

No. 703,043.

Patented June 24, 1902.

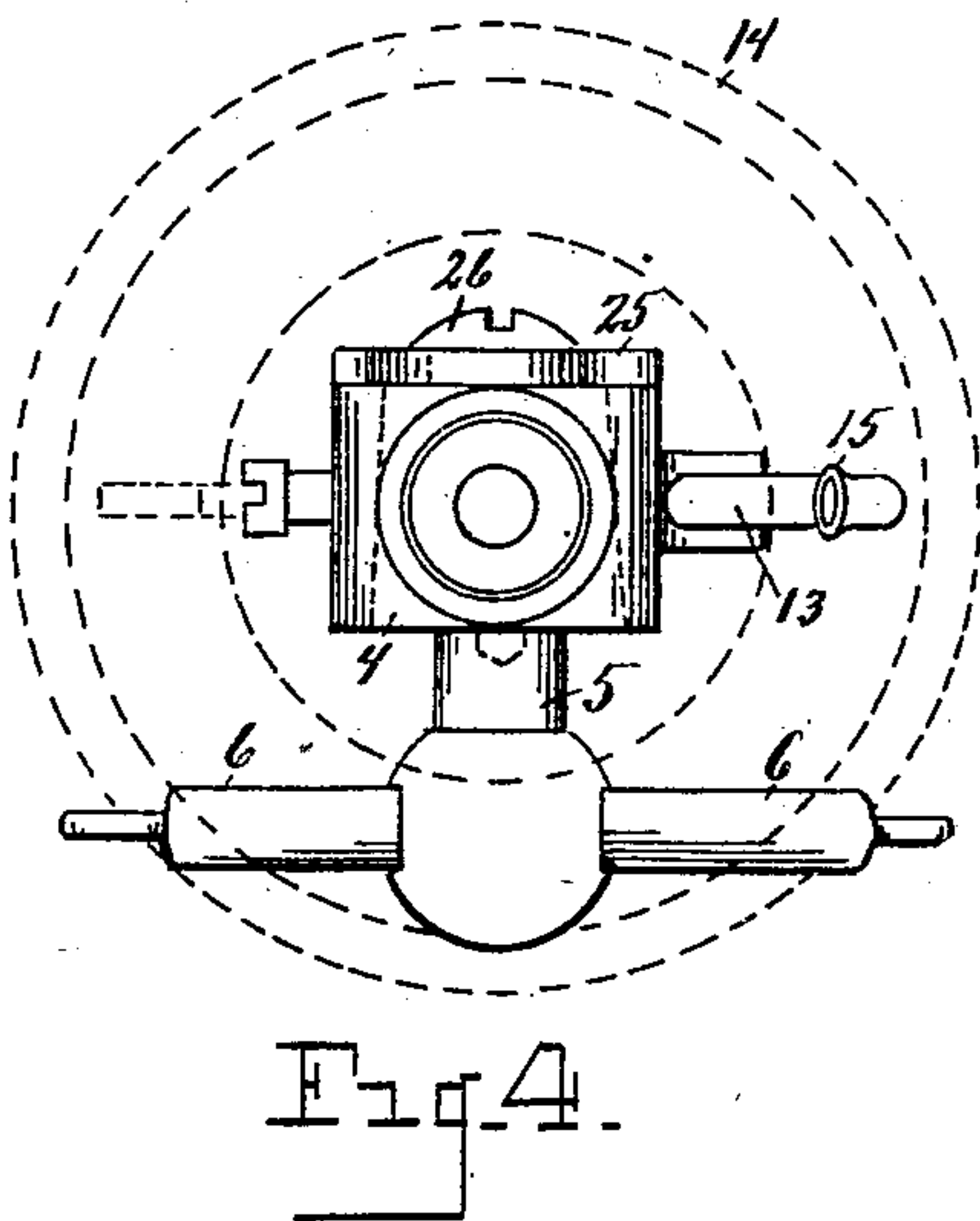
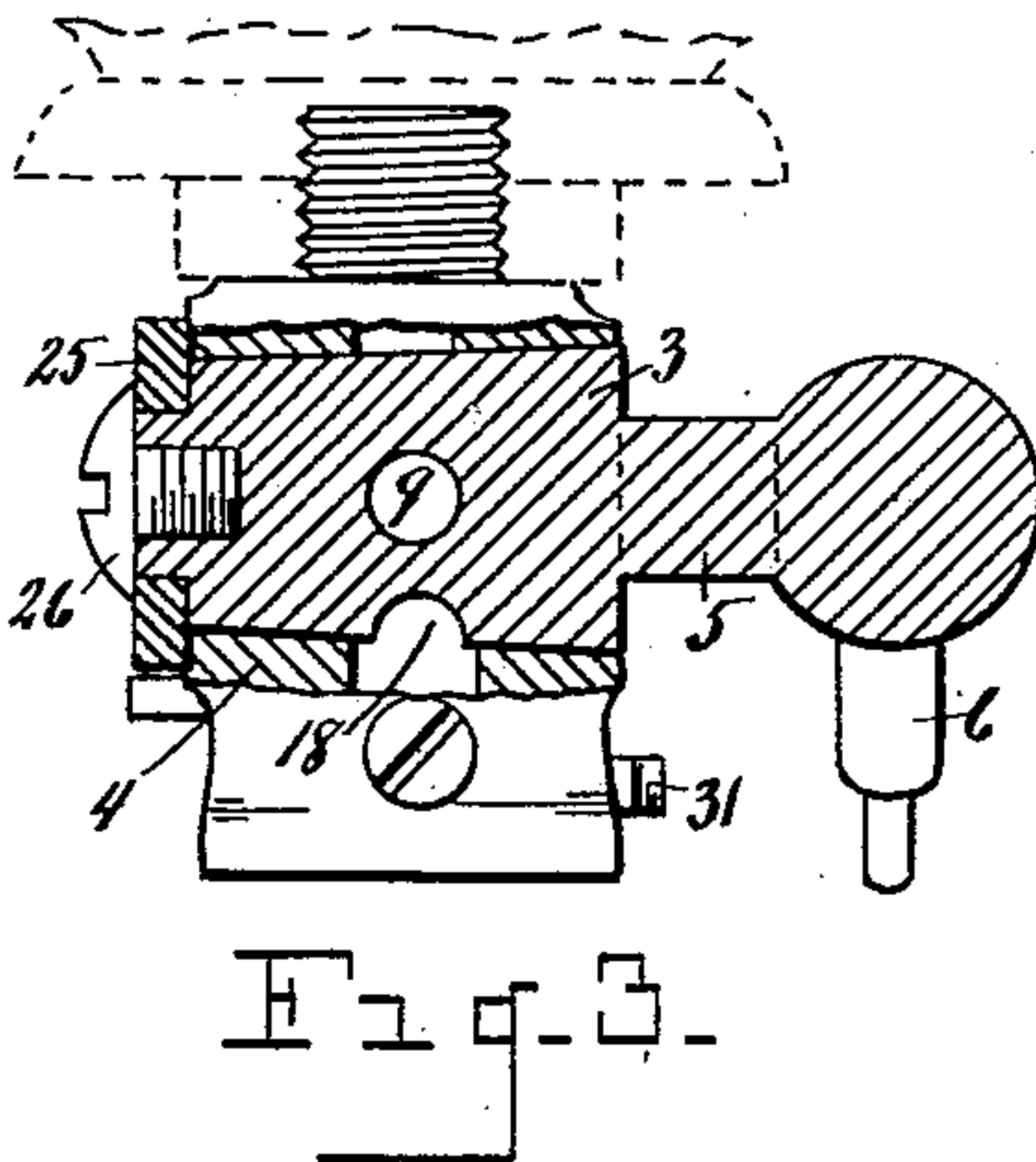
