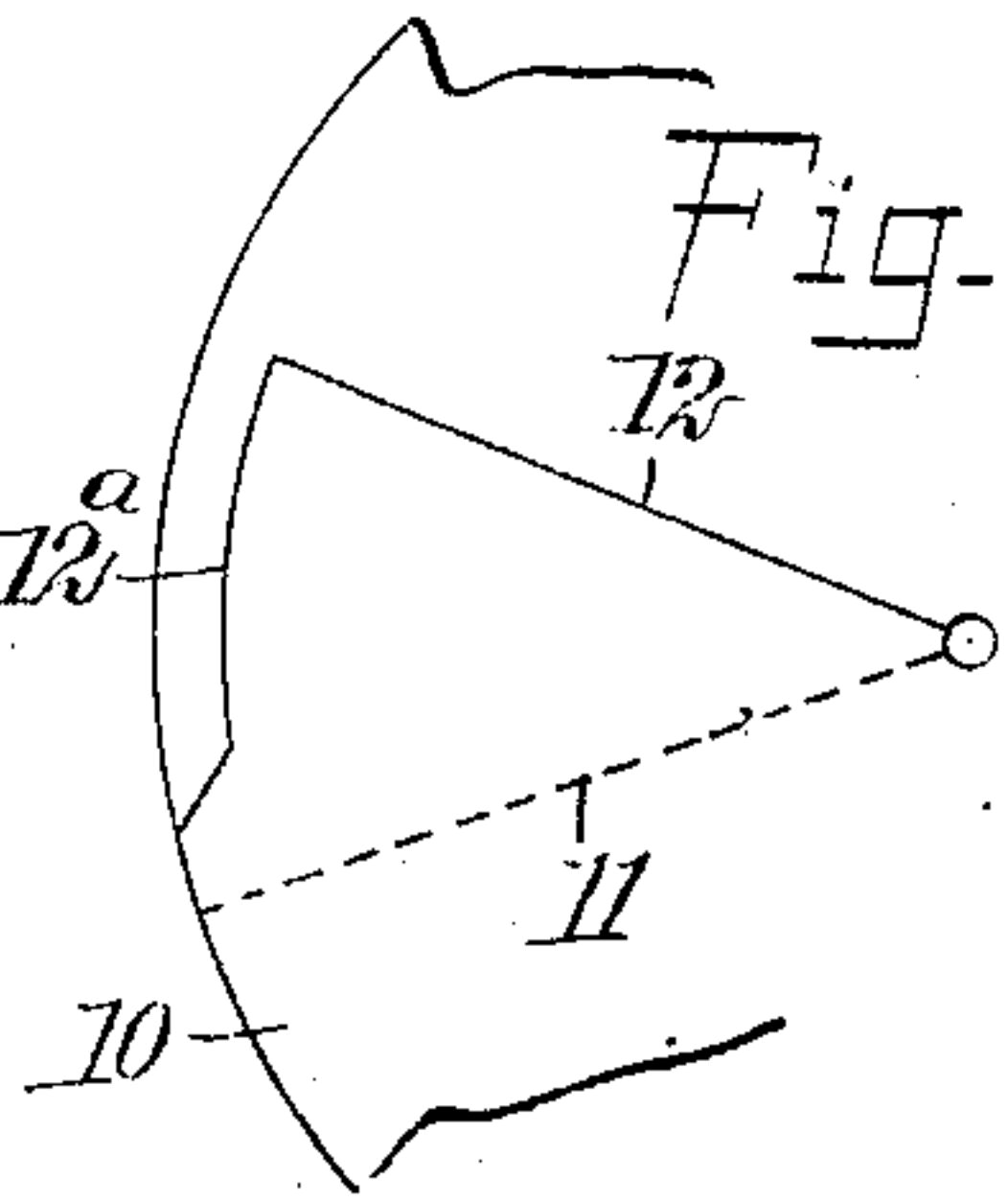
