

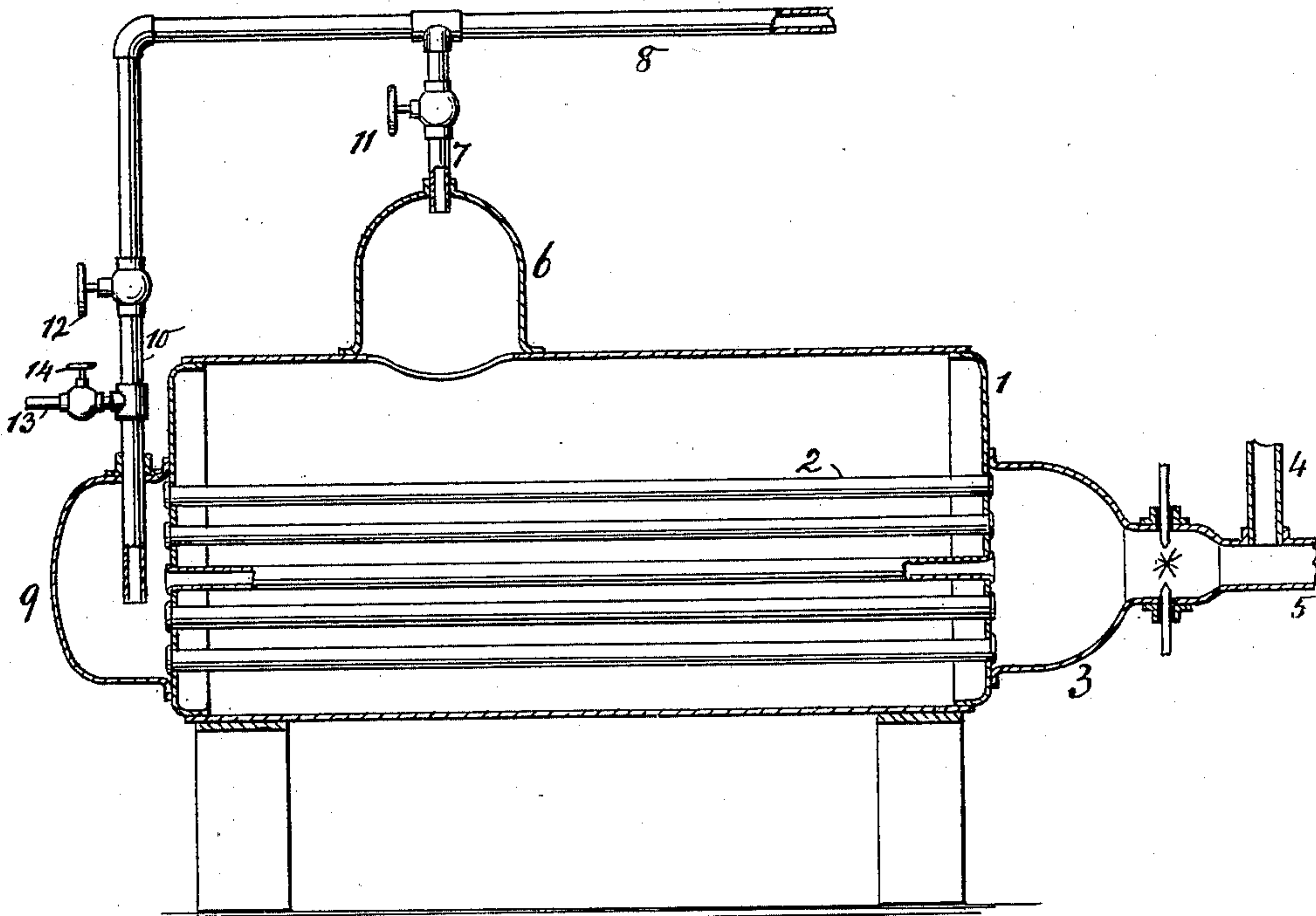
No. 612,933.

Patented Oct. 25, 1898.

J S ROGERS.  
STEAM BOILER.

(Application filed Feb. 3, 1898.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

J S ROGERS, OF NEW YORK, N. Y.

## STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 612,933, dated October 25, 1898.

Application filed February 3, 1898. Serial No. 669,009. (No model.)

*To all whom it may concern:*

Be it known that I, J S ROGERS, a citizen of the United States, residing at New York, in the county and State of New York, have  
5 invented new and useful Improvements in Steam-Boilers, of which the following is a specification.

By means of this invention generated steam can be allowed to mingle with the products  
10 of combustion or thoroughly heated or superheated steam can be generated, as set forth in the following specification and claims and illustrated in the annexed drawing, which shows a sectional elevation of a boiler.

15 The boiler 1 may be of any suitable known construction. In the drawing is shown a boiler with tubes 2. A combustion-chamber 3 can be suitably fed, as by gas or a combustible, from tube 4, mingled with air from tube  
20 5. The flame or heat passing through tubes 2 below the water-line in the boiler heats the water in the latter or generates steam, which rises into dome 6 or can be drawn off through tubes 7 and 8 to the point of consumption or  
25 work. From tubes 2 the heat or flame or products of combustion pass through chamber 9 to tube 10, leading to tube 8. As the products of combustion are allowed to mingle with greater or less intensity with the steam  
30 which has been generated and which has passed into pipe 8, such steam is suitably heated or superheated or dried. The steam and products of combustion passing together along pipe 8 can be led to the point of use or  
35 made to work as required.

40 The chamber 3 can have the combustible therein ignited by suitable means—as, for example, by an electric spark sent across the terminals 11. The boiler can of course be suitably equipped, as with water-feed, safety-valves, and the like, as needed.

The combustion-chamber is shown common to all the tubes 2; but of course the chamber

3 could be subdivided or a series of combustion-chambers provided, each such chamber  
45 taking only a group or subdivision of tubes 2. According as one or more combustion-chambers are then in action the generation of steam will be varied as required, or the boiler if not in action could be kept moder-  
50 ately heated to be able to get to work at short notice when required.

The steam-outlet pipe 7 and flue-pipe 10 are shown with valves or cocks 11 and 12.

The combustion-chamber can of course be  
55 suitably located or put bodily into the boiler, if required.

In case the products of combustion are not to be allowed to enter tube 8 the valve 12 can be closed and the products allowed to escape  
60 through tube 13 on opening valve 14.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a boiler having a steam-exit pipe, and the combustion-cham-  
65 ber, of a flue arranged to convey the heat and products of combustion from the boiler directly to the steam-exit pipe, substantially as described.

2. The combination with a fire-tube steam-  
70 boiler having a steam-exit pipe, of a combustion-chamber communicating with one end of the fire-tubes, and a flue leading from the other end of said fire-tubes directly to the steam-exit pipe, whereby the furnace-gases  
75 are intermingled in a highly-heated state with the generated steam, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing  
80 witnesses.

J S ROGERS.

Witnesses:

W. C. HAUFF,  
E. F. KASTENHUBER.