F. S. RIGGS.

SWITCH.

APPLICATION FILED AUG. 9, 1920.

1,389,899.

Patented Sept. 6, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

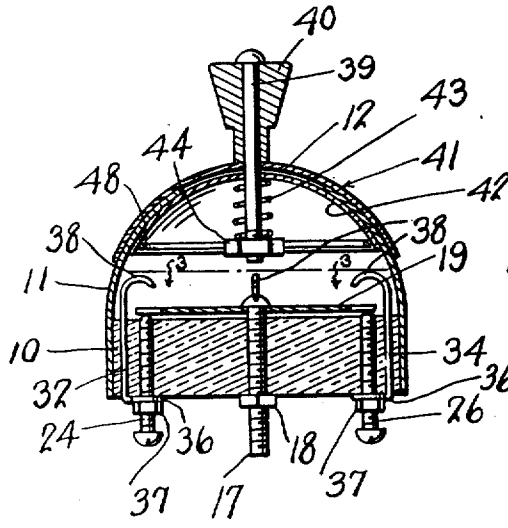


Fig. 2.

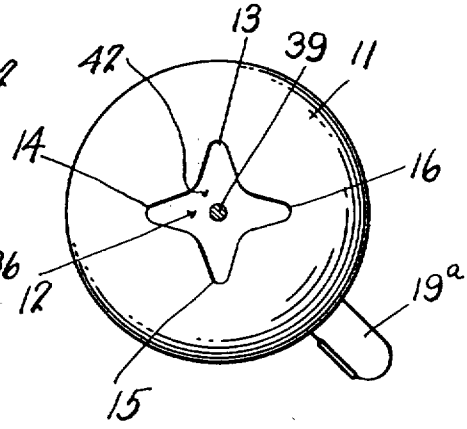


Fig. 3.

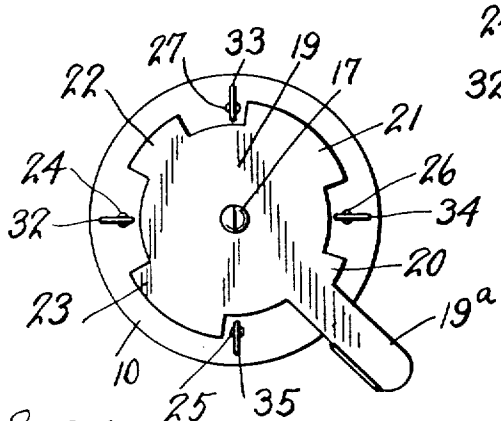
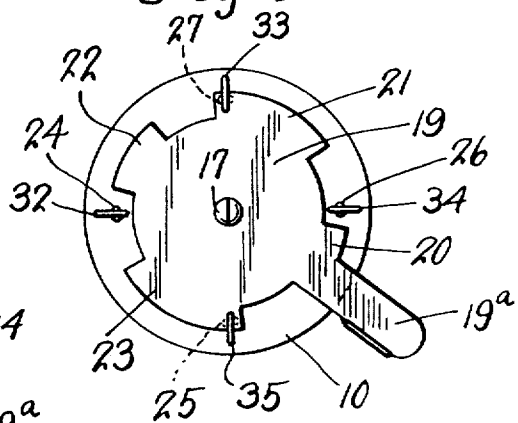


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 5.

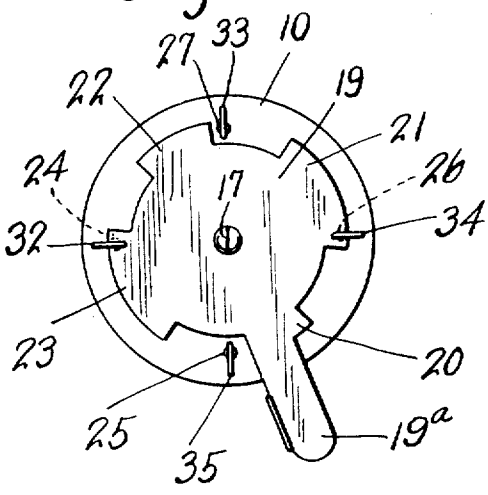


Fig. 6.

