(No Model.)

H. ESCHWEILER.

SAFETY ATTACHMENT FOR GAS BURNERS.

No. 524,801. Patented Aug. 21, 1894.

Fig. 1

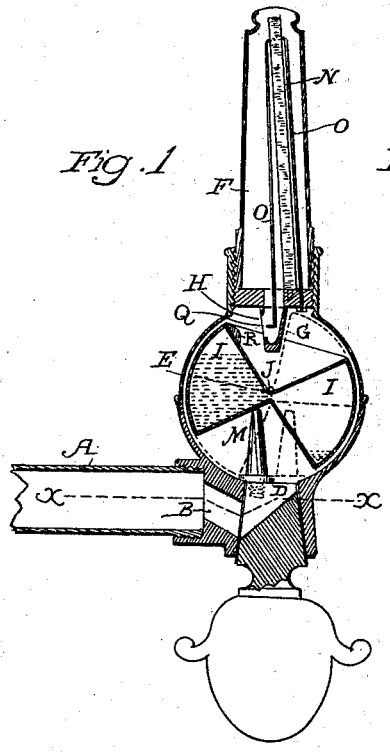


Fig. 2

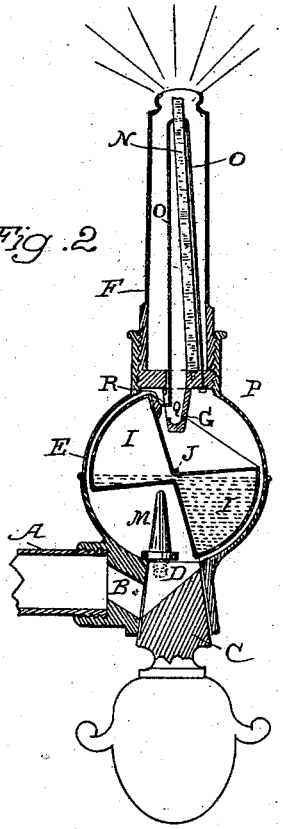


Fig. 3

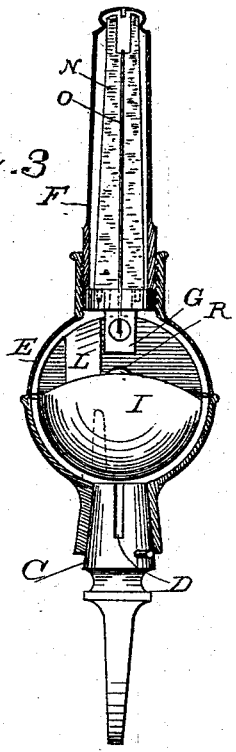


Fig. 4

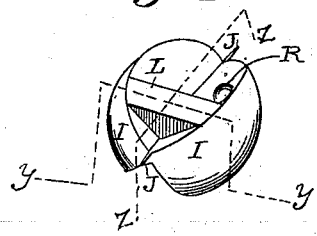


Fig. 5

Fig. 6

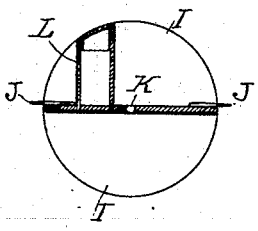
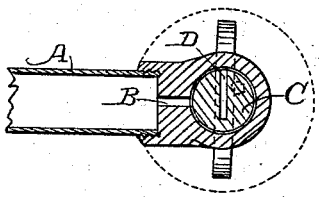


Fig. 7



Witnesses,
J. A. Bayless

Inventor
Henry Eschweiler
By Dewey & Co.
Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY ESCHWEILER, OF SAN FRANCISCO, CALIFORNIA.

SAFETY ATTACHMENT FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 524,801, dated August 21, 1894.

Application filed March 16, 1894. Serial No. 503,938. (No model.)

To all whom it may concern:

Be it known that I, HENRY ESCHWEILER, a subject of the Emperor of Germany, residing in the city and county of San Francisco, State of California, have invented an Improvement in Safety Attachments for Gas-Burners; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a safety device and attachment for gas burners.

