D. ARGERBRIGHT & W. ALLENSWORTH.

Furnace for Consuming Smoke.

No. 160,378. Patented March 2, 1875.

FIG. 1.

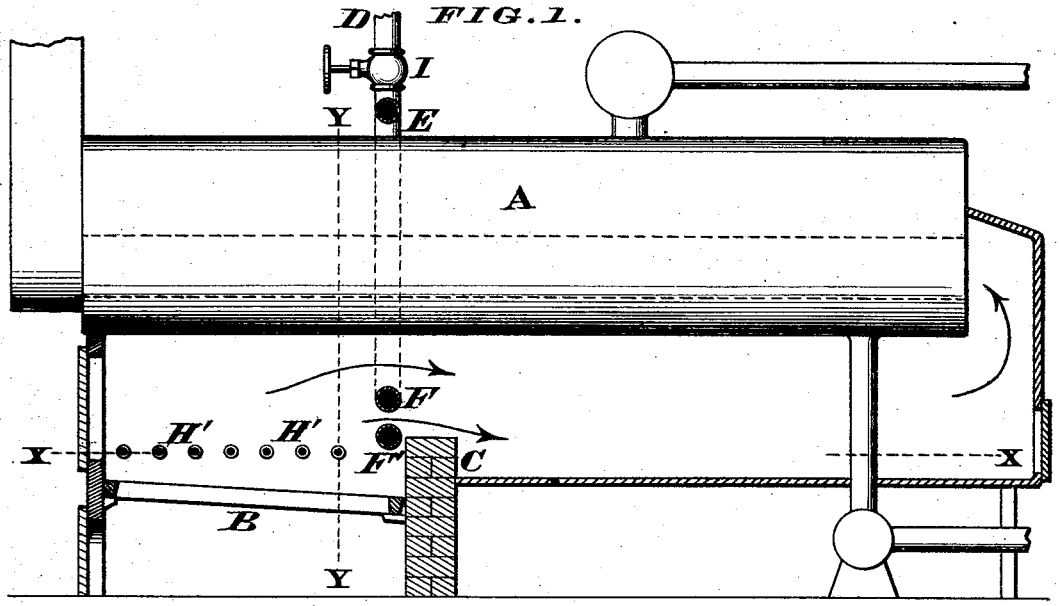


FIG. 2.

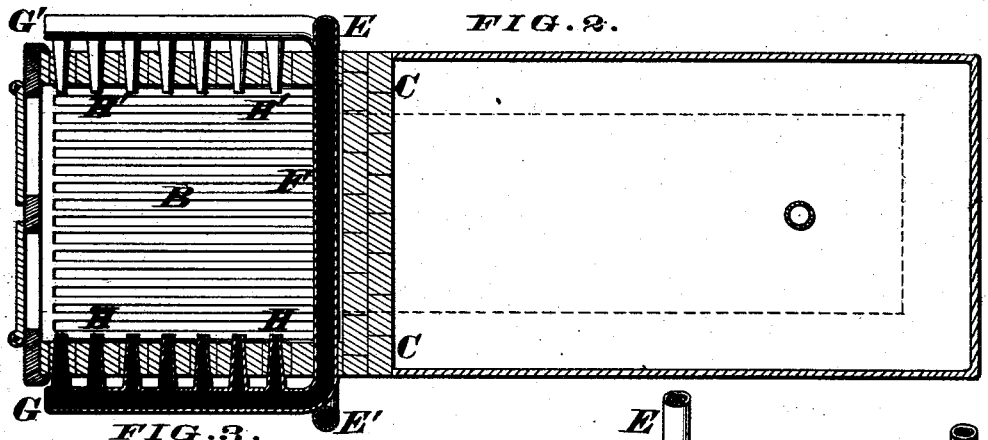


FIG. 3.

