

(No Model.)

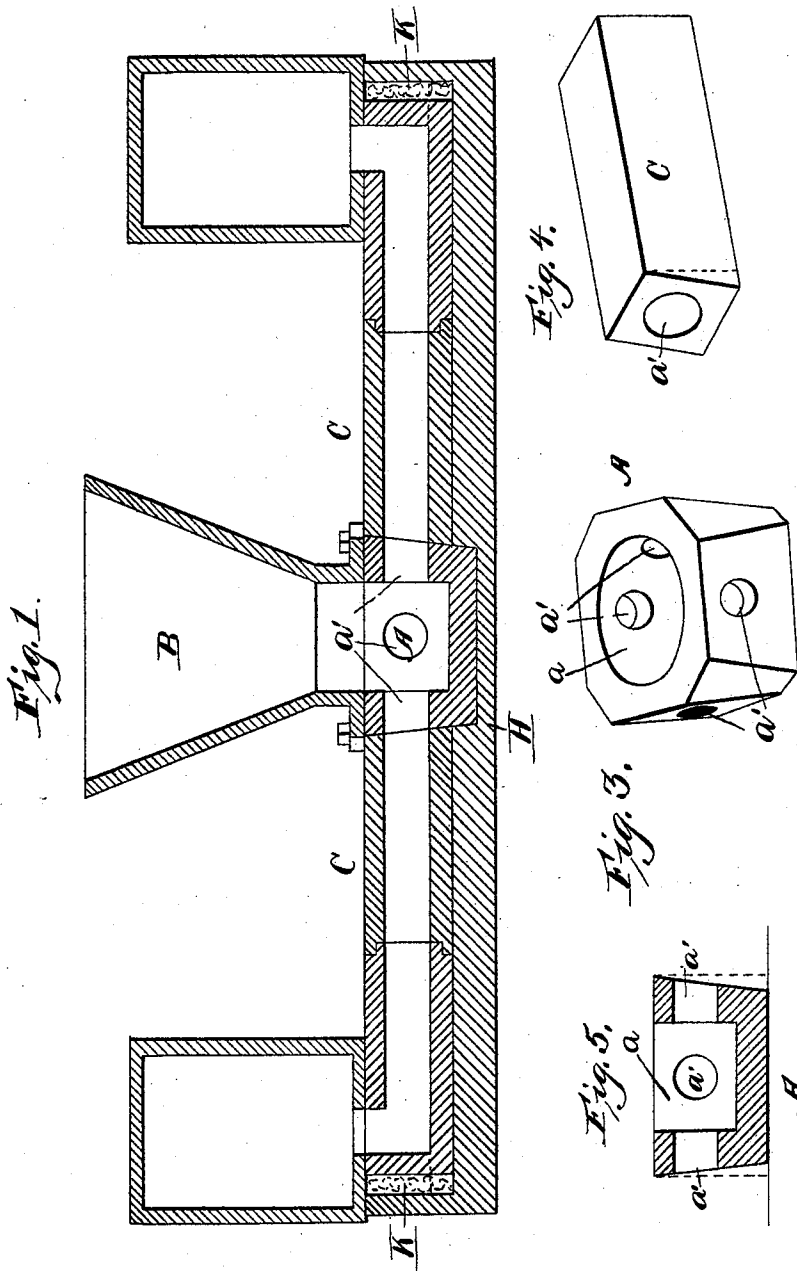
2 Sheets—Sheet 1.

M. L. WILLIAMS.

RUNNER BRICK FOR BOTTOM CAST MOLDS.

No. 593,974.

Patented Nov. 16, 1897.



Witnesses
H. H. Edwards
Philip C. Masi.

