No. 616,679. Patented Dec. 27, 1898.

L. MAY.

APPARATUS FOR MOLDING MASSE-CUITE.

(Application filed Dec. 29, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig.1.

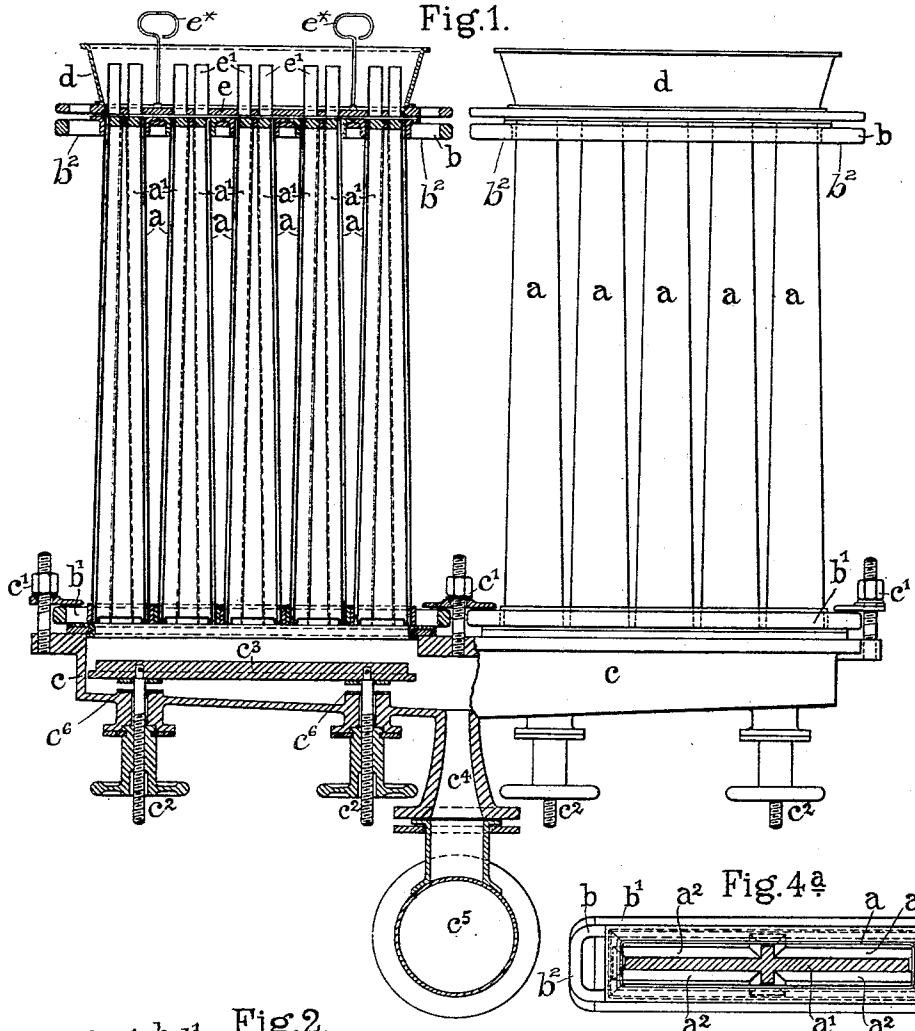

Fig.4.

Fig.2.

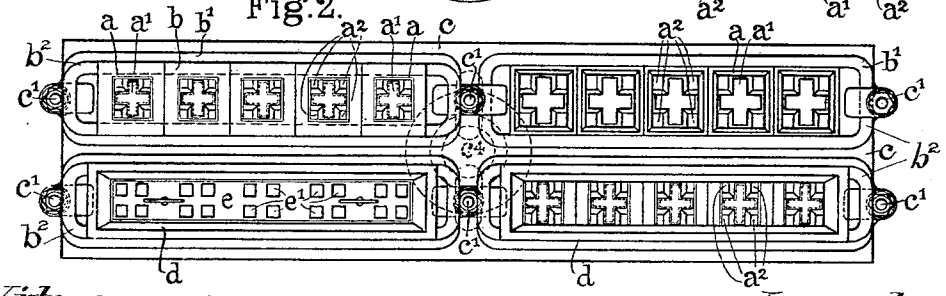

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Fig. 3.

