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A. K. BECKWITH.

MOLDING APPARATUS.

APPLICATION FILED SEPT. 9, 1903.

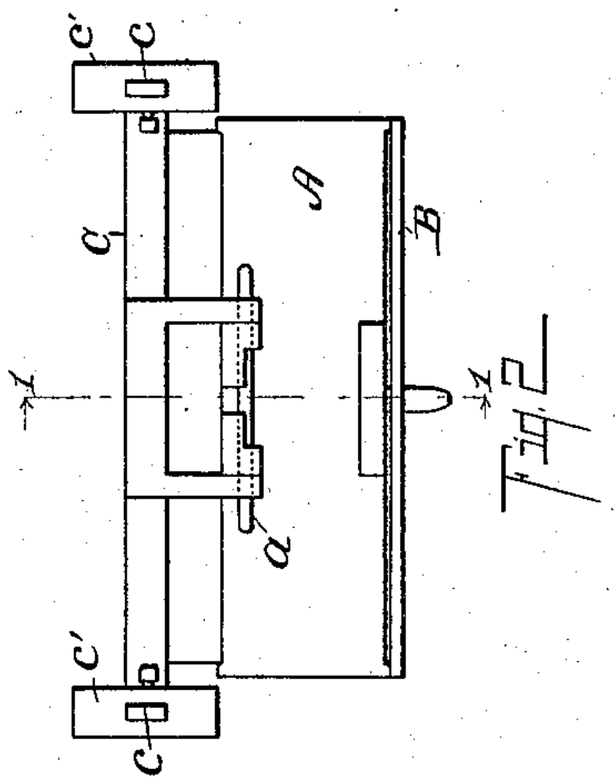


Fig. 2

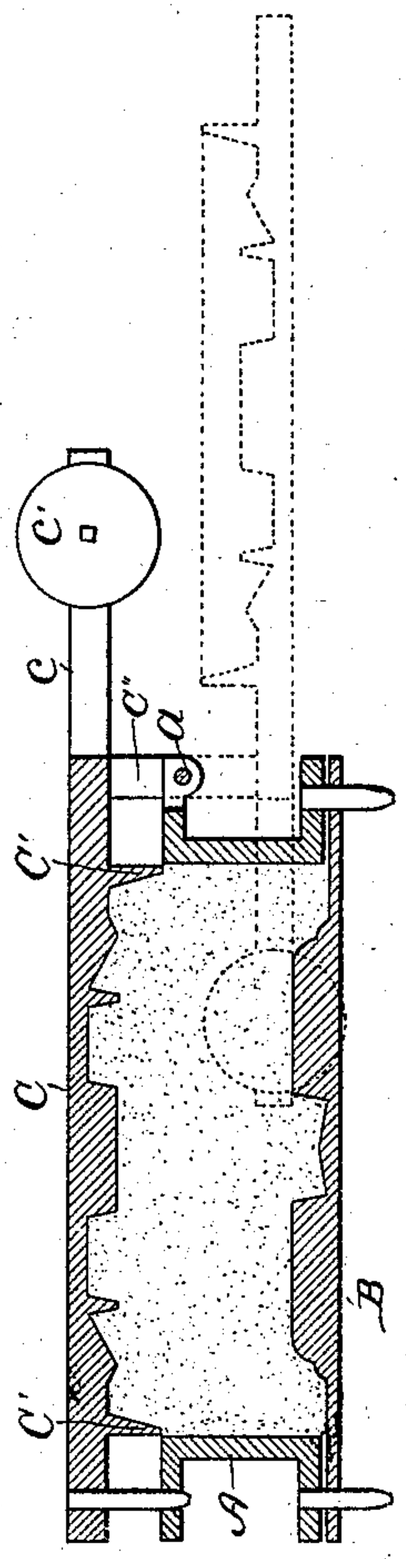


Fig. 1

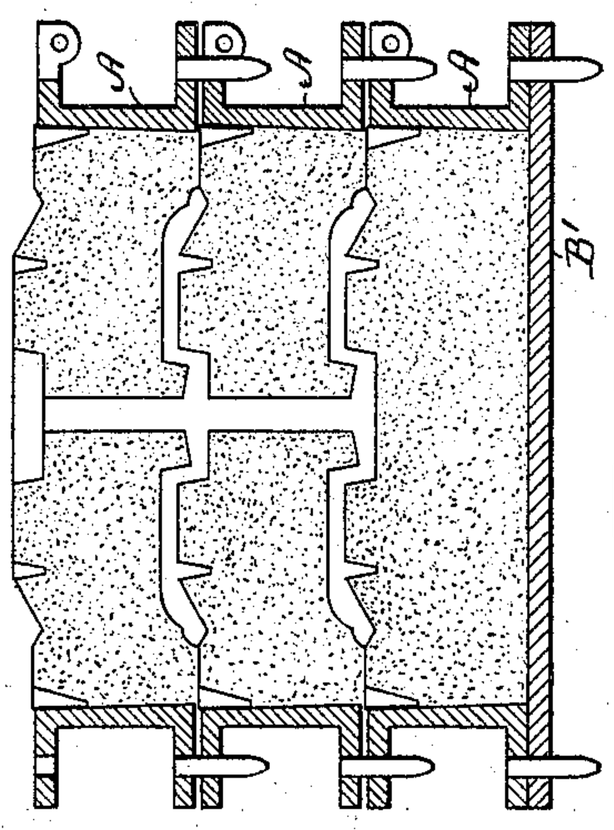


Fig. 3

Witnesses:

Glenn B. Dwight

Otis A. Earl

Inventor,

Arthur K. Beckwith

By Fred L. Chappell

Att'y.

