

(No Model.)

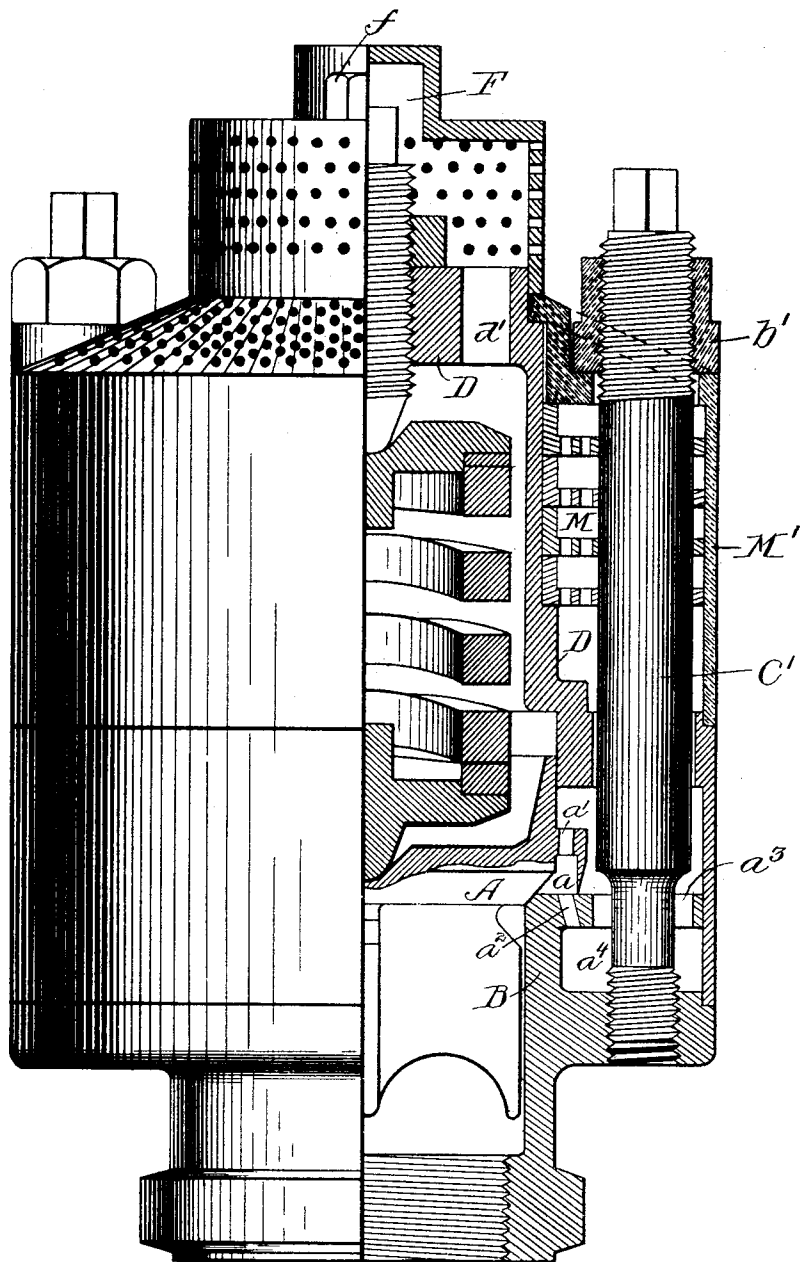
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R. GOULD.
SAFETY VALVE.

No. 536,693.

Patented Apr. 2, 1895.

Fig. 1.



