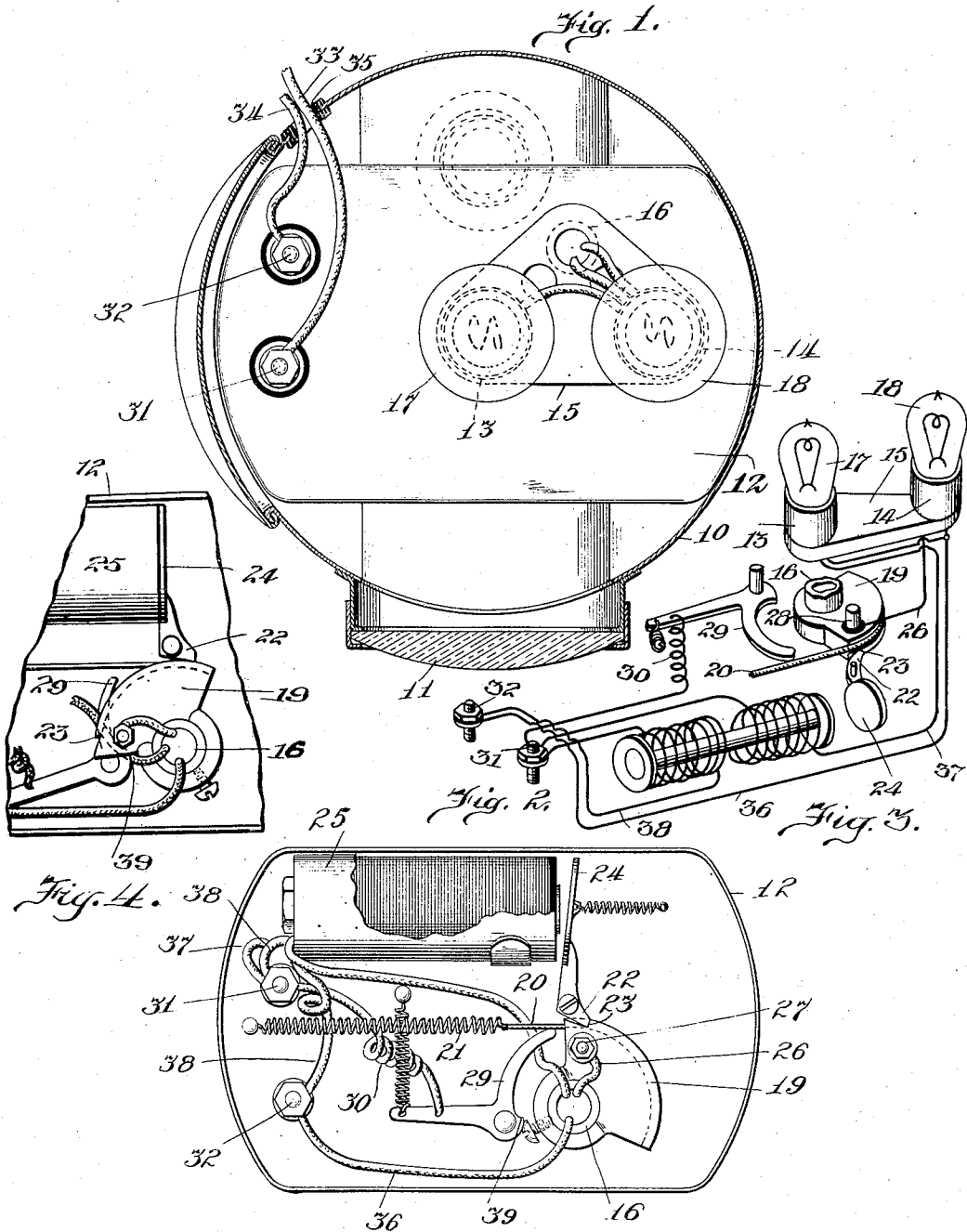


W. J. WARDER, JR.
ELECTRIC SIGNAL LAMP.
APPLICATION FILED NOV. 6, 1911.

1,037,566.

Patented Sept. 3, 1912



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UNITED STATES PATENT OFFICE.

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ELECTRIC SIGNAL-LAMP.

1,037,566.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WALTER J. WARDER, Jr., a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Electric Signal-Lamps, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to electric signal lamps, particularly such as are used in railway service.

The object of the invention is to provide a plurality of incandescent bulbs which may be brought successively and automatically to the focus of the lens of the lamp.

