

E. E. QUIMBY.

Apparatus for Liquoring Hard Sugar in Centrifugal.
Machines.

No. 223,538.

Patented Jan. 13, 1880.

Figure 1.

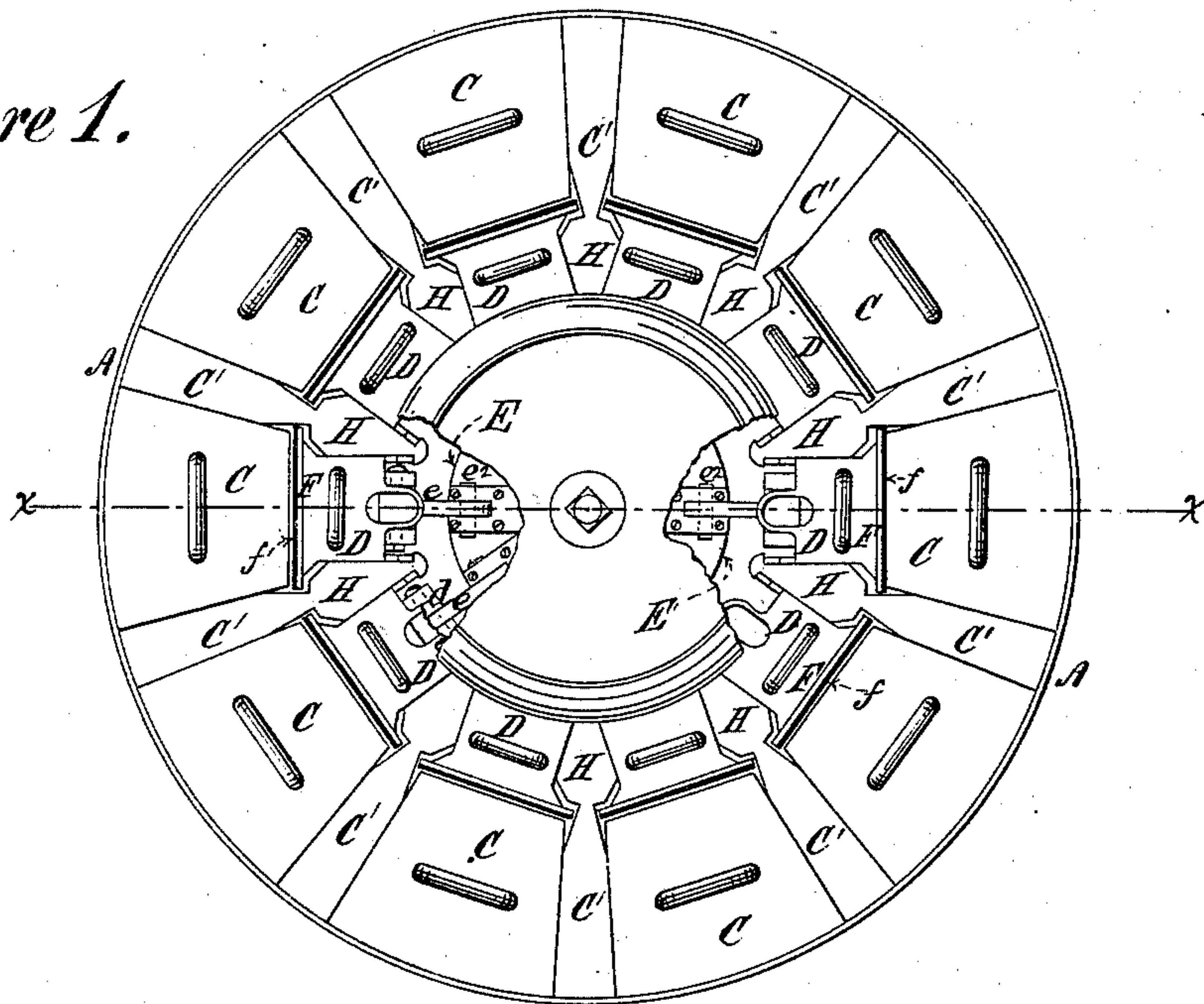
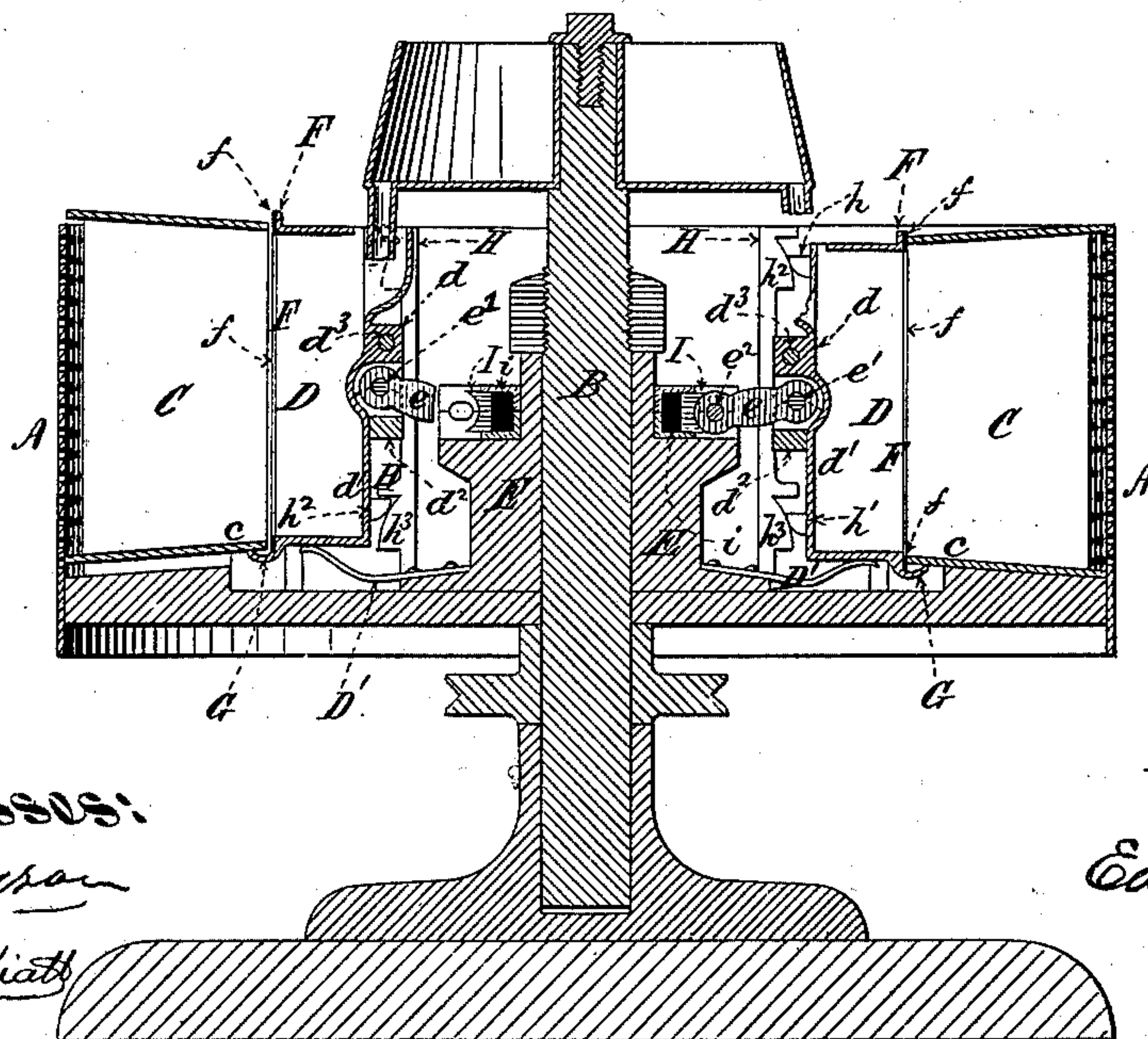


