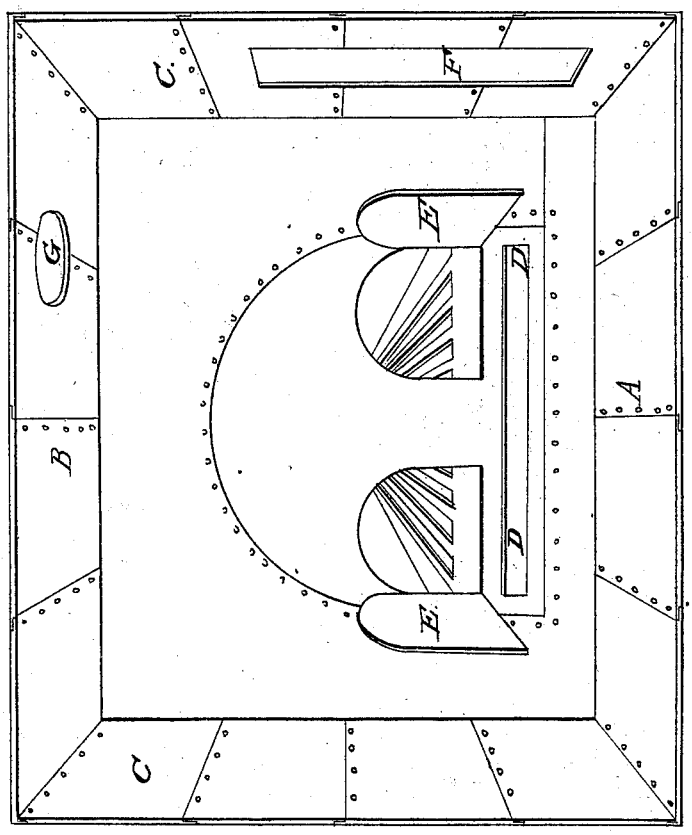
E. A. STEVENS.

Hot Blast Oven.

No. 2,524.

Patented April 1, 1842.



UNITED STATES PATENT OFFICE.

EDWIN A. STEVENS, OF BORDENTOWN, NEW JERSEY.

IMPROVEMENT IN THE MODE OF SUPPLYING AIR TO FURNACES OF STEAM-ENGINES, &c.

Specification forming part of Letters Patent No. 2,524, dated April 1, 1842.

To all whom it may concern:

Be it known that I, EDWIN A. STEVENS, of Bordentown, in the county of Burlington and State of New Jersey, have invented a new and useful manner of supplying air to the furnaces of steam-engine boilers, or to furnaces for other purposes, and to which the same may be applicable; and I do hereby declare that the following is a full and exact description thereof.

I prepare an air-tight fire-room, or room into which the ash-pit and furnace-doors are to open, no other way for the supply of air being provided but through this room. This room may be made of boiler-iron, or in part of cast and in part of wrought iron, or of any other material of which an air-tight room may be formed. It is to be furnished with a door made to fit air-tight by placing leather or other suitable substance around its edges in such manner as that it shall be closed by atmospheric pressure in the same way in which water is sometimes made to act upon the loose leathering of a valve, and in which air also has been made to produce a like effect. This door is to open inward—that is to say, into the fire-room. From any suitable fan-wheel or other blowing apparatus I cause air to enter into this room through a tube or other opening connected with such apparatus, and by this means I keep up a pressure of air within it of such amount as may be desired—say of from an ounce to one or two pounds on the square inch, more or less, as may be found necessary.

In the accompanying drawing I have represented a part of such a room, with a front view of a boiler-furnace, one side of the room being removed in order to exhibit the interior. A is the lower, B the upper, and C C two sides, of the room. D D is the ash-pit of a boiler-furnace, and E E the furnace-doors. F is the door-way, and G an opening for the reception of a tube through which air is to be supplied.

A fire-room of the above description may be of such size as to contain a supply of fuel for such length of time as may be found desirable. The pressure required within it for the promotion of combustion will never be such as to produce any inconvenience to the persons who occupy it, while the advantages resulting from it will be of great importance. The supply of air to the fire will be equable throughout the whole extent of the grate-bars. There will not be any escape of gas into the room, even when the furnace-doors are opened, there being a continued rush of air inward—a circumstance contributing essentially to its healthfulness. The room itself will also be much cooler than any ordinary fire-room. In steamers for sea service the ability to shorten the chimney to any desirable extent without seriously affecting the draft of the furnaces will likewise be an advantage of great importance. The great desideratum of being able to place the furnace in the lower part of a steam-vessel will also be attained, a thing which has hitherto been forbidden on account of the impossibility of keeping free from the annoyance and injurious effect of gas from the fuel when blowers of the ordinary construction are used.

Having thus fully described the nature of my invention and set forth some of the advantages to be derived therefrom, what I claim therein as new, and desire to secure by Letters Patent, is—

The combining, with a steam-engine or other furnace, an air-tight apartment or fire-room, into which room air is to be forced by means of any suitable blowing apparatus, so as to increase the density or pressure of the air to such extent as may be desired for supplying it in sufficient quantities to the burning fuel, the whole being so constructed and arranged as to effect the purposes and substantially in the manner herein set forth.

E. A. STEVENS.

Witnesses:
A. C. CLARK,
WM. SARDLEY FIELD.