H. G. ASHTON.

Safety-Valve Attachment.

No. 214,981. Patented May 6, 1879.

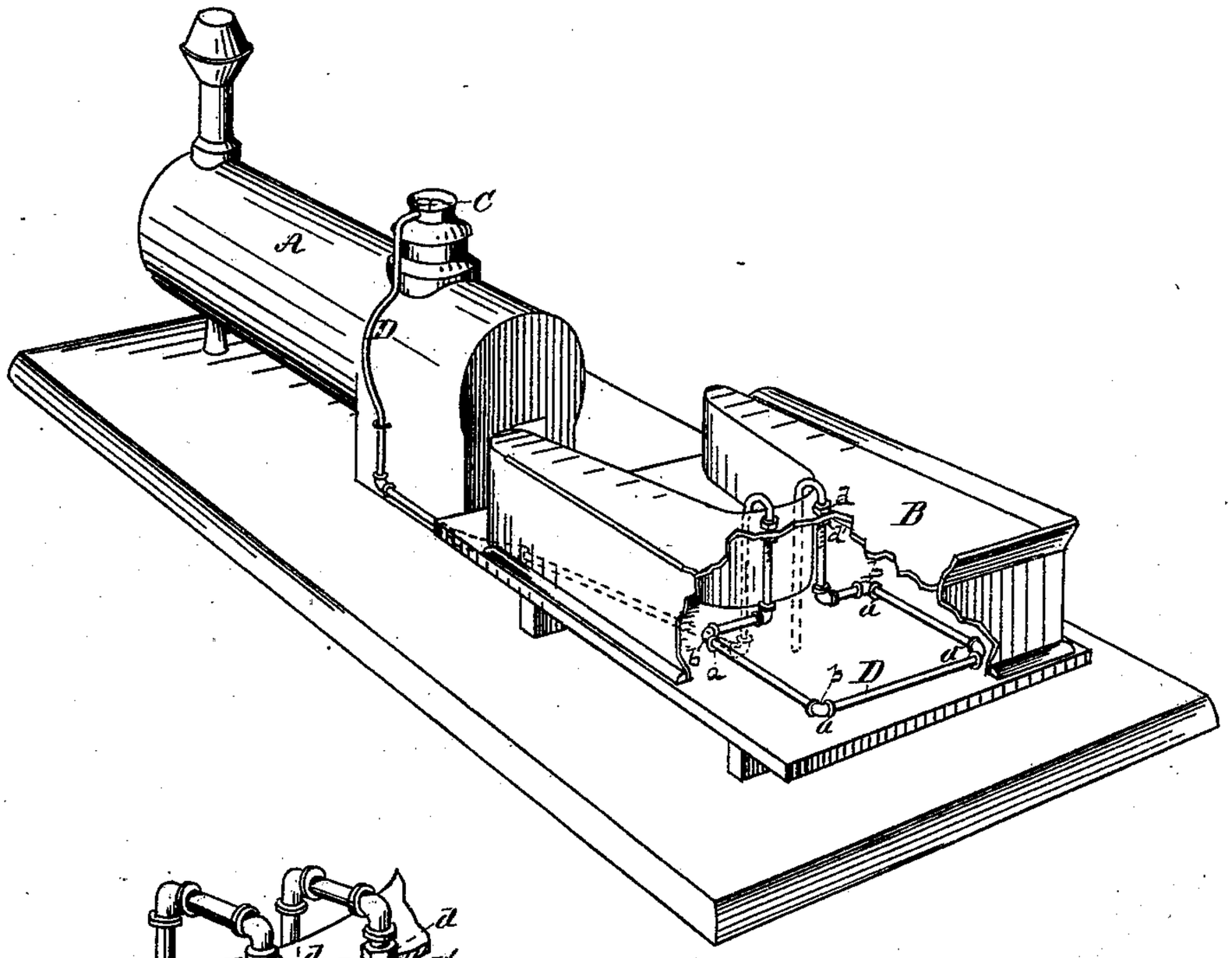

Fig. 1.

