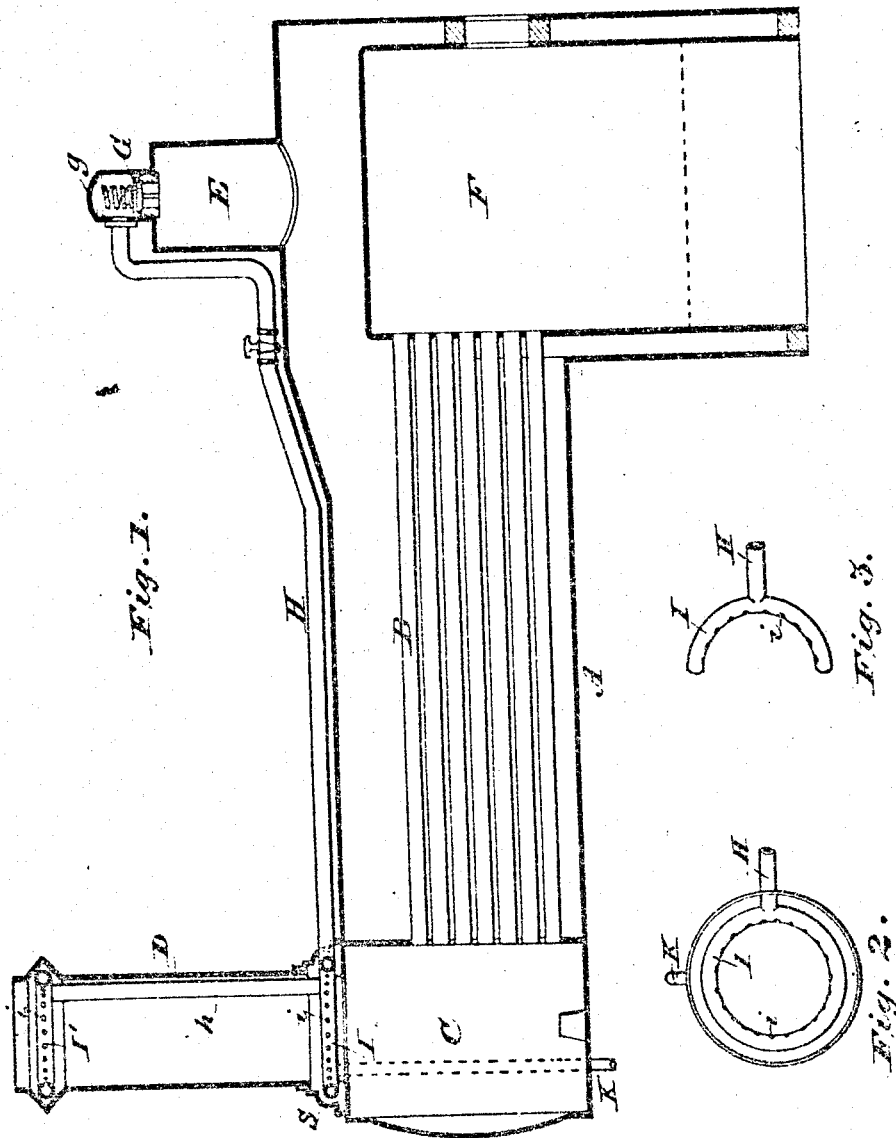


(No Model.)

A. BERNEY.
STEAM MUFFLER.

No. 304,986.

Patented Sept. 9, 1884.



Witnesses:

So F. Delcher.

F. V. Bunn

Inventor:

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Attorney.

UNITED STATES PATENT OFFICE.

ALFRED BERNEY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO MINNIE A. BERNEY, OF SAME PLACE.

STEAM-MUFFLER.

SPECIFICATION forming part of Letters Patent No. 304,596, dated September 9 1884.

Application filed October 2, 1882. (No model.)

To all whom it may concern:

Be it known that I, ALFRED BERNEY, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Steam-Mufflers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in steam-mufflers, and the object is to prevent the disagreeable noise produced by the steam escaping from locomotive safety-valves, and at the same time to control the fire by means of the draft in the chimney, and also to prevent the too rapid generation of steam by the fire becoming too hot, and thus also saving fuel.

The invention consists in the construction and arrangement of certain parts, as will be more fully described hereinafter, and specifically pointed out in the claims, reference being had to the accompanying drawings and the letters of reference marked thereon.

Like letters of reference indicate like parts in the different figures of the drawings, in which—

Figure 1 represents a longitudinal section of a locomotive-boiler with my muffler in position. Fig. 2 is a plan view of the saddle and perforated ring. Fig. 3 is a modification of the same.

In the drawings, A represents the boiler, with the ordinary furnace F, flues B, smoke-arch C, and chimney or smoke-stack D. The steam-dome E has arranged in its top the ordinary safety-valve, G, which is inclosed in a hood, g, so that when blowing off steam it must escape through the pipe H, leading to the smoke-stack D. A saddle, S, of the ordinary hollow kind, is arranged on said smoke-stack, and in the space formed within the saddle is placed a ring or part of a ring, I, formed of a tube or pipe, and provided with a number of fine holes or perforations, i. To this ring the pipe H is attached, so that when the safety-valve is blowing off by excessive pressure the steam will escape through the perforations and form a film or sheet of steam,

thereby shutting off the draft of the chimney 50 partly, while the steam will escape gently and slowly through the chimney without making any noise. By this means there will also be no waste of fuel or steam.

If desired, the ring I may be arranged in 55 the upper part of the smoke-stack with a pipe, h, leading to it; or there may be two rings, one above and one below.

The operation is as follows: When the steam escapes from the safety-valve into the pipe H 60 and passes into the ring I, it blows through the small holes, and ascends slowly up the smoke-stack without noise, and at the same time checks the draft by means of the film formed by the steam blowing across the stack 65 from all directions.

I am aware that steam from the safety-valve has been conveyed into the exhaust-passages of the cylinders, also into the smoke-arch of the boiler, and also into the smoke-stack to 70 act as a blower to increase the draft and the intensity of the fire, thus wasting fuel and water, and often causing great and dangerous pressure until relieved by the blowing off from a second valve, or by cooling off the fire to 75 prevent serious accidents. I do not, however, confine myself to a ring or part of a ring having numerous perforations, as the saddle or any part of the stack itself can be used for the same purpose. For instance, the saddle, es- 80 pecially, can be cast with a cavity in it, and provided with the apertures for the steam-pipe and connections. A drip-pipe for the condensed steam may also be cast with the saddle.

By arranging the drip K in connection with the ring I any water passing over from the boiler, as well as the condense-water, can be easily got rid of.

Having thus described my invention, what I claim is—

1. In a steam-muffler, the combination of the pipe leading from the safety-valve with a perforated ring arranged in the saddle of the smoke-stack, and a ring placed in the upper 95 end of the smoke-stack and connected by a vertical pipe with the lower ring, all substantially as specified.

2. The muffler herein described, consisting of a pipe, H, connected to the hood of a safety-valve, and to a ring, I, provided with perforations arranged in the saddle of the smoke-stack, and a drip-pipe, K, all substantially as
5 and for the purpose set forth.

3. In a steam-muffler, the combination of a pipe leading from the safety-valve with a

perforated ring and a drip-pipe, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

ALFRED BERNEY.

Witnesses:

LLOYD F. KELEHER,
T. C. BRECHT.