

S. B. Hunt,
Steam-Boiler Water-Feeder,
No 35,237, Patented May 13, 1862.

Fig. 1.

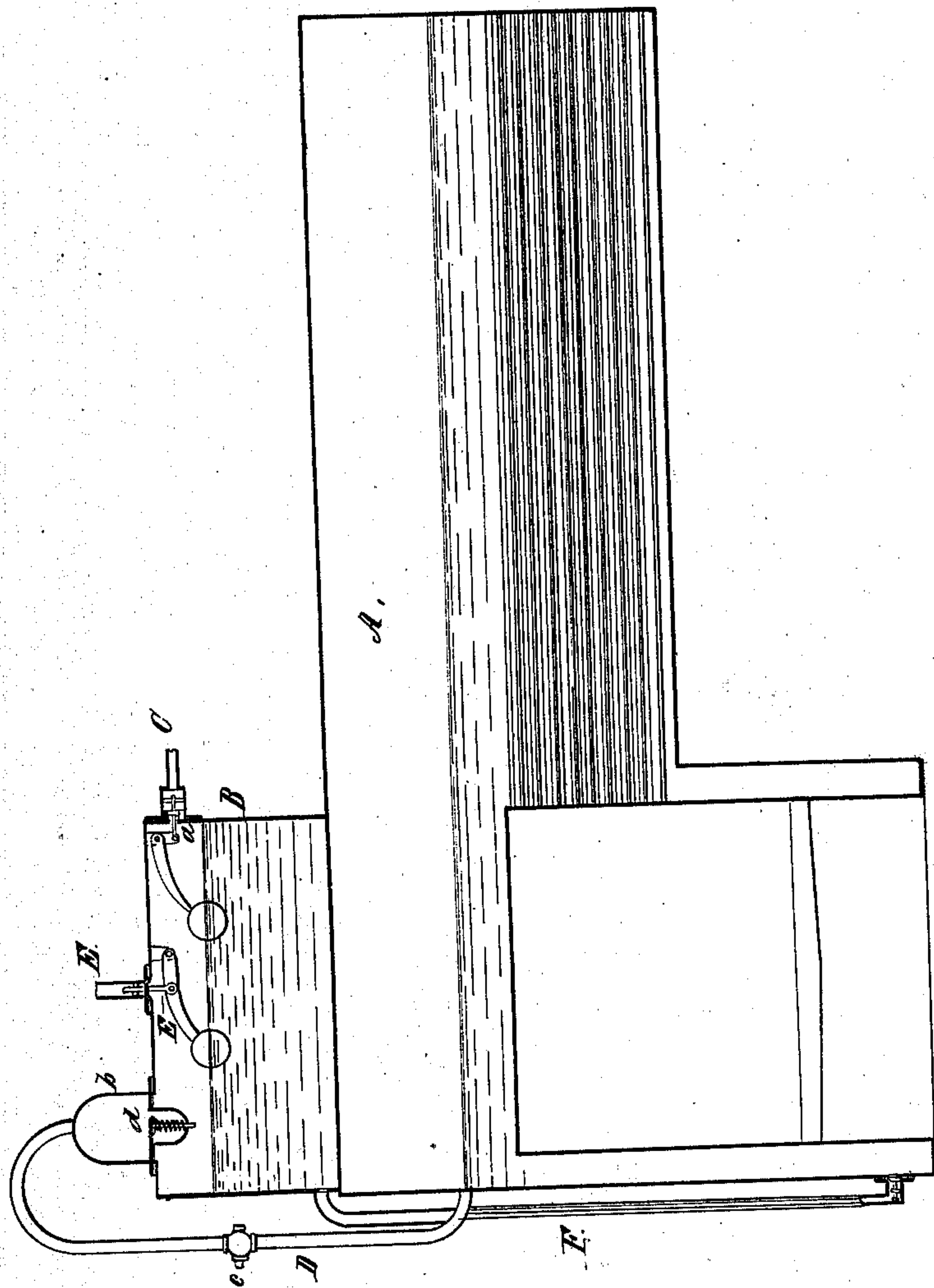
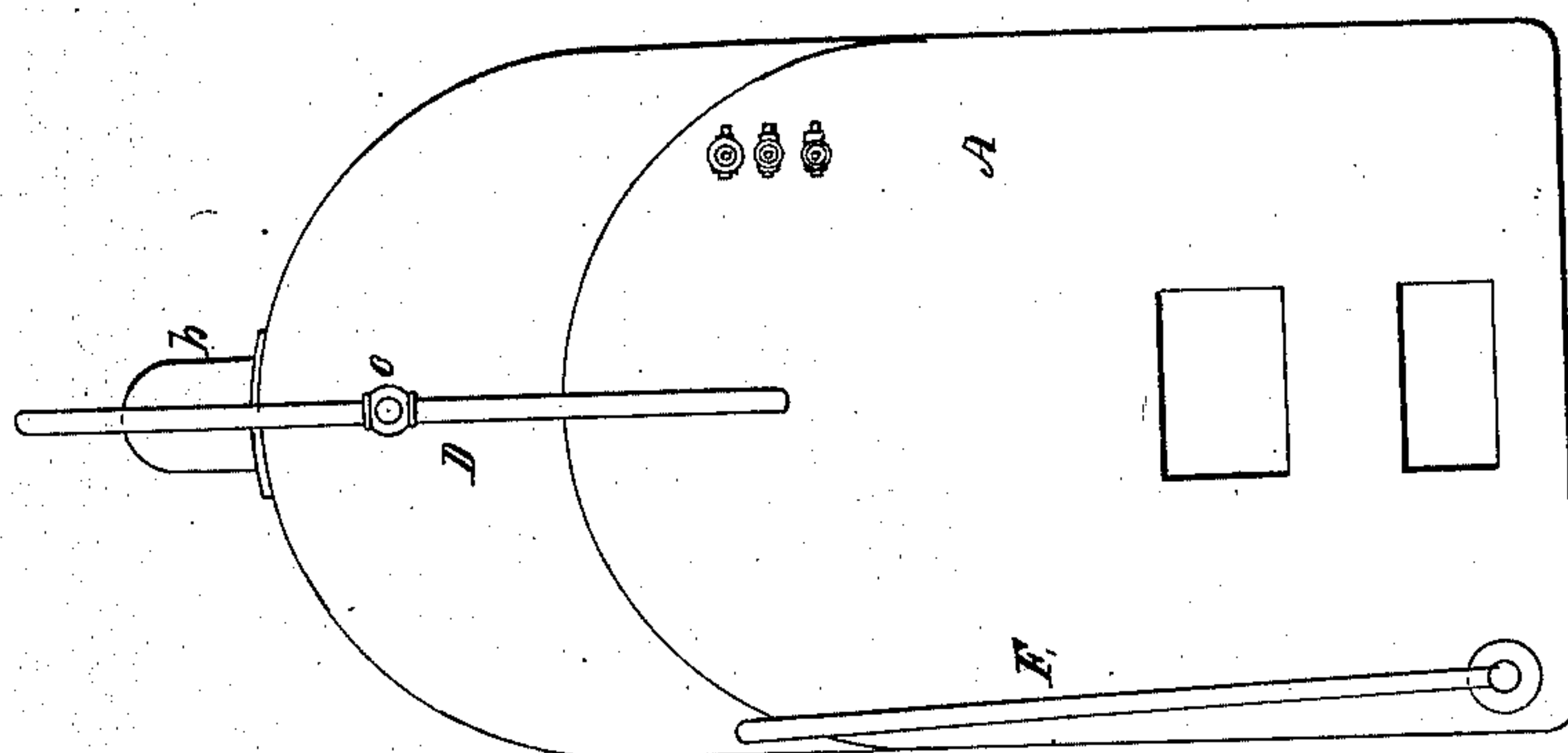


