

No. 748,515.

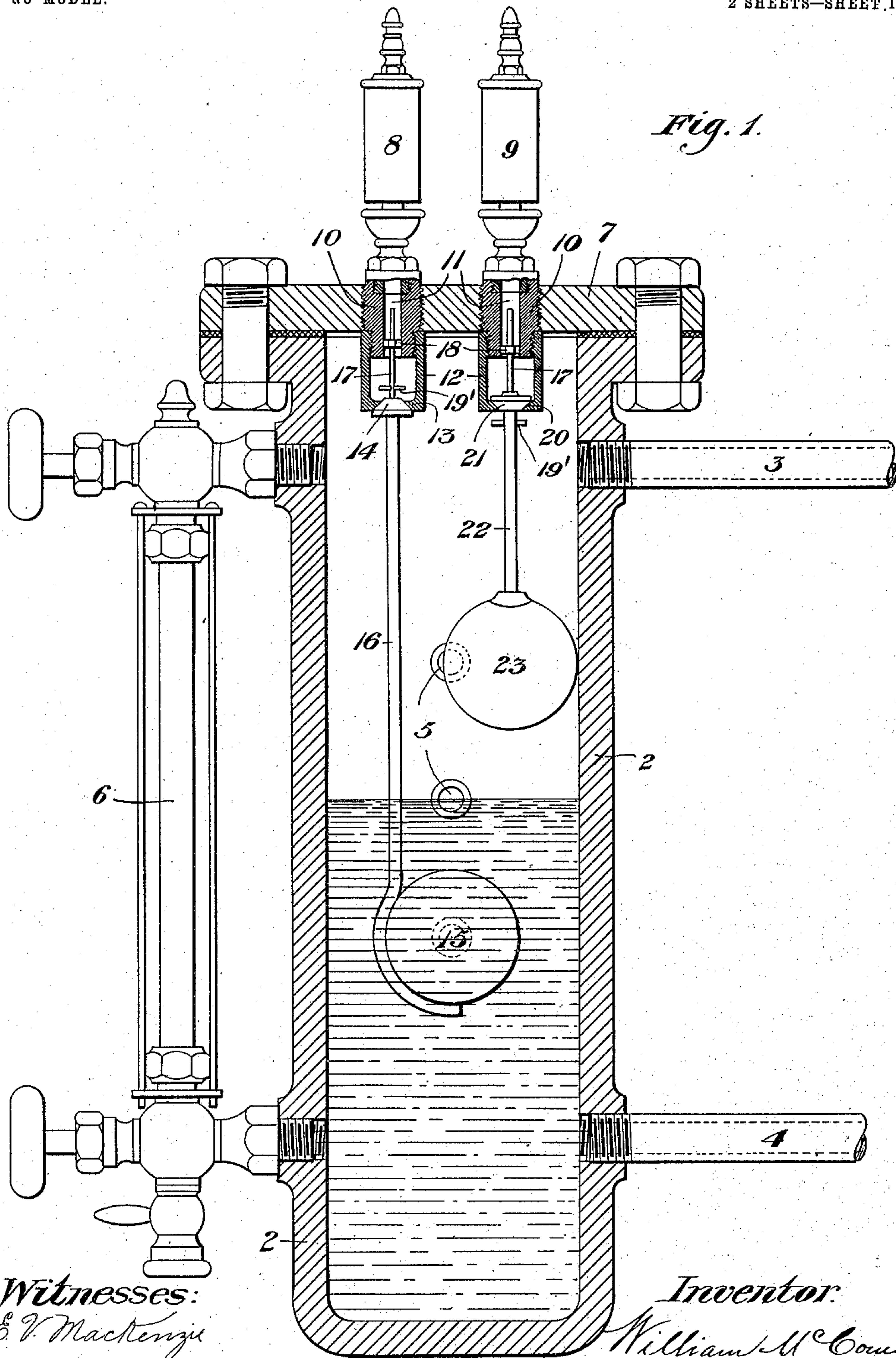
PATENTED DEC. 29, 1903.