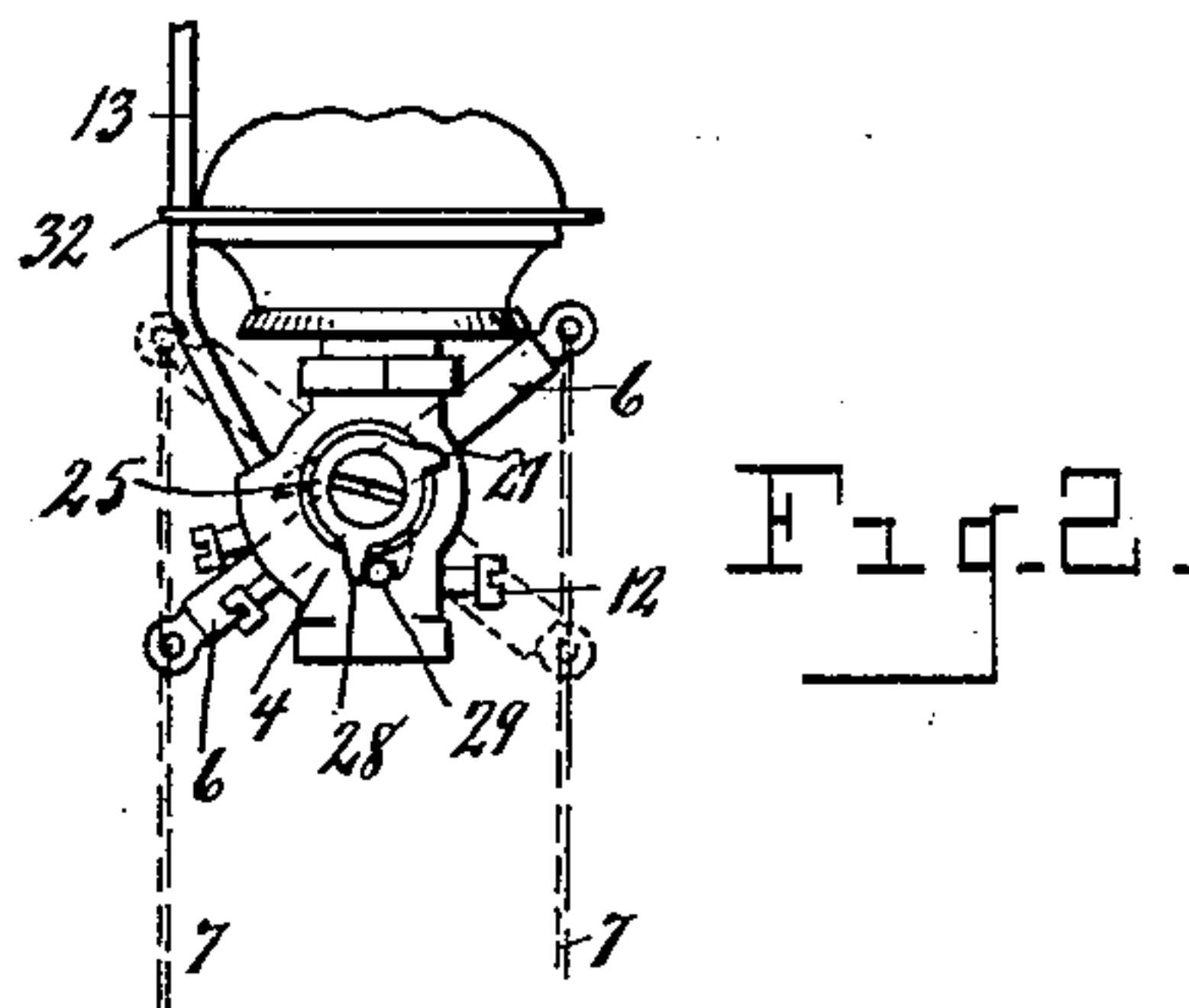
