

No. 624,241.

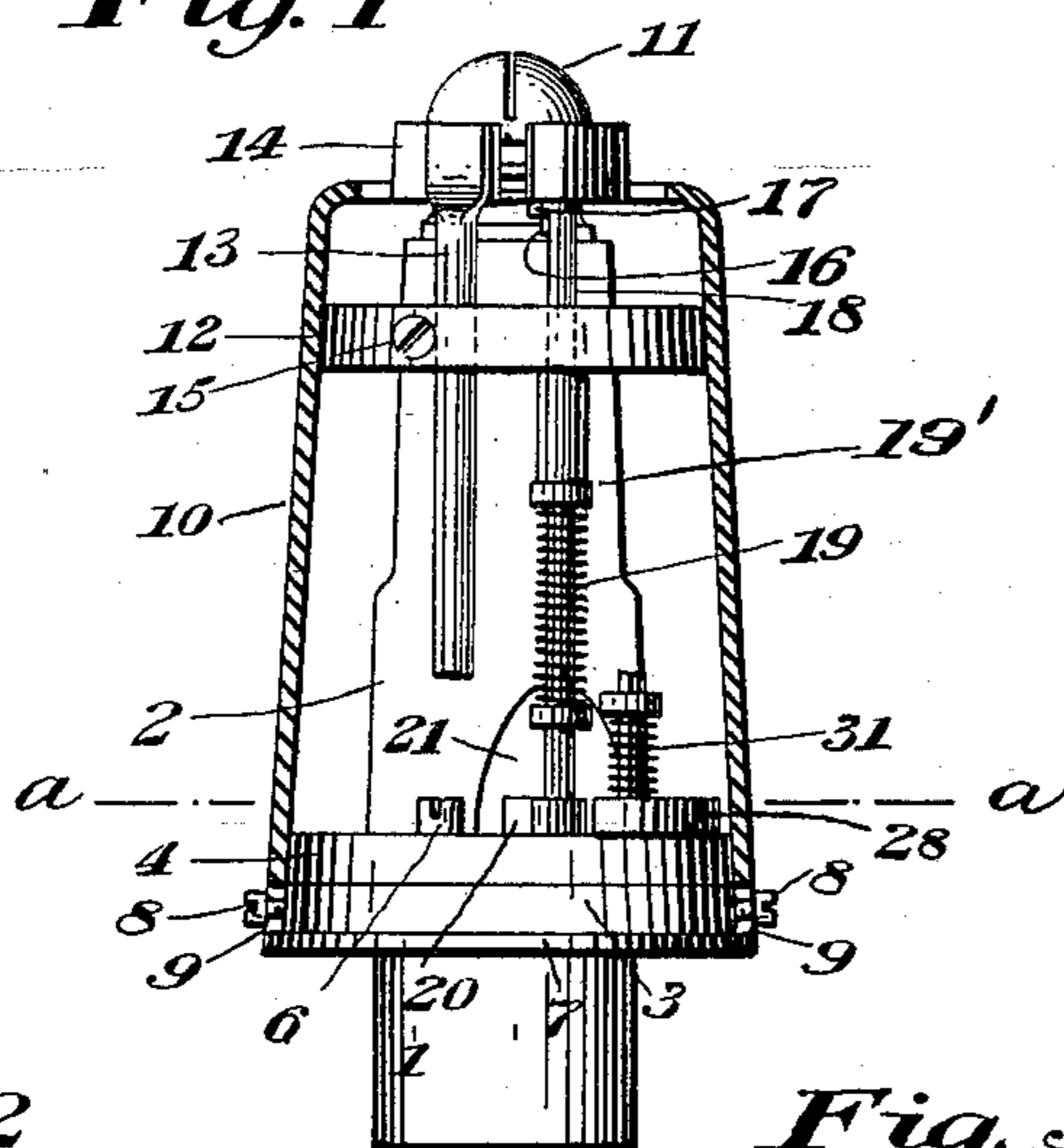
Patented May 2, 1899.

