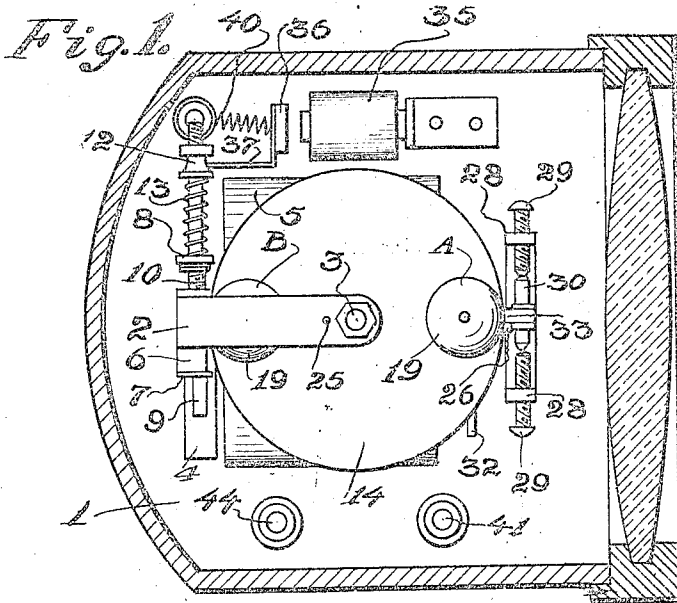
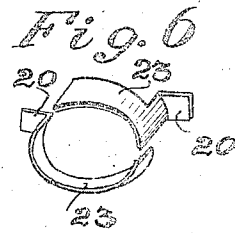
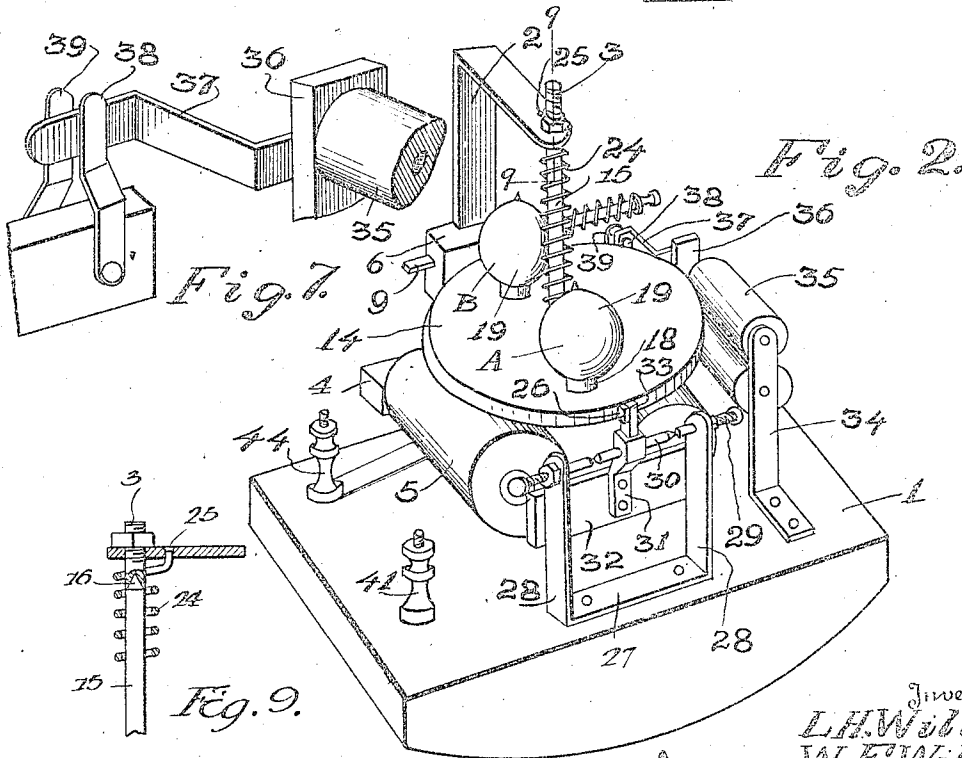


L. H. & W. F. WILBUR.
 SIGNAL LAMP.
 APPLICATION FILED MAR. 5, 1915.

1,210,027

Patented Dec. 26, 1916.
 2 SHEETS—SHEET 1.