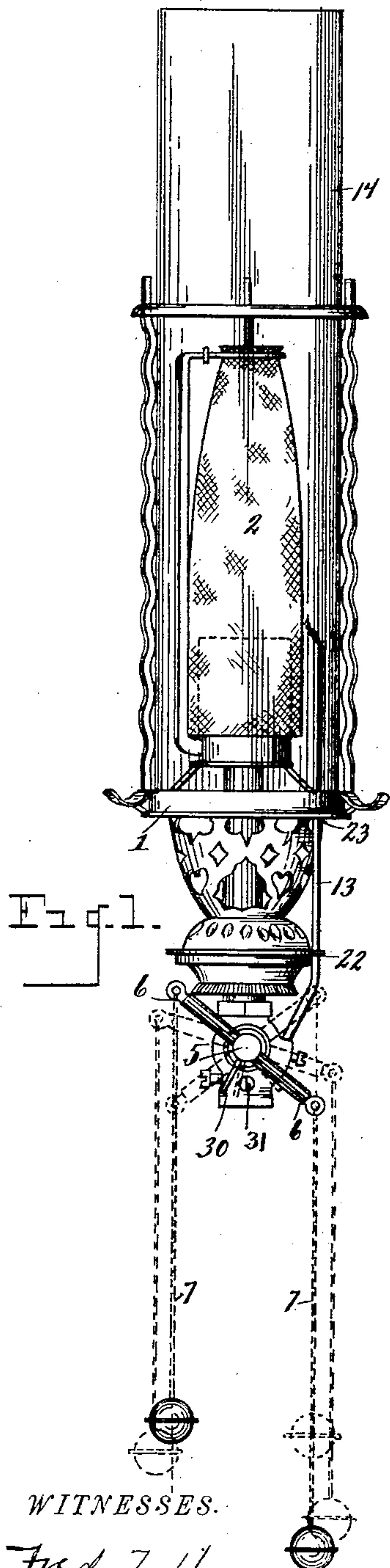
E. W. CORNELL.

