

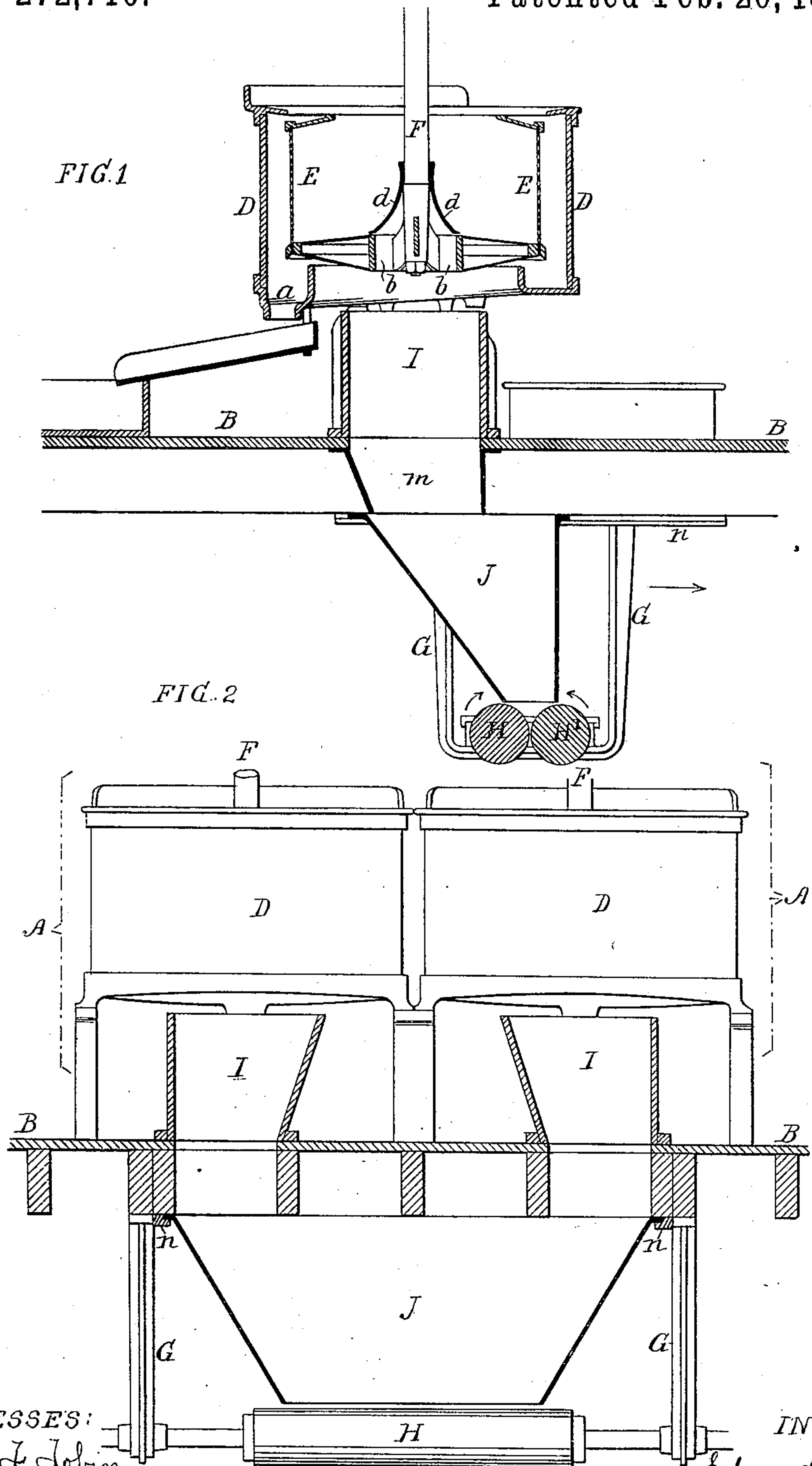
(No Model.)

E. C. KNIGHT.

CRUSHING ATTACHMENT FOR CENTRIFUGAL MACHINES.

No. 272,710.

Patented Feb. 20, 1883.



WITNESSES:
James J. Tobin
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UNITED STATES PATENT OFFICE.

