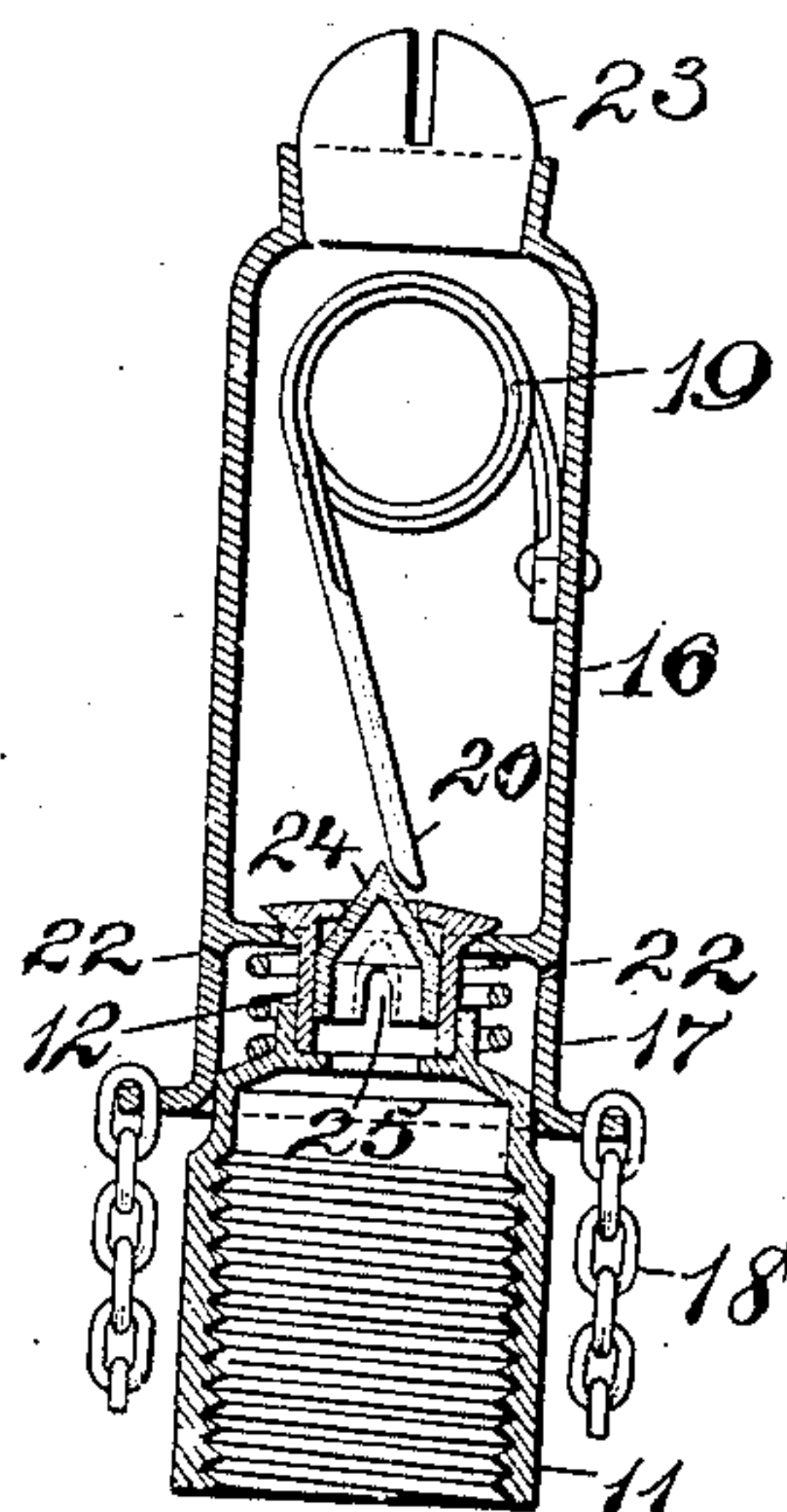
