J. TEN DOORNKAAT-KOOLMAN.

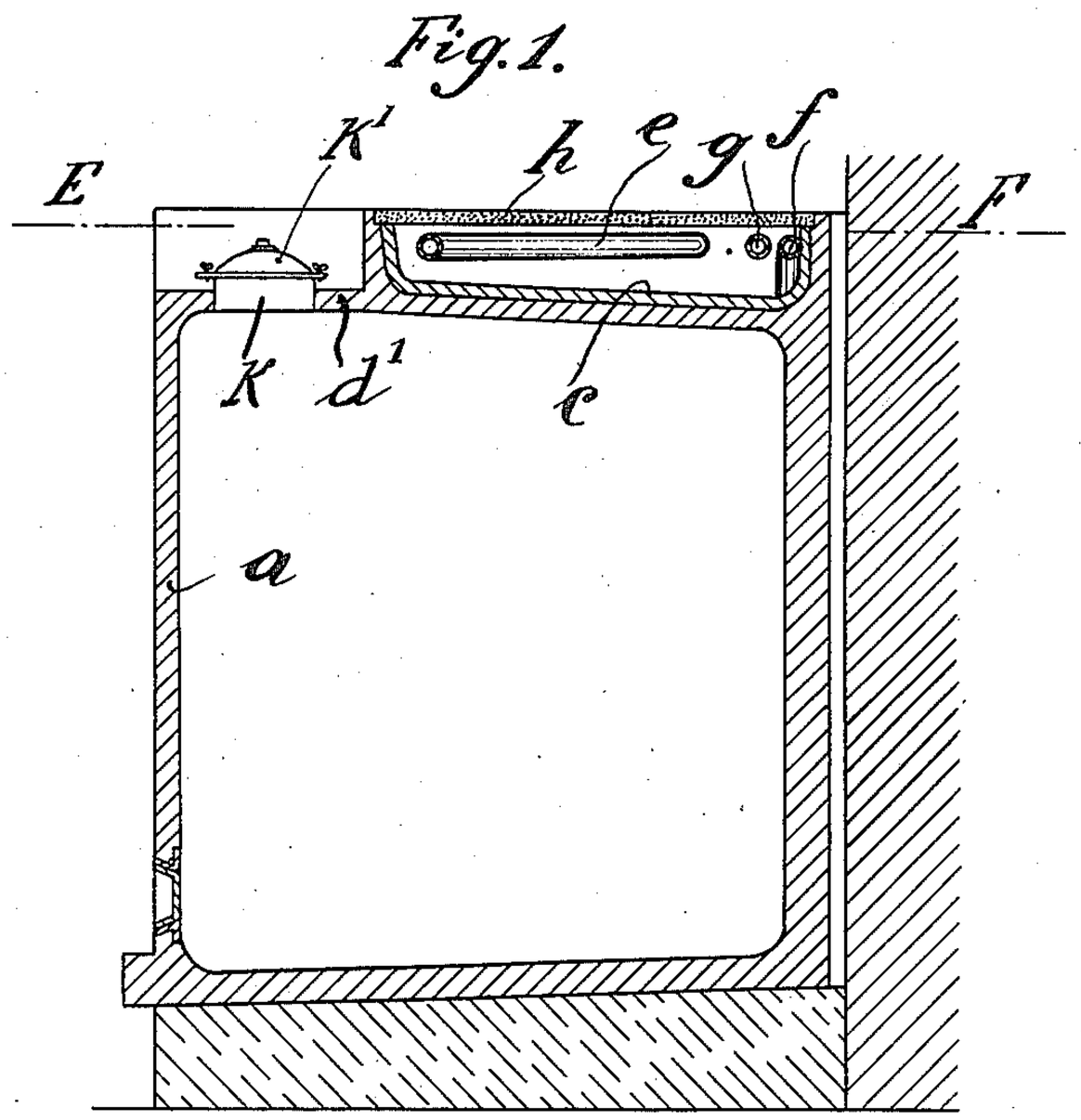
DEVICE FOR COOLING STORE VATS AND SIMILAR RECEPTACLES.

APPLICATION FILED JAN. 24, 1907.

963,751. Patented July 12, 1910.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
J. M. Wyckoop
H. C. Potter

Inventor,
Jacobus ten Doornkaat-Koolman,
By Knight Bros.
Attys.

