

F. J. SWANSTON.
 MEANS FOR LIGHTING AND EXTINGUISHING GAS LAMPS.
 APPLICATION FILED OCT. 29, 1915.

1,307,644.

Patented June 24, 1919.
 2 SHEETS—SHEET 1.

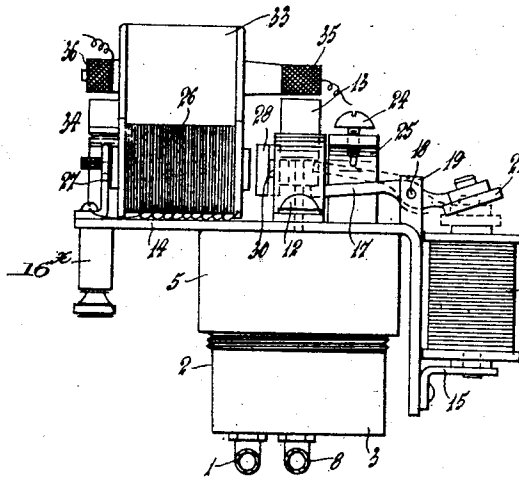


FIG. 1.

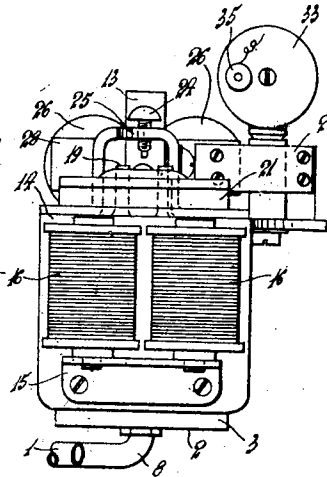


FIG. 2.

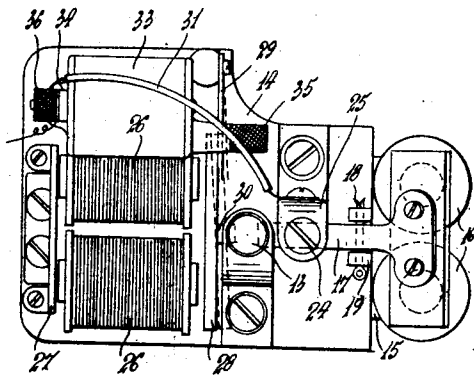


FIG. 3.

