

N. BURDICK & J. EASTERLY.  
Molding Dovetail in Metal Casting.

No. 204,129.

Patented May 28, 1878.

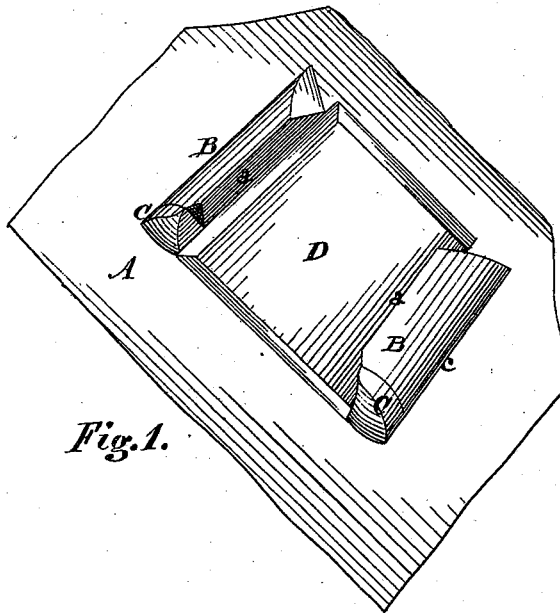


Fig. 1.

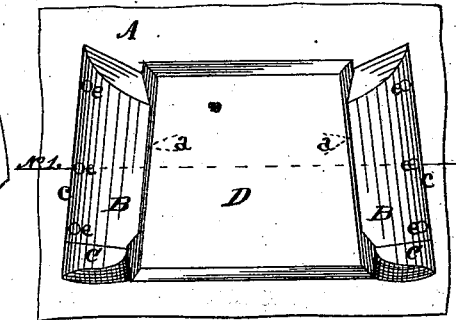


Fig. 2.



Fig. 3.

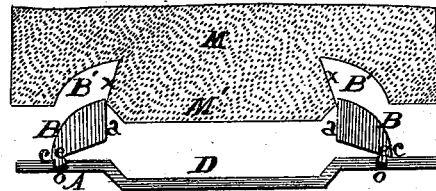


Fig. 4.

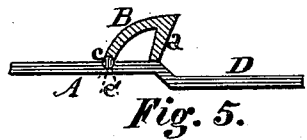


Fig. 5.



Fig. 6.

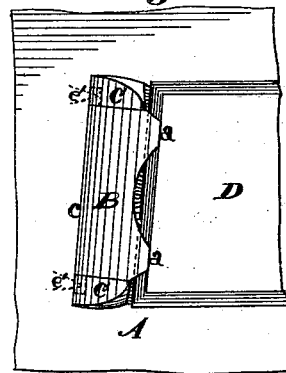


Fig. 7.

Witnesses

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# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN MOLDING DOVETAILS IN METAL CASTINGS.

Specification forming part of Letters Patent No. 204,129, dated May 28, 1878; application filed March 29, 1878.

*To all whom it may concern:*

Be it known that we, NORMAN BURDICK and JAMES EASTERLY, both of the city and county of Albany, State of New York, have invented a new and Improved Device for Molding Dovetails in Metal Castings, which improvements are fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a perspective view of the device. Fig. 2 is a horizontal view from above. Fig. 3 is a cross-sectional view taken at line No. 1 in Fig. 2. Fig. 4 is a cross-sectional view of the device and the cope or upper part of the mold. Fig. 5 is a cross-sectional view, illustrating a modification of a part of the device. Fig. 6 is a cross-sectional view of another modification of the same; and Fig. 7 is a horizontal view of another form of modification.

The object of our invention is to furnish a device connected with the pattern from which molds are made, by which perfect molding of dovetails may be made without breaking down or requiring any more special attention of the molder than would the molding of ordinary forms of patterns, and the cope part of the mold be made to operate the side pieces of the dovetail pattern or prints.

In the drawings, A represents the article or piece with which our improved dovetailing device is made for a molding-pattern. B B are the side pieces of the pattern of the mortise of the dovetail. The said side pieces are made with any degree of extension that may be selected, and with any of the forms heretofore employed by the trade, and are made with the inclined inner faces *a a* each opposite the other, as shown. The said side pieces B B are loosely connected with the main piece A at their rear or outside lower edges *c c*, while the main portion of the body of said side pieces rests on the upper or cope side of the pattern.

