

(No Model.)

F. A. PERRY.
Mufflers for Steam Pipes.

No. 230,893.

Patented Aug. 10, 1880.

Fig. 2.

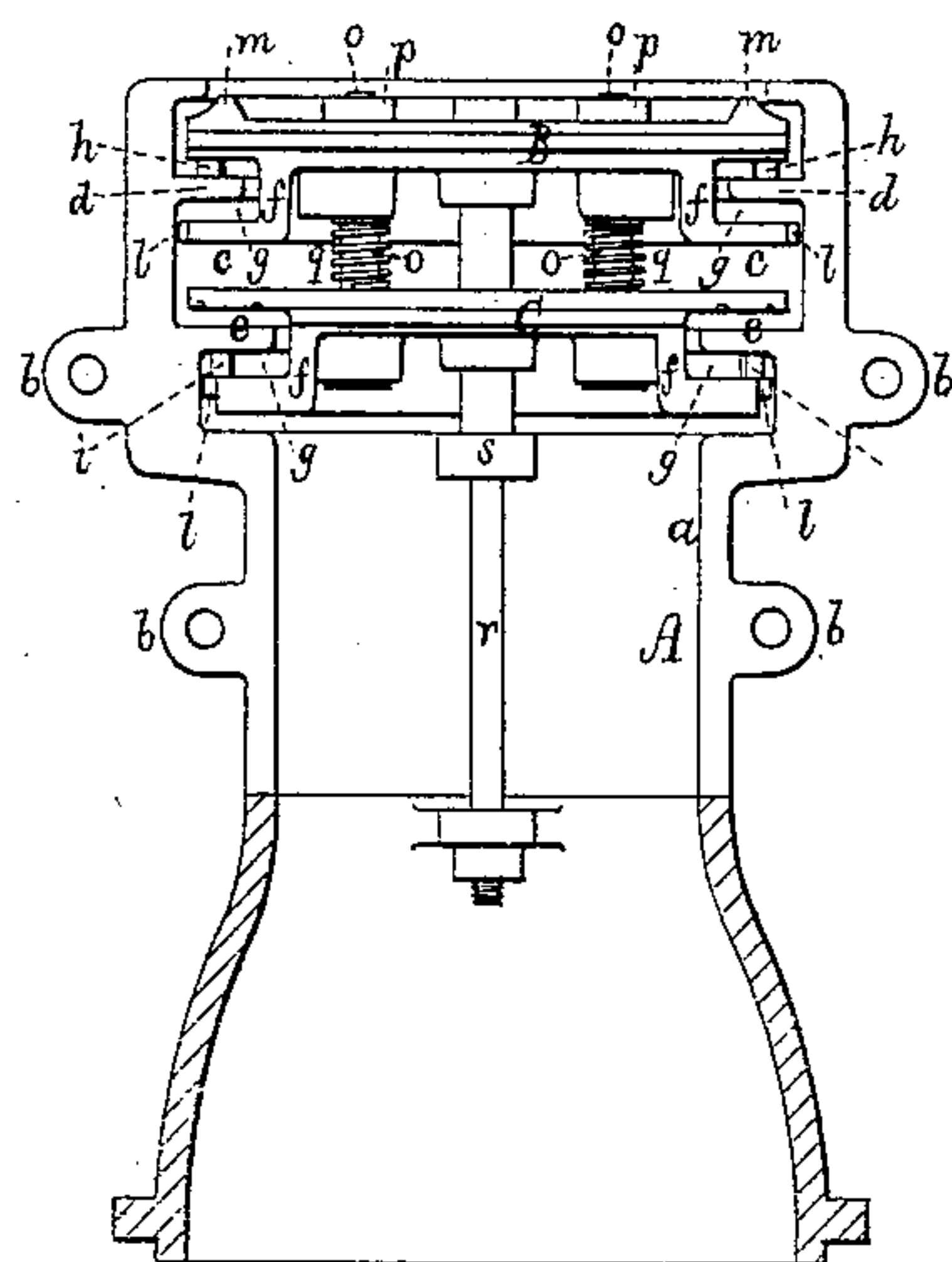


Fig. 1.

