

(No Model.)

R. A. CHESEBROUGH.

ART OF AND APPARATUS FOR MAKING AND REVIVIFYING BONE BLACK.

No. 249,004.

Patented Nov. 1, 1881.

Fig. 1.

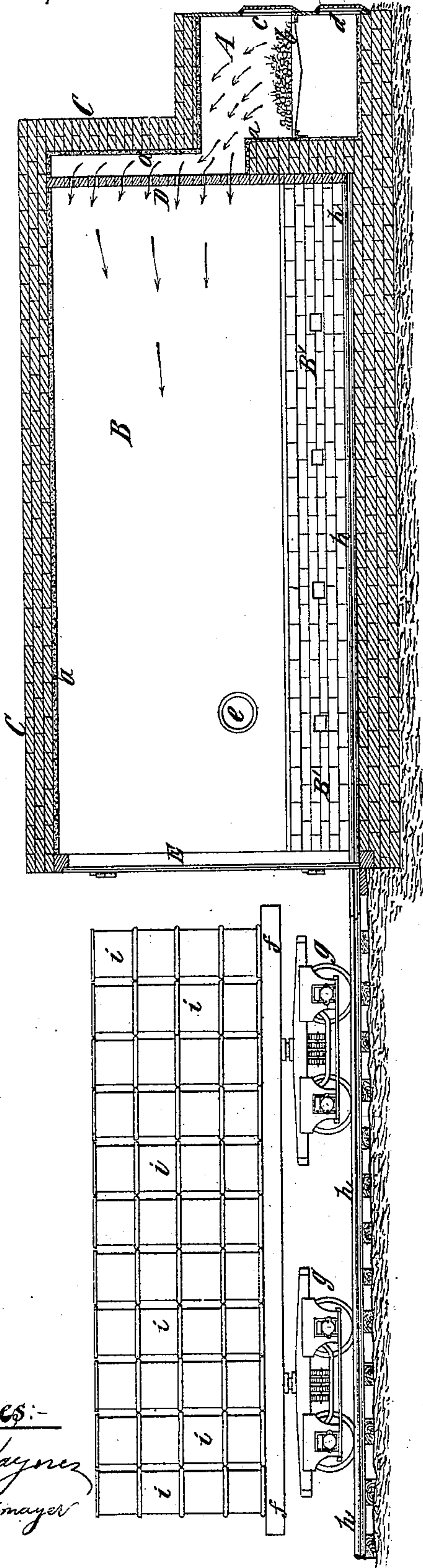
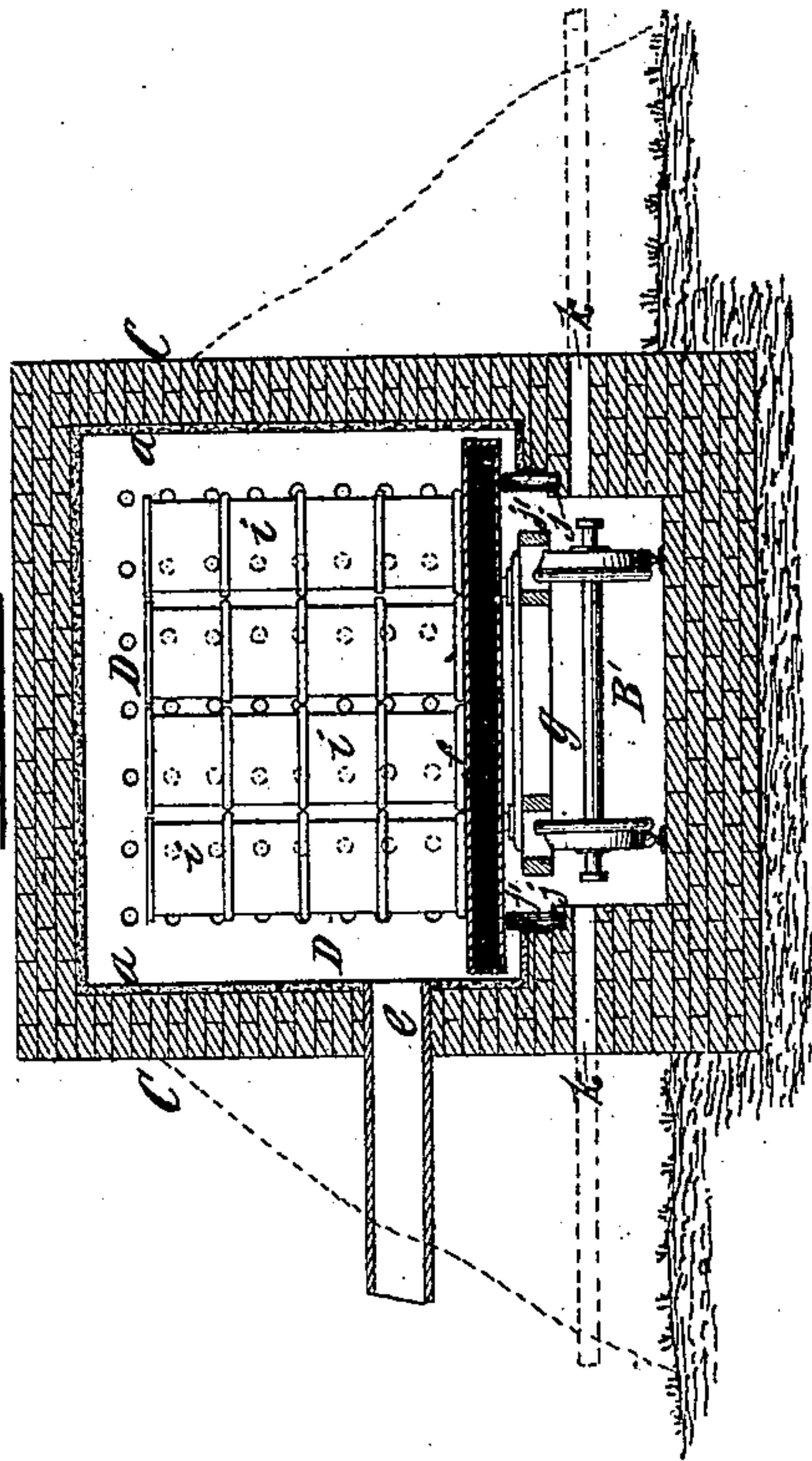


