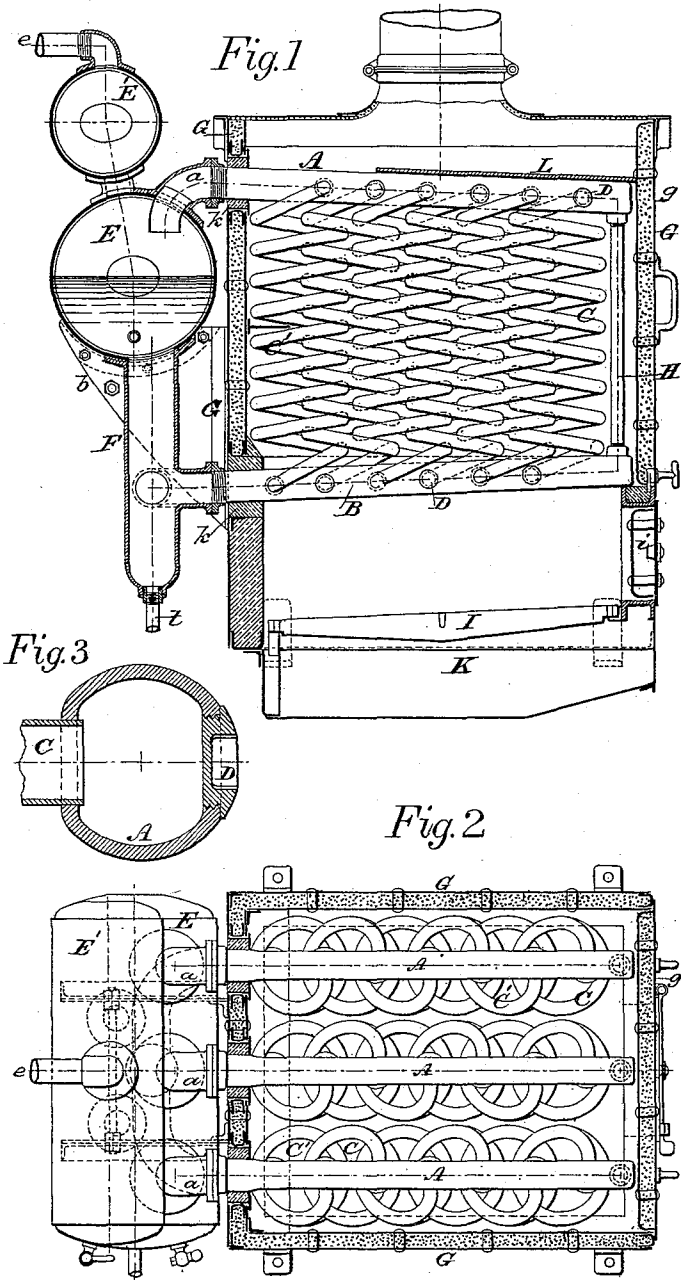


(No Model.)

J. A. SVEDBERG.
COIL STEAM BOILER.

No. 459,528.

Patented Sept. 15, 1891.



Witnesses

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UNITED STATES PATENT OFFICE

JOHN A. SVEDBERG, OF STERLING, VIRGINIA.

COIL STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 459,528, dated September 15, 1891.

Application filed February 2, 1889. Serial No. 298,477. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. SVEDBERG, a citizen of the United States, residing at Sterling, in the county of Loudoun and State of Virginia, have invented certain new and useful Improvements in Coil 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 letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in coil-boilers in which one or more series of coils connect with one or more water and steam chambers or drums; and the object of the invention is to improve the construction of such coil-boilers, so that they are more effective in the generation of steam by a larger heating-surface, a better circulation of water, and by better separation of the steam from the water held in suspension; also, to facilitate the removal and replacement of any of the coils in case they are worn out or need repair; also, that all the joints as well as the tubes are easily accessible; furthermore, to prevent the sediment being collected in the coils, but to deposit it in a mud-drum, from which it can be easily blown out when desired, and, finally, to reduce the weight as well as the expense of the boilers to a minimum.

The invention consists in the construction of certain details and arrangement of parts, as will be more fully described hereinafter, and specifically pointed out in the claims, reference being had to the accompanying drawings and the letters of reference thereon.

Like letters indicate similar parts in the different figures of the drawings, in which—

Figure 1 represents a vertical cross-section of one form of my improved boiler or steam-generator of rectangular shape. Fig. 2 is a horizontal view of the same with the top of the casing removed. Fig. 3 is a detail view of one of the steam or water chambers in cross-section, showing the access-plug to the end of coils.

In the accompanying drawings, A and B in Figs. 1 and 2 represent the steam and water

chambers, respectively, which are connected by right and left hand coils C and C', so that they can be closely interlaced. The right-hand coils C are attached to the chambers or drums A and B on one side, and the left-hand coils C' are secured to the opposite sides thereof. The chambers A, one or more arranged side by side, are slightly elevated toward the front to permit a free passage of the steam toward the separator E, connected by an elbow *a* to said chambers. To the upper side of said separator is attached a steam-drum E', into which the steam passes after being separated from any water held in suspension, and thence through the steam-pipe *e* to the engine, &c. The separator E is supported on brackets *b*, secured to the casing G or otherwise. The chambers B are inclined toward the front end of the boiler to facilitate the removal or blowing out of the sediment, &c. Directly opposite to the ends of the coils are placed the screw-plugs D, through whose openings when removed the coils can be secured in place by expanding them with a proper tool. The separator E is provided with one or more detachable pendent branches F, to which the water-chambers B are connected by flanges and bolts or in any other suitable manner. The rear ends of the chambers A and B are connected by vertical tubes or pipes H to give a more perfect circulation of water and steam. The casing or jacket G is made of light sheet-iron and made of double thickness, and the space therein formed is filled with asbestos or other non-conducting material to prevent radiation. One or more doors *g* are formed in the back or sides of the casing to gain access to the coils, &c. At a proper distance below the chamber B and the coils is arranged the furnace-grate I, with a furnace-door *i*, and below the grate is the ash-pit K, having ash-pit doors. A lining of fire-brick or fire-clay is arranged in the furnace, and also around the chambers A and B at the points *k*, where they pass through the casing G. A man or hand hole is placed in the separator E to gain access thereto, and a baffle-plate L is arranged to extend partly over the chambers and coils to prevent the direct escape of the products of combustion and gases, which finally pass out through

the chimney into the atmosphere, being guided by said baffle-plate.

I am aware of the patents to John Kirkaldy, No. 324,120, dated August 11, 1885, and to Josiah M. Simpson, No. 211,350, dated January 14, 1879, and disclaim the construction therein shown.

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

1. In boilers, one or more steam-chambers connected to a steam-separator, and one or more horizontal cylindrical water-chambers connected to pendent branches of said separator, in combination with right and left hand

interlaced coils, an inclosing casing, a furnace, and ash-pit, all arranged as specified.

2. The combination of one or more horizontal cylindrical water and steam chambers A B, connected by right and left hand coils C C', tubes H, and the steam-separator E, having pendent branches F and steam-drum E', with baffle-plate L, inclosing casing G, furnace, and ash-pit, all arranged as set forth.

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

JOHN A. SVEDBERG.

Witnesses:

WM. H. NAUMAN,

A. M. P. MASCHMEYER.