W. McCOMB.
WATER COLUMN.

APPLICATION FILED JUNE 9, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
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Inventor:
William M. Comb
by O. M. Clarke
his attorney

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2 SHEETS—SHEET 2.

Fig. 2.

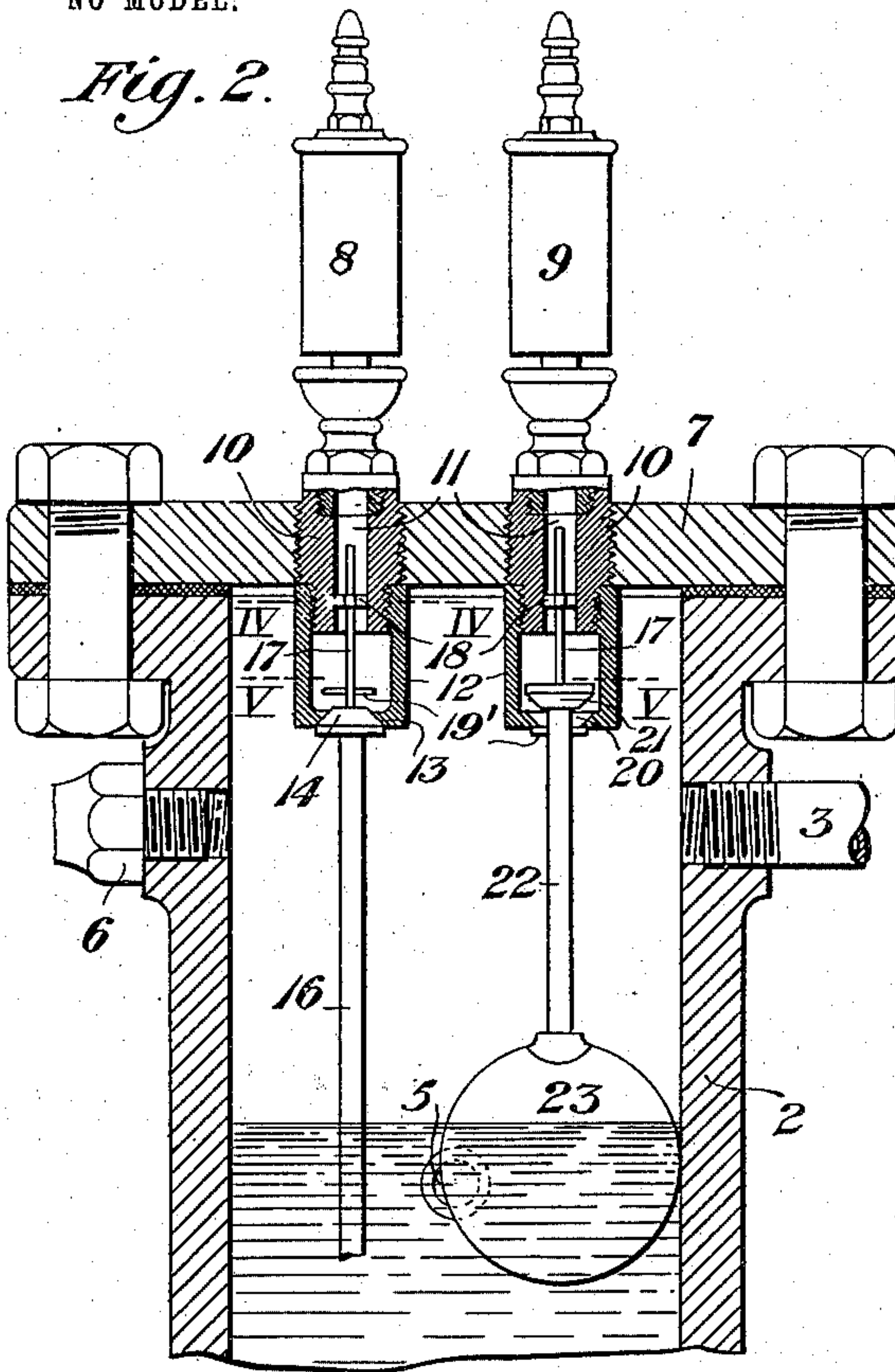


Fig. 3.

