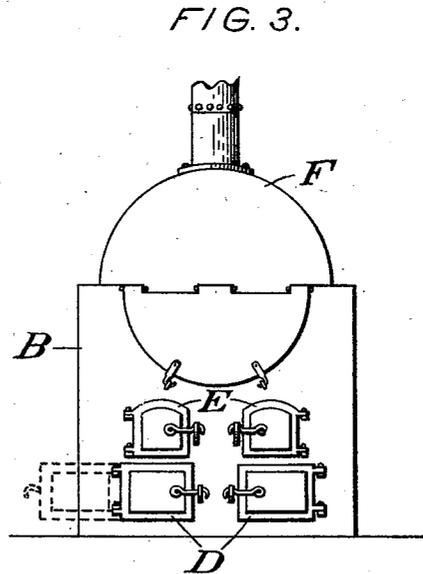
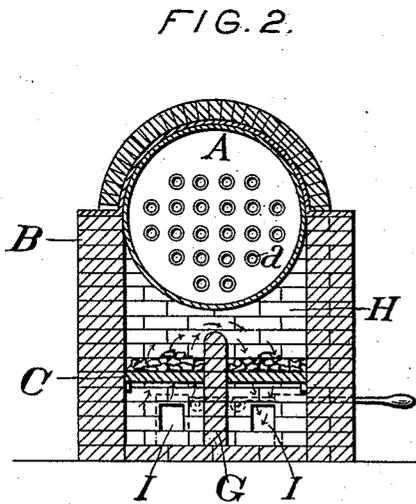
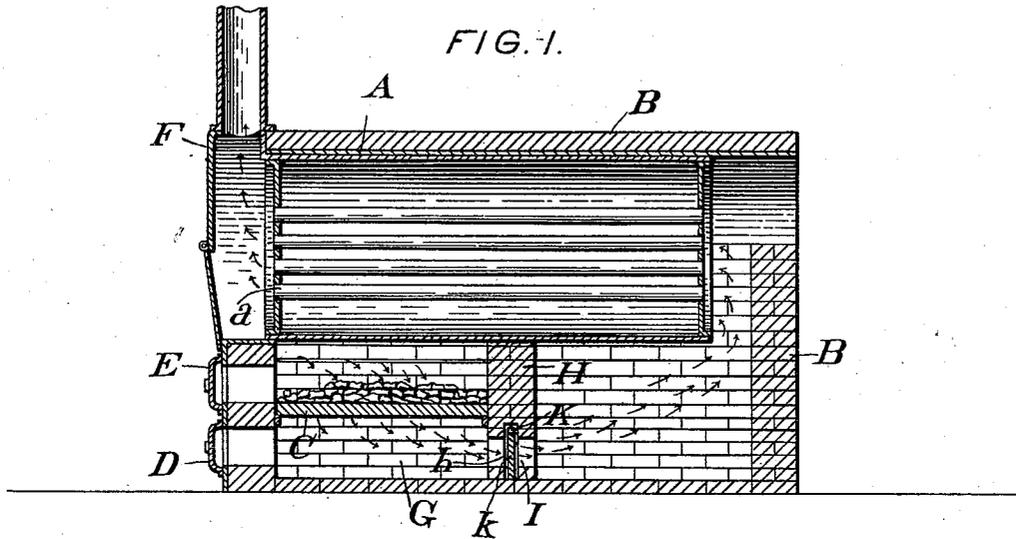


T. YORK.  
STEAM BOILER FURNACE.

No. 534,026.

Patented Feb. 12, 1895.



Witnesses  
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*Chas. F. Benjamin*

Inventor  
*Thomas York,*  
 By *Richd McAllister,*  
 His Attorney

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FIG. 4.

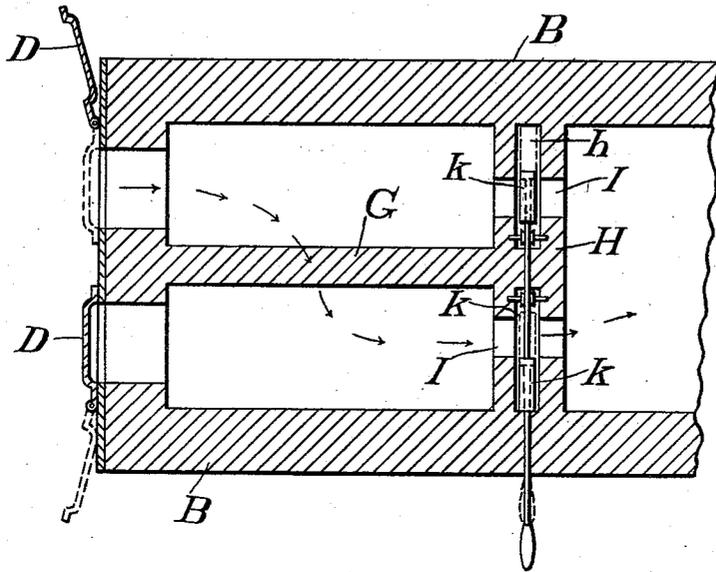
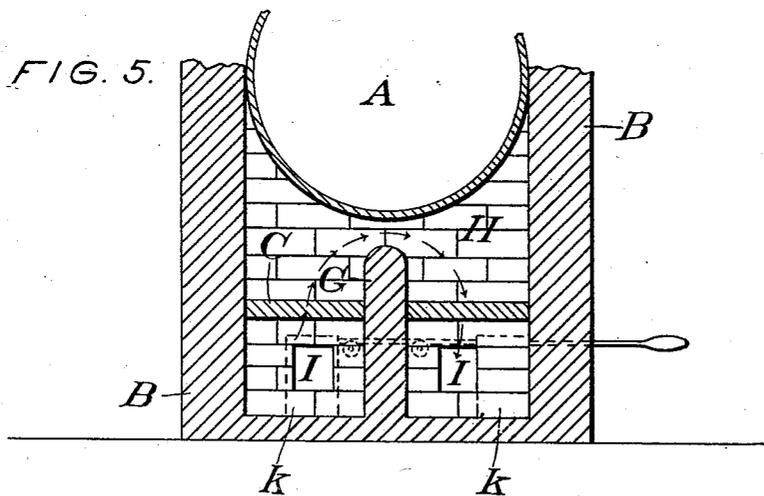


