

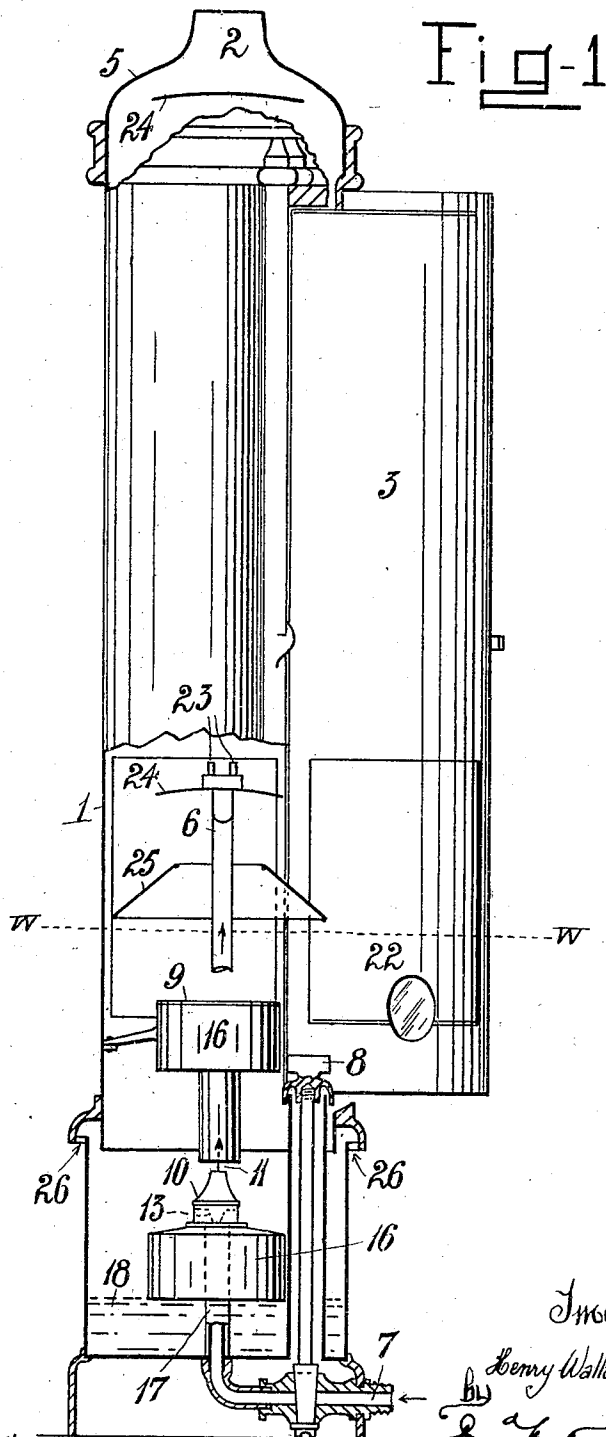
No. 879,486.

PATENTED FEB. 18, 1908.

H. W. McCLELLAN.
GAS WATER HEATER.

APPLICATION FILED APR. 25, 1907.

2 SHEETS--SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig-2-

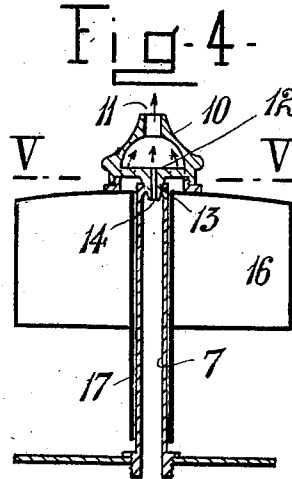
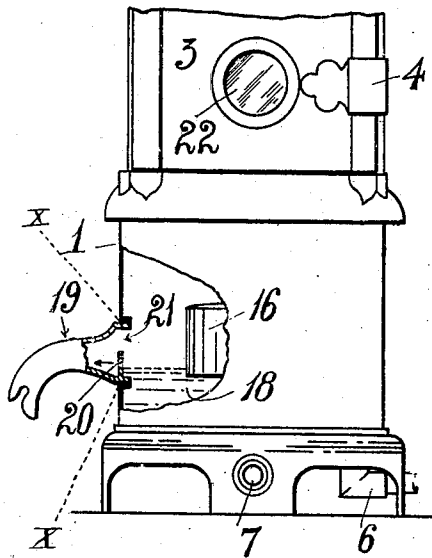


