J. TODD.

METHOD OF CONSUMING SMOKE.

No. 181,117. Patented Aug. 15, 1876.

Fig. 1.

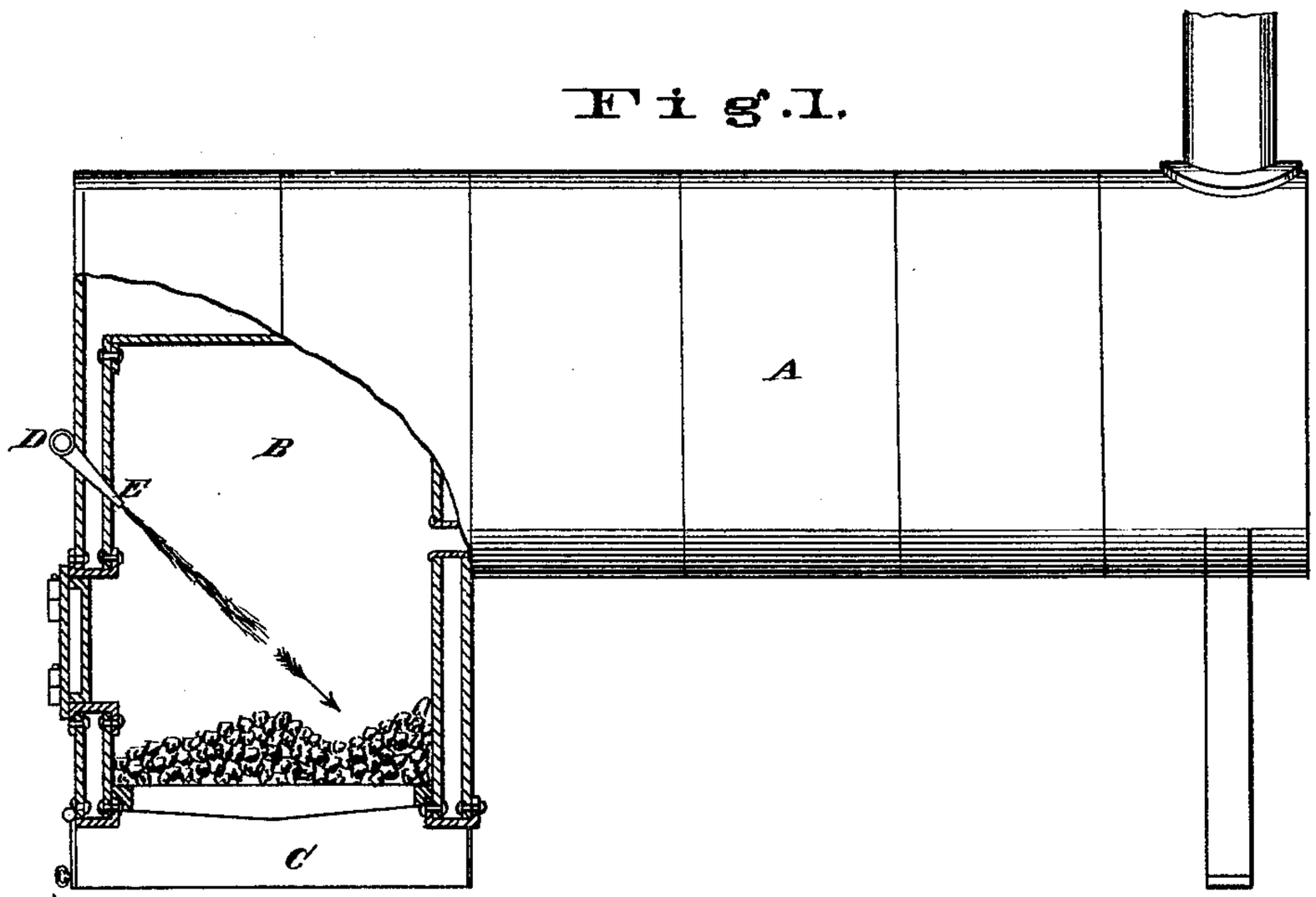
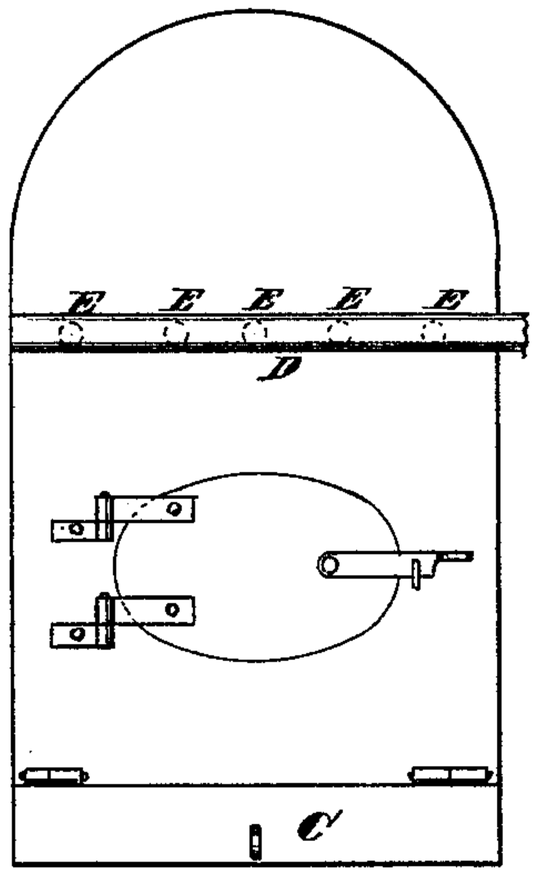


