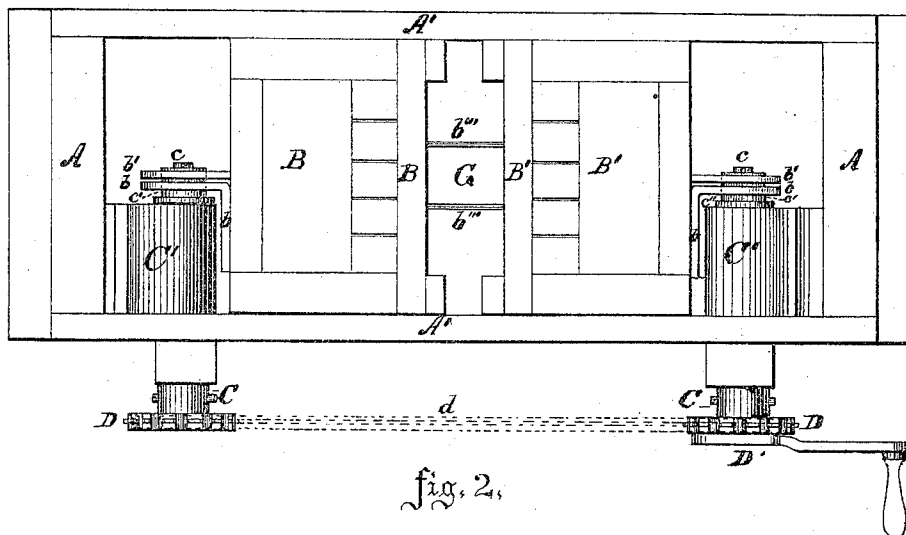
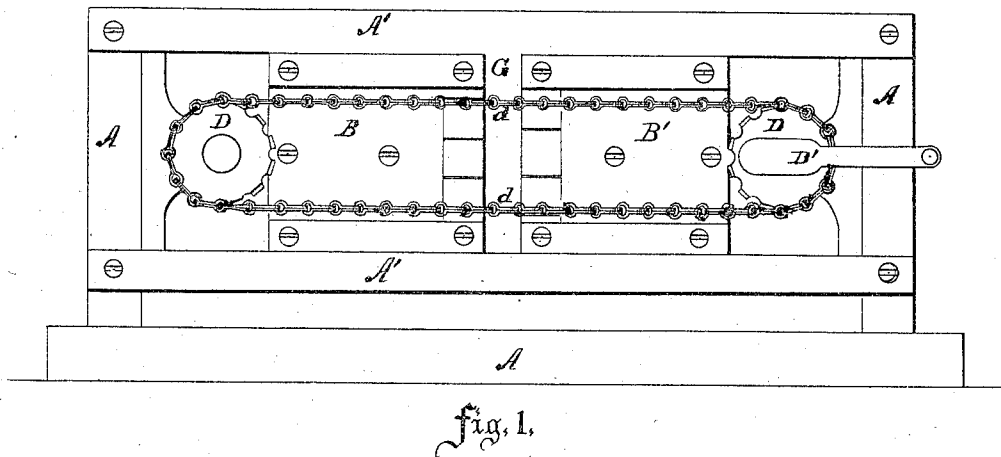


J. KING.

Improvement in Apparatus for Cutting Disks of  
Sugar into Cubes.

No. 132,911.

Patented Nov. 12, 1872.



