(12) **United States Patent**
Badger et al.

(10) **Patent No.: X9269**
(45) **Date of Patent: Nov. 30, 1835**

(54) **FORGE, HEARTH, HOT AIR**

(76) Inventors: **Leonidas V. Badger; Richard Walker**

Secundus C. Badger of Portsmouth N. H.

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Secundus Badger himself of his improvement in the Hot air and Cupola Furnace

To all to whom these presents shall come. Be it known that I Secundus C. Badger of Portsmouth in the County of Rockingham and State of New Hampshire, have invented conducted and applied to use a new and useful improvement called the Hot air Cupola Furnace, of which the following is a full and exact description

The furnace consists of two round cylinders about four feet ~~six~~ few inches in height. the bottom one of one foot diameter. the top two feet. the other one inch in diameter less. having a space when placed on the bottom of about one inch. The bottom is arranged in the usual way of common Cupola furnaces. on the top of cylinder or body of furnace is a ring projecting with a moulding projecting back four inches the thickness of the Brick lining to receive the two cylinders, which I call the hot air cylinders. these are to be arranged. that the outside shall be on a line with the furnace body, and shall be half the height of the same, one other cylinder of the same length. four inches & ½ in diameter to be placed on a cone on the inside leaving a chamber for the air of four inches in the clear, which being the same as the thickness of the Brick lining, will leave the regularity of the cone on the interior of the furnace equal and perfect. On the top of these air chamber cylinders, is to be a ring filled with ~~the~~ moulding. on the interior of this air chamber. is a spiral plate running entirely ~~round~~ several times, leaving the distance between of about four inches making nearly a circular piece of four inches square, or it may be divided by partitions or any other mode that will give the continuous chamber for the air. on the back side of the cylinder at the upper end a hole is to be cut for the Bellows pipe to be connected, at the two opposite sides. on the bottom edge two holes are left for the supply pipes which end in air tight chests. These

the bungers to the side of the furnace. The pipe at the end which enters the chest is to be turned to fit tight that all vacation in the whole work caused by contraction and expansion of the metal may be overcome. The whole may be made of cast or sheet iron, and secured together by bolts. The model I have made with the body formed of two cylinders to shew more readily the mode arranging the pipes &c. as it may be used with a single cylinder. The whole furnace is to be secured on a foundation in the usual way. What I claim as my invention is the double cylinder at the top of the furnace forming a circular flame chamber for the air heating the blast from the flame of the furnace thereby causing a great saving of fuel and time. Also I claim the double cylinder to the body of furnace preventing the escape of the heat by the confined air between the two cylinders

Witnesses
Bracket Hutchings
W. Hy. Hackett

L. W. Badger

(630 Words)

(Patented 2 Dec. 1835)

United States Patent **Patent No.: X9269**

L. Badger and Richard Walker of Portsmouth, N.H.

Letters Patent

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said L.L. Badger and Richard Walker themselves of their improvement on the Hot air Forge hearth.

To all to whom these presents shall come

Be it known that We Richard Walker and Leonidas L. Badger of Portsmouth in the County of Rockingham and State of New Hampshire have invented constructed and applied to use a new and useful improvement called the Hot air Forge Hearth. Our invention consists of a case or box running under and at the front of the forge making about one foot square for hearth and the same for front the distance from the hearth and front to the back and bottom should be about two and a half or three inches. The box to be closely filled with cement the interior of box is filled with partitions leaving a space between of about two inches, causing the blast or wind to pass from one to the other continuously making a distance of eight feet in the size box described above. The air by taking a circuitous road under the hearth and in front of fire becomes intensely heated thereby making a great saving of fuel, the hearth should be placed about three inches below the surface of hearth work for a receptacle for the fire, ashes, cinders &c.

What We claim as our improvement is the passing the wind under and back of the fire making a complete hot blast.

Witnesses
Beckett Hutchings
W. H. H. Hackett

L.L. Badger
Richard Walker

Exd
1846.

