J. Rogers.

Protecting Furnaces.

No. 48,446. Patented Jun. 27, 1865.

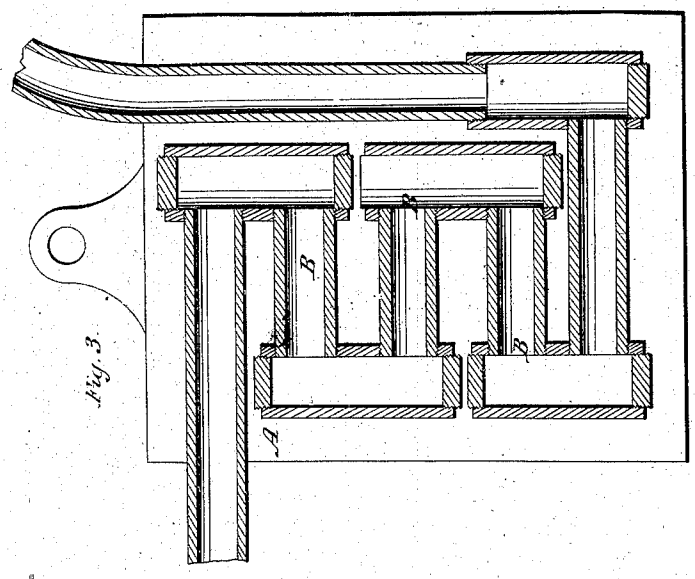

Fig. 3.

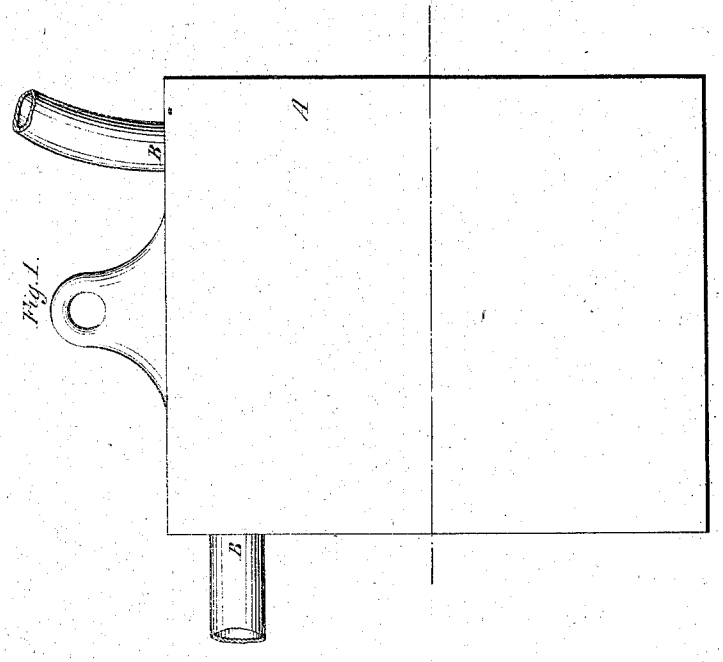

Fig. 1.

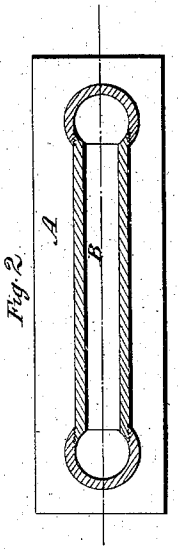

Fig. 2.

Witnesses
Theo Tusch
C. L. Topliff.

Inventor:
Joseph Rogers.
per Munn & Co.
attys.

UNITED STATES PATENT OFFICE.

JOSEPH ROGERS, OF NASHUA, NEW HAMPSHIRE.

IMPROVED WATER-DOOR FOR FURNACES.

Specification forming part of Letters Patent No. **48,446**, dated June 27, 1865.

To all whom it may concern:

Be it known that I, JOSEPH ROGERS, of Nashua, in the county of Hillsborough and State of New Hampshire, have invented a new and useful Improvement in Doors for Furnaces; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is an external view of my invention; Fig. 2, a horizontal section of the same, taken in the line *x x*, Fig. 1; Fig. 3, a vertical section of the same, taken in the line *y y*, Fig. 2.

Similar letters of reference indicate like parts.

Furnace-doors are at present constructed of a cast-iron shell or case lined or filled with brick. In a short time—a few weeks only—the iron, owing to the extreme heat of the furnace, will melt and the bricks will fall out, rendering the doors perfectly useless.

The object of my invention is to render a furnace-door invulnerable against heat, or to protect it in such a manner that it will last a comparatively long period, and to this end I cast the doors with tubes within them so arranged or disposed as to form a sinuous water-passage, through which water is kept constantly running while the furnace is in use, and the doors thereby kept in comparatively a cool state.

A represents the sheel or case of a furnace-door of my invention. This shell or case is of cast-iron and is cast around pipes B, (gas pipes or tubes will answer the purpose,) and said pipes or tubes are fitted in the mold, so that the door may be cast around them. The pipes or tubes are arranged so as to form a continuous sinuous passage within the door and extend over as great an area of it as possible, (see Fig. 2,) and each end of the tubular passage projects through the door, so that india-rubber or other flexible tubes may be attached to them.

These doors may be fitted between guides, so that they may be raised and lowered in the usual way, or they may be hung on hinges, the flexible tubes admitting of the opening and closing of the doors without affecting the flow of the water through the pipes, which is occasioned by static pressure. By this arrangement it will be seen that if a door should crack the tubes within the latter would not be affected by it, as would be the case were the water-passage made directly through or in the door or casting without tubes.

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

As an improved article of manufacture, a door for furnaces provided with internal tubes to form a water-passage through them, substantially as and for the purpose herein set forth.

JOSEPH ROGERS.

Witnesses:

F. MUNROE,

E. A. SMITH.