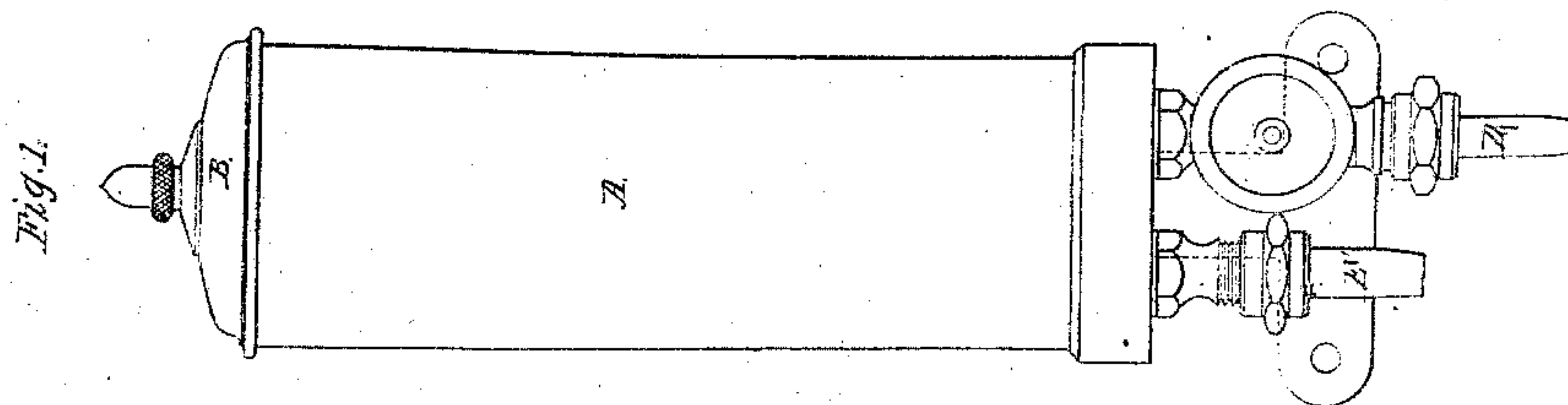
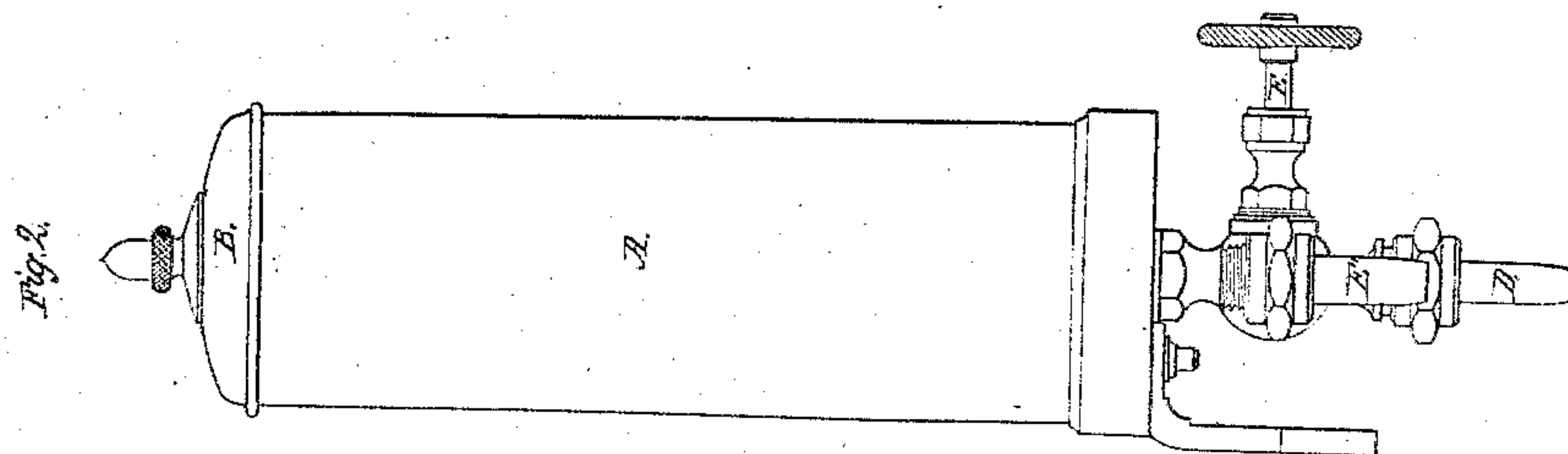
