A. TUCKER.

DEVICE FOR PREVENTING THE COLLAPSE OF BOILERS.

No. 183,233. Patented Oct. 10, 1876.

Fig 1

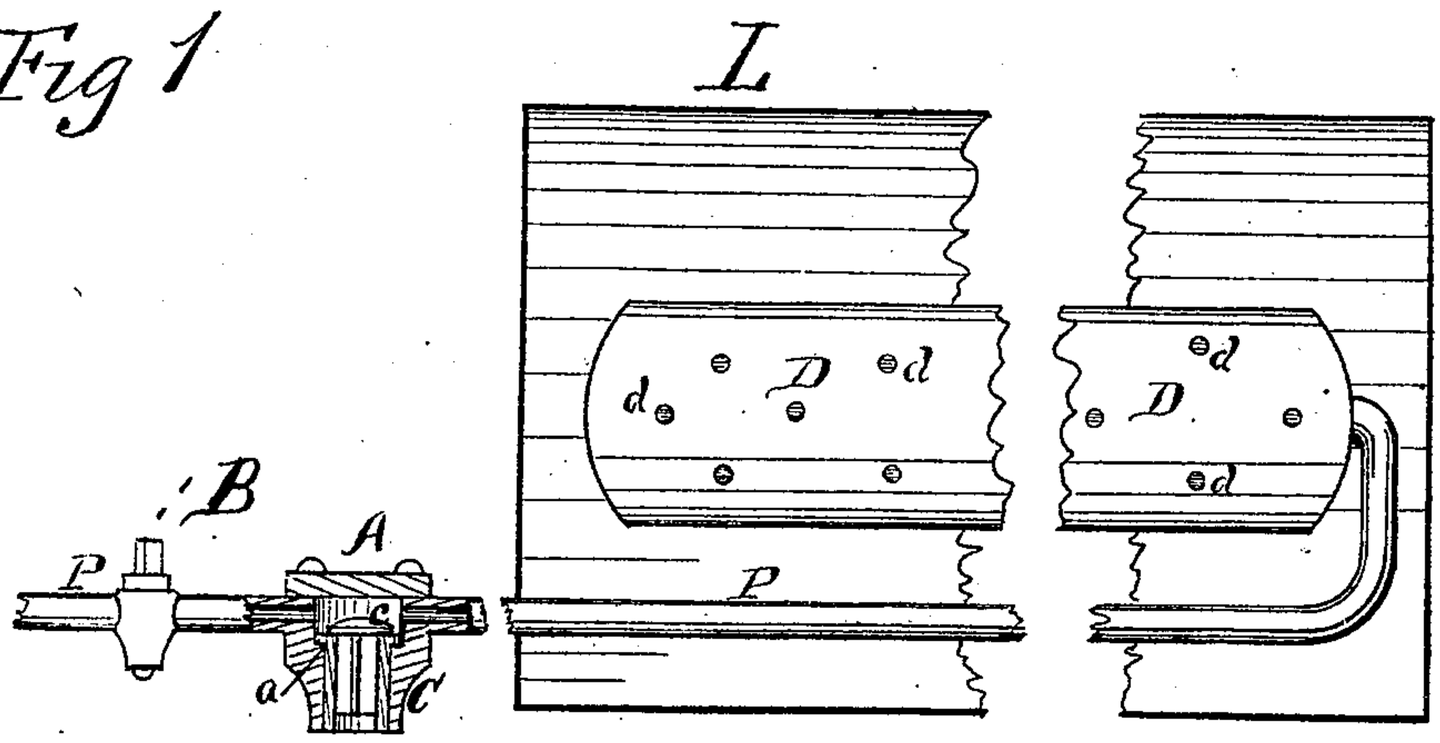
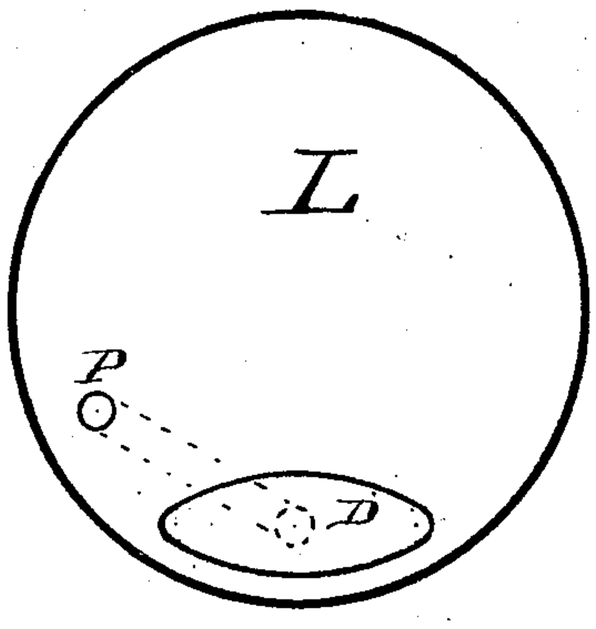


Fig 2



Witnesses.
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ABIJAH TUCKER, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN DEVICES FOR PREVENTING THE COLLAPSE OF BOILERS.

Specification forming part of Letters Patent No. **183,233**, dated October 10, 1876; application filed August 28, 1874.

To all whom it may concern:

Be it known that I, ABIJAH TUCKER, of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Method of Preventing Collapse of Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical sectional view of a horizontal boiler having my invention attached. Fig. 2 is a transverse section of the boiler and distributer.

This invention has relation to improvements in means for automatically admitting air into steam-boilers.

To this end the nature of the invention consists in combining, with the feed-water pipe of a steam-boiler, extending within the shell thereof, and perforated upon its under side from end to end, an automatically-operating valve, which, in the event of the formation of a vacuum in the boiler, from whatever cause created, will open and admit air to the interior of the boiler, thereby filling up the vacuum and establishing an equilibrium, and preventing collapse, as will be hereinafter more fully explained.

In the annexed drawings, the letter L designates an ordinary horizontal boiler, which is provided with a feed-water pipe, P, having a cut-off valve, B, in connection with which I propose to illustrate my invention. Pipe P extends into the boiler and communicates with a tubular, and preferably enlarged, distributer, D, arranged near the lower surface of the boiler, and provided with a number of spaced perforations, *d*, upon its under side. At any point intermediate the boiler and the check-valve B is arranged a valve-casing, C, within which is arranged a suitable valve, *c*, which opens upward automatically under circumstances hereinafter explained, and allows air to penetrate into the boiler. A vacuum being formed in the boiler because of the stoppage of the feed-water pipe or an injury to the pump, and because of the extreme rarefication of the steam and air therein consequent upon such stoppage or injury, the suction created by this vacuum will raise puppet-valve *c*, thus establishing communication with the outside air and the interior of the boiler, when air will rush in until an equilibrium is established, whereupon this valve will fall upon its seat and cut off further entry of air.

In practice, the lower end of the valve-casing C may be supplied with a pipe leading into the furnace of the boiler, the effect of which will be that the air will be heated before reaching the boiler, and the water will not be chilled nor the steam condensed by contact therewith.

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

In combination with a boiler and a feed-water pipe, P, an automatic valve between the boiler and the check-valve, whereby a current of air is admitted into the interior of the former when a vacuum is formed therein, substantially as and for the purpose set.

ABIJAH TUCKER.

Witnesses:

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