(No Model.)

W. H. BOULTON.

FURNACE FOR BAKING INCANDESCENTS.

No. 284,171. Patented Sept. 4, 1883.

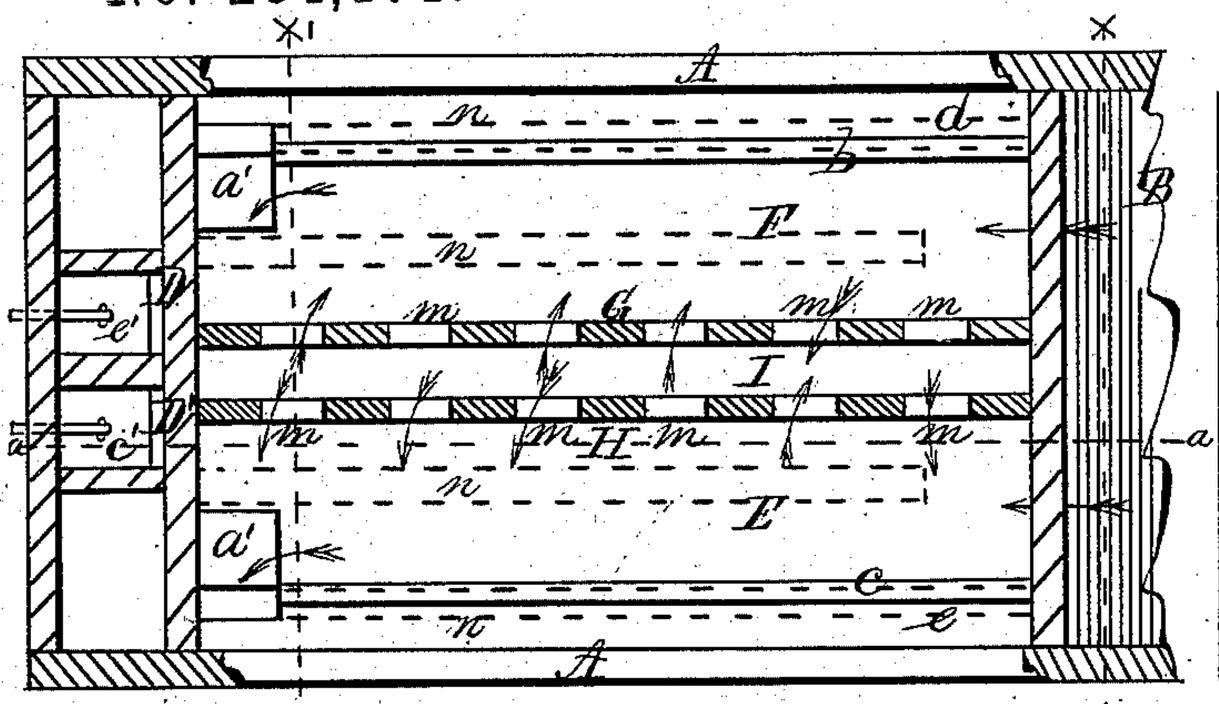


Fig 1

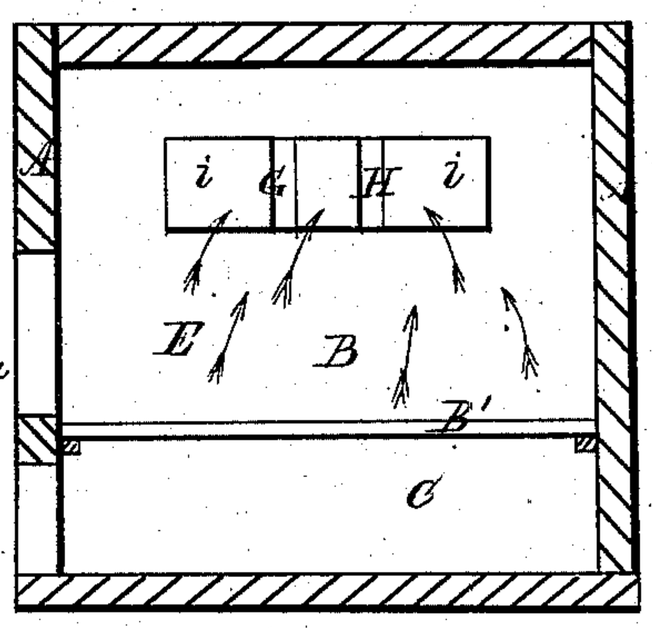


Fig. 2.