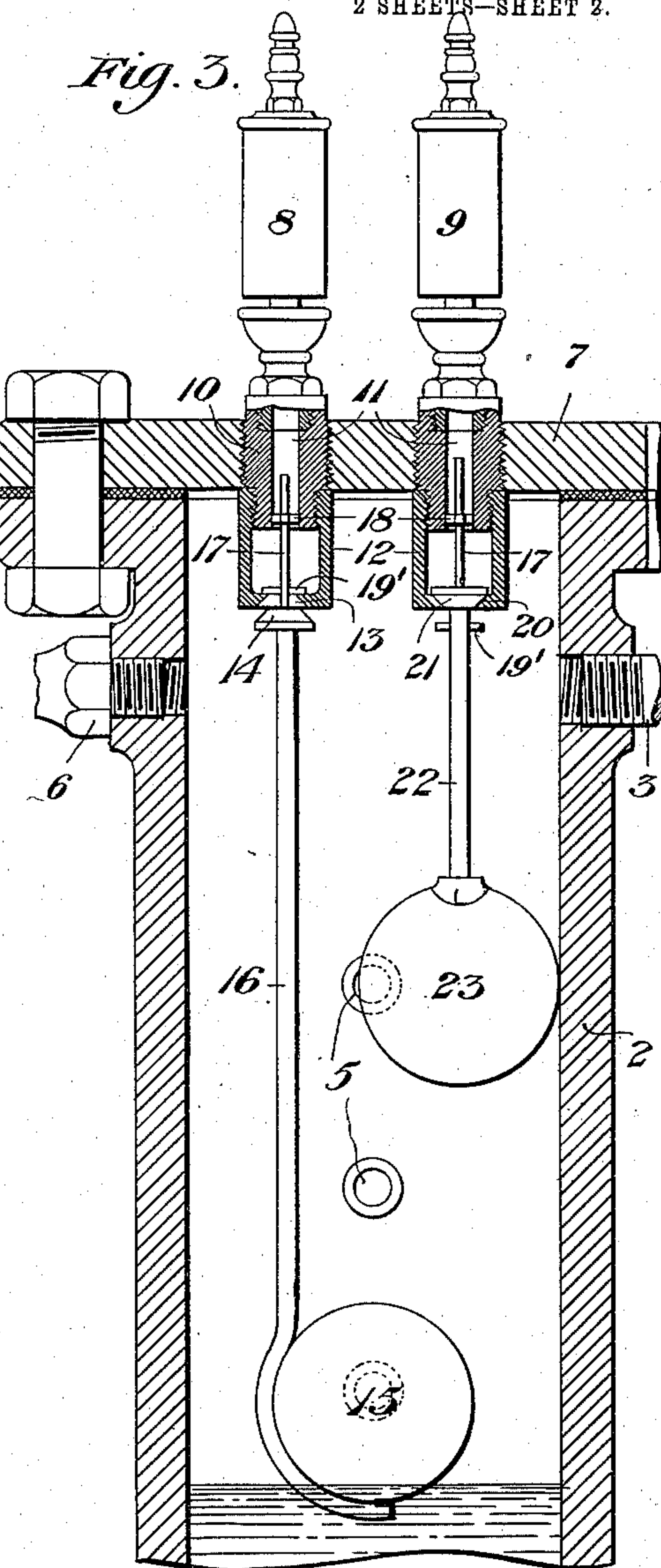


Fig. 4.