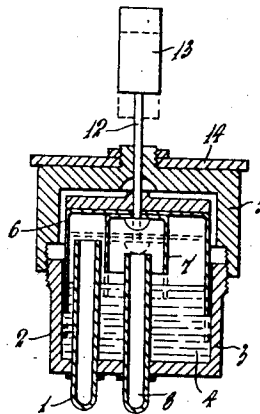


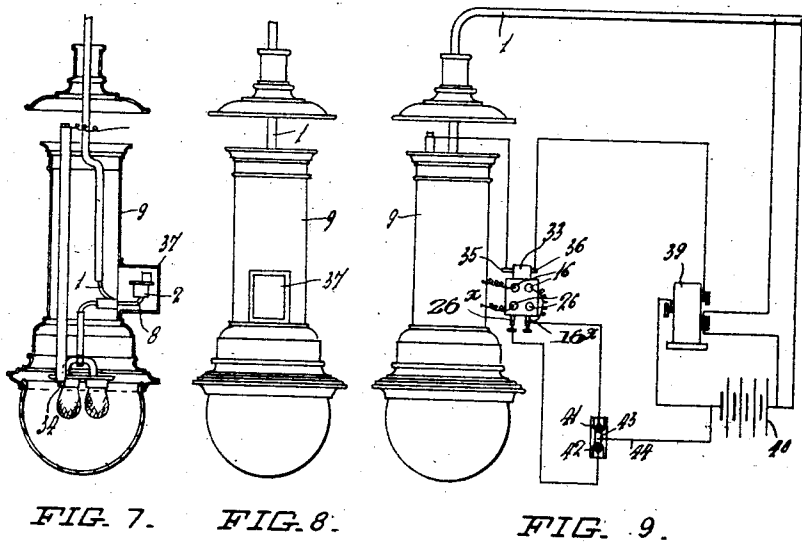
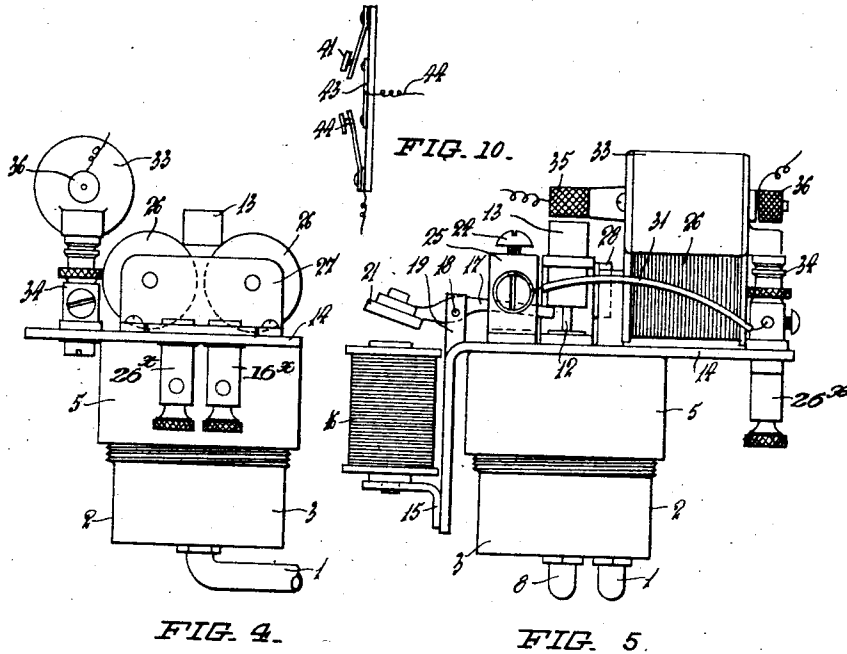
FIG. 6.

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UNITED STATES PATENT OFFICE.

FREDERICK JAMES SWANSTON, OF CHRISTCHURCH, NEW ZEALAND.

MEANS FOR LIGHTING AND EXTINGUISHING GAS-LAMPS.

1,307,644.

Specification of Letters Patent.

Patented June 24, 1919.

Application filed October 29, 1915. Serial No. 58,553.

To all whom it may concern:

Be it known that I, FREDERICK JAMES SWANSTON, a citizen of the Dominion of New Zealand, and residing at Christchurch, in the Provincial District of Canterbury, in the Dominion of New Zealand, have invented certain new and useful Improvements in Means for Lighting and Extinguishing Gas-Lamps, of which the following is a specification.

This invention relates to means for lighting and extinguishing gas lamps, and provides apparatus whereby the above operations can be carried out by a person located at any desired distance from the lamps.

Heretofore, it has been a common practice to employ pilot lights for the purpose of lighting gas lamps, but these pilot lights were not satisfactory under all conditions. For a considerable period of time the need has been felt of means whereby a gas lamp could be lighted and extinguished from a distance and without the inconvenience of a pilot light.

By my invention, the above operations are carried out by means of electrical apparatus attached to a gas lamp and connected by wires to press buttons or the like, or by switches or other suitable means of making contact, the lamp being lighted by pressure applied to one button and remaining lighted until pressure is applied to another button, whereby the lamp is extinguished.

The drawings herewith illustrate the invention, and will now be referred to for the purpose of a detailed description.

Figure 1, is a side elevation,

Fig. 2, a front end elevation,

Fig. 3, a plan,

Fig. 4, a rear end elevation, and

Fig. 5, a reverse side elevation of part of the electric apparatus,

Fig. 6, is a sectional elevation through a valve,

Fig. 7, is a side sectional elevation, and

Fig. 8, a front elevation of a lamp fitted with the invention,

Fig. 9, is a diagrammatic view of electric wiring,

Fig. 10, is a side elevation of press buttons.

