E. B. Phillips.

Method of Supporting Cores.

No. 111,775. Patented Feb. 14, 1871.

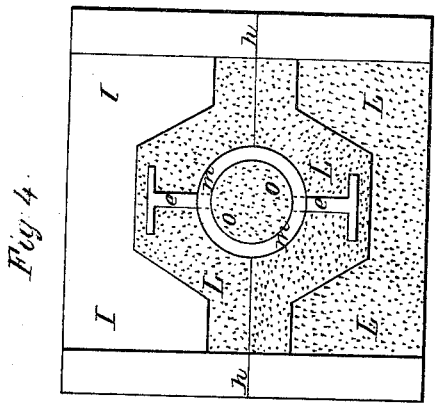

Fig. 4.

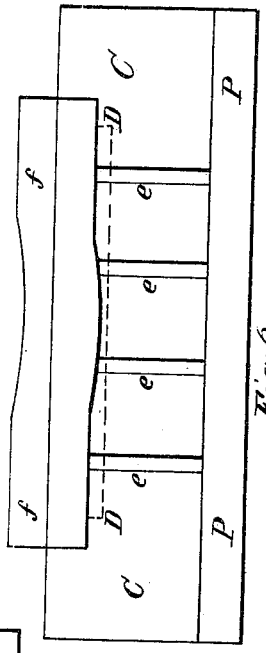

Fig. 5.

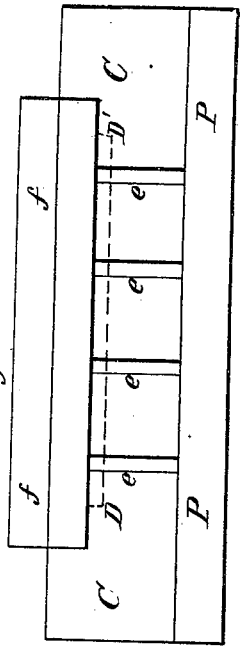

Fig. 6.

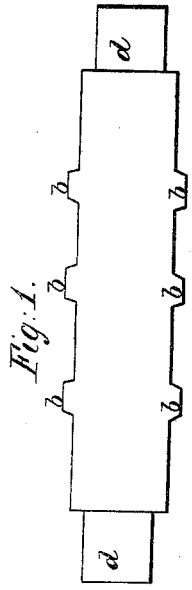

Fig. 1.

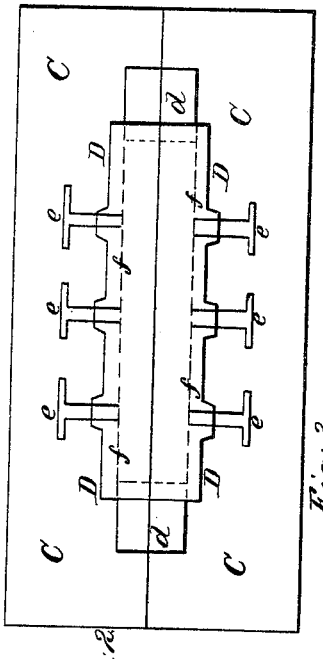

Fig. 2.

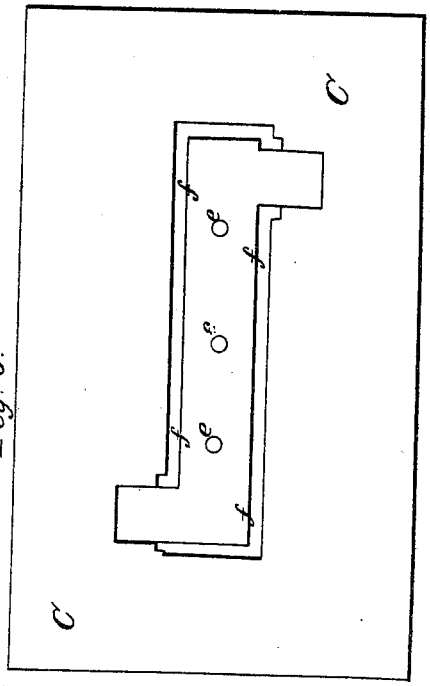

Fig. 3.

