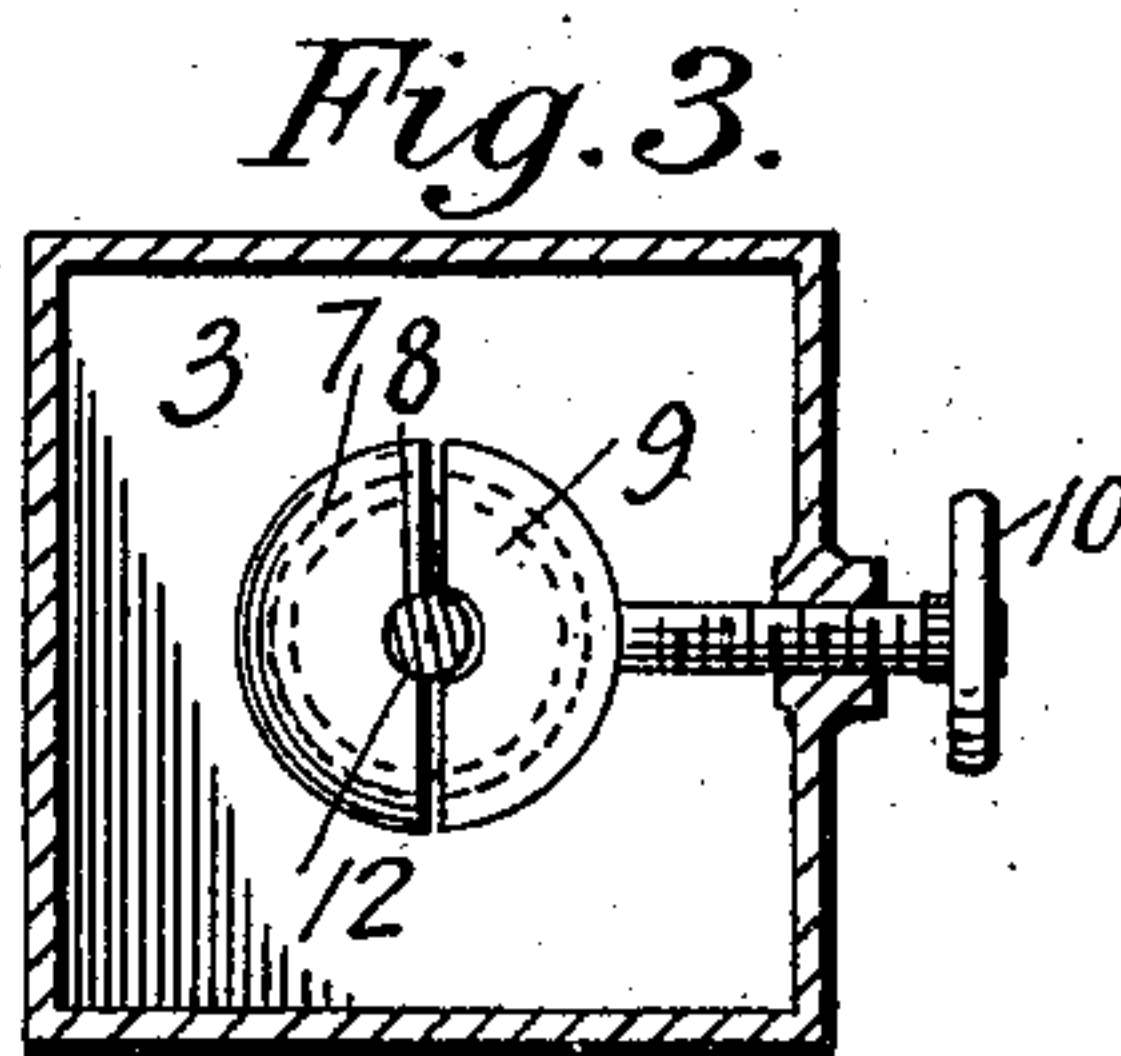
