

No. 808,286.

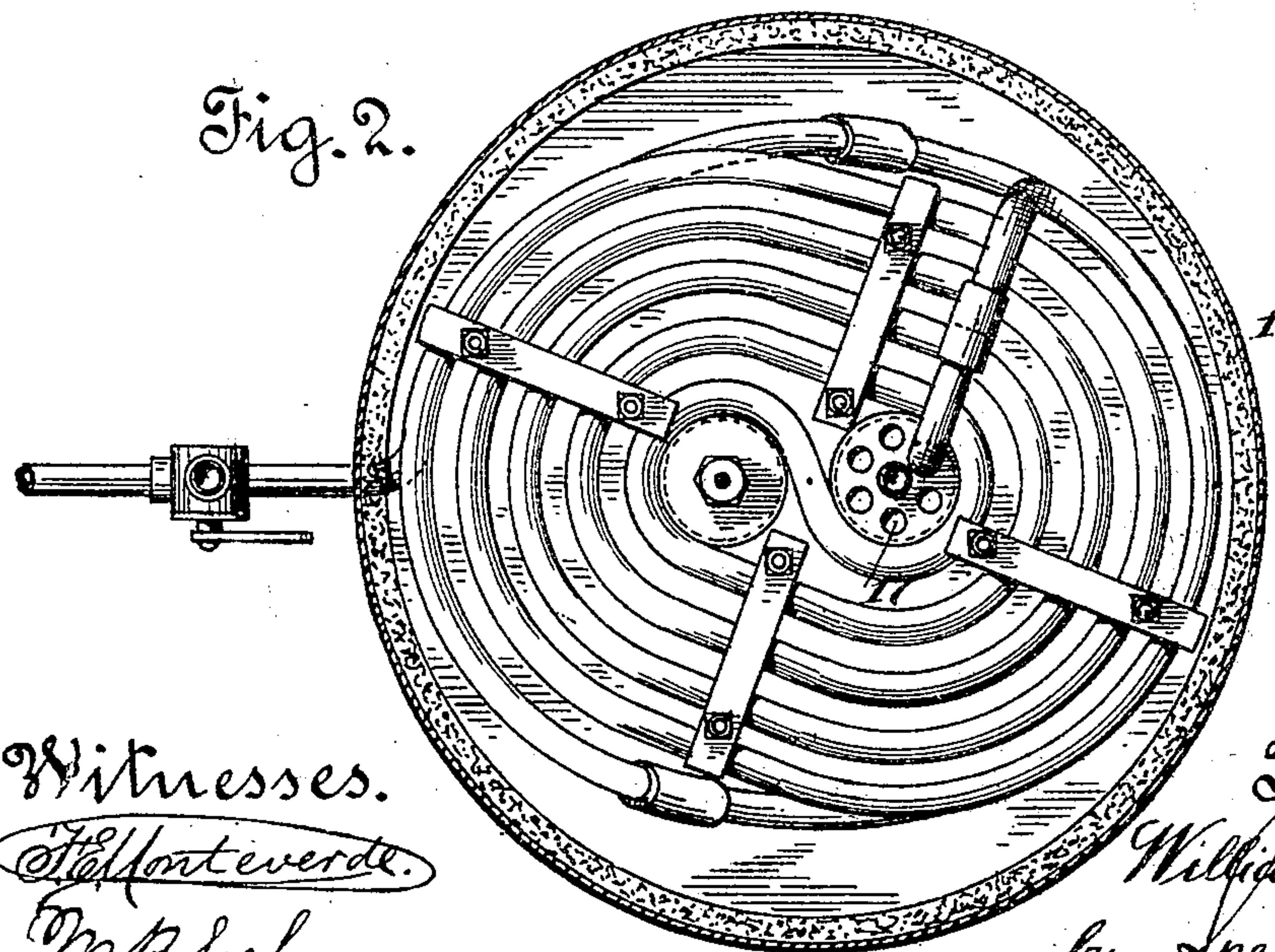
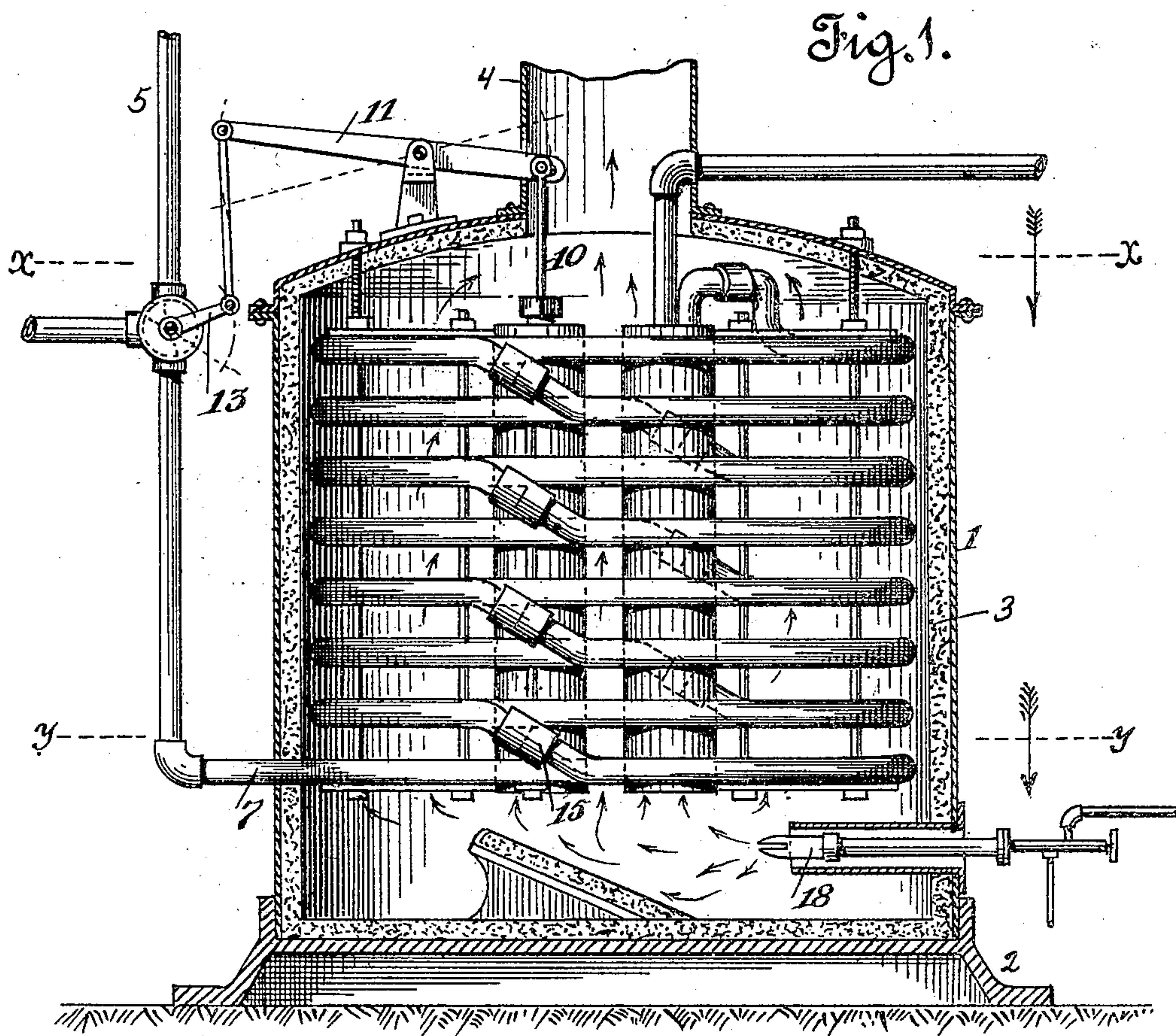
PATENTED DEC. 26, 1905.

