(No Model.) 3 Sheets—Sheet 1.

W. S. WITHERS.

MOLDER'S JOINTLESS PLATE.

No. 279,627. Patented June 19, 1883.

Fig. 1.

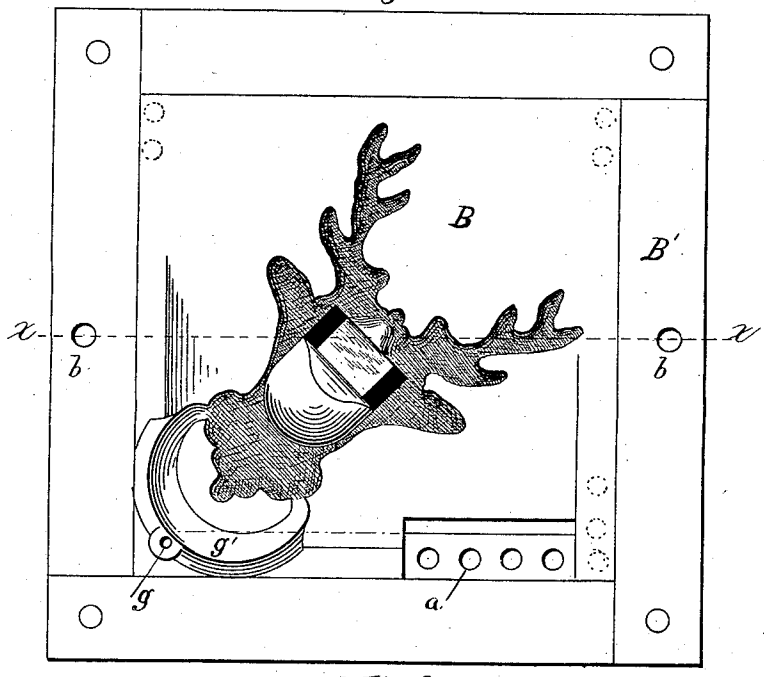
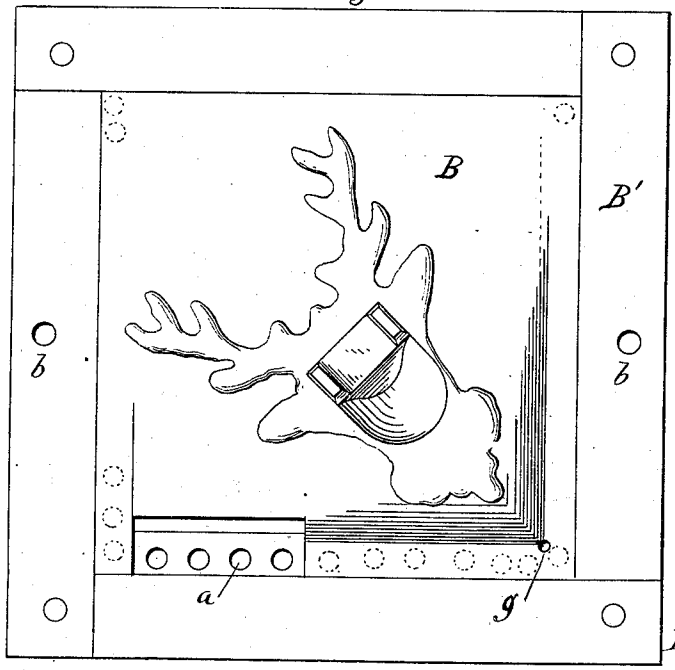


Fig. 2.



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Fig. 3.

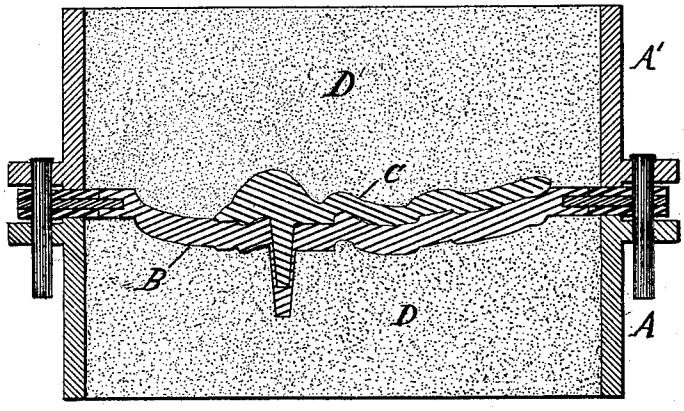
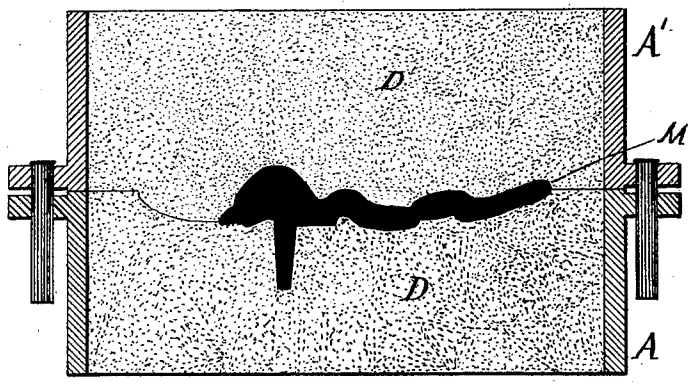


Fig. 4.



