C. J. SAGEBRECHT.

PORTABLE ELECTRIC FLASH LIGHT.

APPLICATION FILED JAN. 22, 1914.

1,155,100. Patented Sept. 28, 1915.

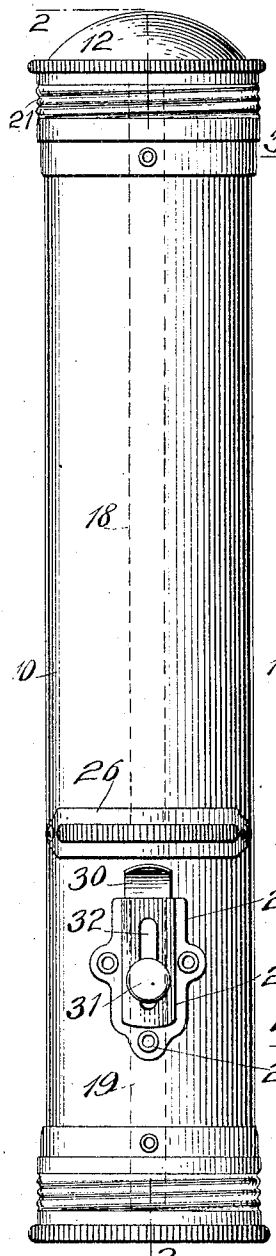

Fig. 1.

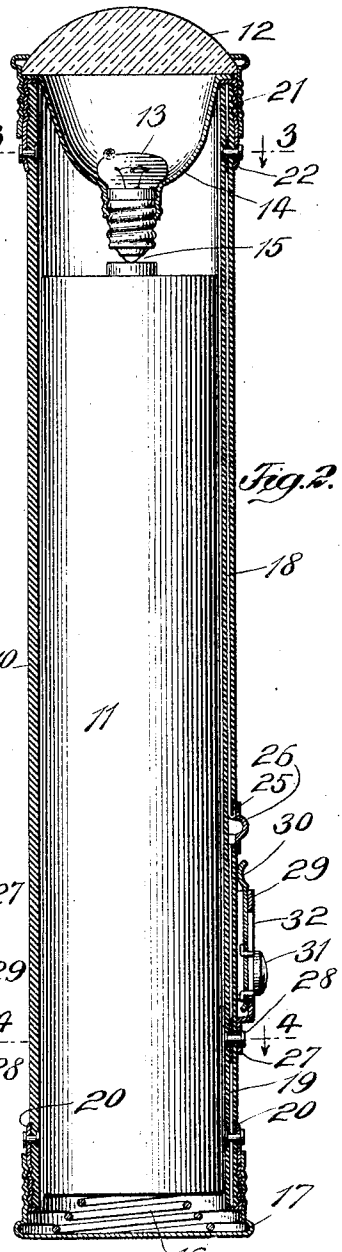

Fig. 2.

Fig. 5.

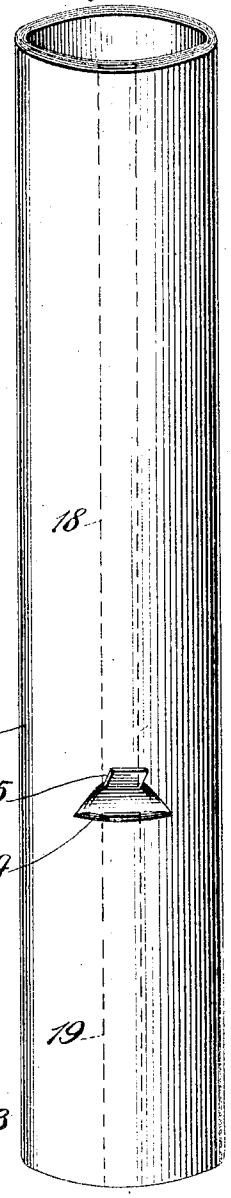

Fig. 6.

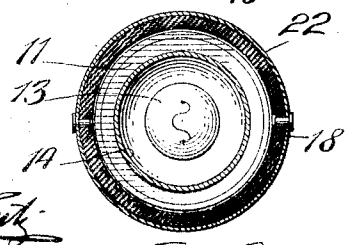

Fig. 3.

