(No Model.) 2 Sheets—Sheet 1.

O. PIMIENTA.

SUGAR PACKING MACHINE.

No. 427,108. Patented May 6, 1890.

Fig. 1.

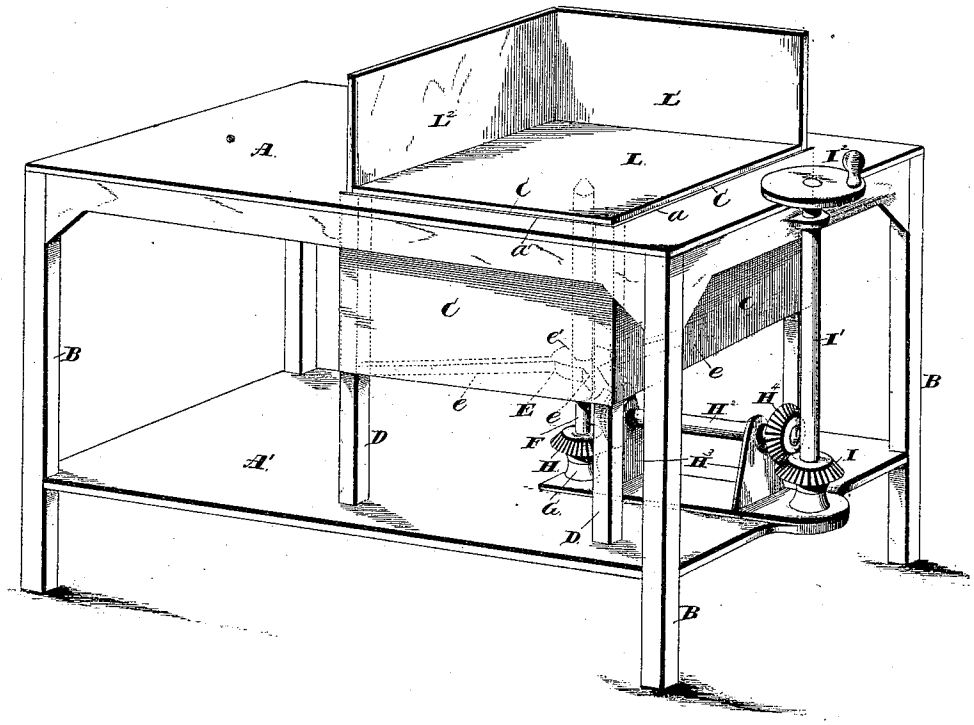
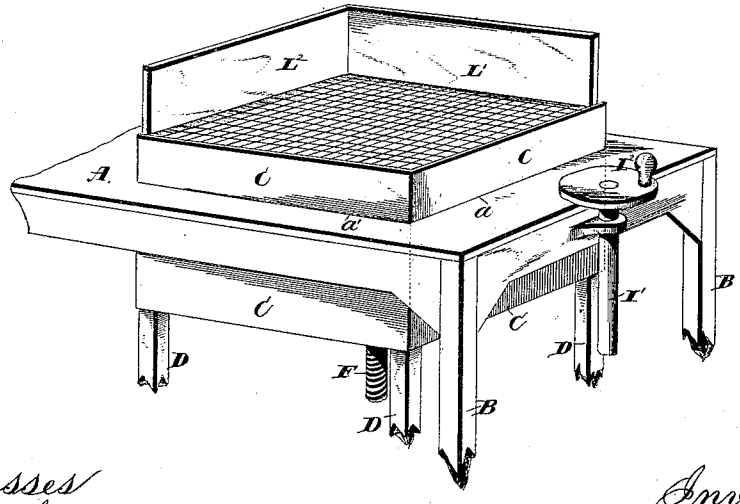