Figure 2.



Witnesses:

Edw. Payson

Geo. W. Mott

Inventor:

Edw. E. Quimby

UNITED STATES PATENT OFFICE.

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

APPARATUS FOR LIQUORING HARD SUGAR IN CENTRIFUGAL MACHINES.

SPECIFICATION forming part of Letters Patent No. 223,538, dated January 13, 1880.

Application filed June 16, 1879.

To all whom it may concern:

Be it known that I, EDWARD E. QUIMBY, of Orange, New Jersey, have invented certain Improvements in Apparatus for Liquoring Hard Sugar in Centrifugal Machines, (Case No. 4,) of which the following is a specification.

My improvements relate to that class of centrifugal liquoring apparatus in which an inner circle of movable liquoring-boxes is employed for receiving white liquor from a central reservoir and distributing it to an outer circle of sugar molds, the boxes being given the capacity of movement for the purpose of enabling them to be withdrawn from contact with the molds, so that the latter can be removed from the basket and others substituted in their places, the effect of centrifugal force upon the boxes being to throw them bodily outward in radial lines, whereby an elastic gasket, with which the outer face of each box is provided, is compressed against the inner edges of the sugar-mold, and a tight joint is thus made between the mold and the box.

My present invention relates especially to the mode of governing the movement of the liquoring-boxes; and it consists in linking each box, by means of a pitman, to a hub fixed in the center of the basket, and in providing a spring in the floor of the basket beneath the end of each box, tending to throw the box upward. By reason of its pitman-connection with the hub, the box, in moving upward, is also swung inward toward the hub, and is hence withdrawn from contact with the sugar-mold.

