

No. 626,450.

Patented June 6, 1899.

C. ADAMI.

COOLER FOR SODA WATER OR OTHER AERATED LIQUIDS.

(Application filed Mar. 22, 1899.)

(No Model.)

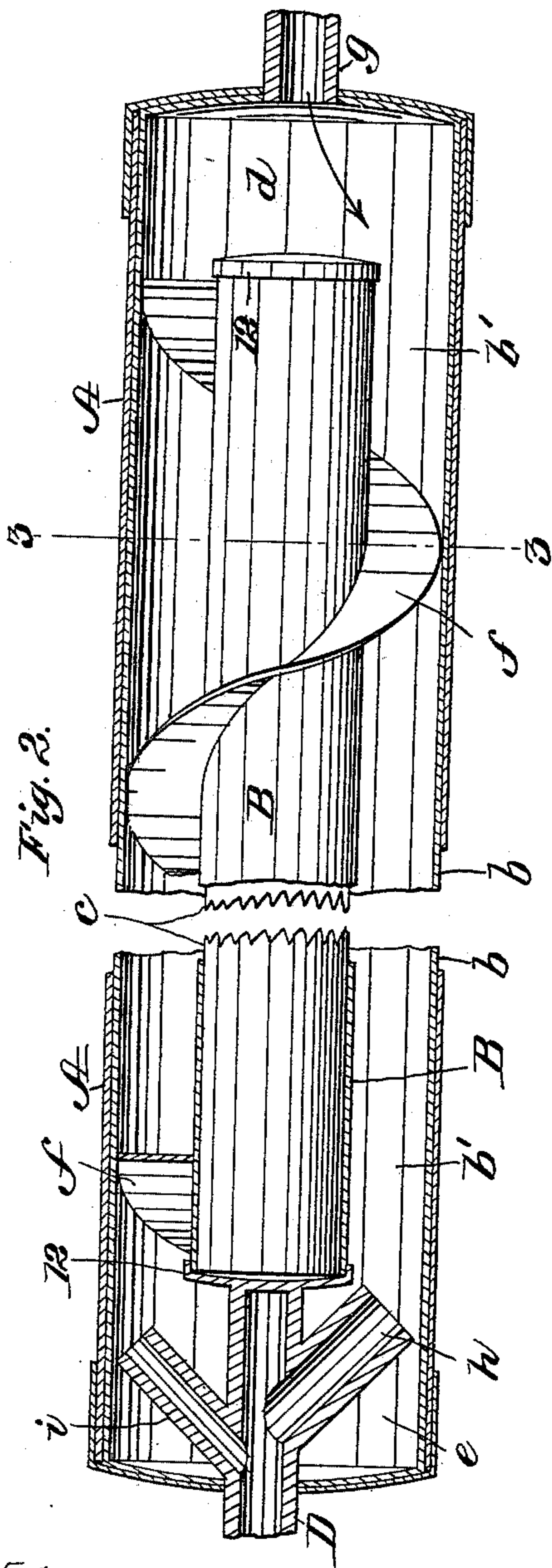


Fig. 1.

