

No. 701,422.

Patented June 3, 1902.

A. THOMPSON.
STEAM GENERATOR.

(Application filed Sept. 10, 1901.)

(No Model.)

2 Sheets—Sheet 1.

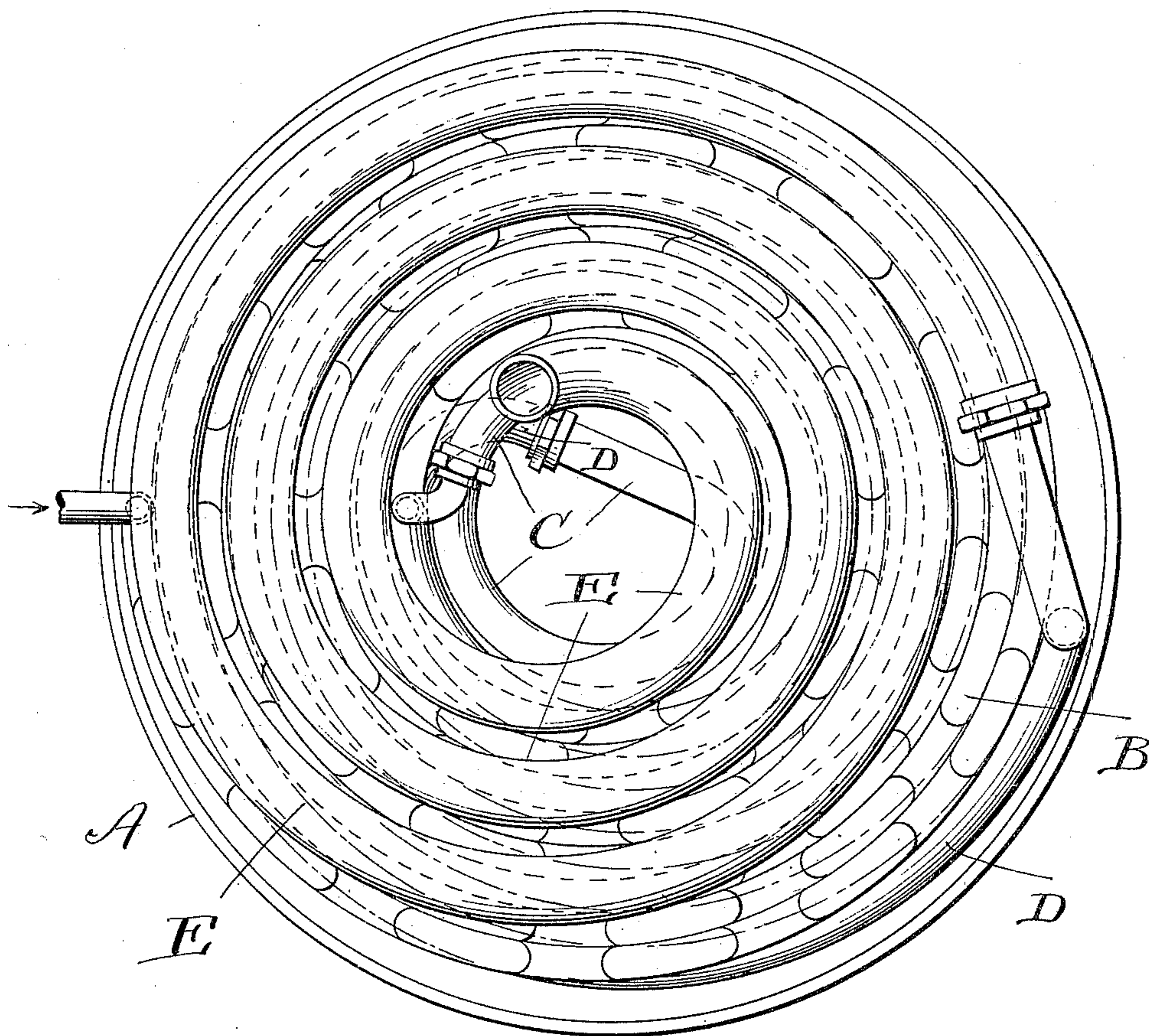


Fig. 1,

Witnesses
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Inventor,
Alfred Thompson
By his attorneys
Thurston Bates

