

E. E. SALISBURY.

SIGNAL.

APPLICATION FILED SEPT. 1, 1910.

1,038,206.

Patented Sept. 10, 1912.

2 SHEETS—SHEET 1.

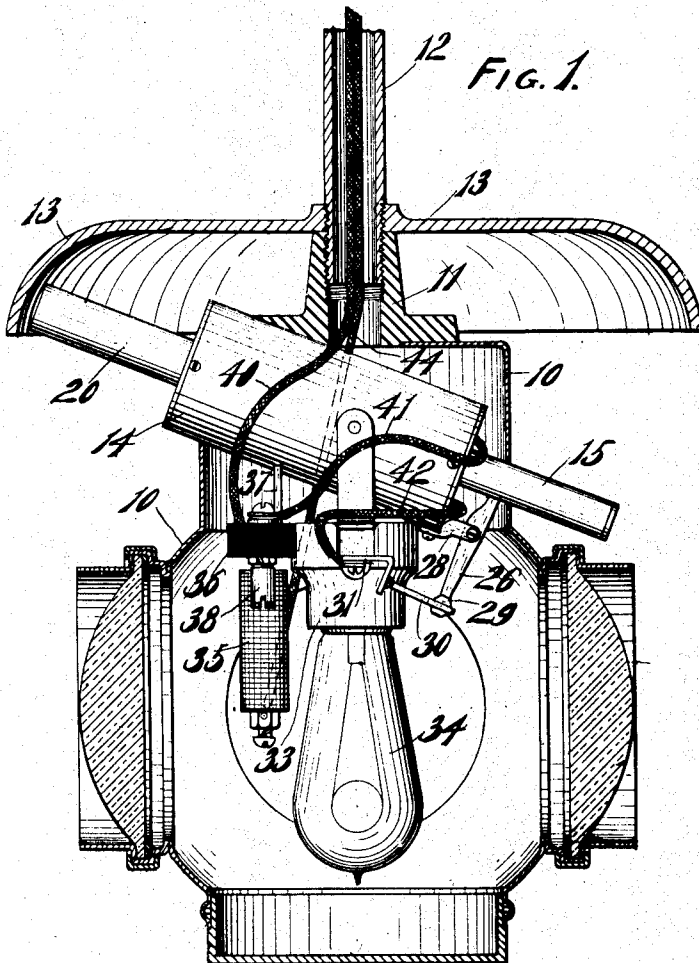
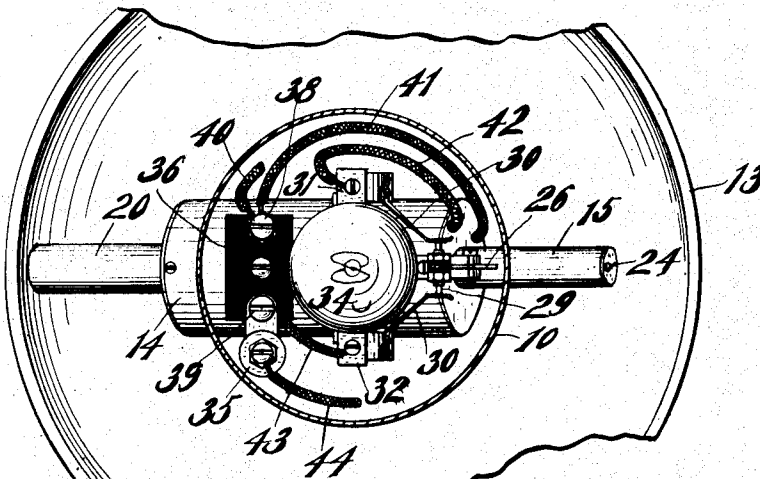


FIG. 2.



WITNESSES.

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2 SHEETS—SHEET 2.

