

E. E. QUIMBY.
Centrifugal Liquoring Apparatus.

No. 221,897.

Patented Nov. 18, 1879.

Figure 1.

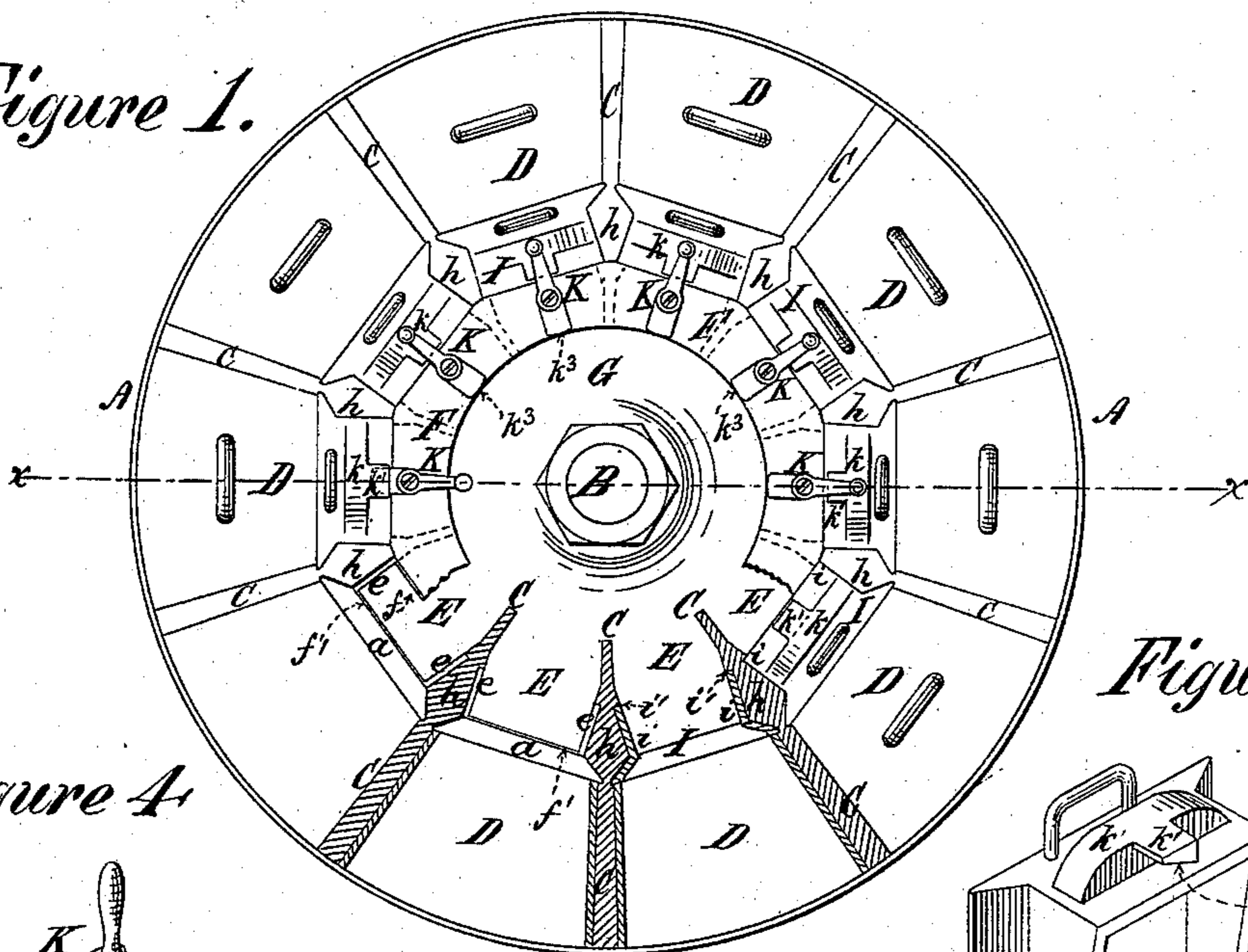


Figure 3.