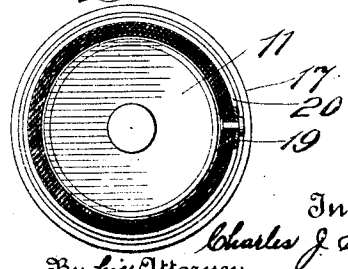

Fig. 4.

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UNITED STATES PATENT OFFICE.

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PORTABLE ELECTRIC FLASH-LIGHT.

1,155,100. Specification of Letters Patent. Patented Sept. 28, 1915.

Application filed January 22, 1914. Serial No. 813,615.

To all whom it may concern:

Be it known that I, CHARLES J. SAGEBRECHT, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Portable Electric Flash-Lights, of which the following is a specification.

The invention pertains more particularly to improvements in the class of electric lamps designed to be held in the hand and sometimes used as flash lights and at other times for affording a permanent light for a short period, and the object of the invention is to provide a new construction of the tubular shell or casing of the flash light or lamp by which the conductors extending inwardly from the opposite ends thereof to the circuit closing means are protected against contact with the shell of the battery and are also very securely held in position and prevented from buckling or bulging between their ends. It has long been known that the conductors in tubular flash lights become injured by the repeated scraping of the shell of the battery against the same, especially when a used battery is withdrawn and a new battery substituted, and in addition the conductors, which are usually of thin strips of sheet metal, bulge inwardly at their intermediate portions so that the battery must necessarily scrape against them during its insertion and withdrawal, with the result that the lamp does not last as long as it should and that frequently the entire lamp has to be thrown away because of some disarrangement of the conductors. It is also well known that a corrosive action will set up on the exterior shell of the battery, and that this attacks the conductors extending to the circuit closing means.

In accordance with my invention and by a new method of manufacture, the conductors extending toward each other from opposite ends of the shell or casing of the lamp are embedded within the material of said shell so that they are protected against any destructive action of the battery, either by the movement of the battery or by corrosive action, and the life of the lamp is thereby extended almost indefinitely.

My invention resides only in the novel construction having to do with the conductors embedded within the shell of the exterior casing and in the circuit closing means cooperating therewith, the lens, lamp, reflector, battery and metal caps, being of usual or any suitable form and construction.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Figure 1 is a side elevation of a portable electric flash light or lamp embodying my invention, the conductors extending inwardly toward each other from opposite ends of the exterior casing being indicated by dotted lines; Fig. 2 is a vertical section through the same on the dotted line 2—2 of Fig. 1; Fig. 3 is a horizontal section through the same taken on the dotted line 3—3 of Fig. 2; Fig. 4 is a like section of the same taken on the dotted line 4—4 of Fig. 2; Fig. 5 is a view, partly in section, illustrating the method of constructing the exterior shell or casing of the lamp with the conductors embedded therein, and Fig. 6 is a detached perspective view of the shell of the lamp shown in Figs. 1 and 2 and illustrates the manner of dividing the straight strip of conducting material shown in Fig. 5 into two conductors separated at their facing end portions preparatory to receiving the circuit closing and opening devices.

In the drawings 10 designates the exterior shell or casing, 11 the battery, 12 the lens, 13 the electric lamp bulb, 14 the reflector, 15 the electric connection of the battery with the lamp, and 16 the usual electrical conductor connection between the metallic cap 17 and the lower terminal of the battery 11, said battery, lens, lamp, reflector, electric connections 15, 16, and cap 17 being of customary character.

Embedded within the wall of the shell or casing 10 are two conductors or strips of metal 18, 19, the lower end of the conductor 19 being in electrical connection with the metal cap 17, as usual, and which cap is ordinarily screwed upon a metal sleeve 20 fastened around the lower end of the shell or casing 10.

The upper end of the conductor 18 is in electrical connection with the reflector 14, and said reflector and the lens 12 are, as is customary, held in position by means of a threaded metal sleeve 21 screwed upon a metal sleeve 22 fastened around the upper end of the shell or casing 10.

