

No. 695,797.

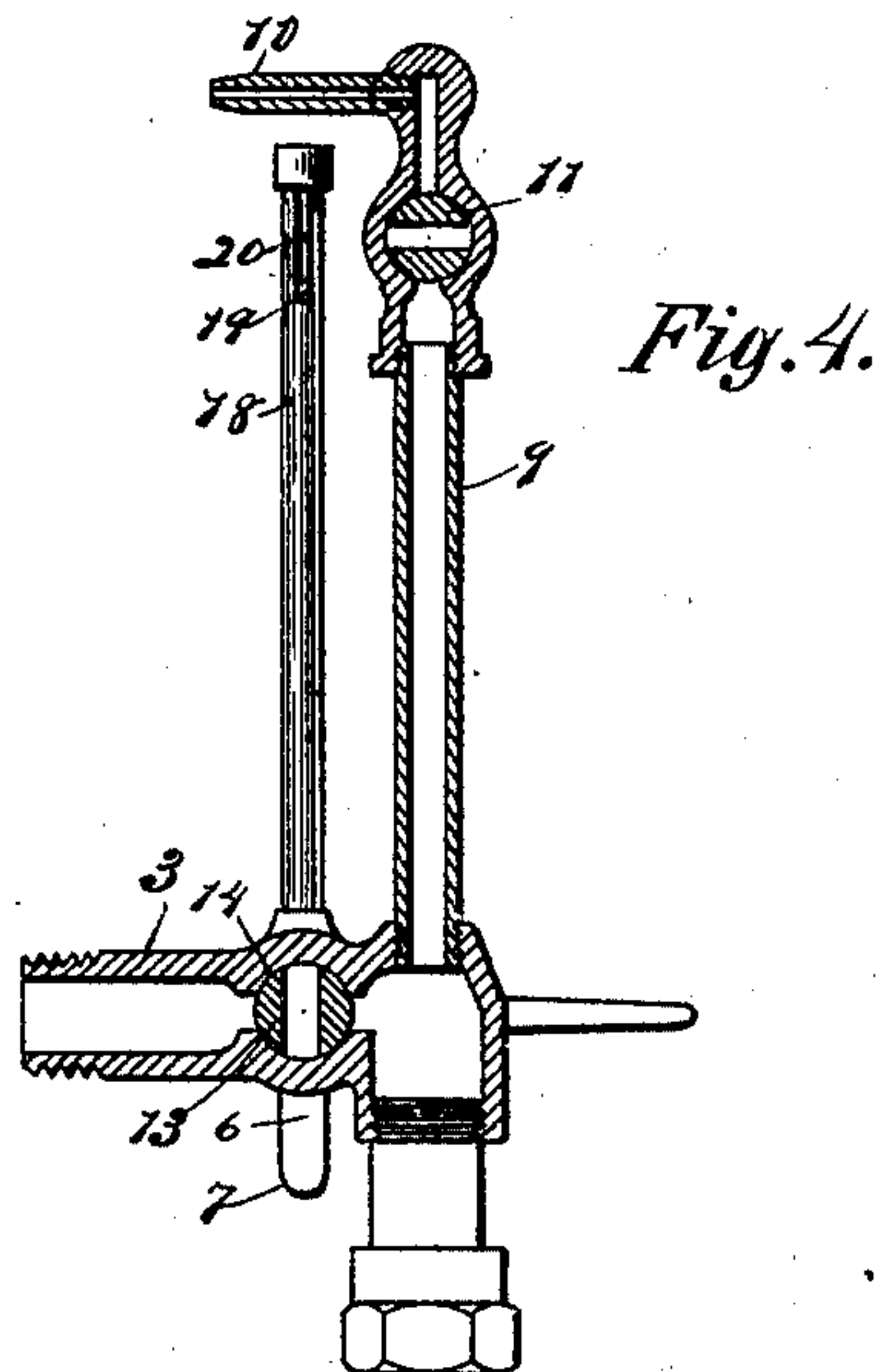