The plate forming the bottom of the box projects outward beneath and beyond the gasket, and forms a bearing-place which catches against the under edge of the sugar-mold when the latter is introduced into the basket, and the weight of the sugar-mold and of the sugar which it contains is thus utilized to press the box downward against the resistance of its lifting-spring. In its downward movement the box swings forward by reason of its pitman-connection with the hub, and the gasket with which the front edge of the box is provided is thus compressed against the inner edge of the sugar-mold.

The accompanying drawings, representing a centrifugal machine containing my inven-

tion, are as follows: Figure 1 is a top view. Fig. 2 is a vertical section through the line x on Fig. 1.

The drawings represent the basket A of the centrifugal machine, mounted on the usual vertical shaft B, and adapted to contain a concentrically-arranged outer series of sugar-molds, C, and an inner circle of a like number of liquoring-boxes, D.

Each of the liquoring-boxes is linked to the central hub, E, by the pitman e , the outer end of which is provided with a transverse pin, e' , which is seated in bearings, the upper halves of which are formed in the lower end of a lug, d , cast upon or otherwise affixed to the central portion of the inner vertical wall, d' , of the box. The lower portions of these bearings are formed in the U-shaped cap d^2 , the legs of which embrace the sides of the lug d , and are secured thereto by the transverse bolt d^3 .

It will be seen that the outer end of the pitman has its bearings at a point midway between the top and bottom of the box. The inner end of the pitman is provided with a transverse pin, e^2 , the bearings of which are formed in the hub E at a point nearer the bottom of the basket, so that the pitman, when the box is fully depressed, occupies an inclined position, as shown in Fig. 2.

Beneath the bottom of the box, and affixed to the floor of the basket, is the lifting-spring D', which is made just strong enough to lift the weight of the box. The front edge, F, of the box is provided with the usual gasket f , and the plate forming the lower end of the box is extended forward below the gasket, to form the bearing-place G for the inner portion of the plate c , which forms the lower end of the sugar-mold C. The usual vertical walls C' are provided as guides for fixing the positions of the molds C.

The vertical posts H may be fixed to the floor of the basket just inside the inner corners of the boxes, in which case each edge of the inner vertical wall of the box is provided with the projecting lugs h and h' , and these lugs are provided with bearing-places h^2 and h^3 , formed on the outer faces of the post H, in curves corresponding to the curved path which the free end of the pitman describes when the box is moved. The curved bearing-places h^2

and h^3 are not indispensable, but subserve a useful purpose in maintaining the box in a vertical position during its movement up or down, so that the gasket, in moving toward or from the mold, acquires contact with or extrication from the edge of the mold without any sliding motion thereon.

The bearings for the transverse pin on the inner end of the pitman are, it will be seen, horizontally slotted, and the inner end of the pitman is rounded and is seated in the sliding half-box I, which is backed up with the rubber spring i , this mode of organization being for the purpose of permitting the inner end of the pitman to yield slightly when the box is fully depressed.

The effect of centrifugal force when the machine is rotated is to drive the boxes forcibly outward and increase the compression of the gaskets between the boxes and the inner edges of the molds.

When the machine is stationary the molds may easily be lifted, and the boxes will rise with them and remain elevated, by reason of their lifting-springs, until the molds are again introduced.

I am aware that movable liquoring-boxes have been connected by links or pitmen with a vertically-sliding movable hub on the spindle of the machine, the hub being provided with operating mechanism for sliding it down to thrust the boxes radially outward, and for elevating it for the purpose of drawing the boxes radially inward.

The peculiarity which distinguishes my present mechanism is that the boxes are linked to a stationary hub.

I do not herein claim, broadly, a series of liquoring-boxes loosely contained in the basket of a centrifugal machine, or flexibly connected therewith, whereby centrifugal force acts to

throw them outward against a like series of sugar-molds, or gravity acts to tilt them convergently inward, away from the sugar-molds, as such boxes are the invention of F. O. Matthiessen, and are made the subject of claim in his application for a patent filed May 9, 1879, designated "Case A."

I claim as my invention in centrifugal liquoring apparatus—

1. In combination with a series of sugar-molds concentrically arranged in the basket of a centrifugal machine, an inner circle of liquoring-boxes, each of which has a link-connection with a stationary hub in the center of the basket, whereby each liquoring-box, when lifted, is pulled inward toward the center of the basket, substantially as and for the purpose set forth.

2. Liquoring-boxes substantially such as described, the lower end of each of which is extended to form the bearing-place G, as and for the purpose set forth.

3. The liquoring-boxes d , each having a link-connection with the central hub in the basket, in combination with the lifting-spring D' , as and for the purpose set forth.

4. In a centrifugal machine for liquoring hard sugar, a liquoring-box having a link-connection with the stationary hub in the center of the basket, and having a bearing-place upon which the inner portion of the sugar-mold can rest, in combination with a sugar-mold, substantially such as described, and a spring tending to lift the liquoring-box when the box is relieved from the weight of the mold, substantially as and for the purpose set forth.

EDW. E. QUIMBY.

Witnesses:

M. L. ADAMS,
GEO. W. MIATT.