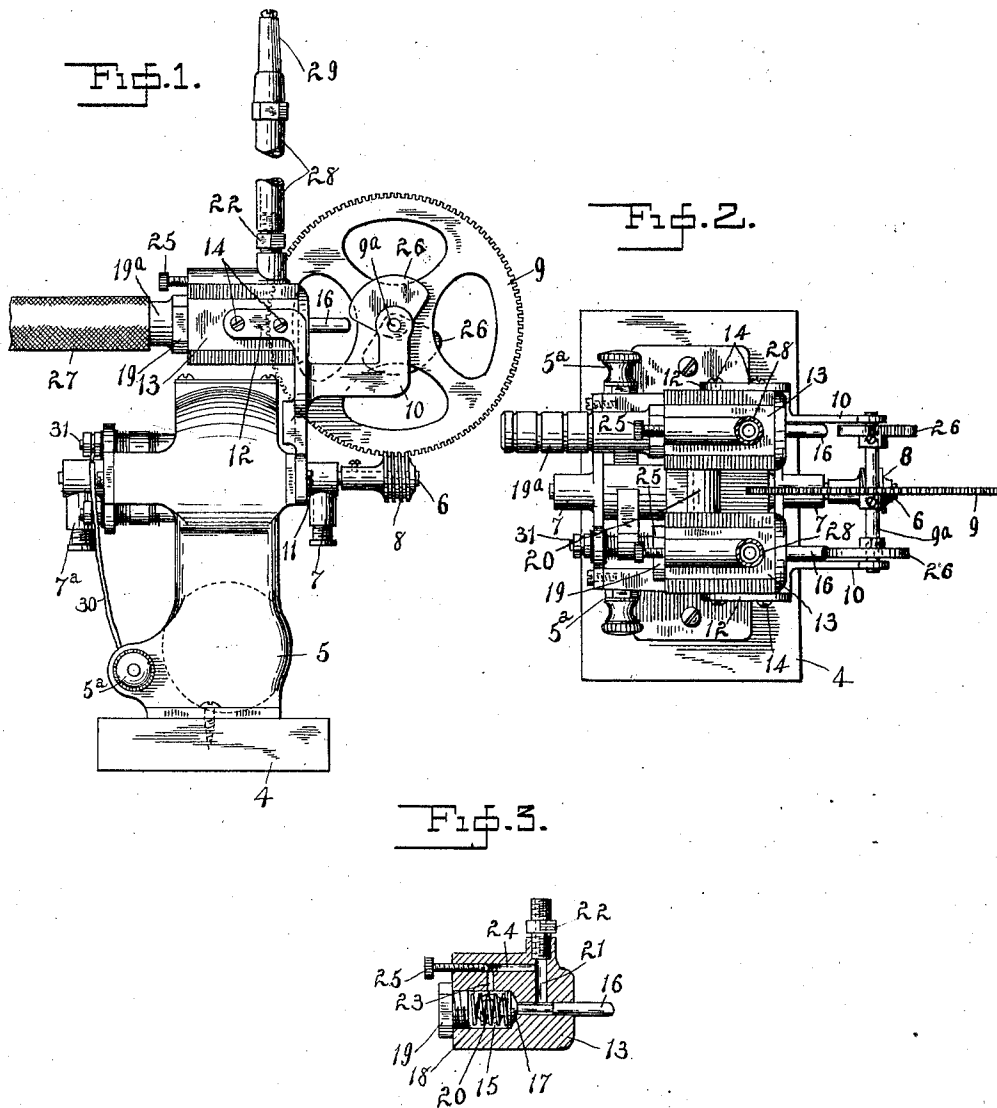


J. SPRING.
GAS FLASHER APPARATUS.
APPLICATION FILED FEB. 24, 1909.

1,003,538.

Patented Sept. 19, 1911.



WITNESSES:
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JOSEPH SPRING, OF CHICAGO, ILLINOIS.

GAS-FLASHER APPARATUS.

1,003,538.

Specification of Letters Patent.

Patented Sept. 19, 1911.

Application filed February 24, 1909. Serial No. 479,746.

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-Flasher Apparatus, of which the following is a specification.

This invention relates to improvements in gas flasher signs and particularly to the means for producing an intermittent action of the valves controlling the outflow of gas to the burners.

Specifically, the improvements which form the subject matter of this application are related to a mechanism which is shown in my co-pending application for patent Serial No. 367,963, and the object of these improvements is to simplify the construction and make more positive the operation and control of the valves which open and close the main gas passageways leading from the supply pipe to the burners.