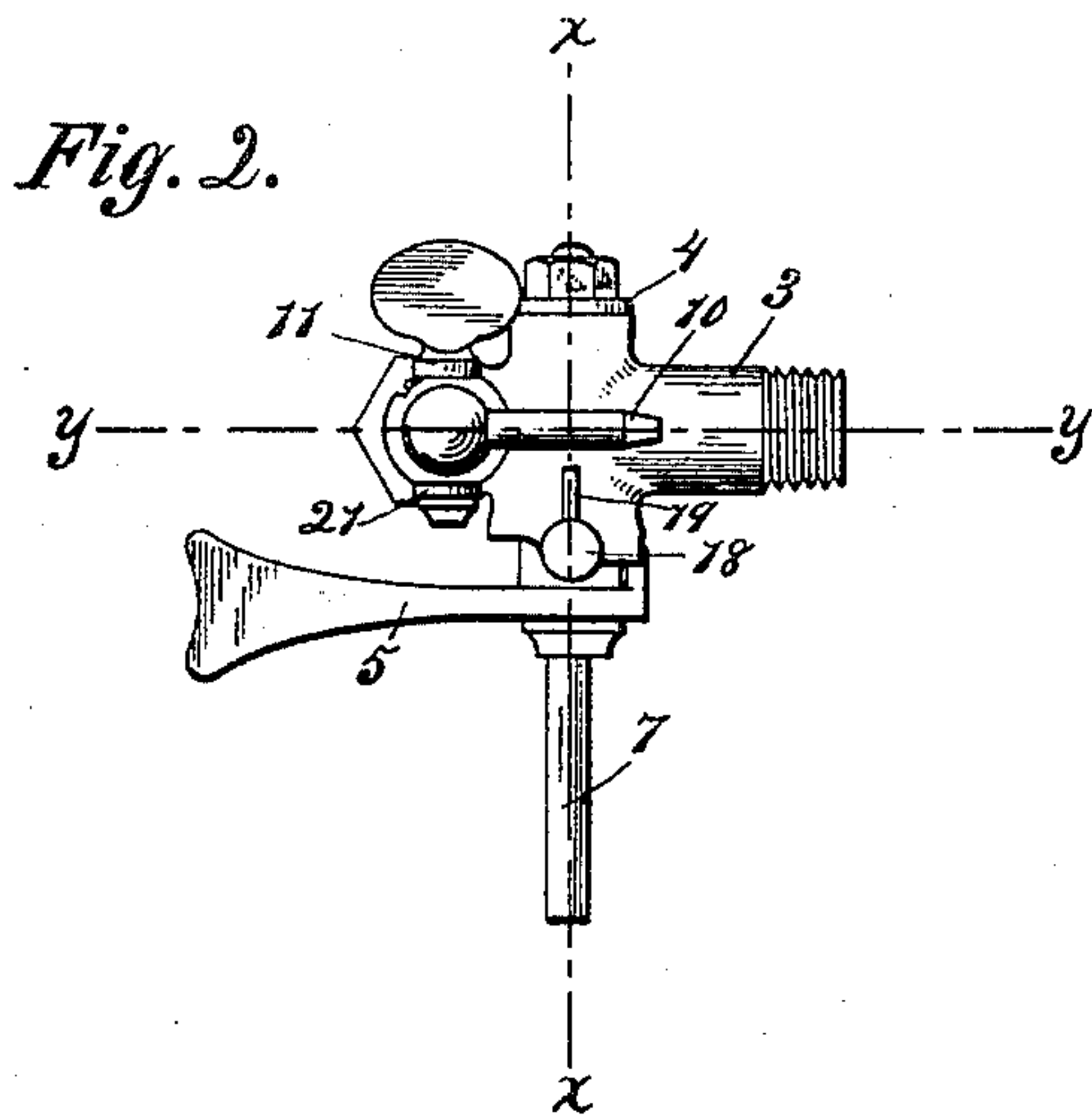
