H. MEYER.

DEVICE FOR CLOSING THE TAPPING OPENINGS OF SMELTING FURNACES.

APPLICATION FILED MAY 9, 1913.

1,097,345.

Patented May 19, 1914.

Fig. 1.

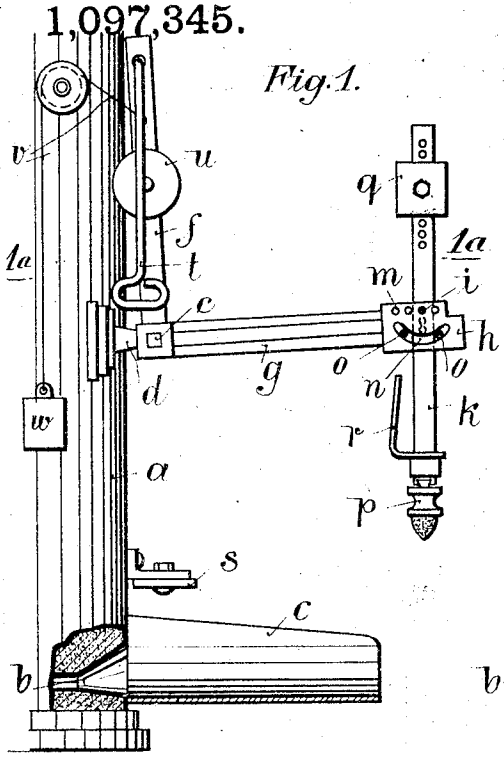


Fig. 2.

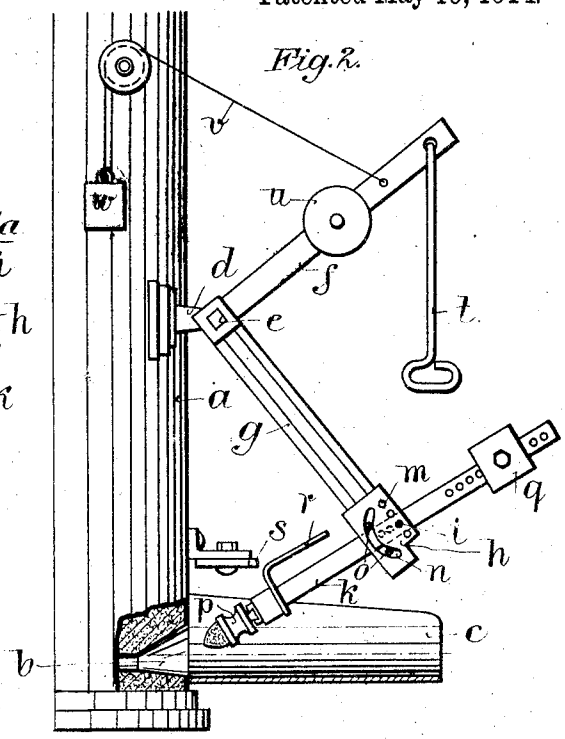


Fig. 1a.

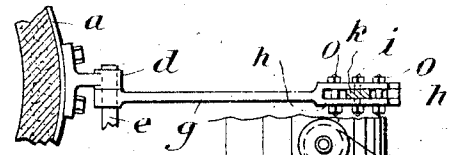
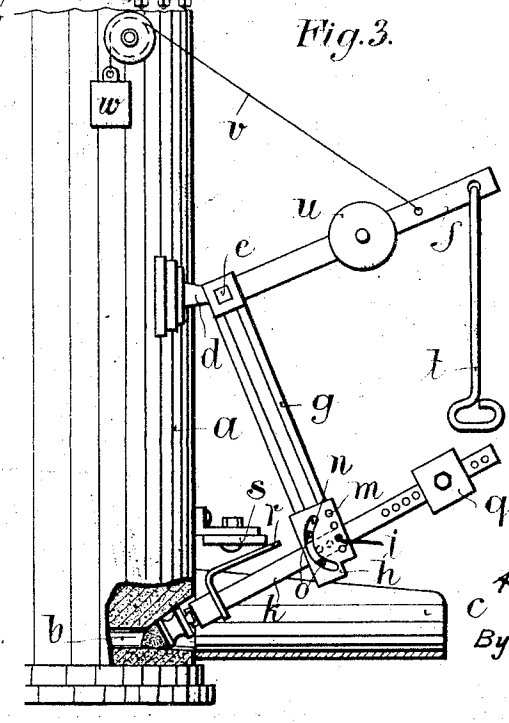


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

HERMANN MEYER, OF BARMEN, GERMANY.

DEVICE FOR CLOSING THE TAPPING-OPENINGS OF SMELTING-FURNACES.

1,097,345. Specification of Letters Patent. Patented May 19, 1914.

Application filed May 9, 1913. Serial No. 766,481.

To all whom it may concern:

Be it known that I, HERMANN MEYER, a citizen of the German Empire, residing at Barmen, Germany, have invented certain new and useful Improvements in Devices for Closing the Tapping-Openings of Smelting-Furnaces, of which the following is a specification.

