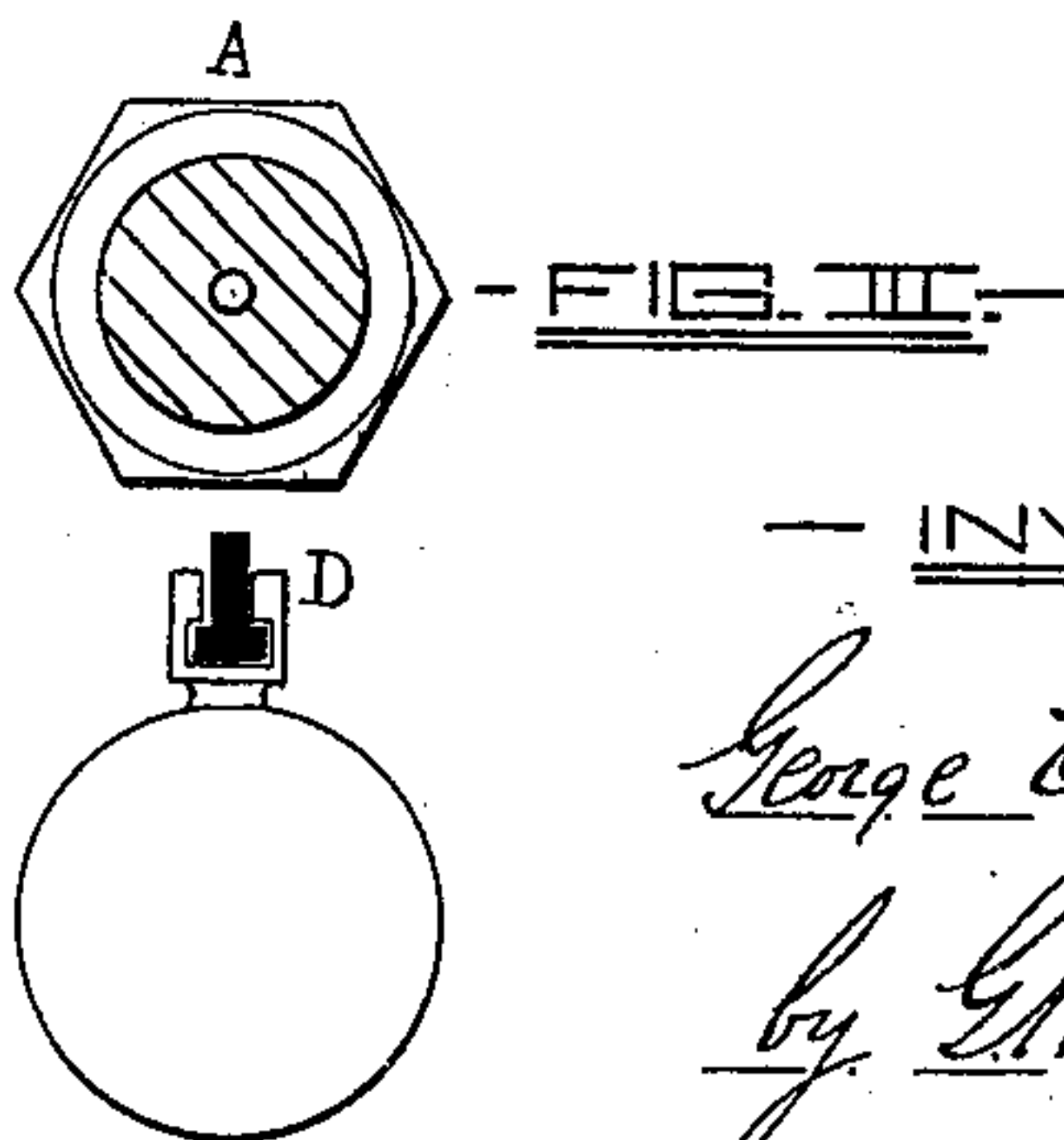
