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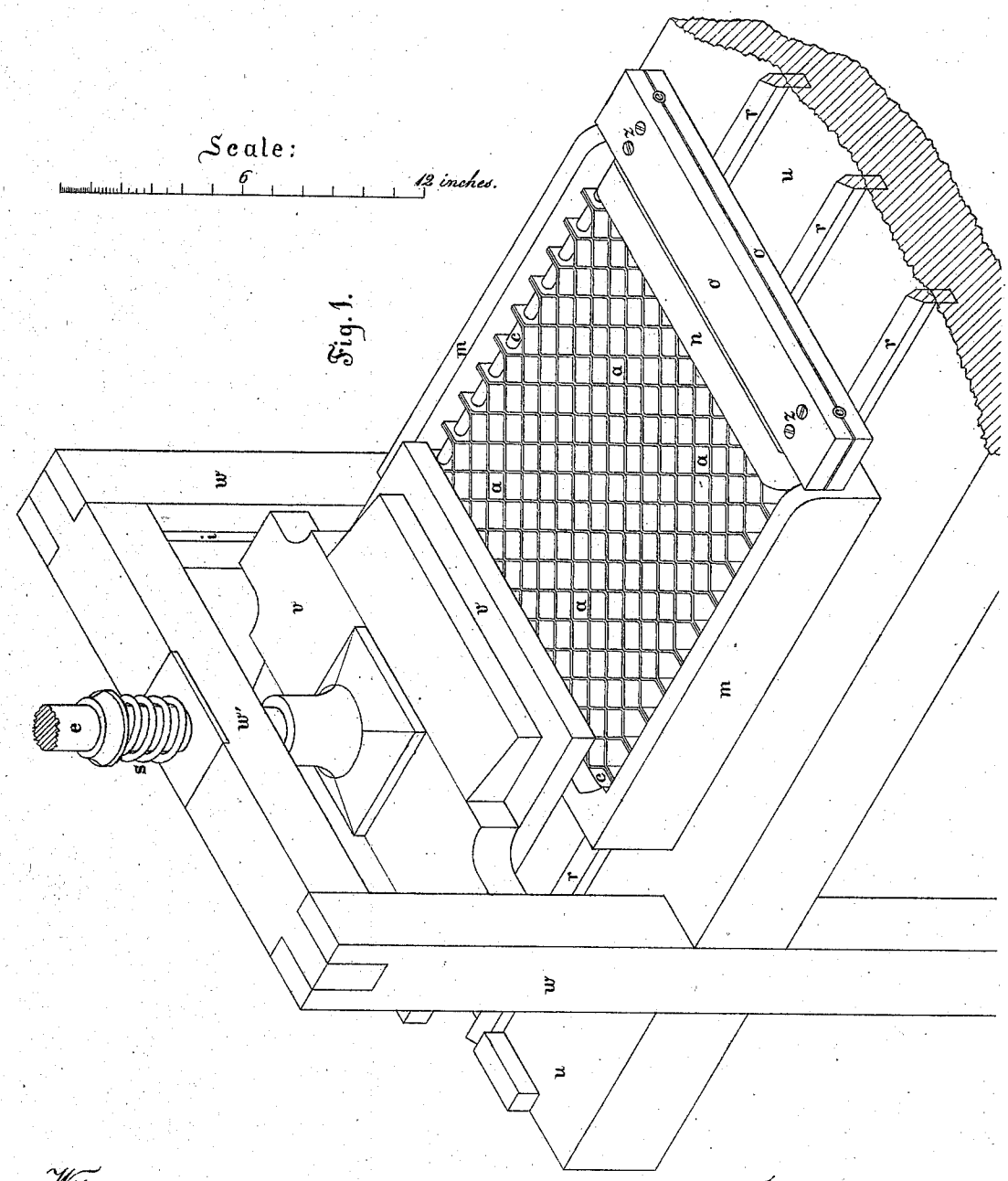
A. F. W. PARTZ.

Improvement in the Manufacture of Cube-Sugar.

No. 131,899. Patented Oct. 1, 1872.

Scale: 6 12 inches.

Fig. 1.



Witnesses:

S. F. Rodolph.

F. B. Rodolph.

Inventor:

August F. W. Partz.

