No. 723,691. PATENTED MAR. 24, 1903.

J. T. LINDSTROM.

STEAM TRAP.

APPLICATION FILED NOV. 21, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

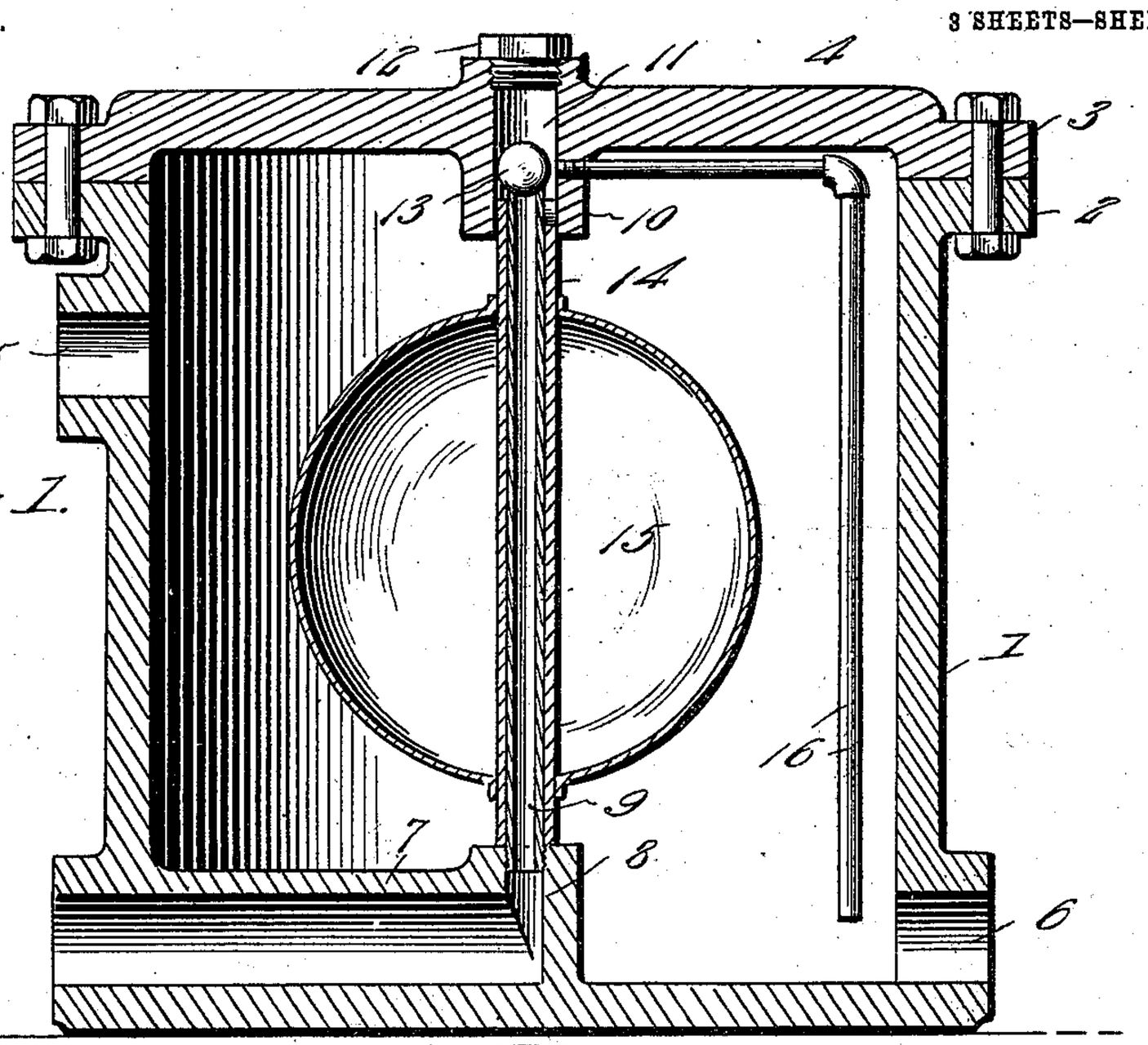

Fig. 1.