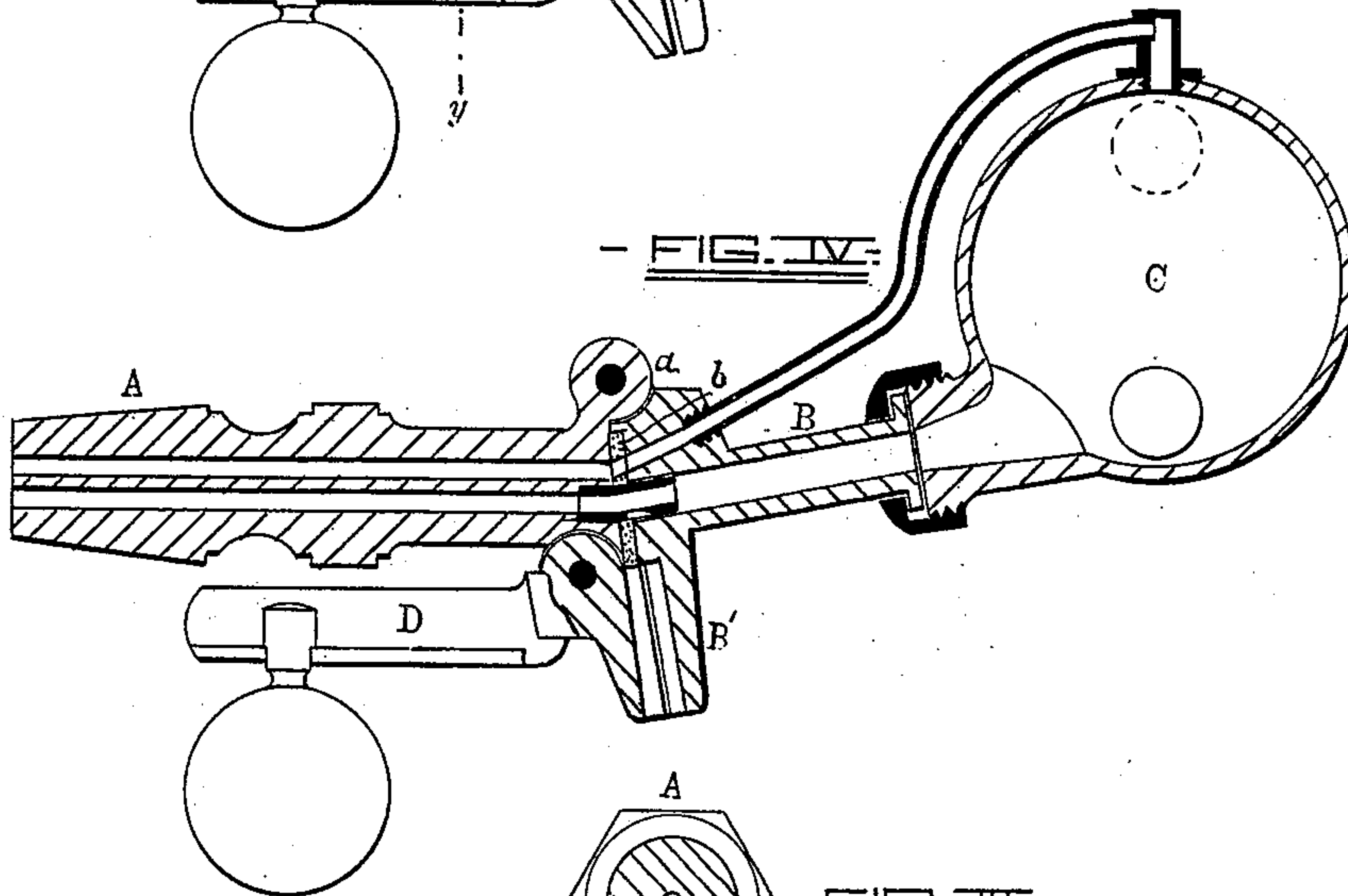
