J. M. Dillon.

Steam Generator.

No. 67637. Patented Aug. 13. 1867.

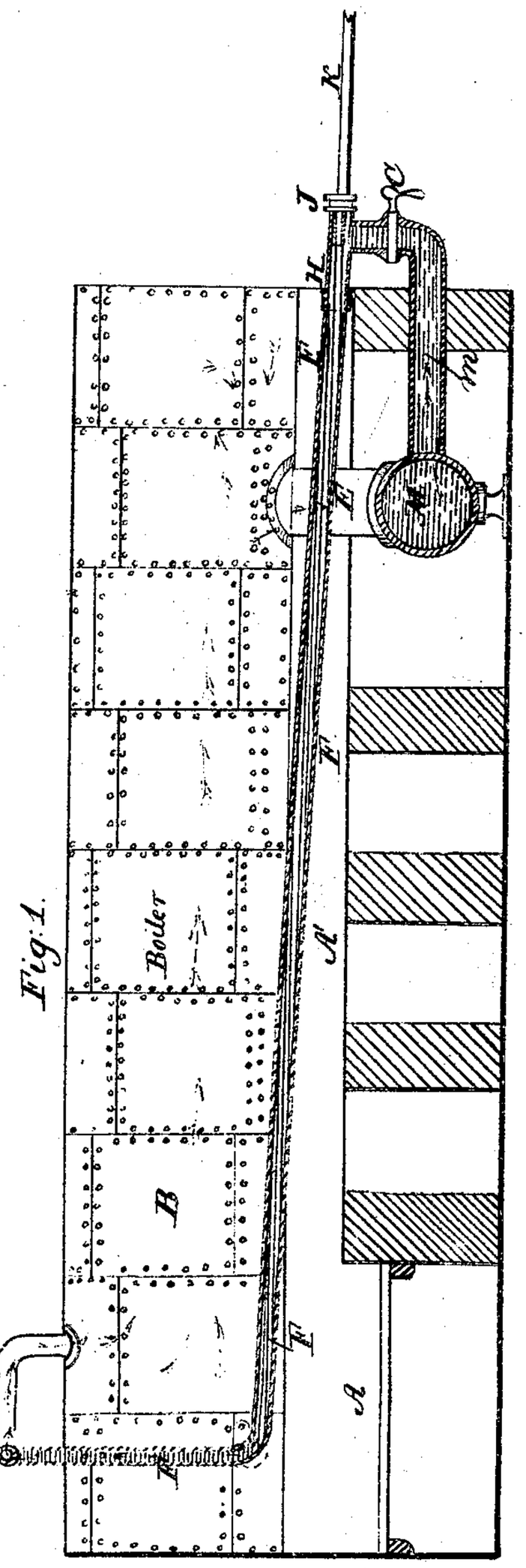

Fig: 1.

