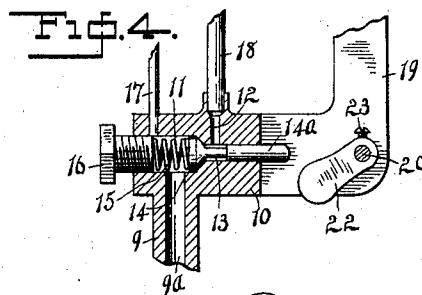
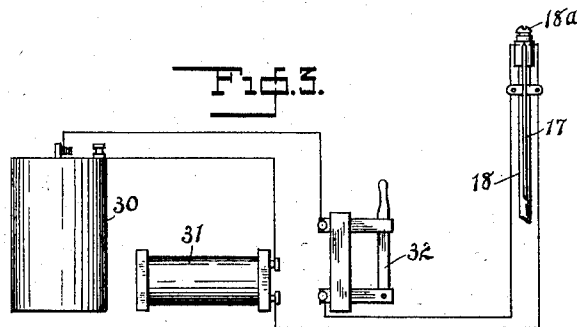
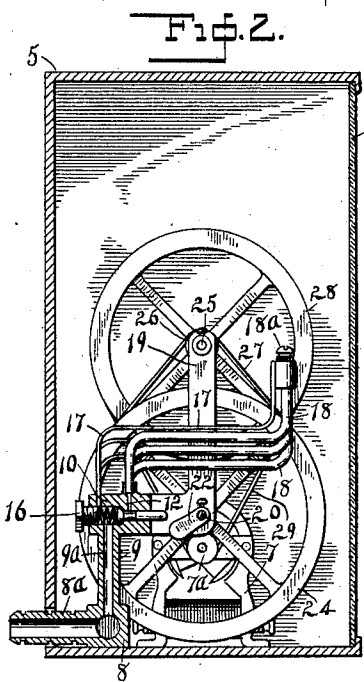
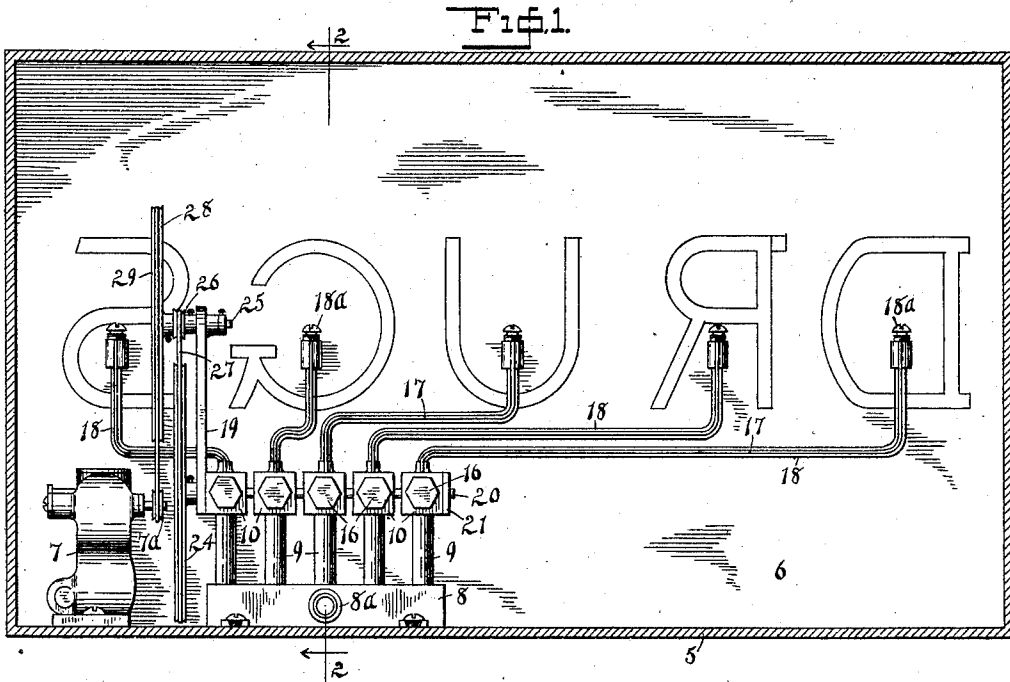


J. SPRING.
GAS FLASH LIGHT.
APPLICATION FILED APR. 13, 1907.

972,278.

