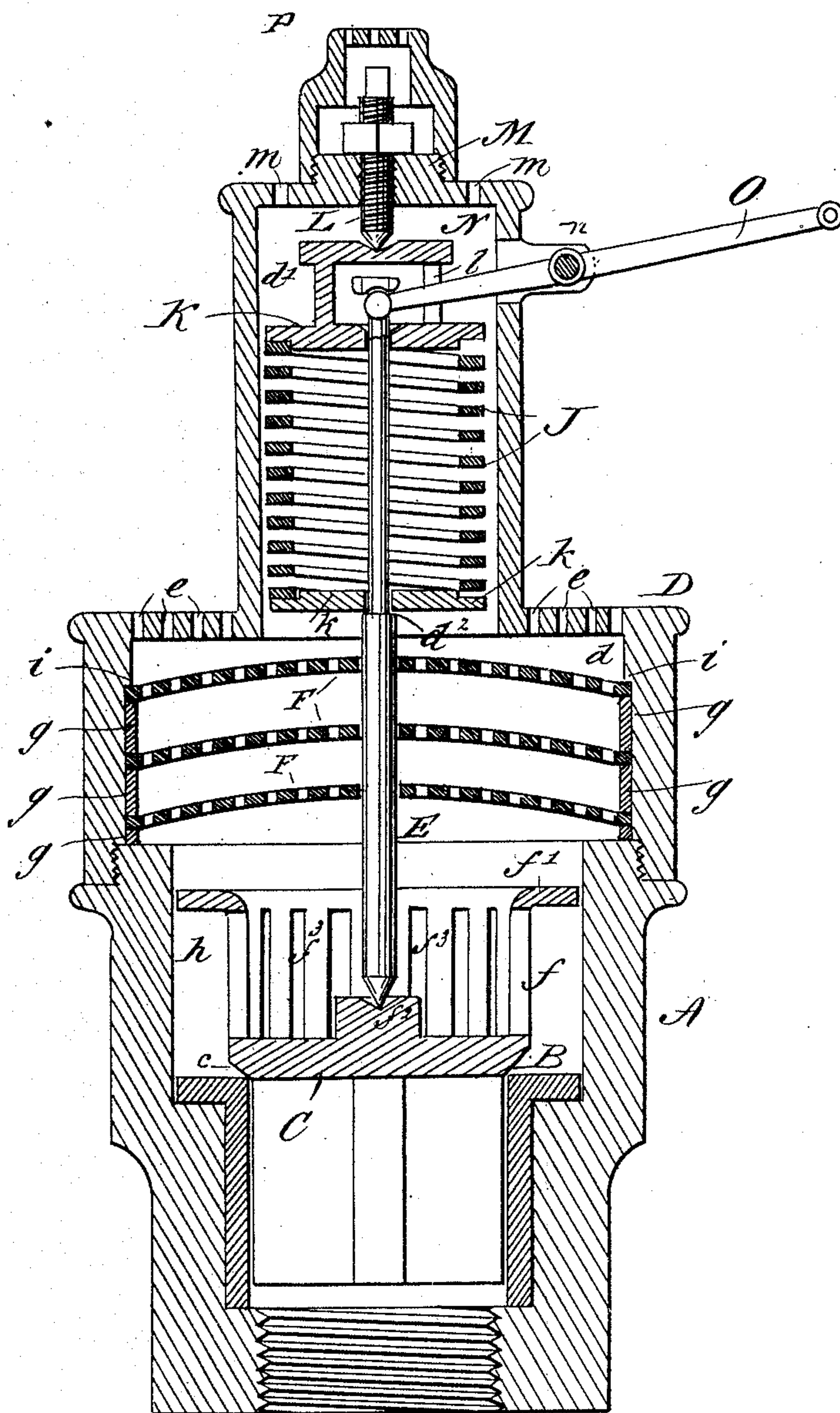


(No Model.)