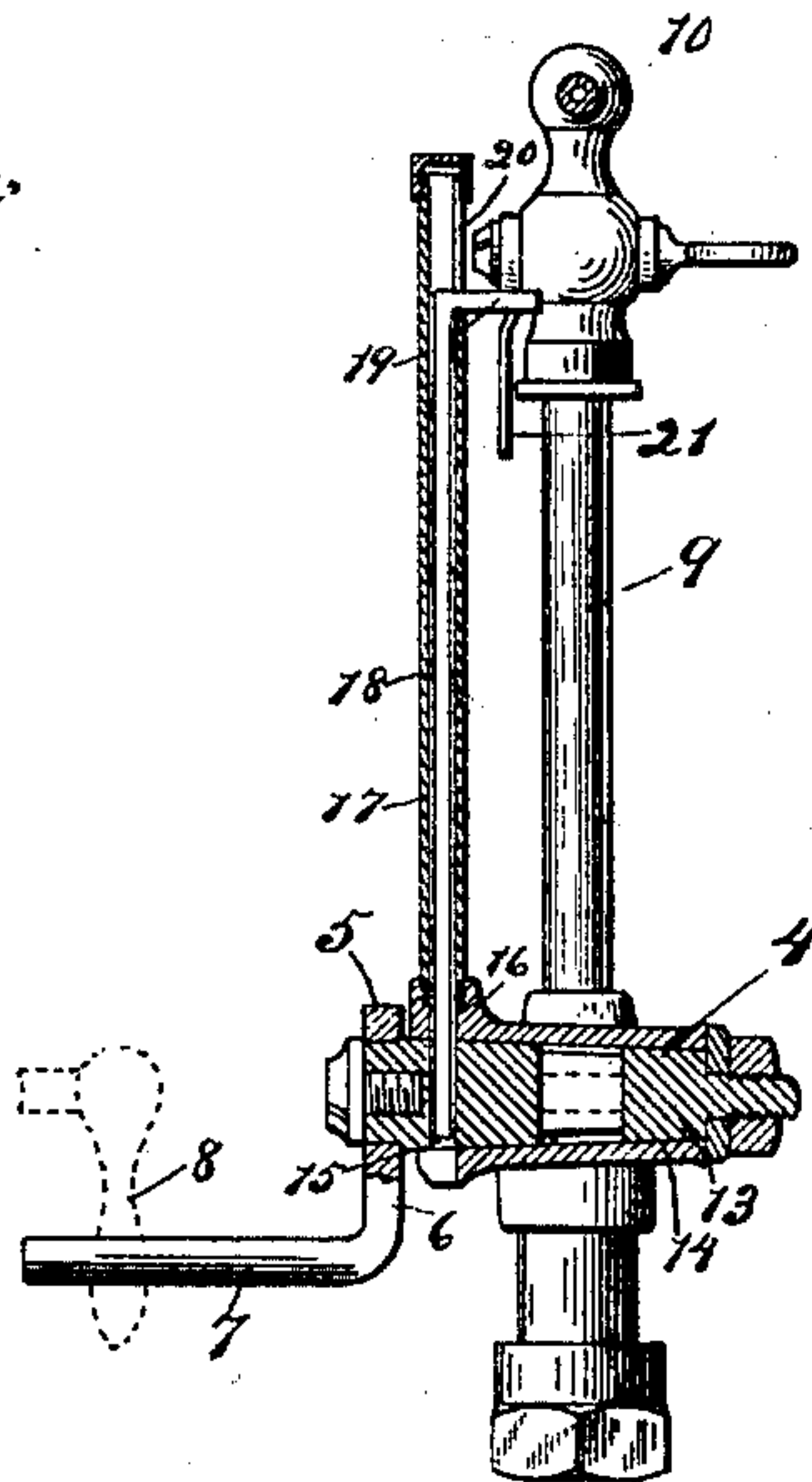
