No. 765,728. PATENTED JULY 26, 1904.

J. C. FOX.

MUFFLE.

APPLICATION FILED MAR. 12, 1904.

NO MODEL.

Fig. 1.

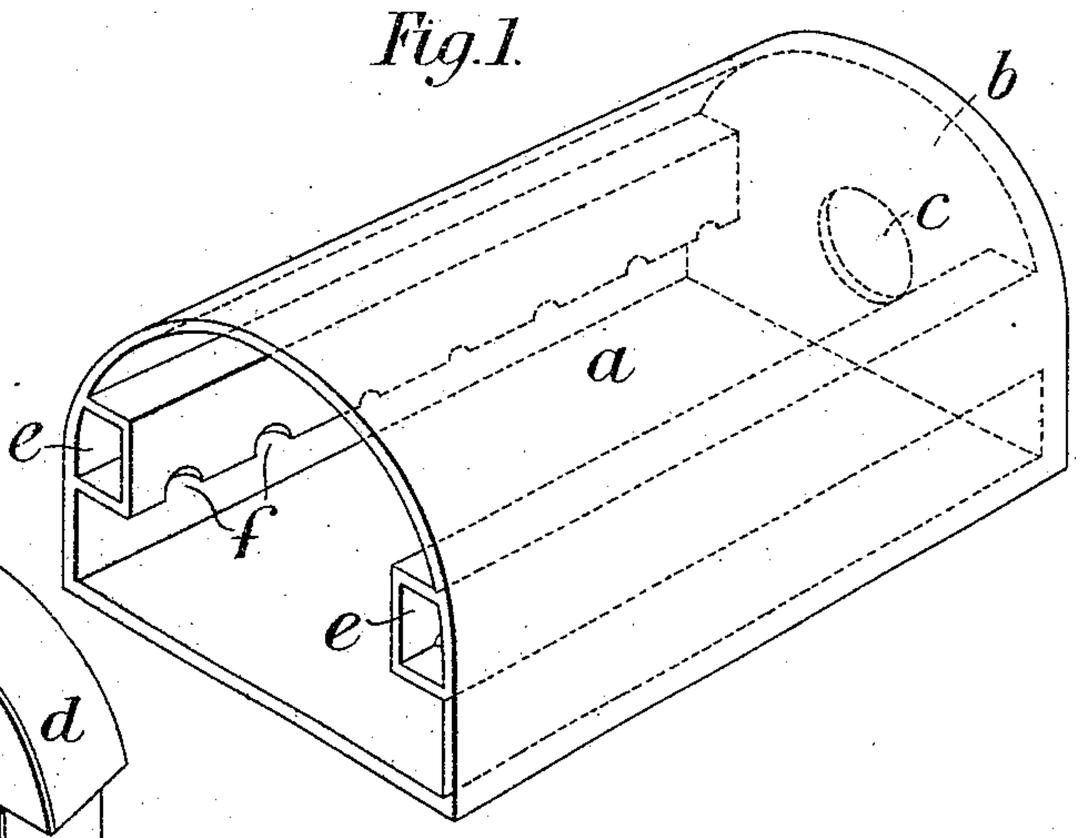


Fig. 2.

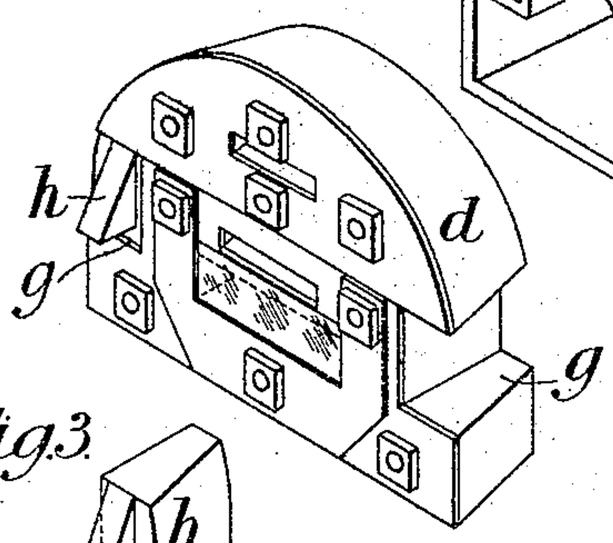


Fig. 3.

Fig. 4.

