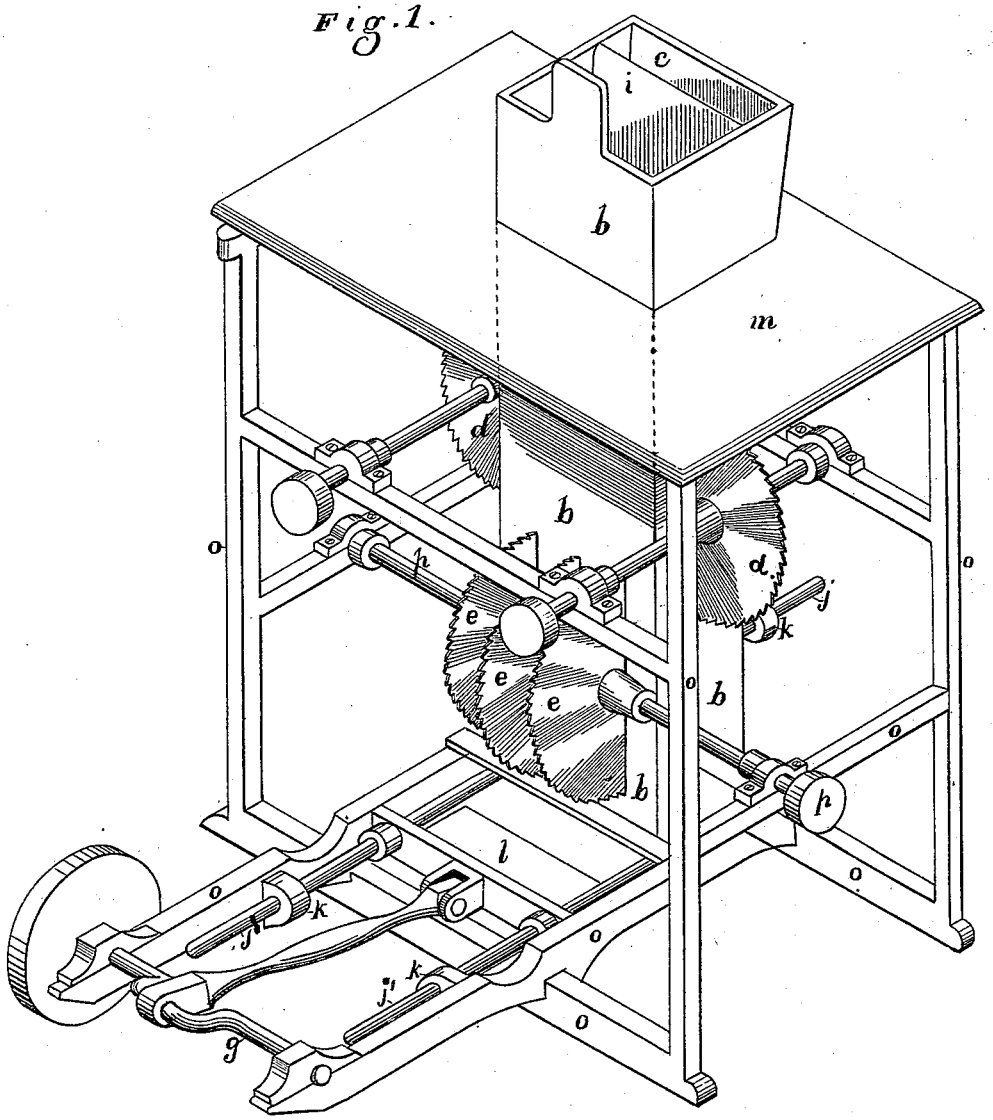
2 Sheets—Sheet 1.

C. RAETZ.

MACHINE FOR CUTTING SUGAR CUBES.

No. 192,527. Patented June 26, 1877.

Fig. 1.



Witnesses

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2 Sheets—Sheet 2.

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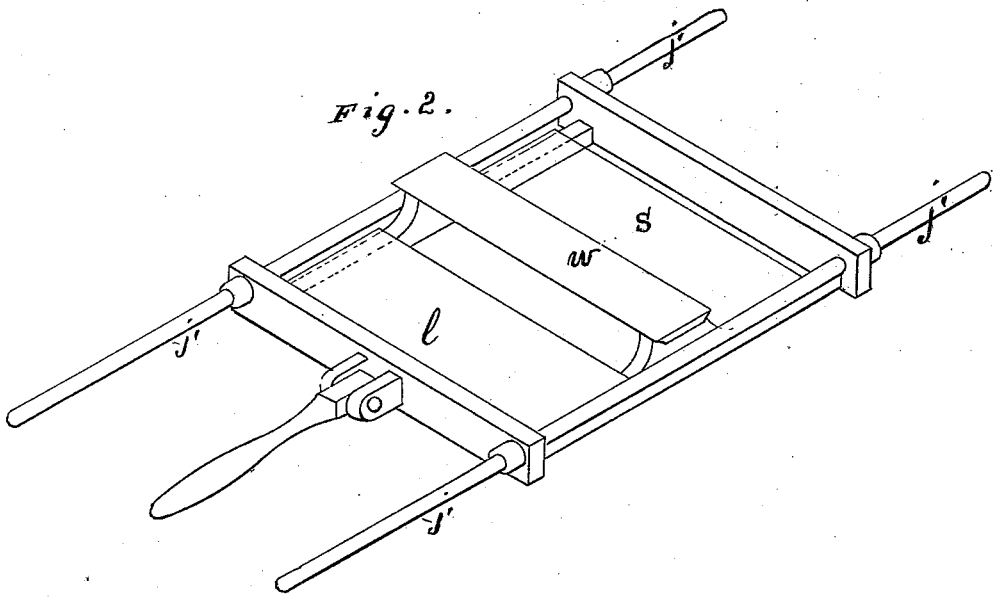
Fig. 2.



