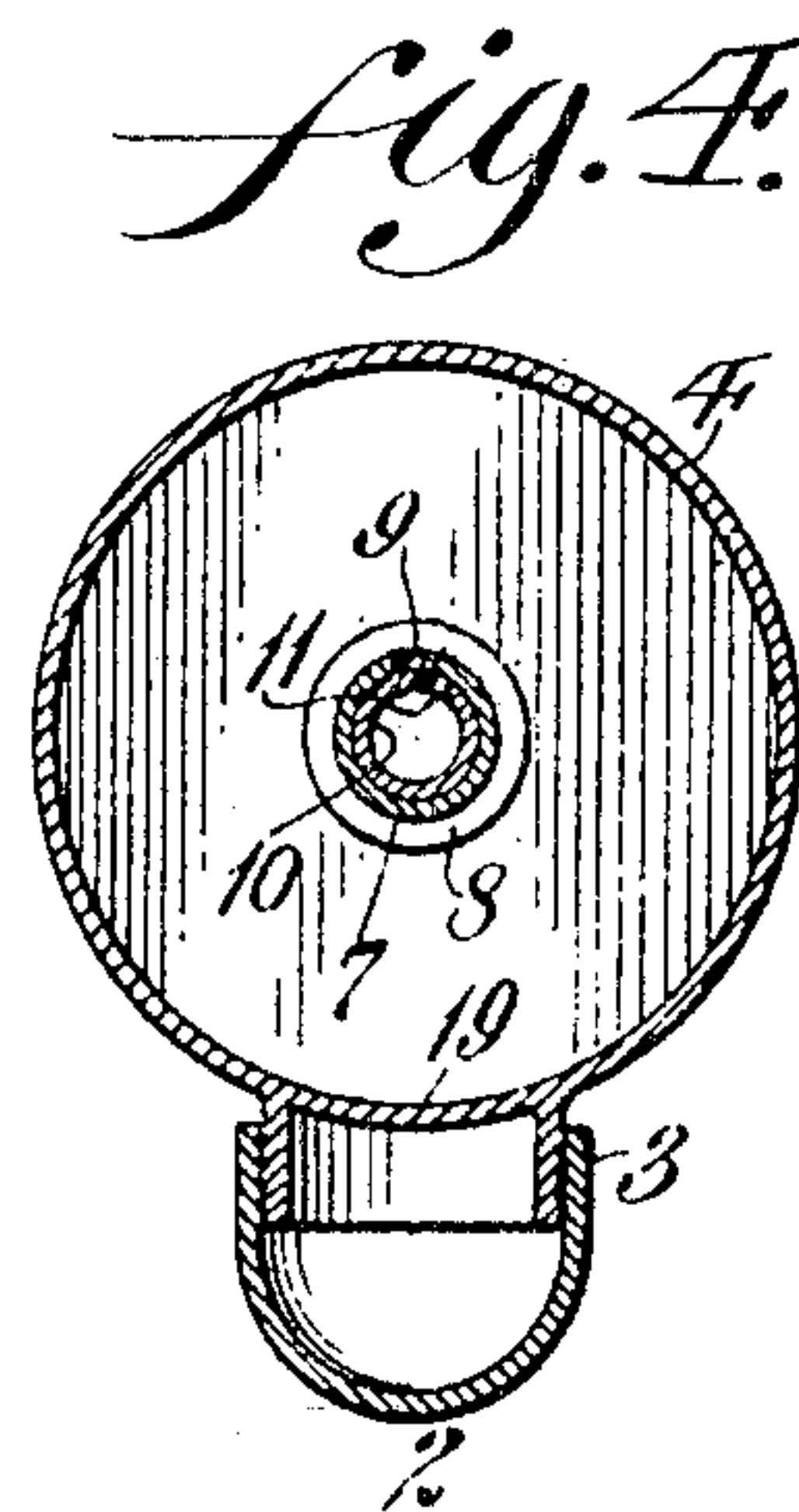
