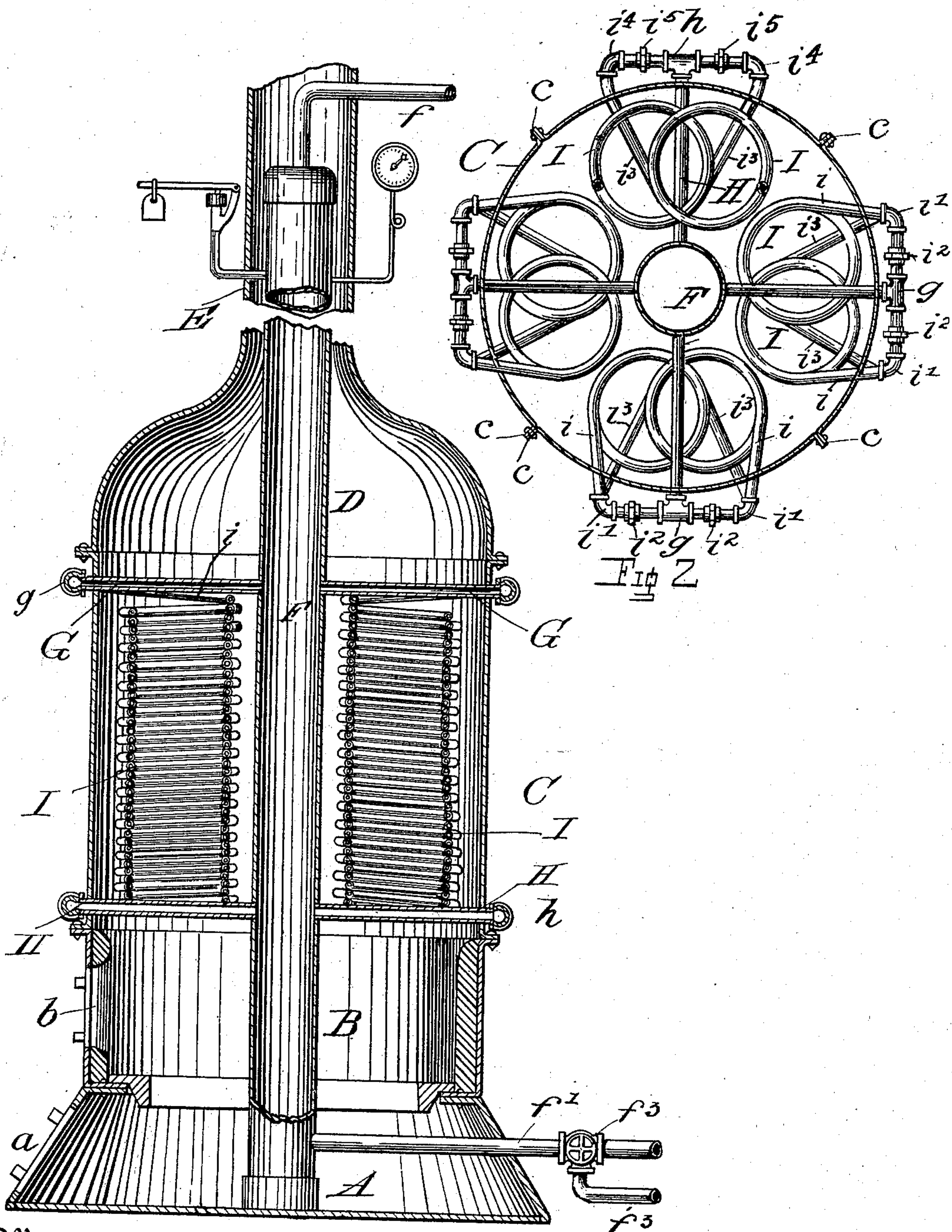


(No Model.)

O. JONES.
STEAM BOILER.

No. 558,918.

Patented Apr. 21, 1896.



Witnesses
J. B. Ford
H. L. Keith

Fig 1

Inventor
O. Jones
By Attorney
A. Woodman

UNITED STATES PATENT OFFICE.

OTIS JONES, OF SENOIA, GEORGIA, ASSIGNOR OF ONE-FOURTH TO L. J. McLANE AND JOHN HENRY McLANE, OF SAME PLACE.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 558,918, dated April 21, 1896.

