

E. E. QUIMBY.
Centrifugal Liquoring Apparatus.

No. 221,898.

Patented Nov. 18, 1879.

Figure 1.

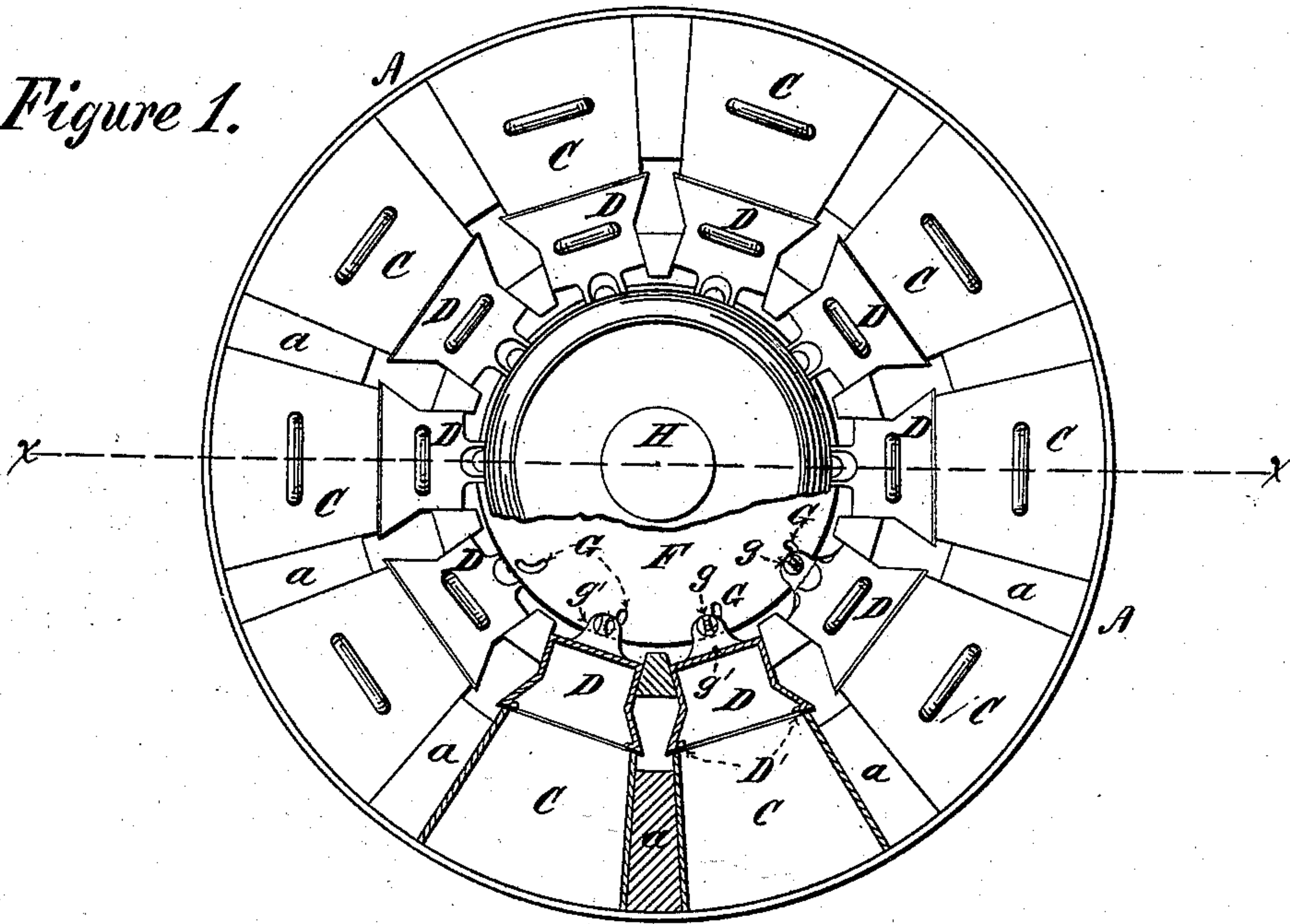
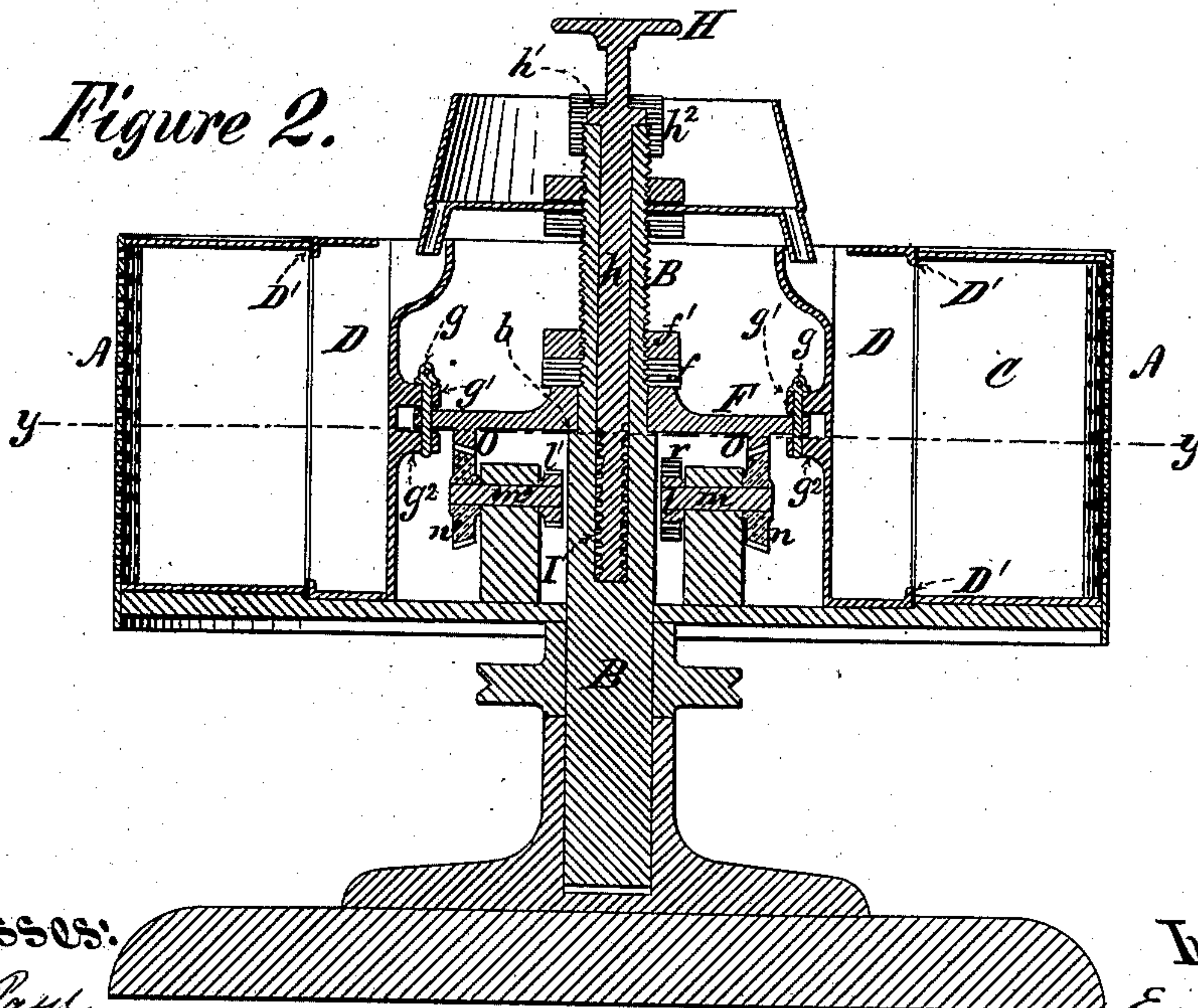


