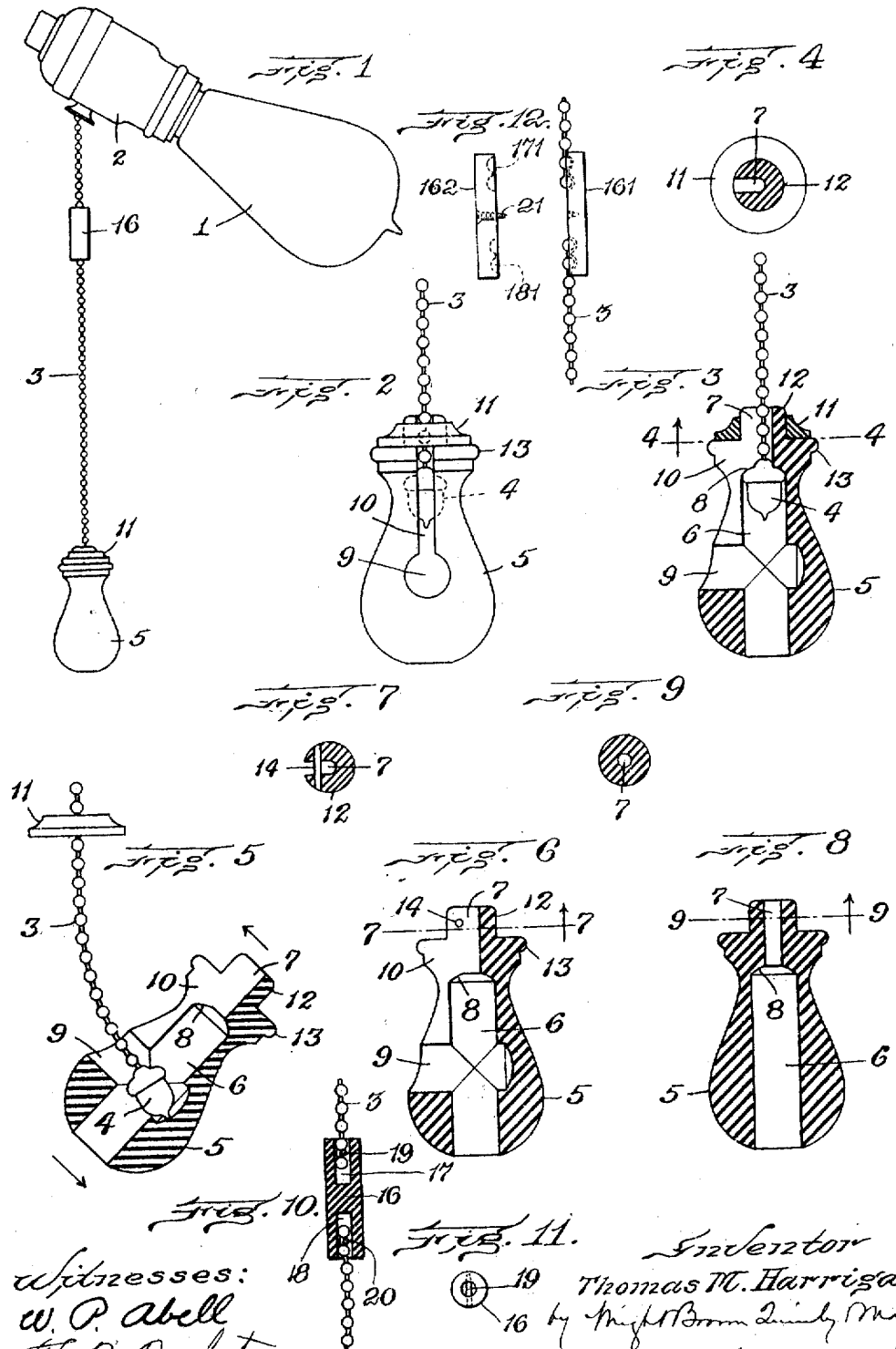


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ELECTRIC LIGHT PULL INSULATOR.
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Patented Feb. 1, 1910.



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UNITED STATES PATENT OFFICE.

THOMAS M. HARRIGAN, OF WOODSTOCK, VERMONT.