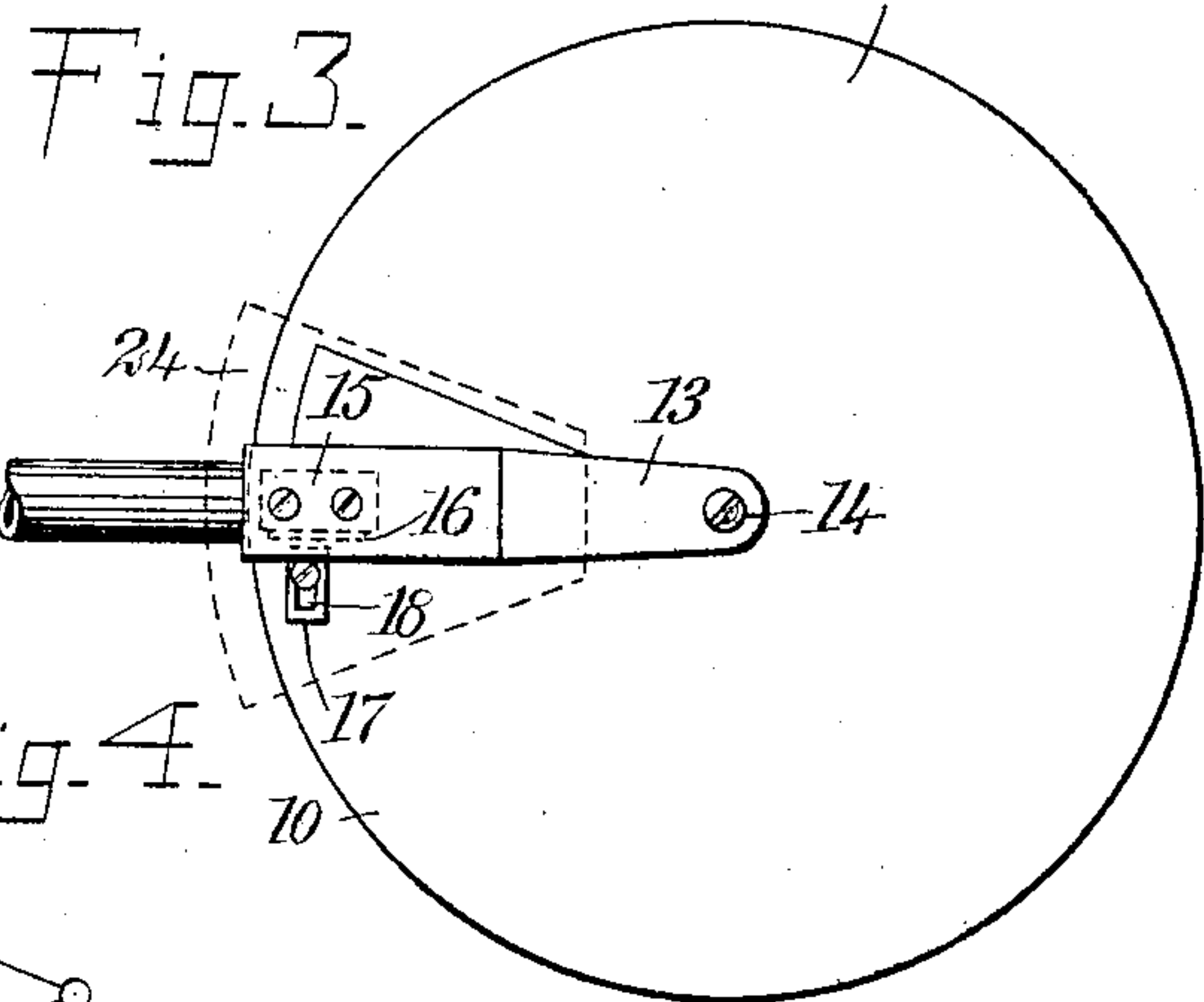
