

(No Model.)

J. HEMPHILL.

MOLD.

No. 384,976.

Patented June 26, 1888.

FIG. 1.

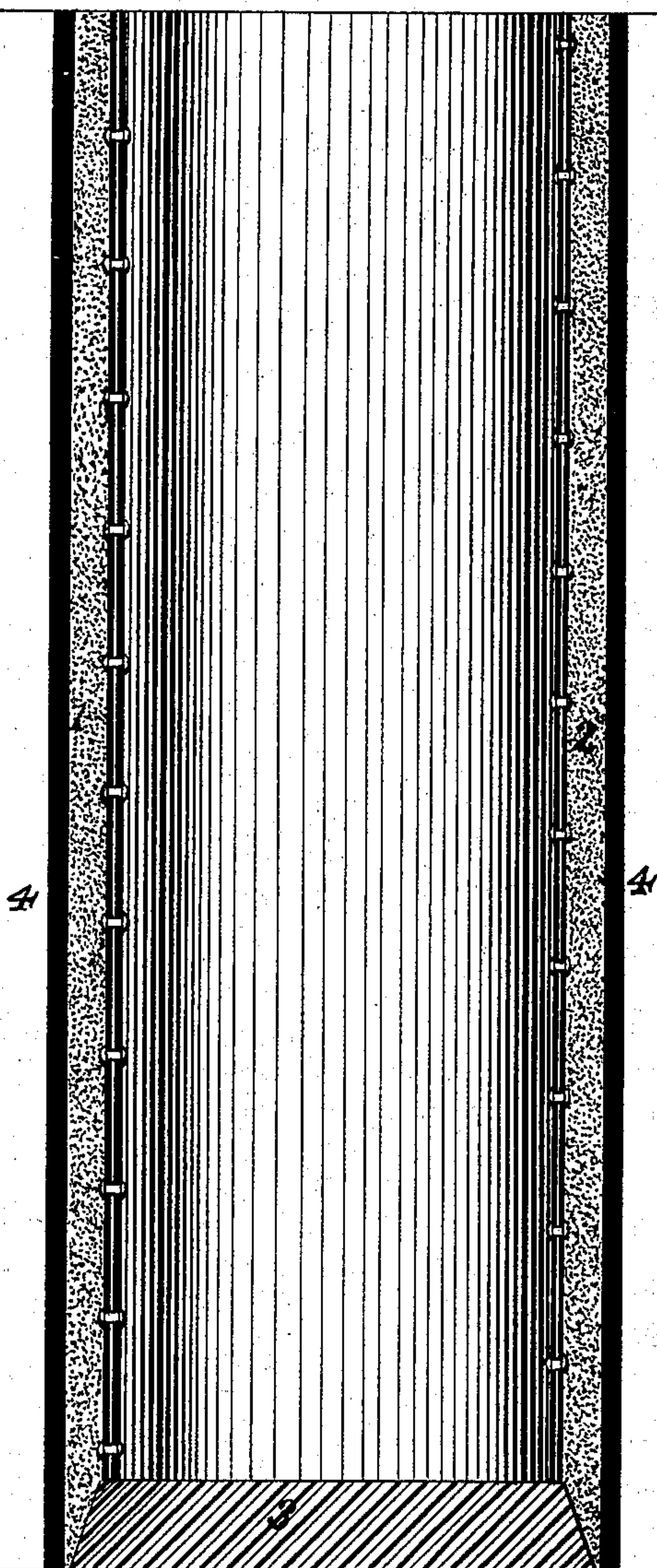
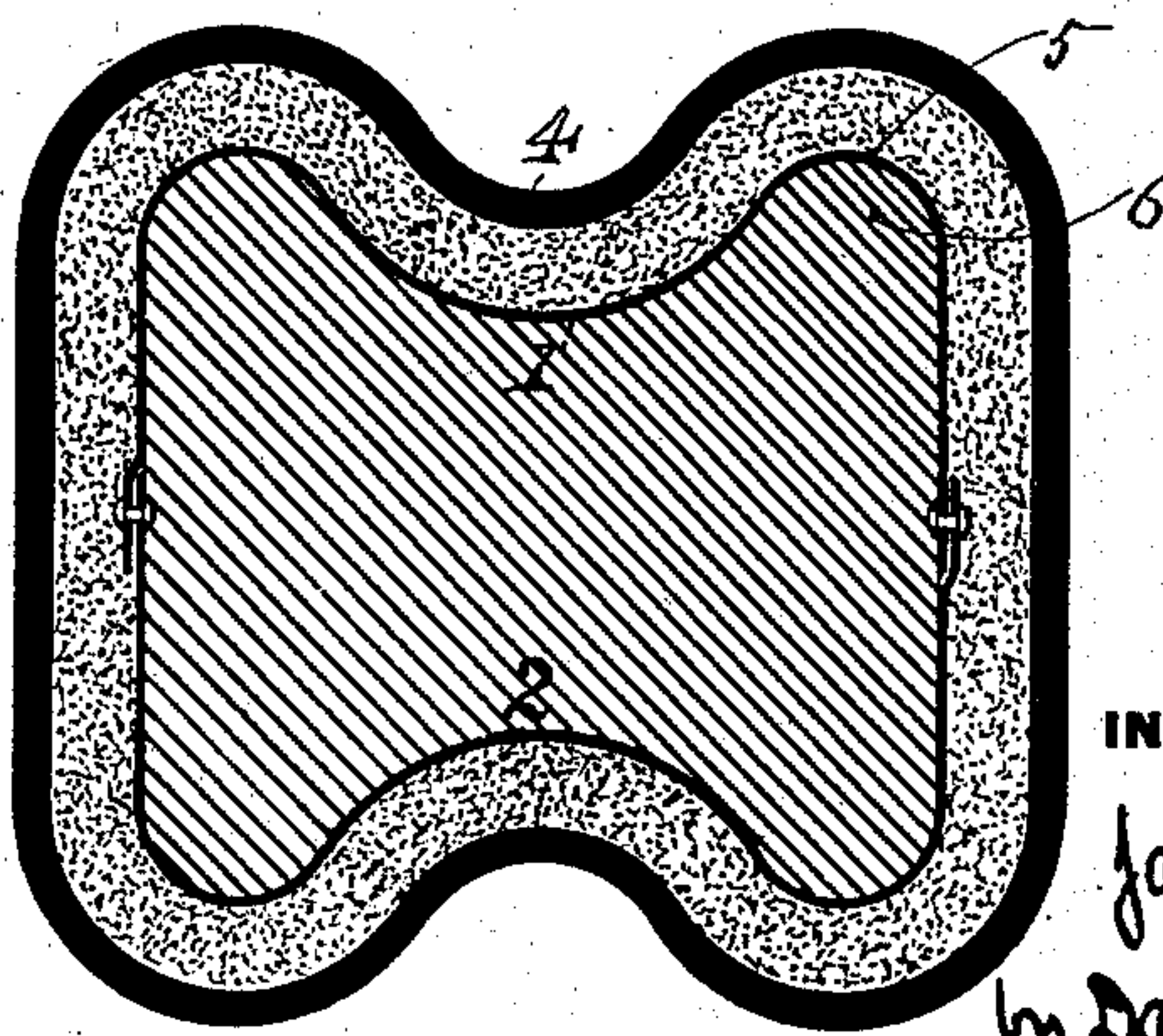


