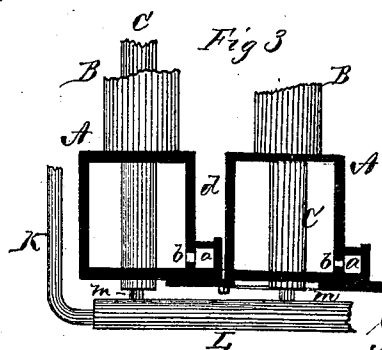
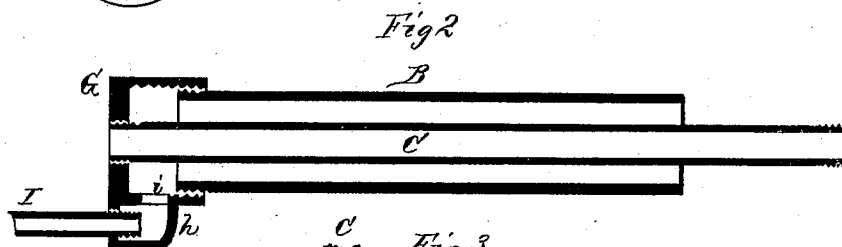
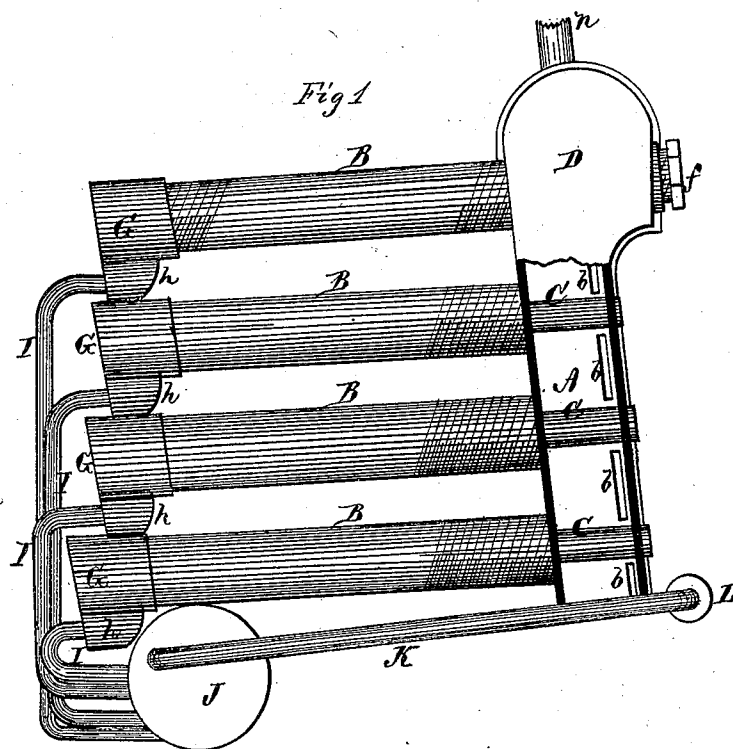


W. W. CRANE.

Sectional Steam Generators.

No. 138,791.

Patented May 13, 1873.



Witnesses:

Frank L. Curand
C. L. Ewert

A. L. Everett

Inventor.

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per
Alexander Mason

Attorneys.

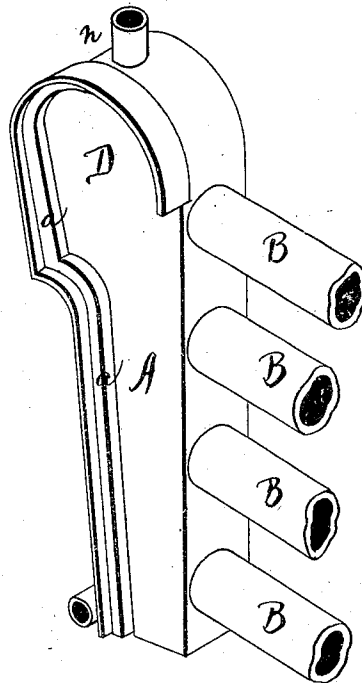
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Fig. 4.