Fig. 2.



WITNESSES.

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JAMES TODD, OF POTOSI, MISSOURI.

IMPROVEMENT IN METHODS OF CONSUMING SMOKE.

Specification forming part of Letters Patent No. **181,117**, dated August 15, 1876; application filed February 28, 1876.

To all whom it may concern:

Be it known that I, JAMES TODD, a resident of Potosi, Washington county, State of Missouri, have invented a new and useful Method of Consuming Smoke, of which the following is a full, clear, and exact description, reference being had to the annexed drawing, making part of this specification, in which—

Figure 1 is a side elevation of a furnace embodying my invention, part of the wall of the furnace-chamber being broken away; and Fig. 2, an end elevation thereof.

Like letters indicate like parts.

My aim is to provide means for effectually consuming smoke; and it consists in introducing air compressed to at least fifteen pounds to the square inch into the furnace-chamber from the upper part thereof, in such manner as to strike and penetrate the rising products of combustion before it reaches the fuel-charge.

In carrying out my invention I have found the preferable mode to be as follows:

Referring to the annexed drawing, A represents an ordinary boiler; B, the fire-box or furnace, and C the ash-pit. D represents a supply-pipe connected with and leading from a suitable air-compressing apparatus. (Not shown.) The pipe is arranged across the end of the furnace above the level of the fire. E E E, &c., represent a series of pipes leading out of the pipe D, and projecting a little way into the furnace, and inclined so as to point toward the farther end of the fire.

The operation is as follows: The furnace is fired in the ordinary way. The compressed air is then introduced through the pipes D E E, &c., into the furnace. By reason of the inclination of the last-named pipes the jets of air are (as indicated by the arrow in the drawing) caused to strike the fire far enough back from the bridge-wall to enable them to penetrate and break up the flame; and owing to the air being compressed to the degree described when it is delivered into the furnace-chamber, the proper amount of oxygen for the thorough consumption of the smoke can be combined therewith without interfering with the action of the fire.

It is obvious that the above-described improvement is adaptable to all kinds of furnaces. I have found, in practice, that the required pressure varies from fifteen pounds up to one hundred and fifty pounds per inch, according to various conditions—for instance, the varying conditions of the fire in the same furnace; the strength of the draft; the distance of the point of the air-delivery pipe from the fire, and to the particular direction of the air-current. Soon after a fire is started a pressure of from thirty to one hundred pounds per inch may be advantageously used, and when the fire is very bright and the unconsumed carbon is reduced to a minimum, the pressure may be allowed to drop to fifteen pounds per inch. Any practical workman can very soon determine, from experience, exactly how to regulate the pressure, and no definite rule can be given, saving that the pressure must not fall below fifteen pounds per inch.

I am aware that blowers and pumps have been used to introduce air into a furnace, and that steam has been employed to draw air into a furnace, and that air has been introduced into a furnace both above and below the fire, and also at the side thereof, and even so as to be under some slight degree of compression. Consequently I disclaim each and all of said combinations and processes; but

What I claim is—

The herein-described method of consuming smoke in furnaces by the introduction, in the manner shown and described, of air compressed to at least fifteen pounds per inch.

JAMES TODD.

Witnesses:

SAML. S. BOYD,

CHAS. D. MOODY.