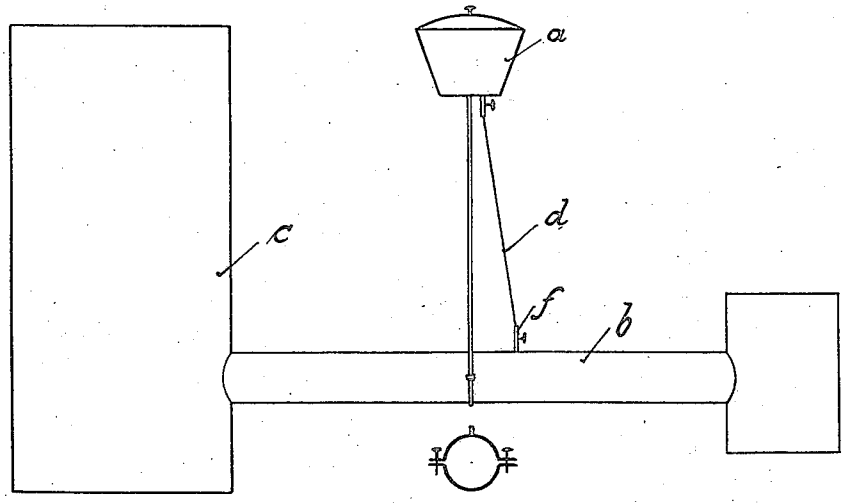
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M. GOTTSCHALK

BLAST OF CUPOLA FURNACES AND BLAST FURNACES

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# UNITED STATES PATENT OFFICE.

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## BLAST OF CUPOLA FURNACES AND BLAST FURNACES.

Application filed August 3, 1921. Serial No. 489,494.

*To all whom it may concern:*

Be it known that I, MATHIAS GOTTSCHALK, a citizen of the German Republic, and residing at Niederau, near Duren, 48 Hauptstrasse, Germany, have invented certain new and useful Improvements in the Blast of Cupola Furnaces and Blast Furnaces, of which the following is a specification.

This invention relates to an improvement in the blast of cupola furnaces and blast furnaces. In accordance therewith the working of these furnaces can be materially improved by the introduction to the blast of water in suitable quantity and form. It has been found that by this means there is a considerable saving in coke, and a hotter and purer iron is obtained and the smelting process is quickened.

The water is introduced as liquid, that is to say in compact liquid form, driven in by air supply into the air current of the blast, in order thereby to be carried into the furnace.

Preferably for the introduction of the water in the blast pipe a spray connected therewith is made use of, which spray may be connected by means of a pipe or tube with a water conduct or a water receptacle placed above which contains a supply of water. The container is preferably provided with multiple divisions.

Such a construction, adapted for the carrying into effect of this process, is illustrated in the accompanying drawing as follows:

A vessel *a* in which the water is placed is connected by a tube with the blast pipe *b*; the furnace is shown at *c*. The water is delivered from the vessel *a* through a pipe or tube *d*, which connects with the jet or spray *f* which projects into the blast pipe *b*. This diagrammatic illustration is, however, only one constructional form of carrying out the invention. The water supply is so regulated that the water passes into the blast in the form of a compact liquid, and saturates or supersaturates the air with moisture.

A further improvement consists in supplying in certain cases water in smaller quantities, whereas on the other hand the discharge of the water even as a compact liquid into the furnace is not always objectionable. But it is to be noted that the most effective degree of moisture on the passage through the blast is only attained if the water be added to the blast in compact liquid form, whereas the addition in other forms, such for instance as water vapours, does not assist the work of the furnace to anything like the same degree.

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:—

A process of supplying water to cupola and blast furnaces, which consists in supplying water by an air supply into the air current blast and then delivering the water in the form of water directly into the furnace prior to its vaporization.

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

MATHIAS GOTTSCHALK.

Witnesses:
AUG. R. OMER,
M. ENGEL.