

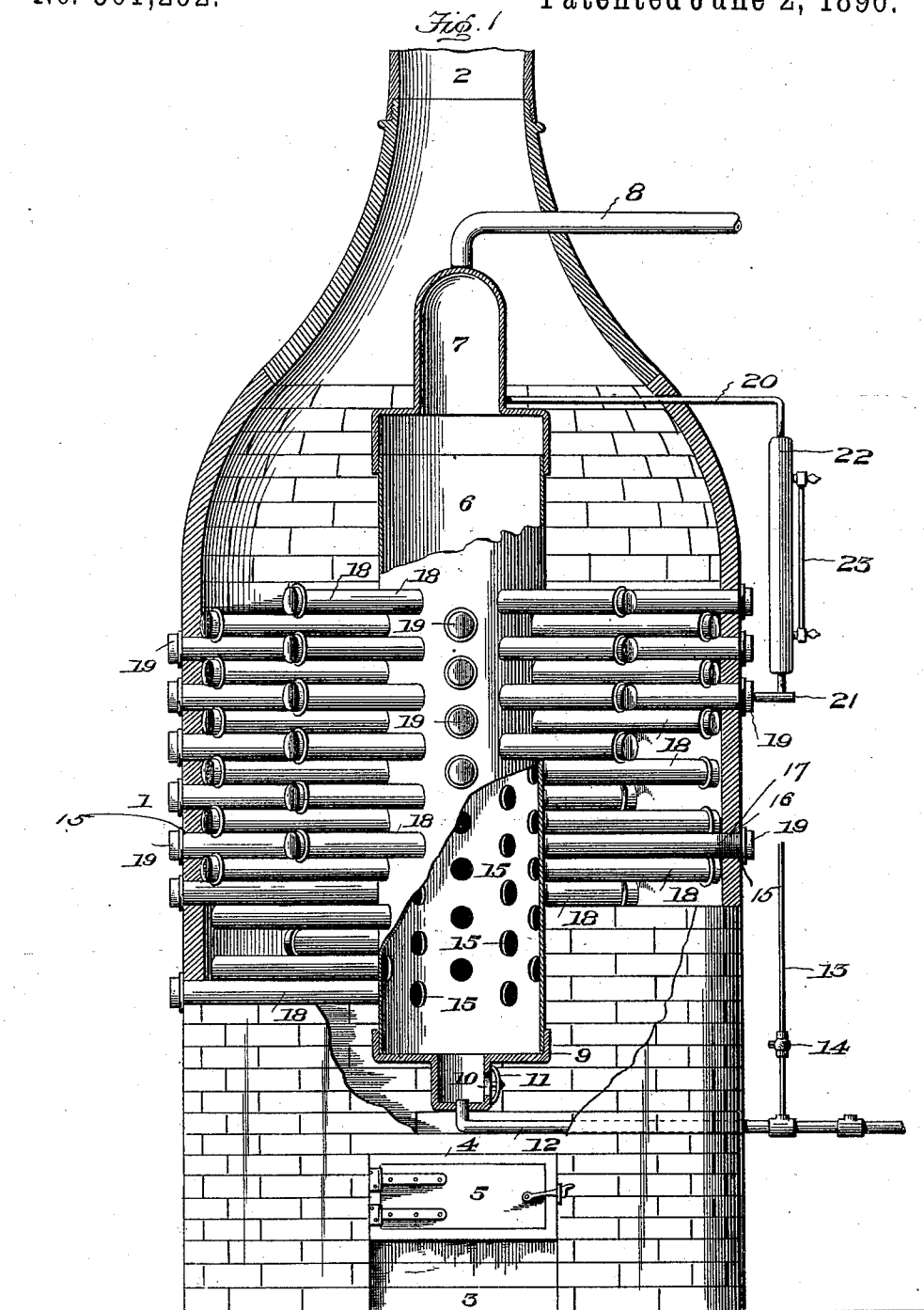
(No Model.)

2 Sheets—Sheet 1.

G. W. SWARTZ.
STEAM BOILER.

No. 561,292.

Patented June 2, 1896.



—Witnesses—

Wm. O. Ashiee.
May E. Moore.