(300 words)

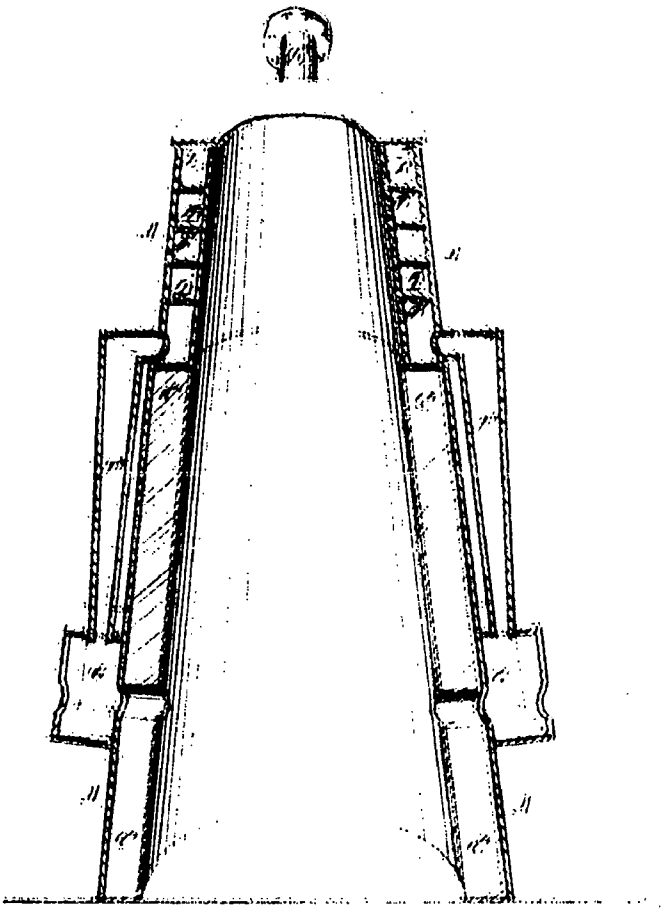
(Patented Nov. 30. 1835)

(Drawing)

L. V. BADGER.

Cupola Furnace.

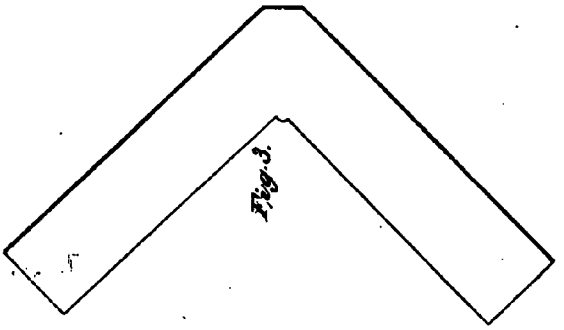
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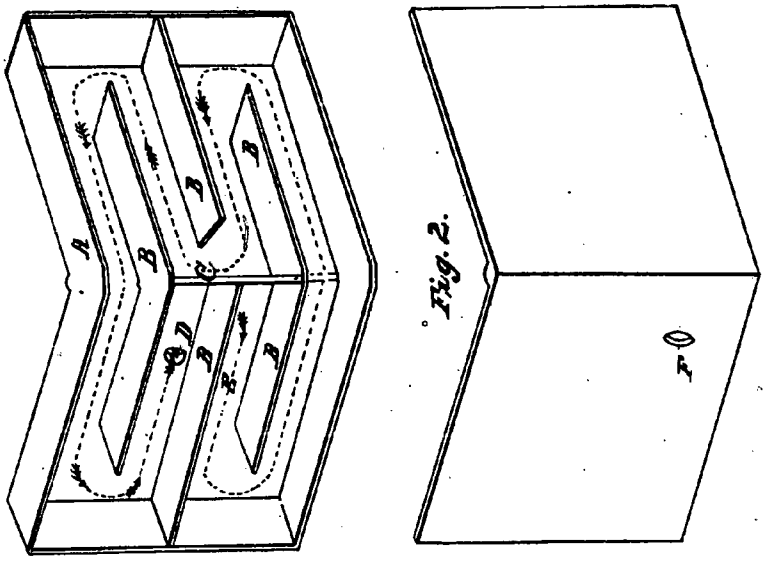


Badger & Walker,

Forge Hearth,

Patented Nov. 30, 1835.





N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.