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

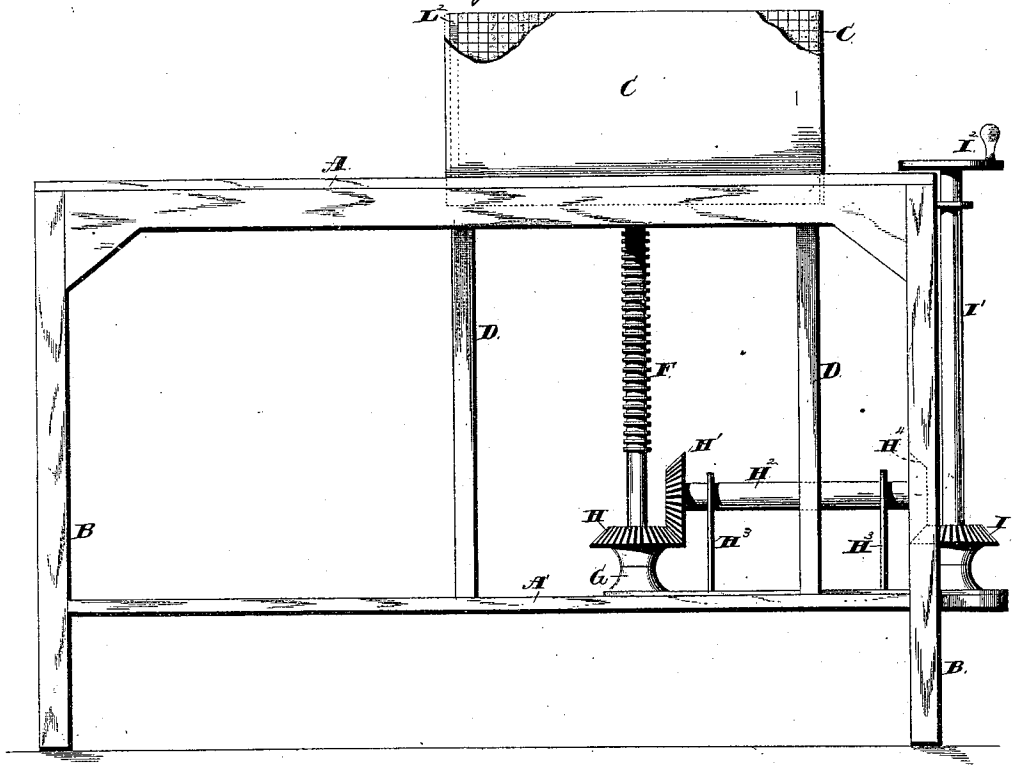


Fig. 4

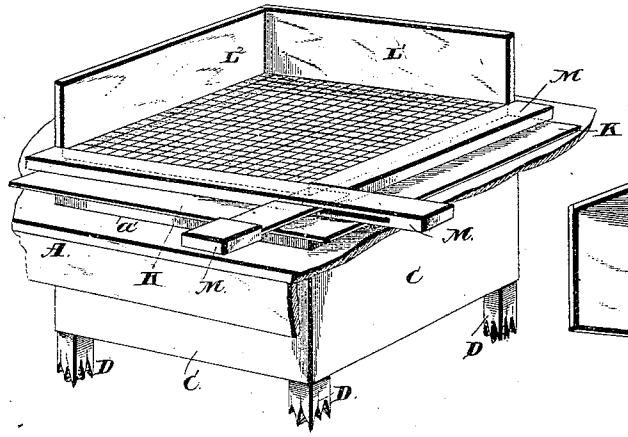
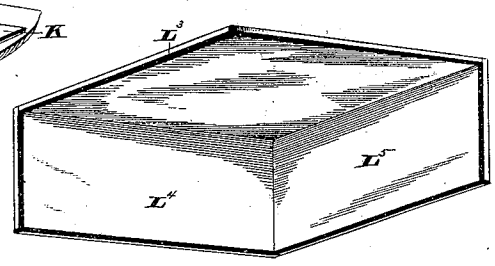


Fig. 5.



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UNITED STATES PATENT OFFICE.

OCTAVIO PIMIENTA, OF CARDENAS, CUBA.

SUGAR-PACKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 427,108, dated May 6, 1890.

Application filed June 23, 1888. Renewed October 28, 1889. Serial No. 328,373. (No model.)