It consists in certain details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a vertical section taken through the burner and attachment, showing the key turned in position to open in full lines, and to close in dotted lines. Fig. 2 shows the device in operation while lighted. Fig. 3 is a view taken at right angles with Figs. 1 and 2. Fig. 4 is a perspective view of the variable weight. Fig. 5 is a section taken through Y—Y of Fig. 4. Fig. 6 is a section through Z—Z of Fig. 4. Fig. 7 is a section through X—X of Fig. 1.

The object of my invention is to provide an attachment for gas burners which will operate automatically to stop the flow of gas if the cock be accidentally opened, or the gas extinguished while it is open.

A is the pipe or passage through which the gas reaches the burner.

B is a narrow slit communicating with the pipe and extending through the casing in which the key or plug C turns. In the plug C is a corresponding slit D which, as shown in Fig. 7, stands at right angles with the slit B when the cock is closed. When turned so that the cock is opened it stands in line with the slit B and its upper side is open to admit the gas into the hollow globular casing E. The pillar F which carries the burner tip, is screwed into the top of the casing E, projecting upwardly as shown. An extension G projects from the bottom of the pillar into the globular casing E, and has an opening H made on one side of it for the admission of gas from the casing E into the pillar and thence into the burner.

I is a hollow two-chambered receptacle here shown in the form of two globular segments projecting in opposite directions from the center, and this receptacle is pivoted within the exterior casing E by means of pivot pins J which are delicately formed and turn in suitable sockets in the sides of the casing. The two chambers I are connected by a minute central passage K which is shown exaggerated in size in the present drawings. A body of liquid which will flow freely and not become clogged or frozen, is placed in this receptacle, and it is afterward sealed up so as to remain there permanently. When the receptacle is turned so that one of the chambers which is filled with the liquid, is above the other, the liquid will gradually pass through from the uppermost to the lowermost of these chambers. The upper parts of the chambers are connected by a passage L which allows the air to be transferred from one to the other as the liquid flows.

M is a pin projecting from the top of the plug C, and standing at one side of the center so as to be eccentric thereto. This pin is so placed that when the cock is closed it will stand in the position shown in dotted lines in Fig. 1, and pressing against the inclined bottom of the right hand chamber of the receptacle, it will force it into the position shown in dotted lines with the right hand portion above the left hand portion. The liquid will then gradually flow from the right hand portion of the receptacle into the left hand portion which will thus be filled and made heavier than the right hand portion. When the cock is opened, the pin M impinges against the bottom of the left hand portion of the receptacle, as shown in Fig. 1, and turns it upward so that the liquid may commence to flow from the left to the right hand portion. At the same time gas will flow from the pipe A through the casing E, the hole H on the side of the projection G and into the pillar F, thence to the burner where it is ignited.

Within the pillar F is fixed a bar of expansible metal such as aluminum or any other suitable metal which will expand considerably by heat. The upper part of this bar is notched or otherwise arranged to receive the bight of a spring wire O, one end of which is fixed in the bottom of the pillar and adjustable therein by a nut as shown at P. The wire bends over the notch in the upper part

of the bar N, thence extends down through the opening in the bottom of the pillar into the extension G, and is there bent at right angles so as to have a small projection Q which points toward the opening H. When the bar N is cold, the elasticity of the wire O withdraws the point Q so that it stands entirely within the chamber in the projection G. As soon, however, as the bar N expands it presses upon the bight of the wire O, and thus forces the unattached part outwardly, as shown in Fig. 2, so that the point Q then projects through the opening H in the side of the projection G. While this is occurring, the liquid in that portion of the receptacle I which is uppermost is being gradually transferred into the part on the right side which is lowermost until a sufficient amount has passed in to make its weight greater than the part on the left. This causes the receptacle to rotate upon its pivots a little farther than it was moved by the pin M when originally turned, it then stands in the position shown in Fig. 2.

R is a valve fixed upon the face of the left hand portion of the receptacle in such a position that when the device has thus turned upon its pivots, this valve will be swung up opposite the opening H through which the gas flows into the projection G, and thence to the burner, but as the expansion of the bar N has forced the wire O to the left so that the point Q projects through this opening H, the valve will strike against this point, and will thus be prevented from closing the opening H as long as the gas remains lighted. If, however, the gas should be extinguished either accidentally or otherwise, the cooling and contraction of the bar N relieve the pressure upon the wire O and the point Q is then withdrawn into the projection G, thus allowing the valve R to close the opening H and prevent any escape of gas to the burner. If the cock is turned to admit gas to the burner, and the gas is not ignited, the receptacle I will be first turned by the pin M into the position shown in Fig. 1, the gas will be allowed to flow into and out of the burner through the opening H, because at this time the valve R does not close the opening H.