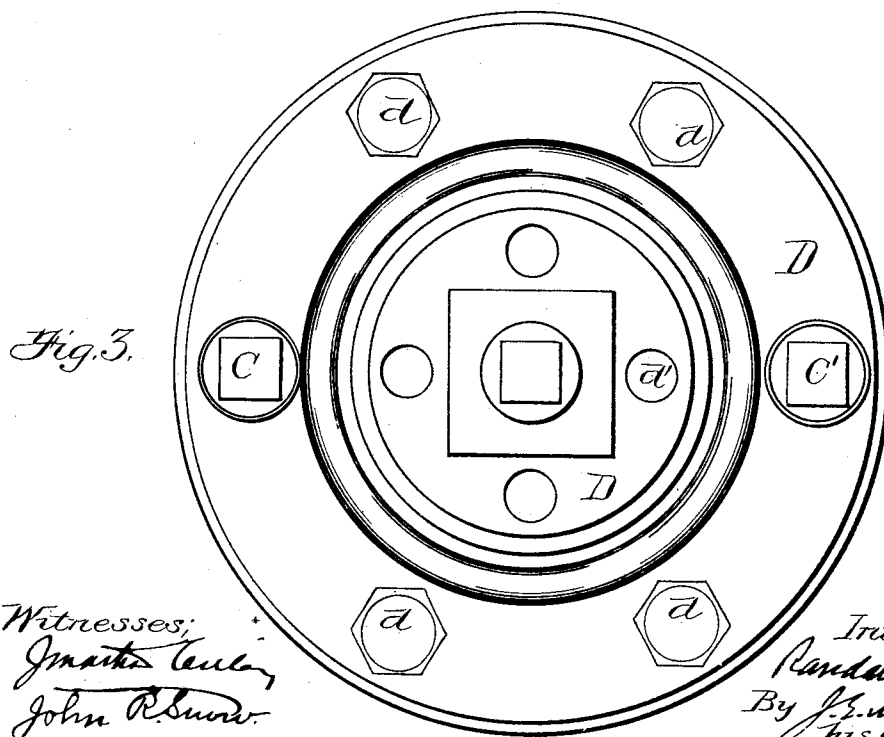
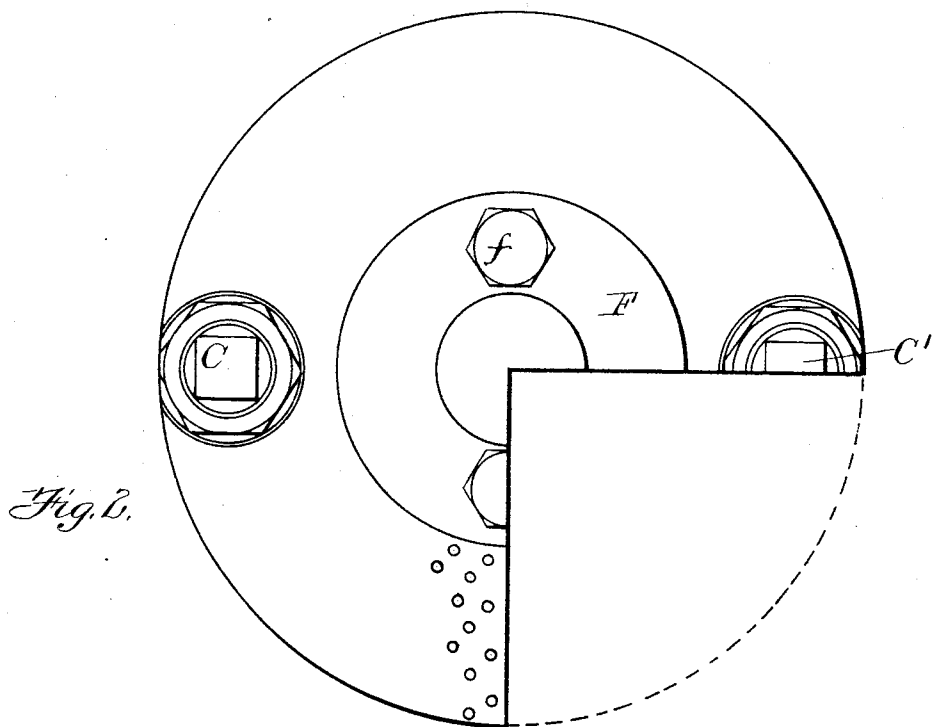
Witnesses;
James Taylor
John R. Snow

Inventor,
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his Attorney.