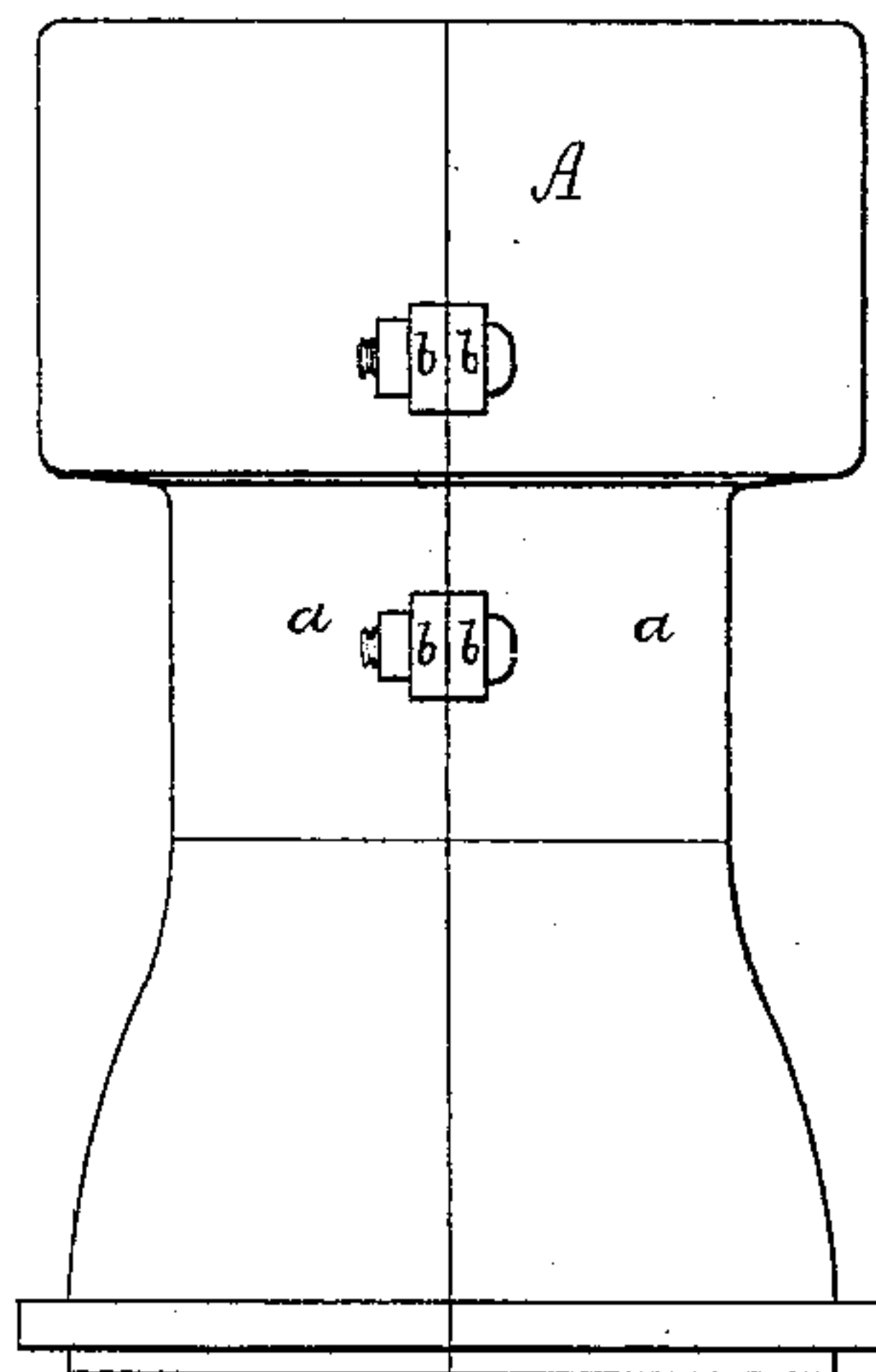


Fig. 3.

