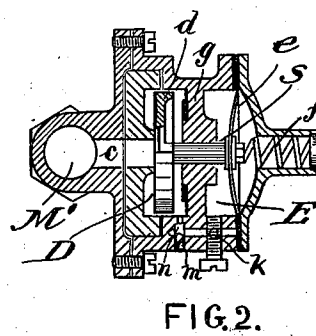
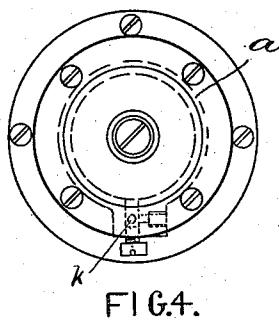
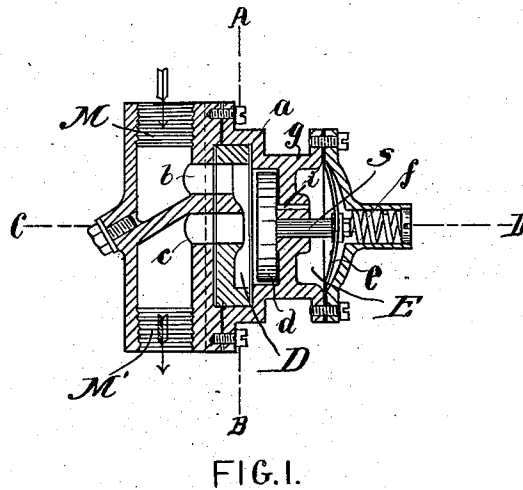
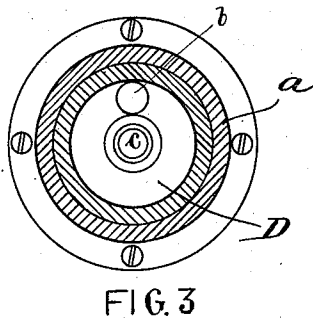


H. SUSSMANN.
 AUTOMATIC VALVE CONTROLLED GAS LIGHTER AND EXTINGUISHER.
 APPLICATION FILED AUG. 8, 1910.

1,014,267.

Patented Jan. 9, 1912.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC VALVE-CONTROLLED GAS LIGHTER AND EXTINGUISHER.

1,014,267.

Specification of Letters Patent.

Patented Jan. 9, 1912.

Application filed August 8, 1910. Serial No. 576,040.

To all whom it may concern:

Be it known that I, HEINRICH SUSSMANN, engineer, a subject of the Emperor of Germany, residing at Rotherstrasse 8-12, Berlin, in the German Empire, have invented certain new and useful Improvements in Automatic Valve-Controlled Gas Lighters and Extinguishers, of which the following is a specification.

10 My present invention relates to automatic valve controlled gas lighters and extinguishers, actionable responsive to the rise or fall of fluid pressure upon the diaphragm or other sensitive members.

15 The objects of my invention are to provide a device in which the diaphragm will not be subjected to the full high pressure of the gas during the whole period in which the gas passes through the apparatus, but merely for such period as will be necessary to set the parts in operation. By this construction the diaphragm will not become "set" through constant action or high pressure gas, but will be relieved of such pressure as soon as it has served the purpose of actuating parts of the device responsive to the rise in pressure.

Therefore, broadly speaking, the object of this invention is to provide a device which is so constructed as to operate successfully throughout a long period of time and with the least wear and tear upon the elements forming a part thereof.

30 In the drawings forming a part of this specification:—Figure 1 is a central vertical section through a device embodying my invention. Fig. 2 is a sectional view on the line C—D of Fig. 1. Fig. 3 is a sectional view on the line A—B of Fig. 1. Fig. 4 is an end elevation of the device.

Similar characters refer to similar parts throughout the views.