Witnesses

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Attorney.

UNITED STATES PATENT OFFICE.

CHRISTOPFER RAETZ, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN MACHINES FOR CUTTING SUGAR CUBES.

Specification forming part of Letters Patent No. **192,527**, dated June 26, 1877; application filed April 16, 1877.

To all whom it may concern:

Be it known that I, CHRISTOPFER RAETZ, of San Francisco, in the county of San Francisco, and in the State of California, have invented certain new and useful Improvements in Machines for Cutting Sugar Cubes; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, making a part of this specification.

My invention consists of an improved machine for making small sugar cubes of the large sugar cakes made in sugar-refineries.

The following is a correct description of my invention, reference being had to the accompanying drawings, forming part of this specification, sufficient to enable any one skilled in the art to which it appertains to make and use the same.

In the drawings, Figure 1 is a perspective view of my machine, and Fig. 2 is a similar view of the reciprocating parts thereof.

Similar letters of reference refer to corresponding parts.

In the drawings, *o* is a suitable frame, and may be constructed in the usual manner of constructing wooden frames. *m* is a top platform, forming part of the frame. *b* is a tube, passing downward from above the platform *m*, nearly to the sliding rods *j'*. The opening of the tube *b* is just large enough to allow the large manufactured sugar cakes to pass downward through it. The upper end of the side *i* of the tube is made sharp enough to trim or shave off the cake passing through the tube to a uniform thickness, the part thus shaved off passing through the opening *c* to any convenient receptacle. *d d* are circular saws, driven by any convenient mechanism.

Several of the saws *d* may be placed upon the same mandrel or shaft, their distance apart being regulated according to the desired size of the sugar cubes to be made. These saws *d d* pass far enough into the tube *b* from each side to cut the large sugar cake into thin slabs as it descends. The saws *d d* should revolve, so that their adjacent sides turn upward so as not to draw the sugar cake downward too fast.

Below the saws *d d*, and at right angles with them, are hung other circular saws, *e e e*, upon the shaft *b*.

The saws *e e e* may be increased to any desired number, and their distance from each other should be regulated according to the desired size of the cubes of sugar being manufactured. The saws *e e e* pass into the tube *b* far enough to nearly, or quite, reach its opposite side.

j' j' are sliding reciprocating rods, driven by the crank *g*, and connecting mechanism. *k k k* are the bearings, in which the rods *j' j'* slide, one of said bearings not being shown in the drawings. *l* is a flat table, attached to, and moving with, the rods *j' j'*. At a suitable distance to the right of the table *l* is another similar table, *s*, Fig. 2, also attached to, and reciprocating with, the rods *j' j'*. In Fig. 1 the said second table is not shown, because it is hidden by the tube *b*. Half way between the tables *l* and *s*, and parallel with them, is a double-edged cutting-knife, *w*. (Shown in the drawings, Fig. 2.) This knife is as high above the tables *l* and *s* as one side of the cubes being manufactured will measure. This knife *w* is also attached to the rods *j' j'*, and reciprocates with them.

The operation is as follows, viz: A large cake of hard sugar is put into the upper end of the tube *b*. If it is a little too thick, the edge of the side *i* shaves it to the right thickness. As the cake passes downward it is cut into thin slices by the saws *d d*. The saws *e e e* cut the slices, as they pass downward, into square strips. The lower ends of the strips reach one of the movable tables *l* and *s*. As the table moves out from under the square strips of sugar, the reciprocating knive *w* cuts their lower ends off into cubes. In doing this the other table is brought under the ends of the sugar strips, onto which they descend when the reverse motion of the rods *j' j'* carries the knife *w* in the opposite direction, and its other edge cuts off another tier of cubes. This operation is constantly repeated.

A thin partition is placed underneath each set of the saws *d d*—whether one or more than one set is used—in a direct line with the saws, in order to keep the sugar slabs and strips

properly separated. These partitions must be slotted to allow the saws *e e e* to pass through them.

I am aware that saws and knives like the one herein described have been used separately in various ways for cutting up sugar, but not in combination as herein described. I do not, therefore, claim any of the devices herein described when used separately and not in combination with each other.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of the reciprocating tables *l* and *s* and two-edged knife *w* with the circular saws *e e e* and *d d*, substantially as and for the purpose herein described.

2. The combination of the saws *e e e* and *d d*, standing at, or nearly at, right angles to each other and the tube *b*, substantially as and for the purposes herein described and set forth.

3. In a sugar-cubing machine, the combination of a tube having the sharp edge *i* at the upper end of one of its sides with the saws *d*, substantially as and for the purposes herein described.

4. The combination, with the frame *o* and the tube *b*, having sharp edge *i*, the sets of saws *d* and *e*, placed one set above the other, and at right angles to each other and the reciprocating tables *l s*, provided with the two-edged knife *w*, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 14th day of March, 1877.

CHRISTOPFER RAETZ.

Witnesses:
ED. J. SMITH,
EDWARD HUNTER.