(No Model.)

J. C. SCHAEFER.

APPARATUS FOR INCREASING THE DRAFT OF CHIMNEYS.

No. 258,133. Patented May 16, 1882.

Fig. 1.

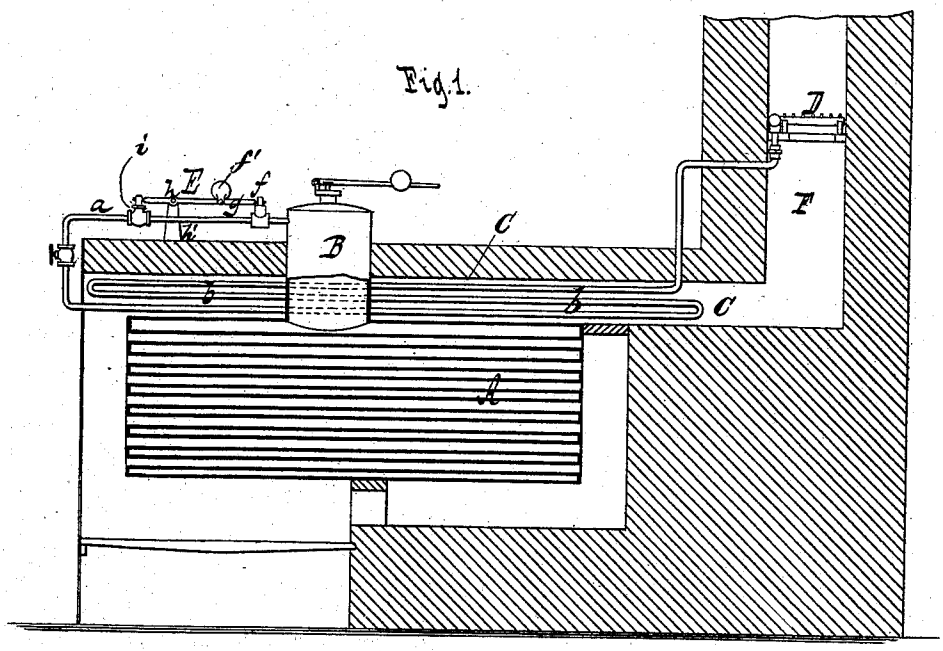


Fig. 2.

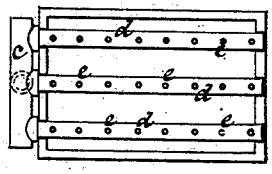
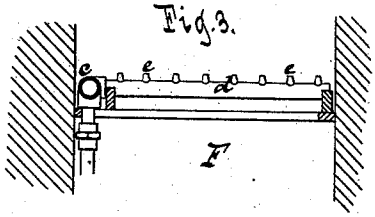


Fig. 3.



WITNESSES:

Otto Hufeland

William Miller.

INVENTOR

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UNITED STATES PATENT OFFICE.

JOHN C. SCHAEFER, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS TO KLAUSMANN & MAYER, OF SAME PLACE.

APPARATUS FOR INCREASING THE DRAFT OF CHIMNEYS.

SPECIFICATION forming part of Letters Patent No. 258,133, dated May 16, 1882.

Application filed February 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. SCHAEFER, a citizen of the United States, residing at New York, in the county and State of New York, have invented new and useful Improvements in Apparatus for Increasing the Draft of Chimneys, of which the following is a specification.

The object of this invention is to provide an improved means for increasing the draft in a steam-boiler furnace. This object I accomplish by the combination and arrangement of devices illustrated in the accompanying drawings, in which—

Figure 1 is a section through a boiler and furnace, showing the application of my invention. Fig. 2 is a plan view of the steam-nozzle. Fig. 3 is a longitudinal section of the same.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the boiler; B, the steam-dome. From this dome a pipe, *a*, runs into the flue C over the boiler, where it is bent into the form of a coil, *b*. The live steam from the dome, which passes through the pipe *a* into the coil *b*, is here dried or superheated and passes into the steam-nozzle D, which by preference I construct as follows: a header-piece, *c*, connecting a number of short pipes, *d*, which are provided with small perforations *e*, through which the thoroughly-dry steam escapes up the chimney F, causing an upward rush of air, thereby increasing the draft, a more intense heat in the furnace, and a corresponding increase of pressure in the boiler.

In the old method, where exhaust-steam is used for a similar purpose, the steam rapidly condenses on mixing with the air in the chimney and precipitates sufficient moisture against the walls to cause the latter to crumble and eventually destroy them. Even where live steam is used the effect is the same, though in a slightly-less degree.

In my apparatus the steam is rendered so light and dry that it will pass through the chimney, carrying the air with it before it can can be sufficiently cooled to deposit moisture against the chimney-walls.

In order to provide simple and efficient means for automatically regulating or controlling the passage of steam from the steam-dome to the superheating-coil, I provide the pipe *a* with a regulating mechanism, E, which is composed essentially of two valves, *f* and *i*, arranged in the pipe *a*, and of suitable construction, said valves being connected with the ends of a horizontal lever, *g*, pivoted at *h* on a standard, *g'*. The valve *f* is so weighted, as at *f'*, that when the pressure in the boiler rises above the desired limit it raises the end of the lever *g*, which turns on a fulcrum, *h*, closing the valve *i*, so as to check the jets of steam escaping through the steam-nozzle D sufficiently to reduce the draft and make the fires under the boiler burn lower until the pressure again comes within the desired limit.

I do not wish to be understood as broadly claiming a nozzle to inject superheated steam in the flue or chimney for increasing the draft in the boiler-flues or in the boiler-furnace.

What I claim as new, and desire to secure by Letters Patent, is—

The combination, with the boiler, steam-dome, chimney, and superheating-coil *b*, arranged above the boiler and connected at one end by a pipe, *a*, with the steam-dome and at the other with a steam-nozzle in the chimney, of the automatic regulator E, connected with the pipe *a* between the steam-dome and superheating-coil, and composed essentially of the pivoted lever *g* and valves *i* and *f*, connected with the ends of the lever, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

JOHN C. SCHAEFER. [L. S.]

Witnesses:

W. HAUFF,

WILLIAM MILLER.