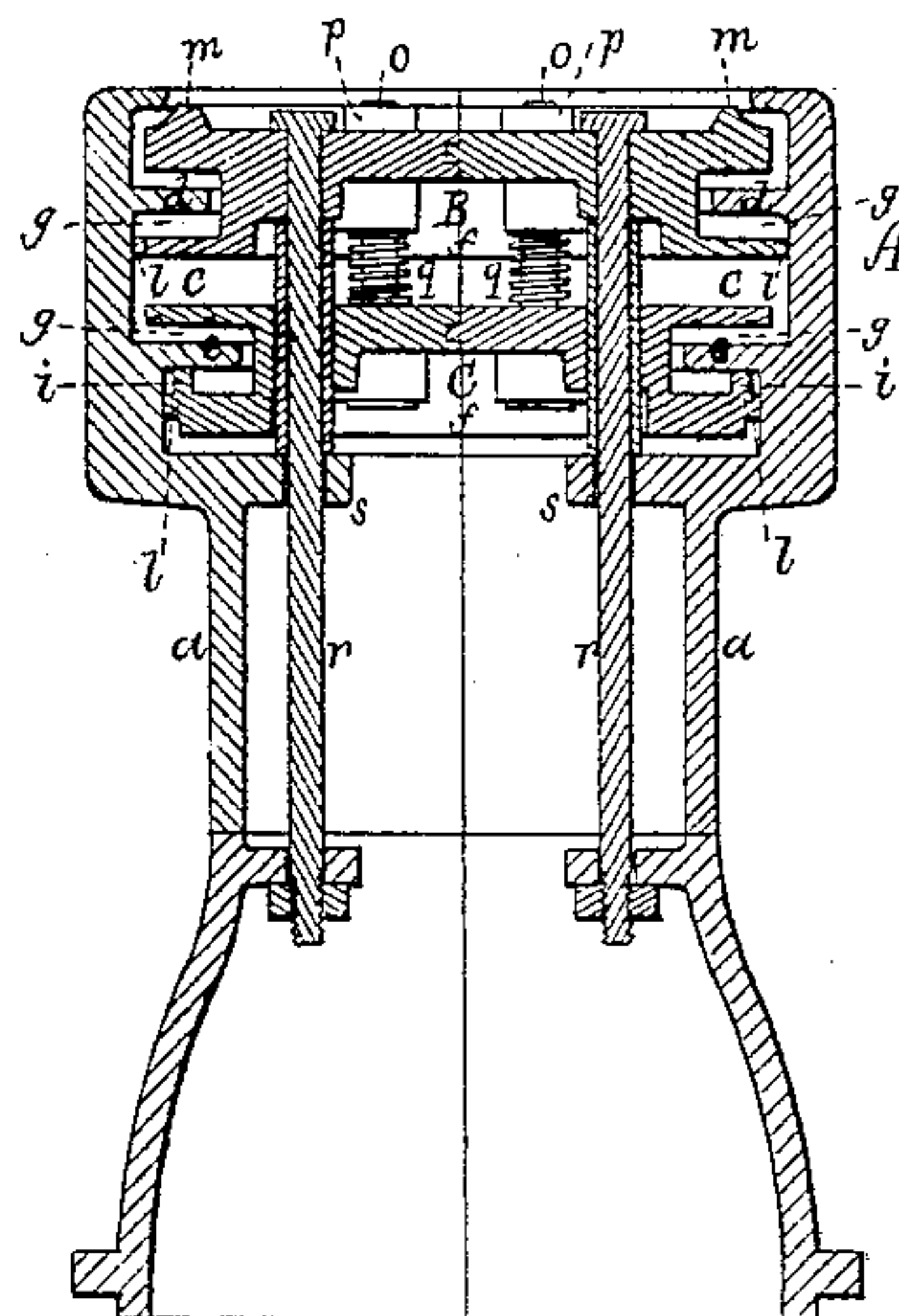


Fig. 4.

