(No Model.)

J. C. STEAD.

STEAM GENERATOR.

No. 274,046. Patented Mar. 13, 1883.

Fig. 2.

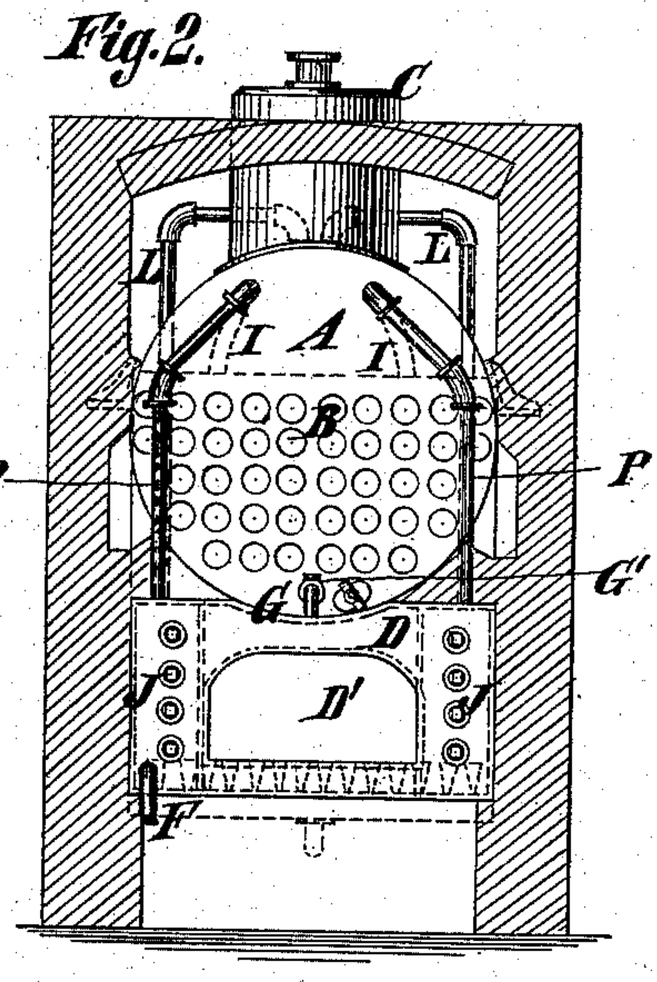
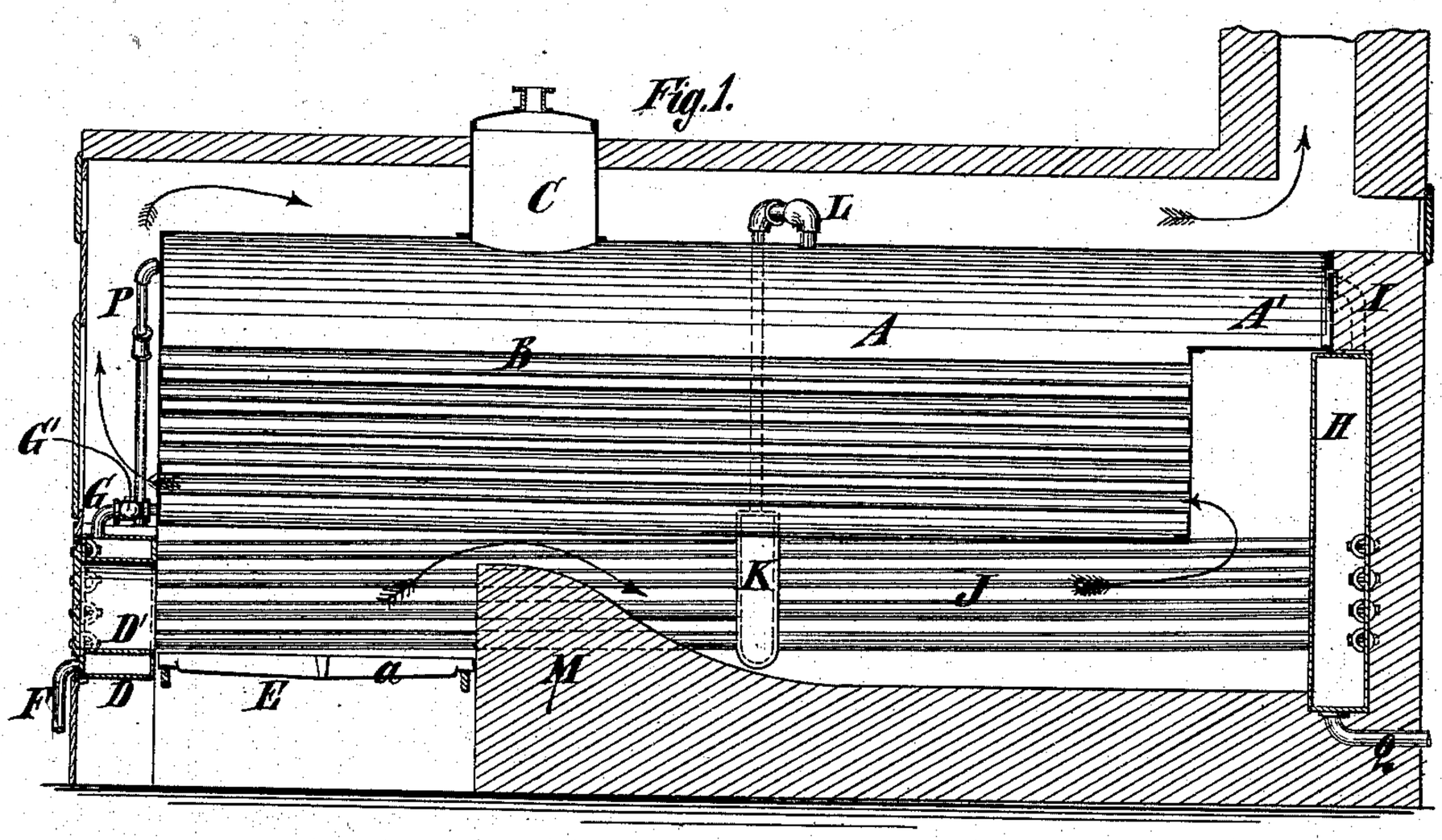


