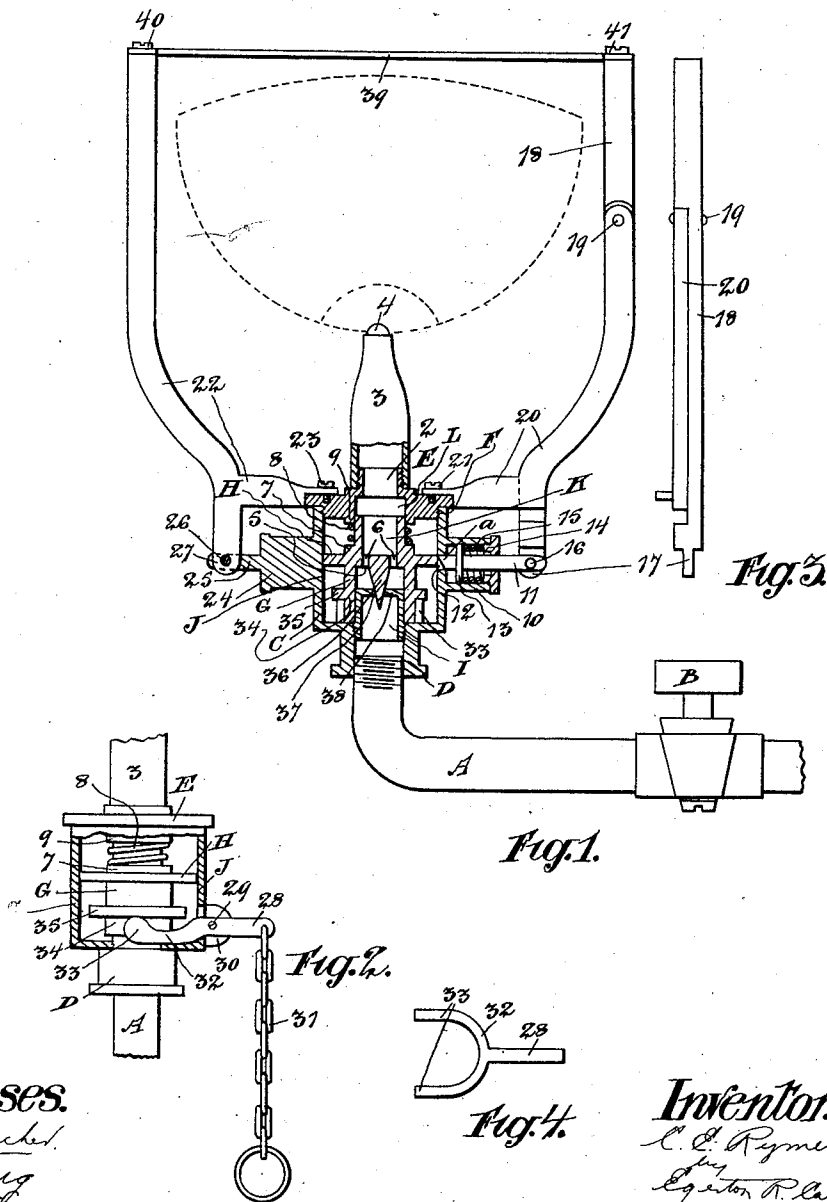


C. E. RYMES.
SAFETY GAS BURNER.
APPLICATION FILED APR. 22, 1912.

1,050,851.

Patented Jan. 21, 1913.