F. PAIRAN.  
SAFETY GAS BURNER.

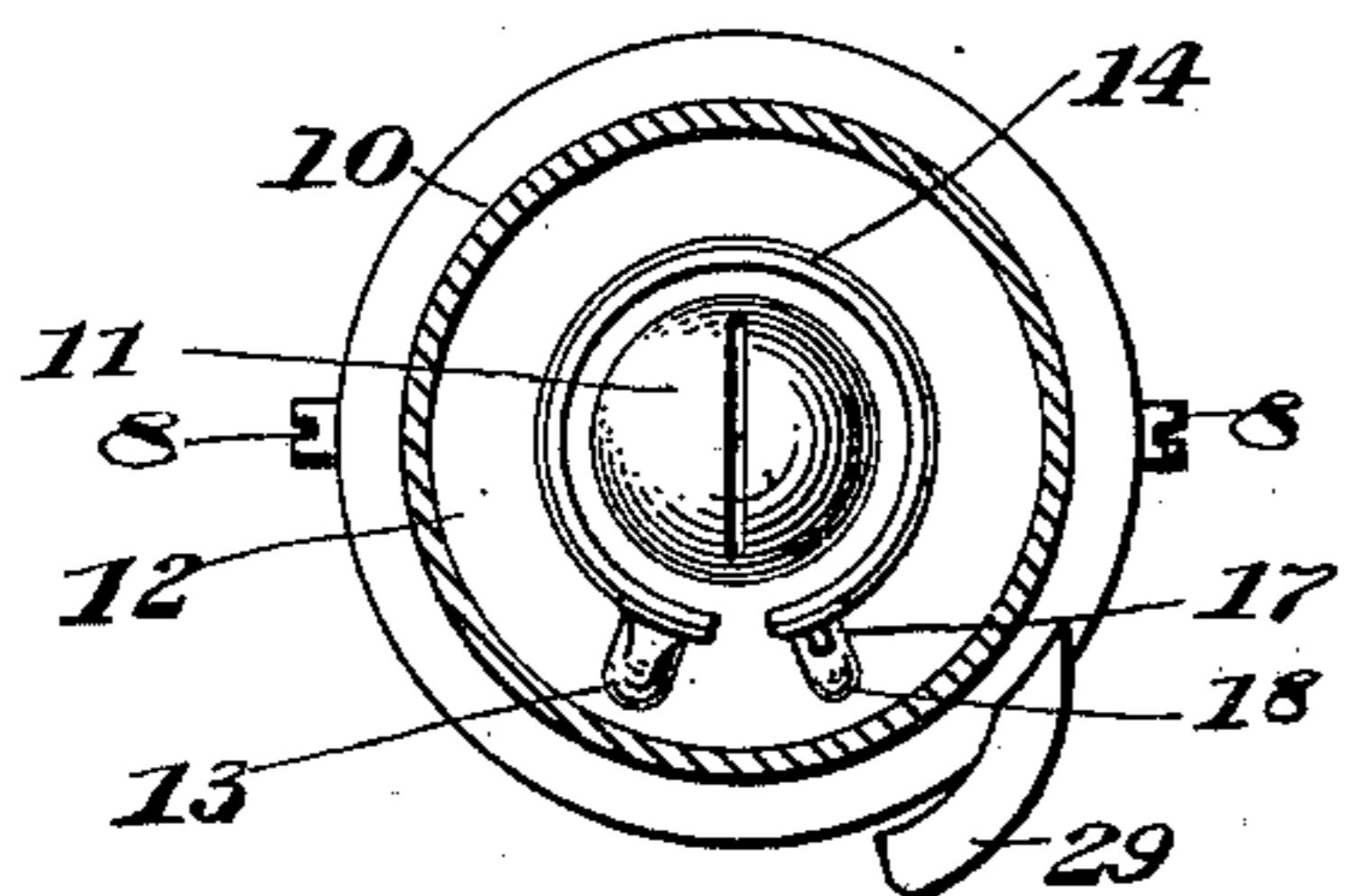
(Application filed Aug. 29, 1898.)

(No Model.)

