No. 804,329. PATENTED NOV. 14, 1905.

# E. P. MARTIN.

## CASTING PIG IRON.

APPLICATION FILED APR. 22, 1904.

Fig. 1.

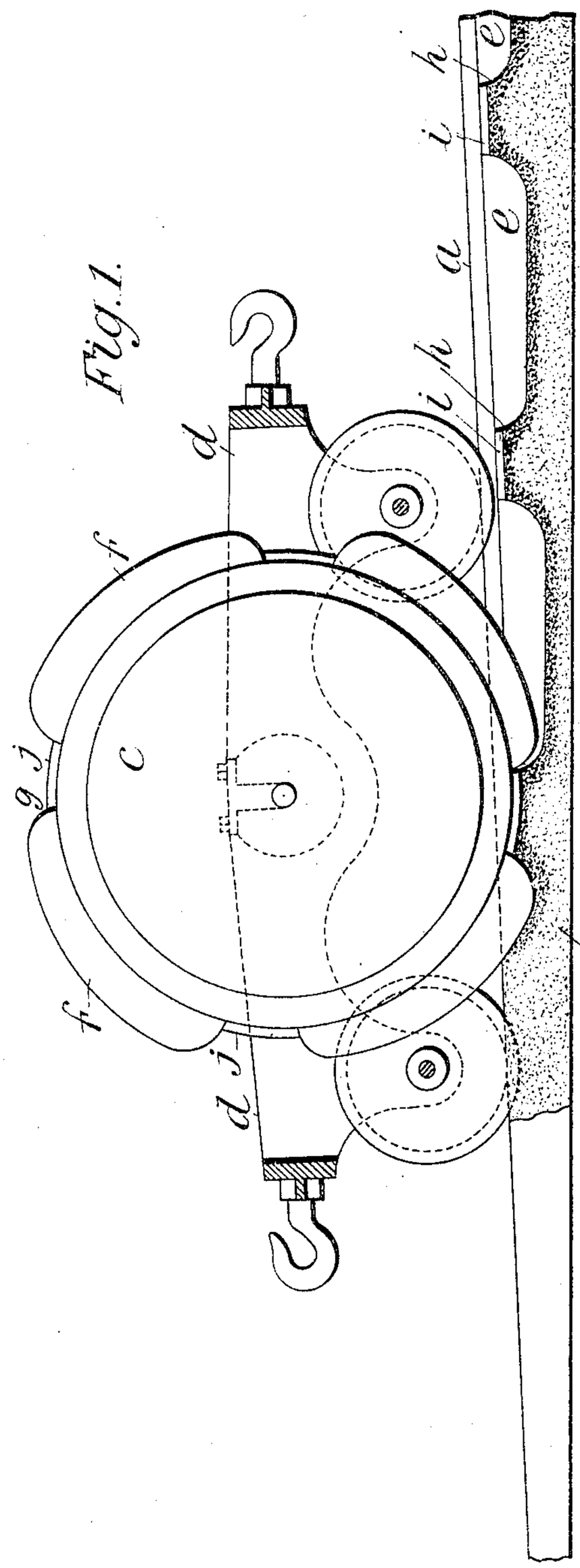
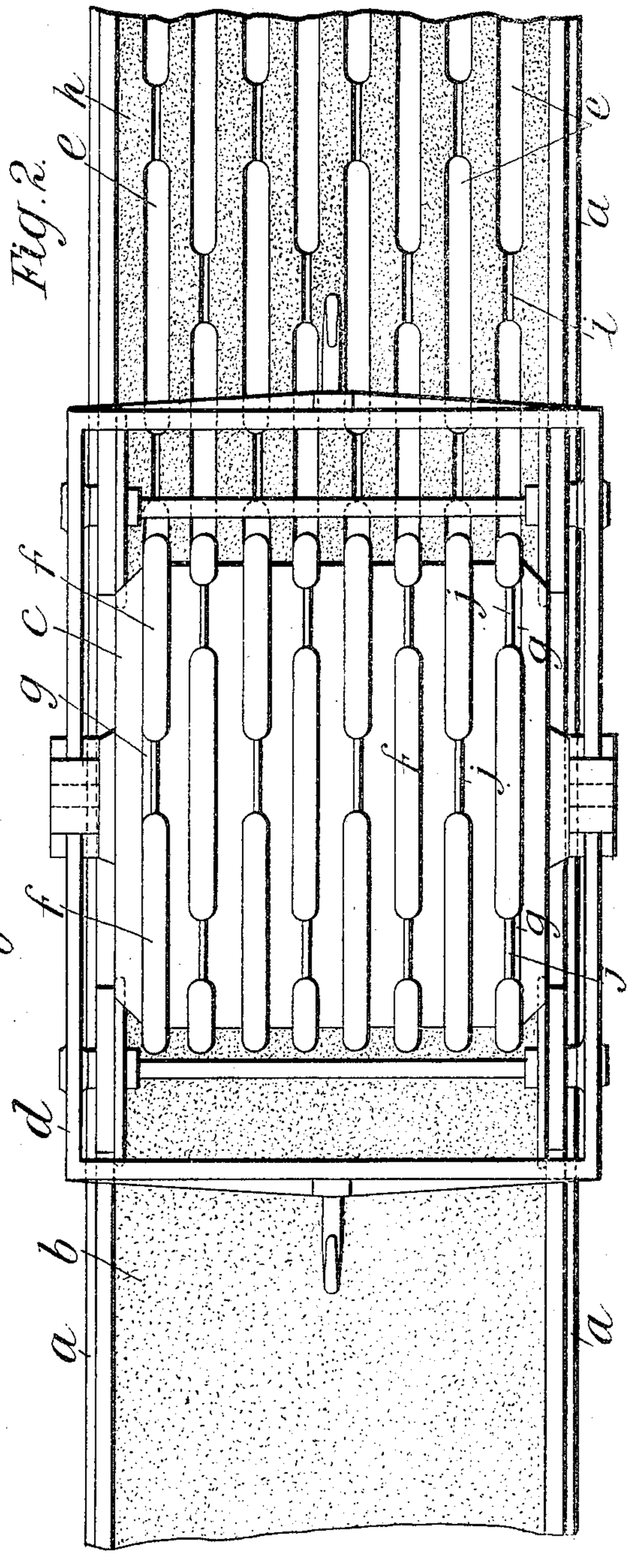