The flow of gas to the burner of the lamp is controlled by a valve closing by gravity or by a spring and the valve illustrated in the drawings is admirably suitable for the purpose and for operation by my apparatus.

The gas supply main 1 of the valve 2, enters a vessel 3 adapted to hold mercury 4 and covered by a cap 5. A bell 6 has its rim always submerged in the mercury, and a smaller bell 7 inside the bell 6 covers the mouth of a pipe 8 leading to the burner of a gas lamp 9. This construction of valve is well known. The bells 6 and 7 are adapted to rise and fall, so that when the rim of the bell 7 dips into the mercury, the bell is sealed by the mercury and gas cannot pass from the main 1 into the pipe 8, but when the rim of the said bell 7 is raised above the surface of the mercury, gas freely passes into the pipe 8 and to the burner of the lamp, the mercury then forming a seal to the bell 6 only.

A rod 12 secured to the bells 6 and 7 passes through the cap 5 and is provided with a weight 13, or if desired a spring could be used instead of a weight.

A base plate 14 fixed to the valve 2 has a bracket 15 whereon electric coils 16 are mounted. A lever 17, pivoted by a pin 18 in a bracket 19 fixed to the base plate 14, has at one end an armature 21 adapted to be attracted by the said coils 16. The other end of the lever 17 passes beneath the weight 13 and is adapted to lift the same and the bells 6 and 7, when the armature 21 is attracted by the coils 16. The movement of the lever 17 is arrested by a contact screw 24, connected to an electric circuit, and mounted in a bracket 25 fixed to the plate 14.

Other coils 26 mounted on a bracket 27 fixed to the base plate 14 are adapted to attract an armature 28 mounted on a spring 29, which presses the armature in the direction of the weight 13, so that when the said weight is raised a nib 30 on the armature passes below and keeps the weight in its raised position. The bells 6 and 7 are thereby also raised, so that gas can pass freely from the main 1 to the pipe 8, so long as the nib 30 keeps the weight raised.

A transformer or induction coil 33, mounted upon a pillar 34 fixed to the plate 14, has a high tension terminal 35 and a low tension terminal 36.

The whole of the above described electrical apparatus is contained in a case 37 fixed to a gas lamp or near thereto. In Figs. 7 and 8 a gas lamp of the inverted burner type is illustrated with the apparatus attached to its side.

The trembler 39 of the transformer is fixed near the battery 40, and a single trembler is sufficient for any desired number of gas lamps.

- 5 The press button 41 for lighting the gas and the press button 42 for extinguishing the gas have a common terminal plate 43 connected by a wire 44 to the battery 40.

When the button 41 is closed, current
10 passes from the battery 40 through the terminal plate 43 and button 41 to the post 16*, Fig. 4, which post is insulated from the base 14, and from thence through the coil 16 and to ground through the base 14, the other side
15 of the battery also being grounded. The coil 16 when energized attracts the armature 21 and raises the other end of the lever 17, this lever thereby raising the weight 13 and the bells 6 and 7. Gas then flows freely
20 from the main 1 through the pipe 8 to the burner of the lamp.

The attraction of the armature 21 moves the lever 17 into contact with the screw 24, and current then also passes through the
25 trembler 39 to the low tension terminal 36 and through the low tension coil to the post 34, which is insulated from the base 14, and from thence through wire 31, screw 24, lever 17 and bracket 19, to earth through the base
30 14. The high tension coil is grounded at one end through the base 14 and its other end is connected to the terminal 35, which is in turn connected to the sparking mechanism, this mechanism also being connected to
35 ground. The pressing of the button 41 thus turns on the gas and closes the low tension circuit of the transformer 33, the high tension circuit of which then causes a spark to be given off by the sparking mechanism 34*, the terminals of which are in close prox-
40 imity to the burner of the lamp so that the gas issuing from the burner is lighted by means of the spark.