Patented Oct. 11, 1910.



WITNESSES:

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JOSEPH SPRING, OF CHICAGO, ILLINOIS.

GAS FLASH-LIGHT.

972,278.

Specification of Letters Patent.

Patented Oct. 11, 1910.

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To all whom it may concern:

Be it known that I, JOSEPH SPRING, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gas Flash-Lights, of which the following is a specification.

This invention relates to improvements in means for illuminating signs and especially to the adaptation of gas as the illuminant, and to the devices for controlling the flow of gas to the burners whereby the latter will be intermittently lighted and extinguished.

The especial object of the improvements which form the subject matter of this application for patent is to provide a device for the purpose set forth that can be cheaply manufactured, easily installed or applied to a sign, and economically operated.

In the accompanying drawing which forms a part of this application I have illustrated my invention in a preferred form in the following views.

Figure 1 is a view partly in elevation and partly in section showing a sign equipped with my invention; Fig. 2 is a cross section on the line 2—2 of Fig. 1; Fig. 3 shows diagrammatically a method of using a jump-spark attachment for lighting the gas, and Fig. 4 is a fragmentary detail partly in section, on an enlarged scale, showing one of the valves for controlling the admission of gas to the burner tubes.

Referring to the details of the drawing, 5 represents a rectangular frame or box which incloses my improved apparatus and to one side of which are applied letters composing a sign. Suitably arranged and secured in one end of the sign frame is a small electric motor 7 of any desired type which, it will be understood, will be connected with a suitable source of electrical energy, and on the driven shaft of which is mounted a small grooved pulley 7^a.

8 represents the base of a burner support and same is a chambered casting having a tubular extension 8^a which is adapted to receive a tube (not shown) communicating with a suitable source of gas supply. From the top of the base extend a series of tubes 9 preferably cast integral with the base, the lower ends of which communicate with the interior of the base and the upper ends of which communicate with boxes 10. Each of these boxes is formed with a chamber 11 having gas ducts 12 and 13 communicating

therewith. In the chamber 11 is arranged a valve 14 having a stem 14^a which extends through the duct 13 and the wall of the box, and is formed with a rounded end, as clearly shown in Fig. 4. The valve 14 is normally held on its seat in the chamber 11 by an expansion coil spring 15 one end of which bears against the valve and the other end against a set screw 16 which is arranged in a threaded opening formed therefor in one side of the box 10. A pilot tube 17 communicates at one end with the interior of the chamber 11, and a burner tube 18 communicates at one end with the vertical duct 12, the latter communicating with the duct 13. The opening from the chamber 11 into the pilot tube 17 is controlled by the set screw 16 so that the amount of gas admitted to said tube can be regulated by adjusting the screw.

In a vertical extension 19 of one of the end boxes, is journaled one end of a shaft 20, the opposite end of which is journaled in an extension 21 of the box at the other end of the device. Upon this shaft are mounted a series of cams 22 which are adjustably secured to the shaft by set screws 23. The free end of each cam is rounded and adapted to form a wiping contact with the exposed end of the valve stem 14^a, as the shaft is rotated.

On one end of the shaft 20 adjacent to the extension 19 is mounted a grooved pulley 24 of relatively large diameter, and on a stud shaft 25 fixed in the upper end of the extension 19 is mounted a small grooved pulley 26. On the same stud shaft is mounted a pulley 28 of relatively large diameter. The pulleys 7^a and 28 are connected by a belt 29 and the pulleys 26 and 24, by belt 27. Owing to the relative size of the various pulleys named, I am able to get a low speed for the shaft 20, as will be readily apparent.

