

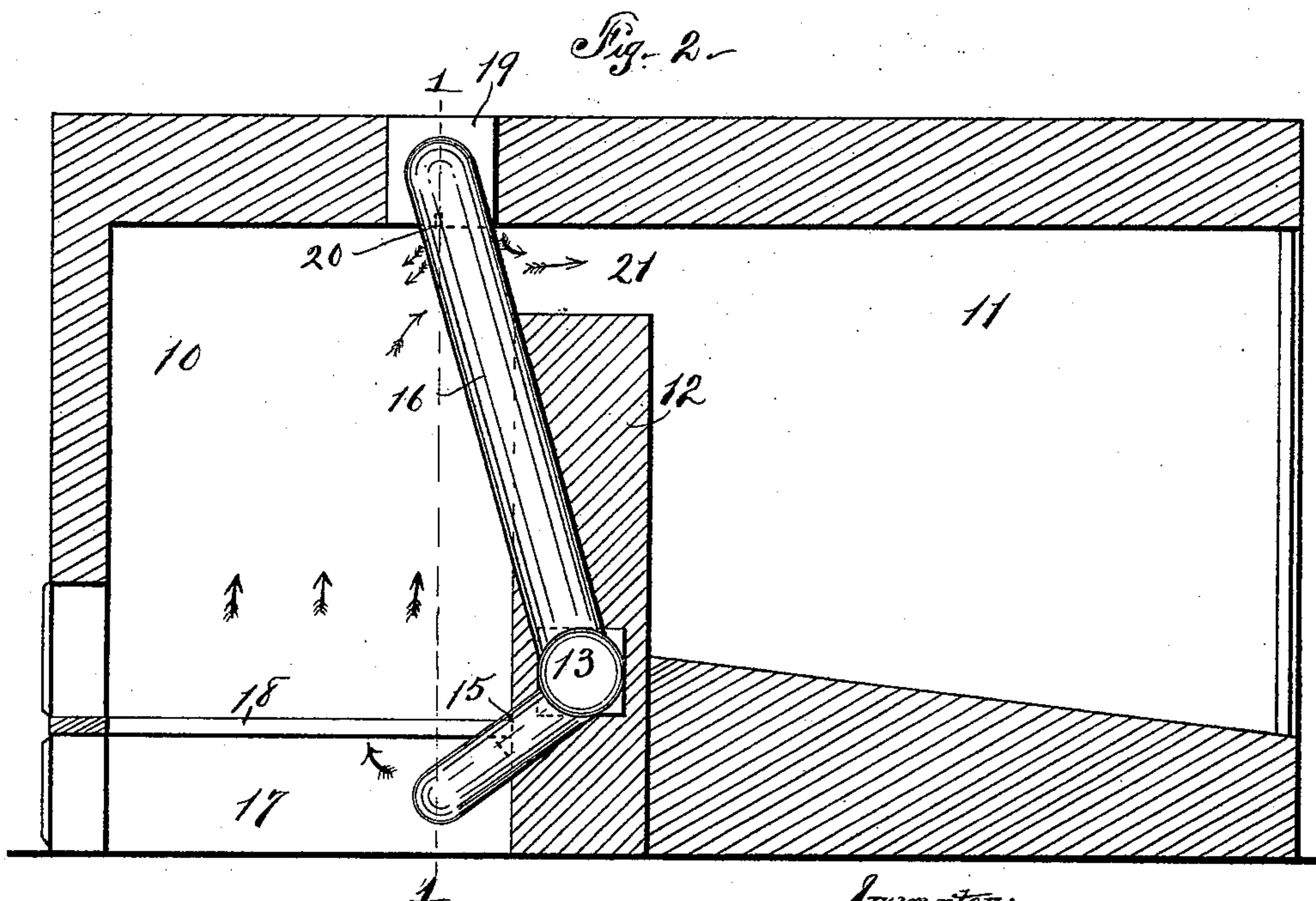