Attest

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fig. 3,

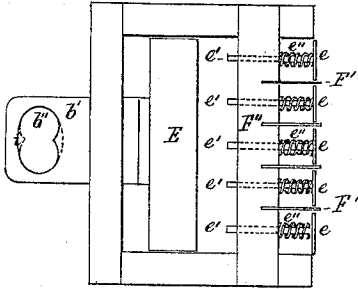


fig. 4,

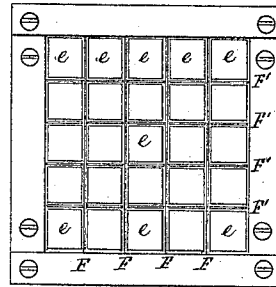


fig. 5,

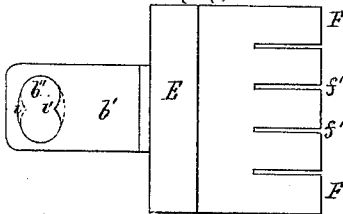


fig. 6,

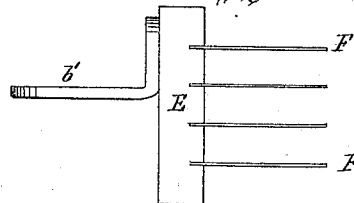


fig. 7,

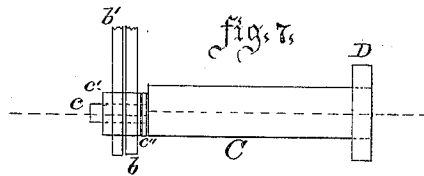
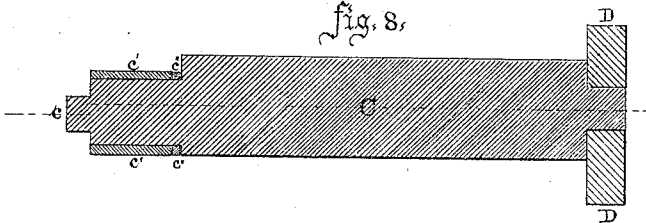


fig. 8,



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# UNITED STATES PATENT OFFICE.

JULIUS KING, OF HOBOKEN, NEW JERSEY.

IMPROVEMENT IN APPARATUS FOR CUTTING DISKS OF SUGAR INTO CUBES.

Specification forming part of Letters Patent No. 132,911, dated November 12, 1872.

*To all whom it may concern:*

Be it known that I, JULIUS KING, of Hoboken, in the county of Hudson, in the State of New Jersey, have made certain Improvements in Machines for Cutting Disks of Sugar into Cubes, of which the following is a specification:

This invention is calculated to improve the means heretofore used in any machine which has reciprocating knives or checks for cutting or checking disks of sugar into cubes by a single reciprocation, and especially that patented to me July 16, 1872, numbered 128,964; and it consists in the construction and operation of that part of the machine which cuts the slabs or disks that have been previously sawed from the loaf into cubes, as will be more fully hereinafter described.

In the drawing, Figure 1 is a side view of the machine; Fig. 2, a top view; Fig. 3 is an upright sectional view of the reciprocating holding-jaws, with their knives and spring-plates; Fig. 4 is a face view of the same; Fig. 5 is a side view of the perpendicular reciprocating cutters; Fig. 6, a top view of the same; Fig. 7, detail of the shaft and eccentric that gives motion to the reciprocating jaws and their knives; and Fig. 8 is an enlarged sectional view of the same.

A represents the framing, in which the reciprocating and holding jaws work, and A' the guides that keep the jaws in their proper position; B and B', the moving jaws that contain the cutting or checking knives. C C are horizontal shafts working in proper bearings C', that are fast on the frame A. b b are projections from the reciprocating-jaws B and B', and have an opening in the projecting end to receive a revolving eccentric, and by which the jaws and horizontal knives are reciprocated. b' b' are the connecting-plates between the moving shaft and the reciprocating vertical knives that work within the jaws, and through which the knives are reciprocated by means of the eccentric or revolving shaft C working in the opening b'' in the outer projecting end. c is an eccentric or crank pin on the inner end of the shafts C. c' is a loose sleeve, freely revolving around and upon the pin c; and c'' is a washer, loose on the same pin, and between the shoulder on the ends of the shaft and the sleeve. D D are sprocket-

wheels fast on the outer ends of the revolving shafts C. D' is a crank-winch or any other means by which motion is given to the shaft C. d is an endless-link chain that goes around one of the wheels D, the open links of which go over projections on the periphery of the wheels, so that as one wheel is revolved such motion is given that revolves the other wheel D on the opposite shaft. E E are slotted plates, into which the perpendicular slotted and reciprocating-knives F are firmly attached. f f are slots in the knives F to receive the fixed horizontal knives F' and allow the knives F to reciprocate and project beyond the face of the knives F'. F' are the fixed horizontal knives, made fast to the reciprocating jaws B and B' by means of supports F''. e e e are square plates nearly filling the space between the perpendicular and horizontal knives, are fast to pins e' that freely slide in holes in supports F''; a spiral spring, e'', around pins e' allows the plates e to be depressed when force is applied to them, and when the pressure upon them is removed the springs will force the plates forward to their normal position. b''' b''' are guide-pins to prevent the two jaws from varying in their reciprocations with relation to each other and to the knives that check the slab of sugar on opposite sides, and hold it from falling from between the jaws until made into cubes.