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CRUSHING ATTACHMENT FOR CENTRIFUGAL MACHINES.

SPECIFICATION forming part of Letters Patent No. 272,710, dated February 20, 1883.

Application filed October 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. KNIGHT, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented a
5 Crushing Attachment for Centrifugal Machines, of which the following is a specification.

My invention consists of the combination of centrifugal machines with crushing-rollers and
10 certain ducts or passages, described hereinafter, whereby sugar or other material from which liquids have been extracted by the said centrifugal machines may be conducted directly from the latter to the rolls, the objects
15 of my invention being economy in time and labor and the rapid cooling of the sugar, as hereinafter explained.

In the accompanying drawings, Figure 1 is a vertical section of a centrifugal machine with
20 my improvement, and Fig. 2 a front view of Fig. 1.

A and A' are two centrifugal machines, erected above the floor B in the manner usually adopted in sugar-houses. As each cen-
25 trifugal machine is of the ordinary construction, it will suffice to remark here that there is the usual cylindrical shell or safety-cage, D, having an outlet, *a*, for the escape of the sirup, the basket E, secured to the rapidly-rotated
30 spindle F, and having at the bottom a central opening, *b*, for the escape of the sugar when, after the extraction of the sirup and the raising of the valve *d*, the sugar is detached from the sides of the cage.

It has been the common practice to permit
35 the sugar passing through the bottom of the cage to fall through an opening in the floor B onto the floor below. In most cases the sugar which is thus discharged from the centrifugal
40 machine has to be crushed by and between rolls before it is in a marketable condition, and the plan has been to convey it from the floor onto which it has fallen to an upper floor, and to there subject it to the action of
45 power-driven rolls.

The main object of my invention is to obviate the necessity of resorting to this costly and time-consuming handling of the sugar—an object which I attain in the following manner:
50 To the beams of the floor B, I secure hangers G, in which are bearings for the journals of

rolls H H', the latter being rotated in the direction of their arrows. The sugar from the centrifugal machines is directed to these rolls by ducts, which may be varied in construction, but which consist in the present instance
55 of boxes I I, one situated below each centrifugal machine, a chute, J, terminating below in a contracted opening immediately above the rolls, and a pipe, *m*, situated between the joists
60 of the floor, for directing the sugar from the boxes of two machines to the chute J. I prefer to thus direct the sugar from two adjoining centrifugal machines to one chute; but this is not essential to the main feature of my
65 invention—for instance, there may be one direct duct for each centrifugal machine.

Where centrifugal machines are arranged in rows—and this is generally the case in sugar-houses—it is best to arrange the ducts in
70 the manner described, so that one pair of rolls may crush the sugar derived from two machines, another pair of rolls, coupled to the first, crushing the sugar derived from another pair of machines in the same row, and so
75 on. The character of the ducts will depend in a measure upon the arrangement of the crushing-rolls in respect to the centrifugal machines and the opportunities afforded by the joists of the floor. There is another advantage
80 in immediately crushing the sugar as it leaves the centrifugal machines, for, the lumps being at once disintegrated, the sugar falls to the floor in a finely-separated condition, and in falling is more rapidly cooled than if it fell
85 in coherent masses.

While fixed structures may constitute the ducts, I prefer to make them in part of chutes J, each chute being adjustable in guides *n n*,
90 secured to the joists, so that it can be moved forward in the direction of the arrow, Fig. 1, when the sugar will fall clear of the rollers to the floor below, for there are classes of sugar which do not require to be crushed.

Although I have referred to my invention
95 as applied to the treatment of sugar, it may be adopted with advantage in connection with centrifugal machines used for extracting liquids from other substances.

I claim as my invention—

1. The combination of a centrifugal machine
100 or machines and crushing-rolls below the same

with a duct or ducts for directing the sugar from the said machine or machines to the rolls, substantially as set forth.

5 2. The combination of a centrifugal machine or machines, crushing-rolls, a duct or ducts for receiving the sugar, and an adjustable chute for directing the sugar to the rolls or clear of the same, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD C. KNIGHT.

Witnesses:

HARRY DRURY,
HARRY SMITH.