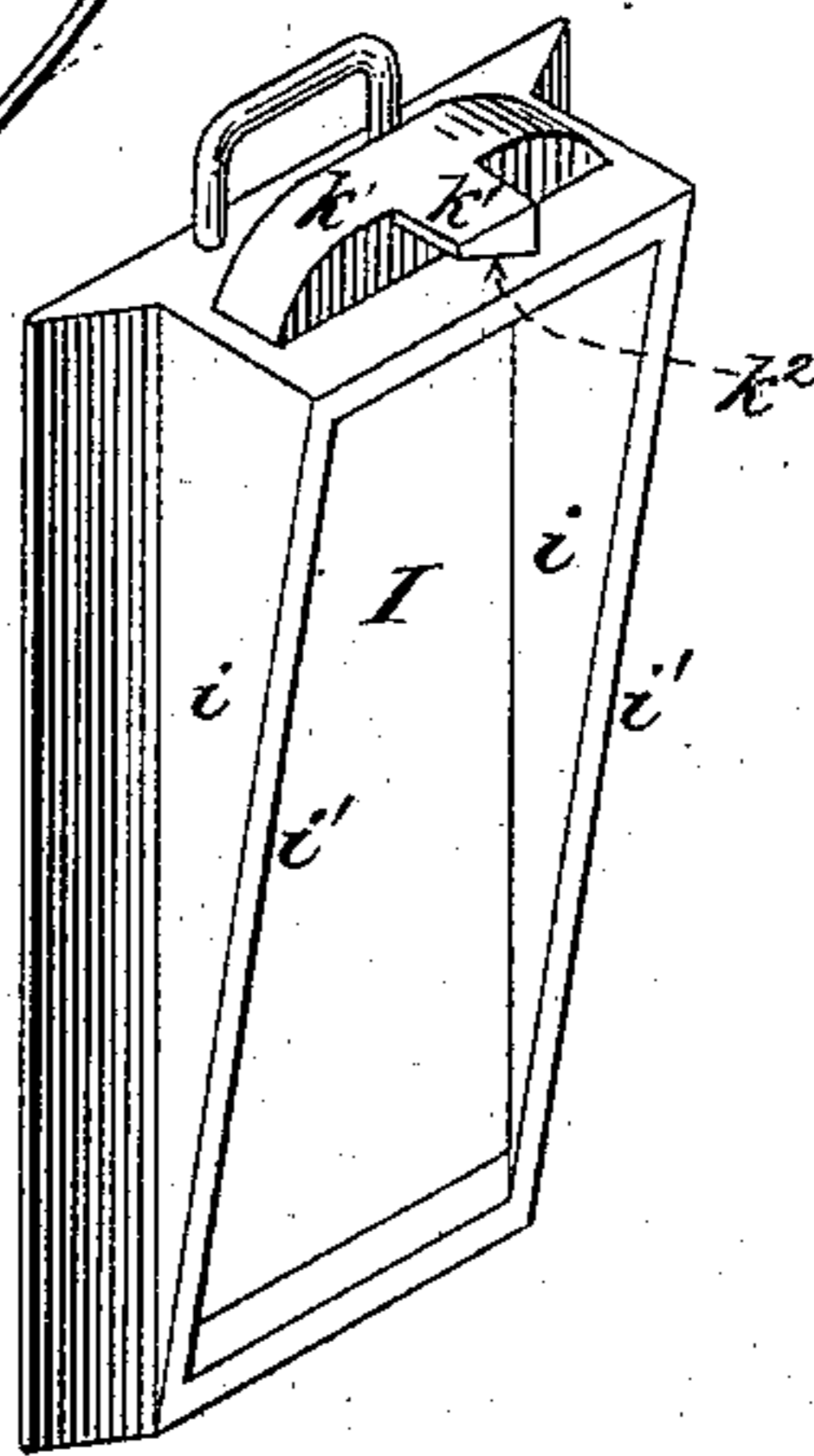


Figure 4.