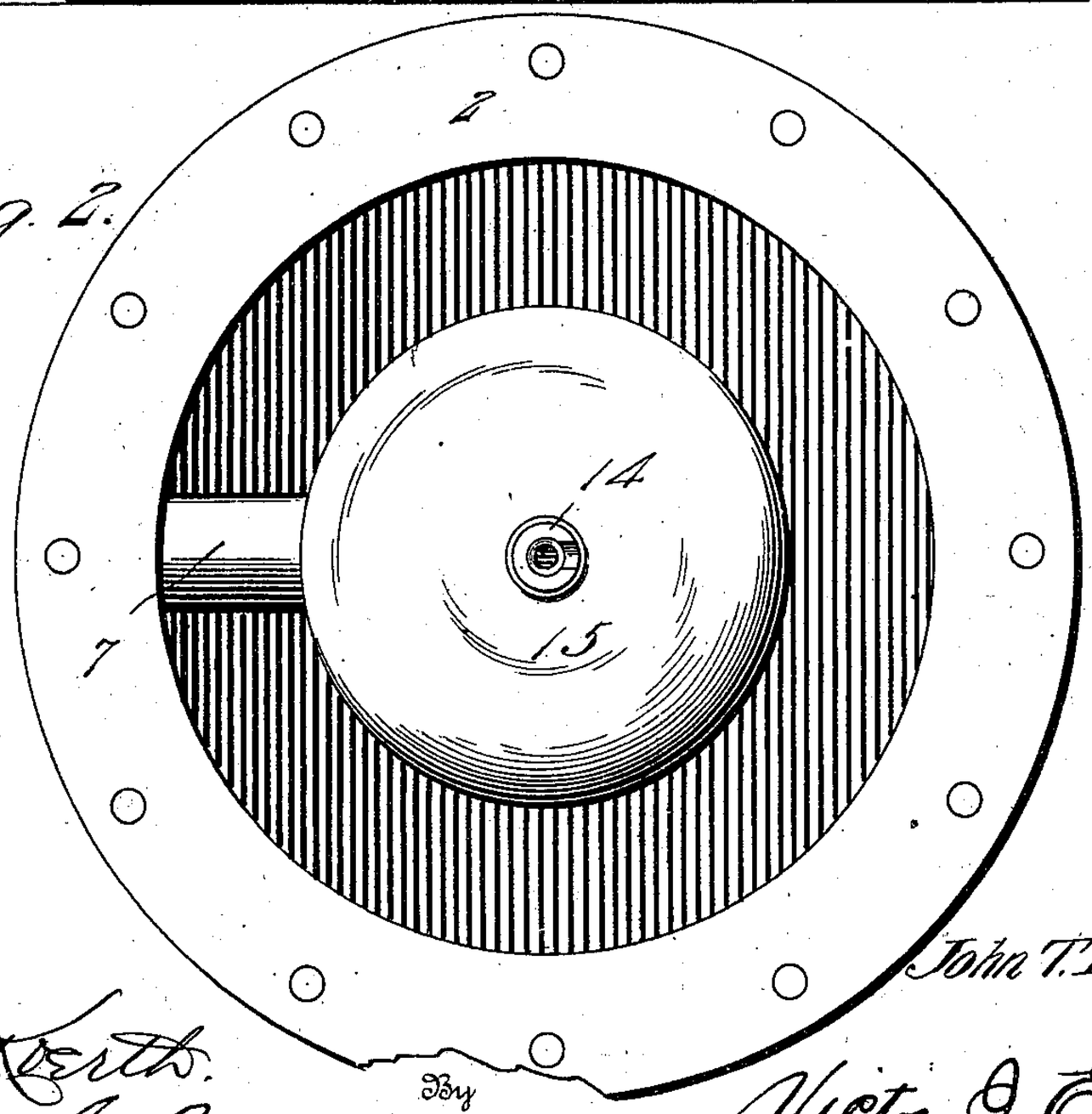

Fig. 2.

Witnesses
Wm. Keith.
Chas. S. Hoyer.

Inventor
John T. Lindstrom,
By
Victor J. Evans
Attorneys

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NO MODEL. 3 SHEETS—SHEET 2.

