J. L. MILLER.

AUTOMATIC SAFETY BURNER.

APPLICATION FILED MAR. 7, 1910.

963,457.

Patented July 5, 1910.

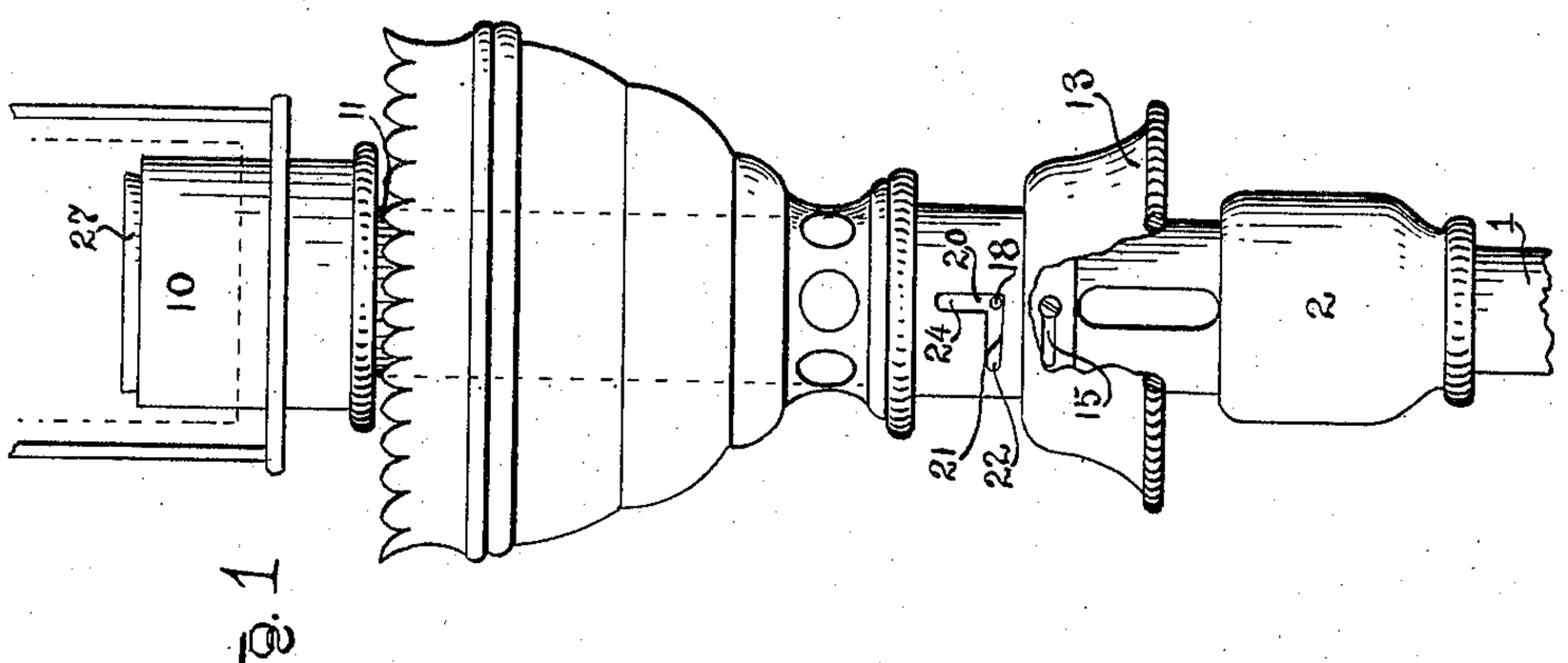

Fig. 1

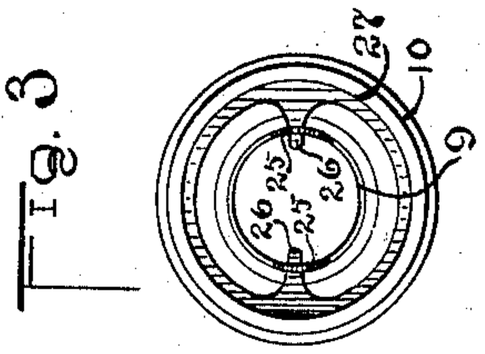

Fig. 3

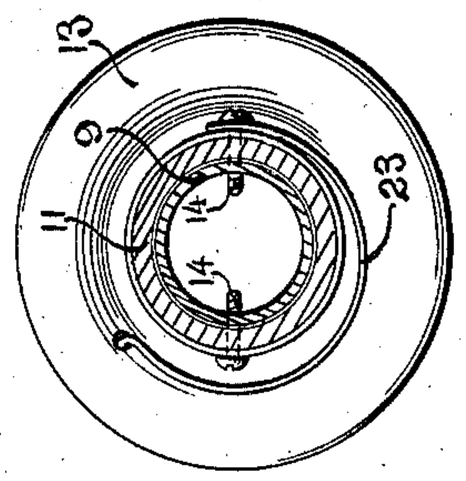

Fig. 4

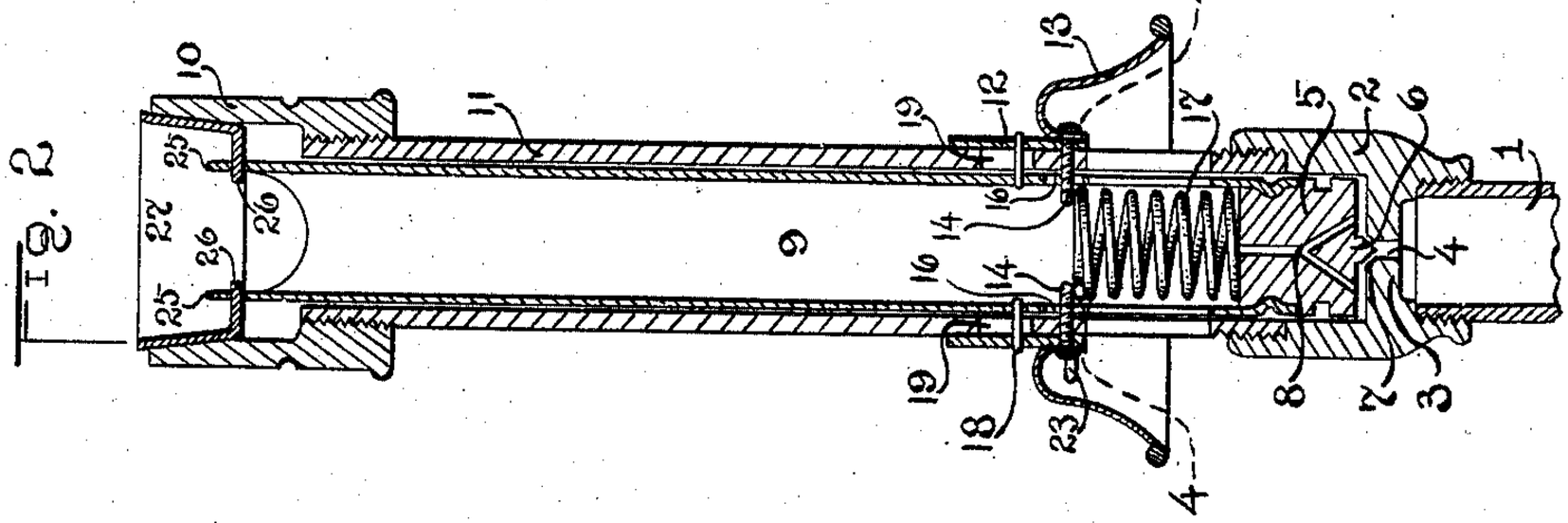

Fig. 2

Witnesses

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UNITED STATES PATENT OFFICE.

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AUTOMATIC SAFETY-BURNER.

963,457. Specification of Letters Patent. **Patented July 5, 1910.**

Application filed March 7, 1910. Serial No. 547,870.

To all whom it may concern:

Be it known that I, JOHN L. MILLER, a citizen of the United States, residing at Pawhuska, in the county of Osage and State of Oklahoma, have invented certain new and useful Improvements in Automatic Safety-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to new and useful improvements in attachments for gas burners and my object is to provide automatic means for stopping the flow of the gas when the flame is extinguished.

A further object is to provide means for manually opening the automatic cut off to obtain a flow of gas to be ignited, and, a further object is to provide means for employing the expansion of certain parts of the burner in completely opening the automatic cut off when the gas is ignited.

Other objects and advantages will be hereinafter referred to and more particularly pointed out in the specification and claims.

In the accompanying drawings which are made a part of this application, Figure 1 is an elevation of a burner showing parts thereof broken away and the automatic cut off in its closed position. Fig. 2 is a vertical central sectional view thereof showing the automatic cut off partially open. Fig. 3 is a top plan view of the burner, and, Fig. 4 is a sectional view as seen on line 4—4 Fig. 2.