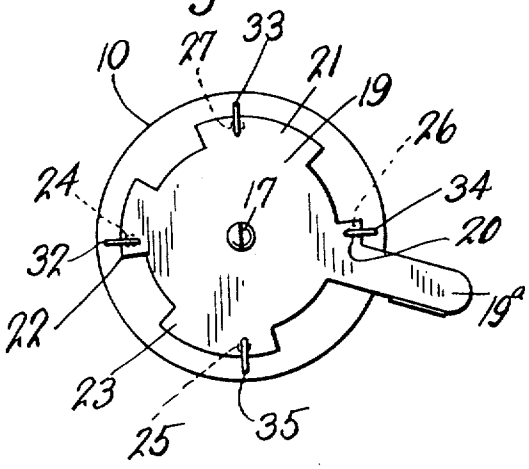
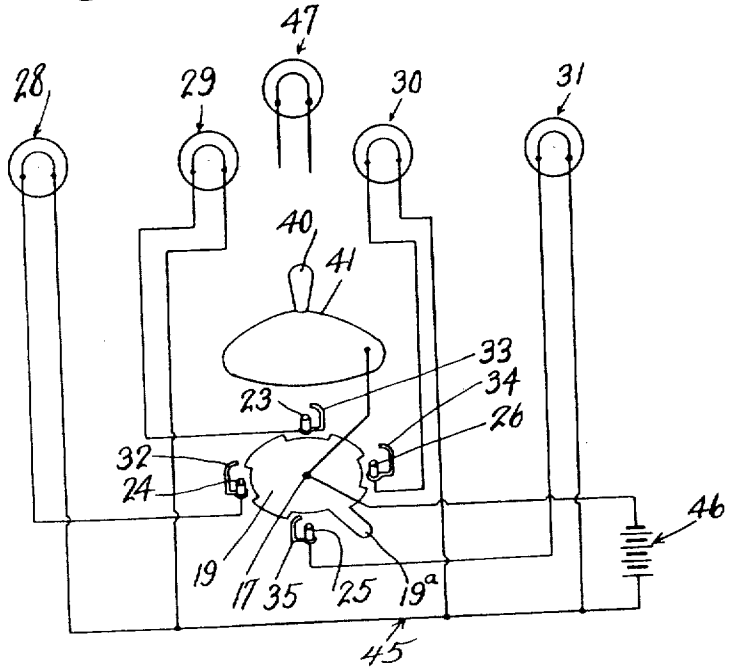


Fig. 7



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UNITED STATES PATENT OFFICE.

FLETCHER S. RIGGS, OF MARSHALL, TEXAS.

SWITCH.

1,389,899. Specification of Letters Patent. Patented Sept. 6, 1921.

Application filed August 9, 1920. Serial No. 402,154.

To all whom it may concern:

Be it known that I, FLETCHER S. RIGGS, a citizen of the United States, residing at Marshall, in the county of Harrison and State of Texas, have invented new and useful Improvements in Switches, of which the following is a specification.

This invention relates to electric switches and has for its object the provision of a switch used in conjunction with a signaling device including five lights, the construction of the switch being such that any one of the outer four lights may be separately energized, that any two opposite ones of the four lights may be energized, or that all of the four lights may be energized simultaneously, the central or fifth light being capable of independent energization.

An important object is the provision of a switch of this character which includes two operating levers, one of which is singly operable whereby to energize any one of the separate lights, and the other of which is movable when it is desired to energize any pair of lights or both opposite pairs.

An additional object is the provision of a switch of this character which will be simple and inexpensive in manufacture, highly efficient in use, quick in operation, durable in service, and a general improvement in the art.

With the above and other objects and advantages in view, the invention consists in the details of construction to be hereinafter more fully described and claimed and illustrated in the accompanying drawings in which—

Figure 1 is a longitudinal sectional view through my switch,

Fig. 2 is a plan view with the handle in section,

Fig. 3 is a cross sectional view on the line 3—3 of Fig. 1,

Figs. 4, 5 and 6 are views similar to Fig. 3 showing different positions of the lever,

Fig. 7 is a diagrammatic view showing my device in use.

Referring more particularly to the drawings, the numeral 10 designates a disk of insulating material which serves as the base of my device. Secured upon the outside of this base 10 is a shell 11 of metal which is hemispherical in shape and which is provided at its point most remote from the base 10 with a cross-shaped opening 12 including arms 13, 14, 15 and 16.

Extending centrally through the base 10 is a screw 17 provided immediately below the base with a clamping nut 18 and carrying above the base a contact disk 19 formed with a handle 19ª and this disk 19 is formed with outwardly projecting segments 20, 21, 22 and 23. Arranged at points ninety degrees apart are screws 24, 25, 26 and 27 which are connected with lamps 28, 29, 30 and 31, respectively. Associated with the contacts 24, 25, 26 and 27 are wire contacts 32, 33, 34 and 35, respectively, each of which has its lower end coiled, as shown at 36, and engaged upon the corresponding contact screw and clamped against the bottom of the base 10 by a clamping nut 37. At its other end each of these contact wires 32, 33, 34 and 35 has its upper end reflexly curved, as indicated at 38.

Associated with the shell 11 is an operating device comprising a central post 39 carrying a handle 40 and also carrying an outer shell member 41 which is a portion of a sphere and which is disposed against the outside of the shell 11. Also associated with this post is an inner shell 42 which is a portion of a sphere and which engages against the inner periphery of the shell 11. A coil spring 43 surrounds the post 39 within the shell 11 and engages against the shell 42 and against a nut 44 threaded upon the end of the post, the function of this spring being to hold the shells 41 and 42 against the shell 11 with the post 39 passing through the cross-shaped opening 12.

The lamps 28, 29, 30 and 31 which it is desired to energize in pairs, each has one terminal connected with a common ground wire 45 and have their other terminals connected, respectively, with the contacts 24, 25, 26 and 27. The common wire 45 is connected with one pole of a source of current 46 which has its other pole connected with the central screw 17. The numeral 47 designates the independent light which is located centrally of the four lamps above described and any suitable separate switch mechanism, not shown, may be employed for energizing this individual light either together with or independently of energization of the four lights above mentioned. It should be here stated that the screw 17 is also connected with the metal shell 11.

