E. G. PETRIE.

SIGNALING DEVICE.

APPLICATION FILED JAN. 21, 1918.

1,278,738.

Patented Sept. 10, 1918.

2 SHEETS—SHEET 1.

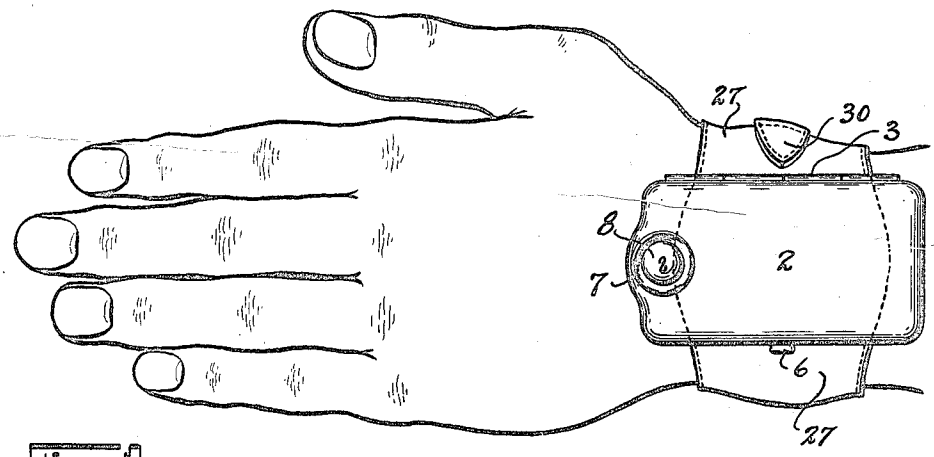


Fig. 1

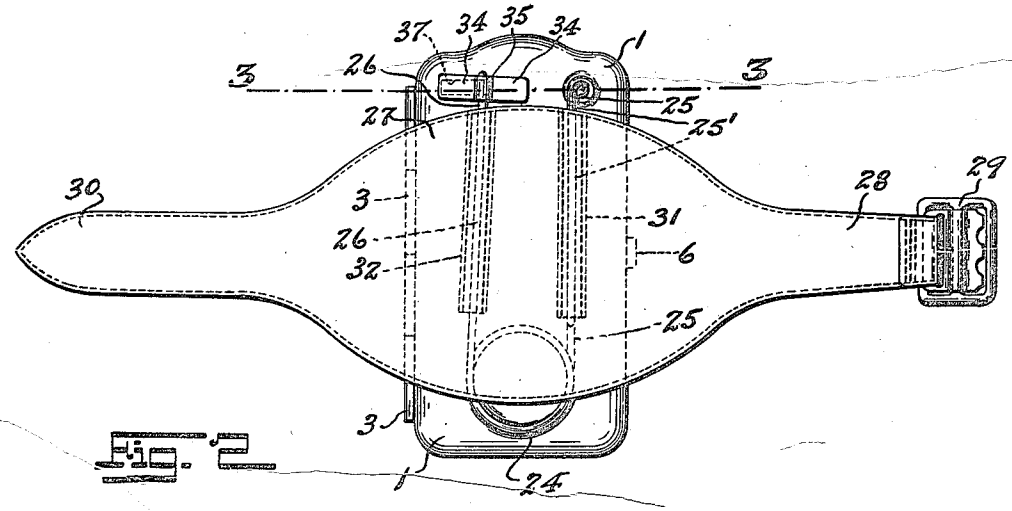


Fig. 2

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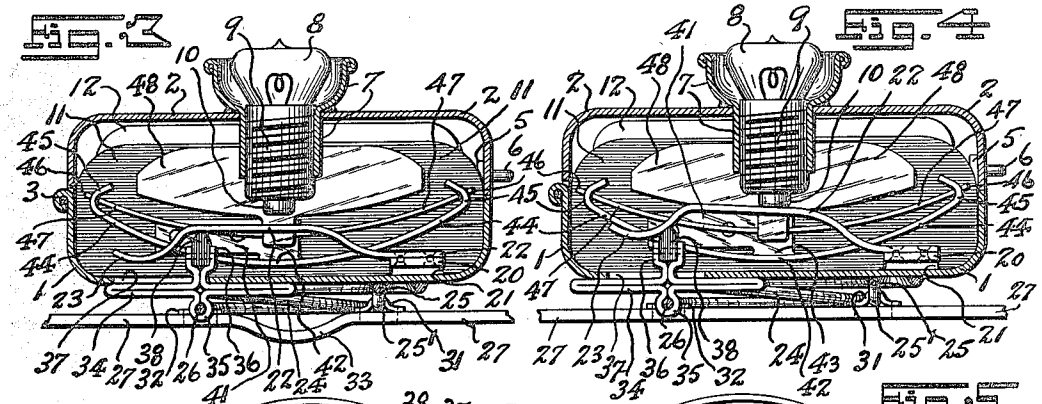


