

(No Model.)

T. GUNNING.  
SMOKE CONSUMER.

No. 496,479.

Patented May 2, 1893.

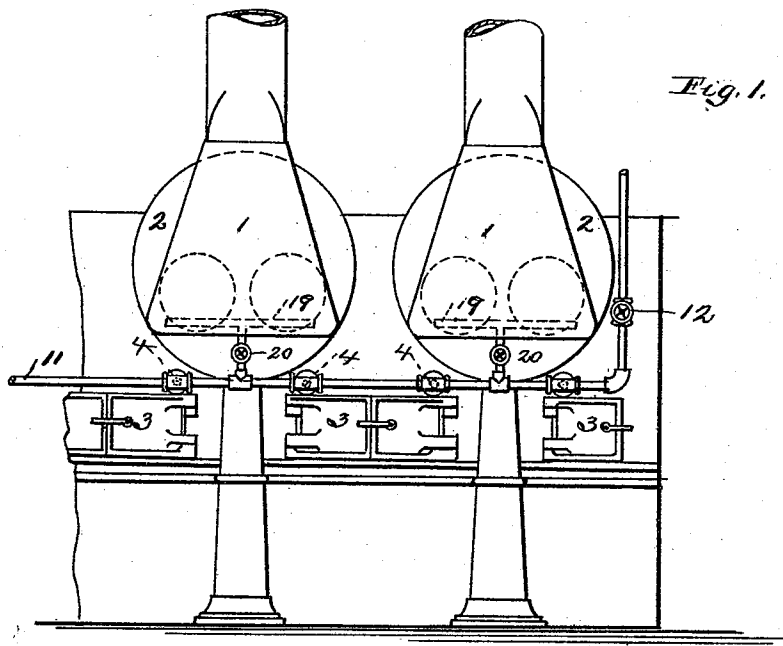


Fig. 1.

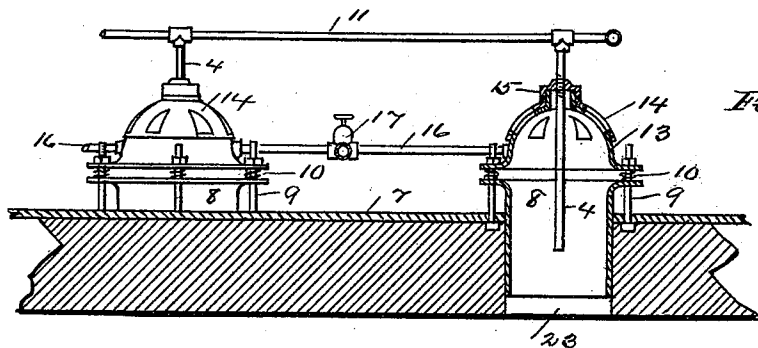


Fig. 2.

Fig. 3.

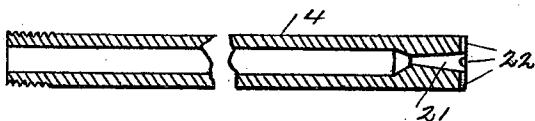


Fig. 4.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

THOMAS GUNNING, OF PITTSBURG, PENNSYLVANIA.

## SMOKE-CONSUMER.

SPECIFICATION forming part of Letters Patent No. 496,479, dated May 2, 1893.

Application filed December 28, 1892. Serial No. 456,571. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS GUNNING, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Smoke-Consumers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improved smoke burning device and means for deadening the noise, and consists in certain details of construction, and combination of parts as will be fully described hereinafter.

In the accompanying drawings, Figure 1 is a front elevation of a battery of boilers provided with my improved smoke consumer, and sound deadening device, which is constructed in accordance with my invention. Fig. 2 is a sectional plan view through a portion of the furnace showing one of the injectors in section, and the other in outside plan view. Fig. 3 is a sectional side elevation of the steam injecting pipe. Fig. 4 is an end elevation of the same.

To put my invention into practice with a battery of boilers 1, of ordinary construction I form through the front casing 7, and inner lining of the same a series of annular openings 23, each of which is fitted with a cylindrical casting 8, provided with an outwardly projecting flange through which bolts 9 are passed and held rigid in the casing 7. Fitted over each of these cylindrical castings 8 are domes 13, also provided with flanges, and held in position by the said bolts 9, in a manner that the said domes may be moved and adjusted toward or away from the cylindrical castings 8 to increase or diminish the opening between the two flanges. Small spiral spring 10 are arranged about the bolts 9 and serve to enlarge the space when the nuts are released. Formed in each of the domes 13 are openings which may be closed by means of a movable register 14, or partly opened to admit air, and held in any desired position by means of a nut 15. Projecting through this

dome 13, is a steam injector pipe 4 attached to and in communication with a steam supply pipe 11. The injecting or forward end of these pipes 4 consists in a tapering cylindrical portion 21, larger in diameter at the front than the rear, and the face of the pipe provided with a series of radial grooves 22, which serves to scatter the steam when discharged from the nozzle, and prevent noise. Communicating with each of the domes 8 is a pipe 16, having gate valves 17, and branch pipes 19 constructed in the form of a T, and leading into the breaching 1 of the boilers. These branch pipes are also provided with gate valves 20, and are used for the purpose of conducting the sound made by the inrush of the air through the injectors into the breaching, and thereby deadening the same. The steam supply pipe 11 is fitted with a valve 12 for regulating and controlling the flow of steam to the injectors.

The operation of the device is obvious. The steam passing out of the injectors draws the air between the flanges, and through the register (if opened) and forces the same into the combustion chamber above the burning fuel. The air unites with the rising smoke and burns therewith, producing an intense heat and almost entirely doing away with the smoke. The sound made by the injectors is drawn upward into the breaching and deadened.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a device of the class described, the combination, with the boiler casing,—of the tubular casting, 8, fitted in an opening in said casing,—the dome, 13, elastically and adjustably supported on the said casting,—a rotary damper or air regulator in the top of said dome and adapted to control air openings therein,—a steam injector-pipe projecting into said dome and communicating with a steam supply-pipe,—and discharge pipes leading from said dome, substantially as specified.

2. In a device of the class described, the combination, with the two elastically supported and horizontally adjustable domes, each communicating with the combustion chamber,—of a rotary damper or air regulator

controlling the admission of air to each  
dome;—a steam injector-pipe leading into  
each dome from a steam supply pipe;—a pipe,  
16 forming a path of communication between  
5 the two domes,—a valve for said pipe,—  
branch pipes leading from said pipe 16 to the  
breaching,—and valves for said branch pipes,  
substantially as specified.

In testimony that I claim the foregoing I  
hereunto affix my signature this 16th day of 10  
December, A. D. 1892.

THOMAS GUNNING. [L. S.]

In presence of—

JAS. J. MCAFEE,  
E. S. ROHBOCK.