Figure 2.



Witnesses:

Edw. J. Payson
Geo. W. Miatt

Inventor:

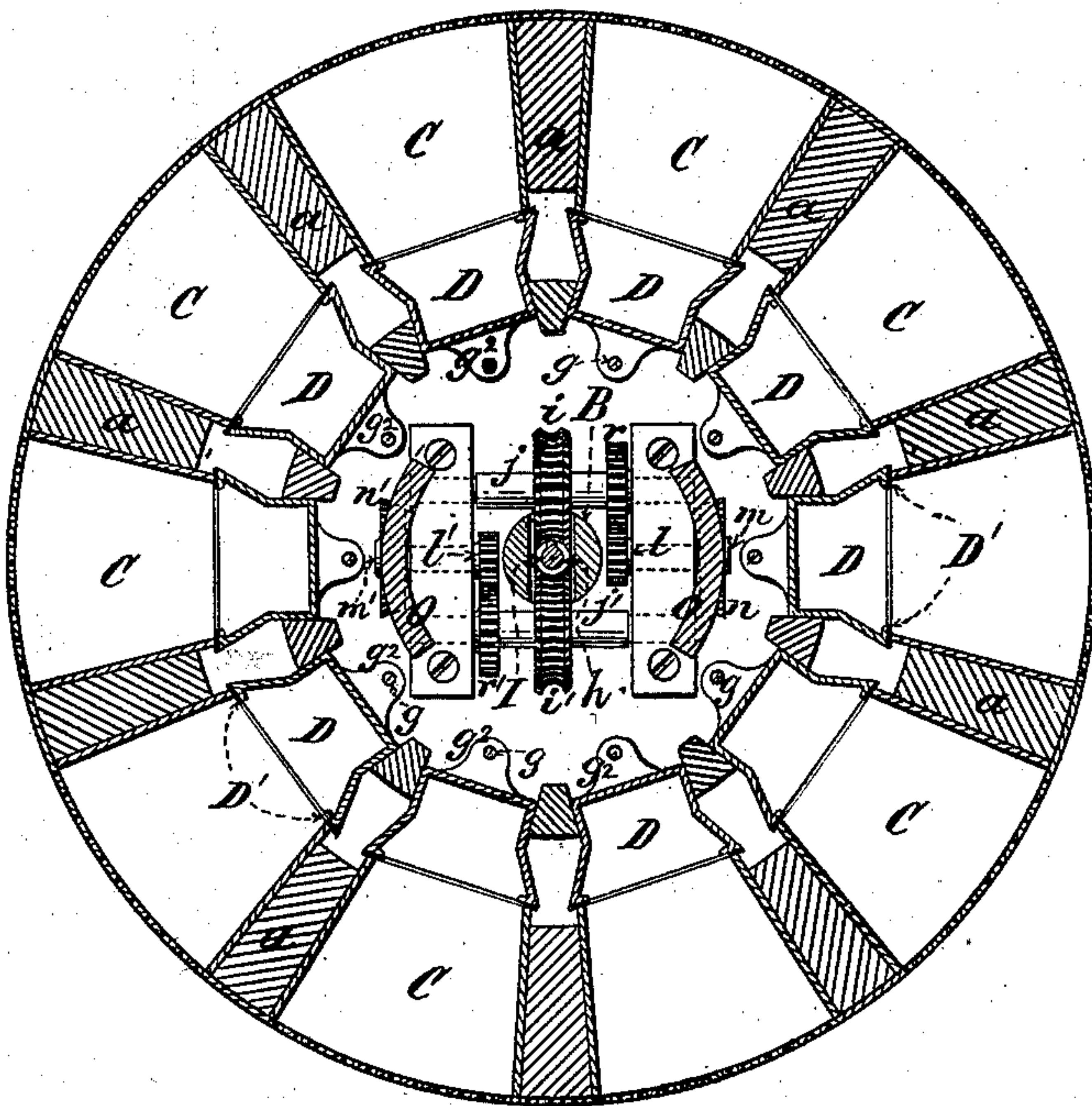
Edw. E. Quimby

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Figure 3.



Witnesses:

Edw. P. Rayson
Geo. W. Miatt

Inventor:

Edw. E. Quimby

UNITED STATES PATENT OFFICE.

EDWARD E. QUIMBY, OF ORANGE, ASSIGNOR TO THE F. O. MATTHIESSEN
AND WIECHERS SUGAR REFINING COMPANY, OF JERSEY CITY, N. J.

IMPROVEMENT IN CENTRIFUGAL LIQUORING APPARATUS.

Specification forming part of Letters Patent No. **221,898**, dated November 18, 1879; application filed
June 24, 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 improvements relate to that class of centrifugal liquoring apparatus in which the sugar-molds, concentrically arranged in the basket of a centrifugal machine, surround an inner circle of liquoring-boxes, which, by means of suitable mechanism, are thrust radially outward against the sugar-mold for the purpose of making tight joints therewith, so that liquor received from a centrally-placed reservoir into the liquoring-boxes will all be forced into the molds. The mechanism for operating the boxes has also the capacity of drawing all the boxes convergently inward, and thus affording clearance for the sugar-molds, so that they can be removed from the basket and others substituted in their places.