The operation of the device is as follows:

With the disk 19 in neutral position, as shown in Fig. 3, when the operator desires

to energize either one of the lights 28, 29, 30 or 31, it is merely necessary that he grasp the handle 40 and shift the post 39 into either of the arms 13, 14, 15 or 16 of the opening 12 whereupon the spider structure 48 within the inner shell 42 will engage the bent end 38 of any one of the contacts 32, 33, 34 or 35, respectively, as the case may be, whereupon the associated lamp 28, 29, 30 or 31 will be energized as the current flowing from the source 46 will pass through the shell 11, shell 42, spider 48 and contact engaged by the spider to the associated lamp from which it will return to the source.

In case it is desired to energize either opposite pair of the lamps it is necessary to merely grasp the handle 19ª and rotate the disk 19 into such position that the segments 20 and 22 or 21 and 23 will engage opposite ones of the contacts 32, and 34 or 33 and 35, as shown in Figs. 5 and 4 respectively, whereupon current flowing from the source will pass through the screw 17, through the disk 19, and through the two contacts engaged by the disk, through the associated lamps, and back to the source. It is observed that the disk 19 may be rotated so that the segments thereon will engage either pair of contacts.

If it should be desired to energize all four of the lamps simultaneously, it is necessary to rotate the disk 19 so that the segments thereon will engage all of the contacts 32, 33, 34 and 35, as shown in Fig. 6, whereupon all the lights will receive current.

As stated above, the independent switch mechanism, which may be provided and which is not shown, may be used for energizing the individual light 47 either in conjunction with or separately from the energization of the lamps 28, 29, 30 and 31 individually, or in conjunction with their energization in pairs or simultaneously.

From the foregoing description and a study of the drawings it will be apparent that I have thus provided a simply constructed and consequently inexpensive operating switch for controlling the energization of a plurality of electric lights which may or may not form a part of the signaling system.

While I have shown and described the preferred embodiment of my invention, it is of course to be understood that I reserve the right to make such changes in the form, construction, and arrangement of parts as will not depart from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. A switch comprising a base formed as a disk of insulating material, a central contact extending through and secured with respect to said base, a plurality of equally spaced outer contacts extending through and secured with respect to said base, upwardly extending contact members secured to said second named contacts and terminating in considerable spaced relation to the base, a metallic shell secured externally upon said base and of hemispherical shape, said shell being provided in its top with a substantially cruciform opening having arms corresponding in number to the number of said second named contacts, an outer shell of partially spherical formation slidable externally upon said first named shell, a post provided with a handle and secured through said second named shell and extending through said opening, an inner shell of partially spherical shape conformingly engaging against the inner periphery of said first named shell and mounted on said post, a spider member carried by said last named shell, said shell being connected with said first named contact, and said post being movable into any arm of said opening in order to bring said spider member into contact with the upper end of either one of said last named contacts.

2. A switch comprising a base formed as a disk of insulating material, a central contact extending through and secured with respect to said base, a plurality of equally spaced outer contacts extending through and secured with respect to said base, upwardly extending contact members secured to said second named contacts and terminating in considerable spaced relation to the base, a metallic shell secured externally upon said base and of hemispherical shape, said shell being provided in its top with a substantially cruci-form opening having arms corresponding in number to the number of said second named contacts, an outer shell of partially spherical formation slidable externally upon said first named shell, a post provided with a handle and secured through said second named shell and extending through said opening, an inner shell of partially spherical shape conformingly engaging against the inner periphery of said first named shell and mounted on said post, a spider member carried by said last named shell, said shell being connected with said first named contact, and said post being movable into any arm of said opening in order to bring said spider member into contact with the upper end of either one of said last named contacts, a spring encircling said post within and engaging against the last named shell, and a nut threaded upon the free extremity of said post and engaging against the other end of said spring.

3. A switch comprising a base formed as a disk of insulating material, a central contact extending through and secured with respect to said base, a plurality of equally spaced outer contacts extending through and secured to said second named contacts and terminating in considerable spaced relation

to the base, a metallic shell secured externally upon said base and of hemispherical shape, said shell being provided in its top with a substantially cruci-form opening having arms corresponding in number to the number of said second named contacts, an outer shell of partially spherical formation slidable externally upon said first named shell, a post provided with a handle and secured through said second named shell and extending through said opening, an inner shell of partially spherical shape conformingly engaging against the inner periphery of said first named shell and mounted on said post, a spider member carried by said last named shell, said shell being connected with said first named contact, and said post being movable into an arm of said opening in order to bring said spider member into contact with the upper end of either one of said last named contacts, in combination with a disk rotatable upon said first named contact and having radial extensions adapted to engage either opposite pair of said second named contacts or all of said second named contacts, said disk having an operating handle and said first named shell being provided with a slot for the passage thereof.

In testimony whereof I affix my signature.

FLETCHER S. RIGGS.