Fig. 2.




WITNESSES.

Samuel Percival

Albert Jones

INVENTOR.

Edward Percy Martin

By Attorneys.

Wheatley & Mackenzie

# UNITED STATES PATENT OFFICE.

EDWARD PERCY MARTIN, OF BRIXTON, LONDON, ENGLAND, ASSIGNOR OF ONE-FOURTH TO WILLIAM JOHN ENGLEDUE, OF WIMBLEDON, ENGLAND.

## CASTING PIG-IRON.

No. 804,329. Specification of Letters Patent. Patented Nov. 14, 1905.

Application filed April 22, 1904. Serial No. 204,427.

*To all whom it may concern:*

Be it known that I, EDWARD PERCY MARTIN, a subject of the King of Great Britain and Ireland, residing at 20 Overton road, Brixton, London, England, have invented certain new and useful Improvements in Casting Pig-Iron and other Metals; and I do hereby 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.

This invention for improvements in or connected with casting pig-iron and other metals has for its object to form a series of pig-molds arranged step fashion, so that molten metal poured into the uppermost mold will after filling that mold overflow into the next mold, and so on until the lowest mold is filled; and it consists in a molding-roller running upon inclined rails and provided on its circumference with ribs or projections corresponding to the pig-patterns and arranged to impress themselves into sand between the rails, the said projections being deeper at one end than the other by the exact amount in difference between the level of the roller when beginning to impress the pig-pattern and when finishing the pig-pattern as it rolls down the inclined rails and also provided with means for connecting the molds. When the molten metal is run into the molds, a series of pigs will be formed connected by narrow fins or runners where the metal runs from one mold into the next mold below.

In the accompanying sheet of illustrative drawings, Figure 1 is a side elevation of a molding-roller constructed according to this invention and showing a section of the mold-bed, and Fig. 2 is a plan of the roller and mold-bed.

The mold-bed is formed between parallel rails *a*, inclined, as shown, and arranged to form a trough of any desired length in which the molding-sand *b* is laid. A roller *c* is journaled in a wheeled frame *d*, adapted to run on the rails *a* and to traverse the roller *c* over the mold-bed. The sand in the mold-bed is compressed by the roller, and the pig-molds *e* are formed in the mold-bed by ribs or projections *f* on the roller. The ribs or pig-patterns *f* are made deeper at one end than at the other, so that when the roller runs up and down the inclined mold-bed it leaves a level impression of the pig in the sand. The ribs are so arranged on the roller as to form rows of molds *e*, extending lengthwise of the mold-bed, gaps *g* being left between the ends of the ribs to form corresponding elevations *h* in the mold-bed between the ends of the pig-molds. In order, however, to facilitate the flow of metal from the upper molds to the lower molds of a row, shallow depressions or grooves *i* are impressed in the upper surfaces of the elevations *h*, which conduct the overflow of the first mold into the second mold, and so on to the end of the row of molds. Ribs *j* of comparatively small section, arranged in the gaps *g*, form the shallow depressions *i*. Several series of ribs for impressing several rows of molds in the mold-bed may be arranged on one roller.

In preparing the mold-bed the sand is brought level or nearly level with the tops of the rails and left in a fairly loose state. The roller is then caused to travel over the mold-bed by a suitable hauling device, such as a winch connected with the frame *d*. A channel formed at the upper end of the trough feeds the metal to the molds.

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

1. In molding apparatus, a pig-pattern roller provided on its circumference with ribs or projections deeper at the rear end than at the front end and with recesses between the ribs or projections and with small ribs in the recesses connecting the main ribs or projections.

2. Apparatus for forming sand-molds for casting pig-iron and other metals, consisting of parallel inclined rails, between which the sand forming the mold-bed is confined, a molding-roller mounted on the rails and adapted to be traversed over the mold-bed, and ribs or projections on the roller shaped to impress horizontal molds in the sand between the inclined rails recesses in the rollers between the ribs or projections and small ribs in the recesses connecting the main ribs or projections.

3. Apparatus for forming sand-molds for casting pig-iron and other metals, consisting of parallel inclined rails, between which the sand forming the mold-bed is confined, a molding-roller mounted on the rails and

adapted to be traversed over the mold-bed, ribs or projections on the roller arranged with gaps between their ends and adapted to form stepped rows of horizontal pig-molds, shallow ribs in the gaps connecting the ends of the mold-forming ribs to facilitate the flow of metal from the higher to a lower mold.

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

EDWARD PERCY MARTIN.

Witnesses:
FREDERICK R. MARTIN,
RICHARD H. WEBB.