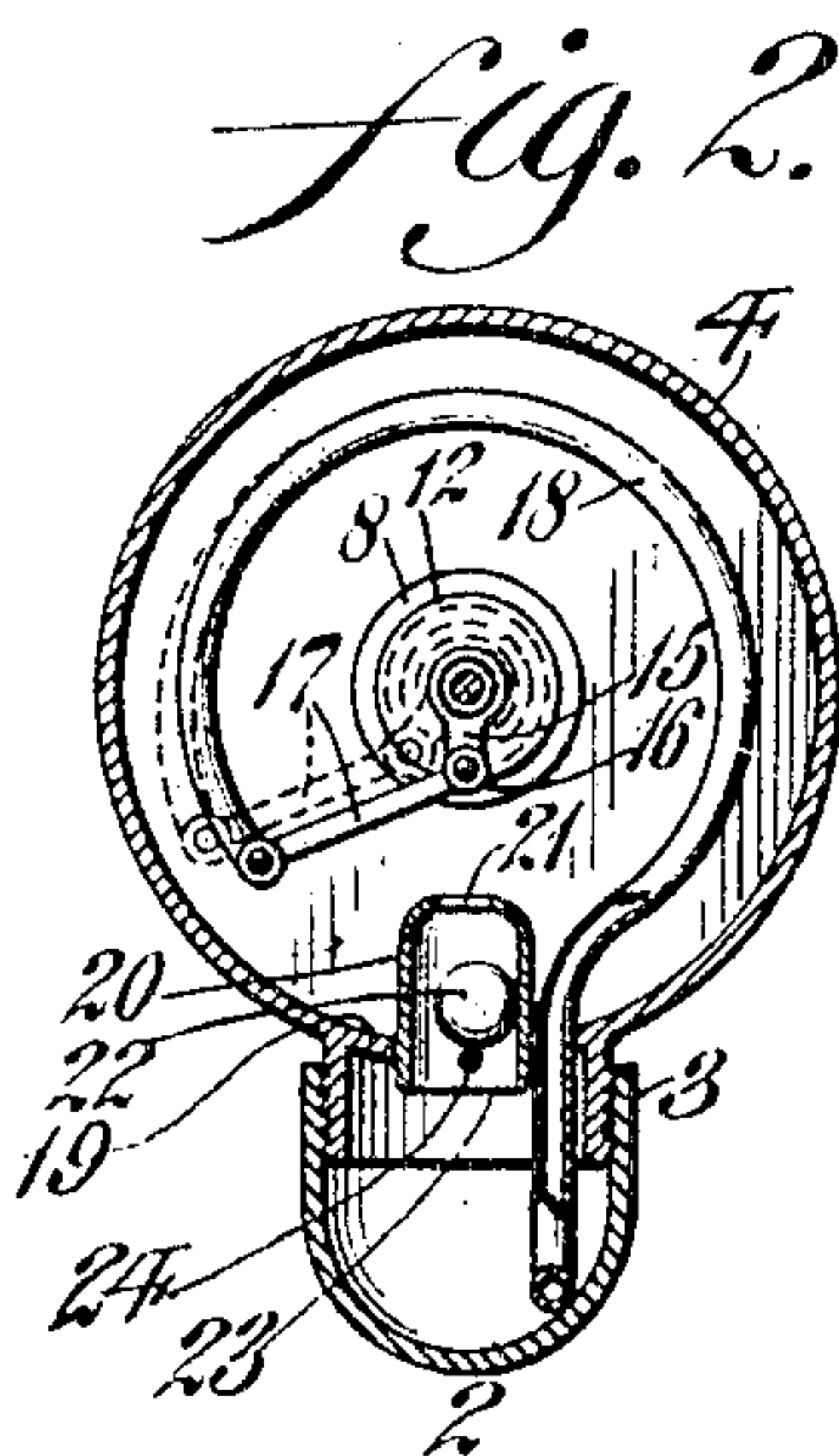
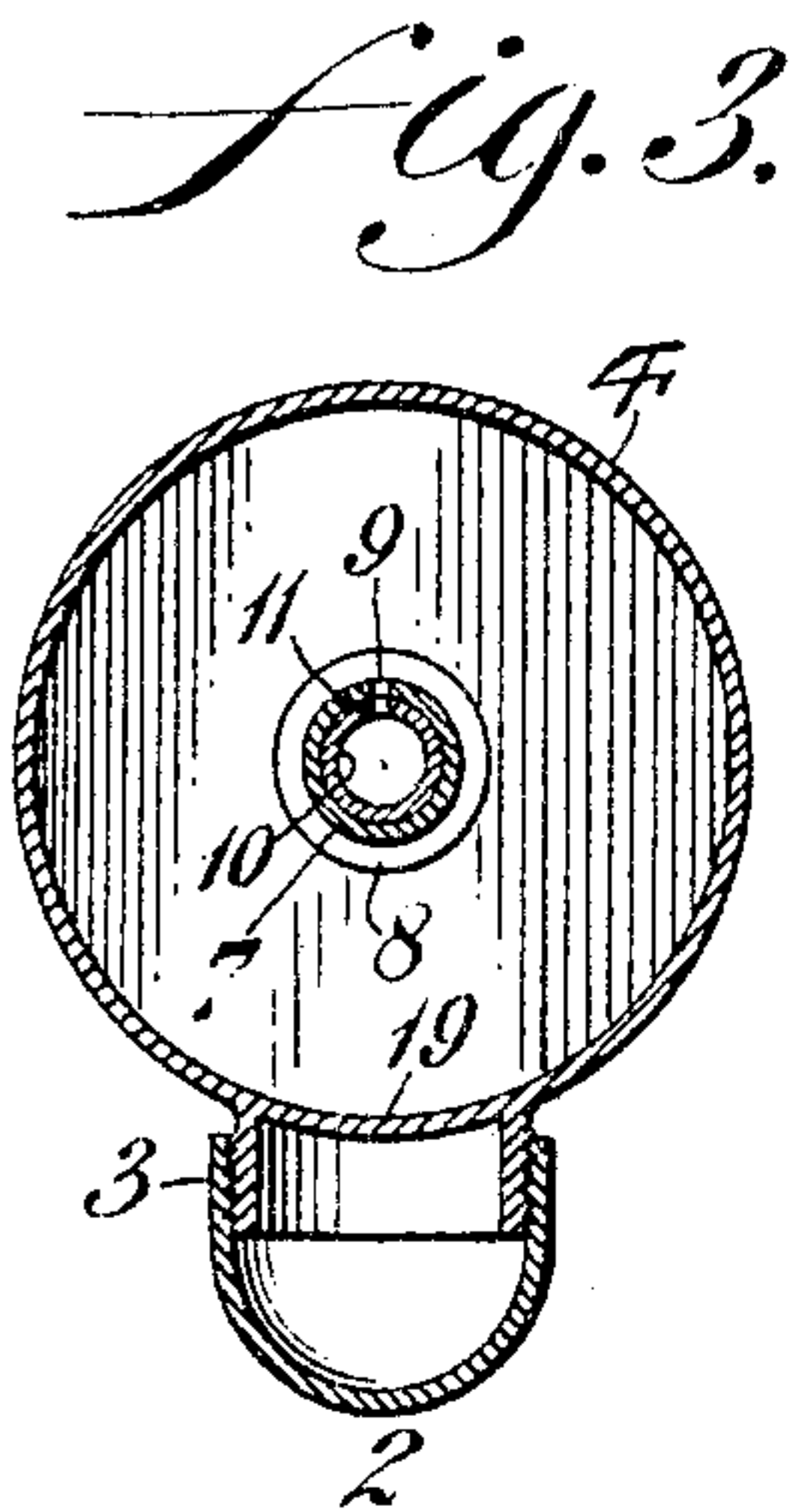