Fig-3-

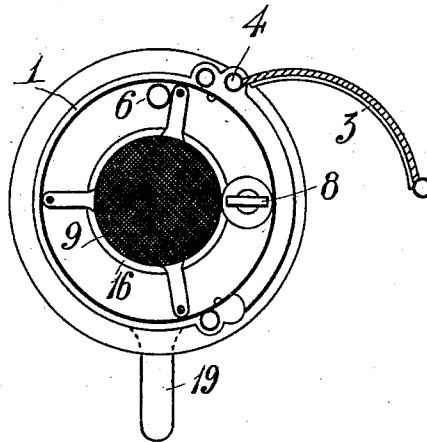
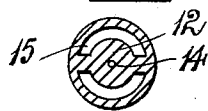


Fig-5-



Witnesses

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Fig-6-



by

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UNITED STATES PATENT OFFICE.

HENRY WALLACE McCLELLAN, OF CANTERBURY, VICTORIA, AUSTRALIA.

GAS WATER-HEATER.

No. 879,486.

Specification of Letters Patent.

Patented Feb. 18, 1908.

Application filed April 25, 1907. Serial No. 370,145.

To all whom it may concern:

Be it known that I, HENRY WALLACE McCLELLAN, a subject of the King of Great Britain, residing at "Glenhope," Warburton Road, Canterbury, in the State of Victoria, Australia, plumber, have invented Improvements in Gas Water-Heaters, of which the following is a specification.

In water-heaters in which gas is used as the fuel it is not infrequent that accidents occur owing to the explosion of gas which has accumulated in the somewhat confined space of the heater and flue, either through defective fittings or through the gas being inadvertently allowed to otherwise escape thereinto. Many devices have been resorted to with the object of overcoming this very serious defect, but so far no satisfactory solution of the difficulty has been attained as far as I am advised. I have therefore devised this invention with the object of providing a water-heater in which the danger of explosion is absolutely avoided, as will be readily understood by the following description with the aid of the accompanying drawings, which latter comprise:—

Figure 1 a front elevation of the gas water heater with parts in section and the door open. Fig. 2 a broken side elevation of the lower portion of the heater. Fig. 3 a horizontal section through Fig. 1 in the plane of the line W, W, looking in the direction of the arrows. Fig. 4 an enlarged vertical section illustrating the means for automatically controlling the gas supply. Fig. 5 a horizontal section in the plane of the line V—V, Fig. 4, and Fig. 6 a detail vertical section through the water outlet in the plane of the line X, X, Fig. 2.

According to this invention the casing 1 of my heater is formed of any suitable shape but is preferably cylindrical and provided with the usual flue 2 leading from the top thereof. At one side and extending the whole, or a portion of the length of said heater, is provided a door 3 or if preferred more than one mounted on hinges 4 and adapted to be swung wide open as shown in Figs. 1 and 3.

The water pipe 6 and gas pipe 7 each enters the heater about its lower end and the water tap (not shown) is conveniently situated either inside or outside the heater proper. The gas tap 8 however is preferably placed inside the heater and in such position cannot be operated until the door 3 is opened, and

consequently if by accident or leakage any gas had accumulated in the body of the heater it would be readily detected on opening said door and would, moreover be instantly diffused in the atmosphere. Said gas tap may however be situate outside the casing if preferred, in which case however the door 3 would have to be swung open in order to light the burner 9, and consequently should there be an accumulation of gas in the heater it would be immediately diffused.