J. TEN DOORNKAAT-KOOLMAN.

DEVICE FOR COOLING STORE VATS AND SIMILAR RECEPTACLES.

APPLICATION FILED JAN. 24, 1907.

963,751. Patented July 12, 1910.

2 SHEETS—SHEET 2.

Fig. 2.

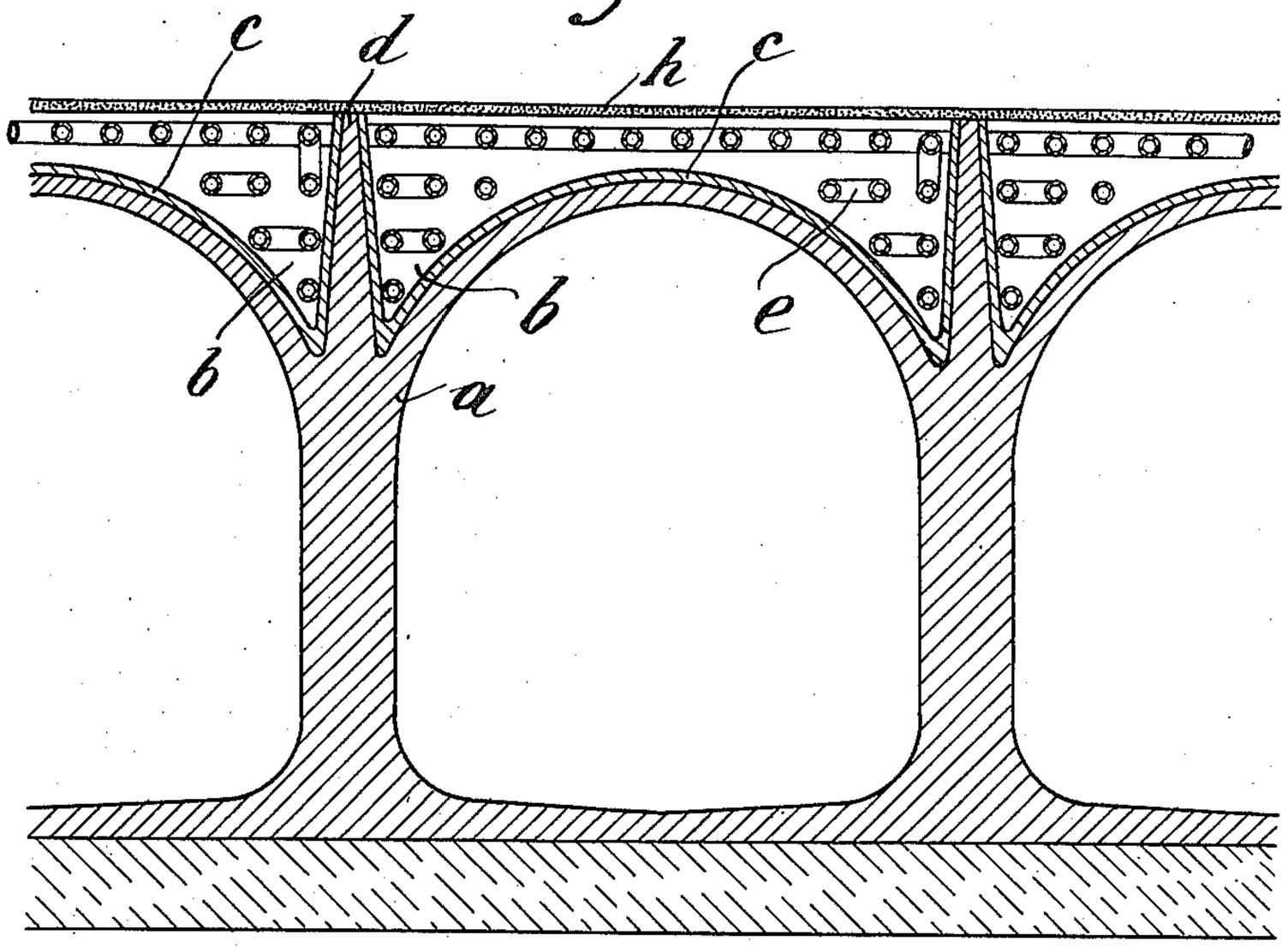
