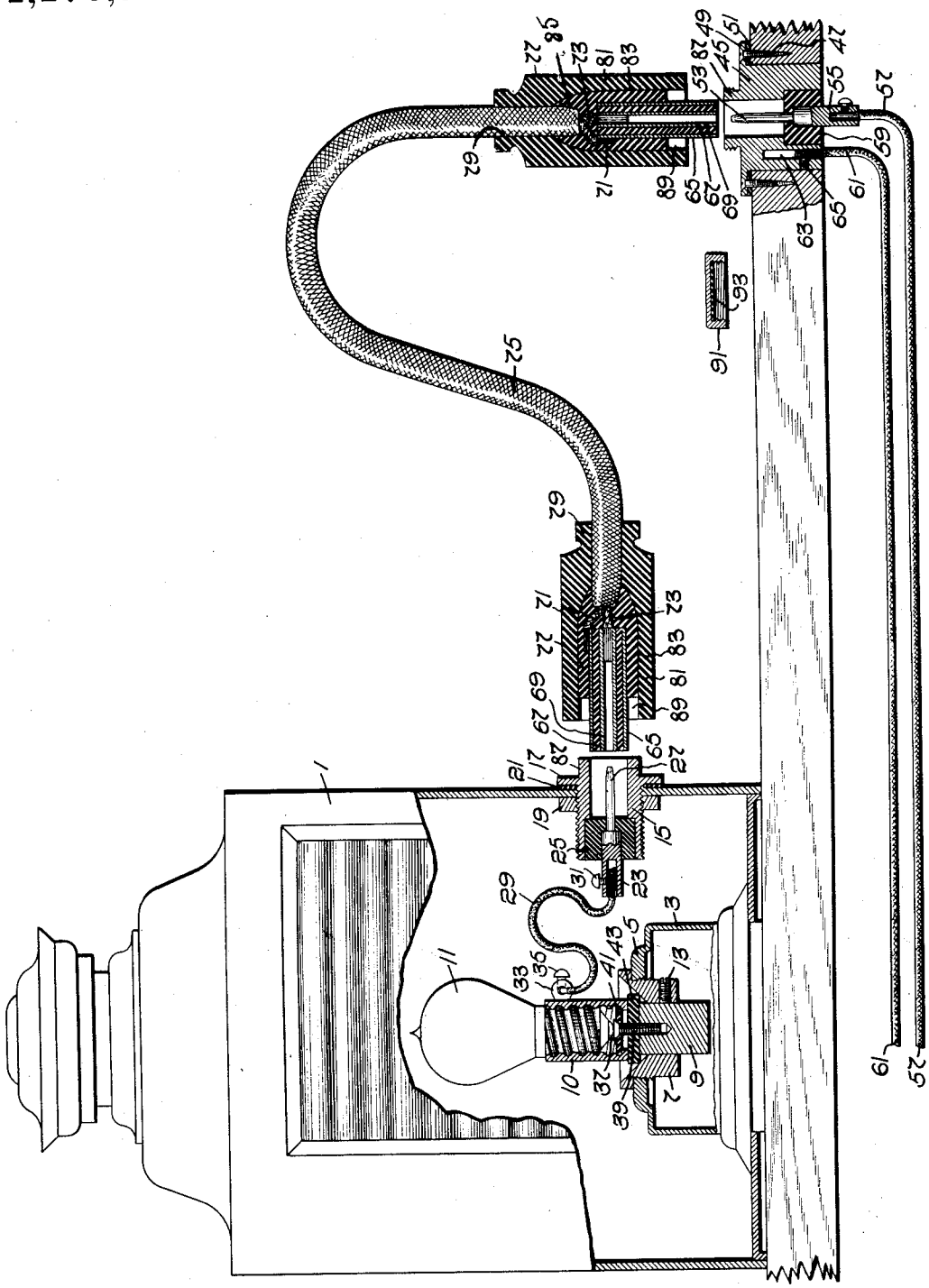
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MARINE LAMP AND ELECTRIC CONNECTION.

APPLICATION FILED JUNE 14, 1910.

1,170,959.

Patented Feb. 8, 1916.



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UNITED STATES PATENT OFFICE.

