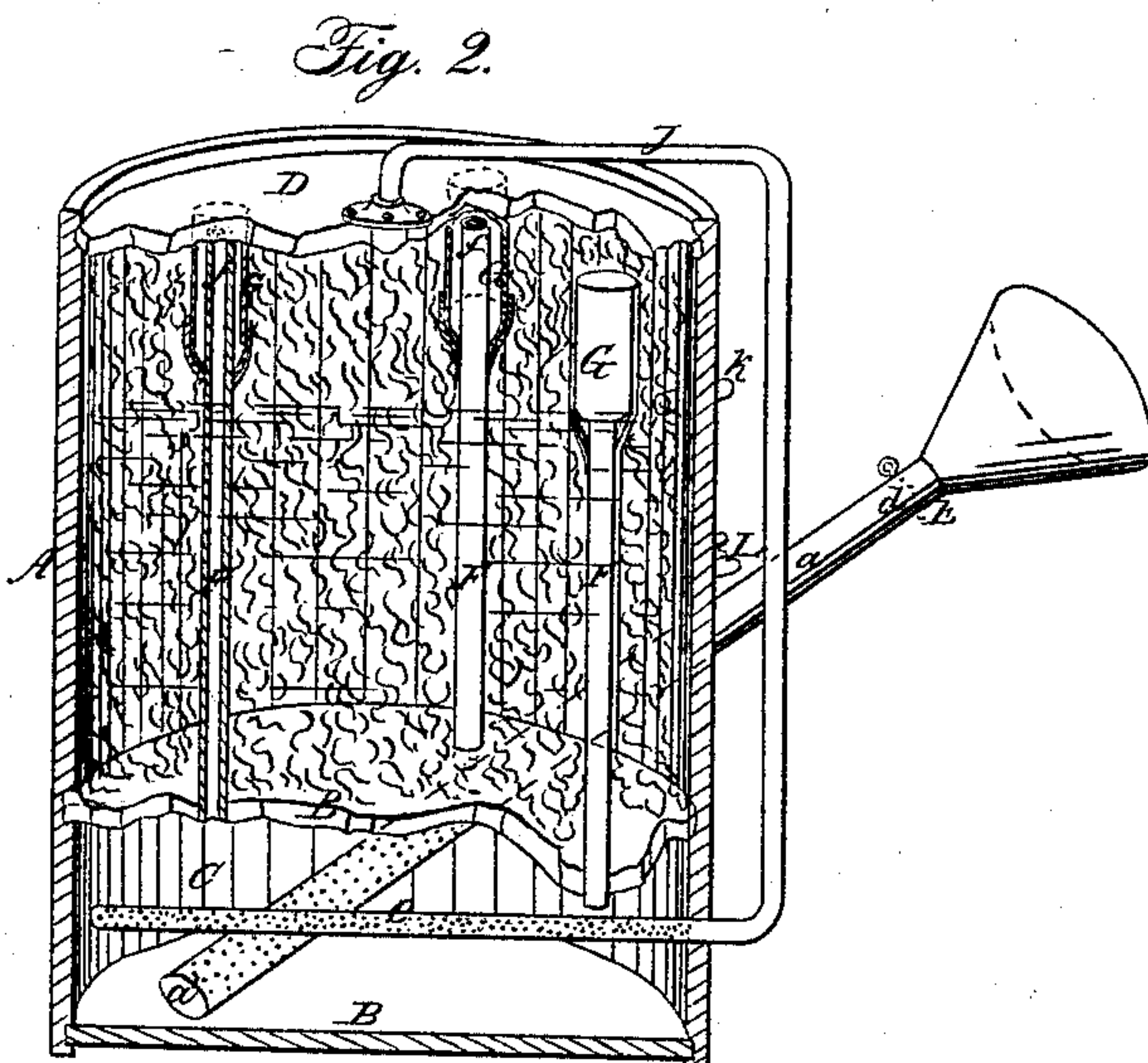