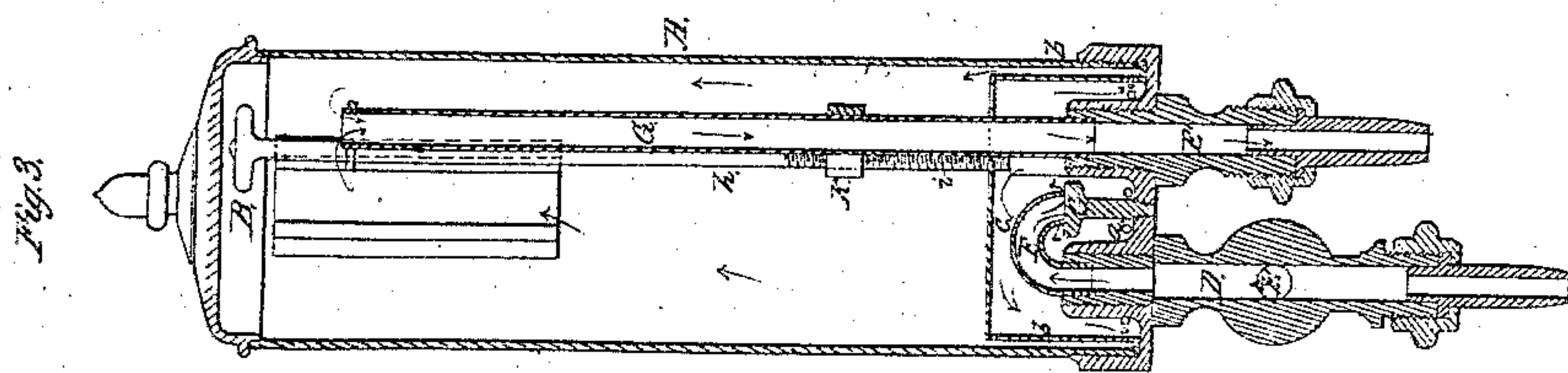
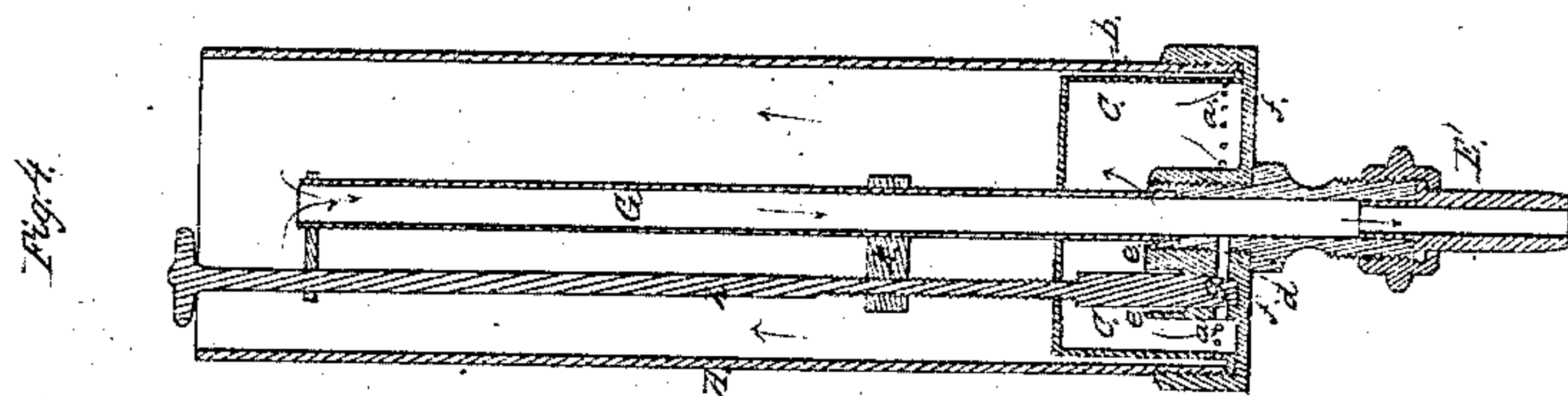