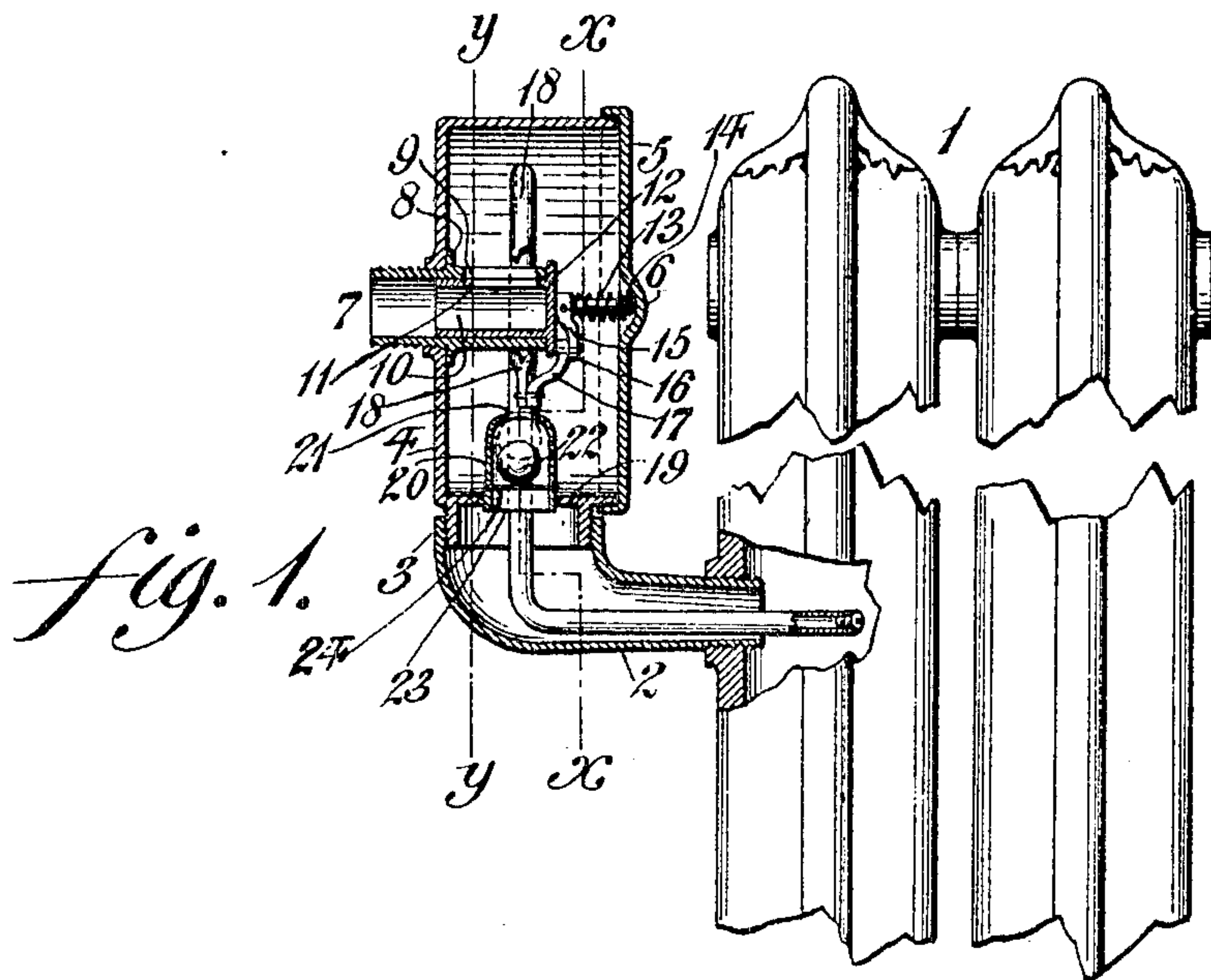