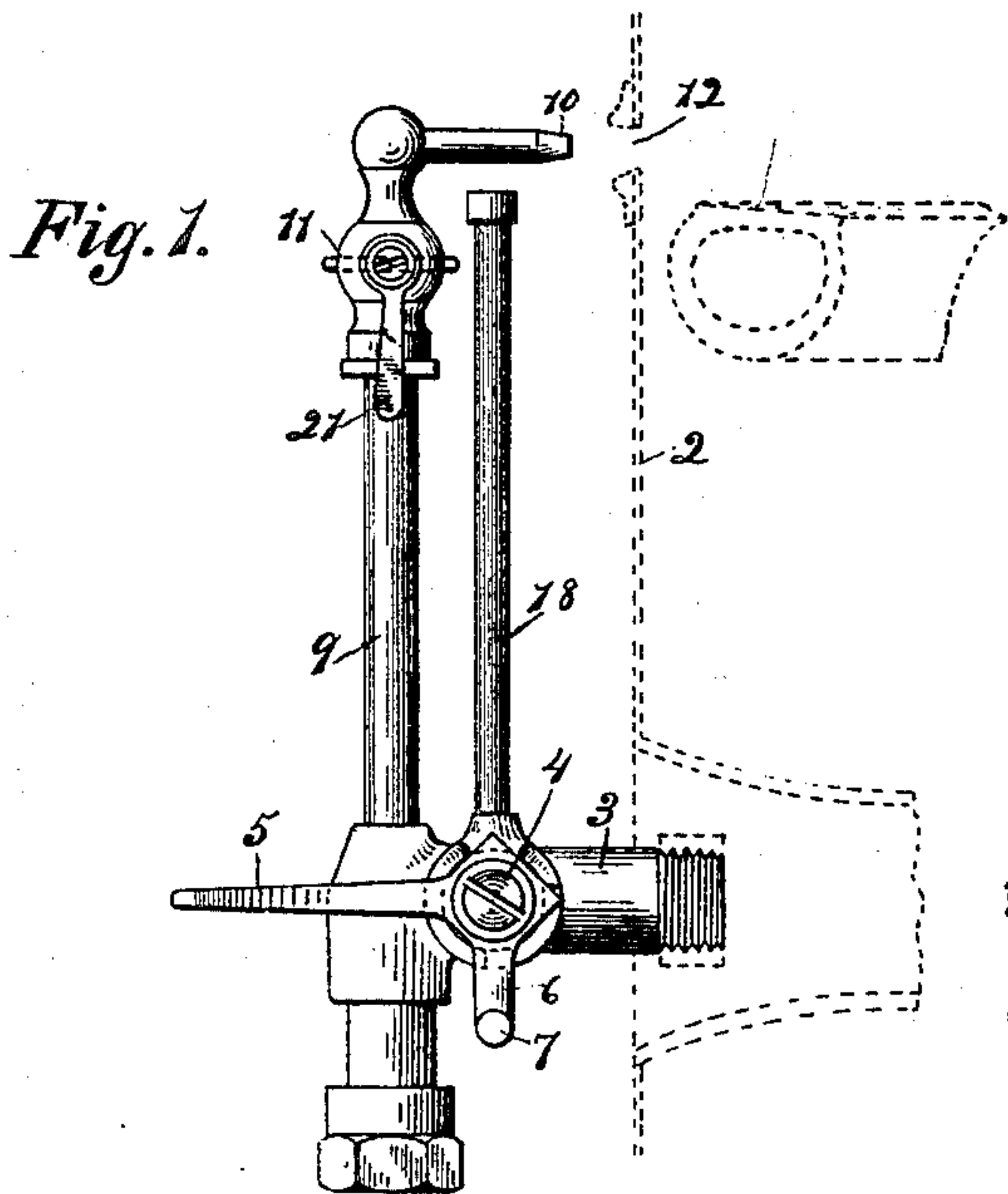
Patented Mar. 18, 1902.