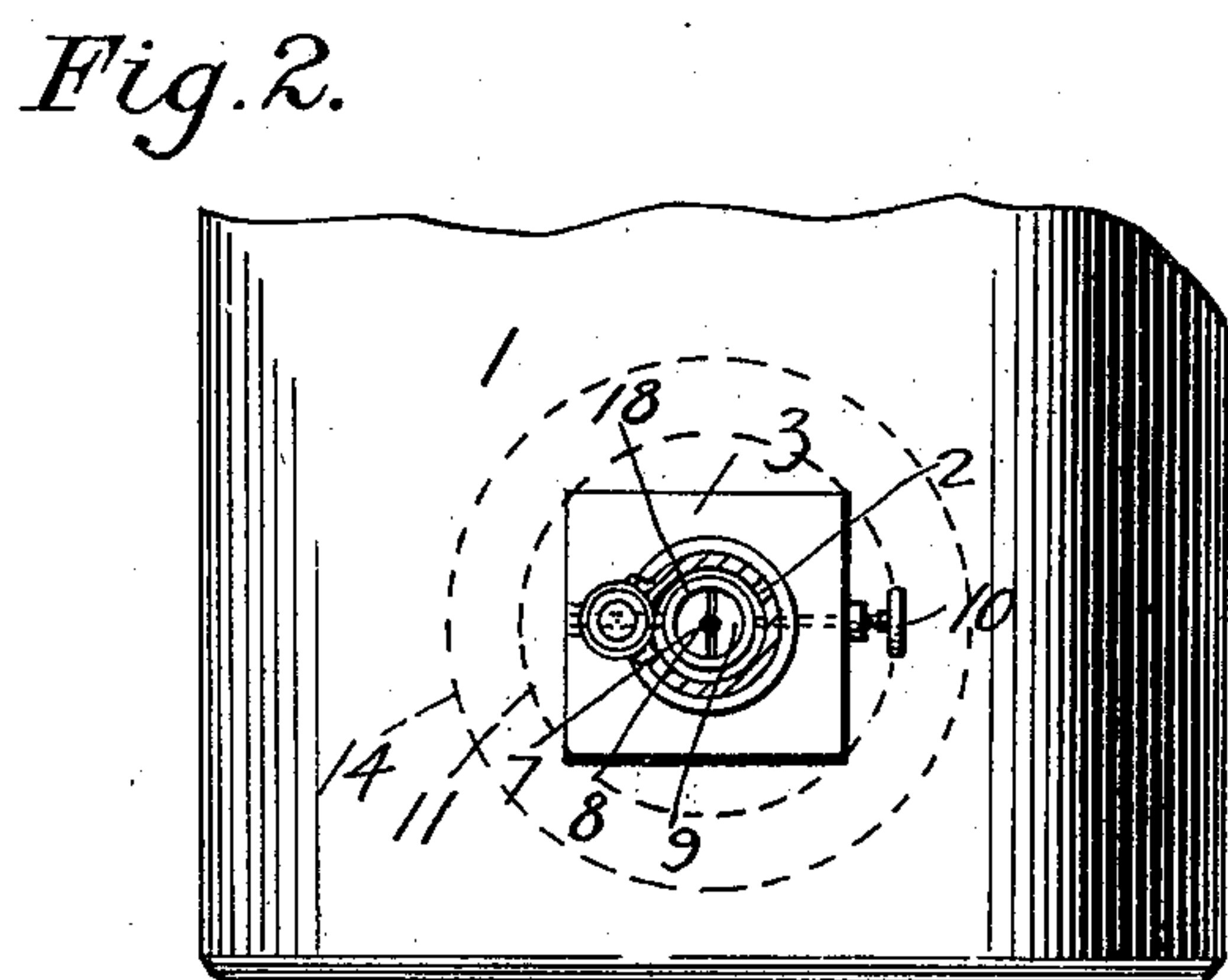