LIGHTING ATTACHMENT FOR GAS BURNERS.

(Application filed Apr. 8, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES.

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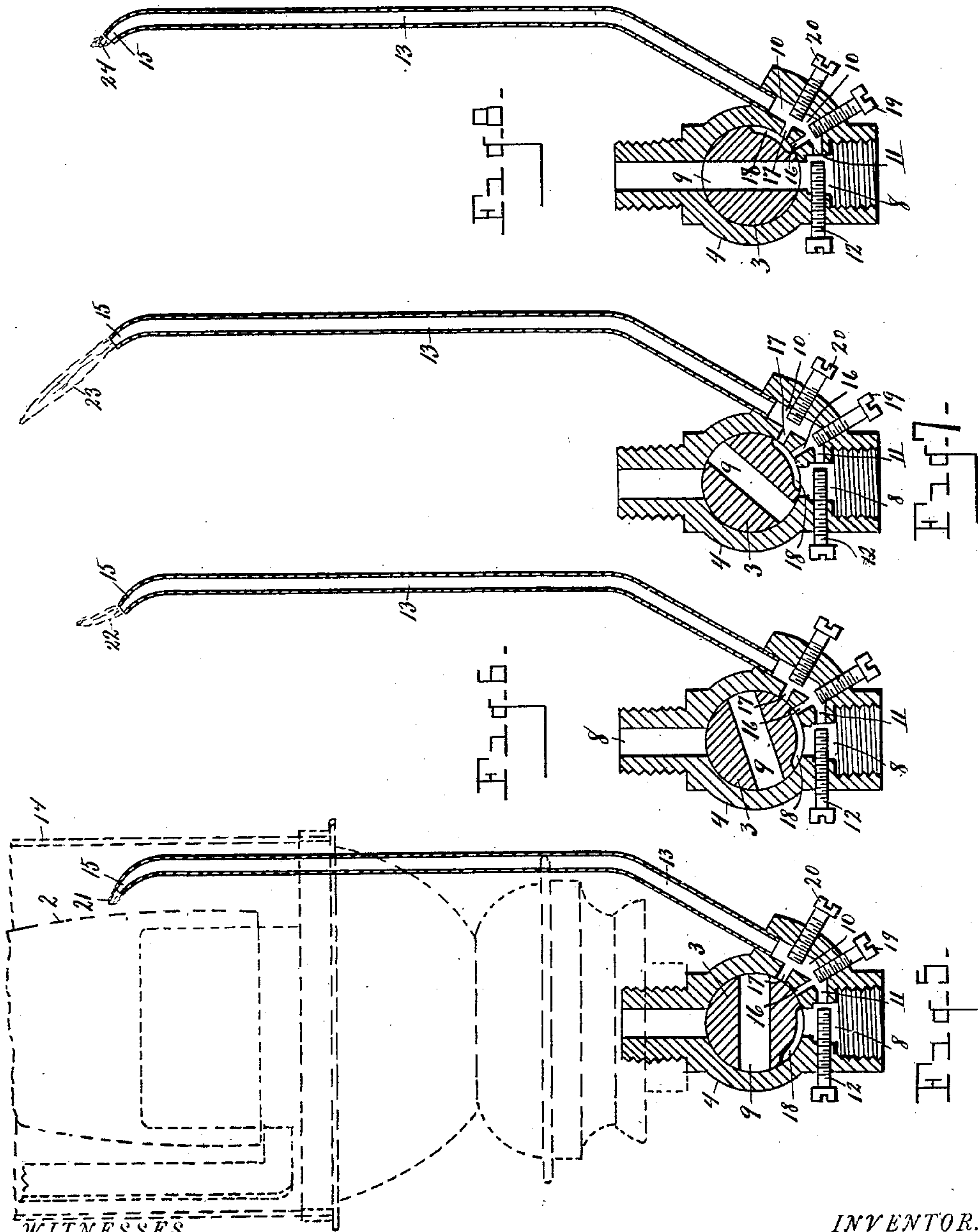
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WITNESSES.

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UNITED STATES PATENT OFFICE.

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LIGHTING ATTACHMENT FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 703,043, dated June 24, 1902.

Application filed April 8, 1901. Serial No. 54,769. (No model.)

To all whom it may concern:

Be it known that I, EVAN W. CORNELL, a citizen of the United States, residing at Adrian, in the county of Lenawee, State of Michigan, have invented certain new and useful Improvements in Lighting Attachments for Gas-Burners; 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to a lighting attachment for gas-burners; and it consists in the construction and arrangement of parts hereinafter fully set forth, and pointed out particularly in the claims.

The object of the invention is to provide a pilot-tube adapted to supply a pilot-flame for the lighting of the burner proper, in which the arrangement is such as to enable said pilot-flame to serve as a night-light without lighting the main burner, the pilot-tube carrying the pilot-flame being located such distance from the mantle upon the exterior thereof as to prevent smoking or injury thereto; said flame being capable of such increase or enlargement when the gas is fully turned on as to readily light the main burner, and when the main burner is lighted and the valve fully open said flame is reduced to the minimum. Said object is attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a general view of an incandescent gas-burner of the Welsbach pattern having my improved lighting arrangement attached thereto. Fig. 2 is a detail in elevation, showing the rear end of the plug-cock valve which controls the supply of gas to the burner, having a washer mounted thereon with projections adapted to engage a stop to limit the movement of the valve in both directions. Fig. 3 is an enlarged sectional view through the valve-case and valve, showing an auxiliary passage in the side of the valve adapted to afford an increased supply of gas to the pilot-tube. Fig. 4 is a plan view of the valve-case and burner, the mantle and