W. L. JONES.

STEAM GENERATOR.

APPLICATION FILED JAN. 19, 1905.

2 SHEETS--SHEET 1.



Witnesses.

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Inventor.  
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Fig. 3.

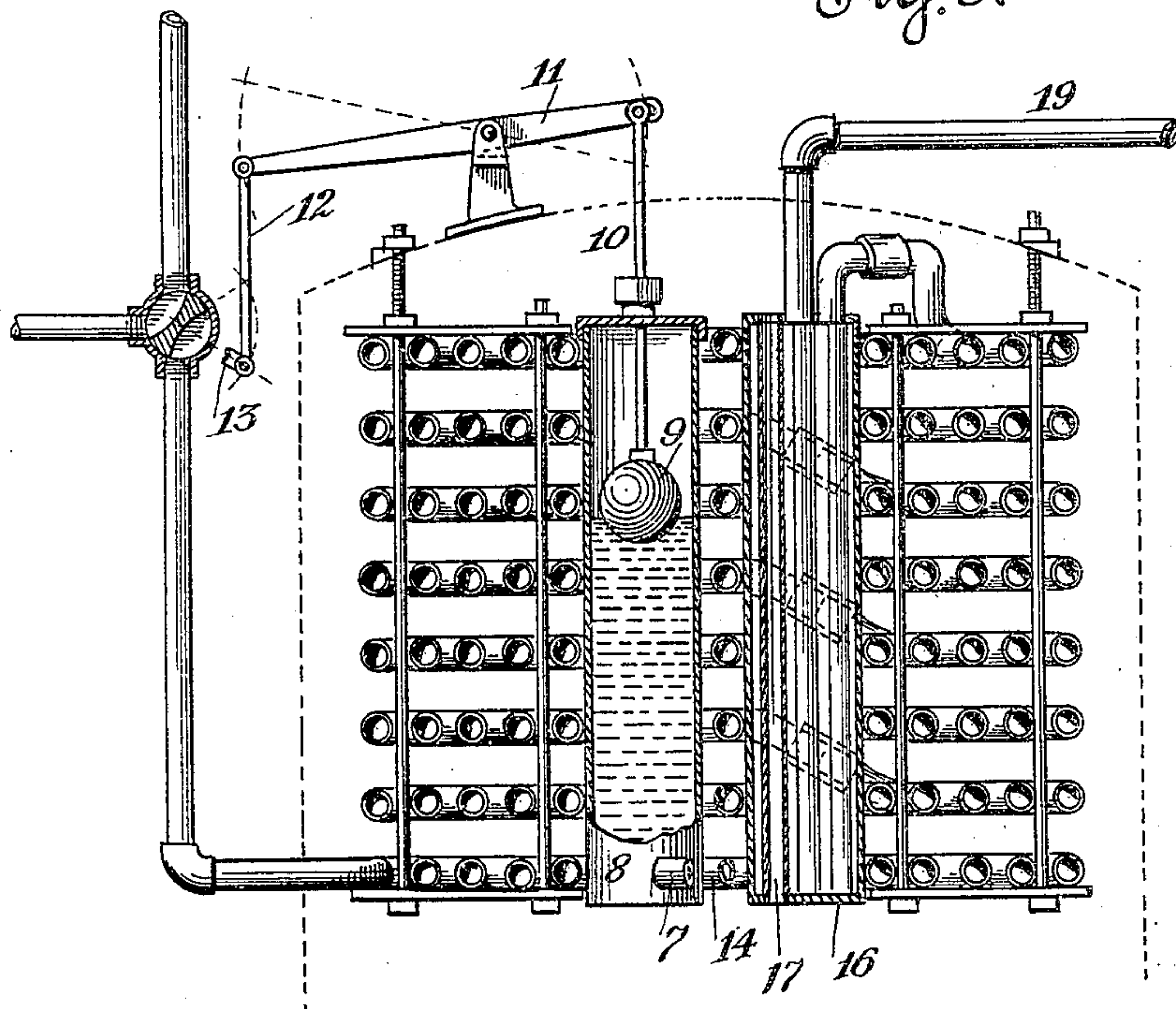
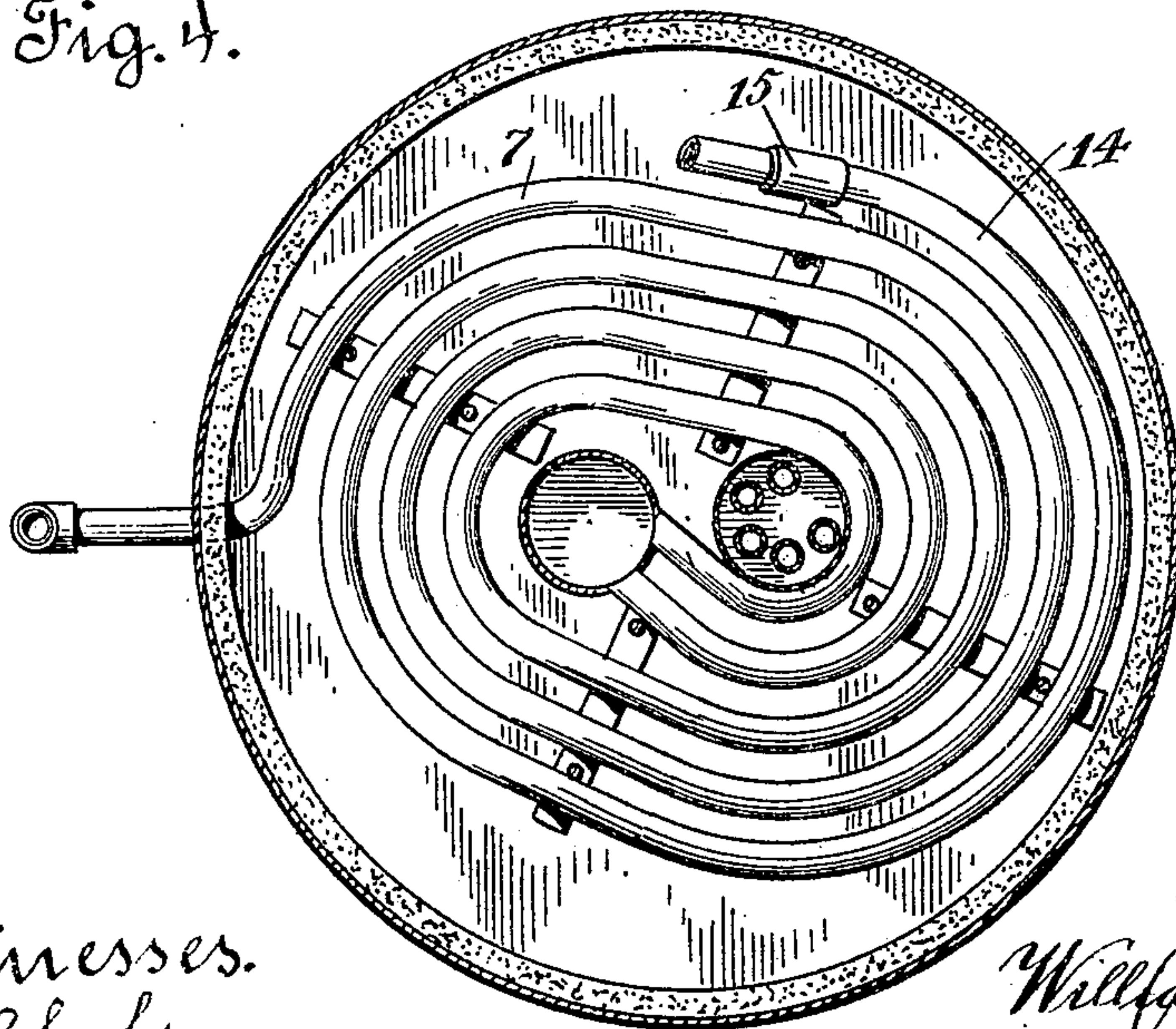