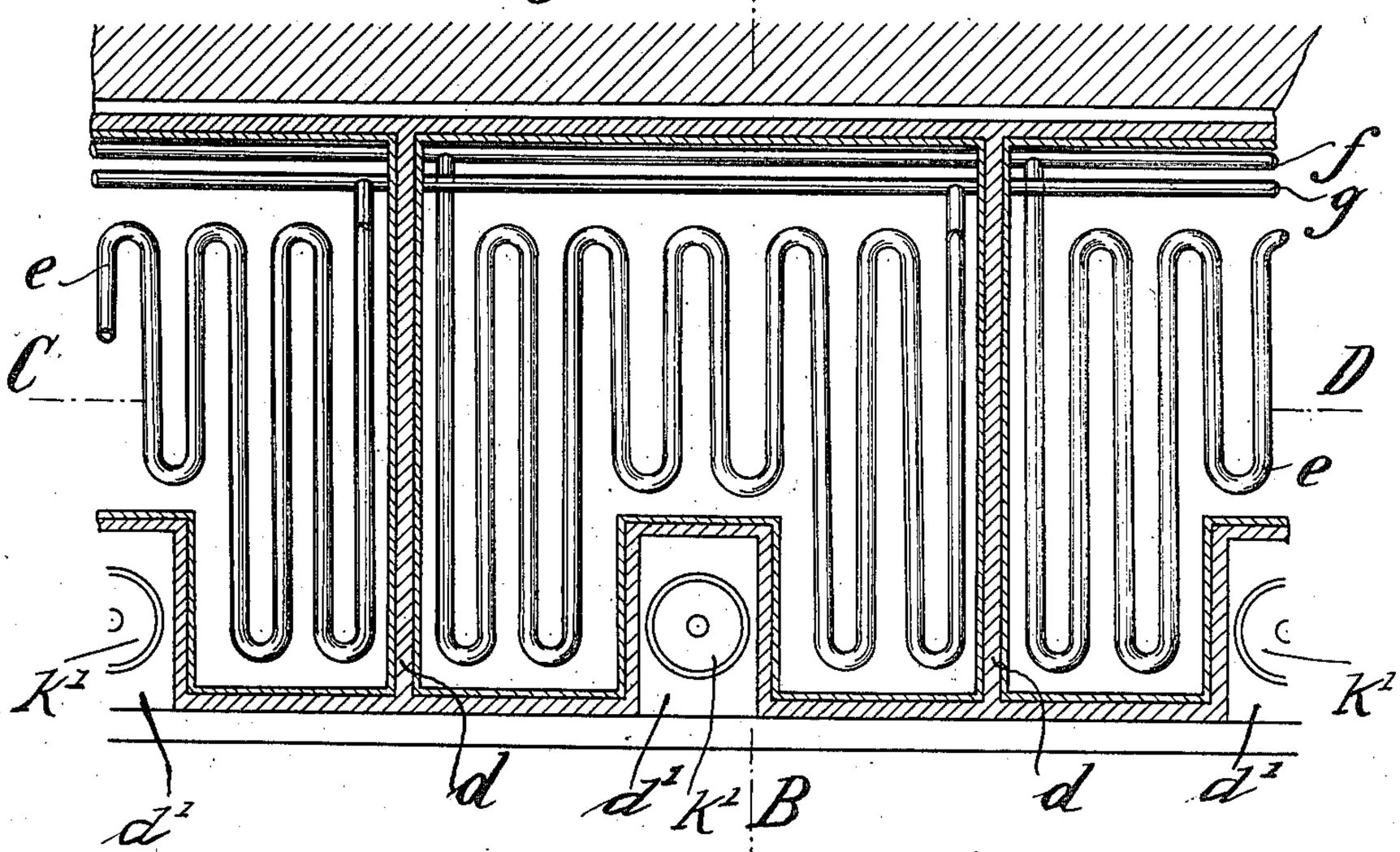


Fig. 3.



Witnesses
J. M. Hymkoop
H. A. Totten

Inventor
Jacobus ten Doornkaat-Koolman.
By Knight Bros. attys.

UNITED STATES PATENT OFFICE.

JACOBUS TEN DOORNKAAT-KOOLMAN, OF CASSEL, GERMANY.