Fig. 3.

Fig. 4.

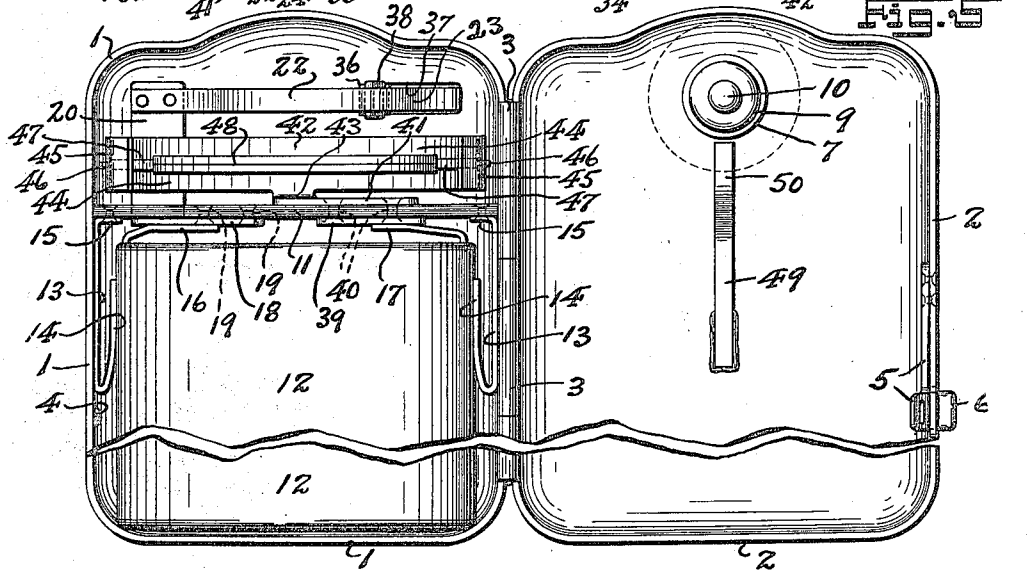


Fig. 5.

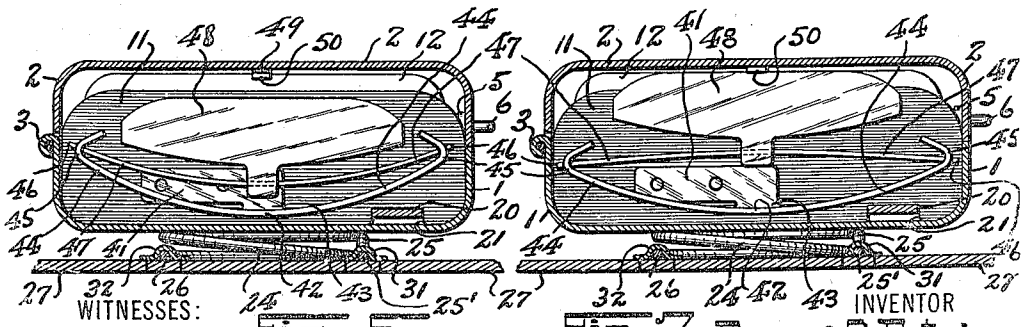


Fig. 6.

Fig. 7.

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SIGNALING DEVICE.

1,278,738. Specification of Letters Patent. Patented Sept. 10, 1918.

