

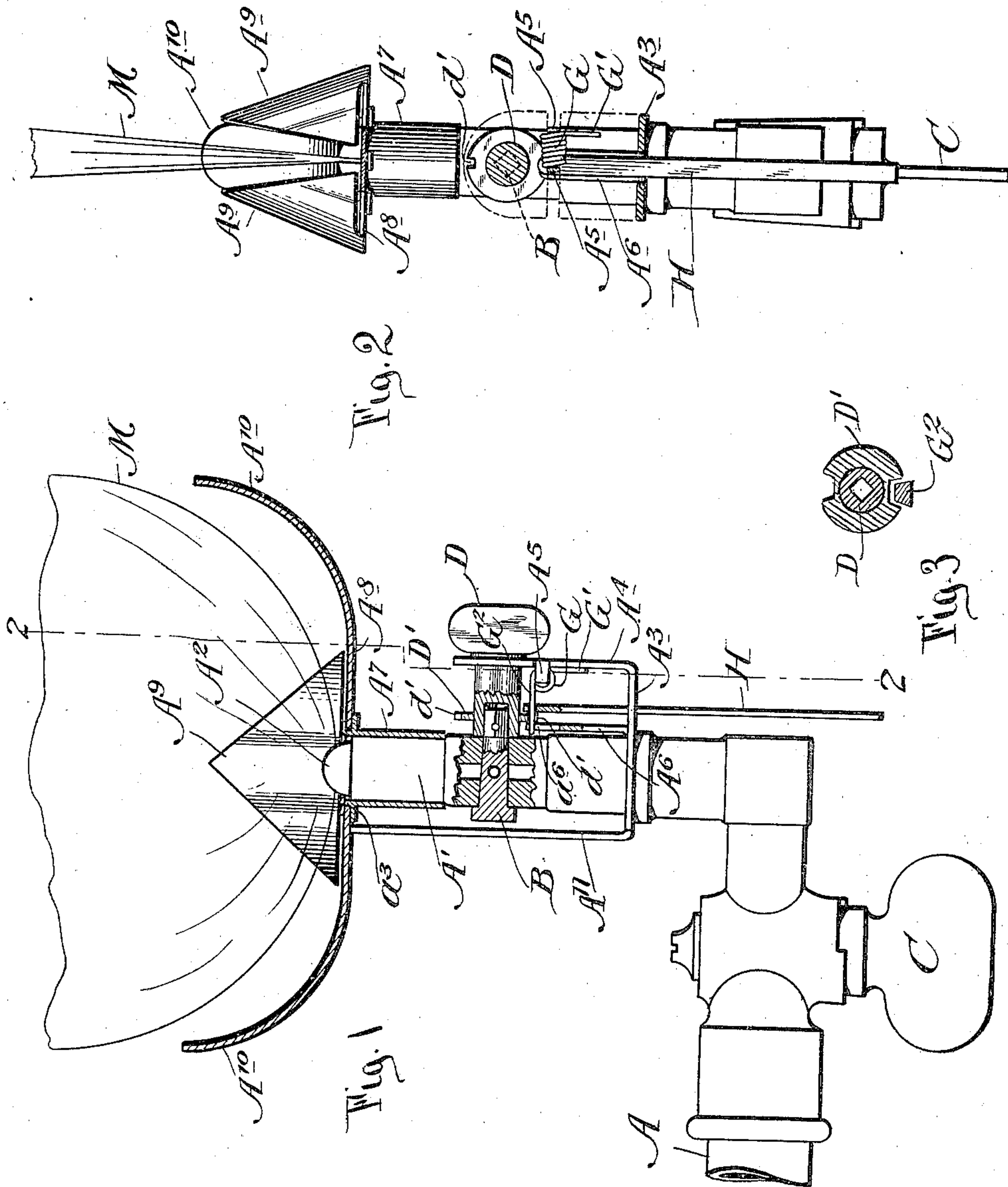
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M. F. KERRIGAN.
SAFETY GAS BURNER.

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NO MODEL.



WITNESSES:

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MICHAEL F. KERRIGAN, OF NEW YORK, N. Y., ASSIGNOR OF ONE-FOURTH
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SAFETY GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 741,344, dated October 13, 1903.

Application filed December 17, 1902. Serial No. 135,476. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL F. KERRIGAN, a subject of the King of Great Britain, residing in the borough of Brooklyn, in the city and State of New York, have invented a certain new and Improved Safety Gas-Burner, of which the following is a specification.

