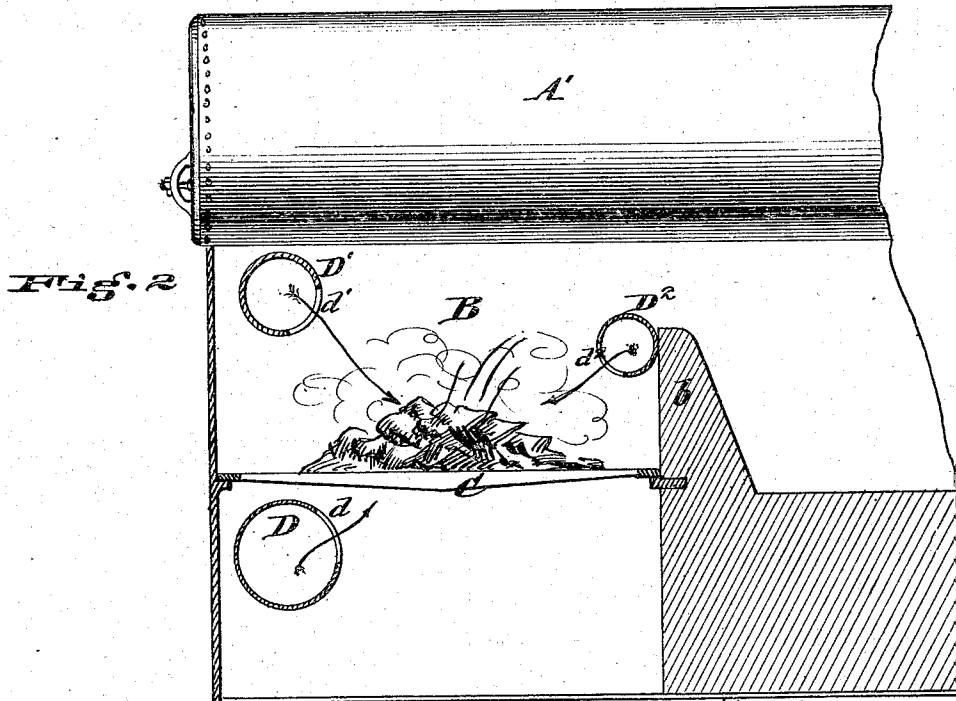
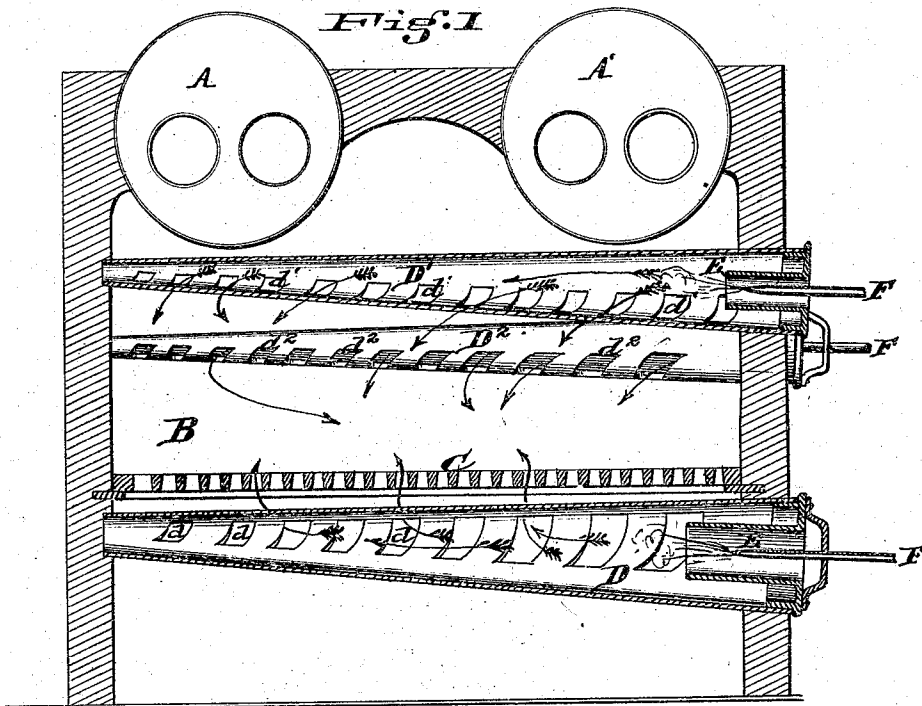


