

(No Model.)

E. WILLIAMS & G. FEWLASS.

GAS GOVERNOR.

No. 392,089.

Patented Oct. 30, 1888.

Fig. 1.

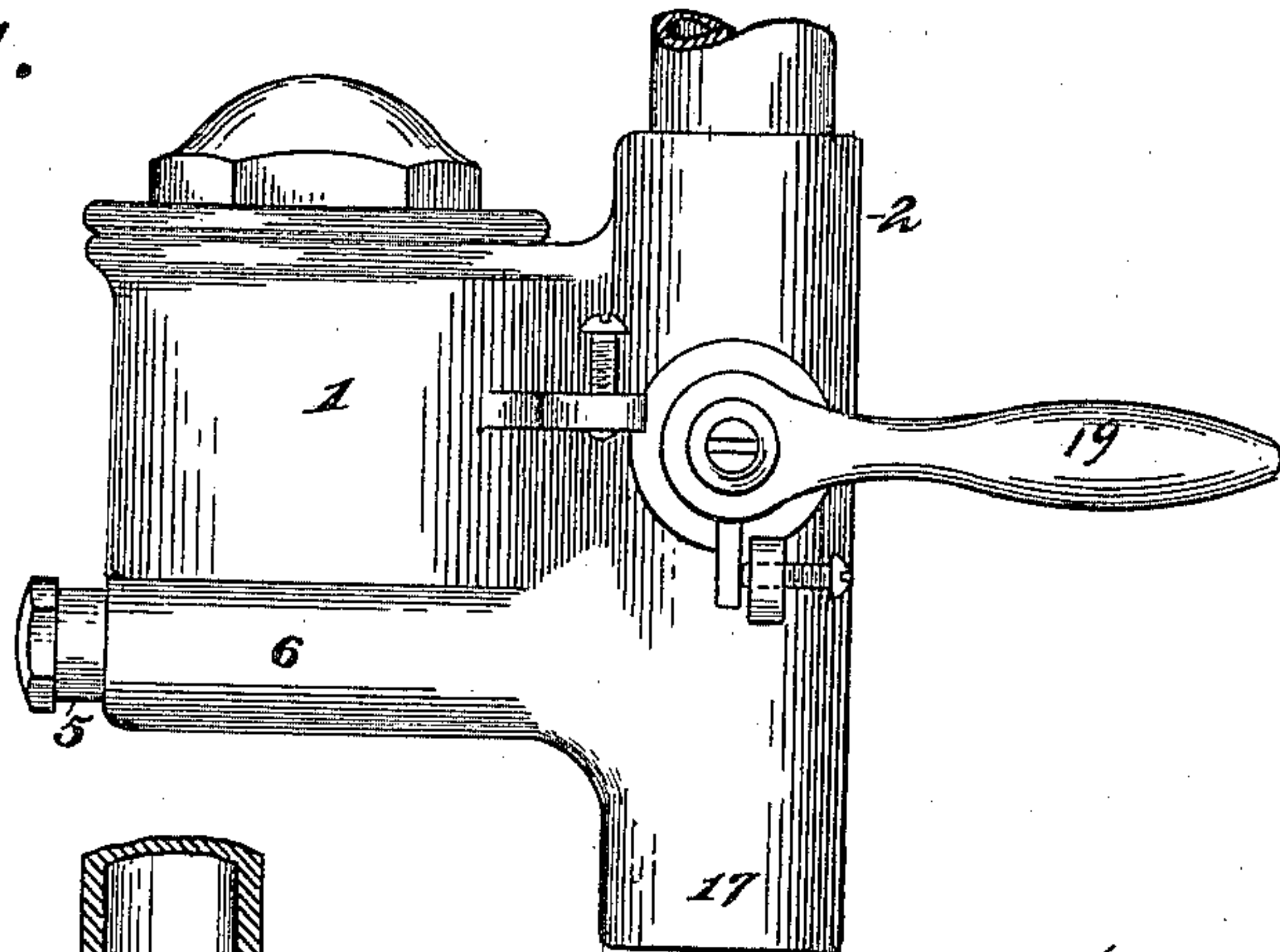


Fig. 2.