From each of the boxes 10 extends a burner tube 18 preferably of brass and bent as shown, the free ends of which are equipped with tips 18^a. Running parallel with each burner tube is a pilot tube 17, the free end of which terminates near the tip 18^a. As shown in Figs. 1, 2, and 3, there is a constant flow of gas from the supply pipe 8^a through the base 8 through the various ducts 9^a in the tubes 9 to the chambers 11 and from the chambers 11 through the pilot tubes 17, which, once lighted, will remain lighted until the gas is shut off from the source of supply. The flow of gas from the chamber

11 to the various ducts 13 and 12, and thus to the burner tubes 18, will be regulated and controlled by the rotation of the cams 22 with the shaft 20. As these cams will be set at different relative positions on said shaft, they will act in succession in pushing inwardly the valve stem 14^a and valves 14 and thus permit the gas to escape from the chambers 11 through said ducts 13 and 12, while the valves are unseated.

In Fig. 3, I have shown a well known form of jump-spark arrangement which forms no part of my invention but is introduced for the purpose of showing that instead of having a constantly burning pilot-light for the ignition of the gas at the tip 18^a, I may utilize a jump spark arrangement including a suitable battery 30, switch 32, and coil 31 and circuit wires, for lighting the gas, either of the pilot tube or the burner tip, thus saving the consumption of gas except at the brief intervals required for illuminating the particular letters composing the sign.

It will be apparent that I may have as many burner tubes, pilot lights, valve chambers and cams for operating the valves as there are letters in the sign. It will also be apparent that I may use any form of motor for driving the wheel 28 and thus the shaft 20. It will also be apparent that the intervals of ignition may be prolonged by giving a greater bearing surface or slower rotation to the cams 22.

I am aware that flash light arrangements for gas burners are not new broadly, but so far as I know they have involved expensive and complicated constructions, and one of the prime purposes of my improvements is to so simplify the devices that they can be cheaply manufactured and installed and maintained without skilled labor or great expense.

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

1. In a gas flash light apparatus, the combination of a gas receiving chamber, a plurality of boxes communicating with said chamber, each of said boxes having gas conduits therein and supplied with a valve controlling said conduits in combination with adjustable devices for operating said valves, means for driving said devices and burner tubes communicating with said conduits.

2. In a gas flash light apparatus, the combination of a gas receiving chamber, a plurality of boxes having separate communications with said chamber, independent spring-held valves mounted in said boxes, adjustable means for operating said valves,

burner tubes communicating with said boxes and adapted to be shut off therefrom by said valves, and pilot tubes constantly communicating with said boxes.

3. In a gas flash light apparatus, the combination of a chambered base, a plurality of boxes, pipes connecting said boxes with the chamber in said base, a pilot tube conduit and a burner tube conduit in each of said boxes, adjustable means for controlling the pilot tube conduit, a valve for controlling the burner tube conduit, means for operating said valve and pilot tubes and burner tubes connected respectively with said pilot and burner conduits.

4. In a gas flash light, a gas receiving chamber, a valve-chamber communicating with said receiving chamber, a spring-held valve slidably mounted in said valve chamber, a burner tube communicating with said valve chamber, and adjustable means for operating said valve.

5. In a gas flash light, a valve chamber, a spring-held reciprocating valve arranged in said chamber, means for supplying gas for said chamber, adjustable means for reciprocating said valve, and a burner tube communicating with said chamber.

6. In a gas flash light, a plurality of communicating valve chambers, a slide valve mounted in each of said chambers, a motor driven shaft, adjustable means for operating said valves, said means mounted on said shaft, means for supplying gas to said valve-chambers, burners and means for conducting gas from said chambers to said burners.

7. In a gas flash light apparatus, the combination with a casing, of a chambered base, a series of auxiliary chambers having separate communicating means with the base chamber, a pilot tube and a burner tube from the base chamber communicating with each of said auxiliary chambers, adjustable valves controlling said pilot tubes and burner tubes and adjustable means for operating said valves.

8. In a gas flash light apparatus, a plurality of communicating valve-chambers each having a by-pass and a gas outlet, means for admitting gas to said chambers, a valve mounted in each of said chambers, and independently adjustable means for controlling the operation of said valves.

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

JOSEPH SPRING.

Witnesses:

F. BENJAMIN,
C. B. BENJAMIN.