Fig. 4.



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# UNITED STATES PATENT OFFICE.

WILLIAM L. JONES, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO SAMUEL M. SNYDER, OF SAN FRANCISCO, CALIFORNIA.

## STEAM-GENERATOR.

No. 808,286.

Specification of Letters Patent.

Patented Dec. 26, 1905.

Application filed January 19, 1905. Serial No. 241,806.

*To all whom it may concern:*

Be it known that I, WILLIAM L. JONES, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Steam-Generators, of which the following is a specification.

My invention relates to steam-boilers of the class commonly known as "flash-boilers," in which a number of small coiled tubes are employed into which water is admitted and in which such water flashes into steam at some point in the length of the coil. The advantages of this class of boiler are due partly to its lightness and portability and partly to its extreme safety and the absence of all liabilities of explosion.

My invention consists in certain improvements in the construction of such boilers which tend to make them more efficient in use and better adapted for their intended purposes.

An embodiment of my invention is shown in the accompanying drawings, in which—

Figure 1 is a vertical section of the boiler-casing, the tubes being shown in side elevation. Fig. 2 is a horizontal section on the line *x x* of Fig. 1, the tubes being shown in plan view. Fig. 3 is a vertical section taken centrally through the tubes. Fig. 4 is a horizontal section on the line *y y* of Fig. 1 looking downwardly.