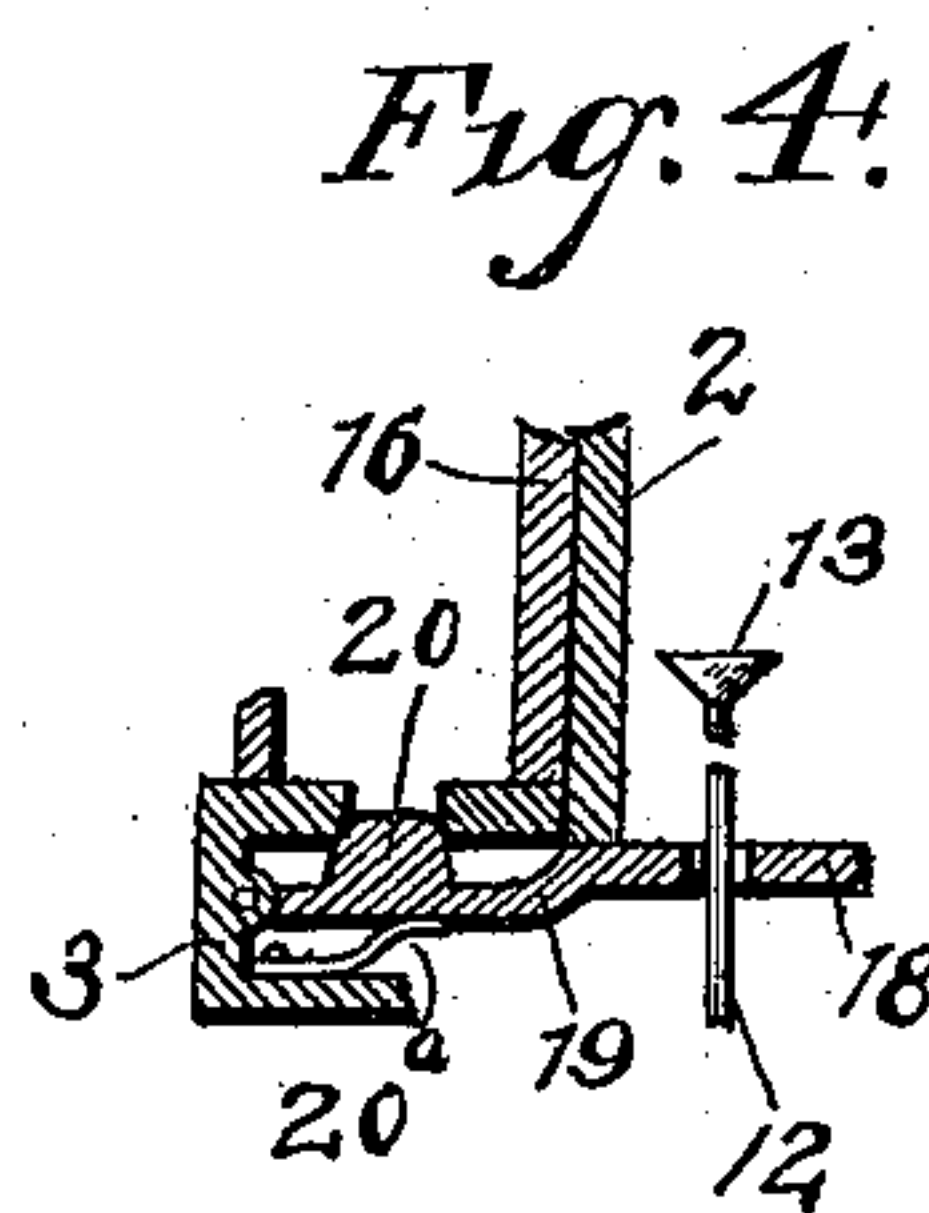