In order to guard against the burning of the heater and to further guard against the liability of explosions, the gas pipe 7 which extends upwards for a short distance inside the heater and about its center, is provided at its upper end with a movable cap 10 having an outlet 11 at the top and a transverse partition or diaphragm 12 on the underside of which and about its center is a downwardly extending coned plug or valve 13 which is formed with a narrow central passage 14 and is normally seated in the open end of the gas pipe 7. With this construction when the gas is turned on a restricted amount of gas is allowed to pass through said passage 14 and cap to the burner 9 which is then lighted and acts as a pilot. The diaphragm 12 of the cap is also provided with comparatively large openings 15, 15 to admit the gas freely to the burner when the plug is raised. The cap 10 is rigidly attached to a vertically sliding float 16 having a central sleeve 17 surrounding the vertical portion of the gas pipe, which acts as a guide therefor and said sleeve extending down into the water, which accumulates in a reservoir 18 in the bottom of the apparatus as hereinafter described, prevents any escape of gas. The lower part of reservoir 18 of the heater is adapted to contain a certain amount of water previous to discharge and the outlet 19 therefrom is of special construction. It is provided with a small run-off opening or overflow passage 20 somewhat lower than the outlet passage proper 21, and at such a height that should the water not rise above the level of said opening 20 the float 16 will not be raised and so the plug 13 will remain on its seat and limit the flow of the gas. If, however a proper supply of water is flowing in, it will not be able to escape through said run-off passage 20 with sufficient rapidity and the water will consequently rise in said lower part or reservoir of the apparatus to the height of the main passage 21 of the outlet carrying the

float and the plug with it, which latter is thereby lifted off the end of the gas supply pipe so that a free supply of gas passes through the openings 15 in the cap 10 in a sufficient volume for heating the water, and said gas is ignited by the burning pilot. Should the water supply fall off, the float sinks and the cap and its plug fall thereby controlling the supply of gas to the heater.

10 In order to ascertain whether the apparatus is working correctly a small spy-hole 22 is placed in any convenient position preferably in the door 3 and opposite the burner 9 and it is closed by mica or other fire resisting

15 transparent material.
These improvements are applicable equally to gas bath heaters wherein the water (as in the drawings) is introduced through nozzles 23 in the form of a spray in which cases 20 baffle plates 24, 24 and directing shields 25 are required (Fig. 1), or through tubes, or hollow walls, in which latter case hollow hinges would be required for the door to allow of the flow of water therethrough.

25 Air is admitted as usual near the bottom of the heater through conveniently situated holes 26 in order to insure the free combustion of the gas.

Having now particularly described and 30 ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a gas water heater in which the water is heated while passing therethrough, the 35 combination of a reservoir for water said reservoir provided with a plurality of normally open outlets situated one above the other, a burner, a gas supply for said burner, and a float situated within said reservoir and 40 adapted to control said gas supply according to the height of water in said reservoir.

2. In a gas water heater, a cylindrical casing having a reservoir of water in the bottom, a water outlet from said reservoir having a 45 main passage and also another restricted passage below said main passage, a gas supply pipe and a vertically guided float in said reservoir adapted to control the outlet of said

gas supply pipe, the whole being arranged as and for the purposes specified.

3. In a gas water heater, a reservoir, means 50 for supplying water thereto, a floating valve controlled by the height of the water within the reservoir for regulating the supply of gas to the burner, in combination with an outlet 55 or overflow for said reservoir comprising two separate passages, the upper one being of greater size than the lower one, substantially as herein described.

4. In a gas water heater, a water reservoir, 60 a gas supply pipe, a float situated in said reservoir and provided with a sleeve surrounding said gas supply pipe, a cap on the top of said float having an outlet in the upper end and a partition or diaphragm near the bot- 65 tom provided with comparatively large openings and with a central downwardly extending plug formed with a restricted vertical passage and adapted to be normally seated in the open end of said gas supply pipe, a 70 burner above said cap and a water outlet to said reservoir, substantially as and for the purpose set forth.

5. In a gas water heater, a gas supply pipe extending upwardly through the bottom of 75 the casing of said heater and provided with a tap within the casing, said casing being provided with a hinged door extending the whole or a portion of its side, in combination with a float supported in a reservoir of water 80 in the bottom of said casing and provided with a cap having outlets and a plug formed with a restricted outlet passage and adapted to fit the open end of the gas supply pipe and a water outlet or overflow from said reservoir 85 of water, said water outlet having passages of different sizes situated at different levels, all substantially as and for the purposes set forth.

In testimony whereof I have hereunto set 90 my hand in presence of two subscribing witnesses.

HENRY WALLACE McCLELLAN.

Witnesses:

EDWARD WATERS,

WILLIAM HERBERT WATERS.