Witnesses
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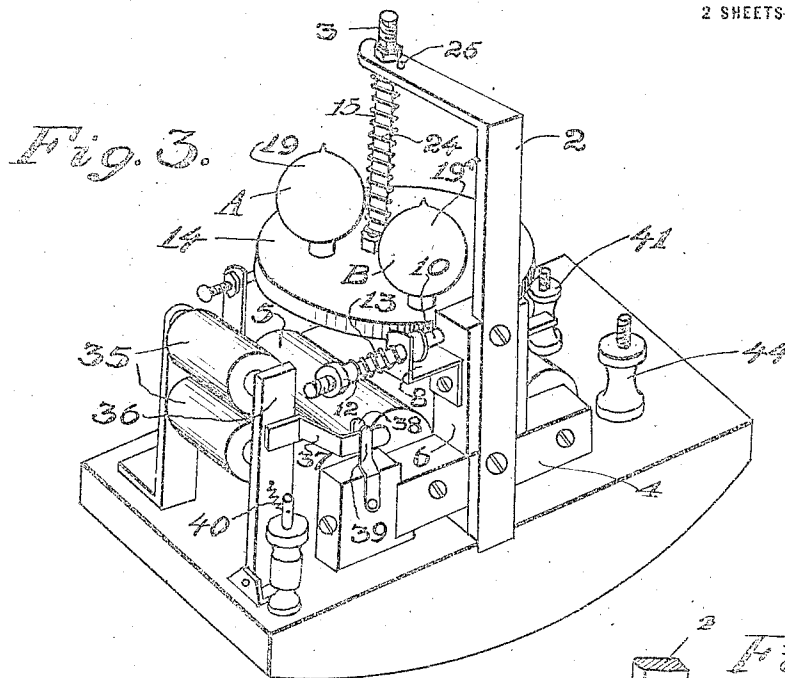
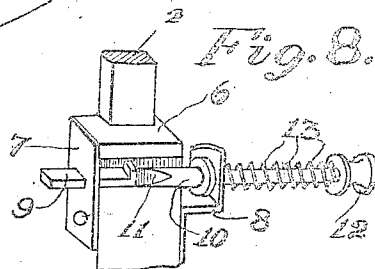
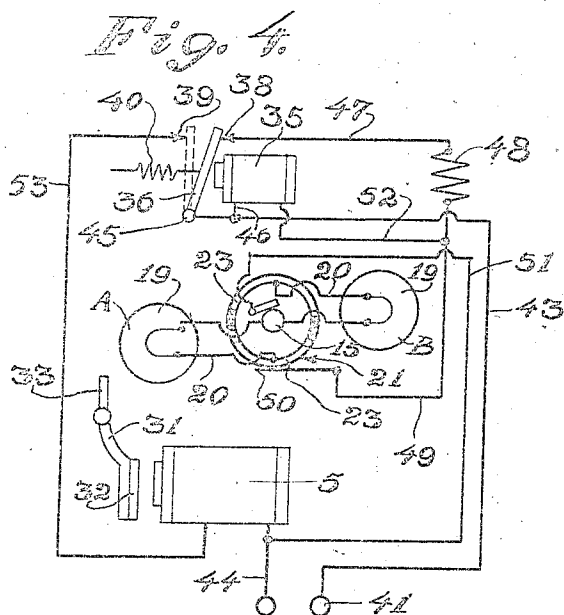
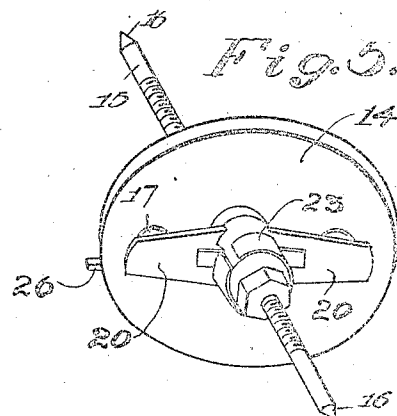
W. F. Wilbur

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Witnesses
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[Signature]

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UNITED STATES PATENT OFFICE.

