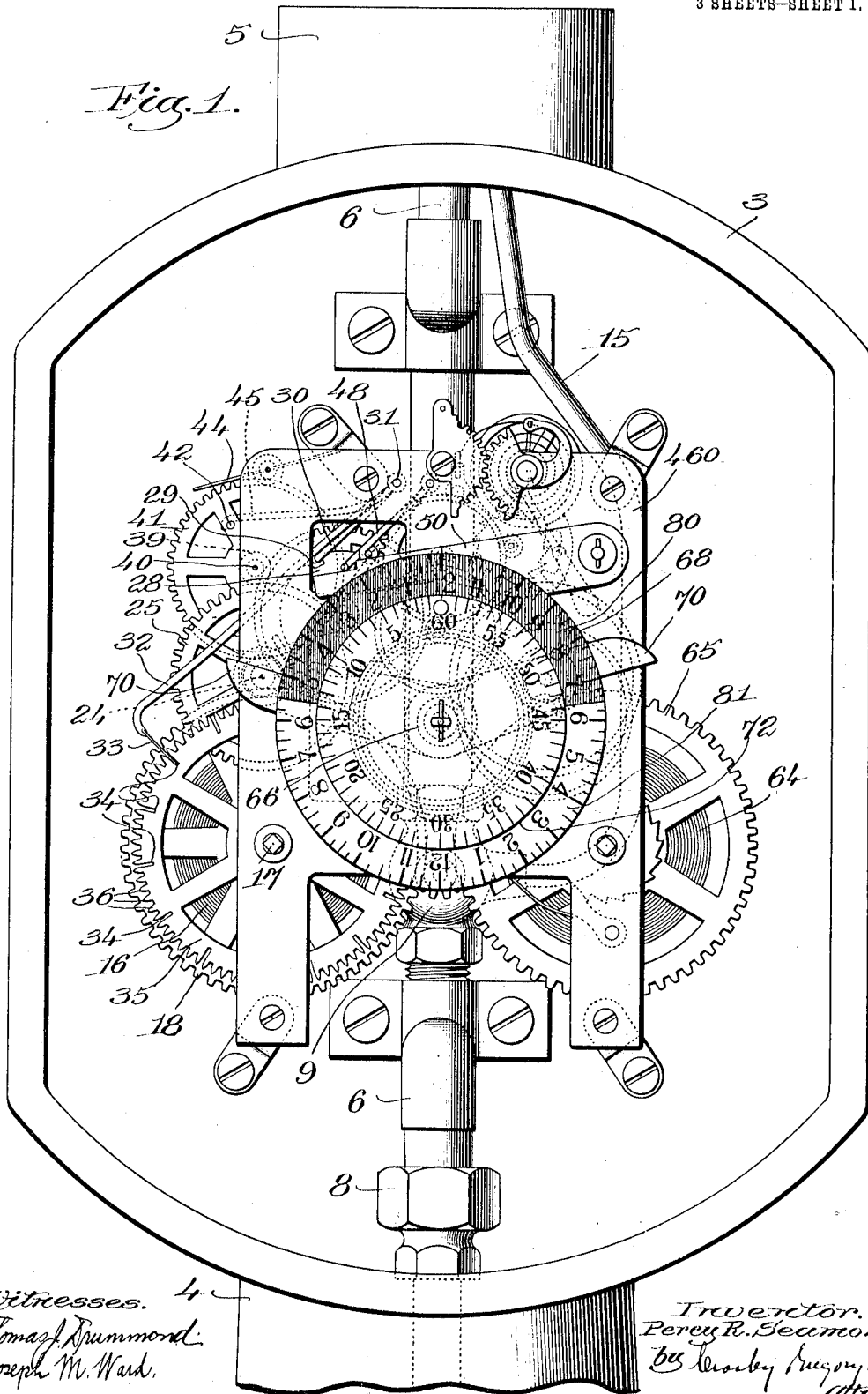


P. R. SEAMON.
 AUTOMATIC GAS LIGHTER AND EXTINGUISHER.
 APPLICATION FILED OCT. 24, 1910.

1,054,461.