In the accompanying drawing which forms a part of this application, I have illustrated a preferred adaptation of my invention in the following views:—

Figure 1 is a side elevation of my improved appliance which comprises an electric motor and controlling means for two valves connected directly to the motor; Fig. 2 is a top plan view of same with the burners removed, and Fig. 3 is a sectional detail taken through one of the valve chambers showing the valve, main gas conduit, and the by-pass conduit.

Referring to the details of the drawing, 4 represents a suitable base on which is mounted a small electric motor 5 of conventional form. The main shaft 6 of this motor is extended beyond the motor case and is journaled at one end in a box 11 which is fastened rigidly to the motor frame and is supplied with a worm 8 and with a grease cup 7. A similar bearing and grease-cup is at the other end of the shaft.

9 represents a pinion which is mounted on a shaft 9^a journaled in the arms 10 of a bracket 12, which is rigidly secured to the motor case at each side of the shaft 6, and which is also secured by screws 14, to the valve boxes 13. These boxes, of which there are two shown in the drawing, are exactly alike, each being provided with a valve-chamber 15 in which is mounted a valve having a stem 16 and a head 17. This valve is held in its normal or closed position by a

coiled spring 18 arranged within the valve chamber 15 and held under tension by the screw plug 19 which is inserted in the open end of the valve chamber 15 as clearly shown in Fig. 3. The pipe 19 communicating with one of the valve-chambers is supplied with a nipple 19^a to which may be fitted a section of flexible tubing 27 leading to any suitable source of gas supply.

Communicating with each valve chamber 15 is a conduit 21 from which extends a nipple, supplied with the nut 22, with which is connected a section of tubing running to a burner 28 having the usual tip 29. The conduit 21 communicates with the bore or conduit in which the valve stem 16 slides, the latter being reduced in diameter so as to permit the flow of gas from the chamber 15 to the conduit 21 when the valve 17 is pushed from its seat. The valve box 13 is also supplied with by-pass conduits 23, 24, which communicate with the conduit 21 and the chamber 15 respectively. The flow of gas from the chamber 15 to the by-pass conduits 23, 24, is controlled by a manually adjustable valve 25.

The valve stems 16 normally project into the path of cams 26 which are adjustably mounted by set screws on the shaft 9^a. The shaft 9^a is rotated by the meshing of the worm gear 8 with the pinion 9.

Current is supplied to the motor from any suitable source, the conductor wires (not shown) being connected respectively, with the binding posts 5^a on the base of the motor, from which lead the insulated wires 30 which connect respectively with the armature and brush posts 31.

It will be apparent that the construction described may be adapted to as many burners as desired by multiplying the valve boxes, extending the shaft 9^a and providing a cam for each valve. The gas is conducted from one valve chamber to the next adjacent chamber by a horizontal pipe 20.

The relative sizes of the worm gear 6 and pinion 9 are such that the rotation of the shaft 9^a will be comparatively slow; hence the cams will be in contact with the valve-stems for long periods and thus afford appreciable intervals of time during which the burners 28 will be in full operation or illumination. It will also be apparent that the burner tips will be constantly in action as pilot lights due to the continual supply of a small quantity of gas through the by-pass

conduits described, the opening and closing of the valves 17 affecting only the main supply of gas to the burners.

By mounting the valve boxes and valve-controlling devices directly upon the motor I am enabled to provide a compact construction which can be placed in a sign of limited dimensions without taking up appreciable space, which is a very important point in apparatus of this description.

Having thus described my invention what I claim is:—

1. In combination with a suitable motor, a shaft driven from said motor by worm and gear connections, a plurality of cams independently adjustable on said shaft, valve boxes having their valve chambers in communication, a by-pass in each of said boxes, a main supply conduit in each of said boxes, valves controlling said main supply conduits, and adapted to be operated by said cams, and burners communicating

with said valve-chambers through said by-passes and main conduits.

2. In combination with a suitable motor 25 having a driven shaft, a worm arranged on said shaft, a pinion meshing with said worm, a shaft driven by said pinion, cams adjustably mounted on said pinion shaft, valve-boxes supported on said motor and 30 having chambers communicating with each other, means for supplying gas to said chambers, a by-pass in each of said boxes, a main supply conduit connecting each valve-chamber and a burner, a valve mounted in 35 each of said valve-chambers and normally closing said main supply conduit, said valves adapted to be operated by said cams.

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

JOSEPH SPRING.

Witnesses:

F. BENJAMIN,
M. A. MILORD.

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