45 In the drawings, *a* designates a suitable casing, provided with a main inlet *M*, and main outlet *M'*. The casing *a* is provided with a chamber *D* to which the inlet *M* and outlet *M'* communicate through ports *b* and *c* respectively. A partition *g* forms a dividing means between the chambers *D* and *E* of the casing *a*, the chamber *E* containing a suitable diaphragm *e* which is suitably connected to a valve *d* in the chamber *D*, by means of a stem *s* passing through the wall *g*. A spring *f* normally forces the valve *d*

into a position shown in Fig. 2 where it effectively closes the port *c* but permits the incoming gas to act upon the diaphragm by passing from the chamber *D* to the chamber *E* through a by-pass *i*, in the partition *g*. Such by pass is so disposed in the partition *g* that the valve, when in contact with the latter, effectively closes the by-pass.

A pilot flame feed *k* communicates with the chamber *E* and from such pilot the main burners are lighted when the gas is permitted to flow through the main outlet *M'* and with which they are in communication. In order to provide means for furnishing sufficient gas to the pilot when the by pass *i* is cut off a secondary by-pass *n* is provided and is regulated by a throttle valve *m* to reduce the pressure to the desired amount.

It is obvious that the general construction of the casing hereinbefore described may be modified, as circumstances may require, without departing from the spirit of my invention.

The operation of the device is as follows:—Fig. 2 shows the relative position of parts under normal conditions; low pressure gas flowing into the chamber *D*; valve *d* closing the port *c*, and the low pressure gas passing through by-pass *i* into chamber *E* supplying sufficient gas to furnish a small flame at the pilot. Upon a rise of pressure of the gas, the same acts upon the diaphragm *e* which lifts the valve from the port *c* permitting the gas to flow through outlet *M*. The rising gas pressure further increases the size of the pilot flame which is enlarged sufficiently to be in such proximity to the main burners to successfully light the same. As soon as the pressure upon the diaphragm *E* has been sufficient to carry the valve to the position shown in Fig. 1, the pressure is cut off from the diaphragm by the valve closing the by-pass *i*, and the high pressure gas upon the face of the valve being sufficient to retain it in such position. When the gas pressure is again reduced the valve *d*, responding to the action of spring *f* moves toward the port *c* to close the same, extinguishing the gas at the main burner; the diaphragm *E* being again exposed to low pressure gas and in readiness to act upon a rise in pressure.

I claim:—

1. An automatic valve-controlled gas

lighter and extinguisher comprising in combination, a casing having a main inlet and outlet, a spring-controlled valve arranged to normally intercept the flow of gas through said outlet, a partition serving as a stop against opening movement of the valve and dividing the casing into a gas chamber and a diaphragm chamber, a diaphragm in said chamber connected with the valve, said partition having an opening to establish communication between said gas and diaphragm chambers and arranged to be closed when the valve seats against said partition, and a pilot-light mechanism communicating with said casing and controlled by said valve.

2. An automatic valve-controlled gas lighter and extinguisher comprising a casing provided with main inlets and outlets, and a chamber in communication therewith, a device in communication with the main inlet and actionable responsive to the rise or fall of gas pressure, and mechanism controlled by said device for closing said outlet through action of low pressure gas upon the device, and for opening said outlet and closing the communication between the said inlet and said device upon action of increased

or high pressure gas, combined substantially as and for the purpose set forth.

3. An automatic valve-controlled gas lighter and extinguisher comprising, a casing provided with main inlets and outlets, a chamber in communication therewith, and a second chamber separated therefrom, a device within said second mentioned chamber in communication with the main inlet and actionable responsive to rise or fall of gas pressure, mechanism controlled by said device for closing said main outlet during action of low pressure gas upon the device, and for opening said outlet and closing the communication between said inlet and said device upon action of increased or high pressure gas, and pilot supply control means in communication with both of said chambers, whereby a continuous supply of gas may have egress therefrom, combined substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

HEINRICH SUSSMANN.

Witnesses:

WOLDEMAR HAUPT,
HENRY HASPER.

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