Fig. 3

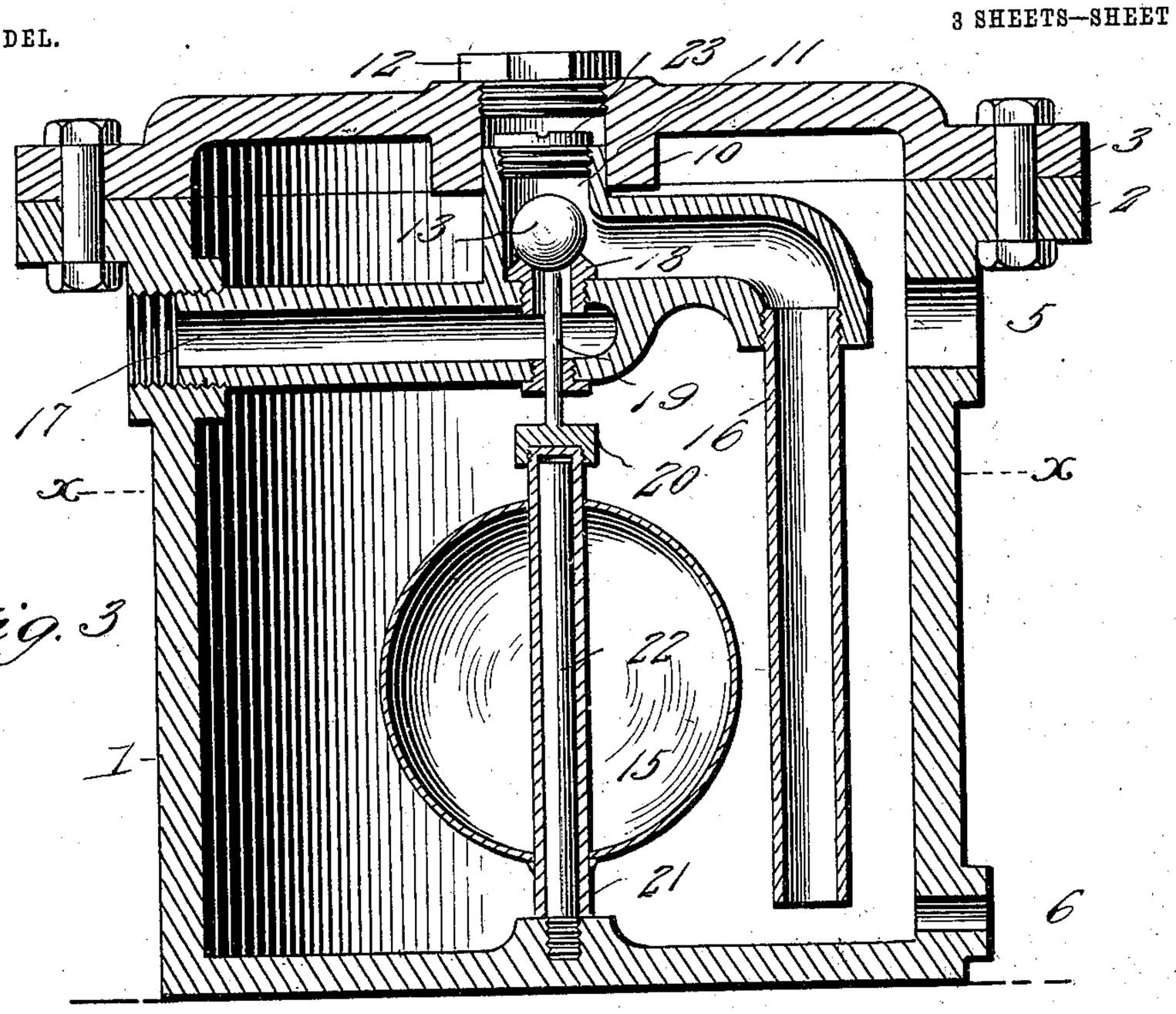
