

(No Model.)

S. JONES & G. B. MARSHALL.

SMOKE CONSUMER.

No. 263,708.

Patented Sept. 5, 1882.

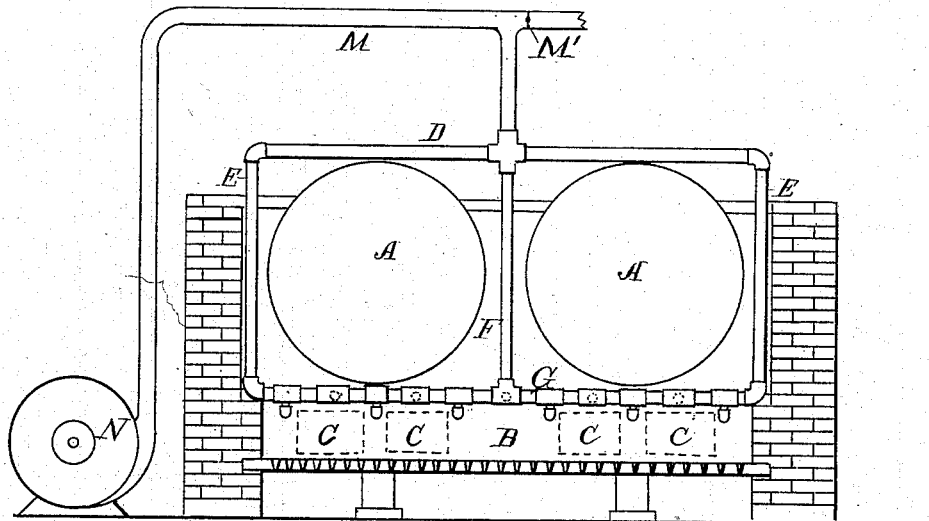


Fig. 1.

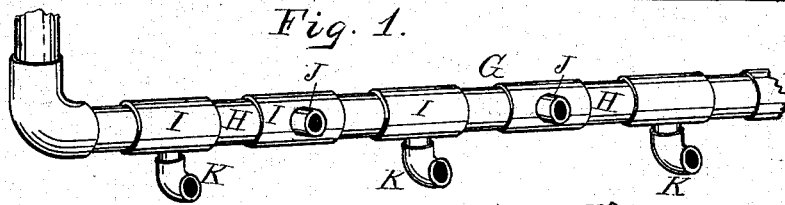


Fig. 3.

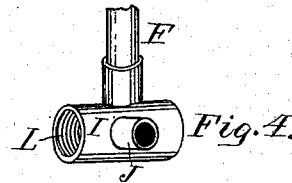


Fig. 4.

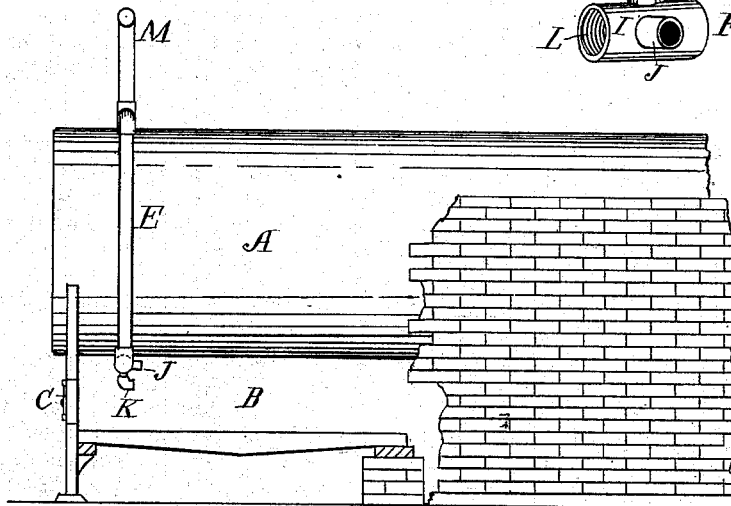


Fig. 2.