LEE H. WILBUR AND WALTER F. WILBUR OF DUNKIRK, NEW YORK.

SIGNAL-LAMP.

1,210,027.

Specification of Letters Patent.

Patented Dec. 26, 1916.

Application filed March 5, 1915. Serial No. 12,372.

To all whom it may concern:

Be it known that we, LEE H. WILBUR and WALTER F. WILBUR, citizens of the United States, residing at Dunkirk, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Signal-Lamps; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to new and useful improvements in signal lamps, and has for its principal object to provide an electric signaling lamp which, in case the bulb is extinguished by burning out, a second bulb will automatically swing into place and thereby provide a lamp which is particularly adapted for use for signaling and the like.

Another object of the invention is to provide a simple and efficient means for shifting the operative lamp in position in case the first lamp becomes inoperative.

A further object of the invention is to provide an automatic controlling means which operates upon the extinguishing of the lamp.

With these and other objects in view, the invention consists in the novel combination and arrangement of parts which will be fully set forth in the following specification and accompanying drawings, in which,

Figure 1 is a horizontal sectional view through a lamp showing this improved device applied thereto, Fig. 2 is a perspective view of the device complete showing the same ready to be placed in position in a lamp, Fig. 3 is a view similar to Fig. 2 from the opposite side, Fig. 4 is the wiring diagram showing the several circuits, Fig. 5 is a detail perspective view of the lamp-carrying disk and the several parts thereof, Fig. 6 is a detail perspective view of the commutator, Fig. 7 is a fragmentary detail perspective view of the contact controlling the movement of the armatures, and Fig. 8 is a detail perspective view of the stop and buffer which limits the movement of the disk. Fig. 9 is a detailed sectional view taken on the line 9-9 of Fig. 2, showing the bearings for the lamp carrying disk.

Referring to the drawings by characters of reference, the numeral 1 designates the base of the device having mounted thereon the U-shaped bracket 2, the arms of which

extend parallel to the top surface of the base 1, and are provided with threaded apertures for the reception of the set screws 3 which are provided with depressions for the reception of the pointed ends of the axle carrying the disk which will be more fully hereinafter described. Supported on the bracket 2 near the lower arm is a transversely extending bar 4 which is formed of a soft iron or similar material and has secured near its ends the magnet coils 5 which are designed to provide a means to release the disks illustrated in Fig. 5 which will be more fully hereinafter described.

Supported on the upright portion of the bracket 2 above the bar 4 is a suitable block 6 of insulation having secured thereto the guide plate 7 and the angle bracket 8. The plate 7 is formed with a transversely extending slot, while the angle bracket 8 is apertured and the plate 7 receives the rectangular portion 9 of the stem 10 which is slidable through an aperture in the bracket 8. This stem is notched as at 11 to form a shoulder, the use of which will appear as the description proceeds. A suitable nut 12 is threaded on the outer end of the stem 10 and forms an abutment for the spring 13, the inner end of which abuts the vertical portion of the angle bracket 8 as clearly illustrated in Fig. 8. It will thus be seen that the stem will be permitted to slide through the openings in the plate and angle bracket against the compression of the spring 13.