chimney being indicated by dotted lines. Fig. 5 is a sectional view through the valve-case and pilot-tube, showing the normal position of the parts with a small flame burning from the end of the pilot-tube, the burner appearing in dotted lines. Fig. 6 is a like view of the valve-case and pilot-tube, showing the second position of the valve, in which position an increased supply of gas is furnished to the pilot-tube to maintain sufficient flame to serve as a night-light. Fig. 7 is a similar view showing the valve turned to afford the maximum supply of gas to the pilot-tube just prior to the opening of the valve to supply gas to the burner, the increased flame insuring a ready ignition of the burner as the gas is turned on. Fig. 8 is a similar sectional view showing the gas fully turned on to the burner and the supply of gas cut off from the pilot-tube, so that a minimum flame only is maintained.

Referring to the characters of reference, 1 designates a gas-burner of the Welsbach pattern provided with the ordinary mantle 2. The valve 3, which controls the passage of gas to the burner, is an ordinary plug-cock valve seated in a valve-case 4 and having a stem 5, carrying the laterally-projecting arms 6, to the ends of which the operative chains 7 are attached. Passing through the valve-case 4 is the opening 8, through which gas is supplied to the burner when the plug-cock 3 is turned so that its opening 9 will register therewith. Formed in the side of the valve-case is a gas-chamber 10, which communicates with the main opening of the valve-case through the port 11, controlled by the screw-valve 12. Communicating with the chamber 10 is the lower end of the pilot-tube 13, which projects upwardly on the exterior of the burner and terminates at a point adjacent the mantle 2 within the chimney 14. The upper end of the pilot-tube is flattened, as at 15, whereby the flame is spread and a more perfect combustion is attained. Leading from the chamber 10, with which the pilot-tube communicates, are auxiliary openings 16 and 17. These auxiliary openings are normally closed by the wall of the valve 3, but may be made to communicate with the main opening of the valve-case by means of a channel 18, formed in the face of the valve 3 and so po-

sitioned that a rotation of the valve will cause said channel to register with the main opening and with one or both of the auxiliary openings at the same time and for purposes hereinafter stated. Opposite the auxiliary openings 16 and 17 are the screw-valves 19 and 20, respectively, by means of which said auxiliary openings may be regulated.

In the normal position of the parts with the valve 3 closed, as shown in Fig. 5, the pilot-tube 13 is supplied with a small quantity of gas through the port 11, which maintains a minute flame 21 at the end of the pilot-tube, so as to obviate the use of a match or taper when lighting the burner. Should it be desired to maintain a flame from the end of the pilot-tube of sufficient volume to furnish a night-light, the valve 3 is turned so as to cause the channel 18 therein to register with the first auxiliary opening 16, as shown in Fig. 6, when the supply of gas furnished to the pilot-tube will be increased by the amount which may pass through said auxiliary opening, producing sufficient flame, as shown at 22, to afford a night-light for a hall, bathroom, or chamber. To prevent smoking and injury to the mantle, the pilot-tube must be sufficiently remote therefrom to prevent contact of the flame from the pilot-tube therewith when in use as a night-light. It is therefore necessary to increase the flame when lighting the burner, so that it will close the space between the end of the pilot-tube and the mantle and ignite the gas within the mantle. To accomplish this result, the second auxiliary opening 17 is employed, with which the channel 18 in the valve 3 is caused to register when the valve is turned to the position shown in Fig. 7, producing a strong flame from the end of the pilot-tube, as shown at 23, so that when the valve is opened to allow the passage of gas therethrough the burner may be readily ignited. As the valve is turned to the completely-opened position the terminal of the channel 18 is carried past the main opening in the valve-case, as shown by the position of parts in Fig. 8, when the gas is cut off from the auxiliary openings 16 and 17, and the gas which enters the pilot-tube is restricted to that which may pass through the port 11, thereby reducing the pilot-flame to the minimum, as shown at 24 in said Fig. 3, when only sufficient gas is consumed to keep the pilot-flame burning. Should it be desired to cut off the gas from the main burner and return the valve to the position shown in Fig. 6 to maintain the night-light, the valve is rotated back to said position. If the night-light is not desired, the valve is turned to the position shown in Fig. 5, in which position the gas is cut off from the burner, and both of the auxiliary openings and a small pilot-flame are maintained.

