

(No Model.)

O. H. KRAUSE.

METHOD OF MAKING HARD SUGAR FROM SOFT SUGAR.

No. 318,630.

Patented May 26, 1885.

Fig. 1.

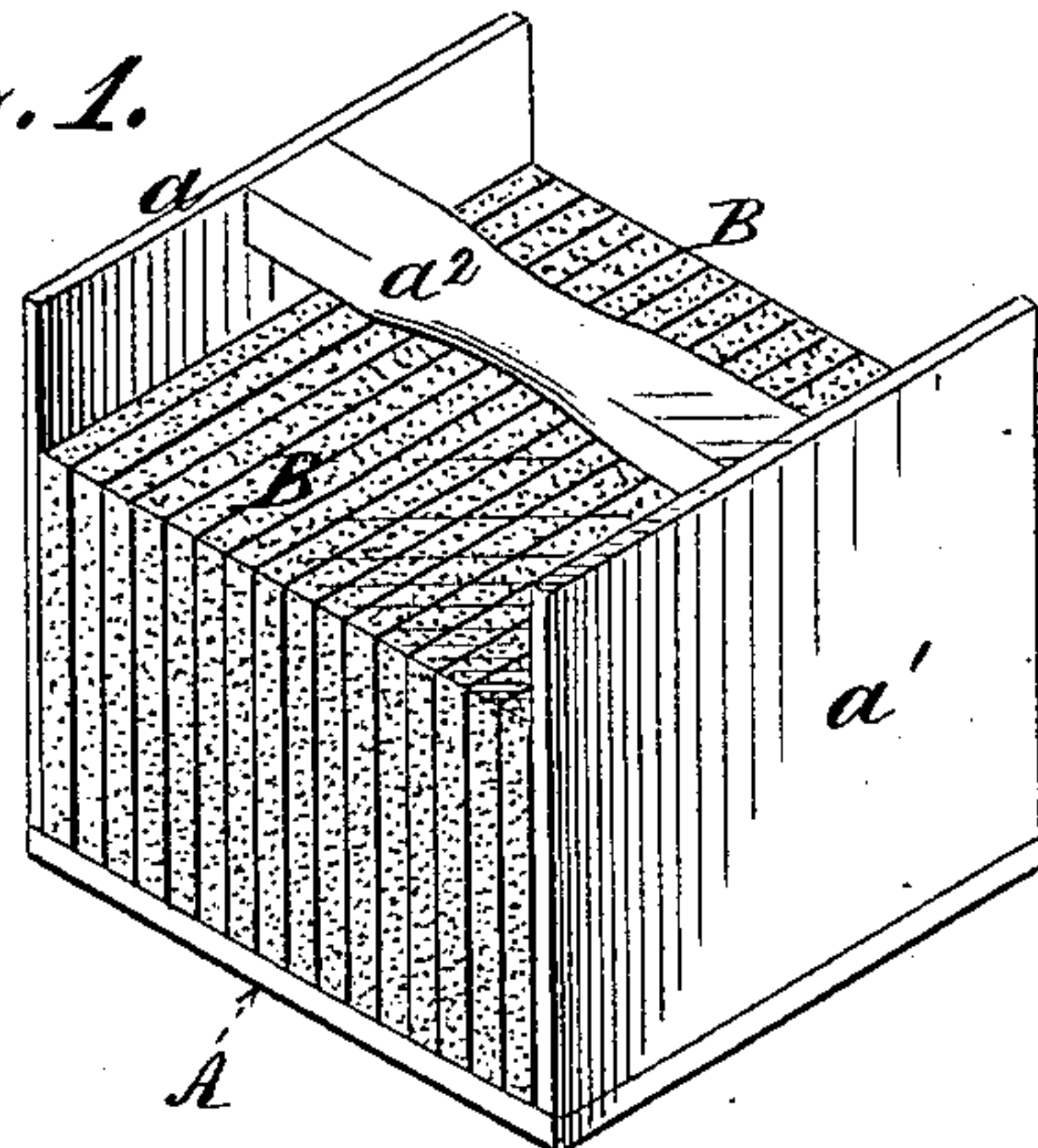


Fig. 2.