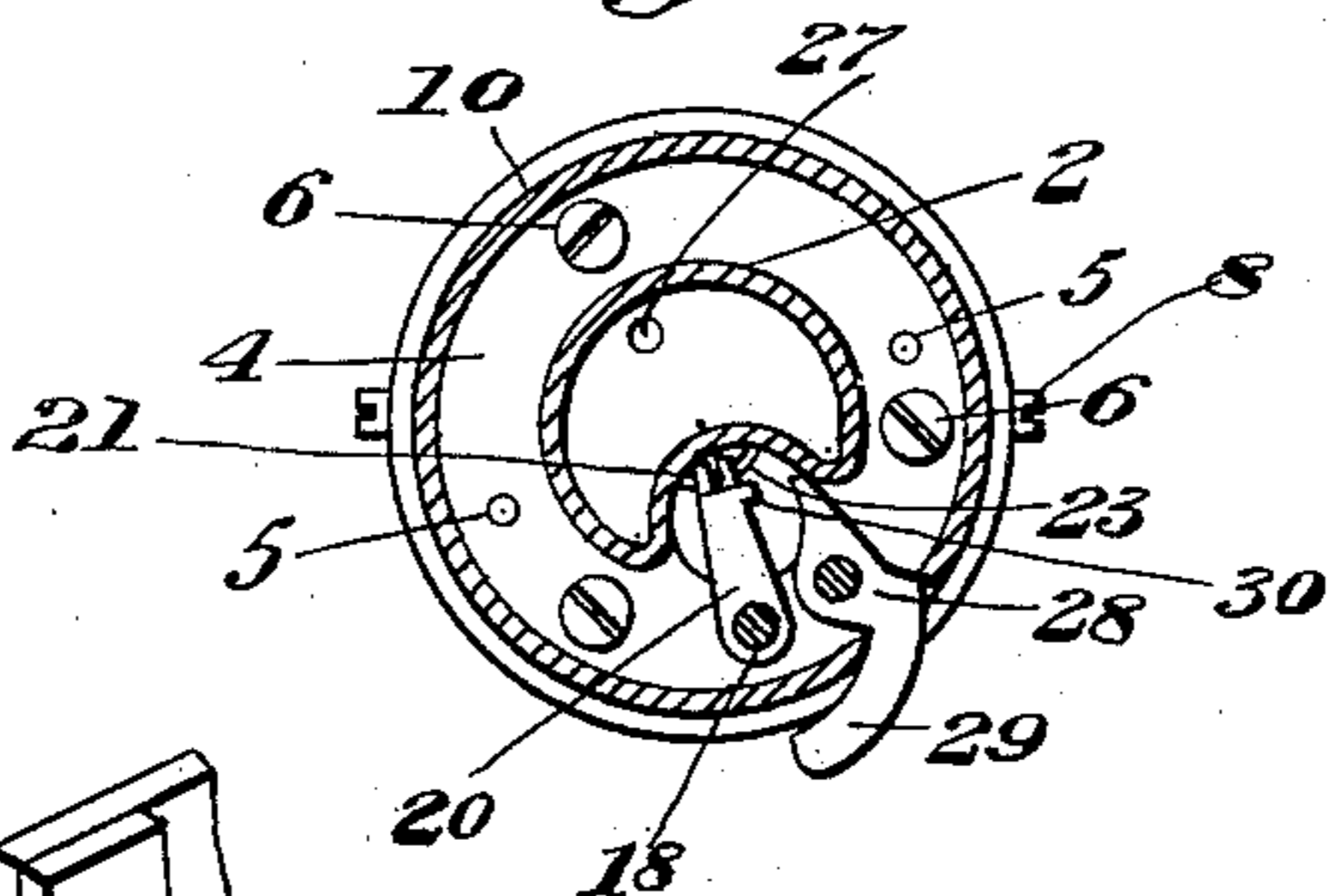
*Fig. 1*



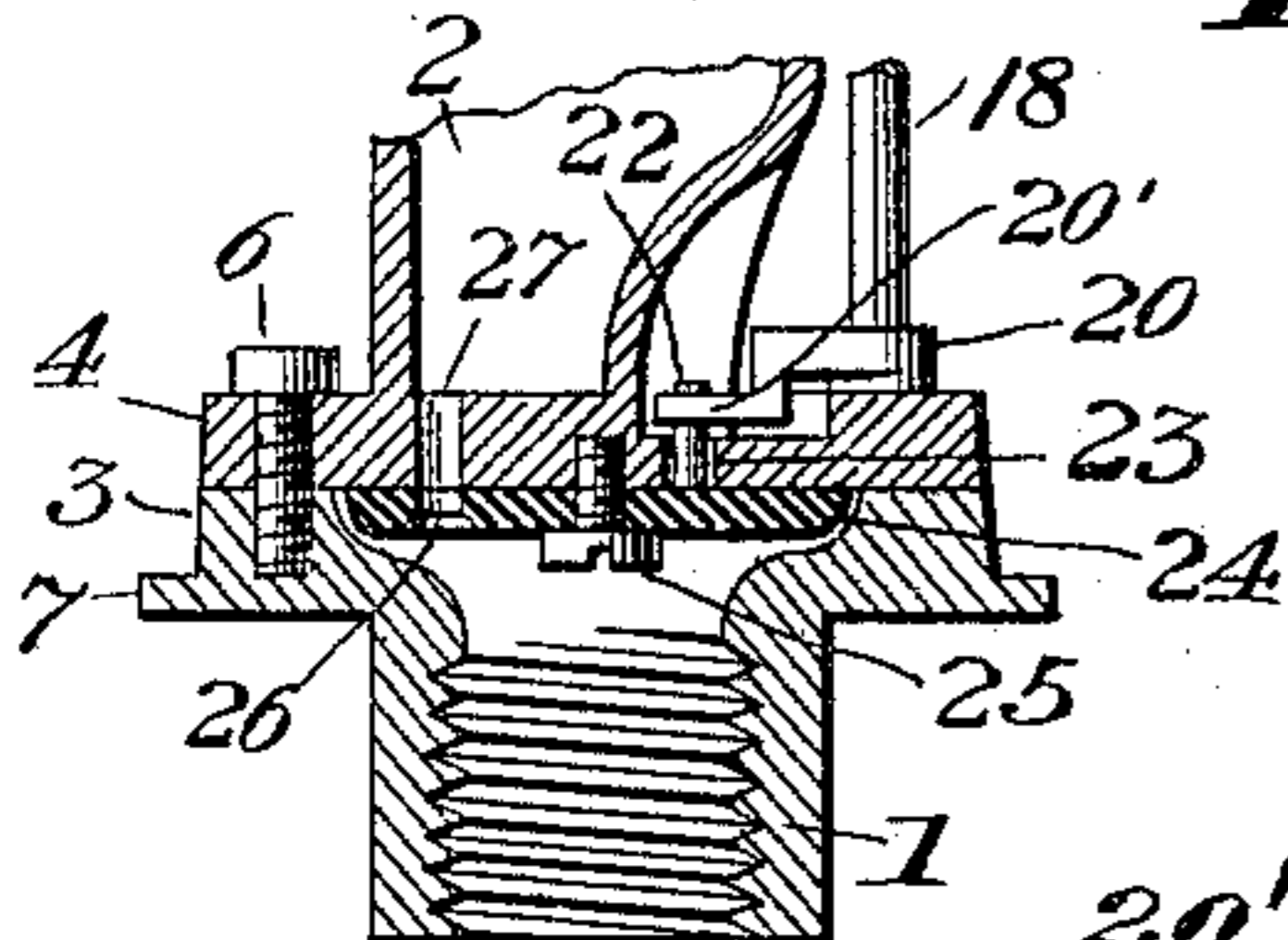
*Fig. 2*



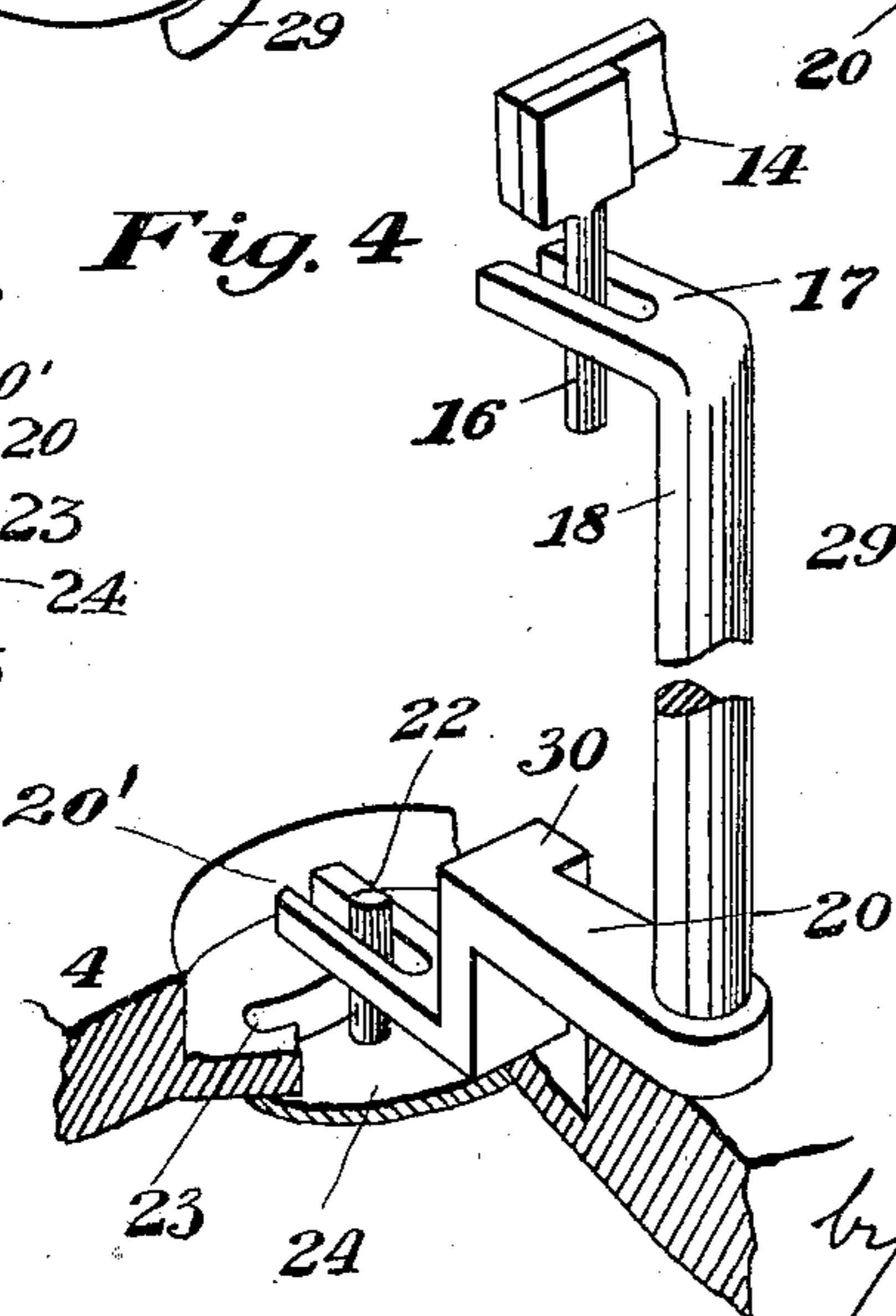
*Fig. 3*



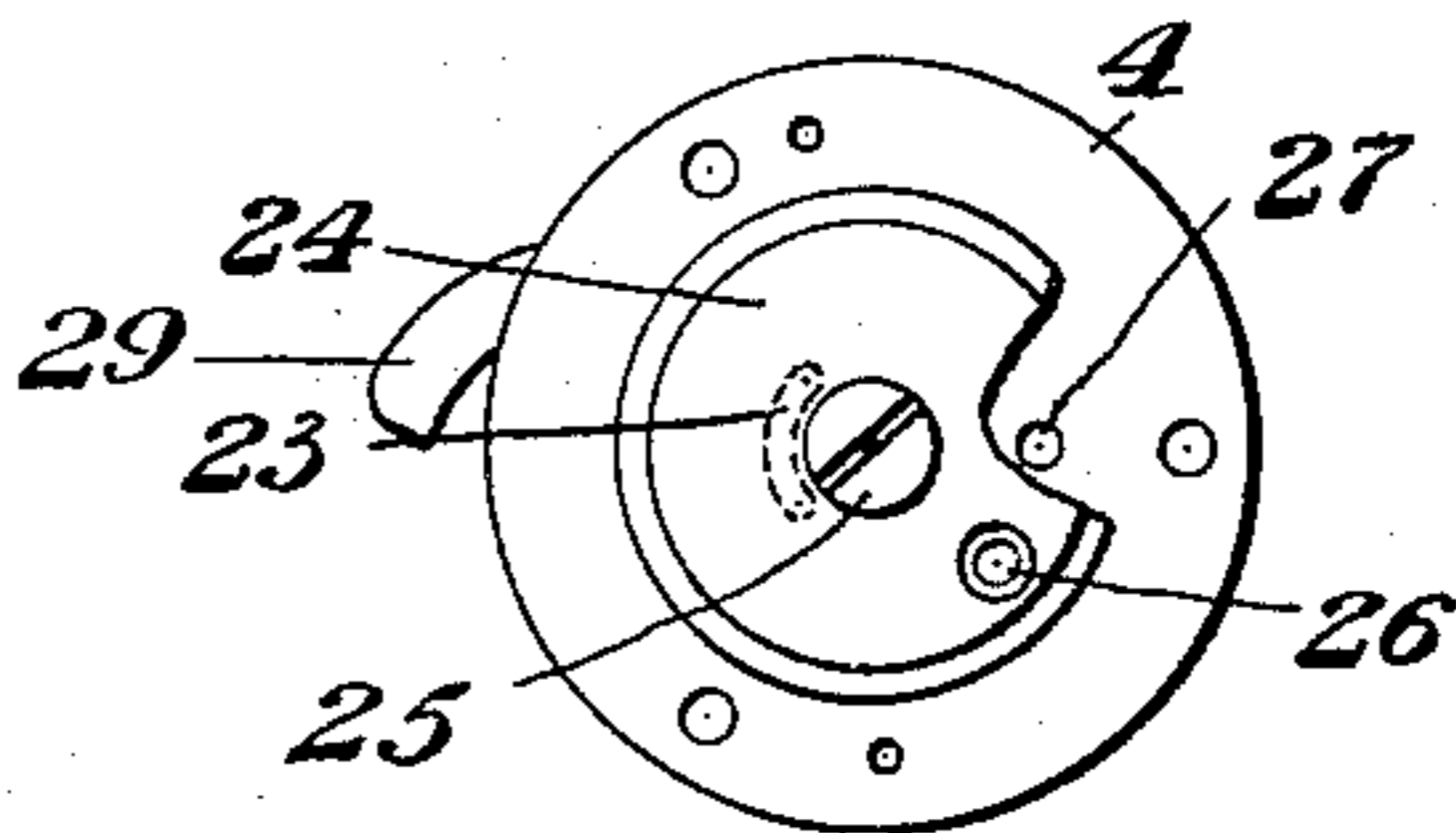
*Fig. 6.*



*Fig. 4*



*Fig. 5*



Witnesses  
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# UNITED STATES PATENT OFFICE.

FERDINAND PAIRAN, OF MADEIRA, OHIO, ASSIGNOR OF ONE-HALF TO  
EDWARD L. PAIRAN, OF SAME PLACE.

## SAFETY GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 624,241, dated May 2, 1899.

Application filed August 29, 1898. Serial No. 689,736. (No model.)

*To all whom it may concern:*

Be it known that I, FERDINAND PAIRAN, a citizen of the United States, residing at Madeira, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Safety Gas-Burners; and I do 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 the figures of reference marked thereon, which form a part of this specification.

15 This invention relates to certain improvements in safety or self-regulating gas-burners, and has for its object to provide a device of this character of a simple, inexpensive, and compact nature having improved means actuated from a thermostat for controlling the supply of gas thereto.