Heretofore, in, so far as known, all the machines that cut cube-blocks from slabs or disks of sugar, the cutting or checking knives impinged on opposite sides and cut or checked the four sides of a cube at the same instant and by the same movement, either by the reciprocation of one or both the jaws containing the checking or cutting knives; but in this improvement the operation of cutting or checking the slab or disk into cubes is entirely different and done by an entirely different contrivance, as the slabs or disks are delivered to the cutting or checking device in the same manner as in the patent above alluded to, and instead of cutting or checking the four sides of the cube, and on the opposite sides of the slab or disk, at the same time, the slab or disk of sugar is first cut into long bars the length of the diameter of the slab or disk by the perpendicular knives being forced out and projecting forward of the face of the flexible plates into the slab of su-

gar, on the opposite sides of the slab, far enough to check or cut the entire slab into bars of the width of the thickness of the slab, when, by another operation, the bars of sugar are cut into cubes by advancing the horizontal fixed knives *F'*, which simultaneously check or cut on opposite sides of the bars deep enough to fracture the bars into perfect cubes, when the two jaws recede from each other, the flexible plates forcing the cubes out of the machine, and the jaws are ready to receive the next slab to be cut into cubes in like manner.

This operation is obtained through the construction and arrangement of the actuating parts as follows: The clamping and holding jaws *B* and *B'* being open or separated from each other to their fullest extent, the endless-link chain around the wheels *D* of shaft *C*, the revolving sleeves *c'* on eccentric-pins *c*, and inserted in the openings *b''* of the plates *b* and *b'*, when the shafts *C* are revolved the eccentrics, revolving in the opening in the plates fast to the jaws, force them toward each other at the proper time to receive a slab or disk between them, and as that same motion of the shafts which moves ahead the jaws *B B'*, to which knives *F'* are firmly fastened, also moves forward the vertical slotted cutters *F*, which have advanced a sufficient distance ahead of the knives *F'*, the knives *F* will thus cut it into bars. These vertical knives will now remain stationary, as penetrated into the disk or between the bars until the jaw-boxes *B B'*, with their horizontal knives, advance and cut the bars into cubes, and at that moment the face of the knives *F* and *F'* in each jaw-box *B* and *B'* are perfectly even, and, as knives *F'* are fastened to jaw-boxes *B* and *B'*, will recede faster than knives *F*, and thus be out of their way for cutting the next deposited disk into bars.

The varying motion of the jaws *B* and *B'* and reciprocating-knives *F* is due to the form of the opening *b''* in the fast plates *b* and *b'*, and the eccentric *c* on shafts *C* revolving therein and bearing against the outer boundaries of said opening, the inwardly projections *i* being reversed or on opposite sides of the opening in plate *b* to what it is on plate *b'*, as seen in whole and broken lines in Figs. 3 and 5, where this projection *i* is seen in whole lines in one plate, and through the opening in that plate the projection *i* is seen in broken lines in the other plate beyond it.

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

1. The eccentric *c* on shaft *C*, in combination with the plate *b* with its opening *b''* and reciprocating jaw *B* or *B'*, operating in the manner described.

2. The eccentric *c* on shaft *C*, in combination with the plate *b'* with its opening *b''*, and reciprocating slotted knife *F*, constructed to operate in the manner substantially as described.

3. The combination of the revolving shaft *C* having the eccentric *c*, plate *b'*, and reciprocating slotted knife *F*, with the plate *b'* and jaw *B* or *B'*, constructed to operate substantially as herein described.

4. In a machine for cutting slabs of sugar into cubes, as above described, I claim the means for first cutting the slab into square bars, in combination with the means for cutting such bars into cubes, substantially as set forth.

JULIUS KING.

Witnesses:

OLE H. HOLBERG,  
HENRY TH. BAUER.