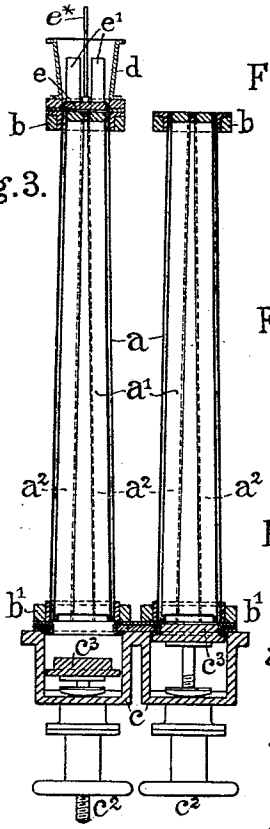


Fig. 4d.

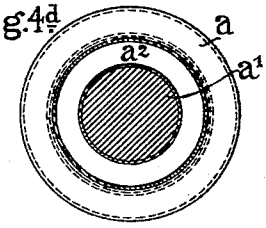


Fig. 4c.

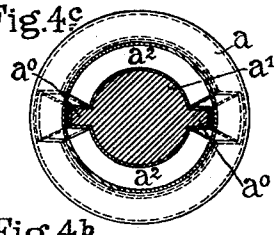


Fig. 4b.

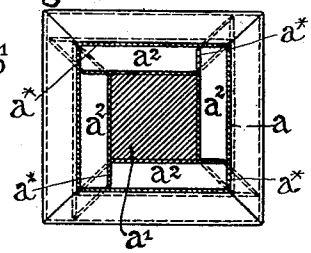
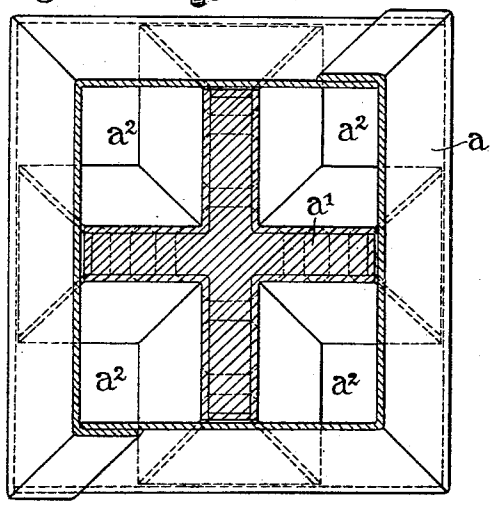


Fig. 4.



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UNITED STATES PATENT OFFICE.

LEOPOLD MAY, OF VIENNA, AUSTRIA-HUNGARY.

APPARATUS FOR MOLDING MASSE-CUITE.

SPECIFICATION forming part of Letters Patent No. 616,679, dated December 27, 1898.

Application filed December 29, 1897. Serial No. 664,408. (No model.)

To all whom it may concern:

Be it known that I, LEOPOLD MAY, a subject of the Emperor of Austria-Hungary, residing in the city of Vienna, in the Empire of Austria-Hungary, have invented a new and useful Improvement in Apparatus for Molding Masse-Cuite and Analogous Substances into Bars or Strips, of which the following is a specification, and for which there have been granted an Austrian patent, No. 47/4,117, dated October 28, 1897, and a Belgian patent, No. 130,687, dated September 15, 1897.

This invention consists in the combinations hereinafter described and claimed of mold-bodies and cores and appurtenances thereof by which partly-fluid substances, such as the masse-cuite of sugar-refiners, are molded into bars of a desired cross-sectional form and treated with clairce or any liquid clarifying agent.