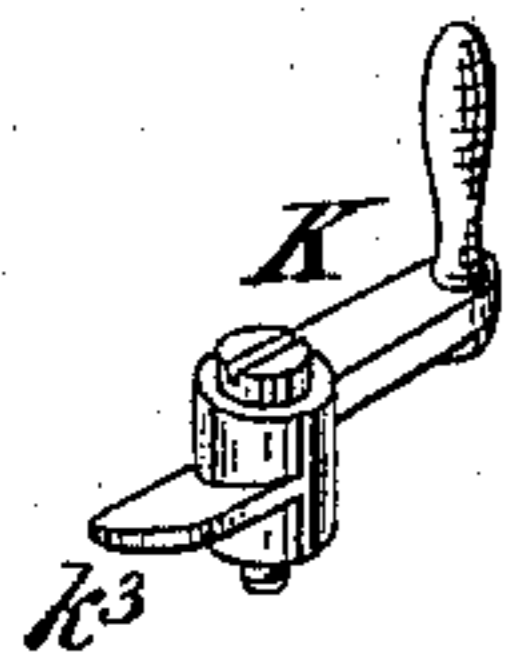
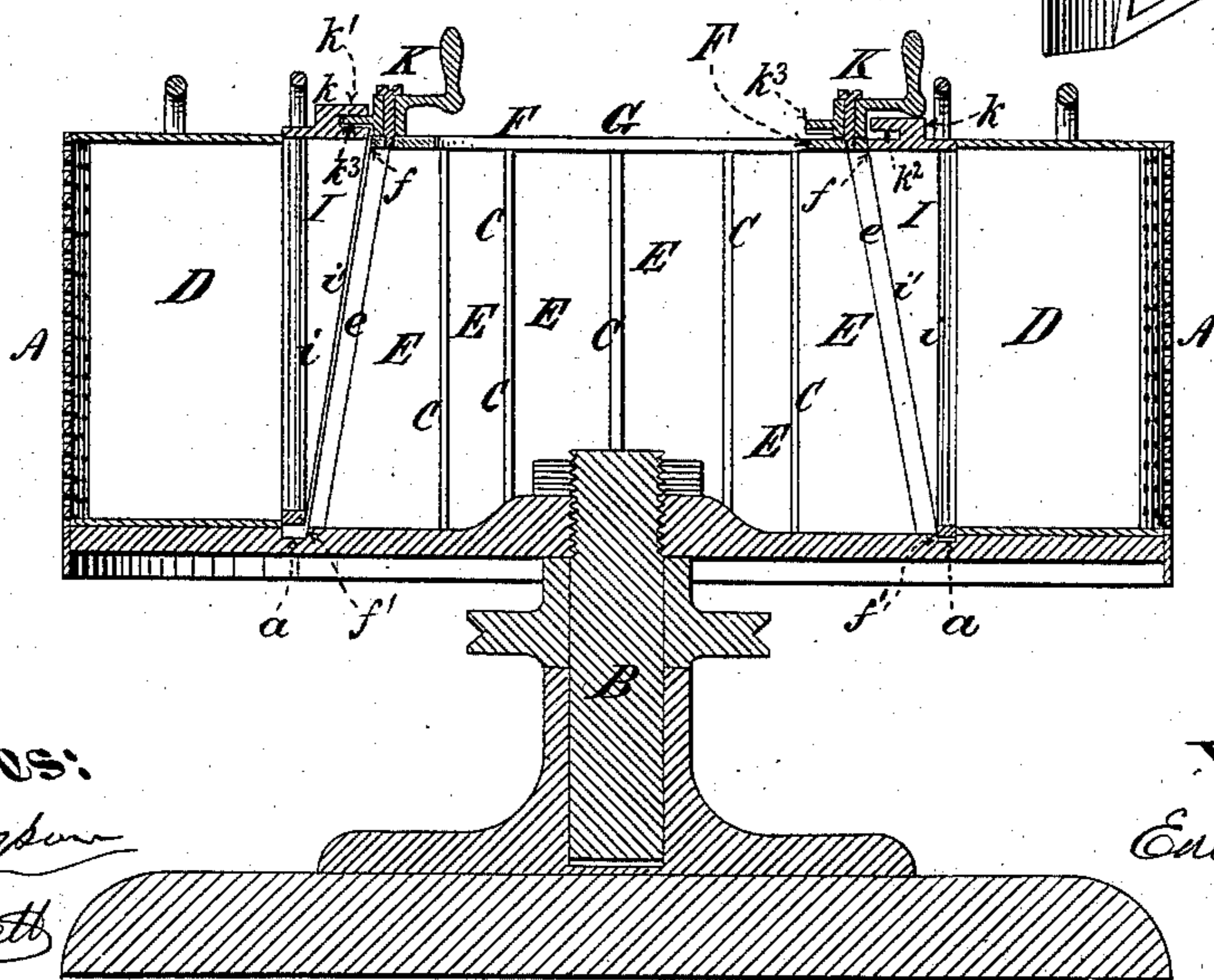