The shell or casing 10 is made from a sheet or strip of paper, fiber or other non-conducting material wound layer upon layer upon a mandrel whose diameter is equal to the bore of the shell or casing to be produced, the sheet or strip being continuous and wound around the mandrel until the requisite thickness of the tube has been secured. In accordance with my invention, during the winding of the sheet or strip to form the tube or shell 10, I apply between two of the layers as wound, a strip of metal 23 extending lengthwise of the tube, as I represent the same diagrammatically in Fig. 5, and this metal strip 23 during the formation of the tube becomes embedded therein and finally is converted into the separate conductors 18, 19 in the manner represented in Fig. 6. I will ordinarily use a continuous metal strip 23 and form a tube of sufficient length to be cut into a suitable number of sections for the formation of the shells or casings 10. After a tube of proper length and thickness has been formed and has had embedded or enveloped in it a conducting strip 23 extending the full length of the tube, the latter will be cut transversely into the requisite lengths for the shells or casings 10, one of which is separately shown in Fig. 6. Ordinarily the conductors 18, 19 are exposed at the inner surface of the shell or casing 10 and the shell or casing of the battery 11 is in direct contact with them. In accordance with my present invention the contact strip 23 is embedded within the tube, and hence in the formation of a casing or shell 10 from the tube, the conductors 18, 19 are not exposed at the inner surface of the shell or casing or in engagement with the battery 11 but are embedded within and protected by the walls of said shell or casing. It is essential that the adjoining portions of the conductors 18, 19 be normally separated from each other so as to break the circuit through the lamp and battery, and hence after a section of the tube has been cut off into the requisite length for a shell or casing 10, I cut a recess 24 in the outer wall of the shell or casing and sever the strip of metal embedded therein and turn one end, as at 25, of one section of the strip outwardly to be used as an electrical contact. Over the recess 24 and outwardly bent end 25 I apply a transverse ornate strip of metal 26, the latter being riveted or otherwise secured to the shell or casing and being in direct engagement with the aforesaid end 25, which is on the section of the strip of metal constituting the conductor 18. The metal strip 26 conceals the recess 24 and contact end 25 of the conductor 18 and itself becomes an electric contact for coöperation with the circuit closing means.

Below the recess 24 I secure upon the shell or casing 10 a metal plate 27 which through a rivet, eyelet or the like 28 is in electrical connection with the conductor 19, and upon the metal plate 27 is a housing 29 confining a spring contact 30 having a buttonhead 31 exposed at the top of the housing 29, which is formed in its upper surface with a slot 32 to permit the buttonhead 31 to be moved longitudinally of the housing and to retract the spring contact 30 therein as shown in Fig. 1, or slide the same upwardly into engagement with the metal strip 26 and thereby connect the conductors 19, 18 and complete or close the circuit through the lamp and battery. When the spring contact 30 is in its retracted position shown in Fig. 1, the conductors 19, 18 are separated from each other as indicated in Fig. 6, and when the spring contact 30 is pushed upwardly or outwardly on the casing 10 its forward end passes into engagement with a rib on the strip 26 and thereby becomes placed in electrical connection with the electrical conductor 18 and closes the circuit. So long as the spring contact 30 remains in electrical engagement with the strip 26, the circuit will remain closed and the lamp will keep lighted, and when by means of the buttonhead 31 the spring contact 30 is retracted within the housing 29 and leaves the metal strip 26, the circuit will be broken and the lamp will cease to be lighted. The strip 26 and the spring contact 30 are not new features in this art but heretofore they have been employed in connection with conductors which were exposed at the inner surface of the shell or casing 10 and in no sense protected against contact with the battery 11.

In carrying out the manufacture of the shell or casing 10 I therefore make a long tube having a continuous metal strip 23 embedded therein and sever said tube into sections suitable for the size of flash lights to be produced, and then take each section of the long tube and form therein, in the outer wall only a recess 24 and sever the metal strip at said recess and turn the severed end of one section of the strip outwardly to serve as a contact, thereby creating the separated conductors 18, 19. The other parts described will then be applied to the shell or casing thus formed for the purpose of completing the lamp. The shell or casing 10 is, as will be understood from the drawings, a stiff hard shell of sufficient thickness and strength to permit its use for the purposes described. The shell is capable of withstanding considerable strain as

is necessary in the use to which it is placed. If the shell were not self sustaining, hard and strong it would be unsuitable as a casing for a flash light. The material of the shell is exceedingly dense, and in the practice of my invention said shell or casing has been made of fiber.