This invention relates to a device for closing the tapping openings of smelting furnaces and consists in that the plug carrier, which is suspended from a link so as to be capable of oscillation, is guided in such a manner that the plug is lowered to the height of the tapping opening just prior to its insertion.

Figure 1 is a side elevation, illustrating the closing device attached to a furnace and in its normal inactive position. Fig. 1ª is a fragmentary horizontal section thereof, taken on the line 1ª—1ª, Fig. 1. Fig. 2 is a side elevation of a furnace with the closing device attached and in position for closing the tapping opening thereof. Fig. 3 is a similar view showing the tapping opening closed by said device.

a is the smelting furnace for metal, *b* is the tapping opening and *c* the tapping channel. In bearings *d* provided on the furnace *a* is rotatably mounted a shaft *e* on which are secured a lever *f* and a link *g*. The link *g* is at its free end provided with two cheeks *h*, between which and on a pivot *i* is mounted the plug carrier *k* so as to be capable of oscillation.

The cheeks *h* are provided with a number of holes *m* by means of which the pivot *i* for the plug carrier *k* can be adjusted. The cheeks *h* are in addition provided with the slots *n* in which screw bolts *o* are provided transversely through the cheek *h* so that the distance of oscillation of the plug carrier *k* can be suitably adjusted within the slots *n*.

The head *p* adapted for the reception of the plug is connected to the carrier *k* in a suitable detachable manner, so that it can be exchanged according to requirements. On the opposite end of the carrier *k* is adjustably mounted a weight *q* which tends to press upward the head end of the carrier *k* when inserting the plug, so that it cannot come into contact with the stream of metal flowing from the tapping opening *b*. Only just prior to the insertion of the plug into the tapping opening is the head end of the carrier *k*, by means of a rail *r* provided thereon, when this comes into contact with a suitable stop or guide *s* provided on the furnace or in any other suitable position, depressed against the action of the weight *q* and the plug guided into the tapping opening (Fig. 3). The movement of the device is produced by the hand lever *t* hinged to the lever *f* whereby the closing movement is produced by means of a weight *u* provided on the lever *f*, the movement of the device into its initial position (Fig. 1) being produced by a weight *w* connected to the lever *f* by a rope *v*.

Naturally a positive movement of the plug carrier can be effected by other means than those described, it is only of importance that the guide of the plug is such that it dips into the metal stream only just prior to its insertion into the tapping opening, whereby the certain, non-dangerous operation is obtained.

I claim:

1. A device for closing the tapping opening of smelting furnaces comprising: a link pivotally secured thereto above the opening; an oscillatory plug carrier pivotally suspended therefrom; means to limit the oscillation of said plug carrier; means to lower said link and carrier; and means to engage said plug carrier to guide the same into the said tapping opening.

2. A device for closing the tapping opening of smelting furnaces comprising: a link pivotally secured thereto above the opening; an oscillatory plug carrier pivotally suspended therefrom; means to limit the oscillation of said plug carrier; means to lower said link and carrier; and adjustable means to guide the same into the said tapping opening.

3. A device for closing the tapping opening of smelting furnaces comprising: a link pivotally secured thereto above the opening; an oscillatory plug carrier pivotally suspended therefrom; means to limit the oscillation of said plug carrier; means to lower said link and carrier; a member carried by said plug carrier, and a stop secured to said furnace adapted to be engaged thereby to guide the plug carrier into the said tapping opening.

4. A device for closing the tapping opening of smelting furnaces comprising: a link pivotally secured thereto above the opening; an adjustable, oscillatory plug carrier pivotally suspended therefrom; means to limit

the oscillation of said plug carrier; means to lower said link and carrier; and means to engage said plug carrier to guide the same into the said tapping opening.

5. A device for closing the tapping opening of smelting furnaces comprising: a link pivotally secured thereto above the opening; an adjustable oscillatory plug carrier pivotally suspended therefrom, and an exchangeable head mounted thereon for the reception of the plug; means to limit the oscillation of said plug carrier; means to lower said link and carrier; and means to engage said plug carrier to guide the same into the said tapping opening.

6. A device for closing the tapping opening of smelting furnaces comprising: a link pivotally secured thereto above the opening; an adjustable, counterweighted oscillatory plug carrier pivotally suspended therefrom, and adapted to be normally held above the surface of the metal stream from the furnace; means to limit the oscillation of said plug carrier; means to lower said link and carrier; and means to engage said plug carrier to guide the same into the said tapping opening.

7. A device for closing the tapping opening of smelting furnaces comprising: a link pivotally secured to the furnace; a lever connected therewith, and a hand lever hinged to said lever; a closing weight mounted upon said lever; a plug carrier pivotally suspended from said link; adjustable means to limit the oscillation of said plug carrier; a member carried by said plug carrier; and a stop secured to said furnace adapted to be engaged thereby to guide the plug carrier into the said tapping opening when the hand lever is drawn downwardly.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

HERMANN MEYER. [L. S.]

Witnesses:
HELEN NUFER,
ALBERT NUFER.