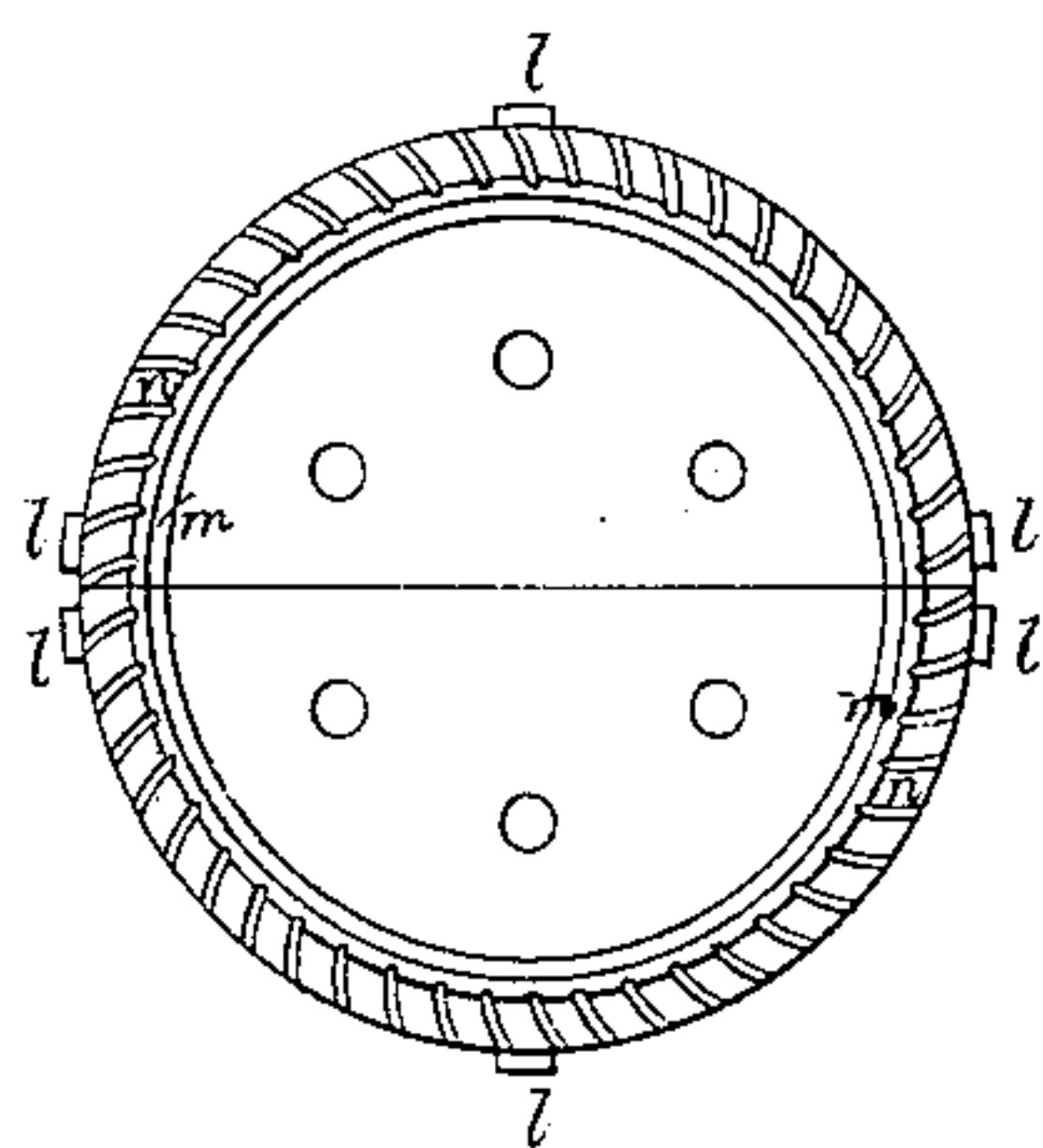
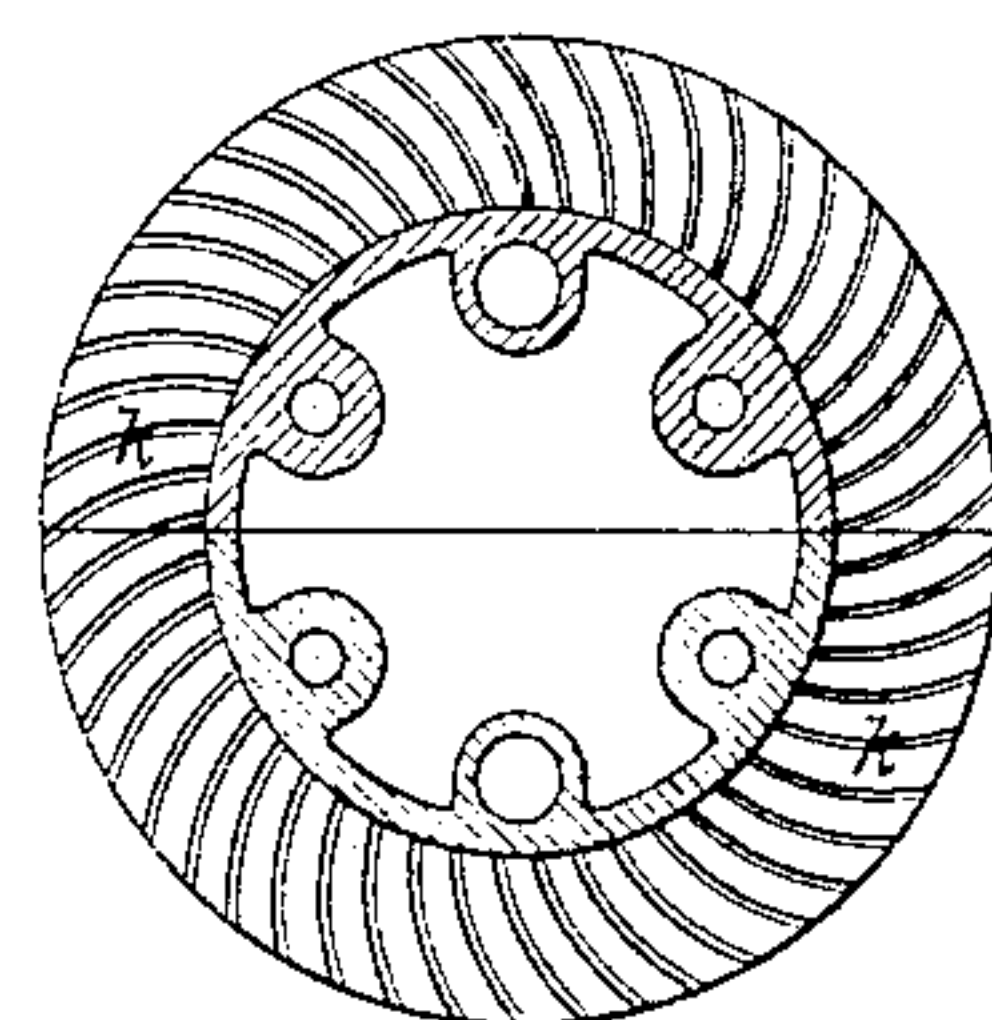