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

2 Sheets--Sheet 2.

A. F. W. PARTZ.

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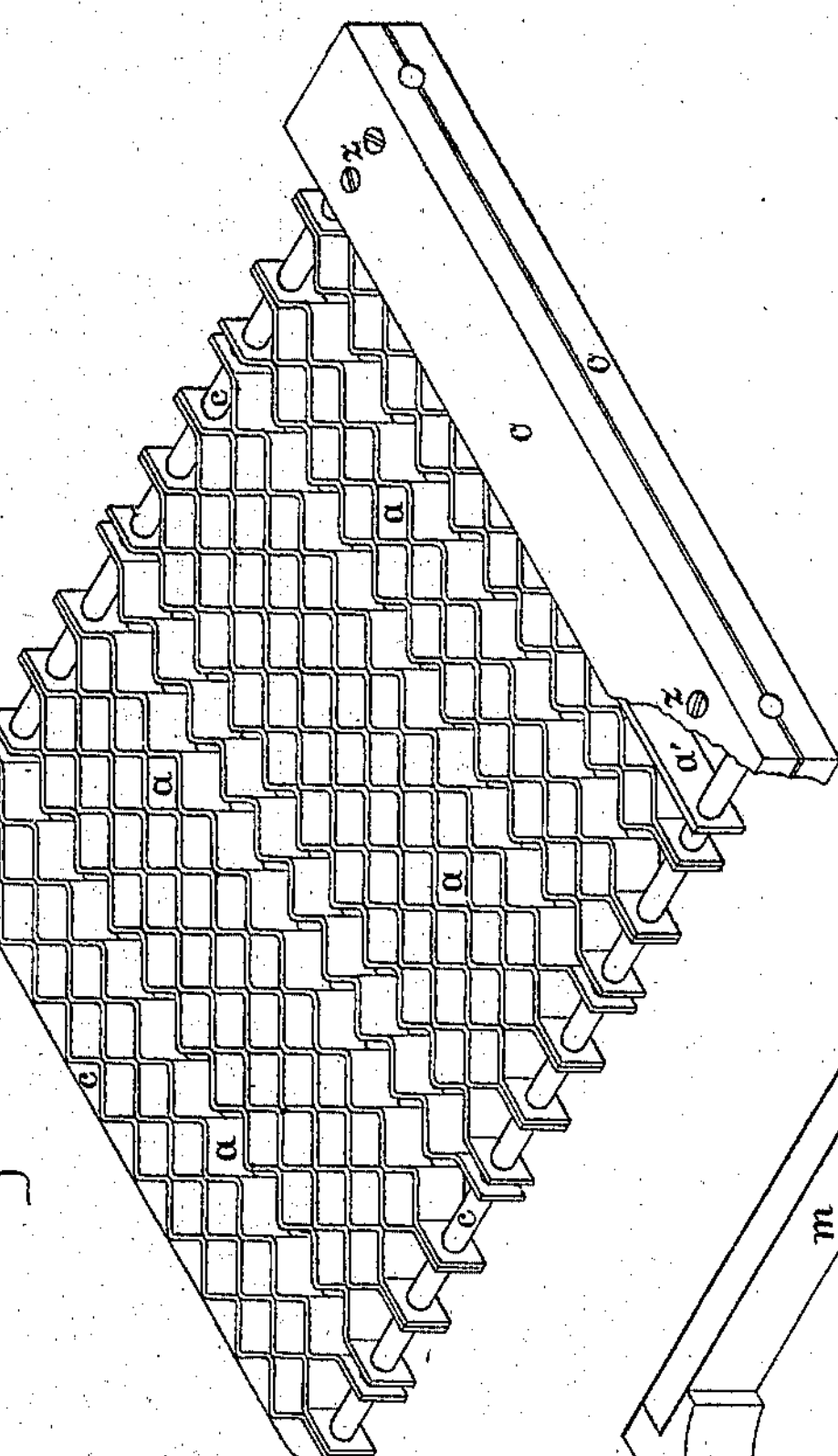


Fig. 3.

Scale:
6 12 inches.