Application filed July 1, 1895. Serial No. 554,638. (No model.)

To all whom it may concern:

Be it known that I, OTIS JONES, a citizen of the United States of America, and a resident of Senoia, in the county of Coweta and State of Georgia, have made a certain new and useful Steam-Boiler; 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The invention is shown in the accompanying drawings as follows:

Figure 1 is a vertical section of the device, showing the interior construction and arrangement of parts. Fig. 2 is a horizontal section showing a plan of the coils and their interconnection.

In the figures like reference-characters are uniformly employed in the designation of corresponding elements of construction in both the views.

A is the base, which may be, if desired, utilized as an ash-box and be provided with an opening *a* and a door adapted to close same.

B is the fire-box and is set upon the section A or made a part thereof, as desired, being provided with a firing-opening *b*. On the top of this rests the main cylindrical portion C of the boiler, within which is the steam-generating apparatus. The part C is divided circumferentially into four sections, adjoined by flanges *c*, bolted or riveted together. This part will be divided into as many sections as there are sets or pairs of generating-coils, as will be hereinafter set forth. On the top of the section C is a conical section D, which forms the funnel, onto the top of which the smoke-stack E fits.

It is obvious that, if desired, other forms of attachment between the parts may be used; but the bolted or riveted flanges are at present deemed the best for the purpose.

In the center of the boiler, either extending from the floor of the ash-box upwardly or from any point below the lower ends of the generating-coils, is a manifold F. Said manifold extends upwardly as far as desired above the said coils; but it is thought that same should extend some distance thereabove, in

order to supply a suitable steam dome or space, and in that way to obviate all danger or "working" water in the engine. In the construction shown this brings it into the smoke-stack; but it is obvious that where the part E of the boiler is higher this would not be necessary. To the upper end of this manifold are attached the safety-valve, steam-gage, and the pipe *f*, leading to the engine or heating-line. Into the lower end is screwed the feed-water pipe *f'*, which has attached thereto a branch pipe *f''*, a three-way cock *f'''* serving to govern the openings therein, so that the feed-water may be cut off and the boiler blown out through the latter-named pipe.

Pipes G and H lead from the manifold radially at the top and bottom, respectively, of the section C, leading across the space between the manifold and said section and projecting outwardly beyond said section a short distance.

The coils I are coiled so that their convolutions are the same distance apart as the pipe measures diametrically, whereby one coil may be laterally intermeshed with its partner in the pair, the convolutions of one resting upon and being supported by the next lower ones of the other coil, the strain being thereby divided between the two and a very large area of coil gotten into the least possible space. Even were the coils red-hot in their lower parts no sagging could take place, as all superincumbent weight is supported above by the interlocking of the coils. In this way copper tubes of considerable weight, but comparatively thin and weak to resist flexure and indentation, may be employed. It will also be presently seen that each of these coils has circulation independently of each other and that the rupture of one will not therefore affect the utility of the others. Each coil I has its upper end *i* projected outwardly through the casing, and an L *i'* is screwed onto said end, each being connected with the respective ends of a T *g* on the outer end of the pipe G. A union *i''* may be intermediately placed in order that a coil may be removed without disturbing the twin coil, and, if desired, a valve may be placed alongside the said union to cut out a ruptured coil. This valve can also be applied in the lower connection corresponding

to the one just described, if desired. A portion i^3 of the coils at their lower ends is extended through the casing and joined in like manner as the ends i to the pipe II, a **T** h ,
5 **L**'s i^4 ; and unions i^5 serving the same purposes as those heretofore described.

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

10 In a steam-generator, a casing, a manifold arranged centrally thereof and provided with feed and steam connections a series of pipe-coils arranged within said casing around said manifold the convolutions of each coil inter-

meshed with those of the next coil, and the 15 ends of each coil extended through the casing and being exposed outwardly, pipes extending from said manifold outwardly through the casing above and below each pair of said coils, a **T** on the end of each pipe and pipes con- 20 necting one of the ends of each coil with the correlative branch **T**.

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

OTIS JONES.

Witnesses:

J. A. SASSER,
W. W. BANKS.