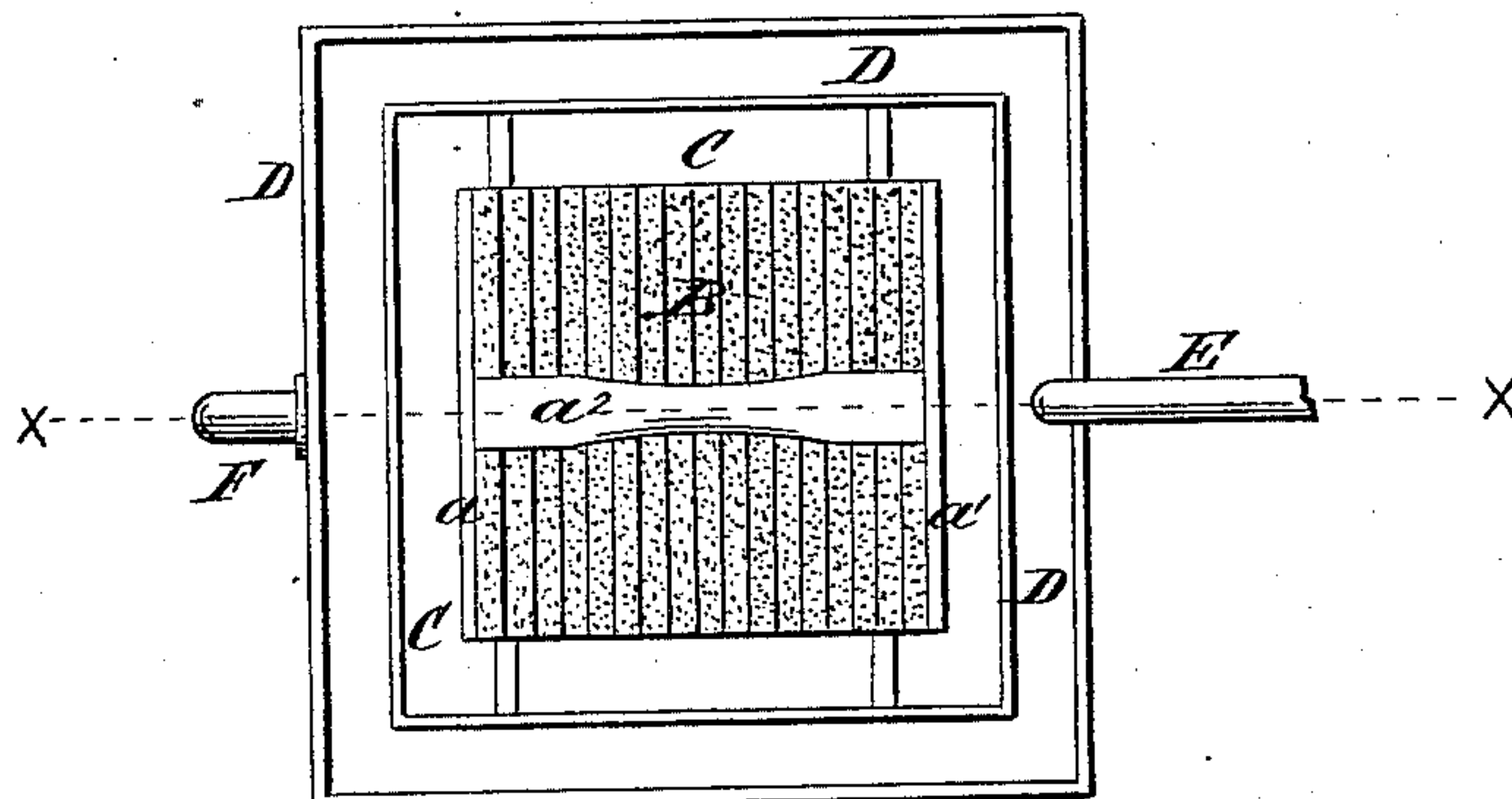