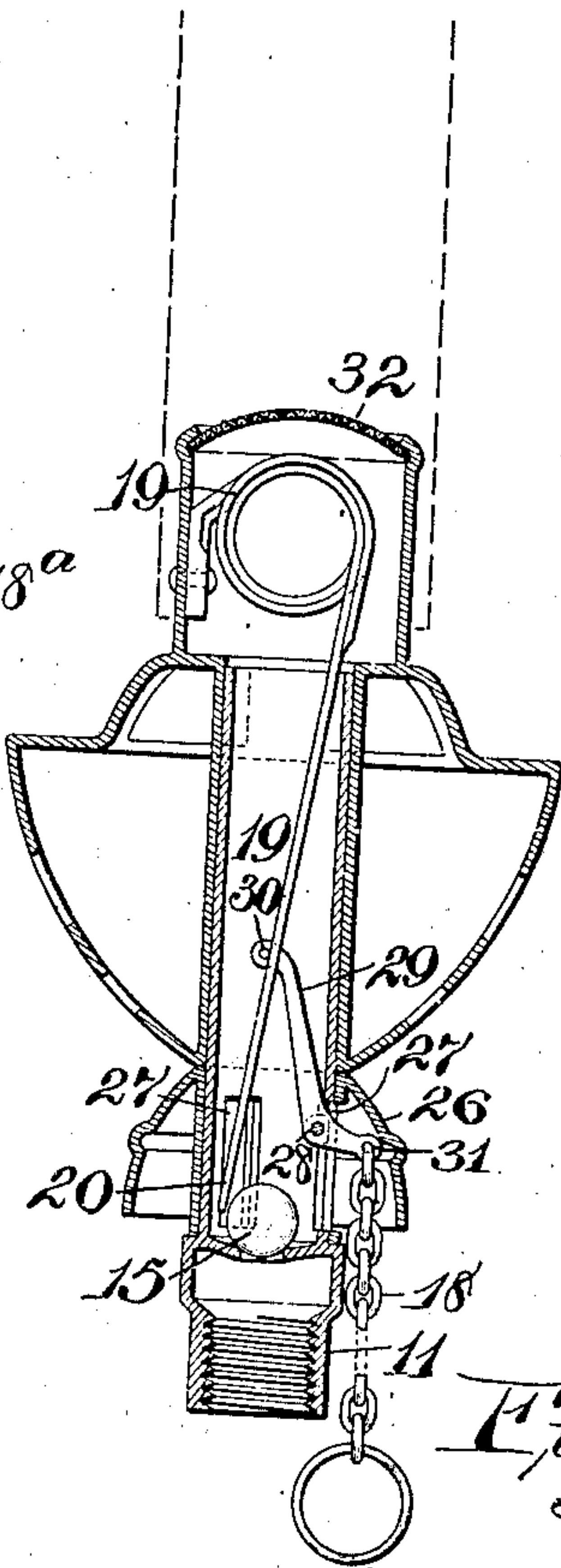