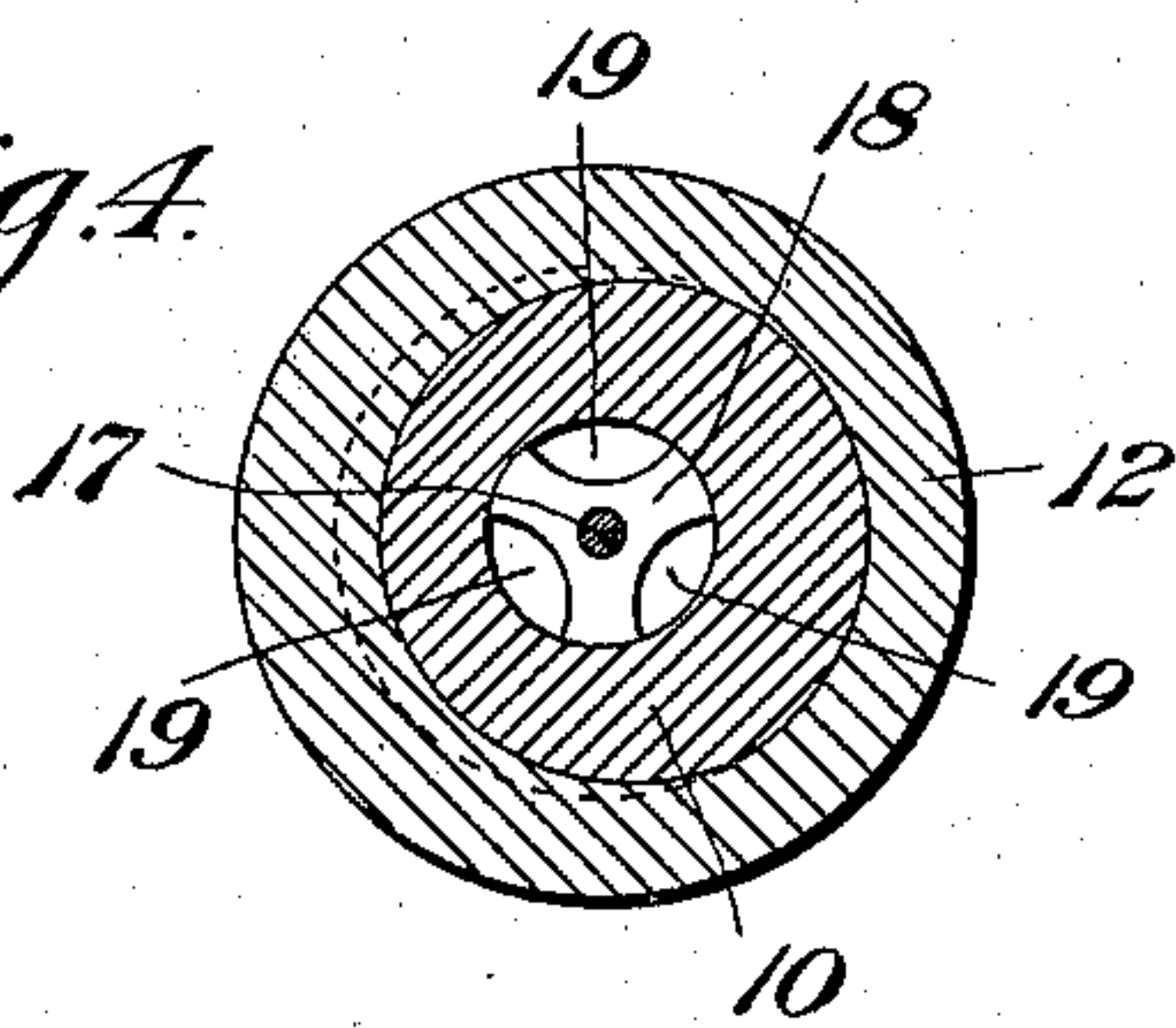
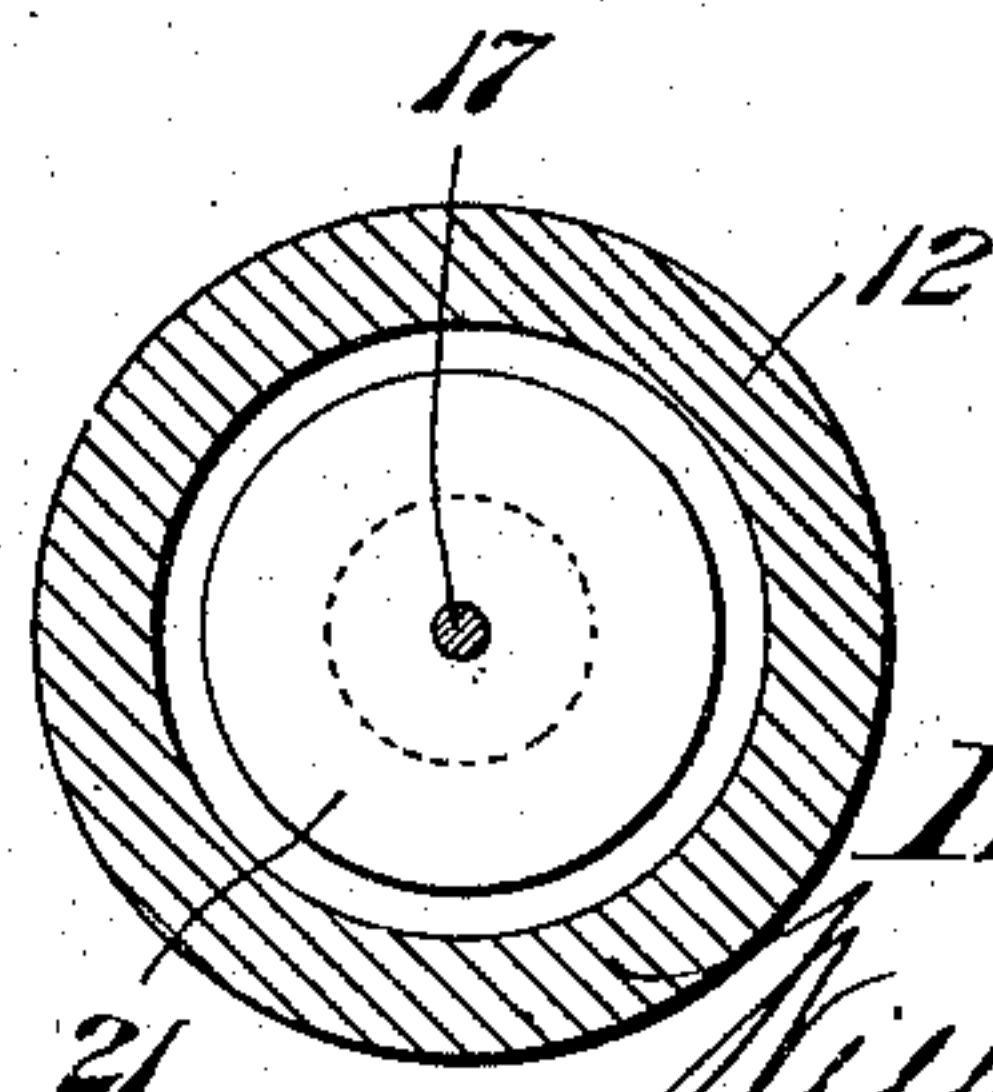