My improvement is of that class in which the cock is locked in the closed position, so that it cannot be turned on inadvertently. It is intended to avoid the serious dangers due to unconscious action when a person is absent-minded or flustered and is liable to turn the cock on again after it has been turned off. My cock is intended to be used in connection with the ordinary cock and supplementary thereto. I have devised a form with special reference to this use and have combined therewith a peculiar construction of cock. As another means of safeguarding the burner I provide against the extinguishment of the flame by wind. I have devised a form of shield which applies to all flat forms of jet, such as are produced by the fish-tail or bat-wing burners.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a side elevation, partly in section. Fig. 2 is an end elevation, partly in vertical section, on the line 2 2 in Fig. 1 seen from the right. Fig. 3 is a cross-section of a portion showing a modification.

Similar letters of reference indicate corresponding parts in all the figures where they appear.

A is the gas-pipe, and A' a detachable portion extending upward, carrying the tip.

A³ A⁴ represent a plate of metal having the horizontal portion A³ matched upon the upright A' and firmly secured by brazing or otherwise. The plate extends out in the direction of the handle D, and the part A⁴ is bent upward and bored or punched to form a bearing for the handle.

B is the plug of a small stop-cock, matching properly in the upright portion A' and equipped like the ordinary cock C, which I also retain for turning the gas on in either of two positions and for turning it completely

and reliably off when in intermediate positions.

D is a handle socketed on the squared end of the cock-plug B and secured by a transverse pin E, so that by turning the handle the plug may be readily turned to any extent desired. The plug thus made separate from the handle lies with its small end toward the handle. The construction allows the introduction and removal of these parts and allows the handle to abut against the upright A' and form a reliable means for keeping the plug drawn tightly to its bearing in the correspondingly-tapered hole in A'.

On the shank of the handle D is brazed or otherwise strongly set a collar D', which is provided with two notches d' d' at opposite points thereon. In applying the handle to the plug care should be taken to engage it so that the line of these notches is up and down when the cock is closed.

A small helical wire spring G lies horizontally just within the upright plate A⁴, being supported by narrow straps A⁵, cut from A⁴ and bent so as to extend into each end of the helical coil. One end G' of this spring G extends downward and abuts against the inner face of A⁴. The other end extends toward the axis of the burner, being approximately horizontal, but tending by its elasticity to rise. The parts are so arranged that this end will rise by its elastic force and press gently against the periphery of the collar D' and engage in either notch d' when it is presented thereto and serve as a stop to hold the cock firmly in the closed condition.

H is a pull-piece, made preferably in the form of a ribbon of thin metal. Its upper end is punched with a hole, which is matched on the spring-arm G². An upright A⁶ is cut from the plate A³ A⁴ and bent to extend upward close to the part A'. Its upper end is formed with an open slot a⁶, which is presented to receive the spring-arm G² when it is drawn downward by the pull H.

The slender steel-wire spring G G' G² serves as a reliable locking means by engaging its stop-arm G² strongly with the proper notch d' when it is presented thereto, thereby holding the plug B in the tightly-closed position. It holds it with great strength by reason of the spring

being supported laterally by its engagement in the slot α^6 .

The gas may at any time be turned off by sufficiently turning the handle D. The movement is subject to no special resistance, but when the flow of gas is completely stopped by the plug being turned in either direction the movement presents one of the notches d' downward, so that it is promptly engaged by the spring-arm G^2 rising into it. It is held reliably and the gas cannot be turned on by any thoughtless movement of the operator. It cannot be turned on except by the operator first grasping the pull H, which will usually be done by using the other hand, and thereby drawing the spring-arm G^2 downward sufficiently to disengage it from the notch d' . Then the cock-plug can be turned into the open position. It will be observed that the pressure of the spring against the smooth rim of the collar D' offers little resistance to the cock being turned into any partially-open position and back again to the fully open as many times as may be desired.

In addition to the provision by the parts thus far described against the gas being turned on by an inadvertent or accidental movement of the cock I provide also against the gas being blown out. The gas-jet is only slightly luminous in the immediate vicinity of the tip. When the cock-plug B is turned so as to provide either a full passage or any lesser passage for the flow of gas and the gas is properly burned as it escapes, it produces the proper light and reduces the gas to the innocuous products of combustion. A very serious mischief resulting from mixing gas in large quantities with the air of an apartment is induced when the plug is turned by accident or inadvertence without igniting the jet or equally when through a well-intentioned but ignorant effort by the operator the jet is blown out by the breath, the gas continuing to flow, or when the jet is blown out by wind from an open window or other source. I provide against such blowing out of the gas by deflectors, which protect the gas at this point. The upper portion of the flame may be disturbed by the wind to a very violent degree; but the lower portion will still remain quiescent or so nearly so that it will retain its ignited condition.

