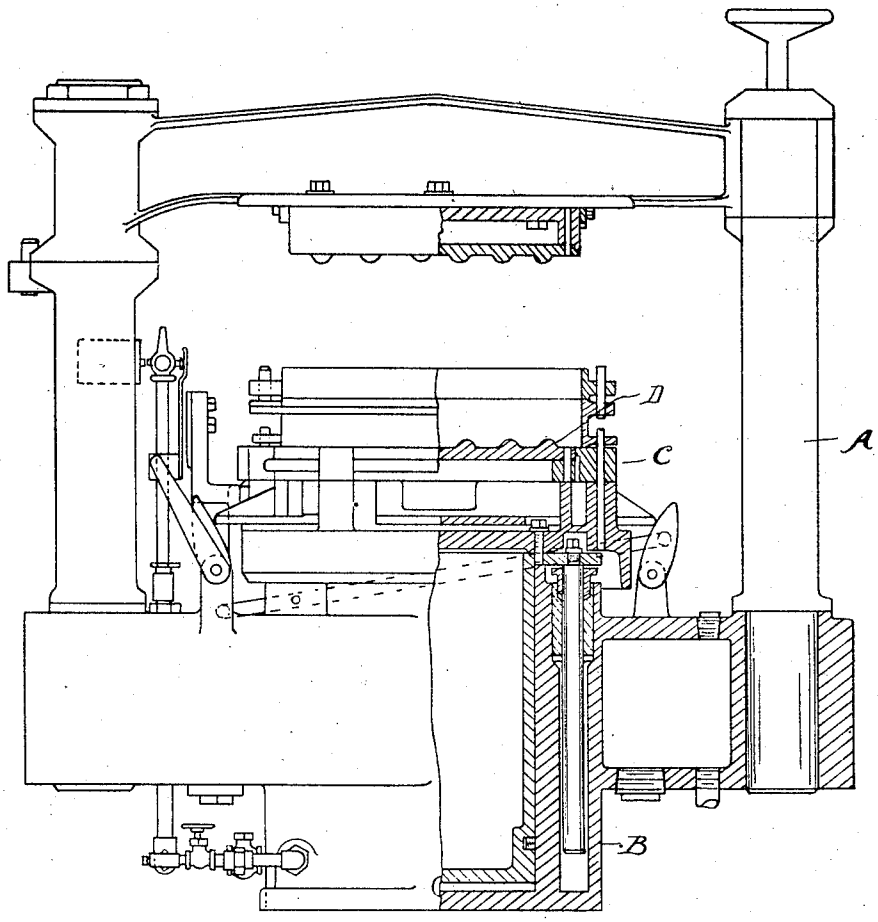
Feb. 2, 1926. 1,571,642

J. A. RATHBONE

METHOD OF FORMING MOLDS

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Fig. 1.




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Fig. 2.

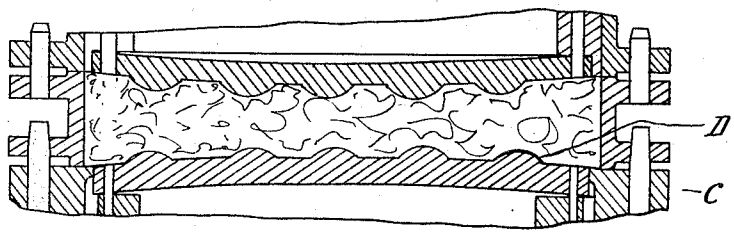



Fig. 3.