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To all whom it may concern:

Be it known that I, ALPHONSO S. CAMPBELL, a citizen of the United States, and a resident of Medford, in the county of Middlesex, State of Massachusetts, have invented an Improvement in Marine Lamps and Electric Connections, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention is an improvement in electric connections for marine lamps and other purposes and, among other objects, provides electric connections which are waterproof.

The character of the invention may be best understood by reference to the following description of an illustrative embodiment thereof shown partly in section and partly in elevation in the accompanying drawing.

Referring to the drawing, the device illustrated herein as embodying the invention is shown in connection with a running light including a lantern 1 of usual construction containing a reservoir 3 for receiving oil or other fuel and having a threaded neck 5 for receiving the usual oil burner (not shown). To permit an electric lamp to be normally used in the lantern but permit an oil burner to be substituted therefor a ring 7 may be threaded into the reservoir neck to receive a post 9 carrying a socket 10 at its upper end adapted to receive the threaded base of an incandescent or other suitable electric lamp 11. To introduce the lamp within any sized lantern and in a position to give the most efficient reflected light the lamp post may be adjusted vertically in the ring 7 and be held in its positions of adjustment by a set screw 13 threaded laterally through the wall of said ring to engage the post 9.

If for any reason it is desired to substitute an oil burner for the lamp 11 it is merely necessary to unscrew the ring 7 from the reservoir 3 and substitute a usual oil burner therefor.

Heretofore great difficulty has been experienced in the use of electric devices for marine work, since salt air and water have a deleterious effect on electric contacts, eating and corroding them and impairing their conductive efficiency.

One of the objects of my invention is to provide a detachable waterproof electric connection leading from a dry place as, for example, beneath the deck to the moisture exposed lamp above the deck.

The detachable connection illustrated herein comprises a contact carrying socket 15 which may be readily secured to the lantern 1 at any convenient place. Herein the socket is entered through an aperture in the wall of the lantern and is held thereat by a flange 17 integral with said socket at one side of the lantern wall and a set nut 19 threaded on said socket and adapted to be set tightly against the opposite side of said wall. To prevent any possibility of leakage around the socket a washer 21 of any suitable material may be interposed between the flange 17 and the exterior wall of the lantern. This socket 15 carries an electric contact herein in the form of a hollow post 23 set in an insulation plug 25 occupying a counterbore in said socket. The inner end of the hollow post 23 terminates in a contact pin 27 projecting centrally within the socket 15. The outer end of the post receives an end of a wire 29 secured thereto by a screw 31, said wire leading to the lamp socket 10 and herein is inserted into an eye 33 on said socket and fastened thereto by a screw 35. The circuit from the lamp to the socket 15 may be completed through a contact 37 within the threaded lamp base, insulated therefrom, and engaging the head of a screw 39 threaded into the lamp post 9 referred to and insulated from the socket 10 by suitable washers 41 and 43 of rubber or other insulation material. The current passes through the screw 37, thence through the ring 7 to the reservoir wall 3 and the lantern wall to the socket 15. It will be understood, however, that instead of grounding the return circuit as described a wire might be used.

Having described the connections from the socket to the lamp I will now describe connections for conducting current from beneath the ship's deck to the socket 15. To this end the deck may be provided with a socket 45 which may be set in a hole in the deck and secured thereto by screws 47 in a flange 49 on said socket. To prevent any possibility of leakage beneath said flange around said socket white lead or a washer 51 of any suitable material may be interposed between the flange 49 and the deck. Projecting upwardly within this socket is a pin contact 53 having a cylindrical shank

55 recessed to receive an end of a wire 57 leading to a battery or other suitable source of electricity. The pin shank is set in a plug 59 of rubber or other suitable insulation material occupying a counterbore in said socket. To connect the body of the socket with the battery there is provided a wire 61 secured in a hole 63 in said socket by a set screw 64.

