

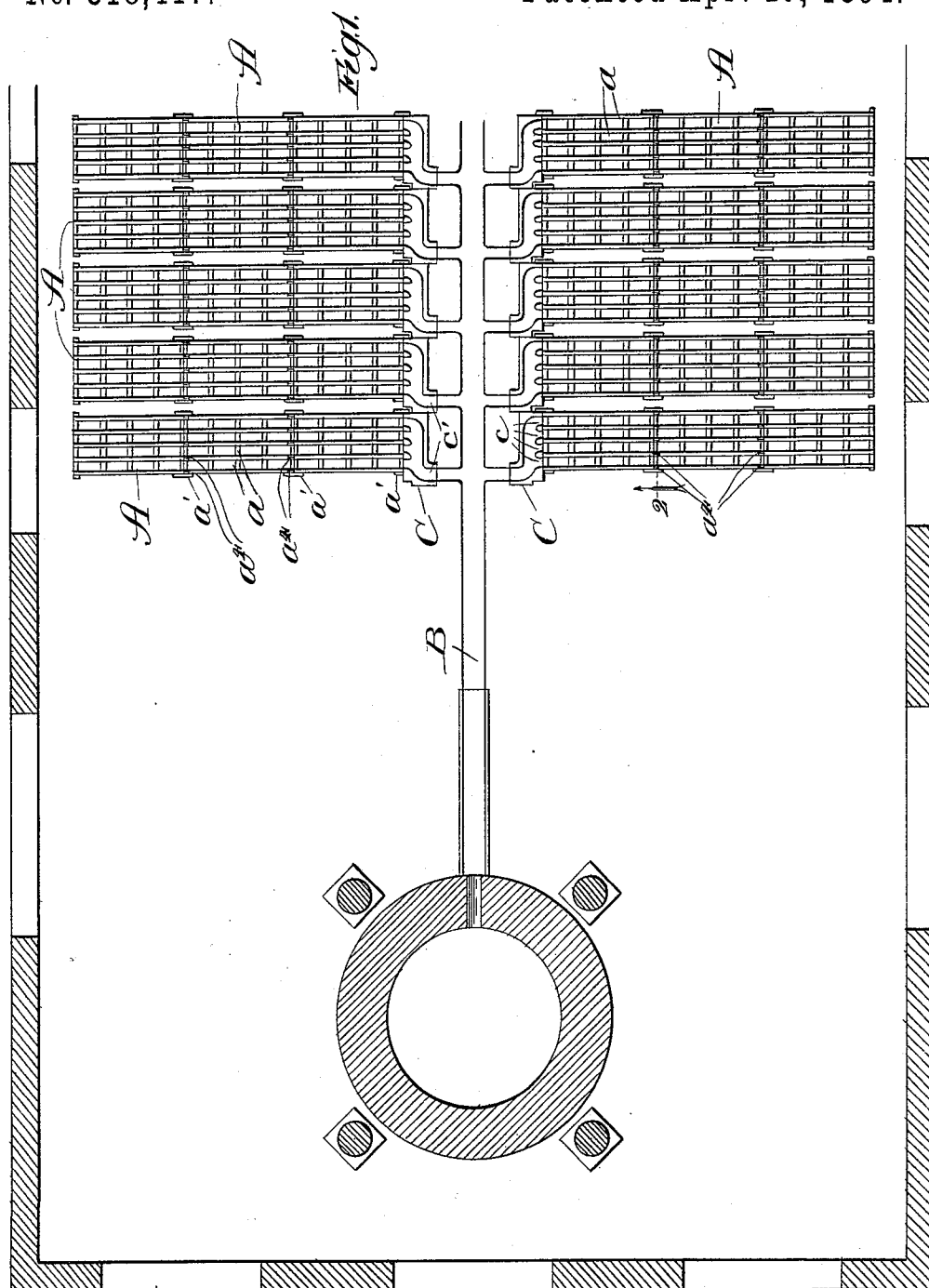
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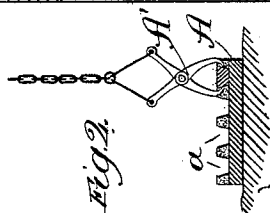
C. L. MILLER & J. R. GEORGE.
MOLD FOR BLAST FURNACE CAST HOUSES.

No. 518,417.

Patented Apr. 17, 1894.



Witnesses:
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Julius Moses.



Inventors:
Charles L. Miller,
Jerome R. George,
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Attys.