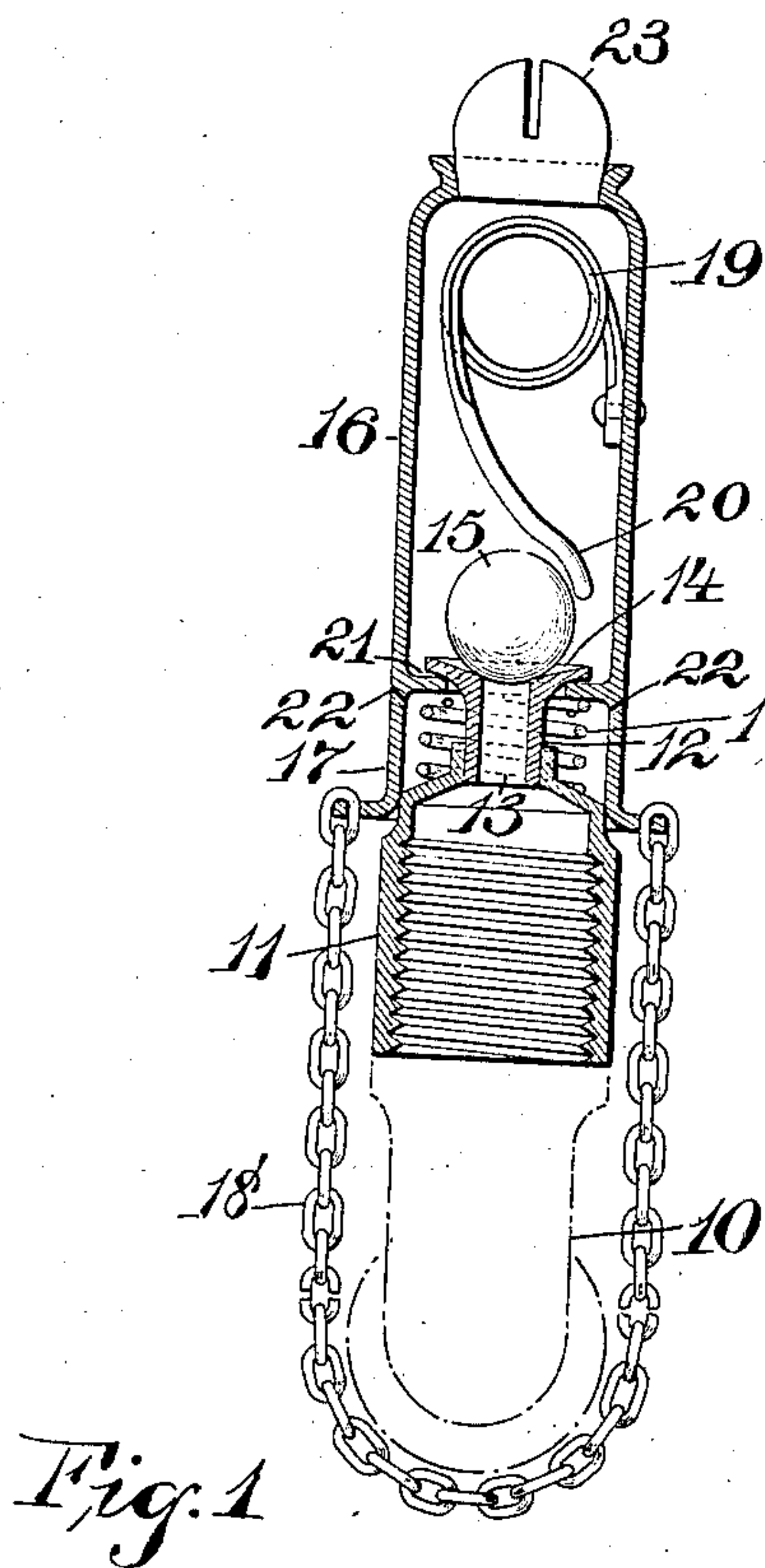