Figure 2.



Witnesses:

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Inventor:

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN CENTRIFUGAL LIQUORING APPARATUS.

Specification forming part of Letters Patent No. **221,897**, dated November 18, 1879; application filed
June 4, 1879.

To all whom it may concern:

Be it known that I, EDWARD E. QUIMBY, of Orange, New Jersey, have invented certain Improvements in Centrifugal Liquoring Apparatus, of which the following is a specification.

My improvement relates to a mode of constructing the liquoring-boxes which are used in connection with the sugar-molds in the basket of a centrifugal machine for the purpose of conducting into the molds white liquor discharged into the boxes from a central reservoir; and my invention consists in making the sides of the liquoring-boxes tapering from top to bottom, and in providing inclined seats for the inner edges of the top, bottom, and sides of the liquoring-boxes upon the outer edges of the top, bottom, and sides of an inner circle of stationary cells, the sides of which are formed by the inner portions of vertical walls extending radially inward from the periphery of the basket, so that the tapering boxes, when pressed fully down, are respectively wedged tightly against the inner edges of the top, bottom, and sides of the several sugar-molds, and against the inclined seats formed, respectively, by the outer edges of the top, bottom, and sides of the inner circle of stationary cells, the top of these cells being formed by an annular plate affixed to the top of the inner portions of the radial division-walls.

I affix to the top of the annular plate immediately opposite each liquoring-box a crank-button, which, upon being turned outward, presses down the tapering box firmly in its seat.

When it is desired to remove the mold from the machine the crank-button is turned inward, and a cam-projection on the hub of the crank-button is brought under an overhanging inclined shoulder formed upon a lug cast or otherwise affixed to the top of the box. By the action of this cam-projection upon the inclined shoulder during the latter part of the inward movement of the crank-button the box is raised from its seat, thus relieving the mold from friction, and permitting it to be removed and another one deposited in its place, after

which the crank-button is turned outward, and the box is thus again pressed downward into its seat.

The accompanying drawings, representing a centrifugal machine containing my invention, are as follows: Figure 1 is a top view, having portions of the annular plate removed to show the formation of the radial walls. Fig. 2 is a central vertical section through the line $x x$ on Fig. 1. Fig. 3 is an isometrical perspective, on an enlarged scale, of one of the tapering liquoring-boxes; and Fig. 4 is an isometrical perspective of the crank-button and its cam-projection.

The drawings represent the basket A of a centrifugal machine mounted upon the usual spindle, B, and provided with vertical walls C, projecting radially inward from its periphery. The outer portions of these walls form the guides for fixing the positions of the sugar-molds D, and their inner portions form the division-walls of an inner circle of cells, E, the top of which is formed by the annular plate F, which is affixed to the top of the division-walls.