Figure 1 of the accompanying drawings shows, partly in longitudinal section and partly in elevation, a bar-molding apparatus embodying my invention. Fig. 2 shows in part a plan and in part a horizontal section; Fig. 3, a transverse vertical section. Figs. 4, 4^a, 4^b, 4^c, and 4^d illustrate in horizontal section, on a larger scale, various forms of the mold body and core.

Two important elements of the apparatus consists, as may be understood by reference to Fig. 4, of a hollow mold-body a and a hollow core a' of suitable form. In the example represented in that figure the mold-body consists of an upright tube of square horizontal section open at top and bottom, and the core is a tube of cross-shaped horizontal section closed at the top and bottom, the edges of the arms of the cross fitting within the walls of the mold-box, so as to form therein four cavities a^2, which are open at top and bottom and which constitute as many molds, into which the mass to be molded—masse-cuite, for example—is charged for the purpose of producing bars, strips, or slabs.

The mold-body a and core a' are preferably made conical or tapering upward in the direction of their length for the purpose of facilitating the removal of the core with the molded bars, strips, or slabs from the tubular mold-body in a direction lengthwise of the latter. Such a mold-body and core may of course be made of any other suitable cross-section. Thus, for example, in Fig. 4^a the mold-body a is made of an oblong rectangular cross-section, into which there is inserted a core consisting of a tube a' of cross-shaped cross-section, which is closed at top and bottom and has two short and two long arms corresponding with the inside of the tube, so as to form in the tube or body a four cavities a^2 or molds of oblong rectangular cross-section for the production of slabs from the masse-cuite.

In Fig. 4^b the tube a, constituting the mold-body, is of square cross-section, and into it is inserted the inner tube a', closed at top and bottom, which constitutes the core and which is also of square cross-section, the four side walls of said tube a' severally projecting outward beyond the adjacent side, so as to form wings a^* and form in the tube or mold-body a the four hollow mold-cavities a^2 (which are also of flat rectangular cross-section, for the reception of the masse to be molded.

In Fig. 4^c the tube or mold-body is represented as circular in cross-section, and the inner tube or core a' is of corresponding cross-section, but has provided on it oppositely-situated projections or ribs a^0, running lengthwise of it. By this means there are formed in the tube or body a two mold-cavities a^2 of semi-annular shape in cross-section for the reception of the masse-cuite, so that therefore in this arrangement two bars of semi-annular cross-section are produced.

Obviously the tube a and core a' may instead of being cylindrical have an elliptical or similar cross-section.

The core a' of cylindrical cross-section may, as shown in Fig. 4^d, also be made without the projections a^0—that is to say, it may have a smooth outer surface and be inserted in the outer tube or mold-body a, so that in the latter there is formed only a hollow space a^2 of annular cross-section for the reception of the masse-cuite. With this arrangement there is therefore formed only one bar of annular cross-section.

The two last forms can be made easily and

cheaply, and also the formation of the bars of sugar or the like in these molds has been found to be extremely advantageous.

As shown in Figs. 1 to 3, any desired number of the above-specified mold-bodies *a*, of which the form shown in Fig. 4 is selected by way of example, are associated together and fixed at their upper and lower ends, respectively, into frames *b* and *b'*, provided with handles b^2, and the hollow bodies thus united in a group or a bundle are placed upon a tight drainage-box *c* and attached thereto by means of clamping-screws *c'*, provided on the latter.

The mold-bodies *a* may of course be fastened singly in frames *b b'*, provided with handles, and be attached upon the box *c*. This is particularly advisable in cases where the mold-bodies *a* are of large size, as shown, for example, in Fig. 4^a.

The box *c* is provided at its upper surface with apertures, which are surrounded by packing-surfaces and correspond with the lower mouths of the bundle of mold-bodies placed upon it, which apertures are adapted to be closed by means of plates c^3, which can be moved up and down from outside the box *c* by means of suitable adjusting devices c^2—nuts and screws, for example. When raised, the plates c^3 constitute the bottoms of the mold-cavities a^2, which are formed in the mold-bodies *a* by the inserted cores *a'*, as shown at the right hand of Fig. 3.