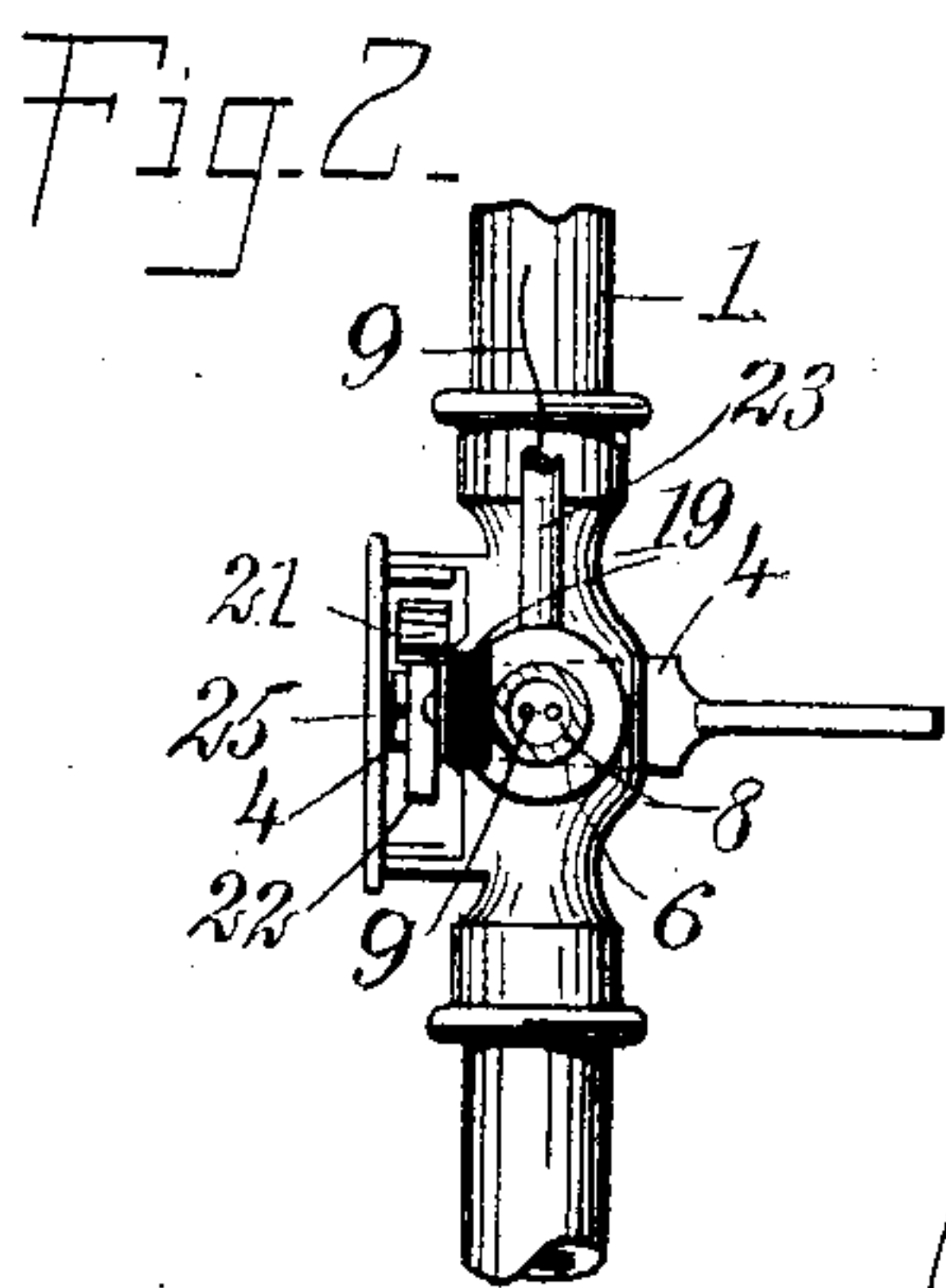