Application filed January 21, 1918. Serial No. 212,890.

To all whom it may concern:

Be it known that I, EDWARD G. PETRIE, a citizen of the United States, residing at Irvington, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Signaling Devices; and I 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, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

The present invention relates, generally, to improvements in signaling devices; and, the invention has reference, more particularly, to a novel construction of hand signaling device for use at night by drivers of motor vehicles, and for many other similar uses, wherein semaphore-like signaling movements of the hand and arm are desired to be employed in darkness.

The invention has for its principal object to provide a simple, cheap and automatically operated illuminated signaling device adapted for attachment upon the hand or arm of the user, the same being so constructed that a movement of the hand or arm, when equipped therewith, to signaling position will automatically illumine a signal lamp, and withdrawal of the hand or arm from signaling position will automatically discontinue the illumination of said signal lamp.

The invention has for a further object to provide, in connection with a signaling device of the general character above mentioned, an inertia controlled electric switch mechanism which will, upon a signaling movement of the hand or arm, automatically close an electric circuit to cause the illumination of a signal lamp, and upon the return of the hand or arm from signaling position will automatically break said electric circuit.

A still further object of the present invention is to provide an automatic cut-out electric switch which will maintain the electric circuit inoperative, independently of the automatic inertia controlled switch devices, when the signaling device is detached from the hand or arm of the user.

Other objects of the present invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the same.

The invention consists, primarily, in the novel hand signaling device hereinafter set forth; and the invention consists, furthermore, in the novel arrangements and combinations of the various devices and parts, as well as in the details of the construction of the said parts, all of which will be hereinafter more fully described, and then finally defined in the appended claims.

The invention is clearly illustrated in the accompanying drawings:—

Figure 1 is an elevation of a hand in signaling position illustrating, in properly attached relation thereto, the novel signaling device made according to and embodying the principles of my present invention.

Fig. 2 is a rear face view of the novel signaling device detached from the hand.

Fig. 3 is a transverse section, taken on line 3—3 in said Fig. 2 looking downwardly, said view showing the cut-out switch in position to break the circuit supplying the signal lamp when the device is removed from the hand, said view being drawn on an enlarged scale.

Fig. 4 is a view similar to that shown in said Fig. 3, but illustrating the cut-out switch operated to close the circuit supplying the signal lamp when the device is in proper attached relation to the hand of the user.

Fig. 5 is a face view of the opened casing of the signaling device drawn on an enlarged scale, and illustrating the arrangement of the interior parts of the same.

Fig. 6 is a transverse section showing the inertia controlled switch mechanism in normal position to interrupt the circuit supplying the signal lamp; and Fig. 7 is a similar transverse section showing the inertia controlled switch mechanism in operated position to close the circuit supplying the signal lamp.

Similar characters of reference are employed in all of the hereinabove described views, to indicate corresponding parts.

Referring now to the said drawings, the reference character 1 indicates a casing having a cover member 2 connected therewith by a suitable hinge-member 3; said casing being further provided with a catch-nosing

4 adapted to be engaged by a releasable catch-piece 5 connected with the cover-member, said catch-piece 5 having an outwardly projecting finger-piece 6 for manipulating the same.

Suitably disposed in connection with the front wall of said cover-member 2 is a socket-member 7 in which is received a small incandescent electric lamp 8. Said socket member 7 is preferably electrically grounded in connection with the casing and cover-member, which being of metallic construction serves as a conductor of electric current. The threaded plug 9 providing one pole of the lamp 8 electrically engages said socket-member 7, while the contact-button 10 providing the other pole of the lamp 8 is adapted to receive the contact of the cut-out switch device as subsequently described.