When the button 42 is closed, current
45 passes through the terminal plate 43 and through this button to the post 26* (see Fig. 4), which post is also insulated from the base 14, and from thence through coil 26 and to earth through base 14. The energization of
50 the coil 26 causes the armature 28 to be attracted so that the nib 30 is withdrawn, thereby allowing the weight 13 and the bells 6 and 7 to fall by gravity and to cut off the flow of gas, thereby extinguishing the light.
55 What I do claim and desire to secure by Letters Patent of the United States is:—

1. The combination with a gas burner and a valve controlling the supply of gas there-
60 to, of means for opening said valve electro-magnetically, and additional means operated automatically by said first named means for igniting the gas flowing from said burner, said additional means comprising a trans-
former, the secondary circuit of which in-

cludes a sparking device located adjacent
the burner, the first named means operating
to close the primary circuit of said trans-
former.

2. The combination with a gas burner and a valve controlling the supply of gas there-
70 to, of means for opening said valve electro-magnetically, additional means, including a transformer, operated automatically by said first named means to ignite the gas flowing from said burner, and an electrically con-
75 trolled lock to releasably hold the gas valve in its open position.

3. The combination with a gas burner and a valve controlling the supply of gas there-
to, of means for opening said valve electro-
80 magnetically, and additional means operated automatically by said first named means for igniting the gas flowing from said burner, comprising a transformer, a contact closer for the primary circuit of said transformer,
85 a spark plug in the secondary circuit thereof located adjacent said burner, and an electrically controlled lock to releasably hold said valve in its open position.

4. Means for lighting and extinguishing
90 gas lamps comprising a support, a gas valve controlling the supply of gas to the lamp burner, opening mechanism for said valve mounted on said support consisting of a lever co-acting with the valve, an armature
95 carried by said lever, and an electromagnet coöperating with said armature, means for releasably holding the valve open, and another electromagnet coöperating with the last named means for closing the valve, a
100 transformer having a primary circuit closed by said lever when operated by said electro-magnet, and a sparking device adjacent the burner of said lamp and connected into the secondary circuit of the transformer.
105

5. Means for lighting and extinguishing gas lamps comprising a support, a valve controlling the supply of gas to the lamp burner, opening mechanism for said valve mounted on said support, consisting of a lever co-acting with the valve, an armature
110 carried by said lever, and an electromagnet coöperating with said armature, a transformer having a primary circuit closed by said lever when operated by said electro-
115 magnet, and a sparking device adjacent the burner of the lamp and connected into the secondary circuit of the transformer.

6. Electric means for lighting and extin-
guishing gas lamps, consisting of a source
120 of electricity having one terminal grounded and the contactor of a multiple contact switch connected to the other terminal of said electric source; an electromagnet for opening the gas valve of said lamp connect-
125 ed in series with one contact of said switch and ground; a series connection between the second named terminal of said electric source

and ground comprising a circuit inter-
rupter, the primary coil of a transformer,
and a circuit closer actuated automatically
by the energization of said electromagnet; a
5 series circuit from ground to ground includ-
ing a pair of spark electrodes and the sec-
ondary coil of said transformer; and a
valve-closing electromagnet having one ter-
minal grounded and the other terminal con-
10 nected to a second contact on said multiple
contact switch.

7. Mechanism for lighting gas lamps,
comprising in combination a valve for sup-
plying gas to the burner of the lamp, an
15 electric circuit normally open, a movable
combined valve opening and circuit closing
member, stationary electromagnetic means
for moving said member to open the valve
and close the circuit, and an electrical spark-
20 ing device adjacent the burner for igniting

the gas flowing therefrom when said circuit
is closed.

8. Mechanism for lighting gas lamps, com-
prising in combination a valve for supplying
gas to the burner of the lamps, means oper- 25
able to open said valve, and electrical spark-
ing means including the primary circuit of a
transformer adapted to be closed by the first
named means when operated to open the
valve, the secondary circuit of the trans- 30
former including a sparking device located
adjacent the lamp burner.

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

FREDERICK JAMES SWANSTON.

Witnesses:

A. D. REESE,
G. A. J. HART.

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