20 The invention consists in certain novel features of the construction, combination, and arrangement of the several parts of the improved burner whereby the same is made simpler, cheaper, and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

30 The novel features of the invention will be carefully defined in the claims.

In the accompanying drawings, which serve to illustrate the invention, Figure 1 is a sectional elevation taken vertically through the burner casing or cap. Fig. 2 is a plan view of the burner, the shell or casing being in section. Fig. 3 is a transverse section taken through the burner in the plane indicated by line *a a* in Fig. 1. Fig. 4 is a fragmentary perspective view drawn to an enlarged scale and showing the means for operating the valve. Fig. 5 is an enlarged bottom plan detail view showing the arrangement of the valve. Fig. 6 is a fragmentary sectional view taken axially through the lower part of the burner and showing the arrangement of the valve.

45 As shown in the views, the pillar of the improved burner is constructed in a lower or coupling section and an upper or burner section 1 and 2, respectively, having abutting flanges or collars 3 and 4, one of which flanges

or collars has pins 5, which register with apertures in the other flange or collar, so that the sections may be conveniently fitted together. Screws 6 are also employed for holding the sections together when properly fitted. The lower flange or collar 3 has a bead or shallow flange 7 on its periphery, whereon rests the casing 10, which incloses the upper section 2 of the pillar and serves to house and protect the thermostat and devices for moving the valve, said casing being provided with an opening in its top, through which projects the burner-tip 11, which may be of any kind. The lower part of the casing 10 is slitted, as shown at 9, to receive screws 8, set in the collar 3, the heads of which screws by engagement with the outside of the casing hold the same in position, while permitting it to be readily removed. The upper section 2 of the pillar is also provided with a flange or collar 12, which, together with the lower collars 3 and 4, fits snugly inside the casing 10, strengthens the structure, and excludes dust, foreign matter, and moisture. The upper collar 12 is provided with an opening, through which passes a vertically-arranged stem 13, held adjustably in position by means of a set-screw 15, and carrying on its upper end a split ring 14, which surrounds the burner-tip 11 and acts as a thermostat, being capable of adjustment by reason of the adjustability of the stem 13, so that it may be properly acted upon and heated by the flame at said tip.

85 The stem 13 is secured to the split ring 14, at one end thereof, and at the opposite end of said ring is secured a depending pin 16, which engages between the forks of an arm 17 on the upper end of a vertical rock-shaft 18, journaled in the upper and lower collars 12 and 4, respectively, and extending longitudinally along the pillar inside the casing 10. On the shaft 18 is coiled a spring 19, one end of which is connected to said shaft, while the opposite end is connected to a sleeve 19', secured to collar 12, and through which sleeve the shaft 18 passes.

100 The lower end of shaft 18 carries an arm 20, which plays when the shaft is rocked or turned in a recess 21 in the side of the section 2 of the pillar, and said arm is also provided

with forks 20', between which engages the upper end of a pin 22, which passes through a curved slot 23 in the flange or collar 4 at the bottom of the recess 21, said pin being secured to a disk valve 24, arranged in a chamber formed in the top of collar 3, said valve being pivoted centrally on a screw 25 under the collar or flange 4 and having a port 26 adapted to correspond when the valve is turned with a port 27, formed in the collar or flange 4, to permit the passage of gas from the gas-passage of the lower to that of the upper section 2 of the pillar. The disk valve 24 being mounted and operating upon the under side of the flange 4 and the gas-pressure being upward, the escape of gas through the burner is more effectually obviated.

In the space between the pillar and the casing is pivoted a dog or click 28, one end of which extends outside the casing, as shown at 29, while the other end is adapted for engagement with a shoulder 30 on the arm 20 of the rock-shaft 18. A spring 31 is coiled on the pivot-pin of said dog or click and acts to hold the same normally out of engagement with the arm 20; but said dog or click may be pressed by the finger so as to engage it with the shoulder of the said arm 20, and the parts are so arranged and adjusted that when the dog or click is thus engaged and the rock-shaft 18 held in a position with its spring 19 in tension the ports 26 and 27 will be in coincidence, so that gas may pass through the hollow pillar to the burner-tip.

The slot 23 acts as a stop to prevent excessive movement of the valve 24 by reason of the engagement of the pin 22 with the end of said slot, so that when the valve is opened to permit the gas to be lighted, as above set forth, the expansion of the thermostatic ring 14 will not operate to move the ports out of coincidence entirely, so as to cut off the flow of gas to the burner, but will leave a sufficient passage through the ports to supply the burner.