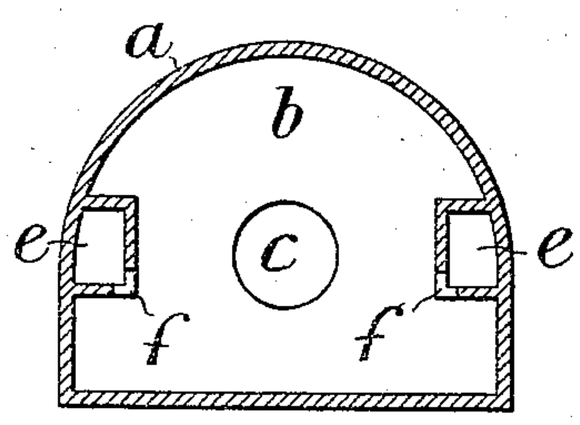


Fig. 5.

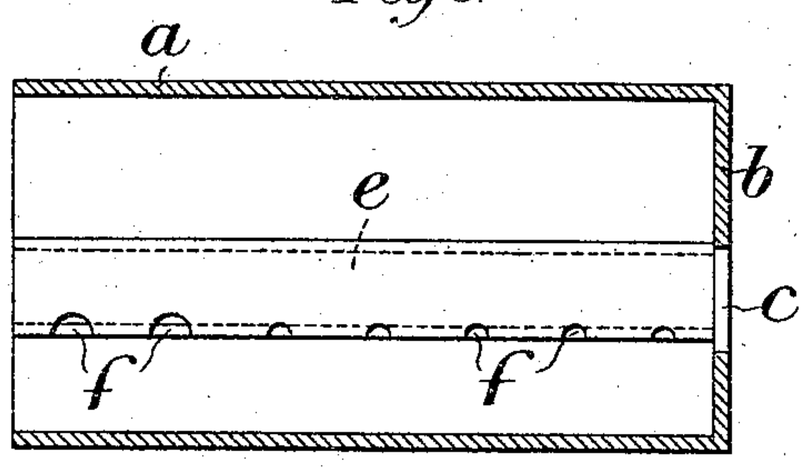


Fig. 6.

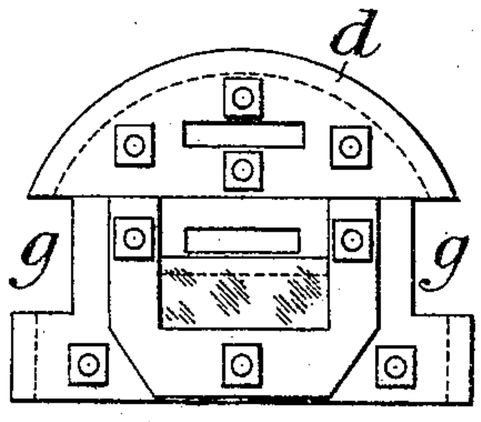
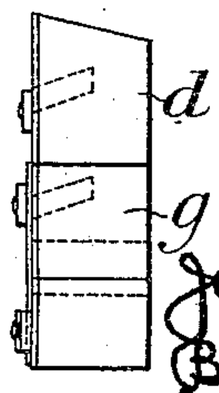


Fig. 7.



Witnesses.
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No. 765,728. Patented July 26, 1904.

UNITED STATES PATENT OFFICE.

JAMES CHARLES FOX, OF BATTERSEA, LONDON, ENGLAND, ASSIGNOR TO THE MORGAN CRUCIBLE COMPANY, LIMITED, OF LONDON, ENGLAND.

MUFFLE.

SPECIFICATION forming part of Letters Patent No. 765,728, dated July 26, 1904.

Application filed March 12, 1904. Serial No. 197,841. (No model.)

To all whom it may concern:

Be it known that I, JAMES CHARLES FOX, a subject of the King of Great Britain, residing at Battersea Works, Battersea, London, England, have invented new and useful Improvements in Muffles, of which the following is a specification.

This invention relates to muffles of the kind used by assayers for the roasting or cupellation of ores. In such muffles as heretofore constructed the air necessary for producing the desired oxidation of the charges under treatment is admitted at one end of the muffle, with the result that the reaction takes place successively upon the several charges, the action upon the charges in front of the muffle being completed very much earlier than those at the back of the muffle to which the oxygen does not at first get free access. With this arrangement time is wasted in awaiting the completion of the operation upon these back charges before a new series of assays can be commenced.

The object of this invention is to provide means whereby the access of air shall be practically simultaneous to all the charges in the muffle; and to this end the invention consists in providing the muffle with channels or passages through which the air-supply can be distributed to all parts of the muffle.

