

**T. A. MYERS.**  
**BOILER.**

Patented Aug. 28, 1894.



# UNITED STATES PATENT OFFICE.

THOMAS ABSALOM MYERS, OF MENDON, NEW YORK.

## BOILER.

SPECIFICATION forming part of Letters Patent No. 525,228, dated August 28, 1894.

Application filed September 27, 1893. Serial No. 486,620. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS ABSALOM MYERS, of Mendon, in the county of Monroe and State of New York, have invented a new and Improved Boiler, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved boiler, which is simple and durable in construction, very effective in operation, more especially designed for burning gas or petroleum as fuel, and arranged to quickly generate steam with a comparatively small expenditure of fuel.

The invention consists of sets of tubes extending horizontally in the shell, the two tubes of each set having their outer ends connected with each other and their inner ends joined to oppositely-arranged and vertically disposed steam drums.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal section of the improvement on the line 1—1 of Fig. 2. Fig. 2 is a transverse section of the same on the line 2—2 of Fig. 1. Fig. 3 is a plan view of part of the improvement. Fig. 4 is a view of the improvement, with the chimney in section on the line 4—4 of Fig. 1; and Fig. 5 is a sectional side elevation of one of the joints.

The improved boiler is provided with the heads A and B, and the chimney C arranged outside of the head B, which latter forms part of the said chimney. Between the heads A and B is arranged a shell D, to which access is had through an opening A' in the head A, for lighting the fuel in the form of gas discharged through perforated pipes or other burners, not shown in the drawings. Through the shell D extend sets of tubes, each set being formed of two tubes E and E', supported at their outer ends in the head A and connected with each other outside of the said head by an elbow E<sup>2</sup>. The inner ends of the tubes E and E' of each set are supported in recesses formed in the head B, and the extreme inner ends of the said tubes extend into the chim-

ney C and are connected by couplings E<sup>3</sup> with pipes E<sup>4</sup> and E<sup>5</sup>, respectively, discharging into oppositely-arranged and vertically disposed drums F and F', located likewise within the chimney C. Into the lower end of the drum F' discharges a pipe G, connected with a suitable pump or other means for supplying the necessary amount of water to the boiler. The other drum F is connected at its upper end by a pipe H with a steam dome I, in which the steam generated by the boiler accumulates. It will be seen that each set of tubes is connected at its inner ends with the two drums F and F', so that the water circulates from one drum through a set of tubes to the other drum, and steam generated in the drums and tubes finally passes from the upper ends of the drums and the pipe H to the dome I, from which steam is drawn. The dome I, is preferably arranged outside of the shell and chimney, as shown in Fig. 1. Additional sets of shorter tubes may be arranged within the shell and chimney, as shown in Fig. 1, each set being provided with two tubes E<sup>6</sup>, E<sup>7</sup>, connected with each other by an elbow at or near the fire box in the front end of the shell, the rear ends being connected by couplings E<sup>3</sup> with pipes E<sup>8</sup> and E<sup>9</sup>, respectively, leading to the drums F and F' respectively, similarly to the other shorter sets of tubes above described. These shorter tubes are supported near their front ends by a bridge J, and by cross pieces K secured to the inner face of the head B. The opening B' in the head B is sufficiently large to permit the heat generated in the fire box to pass from the shell D into the chimney, but the heat is deflected rearward by a semicircular deflector L, so as to guide the heat to the drums F and F' before the heat is permitted to rise in the chimney. This deflector L is secured to the outer face of the head B, as is plainly illustrated in Figs. 1 and 4. It will be seen that the heat generated in the shell D heats the water in the sets of tubes, so that a complete circulation of the water in the tubes and drums is established, and no heat is wasted, as it comes in contact with all the tubes and drums before it rises in the chimney.

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

1. A boiler, comprising a shell, heads arranged at the ends of the shell, sets of tubes extending horizontally within the shell and supported at their outer or front ends, the  
5 two tubes of each set having their outer ends connected with each other, vertically disposed steam drums one of which is connected with the inner end of one of the tubes of each set and the other with the inner end of the re-  
10 maining tube of each set, a chimney arranged at one end of the boiler outside of the head and containing the inner ends of the sets of tubes and the said drums, substantially as shown and described.
- 15 2. A boiler, comprising sets of tubes extending horizontally, a shell containing the said sets of tubes, heads arranged at the ends of the shell, the two tubes of each set having their outer ends connected with each other  
20 outside of the head, vertically disposed steam drums one of which is connected with the inner end of one of the tubes of each set, and the other with the inner end of the remaining tube of each set, a chimney arranged at  
25 one end of the boiler outside of the head and connected with the interior of the shell, the

said chimney containing the inner ends of the sets of tubes and the said drum a water feed pipe connected with one of the said drums, and a steam dome connected with the  
30 other drum, substantially as shown and described.

3. A boiler, comprising sets of tubes extending horizontally, the two tubes of each set having their outer ends connected with each  
35 other, vertically disposed steam drums, one of which is connected with the inner end of one of the tubes of each set, and the other with the inner end of the remaining tube of each set, a shell containing the said sets of  
40 tubes, a chimney connected with the interior of the said shell and containing the inner ends of the said sets of tubes and the said drums, and a semicircular deflector arranged within the chimney and above the inner ends  
45 of said tubes, substantially as shown and described.

THOMAS ABSALOM MYERS.

Witnesses:

MARY JANE MYERS,  
EMILY T. SCHOLES.