The spring 19 is so arranged as to turn or move the shaft when released in such a direction that the ports 26 and 27 will be thrown out of register, so that the gas-passage through the pillar will be closed, and in the operation of the device when it is desired to light the gas the dog or click is moved so as to engage it with the shoulder 30 of the arm 20 on the shaft 18, so as to rock said shaft and turn the valve to bring its port into correspondence with the port 27 in collar or flange 4 and also to place the springs 19 and 31 under tension. The gas is then lighted at the burner-tip, and as the thermostatic-ring 14 is expanded by the heat its ends will approach each other and be separated less widely, causing the shaft 18 to be still further turned or rocked, so as to automatically release the dog or click 28 from the shoulder 30 and allow the spring 31 to throw said click back to the position shown in Fig. 3.

When the flame is extinguished at the burner-tip either by accident or otherwise, the split ring 14 will cool and contract, causing the

shaft to be rocked in the opposite direction, whereby the valve 24 will be turned back to move its port 26 out of coincidence with the port 27 in collar 4, thereby effectually preventing the flow of gas through the gas-passages of the pillar until the click 28 shall have been again manipulated to bring its inner end into engagement with the shoulder 30 on the arm 20 of the rock-shaft.

From the above description it will be seen that my improved burner provides a safe, effective, and automatic means for stopping the escape of gas from the burner in case the flame should be accidentally extinguished, whereby danger of suffocation and explosion is obviated. Furthermore, the device is exceedingly simple and easy of manipulation and is not liable to become deranged or broken from use. It will also be obvious that the device is capable of considerable modification without material departure from the principles and spirit of the invention, and for this reason I do not wish to be understood as limiting myself to the precise form and arrangement of the several parts herein set forth.

Having thus described my invention, I claim—

1. In a safety gas-burner, the combination of a pillar having gas-passages, a valve controlling said passages, a rotative shaft having an arm arranged to move the valve when the shaft is turned, means to hold the valve in open position, a thermostat, and an arm carried by the shaft and actuated from the thermostat, for moving said shaft and automatically releasing said holding means, substantially as set forth.

2. In a safety gas-burner, the combination of a pillar having gas-passages, a valve controlling said passages, a shaft having an arm arranged to move the valve when the shaft is turned, a shoulder on the arm, a dog to engage said shoulder and hold the valve in open position, a thermostat, and means, actuated from the thermostat, to move said shaft and turn the valve, thereby automatically releasing said dog, substantially as set forth.

3. In a safety gas-burner, the combination of a pillar having gas-passages and provided with a collar, a valve controlling said passages, a thermostat having a vertically-adjustable supporting-stem mounted on the collar of the pillar, and means, actuated from the thermostat, to automatically control said valve, substantially as set forth.

4. In a safety gas-burner, the combination of a pillar having gas-passages and provided with a collar at its upper part, a valve controlling said passages, a thermostat, means, actuated from the thermostat, to automatically control the valve, and a casing supported at the lower part of the pillar and having its upper part fitting said collar at the upper part of the pillar, substantially as set forth.

5. In a safety gas-burner, the combination of a pillar having gas-passages, a valve con-

trolling said passages, a thermostat, a shaft having an arm having engagement with said thermostat and arranged to turn said shaft when the thermostat is expanded or contracted, and a connection between the valve and said shaft, substantially as set forth.

6. In a safety gas-burner, the combination of a pillar having gas-passages, and provided with a part having a slot, a valve controlling said passages and provided with a pin playing in said slot, a thermostat, a shaft actuated from said thermostat, and a slotted arm carried by the shaft and having engagement with said pin to operate the valve when the shaft is turned, substantially as set forth.

7. In a safety gas-burner, the combination of a pillar having gas-passages, a valve controlling said passages, a thermostat having means for adjusting it vertically and provided with a vertical pin, a shaft arranged to actuate said valve, and an arm on the shaft having forks engaging the pin on the thermostat for actuating the shaft from the thermostat, substantially as set forth.

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

FERDINAND PAIRAN.

Witnesses:

GEORGE PAIRAN,  
JOHN ELIAS JONES.