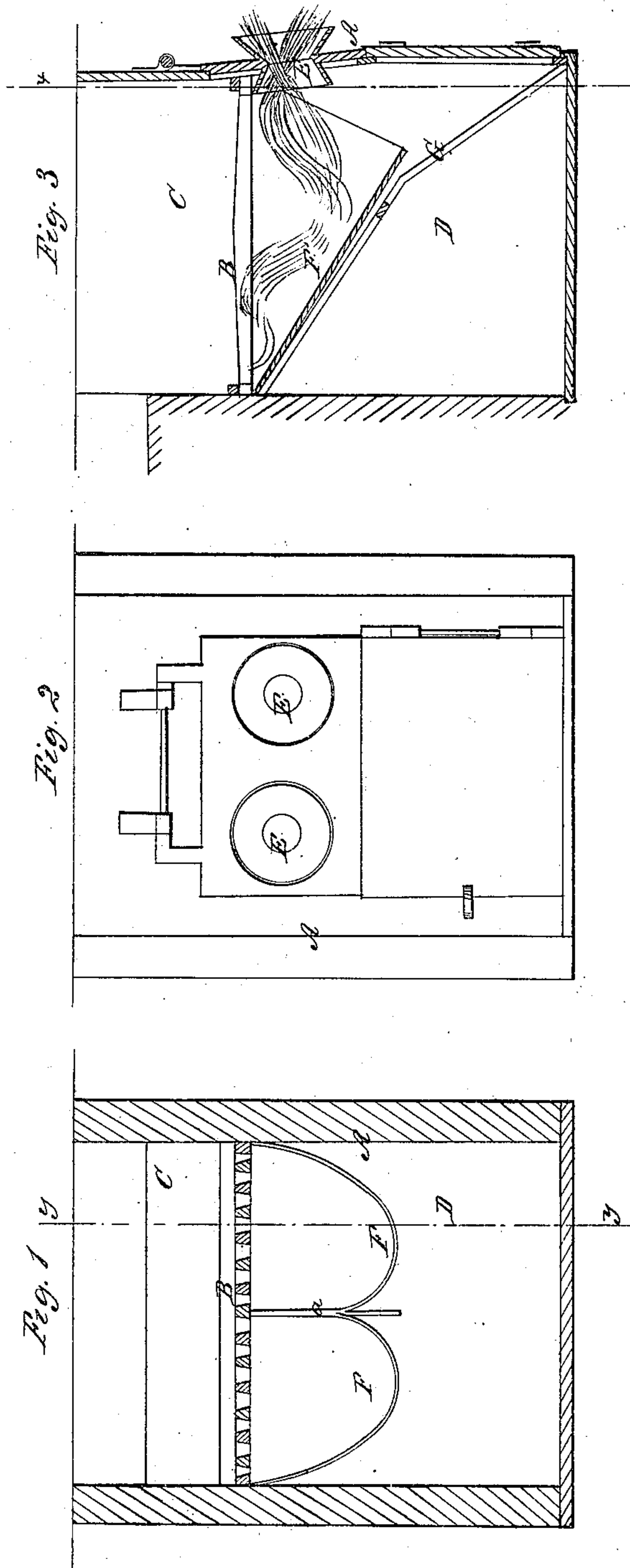


B. H. Washington,
Steam-Boiler Furnace,
No 20,836, *Patented July 6, 1858.*



UNITED STATES PATENT OFFICE.

B. H. WASHINGTON, OF HANNIBAL, MISSOURI.

FURNACE.

Specification of Letters Patent No. 20,836, dated July 6, 1858.

To all whom it may concern:

Be it known that I, B. H. WASHINGTON, of Hannibal, in the county of Marion and State of Missouri, have invented a new and
5 useful Improvement in Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in
10 which—

Figure 1, is a front vertical section of a furnace grate with my improvement applied to it; x, x , Fig. 3 indicates the plane of section. Fig. 2, is a front view of the furnace.
15 Fig. 3, is a longitudinal vertical section of ditto, taken in the line y, y , Fig. 1.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to an improvement
20 formerly patented by me, the Letters Patent bearing date November 7th, 1854. In the patent referred to, double hollow cones are used for the purpose of supplying the fire with a requisite quantity of air.

25 This invention consists in using in connection with the cones what may be termed air-conductors placed within the furnace below the grate and so arranged as to diffuse the air equally over the surface of the
30 grate, causing a more perfect combustion of the fuel with a "milder flame" than usual.

To enable those skilled in the art to fully understand and construct my invention, I
35 will proceed to describe it.

A, represents a portion of the front part of a furnace.

B, are grate bars; C, the fire chamber and D, the ash pit.

40 E, E, are hollow double cones or funnels connected at their smaller ends and placed in the front part casing just below the fire grate B. These funnels are constructed precisely the same as the ones described in the
45 Letters Patent previously alluded to, and as therein stated serve to supply the fire with a large amount or volume of air, by direct-

ing the air to the fire in a spiral manner and in conical form. The cones or funnels are placed side by side in the same plane. 50

F, F, are two air-conductors which are placed in the ash pit directly below the fire grate B. These air-conductors may be described as being each an oblique section of a
55 hollow cylinder placed in an inclined position in the ash pit, and resting on suitable supports G. The upper edges of the conductors extend the whole length of the grate bars and are in contact with the grate and the conductors are kept separate, one from
60 the other as there is a perfect partition a , between them. The bottoms of the conductors are inclined, as shown clearly in Fig. 3, and there is a conductor directly in line with each funnel E. The conductors
65 F, F, keep the air that is introduced by the two funnels into the ash pit below the grate separate, and the conductors present it to the fire in a diffused state it being equally
70 distributed over the surface of the grate. By the use of the cones or funnels alone I found that the air was admitted in a concentrate state to the fire, or not well diffused, the air below the grate in issuing from the two cones or shells would unite and be
75 presented to the grate at or about its center. The conductors entirely obviate this difficulty.

I do not claim the cones or funnels E E, for they have been previously used, and
80 were formerly patented by me, but having thus described my invention

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

The air conductors F, F, placed below
85 the grate bars B, constructed as shown, and used in connection with the cones or funnels E, E, substantially as and for the purpose set forth.

B. H. WASHINGTON.

Witnesses:

H. C. BUCHANAN,
J. YANCEY.