2 SHEETS-SHEET 1.



Witnesses.
S. C. J. Shachtel.
D. King

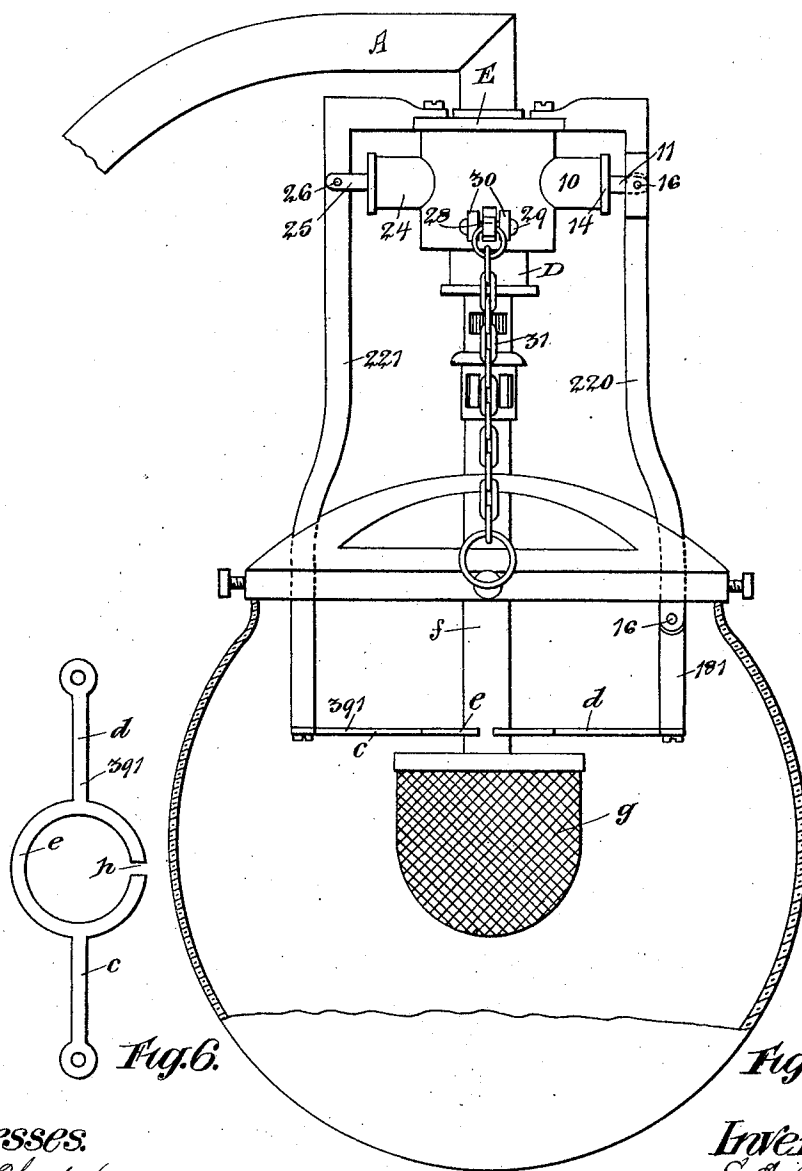
Inventor.
C. E. Rymes
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2 SHEETS—SHEET 2.



Witnesses:
S. C. J. Hatcher
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Inventor:
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UNITED STATES PATENT OFFICE.

CHARLES ERNEST RYMES, OF TORONTO, ONTARIO, CANADA.

SAFETY GAS-BURNER.

1,050,851.

Specification of Letters Patent.

Patented Jan. 21, 1913.

Application filed April 22, 1912. Serial No. 692,403.

To all whom it may concern:

Be it known that I, CHARLES ERNEST RYMES, a subject of the King of Great Britain, and residing at Toronto, Ontario, Canada, have invented certain new and useful Improvements in Safety Gas-Burners, of which the following is a specification.

My invention relates to improvements in safety gas-burners, and the object of the invention is to provide a device which will prevent the escape of gas in case the tap should be accidentally turned on, and will also automatically shut off the gas if the flame be extinguished through any cause whatsoever.

A still further object of my invention is to simplify the construction of this class of gas-burners so as to reduce the cost of manufacturing the same, and also to produce a gas-burner which will be positive in its operation.

Broadly considered, my invention consists of a casing designed to be attached to the gas-pipe, the burner being carried by said casing; a spring-controlled thimble co-acting with a member to control the passage of gas out of the pipe through said thimble; a spring-controlled bolt connected to a lever to which is connected a member positioned in the path of the heat generated by the burner, the said member being constructed of material which will readily expand and contract according to the change in temperature and operate said lever and its bolt at certain times to insure the cut off of the supply of gas, means being provided for operating said thimble to admit the flow of gas therethrough, as hereinafter more particularly explained.