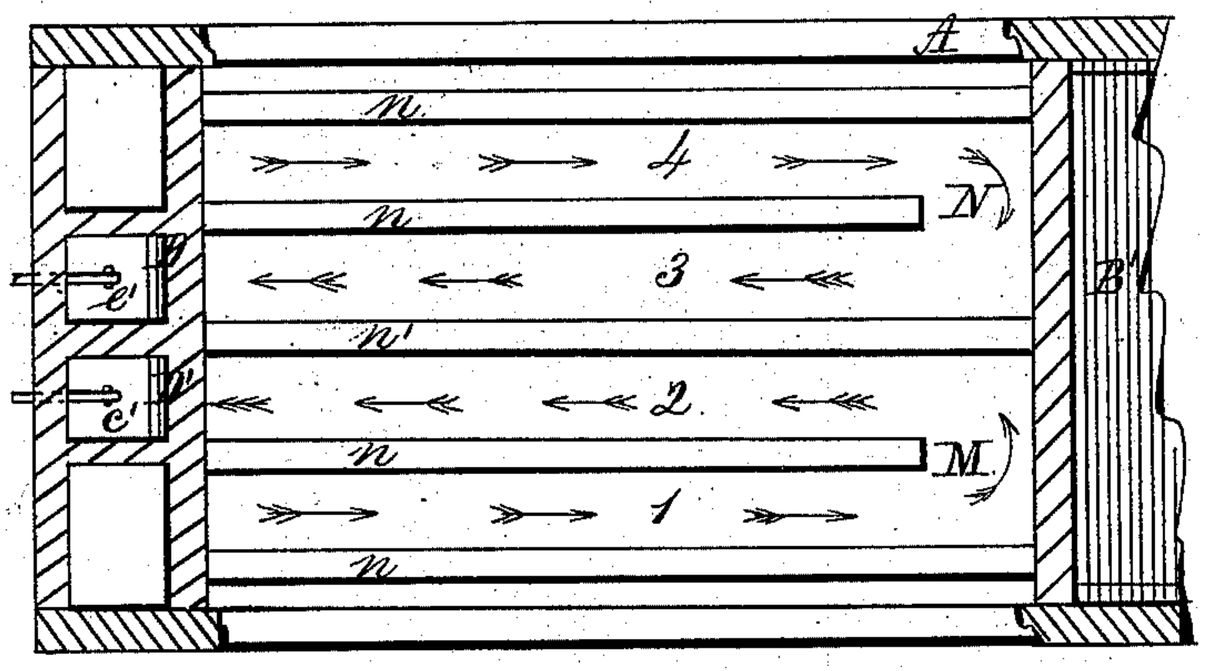


Fig. 3.

