(No Model.)

S. F. PRINCE, Jr.

MUFFLER.

No. 452,020. Patented May 12, 1891.

Fig. 1.

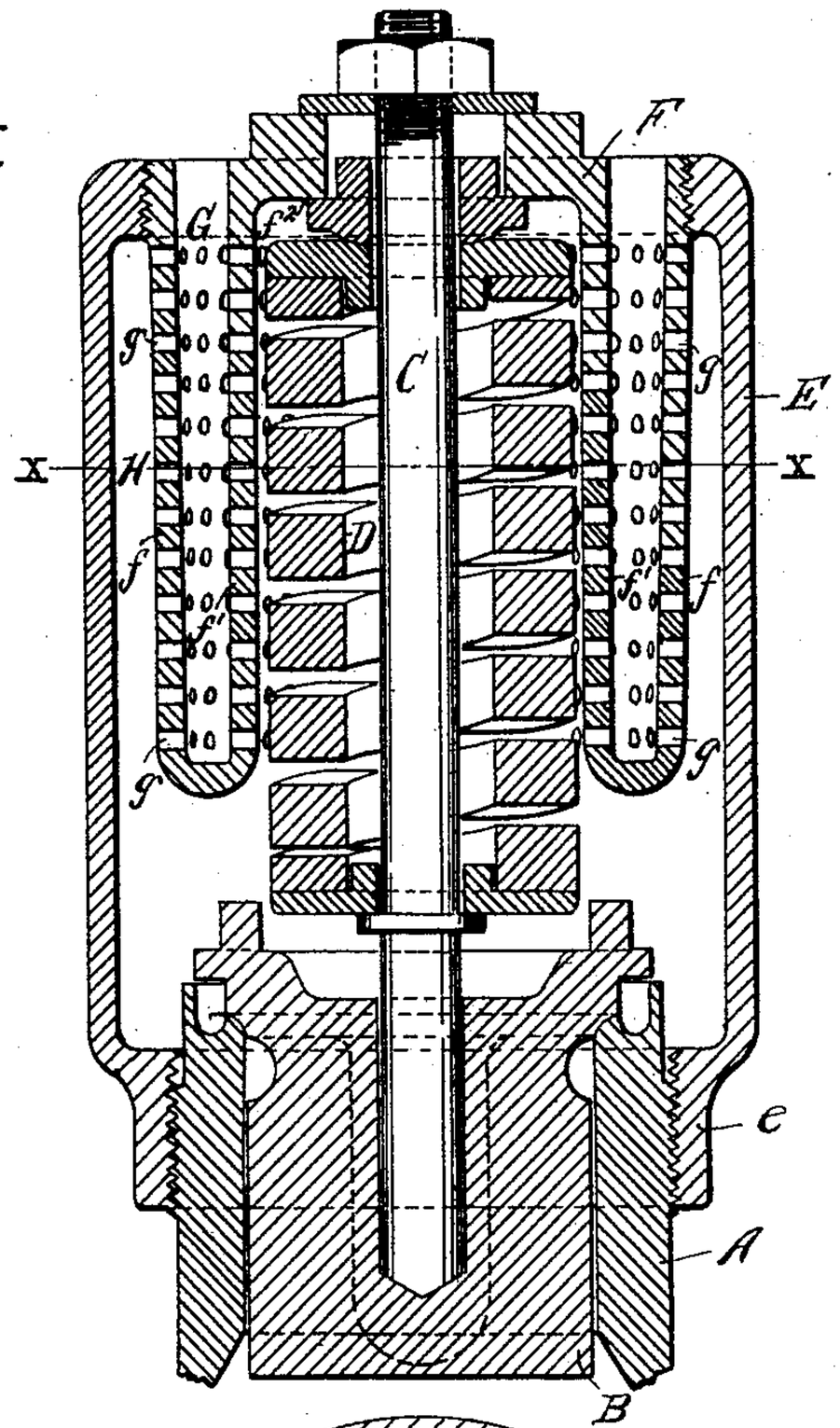
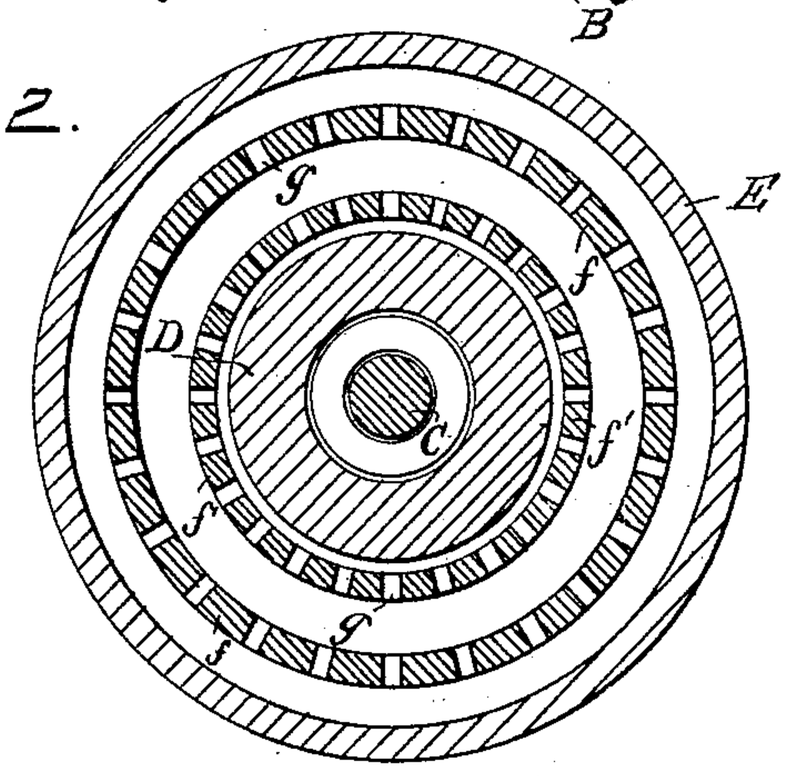