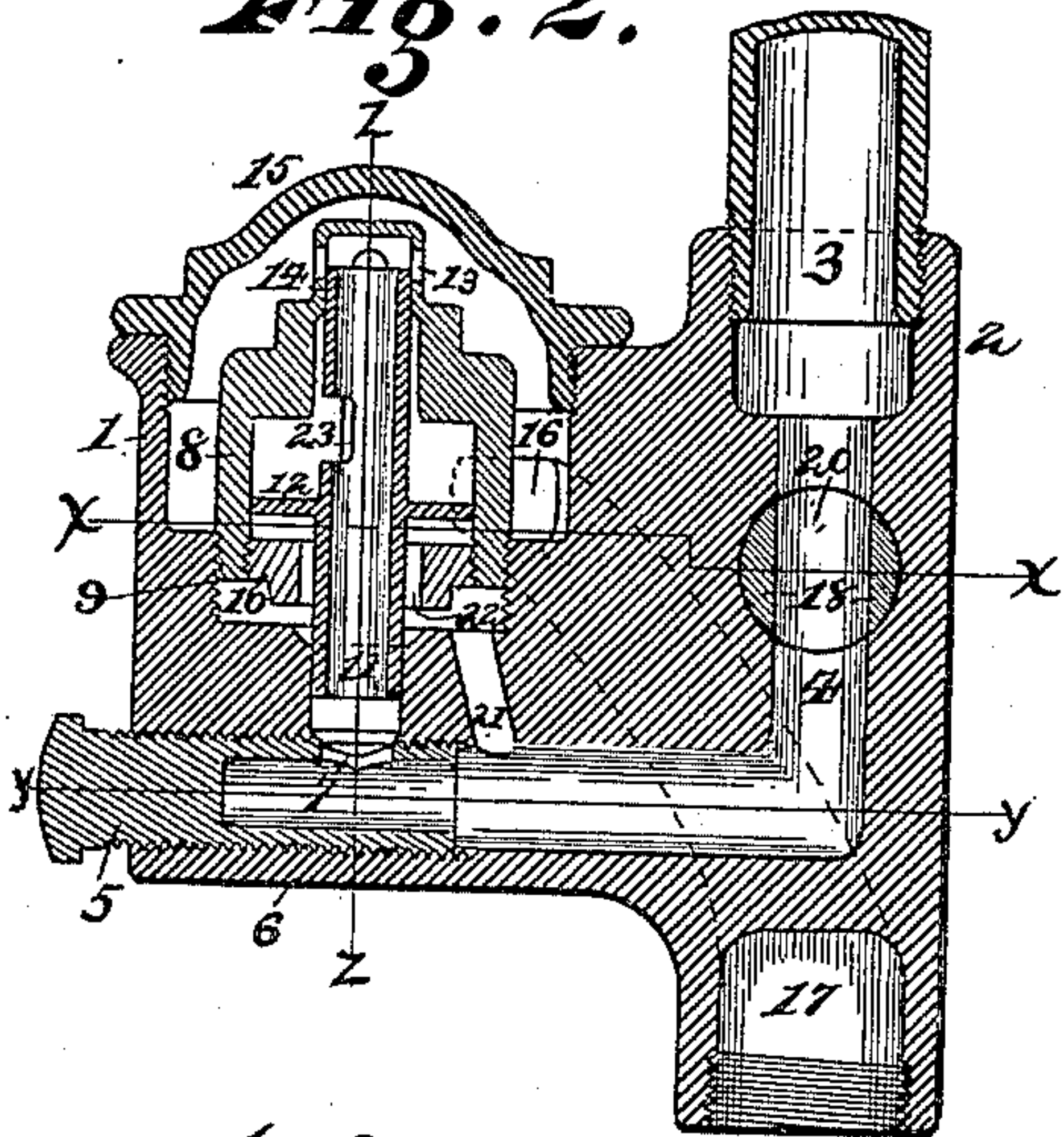


Fig. 3.