Arranged within said casing 1 is a transversely disposed shelf or base-member 11 made of a suitable insulating material. Said shelf or base-member 11 is so disposed that the space beneath the same serves as a compartment for the reception of an electric dry battery cell 12 adapted to serve as a source of current for the signal lamp circuit. Connected with the longitudinal side walls of said casing 1, by soldering or other means of fastening, are clamp-elements 13 the lower ends of which are doubled upwardly to provide oppositely disposed resilient clamp-arms 14 adapted to engage the sides of the cell 12 to retain the same against accidental displacement. The upper ends of said clamp elements 13 are turned inwardly at right angles thereto to provide bracket-pieces 15 upon which the shelf or base-member 11 is supported, and to which the same is suitably secured. The said cell 12 is provided with resilient or spring-like pole-pieces or terminals 16 and 17. Connected with the under side of said shelf or base-member 11 is a contact-plate 18, secured thereto by rivets 19, or in any other suitable manner, with which the pole-piece or terminal 16 is electrically engaged. Integrally connected with said contact-plate 18 is a vertical post 20, which extends upwardly above said shelf or base-member 11, through a cut away portion 21 provided in the latter for its passage. Anchored upon the upper free end of said post 20 is a laterally extending resilient spring-like contact-brush 22, the outer free end of which is inwardly curved to provide a cam-portion 23.

Secured upon the exterior or rear face of said casing 1 is a bifurcated spring-member 24, one arm 25 of which is fixed, and the other arm 26 of which is free to flex laterally. The said fixed arm 25 is provided with an outwardly off-set portion 25′.

The reference character 27 indicates a strap or binding element made of leather, or any other flexible material. The main body of said strap or binding element terminates at one end in a suitable end-piece 28 provided with a fastening buckle 29, or other suitable fastening device, and at the opposite end in a suitable tongue-piece 30 for engagement with said fastening buckle 29. Said main body of said strap or binding element 27 is secured to said off-set portion 25′ of the fixed arm 25 of said spring-member 24 in any suitable manner, preferably by a loop-member 31 secured to said strap or binding element 27 by means of stitching, so as to extend through and embrace said off-set portion 25′. In like manner said strap or binding element 27 is also secured to said free flexible arm 26 by means of a similar loop-member 32, or otherwise. When said free flexible arm 26 is in normal position its fastened relation to the strap or binding element 27 is such that a slack or bulging portion 33 is permitted in the latter between the respective points of the fastening thereof to the respective arms of said spring-member 24.

Secured upon the free end of said free flexible arm 26 of said spring-member 24 is a slidable member 34, having at its outward side a socket-member 35 for the reception of the free end of said arm 26. Extending inwardly from the inner side of said slidable member 34 is a bifurcated arm 36, the same extending through a laterally extending slot 37 formed in said casing 1. Secured in said bifurcated arm 36 is a nose-piece 38 which is made of a suitable insulating or non-conducting material. As normally disposed said nose-piece 38 is so arranged as to engage said contact-brush 22 at a point just within the cam-portion 23 of the latter. When the cover-member 2 of the casing 1 is closed the lamp 8 is so disposed that its contact-button 10 is positioned opposite said contact-brush 22, but is normally not engaged thereby. When, however, the strap or binding element is bound around the hand or arm of the user of my novel signaling device and secured tautly thereon, the slack or bulge 33 therein is taken up, thereby imparting to said free flexible arm 26 of the spring member 24 an outward flexing movement, imparting in turn to said slidable member 34 an outward lateral movement which carries said nose-piece 38 into operative engagement with the cam-portion 23 of said contact-brush 22. The curved surface of said cam-portion 23 rides upwardly upon said nose-piece 38 causing said contact-brush to flex or bend outwardly, and thus move into circuit closing contact with said contact button 10 of said lamp 8, all as shown more particularly in Fig. 4 of the accompanying drawings. In this manner, the attachment of the device upon the hand or arm of the user automatically operates

said cut-out switch mechanism as described, and the current from the dry cell 12 is free to flow through the contact-brush 22 into one pole of the lamp 8, and thence from the other pole of the lamp through the ground provided by the casing and cover-member, back to the opposite pole of the dry-cell when an inertia controlled switching device, to be subsequently described, moves into contact with the ground. The nose-piece 38 is made of non-conducting material so as to prevent short circuiting between said contact-brush 22 and the slidable-member 34 and casing 1. Upon releasing the strap or binding element from the hand or arm, the same is slackened so that the pull thereof upon the free flexible arm 26 of the spring 24 is released, consequently permitting the same to return to normal initial position, and thereby causing the slidable-member to move inwardly, and sliding the nose-piece 38 to move away from the cam-portion 23 of the contact-brush 22, which thereupon returns to normal initial position breaking its contact with the contact-button 10 of the lamp 8 so that the electric circuit supplying the lamp is automatically cut out when the signaling device is thus removed from the hand or arm of the user. In this way the current of the battery is conserved, when the device is not in use, and the lamp 8 cannot be operated by any accidental operation of the inertia controlled switch device when the signaling device is thus removed and out of use. The wings of the slidable-member 34 slide exteriorly over the slot 37 to close the same in all positions, and thus serve to protect the interior of the device against the entrance of rain-water or moisture when the signaling device is in use.