George W. Swartz.

—Inventor—

—BY— *Wm. O. Moore.*
Atty.

(No Model.)

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Fig. 2.

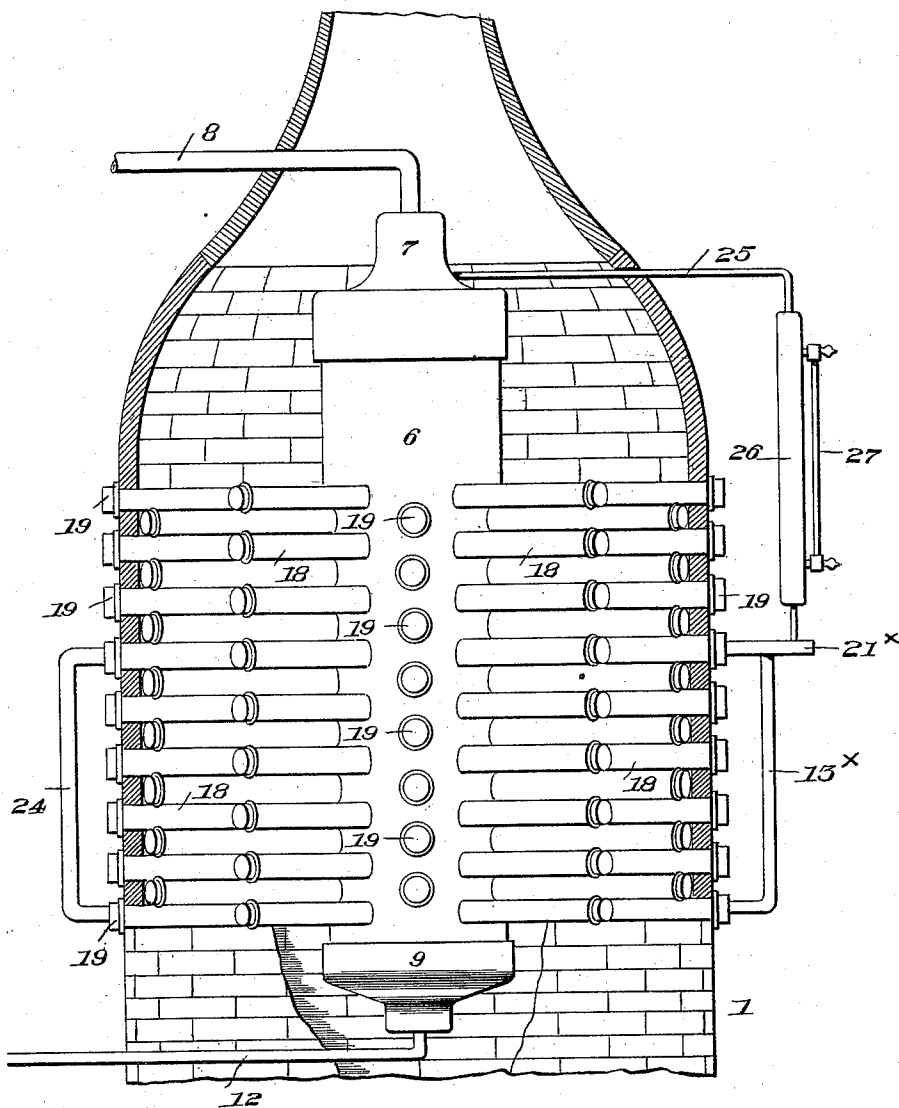
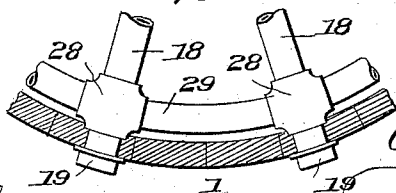


Fig. 3.



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Wm. C. Ashlee
May 6, 1896.

George W. Swartz.
Inventor

BY *[Signature]*
Att'y.

UNITED STATES PATENT OFFICE.

GEORGE W. SWARTZ, OF FLORENCE, ALABAMA.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 561,292, dated June 2, 1896.

