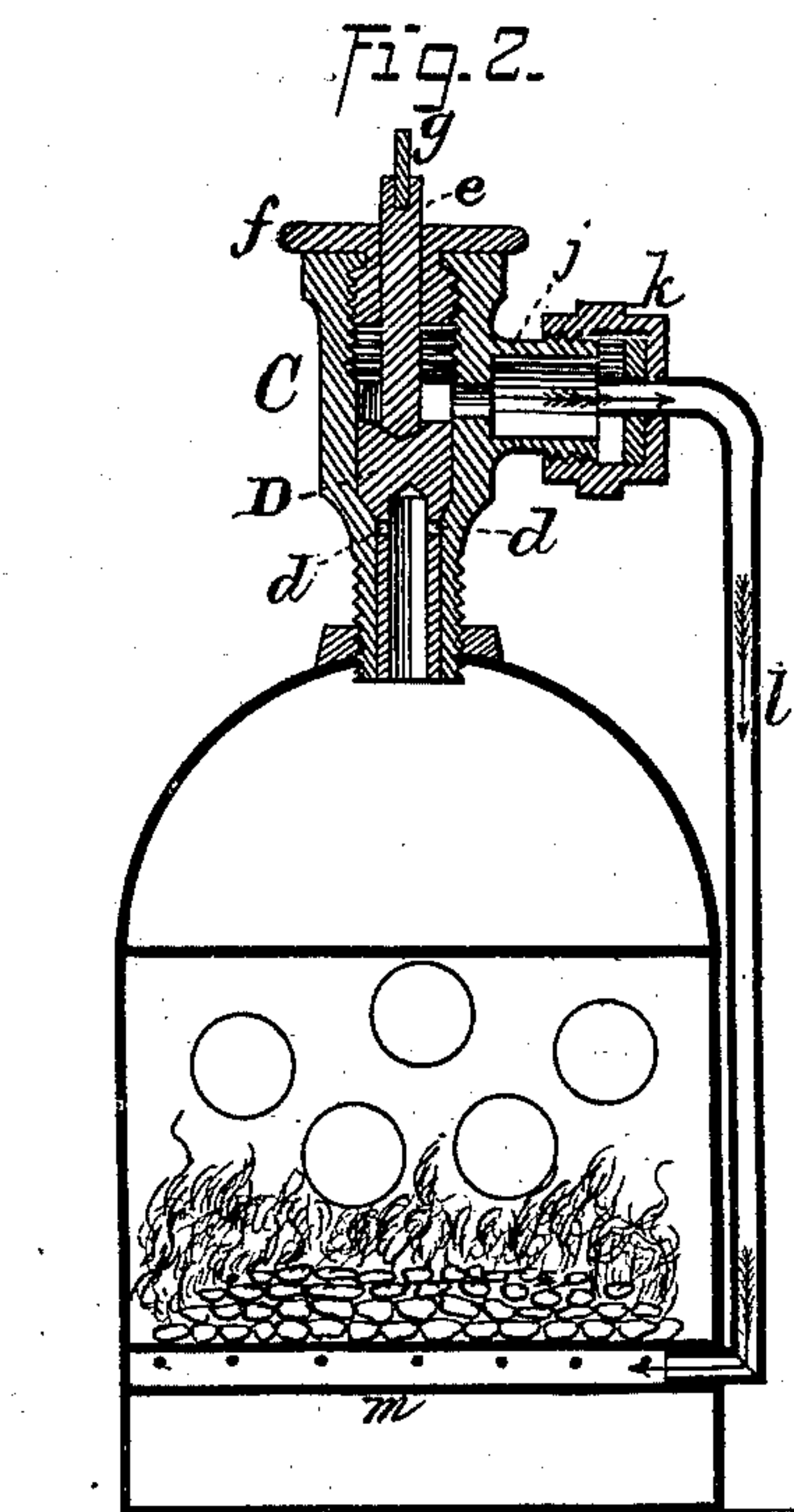
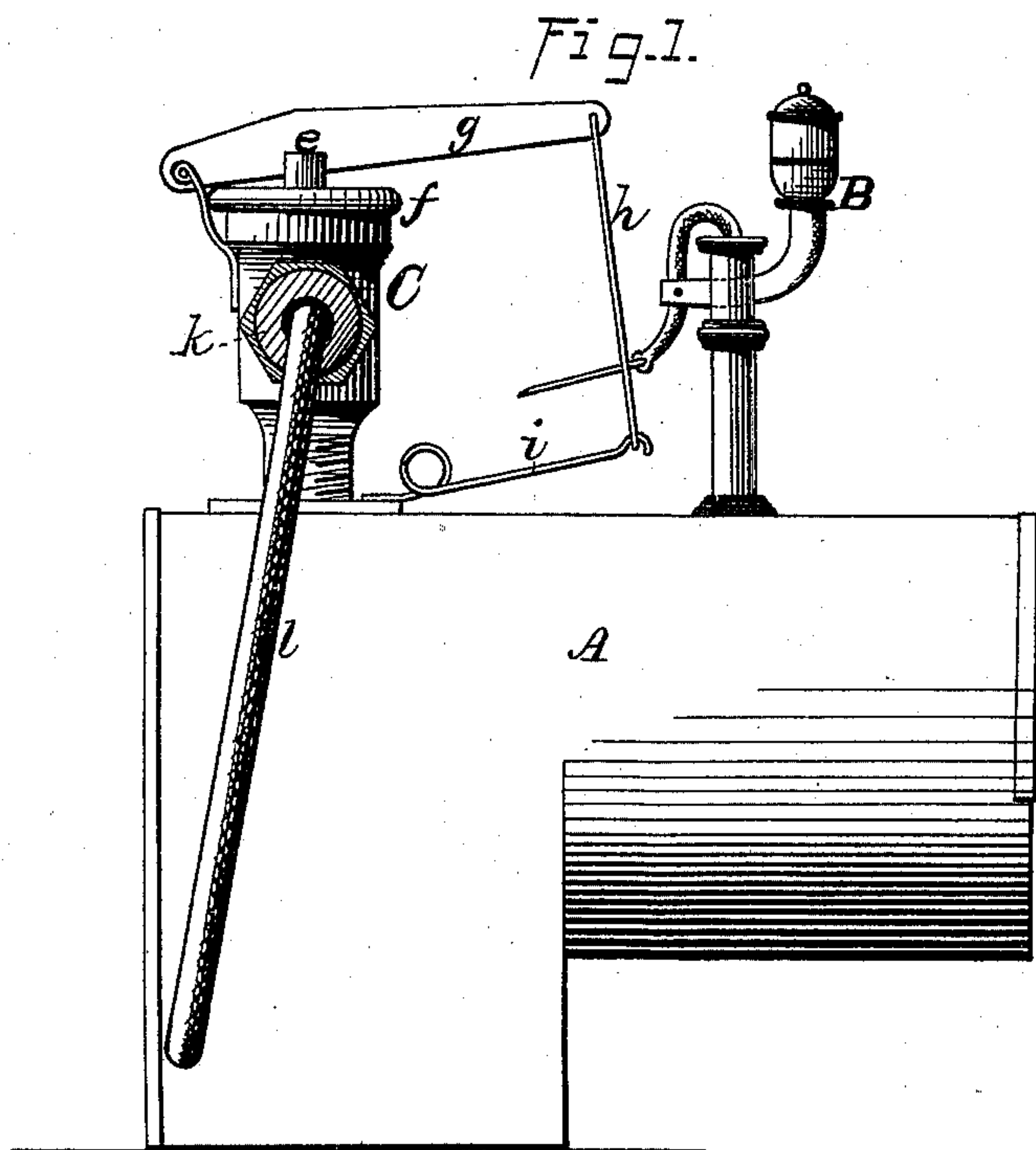