The shell of the boiler is represented by 1 and is shown as mounted upon the suitable support 2. This shell is lined with some refractory or non-conducting substance, as shown at 3. It is provided with the stack 4 for the escape of gas and other particles of combustion. A water-supply pipe is shown at 5, in which is placed a three-way valve by means of which water can be directed into the generator or diverted therefrom. This valve is automatically controlled by a float through suitable connections which will be hereinafter described. The water admitted to the generator enters the same preferably at the bottom, although it is possible without material change in the construction to make it enter at the top. As I prefer, however, to have the water enter at the bottom, I have shown that construction in the drawings. By reference to Fig. 4 it will be seen that water entering at the lowest point passes through

the lowest section 7 of tubing and is discharged into the vertical receiver 8, in which it accumulates. It is the intention to keep a supply of water in this receiver as a reserve, and it is therefore provided with a float 9, connected, by means of a rod 10, lever 11, and link 12, with an operating-crank 13 on the stem of the three-way valve. Two positions of this float are substantially indicated, one in the section Fig. 3, in which the body of water has raised the float and closed the supply-valve. The other position is indicated in Fig. 1 and by a change in the relations of the connecting-levers indicating that the float has sunk in the receiver and that the valve is open to allow water to be delivered to the generator. The second coil or tube 14 leaves the generator near its bottom and passes around in the coil to a point where it is connected by an inclined coupling 15, as shown in Fig. 4, to the next coil above. Each coil is connected by a similar coupling to the one immediately above it, and the final or top coil enters the reserved-steam reservoir 16. This reservoir is provided with vertical tubes, such as indicated at 17 in Figs. 2 and 3, through which the heat from the burner 18 can ascend and keep the steam within the reservoir at the high temperature. The pipe 19, projecting through the top of this reservoir, leads to the engine. Each coil is preferably flat or in the same plane and consists of a section of pipe which is doubled upon itself, with one end connected to the coil below it and the other end with coil above it, except the top and bottom coils, which are connected with two reservoirs, respectively. The central or doubled portion is preferably elliptical and in the form of the letter **S**, which avoids a short or abrupt turn of the pipe and also affords two substantially circular spaces, in which are located or nested the water and steam reservoirs, respectively. The two reservoirs are virtually enlargements of the pipes or conduit through the boiler, one at the beginning of the water portion of the coils and the other at the end of the steam portion.

This boiler is particularly adapted for use with automobiles on account of its extreme lightness, its compactness, and its safety. It contains advantages over other generators of the same general class, owing to the use of the water-reserve reservoir and the steam-reserve reservoir. Where the engine de-



pendes for its supply of steam upon the limited amount contained in the coils, it frequently happens that the steam gives out on hills where the pull or load becomes excessive and the machine must be stopped until steam is renewed. The same disadvantage exists where the boiler is supplied with water through a single pipe. By using a reserve water-reservoir with automatic means for controlling the supply to it and by using a reserve steam-reservoir which supplies steam automatically as called for by the engine these disadvantages are obviated and the efficiency of the machine is greatly increased.

I do not wish to limit myself to the exact constructions and arrangements herein described, and shown in the accompanying drawings, as I desire to avail myself of such modifications and equivalents as fall properly within the spirit of my invention.

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

1. A coil for steam-generators consisting of pipe doubled upon itself in the same plane, the central or doubled portion being elliptical and S-shaped.

2. In a steam-generator, a shell, a series of connected coils therein, and a water-reservoir and a steam-reservoir nested or located vertically and side by side in said coils.

3. In a steam-generator, a shell, a series of connected coils therein, one above the other, with registering spaces, and two reservoirs in said spaces arranged side by side and connected with the top and bottom coils respectively.

4. In a steam-generator, a shell, a series of connected coils therein, one above the other, each coil consisting of a section of pipe doubled upon itself and having the doubled portion S-shaped and forming two spaces, the spaces in the different coils registering, and two reservoirs in said registering spaces and connected with the top and bottom coils respectively.

5. In a steam-generator, a shell, a series of connected coils therein, each provided with spaces, two reservoirs, in said spaces and connected with the end coils respectively, one reservoir being for water and the other one for steam, the steam-reservoir being provided with tubes, and means for automatically regulating the water-level in the other reservoir.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 17th day of December, 1904.

WILLIAM L. JONES.

Witnesses:

F. MORTIMER,  
A. HALL.