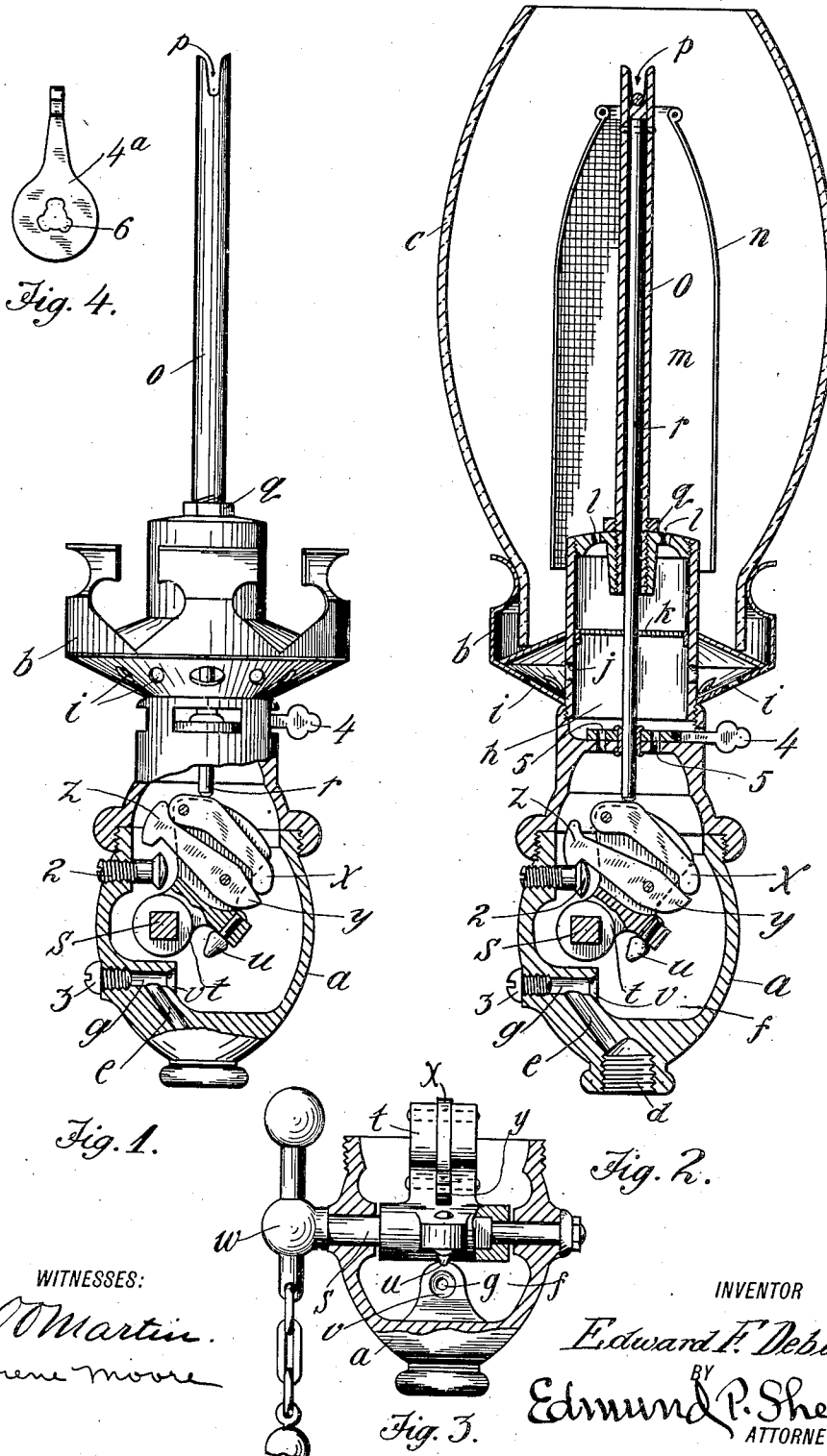


E. F. DEBLEY.
 AUTOMATIC CUT-OFF FOR GAS BURNERS.
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1,041,972.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDWARD F. DEBLEY, a citizen of the United States, residing at Linnton, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Automatic Cut-Offs for Gas-Burners, of which the following is a specification.

My invention relates to an incandescent gas burner, and more particularly to means for controlling the gas supply of such burner.

Gas burners of this character are well known and provided with a chemically prepared fabric mantle, which becomes superheated and incandescent as the burning gas passes through its texture. It frequently happens, however, that the gas, in passing through the mixing chamber does not absorb the proper proportion of air, whereby an explosion is caused which extinguishes the gas. Or the gas pressure in the supply pipe may suddenly drop with a like result. In either case the flow of gas through the burner continues, permitting the gas to escape into the room in which the burner is mounted, thus causing a continuous waste of gas, and, as frequently happens, the loss of human lives.

With these disadvantages in view, the object of my invention is to provide means for automatically cutting off the gas supply the instant the gas flame becomes extinguished, and in order to accomplish this result, I place a thermostat in the center of the mantle, the expansion and contraction of which I utilize to operate a cut-off valve positioned below the burner.

The further objects and features of my invention are clearly set forth in the following description and in the appended drawing forming part of the specification.