Patented Feb. 25, 1913.

3 SHEETS—SHEET 1.

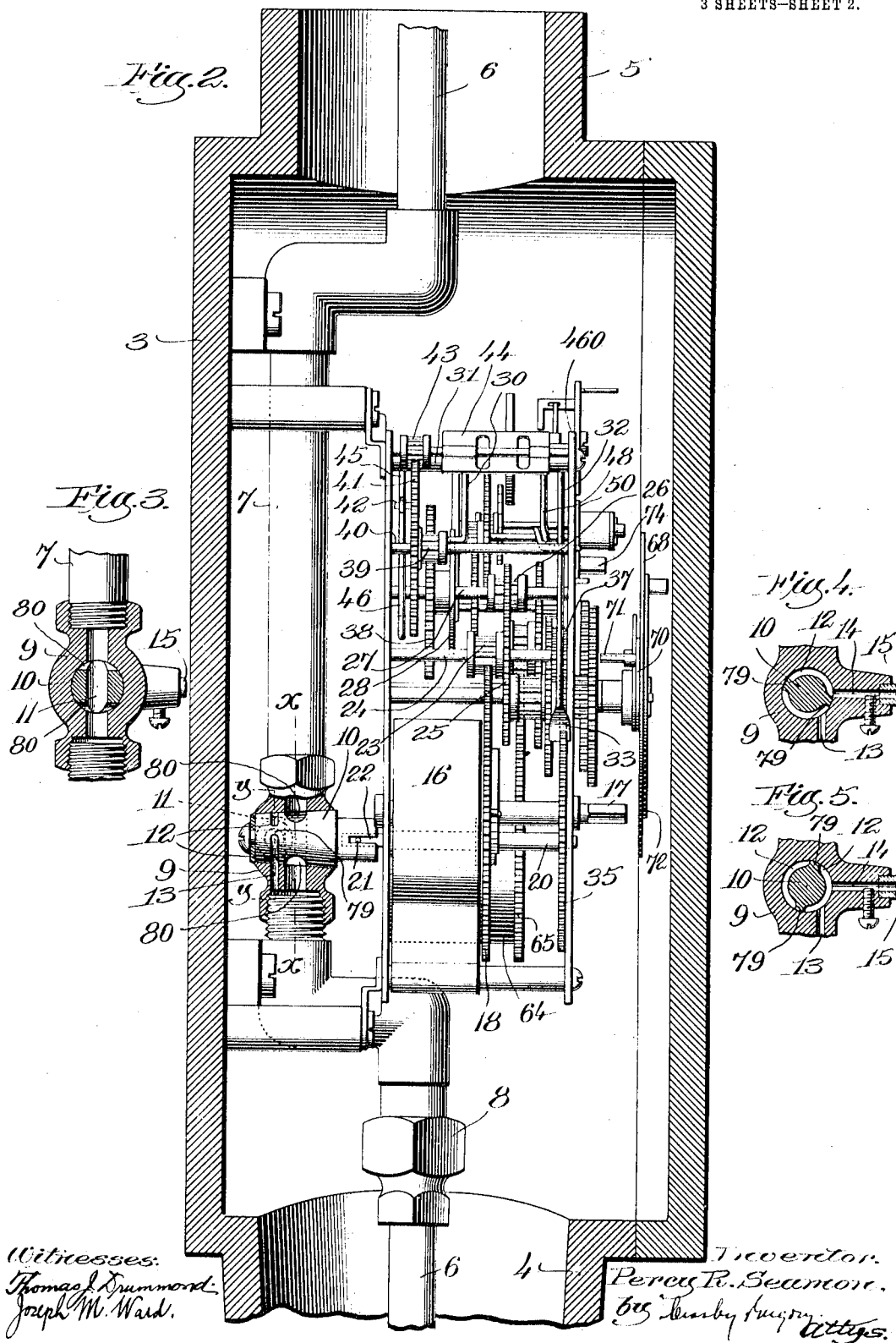


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Witnesses:
 Thomas J. Drummond,
 Joseph M. Ward.

