

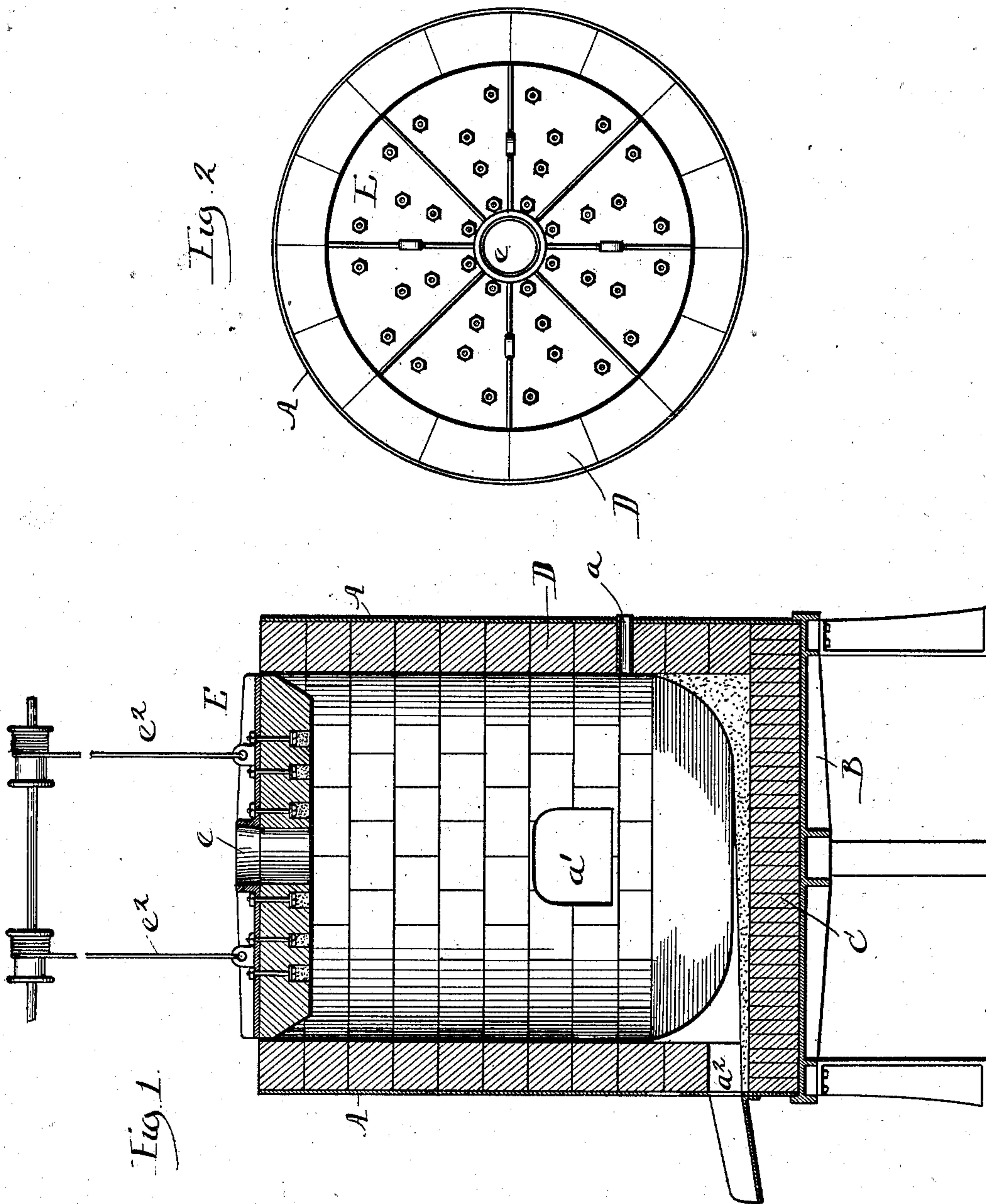
No. 698,495.

Patented Apr. 29, 1902.

H. H. HEWITT.
FURNACE FOR HEATING OR SMELTING METALS.

(Application filed Oct. 16, 1901.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

HERBERT H. HEWITT, OF BUFFALO, NEW YORK.

FURNACE FOR HEATING OR SMELTING METALS.

SPECIFICATION forming part of Letters Patent No. 698,495, dated April 29, 1902.