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(No Model.) 3 Sheets—Sheet 3.

W. S. WITHERS.

MOLDER'S JOINTLESS PLATE.

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Fig. 4.

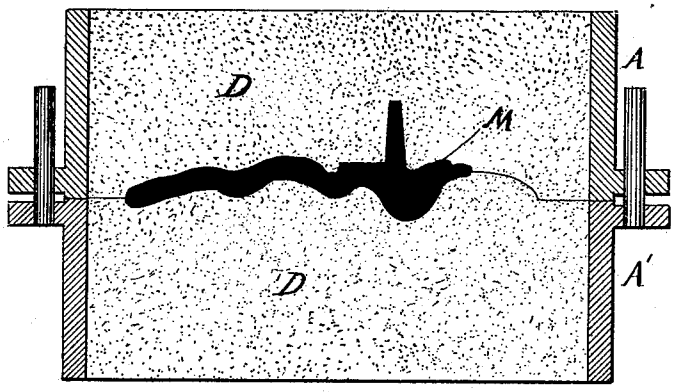


Fig. 3.

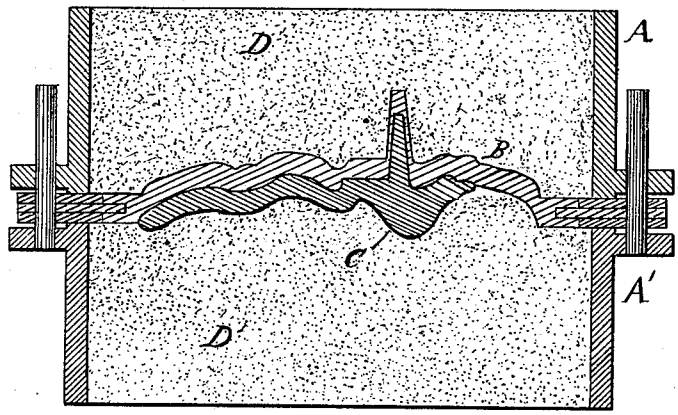


Fig. 7.

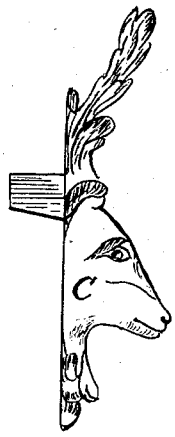


Fig. 6.

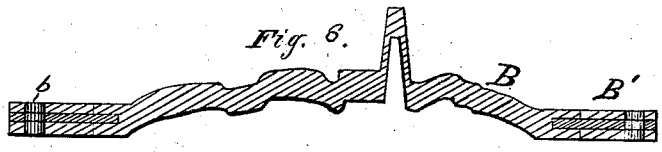
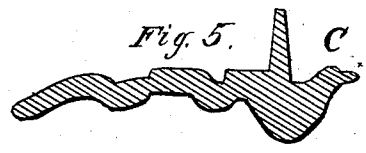


Fig. 5.



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UNITED STATES PATENT OFFICE.

WALTER S. WITHERS, OF ATLANTA, GEORGIA.

MOLDER'S JOINTLESS PLATE.

SPECIFICATION forming part of Letters Patent No. 279,627, dated June 19, 1883.

Application filed February 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, WALTER S. WITHERS, a citizen of the United States, residing at Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in Molders' Jointless Plates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in the process of molding, improved apparatus for that purpose, and the method of obtaining the same.

The object of my invention is to facilitate the operation of casting by improving the means for producing the matrix in two-part molding.

In the ordinary method skilled labor, great care, and a consequent amount of time are required to produce a perfect mold from a pattern of simplest kind; but by the employment of my invention the matrix may be rapidly and more correctly obtained. To secure the results I employ what I term a "jointless" plate, in combination with either the original pattern or one similar thereto, of metal.

My invention consists of a jointless plate having on its complementary sides a bas-relief and an intaglio representation of one side or portion only of the pattern above and below what is commonly known as the "parting-line," and in the process of obtaining the said jointless plate.

It further consists in the combination, for the purpose of molding, of the pattern united with the said jointless plate in the manner hereinafter stated, and in certain features of construction more specifically pointed out in the claim.

In the accompanying drawings, in which similar letters of reference indicate corresponding parts in each of the several figures, Figure 1 is a plan view of the jointless plate on the bas-relief side. Fig. 2 is a plan view of the reverse or intaglio side of the same. Figs. 3 and 3′ are vertical transverse sectional views of the same on the line *x x*, Fig. 1, combined with the pattern and an ordinary two-part flask in reversed positions, the cope and drag having been duly filled with molding-sand and rammed in the usual manner. Figs. 4 and 4′ are vertical transverse sections of the flask in reversed positions after the jointless plate and pattern have been removed from between the cope and drag, the matrix being ready for pouring when the flask is in the position represented by Fig. 4′. Fig. 5 is a detail transverse sectional view of the jointless plate cut at line *x x*, Fig. 1. Fig. 6 is a detail transverse sectional view of a pattern. Fig. 7 is a side elevation of the pattern.