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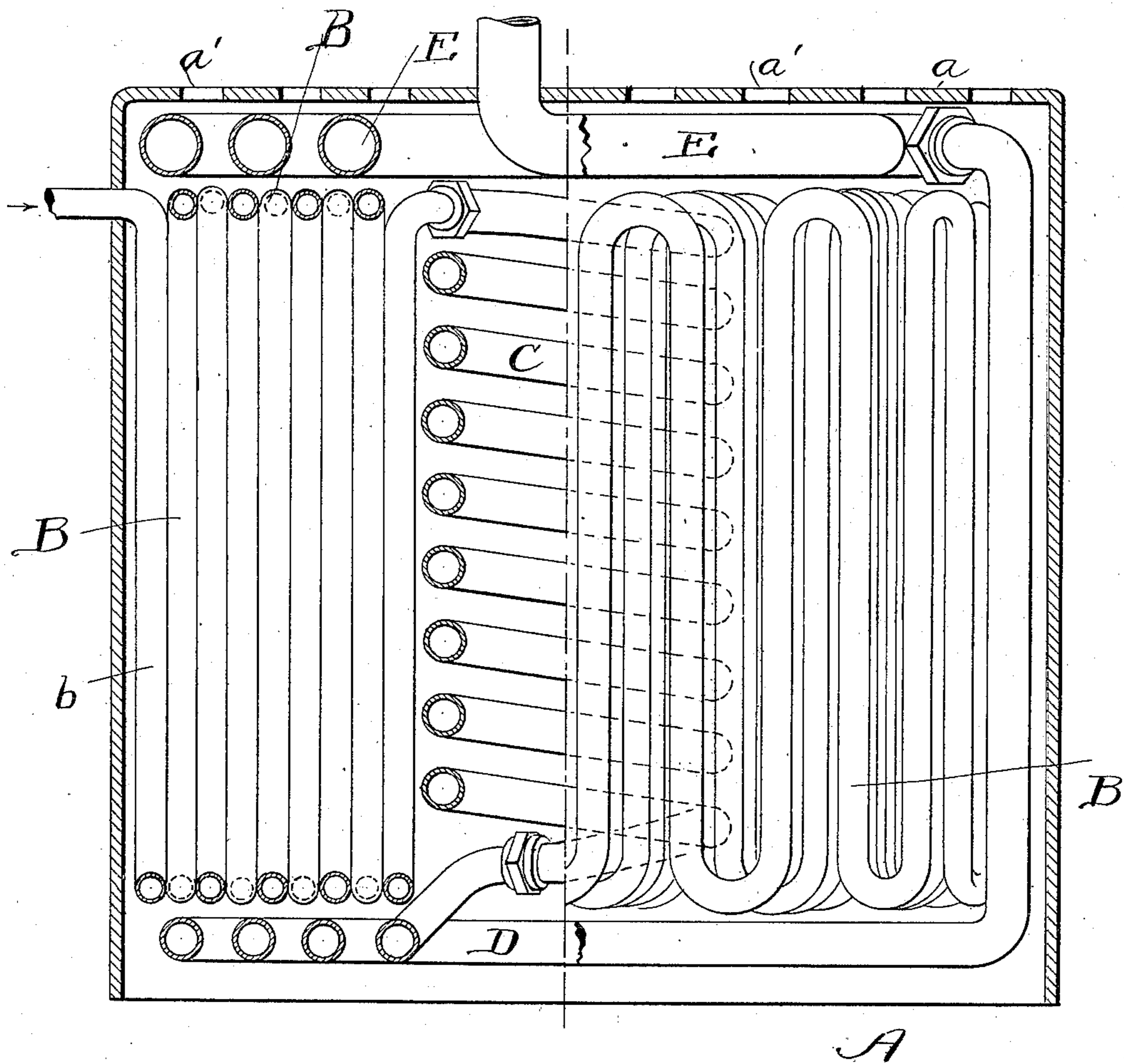
A. THOMPSON.
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(Application filed Sept. 10, 1901.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 2,



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UNITED STATES PATENT OFFICE.

ALFRED THOMPSON, OF GENEVA, OHIO, ASSIGNOR TO THE GENEVA AUTOMOBILE AND MANUFACTURING COMPANY, OF GENEVA, OHIO, A CORPORATION OF OHIO.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 701,422, dated June 3, 1902.