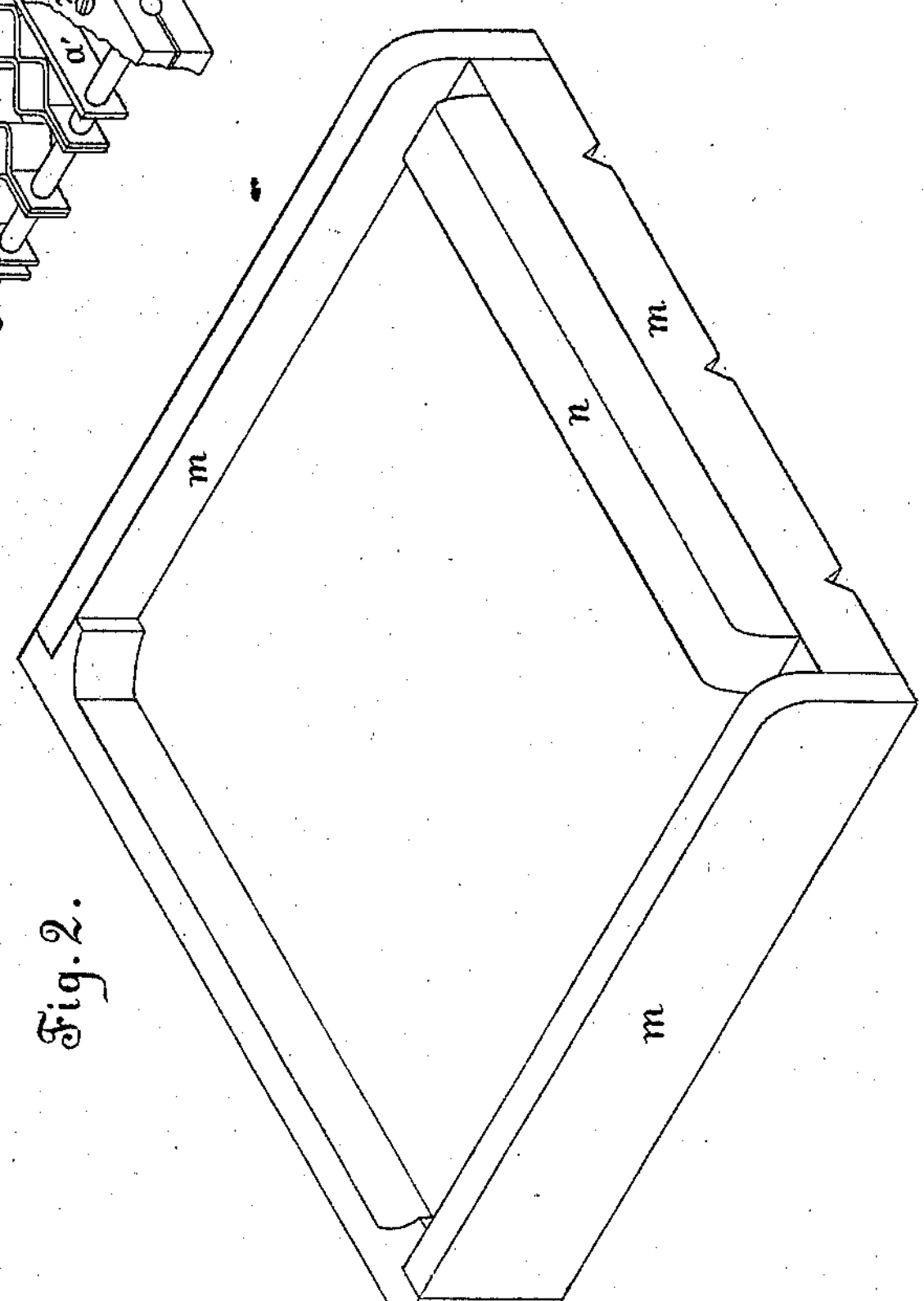


Fig. 2.

Witnesses:
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F. B. Rodolph.

Inventor:
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UNITED STATES PATENT OFFICE.

AUGUST F. W. PARTZ, OF OAKLAND, CALIFORNIA.

IMPROVEMENT IN THE MANUFACTURE OF CUBE SUGAR.

Specification forming part of Letters Patent No. **131,899**, dated October 1, 1872.

To all whom it may concern:

Be it known that I, AUGUST F. W. PARTZ, of Oakland, in the county of Alameda and State of California, have invented certain Improvements in the Manufacture of Cube Sugar, of which the following is a specification:

My invention relates to an improved apparatus and process for transforming granular sugar into solid cubes or "blocks," and the mode and means by which I accomplish the object in view may, in general terms, be stated as follows:

Shallow trays are divided into square compartments by independent zigzag-shaped partitions placed therein on edge one against another, and held together by frames, upon which they can be shifted. The compartments thus formed serve as molds, and are filled with moist granular sugar, which is compacted therein by a press-block, under which the trays are placed for that purpose. After pressing, the frames holding the partitions, with the sugar, are taken from the trays and suspended on drying-racks, and when the sugar has become hard the partitions are shifted asunder and the cubic lumps removed from between them.

In the following full and exact description of my invention reference is had to the accompanying drawing which forms a part of this specification, and wherein—

Figure 1 is an isometrical view of the device which I employ, and Figs. 2 and 3 are like views of separate parts thereof, showing more clearly their construction and application.

