W. F. DEWEY.

HEATER.

APPLICATION FILED FEB. 21, 1913.

1,061,825.

Patented May 13, 1913.

Fig. 1.

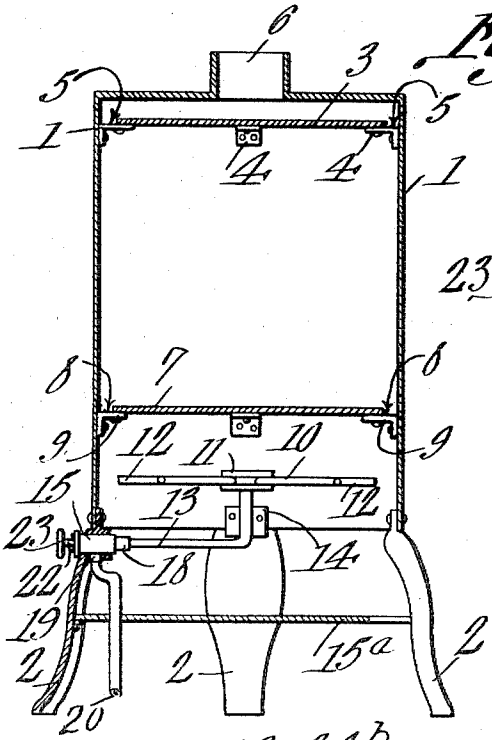
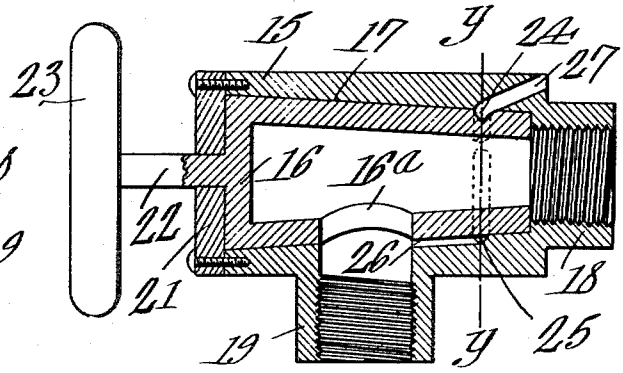


Fig. 2.



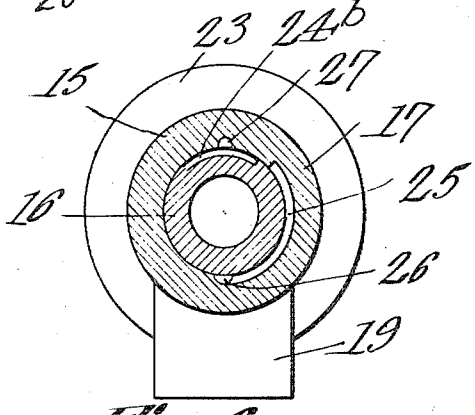


Fig. 3.

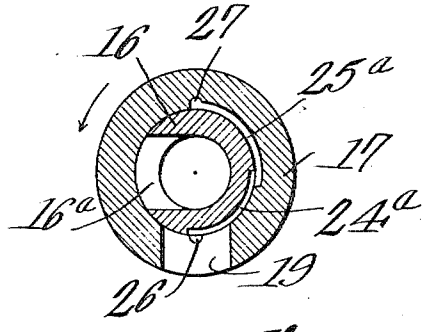


Fig. 4.

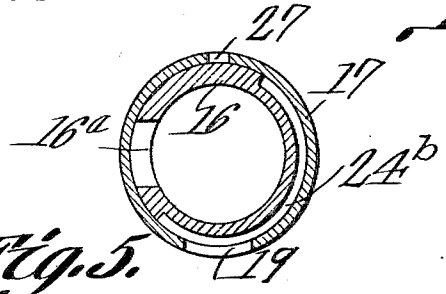


Fig. 5.

William F. Dewey,
Inventor

Witnesses

J. C. Tomen

L. H. Wilson.

by C. A. Snow & Co.

Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM F. DEWEY, OF IOLA, KANSAS.

HEATER.

1,061,825. Specification of Letters Patent. Patented May 13, 1913.

Application filed February 21, 1912. Serial No. 679,204.

To all whom it may concern:

Be it known that I, WILLIAM F. DEWEY, a citizen of the United States, residing at Iola, in the county of Allen and State of Kansas, have invented new and useful Improvements in Heaters, of which the following is a specification.

This invention relates to improvements in heaters, more particularly the fluid-fuel or gas-burning type.

The invention has for its object to provide for readily effecting the heating action.

A further object is to provide for producing a pre-lighting action in connection with the primary burner.

A still further object is to provide for spreading the ignited fuel or flame within the heater.

A still further object is to carry out the aforesaid ends in an inexpensive, expeditious and effective manner.

The invention consists of certain instrumentalities and features substantially as hereinafter fully disclosed and defined by the claims.

In the accompanying drawing, illustrating the preferred embodiment of my invention wherein it will be understood that various changes and modifications may be made as to the detailed construction and arrangement of the parts, without departing from the spirit thereof, Figure 1 is a sectional elevation of the heater. Fig. 2 is an enlarged vertical longitudinal section of the pilot-light controlling valve. Fig. 3 is a sectional view taken on line *y—y* of Fig. 2. Fig. 4 is a transverse sectional view, showing a modification of the pilot-light controlling valve. Fig. 5 is a like view, showing a second modification of the pilot-light controlling valve.

In carrying out my invention, I provide a casing or drum 1 preferably of sheet metal, which is supported upon legs 2 of any ordinary type. The casing or drum 1 is preferably bottomless, and has arranged therein near its upper or outlet end, a diaphragm or deflector 3, for spreading the flame and throwing it toward the sides of the drum, the diaphragm or deflector being supported by means of brackets 4 secured to the inside of the casing or drum and to the diaphragm or deflector, a narrow annular space or passage 5 being left between the periphery of the deflector and the drum, for the upward passage of the ignited gas or flame, and a vent 6 being provided in the top or upper end of the drum or casing. A second, similar diaphragm or deflector 7 is also preferably arranged within the lower portion of the casing or drum 1, and is spaced as at 8 from the casing or drum. The deflector 7 is upheld by means of brackets 9 secured to the casing 1 and to said deflectors, the deflectors aiding in throwing or spreading the flame toward the sides of the casing or drum. This throwing of the gas-flame laterally within the drum or casing 1 has the effect of more fully utilizing the gas or fuel-flame and accordingly augmenting the heating action of the drum.

Supported within the casing or drum 1, below the lower diaphragm or deflector 7 is a burner 10, preferably of the ordinary "star" type, the same including a head-member 11 and radial tubular arms or jet-pipes 12 delivering upwardly against the initial or primary deflector or diaphragm 7. In suitably supporting the burner 10 in position, the supply-pipe 13 therefor, which enters the drum 1 centrally through its lower end, is upheld by means of a bracket 14, projecting from the inside of the drum, said supply-pipe extending downwardly and laterally below the bottom edge of the drum, and having connected thereto a valve or cock 15 supported in a leg 2 of the drum.

An imperforate plate, shield or guard 15ª is supported upon the legs 2 of the casing or drum 1 below the bottomless lower end thereof, to interrupt the downward radiation of heat, as will readily be understood.

The valve or cock 15 includes preferably a tapered hollow ported plug 16 arranged within a correspondingly tapered casing 17, which is preferably of T-union or coupling formation, with one end as 18 adapted for screw-threaded attachment to the outer end of the burner-supply pipe 13, the plug or valve casing having its nozzle 19 adapted for like attachment to the service-pipe 20, the port 16ª of the valve being adapted for registration with the nozzle 19. The opposite end of the valve casing 17 has suitably attached thereto a plate or closure 21 and through a central orifice in the closure or plate extends the handwheel stem 22 of the valve or plug 16, the handwheel being designated by the numeral 23, the plug or valve being opened and closed simply by rotation and not by endwise movement.