It will be seen that there is an open chamber, G, in the center of the basket, with which the cells communicate.

The periphery of the annular plate F is polygonal, and its planes are respectively parallel with the inner faces of the several sugar-molds.

The portions of the division-walls immediately outside the annular plate F are, it will be seen, swelled to form the two parallel vertical walls $h h$, which constitute the guides for the liquoring-boxes I.

The vertical sides $i i$ of the liquoring-boxes are parallel for a portion of their width, and then flare outwardly, to make the outer open face of the liquoring-box conform in size and shape to the inner open face of the sugar-molds D.

It will be seen that the inner edge, i' , of each of the sides i of the liquoring-box is inclined, and that an inclined seat is provided for the inner open face of the liquoring-box by means of the inclined shoulders e on the opposed parallel portions of the division-walls, and the

correspondingly-beveled outer edge, f , of the top of the cell, and the beveled edge f' of the floor of the cell.

Recesses a are formed in the floor of the basket to admit the lower ends of the liquoring-boxes, respectively.

The inner open edge of the sugar-mold, the edges of the liquoring-box, and the inclined seat upon which the liquoring-box rests are all ground, so that when the liquoring-box is pressed down into its seat it makes a close connection on its outer edge with the mold, and on its inner edge with its seat upon the side walls and upon the edges of the top and bottom of the cell.

I affix to the top of each cell, immediately opposite each box, the crank-button K , which, when turned outward, bears upon the lug k , cast upon or otherwise affixed to the top of the liquoring-box. This lug has at the top an inward projection, k' , the under side of which is formed like the tooth of a worm-wheel, and constitutes the inclined bearing k^2 , for engagement with a corresponding worm-tooth or cam-like projection, k^3 , projecting from the hub of the crank-button K . When the crank-button is turned inward the engagement of the worm-tooth k^2 wedges up the liquoring-box, and thus releases the mold from friction, and permits it to be removed and another one substituted in its place, after which the crank-button is again turned outward, and, striking against the inclined upper surface of the lug k , it again presses the box downward into its seat.

The box makes tight joints with the cell and with the mold, so that white liquor introduced into the central chamber, G , is all forced by the rotation of the machine to make its way outward through the sugar contained in the molds, and no portion of it can escape through the interstices between the molds and those portions of the apparatus with which the molds are in proximity.

The liquoring-boxes, being tapering, act like wedges, and the crank-button is a clamping device, which, when moved in one direction, serves to force the boxes into their seats. The

tooth or cam-projection on the hub of the crank-button is a lifting device, which, when the crank is turned inward, starts the boxes upward from their seats.

The liquoring-box is provided with a handle, by means of which it may be pulled up, and, if desired, it may be raised sufficiently to allow the cam-projection to catch on the under side of the top of the box, which will thus be suspended upon the cam at a higher elevation than that to which it is raised by the action of the cam on the under side of the projecting portion of the lug.

I claim as my invention in centrifugal liquoring apparatus—

1. A series of molds concentrically arranged in the basket of a centrifugal machine, in combination with a series of wedge-shaped liquoring-boxes and a like series of cells, the outer edges of which are formed into inclined seats for engagement with the inner edges of the liquoring-boxes, substantially as and for the purpose set forth.

2. A wedge-shaped liquoring-box, substantially such as described, in combination with a clamping device for pressing the liquoring-box downward into its seat, substantially as set forth.

3. A wedge-shaped liquoring-box, substantially such as described, in combination with a lifting device, by means of which the liquoring-box may be forcibly started upward from its seat, substantially as shown and described.

4. The crank-button K , fixed to the top of the horizontal annular plate F , substantially as and for the purpose set forth.

5. The combination, in a centrifugal machine, of a series of sugar-molds arranged in a circle in the outer portion of the basket, an inner circle of liquoring-boxes, and an inmost circle of cells, and an open central chamber, substantially as and for the purposes set forth.

EDW. E. QUIMBY.

Witnesses:

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