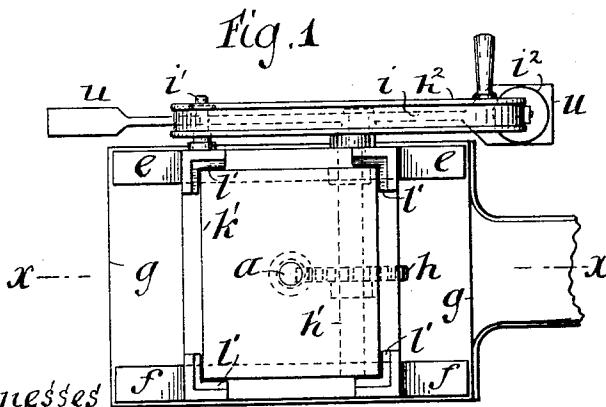
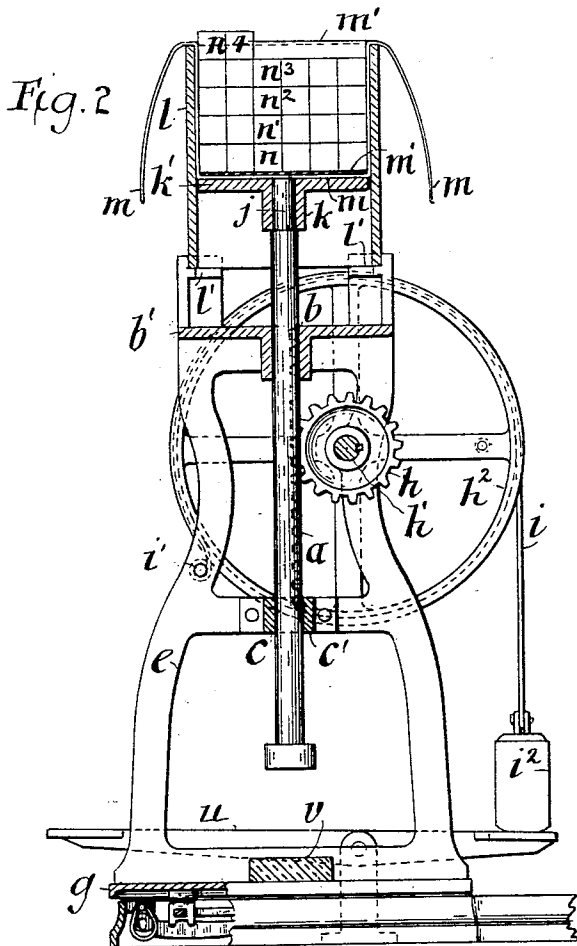


(No Model.)

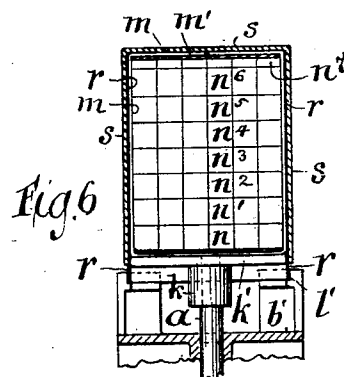
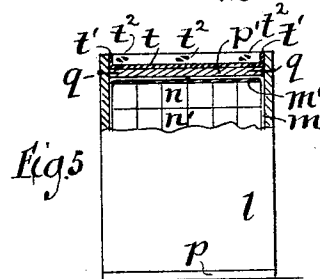
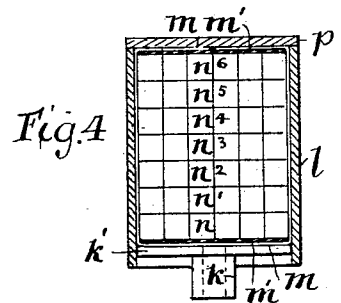
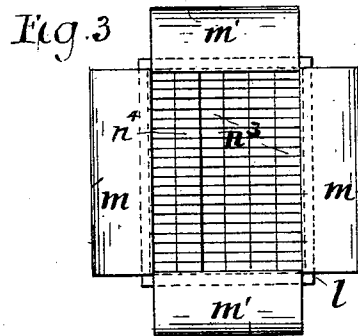
J. O. DONNER.
MACHINE FOR PACKING CUBE SUGAR.

No. 587,800.

Patented Aug. 10, 1897.