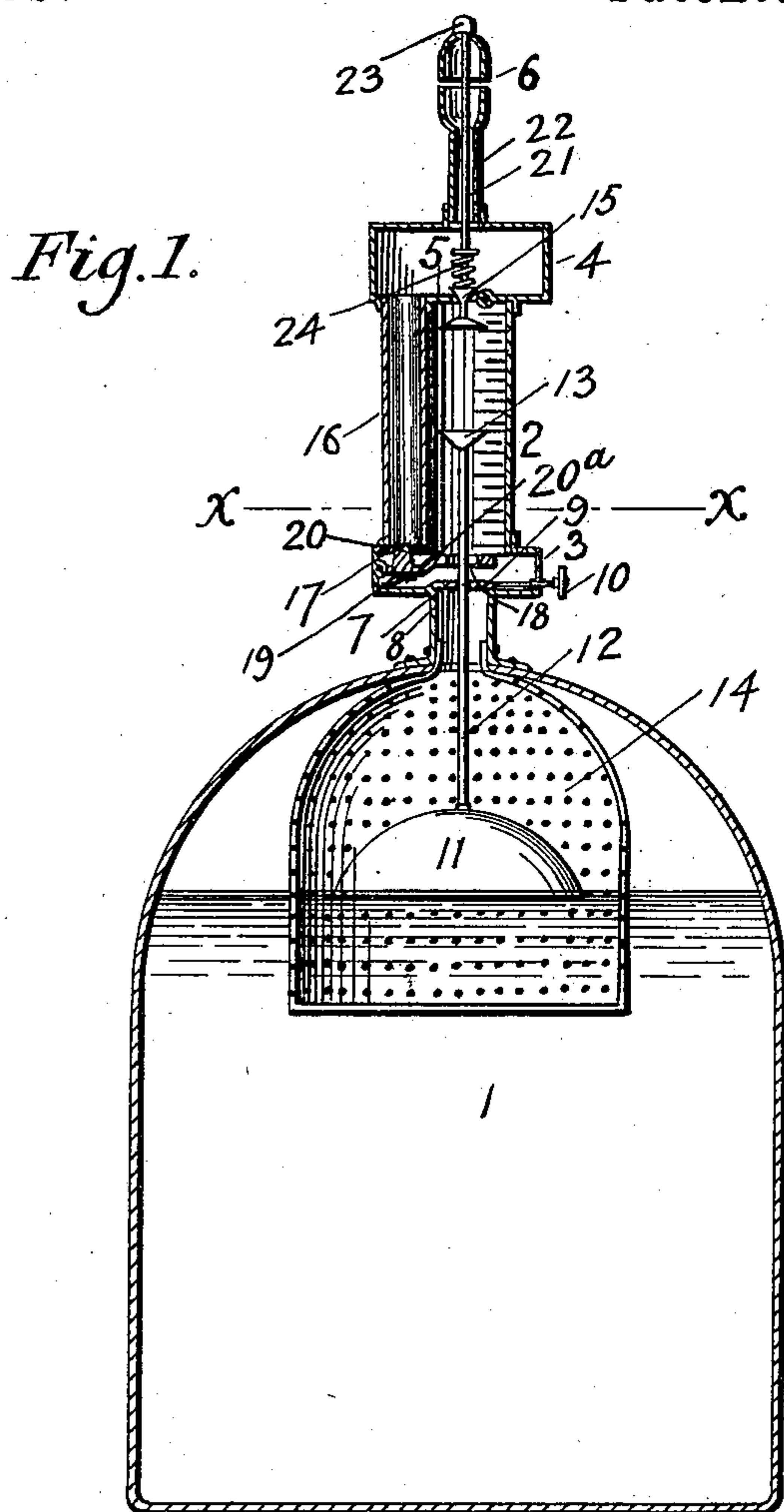


