(No Model.)

N. BURDICK.

Cast Metal Dovetail.

No. 240,502. **Patented April 26, 1881**

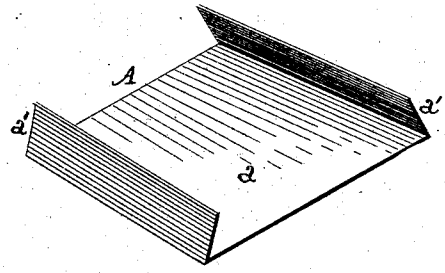


Fig. 1.

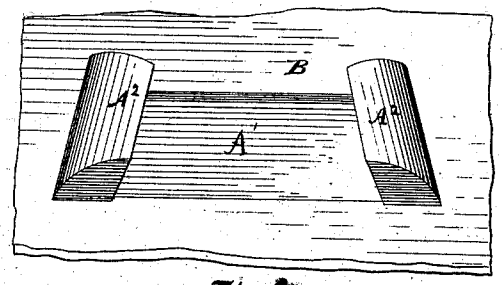


Fig. 2.

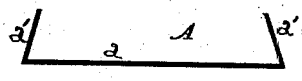


Fig. 3.

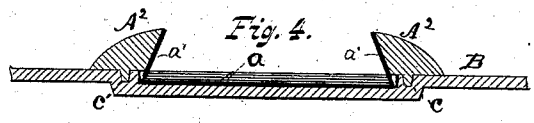


Fig. 4.

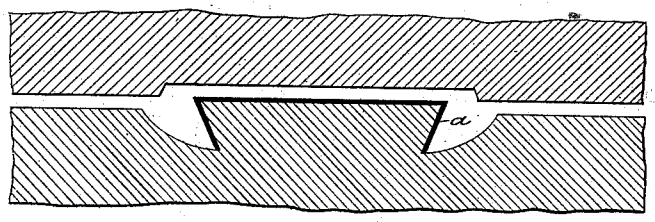


Fig. 5.

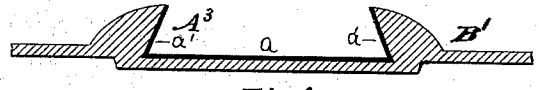


Fig. 6.

Witnesses.
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UNITED STATES PATENT OFFICE.

NORMAN BURDICK, OF SING SING, NEW YORK.

CAST-METAL DOVETAIL.

SPECIFICATION forming part of Letters Patent No. 240,502, dated April 26, 1881.

Application filed June 26, 1880. (No model.)

To all whom it may concern:

Be it known that I, NORMAN BURDICK, of Sing Sing, in the county of Westchester and State of New York, have invented a new and useful Improvement in Cast-Metal Dovetails, of which the following is a specification.

My invention relates to improvements in dovetails made with cast-metal plates, in which a thin malleable or wrought sheet-iron shell dovetail is united to the cast metal by its partial fusion with the same.

The objects of my improvements are, first, to produce in a dovetail a holding-surface, which will be formed perfectly by means of dies or presses, and not by sand molds, as heretofore practiced; and, second, to produce a dovetail which will have a soft, malleable holding-surface that will readily bite on a coacting cast-metal tenon of a connecting-piece and hold the same from being readily slipped out. I attain these objects by means of the dovetail illustrated in the accompanying drawings, which dovetail may be produced by the process hereinafter described, and the means also illustrated in the drawings, in which—

Figure 1 represents a perspective view of the malleable sheet-iron shell dovetail employed by me for the production of my improved dovetail. Fig. 3 is a cross-sectional view of the same. Fig. 2 is a perspective view of the pattern employed in connection with the sheet-iron shell dovetail when the mold is being made for a casting. Fig. 4 is a cross-sectional view of pattern with the sheet-iron shell dovetail in position for molding. Fig. 5 is a cross-sectional view of a sand mold with the sheet-iron shell dovetail in position for casting, and Fig. 6 is a cross-sectional view of a cast plate having my improved dovetail made therewith.

Similar letters of reference refer to similar parts throughout the several views.

In the drawings, B′, Fig. 6, represents a cast plate having my improved dovetail A^3 made with it, in which dovetail the holding-sides a' a' (made inclined, as shown) and bottom a (represented by heavy black lines in the same figure) are formed of thin malleable or wrought sheet-iron, and united with the cast metal by partial fusion with the said cast metal of said plate while the molten metal is in the mold. The holding-surface of this dovetail is formed by the inner or facing sides of the inwardly-inclining portions a' a' of the thin sheet-iron shell dovetail A in Figs. 1, 2, 4, and 5 and the upper side surface of the bottom a of said shell dovetail. This shell dovetail is formed by dies or presses, or by swaging, or any other known process of working sheet metal for duplicating pieces produced. It will be readily understood that when these thin shell dovetails are produced by stamping, pressing, or swaging from the same dies or forms each will be an exact duplicate of all others as to proportions of parts, uniformity and evenness of surface, and correspondence of form, and that when placed into the mold and the metal is poured into the same all parts of the shell dovetail will be expanded proportionately by the heat of the molten metal, and the surface of the parts of the shell in contact with the molten metal will be fused so as to unite with the cast metal, and when the plate is cooled the shrinkage of the plate will include the shrinkage of the dovetail, and the dovetail will attain to its normal proportions of parts, and have its holding-surface uniformly even and true and free from sand and scale, and also soft and ductile, and formed of malleable iron.

To produce my improved dovetail one method of procedure is as follows: The thin sheet-iron shell dovetail A, Figs. 1 and 2, is set in place in the dovetail A′ of the pattern B, Fig. 4. The side portions, A^2 A^2, are then placed in position with the main pattern, as shown in Fig. 4, when the pattern is completed for molding. When the pattern has been molded in the usual manner and the parts of the flask are separated, the pattern B is removed, leaving the detachable side portions, A^2 A^2, in the mold. These detachable pieces or portions are then removed, leaving the shell dovetail in the same. The parts of the mold are then joined, when the mold will present the appearance substantially as shown in Fig. 5, with the shell dovetail in position for being united with the plate, to be subsequently done by the pouring into the mold the molten metal, which metal will cause a partial fusion of the surface of the shell dovetail. When the casting is cooled it will be found that the thin sheet-iron of the shell

dovetail will be firmly united with the cast metal, and that the holding-surfaces of the dovetail will be free from sand and scale and uniformly even and soft and ductile, so as to securely hold by "bite" the coacting tenon of a leg or other piece to be connected with plate B.

It will be readily understood that the lifting-holes or dovetails of pot-covers and other removable plates made in the same manner will be attended by the same advantages as relates to the condition of their holding-surfaces.

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

1. A cast-metal plate provided with a dovetail or dovetailed recess which has its holding-surface made of soft malleable sheet-iron, substantially as set forth.

2. A plate having a dovetail or dovetailed recess formed by the combination, with a soft malleable sheet-iron shell dovetail, A, of cast-iron, united with said shell dovetail by the partial fusion of the latter when the cast metal is poured and in a molten state, substantially as set forth.

NORMAN BURDICK.

Witnesses:
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