The devices for connecting the side pieces B B to the main part of the pattern A may be made in any of the forms shown; and consist of two or more pins, *e e*, (Figs. 2, 3, and 4,) secured to the lower side of pieces B B, and entering into corresponding holes *o o*, made in piece A, as shown in Figs. 3 and 4; or the connecting devices may consist of a pintle, *e'*, made with each end of said side pieces, as

shown in Figs. 5 and 7, and working into fixed guard-blocks or pieces, C C, permanently secured to the piece; or the said side pieces may each be made to have its connecting device consist of an edge, *c'*, working in a groove, as shown in Fig. 6, or may be of any other form that will permit the side pieces B B to turn up from the position shown in Fig. 3 to that shown in Fig. 4, with the outside lower edges *c c* supported from the piece A and the face in a vertical position.

The pieces B B may be made of solid form or of a shell-form, as shown in Figs. 5 and 6; while the inclined inner faces *a a* may be made in a single and continuous line, as shown in Fig. 2, or broken and at intervals apart, as in Fig. 7.

Made in the piece A, and confined within the distance between the inclined inner faces *a a*, in their full extension, is the recessed plane or cavity D, having a depth of about one-eighth of one inch, more or less, as shown in the several figures. The sides of the said recess are made with an angle with the bottom of the same, though they may be made with a curved incline, or with slightly-inclined sides. The said recess is intended to receive a sufficiency of sand for forming an induring base to the cope side M of the mold for sustaining and supporting the angles *x x* of the cope recesses B' B' when the cope part of the mold is being lifted up from the pattern, as shown in Fig. 4.

The manner in which the several parts of this improved device operate is as follows: The lower side of the pattern is turned upward, and the nowel side of the mold is rammed up, and the nowel side, with the pattern, is then reversed by turning the same. The cope side of the mold is then rammed up and finished in the usual manner. When the cope side of the mold is lifted from the pattern, the inclined sides *x x* of the recesses B' B', being resisted only by one-half of the weights of the two side pieces B B, while the base M' of the portion of the cope between the recesses B' B' will sustain the inclined sides *x' x'*, and prevent them breaking away. As the cope is lifted up the side pieces B B will be turned up from position shown in Fig. 3 to that shown in Fig. 4, in a gradual manner, until the inclined inner faces *a a* of the side pieces B B

are about vertical. The side pieces B B, at the time of lifting the cope, will be turned up from their outside lower edges by turning on connections  $e$  or  $e^1$  or  $e^2$ , or other equivalent devices that may be employed, until the cope has been raised to a sufficient distance to carry the lower margin edges of the faces  $x$  of the recesses B' B' above the upper margin edge of the inclined inner faces  $a a$  of the side pieces B B, when the cope will be free and clear of the pattern, and the side pieces B B be permitted to fall back to their original position (shown in Fig. 3) for a subsequent operation.

The guard-blocks C C operate to form an extension of the sides of the dovetail, and also to relieve the pieces B B by guarding them, at one or both ends, from any excessive pressure of the sand, and prevent a breaking down of the ends of the dovetail sides of the recesses B' B'.

These improvements operate to facilitate the molder in putting up the mold by obviating the necessity of picking out the side pieces of the dovetail, as heretofore, while they insure a perfect mold without any breaking down of the incline faces  $x x$  of recesses B' B', so as to require the castings to be trimmed by a chisel or file, as has heretofore been required, and also insure the bottom of the dovetail cast-piece from having any excessive projections of surface above the plane of the lower margin edges of the inclined inner faces  $a a$  of the side pieces B B.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination of the main piece A, provided with the sunken portion D, having inclined sides, with side pieces B B, having inclined sides.

2. The combination, with a pattern for molding dovetails, of the side pieces B B, having a connection with the main portion A of the pattern at their outside lower edges, to adapt said side pieces being turned upward, substantially in the manner specified, for the purpose set forth.

3. The combination, with the main portion A of a pattern for molding dovetails, of side pieces B B, having their inclined faces  $a a$  adapted to be turned to a vertical position, and the recess D, made below the plane of the lower margin edges of inclined faces  $a a$ , in the manner specified, for the purpose set forth.

4. The combination, with the main portion A of a pattern for molding dovetails, and side pieces B B, adapted to be turned up from said main portion from their rear or outside lower edges  $c c$ , of the guard-blocks C C, in the manner and for the purpose set forth.

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Witnesses:

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