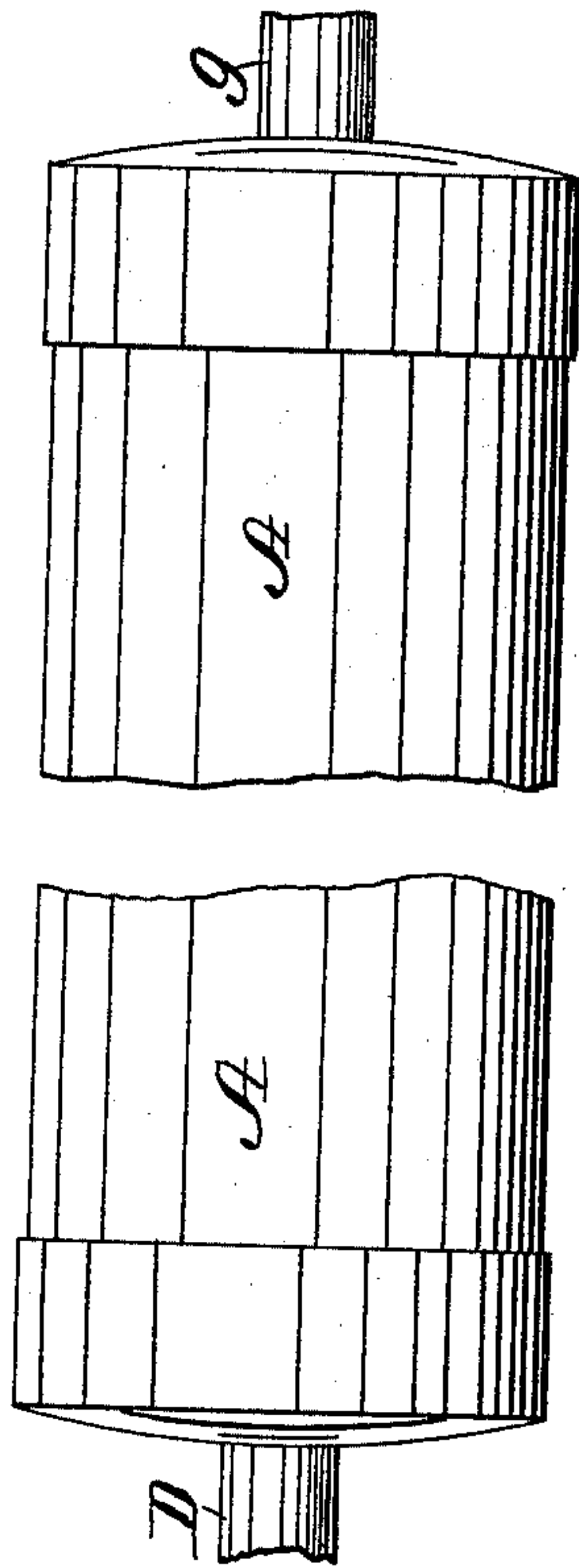
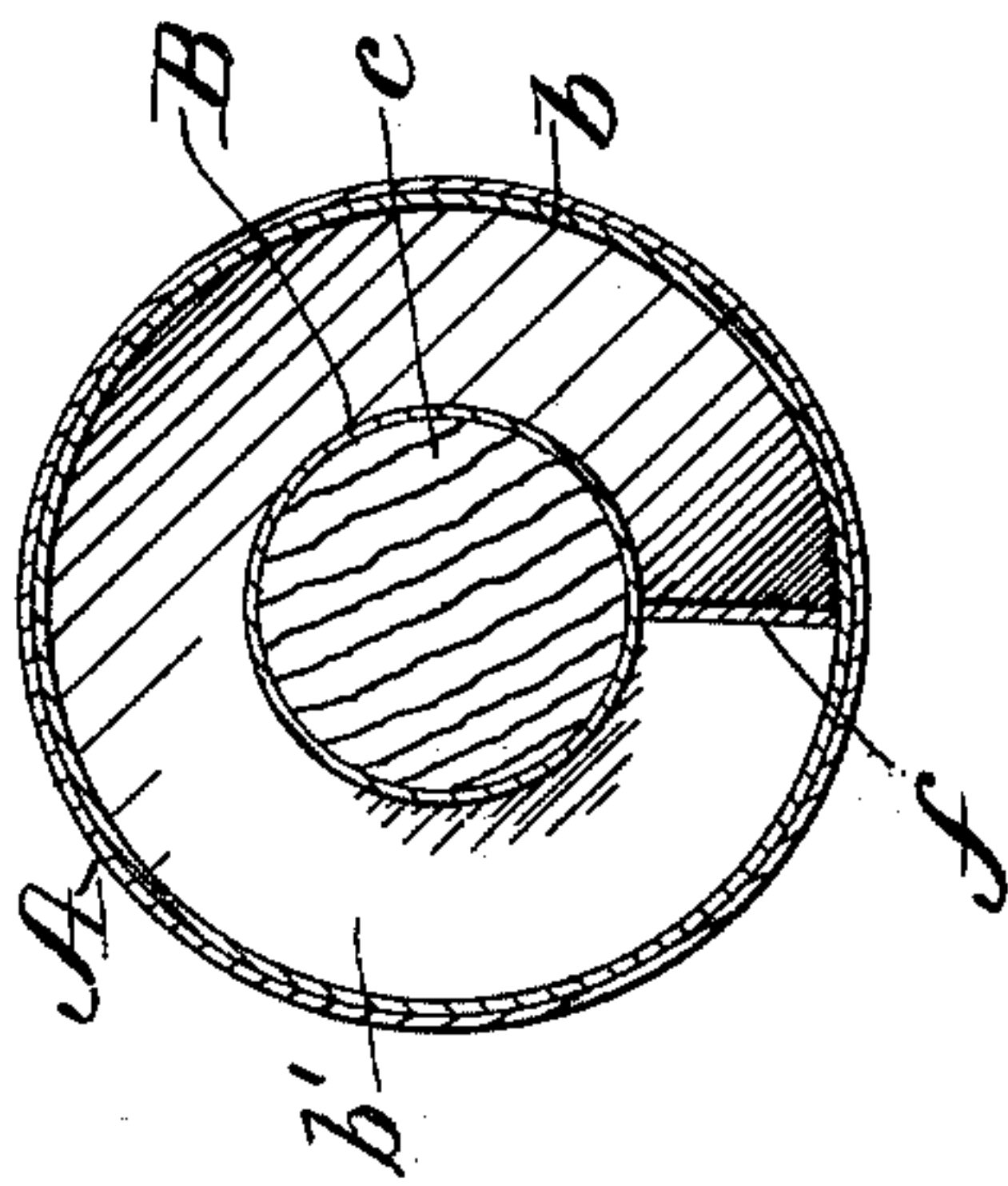