In a suitable arrangement for carrying out the invention one or more channels is or are formed integral with the walls of the muffle, the said channel or channels being supplied with air from the exterior of the muffle and formed with a series of perforations, so that the fresh air which enters the said channels will be distributed over the surface of all the charges under treatment simultaneously. It is to be understood that the channels may be made separate from the muffle, if desired.

The door or front of the muffle is provided with plugs or the like for closing the channels until such time as the air is to be allowed to enter the said muffle, and the said plugs may also be used for controlling the quantity of air which enters the said channels.

To enable the invention to be fully understood, it will now be described by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of a muffle provided with the improvements. Fig. 2 is a similar view of the door or front of the said muffle, showing the arrangement of the plugs for closing the air-passages. Fig. 3 is a perspective view of one of the said plugs detached. Figs. 4 and 5 are respectively a transverse section and a longitudinal section of the muffle, and Figs. 6 and 7 are respectively a front elevation and a side elevation of the front or door of the muffle.

a indicates the muffle, which at one end is closed by a wall *b*, having in it an aperture *c* for the escape of the gases and which at the other end is adapted to be closed by a door or front *d*.

e e are air-passages which, as shown, are arranged along the sides of the interior of the muffle and each of which is provided with a series of holes or perforations *f f*, through which the air enters the muffle, the said passages *e e* being preferably so arranged that the air which passes through the holes *f f* will come into contact with the top surface of the cupels or the like which are placed in the said muffle.

In the front *d* are formed recesses *g g*, the position of which is adapted to correspond with the passages *e e*, and in these recesses *g g* plugs *h h* are arranged, which serve to control the supply of air which enters the said passages *e e*.

It is to be understood that the passages shown in the drawings are only given as an illustration, as it is obvious that they may be of other shapes than that shown and arranged in different positions. For instance, if desired, the passages can be on the outside of the muffle instead of on the inside, or they could be arranged more or less on the arch of the said muffle instead of on the sides, as shown.

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 muffle consisting of a horizontally-dis-

posed chamber provided with means for closing its ends to exclude the products of combustion from the interior of the muffle, said muffle having a discharge-aperture and being provided laterally with a series of air-inlets extending from one end to the other, to supply the contents of the muffle with oxygen substantially equally throughout its length whereby the entire contents of the muffle will be acted upon simultaneously and in a substantially uniform manner, substantially as described.

2. A muffle consisting of a horizontally-disposed chamber having its rear end closed and provided with a discharge-aperture for gases, and a movable front wall for closing the muffle to exclude the products of combustion of the furnace, said muffle having air-passages extending longitudinally along its sides and communicating with the atmosphere and having air-inlet apertures communicating with said air-passages and opening into the muffle at intervals throughout its length to supply oxygen uniformly to the contents of the muffle, substantially as described.

3. A muffle consisting of a horizontally-disposed chamber having its rear end closed and provided with a discharge-aperture for gases, and a movable front wall for closing the muffle to exclude the products of combustion of the furnace, said muffle having air-passages extending longitudinally along its sides and communicating with the atmosphere and having air-inlet apertures communicating with said air-passages and opening into the muffle at intervals throughout its length, to supply oxygen uniformly to the contents of the muffle and devices for regulating the passage of air through said air-inlets into the muffle, substantially as described.

4. A muffle consisting of a horizontally-disposed chamber having its rear end closed and provided with a discharge-aperture for gases, and a movable front wall for closing the muffle to exclude the products of combustion of the furnace, said muffle having air-passages extending longitudinally along its sides and communicating with the atmosphere and having air-inlet apertures communicating with said air-passages and opening into the muffle at intervals throughout its length, to supply oxygen uniformly to the contents of the muffle, and movable devices for partially or wholly closing the communication between said air-passages and the atmosphere, substantially as described.

5. A muffle comprising a horizontally-disposed chamber having its rear end closed and provided with a discharge-aperture, said muffle having its side walls provided with inwardly-projecting longitudinally-disposed air-passages having air-inlet openings extending at intervals from the front to the rear end of the muffle and opening into the interior thereof and a movable front for said muffle having recesses to accommodate said air-passages and permit the access of air thereto, substantially as described.

6. The combination with a muffle provided with air-passages upon its wall, of a front having apertures or recesses in it corresponding with such air-passages and designed to receive plugs for controlling the admission of air into and through the said passages, substantially as described.

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