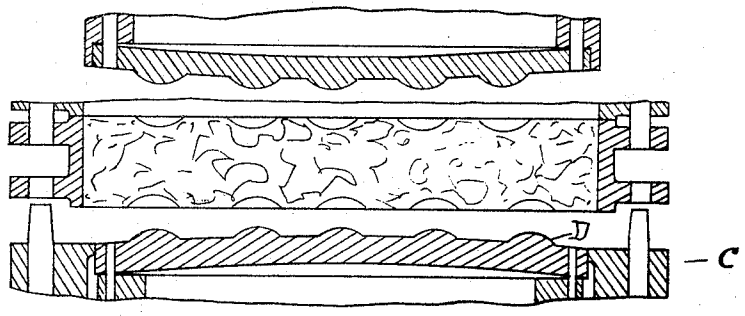



Fig. 4

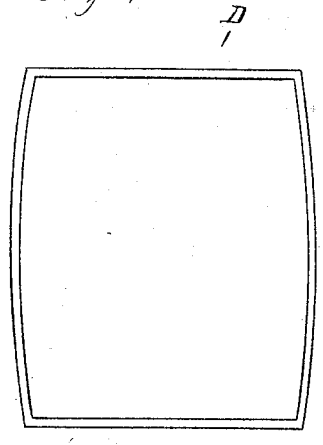
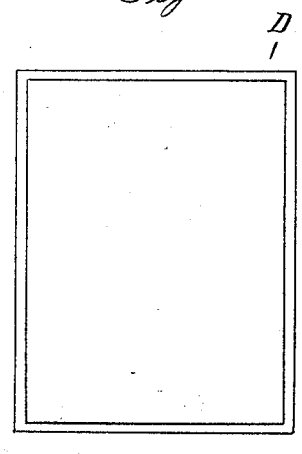



Fig. 5




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# UNITED STATES PATENT OFFICE.

JOHN A. RATHBONE, OF DETROIT, MICHIGAN, ASSIGNOR TO RATHBONE MACHINE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

## METHOD OF FORMING MOLDS.

Application filed April 28, 1924. Serial No. 709,639.

*To all whom it may concern:*

Be it known that I, JOHN A. RATHBONE, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Methods of Forming Molds, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to the method of forming molds in molding machines where the sand within the mold flask is compressed by the operation of a ram. It is the object of the invention to overcome a defect in such molds due to the springing of the flask and to this end the invention consists in the method and apparatus as hereinafter set forth.

In the drawings:

Figure 1 is a sectional elevation of the molding machine;

Figure 2 is a section showing the mold while under the pressure of the ram;

Figure 3 is a similar view when the pressure of the ram is relieved;

Figures 4 and 5 are plan views showing diagrammatically and to an exaggerated degree the changes in the flask due to the pressure of the sand and when relieved from said pressure.

The molding machine which is employed in forming my improved mold may be of any suitable construction, but comprises essentially a stationary frame A, a reciprocatory ram B, a mold flask C and one or more patterns D arranged either on one face or on opposite faces of the ram and frame. With such a construction when the sand is suddenly compressed within the flask during a quick movement of the ram, the pressure developed within the flask has to a certain extent the characteristics of fluid pressure, being exerted laterally as well as in the direction of the movement of the ram. Unless the flasks are of a very rigid construction or are reinforced in some manner, this pressure will result in forcing the opposite walls of the flask outward. When, however, the pressure of the ram is released, the resiliency of the material forming the flask will restore it to its original form, which in turn will bulge the body of sand within the flask so that it will not properly match the complementary portion of the mold.

To overcome the defect just described, I form the patterns D with a slightly warped or convex surface such as to initially produce in the mold a corresponding concave face. With this, when the pressure of the ram is relieved, the bulging effect of the contraction of the flask will change the original concave form into substantially a plane. Thus the complementary mold sections will properly match, as would not be the case without such modification in the pattern form.

The convexity of form of the pattern can be produced either by originally making the pattern in this form or by first making it with a plane face and subsequently springing this face to bulge the central portion thereof. In practice I have found that this latter method is satisfactory and simpler than the former.

What I claim as my invention is:

1. The method of forming molds in molding machines, comprising the ramming of the sand within a mold flask against a pattern warped to compensate for the lateral springing of the flask, whereby the contraction of the flask after removal from the pattern will restore the unwarped form.

2. The method of forming molds in molding machines, comprising the ramming of the sand within a resiliently yieldable mold flask against a pattern warped to compensate for the springing of the flask, whereby the contraction of the flask upon removal from said pattern will restore the unwarped form.

In testimony whereof I affix my signature.

JOHN A. RATHBONE.