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 indicates the usual or any preferred form of gas bracket, to the end of which is secured a socket 2, that portion of the socket immediately over the end of the bracket 1 having a partition 3, through the central portion of which is formed an opening 4 and by means of which the gas escapes from the bracket.

Mounted in the upper end of the socket 2 is a valve 5, on the lower end of which is a needle 6, the point of which needle is adapted to engage a tapered seat 7 at the upper end of the opening 4, whereby the gas will be completely cut off when the needle is engaged with the seat.

Extending vertically through the valve 5 is a port 8, the lower portion of which is bifurcated to extend the lower ends of the port on opposite sides of the needle so that when the needle is raised from its seat, the gas will pass into the space between the lower end of the valve and the partition and enter the port 8 and pass thence into the upper portion of the burner.

Surrounding the upper end of the valve 5 and extending a distance above the same is a tube 9, which tube conveys the gas into the burner proper 10 and said tube is adapted to move longitudinally with the valve.

Surrounding the tube 9 is a sleeve 11, the lower end of which is screwed into the upper end of the socket 2, while the upper end thereof is likewise attached to the lower end of the burner 10, said sleeve forming a guide for the tube therein. Surrounding the sleeve 11 at a point above its connection with the socket 2 is a band 12 and to the lower end of said band is attached a bell 13 so that by engaging and turning the lower edge of the bell, the band 12 may be readily rotated around the sleeve.