Figure 1 is a vertical central section through my gas-burner, showing the same combined with the ordinary upright burner tip. Fig. 2 is a side elevation, partly in section of the casing and the thimble, showing the mechanism for operating said thimble to turn on the gas. Fig. 3 is an end elevation of the operating lever and its support connected with the bolt for locking the thimble in open position. Fig. 4 is a plan view of the lever for operating the thimble. Fig. 5 is a side elevation of my burner showing the same adapted for use with an inverted incandescent burner, and Fig. 6 is

a plan view of the member which expands and contracts according to the change in temperature.

In the drawings like characters of reference indicate corresponding parts in each figure.

A is a gas-pipe and B the ordinary tap therefor.

C is the casing of my burner and the same is integrally provided with a coupling D which is internally threaded to screw over the threaded end of the pipe A.

E is the cap for the casing C, and the same has threaded union with said casing as shown at F.

Mounted within the casing C is the thimble G. The casing C is preferably circular in shape, and consequently the flange H carried by said thimble is circular in shape and easily fits against the inner wall of said casing.

Having threaded union with the coupling D is a nipple I. The bore J of the casing C fits around said nipple so that the said casing may have movement on said nipple. K is a nipple carried by the thimble G, and the same operates within the bore L of the cap E. It will therefore be understood that the said thimble G has movement on the nipple I and in the cap E. 2 is a nipple carried by the cap E on which is screwed the burner 3 provided with the ordinary burner tip 4.

The thimble G is provided with a diaphragm 5 which is provided with a plurality of holes 6.

The construction of the nipple K provides an annular shoulder 7, and resting against this annular shoulder, and surrounding the nipple K is a coiled spring 8, which rests against the flange 9 of the cap E.

Integrally formed with the casing C is a housing 10. Operating within this housing is a bolt 11, the inner end of which operates through the hole 12 formed in the casing C. 13 is a pin or flange carried by the bolt 11, and surrounding this bolt and positioned between the said pin or flange 13 and the cap 14 which closes said housing, is a coiled spring 15. The bolt 11 extends through a hole in the cap 14 and it is pivoted by the pin 16 to the lower end 17 of the lever 18.

The lever 18 is pivoted by the pin 19 to the stationary arm 20 which is secured by the screw 21 to the cap E.

22 is a stationary arm secured by the screw 23 to the cap E.

In order to make the casing G symmetrical in appearance a dummy casing 24 is carried by the casing C, and through the extension 25 of dummy casing 24 passes a pin 26, which passes through the lower end 27 of the arm 22.

In order to permit gas to pass through the nipple I, the lever 28 which is pivoted by the pin 29 to the lug 30 carried by the casing C, is operated by the chain 31, and as the lever 28 is provided with a bifurcated end 32, the arms 33 of which embrace the extension 24 of the thimble G, and are positioned underneath the annular flange 25 of the said thimble, the said thimble is moved upward, thereby withdrawing the needle valve 36 carried by the diaphragm 5, from the hole 37 formed in the top 38 of the nipple I. The gas escapes through the parts before described and is of course ignited.

39 is a member which will readily expand and contract according to the change in temperature, and this member is secured by the screw 40 at one end to the fixed arm 22, and by the screw 41 at its other end to the lever 18. As the said member 39 is in the path of the heat from the flame, it will immediately expand sufficiently to permit the spring 15 to drive the bolt 11 inward to move the nose *a* underneath the flange H. The flange H was of course moved above the bolt 11 by the described movement of the thimble G, and it will therefore be understood that the said thimble will be locked in the described position by the bolt 11. The locking of the said thimble will occur within a very short time and before the operator ceases pulling on the chain 31. If the gas be turned off by the tap B, or blown out, the member 39 will immediately contract, and through the medium of the lever 18, the bolt 11 will be withdrawn from engagement with the flange H and therefore the spring 8 will immediately move the thimble G back to normal position and so close the hole 37 by the valve 36.

From the foregoing part of my specification it is self-evident that the described gas-burner will automatically cut off the escape of gas from the pipe A when the flame is extinguished.