The plug or valve 16 and its casing or in-

closure 17 are provided with arcuate grooves or passages or by-passes, 24 and 25, respectively, which are adapted for maximum communication one with the other only when the port 16^a of the plug or valve is wholly out of communication or register with the nozzle 19. The valve-casing groove or passage 25 has at one end a right-angled arm or extension 26 adapted to communicate with the intake nozzle 19, the casing being also provided with an upwardly inclined passage or jet opening 27 communicating with the groove 24 and adapted to deliver a pilot-flame for igniting the gas issuing from said primary burner 10.

It will be observed that by rotating the plug or valve 16 so as to effect connection between the by-passes 24 and 25, the port 16^a will not register with the gas-intake nozzle 19. The gas, however, will escape through the grooves 24 and 25 into the jet-opening 27, and when ignited at the mouth of the jet opening, a flame will be thrown upon the primary burner 10. By rotating the plug or valve 16 further and in the same direction, registration is effected between the port 16^a and the gas-intake nozzle 19; connection, however, between the by-passes 24 and 25 at this juncture is severed, and the gas-flame at the mouth of the jet-opening 27 is extinguished. Before the pilot-flame is put out, however, a quantity of gas will have passed through the primary burner 10 and will have been ignited by the pilot-flame.

In Fig. 4, there is shown a casing 17 having a channel 25^a, communicating with the jet-passage 27, the plug 16 having a channel 24^a communicating with the extension-passage 26 in the casing 17, the arrangement of channels or passages in the plug and in the casing being interchanged, as compared with Fig. 3.

As disclosed in Fig. 5, the plug or valve 16 is provided with a superficial groove or by-pass 24^b which is adapted to establish direct communication between the ports 27 and 19, when the valve is rotated. It is apparent that, when the valve 16 is adjusted as indicated in Fig. 5, there will be no gas-supply to the primary burner 10. By adjusting or turning the valve 16 so as to establish communication between the ports 19 and 27 through the by-pass 24^b, a pre-lighting gas-supply will be delivered through the port 27 toward and upon the primary burner 10. By continuing to turn the valve 16 in the same direction, to the left, the port 16^a will be caused to register with the by-pass 19, while the port 24^b will still be in communication with the port 27, the ports 19 and 16^a effecting a gas-supply to the valve 16 and, therethrough, to the primary burner 10, which gas-supply will become ignited from the pre-lighter or pilot flame. By continuing to turn the valve 16 in the same direction, the by-pass 24^b will be moved out of registration with the port 19 and accordingly cut off the gas-supply at that point, the operation resulting in extinguishing the pre-lighter or pilot flame and yet allowing the primary burner gas-supply to remain intact. By reversing the rotation of the valve 16, the primary burner gas-supply will be cut off and its flame become extinguished, but not, however, before communication has again become established between the port 27 and the by-pass 24^b, thus providing for re-lighting the pilot-flame previous to extinguishing the primary burner flame.

What is claimed is:—

1. In a device of the class described, a casing having an inlet, the casing being provided with an inclined jet opening disposed at an acute angle to the axis of the casing; a hollow valve journaled in the casing and closed at one end, the open end of the valve discharging through one end of the casing, the valve having an inlet adapted to be brought into and out of registration with the inlet of the casing; the valve and the casing having coöperating grooves establishing communication between the jet opening and the inlet of the casing when the inlets are out of alinement; and a burner supported above the discharge end of the jet opening.

2. In a device of the class described, a casing having an inlet; a pipe projecting from one end of the casing; a burner supported by the pipe; there being a jet opening in the casing above the pipe, the opening being upwardly inclined toward the periphery of the burner; a hollow valve journaled in the casing, the valve discharging at one end into the pipe, the valve having an inlet adapted to move into and out of registration with the inlet of the casing; the valve and the casing having coöperating grooves establishing communication between the jet opening and the inlet of the casing when the inlets are out of alinement.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM F. DEWEY.

Witnesses:

F. A. LAWTON,

ALFA DUNCAN.