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S. BERENS & A. N. GATZERT.
AUTOMATIC FLASH LIGHT APPARATUS.

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Fig. 1.

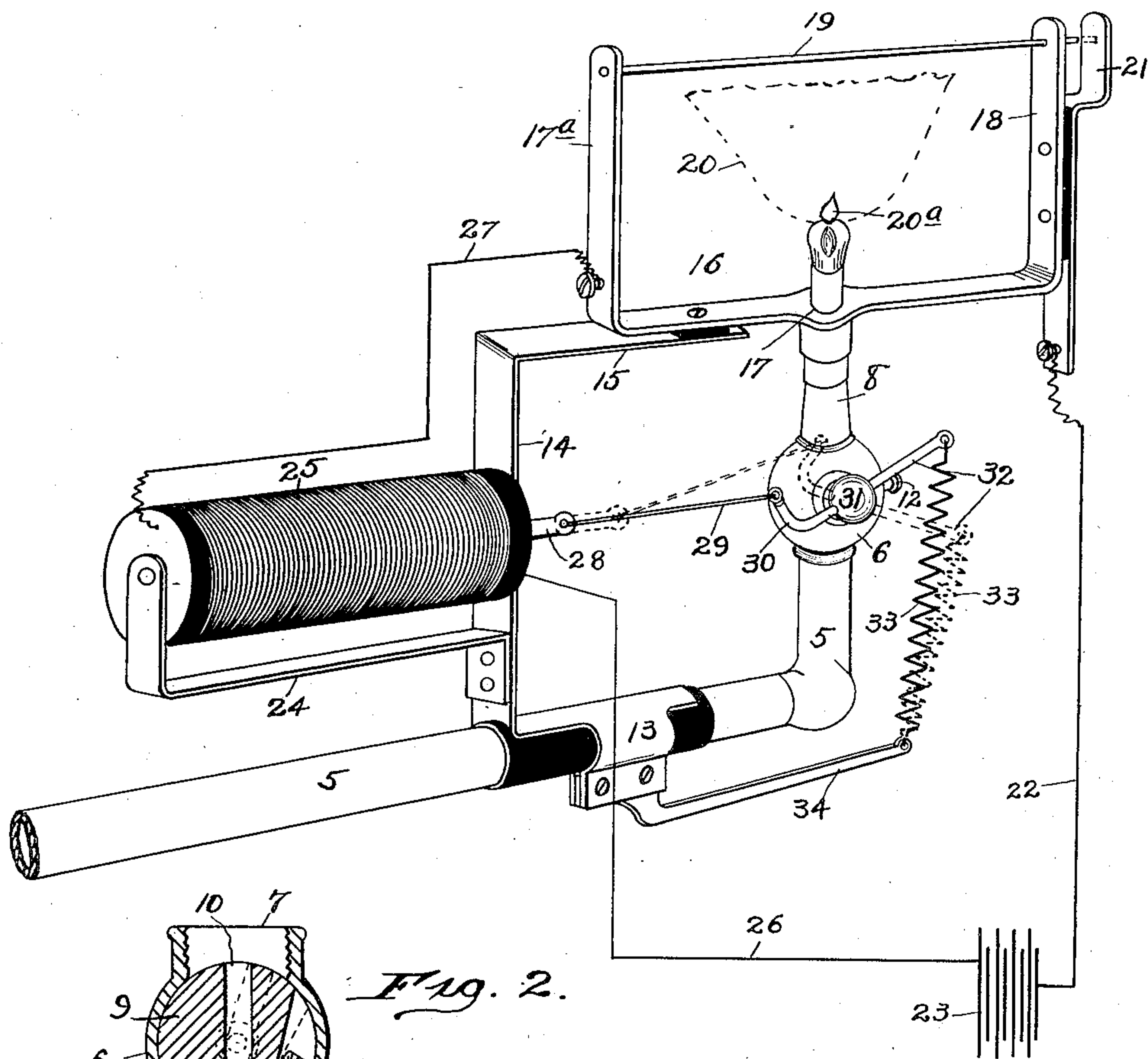
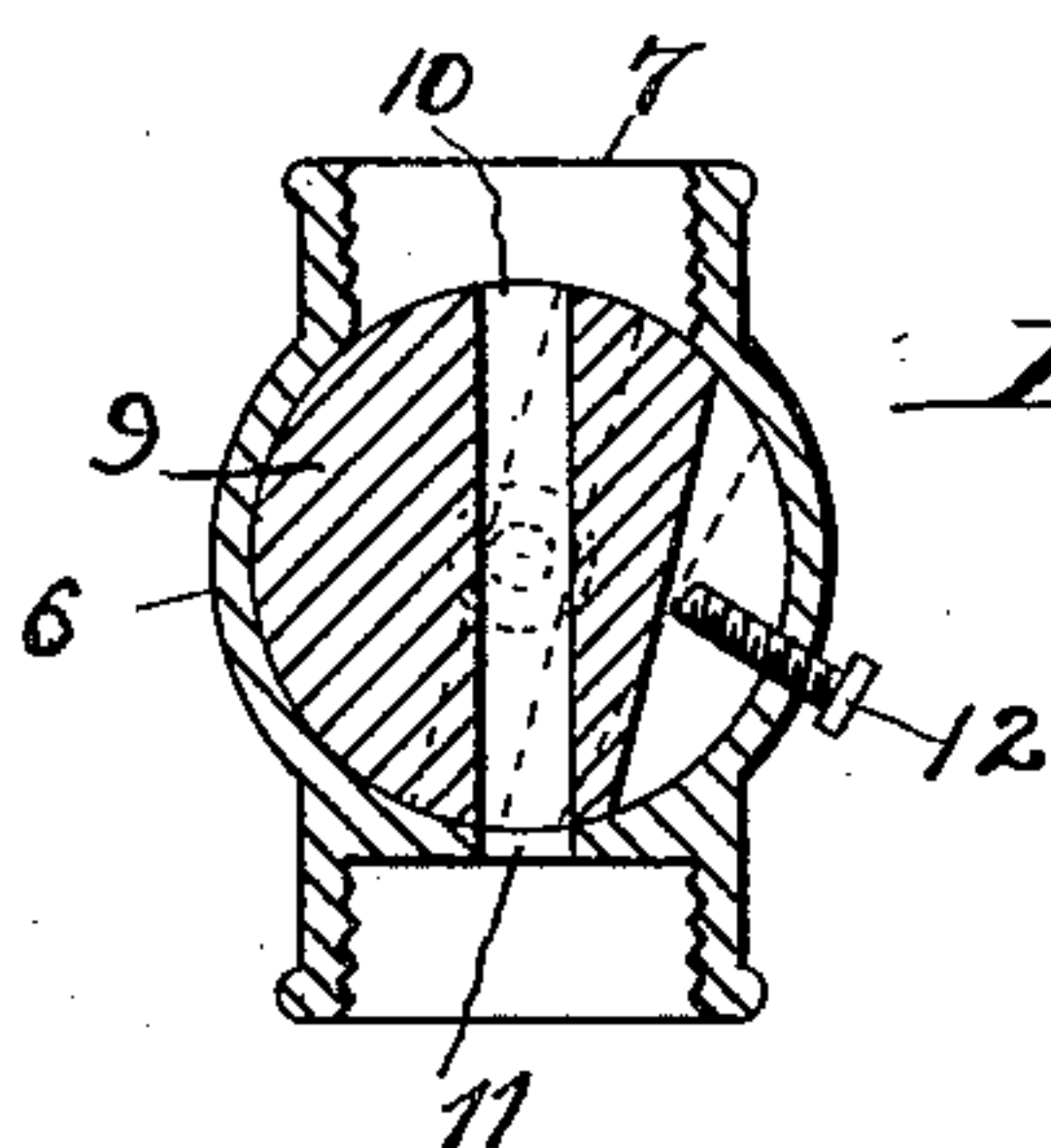