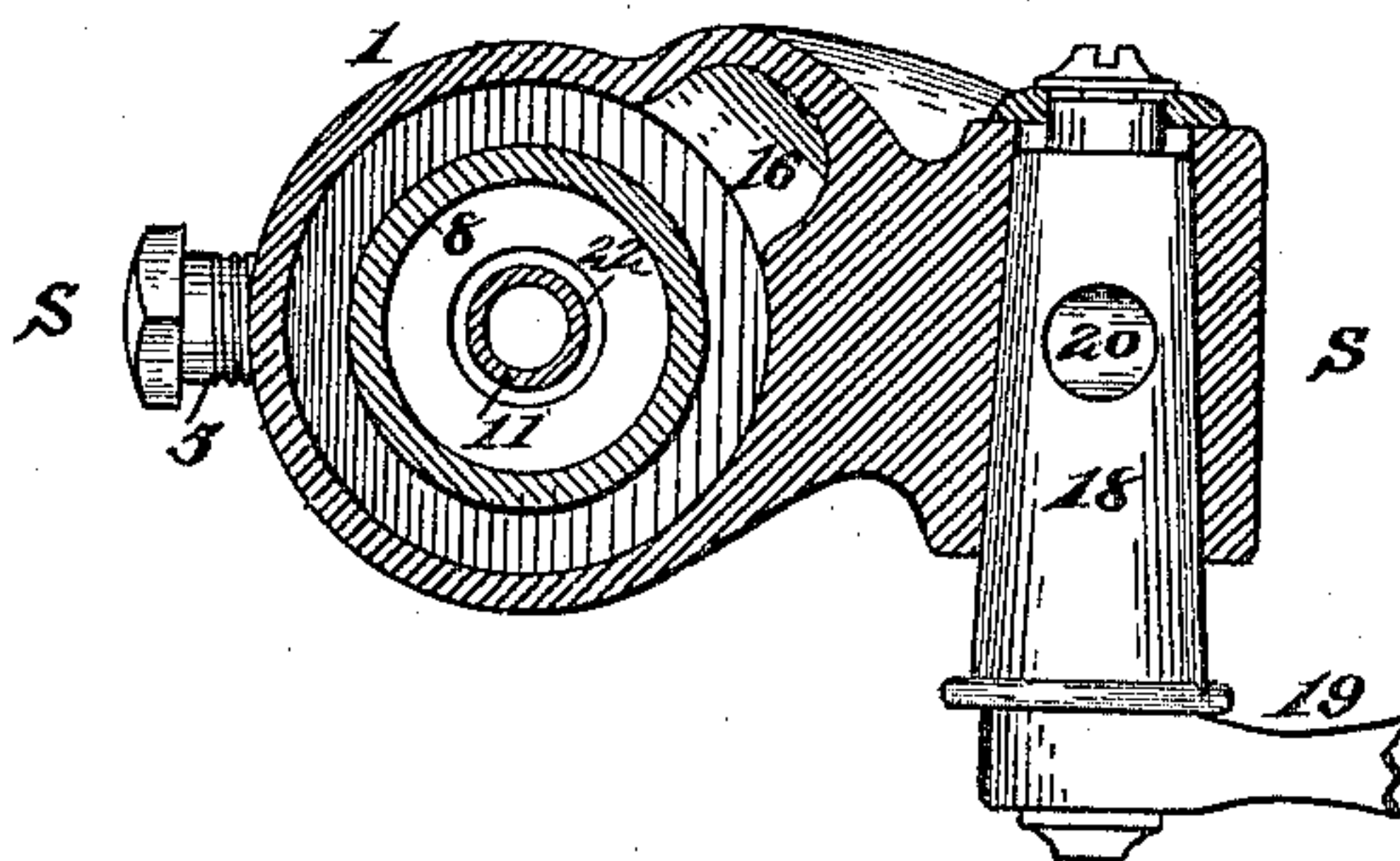


Fig. 4.