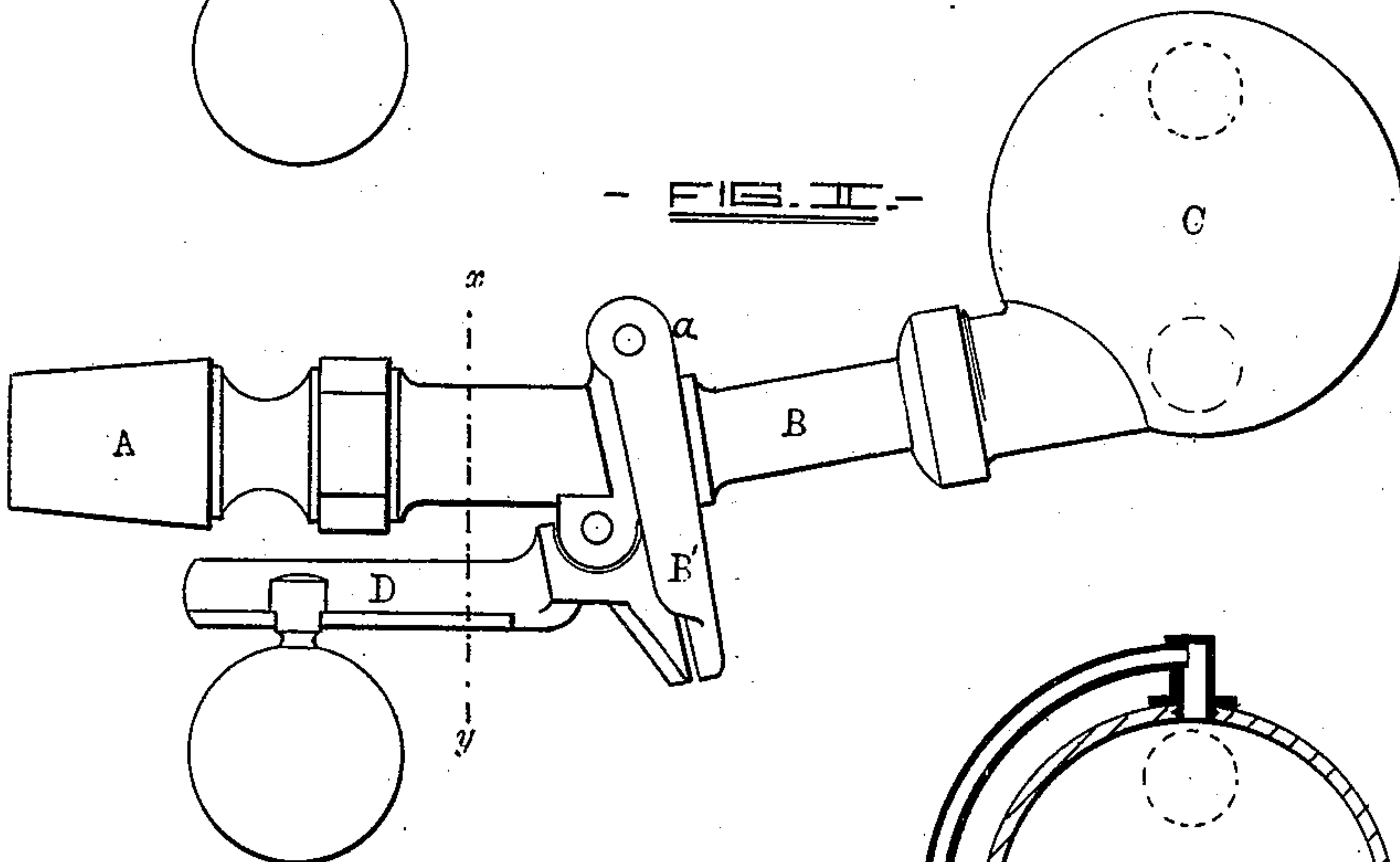