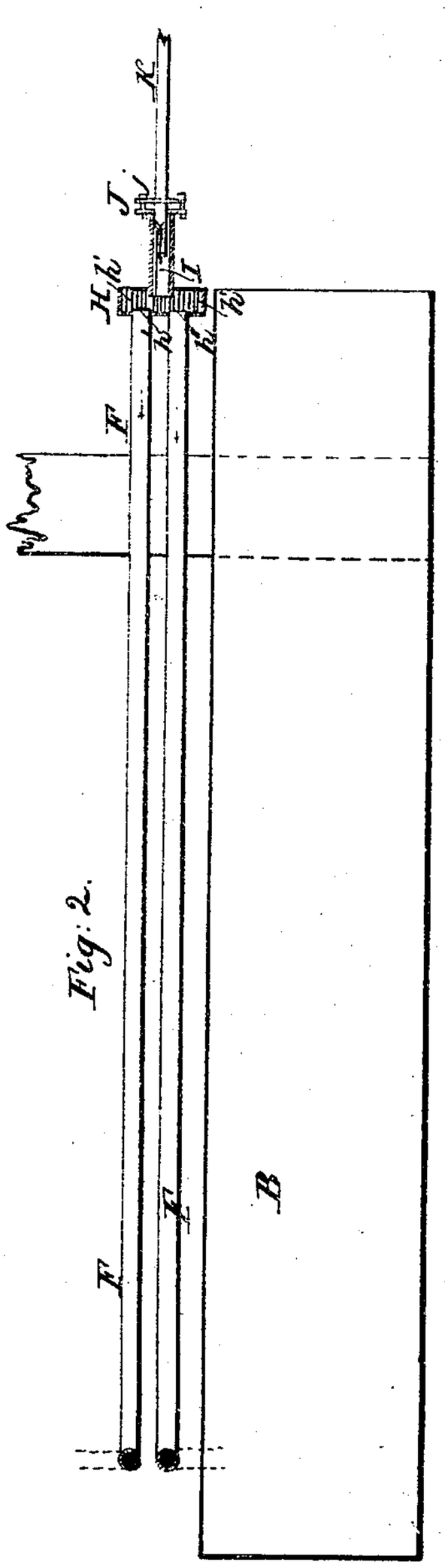

Fig: 2.

Witnesses;
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JAMES M. DILLON, OF WHEELING, WEST VIRGINIA.

Letters Patent No. 67,637, *dated August* 13, 1867.

IMPROVEMENT IN STEAM-GENERATORS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, J. M. DILLON, of Wheeling, in the county of Ohio, and State of West Virginia, have invented a new and useful Device for Heating Feed-Water for Steam-Boilers; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which are made part of this specification.

My invention consists in supplying the water to a steam-boiler through a pipe or pipes which pass the entire length of the boiler through the fire-space, and empty into it above the water line. The water, when feeding, being supplied from a force-pump or injecter, and when the boiler has received its complement of water, by that source of supply being closed, the water is drawn from the mud-drum, or other suitable attachment to the boiler, by the expansion of the steam in the feed pipes, and a constant circulation kept up, thus greatly increasing the generation of steam. In the drawings—

Figure 1 is an elevation of a steam-boiler with my improvements attached, showing the apparatus in longitudinal section.

Figure 2 is a partial plan, showing two feed pipes leading, respectively, to different boilers.

A A′ represents the furnace, and B the steam boiler, the water-space of which, at its rear end, is connected to the mud-drum M by the pipe E, and at its front end, above the water line, by the pipes F and *m*, to the same source. H, fig. 1, represents a T-joint, by which the pipes F and *m* are connected, and whose outer end receives the hollow plug or nozzle J, which may be swivelled on the end of the supply pipe K, and secured to the T-joint by bolts *j*, as shown in fig. 2, or by any other suitable water-tight connection, the plug extending a sufficient distance into the joint to carry the water from the force-pump or injector past the central opening. When more than one feed pipe is used, I prefer to construct the above-described parts as shown in fig. 2. In that arrangement the ends *h* of the T-joint are closed, and the pipes F and I connected to it as shown at *h′*, the pipe I serving the purpose of the outer end of the T-joint, as shown in fig. 1. C is a stop-cock in the upper end of the pipe *m*, or the lower arm of the joint H, by which to close the pipe *m*, while the pipes F are being drained, or, if desired, while the boiler is being supplied with water.

The object of this invention is to heat the feed-water as it passes through the pipes F in the flue A′ of the furnace before it enters the boiler, and when the pump or injecter is not in operation, by drawing the water from the mud-drum, or any suitable attachment to the boiler, in a position to facilitate circulation, and returning it to the boiler, above the water line, to increase the generation of steam.

The water from the pump or injecter is forced in through the pipe K and nozzle J, and after being heated by passing through the pipes F, which extend the entire length of the boiler through the furnace, empties into the boiler above the water line, as shown by black arrows. When the supply of water from the pump is stopped the pipe F is immediately filled from the pipe *m*, and the water in it, being partially converted into steam in its passage through the furnace, will be forced up by its expansive power, and returned to the boiler through the upper connection of the pipe F, while it will receive a fresh supply from the connection before stated, the direction being indicated by red arrows in the drawings. By this means a continual circulation will be kept up and the water converted into steam much more expeditiously than by any other method.

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

1. The pipe or pipes F, in combination with the T-joint H, hollow plug J, pipes E *m*, and mud-drum M, or their equivalents, substantially as described.

2. The combination of the boiler B, pipes E F *m*, and mud-drum M, as and for the purpose set forth.

3. The cock C, arranged and operating in combination with the pipes F *m* and mud-drum M, in the manner and for the purpose specified.

JAMES M. DILLON.

Witnesses:

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