It will be observed that the pilot-tube is always in communication with the opening in the valve-case through the port 11 and that the volume of gas which is supplied to the

pilot-tube may be increased by turning the valve to cause the channel 18 therein to register with the auxiliary openings. It will also be observed that the producing of the larger flame (shown in Fig. 7) is automatically accomplished simultaneously with the opening of the valve to supply gas to the main burner and that the supply of gas through said auxiliary openings is automatically cut off when said valve has reached its full open position.

For the purpose of arresting the valve at the limit of its movement in both directions a plate or washer 25 is provided on the rear projecting end of said valve, secured by a screw 26 and having the projections 27 and 28 (see Fig. 2) adapted to successively engage a stop-pin 29 on the valve-case as the valve is turned in opposite directions.

It is desirable when the valve is in the position shown in Fig. 6, in which position gas is supplied through the auxiliary opening 16 to the pilot-tube for the purpose of increasing the flame of the pilot-tube, so as to serve as a night-light, to provide a partial arrest or stop for the valve in said position. This is accomplished by means of a spring-arm 30 (see Fig. 1) projecting from the stem of the valve and adapted to encounter the projecting end of a pin 31, mounted in the valve-case. As the valve-stem is rotated in opening and closing the valve the spring-arm encounters the projecting end of said pin 31 and tends to arrest the movement of the valve at that point. By slightly increasing the pull upon the chain, however, said arm is caused to slip past said pin, when the valve is perfectly free to continue its movement.

On referring to Fig. 1 it will be seen that the pilot-tube encounters the burner at two points—first, at point 22 on the flange of the air-mixer, and again at point 23 in the gallery of the burner, whereby said tube is firmly supported and securely maintained in place.

While I have shown the resistance-stop, consisting of the spring-arm 30 and the pin 31, for checking the travel of the valve at a point between the limit of its movement in both directions, I do not wish to limit myself to said specific construction, as other means may be employed to accomplish said result without departing from the spirit of my invention.

Having thus fully set forth my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a gas-lighting attachment, the combination with the burner of a valve adapted to control the supply of gas to said burner, a pilot-tube continuously communicating with the supply of gas, an auxiliary opening communicating continuously with said pilot-tube, an opening-space in said valve adapted to place said auxiliary opening also in communication with the supply of gas, said auxiliary opening being closed when the valve is in its closed and its open positions and a resistance-stop for checking the movement of

said valve between the extremities of its movement when the open space therein has been brought to register with the auxiliary opening.

2. The combination with a burner, of a gas-
5 valve adapted to control the passage of gas to the burner, a pilot-tube communicating independently with the source of gas, an auxiliary opening between the pilot-tube and the source of gas normally closed by said valve,
10 a channel in said valve distinct and separate from the main gas-passage adapted by a movement of the valve to place said auxiliary opening in communication with the source of gas and a resistance-stop for checking only the
15 movement of the valve when the channel therein has been brought to register with said auxiliary opening, said stop allowing a movement of the valve therefrom in both directions.

3. In a lighting attachment, the combination
20 with a burner, of a valve adapted to con-

trol the passage of gas to the burner, a pilot-tube communicating with the source of gas, an auxiliary opening communicating with said pilot-tube said auxiliary opening being closed when the valve is in its closed and in
25 its open position, an open space in the valve adapted to place said auxiliary opening independently in communication with the source of gas when the valve is partially turned to cut off the gas from the main burner and a
30 resistance-stop for checking the valve between the limit of its movement in both directions but allowing said valve to be turned past said stop in either direction.

In testimony whereof I sign this specification
35 in the presence of two witnesses.

EVAN W. CORNELL.

Witnesses:

D. B. MORGAN,
LEOLA C. DAWES.