No. 863,616.

PATENTED AUG. 20, 1907.

L. LJUNGLOF.  
SAFETY GAS BURNER.  
APPLICATION FILED NOV. 10, 1906.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

LUDVIG LJUNGLOF, OF NEWARK, NEW JERSEY.

## SAFETY GAS-BURNER.

No. 863,616.

Specification of Letters Patent.

Patented Aug. 20, 1907.

Application filed November 10, 1906. Serial No. 342,770.

*To all whom it may concern:*

Be it known that I, LUDVIG LJUNGLOF, a subject of the King of Sweden, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Safety Gas-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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention is designed to provide a gas-burner that is adapted to automatically close when the flame is extinguished in any way, by reason of the contraction of a thermostatic strip and to remain open by reason of the expansion of the thermostatic strip due to the heat from the burner.

The invention is designed to provide a manually operated attachment for opening the automatic valve until heat is generated from the burner, and the device also provides a series of secondary outlets for the gas which can allow small jets of flames to issue from them to assist in heating the burner when the light is being lit.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of a burner of the class described, and Fig. 2 is a similar view of a modified form. Fig. 3 is a view of the device as applied to a Welsbach burner.

The burner itself is attached, preferably as in Fig. 1, to a suitable fixture 10 and consists of a sleeve 11, threaded to fit the pipe and having, set in its narrowed top portion, a sleeve 12 with a central perforation 13 for the passage of gas and having a flaring top portion 14 forming a seat for the ball 15 which constitutes a valve. Fitting around the tubular portion 11 and sliding thereon, is a sleeve 16 having the lower portion 17 forming a chamber for the spring 18<sup>a</sup> to normally hold the sleeve up. A chain or similar device 18 is fastened to the bottom of the sleeve 16, and when it is desired to light the light, this chain is pulled down. When the sleeve rides down, a spring 19, fastened to the inside of the sleeve, which is composed of material easily expansible by the application of heat, has its lower end 20 shaped so as to displace the ball 15 and allow gas to pass out through the passage 13, and the gas escaping from the pipe 23 can be ignited. At the same time, when the sleeve is pulled down, the gas passes from the sleeve 16 through an opening 21 which is provided between the flange of the sleeve and the sleeve 12, and the gas can then pass out through a series of very small perforations 22, and the match, when

applied to these, surrounds the sleeve 16 with a series of small jets of flame which will instantly heat up the sleeve 16 and the spring 19, and I have demonstrated, by test, that the spring 19 will expand enough within a very few seconds to maintain the ball 15 away from the seat 14, after the chain is released, and the sleeve 16 again rides up to the position shown in Fig. 1. The spring of course, will then maintain the valve open, and the light will not go out unless the gas is turned off, or if the gas is blown out, the absence of heat will contract the spring 19, and the end 20 will be automatically withdrawn to allow the ball 15 to seat itself.

Fig. 2 shows a similar structure, but in place of the ball 15 I employ a valve 24 that has the openings 25, this valve being kept close up to its seat by reason of the pressure of the gas, and when it drops down the openings 25, being indented on their top edges from the outside, allow the gas to escape around the sides of the valve. In the case of a Welsbach burner, I can use the structure shown in Fig. 3 which embodies a long sleeve having a flaring portion 26 that is turned to regulate the admission of air, and it is provided with a series of ports 27. In one of these series of ports 27 is hinged, as at 28, a lever 29 which has a pin 30 to engage the straight end 20 of the spring 19, and the other end 31 of the lever has secured thereto, a chain 18 adapted to be manually operated so that when the chain is pulled, the pin 30 throws the end of the spring over to move the ball 15 away from its seat. The light or flame issuing from the gauze 32, in the usual way, soon heats up the spring 19 to hold the valve open without any manual operation after the light is lighted.

Having thus described my invention, what I claim is:—

1. A burner comprising a fixed sleeve having a seat therein, a valve on the seat, a thermostatic spring, and a sliding sleeve supporting the spring, the spring being adapted to engage the valve to open it when heated or when the sliding sleeve is operated.
2. A burner comprising a fixed sleeve, a sliding sleeve on the fixed sleeve, a valve in the fixed sleeve, a thermostatic spring to operate the valve, secured to the sliding sleeve, and means for manually operating the sliding sleeve.
3. A burner comprising a fixed sleeve, a sliding sleeve thereon, a seat on the fixed sleeve, a ball on the seat, a thermostatic spring secured to the sliding sleeve and adapted to unseat the ball.
4. A burner comprising a casing having a valve therein, a thermostatic means for operating the valve, means for manually operating the thermostatic means, the casing having gas outlets in its sides to be supplied with gas when the valve is manually operated.
5. A burner comprising a casing having a valve therein, a thermostatic spring for operating the valve to open it, and manually operated means for opening the valve, the casing having gas outlets in its sides to be supplied with gas when the valve is opened manually.
6. A burner comprising a casing having a seat therein,

a ball on the seat, a thermostatic spring in the casing to unseat the ball, and means for manually operating the ball to unseat it, the casing having gas outlets near the bottom to be supplied with gas when the ball is manually  
5 operated.

7. A burner comprising a fixed sleeve, a sleeve sliding on the fixed sleeve, a seat on the fixed sleeve, a ball on the seat, a thermostatic spring in the sliding sleeve to unseat the ball when the sleeve is operated, and a closure between

the sleeves, adapted to open when the sliding sleeve is 10 manually operated, the sliding sleeve having a series of gas outlets in its sides below the closure.

In testimony, that I claim the foregoing, I have hereunto set my hand this 9th day of November 1906.

LUDVIG LJUNGLÖF.

Witnesses:

WM. H. CAMFIELD,  
E. A. PELL.