Application filed September 10, 1901. Serial No. 74,926. (No model.)

To all whom it may concern:

Be it known that I, ALFRED THOMPSON, a citizen of the United States, residing at Geneva, in the county of Ashtabula and State of Ohio, have invented a certain new and useful Improvement in Steam-Generators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 The object of the invention is to provide a steam-generator of the "flasher" type which shall be compact in construction and in which the steam will be generated and superheated economically and rapidly.

15 The generator is designed with especial reference to its use on automobiles, where in addition to the characteristics referred to it is desirable that the generator shall be capable of responding to the varying demands for steam.

20 The invention consists in the construction and combination of parts hereinafter described, and pointed out definitely in the claims.

25 In the drawings, which show the best embodiment of the invention now known to me, Figure 1 is a plan view with the top of the casing removed, and Fig. 2 is an elevation with the casing in central vertical section and the left half of the tubes contained therein also in central vertical section.

Referring by letters to the several parts constituting the generator, as shown, A represents a cylindrical casing having a top *a*, in which are numerous draft-holes *a'*. Within the casing are the tubes B, C, and D, having the construction, arrangement, and normal functions as follows: The tube B is bent in a plurality of return-bends fanwise, and the resulting structure is wound or coiled spirally and nested as compactly as possible, with the long reaches *b* of the tube standing vertically. When so wound or coiled, this tube substantially fills the outer part of the casing, leaving a central space in which the tube C is located. This tube is in the form of a spiral coil, the axis of the coil being substantially vertical, and the upper end of the coil is attached to the delivery end of the tube B.

The tube constituting the coil C has from its upper end a continuous downward inclination, and the lower end of this coil is attached to the inner end of a flat tubular coil D, located in the lower part of a casing A and, for most part, below the tubes B. The tubes C and D are of larger diameter than the tube B, the relative proportion being preferably about as shown in the drawings. The outer end of the coil D extends up within the casing and is connected with the outer end of a flat tubular coil E, located within the casing, but above the other tubes described. The outlet end of this coil E is the part of the apparatus from which the steam is taken as required by the engine.

It is clear that when the generator constructed of tubes arranged substantially as described is placed over a burner a very large portion of the heat generated by the burner will be absorbed and utilized. The heat will pass freely upward in contact with coils C thereof, but will pass less freely up through the tubes B, because, among other reasons, they are so closely nested together.

The tube B in the normal operation of the apparatus is a water-heating tube. The coil of tube C is part of the device in which at some point the water is flashed into steam. The flat coil D, into which this steam must necessarily pass, is located closest to the burner and serves to superheat the steam. The flat coil E at the top of the shell is made of a tube larger in diameter than the other tubes and serves as a steam-drum from which the steam is taken, as stated. The whole apparatus is contrived with a view to compactness of construction and to utilizing to the fullest advantage the heat from the burner. It is also so contrived that it will normally contain a considerable reserve of superheated steam, and it is also so contrived as to generate steam in large quantities when the demand for steam is great.

Having described my invention, I claim—

1. In a steam-generator, the combination of a tube bent up and down and then coiled and closely nested leaving a central space, a tubular spiral coil occupying this space and con-

- 5 nected at its upper end with the outlet end of the tube first mentioned a tubular coil located below the tubes heretofore mentioned and connected with the lower end of said tubular spiral coil, and a tubular coil located above the other tubes and connected with the outlet end of the lower coil, and a casing which incloses said tubular system, substantially as specified.
- 10 2. In a steam-generator, the combination of a tube bent up and down and then coiled and closely nested around a central space, the long reaches of said tube occupying a substantially vertical position, a tubular spiral coil C, of
- 15 larger diameter than the tube first mentioned, occupying said central space and connected at its upper end with the outlet end of said tube B, a flat tubular coil D located below the other tubes and connected with the lower end of said spiral coil, the tube-coils C and D being of larger diameter than the tube B, and a flat coil located above the other pipes referred to of larger diameter and connected with the outlet end of the lower flat coil D, and a casing inclosing said pipe system, substantially as specified.
- 20
- 25

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

ALFRED THOMPSON.

Witnesses:

O. B. CLARK,
W. S. HUNT.