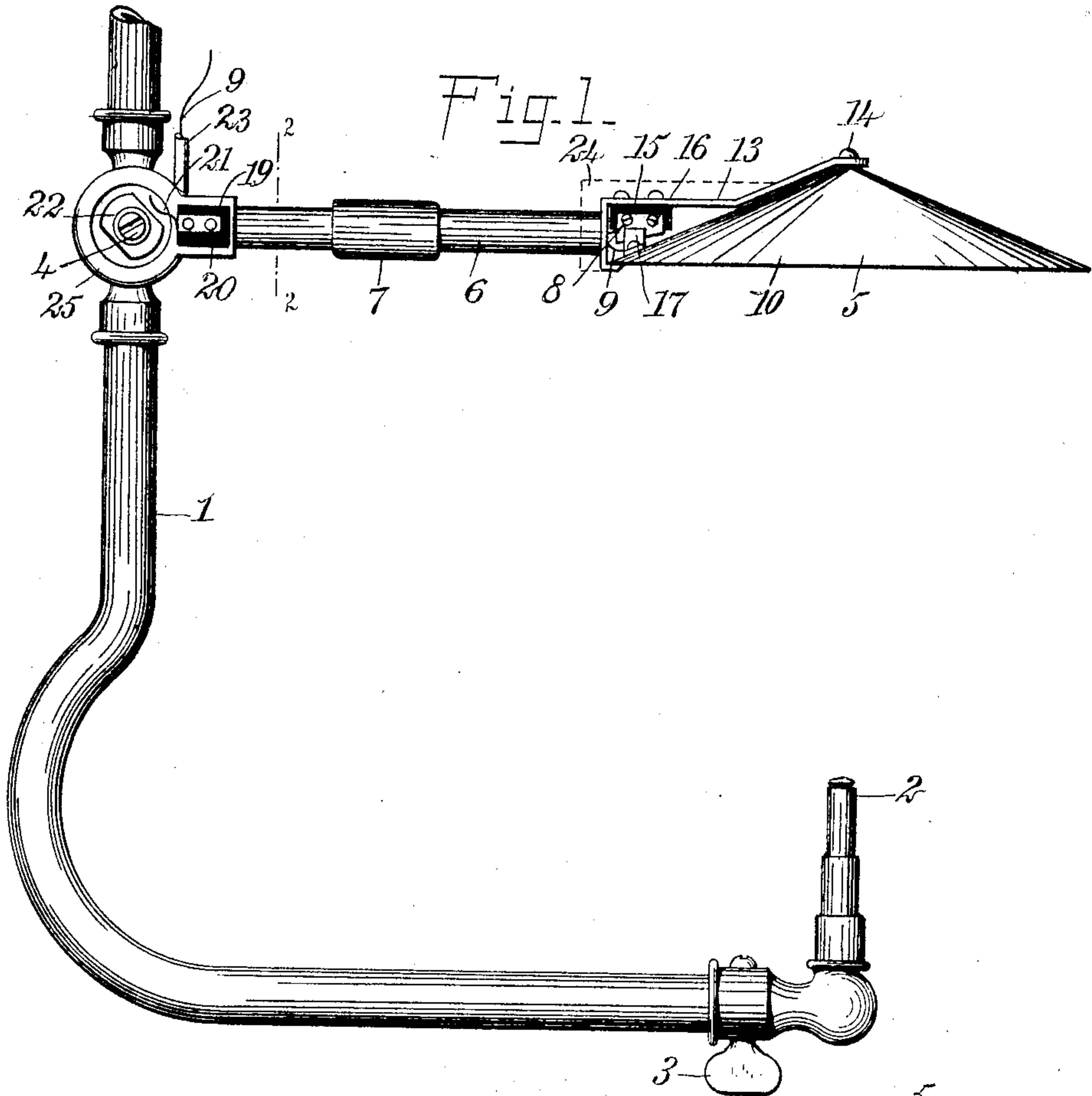