J. F. WINKLER.  
VALVE FOR RADIATORS.  
APPLICATION FILED DEC. 17, 1904.



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# UNITED STATES PATENT OFFICE.

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## VALVE FOR RADIATORS.

No. 799,129.

Specification of Letters Patent.

Patented Sept. 12, 1905.

Application filed December 17, 1904. Serial No. 237,191.

*To all whom it may concern:*

Be it known that I, JOSEPH F. WINKLER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Valve for Radiators, of which the following is a specification.

My invention consists of a novel construction of a radiator-valve which permits the air in the radiator to escape, but which automatically closes when steam from the radiator enters the valve.

It also consists of means for preventing water from escaping through the valve.

It further consists of novel features of construction, all as will be hereinafter set forth.

There has been up to the present time considerable trouble and annoyance in valves of this class on account of the water and steam which escape therethrough, the effect of which is evident.

Figure 1 represents a sectional view of an automatic valve embodying my invention properly secured to one of the sections of a radiator, a portion of two of which are shown. Fig. 2 represents a transverse sectional view on line *a a*, Fig. 1. Fig. 3 represents a transverse sectional view on line *y y*, Fig. 1, showing the valve open. Fig. 4 represents a similar view to Fig. 3, but the parts in different position.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates the top portion of two of the columns of a radiator, to the outer one of which is secured at a proper point a duct 2, extending in the present instance outwardly and upwardly and having its end 3 adapted to receive a cylindrical casing 4, one end of which is closed by a nut or cap 5, having threaded engagement with the same and which may be bent outwardly to form at a point 6 a hollow or cup, the use of which will be hereinafter explained. The other end of the casing 4 is closed, but has a tube 7 extending therethrough and having threaded engagement therewith, a shoulder 8 on the tube forming an air-tight joint with the inner walls of the casing 4. The tube 7 has a port 9 opening into the interior of the casing 4, said port being controlled by a cylindrical valve 10, closely fitted within the tube 7 and provided with a port 11, arranged to normally register with the port 9.

