T. LÖHE.

TILTING FOREHEARTH FOR FURNACES.

APPLICATION FILED JULY 7, 1910.

998,787. Patented July 25, 1911.

Fig. 1.

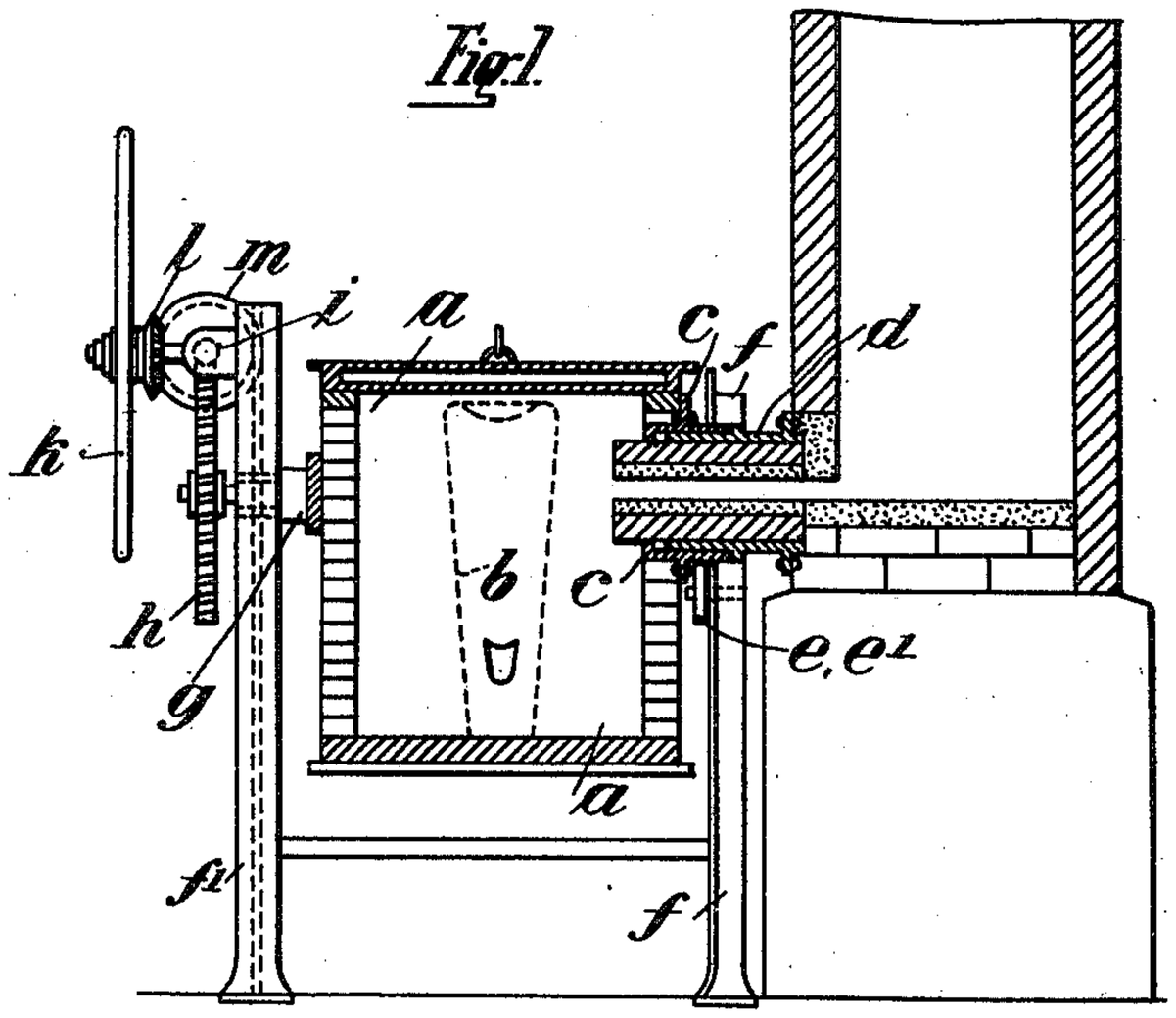
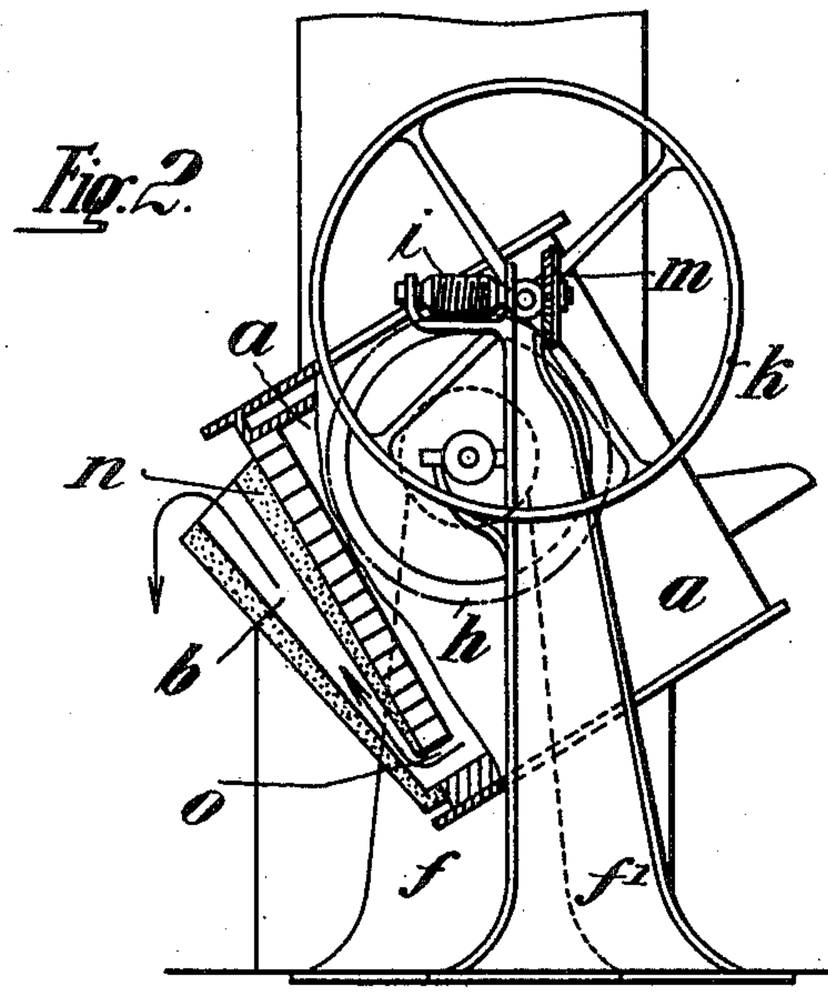