The reference character 39 indicates a contact-plate secured upon the under side of said shelf or base-member 11 in proper position to be engaged by said opposite pole-piece or terminal 17 of said cell 12. Secured upon the upper surface of said shelf or base-member 11 and in electrical connection with said contact-plate 39, by means of rivets 40 or other suitable fastening and conducting means, is the base-flange 41 of a resilient supporting frame 42. Said resilient supporting frame is disposed transversely above said shelf or base member 11, and is connected with said base-flange 41 by an upwardly turned integral neck-piece 43. Said supporting frame is provided with a pair of outwardly curved oppositely extending resilient arms or branches 44 terminating in substantially V-shaped seat-portions 45 having openings in the bottom thereof. Extending between said V-shaped seat-portions 45, so as to be supported between the ends of the arms or branches 44, by inserting its reduced ends 46 through the openings of said V-shaped seat-portions 45, is a normally inwardly bowed flexible supporting spring 47, held under normal inwardly bowed tension by the said ends of said supporting frame 42. Connected with said flexible supporting spring 47 intermediate its ends, in any suitable manner, is an outwardly projecting metallic weight-piece 48, which is a conductor of electric current, so as to be capable of serving as a circuit closing or contact means. Secured to said cover-member 2, in electrical engagement therewith, is a brush or contact member 49 having at its upper free end a resilient or yieldable portion 50 adapted by its resiliency to afford good contact between said cover-member and said weight-piece 48, when the latter moves to circuit closing position.

Normally said weight-piece 48 is withdrawn, by the inwardly bowed disposition of said supporting spring 47, from engagement with said yieldable portion 50 of said contact member 49. When the device is operatively disposed upon the hand or arm of the user (as shown more particularly in Fig. 1 of the drawings), and the user swings his hand outwardly from the side of the motor-car, as is the usual custom when it is desired to signal to other drivers of vehicles in his vicinity, that the user intends to make a turn with the motor-car he is controlling, the outward motion or swing of the user's hand and arm carries the signaling device secured thereto into a position wherein it is easy to be seen by others, and when the outward swinging of the hand and arm is completed and the motion arrested, the weight-piece 48, being freely suspended by the supporting spring 47, tends, by reason of the well known physical law of inertia, to continue an outward movement after the casing and the fixed elements contained therein are brought to rest in company with the arrested movement of the user's hand and arm. This continued outward movement of the weight-piece 48 overcomes the tension of the inwardly bowed supporting spring 47, which is caused to move first to a straightened position and then to an outwardly bowed position, the resilient arms or branches 44 yielding to said straightening movement of said supporting spring 47. The tension of the resilient arms or branches 44, immediately the supporting spring 47 moves into outwardly bowed position tends to continue such outward bowing of the latter, thereby pressing said weight-piece 48 into circuit closing engagement with said contact members 49 and 50, (as shown in Fig. 7) and thereby completing the circuit from the lamp 8 back through ground and the weight-piece 48 and supporting means thereof to the negative pole of the battery 12, consequently causing said signal lamp to be illuminated, and by its rays and position relative to the motor car, thus signaling to adjacent ve-

hicles the user's intention to make a turn. It will thus be apparent that the user may, in darkness or at night, use the common and well known hand signal by the aid of my novel signaling device, and that the movement of the hand or arm in taking the proper signaling position automatically illuminates the signal lamp of the device.