Fig. 3.



Witnesses.

A. D. Frost.
M. B. Nelson.

Inventor.

Conrad Adami
by J. E. Tschumacher
Att'y

UNITED STATES PATENT OFFICE.

CONRAD ADAMI, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE AMERICAN SODA FOUNTAIN COMPANY, OF SAME PLACE.

COOLER FOR SODA-WATER OR OTHER AERATED LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 626,450, dated June 6, 1899.

Application filed March 22, 1899. Serial No. 710,119. (No model.)

To all whom it may concern:

Be it known that I, CONRAD ADAMI, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Coolers for Soda-Water or other Aerated Liquids, of which the following is a specification.

My invention relates particularly to soda-water coolers in which the liquid passes through a spiral passage or chamber formed between an outer shell or casing and an inner core or cylinder arranged therein; and my invention has for its objects to secure economy in the construction of the cooler, to chill the liquid to the greatest possible degree, to avoid sputtering at the draft-tube, and to protect the liquid from metallic contamination while passing through the cooler.

To this end my invention consists in the combination, with a cooler composed of an outer casing, a central core, and a spiral partition between said casing and core forming a spiral passage through which the liquid passes on its way from the inlet to the outlet, of an outlet-pipe provided with two branches, one of which extends to the bottom of the cooler, the normal position of which is horizontal, and forms the principal outlet-passage through which the soda-water flows, while the other branch extends to the upper portion of the cooler and forms a passage through which the air is expelled when the cooler is first filled and subsequently provides a passage through which any gas that may have become separated from the aerated liquid owing to the reduction in pressure may be recombined with the liquid in drafting, and thereby be prevented from passing as free gas to the draft-tube, where it would produce sputtering, which is objectionable, as it lessens the flow of the liquid and spatters the operator.

My invention also consists in certain other novel features and details of construction, as will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is an elevation of a soda-water cooler constructed in accordance with my invention, the central portion being broken away. Fig. 2 is a longitudinal vertical section of the same.

Fig. 3 is a transverse vertical section on the line 3 3 of Fig. 2.

In the drawings, A represents the outer shell or casing of the cooler, which is constructed of copper to secure the requisite strength to resist the pressure of the gas contained in the soda-water or other aerated liquid which is to pass through the cooler, said casing being provided with a thick lining *b*, of pure block-tin, whereby the liquid is protected from metallic contamination during its passage through the cooler.