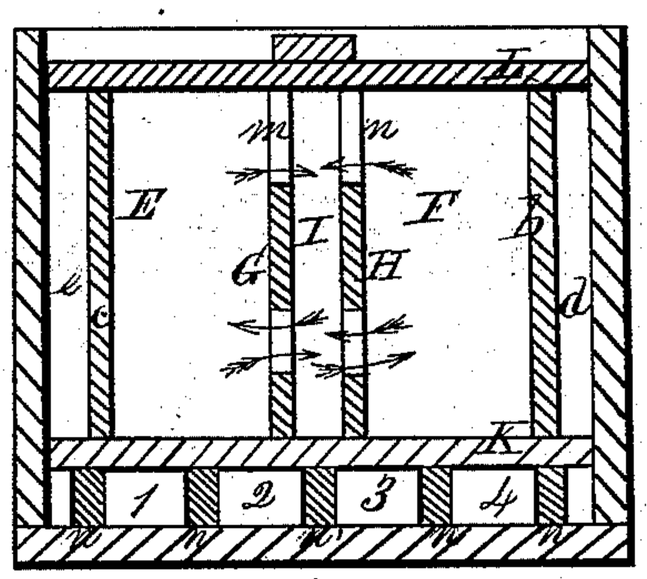
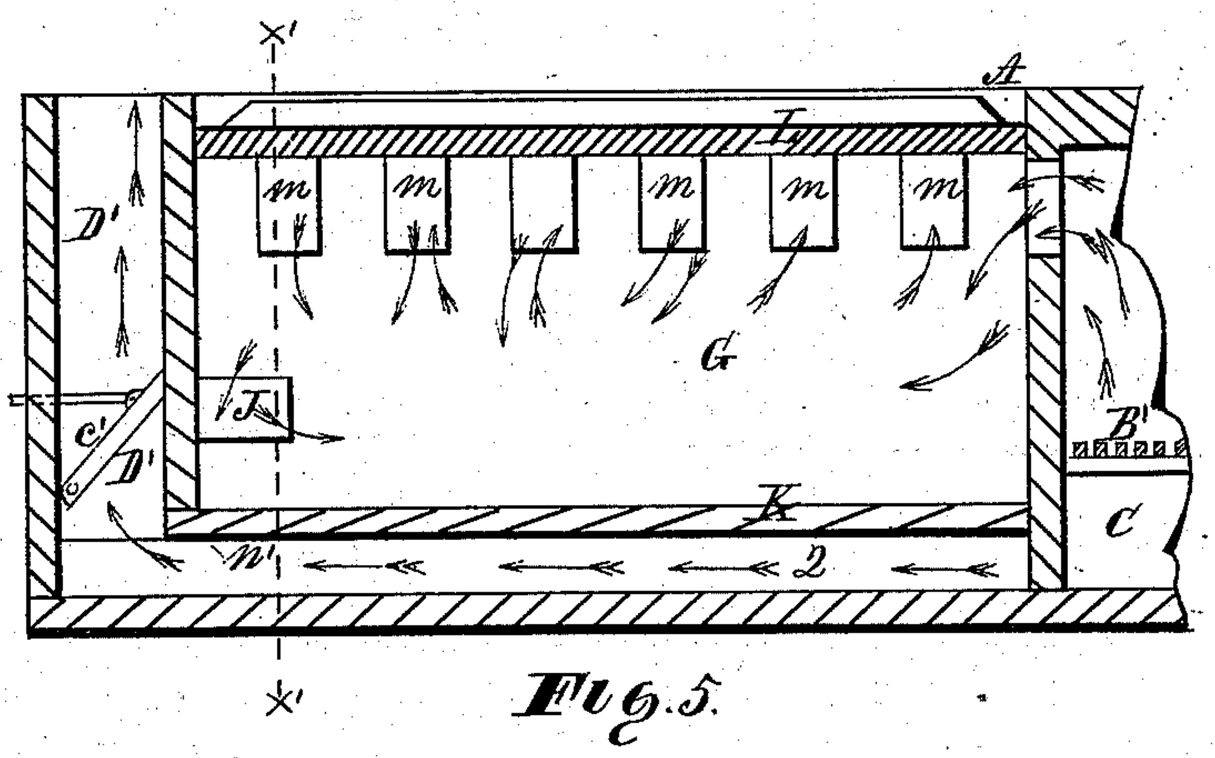


Fig. 4.



X' Fig. 5.

Witnesses,
J. H. Burridge
W. H. Kemp

Inventor.
W. H. Boulton
W. H. Burridge atty.

UNITED STATES PATENT OFFICE.

WILLIAM HENRY BOULTON, OF CLEVELAND, OHIO.

FURNACE FOR BAKING INCANDESCENTS.

SPECIFICATION forming part of Letters Patent No. 284,171, dated September 4, 1883.

Application filed May 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY BOULTON, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and Improved Furnace for Baking Carbons for Electric Lights; and I do hereby declare that the following is a full, clear, and complete description thereof.

The special purpose of the above-mentioned furnace is for baking carbon points for electric lights, but which invention, however, may be used for other similar purposes, and for annealing metals, &c.

The construction of the furnace is substantially as follows, and as shown in the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a plan view of the inside of the furnace, the top being removed for that purpose. Fig. 2 is a vertical transverse section through the line *x x* in Fig. 1. Fig. 3 is a view of the bottom of the furnace, showing the flues thereof, a portion of the internal structure of the furnace being removed that the flues may be seen. Fig. 4 is a vertical transverse section through the line *x' x'* in Fig. 1. Fig. 5 is a vertical longitudinal section taken through the line *a a* in Fig. 1.

Like letters of reference refer to like parts in the several views.

In the drawings, A A represent the external walls of the furnace, which are constructed of brick. The height, length, and breadth of the structure are arbitrary matters, and therefore need no specified description in this place.