Inventor
M. L. Williams
C. W. Anderson
his Attorney

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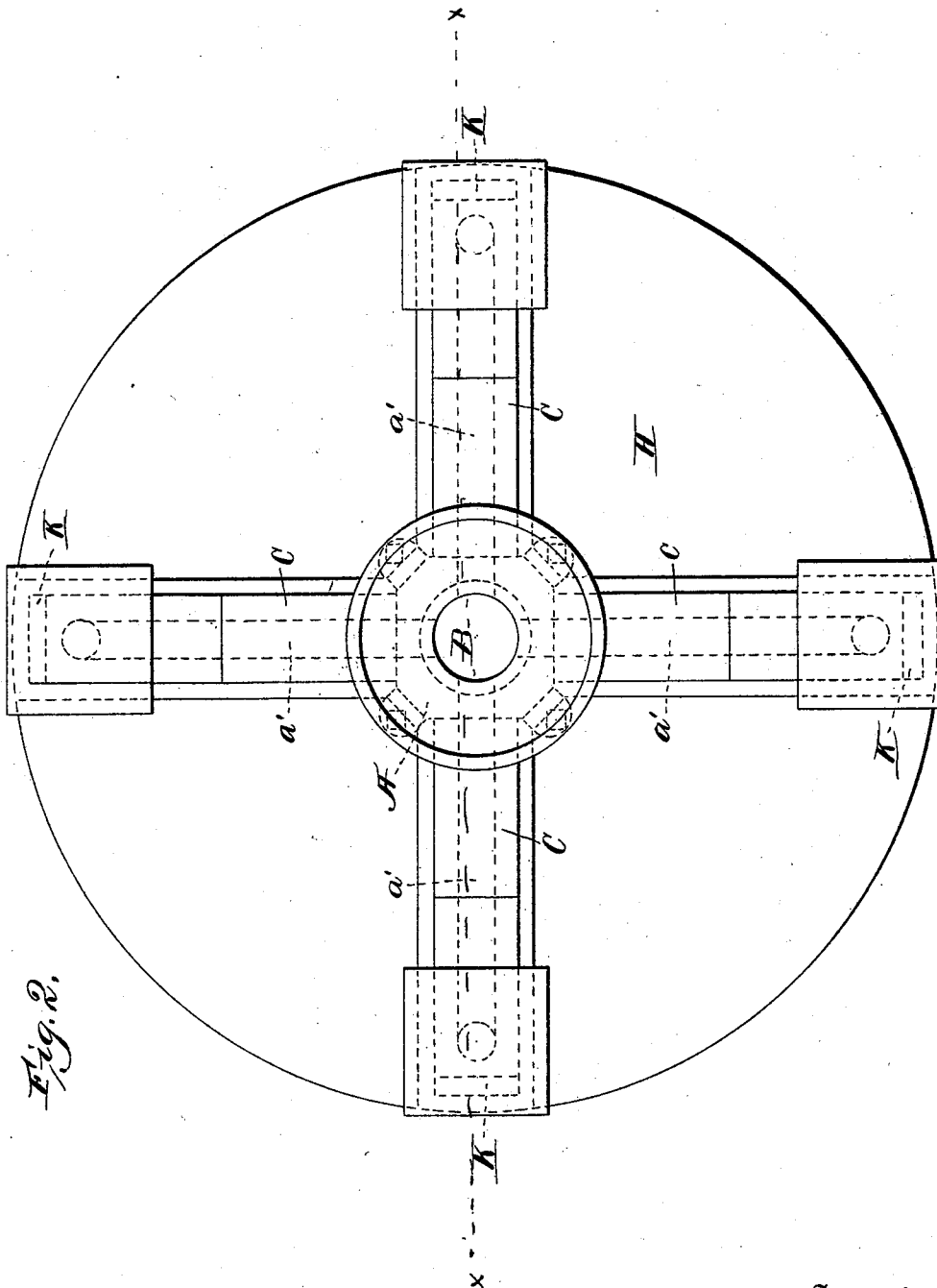


Fig. 2.

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UNITED STATES PATENT OFFICE.

MORGAN L. WILLIAMS, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF TO JAMES P. THOMAS, OF SAME PLACE.

RUNNER-BRICK FOR BOTTOM-CAST MOLDS.

SPECIFICATION forming part of Letters Patent No. 593,974, dated November 16, 1897.

Application filed March 18, 1897. Serial No. 628,221. (No model.)

To all whom it may concern:

Be it known that I, MORGAN L. WILLIAMS, a citizen of the United States, and a resident of Johnstown, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Runner-Bricks for Bottom-Cast Molds; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a central vertical section of my invention, taken on line xx , Fig. 2. Fig. 2 is a plan view of the same. Fig. 3 is a perspective view of the central runner-brick. Fig. 4 is a similar view of one of the lateral runner-bricks, and Fig. 5 is a vertical section of said central brick.

