

(No Model.)

G. A. BARTH.
SMOKE CONSUMING FURNACE.

No. 261,422.

Patented July 18, 1882.

Fig. 1.

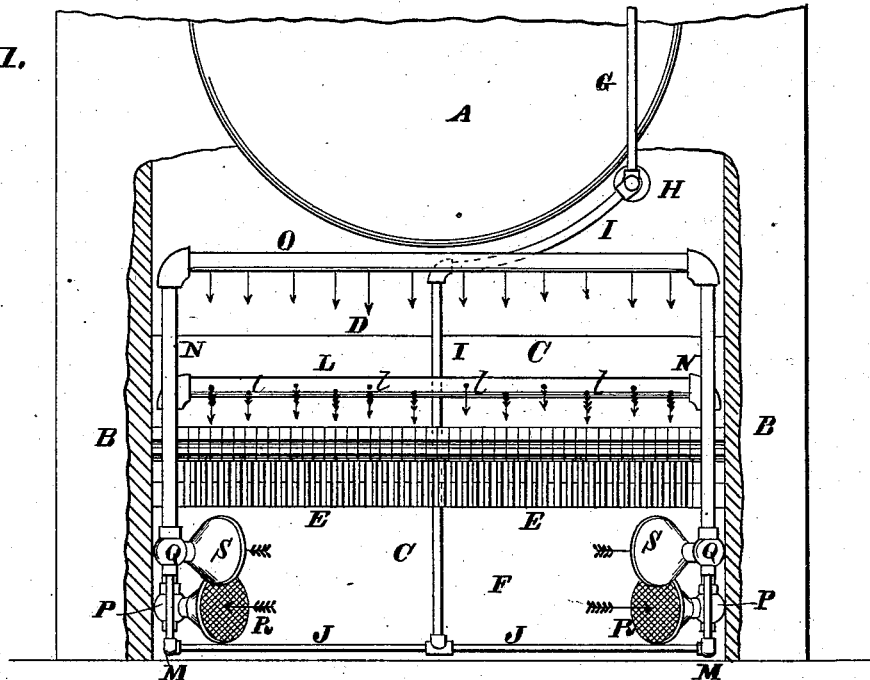
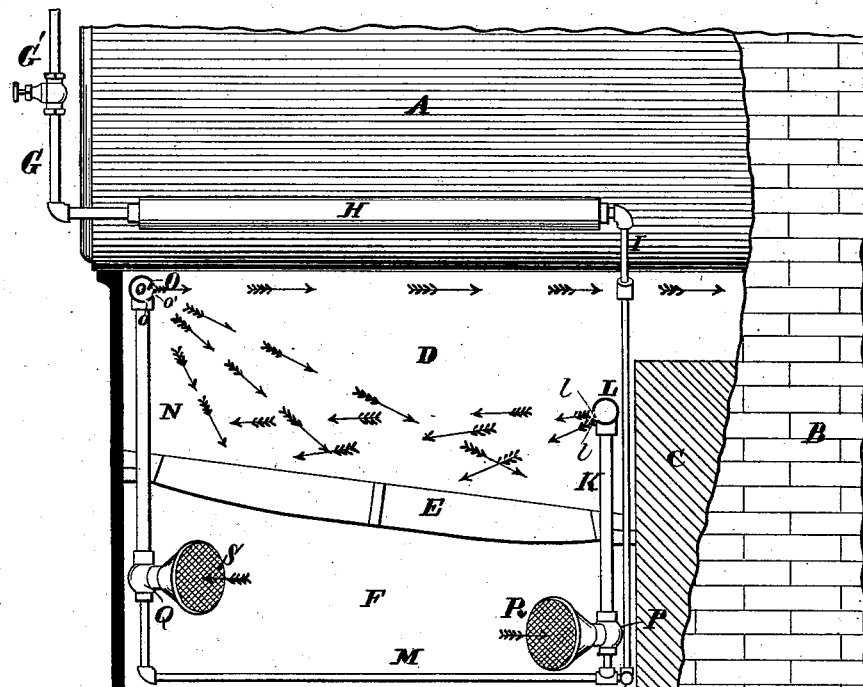
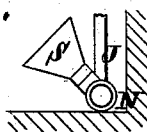


Fig. 2.



Attest:
Charles Pickles
[Signature]

Fig. 3.



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UNITED STATES PATENT OFFICE.

GUSTAVE A. BARTH, OF ST. LOUIS, MISSOURI.

SMOKE-CONSUMING FURNACE.

SPECIFICATION forming part of Letters Patent No. 261,422, dated July 18, 1882.

Application filed May 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVE A. BARTH, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Smoke-Consuming Furnaces, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front view of a furnace with the wall of the fire-chamber broken away. Fig. 2 is a side view with part of the wall broken away, and Fig. 3 is a detail view.

My invention relates to a device whereby jets of superheated steam combined with air are discharged into the fire-chamber to assist combustion.

A represents part of the boiler; B B, the side walls of the furnace; C, the bridge-wall; D, the combustion-chamber; E, the grate-bars, and F the ash-pit.

G is a steam-pipe leading from the boiler and connecting with a pipe, H, of larger diameter within the fire-chamber E. The pipe H communicates by means of a smaller pipe, I, with a transverse pipe, J, beneath the grate-bars, and the pipe J communicates by means of vertical pipes K with a parallel pipe, L, located in the combustion-chamber just in front of the bridge-wall. This pipe J also communicates by means of horizontal pipes M and vertical pipes N with a pipe, O, which is located in the combustion-chamber at the front end of the furnace. The vertical pipes K and

N are provided with injectors P Q and air-receiving funnels R S, located beneath the grate-bars, as shown. The mouths of the funnels are covered with wire-gauze to exclude cinders, &c. The pipes L and O have perforations *l o* pointing in different directions, as shown by the arrows, so that the jets of combined air and superheated steam are directed down upon the fire in all directions to assist combustion. The pipe O also has one series of perforations, *o'*, pointing back over the bridge-wall, so that jets of steam and air are discharged in this direction to assist the draft. The steam-pipe G is provided with a regulating-valve, G'. The pipe H is made large to allow for the expansion of the steam as it becomes superheated in passing through the fire-chamber.

I claim—

1. The combination of steam-pipe G, steam-pipe H beneath the boiler, vertical pipes K K, having air-funnels R R, horizontal combined air and superheated steam pipe L, having orifices *l*, and connecting-pipes I J, as set forth.

2. The combination of boiler A, pipes G, H, I, J, K, L, M, N, and O, injectors P Q, and funnels R S, the pipes L O having perforations *l o o'*, all substantially as and for the purpose set forth.

GUSTAVE A. BARTH.

Witnesses:

SAML. KNIGHT,
GEO. H. KNIGHT.