

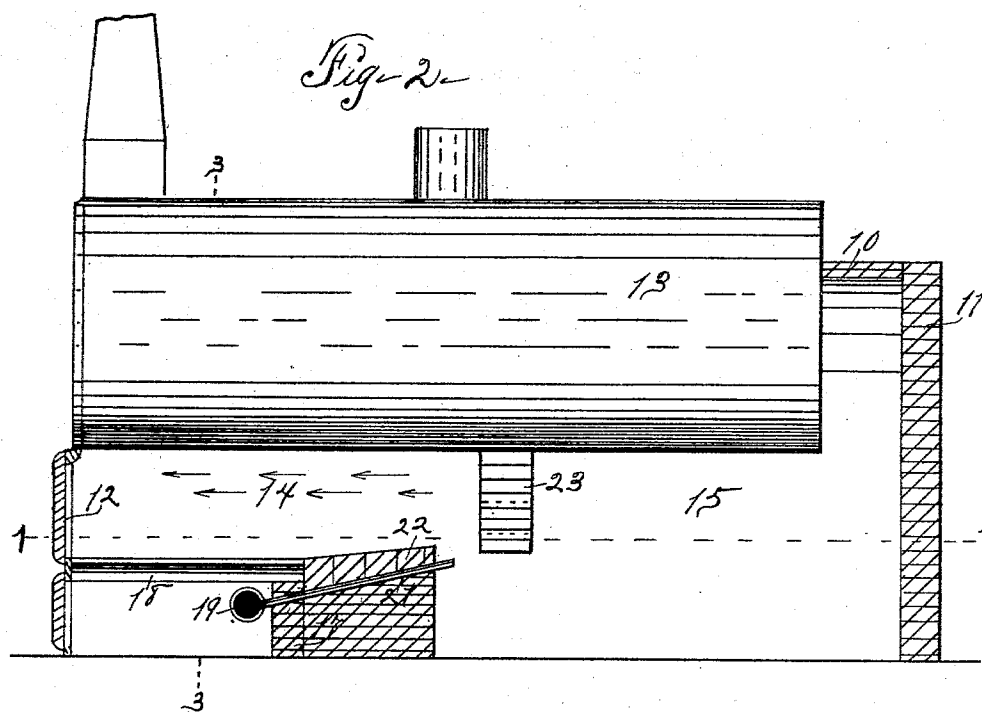
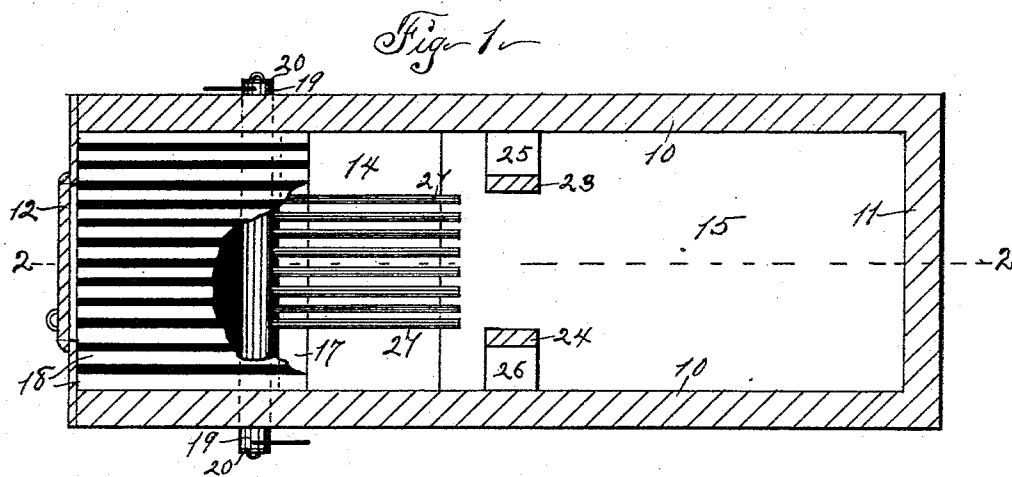
(No Model.)

2 Sheets—Sheet 1.

G. FOX.
SMOKE CONSUMER.

No. 532,046.

Patented Jan. 8, 1895.



Attest:

S. C. Sweet
W. Engelhard

Inventor:

George Fox
J. Henry D. Brien
Atty

(No Model.)

2 Sheets—Sheet 2..

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Fig. 3.