A^8 is a horizontal plate provided with a hole α^3 , which matches easily upon the upright A' . There are side shields $A^9 A^9$, formed from the same sheet of metal and bent upward, as shown in Fig. 1. These are presented on opposite sides of the ignited jet of gas M and extend upward and laterally to a sufficient extent to protect the dark area of the flame near the burner from the influence of wind from either of those two directions. The plate A^8 is also extended in the plane of the flat jet of gas M, and narrow portions at its ends are curved upward, as indicated by $A^{10} A^{10}$. They extend to a sufficient height to guard the jet against wind from those di-

rections. By the aid of these shields $A^9 A^9$, guarding the flat jet of flame against winds, which are at right angles to the plane of the flame and of the shields $A^{10} A^{10}$, guarding the flame against wind at right angles thereto—that is to say, coming in the line of the plane of the flame—the flame is protected against wind from all directions. Strong winds will disturb the upper portion of the flame, the luminous part, and the light will be imperfect while the wind continues; but sufficient flame will always be preserved from its influence near the burner to keep the jet lighted. I provide for easily taking off and reapplying this plate A^8 and its shields by equipping the plate with a tube A^7 , which is engaged with the plate A^8 by being locked thereto and extends downward to and clasps the upright portion A' with sufficient firmness to resist the slight force to which it is subjected and maintain its position reliably. It can be lifted off whenever it is not required.

I attach importance to the fact that my spring G^2 engages with the notch d' in the collar D' under such conditions as to hold it in the closed position, so that it requires more than an unconscious or accidental movement of the operator to turn it on again after the gas has been turned off and that it thus attains an assurance against turning on of the gas.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. The width and form of the notches d' may be varied. Fig. 3 shows a modification in which the notches are flared so that the spring can engage before the plug is turned so far as is required in the other form, and the force of the spring in urging the spring-arm G^2 deeply into the notch will continue to turn the plug into the closed position even if the operator suspends his turning force. Such V-shaped form of the notches tends to induce another quality—that of allowing the plug to be turned by a sufficient force applied to the handle without operating the pull H; but the force required to attain such end would be so great as to certainly attract the attention of the operator, and it can never be thus turned through inadvertence.

Instead of arranging the burner with its shield in such position that the plane of the flame will coincide with the cock, I can set them at right angles to each other. With such arrangement the upright extension A^{11} , which connects the horizontal piece A^3 with the horizontal portion A^8 above, instead of appearing on the left side in Fig. 1 would lie nearer the eye than the section and would therefore not appear in Fig. 1, and it would appear in Fig. 2 on the left side of the figure. Such arrangement is preferable when, as may often be preferred, we make the parts $A^3, A^4, A^5, A^6, A^8, A^9, A^{10}$, and A^{11} from one piece of sheet metal and afterward properly bend it by hand or by dies into the required form.

I claim as my invention—

1. Safety gas-burner mechanism comprising a notched collar D' revolved with the cock, a spring-stop G² pressing inward toward the cock arranged to engage in a notch therein, arranged to hold the cock in the closed condition, and means for withdrawing such stop by moving it outward against the tension of the spring when required, all substantially as herein specified.

2. Safety gas-burner mechanism comprising a notched collar D' revolved with the cock, a spring-stop G² pressing inward toward the cock adapted to engage in a notch therein, the slotted upright A⁶ arranged to support such spring laterally, and means for withdrawing such stop by moving it forcibly outward when required, all substantially as herein specified.

3. Safety gas-burner mechanism comprising a cock having a plug B arranged with its small end adapted to be engaged, a separate handle D with provisions for conveniently

turning it engaged with such end, a stop arranged to automatically arrest and hold such handle until it is released by separately-operated means, and means for withdrawing such stop when required, all substantially as herein specified.

4. Safety gas-burner mechanism comprising a notched collar D' revolved therewith, the cock-plug B and a spring-stop G² adapted to engage in the notch therein, in combination with means for withdrawing such stop when required, and with the two sets of shields A⁹ A⁹, A¹⁰ A¹⁰, defending the flame from wind from any direction near the burner-tip, all substantially as herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

MICHAEL F. KERRIGAN.

Witnesses:

J. B. CLAUTICE,
M. F. BOYLE.