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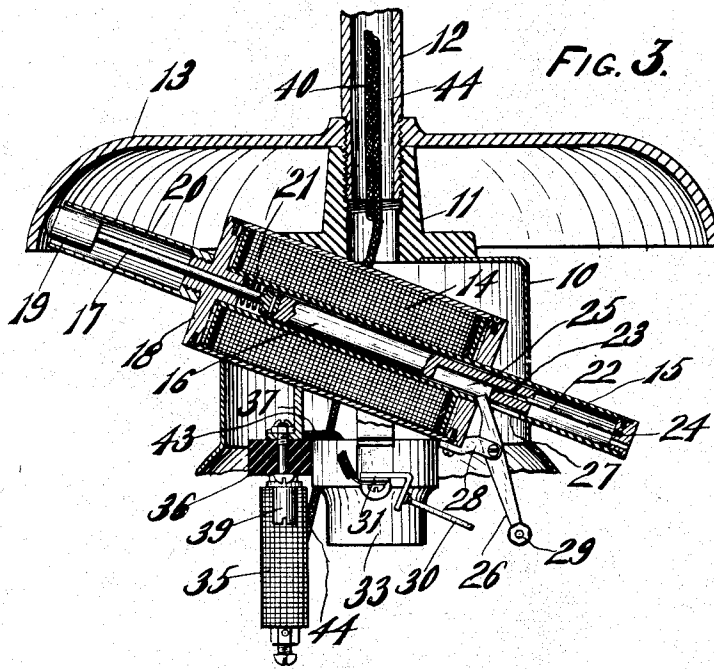
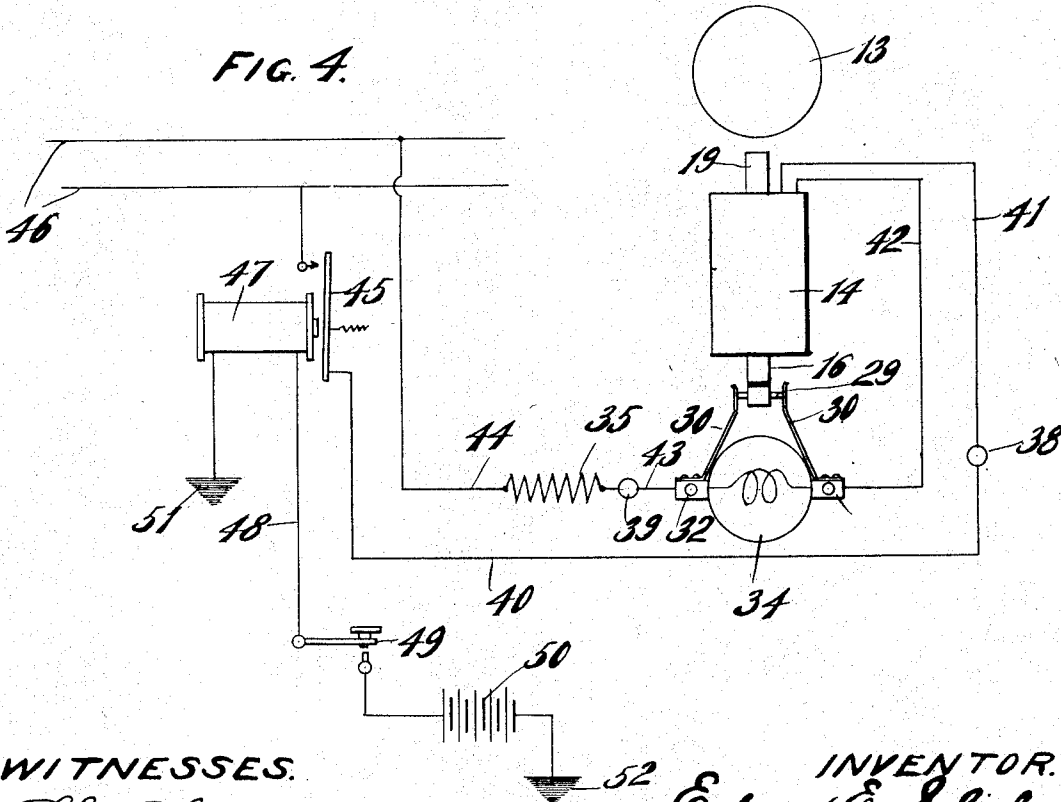


FIG. 4.



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UNITED STATES PATENT OFFICE.

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SIGNAL.

1,038,206.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EDGAR E. SALISBURY, a citizen of the United States, residing in Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Signals, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

10 This invention has for its object to provide a signal which will show a signal light and also sound an alarm, being particularly suitable for notifying policemen or patrolmen that the central station desires to communicate with them by telephone.

15 Another object of the invention is to provide a combined visible and audible signal means which may be operated by a single electrical circuit, an electric lamp forming the visible feature of the signal means being normally out of circuit to permit a magnet for producing the audible feature of the signal to receive a full flow of current, and by the movement of parts produced thereby serving to include the lamp in series with the magnet to reduce the current flow by adding resistance to the circuit.

20 Another object of the invention is to perfect details of construction of such combined visible and audible means.

25 With the above and other objects in view the invention consists in the signal herein claimed, its parts and combinations of parts and all equivalents.