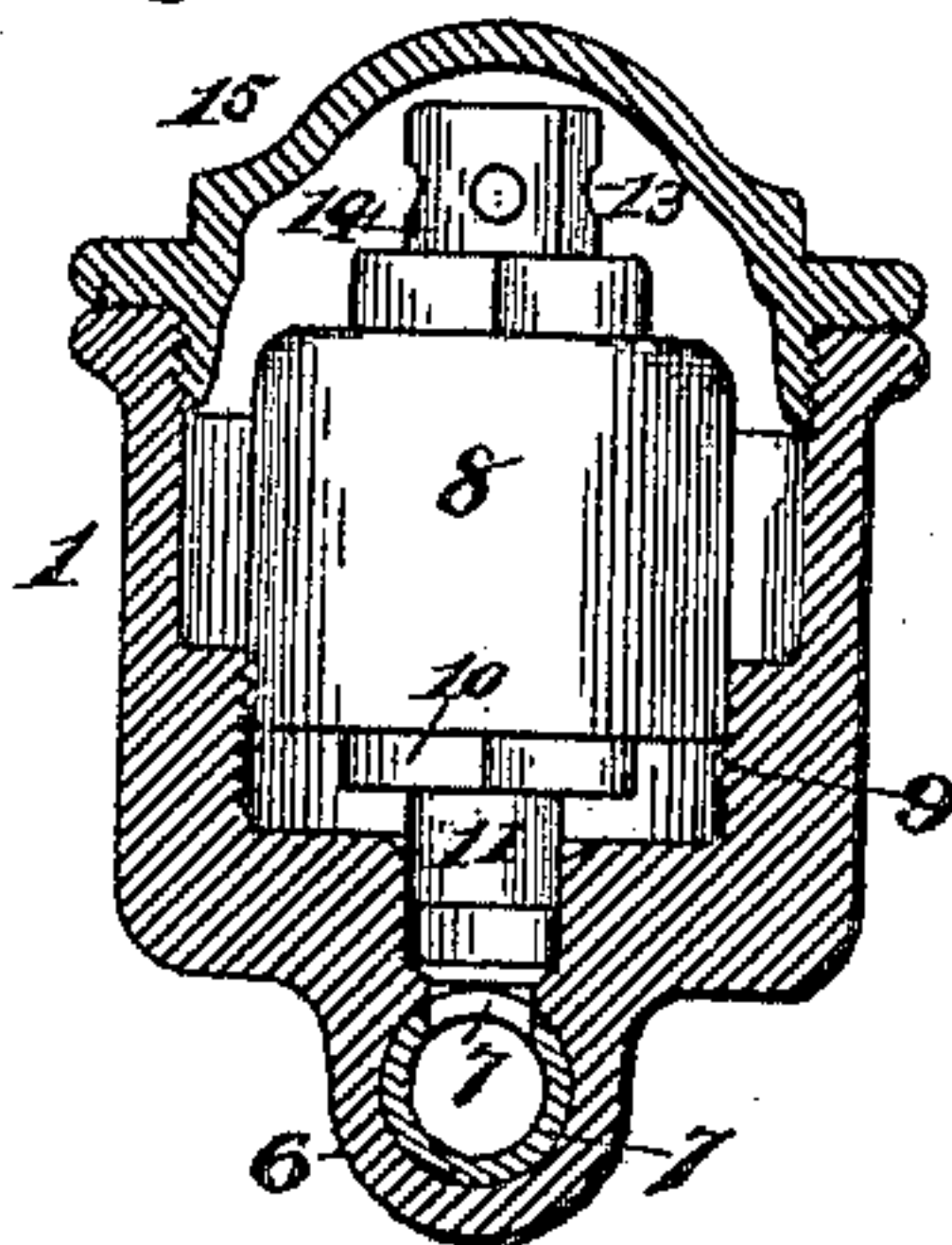
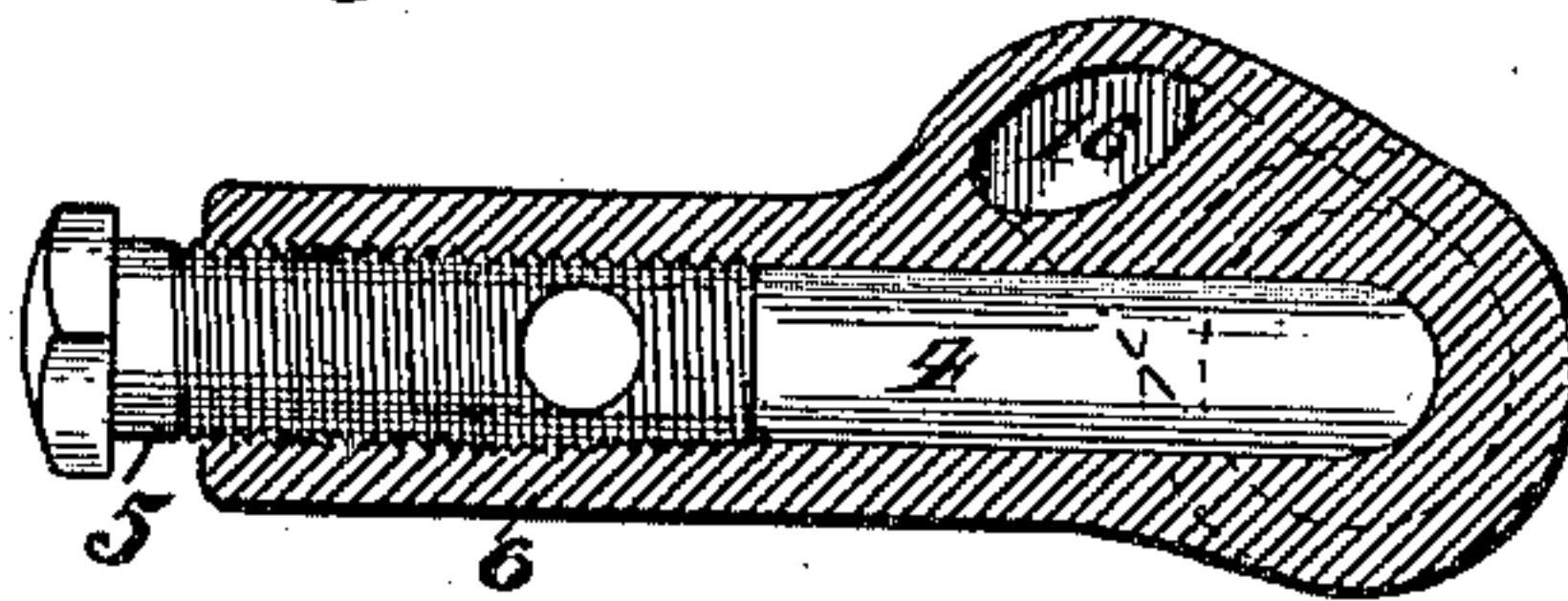


