

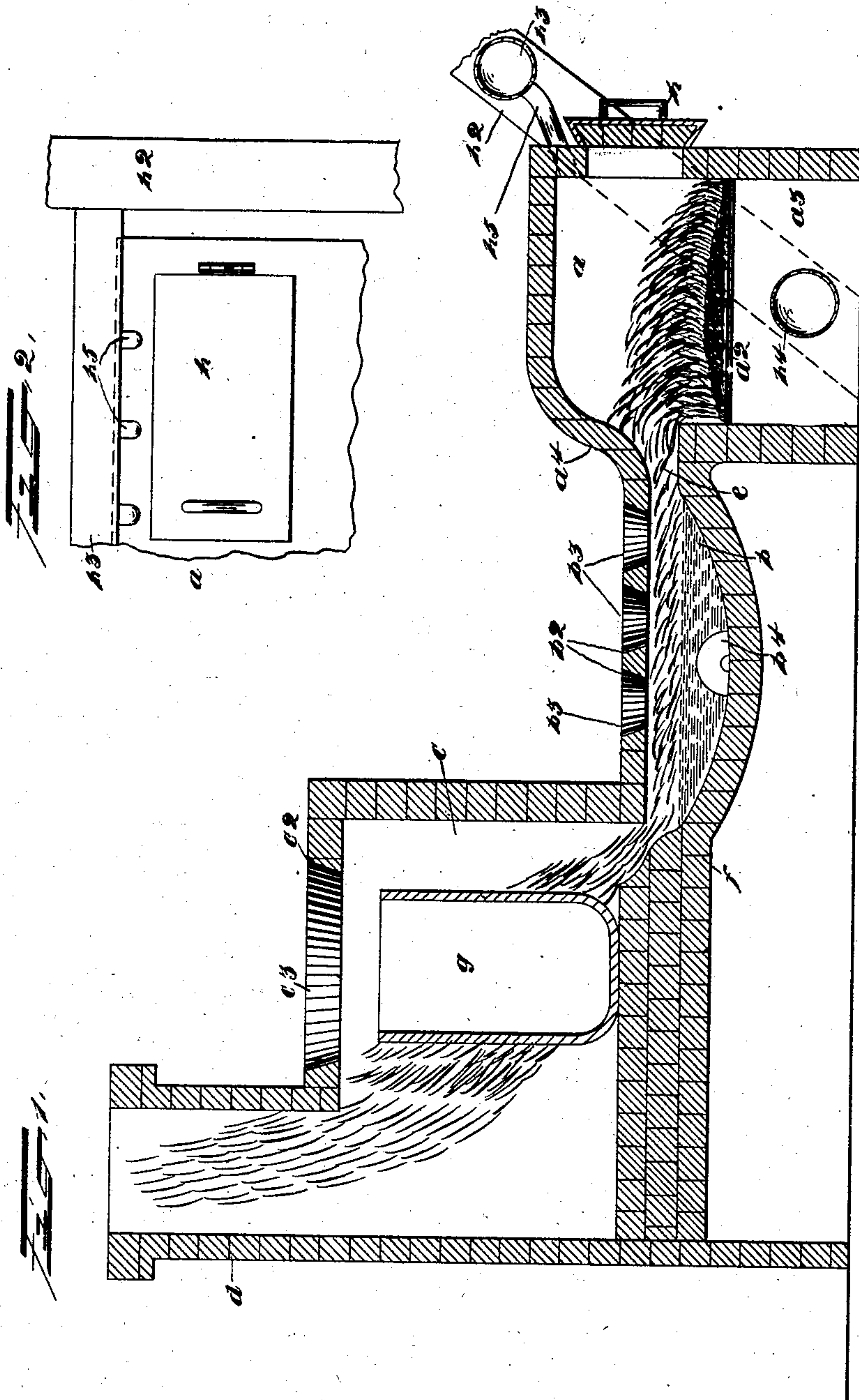
No. 725,936.

PATENTED APR. 21, 1903.

J. F. COTTRELL.
MELTING FURNACE.

APPLICATION FILED MAY 15, 1902.

NO MODEL.