Fig. 2.



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AUTOMATIC FLASH-LIGHT APPARATUS.

No. 813,077.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, STANISLAUS BERENS, residing at La Grange, and ABRAHAM N. GATZERT, residing at Chicago, Illinois, citizens of the United States, have invented certain new and useful Improvements in Automatic Flash-Light Apparatus, of which the following is a specification.

This invention relates to improvements in an electrothermal apparatus to be used for producing flash-lights or for automatically intermittently producing flames of great or less brilliancy to be employed in connection with signs or for other purposes; and it consists in certain peculiarities of the construction, novel arrangement, and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of our invention is to provide an apparatus of the above-named character, which shall be simple and inexpensive in construction, strong, durable and effective in operation, and which shall be so made that it may be readily attached to a gas-fixture of the ordinary construction or easily removed therefrom.

Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In order to enable others skilled in the art to which our invention pertains to make and use the same, we will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a perspective view of an apparatus embodying our invention, showing it applied to a gas-fixture and illustrating by dotted lines the positions the parts will occupy when a full supply of gas is turned on to create the brilliant flame and by continuous lines the positions they will occupy when the supply of gas is reduced to a minimum; and Fig. 2 is a vertical central sectional view through the regulating-valve and its casing.

Like numerals of reference refer to corresponding parts throughout both the views of the drawings.