No. 855,936.

PATENTED JUNE 4, 1907.

A. A. CHURCHILL.  
SAFETY DEVICE FOR GAS BURNERS.

APPLICATION FILED JULY 18, 1906,



WITNESSES  
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# UNITED STATES PATENT OFFICE.

ARTHUR A. CHURCHILL, OF PORTLAND, OREGON.

## SAFETY DEVICE FOR GAS-BURNERS.

No. 855,936.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed July 18, 1906. Serial No. 326,695.

*To all whom it may concern:*

Be it known that I, ARTHUR A. CHURCHILL, a citizen of the United States, and a resident of Portland, in the county of Multnomah and State of Oregon, have invented a new and Improved Safety Device for Gas-Burners, of which the following is a full, clear, and exact description.

This invention relates to a device which is designed for the prevention of accidents resulting from the accidental escape of gas due to a failure to light same when it is turned on, or due to the gas having been blown out after being lighted.

The object of my invention is to provide a device for closing an electric circuit and ringing a bell or operating any other suitable indicator when unburned gas is escaping from the gas jet.

Reference is to be had to the accompanying drawings which form part of this specification, in which drawings like characters of reference indicate corresponding parts throughout the views, and in which

Figure 1 is a side elevation of my improved device; Fig. 2 is a vertical section on the line 2—2 of Fig. 1; Fig. 3 is a plan view of a combined smoke bell and thermostat employed; and Fig. 4 is a plan view of a portion of the detail shown in Fig. 3, formed for service before being inserted in place.

In the form of the invention illustrated, the same consists of a gas supply pipe 1 having a burner 2, a key 3 and a main stop cock 4. Extending from the side of the gas supply pipe and supported thereby is an arm 6 carrying the combined thermostat and smoke bell 5 and supporting the same directly over the gas burner 2.

My improved thermostat is constructed of two plates of different material soldered or otherwise rigidly secured together, preferably circular in form and having a sector-shaped portion cut away leaving the edges 11 and 12, which are then overlapped, to form a cone-shaped bell. This bell is supported by a frame 13 secured at its lower end to the underlying section of the bell, and having its other end secured at the center of the bell by a screw 14 or other suitable means. On the under side of the frame 13 is provided an insulating block 15 carrying a contact plate 16 to which is secured the end of an electric wire 8. On the upper surface of the overlying section of the bell is secured an L-shaped contact block 17 having the vertical leg

thereof adapted normally to contact with the block 16, and having the other leg thereof secured to the bell by a suitable screw passing through a slot whereby the position of the block 17 may be changed or adjusted in respect to the bell and block 16. This contact block 17 is also connected to the terminal of an electric wire 9 which, together with the wire 8, extends through the arm 6, as shown in Fig. 2. On the arm 6 adjacent to this supporting end is an insulating block 19 carrying a metallic plate 20, the latter being connected to the end of the wire 8. The plate 20 carrying a spring 21 is adapted to contact with an irregular shaped plate 22 on the end of the stop cock 4 when the stop cock is turned to permit the passage of gas. The plate 22 being of metal and in contact with the stop cock and gas supply pipe 1, the latter is used as a means for conducting the electricity to the thermostat, whereas the return circuit is formed through an extension of the wire 9 which is inclosed and protected by a small pipe 23.

To prevent accidental short-circuiting at the thermostat by a current passing through the arm 6, the latter may, if desired, be provided with an insulating section 7 intermediate its length, whereby all possibility of the pipe 6 acting as a conductor is thus eliminated.

I have shown the burner 2 as being provided with the stop cock 3, but this would not normally be used and may, if desired, be omitted, as the stop cock 4 is the one designed to be ordinarily used for turning on and off the gas to the burner.