The bulb-carrying disk, hereinbefore referred to, which is best illustrated in Fig. 5, is designated by the numeral 14 and is formed with a central aperture through which the shaft 15 extends. This shaft 15 is provided with the pointed bearings 16 which engage in the recesses in the set screws 3 and form a step bearing which permits the disk to easily swing. This disk is provided with a plurality of internally screw threaded apertures 17 for the reception of the lamp bases 18 of the lamp bulbs 19 and extending directly beneath each of the apertures 17 are the fingers 20 which are mounted on the commutator designated generally by the numeral 21. This commutator is formed of the insulated cylindrical body 22 carrying the contact plates 23 which are soldered or otherwise electrically connected to their respective fingers 20. These fingers 20 are located at a point slightly below the

lower surface of the disk to complete the contact with the lamp bulbs 19 carried in the openings 17. In order that the disk will be rotated, the helical spring 24 surrounds the upper end of the axle 15 and is secured in an aperture in the upper arm of the U-shaped bracket 2 as at 25, while the lower end of the spring extends through an aperture in the disk. Formed on the periphery of the disk is a lug or stop 26 which engages the shoulder formed by the notch 11 and retards the movement of the disk when the same is revolved under the influence of the spring 24. This spring 24 is arranged to turn the disk so that the lamp will be swung into proper position should the front lamp become burnt out or otherwise inoperative.

In order to hold the first lamp in position, a suitable U-shaped frame 27 is screwed or otherwise secured to the base 1 and the arms 28 of said frame are provided with threaded apertures for the reception of the set screws 29 which, like the set screws 3, are provided with depressions for the reception of the tapered ends of the shaft 30 on which the arm 31, carrying the armature 32, is mounted. Formed on the arm 31 and extending upwardly therefrom is a suitable lug or dog 33 which engages the stop 26 and holds the device in operative position. This armature 32 is placed so as to be attracted by the coil 5 so that when said coil is energized, the disk will be released and permitted to rotate under the influence of the spring.

Mounted on the base 1 and extending upwardly therefrom is a suitable standard 34 having mounted thereon the coils 35 which are designed to attract the armature 36 carrying the contact arm 37 which engages and forms a contact with the spring 38 when the lamp is operating properly and engages the contact 39 when the lamp is out. A suitable retractile coil spring 40 is connected to the armature and designed to exert pull on the same in a direction opposite to the pull exerted by the coils 35 so that the contact arm 37 will be drawn into contact with the contact spring 39 when the armature is released from the coil 35.

Upon referring to the wiring diagram as illustrated in Fig. 4, it will be apparent that the power is taken into the device by means of the binding screws or binding posts 41 and 42, having respectively connected thereto the wires 43 and 44 from which the branch wires, which will be more fully hereinafter described, extend. The wire 43 leads to the contact point 45 at the base of the armature 36 and has branching therefrom the wire 46, which is connected to one terminal of the coil 35. The contact spring or point 38 is connected by means of the wire 47 to a suitable resistance 48, the opposite terminal of which is connected by means of the wire 49 to the brush 50 carried on the insulating block which is supported on the upright portion of the bracket 2, and which brush engages the commutator 21 so that the current flows therefrom and into the arm 20, through one of the lights 19 and back through the disk to the shaft 15, from whence it passes through the frame 2 into the wire 51 and it then passes through the wire 44 to the binding post 42. Leading from the coil 35 is the wire 52 which forms a shunt circuit on the wire 43 through the coil 35 and wire 46 to the wire 52. It will thus be seen that when the light is burning under normal conditions, a continuous current will flow through the coil 35 and thereby hold the armature 36 in the position shown in Fig. 4 so that the contact arm 37 thereof will engage the contact spring 38. As soon as the light goes out however, it will be apparent that the spring 40 pulling against the magnet 35, will swing the arm 36 into the position shown by the dotted lines in Fig. 4 and a circuit will be completed from the binding post 41 through the wire 43, contact 45, into the armature 36, from whence the current will pass through the contact spring 39 and into the wire 53, one terminal of which is connected to one terminal of the coil 5. The opposite terminal of this coil is connected to the wire 44, and it will be apparent that as soon as the light goes out the coil 5 will be energized, thereby exciting the core and causing the armature 32 to be drawn toward the same in such a way that the arm 31 will swing on its pivot and move the lug 33 out so that it will disengage the stop 26 and permit the disk 14 to swing under the influence of the spring 24.