In the time set for the liquid to flow from the left to the right part of the receptacle I, (which may be one or two minutes) the liquid will have passed into the right hand portion, and its weight will then complete the rotation of the receptacle, so that the valve R will then close the opening H, and prevent any further escape of gas through the burner although the cock may still remain open.

Whenever the cock is closed, the pin M will act against the right side of the receptacle, and will turn it into the position shown in dotted lines in Fig. 1, so that the liquid will again flow from the right to the left side and be in readiness for further operation.

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

1. The combination of a gas burner, a supply pipe and a cock by which gas is admitted from the pipe to the burner, of an intermediate closed casing, a receptacle adapted to rotate therein having a valve which will close the passage to the burner, said receptacle containing a movable material which will automatically gravitate or travel from one part to the other and turn it on its axis, and a pin upon the plug of the cock whereby the receptacle is turned from one side to the other when the cock is closed or opened.

2. In a gas burner, the combination with the burner the pipe from which gas is supplied thereto, and a controlling cock, of an interposed chamber having a two-part liquid containing receptacle pivoted therein, and a passage whereby the liquid passes slowly from one part to the other when the receptacle is tilted about its axis, and a valve carried by the receptacle, adapted to cut off the flow of gas to the burner.

3. In a gas burner, a pin projecting from the cock and engaging the receptacle so as to tilt it in position to allow the liquid to pass from one side to the other, a valve formed on the upper side which remains open after the receptacle has been turned by opening the cock, and is adapted to close the opening to the burner when the weight of liquid has been transferred so as to turn the receptacle sufficiently for the purpose.

4. In a gas burner, a pillar and tip, a pipe through which gas is supplied and a controlling cock or key, an interposed casing having a two part liquid containing receptacle pivoted to rotate therein, with passage by which the liquid is slowly transferred from one side to the other when the filled portion is uppermost, a pin projecting from the plug of the cock whereby the receptacle is tilted with one part uppermost when the cock is closed, and with the other part uppermost when it is opened, substantially as described.

5. In a gas burner, the pillar and burner tip, a pipe by which gas is supplied thereto, and a controlling cock, an interposed chamber through which the gas flows, a projection from the bottom of the pillar into said chamber having an opening on one side for the admission of gas through it to the tip, a two-part liquid containing receptacle pivoted to rotate within the chamber, an eccentric pin projecting from the plug of the cock adapted to form contact with either of the two sides of the receptacle so as to turn one part uppermost when the cock is closed and the other part uppermost when it is opened whereby the liquid will flow from the uppermost to the lowermost chamber through the connecting passage, a valve fixed to the part which is uppermost when the cock is open, in such a position that when the weight of the liquid has been transferred to the other side, the receptacle will be turned so that the valve will close the opening to the burner.

6. In a gas burner, the pillar with the burner

tip attached, the supply pipe, controlling cock, and interposed chamber with a two-part liquid containing receptacle pivoted and rotatable therein, a passage connecting the two parts of the chamber, whereby liquid flows from the part which is uppermost into the other to transfer the weight from one side to the other, a pin projecting from the plug of the cock whereby the full side of the receptacle is turned upwardly when the cock is open, a valve fixed upon the upper side of this part of the receptacle, a chamber connecting with the burner having an opening in one side opposite to said valve, an expansion bar fixed in the pillar so as to be acted upon by the heat when the gas is lighted, a bent wire having one end fixed in the bottom of the pillar, the bight passing over the upper part of the bar, and the opposite end extending into the chamber in the projection below, having the point turned outwardly in line with the opening so that the expansion of the bar forces this point outwardly and prevents the valve from closing the opening while the gas remains lighted.

In witness whereof I have hereunto set my hand.

HENRY ESCHWEILER.

Witnesses:
GEO. H. STRONG,
S. H. NOURSE.