30 Referring to the accompanying drawings in which like characters of reference indicate the same parts in the different views: Figure 1 is a central sectional elevation of a signal device constructed in accordance with this invention; Fig. 2 is a bottom view thereof with the main portion of the casing removed; Fig. 3 is a detailed sectional view through the solenoid; and Fig. 4 is a diagram of electrical circuits showing a preferred method of connecting the signal of this invention.

35 In these drawings, 10 indicates a casing which is preferably of the type commonly used for railroad semaphore signal lamps and 11 is a bushing in the hood thereof, threaded to receive the lower end of a tubular hanger 12 for suspending the signal and for containing the insulated wires. The hanger 12 also serves as a means for connecting a bell or gong 13 to the casing, said

gong being preferably of such a size and shape as to form a dome or protective covering for the entire signal device. Obliquely positioned within the hood of the casing 10 is a solenoid 14 whose core tube 15 projects downwardly through the hood and whose upper end preferably also projects through the hood.

40 The core 16 of the solenoid which is slidable within the tube 15, has a stem 17 to guide it in its movements by fitting through a guide opening in the solenoid head 18, and a ball or hammer 19 on the outer end of the stem is adapted to strike the edge of the gong 13 when the core is moved by the solenoid. The stem 17 and its hammer end are preferably of brass so as to be unaffected by the magnetism of the solenoid and a brass tube 20 is threaded on a boss of the head 18 to surround the hammer 19 and form a protective casing therefor. A coil spring 21 surrounds the stem 17 and forms a cushion to be compressed between the core 16 and the head 18 when the core makes its stroke and thus causes the hammer 19 to rebound from the gong after striking the blow so that it will not interfere with the clear sound of the gong.

45 At its lower end the core 16 is guided by having a pin 22 slidably fitting in a bore 23 thereof, said pin being mounted on a plug 24 closing the end of the core tube 15. The core 16 also has a slot 25 near its lower end into which the upper end of a lever 26 projects while passing through a slot 27 in the core tube, said lever being fulcrumed on a bracket 28 secured to the solenoid. The movements of the core 16 cause the lever 26 to swing from one position to another by the engagement of the ends of the slot 25 with its upper end. An insulated contact pin 29 is carried by the lower end of the lever 26 and in the normal position of the parts engages at both ends with a pair of spring contacts 30 which are mounted on the terminals 31 and 32 respectively of an electric lamp socket 33 which carries an incandescent lamp 34, the effect of the engagement of the contact pin 29 with the spring 30 being to normally bridge across the signal lamp 34 so as to exclude it from the signal circuit. When the solenoid is energized for producing the signal by attracting its core to the position shown in Fig. 3, the lever 26 is swung to remove the contact

pin 29 from engagement with the spring contacts 30 and thus withdraw the bridge connection for the lamp and include the lamp in the signal circuit.

5 As the signal is adapted for use in either a direct current circuit or an alternating current circuit, it may be found desirable to employ a resistance coil which may be easily detached and replaced by another of
10 different resistance in order to suit the particular conditions of the circuit in which it is connected and such resistance coil 35 is shown as mounted on an insulating block 36 alongside of the lamp socket 33 and con-
15 nected by a bracket 37 to the solenoid. For convenience of making connections this insulating block 36 is provided with a pair of binding posts 37 and 38, the latter of which supports the resistance coil 35 and is
20 in electrical connection with one terminal thereof.

The resistance coil 35 and the solenoid 14 and the lamp 34 are connected in series as follows: One of the terminal wires, 40 con-
25 nects with the binding post 38 and a wire, 41 connects said binding post 38 with one terminal of the solenoid, the other terminal of the solenoid being connected by wire 42 with the lamp terminal 31. A wire 43 connects
30 the other lamp terminal 32 with the binding post 39, and the resistance coil 35, which has one end in connection with the said binding post 39, has its other end connected to the other terminal wire 44.

35 The signal system may be controlled by a hand switch directly in the electric lighting circuit, but preferably the control of the signals at the central station is made through a relay system, one method of con-
40 nection being shown in the diagram of Fig. 4. Here the circuit for the signal is established by the closing of a magnetically operated switch 45 connecting the terminal wire 40 with one of the line wires 46 of an
45 electric lighting circuit or the like, the terminal wire 44 being connected with the other of the said line wires 46. The magnet 47 of switch 45 is included in an electric circuit 48 controlled by a key 49 and contain-
50 ing a battery 50 or other source of current supply, said circuit being preferably completed through ground terminals 51 and 52 at the relay switch and at the central station respectively. The relay switch 45 may
55 control a number of signals like that shown, only one being illustrated in the diagram as sufficient for the purpose.