To connect the lantern and deck sockets described there are provided a pair of plugs each comprising a hollow post contact 65 of brass or other suitable conductive material formed to fit tightly into the sockets 15 and 45. Within this hollow post is a smaller hollow post contact 67 separated from the larger contact by a sleeve 69 of rubber or other suitable insulation material. This smaller post 67 is formed tightly to fit over the contact pins 27 and 53 of the sockets. When the plugs are inserted in their sockets there are contact connections between the posts 65 and the walls of the sockets and between the posts 67 and the socket pin contacts. To complete the electric connection between the plugs, a wire 71 may be soldered or otherwise secured to the large posts 65 and a wire 73 may be similarly connected to the ends of the small posts 67. These wires are insulated one from another and may be incased in a waterproof tubular cable 75. The adjoining ends of the cable 75 and plug contacts may be incased in a cylindrical housing 77 of rubber or other insulation material having a bore 79 for receiving the cable and an enlarged recess 81 for receiving the plug contacts. To firmly secure the latter and said cable in said housing and effectually prevent separation of the cable contained wires and their contacts there may be introduced in the housing recess a filling 83 of rubber or other insulation material which may be formed to conform to the contour of the larger post contact 65 and may nip and closely embrace the cable ends 75 as at 85 to prevent withdrawal of said cable from said housing. In assembling the plug contacts, cable and housing the filling material 83 may conveniently be molded when plastic or otherwise formed into the recess 81 and made to closely conform to the parts incased thereby and when hard will prevent separation of said parts. The deck of a ship is frequently washed by the splashing of water thereon and it is very important that the detachable connections thus exposed to water be absolutely water tight. To render the connection of said plugs with said sockets absolutely water tight not only are the plug ends accurately fitted into the socket bores, but the sockets are provided with outwardly projecting annular flanges or collars 87 adapted tightly to fit into similarly shaped recesses 89 formed by an extension of the plug housing 77 beyond the plug filling 83. The contact posts 65 and 67 project beyond the housing 77 and are adapted to fit tightly into the base of the socket with the base of the recess 89 in engagement with the top of the socket flange 87.

By the flange and recess construction described the bulk of any water striking the connections will be rebuffed by the exterior wall of the recess containing housing overlying the socket flange, and any water which might penetrate between the end of said housing and the face of the socket would meet the vertical wall of the socket flange 87 and be deflected therefrom. In order for any water to penetrate into the plug or socket to the contacts therein the water would have to work under the end of the recess housing, up between the tight fitting walls of the flange 87 and recess 89 over the end of the flange around the end thereof and to the inner side of the latter to the plug 65. For the water to work up through this circuitous and resistant path to the contacts is found in practice to be absolutely impossible.

By the construction described not only is there provided an electrical connection from the deck to the lantern lamp which is absolutely waterproof but, also, there is provided a connection which may be readily detached during the day time or when desired merely by withdrawing the plugs from their sockets. The plugs do not need to be screwed into their sockets with consequent kinking of the cable connection 75 but they may be readily worked into their tight fitting sockets by alternate right and left rotative movements accompanied by pressure. When thus inserted they are securely retained by the frictional engagement of their parts. During the day time when the plugs are detached and the lamps are not in use they may be stored out of the way in the usual manner and therefore no protection for the lamp socket is necessary. The deck socket, however, will be exposed, and to prevent water or moisture from entering said deck socket when its plug is disconnected therefrom the deck socket flange 87 may be externally threaded to receive an internally threaded cap 91 having a gasket 93 therein for engagement with the top of the flange 87 to effectually resist the entrance of moisture therein.

While the waterproof plug and socket connection is described herein in connection with a ship's running lamp, it will be understood that it is applicable to a variety of other uses.

Having described one embodiment of my invention without limiting myself thereto what I claim as new and desire to secure by Letters Patent is:

1. A device of the class described compris-

ing in combination, a socket having an outer surface and an inner contact wall, a contact pin in said socket and spaced from said wall, a plug provided with an annular member having outer and inner contact surfaces for engagement with said inner wall and contact pin respectively, a housing shell for said annular member having a rim portion spaced from said member, and an outer flange on said socket for engagement with the end of said rim portion, said rim portion and member being formed for water tight fit with outer and inner surfaces of said socket.

2. A device of the class described comprising in combination a socket having a flange projecting above the level of a floor or wall and presenting an outer surface and an inner contact wall, a contact pin in said socket spaced from said contact wall, a plug provided with an annular member having outer and inner contact surfaces for engagement with the inner wall and contact pin of said socket, insulation material between the outer and inner contact surfaces of said annular member and a housing shell for said annular member having a rim portion spaced from said annular member and terminating a substantial distance from the end of said member, the end of said rim portion being arranged for engagement with said socket flange and the inner wall of said rim and the outer contact surface of said annular member having provision for water tight engagement respectively with the outer surface and inner contact wall of said socket.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ALPHONSO S. CAMPBELL.

Witnesses:
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