After the user has completed the turn thus warned of by the signaling device, he withdraws his hand and arm from signaling position. This movement entails a reverse or inward swinging movement of the hand and arm, and consequently when such reverse movement is arrested, the weight-piece, by reason of its inertia, tends to continue the reversed movement, whereupon it moves back to normal initial position against the tension of the supporting devices thereof, until the supporting-spring 47 resumes its normal inwardly bowed position, with the result that contact with the contact members 49 and 50 is discontinued, the electric circuit thereupon broken or interrupted, and the illumination of the signaling lamp is also automatically discontinued.

It will thus be apparent that my novel signaling device is peculiarly adapted for use by automobilists at night, in the darkness of which they may, with the aid of the signaling device, employ the accustomed and well known hand signals used in the daytime. At the same time, the automatic switching on and off of the signal lamp of the device, at proper times, tends to prolong the life of the battery, and serves to render the signal device economical in use. Although my novel signal device is adapted peculiarly for the use of automobilists, it must also be understood that it is also adapted for other uses, wherein hand or arm signals of a semaphore nature, are desired to be made use of at night or in darkness.

I am aware that some changes may be made in the general arrangements and combinations of the devices and parts, as well as in the details of the construction of the same, without departing from the scope of my invention as described in the foregoing specification, and as defined in the claims appended hereto. Hence, I do not limit my invention to the exact arrangements and combinations of the devices and parts as set forth in the foregoing specification, nor do I confine myself to the exact details of the construction of said parts as illustrated in the accompanying drawings.

I claim:—

1. In a signaling device the combination with a casing having means for attaching the same to the hand of the user, of an electric signal lamp, a battery within said casing, means connecting one pole of said lamp with one pole of said battery, means establishing a return circuit from the opposite pole of said lamp to the opposite pole of said battery, said latter means including an inertia controlled circuit make and break device, comprising a normally inwardly bowed resilient supporting means, a weight-piece carried by said supporting means, said weight-piece being normally held by said inwardly bowed supporting means in circuit breaking position but upon inertia induced movement tending to move into circuit closing position by causing the outward bowing of said supporting means.

2. In a signaling device the combination with a casing having means for attaching the same to the hand of the user, of an electric signal lamp, a battery within said casing, means connecting one pole of said lamp with one pole of said battery, means establishing a return circuit from the opposite pole of said lamp to the opposite pole of said battery, said latter means including an inertia controlled circuit make and break device, comprising a supporting frame having oppositely extending curved spring arms, a supporting spring supported between said spring arms in normal inwardly bowed relation to said supporting frame, a weight-piece secured to and projecting outwardly from said supporting spring intermediate its ends, said weight-piece being normally held by said inwardly bowed supporting spring in circuit breaking position but upon inertia induced movement tending to move into circuit closing position by causing the outward bowing of said supporting spring.

3. In a signaling device the combination with a metallic casing having means for attaching the same to the hand of the user, of an electric signal lamp, a shelf of insulating material transversely disposed within said casing, a battery beneath said shelf, means connecting one pole of said battery with one pole of said lamp, the opposite pole of said lamp being grounded in electrical connection with said casing, and an inertia controlled circuit make and break device comprising a supporting frame secured to said shelf, means for electrically connecting the opposite pole of said battery with said supporting frame, said supporting frame having oppositely extending curved supporting arms, a flexible supporting spring pivotally supported at its ends by and between the free ends of said curved supporting arms in inwardly bowed relation to said supporting frame, and a weight-piece secured to and projecting outwardly from said supporting spring intermediate its ends, said weight-piece being normally disengaged from contact with said casing but upon inertia induced movement tending to move said supporting spring into

outwardly bowed position and thereupon engaging said casing in circuit closing relation thereto.

4. In a signaling device the combination with a casing of an electric signal lamp, a shelf of insulating material transversely disposed within said casing, a battery beneath said shelf, a contact-plate secured beneath said shelf adapted to be electrically engaged by one pole of said battery, a post connected with said contact plate and projecting upwardly above the same, a resilient contact-brush connected with said post, means for moving said contact-brush into electrical engagement with one pole of said electric lamp, a binding-device connected with said casing for securing the same to the hand of the user, means associated between said binding device and said contact-brush moving means for operating the latter when the former is operatively engaged around the hand of the user, means establishing a return circuit from the opposite pole of said lamp to the opposite pole of said battery, said latter means including an inertia controlled circuit make and break device.