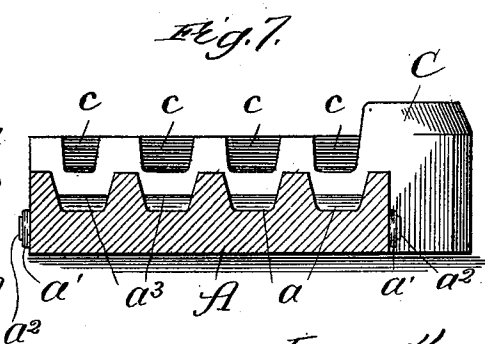
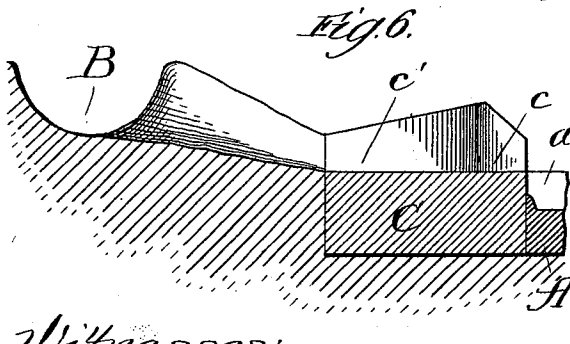
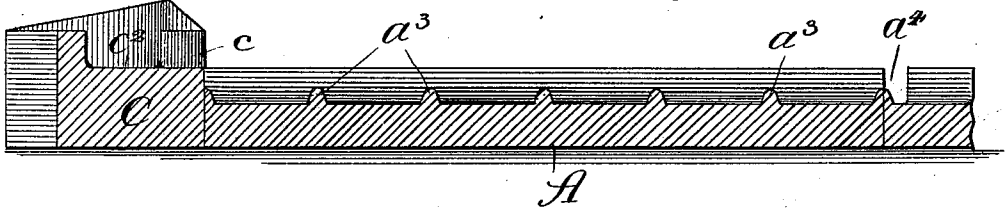
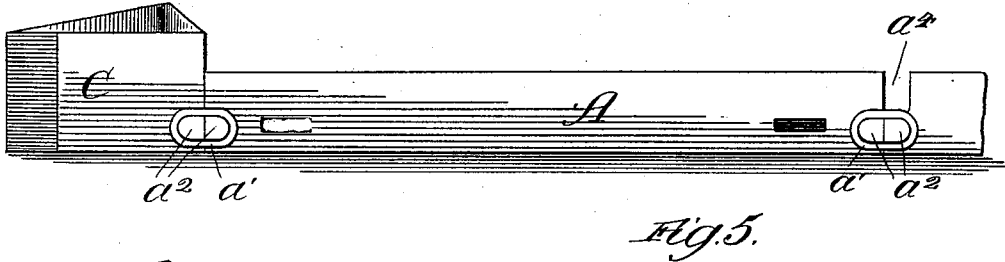
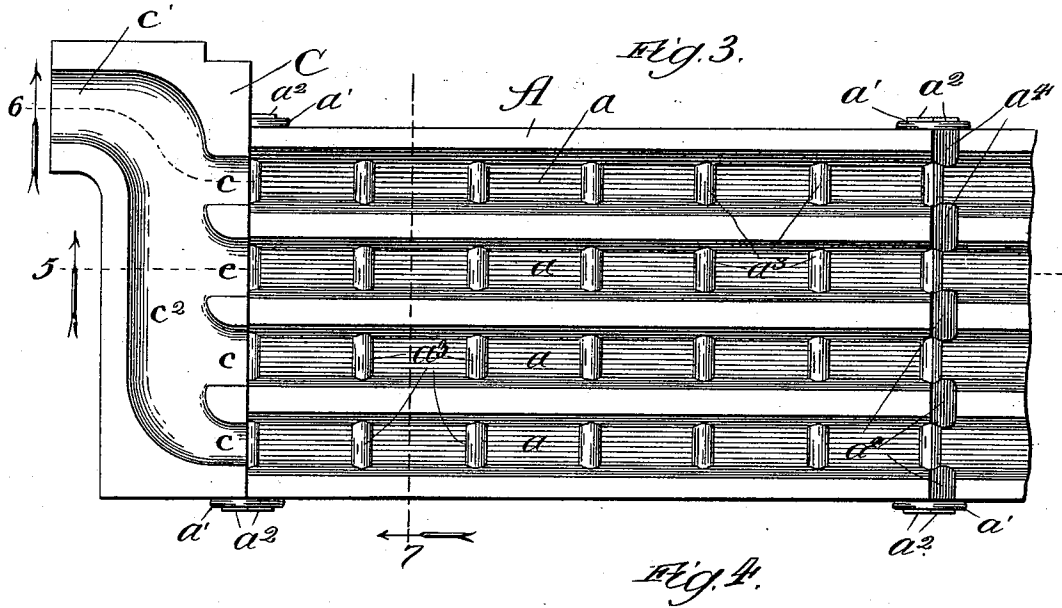
(No Model.)

2 Sheets—Sheet 2.

C. L. MILLER & J. R. GEORGE.
MOLD FOR BLAST FURNACE CAST HOUSES.

No. 518,417.

Patented Apr. 17, 1894.



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UNITED STATES PATENT OFFICE.