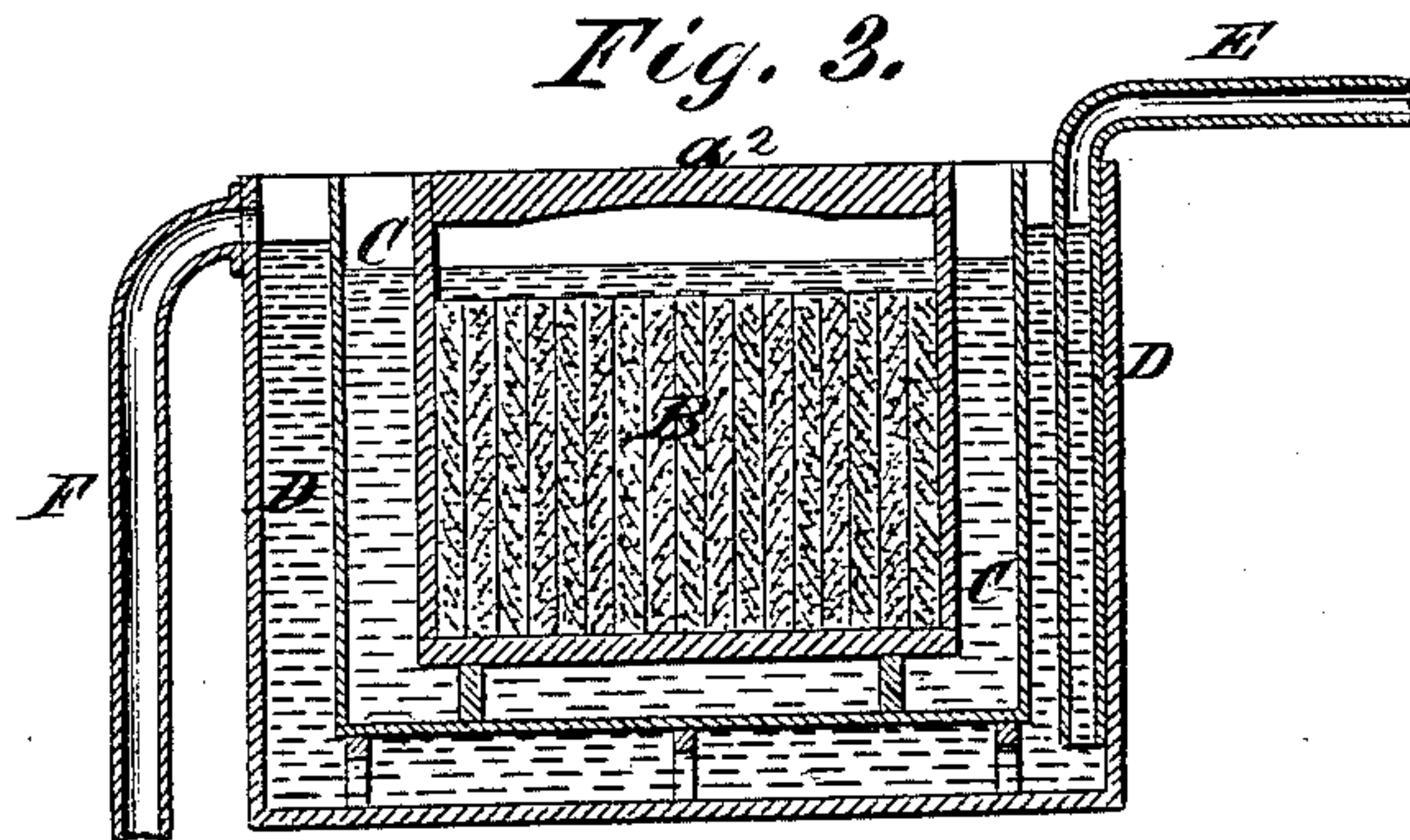