ELECTRIC-LIGHT-PULL INSULATOR.

948,109.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, THOMAS M. HARRIGAN, of Woodstock, in the county of Windsor and State of Vermont, have invented certain new and useful Improvements in Electric-Light-Pull Insulators, of which the following is a specification.

This invention is an insulator for the pendent chains employed to operate the switches of certain types of electric lamps, and its object is to eliminate any danger of the operator thereof receiving a shock from the chain, particularly when he operates it with moist hands.

The chains used in connection with electric lamps which are switched on and off by a pull chain, instead of a button, are usually metallic, and I have found that when such a chain is grasped with a moist hand, there is liability of a more or less severe electric shock being administered. Accordingly I have devised means for insulating the chain so as to eliminate all danger of a current being conducted through the same to the hand of the operator. The insulating means consists of a handle or knob capable of being detachably applied to the depending end of the chain, and an intermediate insulator to be inserted between sections of the chain, the latter being divided for the purpose. These insulators may be applied to the same chain and used in conjunction with one another.

Of the accompanying drawings,—Figure 1 represents an incandescent electric lamp with its socket and pull chain and the insulator forming the subject-matter of the present invention applied thereto. Fig. 2 represents an elevation of the preferred form of insulator in which my invention is embodied. Fig. 3 represents a longitudinal section of the same. Fig. 4 represents a cross-section on line 4—4 of Fig. 3, looking in the direction of the arrow. Fig. 5 represents a view, similar to Fig. 3, showing the manner of applying the insulator to the chain. Fig. 6 represents a section view of a modification of the invention. Fig. 7 represents a cross-section on line 7—7 of Fig. 6, looking in the direction of the arrow. Fig. 8 represents a longitudinal sectional view of another modification of the invention. Fig. 9 represents a cross-section on line 9—9 of Fig. 8, looking in the direction of the arrow. Fig. 10 represents a sectional view of an insulator interposed between sep-

arated sections of the chain. Fig. 11 represents an end view of the intermediate insulator. Fig. 12 represents an elevation of a modified construction of an insulator of this character.

The same reference characters indicate the same parts in all the figures.

An electric light is represented by 1, and its socket is represented by the numeral 2. The switch within the socket for making and breaking the lamp circuit is operated for both purposes, by pulling a chain 3. The chain for this purpose which is most commonly in use is of metal, and has on the pendent end a knob or enlargement 4, also of metal. The insulator which constitutes my invention is designed to inclose this knob or enlargement and to hang therefrom. It comprises a handle or knob which is preferably given an ornamental form, and has an internal recess 6 to contain the knob or enlargement, and a passage 7 communicating therewith for the reception of the chain. Between the passage and recess is a shoulder 8 which rests on the knob and by which the insulator is supported. In the simplest form in which my invention may be embodied, shown in Fig. 8, these are all the features of the invention. The recess 6 is a hole drilled longitudinally from the lower end of the handle, of a diameter equal to that of the knob, and the passage 7 is drilled through from the opposite end of the handle coaxially with the recess 6 until it meets the latter. When an insulator of this form is applied to the chain, the latter must be removed from the lamp socket and passed through the insulating handle, that end which is attached to the switch being introduced first into the recess 6 and then through the passage 7, the knob being finally drawn up against the shoulder 8.

It is desirable that the insulator be made capable of application to the chain without necessitating removal of the latter from the lamp socket, and accordingly in the preferred form of the invention I provide means by which the chain and knob may be inserted together into the passage 7 and recess 8 respectively, while still operatively connected with the lamp switch. Such means or provisions consists of a lateral passage 9 extending through the side of the insulator into the recess 6, a short distance below the shoulder 8, and a slot 10 opening

into the last-named passage, the recess 6 and the chain passage 7, and extending throughout the whole length of the latter. These openings allow the insulating handle to be applied to the chain in the manner shown in Fig. 5. The knob is first passed through the channel 9 into the recess, and the chain is then carried through the slot 10 until it lies in the passage 7 in line with the axis of the recess 6. In carrying the chain to this position, the knob is turned until it lies properly in the recess, when it can be drawn against the shoulder 8. Removal of the chain from the passage is prevented by a separable gate which closes one side of the passage. This gate is preferably a ring or annulus 11 having a central opening which fits over a nipple 12 of the handle, the latter being, as shown in the drawings, reduced in diameter at its upper end so as to provide this nipple around which the ring may fit, so that the outer circumference of the ring will fit within the circumference of a bead 13, the ring making with the handle a symmetrical and ornamental whole. The bore in the ring 11 is large enough so that the latter may be slipped over the chain knob 4 before the latter is inserted into the recess in the handle, as shown in Fig. 5. After the chain and knob have been positioned in the upper end of the handle, as shown in Fig. 3, the ring is slipped over the nipple and held there by friction.