FIG. 2.



WITNESSES:

R. H. Whitley.
G. E. Gaither.

INVENTOR,

James Hemphill.
by Darius S. Wolcott.
Att'y.

UNITED STATES PATENT OFFICE.

JAMES HEMPHILL, OF PITTSBURG, PENNSYLVANIA.

MOLD.

SPECIFICATION forming part of Letters Patent No. 384,976, dated June 26, 1888.

Application filed April 10, 1888. Serial No. 270,165. (No model.)

To all whom it may concern:

Be it known that I, JAMES HEMPHILL, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Molds, of which improvement the following is a specification.

The invention described herein relates to certain improvements in molds for forming articles having an irregular cross-sectional contour—such as shaped ingots—and said invention has for its object a construction of mold whereby parts of the mold are rendered movable or yielding, so as to permit of the movement of projecting parts of the article, due to contraction of the metal in cooling and solidifying. It has heretofore been attempted to effect this object by forming the mold of metal, and so constructing certain parts thereof that they either yield under the pressure of the contracting metal, or to make such parts removable, by hand or otherwise, as soon as the metal has solidified, but before excessive contraction occurs. But it has been found in practice that the molten metal, especially steel, which is very fluid when cast, will enter into the joints of such sectional mold, and thereby either entirely prevent or so delay the movements of the parts of the mold as to defeat their purpose.

In general terms, the invention consists in the construction of molds, all as more fully hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional elevation of a mold embodying my invention, and Fig. 2 is a horizontal section.

For convenience, the invention is described and shown as embodied in a mold for ingots having approximately the shape in cross-section desired in the beam, or other structural shape to be produced by subsequent rolling or forging. The matrix of mold consists of a thin sheet-metal shell backed or re-enforced by dry sand or other suitable material of like yielding nature, a flask being shown on the outside.

For convenience in construction, the shell is formed of a series of sections riveted or otherwise secured together. The shell or matrix of the mold is formed of thin metal sheets 1 and 2, each shaped to form one-half of the mold-matrix, and having their adjacent edges riveted or otherwise secured together. Each of the sheets 1 and 2 is longitudinally grooved, as at 5, forming recesses in the matrix of the mold for the formation of ribs or flanges 6 on the ingot, parallel, or approximately so, with its axis.

Although the matrix, in the embodiment of the invention shown in the drawings, is formed of two sheets of metal, it may be advantageous in forming molds for other articles to employ three or more sheets stamped or pressed to the required shape. The sheet-metal shell thus formed is placed on a slab or plate, 3, of cast-iron within the flask 4, and the space between the flask and shell is filled with dry sand or other suitable material of like yielding nature.

The sheet metal forming the shell should be made of sufficient thickness to prevent the molten metal from burning through and coming in contact with the sand packing, but should not be so thick as to prevent its ready removal by burning off during the heating of the ingot for rolling, or that its incorporation into the ingot in rolling will have any effect upon the character or quality of the metal of the ingot.

I claim herein as my invention—

A mold for the production of articles having projections parallel, or approximately so, to its axis, consisting of a sheet-metal shell of a cross-sectional contour corresponding to that of the article to be cast, and a backing of dry sand or other yielding material, whereby provision is made for the transverse yielding of the walls of the mold as the metal solidifies and contracts, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JAMES HEMPHILL.

Witnesses:

DARWIN S. WOLCOTT,
R. H. WHITTLESEY.