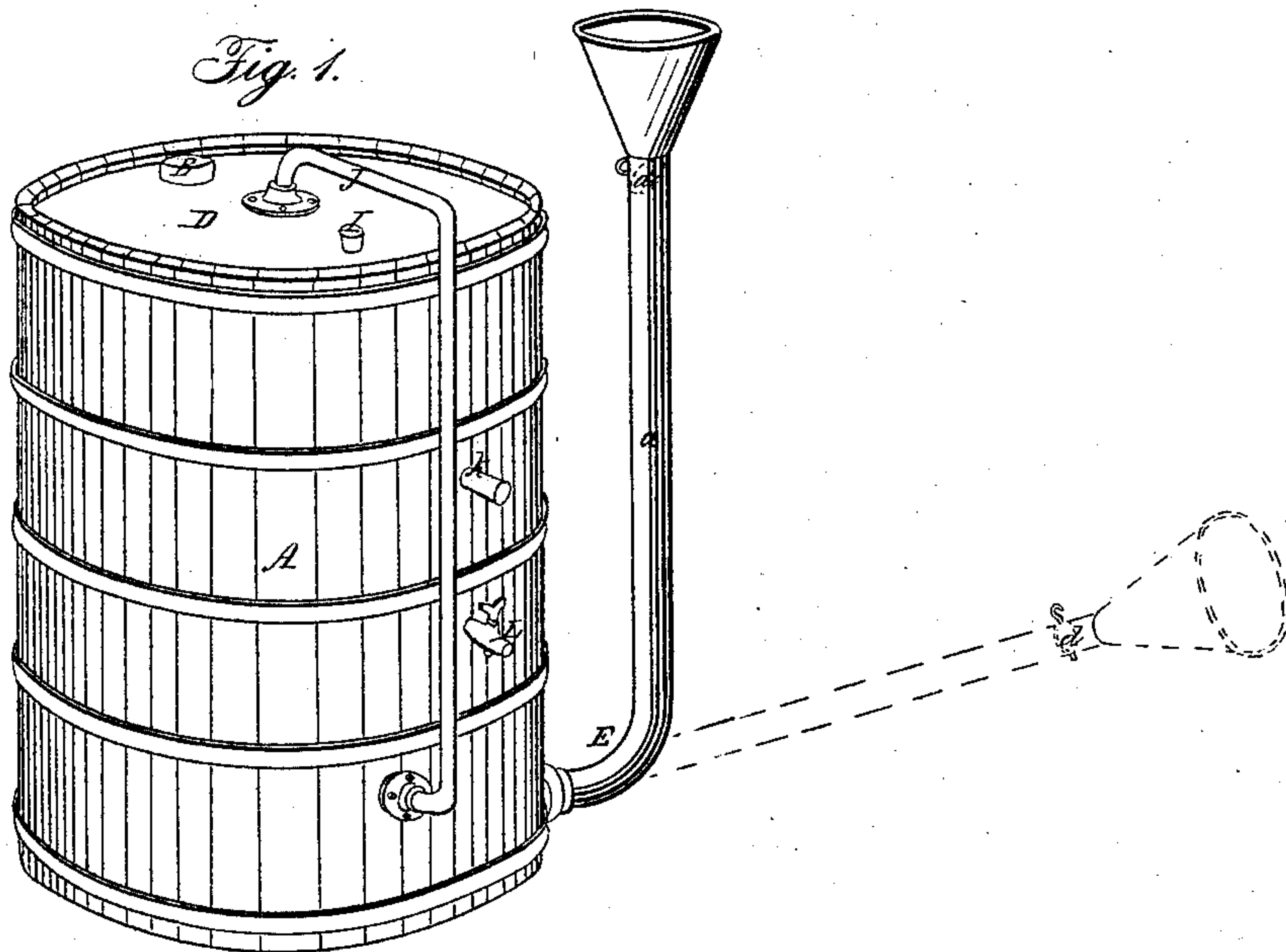