Arranged centrally within the casing A is a core B, composed of any suitable non-corrosive material, preferably block-tin. I preferably employ a core consisting of a hollow cylinder of block-tin of less diameter than the outer casing, forming an annular space *b'*, as shown in Figs. 2 and 3, said cylinder being reinforced by an internal rod or tube *c*, of wood or metal, to prevent collapse under the pressure of the carbonic-acid gas contained in the aerated liquid, the ends of the core being closed by cast, spun, or stamped heads or caps 12, of block-tin. The length of the core B is preferably less than that of the outer casing A, whereby spaces or chambers *d e* of the full diameter of the casing are left at the ends of the same, as shown in Fig. 2.

Within the annular space between the outer casing and its core is a spirally-disposed strip *f* of block-tin, forming a spiral passage-way, through which the aerated liquid flows from the chamber *d* to the chamber *e*, the liquid being thereby compelled to make several complete circuits of the cooler on its way from the inlet to the outlet, traveling spirally around the core, whereby a rapid cooling of the liquid is effected.

g is the inlet-tube, and D is the outlet or discharge tube, the inner end of which is preferably cast integral with the cap 12 of the adjacent end of the core B, to which it is secured in any suitable manner. This outlet-tube D is provided with two oblique branches *h i*, the larger one, *h*, of which extends down to the bottom of the chamber *e* and forms the principal outlet-passage through which the soda-water or other aerated liquid flows. The smaller branch *i* extends to the upper part of the chamber *e* and forms a passage

through which the air is expelled when the cooler is first filled with the aerated liquid, and subsequently provides a passage through which any gas that may have become separated from the liquid owing to reduction in pressure caused by the opening of the draft-cock may be recombined with the liquid in drafting, and thus prevented from passing as free gas to the draft-tube, where it would produce sputtering, which is a serious objection, as it lessens the flow of the liquid and is liable to spatter the attendant. As the liquid passes out through the branch *h* into the main portion of the outlet-tube *D* it absorbs and draws with it the gas escaping through the branch *i*, whereby the liquid and gas become properly mixed before arriving at the draft-cock.

By combining with a cooler of the character described an outlet or discharge pipe having two branches, one extending to the lower and the other to the upper portion of the cooler, a great advantage is gained for the reason that with a cylindrical cooler having a single discharge-tube without branches the gas under reduction of pressure caused by opening the draft-tube and increase of temperature due to the inflow of warmer liquid from the source of supply will become separated from the liquid and driving the same backward will collect as free gas at the top of the cooler, forming a non-conducting layer between the soda-water and the upper part of the cooler, with which the ice is in contact, thus lessening the efficiency of the cooler and also causing loss of gas, delay in the flow of the liquid, and an unpleasant sputtering, as before mentioned, at the draft-tube, all of which is avoided with my improvements, which also secure great economy in construction and strength and durability of the parts.

It will be obvious that a single cooling-cylinder may be employed or a series of any desired number of said cylinders may be connected together by suitable pipes, according

to the size of the ice-compartment of the dispensing apparatus in which they are to be placed.

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

1. In a cooler of the character described, the combination with the shell or casing having a central core and a spirally-disposed partition forming a passage-way for the liquid between said casing and core, of an outlet or discharge pipe located at one end of the cooler, and provided with two branches, one extending to the bottom of the cooler, and the other to the upper portion of the same, substantially as described.

2. In a cooler of the character described, the combination with the shell or casing having a central core, an inlet-chamber at one end provided with an inlet-pipe and an outlet-chamber at its opposite end, and a spirally-disposed partition forming a spiral passage-way for the liquid between said core and casing, of an outlet or discharge pipe located within the outlet-chamber, and provided with two branches, one extending to the bottom of said outlet-chamber, and the other to the upper portion of the same, substantially as described.

3. In a cooler of the character described, the combination of the shell or casing, the central core provided with a reinforcing rod or tube, the spirally-disposed partition between the core and casing forming a spiral passage-way for the liquid, and an outlet or discharge pipe having two oblique branches, one extending to the bottom of the cooler, and the other to the upper portion of the same, substantially as described.

Witness my hand this 18th day of March, A. D. 1899.

CONRAD ADAMI.

In presence of—

FRANK I. HALL,
GEO. A. SWEETSER.