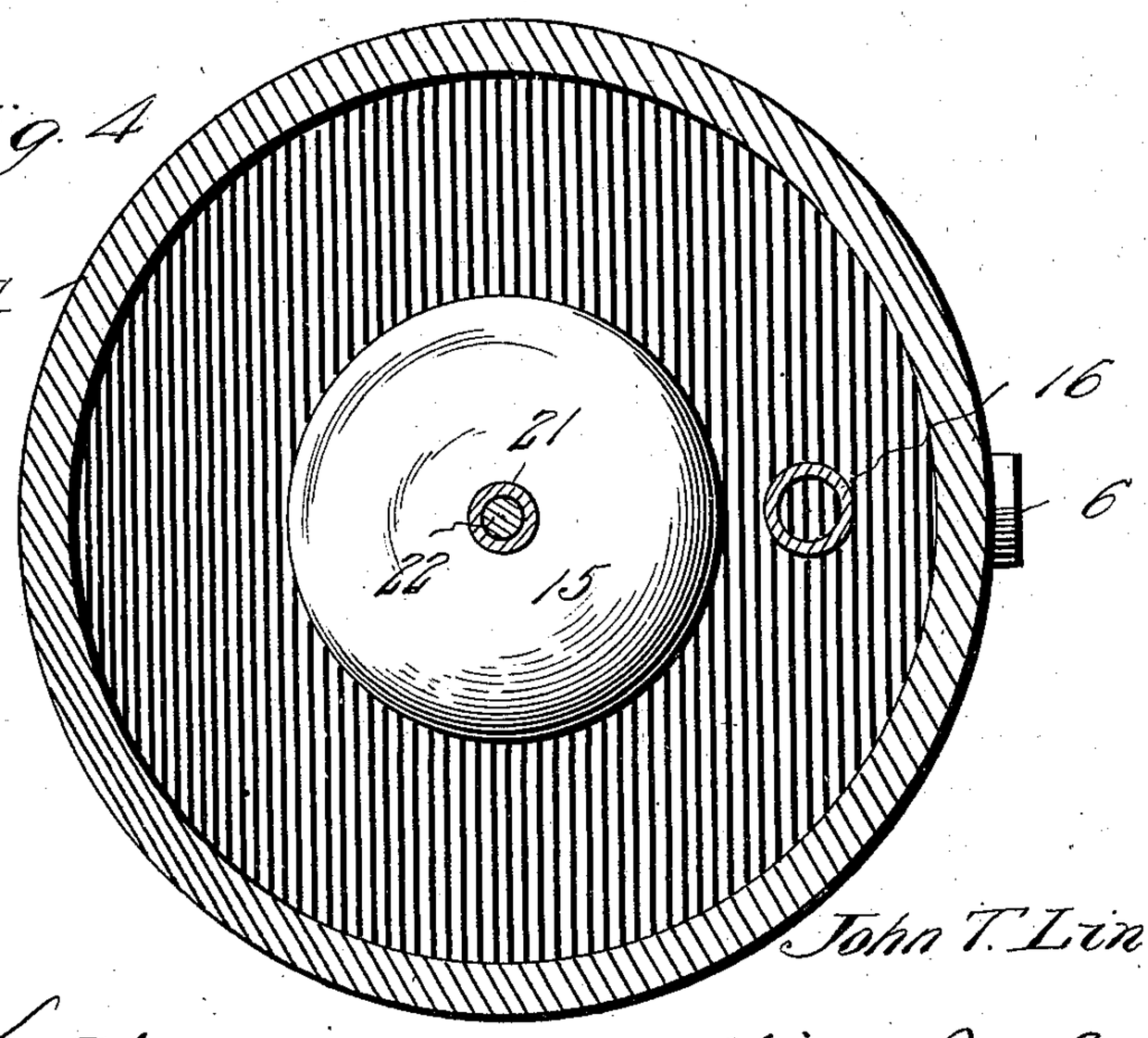