5. In a signaling device the combination with a casing of an electric signal lamp, a shelf of insulating material transversely disposed within said casing, a battery beneath said shelf, a contact-plate secured beneath said shelf adapted to be electrically engaged by one pole of said battery, a post connected with said contact plate and projecting upwardly above the same, a resilient contact-brush connected with said post, means for moving said contact-brush into electrical engagement with one pole of said electric lamp, a binding-device connected with said casing for securing the same to the hand of the user, means associated between said binding device and said contact-brush moving means for operating the latter when the former is operatively engaged around the hand of the user, means establishing a return circuit from the opposite pole of said lamp to the opposite pole of said battery, said latter means including an inertia controlled circuit make and break device, comprising a supporting frame carried by said shelf having oppositely extending curved spring arms, a supporting spring supported between said spring arms in normal inwardly bowed relation to said supporting frame, a weight-piece secured to and projecting outwardly from said supporting spring intermediate its ends, said weight-piece being normally held by said inwardly bowed supporting spring in circuit breaking position but upon inertia induced movement tending to move into circuit closing position by causing the outward bowing of said supporting spring.

6. In a signaling device the combination with a metallic casing of a lamp socket electrically grounded upon said casing, an electric lamp connected by one pole in said socket, a shelf of insulating material transversely disposed within said casing, a battery beneath said shelf, a contact-plate secured beneath said shelf adapted to be electrically engaged by one pole of said battery, a post connected with said contact-plate and projecting upwardly above the same, a resilient contact-brush having a curved cam portion at its free end connected with said post, a bifurcated spring member on the back of said casing, one arm of said spring member being fixed to said casing and the other free to flex, a binding strap secured to said fixed arm at one point and to said free arm at another, and adapted to flex the latter when applied to the hand of the user, a slidable-member fixed on the end of said free arm and having an inwardly projecting bifurcated arm, said casing having a slot therein through which said bifurcated arm rides, a nose-piece of insulating material carried by said bifurcated arm in slidable relation to said contact-brush and its cam-portion to move said contact-brush into electrical engagement with the opposite pole of said lamp, and means supported by said shelf in electrical engagement with the opposite pole of said battery including an inertia controlled circuit make and break device operating in connection with the electrical ground provided by said casing.

7. In a signaling device the combination with a metallic casing of a lamp socket electrically grounded upon said casing, an electric lamp connected by one pole in said socket, a shelf of insulating material transversely disposed within said casing, a battery beneath said shelf, a contact-plate secured beneath said shelf adapted to be electrically engaged by one pole of said battery, a post connected with said contact-plate and projecting upwardly above the same, a resilient contact-brush having a curved cam portion at its free end connected with said post, a bifurcated spring member on the back of said casing, one arm of said spring member being fixed to said casing and the other free to flex, a binding strap secured to said fixed arm at one point and to said free arm at another and adapted to flex the latter when applied to the hand of the user, a slidable-member fixed on the end of said free arm and having an inwardly projecting bifurcated arm, said casing having a slot therein through which said bifurcated arm rides, a nose-piece of insulating material carried by said bifurcated arm in slidable relation to said contact-brush and its cam-portion to move said contact-brush into electrical engagement with the opposite pole

of said lamp, and means supported by said shelf in electrical engagement with the opposite pole of said battery including an inertia controlled circuit make and break device operating in connection with the electrical ground provided by said casing, comprising a supporting frame having oppositely extending curved spring arms, a supporting spring supported between said spring arms in normal inwardly bowed relation to said supporting frame, a weight-piece secured to and projecting outwardly from said supporting spring intermediate its ends, said weight-piece being normally held by said inwardly bowed supporting spring in circuit breaking position but upon inertia induced movement tending to move into circuit closing position by causing the outward bowing of said supporting spring.

In testimony that I claim the invention set forth above I have hereunto set my hand this 18th day of January, 1918.

EDWARD G. PETRIE.

Witnesses:

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FRED'K H. W. FRAENTZEL.