My invention relates especially to the mechanism for effecting the desired movements of the boxes; and it consists of a horizontal cam-wheel provided near its periphery with eccentrically-curved cam-slots, each of which engages a cam pin or bolt inserted vertically through two lugs which project from the central portion of the inner vertical wall of each liquoring-box, immediately opposite the cam-slot.

The gearing for effecting the necessary oscillating movements of the cam is preferably actuated by worm-wheels, the worm being loosely inserted in the center of the spindle of the machine, and provided at its upper end with a hand wheel or crank.

In the accompanying drawings, representing my invention, Figure 1 is a top view. Fig. 2 is a central vertical section through the line *x x* on Fig. 1, and Fig. 3 is a transverse section through the line *y y* on Fig. 2.

The drawings represent the basket A of a centrifugal machine mounted upon the vertical spindle B, and containing an outer circle of sugar-molds, C, and an inner circle of movable liquoring-boxes, D. The usual vertical walls *a* are provided for fixing the position of

the sugar-molds. The spindle B is provided with the shoulder *b*, for the support of the cam-wheel F, which is prevented from rising on the shaft by the jam-nuts *f* and *f'*. Near its periphery the cam-wheel is provided with a number of eccentrically-curved slots, G, corresponding to the number of boxes. Each of these slots receives a cam pin or bolt, *g*, which is inserted vertically through the lugs *g'* and *g''*, affixed to the inner vertical wall of the box, and projecting, respectively, over and under the edge of the cam-wheel.

It will be seen that by the turning of the cam-wheel in one direction the boxes are all simultaneously drawn inward, and that by its turning in the opposite direction the boxes are simultaneously thrust outward. The face of each box is provided with the usual gasket D', and by the thrusting outward of the boxes their gaskets are firmly compressed against the inner edges of the sugar-molds, respectively.

The cam-wheel is turned in either direction by power applied to the hand-wheel H, affixed to the upper end of the worm-shaft *h*.

The upper portion of the spindle B is longitudinally perforated to admit the worm-shaft *h*, which is provided with the fixed collar *h'*. The cap *h''* is screwed on the end of the shaft B, and bears upon the upper edge of the collar *h'*. The worm I on the lower portion of the shaft *h* meshes into the two worm-wheels *i* and *i'*. The shaft B is transversely slotted to admit the worm-wheels, as shown, and the latter are respectively keyed to the horizontal shafts *j* and *j'*, to which are also keyed the pinions *r* and *r'*, which mesh, respectively, into the gears *l* and *l'*, keyed to the horizontal shafts *m* and *m'*, which, it will be seen, occupy radial positions on opposite sides of the spindle B. The beveled pinions *n* and *n'* are keyed, respectively, to the outer ends of the shafts *m* and *m'*, and mesh into the beveled teeth O on the under side of the cam-wheel.

One advantage of the double train of gearing from the worm is that it balances the basket.

It will, of course, be understood that one of the trains of gearing may be omitted, and in place thereof a counter-weight may be affixed

to the floor, which will serve to balance the basket.

I do not claim, broadly, the employment of mechanism for simultaneously moving the boxes radially inward or outward, as I am aware that such mechanism has been heretofore employed; but

I claim as my invention in centrifugal apparatus for liquoring hard sugar—

1. The boxes *D*, in combination with the cam-wheel *F*, provided with gearing by means of which it may be turned in either direction, substantially as and for the purposes set forth.

2. The worm-shaft *h*, inserted longitudinally in the upper portion of the hollow spin-

dle *B*, and provided with the crank or hand wheel *H*, in combination with one or more worm-wheels and trains of gearing, by means of which motion is imparted to a cam-wheel oscillating on the spindle *B*, as and for the purpose set forth.

3. The spindle *B*, longitudinally perforated for a suitable portion of its length to admit the worm-shaft *h*, and transversely slotted to admit the worm-wheels *i* and *i'*, substantially as shown and described.

EDW. E. QUIMBY.

Witnesses:

M. L. ADAMS,

GEO. W. MIATT.