Application filed February 28, 1895. Serial No. 539,975. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. SWARTZ, a citizen of the United States, residing at Florence, in the county of Lauderdale and State of Alabama, have invented certain new and useful Improvements in Steam-Boilers; and I do 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 appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in steam-boilers, and refers particularly to what are known as "vertical" boilers; and one object of my invention is the provision of a steam-boiler which will present a great area or amount of surface to the action of the heat to insure the generation of a vast amount of steam.

Another object of my invention is the provision of a steam-boiler which will permit ready and easy access to all its parts for the purpose of cleaning or repairing.

Another object of my invention is the provision of a steam-boiler which will insure a perfect circulation of the water, which will be compact, simple, and durable, and entirely safe and practical.

To attain the desired objects the invention consists of a vertical steam-boiler embodying novel features of construction and combination of parts for service substantially as disclosed herein.

In order that the details of construction of my steam-boiler may be understood and its numerous advantages be fully appreciated, I have illustrated in the accompanying drawings a steam-boiler constructed in accordance with my invention.

Figure 1 represents an elevation of my steam-boiler with parts broken away to more clearly illustrate the details. Fig. 2 represents a similar view of my steam-boiler with slight modifications in construction, and Fig. 3 represents a detail view of a manner of connecting the circulating-pipe.

The numeral 1 designates the casing or housing of my improved steam-boiler, which may be constructed of masonry or of sheet

metal, having the discharge-pipe 2 at its upper portion, the ash-pit 3 in its lower side, and the retort 4, having the door 5, above said ash-pit. Arranged centrally within the casing is the cylinder 6, having at its upper end the dome 7, from which leads the pipe 8, and at its lower end the cap 9, said cap having an opening 10 to permit access to the cylinder for removing foreign matter therefrom, and said opening is provided with a screw-cover 11. Entering said cap is the feed-pipe 12, having the blow-off pipe 13, provided with a cock 14, as shown by Fig. 1. This pipe 13, which communicates with the pendent part 10 of the cylinder 6 and which is provided with the blow-off cock 14, is for the purpose of drawing off the water from the cylinder 6 by opening the cock 14 preliminary to cleaning out the sediment which may become deposited in the bottom of the cylinder 6. After the water shall have been drawn off through the pipe 13 and the cock 14 the cap or hand-hole in the side of the pendent part 10 can be removed to permit access to be had to the cylinder 6.

The cylinder 6 is provided with a series of vertically-disposed openings 15, the walls of which openings 15 are screw-threaded to receive the screw-threaded inner ends of the horizontal radial circulating-pipes 18, having their ends extending through the casing and provided with detachable caps 19. The circulating-pipes are arranged out of line and extend from the cylinder after the manner of the spokes of a wheel, and thus cover a vast amount of space and insure a thorough circulation of the water. Leading from the cylinder are the pipes 20 and 21, which communicate with the water-column 22, provided with the gage 23, the purpose of which is well known.

In the modified construction of my steam-boilers shown in Fig. 2 I employ the additional circulating-pipe 24, which is connected to the pipes 18, which lead from the cylinder. I also provide the pipes 25 and 21^x, which lead to the water-column 26, having the gage 27, and I further provide the pipe 13^x, which leads from one of the circulating-pipes 18 to the pipe 21^x, as clearly shown, and forms in this instance a circulating-pipe. It will thus be seen that I provide in addition to the hori-

zontal circulating-pipes 18 the vertical circulating-pipes 24 and 13^x, as clearly shown in Fig. 2.

5 In the detail view Fig. 3 I use, in connection with the horizontal radial circulating-pipes 18, the curved circulating-pipes 29, which are connected to the said pipes 18 by means of the four-way coupling 28, and by
10 this means I secure a perfect circulation of the water, as is evident.

I claim—

A steam-boiler consisting of the casing, the vertical cylinder therein, the horizontal or lateral pipes connected to the cylinder and

extending through the casing, the caps secured on the exposed or extended ends of the pipes, the couplings on the pipes inside of the casing, having two-way inlets and the curved pipes connected to the couplings at the inlets forming a circular and horizontal set of circulating-pipes. 15 20

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. SWARTZ.

Witnesses:

H. B. JONES,
THURSTON H. ALLEN.