WITNESSES

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JAMES FARR COTTRELL, OF ALBANY, NEW YORK.

MELTING-FURNACE.

SPECIFICATION forming part of Letters Patent No. 725,936, dated April 21, 1903.

Application filed May 15, 1902. Serial No. 107,421. (No model.)

To all whom it may concern:

Be it known that I, JAMES FARR COTTRELL, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Melting-Furnaces, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide an improved furnace for melting metals; and the invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by the same reference characters in each of the views, and in which—

Figure 1 is a longitudinal vertical section of a metal-melting furnace made according to my invention, and Fig. 2 a front view of a part of the front of the furnace.

In the practice of my invention I provide a furnace comprising a fire-box *a*, a metal-chamber *b*, and a crucible-chamber *c*, the metal-chamber *b* being located between the fire-box and the crucible-chamber and the crucible-chamber being provided with an uptake or escape-flue *d*. The fire-box *a* is provided with a grate *a*², below which is an ash-pit *a*³, and the bottom wall of the metal-chamber *b* is convex, and the top wall thereof is provided with openings *b*², having removable plugs or covers *b*³, and said metal-chamber is also provided with a transverse breast wall or member *b*⁴. The bottom of the crucible-chamber is preferably slightly above the top of the metal-chamber *b*, and the top wall of the crucible-chamber is elevated considerably above both the top wall of the metal-chamber and the top wall of the fire-box, and the top wall of the metal-chamber is below the top wall of the fire-box, and said top wall of the fire-box is downwardly and backwardly curved, as shown at *a*⁴, and the products of combustion or the hot gases of combustion pass from the fire-box *a* through a flue or passage *e* into the metal-chamber *b* and from said metal-chamber upwardly through a flue or passage *f* into the crucible-chamber *c*. Within the crucible-chamber *c* is placed a crucible *g*, and the top wall of the crucible-

chamber is provided with an opening *c*², which is closed by a removable plug or similar device *c*³.

The front wall of the fire-box *a* is provided with a door *h*, which may be of any preferred form or construction, and at one side of said fire-box is an air-blast tube *h*², having two laterally-directed branches *h*³ and *h*⁴.

The branch tube *h*⁴ of the air-blast tube *h*² communicates with the fire-box *a* below the grate *a*², or, in other words, communicates with the ash-pit, and the branch pipe *h*³ extends transversely in front of the flue-box over the door *h* and is provided with supplemental branches *h*⁵, which extend through the front wall of the fire-box and communicate with the top portion thereof above the grate.

The object of the opening *b*² in the top wall of the metal-chamber is to provide means for placing metal within said chamber and removing the same therefrom, and the object of the hole *c*² in the top wall of the crucible-chamber and the removable plug or cover *c*³ thereof is to provide means for placing metal in the crucible and removing the same therefrom.

It will be understood that my improved furnace may be of any desired width, and any desired number of openings *b*² and *c*² may be employed, as may also any number of the crucibles *g*.

The operation of the furnace is similar to that of other furnaces of this class, and by admitting air both below and above the grate, said air being under pressure, I provide for the perfect combustion of the coal or other material, and this results in a very high degree of heat, the hot gases or escaping products of combustion being driven backwardly over the metal and around the crucible *g*, as will be readily understood.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A melting-furnace comprising a fire-box, a metal-chamber arranged rearwardly of the fire-box and a crucible-chamber arranged rearwardly of the metal-chamber and provided with a chimney or escape-flue, said fire-box, metal-chamber and crucible-chamber being in communication, and metal-chamber

being depressed below the bottom of the crucible-chamber and below the top of the fire-box and provided with a concave bottom, said fire-box being also provided with pipes
5 for supplying air thereto under pressure above and below the grate therein and the pipes above the grate being so arranged as to drive the flames back into the metal-chamber and over the metal therein, and said
10 metal-chamber and crucible-chamber being each provided in the top thereof with open-

ings having removable covers, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 12th
day of May, 1902. 15

JAMES FARR COTTRELL.

Witnesses:

JOHN JOS. MULLANEY,
HERBERT F. ROSEKRANS.