A A′ represent, respectively, the two parts—cope and drag—of a flask constructed in the usual manner for molding purposes, having all necessary guide-pins and lugs; B, the central portion of jointless plate, composed of any suitable and easily-fusible metal, which is combined with an iron rim or frame, B′, constructed of three layers of sheet metal secured together by rivets or screws. The middle layer of the rim or frame B′ extends beyond the inner edges of the others, as indicated in Figs. 1 and 2, and is supplied with perforations *a*, as partially shown in said figures, where central portion, B, is cut away, and by means of these perforations the central portion, B, is securely riveted to the said rim or frame B′. This rim or frame B′ is furnished with guide-holes *b b*, which serve to steady the jointless plate B B′ when used in connection with a flask for molding.

C represents the pattern, which may be of any form or design.

D D represent the molding-sand inclosed by the sides of flask, which is employed to form the matrix M. (See Figs. 4 and 4′.)

My method of obtaining the jointless plate B B′ is as follows: The original pattern, or a casting used as such, is molded to the parting-line in the drag of a common two-part flask; but plaster-of-paris is used instead of sand. The drag is then upturned, after the plaster-of-paris has become hard, the pattern removed from the mold, and the cope placed in position on the drag and filled with sand and rammed. I have thus obtained in one part of the flask a bas-relief of one side or part of the pattern and in the other an intaglio impression of the

same, as will be readily understood. The rim or frame B′, previously constructed as before stated, is now placed between the cope and drag of the flask, which it fits accurately, and into the hollow space thus formed between the molds in the cope and drag is poured any easily-fusible and suitable metal, and the edges of this casting become joined with the rim or frame B′ by means of middle projecting layer and perforation therein. When the rim or frame B′, together with the central portion, B, of soft metal, joined thereto, is removed from the flask, a perfect jointless plate, B B′, is produced, bearing on its complementary sides a bas-relief and an intaglio representation of one side or portion of the pattern above and below the parting-line.

To facilitate future operations, models of the runner or gate *g′*, for pouring, together with a hole, *g*, for supporting a gate-plug, are formed in the jointless plate when it is cast as represented in Fig. 1.

To make castings by means of my combined invention, the jointless plate B B′ is placed in position between the cope and drag and the flask inverted, thus bringing the intaglio face of the jointless plate uppermost. The pattern is then installed in its place in said intaglio face and the drag filled with molding-sand D′ and rammed in the usual manner. The flask is now restored to its normal position, which brings the bas-relief face of the jointless plate again uppermost, and the cope is filled and rammed in like manner to the drag with the molding-sand D, Figs. 3 and 3′. All the parts are now in the relative location represented by the sectional view presented in Fig. 3′. It will be readily understood, therefore, that after the cope A is lifted off, the jointless plate B B′ removed from the drag A′, and the pattern C drawn from the mold therein, a matrix, M, will exist within the flask after the cope A has been replaced on the drag A′, and the work be complete and ready for pouring to make the casting, as represented in section by Fig. 4′.

In preparing molds for casting by the ordinary method a skillful hand is needed to draw the pattern, and more or less wetting and tapping are necessary to effect a good result; but the accuracy of the mold is to some degree thereby impaired. By the use of my invention the entire operation may be performed not only more rapidly, but by unskilled labor, for reasons which will be manifest to those familiar with the art, and a consequent saving of time and expense is the result.

Should the jointless plate B B′, without the pattern being installed in place on its intaglio face, be used in the operation of molding, after the plate was removed the flask would then contain no matrix, for the cope A would simply present a perfect negative of the mold formed in the drag A′. The rim or frame B′, being made to conform to the shape of the flask to which it is fitted, can be used again and again in connection with said flask after the pattern represented on central part, B, has become useless, inasmuch as said part B can be separated therefrom and a new one united therewith in a similar manner to the first, thus greatly diminishing the number of rims or frames that would otherwise be required.

In consequence of the peculiar construction of my jointless plate B B′, it is easily handled, and any design, either ornamental or plain, for molding in metal, paper, terra-cotta, or other material may be produced thereon and thereby for machinery or other purposes, and be preserved without the cumulation of heavy and cumbersome material being incurred.

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

A jointless plate for molding purposes, bearing on its complementary faces or sides bas-relief and intaglio representations of part or one side of the pattern above and below the parting-line, in combination with a rim or frame, to which it is cast in a separable manner, said rim or frame being composed of metal, substantially as shown and described, and provided with an inner projecting edge having perforations, for the purpose hereinbefore set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

WALTER S. WITHERS.

Witnesses:

O. C. HILL,

DANIEL PITCHFORD.