This invention has relation to the molds employed in connection with the open-hearth and Bessemer steel practice and known as "bottom-cast" molds, wherein a series of molds are connected with a center mold or sprue by runner-bricks of refractory material and constructed especially for that purpose. The connections between the lateral or radial runner-bricks and the central or distributing runner-brick have usually been made heretofore by male and female joints which serve to retain the lateral bricks in place against the upward pressure of the molten metal flowing through them. Such joints, however, are objectionable for a number of reasons. In the first place they render the bricks difficult to mold; secondly, the male portions of the joints are liable to become broken during shipment or by handling, thereby rendering the brick useless; thirdly, the joint so made is apt to be loose or faulty, thereby permitting the molten metal to leak or escape and thereby cause great loss, and, fourthly, portions of the male joint are apt to break off after the joint has been made and the piece or pieces fall into the molten metal and be carried into the ingot, thereby causing serious defects which are not likely to be discovered until the steel has been rolled and prepared for the market. These several objections

have all been experienced to a greater or less extent in the steel practice.

The object of the present invention is therefore to provide for a joint of improved character between the central and lateral runner-bricks which will obviate each and all of the said objections; and with this object in view the invention consists in the novel construction and combination of parts, all as hereinafter described, and pointed out in the appended claim.

Referring to the accompanying drawings, the letter A designates the central polygonal runner-brick, over which the sprue B is supported and which in its internal construction is similar to those heretofore in use—that is to say, it has a central distributing-chamber a and laterally-radiating passages a' . The lateral faces of the brick to which the lateral bricks C are to be joined and through which the passages a' open are formed with an under bevel, as clearing shown in the drawings, and the contiguous ends of the bricks C are beveled off to correspond with and closely fit the said faces, so that when set up against said faces they will form a tight butt-joint therewith. To this end care is taken in the manufacture of the bricks that these meeting faces shall be of perfectly true and even character. The bricks are set into a frame or plate H, known in the steel practice as a "bottom" plate and which may be of the usual or of any suitable construction. The grooves or channels of the said plate in which the lateral bricks are set are made somewhat longer than the length of the conduit formed by said bricks in order that a space may be left at the outer or distant end, into which a filling K, of clay or other suitable material, is tamped after the bricks are set, in order to wedge them up tightly against the central brick. Being wedged in this manner, it will be readily seen that the under bevel of the faces of said central brick will effectually prevent any upward movement of the lateral bricks.

The center brick, which is shown in the drawings, is fitted for the connection therewith of four lateral runners and molds, four of its eight sides being of beveled form. It will be obvious, however, that all of the sides

or any other number thereof may be fitted to receive connections; also, that said brick may be formed with any desired or suitable number of sides, the particular form shown in the drawings being for the purpose of illustration and in no way limiting my invention thereto. When, however, this brick is formed with a number of non-beveled sides, it can be more readily and securely fastened in its seat in the bottom plate.

It will be readily seen that the above-described bricks are much less difficult to manufacture than the old style, that they are much less likely to become broken or damaged, that much closer joints may be formed therewith, and that the danger of broken pieces thereof becoming embedded in the steel is greatly reduced if not entirely obviated.

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

In a runner-brick bottom for bottom-cast molds, the combination with a bottom plate having a seat therein for a center brick and

radiating grooves or channels extending therefrom and closed at their outer ends by vertical walls, of a polygonal center brick formed with a number of under-beveled sides or faces and having a central cavity therein and radiating openings leading therefrom out through the said beveled faces or sides, and lateral bricks closed at their outer ends and seated in said grooves or channels, said bricks being of less length than the grooves or channels whereby an intervening wedging-space is formed between their outer closed ends and the end walls of the grooves or channels, said bricks also having passages therethrough, and beveled inner ends which are adapted to form a close joint with the under-beveled faces of the center brick when wedged up against the same, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

MORGAN L. WILLIAMS.

Witnesses:

GEORGE H. PARMELEE,
PHILIP C. MASI.