No. 782,537. Patented February 14, 1905.

# UNITED STATES PATENT OFFICE.

ARTHUR K. BECKWITH, OF DOWAGIAC, MICHIGAN.

## MOLDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 782,537, dated February 14, 1905.

Application filed September 9, 1903. Serial No. 172,486.

*To all whom it may concern:*

Be it known that I, ARTHUR K. BECKWITH, a citizen of the United States, residing at the city of Dowagiac, in the county of Cass and State of Michigan, have invented certain new and useful Improvements in Molding Apparatus, of which the following is a specification.

This invention relates to an improved apparatus for forming a series of molds like that appearing in Letters Patent No. 738,279, issued to me September 8, 1903.

The object of this invention is to provide an efficient and satisfactory molding means whereby the flask and match-plate can be readily and efficiently brought together after they have been filled with sand or other molding material, it being an object to avoid the necessity for the interposed plate or screen of my former application before referred to.

Objects relating to details of construction will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is fully illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a detail transverse sectional view through my improved molding apparatus, taken on a line corresponding to line 1 1 of Fig. 2, the movement of the upper part being indicated by dotted lines. Fig. 2 is an elevation view of the structure appearing in Fig. 1, taken from the right hand. Fig. 3 is a detail transverse sectional view through a series of molds formed by my improved apparatus.

In the drawings the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the lettered parts of the drawings, a suitable flask A, open at the top and bottom, is provided with the usual guiding pins and ears, except that the guiding-ear *a* at one side is provided with a hinge part. A match-plate B is provided for the bottom, having a pattern on its upper side, and a match-plate C, with the corresponding part of the pattern, is provided for the top side. Suitable retaining-flanges C′, like those referred to in my former application, adapted to pass within the top of the flask A, surround the match-plate. The top match-plate is provided with downwardly-extending ears C″, which form a member to the hinge turning on the pivot or pin *a*. The top match-plate C is provided with arms *c* extending beyond the hinge, and on these are supported counterweights *c*′, which are adjustable on the said arms to form counterweights for the same. The counterweights and arms are sufficiently separated so that they will swing to each side of the flask A, as clearly appears in Fig. 2.

In operation the top match-plate C with its extended flange, is turned to the position indicated by dotted lines in Fig. 1. This portion is filled loosely with molders' sand or other molding material, which is stricken off perfectly level. The flask is also similarly loosely filled with molding sand or material and stricken off perfectly level. The operator now takes hold of the top match-plate C and by a quick motion swings it onto the hinge-pin *a* over on top of the flask. The centrifugal force retains the loose sand in position, and when the top match-plate is thus swung into position the hinge-pin *a* is removed and the whole is compressed by any suitable press or by placing a weight upon it. The mold is then removed and placed in a stack on a suitable base B′, as appears in Fig. 3, the pile of molds being extended up as far as may be desired. Suitable sprue-holes are cut through the molds before they are put in a stack. From this description it will be readily understood why the part C extends downwardly to carry the hinge member. It is so that the match-plate C of the mold A will be considerably separated when the parts are swung into position to permit the compression of the loose sand within the mold. I desire to remark, however, that by exercising great care both parts of this mold can be rammed up and the tops of each mold when in the position indicated by dotted lines in Fig. 1 stricken off

level and the top part be swung over into place and the mold thus formed without the necessity of applying pressure to the match-plate and flask. It will be found, however, that it is most expedient to fill the mold with the loose sand, withdraw the pin, and apply pressure, because this avoids the necessity for careful ramming of the entire mold.

Having thus described in detail my improved molding apparatus, the modifications will be clearly apparent to those skilled in the art to which my invention pertains. I desire to claim the invention broadly as well as specifically.

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

1. The combination of a suitable flask; a match-plate for the bottom of the same, bearing a part of the pattern; a match-plate for the top of the same, bearing the corresponding part of the pattern and provided with a retaining-flange; a counterbalance for said top match-plate; a hinge offset between the top match-plate and the flask, having a removable hinge-pin, whereby the match-plate may be quickly inverted over the flask and the hinge-pin removed and the top match-plate compressed upon the flask, for the purpose specified.

2. The combination of a suitable flask; a match-plate for the bottom of the same bearing a part of the pattern; a match-plate for the top of the same bearing a part of the pattern and provided with a retaining-flange; a hinge having a removable hinge-pin; and a counterbalance for said top match-plate, for the purpose specified.

3. The combination of a suitable flask; a match-plate for the bottom of the same bearing a part of the pattern; a match-plate for the top of the same bearing a part of the pattern and provided with a retaining-flange; and a hinge having a removable hinge-pin, for the purpose specified.

4. The combination of a suitable flask; a match-plate for the bottom of the same bearing a part of the pattern; a match-plate for the top of the same bearing a part of the pattern; a hinge having a removable hinge-pin; and a counterbalance for said top match-plate, for the purpose specified.

5. The combination of a suitable flask; a match-plate for the bottom of the same bearing a part of the pattern; a match-plate for the top of the same bearing a part of the pattern; and a hinge having a removable hinge-pin, for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

ARTHUR K. BECKWITH. [L. S.]

Witnesses:
T. W. CLYBORNE,
W. H. SAWYÉR.