May 6, 1924. 1,492,738

A. MÜLLER

APPARATUS FOR MAKING BODIES IN THE FORM OF SHELLS FROM PLASTIC CHOCOLATE OR THE LIKE

Filed March 17, 1921

Fig. 1.

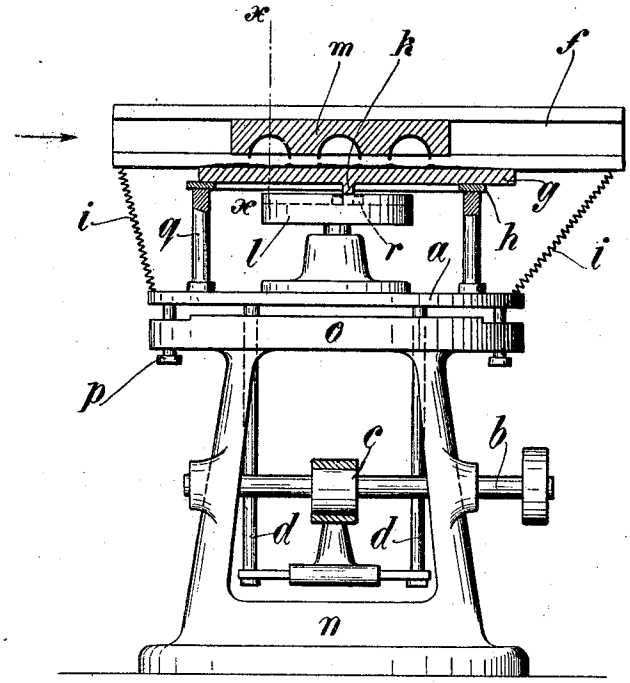


Fig. 2.

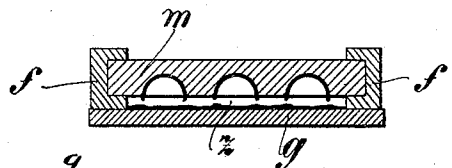
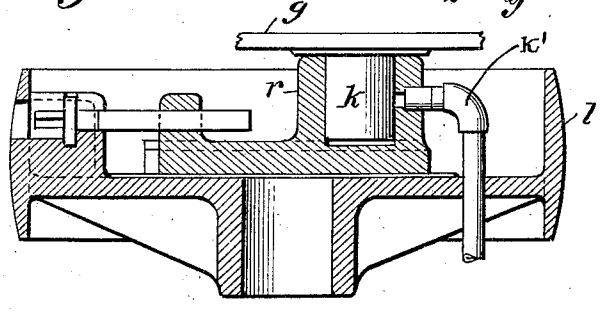


Fig. 3.



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ALFRED MÜLLER, OF SUDENDE, BERLIN, GERMANY.

APPARATUS FOR MAKING BODIES IN THE FORM OF SHELLS FROM PLASTIC CHOCOLATE OR THE LIKE.

Application filed March 17, 1921. Serial No. 453,145.

(GRANTED UNDER THE PROVISIONS OF THE ACT OF MARCH 3, 1921, 41 STAT. L., 1313.)

To all whom it may concern:

Be it known that I, ALFRED MÜLLER, engineer, a citizen of the German Republic, residing at Sudende b/Berlin in Preussen, Germany, have invented certain new and useful Improvements in Apparatus for Making Bodies in the Form of Shells from Plastic Chocolate or the like (for which I have filed application in Germany March 11. 1920, allowed February 17, 1922, under Patent No. 351,986, printed April 20, 1922), of which the following is a specification.

My invention relates to improvements in apparatus for making bodies in the form of shells from plastic chocolate and the like. As is known to those skilled in the art such articles are ordinarily made by hand by subjecting the moulds to centrifugal action and from time to time beating the same on a solid foundation. This operation is objectionable because it requires much strength while the production is comparatively small. In addition it is not sufficiently uniform in order to result in regular products. The object of the improvements is to provide an apparatus for mechanically operating the moulds in the manner heretofore used in the operation by hand. With this object in view my invention consists in providing mechanically operated means for subjecting the moulds to centrifugal action around a vertical axis and simultaneously to reciprocating vertical movement.

In the drawing annexed:

Fig. 1 is a view partly in side elevation and partly in vertical section showing a preferred embodiment of my invention;

Fig. 2 is a detail vertical transverse sectional view taken through the mold and mold-support;

Fig. 3 is a detail vertical transverse sectional view taken through the belt-pulley for imparting to the mold a horizontal body revolution.

As shown the machine comprises a frame n having a platform o, and a supporting member in the form of a beating plate a movable relatively to the platform o in vertical direction and caught thereon by means of pins p held in suitable holes of the platform. The plate a is adapted to be reciprocated by a rotary shaft b and through the intermediary of a cam c and rods d. On uprights q rising from the plate a ring h is mounted which provides a support for a slidable disk g having at its center a downwardly projecting trunnion k. On the disk g a mould support or frame f is fastened which is adapted to receive a mould box or block m, and which is yieldingly connected by springs i with the plate a. Below the disk g, supported in plate a there is a belt pulley l adapted to be rotated in any preferred way, for example from the shaft b, and the said pulley is provided with an eccentrical and radially adjustable bearing block r engaged by the trunnion k.