By the novel manufacture of the shell or casing 10 hereinbefore described, I am enabled to produce said shell or casing and permanently secure the conductors 18, 19 therein, the material of the shell or casing not only securely holding said conductors against any movement whatever but effectually protecting them against any corrosive action that might be set up on the wall of the battery and also against the injury which it is well known comes to conductors by their frictional contact with the battery and especially during the insertion in and withdrawal of the battery from the outer casing. The shell or casing 10 embedding within its walls the conductors 18, 19 is entirely new, so far as I am aware, and has been produced with the view of improving the lamp and increasing its longevity.

Cross reference is made to my co-pending application No. 813,616 showing my novel construction of shell or casing with a different circuit closer and with the embedded conducting strip in one continuous piece instead of being severed and exposed through the side of the casing as is required by the special circuit closer hereinbefore described.

What I claim as my invention and desire to secure by Letters Patent, is:

1. In an electric flash light of the class described, a non-conducting shell or main casing formed of a spirally wound sheet of material, a conductor embedded within said shell between layers thereof, a lamp and reflector on one end of the shell, a battery within the shell having one terminal in connection with the lamp, and manually operative means for connecting said conductor in the lamp and battery circuit to complete the same, said shell or casing being self sustaining, hard, dense and strong.

2. In an electric flash light of the class described, a non-conducting shell or main casing formed of a spirally wound sheet of material, a conductor embedded within said shell between layers thereof, a lamp and reflector on one end of the shell, a battery within the shell having one terminal in connection with the lamp, means electrically connecting one end of said conductor with the other battery terminal, and manually operative means for connecting the said conductor in the lamp and battery circuit to complete the same, said shell or casing being self sustaining, hard, dense and strong.

3. In an electric flash light of the class described, a non-conducting shell or main casing formed of a spirally wound sheet of material, a conductor embedded within said shell between layers thereof, a lamp and reflector on one end of the shell, a battery within the shell having one terminal in connection with the lamp, means electrically connecting one end of said conductor with the other battery terminal, and manually operative means for connecting the said conductor in the lamp and battery circuit to complete the same and comprising a slide on said shell in electrical connection with said conductor and a second conductor to be engaged by said slide and leading to the lamp, said shell or casing being self sustaining, hard, dense and strong.

4. In an electric flash light of the class described, a non-conducting shell or main casing formed of a spirally wound sheet of material, conductors embedded within said shell between layers thereof and extending inwardly toward each other and separated from each other at adjoining portions, a lamp and reflector on one end of said shell, a battery within the shell in electrical connection with the lamp and the outer ends of said conductors and manually operative means for connecting and closing the circuit through said conductors, said shell or casing being self sustaining, hard, dense and strong.

5. In an electric flash light of the class described, a non-conducting shell or main casing formed of a spirally wound sheet of material, conductors embedded within said shell between layers thereof and extending inwardly toward each other and separated from each other at adjoining portions, a lamp and reflector on one end of said shell, a battery within the shell in electrical connection with the lamp and the outer ends of said conductors, and manually operative means for connecting and closing the circuit through said conductors and comprising a slide on the shell in electrical connection with one of said conductors and a contact plate in electrical connection with the other conductor and to be engaged by said slide, said shell or casing being self sustaining, hard, dense and strong.

6. In an electric flash light of the class described, a non-conducting shell or main casing formed of a spirally wound sheet of material, conductors embedded within said shell between layers thereof and extending inwardly toward each other and separated from each other at adjoining portions, a lamp and reflector on one end of said shell, a battery within the shell in electrical connection with the lamp and the outer ends of said conductors, and manually operative means for connecting and closing the circuit through said conductors and comprising a slide on the shell in electrical connection with one of said conductors and a contact plate in electrical connection with an out-

wardly bent end of the other conductor and to be engaged by said slide, the outer wall of the shell being recessed to expose and permit the outward bending of said end of the conductor, said shell or casing being self sustaining, hard, dense and strong.

Signed at New York city, in the county of New York and State of New York, this 9th day of January, A. D. 1914.

CHARLES J. SAGEBRECHT.

Witnesses:
CHAS. C. GILL,
ARTHUR MARION.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."