To all whom it may concern:

Be it known that I, OCTAVIO PIMIENTA, of Cardenas, in the Island of Cuba, have invented certain new and useful Improvements in Sugar-Packing Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 shows a perspective view of my packing-machine ready for operation; Fig. 2, a similar view of a part of the machine after the packing has been partially completed; Fig. 3, a view of the machine in side elevation, showing the movable square or retainer as raised, the mass of cubes being ready for the placing of the top and the remaining two contiguous sides of the packing-box; Fig. 4, a detail perspective view showing the method of compacting the sugar cubes into a layer and depositing such layer in place within the portion of the packing-box on the table, and Fig. 5 a perspective view showing the half of the packing-box which is to be placed over the compacted mass of sugar cubes to complete the inclosing of the same.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to provide an improved apparatus or machine for packing lump sugar and other materials in layers within a suitable packing-case; and to this end my invention consists in the machine or apparatus and in the construction, arrangement, and combination of the parts thereof, as hereinafter specified.

In my pending application, Serial No. 215,480, for United States Patent I show and describe certain mechanism for packing cubes of sugar and other bodies in layers. By such mechanism the cubes of sugar or other bodies are compacted together into layers, which are successively placed one upon another within a receptacle of substantially the same size as the interior of the packing-box to be used. This receptacle or forming-case has two contiguous sides higher than its other sides by about the thickness of one of the layers. In putting the layers within the receptacle or case a carrier-plate upon which are the cubes of sugar delivered from the mold or cutter is placed with two of its sides against the two raised sides of the receptacle. The other two sides of the layer on the plate are engaged by the two arms of the compacting-tool, and the plate is withdrawn, thus leaving the layer in place in the receptacle or temporary casing. Such receptacle is then raised to entirely inclose the sides of the layer just deposited and make ready for the reception of another layer. When the required number of layers have been collected in one mass, the desired packing-box, with its top removed, is inverted and placed down over the receptacle or forming-case. Such receptacle is then lowered, and, the mass of layers within being held in place by a plate or movable table, the packing-box is turned right side up again, and after the removal of the temporary holding-plate its cover is nailed on. I show and describe in such application a certain device for best and most readily compacting the layer of cubes or lumps of sugar on the carrier-plate upon which they are delivered by the mold or cutter. Such compacting device I prefer to use with my present apparatus, and it will therefore be described and shown, while not claimed, in the present application.

By my invention, as will be set forth fully hereinafter, the layers of sugar or other bodies, instead of being placed in a temporary receptacle or casing, are deposited from the carrier-plates directly within a portion of the packing-box in which they are to be inclosed for shipment. All that needs to be done then after the mass of layers has been formed is to put on and fasten in place the rest of the box.

In the drawings, A designates a table, which may be of any desired material and supported in any suitable way. As shown, there are four uprights or supporting-standards B, one at each corner of the table, which in plan view are rectangular in shape. I do not, however, limit myself to the shape of table or arrangement of the legs or supports shown. Below table A is a platform or second table A′ for securing and supporting some of the operative parts of the mechanism. In the upper table A is a slot or narrow opening *a*, extending transversely with reference to the table. Such slot is substantially equal in length to one of the sides of the packing-box

to be used to inclose the cubes of sugar or other bodies to be packed by the machine. From one end of this slot *a* another slot *a'* extends at a right angle toward the rear or farther side of the table A. Such slot is of a length substantially equal to or a little greater than the length of one of the ends of the packing-box. Sliding up through these two connected slots are the two thin plates C C, preferably of metal and joined together at their abutting ends. When raised through the table A, the two plates will obviously be adapted to form a partial casing to inclose two sides of a rectangular mass of material of the size to fit the packing-box to be used for the material packed by the machine. For raising and lowering this part casing, as desired, and guiding it in its movements I have provided the following mechanism: Extending from the lower table A' to the upper one A are the vertical posts D D D, three in number, whose outer faces are close to and on the inner side of the planes of the inner sides of the slots *a a'*. One of these posts is at the angle where the two slots join together, so that it engages and guides with its two contiguous outer sides the two plates C C, forming the front side and end of the movable part casing described above. The remaining posts D D are situated so as to engage, respectively, the inner faces of the casing front and end at or near their outer ends.

Under the table A is a follower-frame E, provided with the three arms *e e e*, one attached to the two plates C C of the movable part casing at the angle of such casing and the others to the outer ends of the front and end plates, respectively. At *e'* the follower is provided with a block or hub, which is threaded to engage the threads of the upright screw F. The follower-arm *e* which is attached to the movable part casing at the angle thereof is preferably shaped at its outer end so as to embrace the corner-post between it and the two sides of the casing. I contemplate making the other follower-arms also with sockets or recesses to engage the respective end or outer posts D D, so as to guide the follower and the attached casing most steadily in their movements up and down.