The invention, while capable of other explanations, consists of a device such as is hereinafter described and is illustrated in the accompanying drawings, in which—

Figure 1 is a plan section of the lamp casing taken on the horizontal diameter of the lens; Fig. 2 is a bottom plan view of the bulb support, showing the electric and magnetic means for shifting the bulbs; Fig. 3 is a detail in perspective, partly diagrammatic, of the shifting mechanism; and Fig. 4 is a detail of the controlling mechanism showing the parts in a different position from that of Fig. 2.

In signal service it is of the utmost importance that the lights be reliable, as the failure of a signal may result in serious disaster. Incandescent electric lamps are open to the objection that they may fail suddenly by the breaking of the filament, and it has therefore been inexpedient to use lights of this character, notwithstanding their convenience and efficiency in other respects.

The present invention provides for the use of a plurality of bulbs, one of which is located on the axis of the lens, means being provided for moving this bulb out of the position of service and substituting another one should the filament of the former be broken—the transferring action being induced by the failure of the lamp.

The body of the lamp may be of any suitable form. There is shown in the drawings at 10 an ordinary semaphore lamp having a lens 11. Within the lamp there is located a casing 12 for carrying the in-

candescent bulbs and housing the controlling mechanism. In the preferred form of construction a pair of lamp sockets 13, 14, are mounted upon a plate 15 fixed upon a tubular shaft 16 journaled vertically in the top wall of the casing 12 in such position that either of the bulbs 17, 18, mounted in the sockets may be brought in line with the axis of the lens 11. A segmental plate 19 is fixed upon the lower end of the shaft 16, and carries on its periphery a cord 20 attached to a retracting spring 21 suitably anchored to the casing 12. The plate 19 is held in one of its positions, against the pull of the spring 21, by means of a trigger 22 engaging the notch 23 in the edge of the plate. When the plate 19 is retracted the bulb 17 is in the position of service. Upon the release of the trigger the spring 21 turns the shaft 16 to bring the bulb 18 to service position. The trigger 22 is mounted rigidly with an armature 24, coöperating with a double coil magnet which may be conveniently housed within a sheath 25. The two coils are reversely wound, and one of them is in multiple and the other in series with the bulb 17. When the lamp is in service there is no magnetic action, as each of the coils neutralizes the other. Should the filament of the bulb 17 be broken the current will, of course, cease to flow through the series coil, whereupon the multiple coil becomes effective to energize the magnet and attract the armature 24, disengaging the trigger 22 from the plate 19, whereupon, under the influence of the spring 21, the defective bulb is swung out of service position, the bulb 18 taking its place. The circuit to the latter bulb is closed by the same movement, one of the lamp lines 26 leading to a binding post 27 on the plate 19 and a post 28, also mounted on the plate, making contact with a switch arm 29 connected, by means of a wire 30, with one of the binding posts 31, to which the line wires lead. The binding posts 31, 32, may be mounted upon the casing 12, the line wires 33, 34, leading thereto through a suitable aperture 35 in the wall of the lamp. The line 36 leads from one of the binding posts, as 32, through the shaft 16 to each of the bulb sockets. The return line 37 from the bulb 17 leads through the shaft 16 to one of the magnet coils and thence to the other bind-

ing post, as 31. A line 38 directly connects the two binding posts and forms the other coil of the magnet. By this arrangement of wiring the circuit is at all times
5 closed through the bulb 17 while the filament of the latter retains its integrity. When the plate 19 is retracted, occupying the position illustrated in Figs. 2 and 3, the
10 circuit to the bulb 18 is open. Breakage of the filament of the bulb 17 causes the release of the trigger, whereupon the bulb 18 is moved to service position and the circuit through it is closed.

The switch 29 is spring-advanced, thus
15 insuring its firm contact with the post 28. Preferably a shoulder 39 is formed on the hub of the switch to limit the movement of the post 28.

I claim as my invention—

In an electric signaling device in combination an oscillatable plate, a spring urging the plate in one direction, a detent for holding the plate in opposition to the spring, an electric circuit, two incandescent
20 bulbs mounted on the plate and connected with the circuit in multiple, an electro-magnet in independent shunt from the circuit for releasing the detent, a counter coil
25 on the electro-magnet in series with one of the bulbs, and a switch in the line of the
30 other bulb arranged to be closed by the movement of the plate by the spring.

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