M. I. COHEN.

VALVE LOCKING MECHANISM FOR GAS BURNERS.

(Application filed Oct. 4, 1901.)

(No Model.)



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VALVE-LOCKING MECHANISM FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 695,797, dated March 18, 1902.

Application filed October 4, 1901. Serial No. 77,520. (No model.)

To all whom it may concern:

Be it known that I, MORRIS I. COHEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Valve-Locking Mechanism for Gas-Burners, of which the following is a specification.

My invention relates particularly to devices for temporarily locking the gas-cock in so-called "instantaneous water-heaters" against premature opening. As is well known in the art, these heaters are designed to heat a stream of cold water as it flows through a pipe or pipes from any suitable source and are provided with a central or interior heating-chamber, within which are a number of burners, to which an inflammable gas is fed through a suitable supply-pipe and connections. The flow of gas through this supply-pipe is usually controlled by means of a lever-operated valve or cock, conveniently located outside the outer casing of the heater, which in being opened automatically opens the water valve or cock, simultaneously starting the flow of both gas and water. To ignite the gas within the chamber, the burners being inaccessible, a small pilot-burner is usually provided at a convenient point outside the casing, designed to direct a jet of flame through a suitable aperture in said casing and into the heating-chamber. Under previous methods of construction the valve or cock controlling the flow of gas in the supply-pipe may be turned on at any time, and if through negligence, carelessness, or ignorance said supply-cock is turned on too far in advance of igniting the jet from the pilot the heating-chamber is likely to become filled with gas or a mixture of gas and air, with the possible result of a more or less serious explosion when said pilot is ignited.

It is evident that there will be little or no danger of an explosion if the pilot-burner is lighted first and is burning when the gas is turned on in the combustion-chamber, ignition taking place at once and before it is possible for any seriously large quantity of gas to have accumulated in said chamber.

The object of my invention, therefore, is to provide a device which will positively pre-

vent the opening of the valve or cock in the gas-supply pipe prior to the opening of the valve or cock in the pipe leading to the pilot, or, in other words, a device which will necessitate opening the cock of the pilot prior to turning on the gas to the heating-chamber, thus guarding against explosions as a result of thoughtlessness or inadvertence on part of the user. For convenience the pilot is usually located near the lever-operated valve for controlling the flow of gas in the supply-pipe and, naturally, somewhat above the same, a suitable thumb-cock being provided to control the flow of gas to said pilot.

My invention consists generally in gravity-operated means for locking the valve of the supply-pipe against opening and means interposed between said valve and said thumb-cock and operable by said thumb-cock to unlock and permit the opening of said valve; and my invention further consists in the various details of construction and in combinations of parts, all as hereinafter described, and particularly pointed out in the claims.

My invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a side elevation of a device embodying my invention. Fig. 2 is a top plan of the same. Fig. 3 is a vertical section substantially on the line *x x* of Fig. 2. Fig. 4 is a vertical section substantially on the line *y y* of Fig. 2.

Referring now to the drawings in detail, the numeral 2 refers to the outer casing of a so-called "instantaneous water-heater," through which, suitably located, extends a gas-supply pipe 3, leading to the burners within the combustion or heating chamber. The supply-pipe 3 is provided with the valve or cock 4, operable by means of the lever 5, which is preferably of bell-crank construction, from the lower end of the vertical portion 6 of which projects laterally the horizontal arm 7, normally in engagement with the operating-lever 8 of the water valve or cock. This adjustment necessitates turning on the water in the heater at the same time the gas is turned on to guard against overheating of the confined

water in the pipes of the heater. A smaller pipe 9, suitably attached to and connected with the main source of gas-supply, serves to convey gas to the pilot 10, a thumb-cock 11 being conveniently located to control the flow of gas therein. Said pilot 10 is designed to direct a jet of flame through the aperture 12 in the casing, and thus into the combustion-chamber to ignite the jets from the burners therein.

The above is of substantially usual construction and forms no specific part of my invention.

The valve 4 is of the ordinary rotary or stop-cock pattern, the plug 13 being journaled in bearings 14, which extend for some little distance laterally on each side of the pipe 3.

Said plug, provided with the usual valve-chambers and apertures, is subject to rotation through a limited arc by means of the hand-lever 5, which is preferably adjusted to occupy a horizontal position when the valve is closed. A socket 15, in a vertical position when said valve is closed, extends from the top through or partially through said plug 13 and in its vertical position forming a continuation of a similarly shaped and sized slot 16 in the top of the cylinder 14, which forms the bearings for said plug 13. A vertical rod 17, slidable freely within a suitable guide-tube 18, is adapted to drop by gravity into the continuous slots 15 and 16, locking the plugs 13 against rotation, and consequently the valve 4 against opening. The upper end 19 of the rod 17 is bent horizontally and projects through a suitable vertical slot 20 in the guide-tube 18 to permit of the limited vertical movement of said rod. Said bent portion 19 is adapted to be engaged by the arm 21, mounted to rotate with the plug of the thumb-cock 11, the adjustment being such that the rod 17 is raised when the thumb-cock is turned to open the valve.