In the operation of my new and improved device, the contact plates 16 and 17 are normally together, but the circuit is broken at the stop cock where the spring 21 does not contact with the plate 22 when the gas is shut off. As soon as the stop cock 4 is turned to admit gas to the burner, the circuit is closed and a suitable bell or indicator located at any desired point is operated to call attention to the fact that the gas has been turned on. As soon as the gas is lighted the heat causes the thermostat to break the circuit by separating the contacts 16 and 17, and the operation of the indicator or bell is thus stopped. If the gas should be accidentally or intentionally extinguished by other means than the closing of the cock 4, the thermostat will very quickly cool down, and as the contacts 16 and 17 are brought to-



gether the circuit is again closed and the bell or indicator operated, the device not only operating to indicate the turning on of the gas, but also to indicate the extinguishing thereof if the gas is not shut off.

If my improved device be employed in a hotel, for instance, it is possible for the night clerk to instantly tell if the gas in any unoccupied room has been lighted or if gas is escaping from any jet not lighted, thus operating as a safety device.

The thermostat being in the form of a cone and located directly above the gas burner it is very quickly affected by the heat and is, therefore, very rapid in its operation, thus preventing the bell or other indicator from continuing in operation for any considerable time. The cone-shaped thermostat also operates as a smoke bell to prevent the discoloring of the ceiling, and prevent curtains or other inflammable articles from blowing into the flame. The contacts 16 and 17 may, if desired, be protected by a suitable casing 24 shown in dotted lines to protect these more delicate parts and prevent the accumulation of dirt or dust between said contacts and thus interfere with their operation. The spring 21 and plate 22 may also be protected by a like casing or frame work 25 for a similar purpose.

It will thus be seen that all of the delicate parts and connections are concealed, and from a casual inspection of the device it appears to be merely a smoke bell, there being no unsightly projections or parts to attract the attention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A gas supply pipe, a burner, a combined thermostat and smoke bell supported above the burner and comprising a slitted plate having overlapping portions, one of which is adapted to be moved in relation to the other as the plate becomes heated, and electrical connections secured to the thermostat and adapted to be broken when the gas is lighted.

2. A gas supply pipe, a gas burner, a thermostat supported above the burner, said thermostat comprising a slitted plate adapted to expand as it becomes heated, and means whereby the expansion of said plate breaks an electric circuit.

3. A gas supply pipe, a burner, a thermo-

stat supported above the burner and comprising a conical slitted plate adapted to expand upon being heated, means whereby the expansion of said plate breaks an electric circuit, and means whereby the circuit is broken when the supply of gas is shut off from the burner.

4. A gas burner, a combined thermostat and smoke bell supported above said burner and comprising a conical-shaped plate having overlapping portions, means secured to one of said portions for supporting the bell, electrical contacts on said support and the bell adapted to be separated as the bell becomes heated.

5. A combined thermostat and smoke bell comprising a substantially circular plate having a slit cut from the center to the edge thereof, and the plate bent to form a cone with one edge adjacent the slit overlapping the other edge, means constituting electrical contacts connected to said plate adjacent each of the edges and adapted to be separated as the plate becomes heated.

6. A combined thermostat and smoke bell comprising a conical plate adapted to be flattened by an increase in temperature, and electrical contacts adapted to be separated as the cone flattens.

7. A combined thermostat and smoke bell comprising a conical plate adapted to be flattened by an increase in temperature, electrical contacts adapted to be separated as the cone flattens, an arm supporting said plate and having a non-conducting section, and wires within said arm.

8. A gas supply pipe, a burner, a cock in said pipe, an arm extending from said pipe adjacent the cock, a thermostat comprising a plate having the center thereof rigidly supported adapted to act as a smoke bell at the end of the arm and above the burner, electric wires within said arm and connected to the thermostat, and means connected to said cock for making and breaking the connections to one of said wires as the gas is turned on and off.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR A. CHURCHILL.

Witnesses:

ALEX HAMILTON,  
J. D. CHAPMAN.