The lower end of the shaft of screw F is journaled in a bearing G on the lower table A', and upon this shaft just above the bearing is a bevel gear-wheel H, meshing with and driven from the corresponding gear-wheel H' on the counter-shaft H^2, journaled in bearings H^3 H^3, also supported on table A'. On the forward end of this counter-shaft is another bevel gear-wheel H^4, meshing with and driven from the gear-wheel I on the upright shaft I', provided at its upper end with a suitable hand wheel or crank I^2 within reach of the one operating the machine and placing the layers in place. This upright shaft is journaled in and supported by suitable bearings on the tables A and A'.

With the construction described and shown the part casing C C can obviously be raised and lowered through the table A by turning the hand-wheel I^2 one way or the other, so as to cause the screw to raise or lower the follower.

I do not limit myself to the particular construction and form of mechanism for moving the part casing. Other forms of gearing and other connections by which the operator can adjust the height of the casing can be used, as desired, without departure from my invention.

The operation of my apparatus is briefly as follows: One half of the packing-box, such half consisting of the bottom L and two contiguous sides L' L^2, is placed on table A, with those edges of its bottom to which no sides are attached placed close to the slots *a a'*. With the part casing lowered, so as to expose the box-bottom, a carrier-plate K, on which are the cubes or lumps of sugar as delivered by the mold or cutter, is placed on the box-bottom with two of its sides in contact with the box-sides. By means of the compacting and pushing device M, consisting, like that shown and described in my said other application, of two connected bars adapted to engage the two contiguous sides of the layer of sugar blocks on the plate which are opposite to the upright box-sides, the sugar blocks are pushed together and compacted. The carrier plate is then withdrawn, while the compacting device is held to inclose the compacted layer of sugar between the two bars of the device and the box-sides. The hand-wheel is then turned to cause the screw to raise the part casing, so that the plates C C thereof will engage and hold the contiguous sides of the layer not engaged by the sides of the packing-box. The above operation is repeated until the requisite number of layers have been deposited one upon the other and the mass of layers is inclosed between the box-sides and the plates of the part casing. The other half of the packing-box, consisting of the top L^3 and two contiguous sides L^4 L^5, is then placed over the compacted mass, and when the part casing has been lowered through table A this half of the box is nailed or otherwise fastened to the other half-box and the packing is completed. As soon as the top and sides of the box thereto attached are placed over the mass of layers the whole box, with its contents, can of course without trouble or danger of loosening the layers be removed to any place for nailing or fastening up.

Instead of having the narrow slots *a a'* in the table for the passage of the part casing, a rectangular opening can be provided, suitable supports being then furnished upon which the packing-box bottom can be rested.

Having thus described my invention, what I claim is—

1. In a machine for packing bodies in layers, the combination, with a suitable support for receiving a half packing-box consisting of the bottom and two contiguous sides, of a mov-

able part casing for temporarily taking the place of the other two sides of the box, so as to hold the layers in place until the putting together of the layers is completed, substantially as shown.

2. In a machine for packing bodies in layers, the combination, with a suitable support for receiving a half packing-box consisting of the box-bottom and two contiguous sides, of the movable part casing adapted, when raised, to engage and hold the sides of any layer placed in the half-box which are opposite to those engaged by the box-sides, and mechanism for raising and lowering the part casing at will, substantially as and for the purpose set forth.

3. In a sugar-packing machine, the combination, with the table provided with the two connected slots at right angles to each other, of the part casing consisting of the two upright plates at right angles to each other and in position to be raised through the slots in the table, and means for raising and lowering such casing, substantially as and for the purpose shown.

4. In an apparatus adapted to pack lumps of sugar in layers within a packing-box, the combination, with a suitable support for a half packing-box consisting of a bottom and two contiguous sides, of a compacting device to engage two contiguous sides of a layer of lumps and compact the layer against the two box-sides, the movable part casing to engage the sides of the compacted layers opposite to those engaged by the box-sides, and means for raising and lowering the part casing, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of May, 1888.

OCTAVIO PIMIENTA.

Witnesses:

ROBERT BARRINAT,

S. DE LA VEGA.