By means of the rotary shaft b and the cam c the plate a and all the parts carried thereby are reciprocated in vertical direction. In addition the mould block m and its supports f as well as disk g are subjected to centrifugal action within a horizontal plane by means of the eccentric bearing block r engaging the trunnion k. Each part of the mould block describes a circular path around a vertical axis, and as in such movement it is not axially rotated the centrifugal force successively acts in all directions relatively to the mould so as to throw the plastic chocolate against the walls of the moulds over the whole circumferences thereof. The plastic matter which is thrown from the moulds is gathered upon the upper face of the disk g or within a suitable container (not shown).

As the force throwing the chocolate against the side walls of the moulds is comparatively high, I am enabled to work plastic matter which is comparatively consistent.

It will be observed that the mold cavities in the block m are approximately hemispherical in shape and are formed in the under side of the block so as to face toward the disk g, and further that this mold block is supported (by the grooved bars f) at a distance from the upper face of said disk g, whereby during the action of the machine the plastic substance will be evenly spread upon the curved walls of the cavities and the surplus material will be deposited upon the upper face of the disk g.

It will be understood that in order to load the mold, the block m is taken out of the

machine and turned upside down to bring the cavities on the upper face of the block, and that after having loaded the molds with chocolate or the like the block is turned down again and replaced in the machine in the position shown. By the operation of the machine, only the little quantity of chocolate necessary for forming the shells remains in the molds while the superfluous chocolate falls or is thrown down on the table disk *g*.

By adhesion, the chocolate sticks to the mold wall even when the mold is turned upside down. The chocolate would freely drop out in case the mold would be only beaten, i. e., vertically reciprocated, but, as the mold is not only beaten but also subjected to centrifugal action, the chocolate is thrown by centrifugal force against the mold wall and sticks thereto, so that only the superfluous chocolate drops from the edges of the mold-cavities. It is possible to regulate the thickness of the bodies to be made in the form of shells by beating more or less heavily; for instance, to get thin shells it is necessary to beat more strongly.

For convenience in oiling the bearing of wrist-pin *k*, I have provided an oil-supply pipe *k'*; this pipe will of course rotate as well as reciprocate with the mold and the driving-wheel *x*.

I claim:

1. In an apparatus for making shell shaped bodies from plastic matter, the combination, with a support for the moulds, of mechanical means to subject the support to centrifugal action by body revolution of the support, and mechanical means to impart sharply reciprocating movement to the support transversely of the centrifugal action to impart to the support a rapid beating action.

2. In an apparatus for making shell shaped bodies from plastic matter, the combination, with a support for the moulds mechanical means to subject the support to centrifugal action by body revolution about a vertical axis, and mechanical means to sharply reciprocate the support in vertical direction to impart a beating action to the support.

3. In an apparatus for making shell shaped bodies from plastic matter, the combination, with a supporting member, and means to impart reciprocating movement thereto, of a mould support slidable on said supporting member and yieldingly connected therewith, and means to bodily revolve said mould support about an axis disposed in the direction of the reciprocating movement of the supporting member.

4. In an apparatus for making shell shaped bodies from plastic matter, the combination, with a supporting member, and means to impart vertical reciprocating movement thereto, of a mould support slidable on said supporting member and yieldingly connected therewith, and means to bodily revolve said mould support about a vertical axis.

5. In an apparatus for making shell-shaped bodies from plastic material, the combination of a mold and mold-support, and power mechanism for bodily revolving said support and simultaneously bodily reciprocating it up and down so that it will give the mold a beating movement.

6. In an apparatus for making shell shaped bodies from plastic matter, the combination, with a mould support, of a rotary member connected with the mould support at a part eccentric of the axis of rotation of the rotary member, and means to prevent axial rotation of the mould support while being bodily revolved by said rotary member.

7. In an apparatus for making shell-shaped bodies from plastic material, the combination of a support member, a plate supported thereon, means for imparting a body rotation to said plate while resting on said support, means for vertically reciprocating the support and the plate during the rotation of the latter, a mold-support upon the top face of the plate, and a mold-block supported in said support and having open mold-cavities in its under side facing said plate, said mold-block being supported at a distance above the upper face of said plate.

8. In an apparatus for making shell-shaped bodies from plastic material the combination of a mold base, a reciprocable frame mounted thereon, a power means also mounted thereon for vertically reciprocating said frame, a mold table slidingly supported on said frame, power-driven means embodying a vertical shaft on said frame for imparting to said mold-table a body revolution in a horizontal plane, and means on said mold-table for supporting a plurality of mold cavities, whereby said mold cavities shall describe circles eccentric to the axis of said shaft.

In testimony whereof I hereunto set my signature.

ALFRED MÜLLER.