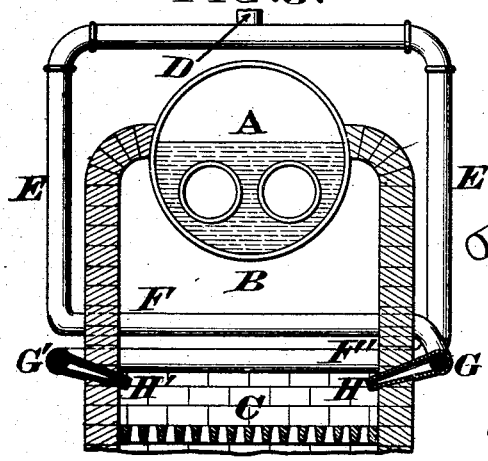
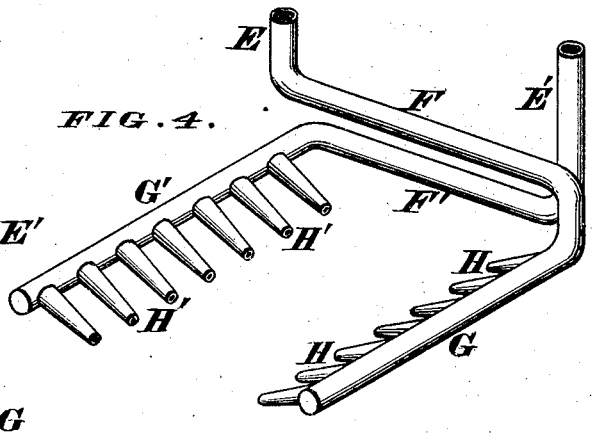


FIG. 4.



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UNITED STATES PATENT OFFICE.

DANIEL ARGERBRIGHT AND WILLIAM ALLENSWORTH, OF TROY, OHIO.

IMPROVEMENT IN FURNACES FOR CONSUMING SMOKE.

Specification forming part of Letters Patent No. **160,378**, dated March 2, 1875; application filed July 29, 1874.

To all whom it may concern:

Be it known that we, DANIEL ARGERBRIGHT and WILLIAM ALLENSWORTH, both of Troy, Miami county, Ohio, have invented a new and useful Smoke-Consumer, of which the following is a specification:

Our invention is particularly designed to effect perfect combustion in steam-boiler furnaces; and consists essentially of a blast-pipe, which branching so as to encircle the boiler on opposite sides, the two branches are caused to traverse the fire-chamber in front of the fire-bridge, whence emerging, they are carried horizontally forward and re-enter the furnace in both flanks in the form of small tuyeres or nozzles, the now highly-heated blast from which, combining intimately with the unconsumed products, operating to effect complete and rapid combustion.

In the accompanying drawings, Figure 1 is a longitudinal section of a steam-boiler provided with our improved furnace. Fig. 2 is a horizontal section of the same at the line X X. Fig. 3 is a transverse section thereof at the lines Y Y, and Fig. 4 is a perspective view of the nozzles and their accessories detached from the furnace.

A represents a common cylindrical boiler, and B its furnace, C being the customary fire-bridge. D is a pipe, which receives a blast of air from any customary blower. This pipe ramifies immediately above the boiler, passing down on both sides thereof in the form of two branches, E E′, which, at two slightly-diverse levels, a little in front of and higher than the fire-bridge, traverse the fire-chamber in the manner shown at F F′, and, passing outward, extend horizontally forward, as at G G′, and re-enter the fire-space in the form of tuyeres or nozzles H H′, whose issues project obliquely downward. I is a throttle-valve, wherewith the intensity of the air-blast is regulated.

The operation of our consumer is as follows: The blast, being carried along the portions of the pipe F F′, becomes highly heated, and enters the furnace in that condition of temperature and in finely-divided jets, which attack the smoke and gases in flank and on top, so as to mingle intimately with the same, and to effect complete combustion. Moreover, the portions of blast-pipe F F′ act as a temporary check at the throat of the furnace, and assist the bridge in detaining the gases in the fire-chamber until entirely consumed.

We claim herein as new and of our invention—

The combination of the central air-blast pipe D, having the throttle-valve I, the exposed downwardly-projecting and boiler-encircling pipes E E′, the portion F F′, crossing the throat of the furnace above the bridge, and exposed at that point and forming a check to the highly-heated gases, and the exterior flank-pipes G G′, having nozzles H H′ inserted obliquely downward through the wall of the fire-chamber, as and for the purpose set forth.

In testimony of which invention we hereunto set our hands.

DANIEL ARGERBRIGHT.
WILLIAM ALLENSWORTH.

Attest:
GEO. H. KNIGHT,
GEORGE GREEN.