Witnesses;
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ENOS B. PHILLIPS, OF CAMBRIDGE, MASSACHUSETTS.

Letters Patent No. 111,775, dated February 14, 1871.

IMPROVEMENT IN SUPPORTING-CORES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, ENOS B. PHILLIPS, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in the Method or Process of Supporting Cores.

In the process of making tubes and other metallic bodies where cores are used it is found necessary, when the cores are of any considerable length or weight, to support them in their proper places, in order that good castings may be had; and to render such support both uniform and certain is the nature and object of my invention.

In order to enable others skilled in the arts to make and use my invention, I will now proceed to give a description of the same, reference being had to the accompanying drawings and letters of reference marked thereon.

Figure 1 is a pattern having a core-print, *a a*, extending from either end, and having small bosses or projections, *b*, raised, at regular intervals apart from each other, upon two opposite sides of its surface.

The bosses are perforated in the direction of the center of the pattern, for the purpose of allowing the chaplets which support the core to be readily inserted therein, and which may be easily understood by a reference to Figure 2, in which—

c c is the flask.

D D, the pattern.

e e, the chaplets which support the core, the core itself being indicated by the dotted lines *f f*.

The holes in the bosses are made just large enough to allow of the chaplets being readily inserted therein, and are varied in depth according to the thickness of metal which it is desired to have in the casting.

The chaplets are made with wide flat heads, so that they will remain firmly imbedded in the sand after the pattern is removed.

Figure 3 is a nowell or lower part of a flask, *c c*.

e e are the ends of the chaplets, and

f f, the core.

In this figure the core-prints come through the sides of the pattern, instead of the ends, as shown in figs. 1 and 2.

Figure 4 is a sectional view of a flask with the mold all complete.

The lines *h h* represent where the two parts of the flask come together.

I I is a rib extending across the flask;

L L is sand;

m m, the space for metal;

o o, the core; and

e e, the chaplets.

In this figure it will be seen that the flat heads of the chaplets come directly under the cross-ribs in the cope or upper half of the flask, thus insuring a positive resistance against the tendency of the core to spring upward when the metal is poured into the mold.

The chaplets in the nowell rest entirely in the sand, their wide flat heads having sufficient bearing to enable them to sustain the heaviest cores in their proper places.

Figures 5 and 6 show the common method of supporting cores.

In those figures the chaplets *e e* are straight pieces of wire inserted in the sand after the pattern is taken out, and driven down until they come against the board P P, which is placed under the bottom of the flask.

One-half of the flask only is shown in the figures, as that is enough to illustrate the way in which it is done.

The inconvenience of this system will be readily seen, as it requires a great deal of time and care on the part of the molder to set the chaplets correctly, and any changes in the size of the core, such as being larger at one place than at another, greatly increases the difficulty; and, if the chaplets are not all of an exact length, as is sometimes the case, the core will sag down, as seen at fig. 5, and the work will be likely to be lost.

With my invention the difficulties referred to are entirely removed, as the chaplets can be inserted in the patterns almost instantaneously, and, as the bottoms of the holes in the patterns indicate exactly the core-line, it follows that, by merely dropping the chaplets into the holes, they (the chaplets) adjust themselves properly in relation to the core.

Operation.

The pattern, upon being placed in the nowell for the purpose of molding it, will be so disposed that the perforated bosses will remain in a vertical position.

The chaplets being placed in the holes which are uppermost, the nowell will now be filled with sand, which will be tamped to the required degree of compactness. It will now be reversed—that is, turned upside down—which operation brings the pattern to the surface.

Chaplets will next be placed in the holes in that side of the pattern which is now uppermost, after which the cope or upper half of the flask will be placed upon the nowell, filled with sand, and tamped, as previously done in the nowell.

The cope will next be lifted off the nowell carrying with it the chaplets which were last inserted in the pattern.

The pattern will now be removed, leaving the

chaplets which were first inserted standing in the mold, so that the core will rest upon them when it is laid into its place.

The cope can now be put back in its place upon the nowell, and the mold is all completed.

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

Flat-headed chaplets inserted in patterns previous to molding, for the purpose described and herein set forth.

ENOS B. PHILLIPS.

Witnesses:

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WM. HENRY HAMOCK.