E. A. CHUBB.

Process of Chilling Castings.

No. 160,508. Patented March 9, 1875.

Fig. 1.

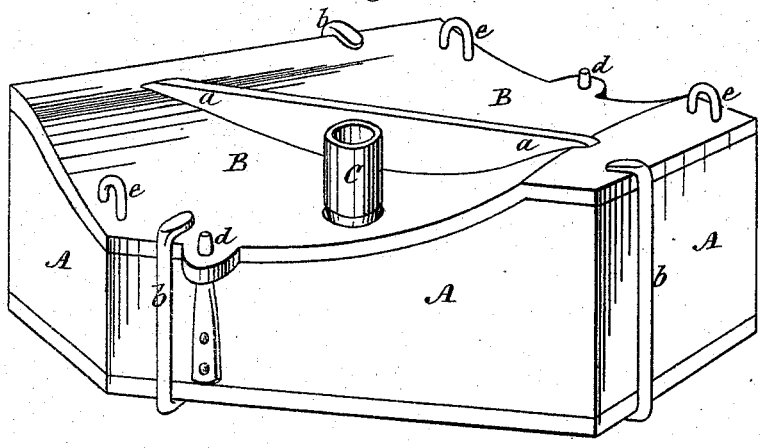
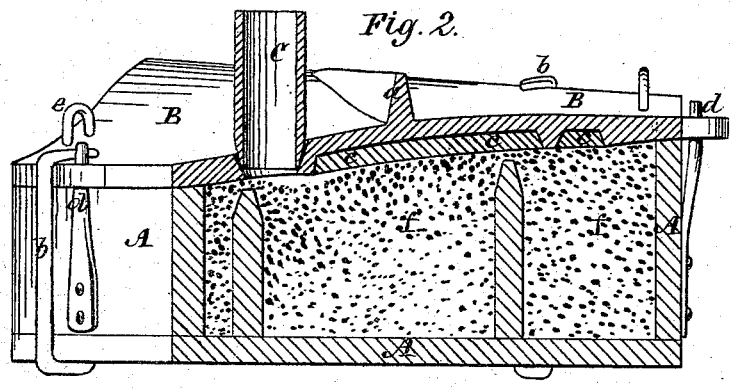


Fig. 2.



Witnesses.

D. R. Cowl

Edmund Masson

Inventor.

Edwin A. Chubb

By atty A. B. Stoughton.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

EDWIN A. CHUBB, OF IONIA CITY, MICHIGAN.

IMPROVEMENT IN PROCESSES OF CHILLING CASTINGS.

Specification forming part of Letters Patent No. **160,508**, dated March 9, 1875; application filed September 14, 1874.

To all whom it may concern:

Be it known that I, EDWIN A. CHUBB, of Ionia City, in the county of Ionia and State of Michigan, have invented certain new and useful Improvements in the Use of Heated Chills in Casting Metals; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which, together with the subjoined description, will illustrate the object and nature of my invention, and the manner of carrying it out in practice.

In said drawings, Figure 1 represents, in perspective, a flask or mold, the upper part or cope of which is composed of a metal plate, which is heated before the molten metal is poured into the flask, and which cope or plate chills the cast metal that comes in contact with it. Fig. 2 represents a vertical section through the flask or mold.

The nature of my invention consists in a single cope or top plate, which is common to a series of flasks or molds, and which is removed in its heated condition from one flask or mold to another, and so throughout the series, thus making one chill-plate once heated capable of use, so heated, throughout the series, and so very much lessening the first cost of the flasks or molds, and expediting and cheapening the heating of so many chill-plates.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings, which represent a flask or mold for casting chilled plow-plates, or attachments in, for which it is specially applicable, but by no means restricted to, as other cast plates may be chilled in the same way.

The under part of the flask or mold is shown at A, and the upper part or cope at B. This cope is composed of a cast-iron plate, suitably strengthened, as at *a*, and having, for plow-plates, a part of the pattern fitting into its under side, as at *c*, into which part or recess the portion of the molten metal that is to be chilled flows. The cope or top plate B is fastened to the under part A of the flask or mold by hooks or clamps *b* and pins *d*, made of steel, or so arranged as to allow the flask or mold to give somewhat to the expansion within, and prevent damage to the casting or to the molds. C represents a detachable sprue or gate, through which the molten metal is poured into the molds, and is so made detachable or removable and replaceable that the molding may be facilitated, and that this single sprue or gate may be used with the single chill-plate or cope throughout the series of flasks or molds.

In the use of a single chill-plate or cope with a series of flasks or molds for casting plow attachments I proceed as follows: The cope or plate B is laid upon the molding-floor top side down. The pattern is then placed in the recess *c*, which it snugly fits. The under part A of the flask or mold is turned over upon the top plate or cope, and the sand *f* rammed in, in the usual way. The whole flask or mold is then turned over, the cope or top plate removed, and the pattern taken out of the sand. The same cope or top plate may be used for the next molding operation, and so throughout the series of molds. When the metal is in a molten state, and ready to be poured, the sprue C, which may be a metal tube, is lined with sand, fire-clay, or other fire-resisting substance, and placed in an opening in the cope, and sand or other material packed around the joint to keep it tight. The cope, having been properly heated, is clamped and doweled or otherwise fastened to the under part of the mold, and the molten metal is poured in. That portion of the molten metal that flows against or into the recess in the cope becomes chilled, and as soon as the cast metal sets the cope is taken off the mold and placed on the next one, and that is filled, and so on throughout the series.

The cope is heated and kept hot by its continuous use, and sometimes, when used with a great many molds, becomes too hot, and then another cope suitably heated is used until the first one cools or it becomes too hot.

Ears *e* are made on the cope, into which wooden handles may be inserted, to move it from mold to mold.

As the cope contains a part of the pattern, or is itself a part, in reverse, of the thing to

be cast, it will always come in place with the series of molds.

What I claim as my invention, and desire to secure by Letters Patent, is—

A series of sand molds adapted to a single chill-plate, so that the said chill-plate, after being once heated, shall be kept heated by the molten metal of the preceding mold, substantially as described.

EDWIN A. CHUBB.

Witnesses:
C. C. THOMPSON,
S. H. JENKS.