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SAFETY VALVE.

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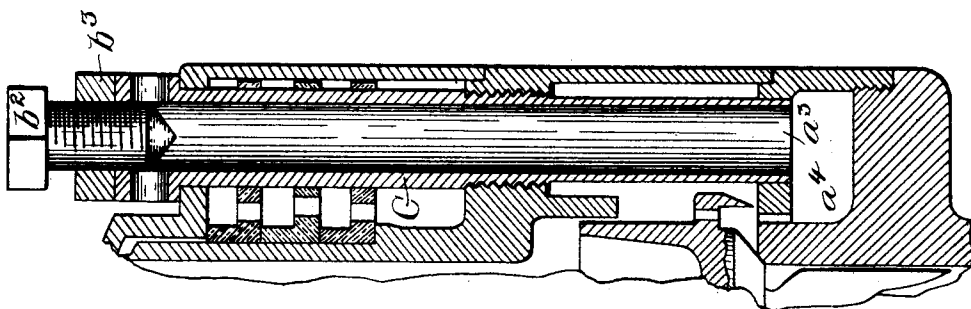
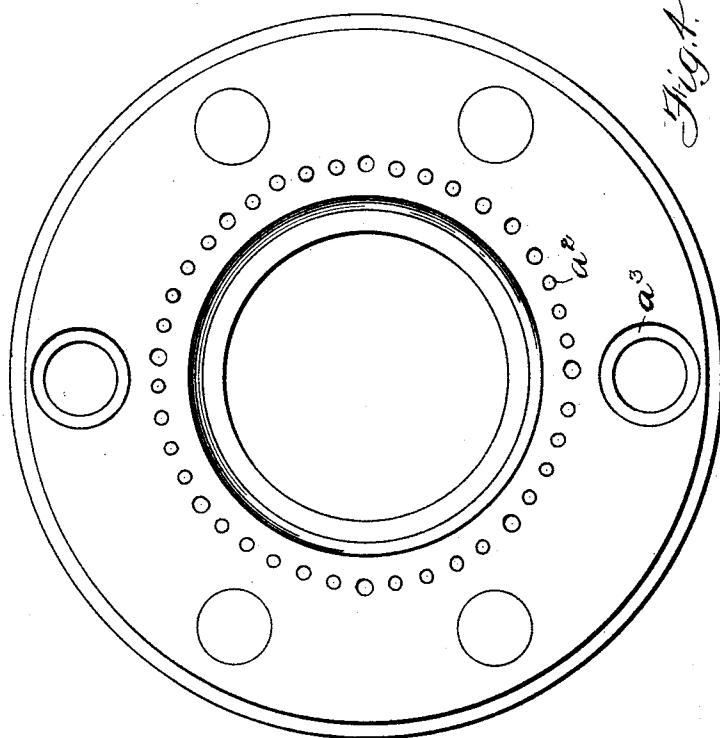
(No Model.)

3 Sheets—Sheet 3.

R. GOULD.
SAFETY VALVE.

No. 536,693.

Patented Apr. 2, 1895.



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UNITED STATES PATENT OFFICE.

RANDALL GOULD, OF SOMERVILLE, ASSIGNOR TO THE ASHTON VALVE COMPANY, OF BOSTON, MASSACHUSETTS.

SAFETY-VALVE.

SPECIFICATION forming part of Letters Patent No. 536,693, dated April 2, 1895.

Application filed March 2, 1894. Serial No. 502,067. (No model.)

To all whom it may concern:

Be it known that I, RANDALL GOULD, of Somerville, in the county of Middlesex and State of Massachusetts, have invented an Improved Safety-Valve, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation partly in section of one of my improved valves. Fig. 2 is a plan of Fig. 1. Fig. 3 is a plan with the lock up cap, muffler casing, muffler plates and the check nuts which hold the muffler casing and plates in place, removed. Fig. 4 is a plan of the bushing, that is, a plan with the casing, valve spring, and valve removed. Fig. 5 is a partial section showing a modification.