It is evident that the rod being in the socket the gas cannot be turned on in the main supply-pipe until a quarter-revolution of the thumb-cock to start the flow of gas to the pilot also raises said rod free of said socket. After ignition of the gas within the combustion-chamber the gas to the pilot is turned off, the arm 21 being simultaneously withdrawn from engagement with the bent portion 17 of said rod, which when the closing of the valve in the main supply-pipe brings the socket in the plug to a vertical position just beneath said rod drops by its own weight into said socket, again locking said valve.

Many modifications of the minor details of my improved valve-locking device will doubtless readily suggest themselves to those skilled in the art to which it appertains, and I therefore do not desire to limit my invention to the specific construction herein shown and described.

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

1. In a valve-locking device for gas-burners, the combination with a cock in the main gas-supply pipe and a cock in the ignition-burner-supply pipe, of means for automatically locking said main supply-cock when closed, and connecting means between said cocks for automatically releasing said main supply-cock by operation of said ignition-burner cock.

2. In a valve-locking device for gas-burners, the combination of a normally-locked gas-supply cock, an ignition-burner-supply cock, and means for automatically releasing said gas-supply cock by operation of said ignition-burner cock.

3. In a valve-locking device for gas-burners, the combination with a main gas-supply pipe to the combustion-chamber and an auxiliary supply-pipe to the ignition-burner, of a suitable stop-cock in each of said pipes, means for automatically locking said main supply-cock in its closed position, and means dependent upon the operation of said ignition-burner cock for automatically releasing said locking means.

4. In a valve-locking device for gas-burners, the combination with a main gas-supply pipe to the combustion-chamber and an auxiliary supply-pipe to the ignition-burner, of a suitable stop-cock in each of said pipes, gravity-controlled means for automatically locking said main supply-cock in its closed position, and means for automatically releasing said main supply-cock to permit the opening thereof by the operation of opening the said ignition-burner cock.

5. In a valve-locking device for gas-burners, the combination with a main gas-supply pipe to the combustion-chamber and an auxiliary supply-pipe to the ignition-burner, of a rotary valve in said main supply-pipe, a socket extending through the bearings and into the plug of said valve, a vertical rod adapted to drop by gravity into said socket when said valve is closed, a suitable stop-cock in said ignition-pipe, and means dependent upon the opening of said ignition-burner stop-cock to raise said rod free of said socket to permit the rotation of said plug.

6. In a valve-locking device for gas-burners, the combination with a main gas-supply pipe to the combustion-chamber and an auxiliary supply-pipe to the ignition-burner, of a rotary valve in said main supply-pipe, a socket extending through the bearings and into the plug of said valve, a vertical rod adapted to drop by gravity into said socket when said valve is closed, a guide-tube to retain said rod in a vertical position, a suitable stop-cock in said ignition-pipe, and means dependent upon the opening of said ignition-burner stop-cock to raise said rod free of said socket to permit the rotation of said plug.

7. In a valve-locking device for gas-burners, the combination with a main gas-supply pipe to the combustion-chamber and an auxiliary supply-pipe to the ignition-burner, of a lever-controlled rotary valve in said main supply-

pipe, a socket extending through the bearings
and into the plug of said valve, a vertical rod
adapted to drop by gravity into said socket
when said valve is closed, a guide-tube to re-
5 tain said rod in a vertical position, a horizon-
tal arm on said rod slidable through a suit-
able vertical slot in said guide-tube, a suit-
able stop-cock in said ignition-pipe, a lever-
arm mounted upon the axis of said stop-cock
10 to rotate therewith and adjusted to engage

with said horizontal arm and raise said rod
when said stop-cock is opened.

In testimony of the foregoing I have here-
unto set my hand, this 19th day of September,
1901, in the presence of two subscribing wit- 15
nesses.

MORRIS I. COHEN.

Witnesses:

ADA B. SPRAGUE,
F. P. BLACKMAN.