FIG. 5.



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# UNITED STATES PATENT OFFICE.

THOMAS YORK, OF PORTSMOUTH, OHIO.

## STEAM-BOILER FURNACE.

SPECIFICATION forming part of Letters Patent No. 534,026, dated February 12, 1895.

Application filed August 20, 1894. Serial No. 520,841. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS YORK, a citizen of the United States, residing at Portsmouth, in the county of Scioto and State of Ohio, have invented certain new and useful Improvements in Steam-Boiler Furnaces; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to furnaces for stationary boilers and it consists in a particular construction, adapted to a quick and complete combustion of the fuel by means of an alternating draft as hereinafter explained.

In the accompanying drawings, wherein like letters represent the same parts, Figure 1 is an upright, lengthwise section through the furnace and boiler; Fig. 2, an upright, cross section through the same; Fig. 3, a front elevation thereof. Fig. 4, is a top plan of the furnace, and Fig. 5, an elevation of the rear of the furnace.

A is the boiler; B, the four walled casing inclosing said boiler, made and kept substantially air tight; C, the grate, seated in the ordinary manner within the furnace compartment.

D represents doors in the front wall of the casing, below the grate level, tightly closing the draft chambers formed by the mode of construction beneath the grate; E, other tight doors in the front of the casing, above the grate level, for the admission of fuel and for stoking the fires, to be kept closed when not in use for those purposes, and F is the funnel, connecting with the draft tubes of the boiler and with the furnace compartment.

G is a long, low wall, dividing the grate into two lengthwise sections; this wall reaching from the front of the furnace to the tight crosswise wall, H, formed at the back thereof; said wall G in height extending from the floor of the furnace compartment to a substantial distance above the grate level, but leaving a space between the summit of the wall and the boiler.

I represents apertures formed in the back wall of the furnace, one on each side of the grate partition wall.

K is a slide rod, fitted in, and projecting from one side of the boiler casing, and having

fixed to it two pendent leaf valves, *l*, so arranged with relation to each other, and to the apertures I, that when one valve, by means of recesses, *h*, in the back wall of the furnaces is keeping either of the two said apertures closed, the other aperture is open.

In the operation of the furnace, if the left hand door D be open, the other door D, and also the left hand aperture I should be closed. The draft will then enter through the open door and blow the fire on the left hand section of the grate C from the bottom; the heated current of air thence passing over the wall G and blowing the fire on the right hand section of the grate from the top, and thence making its way through the open right hand aperture I along the boiler to the back wall of the casing B, whence it will pass into the draft tubes *a* formed in the boiler, and so into and out of the funnel, F, which is to be made as high as needed for the creation of a good draft of air through draft chamber, grate, boiler casing, tubes and funnel. When the fire on the left hand grate section has been well blown through the bottom and the fire on the right hand grate section well blown through the top, the left hand door D and the right hand aperture I should be closed, and the right hand door D and left hand aperture I opened, which reversal of proceedings will cause the fire on the right hand grate section to be blown from the bottom and the fire on the other section to be blown from the top, and by continuing to alternate the described operations the fuel supplied to the furnace will be quickly and completely consumed, causing steam in the boiler to be rapidly made and the supply thereof efficiently maintained.

I claim as follows:

1. The combination in a steam boiler furnace of the boiler provided with the draft tubes through the length thereof; the air tight casing inclosing said boiler; the tight, crosswise wall at the rear of the furnace; the grate, suitably seated within the furnace compartment; the long, low wall extending centrally, through the grate, from front to rear of the furnace compartment and reaching from the floor thereof to a plane above the grate level; the tight doors below the grate level in the front wall of the casing; the tight doors in

said wall above the grate level; the funnel connecting with the draft tubes of the boiler and with the furnace compartment; the apertures in the rear crosswise wall, and the slide  
5 rod, fitted with the leaf valves moving in recesses formed in the aforesaid rear wall; the whole substantially as and for the purposes described.

2. The combination in a steam boiler furnace of the herein described boiler casing; the  
10 grate, seated in the walls thereof; the tight crosswise wall behind said grate, having the described apertures in said wall; the wall, reaching from the floor of the casing to a plane  
15 above the grate level and extending centrally through the grate to the rear wall aforesaid; the pair of tight doors in the front wall of the

casing below the grate level, and the slide rod having the pair of leaf valves moving in recesses formed in the aforesaid rear wall and  
20 corresponding to the apertures in said wall; all substantially as set forth, for the purpose of enabling an air current to pass upward through one section of the wall-divided grate and downward through the other, and thence  
25 along the boiler casing and of alternating said current, as herein fully described.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS YORK.

Witnesses:

HARRY DISTELRATH,  
JOHN MCCONNELL.