C. KLEIN.

FERMENTING-VATS.

No. 193,714. Patented July 31, 1877.

Fig: 1.

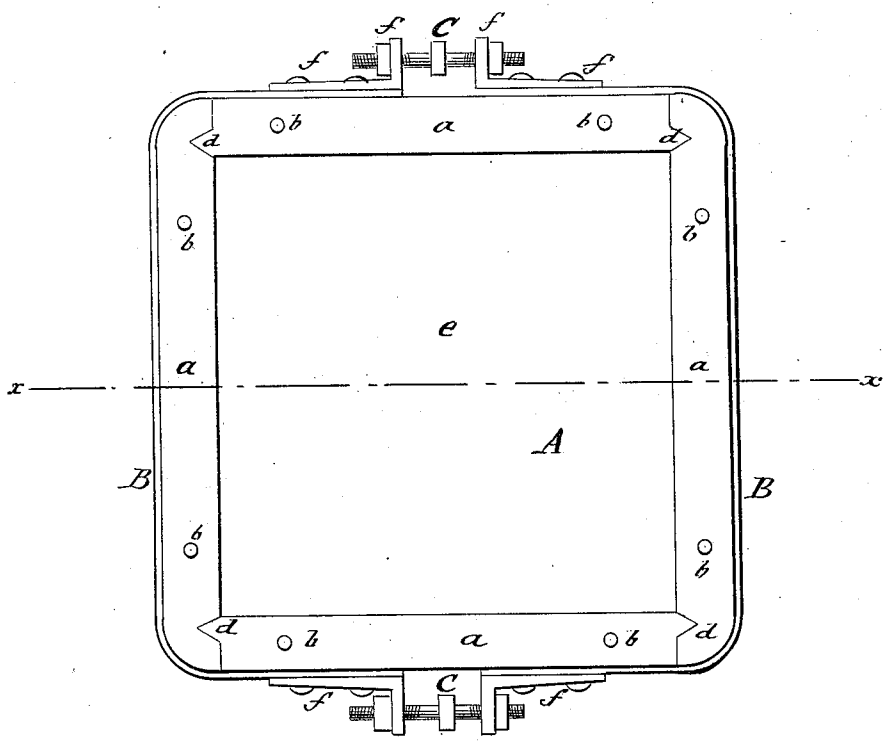
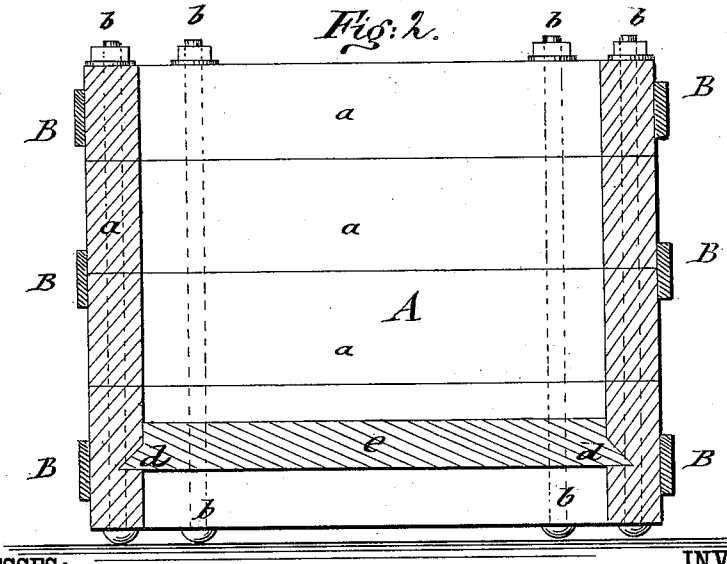


Fig: 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHRISTOPH KLEIN, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN FERMENTING-VATS.

Specification forming part of Letters Patent No. 193,714, dated July 31, 1877; application filed June 18, 1877.

To all whom it may concern:

Be it known that I, CHRISTOPH KLEIN, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Fermenting-Vat, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a top view of my improved fermenting-vat; and Fig. 2, a vertical transverse section of the same, taken on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention relates to a new construction of fermenting-vats for breweries, distilleries, and similar works; and consists, essentially, of a vat having vertical walls, made of horizontal pieces, which are bound together by vertical bolts, the corners of the walls and bottom being connected by tongue-and-groove joints, and the walls firmly encircled by metallic bands or hoops, adjusted by right-and-left-hand screw-bolts.

In the drawing, A represents a fermenting-vat for breweries and similar establishments, which is made of square or oblong shape, with vertical side walls *a*, in place of the round and conically-tapering vats at present employed. The walls of the vat are made of horizontal pieces of wood, of suitable thickness and length, which are arranged in tiers and firmly bound together by vertical bolts *b*, passing through the same. The walls are jointed at the corners by tongue-and-groove joints *d*.

The tongues and grooves are preferably made of triangular shape, with equal sides, forming joints which have the advantage of "giving" to the pressure of the large quantity of liquid in the vat, by sliding along the inclined sides of the tongues, but without breaking joint in the least. The triangular joint is therefore better adapted for connecting the walls of this vat than any other tongue-and-groove joint, and forms an essential feature of my construction.

The bottom *e* is also set by a triangular base rim or tongue into corresponding recesses of the lower tier of wall-timber, the cross-section of the tongue being, however, not of the shape of an equilateral but of a rectangular triangle, as shown in Fig. 2, as this shape serves for the giving of the side walls in similar manner as the corner-joints without producing any breaking of joint. The corners of the side walls are rounded off at the outside, and the entire vat bound firmly together by encircling bands or hoops B, of suitable strength, which are riveted at opposite sides to angle-irons *f*, that are connected by right-and-left-hand screw-bolts C, for the equal adjustment of the bands B around the entire perimeter of the vat.

The vats may be readily manufactured and shipped in sections, being put up for use in perfectly tight manner by any one by bolting first the side pieces together, and connecting then the bottom and side walls by the outer bands.

A fermenting-vat of considerable strength, that is not liable to leak, and fully able to sustain the pressure of the large quantity of liquid, is thus furnished, which has the additional advantage that it takes up less room than the round vats, requiring only a small passage between two vats, and allowing, therefore, a larger number of vats to be set up in a given space.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

A fermenting-vat whose side walls are vertically bolted, hoop-bound, and connected with each other as well as the bottom by angle-joints, substantially as and for the purpose specified.

CHRISTOPH KLEIN.

Witnesses:

PAUL GOEPEL,

C. SEDGWICK.