Witnesses:  
Carl Huber  
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# UNITED STATES PATENT OFFICE.

SALMON JONES AND GEORGE B. MARSHALL, OF CINCINNATI, OHIO.

## SMOKE-CONSUMER.

SPECIFICATION forming part of Letters Patent No. 263,708, dated September 5, 1882.

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

*To all whom it may concern :*

Be it known that we, SALMON JONES and GEORGE B. MARSHALL, of Cincinnati, in the county of Hamilton and State of Ohio, have  
5 invented a new and useful Improvement in Smoke-Consumers, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a front view of a furnace equipped with our improved smoke-consuming device. Fig. 2 is a side view, partly in section. Fig. 3 is a perspective view of portion of the pipe; Fig. 4, one of the sections of the pipe containing the discharge-nozzles.

15 The object of our invention is to provide a smoke-consuming device; and it consists in providing the fire-box or combustion chamber with a transverse pipe, made in sections located at a point directly under the boiler, at the forward end, said pipe being provided with  
20 two lines of discharge-nozzles, one line projecting directly back from the pipe, and the other line projecting downward and backward by means of elbows, so that the air expelled from these nozzles will be discharged  
25 at points directly above and at the sides of the furnace-doors, as will now be fully described in detail.

In the accompanying drawings, A A represent the boilers, and B the combustion-chamber, constructed and arranged in the ordinary manner. The side walls and the bridge for the combustion-chamber require no change to apply this device.

35 C C represent the furnace-doors.

D is a transverse pipe, which runs across the top of the boilers at the forward end; and E E represent vertical pipes leading from the transverse pipe at each end, so that they pass  
40 down by the side of the walls, but are not set into the walls.

F is a vertical pipe, also leading from the pipe D between the boilers.

G represents a transverse pipe, formed of  
45 sections H I. This sectional pipe is connected with the vertical pipes E F, and extends transversely across within the combustion-chamber at the forward end, directly above the line of the furnace-doors. The central vertical  
50 pipe F supports the middle of the horizontal pipe G, as well as to serve for supplying said pipe in part with air. The transverse pipe G is composed of sections H I, the section H having external screw-threads at each end,

which are adapted to screw into the sections 55 I, containing the internal screw-threads, L, at each end. Each alternate section I is provided with a discharge pipe or nozzle, J, which nozzle projects directly back from the section, so that the air, when expelled, is on a horizontal  
60 plane with the pipe G. The other alternate sections I have pipes or nozzles K, which project downward and rearwardly in the form of an elbow, so that the air expelled therefrom will be forced to the rear of the combustion-  
65 chamber on a plane below the line of the pipe G. The sections are so graduated in length that one or more of the rearwardly-projecting nozzles J will be directly above the furnace-doors C, and one or more of the downturned  
70 elbow-nozzles will be by the sides of the doors.

M represents a pipe connected with the transverse pipe D above, and this pipe M leads from a fan or blower, N, located in the engine-room, or by the side of the boiler, or in  
75 any suitable place. A valve, M', located at any suitable point, O, may be used to turn off the air from the blower when not needed.

The operation is as follows: The blower is set in motion, and air is expelled through the  
80 pipes and nozzles into the combustion-chamber directly above the burning fuel, thus providing the mass with a steady supply of oxygen. The vertical pipes E F should be exposed as much as possible to the heat of the  
85 furnace, so that the air within will be heated, or partially so, before being expelled. We find that the higher the temperature of the discharged air the more perfect the combustion.

Having described our invention, what we claim is—

In smoke-consumers, the horizontal transverse pipe G, formed of the separable sections H I, each alternate section having the rear-  
95 wardly-projecting horizontally-disposed nozzle J, and the other alternate section having the downwardly-projecting elbow-nozzle K, substantially as and for the purpose shown.

In testimony that we claim the foregoing 100 we have hereunto set our hands this 13th day of May, 1882, in the presence of witnesses.

SALMON JONES.  
GEO. B. MARSHALL.

Witnesses:

JOSEPH SCHULTZ,  
JOHN H. BART.