In the drawing Figure 1 is a side elevation of a burner, in which my invention is embodied,—Fig. 2 is a sectional side elevation in agreement with Fig. 1, Fig. 3 is a sectional elevation of the lower part of the burner, taken at right angles to Fig. 2, and Fig. 4 is a detail view of a modified form of feed regulator.

The burner comprises a body part *a*, provided with the usual resilient flange *b*, supporting the globe *c*. Gas from the supply pipe enters the burner at *d*, and flows

through a passage *e* into the chamber *f*. It is noticed that passage *e* is inclined, and that the gas, before entering chamber *f*, is trapped in horizontal passage *g*, before discharging horizontally into chamber *f*. The object of this construction is to correctly position said passage *g* for coöperation with the cut-off valve of my device, as readily seen in the drawing, and as more fully described later. Air enters this chamber through perforations *i*, *j*, and mixture passes through screen *k* and perforations *l* of the tip into combustion chamber *m*.

The mantle *n* is of any known construction, but the mantle support is peculiar and forms an important part of my invention. It is a thermostat and as such comprises a tube *o*, provided at the top with a groove *p*, from which the mantle is freely suspended. The bottom of the tube is threaded into the gas tip and locked in position by a check-nut *q*; it is made of expansible material and encompasses a rod *r*, made of non-expansible material. Said rod is slightly smaller in diameter than the tube, and the upper end of the rod is rigidly fixed in the tube; when therefore the gas is lighted, the heat causes the tube to expand and to raise the rod. This movement of the rod is utilized to operate the valve of the burner in the following manner: A stem *s* journals in chamber *f* and carries a latch frame *t*, in which valve plug *u*, adapted to rest in mouth *v* of passage *g*, is mounted. Said stem extends through the wall of the burner and is on the outside provided with an operating handle *w*, by means of which the valve plug is oscillated to open or close passage *g*, thus manually controlling the gas supply. On frame *t* I pivot a pair of levers *x*, *y*, and by referring to Fig. 2 it is readily seen, how these levers coöperate with the lower end of thermostat rod *r* to automatically close the valve.

The moment the gas-flame becomes extinguished, tube *o* contracts, causing rod *r* to descend, and to depress lever *x*, which in turn depresses the abutting end of lever *y*. The opposite end of the latter is made with a head *z*, engaging an adjustable bolt 2 of body *a*, and thereby adapted to retain the valve in its open position as shown in Fig. 2. As lever *y* swings fulcrum, head *z* is released from bolt 2, and the latch frame drops

by gravity, causing valve plug *u* to seat in the mouth of passage *g*, whereby the gas supply is cut off.

It is noticed, by referring to Fig. 2, that the abutting faces of head *z* and bolt 2 are beveled, and while the inclination of this bevel is acute enough to normally retain the latch frame in its elevated position, the application of additional force in manually opening and closing the valve is sufficient to permit said head *z* to pass said bolt 2.

As stated tube *o* is adjustably mounted in the gas tip, and as bolt 2 is also adjustably fixed, it is a simple matter to regulate my device, so as to insure perfection of operation. Passage *g* extends through the wall of body *a*, and is closed by screw 3, by removing which said passage is readily cleaned. My gas burner is furthermore provided with the usual gas adjuster 4, by means of which the flow of gas to the mixing chamber is regulated.

In Fig. 4, I show a modified form of gas adjuster, the adjuster 4^a is made with notches 6, and these notches register with similar notches in the part of the burner on which the adjuster is rotatably fixed. This construction is superior to the usual form, as shown by adjuster 4, and perforations 5 in Fig. 2, for the reason that the gas, in entering the mixing chamber, is kept closer to the center of the burner, than is possible with the ordinary construction shown in Fig. 2.

I claim:

1. In a gas burner, the combination with a body-portion, a supply passage opening into said portion, a valve-seat in said opening, and a mantle; of a thermostat adjustably fixed in said body, adapted to support said mantle; a valve-stem journaled in said body portion; a latch-frame rigid on said valve-stem, a pawl pivoted on said frame and adapted to be depressed by said thermo-

stat, a lever pivoted on the frame and adapted to be tilted by said pawl, said lever provided with a head, a bolt adjustably fixed in the body-portion and normally engaged by the head of said lever, whereby the latch-frame is held elevated, a valve plug on said latch-frame the devices so related that the thermostat in cooling, causes the head of said lever to swing clear of said bolt, thus releasing the latch-frame, which drops by gravity and cuts off the gas supply; and manually operated means for oscillating said valve-stem to open or close the gas supply.

2. In a gas burner, the combination with a body-portion, a supply passage opening into said portion, a valve-seat in said opening, and a mantle; of a thermostat adjustably fixed in said body, adapted to support said mantle, and comprising an expansible tube and a non-expansible rod freely hung in said tube; a valve-stem journaled in said body-portion; a latch frame rigid on said valve-stem, a pawl pivoted on said frame and adapted to be depressed by said thermostat, a lever pivoted on the frame and adapted to be tilted by said pawl, said lever provided with a head, a bolt adjustably fixed in the body-portion and normally engaged by the head of said lever, whereby the latch-frame is held elevated; a valve-plug mounted on said latch-frame mechanism, the devices so related that the thermostat, in cooling, causes the head of said lever to swing clear of said bolt, thus releasing the latch-frame, which drops by gravity and cuts off the gas supply; and manually operated means for oscillating said valve-stem to open or close the gas supply.

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Witnesses:

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