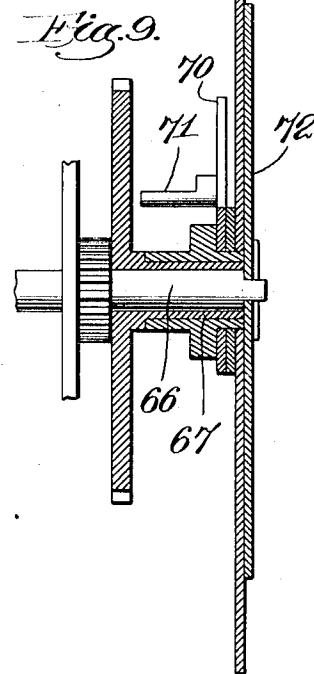
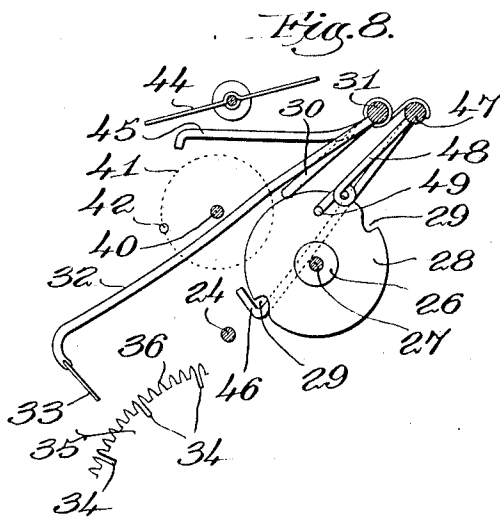
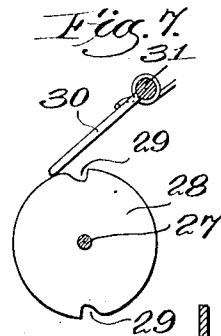
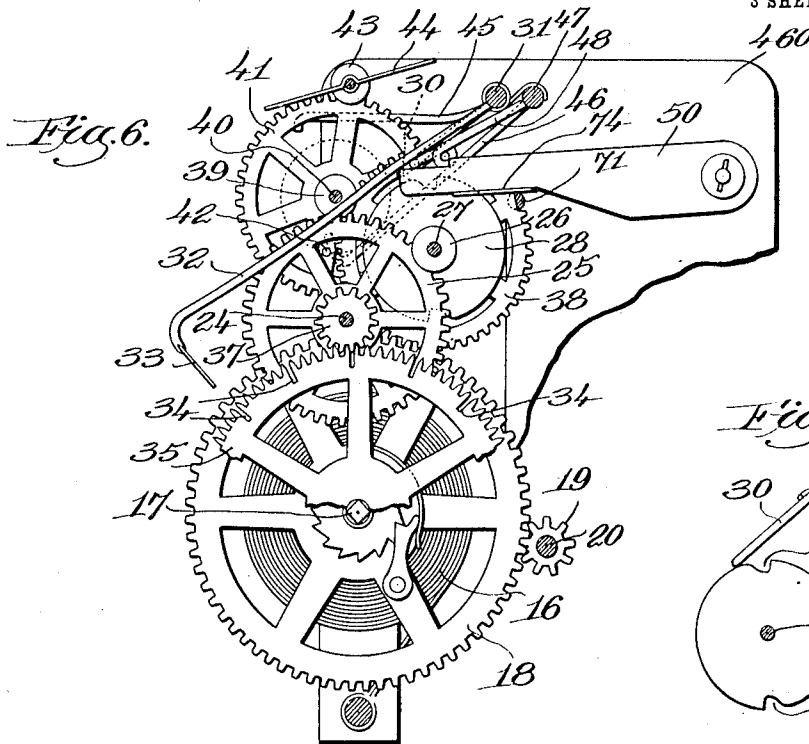
Inventor:
 Percy R. Seamon,
 by *Samuel J. Seamon* attys.