Fig. 5.



Witnesses
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MUFFLER FOR STEAM-PIPES.

SPECIFICATION forming part of Letters Patent No. 230,893, dated August 10, 1880.

Application filed March 22, 1880. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS A. PERRY, of Keene, of the county of Cheshire and State of New Hampshire, have invented a new and
5 useful Improvement in Mufflers for Steam-Eduction Pipes; and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

10 Figure 1 is a side elevation, and Figs. 2 and 3 transverse sections, of a muffler containing my invention. Fig. 4 is a top view of the upper of the two sectional disks of the muffler. Fig. 5 is a horizontal section of the lower of
15 the said disks, such sections being taken so as to show the riflings or oblique grooves of such disk.

This muffler, like others in use, is intended to be applied to a steam-educt, especially that
20 of a safety-valve of a steam-boiler, in order to diminish or prevent the disagreeable or deafening noise usually produced by the steam while escaping from such an educt.

For convenience in taking the muffler apart
25 or removing half of it from its base or sustaining-dome and leaving the remainder of it in connection therewith, as well as for applying the disks to their sustaining-flanges of the case, I construct the said case in two separate
30 halves or sections provided with means of connecting them together and readily disconnecting them. Furthermore, I construct each of the disks used within the case in two semicircular parts or sections, one of which, at its diameter or side next the other, is provided with
35 a tongue to enter a corresponding groove formed in the other.