Fig. 1.



Witnesses
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J. H. Keane

Inventor
James C. Stead,
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UNITED STATES PATENT OFFICE.

JAMES C. STEAD, OF BROOKLYN, NEW YORK.

STEAM-GENERATOR.

SPECIFICATION forming part of Letters Patent No. 274,046, dated March 13, 1883.

Application filed January 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES C. STEAD, of Brooklyn, in Kings county, and State of New York, have invented a certain new and useful Improvement in Steam-Generators, of which the following is a specification.

My improvement relates to steam-generators wherein there are a main shell, water-chambers near the ends of the shell, pipes establishing communication between one chamber and the water-space of the shell and the other chamber and the steam-space of the shell, and other pipes extending between the chambers.

The improvement consists in certain novel combinations of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a longitudinal section of a steam-generator embodying my improvement, and Fig. 2 is a transverse section of the same.

Similar letters of reference designate corresponding parts in both figures.

A designates the main shell of the generator. It may be of the ordinary or other approved construction, and is shown as provided with a number of flues, B, extending through its water-space, and as having a rearward extension, A′, from its upper portion, which forms the steam-space. It is furnished with a steam-drum, C.

D designates a water-chamber arranged close to but, as here shown, forward of the shell A. It is provided with an opening, D′, which is coincident with the doorway to the furnace E. A pipe, F, leading to the chamber D, supplies the same with feed-water. A pipe, G, leads from this water-chamber to the shell A, below the water-line, and is provided with a check-valve, G′, which precludes water from passing from the chamber into the shell, but will allow water to pass from the shell into the chamber. Pipes P extend from this chamber to the steam-space of the shell A. Hence any steam generated in the chamber will be conveyed to the shell.

H designates a water-chamber arranged at the rear of the shell A, and extending to or nearly to the rearward extension A′. It is connected with this extension A′ by pipes I, extending above the water-line. I have shown it provided with a blow-off pipe, Q. Pipes J extend between the water-chamber D and the water-chamber H. As shown, these pipes J are arranged in two vertical series or rows, located near the side walls of the generator. The pipes J are preferably inclined instead of being arranged horizontally. They may be inclined throughout their length, and in such case their lower ends will be connected to the water-chamber D and their higher ends to the water-chamber H. The pipes are made in sections united by headers K. If desirable, the sections of the pipes may be inclined upwardly from both water-chambers to the headers K. The headers K will in either case be provided with pipes L, extending from the upper portion to the upper portion of the shell A. If the headers are not used, the pipes J may be made in sections united by T-couplings, and then pipes L will lead from the several couplings to the steam-space of the shell A. Steam generated in the pipes J passes up into the steam-space of the shell A.

The furnace E is provided with ordinary grate-bars, *a*, and the products of combustion pass from the fire over a bridge-wall, M, thence rearwardly to the water-chamber H, thence upwardly under the extension A′ of the shell A, and thence through the flues B of the shell. Leaving these flues, they enter an ascending passage and pass over the top of the shell A to the smoke-stack.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a steam-generator, the combination of a main shell, A, a water-chamber, D, near the forward end of the shell, a feed-water pipe, F, leading to this chamber, a pipe, G, establishing communication between the chamber and the water-space of the shell, a valve, G′, in this last-mentioned pipe, preventing water from passing from the chamber to the shell, but permitting it to pass from the shell to the chamber, another water-chamber, H, arranged near the rear end of the shell, pipes I, extending from this water-chamber to the steam-space of the shell, and pipes J, extending between the two water-chambers, all substantially as specified.

2. In a steam-generator, the combination of a main shell, A, water-chambers D H near the ends of the shell, a pipe, G, connecting the

water-chamber D with the water-space of the shell, pipes I, connecting the chamber H with the steam-space of the shell, pipes J, extending between the water-chambers, and a pipe, P, extending from the water-chamber D to the steam-space of the shell, substantially as specified.

3. In a steam-generator, the combination of a main shell, A, water-chambers D H near the ends of the shell, a pipe, G, connecting the chamber D with the water-space of the shell, a pipe or pipes, I, connecting the chamber H with the steam-space of the shell, inclined pipes J, extending between the chambers, and pipes L, in communication with the inclined pipes and leading to the steam-space in the shell, substantially as specified.

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Witnesses:
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