Another form of gate is shown in Figs. 6 and 7, and consists of a pin 14 which is passed through a hole 15 in the handle so that it crosses the slot 10 beside the passage 7. This pin is readily inserted in the hole 15 after the handle is applied to the chain, and may be readily removed to permit removal of the handle. The handle is of great enough size so that it may be grasped by the hand without requiring any part of the hand itself to come into contact with the metallic chain, and as it is of insulating material, all danger of shock is avoided. An additional insulator 16 is applied between the ends of the chain, as shown in Fig. 1. For this purpose the chain is divided and the parts separated, the adjacent ends of the separated sections being held in the opposite ends of the insulator 16. This insulator in the form shown in Fig. 10, is a bar of non-conducting material, having sockets or recesses 17 and 18 in its opposite ends. The sockets extend only part way through the insulator, and are separated from one another by an intermediate part of the material of the insulator. The adjacent ends of the separated chain sections are placed into the recesses and are held by pins 19 20 driven transversely across the recesses between the links or individual members of which the chain is composed. Chains of this character

are commonly made of approximately hemispherical beads joined together by intermediate connectors of relatively small diameter. The form of insulator especially adapted to such a chain is indicated in Fig. 12. The block forming this insulator is longitudinally divided, and the sockets in the ends of the parts of the block are shaped so as to conform to and fit around the beads. That is, the portions of the sockets in each section of the insulator are made with approximately hemi-spherical recesses 171 181 into which the beads or links of the chain sections may fit. When the parts of the chain are placed in the insulator, as shown in Fig. 12, the two parts 161 162 thereof are secured together by a fastening, such as a screw 21, so as to clamp the ends of the chain sections between them in the sockets.

I claim:—

1. In combination with an electric light switch pull chain, having a knob on its free end, an outer knob of insulating material held on the chain by said knob.

2. An insulating handle for an electric light switch pull chain, constructed of insulating material and having an internal recess for an enlargement on the end of the chain, a communicating passage to contain the chain, and provisions by which the chain and enlargement may be inserted together into said passage and recess respectively.

3. An insulating handle for an electric light switch pull chain, having an internal recess for an enlargement on the end of the chain, a communicating passage to contain the chain, provisions by which the chain and enlargement may be inserted together into said passage and recess respectively, and detachable means for preventing removal of the chain from the passage.

4. An insulating handle for an electric light switch pull chain, having an internal recess for an enlargement on the end of the chain, a communicating passage to contain the chain, a lateral opening extending into said recess and passage, throughout the entire extent of the passage, for permitting lateral insertion of the chain and enlargement together into the passage and recess respectively, and a separable gate for closing said opening beside the passage.

5. In combination with an electric light, a switch pull chain divided between its ends, a knob of insulating material appended to the end of said chain, and an intermediate insulating connection to which both sections of the chain are attached out of contact with each other.

6. In combination with an electric light, a switch pull chain divided between its ends, and an insulator having recesses extending into its opposite ends in which the adjacent ends of the sections of said chain are secured.

7. In combination with an electric light,

a switch pull chain divided between its ends, and an insulator consisting of parts having recesses in their opposite ends, detachably secured together and clamping the ends of
5 the chain sections in said recesses.

8. In combination with an electric light, a switch pull chain divided between its ends, and a longitudinally divided insulator having recesses in its opposite ends provided
10 with sockets to receive the links of the chain,

the members of said insulator being detachably secured together and clamping the adjacent ends of the chain sections between them in said sockets.

In testimony whereof I have affixed my 15 signature, in presence of two witnesses.

THOMAS M. HARRIGAN.

Witnesses:

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