12 designates the head or cover of the valve 10, which is held in air-tight engagement

with the end of the tube 7 by means of a spring 13, sliding on a pin 14, which is secured to a lever-arm 15, the latter being attached to the head 12. The cup 6 in the cap 5 receives the pin 14 and prevents the spring 13 from leaving the said pin 14. The lever 15 has pivoted at its end 16 a lever-arm 17, which latter is secured to a coiled tube 18, which extends through the closed wall 19 of the casing 4 and through the duct 2 and may extend into the column 1, to which the duct 2 is attached. The ends of the tube 18 are closed in any suitable manner—for example, by a screw-plug or equivalent device—and the tube is filled with a liquid or substance which quickly expands on being heated. Inserted in the closed wall 19 and having threaded engagement therewith is a valve-casing 20, having a port 21, which is adapted to be closed by a ball-valve 22, the end of the chamber 20 near the port 21 being rounded, so as to form a seat for the said valve 22, which is prevented from falling through the open end 23 of the valve-casing 20 by a pin 24, extending through the walls thereof.

The operation is as follows: When it is desired to admit steam to the radiator and the suitable valve therefor is opened, the steam entering the radiator will force the air contained in the radiator before it, which will escape through the duct 2, port 21, port 9, port 11, and tube 7. When a certain predetermined amount of heat comes in contact with the coil 18, the said heat will cause the highly sensitive material within the tube to expand, which will cause the coiled tube 18 to bend outwardly and operate the levers 17 and 15 to the position as shown in dotted lines in Fig. 2. This will cause the head 12 and the cylindrical valve 10 integral therewith to turn, and thus bring the port 11 out of register with the port 9 and prevent the escape of steam therethrough. If the water should at any time rise in the columns 1 above the level of the normal position of the valve, the latter will be carried upward by the water, closing the port 21 and preventing any escaping through the valve. It will be evident that when the steam is shut off the substance in the tube 18 will cool off and cause the coil 18 to contract, drawing with it the levers 17 and 15, and thus causing the valve 10, to the head 12 of which the lever 15 is secured, to turn and bring the port 11 in normal register with the port 9, which will allow the air to escape through the tube 7. The latter is shown thread-



ed at its end in order that the same may be connected with a suction-pump when it is desired to draw from the radiator the foul air therein. By reason of the heat in the radiator 5 when the supply is shut off the valve 10 will remain closed for some time, thus preventing the cool atmospheric air from entering the radiator, which will cause the latter to retain its heat a much longer time. In all the forms 10 of radiator-valves now on the market when the steam-supply is shut off the cool air at once enters the radiator, and the same will be quickly cooled.

It is obvious that by the employment of my 15 device a great economy in the use of the steam is brought about.

It will be evident that various changes may be made by those skilled in the art which may come within the scope of my invention, and 20 I do not, therefore, desire to be limited in every instance to the exact construction herein shown and described.

Having thus described my invention, what I claim as new, and desire to secure by Letters 25 Patent, is—

1. In a device of the character described, a casing, a tube extending therein and having engagement therewith, a shoulder on said tube

forming an air-tight joint with the inner walls of said casing, a port through said tube, a 30 valve adapted to fit within said tube and to control said port, a head for said valve, a spring interposed between said casing and said head and adapted to retain the latter in air-tight engagement with the end of said tube, said 35 valve being actuated by heat, an inner valve-casing and a ball-valve therein actuated by water.

2. In a device of the character described, a casing, a tube extending therein and having 40 threaded engagement therewith, a shoulder on said tube forming an air-tight joint with the inner walls of said casing, a port through said tube, a valve adapted to fit within said tube and to control said port, a head for said 45 valve, a recess at the rear of said casing, a pin located in said recess, a spring mounted on said pin engaging said head and adapted to retain the latter in air-tight engagement with the end of said tube, said valve being actuated 50 by heat, an inner valve-casing, and a ball-valve therein adapted to be actuated by water.

JOSEPH F. WINKLER.

Witnesses:

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