Witnesses.
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UNITED STATES PATENT OFFICE.

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MACHINE FOR PACKING CUBE-SUGAR.

SPECIFICATION forming part of Letters Patent No. 587,800, dated August 10, 1897.

Application filed December 22, 1896. Serial No. 616,602. (No model.)

To all whom it may concern:

Be it known that I, JOHN O. DONNER, of Ramsay, New Jersey, have invented certain Improvements in Apparatus for Facilitating the Packing of Prescribed Weights of Block-Sugar in Boxes, of which the following is a specification.

Sugar in the form of blocks or tablets called "domino" sugar is prepared by breaking or cutting into uniform lengths a slab of hard sugar which is of uniform width and thickness. Blocks of sugar thus produced unavoidably vary somewhat in weight because of the lack of absolute uniformity in the specific gravity of the sugar of which they are composed. In packing it is desirable that the blocks of sugar shall be closely confined, so that they will not be crumbled or broken by the attrition to which they would be liable if they were loosely contained in the box.

The objects of the type of machines to which my invention belongs are to facilitate the manual introduction and symmetrical arrangement in the box of a prescribed weight of blocks and to provide for such variable position of one of the heads of the box as will enable it to bear firmly upon the adjacent blocks of sugar and confine the mass of blocks closely between itself and the opposite end of the box.

An incidental feature of my improvement consists in mounting the apparatus upon a weighing-platform so arranged that the introduction of the desired quantity of sugar into the box will be made known by an indicator showing the increased load on the platform.

My apparatus consists of a vertically-adjustable platen adapted to traverse the interior of a vertically-arranged former rectangular in cross-section, open at its ends, and of sufficient height to contain the desired quantity of sugar. If the sugar is to be packed in a wooden box, the former, as is usual in this class of machines, may consist of the sides of the box nailed together, in which case, after the required quantity of sugar is introduced, one end of the box may be nailed to the upper ends of the sides, after which the box, together with the platen, is

turned upside down, and the platen having been removed the opposite end of the box is inserted within the sides until it bears upon the sugar and is then fastened in place. If the sugar is to be packed in a cardboard box, the "former" is made of thin sheet metal, and after the desired quantity of sugar is introduced a cardboard box open at its lower end is slipped down over the frame and, together with the former and platen, is then tipped upside down, and the platen having been then removed the open end of the box is closed by the introduction within its sides of a cardboard cover having its edges turned up and thus forming flaps, which are secured to the sides of the box usually by wire staples.

The drawings illustrate both ways of employing the apparatus.

For convenience when the former is composed of the side walls of the wooden box fastened together it is referred to as the "box," but it will be understood that the main features of the invention are equally present whether the former be composed of sheet metal, which is subsequently detached, or whether it be composed of the sides of the ultimately-finished box.

The accompanying drawings of a machine embodying my improvements are as follows:

Figure 1 is a top view. Fig. 2 is a central vertical section taken through the plane indicated by the dotted line *xx* on Fig. 1 and showing in vertical section a wooden former or box partly filled with sugar. Fig. 3 is a top view of a box in process of being filled. Fig. 4 is a vertical section of a box which has been filled and which has had its upper end nailed to the sides preparatory to removal from the machine. Fig. 5 is an elevation, partly in vertical section, showing the box removed from the machine and turned upside down and illustrating two methods of securing that one of the ends of the box which is inserted within the side walls after the platen has been lifted out. Fig. 6 is a vertical section showing the sheet-metal former filled with sugar and having a cardboard box slipped over it preparatory to its removal from the machine.

The apparatus embodying my invention consists of a vertical rack *a*, adapted to be reciprocated endwise in bearings *b* and *c*, formed in the horizontal members *b'* and *c'*, connecting the standards *e* and *f* of a suitable frame erected or supported preferably upon the platform *g* of an ordinary platform-scale. The said rack engages a pinion *h*, affixed to a horizontal shaft *h'*, upon which is a brake-wheel *h²*, normally held stationary by an embracing strap-brake *i*; secured at one end to the stud *i'* and having attached to its free end a suitable weight *i²*. The upper end of the rack is turned down to form a stem *j*, which is adapted to be inserted with a loose sliding fit in the hollow hub *k* of a rectangular platen *k'*, the width and length of which are slightly less than the width and length of the box which is to be packed. The former *l* is supported upon the rectangular shelf *l'* at the top of the frame in such wise as to permit the platen to traverse its whole length.