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3 SHEETS—SHEET 3.



Witnesses:
 Thomas J. Drummond,
 Joseph M. Ward.

Inventor:
 Percy R. Seamon,
 by Wesley Ferguson, atty.

UNITED STATES PATENT OFFICE.

PERCY R. SEAMON, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO AUTOMATIC LIGHTING COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

AUTOMATIC GAS LIGHTER AND EXTINGUISHER.

1,054,461.

Specification of Letters Patent.

Patented Feb. 25, 1913.

Application filed October 24, 1910. Serial No. 588,623.

To all whom it may concern:

Be it known that I, PERCY R. SEAMON, a citizen of the United States, residing at Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Automatic Gas Lighters and Extinguishers, of which the following description, in connection with the accompanying drawing, is a specification, like characters on the drawing representing like parts.

This invention relates to automatic devices for lighting and extinguishing gas lamps, and is in the nature of an improvement on the device shown in a co-pending application Se. No. 569,449, filed June 29, 1910, by Francis W. Sherman.

The objects of the present invention are to improve the valve-controlling mechanism and also to provide a novel type of valve, all as more fully hereinafter described and then pointed out in the appended claim.

In the drawings, Figure 1 is a front view of my improved device showing it located in the casing and with the front of the casing removed; Fig. 2 is a longitudinal vertical section through the casing showing the valve-controlling mechanism in side elevation; Fig. 3 is a section through the valve on the line $x-x$, Fig. 2; Figs. 4 and 5 are sections through the valve on the line $y-y$, Fig. 2, showing the valve in different positions; Fig. 6 is a fragmentary view of the valve-controlling mechanism showing the parts when the trip arm has been raised; Fig. 7 is a detail of the controlling cam; Fig. 8 shows some of the parts of the tripping mechanism after the trip arm has been released; Fig. 9 is a vertical section through the dials and center arbor.

3 designates a casing in which the valve-controlling mechanism and valve are located, and this casing is provided with two hollow necks 4 and 5, the neck 4 being adapted to be fastened to or forming part of any suitable lamp post, and the neck 5 being of a nature to receive the lantern or frame supporting the burner of a street gas lamp.

The gas pipe is shown at 6 and it enters the extension 4, passes up through the casing 3, and passes out through the extension 5 and extends to the burner (not shown). This pipe is shown as provided with the offset portion 7 situated within the casing and closely adjacent the back wall thereof, and

the pipe is also provided with a union or coupling 8 so that the portion of the pipe below the casing can be readily disconnected to permit the casing to be removed. Situated in the offset portion of the pipe is a valve designated generally by 9 and which comprises a valve casing having a valve plug 10 therein. This valve plug is provided with a main port 11 extending diametrically through it and with two by-pass ports 12 situated on the periphery of the plug and at one side of the main port 11. The valve casing 9 is provided with a by-pass inlet port 13 and with a by-pass outlet port 14, the latter port communicating with a pipe 15 which leads to the pilot burner, not shown. The by-pass port 12 has such a relation to the main port 11 of the valve plug that when said valve is opened to permit gas to flow to the main burner, as shown in Fig. 3, the by-pass is closed, as shown in Fig. 4, that is, the portion 79 of the plug between the two by-pass ports 12 stands between the two ports 13 and 14 and prevents the flow of gas from one to the other. When, however, the valve is given a quarter turn to shut off the gas from the main burner, one of the by-pass ports 12 will be thrown into such a position as to form a communication between the ports 13 and 14 thereby permitting gas to flow to the pilot burner.