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM McCOMB, OF LARCHMONT MANOR, NEW YORK, ASSIGNOR TO
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WATER-COLUMN.

SPECIFICATION forming part of Letters Patent No. 748,515, dated December 29, 1903.

Application filed June 9, 1902. Serial No. 110,819. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM McCOMB, a citizen of the United States, residing at Larchmont Manor, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Water-Columns, of which the following is a specification, reference being had therein to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central vertical section of my improved high and low water alarm column in its normal position. Fig. 2 is a partial sectional view showing the high-water alarm in operation. Fig. 3 is a partial similar view showing the low-water alarm in operation. Fig. 4 is a cross-sectional view on the line IV IV of Fig. 2. Fig. 5 is a similar view on the line V V of Fig. 2.

My invention relates to an improvement in high and low water alarm columns, provided with a separate alarm for the high and low water levels, respectively; and the invention consists in providing an alarm adapted to indicate each of said levels by a characteristic signal, and this result is secured by providing two separate floats and signals, respectively constructed in the manner and adapted to operate as will be more fully hereinafter set forth.

Ordinarily whistle-alarms are provided with float mechanism adapted to operate a single alarm device, as a whistle, at either the high or low position of the float, and it is therefore frequently difficult or impossible to discover from the sound of the alarm whether there is too much or too little water in the boiler. My invention provides against this difficulty by the use of a high-water alarm having a significant note or tone and a low-water alarm having a different significant note or tone, whereby upon sounding of either alarm an unmistakable indication will be given as to the condition of the water-level.

