

A. HELFENSTEIN.
ELECTRIC FURNACE.

APPLICATION FILED JAN. 12, 1912.

1,057,239.

Patented Mar. 25, 1913.

FIG1.

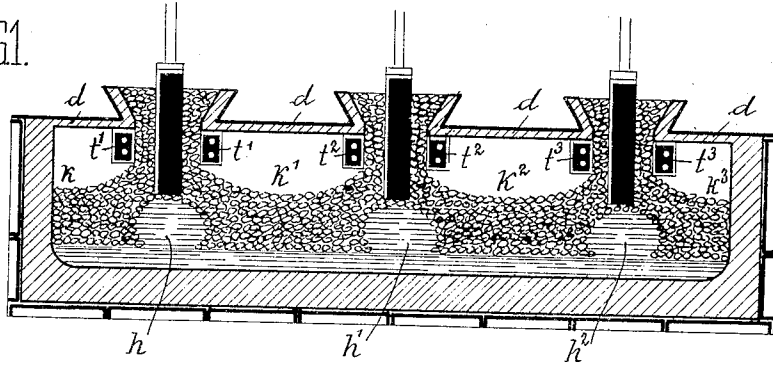


FIG2.

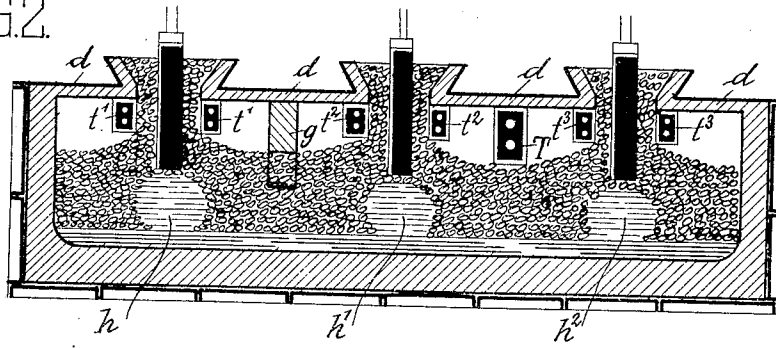


FIG3.

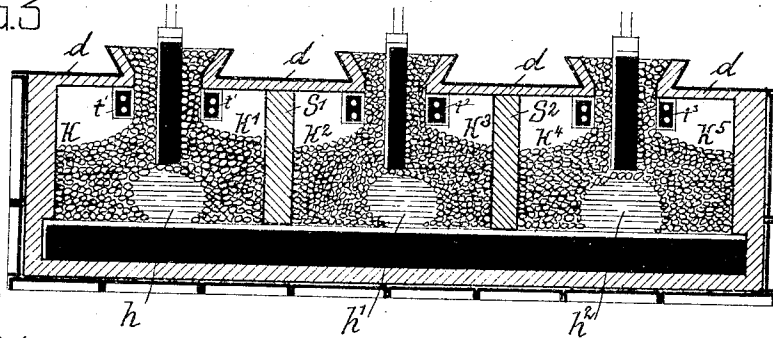
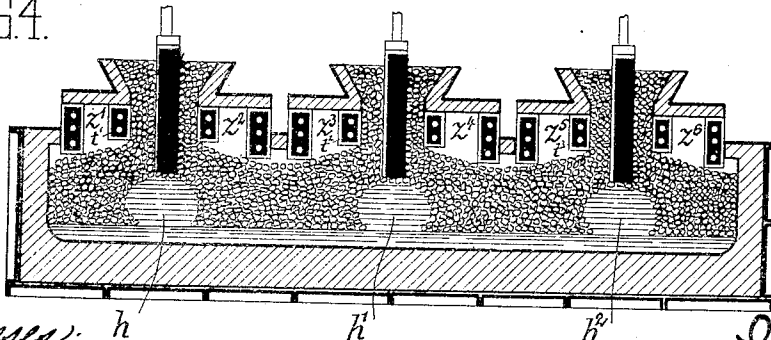


FIG4.



Witnesses:
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UNITED STATES PATENT OFFICE.

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ELECTRIC FURNACE.

1,057,239.

Specification of Letters Patent.

Patented Mar. 25, 1913.

Application filed January 12, 1912. Serial No. 670,873.

To all whom it may concern:

Be it known that I, ALOIS HELFENSTEIN, a citizen of Switzerland, residing at 50 Bastiengasse, Vienna XVIII, Austria-Hungary, have invented new and useful Improvements in Electric Furnaces, of which the following is a specification.

This invention relates to multiple hearth furnaces and is an improvement in or modification of an invention for which Letters Patent No. 1000805 dated August 15, 1911, were granted to me.

The present improvement consists in the introduction between the hearths of further supporting parts in addition to those referred to in the specification of principal patent for the purpose of supporting the roof of the furnace, so that for example supports situated between two electrodes of different polarity mutually support the roof of the furnace and if necessary the charging receptacle. These supports may be replaced by arches or by partitions extending to the bottom. Finally the supports of each shaft may be doubled with a space between them so that notwithstanding the multiplicity of the hearths, two separate gas elimination chambers are formed which are not shut off from the other hearths by any of the mutual supporting elements.

In Figures 1 to 4 of the drawing, four forms of the invention are illustrated diagrammatically in longitudinal section by way of example applied to a triple hearth furnace (three phase furnace).

According to the form illustrated in Fig. 1 the water cooled supports t^1 , t^2 , t^3 , etc., are arranged along the opening between the different hearths h h^1 h^2 as single supporting elements for the furnace roof d , the adjacent gas elimination chambers k k^1 k^2 communicating with each other.

According to Fig. 2 brick work arches q or supports T filled with water are arranged which together with the supports t^1 , t^2 and t^3 , support the furnace roof and if necessary can bring about a separation of adjoining gas elimination chambers.

Fig. 3 illustrates a form of construction in

which partitions s^1 , s^2 , extending to the bottom are provided between the hearths and constitute supporting elements likewise with the supports t , t^1 , etc., producing moreover a separation of the hearths and therefore of the gas elimination chambers also.

Finally according to Fig. 4 the water cooled supports t , t^1 , etc., of each hearth are doubled, spaces z^1 , z^2 being created. The supports again form mutual supporting elements for the roof, while the spaces constitute separate gas elimination chambers for each 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:

1. A multiple electric furnace comprising in combination, an inclosing setting provided with a plurality of reduction chambers and a top wall having a charging opening for each reduction chamber, an electrode projecting through each opening, and elements supporting the top wall adjacent each charging opening and restricting the flow of material against movement laterally of the reduction chambers thereby forming gas chambers in said setting on opposite sides of the charging openings, substantially as described.

2. A multiple electric furnace comprising in combination, an inclosing setting provided with a plurality of communicating reduction chambers and a top wall having a charging opening for each chamber, an electrode projecting through each opening, and sets of girders on each side of the charging openings for supporting the top wall and restricting movement of the material laterally of the reduction chambers thereby forming gas chambers in said setting on opposite sides of said charging openings, substantially as described.

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

ALOIS HELFENSTEIN.

Witnesses:

IGNEZ KNONFELINCHLY,
ADA MARIA BERGER.