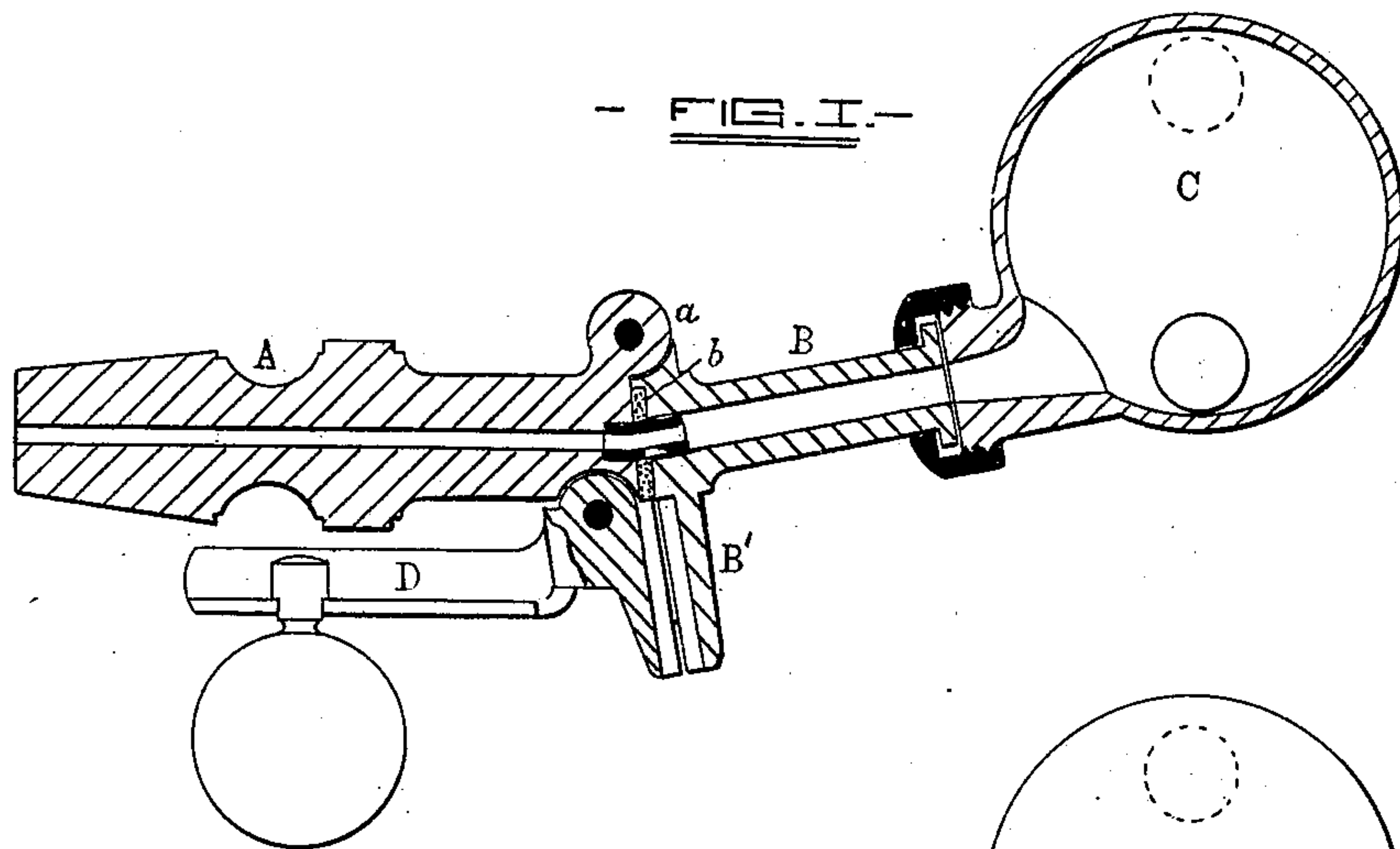