The band 12 and bell attached thereto are held in position on the sleeve 11 by introducing threaded pins 14 through slots 15 in the lower portion of the band and through the wall of the sleeve 11, the length of said pins being such as to pass through slots 16 in the tube 9 and project a distance into said tube, the object of extending said pins into the tube being to form a rest for the upper end of a spring 17, the lower end of said spring in turn resting on the upper end of the valve 5. By positioning the spring in this manner, the tension thereof will tend to retain the tube and valve in their lowered position and the needle firmly positioned on the seat in the partition.

In order to open the valve 5 sufficiently to admit a small flow of gas therethrough, studs 18 are fixed to the tube 9 and extended outwardly through slots 19 in the sleeve 11 and entered in L shaped slots 20 in the band 12. The lower face 21 of each of the horizontal sections 22 of the L shaped slots is inclined so that when the band 12 is rotated to move the studs 18 into said horizontal portion 22, the studs will be caused to travel upwardly and thus move the tube 9 vertically and raise the needle 6 from its seat so that a small quantity of gas will flow into the tube 9 and pass to the upper end thereof. The tension of the spring 17 is such that the studs 18 will frictionally en-

gage the edge 21 of the horizontal sections 22 to hold the band 12 in its rotated position, but as soon as the downward tension of the spring is removed from said studs, the band 12 will be immediately returned to its initial position by means of a spring 23, one end of which is fixed to the bell 13 and the opposite end thereof to one of the pins 14, thus bringing the studs 18 in position to pass into the vertical portion 24 of the slots 20. The upper end of the tube 9 is provided with ears 25, through which extend fingers 26 of an expansion cup 27, the upwardly extending wall of said cup being preferably flared to fit the flared upper end of the burner 10 and as said cup is formed of highly expansible material and in view of the tapered meeting faces of the cup and burner, the heat occasioned from the ignited gas will cause said cup to rapidly expand and travel upwardly, which will result in moving the valve 5 upwardly the full length of the slots 16, the expansion of the cup holding the valve in its elevated position so long as the gas is ignited.

Should for any reason the gas become extinguished, the cup 27 will immediately contract and permit the tube 9 to descend until the needle is firmly engaged with the seat 7, thereby cutting off the flow of gas into the tube and said needle is positively seated by the pressure of the spring 17 thereon.

This device is particularly adaptable when the gas is left burning at night and by using the same, it will be impossible for a sufficient amount of the gas to escape as to cause asphyxiation should the gas become extinguished in any manner while still flowing and it will further be seen that should the gas be shut off in the usual manner and the key be accidentally opened, the escape of the gas through the burner will be prevented. It will likewise be seen that it will not be necessary to cut off the flow of gas in the bracket 1 unless preferred and that when the gas has once been ignited, the expansion of the cup in the burner will immediately open the valve to its fullest capacity, thus admitting a full flow of the gas to the burner. As previously stated, the expansion cup 27 is formed of metal having the greatest expansion under heat, while the burner 10 is formed of metal having the least expansion under heat, thereby causing the cup to move upwardly to accommodate the expansion thereof.

What I claim is:—

1. In a device of the class described, the combination with a socket having a partition therein, an opening through said partition, means to convey gas into said socket, of a valve positioned in said socket and adapted to close the opening in the partition, a tube surrounding the upper end of said valve, an expansion cup attached to the upper end of said tube, a burner surrounding said cup of less expansible material than the cup, whereby when the gas is ignited, the cup will expand and raise the valve and means to lower said valve when the cup is contracted.

2. In a device of the class described, the combination with a socket having a partition therein and an opening through the partition, means to convey gas into said socket and through the opening and a sleeve extending upwardly from said socket, of a valve positioned in said socket and adapted to close said opening, a tube extending upwardly from said valve, a band surrounding said sleeve, means extending from the tube and engaging the band adapted to elevate the tube and valve when the band is rotated, means to cause the parts of the tube engaging the band to frictionally engage the band and additional means to return the band to its initial position when the friction is removed.

3. In a device of the character described, the combination with a socket having a partition therein, said partition provided with an opening and means to supply gas to said socket; of a valve adapted to close the opening in the partition of said socket, a tube secured to and extending upwardly from said valve, a sleeve secured to said socket and forming a guide for said tube, a band encircling said sleeve, means on said tube extending through said sleeve to cooperate with and frictionally engage said band when the same is rotated for partially opening said valve and additional means for wholly opening said valve.

4. In a device of the character described, the combination with a socket having an opening therein for the entrance of gas, and a sleeve secured to said socket and extending upwardly therefrom; of a valve in said socket adapted to stop the flow of gas therein, a tube secured to said valve and guided within said sleeve, a band encircling said sleeve, a bell-shaped member secured to said band, means on said tube frictionally engaging said band and adapted to partially elevate said tube and valve, when said bell-shaped member and band are rotated, and additional means to return said band and bell-shaped member to their initial position, whereby said valve and tube may be wholly raised or closed, for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN L. MILLER.

Witnesses:
FRANK SOPER,
A. W. HURLEY.