u represents a platform, which may or may not be provided with tracks *r r*. At opposite sides of this platform are secured posts *w w*, which are connected at their upper ends by a cross-beam, *w'*, so that they form together an elevated frame-work. *v* is a pressing or stamping-block, which is worked by power applied to a rod, *e*, fastened in its center and passing through a hole in the cross-beam *w'*. The block is guided in its up-and-down motion by pins projecting therefrom, and sliding in grooves *i* in the posts *w*, and is held up by a spiral spring, *s*, bearing against a flange on the rod *e*, around which it is placed upon the beam *w'*, as shown in Fig. 1. *m* is a tray having three raised sides. *n* is a bar extending almost across its fourth or front side, so as to leave a space at each end, the object of which will appear hereafter. When tracks are used upon the platform *u* the bottom of the tray is provided with corresponding grooves, as shown in Fig. 2, in order to guide it in being moved under the press-block. *c* is a metallic rod bent so as to form three sides of a square, the fourth side of which is formed by a wooden clamp, *o*, in which the ends of the rod *c* are firmly secured by means of screws *z z*, and which is also to serve as a handle. Prior to attaching this clamp a series of bent strips of metal, *a a*, and lastly a straight strip, *a'*, all provided with holes near their ends, are strung upon the parallel portions of the rod *c*, which must be long enough to afford room for the bar *n* to fit in between the strips *a'* and the clamp *o*. The strips *a a* are bent at equal intervals in rectangular zigzags, so that, when any two of them are placed closely together, in the manner as shown in the drawing, they form a row of squares, and as many of them are used as the tray *m* will hold when they are thus arranged. The pieces *c o a a a'*, combined as above described, and as represented in Fig. 3, I will, for the sake of brevity, call a matrix.

The operation begins with placing the matrix, after pushing the strips *a a a'* closely together, upon the tray *m*, so that the bar *n* takes up the room between the strip *a'* and the clamp *o*, while the rod *c* slips into the spaces left at the ends of the bar for that purpose, all as shown in Fig. 1, and thus the tray is divided into square compartments which constitute molds. The tray is now filled with moist granular sugar, which is leveled off by a "strike" being run over the edge of the sides of the tray, whereupon the latter is slid under the press-block, which is then forced down upon the edges of the partitions *a a*, compressing the sugar in the entire number of molds. In the drawing the partitions are represented as being two-thirds as high as the sides of the tray, so that (taking into account the space they occupy) the sugar is compressed to less than two-thirds of its former bulk; and if it shall be compressed either more or less the height of the tray and of the bar *n* only needs to be increased or reduced accordingly. Upon releasing the press-block the tray is withdrawn, when the clamp *o* is seized, and, to prevent the partitions *a a a'* from shifting, the matrix *c o a a a'* holding the sugar is turned on its opposite edge into an upright position, in which it is

then taken from the tray and suspended, by the ends of the clamp *o*, upon a suitably-constructed drying-rack. Another matrix like the one above described is now put upon the tray, and the operation proceeds the same as before. The number of such matrices must accord with the quantity of sugar daily worked, while of trays but so many are needed as will suffice to keep with the filling of them in advance of the pressing and prevent stoppage in the operation. In a properly heated and ventilated room the sugar upon the racks, being exposed on two sides to the atmosphere, soon becomes dry and firm enough to be removed from the matrices. These are then taken and turned with the clamps *o* downward, when, by shifting the partitions and tapping against them, the cubic lumps of sugar are made to drop out from between them.

When the trays and the press-block are made of wood they should be oiled or varnished, so far as necessary, to prevent the sugar from adhering to them.

The partitions *a a*, instead of being bent in rectangular zigzags, may, to the same purpose, also be bent in zigzags with either acute or obtuse angles, or with rounded corners, if lumps of sugar of corresponding shapes be desired.

The words "cube" and "cubic" are herein used as technical terms, applying to such small lumps of sugar as in commerce are or would be known by the names of "cubes" or "blocks."

The frame composed of the pieces *c* and *o*, or similar devices having the same object of holding the partitions *a a* together, are not indispensable so far as regards the mere making of cube sugar by this method, for that end might also be accomplished if such partitions were arranged singly in shallow boxes or upon suitably-contrived frames; but the employment of unconnected partitions would necessitate too much handling and be far less practicable than the plan above specified.

Instead of compacting the sugar by means of a press, as herein described, the same effect may be produced by passing the trays under a horizontal cylinder, or a segment thereof, movable on a horizontal axis, the trays being made either to glide upon rails or to run upon rollers, in which case, however, the bars *n* and the sides of the trays opposite thereto must be of the same height as the partitions *a a* and their upper faces be beveled.

The application of my invention is not confined to the working of sugar taken from centrifugal machines, since sugar cast and freed from sirup in large molds may, under certain conditions, also be obtained in a granular state well adapted to the process herein set forth.

I claim as my invention—

1. The zigzag strips or movable partitions *a a*, substantially as and for the purpose herein described.

2. The tray *m*, when provided with partitions *a a*, forming a series of temporary compartments or molds, substantially as and for the purpose herein specified.

3. The frame *c o*, in combination with the adjustable zigzag strips *a a*, substantially as and for the purpose herein described.

AUGUST F. W. PARTZ. [L. S.]

Witnesses:

J. L. BOONE,

C. M. RICHARDSON.