Fig. 5.



Attest

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UNITED STATES PATENT OFFICE.

EVAN WILLIAMS AND GEORGE FEWLASS, OF NEWPORT, KENTUCKY.

GAS-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 392,089, dated October 30, 1888.

Application filed March 6, 1888. Serial No. 266,361. (No model.)

To all whom it may concern:

Be it known that we, EVAN WILLIAMS and GEORGE FEWLASS, of Newport, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Gas-Governors, of which the following is a specification.

One of the objects of our invention is to provide a gas and fluid governor with suitable means for adjusting the same to variable amounts of supply to insure perfect regulation of the flow of gas.

Another object of our invention is to provide a simple, cheap, and durable regulator which is also compact and reliable. Another object is employing a valve which governs and regulates the flow of gas automatically by its own weight, all of which will be set forth in the description of the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of the governor. Fig. 2 is a section on line *s s* of Fig. 3. Fig. 3 is a section on line *x x*, Fig. 2. Fig. 4 is a section on line *z z*, Fig. 2; and Fig. 5 is a section on line *y y*, Fig. 2.

1 represents the shell of the regulator.

2 represents socket to receive the gas-feeding pipe.

4 represents a passage leading from pipe 3 to the regulating-chamber.

5 represents a hollow screw tapping into the base 6 of shell 1.

7 represents an orifice tapping the hollow screw 5 and directly under the hollow valve.

8 represents the shell of the valve-chamber. It taps into a socket, 9, in the base of the shell.

10 represents a nut tapping into the valve-chamber 8. It is pierced with an opening to receive the valve 11. Valve 11 is a hollow cylinder seated in the base of the valve-chamber for a guide, and the top is guided by a tubular-shaped portion, 14, of the valve-chamber 8.