It will thus be seen that in use assuming the lamp A to be in the normal position so that the lug 33 engages the stop 26 and holds the spring 24 under tension. As soon as the lamp burns out or becomes otherwise inoperative so that the current is broken through the fingers 20 and the disk, it will be apparent that the magnet 5 will be set in operation and swing the armature 32 inwardly, thereby releasing the dog from engagement with the stop and swinging the lamp B into operation. It will thus be seen that the brush 50 will engage the segment 23 of the armature opposite the one controlling the light A, and the lamp B will be lighted as soon as it is swung into position. In this way it will be evident that a practically continuous burning light is provided which is particularly adapted for use for signaling purposes and which may also be used as a magazine light for vessels as the lamps are swung automatically into position without requiring any attention from the user.

While in the foregoing there has been shown and described the preferred embodiment

ment of this invention, it is to be understood that such changes may be made in the combination and arrangement of parts as will fall within the spirit and scope of the invention as claimed.

What is claimed is:

1. In combination, an electric circuit, a disk, lamps carried by the disk, means to swing said lamps into said circuit, a horizontally extending lug secured to the periphery of said disk, a U-shaped support, a latch pivotally mounted between the legs of the U-shaped support and adapted to engage said lug to normally hold one of the lamps in circuit, electromagnet means controlling the releasing of the latch, a circuit controller cutting in the electromagnetic latch releasing means automatically upon the extinguishing of the lamp in circuit and thereby permitting the cooperating lamp to swing into operative position.

2. In combination, an electric circuit, a disk, lamps carried by said disk and arranged to be swung into said circuit, a vertical shaft extending transversely through said disk, a U-shaped bracket, adjustable bearings mounted in the terminals of the legs of the U-shaped bracket, said shaft journaled in said bearings, a spring coiled about said shaft and having one of its terminals secured to said disk and the opposite terminal secured to the upper leg of said U-shaped bracket, said spring being adapted to rotate said disk, a latch to hold said disk against rotation, means carried by the web of the U-shaped bracket to limit the rotary movement of said disk, a circuit controller, and electromagnetic means controlled by the circuit closer to cause the latch to be released upon the extinguishing of the lamp in circuit.

3. In combination, an electric circuit, a

disk, lamps carried by the disk and arranged to be swung into said circuit, a horizontally extending lug secured to the periphery of said disk, a latch adapted to engage the horizontally extending lug to normally hold one of the lamps in circuit, electromagnetic means controlling the releasing of the latch, a circuit controller cutting in the electromagnetic latch releasing means automatically upon the extinguishing of the lamp in circuit, and thereby permitting the cooperating lamp to swing into operative position, and a spring buffer to engage said lug to limit the rotary movement of said disk.

4. In combination, an electric circuit, a disk, lamps carried by the disk and arranged to be swung into said circuit, a horizontally extending lug secured to the periphery of said disk, a latch adapted to engage the horizontally extending lug to normally hold one of the lamps in circuit, electromagnetic means controlling the releasing of the latch, a circuit controller cutting in the electromagnetic latch releasing means automatically upon the extinguishing of the lamp in circuit, and thereby permitting the cooperating lamp to swing into operative position, a horizontally sliding rod, a guide for said rod, a spring normally holding said rod in an extended position, and a shoulder formed on said rod adapted to engage said lug forming a spring buffer to limit the rotary movement of said disk.

In testimony whereof we affix our signatures in presence of two witnesses.

LEE H. WILBUR.
WALTER F. WILBUR.

Witnesses:

CASIMIR P. HYLAND,
JOHN J. CRUSE.