In Fig. 5 I show my gas-burner adapted for use with an inverted incandescent burner. In this form of my invention the arms 220 and 221 project downward. The lower end of the arm 221, and the lower end of the lever 181 carry the member 391 which will expand and contract under the influence of the temperature. The member 391 is constructed of two horizontal bars

c and *d*, which are connected together by a ring-shaped section *e* through which passes the tube *f* which supports the mantle *g*. The section *e* is divided as shown at *h* so that expansion and contraction may have full play.

From the foregoing specification it will be clear that since the flanges H and 35 extend around the thimble G, the said thimble is free to turn on its longitudinal axis without in anywise impairing the efficiency of the burner. The said thimble really constitutes a spring controlled valve within the casing C which operates to control the flow of gas from the pipe A.

Various changes in construction may be made without departing from the spirit of my invention as set forth in the annexed claims.

What I claim as my invention is:

1. A safety gas-burner comprising a casing provided with a coupling at one end, and provided at the other end with a pierced cap; a pierced member carried by said casing through which member gas passes into said casing; a spring-controlled apertured valve mounted to have longitudinal movement within said casing, and normally operating to prevent the passage of gas into the said casing; a burner carried by said casing; a spring-controlled bolt carried by said casing and designed at times to engage with the said valve to hold the same open at certain times; a member designed to expand and contract under the influence of the temperature; a fixed arm carried by said casing to which one end of said member is connected; a lever to which the other end of said member is connected; a fixed member carried by said casing to which said lever is pivoted; means whereby the said bolt is pivoted to said lever, and means for operating said spring-controlled valve to permit the gas to pass through said burner as set forth and for the purpose specified.

2. A safety gas-burner comprising a casing provided with a coupling at one end, and provided at the other end with a pierced cap; a pierced member carried by said casing through which member gas passes into said casing; a spring-controlled thimble mounted to have longitudinal movement within said casing; a pierced diaphragm carried by said thimble; a needle valve carried by said diaphragm and designed to close the opening in said pierced member at certain times; a burner carried by said casing; a spring-controlled bolt carried by said casing and designed at times to engage with the said valve to hold the same open at certain times; a member designed to expand and contract under the influence of the temperature; a fixed arm carried by said casing to which one end of said member is connected; a lever to which the other end of

said member is connected; a fixed member carried by said casing to which said lever is pivoted; means whereby the said bolt is pivoted to said lever, and means for operating said spring-controlled valve to permit the gas to pass through said burner, as set forth and for the purpose specified.

3. A safety gas-burner comprising a casing provided with a coupling at one end, and provided at the other end with a pierced cap; a pierced member carried by said casing through which member gas passes into said casing; a spring-controlled thimble mounted to have longitudinal movement within said casing; a pierced diaphragm carried by said thimble; a needle valve carried by said diaphragm and designed to close the opening in said pierced member at certain times; a flange carried by said thimble and designed to have bearing against the inner side of said casing; a burner carried by said casing; a spring-controlled bolt carried by said casing and designed at certain times to engage with the said flange carried by said thimble to hold the same open at certain times; a member designed to expand and contract under the influence of the temperature; a fixed arm carried by said casing to which one end of said member is connected; a lever to which the other end of said member is connected; a fixed member carried by said casing to which said lever is pivoted; means whereby the said bolt is pivoted to said lever, and means for operating said spring-controlled valve to permit the gas to pass through said burner, as set forth and for the purpose specified.

4. A safety gas-burner comprising a casing provided with a coupling at one end, and provided at the other end with a pierced cap; a pierced nipple carried by said casing and extending therinto through which the gas passes into said casing; a spring-controlled thimble mounted within said casing and designed to fit around said nipple, the said thimble being externally provided with a circular flange which fits within said casing, and being further provided with a nipple which extends into the opening formed in said cap; a pierced diaphragm carried by said nipple; a valve carried by said diaphragm and co-acting with the first-mentioned nipple to control passage of gas therethrough; a burner carried by said cap; a spring controlled bolt carried by said casing and designed at times to engage with the said flange carried by said thimble to hold the same open at certain times; a member designed to expand and contract under the influence of the temperature; a fixed arm carried by said casing to which one end of said member is connected; a lever to which the other end of said member is connected; a fixed member carried by said casing to which said lever is pivoted; means whereby

the said bolt is pivoted to said lever, and means for operating said spring-controlled valve and permit the gas to pass through said burner, as set forth and for the purpose specified.