The valve-actuating mechanism is arranged so that at each actuation thereof the valve is given a quarter turn with the result that, assuming that the pilot burner is turned off and the main burner is turned on, the first time the valve is actuated the main burner will be shut off and the pilot burner will be turned on, while the next time said valve is actuated the main burner will be turned on again and the pilot burner will be turned off.

The valve-actuating mechanism is of that known type which involves a spring for actuating the valve, a locking device which normally holds the spring from action, and time mechanism to release the locking device and permit the valve to be actuated at predetermined intervals. The spring for operating the valve is shown at 16 and it is similar to the ordinary main spring of a clock and is wound up by means of a key applied to the spring arbor 17. This spring actuates a gear 18 mounted on said arbor, which gear meshes with and drives a pinion

19 on a shaft 20, the end of which is provided with a pin 21 that engages in a slot 22 in the stem of the valve plug 10. This gear 18 meshes with and drives a pinion 23 on an arbor 24, and said arbor has thereon a gear 25 that meshes with and drives a pinion 26 on an arbor 27. Fast on the arbor 27 is a controlling member 28 provided with two notches 29, and cooperating with said member is an arm 30 which is sustained by the rock-shaft 31. The rock shaft 31 also has extending therefrom an arm 32 provided with a nose 33 which is adapted to enter notches 34 in a period wheel 35 that is mounted on the spring arbor 17. This period wheel 35 has gear teeth 36 thereon which mesh with and are driven by a pinion 37 on the arbor 24.

The shaft 27 carrying the member 28 has thereon a gear 38 which meshes with a pinion 39 on an arbor 40, and said arbor has thereon a stop gear 41 provided with a stop pin or projection 42. Said gear also meshes with a pinion 43 carrying a fan or other regulator 44. The rock-shaft 31 has extending therefrom an arm 45, and another rock shaft 47 has extending therefrom an arm 46, said two arms being adapted to engage the stop pin 42 alternately and constituting a sort of escapement, as will be presently described. The rock shaft 47 also has extending therefrom a releasing arm 48, the end 49 of which is bent so as to engage the arm 32 when the rock shaft 47 is turned, and said releasing arm 48 is arranged to be engaged by a trip arm 50 which is pivoted to the frame 460 in which the various arbors and rock shafts are sustained.

Fig. 1 shows the parts in their normal position, that is, with the arm 30 occupying one of the notches 29 of the controlling member 28, with the stop arm 45 engaging the stop pin 42, with the nose 33 of the arm 32 occupying one of the notches 34, and with the releasing arm 48 resting on the trip arm 50. Whenever the trip arm 50 is raised it will by engagement with the releasing arm 48 rock the shaft 47 thereby throwing the end of the stop arm 46 into the path of movement of the pin 42. Said trip arm also raises the releasing arm 48 into engagement with the arm 32, thereby lifting the nose 33 out from the notches 34 of the period wheel and rocking the shaft 31 so as to carry the stop arm 45 out of engagement with the pin 42 and the arm 30 out of the notch 29. The stop wheel 41 and the cam 28 are thus free to rotate under the influence of the spring 16 until the stop pin 42 brings up against the stop arm 46, as shown in Fig. 6, and during this movement the member 28 is turned sufficiently to carry the notch 29 out of alinement with the end of the arm 30, as shown in Fig. 7. When the trip arm 50 is lowered again the

stop arm 46 drops into its normal position, as shown in Fig. 8, and releases the stop pin 42, thus permitting the train of gearing to be operated under the influence of the spring 18. During this operation of the gearing, the arm 30 rests on the periphery of the member 28 and holds the stop arm 45 out of the path of movement of the stop pin 42, as clearly seen in Fig. 8, and thus also holds the nose 33 disengaged from the period wheel 35. When during the rotation of the member 28 the next notch 29 comes under the controlling arm 30, said arm will drop into said notch, thus permitting the stop arm 45 to come into the path of the stop pin 42 and also allowing the nose 33 to drop into the next notch 34 of the period wheel, the gearing for driving said period wheel being so timed that this next notch 34 will be brought into alinement with the nose 33 at the same time that the notch 29 comes under the controlling arm 30.