E. H. Ashcroft.

Hydrometer.

N^o 4,970.

Patented Mar. 22, 1864.



Witnesses.
A. P. Hale Jr.
Frederick Curtis

Inventor.
Edward H. Ashcroft
by his attorney
R. H. Ledy.

UNITED STATES PATENT OFFICE.

EDWARD H. ASHCROFT, OF LYNN, MASSACHUSETTS.

IMPROVEMENT IN SALINOMETER-CASES.

Specification forming part of Letters Patent No. 41,970, dated March 22, 1864.

To all whom it may concern:

Be it known that I, EDWARD H. ASHCROFT, a resident of Lynn, in the county of Essex and State of Massachusetts, have invented an Improved Salinometer-Case for Steam-Boilers; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 denotes a front elevation, Fig. 2 a side elevation, while Figs. 3 and 4 are vertical and transverse sections, of it.

The object of the improved salinometer-case as applied to a steam-engine boiler is to enable an attendant, by means of a thermometer and a hydrometer, to determine the temperature and specific gravity of the saline water which may be within the boiler, a portion of such water being caused to flow from the boiler through the salinometer or its measuring-cistern, into which a thermometer or a hydrometer may be placed.

My invention prevents the hot water from so escaping as to endanger or injure the person who may at any time be using the apparatus; and, furthermore, it maintains the water, while in the measuring-chamber, sufficiently free from agitation to enable its specific gravity to be indicated by the hydrometer.

My improvement has special reference to the arrangement of the spray-chamber relatively to the measuring-cistern.

In the drawings, A denotes the measuring or thermometric and hydrometric cistern, the same consisting of a cylindrical vessel, whose axis is vertical, the said vessel being furnished with a cover, B, removable at pleasure. Within the lower part of the cistern A is the spray box or chamber C, whose sides, near its bottom, are perforated with a series of holes, as shown at *a*, there being a narrow passage, *b*, between the outside curved surface of the spray-box and the inner curved surface of the cistern A, such passage being open at top, and extending around the entire spray-chamber. An induction-pipe, D, provided with a stop-cock or valve, E, opens into the chamber C, and at its top is provided with a curved jet-tube, F, which is bent so as to discharge the hot water (when flowing out of it) directly toward the bottom of the chamber C, or on

the top of a deflecting button or standard, G, erected on the bottom of the said chamber, as shown in Fig. 3. The said pipe D is to open communication between the chamber C and the steam-boiler, and so that the water of the boiler, when the valve E may be open, will be caused to flow through the pipe D and its jet F, and be discharged therefrom directly into the chamber C. The chamber C serves to so interrupt the current of water as to cause it to escape laterally in radial directions and pass through the series *a* of holes, and from thence into the passage *b*, out of which it will flow upward into the measuring-cistern A. Within the said measuring cistern there is a stand-pipe, G, which is the continuation of an eduction-pipe, E', screwed to the bottom of the case A. This stand-pipe is open at its top, which is placed at, or about at, the level at which it may be desirable to have the water stand in the measuring-cistern. Furthermore, there is a lateral passage, *d*, (see Fig. 4,) leading from the spray-chamber C into the stand-pipe, and through a projection, *e*, raised on the bottom *f* of the cistern A. A cut-off or valve, *g*, extends vertically through the conduit *d*, and has its stem *h* provided with a screw, *i*, to screw through a stationary projection, *k*, extending from the pipe G.

The valve *g* serves to interrupt or stop the passage *d*, as circumstances may require. On raising the said valve, water, when in the cistern A and chamber C, may be discharged into the eduction-pipe E.

I am aware of the subject of the Patent No. 6,104, and therefore do not claim the invention of the same so far as the same may appear within the apparatus as represented in the accompanying drawings, and as hereinbefore explained. I am also aware that in the construction of a salinometer-case a spray-chamber and jet-tube arranged between the induction-pipe and the measuring-cistern, and outside of the latter, have been employed, and therefore I lay no claim thereto, such being as shown in the United States Patent No. 24,746.

In my improvement the spray-chamber and the jet-tube are arranged within the measuring-chamber, and at or in the bottom thereof, the same rendering the instrument or appara-

tus much more compact or portable and less liable to injury, as well as advantageous in other respects.

What I claim in the said improved salinometer-case or apparatus is—

1. The arrangement of the spray-chamber C within the measuring-cistern A, substantially as described.

2. With the said arrangement of the spray-chamber C within the measuring-cistern A, the arrangement of the jet-tube F of the spray-chamber—viz., so as to discharge toward the

bottom of the spray-chamber, substantially in manner as described.

3. My improved arrangement of the spray-chamber C, the measuring-cistern A, the stand-pipe G, the auxiliary conduit *d*, and the valve *g* and its stem *h*, the whole being substantially as hereinbefore described.

E. H. ASHCROFT.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.