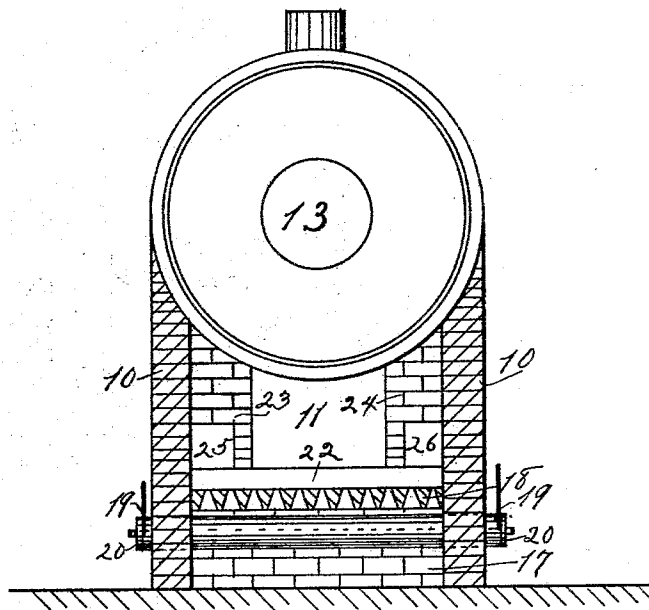
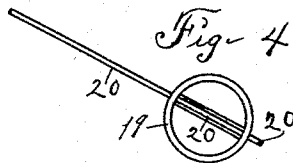


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE FOX, OF ST. LOUIS, MISSOURI.

SMOKE-CONSUMER.

SPECIFICATION forming part of Letters Patent No. 532,046, dated January 8, 1895.

Application filed July 16, 1894. Serial No. 517,669. (No model.)

To all whom it may concern:

Be it known that I, GEORGE FOX, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Smoke-Consumers; 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.

The object of this invention is to provide improved means for consuming the products of combustion within a furnace.

This invention consists in the construction, arrangement, and combination of elements, hereinafter set forth, pointed out in my claims, and illustrated by the accompanying drawings, in which—

Figure 1 is a sectional plan on the line 1—1 of Fig. 2. Fig. 2 is a longitudinal sectional elevation on the line 2—2 of Fig. 1. Fig. 3 is a transverse sectional elevation on the line 3—3 of Fig. 2. Fig. 4 is an end view of the air pipe.

In the construction of the furnace as shown, the numeral 10 designates the side walls and 11 the rear wall and 12 the front of a furnace, which are formed in the ordinary manner and serve to support a boiler 13 and inclose the combustion chamber 4, and hot-air chamber 15. A bridge wall 17 extends transversely of the furnace within the same and serves to divide the interior thereof into two compartments forming the chambers just mentioned. Located directly beneath the rear ends of the grate bars 18 and extending transversely of the furnace through the side walls 10, is a pipe 19, the ends of which pipe are shown closed by dampers 20, 20.

Communicating with the rear side of the pipe 19 and leading rearwardly and upwardly therefrom through the bridge wall 17 are a plurality of open ended pipes 21, which pipes are covered on their upper surfaces by a layer of tiles 22. The upper surface of the tiles 22 forms a uniform inclined plane from the rear of the grate bars to the top of the bridge wall 16.

Deflecting walls 23, 24, are located between

the lower portion of the boiler 13 and the walls 10, an opening or space existing between said walls through which the draft to the boiler tubes is established.

In the operation of the furnace the flame, smoke and heat rise into contact with the boiler and being drawn rearwardly into contact with the walls 23, 24 are deflected and turned back as indicated by arrows in Fig. 2 by the said deflecting walls and meeting the hot flame directly above the fire are thereby consumed after thoroughly commingling with the air from pipes 21. The ends of the pipe 19 are opened and the cooler air from the exterior of the furnace caused to flow there-through and through the pipes 21 into contact and commingling with the products of combustion passing over the ends of said pipes 21, thus forming an inflammable gas which is consumed within the combustion chamber and in its consumption destroying the heavy smoke, soot, and poisonous gas which otherwise would escape into the atmosphere.

The dampers 20 are adapted for manual actuation to open or close the pipes at will.

I claim—

1. A furnace comprising a grate, a bridge wall supporting one end of said grate and having its top approximately below the plane of said grate, a pipe 19 extending transversely beneath the grate and outside the furnace at both ends, dampers in both ends of said pipe 19 adapted for manual rotation, a plurality of pipes 21 located on said bridge wall and communicating at one end with said pipe 19 and at the opposite end with the hot air chamber in the rear of the grate, a layer of tiles on said bridge wall covering said pipes 21 and having a top surface in the plane of said grate, and deflecting walls 23, 24, located at the sides of the hot air chamber in the rear of the bridge wall, which deflecting walls are separated and provided with passages 25, 26, as shown and described, for the purposes stated.

2. In a furnace of the class described, the combination of a grate, a manifold located transversely beneath the grate, a plurality of

pipes 21 opening from said manifold and extending rearwardly above the bridge wall, tiling covering the said pipes, and separated
5 deflecting walls pending from the boiler and sides of the furnace, the pipes 21 opening to the space between said deflecting walls as set forth.

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

GEORGE FOX.

Witnesses:

IDA O. ENGELHARD,
J. H. RISCH.