Application filed October 16, 1901. Serial No. 78,884. (No model.)

To all whom it may concern:

Be it known that I, HERBERT H. HEWITT, a citizen of the United States, and a resident of the city of Buffalo, in the county of Erie, State of New York, have invented certain new and useful Improvements in Furnaces for Heating or Smelting Metals, of which the following is a full, clear, and exact description.

In the construction of oil or gas furnaces for heating or smelting metals much difficulty has been experienced in determining the proper dimensions for the most perfect combustion of the fuel. Ordinarily, such furnaces are built up of fire-brick confined by exterior metal bands or buckstays, the top of the furnace being a fixed part of the structure and the amount of space in the furnace or combustion-chamber being fixed and unalterable. In practice it is found that the space or internal volume of the combustion-chamber that insures the most perfect combustion and the best results at one temperature or under certain atmospheric conditions or with certain classes of metal do not produce like good results under other conditions.

My present invention has for its object to provide a furnace in which the amount of space for combustion may be varied in order to adapt the furnace for most effective work under the varying conditions to which it may be applied.

In its broadest scope the invention consists in providing the furnace with an adjustable diaphragm, roof, or cover, whereby the internal space of the combustion-chamber may be varied.

Referring to the accompanying drawings, Figure 1 is a view in central vertical section through a furnace embodying my invention. Fig. 2 is a plan view.

Preferably, although not essentially, the furnace is of circular shape and consists of an iron or steel boiler-plate shell A, resting on a suitable foundation or platform B and provided with a pavement C and a vertical lining D, of fire-brick or like refractory material. The furnace will be provided with holes a in suitable number for the burners, that will admit oil, gas, or like fuel, and will be provided also with one or more suitable

openings a' for charging the furnace and with one or more openings a^2 , from which the molten metal will be tapped or withdrawn.

The roof or cover E of the furnace is supported so that it may be conveniently raised and lowered in order to enable the interior space or area of the combustion-chamber of the furnace to be varied. Preferably the roof or cover E is of circular shape and of such size as to fit snugly in the interior of the furnace. As shown, the roof or cover E is lined upon its under side with fire-brick, held in place by suitable metal bars and bolts, and this cover is preferably provided with an opening e , through which the products of combustion will pass. As shown, the diameter of the opening e is small as compared with the diameter of the cover E, so that it will not interfere with the action of the cover or diaphragm E in defining the effective volume of the combustion-chamber. Any suitable means may be employed for suspending and raising and lowering the cover. I have shown the cover as provided with chains e^2 , leading therefrom, and it will be readily understood that these chains may pass to a winding-shaft or the cover can be suspended directly from the arm of a pneumatic or hydraulic lift.

In the embodiment of the invention shown the cover E forms a diaphragm whereby the interior area of the combustion-chamber may be varied as desired.

One advantage in adjustably suspending the roof or cover E is that it can be raised entirely clear of the furnace, thus permitting the furnace to be charged from the top when desired.

It is manifest that the precise construction of roof or cover above set forth may be varied without departing from the spirit of the invention as claimed.

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

1. A furnace of the character described having a combustion-chamber the wall whereof is perforated to admit the fuel-supply and a vertically-adjustable cover or diaphragm extending over and serving to define the effective volume of said combustion-chamber.

2. A furnace of the character described having a combustion-chamber the wall whereof is perforated to admit the fuel-supply and a vertically-adjustable cover or diaphragm extending over and serving to define the effective volume of the combustion-chamber, said cover or diaphragm being provided with an opening of small diameter for the escape of products of combustion.

10 3. A furnace of the character described having a combustion-chamber perforated to admit the fuel-supply and a vertically-adjustable cover or diaphragm extending over and serving to define the effective volume of the
15 combustion-chamber, the diameter of said cover or diaphragm being sufficiently smaller than the interior diameter of the body of the combustion-chamber to permit said cover or

diaphragm to be adjusted to any desired point within the combustion-chamber. 20

4. A furnace of the character described having a combustion-chamber perforated to admit the fuel-supply and a vertically-adjustable cover or diaphragm extending over and serving to define the effective volume of the
25 combustion-chamber, said cover or diaphragm being of somewhat smaller diameter than the interior diameter of the combustion-chamber whereby the cover or diaphragm can be adjusted to any desired point within the combustion-chamber and means for raising and
30 lowering said cover or diaphragm.

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