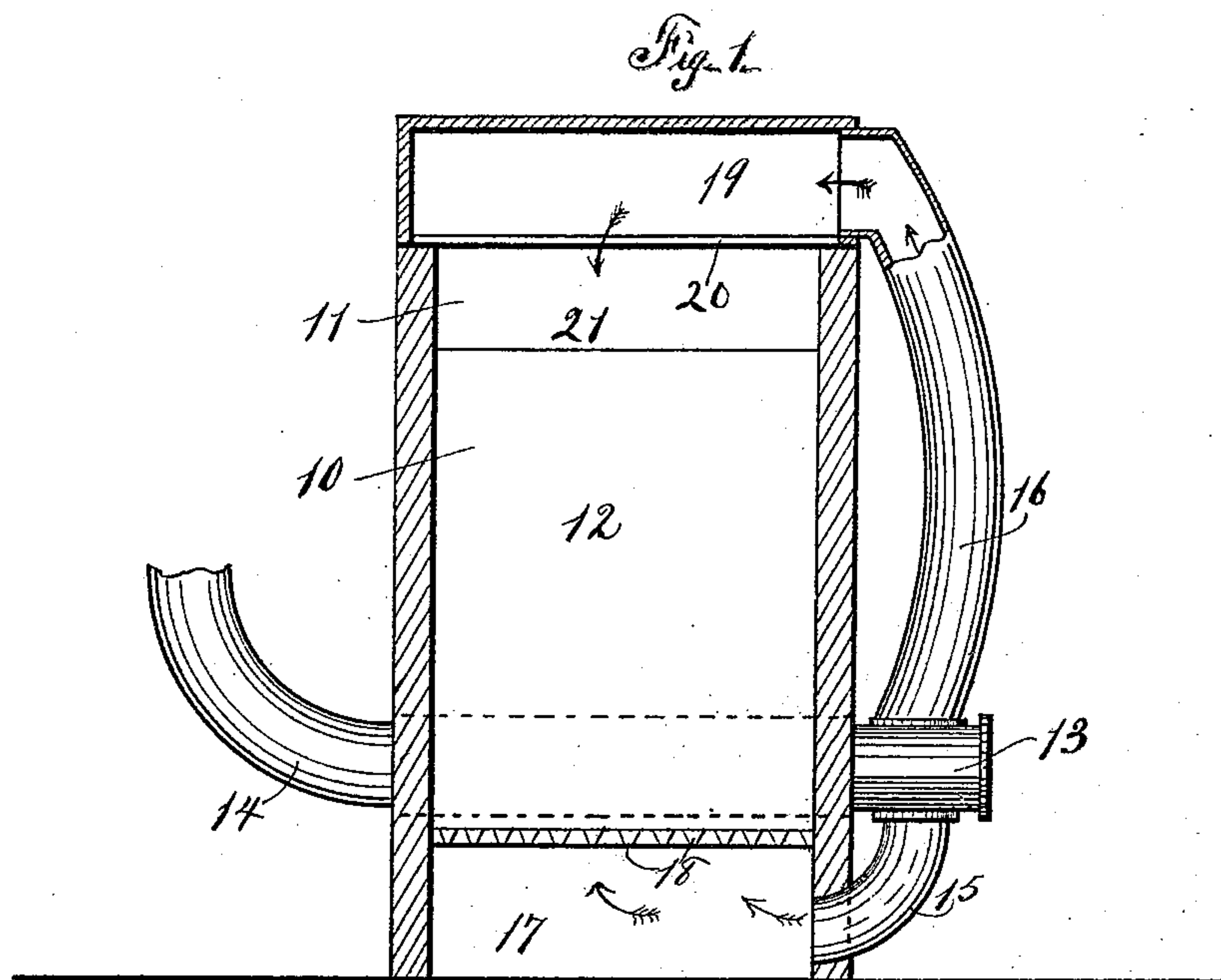
(No Model.)