Fig. 2.



Witnesses
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UNITED STATES PATENT OFFICE.

SAMUEL F. PRINCE, JR., OF READING, PENNSYLVANIA.

MUFFLER.

SPECIFICATION forming part of Letters Patent No. 452,020, dated May 12, 1891.

Application filed February 19, 1891. Serial No. 382,094. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL F. PRINCE, Jr., a citizen of the United States, residing at Reading, in the county of Berks, State of Pennsylvania, have invented certain Improvements in Mufflers, of which the following is a specification.

The object of this invention is to provide an improved means for muffling escaping steam, which will effectually prevent the noise ordinarily caused thereby. Heretofore this object has been accomplished to some extent by dividing the escaping steam into numerous smaller streams or jets, this being accomplished by providing as the only outlets from the steam pipe or chamber small openings or passage-ways intended to prevent the escape of noisome sounds. The desired result, however, has been by no means perfectly attained.

In my invention, in addition to subdividing the escaping steam, as described, I arrange the small jets so that they discharge in opposite directions into a common outlet-chamber, thus breaking each jet and destroying its noise-producing power by its violent contact with another jet or jets before its final escape. The accompanying drawings show a preferred construction involving this principle.

Figure 1 is a sectional elevation of my muffler attached to the safety or puppet valve of a boiler. Fig. 2 is a section on the line *x x*, Fig. 1.

The general construction and arrangement illustrated in the drawings are common, the valve B being seated upon and guided in a hollow standard A, attached to or forming part of the dome-cap of a steam-boiler, and the spring D being strung upon the stem C and adapted to press the valve against its seat in a well-known manner. The cylindrical casing by means of which the strain carried by the spring D is conveyed to the fixed standard A, is adapted to serve also as a muffler and as a means of regulating the pressure at which the valve will lift, being attached to the hollow standard by means of a screw-threaded end *e*. This muffler-casing is represented as constructed in two parts E and F, the outer part or casing proper E being separably connected to the inner or muffler part F at its upper extremity. This part F incloses, loosely, the spring D, the upper end of which presses against its interior flange f^2, and is provided with double walls *f f'*, forming between them an annular chamber G, which is widely open at the top. Between the outer wall *f* and the outer casing E is another annular space H, closed at the top and communicating, as does also the central recess for the spring D, with the steam-supply when the valve B is lifted. The walls *f f'* are provided with numerous perforations *g*, which are drilled radially through both walls before the outer casing E is secured to the part F, as shown.

When in operation, upon the valve B opening the escaping steam rises into the muffler-casing and fills the unoccupied central space inclosed by the inner wall *f'* and also the annular outer space H. Being compelled to find an outlet through the perforations *g* in the walls *f* and *f'*, respectively, it is divided into numerous small jets, of which those passing through the outer wall *f'* are directed toward the center, while those passing through the adjacent inner wall *f* discharge in the opposite direction. The result is that each separate jet is brought in conflict in the chamber G with an opposing jet, and its force is thereby broken and the noise-producing tendency of the combined jets effectually destroyed before the final exit through the open top of the chamber.

Though the construction just described embodies my invention in a thoroughly practical and satisfactory shape, it is not limited to this particular form of apparatus; but

What I claim is—

1. A muffler formed with steam-chambers and a narrow outlet-chamber between them having substantially parallel partition-walls provided with small apertures, as described, whereby the oppositely-discharging jets are brought in direct conflict before being deflected, substantially as and for the purpose set forth.

2. A muffler formed with an open annular chamber located between communicating inside and outside steam-chambers and having opposite perforations in the partition-walls, substantially as set forth.

3. A muffler consisting of an inverted-cup-shaped part having perforated double walls with an open top chamber between them, and a casing E, removably secured thereto, substantially as set forth.

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

SAML. F. PRINCE, JR.

Witnesses:
W. G. STEWART,
CAMERON E. STRAUSS.