E. ARLETH.
Making Vinegar.

No. 58,044.

Patented Sept. 18, 1866.



Witnesses:

Charles L. Fisher
Edmund Wood

Inventor:

Ernest Arletto

UNITED STATES PATENT OFFICE.

ERNST ARLETH, OF CINCINNATI, OHIO.

IMPROVED APPARATUS FOR THE MANUFACTURE OF VINEGAR.

Specification forming part of Letters Patent No. 58,044, dated September 18, 1866.

To all whom it may concern:

Be it known that I, ERNST ARLETH, of Cincinnati, Hamilton county, and State of Ohio, have invented a new and Improved Double-Acting Acidifier, of which the following is a full and clear description thereof, reference being had to the accompanying drawings, forming part of this specification.

My improvement in acidifiers has reference to such a construction and arrangement of its various parts that the liquid contained in the receiver or tub may be thoroughly, and in much shorter space of time than by the method now employed, oxygenated.

Figure 1 represents, in perspective, an exterior view of my improved double-acting acidifier. Fig. 2 represents a perspective sectional view, showing in detail my improvement in acidifiers.

A is a tub constructed with a chambered bottom. B is the true head; B', a diaphragm; B and B' inclose the chamber C. The working or upper end of tub A is closed by the tight-fitting head D.

An adjustable cold-air pipe, E, the two arms of which are at right angles with each other, has, upon the exterior or long arm *a*, a funnel-shaped mouth. The interior or short arm, *a'*, passes into and diametrically across chamber C. It is perforated throughout its entire length.

The tubes F, areally equally distant from each other, pass from the bottom surface of diaphragm B to within a short distance of head D. The free ends *f* of tubes F are inclosed by cups G, which are of greater diameter than the tubes F, and touch them at no point. In position they are inverted.

H is a man-hole in head D. I are charging-holes, conveniently located in head D. From near the center of head D rises the conveying-pipe J, which passes down outside of the tub, which it enters just beneath diaphragm B', thence passes diametrically across chamber C.

Arm *e* is perforated. K is the trying-hole; L, the faucet for drawing off the vinegar. M represents shavings, charcoal, or other lightly-lying material, filling the tub from diaphragm B' to head D. A valve, *d*, is located in air-pipe E.

The tub A is first filled with shavings, charcoal, or any suitable porous material through man-hole H, the inverted cups G serving the

purpose of protecting the ends of tubes F, and preventing the porous material or shavings M from passing into them. Such liquid as it is desirable to operate upon—cider or sorghum—is introduced into tub A through charging-hole I. The air is regulated in quantity of flow into the acidifiers through the cold-air pipe E by valve *d*. The temperature of admitted air is governed by revolving up or down the long arm *a*. The air having passed through perforations in short arm *a'* of air-pipe E into chamber C, it is here combined with the heated air and alcoholic vapors, which enter from the conveying-pipe J. This admixture passes upward through tubes F, and thence into the body of the acidifier, permeating the liquid, a process much facilitated by the presence of shavings or porous material M. The introduction of oxygen into the material worked upon results in the evolution of heat. A current of air, more or less charged with alcoholic vapors, passes over into conveying-pipe J, thence back again to chamber C.

The advantages of my improved acidifier over those now in use are numerous. The construction of air-pipe E enables the operator to guard against overheating, and thereby completes the vinegar in less time. The strength of the vinegar is increased by introducing a second time the air which has been charged with alcoholic vapors. A much better flavor is imparted to the vinegar by preventing overheating.

My acidifier may be used for improving whisky or other liquids, and works any liquids containing spirits.

Having fully described my improved double-acting acidifier, the use of its various parts, and its many advantages over those in general use, I make the following claims, which I desire to secure by Letters Patent—

1. The tub A, having a chamber, C, in combination with tubes F, and conveying-pipe J, all constructed as above described, and for the purpose set forth.
2. The adjustable cold-air pipe E, constructed as above described.
3. The cold-air pipe E, in combination with tub A, as above set forth.

ERNST ARLETH.

Attest:

S. A. MILLER,
FR. ARLETH, Jr.