G. E. CHENOWETH.  
Gage Cock for Steam Boilers.

No. 231,008.

Patented Aug. 10, 1880.



— WITNESSES —

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# UNITED STATES PATENT OFFICE.

GEORGE E. CHENOWETH, OF BALTIMORE, MARYLAND.

## GAGE-COCK FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 231,008, dated August 10, 1880.

Application filed January 23, 1880.

*To all whom it may concern:*

Be it known that I, GEORGE E. CHENOWETH, of the city of Baltimore and State of Maryland, have invented an Improved High-  
5 Steam and Low-Water Indicating Gage-Cock for Steam-Boilers, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference  
10 being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates to an improved device to be applied to a steam-boiler to automatically give alarm when the water contained  
15 therein shall have fallen to a point representing the limit of safety, or the steam attained a pressure which it is desirable not to exceed, and which device may be used in place of an ordinary gage-cock to demonstrate by actual  
20 test the presence of water or steam in the boiler at the height at which the device is located.

The said invention, briefly stated, consists in combining with a gage-cock of the weighted  
25 type a counterbalanced or partially-counterbalanced closed vessel, preferably of glass, which is constantly filled with either water or steam, which, owing to their difference in weight, will effect the closing or opening of  
30 the cock and the retention or escape of the contents of the boiler in communication at that time with the discharge-orifice of the device, and thereby give an alarm.

In the further description of my said invention which follows reference is made to the  
35 accompanying drawings, forming a part hereof, and in which—

Figure I is a longitudinal section of the invention. Fig. II is an exterior view of the  
40 same. Fig. III is a cross-section of the device on dotted line *xy*. Fig. IV is a longitudinal section of the invention, illustrating a modified construction of the same.

Similar letters of reference indicate similar  
45 parts in all the views.

Referring to Figs. I, II, and III, A is a hollow stem constituting the fixed member of the device, which is screwed into the boiler or otherwise connected therewith.

50 B is the movable member of the device, hinged to the stem A at *a*, and secured to the

vessel C. The hinged end of the member B forms a cap, B', which fits over the outer end of the stem A, and a portion of the said stem, which is reduced in size, enters the channel in  
55 the part B, which channel is in communication with the interior of the vessel C. A piece of rubber or other packing material, *b*, is interposed between the two members of the device to render the joint steam and water  
60 tight.

D is a weighted lever pivoted to the under side of the stem A, the short arm of which bears against the lower end of the cap B', and tends to open the cock and counterbalance to a cer-  
65 tain extent the vessel C, which operates to close it.

The device as illustrated in Fig. IV of the drawings differs from that before described only in that two channels to conduct the water  
70 and steam from the boiler to the vessel C are used instead of one.

The operation of the device is as follows: Supposing the water-line in the boiler to be above the orifice in the stem A, and the steam-  
75 pressure to be less than the maximum tension, the vessel C is filled with water, which increases its weight sufficiently to retain the cap B' in close contact with the outer end of the stem A and prevent any escape of water  
80 from the boiler. In case, however, the water-line falls below the orifice in the said stem, the water in the vessel A is displaced by steam, and the said vessel, being thus relieved of a portion of its weight, is elevated by the action  
85 of the weighted lever D upon the cap B', and the escape of steam thereby permitted. To increase the sound of the escaping steam I construct the end of the stem, which is reduced in size, in the form of a whistle, or insert in  
90 the opening of the said stem a vibrating strip, which practically has an analogous result. Supposing, again, that instead of the water falling in the boiler below the orifice in the stem, as described, the steam-pressure shall  
95 increase to the maximum point, or to the tension indicative of danger, the vessel C is elevated and water discharged by the cock.

It will be understood that by means of this invention a too-high pressure of steam or a  
100 too-low condition of water in the boiler is automatically indicated, while the device may



be opened by hand after the manner of a gage-cock, and thus be used in connection with a series of gage-cocks of the ordinary description.

- 5 While it is preferred to counterbalance the vessel C with a weighted lever, a spring, either connected directly to the hinged section or member of the device or to the same through the medium of the lever shown, may be employed with substantially the same result.

10 I claim as my invention—

1. In combination with a gage-cock of the type herein shown, a vessel adapted to be at all times filled with either steam or water from the boiler, and which vessel, in view of its differing in weight as so filled, admits of the automatic opening and closing of the said cock, substantially as herein specified.

2. In combination with a gage-cock of the weighted type, a vessel in communication, by means of the said cock, with the interior of

the boiler, and adapted to be filled with either steam or water, according to the height of the water in the boiler, and adapted when filled with water to enforce the closing of the cock, and when filled with steam to admit of the automatic opening of the same, substantially as and for the purpose herein specified. 25

3. The hollow stem A and hinged member B, combined with the vessel C, the said vessel being in uninterrupted communication with the said hollow stem, substantially as and for the purpose herein specified. 30

4. The stem A, hinged member B, and vessel C, in combination with the weighted lever D, substantially as and for the purpose herein specified. 35

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Witnesses:

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