Pop safety valves have long been known, and my invention is shown as applied to that style of pop safety valve shown in Henry G. Ashton's patent, No. 200,119, dated February 12, 1878.

All pop safety valves have a small chamber, a , in Fig. 1, into which the steam enters when the valve A is lifted from its seat on the bushing B, and the area of the outlet from chamber a must be properly adjusted to cause the valve to give relief to the boiler and yet close after the boiler pressure has decreased a pound or two; for if the area of the outlet from the chamber a be too large the valve will not give full relief, while if it be too small the valve A will not seat itself until the boiler pressure has been unduly decreased.

There are three outlets from the pop chamber a in that form of pop safety valve shown in Fig. 1, namely, the holes a^1 through the lip of valve A, the holes a^2 through the bushing under the lip of valve A, and the space between the edge of the lip of valve A and the bushing B; the area of the holes a^1 through the lip of the valve being, of course, constant, and the area of the space between the edge of the lip and the bushing varying, as it should, by the rise of the valve, leaving only the effective area of the holes a^2 to be adjusted; which is done by closing the holes a^3 more or less, for the holes a^3 are the outlets from the annular chamber a^4 , and that chamber a^4 is a continuation of the holes a^2 so

that when the holes a^3 are closed the chamber a^4 and the holes a^2 leading into it are also practically closed.

The holes a^3 are closed more or less by adjusting the valve rods C C' which is done by slacking the check nuts $b b'$, and turning the valve rods C C' one or both and thereby adjusting them endwise; and it is this combination of the valve rods C or C' with the chamber a^4 communicating with the pop chamber a of a pop safety valve which constitutes my invention.

I have shown the casing D held to the bushing B by bolts d , and I have also shown in Fig. 1 the muffler plates M and the muffler casing M' held in place by the valve-rods C C' and the nuts $b b'$, and this double duty of the valve rods C C' constitutes a second feature of my invention, although it is obvious that when the muffler plates and casing M M' are not used as in Fig. 3, the valve will embody only the main feature of my invention; the adjustment of the outlet area from the pop chamber by the valve-rods C C' either or both.

The lock up cap F is held to the casing D by the bolts f , and is provided with holes as shown to permit the steam which enters the lock up cap F to escape, for some steam will enter the casing D between the head of valve A and the mouth of casing D into which the head of valve A loosely fits, and will flow out of casing D, through holes d' , into lock up cap F; but all this is in prior valves, and forms no part of my present invention; which relates wholly to regulating the outlet from the pop chamber by valve rods C or C' extending up from the chamber a^4 and to the double duty of those valve rods as above described.

In Fig. 5 I have shown the valve rod C as hollow with holes near its upper end which are adjusted by turning the screw b^2 ; thereby practically closing the holes a^3 more or less as before. The screw b^2 is held in place after adjustment by the check nuts b^3 . This is a mere modification of my invention, as will be obvious; for the main object of my invention is to adjust the holes a^3 from the chamber

a^4 by means of valve rods which project from the upper part of valve casing, as the casing D, or a muffler casing as the casing M'.

What I claim as my invention is—

- 5 1. In a safety valve, the combination of the main casing D; valve A; provided with a lip to form with the bushing B the pop chamber; pop chamber a formed by the lip of the valve and the bushing B; supplemental chamber
10 a^4 in open communication with pop chamber a ; and the valve rods C C' extending up through the casing and controlling the outlet of chamber a^4 , all substantially as described.

2. In a safety valve the combination of the main casing D; muffler casing M'; valve A 15 provided with a lip; pop chamber a formed by the lip of valve A and bushing B; bushing B; supplemental chamber a^4 in open communication with pop chamber a ; and valve rods C C' extending up through the main casing 20 D and the muffler casing M' all substantially as and for the purposes specified.

RANDALL GOULD.

Witnesses:

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