CHARLES L. MILLER AND JEROME R. GEORGE, OF CHICAGO, ILLINOIS.

MOLD FOR BLAST-FURNACE CAST-HOUSES.

SPECIFICATION forming part of Letters Patent No. 518,417, dated April 17, 1894.

Application filed September 19, 1893. Serial No. 485,901. (No model.)

To all whom it may concern:

Be it known that we, CHARLES L. MILLER and JEROME R. GEORGE, of Chicago, Illinois, have invented a new and useful Improvement in Molds for Blast-Furnace Cast-Houses, of which the following is a specification.

The object of our invention, which is an improvement upon the one described in our application filed December 31, 1892, Serial No. 456,922, is to improve the construction of the molds or "chills" used in blast furnace cast-houses; and the invention consists in the features and combinations hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan diagram of a portion of a blast furnace cast-house; Fig. 2 a cross section taken in line 2 of Fig. 1; Fig. 3 an enlarged plan view of a portion of one of the molds; Fig. 4 a side elevation of the same; and Figs. 5, 6 and 7 sectional views taken in lines 5, 6 and 7, respectively, of Fig. 3.

In constructing our improved mold for blast furnace cast-houses, we prefer to form the mold, A, in sections, so as to render it convenient to handle in making, placing and removing. When so constructed, the several sections are adapted to fit together to form a single mold, with one or more forms or channels, *a*, as desired. In such case also, the parts or sections may be secured together by links, *a'*, passed over ears or lugs *a²*, cast on the several sections; or the parts may be secured together by keys, bolts or otherwise. We also prefer to form ribs or projections, *a³*, in the forms or channels of the mold, to cause corresponding notches or depressions in the cast metal. This enables the cast metal to be readily broken into uniform lengths, as desired. In using our invention, however, it is not necessary, but only preferable, that the molds be formed in sections or with ribs or projections.

To facilitate removal of the cast metal from the mold, we prefer to form openings or recesses, *a⁴*, in the walls and partitions between the forms or channels, and to have the same filled with clay, sand, or other refractory material during the process of casting. When the metal is cooled, this refractory material may be knocked out or removed, and the grappling tongs, A', inserted and caused to take

hold of the cast metal. (See Fig. 2.) In using our invention, however, these features are not really necessary.

To conduct the molten metal from the main runner, B, of the cast-house to the mold, we employ a neck, gate, or short runner, C, (this part will hereinafter be called a short runner) having openings, *c*, leading to the several forms or channels in the mold. This short runner may be cast integral with the mold or separate therefrom, as desired. When cast separate from the mold, it may be secured thereto by links passed over ears or lugs, or by keys, bolts or otherwise. The metal inlet, *c'*, in the short runner is preferably at one side, or out of the direct line of the first form or channel in the mold, so that as the molten metal flows in from the main runner, it is caused to flow in a direction substantially parallel therewith, and at right angles to the forms or channels in the mold. In order to regulate the flow of the molten metal into the forms or channels, we make the openings, *c*, of different sizes or widths, as required by their order or position. As shown in Fig. 3, the opening farthest from the metal inlet is the smallest, and the two middle openings the largest. In practice, particularly for certain kinds of work, we have obtained good results by making the opening nearest the metal inlet five inches in width, each of the next two openings six inches, and the last opening four inches; but of course the size or width of the openings may be varied as required in different positions or kinds of work.

To avoid the cooling of metal in the short runner—which requires it to be afterward broken or separated from the cast metal—we prefer to place the short runner in such position that the bottom of its channel, *c²*, shall be above or on a level with the top of the forms or channels in the mold. (See Figs. 5 and 6.) This permits the metal to drain out of the short runner, and prevents the forming of parts corresponding to "sows" in ordinary pig-beds; and, of course, such parts not being formed the labor of breaking or separating them from the cast metal is avoided. But this relative elevation of the short runner is only preferable, and not in all cases necessary.

It will be understood that we do not intend to limit ourselves to specific forms, minor fea-

tures or details of construction, or to the use of all our improvements together or in a single mold or group of molds.

We claim—

5 1. In combination with the main runner of
a blast furnace cast-house, a short runner lead-
ing from the main runner and having side
openings therein, and a mold having forms or
channels extending at right angles to the short
10 runner opposite its side openings, the metal
inlet from the main runner into the short run-
ner being at one side or out of the direct line
of each form or channel in the mold, substan-
tially as described.

15 2. In combination with the main runner of

a blast furnace cast-house, a short runner lead-
ing from the main runner and having side
openings therein, and a mold having forms or
channels extending at right angles to the short
runner opposite its side openings, interme- 20
diate openings in the short runner being wider
than the openings next to the metal inlet or
farthest therefrom, whereby the flow of metal
into the forms or channels of the mold is regu-
lated, substantially as described.

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JEROME R. GEORGE.

Witnesses:

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