From the bottom of the box *c* there projects an outlet c^4, which is common to all the apertures in the top thereof and which is connected with an air-pump c^5. Upon the upper frame *b* of each bundle of molds there is placed a cup-shaped receiver *d*, which is open at top and bottom and is provided with handles on its sides and with a packing edge on its under surface and into which receiver is introduced the fluid masse, which runs therefrom into and fills the hollow mold-spaces a^2, formed in the mold-bodies *a*.

Into the receiver *d* there is inserted a perforated plate *e*, which is provided with handles *e** and which forms at the same time a removable bottom for said receiver, and to the perforations of which there are connected upwardly-projecting tubes *e'*, which are situated exactly over the mold-cavities a^2 of the bodies *a* and which have a cross-section corresponding exactly to that of said cavities.

By inserting the plate or bottom *e* into the masse, which is still fluid and in excess in the receiver *d*, the masse is forced into the tubes *e'*, and thus in addition to making up for the contraction of the masse caused by settling in the mold-spaces also forms feeding-heads for the molded bars, which feeding-heads can be separated quite smoothly by lifting off the plate or bottom *e* from the solidified bars.

After the removal of the plates *e* the clairce is poured into the receiver *d*, which sits tight upon each bundle of molds and which also constitutes a measuring device for the necessary amount of clairce, and then the plates c^3 are moved down by means of the adjusting devices c^2 until they bear against rubber disks c^6, (see Fig. 1,) which serve to make tight joints for the apertures of the plate-adjusting spindles. Then the air-pump c^5 is set in operation, whereby the drainage-box *c* is deprived of air, and the molasses is drawn by suction from the sugar bars and its place is taken up by the clairce.

When the whole of the clairce has entered the sugar bars, the suction process is interrupted, and after loosening the clamping-screws *c'* all the bundles of molds are moved from the drainage-box *c* and are placed into a centrifugal apparatus, (not shown,) which expels the superfluous clairce from the sugar. After the bundles of molds have been removed from the centrifugal apparatus the molded bars or slabs are loosened one after the other by means of any suitable loosening apparatus and then removed from the molds to be further dried, if necessary, by any suitable means.

What I claim as my invention is—

1. In an apparatus for molding partly-fluid substances, the combination of a plurality of separate mold-bodies each consisting of an upright upwardly-tapering tube open at top and bottom, cores one for each of said mold-bodies fitted removably thereto, upper and lower frames for receiving respectively the upper and lower ends of said mold-bodies and holding them together in a group, a receiver for the substance to be molded placed upon the upper of said frames for simultaneously charging the several cavities between said mold-bodies and cores, and a plate at the bottom of the mold-bodies for opening and closing simultaneously all of said bodies in the group, substantially as herein described.

2. In an apparatus for molding partly-fluid substances, the combination of a plurality of separate mold-bodies each consisting of an upright upwardly-tapering tube open at the top and bottom, cores one for each of said mold-bodies fitted removably thereto, upper and lower frames for receiving respectively the upper and lower ends of said mold-bodies and holding them together in a group, a receiver for the substance to be molded placed upon the upper of said frames, a plate constituting a removable bottom to said receiver and having tubed openings corresponding in form with mold-spaces formed between the mold-bodies and cores, substantially as herein described.

3. In an apparatus for molding partly-fluid substances, the combination of a plurality of separate mold-bodies each consisting of an upright upwardly-tapering tube open at top and bottom, cores one for each of said mold-bodies fitted removably thereto, upper and lower frames for receiving respectively the upper and lower ends of said mold-bodies and holding them together in a group, a receiver for the substance to be molded placed upon the upper of said frames for simultaneously

charging the several cavities between said mold-bodies and cores, a drainage-box under the lower of said frames, and a plate within said box and means for operating said plate for opening and closing communication between said box and the several mold-bodies, substantially as herein described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

LEOPOLD MAY.

Witnesses:
HENRY C. CARPENTER,
GEORG SCHNABE.