Referring now to the drawings, 2 is the chamber of the water-column, to which are connected a steam-pipe 3 and a water-pipe 4, leading to the boiler, the column being provided with the usual gage-cocks 5 and indicating gage-glass 6. The column is preferably provided with a removable top 7, in

which are mounted the low-water-alarm whistle 8 and the high-water-alarm whistle 9. The bases of the whistles are inserted in or provided with a bushing 10, tapped into the upper end of the column, provided with an interior central bore 11, through which steam may freely pass to operate the whistle when the valve of either one is open. On the lower side of each bushing 11 is a shell 12, screwed upon the lower extremity or secured thereto in any other suitable manner, and the bushing for the low-water-alarm whistle 8 is provided with an outwardly-opening valve-seat 13, against which the valve 14 is constantly held upwardly by a float 15 at the lower end of a connecting-stem 16 as long as there is sufficient water in the column to sustain the float. A short supplemental stem 17 extends upwardly from the valve 14, being provided with a guiding-collar 18, having a sliding bearing in the bore 11 and cut out at 19, as shown in Fig. 4, to permit free passage of the steam to the whistle when the valve is lowered. The stem 17 is also provided with a stop or abutment 19', adapted to make contact with the inside of the lower end of the shell 12 to limit the downward travel of the main stem 16. As thus constructed when the water falls below the desired level, so as to unseat valve 14, the whistle 8 will be blown and its characteristic note or tone—as, for instance, the note C—will indicate low-water.

The construction of the high-water whistle 9 is in all respects the same as just described, except that the shell 12 is provided with a valve-seat 20 on the inside of its lower end, upon which rests and seats a valve 21 at the upper end of stem 22, from the lower end of which stem depends the high-water float 23. The valve 21 is maintained seated by its own weight and the weight of the float 23 during ordinary water-levels and until the water rises sufficiently high to raise float 23, when valve 21 will be raised, admitting steam-pressure to the high-water-alarm whistle 9 and causing it to blow, giving its characteristic tone or note, as G, which operation will be continuous until the water-level falls. The movement of the valve is likewise limited by a stop or abutment 19', and it is kept in alignment by the upper stem 17 and collar 18, as

described with reference to the low-water alarm. The lower stems 16 and 22 may, if desired, be maintained in alinement by any suitable guiding device embracing them.

5 It will be understood that other devices may be substituted for the whistle—as, for instance, bells of varying tone—in which case the connections thereto may be made in a suitable manner.

10 The operation of the invention will be readily understood from the foregoing description, and the advantages of the characteristic signals will be appreciated by all those accustomed to the use of this class of devices.

15 Changes and variations may be made in the details of construction of the alarm, their valves, or other parts by the skilled mechanic without departing from the invention, and all such changes and variations are contemplated
20 as within the scope of the following claims.

What I claim is—

1. In a high and low water alarm mechanism, a valve-chamber; an interiorly-seated valve therein having a downwardly-extending stem; a float mounted on said stem and
25 adapted to be raised by the water when the high-water level is exceeded so as to lift said valve to admit steam to actuate the high-water alarm; a second valve-chamber having an ex-

teriorly-seated valve; a float normally submerged mounted on the stem of the second valve and adapted to fall by gravity when the water-level falls below the low-water level so as to pull said second valve away from its seat to admit steam to actuate the low-water
35 alarm; and guide-stems extending from said valves and sliding in guideways on said valve-chambers; substantially as described.

2. In a high and low water alarm mechanism, a casing; bushings secured in the top of
40 said casing and having channels leading to the alarm-whistles; shells attached to the lower ends of said bushings to form valve-chambers; one of said valve-chambers having an exterior valve-seat and the other an
45 interior valve-seat; and valves adapted to seat against said valve-seats and having dependent stems upon which floats are mounted and upwardly-extending stems adapted to slide in said channels; substantially as de-
50 scribed.

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

WILLIAM McCOMB.

Witnesses:

JOHN D. SULLIVAN,
FRANK COCHRANE.