(No Model.)

T. V. FLEMING.  
WATER INDICATOR FOR STEAM BOILERS.

No. 598,985.

Patented Feb. 15, 1898.



Witnesses:  
J. S. Borren,  
J. A. Wellson.

Inventor:  
Thomas V. Fleming  
Wilson  
Attorney



# UNITED STATES PATENT OFFICE.

THOMAS V. FLEMING, OF FLEMINGTON, ILLINOIS.

## WATER-INDICATOR FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 598,985, dated February 15, 1898.

Application filed May 6, 1897. Serial No. 635,363. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS V. FLEMING, a citizen of the United States, residing at Flemington, in the county of Edgar and State of Illinois, have invented certain new and useful Improvements in Water-Indicators for Steam-Boilers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In the devices now employed for indicating the amount of water in steam-boilers much difficulty is oftentimes experienced in being able to ascertain the exact height of water, due mainly to two facts, one being that the foaming of the water will oftentimes cause the device to indicate a false amount, and the other being that the glass tube becomes lined or charged with the lime of the water, so that the height of the water therein cannot be observed.

My invention relates to an indicator for steam-boilers, and the object is to overcome these objections; and to this end the invention consists in certain features of construction and combination of parts, which will be hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a vertical sectional view taken longitudinally through a boiler, showing the application of my invention thereto. Fig. 2 is a cross-section, on the line *x x*, through the indicator-tube; and Figs. 3 and 4 are enlarged detail views of parts hereinafter described.

In the drawings, 1 denotes a boiler, which may be that of a stationary or locomotive engine, and 2 denotes the indicator-tube. This tube has secured to its lower end a coupling 3, which is suitably secured to the boiler and has its lower end projecting slightly below the upper surface thereof. The upper end of this tube is connected to a steam-box 4, provided with a valve-seat 5 and supporting a steam-whistle 6. The coupling is provided with a flange 7 on one side, and said flange is provided with a smaller semicircular recess 8.

9 denotes a valve the stem of which has a screw-threaded engagement with the coupling and is provided with a hand-wheel 10, by means of which the valve may be projected over and cut off the passage of steam through

the coupling should the glass tube be broken. This valve is provided with a semicircular recess, corresponding with that of the flange aforesaid.

11 denotes a float having an indicator-rod 12 the upper end of which is provided with a head 13.

14 denotes a perforated cage or screen secured to the lower end of the coupling, and it protects the float from the foam and allows it to rest upon a solid body of water.

15 denotes a pivoted valve adapted to seat 5 in the steam-box.

16 denotes a pipe communicating with the coupling 3 and steam-box 4 and is provided with a valve-seat 17. 18 denotes a ring having an arm 19 pivoted in the coupling 3 and provided with a valve 20, normally seated against said seat and held in that position by a spring 20<sup>a</sup>.

21 denotes a rod projecting upwardly through a tube 22 and provided with a thumb-nut 23 on its upper end. The lower end of this rod is connected with a coiled spring 24, and said spring exerts its energy upon the valve 15 to keep it closed. By adjusting the tension of the spring by the thumb-nut the valve 9 may be accurately seated, so as not to be jarred open by the movement of the engine, if it be placed on a locomotive, and sound the whistle.

In operation the float, being at all times supported by a solid body of water, will indicate the exact height of water in the boiler by means of the graduations cut or inscribed upon the glass tube.

Should the water in the boiler get too high, the upper end of the float-rod will engage the valve 15, lift it from its seat, and sound the whistle, while, on the other hand, should the water get too low, the float will lower and the head of the float-rod will engage the pivoted ring and withdraw the valve 20 from its seat and allow steam to pass through the pipe 16 into the steam-box and sound the whistle.

Should from any cause the glass be broken, the valve in the coupling may be adjusted to close the escape of steam, the semicircular holes in the flange and said valve being firmly clamped around the float-rod.

Although I have specifically described the construction and relative arrangement of the

several elements of my invention, I do not desire to be confined to the same, as such changes or modifications may be made as clearly fall within the scope without departing from the spirit of my invention.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is--

The combination with a steam-boiler, of an indicator-tube attached thereto, a whistle supported by said indicator-tube and communicating therewith, a pipe communicating with the whistle and the tube, a valve normally closing the communication between the tube and whistle, a valve normally closing the com-

munication between the pipe and the whistle, a pivoted arm at the lower end of the pipe and supporting said last-named valve, and a float provided with a rod which projects upwardly through said arm and tube and has secured to its upper end a head adapted to open one of the valves when the water is at its lowest or highest point in the boiler, substantially as set forth.

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

THOMAS V. FLEMING.

Witnesses:

ORA L. FLICKNER,  
J. W. SHEPHERD.