H. HECKEL.

DEVICE FOR SUPPLYING AIR TO FURNACES.

No. 172,119.

Patented Jan. 11, 1876.



Attest

Edgar J. Gross
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UNITED STATES PATENT OFFICE.

HENRY HECKEL, OF CINCINNATI, OHIO.

IMPROVEMENT IN DEVICES FOR SUPPLYING AIR TO FURNACES.

Specification forming part of Letters Patent No. 172,119, dated January 11, 1876; application filed December 21, 1875.

To all whom it may concern:

Be it known that I, HENRY HECKEL, of Cincinnati, Hamilton county, State of Ohio, have invented an Improvement in Smoke-Preventers, of which the following is a specification:

The object of my invention is to obtain a superior combustion, and thereby prevent the formation of smoke in the fire-box of a steam-generator or other similar device; and my invention consists of certain improvements upon the Letters Patent No. 150,401, granted Alfred J. Creigh May 5, 1874, whereby a most effectual means is secured for accomplishing said object.

Although I have shown naked tapering tubes, I do not wish it to be understood that I make any claim thereto, inasmuch as I am aware that that particular device is the invention of another party.

My invention consists, in connection with tapering pipes, of a steam suction device for suitably forcing the currents of air into and through the pipes.

Figure 1 is a sectional elevation, showing the invention applied to the fire-box of a pair of horizontal steam-boilers. Fig. 2 is a transverse section of the same.

A A' are a pair of horizontal boilers located over the fire-box B, which has the usual bridge-wall *b* and grate-bars C. D D' D² are a series of tapering pipes running horizontally across the fire-box from side to side, the pipe D being under the grate-bars C and near the front of the box B, the pipe D' being above the grate-bars directly under the boilers and near the front of box B, and the pipe D² being above the grate-bars near the top or edge of the bridge-wall *b*. These pipes are provided with perforations *d d' d²*, cut preferably obliquely in the surfaces of the pipes which look toward a point at or near the center of the

grate-bars, so that, from their extent, they may be able to distribute a radiating current of air the full length of the grate-bar frame. It has been found, in actual practice, that the currents of air from the taper pipes D D', projected against the fire from below and above, act in conjunction to completely consume the particles of combustion, and that, while the current of air from pipe D *d* against the under side of the fire frees the combustible gases at a high temperature, the current of air from pipe D' *d'* against the upper surface of the fire causes the said gases to ignite and immediately burn up with an accompanying increase of heat. Now, it has also been demonstrated by actual test that the pipe D² *d²* is not necessary in use to produce the above result, but merely serves to quicken the combustion. To furnish the desired current of air in the tubes D D' D² I secure in their larger end a pipe, E, of smaller diameter, into the mouth of which is introduced a steam-jet, F, and it will be observed that the steam, forcing into this pipe from jet F, will cause a suction that will create a current of air passing into the pipes and out at the apertures *d d' d²*.

Having thus described my invention, I claim—

In the fire-box of a steam heater or analogous device, the combination of the suction-pipe E and steam-jet F with the tapering pipes D *d*, the several parts being arranged in relation to each other substantially as and for the purpose set forth.

In testimony of which invention I hereunto set my hand.

HENRY HECKEL.

Witnesses:

JOHN E. JONES,
J. L. WARTMANN.