In operation, the patrolman on his beat may be signaled by the central station, when
60 it is desired to communicate with him, by closing the switch 49 at the central station, thus closing the relay switch 45 and sending the current of the lighting circuit 46 through the signal instrument. At the mo-
65 ment of closing the circuit, the lamp 34

is bridged across by the contact pin 29 so that the solenoid 14 receives the full strength of the current, except as it is modified by the resistance 35. The solenoid becomes energized by this strong flow of cur- 70 rent and attracts its core 16, causing the hammer 19 to strike the gong 13 with a strong rebounding blow to attract the attention of the patrolman if he is in the vicinity of the signal. The circuit remain- 75 ing closed, the core of the solenoid remains in its upper position where it holds the lever 26 in its outer position as shown in Fig. 3, thus leaving open the bridge con- 80 nection for the lamp and causing the current to flow through the lamp as well as through the solenoid, cutting down the flow of current through the solenoid and lighting the lamp to attract the patrolman's atten- 85 tion. The lamp may thus be kept burning as long as the switch 49 remains closed, and if repeated sounding of the gong is de- 90 sired, it is only necessary to repeatedly open and close the switch 49, the gong being sounded upon the closing of the switch and the light remaining burning until the switch is opened.

The construction of the signal is such that the parts are protected from the weather, 95 mainly by being inclosed within the casing 10, but particularly by being shielded beneath the gong 13 which will serve to shed rain and snow therefrom, and thus prevent interference with the operation of movable 100 parts.

I desire it to be understood that this invention is not limited to any specific form or arrangement of parts except in so far as such limitations are specified in the claims.

What I claim as new and desire to secure 105 by Letters Patent is:

1. A signal, comprising an electromagnet, a sounding device operated by the magnet, an electric lamp connected in series with the electromagnet, and switch means 110 operated by the electromagnet and normally bridging across the lamp.

2. A signal, comprising a solenoid, a core therefor, a gong adapted to be struck by the core when the solenoid is energized, a suit- 115 ably connected electric lamp, and switch means operated by the core of the solenoid and normally bridging across the terminals of the electric lamp.

3. A signal, comprising a solenoid, a 120 gravity retracted core therefor, a gong adapted to be engaged by the core when the solenoid is energized, a lever operated by the core, an electric lamp connected in series with the solenoid, and contacts connected 125 with the terminals of the lamp adapted to be connected by the lever in the normal position of the core.

4. A signal, comprising a solenoid, a core therefor, a switch operated by the core, an 130

electric lamp controlled by the switch, and a gong in position to be struck by the core when the solenoid is energized and constituting a hood for protecting the parts from the weather.

5 5. A signal, comprising a lamp casing, a solenoid mounted in the hood thereof in an inclined position, a core tube for the solenoid, a core operating therein, a hammer
10 carried by the core, a gong mounted on the lamp casing and adapted to be struck by the hammer, a lever passing through a slot of the core tube and engaged by the core, an electric lamp, and a switch for the electric
15 lamp operated by the lever.

6. A signal, comprising a solenoid in an inclined position, a core tube passing there-
20 through, a core mounted within the tube, a plug fitting in one end of the tube, a guide pin thereon, there being an opening in the lower end of the core to receive the guide pin, a stem on the other end of the core, a solenoid head on the end of the solenoid
25 having a bearing for the stem, a hammer on the stem, a gong adapted to be struck by the hammer, a lever pivotally mounted on the solenoid, there being a slot in the core tube through which the lever passes and an open-

ing in the core into which the end of the lever projects to be engaged by the ends 30 thereof during the movements of the core for causing the lever to swing, an electric lamp connected in series with the solenoid, spring contacts connected with the terminals of the lamp, and a contact pin carried by the 35 lever adapted to engage the spring contacts for normally bridging across the lamp terminals.

7. A signal, comprising a lamp casing, a solenoid mounted within the hood thereof, a 40 gong secured to the lamp casing and adapted to be struck by the core of the solenoid, a switch operated by the core of the solenoid, an electric lamp connected in series with the solenoid, contacts on the terminals of the 45 electric lamp adapted to be engaged by the switch, and a removable resistance coil connected in series with the solenoid and mounted within the lamp casing.

In testimony whereof, I affix my signa- 50 ture, in presence of two witnesses.

EDGAR E. SALISBURY.

Witnesses:

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KATHERINE HOLT.