In operation the platen is elevated to nearly the top of the former *l*. Two strips of paper *m* and *m'* are then laid at right angles across the top of the platen and the first layer *n* of blocks of sugar standing edgewise are placed upon the top of the paper. When the first layer of blocks has been thus arranged, the platen is lowered by turning the brake-wheel *h²* in such wise as to lower the first layer of blocks until the upper surface of the layer has been carried a suitable distance below the horizontal plane of the upper end of the former, and a second layer *n'* of blocks is then deposited upon the first layer, after which the brake-wheel is further turned until the upper side of the second layer has been lowered far enough to carry it within the upper end of the former, and a third layer *n²* of blocks is then placed upon the top of the second layer. These operations are repeated until by means of the platform-scale upon which the entire apparatus rests the presence within the former of the required weight of sugar is ascertained. In the meantime the strips of paper *m m'* are drawn down in such wise as to form a lining for the vertical sides of the mass of blocks. The upper layer is composed of such a number of blocks, if necessary lying flatwise, like the layer *n²*, (shown in Fig. 6,) as may be required to bring up the weight of the mass of blocks to the required amount. The four ends of strips *m* and *m'* of paper are then folded inward, and if the former is composed of four sides of a wooden box fastened together the end board *p*, of suitable length and width, is then nailed down upon the tops of the sides, as shown in Fig. 4. The operator then turns the brake-wheel in the proper direction to suitably elevate the platen and then lifts the box, together with the platen, and having turned the box upside down and then lifted out the platen inserts within the end of the box thus presented upward the other end board *p'*, which just fits the space

between the sides. The end board *p'* is pressed down on the mass of blocks and may be fastened by nails *q q*, driven through the sides of the box, as shown in Fig. 5, or in any other convenient way.

When the blocks of sugar are to be packed in a cardboard box, the sheet-metal former *r* is employed, and when the required quantity of sugar has been introduced a cardboard box *s*, open at its lower end, is slipped down over the former, as shown in Fig. 6. The box and platen are then removed from the machine and turned upside down, and the platen and sheet-metal former are lifted out. The open end of the box is then closed by inserting in it a suitably-sized piece of the cardboard *t*, having its edges turned up and forming the flaps *t' t'*, which are then fastened to the sides of the cardboard box by clenched staples *t²*, as illustrated in Fig. 5, it being of course understood that in the case of the cardboard box the wooden head *p'* need not be used and that the cardboard end piece *t* is pressed down closely upon the mass of sugar in the box. The platen is held stationary in any position which may be desired by the tightening upon the brake-wheel *h²* of the strap-brake *i* under the influence of its weight *i²*, which, as will be seen in Fig. 1, normally bears upon and rocks downward the short arm of a foot-lever *u*. When occasion arises for the turning the brake-wheel, the operator presses his foot downward upon the longer arm of the lever *u*, and thus frees the brake-wheel from the grip of the brake. For abundant caution the cushion *v* is provided for receiving the impact of the lower end of the rack *a* when the rack is permitted to fall to its lowest position.

By either of the expedients described, whether the sugar be packed in a wooden box or in a cardboard box, the mass of sugar is closely confined between the opposite ends of the box, and is thereby sufficiently protected from being crumbled by attrition when the box is handled.

What is claimed as the invention is—

1. A former, substantially such as described; a platen for traversing the interior of said former; an endwise-reciprocable rack for supporting said platen; a pinion engaging the teeth of said rack and affixed to a horizontal shaft mounted in bearings upon the frame of the machine; a brake-wheel affixed to said shaft; a brake-strap for holding said brake-wheel stationary and thereby maintaining said platen at appropriate elevations, and means for disengaging said brake-strap from said brake-wheel and thereby releasing said rack, platen and the load thereon to the influence of gravity, as and for the purposes set forth.

2. A former, substantially such as described; a platen for traversing the interior of said former; an endwise-reciprocable rack for supporting said platen; a pinion for actuat-

ing said rack, said pinion affixed to a horizontal shaft mounted in suitable bearings upon the frame of the machine; a brake-wheel affixed to said shaft; a brake-strap affixed at one end to the frame of the machine and having its free end provided with a weight, and a foot-lever for raising said weight and thereby, when desired, freeing said brake-wheel from the grip of said brake-strap.

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Witnesses:

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