Fig. 4



Witnesses

Wm. J. Lerch.

Chas. S. Hoyer.

Inventor

John T. Lindstrom,

By Victor J. Evans

Attorneys

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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 5.

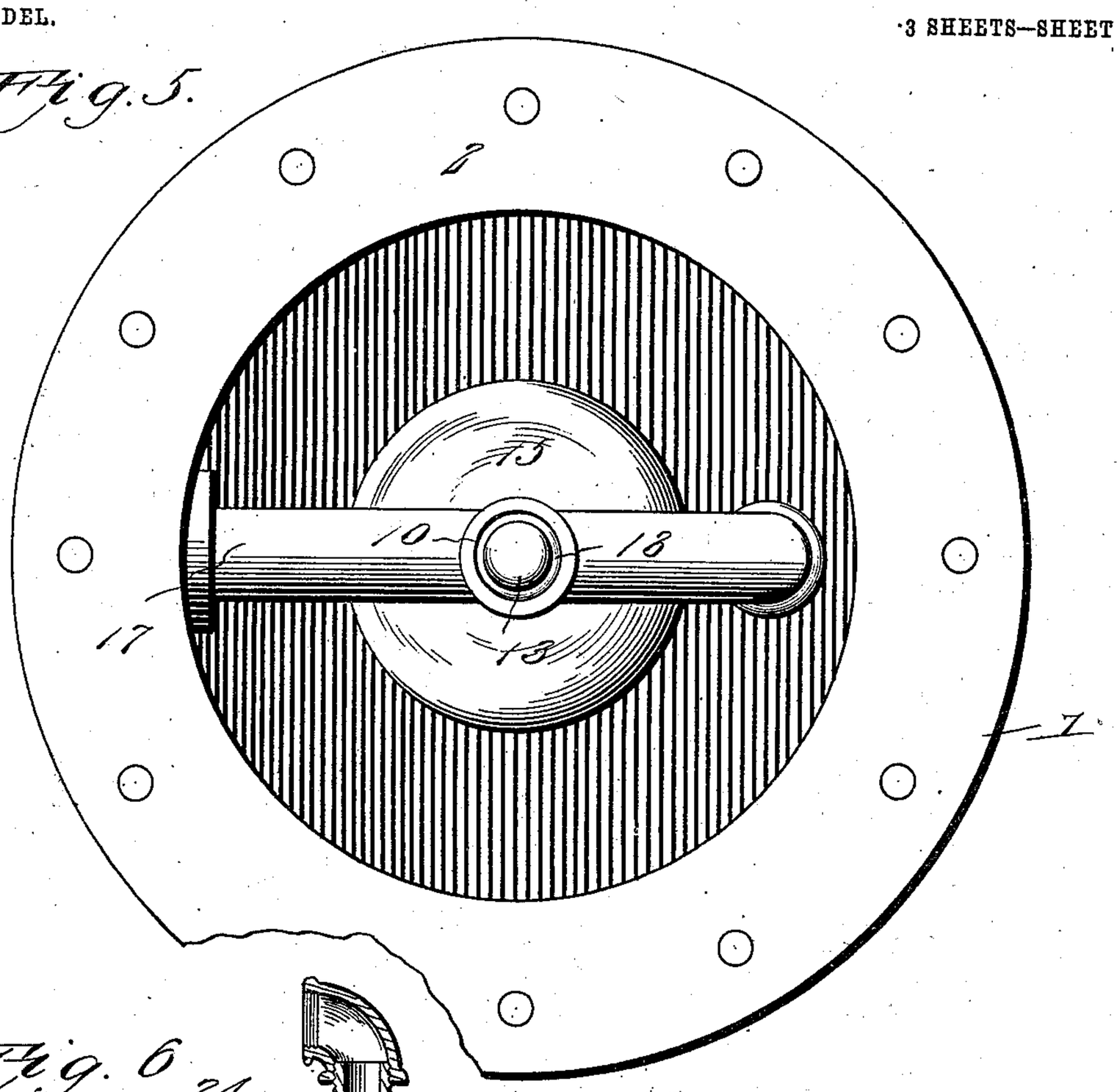
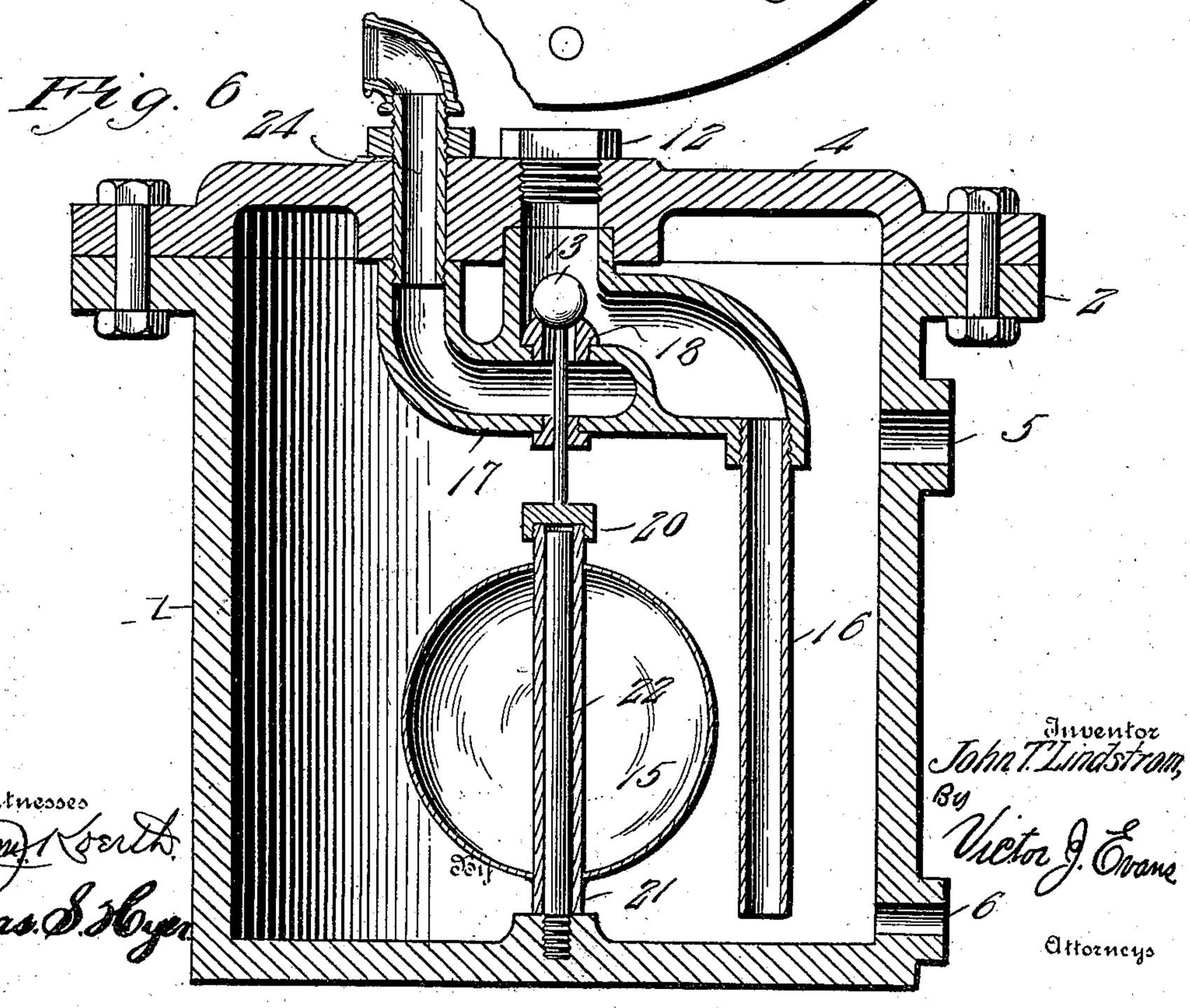