E. WARNER.

SMOKE CONSUMING ATTACHMENT FOR BLAST FURNACES.

No. 539,458.

Patented May 21, 1895.



Attest:

S. C. Sweet
Ida Engelhard

Inventor:

Emell Warner
by Henry D. O'Brien
Atty.

UNITED STATES PATENT OFFICE.

EMELL WARNER, OF ST. LOUIS, MISSOURI.

SMOKE-CONSUMING ATTACHMENT FOR BLAST-FURNACES.

SPECIFICATION forming part of Letters Patent No. 539,458, dated May 21, 1895.

Application filed February 8, 1895. Serial No. 537,709. (No model.)

To all whom it may concern:

Be it known that I, EMELL WARNER, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain
5 new and useful Improvements in Smoke-Consuming Attachments for Blast-Furnaces; and I do declare the following to be a full, clear, and exact description of the invention, such as
10 it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

The object of my invention is to provide
15 means for consuming the smoke and gases in a furnace employed for welding or forging metal.

My invention consists in the construction, arrangement and combination of parts, here-
20 inafter set forth, pointed out in my claims, and illustrated by the accompanying drawings, in which—

Figure 1 is a transverse sectional elevation on the line 1 1 of Fig. 2, showing my device
25 attached to a furnace. Fig. 2 is a side elevation, partly in section, of a furnace embodying my invention.

In the construction shown the numeral 10 designates a fire box and 11 a heating furnace, separated by a bridge wall 12. Mounted
30 in the bridge wall 12 and extending transversely of the furnace is an air box 13, and an air pipe 14 communicates with one end of said box 13 outside the furnace, through
35 which pipe 14 air is forced under blast into and through said box. The air box 13 is extended outside the furnace and two pipes 15, 16, lead in opposite directions from the projecting end thereof opposite the pipe 14.
40 The pipe 15 leads to the ash pit 17 beneath the grate 18, and the pipe 16 leads to one end of an air box 19 located in the roof of the fire box 10 and transversely of the furnace.

The air box 19 is located in advance of the
45 bridge wall 12 and has a slot 20 in the bottom thereof, which slot affords communication between said air box 19 and the fire box, adjacent to the passage 21 above said bridge wall.

In the operation of this device the draft is
50 forced by the blast through the pipe 15, and the smoke and gases rise for passage through

and above the bridge wall 12 and are met by the blast of air from the slot 20, air box 19, and pipe 16, and commingling with said blast of
55 air from an inflammable gas which is consumed and destroyed in the fire box, thus saving fuel and destroying the major portion of the offensive smoke and gas.

By locating the air passages in metallic
60 pipes and leading the same outside the furnace, I am enabled to minimize the cost of construction, and retain the temperature of the outer surface of the pipes at a much lower degree, thus avoiding the ordinary difficulties engendered by the burning out of the
65 pipes, and at the same time providing for repairs and displacement, when necessary, with much greater convenience.

What I claim is—

1. An attachment for blast furnaces, comprising an air box so shaped as to be located
70 in a bridge wall and project outside the furnace at both ends, connection between one end of said air box and blast mechanism, pipes 15, 16 connected to the opposite end of
75 said air box and extending in divergent planes therefrom, the pipe 15 leading to the ash pit of the furnace, an air box 19 located in the roof of the furnace and communicating there-
80 with the full width of the fire box in a vertical plane adjacent to the bridge wall, and connection between the upper end of the pipe 16 and one end of said air box 19, as set forth.

2. In a furnace a bridge wall, an air box 13
85 mounted in said bridge wall and extending outside the furnace at both ends, a blast pipe connected to one end of said air box, and divergent pipes 15, 16, connected to the other
90 end of said air box 13, the pipe 15 leading to the ash pit 17, an air box 19 located in the roof of the fire box, and extending outside the furnace at one end and connected to the
95 upper end of the pipe 16 the air box 19 having a slot 20 in one side communicating with the top of the fire box, throughout the full width of said fire box as set forth.

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

EMELL WARNER.

Witnesses:

S. C. SWEET,
IDA C. ENGELHARD.