12 represents a diaphragm rigidly attached to the valve 11, and having a diameter corresponding to the inner diameter of the valve-chamber 8.

13 represents orifices pierced in the top of the valve-chamber adjacent to the open end of the valve 11.

15 represents a dome covering the shell. This is screw-threaded and taps in the shell, as shown in Figs. 2 and 4.

16 represents a passage leading from the orifice 13 in the top of the chamber to the education-pipe 17. The commencement and termination of this passage are shown in Figs. 2 and 4. The dotted lines represent this passage behind the passage 4, as shown in Fig. 4.

21 represents a passage opening out from passage 4 and connected with the space 22 under the bridge 9. An annular space or perforation is made around the valve 11 to admit the gas up under the diaphragm 12.

18 represents a cut-off cock provided with a lever, 19, and the orifice 20, for permitting the flow of gas from pipe 3 into 4 when said passage is open by turning lever 19 adjacent to the passage 4.

The operation of the regulator is as follows: Gas is permitted to flow in the passage 4. The screw, Fig. 5, is turned with orifice 7 sufficiently open under the valve to permit the requisite quantity of gas to enter. Suppose the regulator is to supply one hundred burners. The screw, Fig. 5, is adjusted so as to admit sufficient gas for this number of burners. Then in order to control accurately and positively the supply of gas required for a less number—say ten burners—the valve 11 automatically proceeds to secure this uniform supply in the following manner: The gas to supply the burners passes from opening 7 up through the hollow valve 11, out the orifice 13, through the passage 16, into the supply-pipe 17. The second branch, 21, taps into the passage 4 and admits gas around the valve 11, which passes under the diaphragm 12 and lifts it up. An orifice, 23, is pierced in said valve 11 above the diaphragm, so as to equalize the pressure and prevent the valve from closing, thus balancing the valve. The pressure of the gas under the diaphragm 12 will regulate the height to which valve 11 is raised. When valve 11 is raised clear up, the orifices 13 are closed and the gas cut off. The initial pressure upon the upper side of the diaphragm, owing to the orifices 23 and 13 opening in the free passage 16, is less than the pressure through 21 upon the under side of diaphragm 12, as that is confined; hence as a

more or less number of burners are opened, drawing off a greater or less supply, they cause the valve 11 and the diaphragm 12 to rise or fall till the valve is in equilibrium corresponding to the amount of gas taken from the feeding-pipe 17, and consequently the orifice 13 will open more or less close as the valve 11 rises and falls. It will thus be seen that the weight of the valve operated on by the pressure of the gas against the diaphragm 12 regulates the size of the openings 13, rising and falling with the variation of pressure and positively controlling and maintaining the pressure uniform in the feeding-pipe 17 by the equilibrium of the valve suspended in its chamber.

Having described our invention, what we claim is—

1. In a gas governor, the combination of the shell 1, having a gas-passage, 4, the valve-chamber 8, the tubular valve 11, and the hollow screw 5, provided with orifices 7, said screw being adjustable in one end of the passage 4, to regulate the quantity of gas admitted to the tubular valve, substantially as described.

2. In a gas-governor, the combination of the

shell 1, having gas-passages 4, 16, and 21, the valve-chamber 8, having a tubular upper portion, 14, provided with orifices 13, the tubular valve 11, having outer annular diaphragm, 12, and provided with an orifice, 23, above said diaphragm, and the nut 10, secured in the lower end of the valve-chamber and forming a contracted annular passage, 22, around the lower end of the tubular valve, substantially as described.

3. A gas-governor composed of the shell 1, having gas-passages 4, 16, and 21, the valve-chamber 8, having orifices 13, the dome 15, the tubular valve 11, having diaphragm 12 and orifice 23, the adjustable hollow screw 5, located in one end of the gas-passage 4 and provided with orifices 7, and the cut-off cock 18, substantially as described.

In testimony whereof we have hereunto set our hands.

EVAN WILLIAMS.
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Witnesses:

ROBERT ZAHNER,
J. WATSON SIMS.