Fig. 6



Witnesses

Wm. Koerth.

Chas. S. Hoyer.

Inventor

John T. Lindstrom,

By Victor J. Evans

Attorneys

UNITED STATES PATENT OFFICE.

JOHN T. LINDSTROM, OF ALLENTOWN, PENNSYLVANIA.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 723,691, dated March 24, 1903

Application filed November 21, 1902. Serial No. 132,289. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. LINDSTROM, a citizen of the United States, residing at Allentown, in the county of Lehigh and State of Pennsylvania, have invented new and useful Improvements in Steam-Traps, of which the following is a specification.

My invention relates to new and useful improvements in traps for discharging condensed steam from engines or pipes; and its object is to provide an automatic device of this character which is simple in construction and positive in operation.

A further object is to employ a valve adapted to be operated by peculiar float-controlled mechanism.

With these and other objects in view the invention consists in the novel construction and combination of parts hereinafter more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a central vertical section through the preferred form of my improved steam-trap. Fig. 2 is a plan view thereof with the top and valve removed. Fig. 3 is a vertical section through a modified form. Fig. 4 is a section on line *x x*, Fig. 3. Fig. 5 is a plan view thereof with the top removed and showing the valve in position, and Fig. 6 is a vertical section through a second modified form of trap.

Referring to the figures by numerals of reference, 1 is a casting of suitable form having its upper open end inclosed by a flange 2, to which is adapted to be bolted a flange 3, encircling the cover 4 of the casting. An inlet 5 is arranged in one side of the casting, preferably near the top thereof, and a blow-off 6 is arranged adjacent to the bottom of the device. An outlet-pipe 7, preferably formed integral with the bottom of the casting, is provided with a vertical inlet 8, arranged at the center of the casting, and a tube 9 is threaded or otherwise secured therein and extends upward vertically into a boss 10, formed upon the lower surface of the cover 4 about a passage 11, closed at the top by a removable screw-plug 12. A ball-valve 13 normally rests upon and closes the end of tube 9, but is adapted to be unseated therefrom by a slidable sleeve 14, inclosing tube 9 and normally resting upon the outlet-pipe 7. A float 15 of suitable form is attached to this sleeve. A pipe 16 extends from a point adjacent to the bottom of the trap up to the passage 11.

Condensed steam enters the port 5 under pressure and as the trap gradually fills the float 15 is raised. The sleeve 14 is carried therewith and finally raises valve 15 from its seat. The water is then promptly forced upward through pipe 16 into passage 11 and out through the tube 9 and pipe 7. As the liquid flows from the trap the float 15 settles until finally the valve 13 is reseated and the flow is stopped.

In Figs. 3 to 6 I have shown modified forms which operate upon practically the same principle as the device above described. In the device shown in Fig. 3 an inlet 5 and a blow-off 6 are employed. A pipe 16 also extends to a valve chamber or passage 11; but the outlet 17 extends horizontally from said passage and is normally closed by a ball-valve 13, resting upon a removable seat 18. A pin 19 is arranged vertically beneath the valve 13 and is slidably mounted in the outlet-pipe 17. The lower end 20 of this pin is enlarged to receive the upper threaded end of a slidable sleeve 21, mounted upon a vertical rod 22, detachably secured to the bottom of the trap. A float 15 is secured to the sleeve, and when it is raised by the accumulating water the sleeve is carried upward thereby and presses pin 19 against valve 13, thus unseating the latter and permitting the water to pass out through pipes 16 and 17.

The valve chamber or passage 11 extends into the boss 10 of the cover and is provided with a removable plug 23, accessible by unscrewing plug 12. As shown in Fig. 6, however, this second plug 23 can be omitted, and, moreover, the outlet-pipe 17 can be arranged vertically instead of horizontally, passing upward to the cover 4, where it is engaged by a tube 24, extending through said cover.

In the foregoing description I have shown the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing any

of the advantages thereof, and I therefore reserve the right to make such changes as fairly fall within the scope of my invention.

Having thus described the invention, what is claimed as new is—

1. The combination with a trap having an inlet and an outlet, of a cover secured to the trap and having a valve chamber or passage formed therein, a pipe opening thereinto and adapted to conduct water under pressure from the bottom of the trap to said chamber, a valve in said chamber and normally closing the outlet, a sliding sleeve, a guide therefor, and a float secured to the sleeve and adapted to slide the same vertically and unseat the valve.

2. The combination with a trap having an inlet and an outlet, of a cover secured thereto and having a valve-chamber therein, a removable plug for closing said chamber, a valve seated in the chamber for normally closing the outlet, a pipe for conducting water, under pressure, from the bottom of the trap to the valve-chamber, a sliding sleeve, a guide therefor, and a float secured to the sleeve and adapted to raise the same and unseat the valve.

3. The combination with a trap having an inlet, an outlet, and a valve-chamber, of a tube extending inward from the outlet and into said chamber, a valve normally seated upon and closing the tube, a pipe for conducting water under pressure from the bottom of the trap to the chamber, a sleeve slidably mounted on the tube and extending into the chamber and under the valve, and a float connected to, and adapted to operate the sleeve.

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

JOHN T. LINDSTROM.

Witnesses:

C. W. MASTERS,

CHARLES A. JACOBY.