Fig. 2.



Witnesses:-

Jos. Haynes
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Inventor:-

Robert A. Cheesbrough
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UNITED STATES PATENT OFFICE.

ROBERT A. CHESEBROUGH, OF NEW YORK, N. Y.

THE ART OF AND APPARATUS FOR MAKING AND REVIVIFYING BONE-BLACK.

SPECIFICATION forming part of Letters Patent No. 249,004, dated November 1, 1881.

Application filed June 13, 1881. (No model.)

To all whom it may concern:

Be it known that I, ROBERT A. CHESEBROUGH, of the city of New York, in the county and State of New York, have invented certain
5 new and useful Improvements in the Art of and Apparatus for Making and Revivifying Bone-Black, of which the following is a specification.

A common way of making or reburning, or,
10 as it is commonly termed, "revivifying," bone-black is to place the bones or the bone-black to be reburned in pots and pile the said pots in an oven, and after burning the said oven must be allowed to cool down while the pots
15 are removed by hand, and the oven is again charged. The cooling of the oven each time the pots are to be changed, and the reheating of the oven after charging, require considerable time and involve the loss of a considerable
20 amount of heat and a corresponding increase in the consumption of fuel; and the object of my invention is to effect the removal of the contents of the oven and the recharging thereof in a very short time, thus preventing the
25 escape of any considerable quantity of heat and obviating the necessity of reheating the oven each time a charge is withdrawn.

The invention consists in subjecting the bone or bone-black to the burning or reburning operation in pots or receptacles placed on a car
30 or carriage which is run into and from the oven, so that it may be loaded with the said pots or receptacles and unloaded outside of the oven.

In the accompanying drawings, Figure 1 represents a vertical longitudinal section of an
35 oven, a furnace, and a car embodying my invention, the car being represented as loaded ready to be run into the oven; and Fig. 2 represents a transverse vertical section of said
40 oven and the car within it.

Similar letters of reference designate corresponding parts in all the figures.