DEVICE FOR COOLING STORE-VATS AND SIMILAR RECEPTACLES.

963,751. Specification of Letters Patent. **Patented July 12, 1910.**

Application filed January 24, 1907. Serial No. 353,874.

To all whom it may concern:

Be it known that I, JACOBUS TEN DOORNKAAT-KOOLMAN, a citizen of the German Empire, and resident of Cassel, Germany, have invented certain new and useful Improvements in Devices for Cooling Store-Vats and Similar Receptacles, of which the following is a specification.

In cooling-chambers, and particularly in those of breweries, in which the so-called store-vats are put up, the cooling is, as a rule, effected by a system of cooling-pipes passing through the room, arranged on the ceiling, and constantly kept in operation. This cooling system has, however, the drawback that, if the vats are to be kept cool, the whole room requires to be filled with the cooling-medium and that, moreover, the upper part of the store-vats is not sufficiently cooled, as the cooling-medium—cooled air—in consequence of the greater specific weight collects on the whole at the bottom.

The present invention removes this drawback by giving to the store-vats such a form that there remains a cuneiform interspace between the same, which forms a cooling space and transmits the cooling action immediately to the store-vats. In this way the store-vats are cooled in the most natural manner, as the cold air is first conveyed to the upper part of the vats and the cold is transmitted by the liquid to the lower strata of the same, that is to say the contents of the vat are cooled in the main from the inside.

The drawing shows a sample form of the construction of the invention.

Figure 1 is a cross-section on the line A—B of Fig. 3, Fig. 2 a longitudinal section on the line C D of Fig. 3, and Fig. 3 a horizontal section on the line E F of Fig. 1.

Similar letters refer to similar parts throughout the several views.

The vats or vessels *a*, which may be of cement, wood, metal or any other substances, are preferably of a stack-shaped cross-section, while in the longitudinal direction they may be of the form of an ordinary cask, that is to say be bulged out or straight. The cuneiform space *b* remaining between any two vats, is closed at both ends, so that a reservoir is formed in this way. The inside wall of this reservoir may eventually be coated with an impervious layer *c*. The reservoir thus produced may also be divided into two parts by a partition-wall *d*. It will be seen that the walls of each vat extend above the roof thereof, thereby forming the refrigerant reservoir *b*.

In order to facilitate access to the interior of each vat for the purposes of cleaning and repairing the same, the portion of the front wall, *a*, is so formed adjacent to its center as to leave a part of the roof without the refrigerant reservoir, as at *d'*, this part of the roof being provided with a manhole *k* having a removable cover *k'*.

Through the spaces *b* there are led cooling-pipes *f*, *g*, which communicate with an ice-machine. To these cooling-pipes are connected serpentine-pipes *e* in the spaces *b*. The remaining space or spaces *b* are filled with water or brine, and the whole closed at the top by suitable plates *h*. If through the system of pipes *e*, *f*, *g*, there is conducted a cooling medium and the liquid in the space *b* is caused to freeze, then, as the cold chiefly passes toward the bottom, it must take its direction toward the interior of the vats, especially if the two ends of the reservoir *b* are closed with a material which is a bad conductor of heat. If after some time it occurs that the fluid frozen in *b* begins to thaw again, all that is required then is to let a cooling medium pass again through the system of pipes. In this way there is effected an intense immediate cooling of the vats and from above, while the loss in cooling medium is reduced to a minimum. By this cooling process the vats are constantly surrounded by ice in the cuneiform interspaces which need only be thawed if repairs are required.

What I claim as my invention and desire to secure by United States Letters Patent is:—

A device of the character described comprising a vat, the walls, floor and roof thereof being integrally secured together, the

walls of said vat extending above the roof whereby a refrigerant reservoir is formed adapted to receive a cooling liquid, the portion of the front wall which extends above the said roof being so formed adjacent to its center as to leave a part of said roof without the refrigerant reservoir, this part of said roof having a man-hole formed therein whereby access may be had to the interior of the vat.

The foregoing specification signed at Cassel, Germany, this 8th day of December, 1906.

JACOBUS TEN DOORNKAAT-KOOLMAN.

In presence of—

HENRICH TRUP BUCHHALTER,

GOTTHEAD THEEPT.