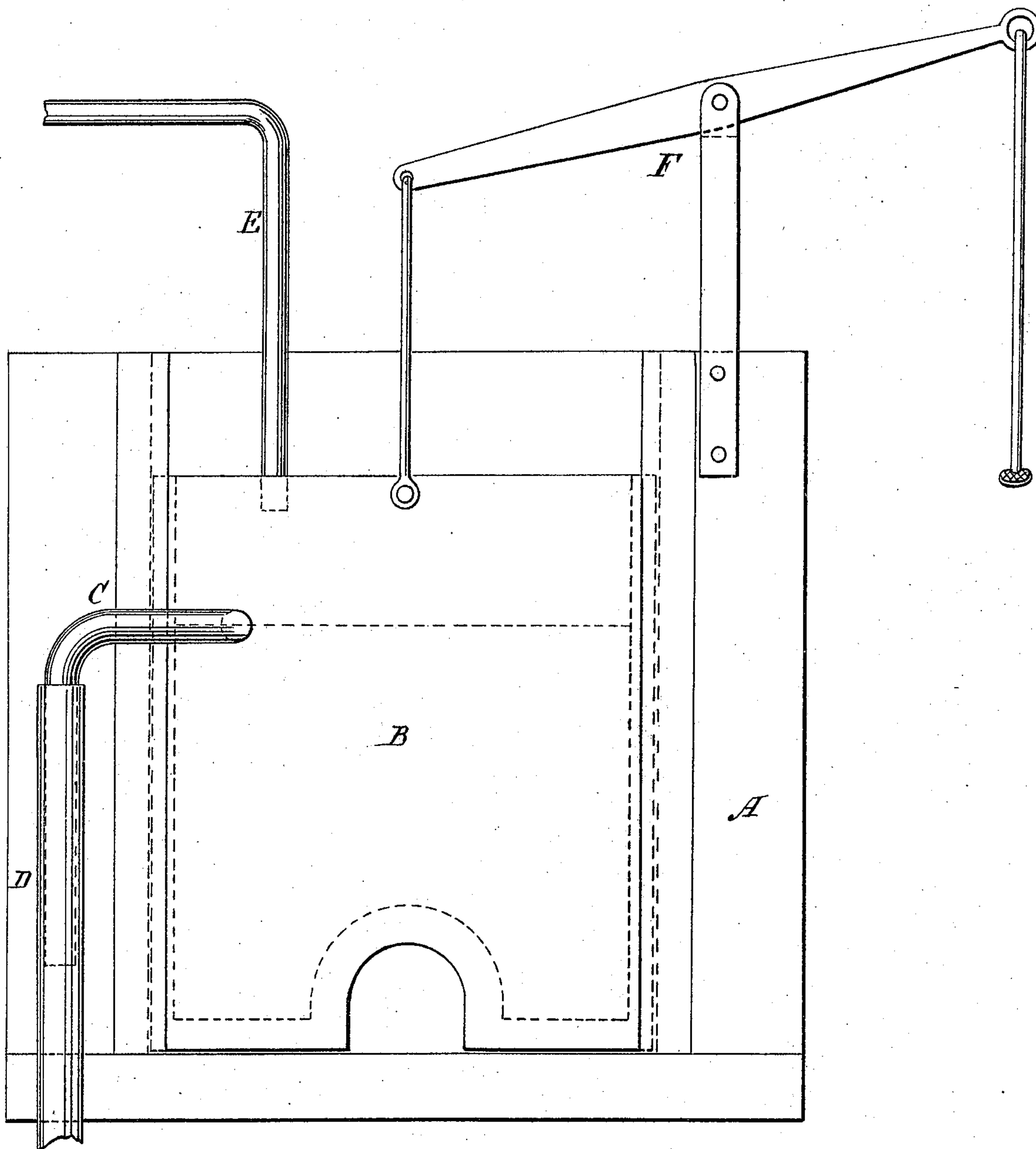


C. H. BURGESS, 2nd.
Protecting Furnaces.

No. 34,401.

Patented Feb. 18, 1862.



Witnesses:

Alden V. Ellis
Emma A. Gurney.

Inventor:

Charles H. Burgess.

UNITED STATES PATENT OFFICE.

CHARLES H. BURGESS, 2D, OF SANDWICH, MASSACHUSETTS.

IMPROVEMENT IN DOORS FOR REVERBERATORY AND OTHER FURNACES.

Specification forming part of Letters Patent No. 34,401, dated February 18, 1862.

To all whom it may concern:

Be it known that I, CHARLES H. BURGESS, 2d, of Sandwich, in the county of Barnstable and State of Massachusetts, have invented a new and useful Improvement in the Doors of Reverberatory and other Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing, making a part of this specification, in which the figure represents an elevation of a portion of a furnace-front with the improved door attached.

The nature of my invention consists in constructing the doors of such furnaces as above with a chamber or space within themselves, water-tight, except at the top, which may be left entirely open, which space is kept constantly supplied to a proper height with cold water, which prevents any part of the door from attaining such a temperature as would be destructive to the metal of which it is composed, and thereby greatly increasing its durability.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents in the figure a portion of a furnace-front with the usual apparatus, F, for lifting the door.

B represents the door, which is of the usual form and proportion; but instead of being adapted to receive a lining of fire-brick or some similar material on the side exposed to the fire, as is usually the case, I construct the door with a hollow space capable of containing a considerable amount of water. This space is entirely open at the top, so that any steam produced from the water may freely escape.

E is a pipe leading from some reservoir of cold water, so placed as to deliver the water into this chamber, extending a short distance below the top of the door, yet not so long but that the door may be raised to the height desired.

C is a pipe entering the chamber in the door at such a point as it is desirable the water should be maintained therein. This pipe is carried to one side sufficiently to remove it from any interference with the operations of the workmen at the furnace.

D is a pipe placed perpendicularly, and of such capacity that the pipe C may slide freely within it, communicating with some wasteway or other point to which it is desirable to conduct the surplus water. The pipe C is of such a length that when the door is raised to its full height it may extend a short distance below the top of pipe D, just sufficient to prevent its becoming disengaged therefrom.

When the furnace is in operation, water is admitted to the chamber in the door from pipe E, which fills the chamber to the height where C is inserted, by which any excess of supply is conducted off.

It will be seen that by the arrangement of the pipes described the water in the chamber will be maintained at the same height, whatever may be the position of the door.

It is well known to the practical on this subject that the doors of such furnaces, owing to the intense and unevenly-disposed heat to which they are subjected, soon become warped and troublesome to operate, and are soon after destroyed. As the temperature of this improved door seldom exceeds that of boiling water, it retains its shape perfectly and endures for an indefinite or great length of time.

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

Constructing the doors of reverberatory and other furnaces with the water-space herein described, in combination with the arrangement of the pipes, essentially as herein set forth.

CHARLES H. BURGESS, 2D.

Witnesses:

ALDEN N. ELLIS,
EMMA A. GURNEY.