B is the fire-place, B' the grates, and C the ash-pit. The fire-place is at one end of the structure, and the chimney-flues D D at the opposite end, as seen in the drawings. Between the fire-place and stack, or chimney-flues, is a chamber or oven consisting of two compartments, E and F, Figs. 1 and 4. The partition dividing the said chamber consists of two walls, G and H, between which is a narrow space or chamber, I; also between the sides *b* and *c* of the compartments E F and the walls A A of the furnace are, respectively, heat-passages *d* and *e*, to which further attention will be called hereinafter. The two compartments E and F are in communication one with the other by a series of apertures, *m*, along the upper edge of the partition-walls G and H, and also by an opening, J, in each of the walls, as seen in Figs. 4 and 5, in which the two openings are shown directly opposite each other. The partition-walls G and H and the walls *b* and *c* rest upon a supplementary bottom or floor, K, Figs. 4 and 5, whereas their upper edges are in close contact with a top or cover, L, which is removable to obtain access to the interior of the compartments E and F. Below the supplementary floor K are flues 1, 2, 3, and 4, of which *n n* are the partition-walls. The flues 2 and 3 are separated from each other by the wall *n'*. Said wall extends into the chimney and divides it into two flues, D and D', each of which is provided with a damper, *c'* and *e'*, respectively.

It will be observed in the drawings that the floor K forms the top of the flues, and that the flues 2 and 3 respectively communicate with the side flues, 1 and 4, by means of the passage-ways M and N, Fig. 3. In said figure the supplementary floor or bottom K is shown as removed, that the several flues may be seen and their relation to each other and to the chimney or chimney-flues D and D'. The chimney proper is not shown in the drawings.

The practical use of the above-described furnace is substantially as follows: The carbons are placed in the compartments E and F of the oven. The cover L is then placed on over the compartments and made tight by luting the joints with any suitable material. The heat and gases from the fire-place B pass therefrom through the openings *i i*, Fig. 2, into the compartments E and F of the oven, passing and repassing from one to the other through the apertures *m* and J and diffused among the carbons therein. The heat, &c., not only enters the compartments E and F, but also passes down the space I between the partitions G and H, and into the spaces *d* and *e*, thereby heating the contents of the compartments from both sides thereof. The heat, gases, smoke, &c., pass from the compartments down through the openings *a' a'*, Fig. 1, in the supplementary bottom K to the side flues, 1 and 4, along which the heat and smoke pass to the flues 2 and 3, returning therein to the

chimney-flues D and D′, and conducted thereby to the outside of the furnace. In thus passing and repassing the heat, &c., along under the compartments through the several flues, as indicated by the arrows in Fig. 3, the bottoms of the compartments become heated, by which the lower layers of carbons are also heated equally with the sides and top. In thus subjecting the carbons to an equal degree of heat (or nearly so) all around they are baked without becoming bent, whereas if the heat is much greater on one side of the baking carbons than on the other (which is the case in the ordinary carbon-furnace) the carbons (more or less of them) are bent and harder on one side than on the other, causing them to burn unequally, and therefore imperfectly, rendering the light more or less defective, which is nearly if not wholly avoided by the use of the furnace herein described.

By means of the dampers *c′* and *c′* the draft of the furnace can be regulated and the heat in each chamber separately tempered or shut off, as may be required from time to time in the process of baking the carbons, or the whole of the heat may be thrown into one chamber.

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

1. In a furnace for baking carbons for electric lights, an oven or chamber provided with partition-walls G H, having between them more or less space, and dividing said oven or chamber into compartments E and F, having an open communication with each other by means of apertures and the outer side walls of the said chambers, having between them and the incasing-walls A A of the structure, respectively, the spaces *d* and *e*, substantially as described, for the purpose set forth.

2. The combination of the compartments E and F of the oven or chamber of the furnace herein described, the flues 1, 2, 3, and 4, the fire-box and chimney-flues, provided with one or more dampers, substantially as set forth, and for the purpose specified.

3. In a furnace for carbonizing incandescents, an oven consisting of the compartments E and F, partition-walls G and H, provided with apertures, side walls, *c* and *b*, distant from the incasing-walls A A, flues 1, 2, 3, and 4, fire-box, chimney-flues, dampers, and detachable top or cover L, constructed and arranged in relation to each other substantially as herein set forth.

4. Arranged in relation to and in combination with the compartments E and F, respectively, the flues 2 and 3, said flues being separated from each other by a wall, *n′*, extending into the chimney and dividing the same into flues corresponding to the flues 2 and 3, substantially as described.

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

WILLIAM HENRY BOULTON.

Witnesses:

J. H. BURRIDGE,

W. H. KING.