracket to which the arm *h* is connected is denoted by *j'* and is fixed to the top *k'* of a box *k*, fixed to the top of the standard *i* and forming a rigid part of the said standard.

The bracket *j'* has secured thereto an upwardly-extending piece j^2, provided with a lateral projection j^3 at its top, on the under side of which a contact-piece *l* fulcrums.

One end of the contact-piece *l* is pivoted, as at *m*, to the end of the arm *h*, the latter by its pivotal connection with the bracket *j'* at a point intermediate of its ends serving as a lever for operating the contact-piece *l*, swinging the free end of the contact-piece toward the binding-post when the float descends and carries with it the arm *h* and throwing the free end of the contact-piece *l* away from the binding-piece when the float *g* rises and carries with it the arm *h*.

It is intended that the arms *h h'* shall be substantially parallel and of substantially the same length from their fulcrums to their

attachments to the stand g' of the float, although this provision is not absolutely necessary to the operation.

Binding-posts n n' are fixed in and project from the top k' of the box k at the head of the standard, the former, n, extending into position to contact with the free end of the contact-piece l and the latter, n', into electric contact with the bracket j', and hence with the piece j^2 carried thereby and which supports the contact-piece l.

From the binding-posts n and n' within the box k at the head of the standard wires o o' lead downwardly through the hollow standard i and thence away to the electric pump. These wires o o' are conveniently housed within an insulating-pipe p, extending upwardly within the standard i, although they may be individually insulated and extended up within the hollow standard i without the use of a pipe p.

The contact-piece l is connected with the arm h of its operating-lever by means of a coil-spring q, the tension of which tends to throw the contact-piece quickly away from the binding-post m the moment the pivotal connection of the contact-piece l with the arm h passes center, and, on the other hand, serves to throw the contact-piece quickly into engagement with the binding-post m the moment the said pivotal connection passes center in the opposite direction.

The position of the contact-piece l when the contact is closed is clearly shown in Fig. 2 and its position when the contact is broken in Fig. 1. This sudden throw of the contact-piece l under the tension of the spring q into and out of engagement with the binding-post n prevents sparking and insures a perfect contact.

The pipe i may be set securely in the bottom of the tank, and the binding-posts may be set securely in the top of the box k, so that there will be no loose joint between the interior and exterior of the chamber b through which leakage can take place, as the joints are all permanent and the movable parts for making and breaking circuit are wholly within the chamber b.

The nozzle for spraying the liquid within the mixing-chamber a is provided, as shown in Fig. 3, with a flaring-mouthed orifice e^2 at its tip and is bored from its opposite end to form a chamber e^3 for the reception of a plug e^4, the periphery of which is provided with slanting grooves e^5 for the transmission of liquid from the base of the nozzle to the chamber e^6, intermediate of the outer end of the plug e^4 and the inner end of the orifice e^2.

The chamber e^6 is beveled at its outer end, and the liquid passing through the grooves e^5 strikes the mass of water in the chamber e^6, causing it to whirl rapidly within the chamber, from which it issues through the orifice e^2 in a fog-like spray.

The plug e^4 is fixed within the nozzle.

The operation of the device may be briefly stated as follows: As the body of liquid f diminishes the arm h will be lowered by the action of the float, and when the pivotal connection of the contact-piece with the arm h passes center the spring q will promptly throw the contact-piece into engagement with the binding-post m, completing the electric circuit through the pump, and the liquid will be supplied until the float shall have risen to a point corresponding to the height at which the liquid is to be maintained within the chamber b, at which point the said pivotal connection of the contact-piece with the arm h will have again passed center in the opposite direction, and the spring q will promptly throw the contact-piece out of engagement with the binding-post, and the further discharge of liquid will thereby be stopped.

What we claim is—

1. The combination with a carbonator, of a hollow standard extending within the interior of the carbonator and closed to form a liquid-tight wall between the interior of the carbonator and the interior of the standard, electric contact-pieces extending from the interior of the carbonator to the interior of the said hollow standard, wires leading from the contact-pieces to the exterior of the carbonator, a circuit maker and breaker in position to engage and disengage the contact-pieces within the carbonator and a float for operating the circuit maker and breaker, substantially as set forth.

2. The combination with a carbonator, of a hollow standard extending within the interior of the carbonator, the said standard being closed to form a liquid-tight wall between the interior of the carbonator and the interior of the standard, contact-pieces extending from the interior of the carbonator to the interior of the standard, wires leading from the contact-pieces to the exterior of the carbonator, a circuit maker and breaker supported on the standard within the carbonator and a float for operating the circuit maker and breaker, the said float being connected with the standard for determining its position within the carbonator during its rising-and-falling movement, substantially as set forth.

3. The combination with a carbonator, of a hollow standard extending within the interior of the carbonator, the said standard being closed to form a liquid-tight wall between the interior of the carbonator and the interior of the standard, contact-pieces extending from the interior of the carbonator to the interior of the hollow standard, wires leading from the contact-pieces to the exterior of the carbonator, a float within the carbonator, a pivoted arm under the control of the float, a circuit maker and breaker pivoted to said arm, a spring connecting the circuit maker and breaker with the arm and arranged to

operate the circuit maker and breaker in each of two opposite directions and a stop connected with the hollow standard for limiting the swinging movement of the circuit maker and breaker away from the contact-pieces, substantially as set forth.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 30th day of December, 1901.

RICHARD COLLINGS.
ALFRED C. GRISCOM.

Witnesses:
FREDK. HAYNES,
HENRY THIEME.