A designates the furnace, and B the oven, both of which are here shown as inclosed within
45 ordinary brick-work C, which is faced internally with fire-brick *a* or other refractory material calculated to withstand the heat. In the furnace A, here shown as situated at one end of the oven, are the usual grate, *b*, and fire and
50 ash-pit doors *c* and *d*; and D designates a wall, which may be made of brick, tiles, or other

material, and which divides the furnace A from the oven B. The wall D is constructed with numerous small holes or perforations, through which the products of combustion enter the
55 oven, and by said holes or perforations the products of combustion and hot air are widely distributed, so as to heat all parts of the oven equally as far as is possible. After circulating through the oven the products of combustion
60 pass out of an outlet pipe or flue, *e*, which conducts them to a chimney.

The oven B has a perforated wall, D, on one end only in this example of my invention; but, if found desirable, it might have similar walls
65 upon the sides, through which the products of combustion could pass.

In the lower part of the oven B is a depressed portion, B', the purpose of which will be hereinafter explained, and the end of the oven opposite the furnace A is closed by a door or
70 doors, E, which may be hinged so as to open outward.

The car which I have here represented is composed simply of a platform, *f*, supported
75 on wheeled trucks *g*, or on any suitable number of simple axles and pairs of wheels, and said car is arranged to travel upon a track, *h*, which is laid within and without the oven, as seen in Fig. 1.
80

Upon the platforms *f* of the car any desired number of bone-pots *i* may be placed in vertical tiers, so that the bottom of one pot serves as a cover to the pot below.

The car may be run into or out of the oven
85 B on the track *h*, and in said track outside the oven may be one or more switches leading to side tracks. Two or more cars are intended to be used, and while one car is in the oven another car may be unloaded and loaded with
90 bone-pots for a new charge. When the contents of the bone-pots have been subjected to the heat of the oven for a sufficient length of time the doors E are opened and the car, with its load, is run out of the oven and a loaded car
95 run in, after which the doors are closed and the burning continued. This change can be effected in a very few minutes and without the necessity of any one entering the oven, and therefore there is no necessity of allowing the
100 oven to cool before its contents can be removed and then again reheated, as is necessary where

the bone-pots are placed in and removed from the oven by hand. A highly-heated oven of this kind requires a considerable time to cool and a corresponding time is required to reheat it; and by my invention I save all such time and also effect an important saving in fuel.

As clearly shown in Fig. 2, the depressed portion B' of the oven is narrower than the main upper portion thereof, and receives the running-gear and all parts of the car below the platform *f*, and it is desirable to close the communication between the portion B' and the main upper portion of the oven, both to keep the running-gear of the car comparatively cool and also to avoid heating unnecessary space.

As clearly shown, the platform *f* of the car is wide enough to extend almost entirely across the oven from side to side, and is only enough narrower than the oven to enable it to be moved in and out; and said platform should also extend almost the entire length of the oven, so that the least possible amount of heated air shall escape downward between the edges of the platform and the walls of the oven. To still further prevent the passage of heated air downward past the platform, I have shown ledges *j* in the sides of the depressed portion B' of the oven, and in these ledges are sliding gates *j'*, which fit closely against the under side of the car-platform *f*, and are inserted in place after the car is run into the oven. The side walls of the portion B' of the oven may have in them ports or passages *k* for the ad-

mission of cool air to keep the space B' as cool as is possible.

If desirable, the sides of the oven may be banked up with earth, as indicated by dotted outline in Fig. 2, to prevent the radiation of heat outward from the brick walls C, in which case the ports or passages *k* should be continued through the earth, as also indicated in dotted lines.

As here shown, the car-platform *f* is hollow, and when so made and filled with fire-clay or other refractory and non-conducting material the amount of heat radiated from its under side is lessened.

By my invention I enable a greater amount of bone-black to be produced by a single oven, and I also effect an economy in the fuel used, and therefore enable bone-black to be more cheaply produced or reburned than heretofore.

What I claim as my invention, and desire to secure by Letters Patent, is—

As an improvement in the art of making and revivifying bone-black, subjecting the bone or bone-black to the burning or reburning operation in pots or receptacles placed on a car or carriage which is run into and from the oven, substantially as and for the purpose herein set forth.

ROBT. A. CHESEBROUGH.

Witnesses:

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