The reference-numeral 5 designates a gas pipe or fixture, which may be of the ordinary construction and suitably supported. Mounted on the discharging end of the pipe 5 is a globular valve-casing 6, which has in its upper portion an internally-screw-threaded ex-

tension 7, in which is screwed the gas-burner 8, which may also be of the ordinary or any preferred construction. Located in the valve-casing 6 is a valve 9, which is provided vertically with a channel 10, through which the gas may pass from the pipe 5 and which channel registers with a port 11 in the bottom of the casing. As shown in Fig. 2 of the drawings, the valve 9 is cut away on one of its sides, and the valve-casing 6 is provided with a regulating-screw 12, which is employed for controlling the movement of the valve, as will be presently explained. Mounted on the gas-fixture 5 and secured thereto by means of a clip 13 is a bracket 14, which extends upwardly and has on its upper end a lateral extension 15, which is insulated from but secured to a yoke 16, which is provided with an opening 17 to receive the upper portion of the gas-burner, so that said yoke may be mounted thereon, as is clearly shown in Fig. 1 of the drawings. The ends 17^a and 18 of the yoke are upturned, so as to project some distance above the upper end of the burner, and each of said ends or portions is provided with an opening in which is located an expansible wire 19, which is disposed directly in the path of the heat generated by the flame 20. Secured to but insulated from the arm 18 of the yoke is a metal strip 21, with which one end of the wire 19 will contact when said wire is sufficiently expanded by the heat from the flame. Connected at one of its ends to the lower end of the contact-piece 21 is a conductor 22, which leads to a battery 23 or source of electric supply. Extending laterally from the lower portion of the bracket 14 and in an opposite direction from the extension 15 is another extension 24, which has its outer end upturned and which, together with the upright portion of the bracket 14, forms a support for the electromagnet 25, which is electrically connected to the battery 23 and yoke 16 by means of conductors 26 and 27, respectively. The magnet 25 is formed with a central longitudinal opening in which is movably located a plunger 28, to the outer end of which is pivotally connected at one of its ends a rod 29, the other end of which is similarly connected to one end of a lever 30, which is secured on the stem 31 of the valve 9 and which stem is journaled in the casing 6, as is clearly shown in Fig. 1 of the drawings. Secured to the other arm 32

of said lever is a spring 33, which is connected at its other end to an arm 34, which by preference is secured to the clip 13 and extends in parallelism with the horizontal portion of the gas-pipe 5 at a distance somewhat below the same.

From the foregoing and by reference to the drawings it will be seen and readily understood that when the parts are arranged in the positions shown by dotted lines in Fig. 1 and by continuous lines in Fig. 2 of the drawings the gas will be permitted to flow through the channel 10 at full head, and when ignited the heat from the flame 20 will cause the wire 19 to expand until it contacts with the contact-strip 21, which operation will complete the electric circuit, thus energizing the magnet 25, which will retract the plunger 28 within the hollow of the magnet, thus turning the parts to the positions indicated by continuous lines in Fig. 1 and by dotted lines in Fig. 2 of the drawings, in which operation just enough gas will be permitted to pass through the channel 10 to afford a very small blaze 20^a, which will be located at such a distance from the wire 19 as to have but little, if any, heating effect thereon. When the parts are in said positions, it is apparent that the wire 19 will become cool and be contracted so as to break the electric current, in which operation the magnet 25 will be deenergized and the spring 33, through its connection with the arm 32 of the lever on the valve-stem 31, will cause the parts to assume the positions illustrated in dotted lines in Fig. 1 and by continuous lines in Fig. 2 of the drawings, thus permitting a full supply of gas to pass through the channel of the valve, when the flame will again be increased and the same operation as above described repeated. In order to regulate the supply of gas when it is desired to produce a small blaze or light, the set-screw 12 may be turned in the proper direction, so

as to cause a larger or smaller portion of the lower end of the channel 10 to register with the port 11 in the valve-casing.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an automatic flash-light apparatus, the combination with a gas-fixture, of a gas-regulating valve mounted thereon, an expansible piece mounted above the fixture in the path of the heat of the flame therefrom, an electromagnet in circuit with the expansible piece, means connecting the valve and said magnet whereby the valve will be turned when the circuit is completed so as to decrease the flow of gas, and a spring connected to the valve to turn the same when the circuit is broken so as to increase the flow of gas, substantially as described.

2. In an automatic flash-light apparatus, the combination with a gas-fixture, of a regulating-valve for controlling the flow of gas mounted thereon and having a projecting stem, oppositely-extending levers or arms on said stem, a yoke mounted on the burner of the fixture, an expansible piece carried by the yoke, a contact-strip secured to the yoke but insulated therefrom, a battery and a hollow electromagnet electrically connected together, a conductor connecting the magnet and yoke and a conductor connecting the contact-strip and battery, a plunger movably located in the hollow of the magnet and loosely connected to one of the arms on the valve-stem, and a spring connected at one of its ends to the other of said arms and suitably secured at its other end, substantially as described.

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