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UNITED STATES PATENT OFFICE.

WELLSLY W. CRANE, OF AUBURN, NEW YORK.

IMPROVEMENT IN SECTIONAL STEAM-GENERATORS.

Specification forming part of Letters Patent No. **138,791**, dated May 13, 1873; application filed April 12, 1873.

To all whom it may concern:

Be it known that I, WELLSLY W. CRANE, of Auburn, in the county of Cayuga and in the State of New York, have invented certain new and useful Improvements in Sectional Steam-Generators; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a sectional steam-boiler, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side elevation of one section of my boiler. Fig. 2 is a longitudinal section of one of the tubes composing the boiler; and Fig. 3 is a horizontal section through the front parts of two of the sections of the boiler. Fig. 4 represents a perspective view of the side of the generator opposite to the side shown in Fig. 1, showing the hollow flange on the front piece.

Each section of my steam-boiler is composed of a hollow front piece, A, water-pipes B B, and smoke-pipes C C. The front piece A has parallel walls, and may be made of any suitable dimensions, with an enlargement, D, at the upper end, forming a steam-dome, each section thus having its own separate steam-dome. Along the front edge, on one side of the front piece A, is formed a hollow rib or flange, *a*, extending the entire length of the front piece, and around the front and upper side of the steam-dome, which rib or flange is, by means of openings *b b*, connected with the interior of the front piece and dome, so that the water and steam will stand in the same in like manner, or at the same height as in the front piece. When the sections are put together, this hollow rib or flange *a* forms a space, *d*, between the front pieces, as shown in Fig. 3, thus increasing the heating-surface.

The water-pipes B B, of which there may be any desired number, according to the size of the boiler desired, are screwed into the rear wall of the front piece A, and one smoke-pipe, C, passes through the center of each water-pipe B, the front end of such smoke-pipe being screwed into a hollow screw, *f*, which is screwed into the front wall of the front piece A. The rear end of each smoke-pipe C is screwed into a socket, G, or rather into the bottom or end piece of the socket, and this socket is screwed onto the end of the water-pipe B. The socket G is formed with a smaller socket, *h*, on its under side, there being a communication, *i*, between the two sockets, as shown in Fig. 2. Into the socket *h* is screwed a pipe, I, which communicates with a mud-drum, J, underneath, and this drum is, by a pipe, K, connected with a drum or pipe, L, located in front of the lower ends of the front pieces A, and connected with them at their lower ends by pipes *m m*.

By this means a perfect circulation of the water is established, each water-tube B having its own and separate connection with the mud-drum below.

The top of each steam-dome D has a short pipe, *n*, to connect it with the steam-pipe from which the steam is then conveyed to the place where wanted.

The smoke passing through the pipes C C from the back to the front, heats the front side of the front pieces A A, and thus the whole surface of these front pieces becomes heating-surface, except just that portion which is in contact with the hollow rib or flange *a*, the front and back of said rib being, also, heating-surface.

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

1. The front piece A, provided with an enlargement, D, at its top, and a hollow flange, *a*, on one side, which extends from top to bottom, substantially as and for the purposes herein set forth.

2. The combination of the screw-socket G and extension *h*, with the water-tube B, smoke-pipe C, and circulating-pipe I, screwed

into the outer face of the extension *h*, substantially as and for the purposes herein set forth.

3. The combination of the front piece A, provided with female screw-threads, the water tube or tubes B with screw-threads on each end, the smoke-pipe or pipes C with screw-threads on each end, the screw-socket or sockets G having extensions *h*, circulating-pipe or pipes I, and the mud-drum J, all con-

structed substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of April, 1873.

WELLSLY W. CRANE.

Witnesses:

A. N. MARR,
C. L. EVERT.