Fig. 2.




WITNESSES

W. P. Burke
L. Najek

INVENTOR

Theodor Löhe
By Wm Wallace White
Atty.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

THEODOR LÖHE, OF HENNEF, GERMANY.

## TILTING FOREHEARTH FOR FURNACES.

998,787. Specification of Letters Patent. Patented July 25, 1911.

Application filed July 7, 1910. Serial No. 570,804.

*To all whom it may concern:*

Be it known that I, THEODOR LÖHE, engineer, a subject of the German Emperor, residing at Hennef a. d. Sieg, Germany, have invented certain new and useful Improvements in Tilting Forehearths for Furnaces, of which the following is a specification.

This invention relates to a fore-hearth which can be used on any cupola and has for its purpose to avoid the necessity of tapping and to enable the molten metal to be poured without risk and in an accurately regulable manner.

The inconvenience of tapping, the cutting of the loam lining and the resulting perpetual irregularity of the tapping hole, as well as the repeated closing of the tapping hole by clay plugs, the security of which depends upon the skill of the operator in charge of the furnace, make it impossible when there is a considerable pressure of molten metal to transfer the metal from the furnace to the ladles without dangerous splashing and spurting, so that the tapping is one of the most unpleasant parts of casting. The present invention on the contrary enables the molten metal to be poured from the fore-hearth in an absolutely sure, safe and regulable manner and any spurting of the metal is prevented. Moreover the operator is enabled by the invention to return any superfluous metal to the fore-hearth.

The tilting fore-hearth is so mounted before the furnace that its pivot adjacent to the furnace forms also an exit tube for the fluid metal from the cupola into the fore-hearth, and upon the latter there is arranged a cylindrical flange which turns upon a pouring spout secured on the cupola. The fore-hearth is supported on the side adjacent to the furnace, both upon the pouring spout and also on two rollers which are mounted on a stand. On the other side the fore-hearth is provided with a journal which is mounted in a second stand. A hand wheel operated through a worm wheel and worm serves for tilting the fore-hearth. Since slag flows into the fore-hearth with the molten iron a dividing wall is arranged in the fore-hearth in the manner known in ladles which enables iron free from slag to be poured through an opening in the casting spout which extends to the bottom of the fore-hearth.

A tilting fore-hearth is already known having a pivot serving simultaneously as an opening to admit the molten metal from the cupola. Also as above mentioned it is not new to provide ladles with a wall to retain the slag. This invention, however, consists in employing both devices simultaneously in a tilting fore-hearth. Thus molten metal passes from the bottom of the fore-hearth into the spout so that the slag is left behind in the fore-hearth. The superfluous metal can be returned to the fore-hearth by pouring it in through the spout.

In the accompanying drawings, Figure 1 is an elevator, partly in section, of the fore-hearth, and Fig. 2 is a front view, partly in section.

Upon the fore-hearth *a* there is secured a cylindrical flange *c* which rests upon a pouring spout *d* secured to the cupola and provided with a casing. The flange *c* is also supported upon rollers *e*, *e'*, which are secured to the stand *f*. On the other side the fore-hearth rests in the stand *f'*. The pivot *g* of the fore-hearth journaled in *f'* is provided with a worm wheel *h* in which engages a worm *i* arranged upon the stand and adapted to be turned by means of a hand wheel *k* through the bevel wheels *l*, *m*. The turning of the hand wheel tilts the fore-hearth. On the fore-hearth *a* is secured the spout *b* which extends down to the bottom of the fore-hearth and through this the fluid metal flows from the bottom of the fore-hearth.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

In combination, a cupola furnace provided with an outlet spout, a tilting fore-hearth comprising a body portion and a pouring spout, said pouring spout being positioned exteriorly of said body portion, said body portion being provided with an opening extending through its wall adjacent

the bottom thereof and communicating with said spout, said fore-hearth being provided with an opening in its wall adjacent the top thereof and embracing said outlet spout, whereby said fore-hearth may be rotated about said outlet spout as a pivot, and means for rotating said fore-hearth.

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

THEODOR LÖHE.

Witnesses:
HENRY HASPER.
HENRY SASOL.