The time mechanism for controlling the actuation of the above-described valve-actuating device is similar to that shown in said co-pending application of Sherman, and it comprises a time train 65 operated by a spring 64 and driving a center arbor 66, the time train preferably being so constructed as to rotate the arbor 66 once every hour. The arbor 66 has loosely mounted thereon a sleeve 67 which carries a dial 68 graduated to indicate hours and which has adjustably mounted thereon two arms 70 each having a pin 71 extending therefrom and adapted to engage the laterally-extending flange 74 on the trip arm 50 as the arms rotate. The center arbor 66 has fast thereto a dial 72 graduated to indicate minutes, as clearly seen in Fig. 1. The sleeve 67 is geared to the center arbor 66 by suitable reducing gearing arranged so as to cause the sleeve and dial 68 to rotate once every twenty-four hours. Whenever during the rotation of the sleeve, one of the pins 71 engages the flange 74 on the trip arm 50, the latter will be raised into the position shown in Fig. 6, thereby partially releasing the valve-actuating mechanism, and the parts will remain in this position until the pin 71 passes out from under the flange 74, at which time the trip arm will drop, thus completely releasing the valve-actuating mechanism and permitting the valve to be turned forward one-quarter rotation. The arm 70 can be adjusted into any desired positions on the dial 68 according to the times when it is desired to turn the gas on or off. The dial 68 will preferably have the portion thereof which indicates the night hours of a dark color, as shown at 80, while the portion thereof which indicates the daylight hours will be of a light color, as shown at 81.

The valve device 9 is so arranged that

when it is turned from the position shown in Figs. 3 and 4 to that shown in Fig. 5, thereby to turn off the main burner and light the pilot burner, the by-pass port 14 will be opened before the main port is closed, so that the pilot burner will be lighted by the flame in the main burner before the gas is shut off from said burner. Further, when the valve is operated to turn on the main burner and shut off the pilot burner, the by-pass port 14 will remain open until after the main burner is lighted. These results are accomplished by making the valve as shown in the drawings, that is, with the by-pass ports 12 extending nearly around the periphery thereof but arranged to leave two barriers or portions 79 and by forming the main port 11 with the enlarged ends 80, as shown in Fig. 3. The ports 12 are so situated relative to the port 11 that when the port 11 is opened, as shown in Fig. 3, one of the barriers 79 stands between the ports 13 and 14 and thus cuts off gas from the by-pass. When the valve is turned to shut off the main burner, however, the barrier 79 will pass by the port 14, thus admitting gas to the pilot burner before the enlarged end 80 of the port 11 has passed by the port in the valve casing so as to shut off the main burner. Fig. 5 shows the position of the valve when the main burner is shut off and from this it will be seen that the valve may be turned through a considerable angle before the pilot burner is shut off, and this distance is sufficient to open the port 11 owing to the

enlarged ends thereof. As the valve is operated, therefore, the pilot burner will always be turned on before the main burner is shut off and the main burner will be turned on before the pilot burner is shut off.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

In an automatic gas lighter and extinguisher, the combination with a valve, of a spring for operating the valve, and time mechanism for governing the operation of the spring, said time mechanism comprising a lock for holding the spring inoperative, a continuously-revolving arm having a laterally-extending pin 71, a horizontal trip arm 50 pivoted at one end and provided with a laterally-extending flange 74 situated to be engaged by the pin 71 as said arm 70 rotates whereby the trip arm is lifted by the pin and is allowed to drop by gravity, a pivoted releasing arm resting on the trip arm whereby the releasing arm is raised when the trip arm is lifted, and means to partially release said lock when the releasing arm is raised and to completely release said lock when the trip arm falls.

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

PERCY R. SEAMON.

Witnesses:

LOUIS C. SMITH,
FREDERICK S. GREENLEAF.