Fig. 2.



UNITED STATES PATENT OFFICE.

SIMON B. HUNT, OF NEW YORK, N. Y.

IMPROVED AUTOMATIC BOILER-FEEDER.

Specification forming part of Letters Patent No. 35,237, dated May 13, 1862.

To all whom it may concern:

Be it known that I, SIMON B. HUNT, of the city, county, and State of New York, have invented a certain new and Improved Automatic Feeder for Supplying Steam-Boilers with Feed-Water; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, in which—

Figure 1 is a vertical and longitudinal section of a steam-boiler and its attached feeding arrangement, and Fig. 2 an end view of the same.

My improvement is applicable to any form or description of boiler, and is fitted to be supplied with water from any desired source; but in the drawings it is shown as applied to a stationary "locomotive-boiler" of ordinary construction, and as supplied with water from a city water-works or other source where the water is introduced into the tank or receiver under pressure.

My invention is designed to feed water to a steam-boiler as the water becomes lessened in quantity by being evaporated into steam, by an arrangement which effects that object automatically, and is regulated, governed, and operated solely by the pressure of steam from the boiler admitted into the tank or receiver of the apparatus when the water in the boiler falls below its proper point of height.

A is a stationary boiler of the ordinary "locomotive" construction.

B is the water tank or receiver for containing the supply of water to be fed to the boiler, and which, for convenience and for the purpose of heating its contained water, is located on the top of the front end of the boiler. The supply of water to it is introduced through the supply-pipe C, which contains the float-valve *a* to shut off the supply when the water in it has reached a proper height.

D is the steam-pipe, leading from the steam-chamber of the boiler at the height of the proper water-surface in the boiler to the dome *b* in the top of the tank B, which governs the flow and supply of the water from the tank to the boiler. It is provided with a stop cock or valve *c*, to be used under certain conditions, as hereinafter mentioned, to shut off the flow

of steam to the tank. The aperture at the base of the dome *b* is provided with a valve *d*, to be closed by a spring when the flow of steam through the pipe D to the tank is closed and shut off by the rise of the water in the boiler above the mouth of the pipe, which point constitutes the proper height for the water to be supplied to and carried in the boiler.

E is a vent-pipe, having the float-valve *e* at its mouth, which opens to allow the air and uncondensed vapor to escape from the tank when the water within the tank has fallen in height, so as to render the float-valve *a* operative to admit a fresh supply of water. The float-valve *e* is so formed and constructed as to be closed tightly, irrespective of its float, whenever the steam from the boiler is admitted into the tank through the pipe D.

F is a feed-pipe, attached to the bottom of the tank B and connected to the lower end of one of the water-legs of the boiler. It is provided with a "check-valve" to prevent the water from the boiler being thrown back into the tank when the pressure of steam into the tank is shut off, as before stated.

The stop cock or valve *c* is inserted in the pipe D to provide for the contingency of the water in the boiler being reduced so low by "blowing off" or by other means that a single filling of the tank would not be sufficient to raise it to the height necessary to cover the mouth of the pipe, in which case the pressure of steam flowing through the pipe into the tank would cause the float-valve *e* to remain closed and prevent the admission of the requisite supply of water to fill the tank.

In positions and localities where the supply of water cannot be introduced into the tank B under pressure, particularly in the case of locomotive-engines and steam ferry and other steam boats and vessels, the supply-pipe C and the vent-pipe E and their attached valves would be dispensed with, and the water for the tank would be introduced into it through an aperture secured by a packed cover, the cover being taken off to allow the water to be introduced, and secured in place when the tank was properly filled.

The steam-pipe D is connected to the boiler, so that the water in the boiler when at proper height shall cover and close its mouth and

shut off the flow of steam through it to the tank B. This constitutes the governing principle of the arrangement by which the water in the boiler is preserved unerringly and automatically at that precise height, provided a proper supply of water is kept in the tank B, as the fall of water in the boiler below that point—that is, below the mouth of the pipe or a limited portion thereof—allows the steam to pass into the tank to force the water from it into the boiler until the supply of steam is shut off by the water attaining its proper height.

The tank B may be placed in any desired position, it not being necessary to place it

above the boiler or above the water-line of the boiler, as it will operate perfectly and completely even if placed some distance below that line.

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

Automatically supplying a steam-boiler with a regular and proper supply of feed-water by the combination of the tank B, steam-pipe D, and feed-pipe F, arranged and operating as herein set forth.

SIMON B. HUNT.

Witnesses:

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