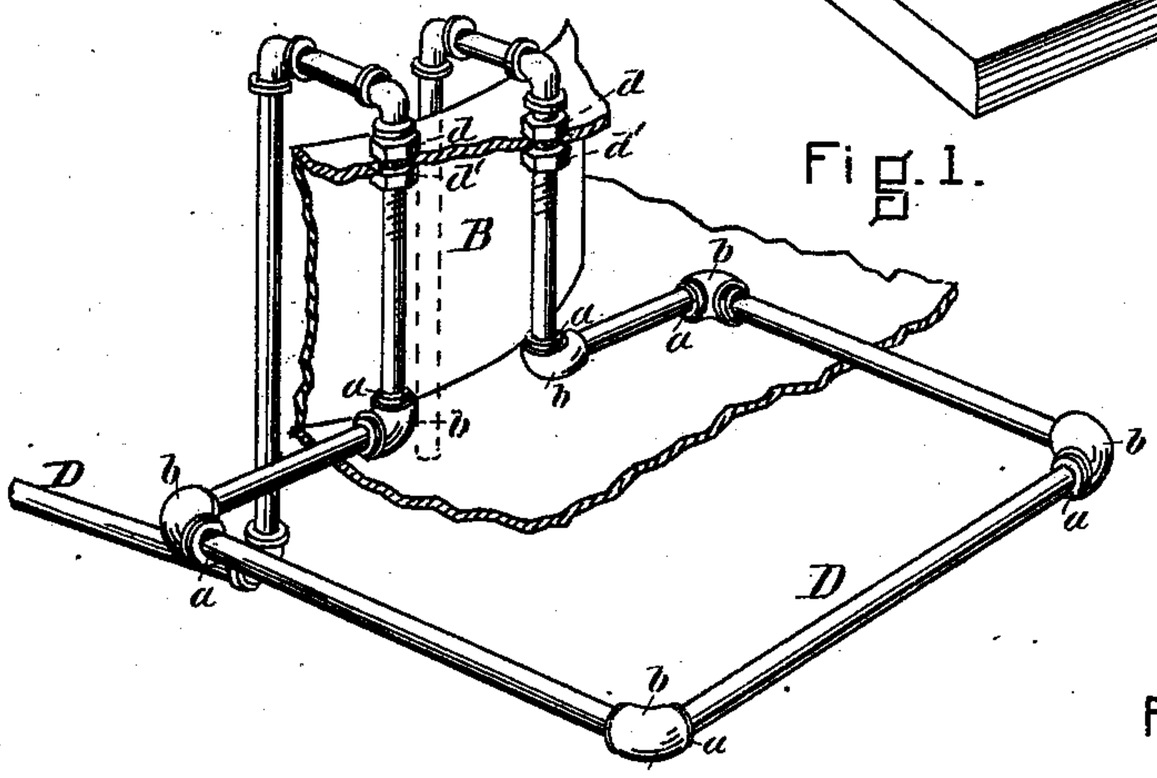

Fig. 2.

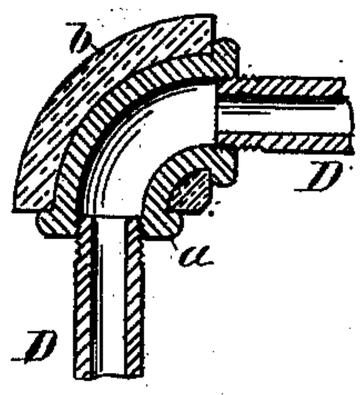

Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY G. ASHTON, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO THE ASHTON VALVE COMPANY.

IMPROVEMENT IN SAFETY-VALVE ATTACHMENTS.

Specification forming part of Letters Patent No. **214,981,** dated May 6, 1879; application filed October 28, 1878.

To all whom it may concern:

Be it known that I, HENRY G. ASHTON, of Somerville, county of Middlesex, and State of Massachusetts, have invented an Improvement in Safety-Valve Attachments, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, making a part hereof, in which—

Figure 1 indicates a locomotive and its tender with my invention applied to it. Figs. 2 and 3 are details.

Remedies have been devised for the objections arising from allowing the steam from the safety-valve of a locomotive to escape into the air. The one best known to me is that described in my Patents No. 186,783, of 1877, Reissue No. 8,211, May 7, 1878, and No. 197,073, of 1877, consisting in discharging the steam into the feed-water in the tender; but in some instances—for example, when the valve is permitted to blow very often—the water in the tender becomes heated more than is desirable, and the main purpose of my present invention is to provide means which will not only do away with the noise of the escaping steam, and prevent it from escaping in such a manner that the sight of it will terrify horses, but, in addition, will prevent the overheating of the water in the tender or other tank, for my invention is applicable to other engines, although more especially useful on locomotives.

My invention consists in the combination, with the safety-valve and its cover and the water-tank, of a pipe leading from the valve-cover into and out of the water-tank, as will now be more fully described.

A represents the locomotive; B, its tender; C, the safety-valve and its cover, and D the pipe. The pipe D extends from the cover of the valve into the tank B, where it is arranged as shown, or in any suitable way to give the proper amount of surface exposed to the water in the tank B, and then out of the tank, or above the level of the water in the tank, in order to prevent the water in the tank from entering the pipe D.

To prevent that part of the pipe D in the tank from wearing the bottom of the tank, the elbows *a a* are cased with rubber, *b*, as clearly shown in Fig. 2. The pipe is best secured in a locomotive by the nuts *d d'*, where it passes into and out of the tender.

There is the usual flexible hose between that part of pipe D which is secured to the locomotive and that part which is on the tender.

When the valve blows off, the steam rushes through pipe D, and the greater part or the whole of it is condensed in that part of pipe D which is covered by the water in the tender, thus imparting its heat to that water; but as the water heats, less of the escaping steam is condensed, and more of it consequently escapes through pipe D. Usually nearly the whole of the steam is condensed in pipe D and its heat imparted to the feed-water; but when, from carelessness of the engineer and fireman or other cause, steam is blown off excessively, the water in the tender is not overheated, for the reason that more of the steam escapes as the water in the tender grows hotter, so that practically there is no danger of overheating the water. It rarely happens in practice that a large amount of steam escapes from the pipe D; but when it does so escape it serves as a notice to the engineer that he is making too much steam.

I prefer to use that kind of safety-valve described in my Patent No. 200,119, of 1878, although other valves will answer, as will be well understood by those skilled in the art without explanation.

What I claim as my invention is—

The combination of safety-valve C, water-tank B, and pipe D, the pipe D extending from the cover of the valve into and out of the tank B, to act as a surface-condenser, and so that the water in the tank shall not enter it, when constructed and arranged as shown and described.

HENRY G. ASHTON.

Witnesses:

J. E. MAYNADIER,

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