T. E. HILL.  
MUFFLER FOR STEAM VALVES.

No. 353,062.

Patented Nov. 23, 1886.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

THOMAS ENGLISH HILL, OF RAHWAY, NEW JERSEY.

## MUFFLER FOR STEAM-VALVES.

SPECIFICATION forming part of Letters Patent No. 353,062, dated November 23, 1886.

Application filed July 23, 1886. Serial No. 208,860. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS ENGLISH HILL, of Rahway, Union county, State of New Jersey, have invented a new and Improved Muffler for Steam-Valves, of which the following is a full, clear, and exact description.

The object of my invention is to provide a cheap and practical muffler for safety and other steam valves, to prevent or lessen the disagreeable hissing sound caused by the escaping steam; and the invention consists of the construction of the muffler and its combination of parts, all as hereinafter described and claimed.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which the figure is a sectional elevation of my new and improved muffler applied to a safety-valve.

A represents a cylindrical casing provided with the valve-seat B, to which the valve C is fitted. Screwed to the upper end of the casing A is the muffler-casing D, constructed to form the lower chamber,  $d$ , and upper smaller chamber,  $d'$ . The valve C is formed with a beveled face,  $c$ , to fit the seat B, and with an upwardly-projecting slotted flange,  $f$ , which terminates in a horizontal annular plate,  $f'$ , of an outside diameter somewhat less than the diameter of the chamber  $h$  of the valve-casing A. The upper surface of the valve C is formed with a central step,  $f^2$ , to receive the point of the valve-rod E.

In the chamber  $d$  of the casing D are held a series of perforated plates, F. These are held in place in this instance by the interposed rings  $g$  and the shoulder  $i$ , formed in the casing. The top of the chamber  $d$  is formed with numerous orifices,  $e$ , for the escape of steam. The valve-rod E reaches nearly to the top of the chamber  $d'$ , and it is formed with the offset  $d^2$ . On this offset is placed the plate  $k$ , on which rests the coiled spring J.

Upon the spring is placed the plate K, which is pressed down by the screw L, which works in a screw-threaded opening in the top plate, M, and the point of which impinges upon the central elevated plate, N, connected to the

plate K by the small posts  $l$ . The top plate, M, is perforated, as shown at  $m$ , and connected to the upper end of the valve-rod E is the counterweight-lever O, fulcrumed at  $n$ , and to which a weight may be attached for regulating the pressure of the spring J upon the valve C. Over the screw L is placed the cap P, to finish the muffle and protect and hide the screw L.

In operation, when the pressure of steam lifts the valve C, the steam will escape between the beveled face  $c$  of the valve and the valve-seat B. The steam will then rush through the slots  $f^3$  of the flange  $f$ , (being deflected by the flange  $f'$ ,) thence through the perforations of the plates F, and then through the perforations  $e$  and  $m$  of the muffle-casing. These various perforations and slots so retard and subdivide the steam that there will be little if any hissing and disagreeable sound, and the steam acts against an increased area after it passes the valve and strikes the horizontal annular flange  $f'$ , the effect of which is to overcome the resistance of the spring and raise the valve a considerable distance from the seat, permitting free escape of steam beyond the capacity of the boiler to generate, thus doing away with danger from pressure higher than that at which the valve is set to blow off.

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

1. The valve C, formed with the upwardly-projecting flange  $f$ , having many slots,  $f^3$ , formed in it, and the horizontal flange  $f'$ , formed at the upper edge of the vertical flange  $f$ , in combination with the valve-seat B, casing A, and perforated plates F, substantially as and for the purposes set forth.

2. The valve C, formed with the slotted flange  $f$  and horizontal annular flange  $f'$ , in combination with the perforated plates F, held in a casing formed with the perforations  $e$ , substantially as described.

THOMAS ENGLISH HILL.

Witnesses:

WILLIAM W. BRANSON,  
B. CULLIS WHITE.