5. A safety gas-burner comprising a casing provided with a coupling at one end and provided at the other end with a pierced cap; a pierced nipple carried by said casing and extending therinto through which the gas passes into said casing; a spring-controlled thimble mounted within said casing and designed to fit around said nipple, the said thimble being externally provided with a circular flange which fits within said casing, and being further provided with a nipple which extends into the opening formed in said cap; a pierced diaphragm carried by said nipple; a valve carried by said diaphragm and coacting with the first mentioned nipple to control passage of gas therethrough; a burner carried by said cap; a housing carried by said casing; a spring-controlled bolt mounted within said housing, the nose of said bolt operating through a hole formed in said housing and designed to coact with said flange to lock said thimble in open position at certain times; a member designed to expand and contract under the influence of the temperature; a fixed arm carried by said casing to which one end of said member is connected; a lever to which the other end of said member is connected; a fixed member carried by said casing to which said lever is pivoted; means whereby the outer end of said bolt is pivoted at said lever, and means for operating said spring-controlled thimble to permit the gas to pass through said burner, as set forth and for the purpose specified.

6. A safety gas-burner comprising a casing provided with a coupling at one end, and provided at the other end with a pierced cap; a pierced nipple carried by said casing and extending therinto through which the gas passes into said casing; a spring-controlled thimble mounted within said casing and designed to fit around said nipple, the said thimble being externally provided with a circular flange which fits within said casing, and being further provided with a nipple which extends into the opening formed in said cap; a coiled spring surrounding said nipple and positioned between said cap and said thimble; a pierced diaphragm carried by said nipple; a valve carried by said diaphragm and coacting with the first-mentioned nipple to control passage of gas therethrough; a burner carried by said cap; a housing carried by said casing; a spring-controlled bolt mounted within said housing, the nose of said bolt operating through a hole formed in said housing, and designed to coact with said flange to lock said thimble in open position at certain

times; a member designed to expand and contract under the influence of the temperature; a fixed arm carried by said casing to which one end of said member is connected; 5 a lever to which the other end of said member is connected a fixed member carried by said casing to which said lever is pivoted; means whereby the outer end of said bolt is pivoted to said lever, and means for operating said spring-controlled thimble to permit the gas to pass through said burner, as set forth and for the purpose specified. 10

7. In a safety gas burner, the combination of a casing having a circular bore, and provided with in-let and out-let openings; a spring-provided valve mounted within said casing, and designed to have longitudinal movement therein; means whereby said valve has bearing within said casing so that it may revolve in both directions on its longitudinal axis, the said valve controlling the passage of gas through said in-let opening; means whereby said spring-provided valve is moved longitudinally to open said in-let opening; a member designed to expand and contract under the influence of the temperature; fixed means for supporting one end of said member; a lever connected with the other end of said member; fixed means to which said lever is pivoted, and a spring-provided bolt pivoted to the lower end of said lever and designed to engage 15 20 25 30

with and lock said spring-controlled valve in open position at certain times.

8. In a safety gas burner, the combination of a casing having a circular bore, and provided with in-let and out-let openings; a spring-provided valve mounted within said casing, and designed to have longitudinal movement therein; a circular exteriorly placed flange carried by said valve and having bearing within said casing; means whereby said valve is supported so that the same might have reciprocating movement on its longitudinal axis within said casing; means whereby said spring-provided valve is moved longitudinally to open said in-let opening; a member designed to expand and contract under the influence of the temperature; fixed means for supporting one end of said member; a lever connected with the other end of said member; fixed means to which said lever is pivoted, and a spring-provided bolt pivoted to the lower end of said lever and designed to engage with and lock said spring-provided valve in open position at certain times. 35 40 45 50 55

In testimony whereof I have affixed my signature in presence of two witnesses.

CHARLES ERNEST RYMES.

Witnesses:

S. C. T. THACHER,
DOROTHY KING.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."