The nature of my invention is duly set forth in the claims hereinafter presented.

40 In the drawings, A denotes the muffler-case, constructed in two separate sections, *a a*, both being alike in size and shape, and provided with ears *b b* for connecting it with its fellow section by means of screws and nuts properly
45 applied to the said ears. Furthermore, each case-section, in its upper part, is chambered, as shown at *c*, to receive the disks B C, the chambers being furnished with internal flanges, *d e*, arranged as represented. Each disk is
50 provided with a bent flange, *f*, projecting down from it and continuing entirely around each

of its sections, the groove or annular space *g* between the disk and the lower part of the flange being to receive one of the internal flanges of the case in manner as shown. 55

From each section of the upper disk short studs or feet *h h* project downward and rest on the upper internal flange, such flange having a depth or width about one-third of that of the groove into which it may project. The
60 flange of the lower disk has similar short studs *i i* extending up from it, the groove between such flange and lower disk having a depth about one-third of that of the internal flange extending into it. The upper surface of
65 the said groove is channeled or provided with a series of corrugations or oblique curved grooves, *k*, arranged as represented in Fig. 5.

The flange of each disk has small studs *l* projecting from it and resting against the inner surface of the disk-chamber, and the upper disk has extending upward from it and around it an annular flange, *m*, which is beveled on its outer side, and is there notched or
70 rifled or grooved in manner as represented at *n* in Fig. 4. If desirable, the notches or grooves of the flange may be continued into or through the periphery of the upper disk, each of said notches being inclined at an acute angle to the
80 base of the flange.

Each section of the upper disk is connected with that section of the lower disk which is directly beneath it by means of two headed screw-bolts, *o o*, going up through the two sections, the said screw-bolts having nuts *p p*
85 screwed upon them and bearing upon the upper surface of the upper section. Encompassing each of the said bolts, and extending from one section to the other, is a helical spring, *q*, all being as represented. Each pair of sections thus connected has a bolt, *r*, extending
90 down through it, and also through an ear, *s*, projecting inward from the case-section containing the said pair, the head of the bolt resting upon the upper disks. This bolt may screw
95 into the head of the dome or mouth-piece or part on which the case is to be imposed, such being to connect or aid in connecting the muffler to such dome or mouth-piece.

The case may have one or more small safety-
100 valves arranged within its lower part and applied to the head of the supporting-dome, the

same being so as to enable the steam discharged on the rising of either of the said valves from its seat to flow into the case of the muffler and thence around each of the disks
5 and out of the upper end of the case.

I do not confine my invention, however, to any such arrangement of safety valve or valves relatively to the case, as any other by which the steam, when escaping from the valve
10 or valves, is caused to pass into and through the case will generally suffice.

The springs between the two disks are for forcing the lower disk down upon its case-flange, the pressure of such springs being regulated by the nuts and screws of the bolts encircled by the springs.
15

In the operation of the said muffler the steam, in passing between the lower disk and its flange or seat, has a twisting motion imparted to it by the groove or corrugations or riflings of the lower disk. So, in escaping
20 around and from the upper disk, the steam will have a like twisting motion given to it by the riflings of the said disk or its flange.
25 These twisting motions imparted to the steam while escaping by the two disks prevent it from making much, if any, noise; or, in other

words, muffle it to great advantage, and also operate to prevent trailing of the steam or its being thrown downward, to the inconvenience
30 of brakemen or others when the muffler is applied to the safety-valve of a locomotive steam-engine, as commonly used on a railway.

What I claim as my invention is as follows:

1. The muffler consisting of the internally-flanged case and two flanged or grooved disks arranged therein, applied to the flanges of the case, and provided with springs and connection bolts and nuts, all substantially as set forth.
40

2. Each of the muffler-disks, corrugated or rifled, essentially as represented, for imparting to the steam while escaping by the said disk a twisting motion, for the purpose specified.

3. The combination of the muffler-case, made in two separate half parts, as represented, with each of its disks constructed also in two separate half parts or equal sections, as shown, all being adapted and applied substantially as set forth.
45

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Witnesses:

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