Fig. 3.



Witnesses:
M. L. Adams.
R. C. Howes.

Inventor:
Otto H. Krause
Per Edw. E. Quincy
Atty.

UNITED STATES PATENT OFFICE.

OTTO H. KRAUSE, OF JERSEY CITY, N. J., ASSIGNOR TO THE F. O. MATTHIESSEN & WIECHERS SUGAR REFINING COMPANY, OF SAME PLACE.

METHOD OF MAKING HARD SUGAR FROM SOFT SUGAR.

SPECIFICATION forming part of Letters Patent No. 318,630, dated May 26, 1885.

Application filed April 21, 1885. (No model.)

To all whom it may concern:

Be it known that I, OTTO H. KRAUSE, of Jersey City, New Jersey, have invented an Improvement in the Method of Manufacturing
5 Hard Sugar from Soft Sugar or Granulated Sugar, of which the following is a specification.

My improvement relates to a method of promoting the crystallization of sugar from a concentrated hot white-liquor, which has been introduced into the interstices of a lightly-compacted mass of soft sugar or granulated sugar, as described in the pending application of F. O. Matthiessen, filed February 24, 1885, serially numbered 156,881.

My invention consists in effecting the cooling of the cakes of sugar charged with concentrated hot white-liquor by immersing such hot charged cakes of sugar in a bath of concentrated cold white-liquor, which is kept cold by being maintained in contact with chilled surfaces. In this process the cakes of soft sugar or granulated sugar are most conveniently charged with the concentrated hot
25 white liquor by depositing them in a box provided with a tight-fitting cover, and then, after exhausting the air from the box, admitting into it a quantity of concentrated hot white-liquor sufficient to completely permeate the
30 cakes of sugar.

To facilitate the removal of the cakes of charged sugar from the charging-box and their subsequent immersion in the bath of concentrated cold white-liquor, I provide a light
35 frame, which fits into the interior of the charging-box, and in which the cakes of sugar are arranged side by side. This frame is provided with a handle, by means of which it can be conveniently lifted out of the charging-box
40 and carried to and plunged into the bath of concentrated cold white-liquor. By this means the hot charged cakes are brought into direct contact with a cold liquid, by which they are uniformly and rapidly cooled, and which is
45 prevented from dissolving any portion of the sugar of which the cakes are composed, because of its already containing all the sugar which it can hold in solution at its low temperature. The uniform and rapid cooling of
50 the cakes tends to produce a corresponding uniform and rapid crystallization of the white-liquor which permeates them.

The accompanying drawings, illustrating

simple forms of apparatus adapted for carrying out my process, are as follows:

Figure 1 is an isometrical perspective of the frame in which the cakes of sugar are placed preparatory to the deposit of the frame in the charging-box in which the frame fits. Fig. 2 is a top view of the cooling-bath. Fig. 3 is
60 a longitudinal vertical section of the cooling-bath, taken through the line *xx* on Fig. 2.

The frame represented in Fig. 1 consists of a base-plate, A, and two uprights, *a a'*, united by a horizontal bar, *a³*, which serve as a handle by means of which the frame may be lifted. The distance between the uprights *a a'* is proportioned with reference to its containing a prescribed number of cakes B B B B, &c., placed side by side close together,
70 leaving sufficient space above the cakes to permit the horizontal bar *a³* to be grasped by the hand, so that the frame containing the cakes of sugar can be lifted.

The cooling-bath consists of a tank, C, made preferably of thin sheet metal, of suitable dimensions to contain an ample supply of cold white-liquor. The tank C is contained within a larger tank, D, through which there is kept up a constant circulation of cold water or of
80 artificially-cooled saline liquid introduced from a suitable reservoir through the service-pipe E, having its mouth near the bottom of the tank D, the overflow from the tank being carried off through the discharge-pipe F to
85 a tank, from which it is pumped back into the reservoir from which the cooling-liquid is supplied. The tank C is supported at the bottom on blocks or legs, which raise it up, so as to leave space for the circulation of the cooling-liquid underneath it, as well as around
90 its sides.

What I claim as my invention is—

The herein-described method of promoting the uniform and rapid crystallization of sugar
95 from a more or less highly concentrated hot white-liquor contained in the interstices of cakes made of lightly-compacted soft sugar or granulated sugar, the same consisting in immersing said cakes, after they have been
100 charged with the said hot white-liquor, in a concentrated cold white-liquor, substantially as set forth.

Witnesses:

O. H. KRAUSE.

ARTHUR KRAUSE,
CLEMENT ROOS.