G. W. SMITH.  
Safety Attachment for Steam-Boilers.

No. 199,751.

Patented Jan. 29, 1878.



WITNESSES=  
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# UNITED STATES PATENT OFFICE.

GEORGE W. SMITH, OF HUBBARDSTON, MICHIGAN.

## IMPROVEMENT IN SAFETY ATTACHMENTS FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. **199,751**, dated January 29, 1878; application filed August 1, 1877.

*To all whom it may concern:*

Be it known that I, GEORGE W. SMITH, of Hubbardston, in the county of Ionia and State of Michigan, have invented certain new and useful Improvements in Safety Attachments for Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a side view of my improved safety attachment for steam-boilers, and Fig. 2 is a vertical section thereof.

Corresponding parts in the two figures are denoted by like letters.

This invention relates to a certain improvement in safety attachments for steam-boilers, for controlling the fire and preventing the bursting of the boiler in the event of the failure of the safety-valve to act, by providing an additional valve for the escape of the steam, which is conducted to and discharged upon the fire by means substantially as hereinafter more fully set forth.

In the annexed drawing, A refers to an ordinary steam-boiler. C is a valve-chamber, the shell or case of which is fastened to the boiler A, having a tubular valve, D, provided with steam-passages *dd*. The valve D is seated in the bottom of the chamber C. The stem *e* of the valve D passes up through a cap or nut, *f*, upon the case or shell of the valve-chamber C, and receives a lever, *g*, fulcrumed or hinged to one side of the said shell or case, and connected, by a wire or bar, *h*, to a spring, *i*, fastened to the boiler, to hold the valve D down upon its seat and allow it to automatically open when acted upon by pressure in excess

of the working-pressure. In this event the escaping steam will be taken to the fire-box, and more or less abate or control the fire, thereby saving fuel, &c. In lieu of the bar or wire and spring, a weight may be suspended from the free end of said lever, and the same result be attained.

*j* is a short tube or outlet for steam from the valve-chamber C. Connected to this tube or outlet, by a nut, *k*, or by any convenient means directly to the chamber C, is a pipe, *l*, extending down just below, or in proximity with, the fire-grate, and preferably entering a second pipe, *m*, supplied with a series of apertures for conducting steam when the valve D is open, which occurs whenever the pressure of the steam, as above intimated, is in excess of the working-pressure, or in the event of the failure of the safety-valve to act, accompanied with the results before mentioned—that is, the checking of the fire and preventing the bursting of the boiler, in addition to avoiding noise, &c.

By means of this regulator old or weak boilers can also be used with comparative safety, &c.

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

In a safety attachment for steam-boilers, the valve C D *e*, in combination with, and connected to, the pipe *l* and perforated pipe *m*, arranged in proximity with the fire-grate, and connected to the pipe *l*, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

GEORGE W. SMITH.

Witnesses:

M. PATTISON,

WILLIAM CROSSETT.