

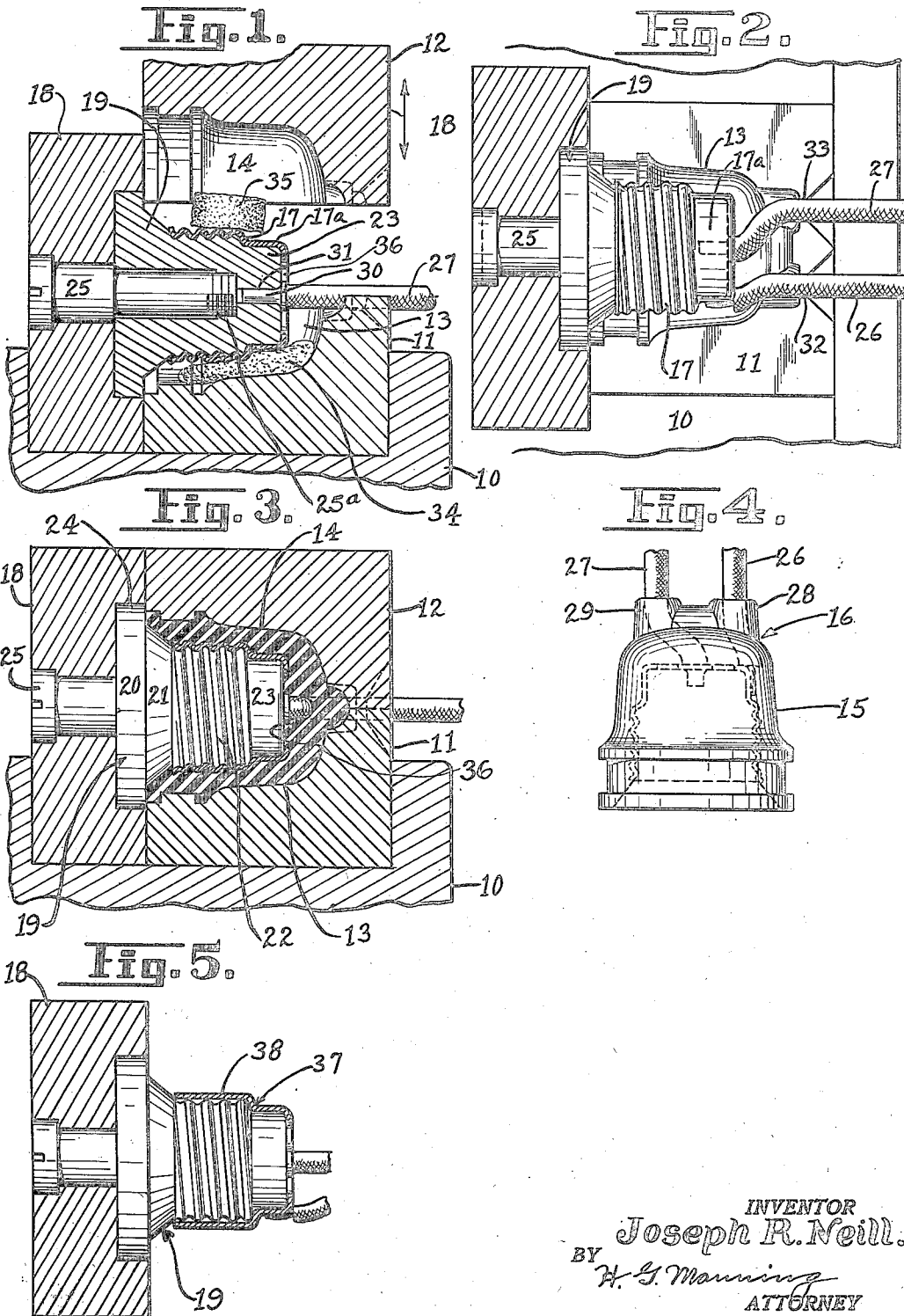
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METHOD OF MAKING ELECTRIC SOCKETS

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METHOD OF MAKING ELECTRIC SOCKETS

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This invention relates to electric bulb sockets, and more particularly to an improved weather-proof socket and method of making same.

One object of this invention is to provide a weather-proof socket in which the electrical lead wires are hermetically embedded within the insulating material of the exterior casing during the molding thereof.

A further object is to provide a method of rapidly manufacturing a weather-proof socket of the above nature by means of dies having a small number of parts.

A further object is to provide a socket of the above nature in which one of the electric lead wires is bent inwardly at its end to serve as the center socket terminal, and is held rigidly in position by the molded insulation in which it is embedded.

A further object is to provide an electric socket of the above nature which will be simple in construction, inexpensive to manufacture, easy to manipulate, compact, ornamental in appearance, and very efficient and durable in use.

With these and other objects in view there have been illustrated on the accompanying drawing, two forms in which the invention may be conveniently embodied in practice.

In the drawing:

Fig. 1 represents a longitudinal sectional view of the dies with the screw shell in place prior to the molding operation.

Fig. 2 is a plan view looking down upon the lower die and showing the relative positions of the insulated lead wires and screw shell.

Fig. 3 is a sectional view similar to Fig. 1, showing the appearance of the socket and dies after the molding operation.

Fig. 4 is a view in elevation of the completed molded socket.

Fig. 5 is a longitudinal view of the threaded die plug showing a modified smooth cylindrical shell fitted upon it prior to being pressed into the threads thereof.

In the previous manufacture of weather-proof sockets, it has been customary to attach inserts of porcelain, etc., to the base of each screw shell to insulate the center spring contact from said shell. It has been found, however, that with a socket so constructed, the flux used for soldering the conductor to the exterior of the screw shell would often creep over the surface or penetrate the porous material of the porcelain insert, permitting current leakage or short-circuiting.

By means of the present invention, the above and other disadvantages have been avoided.

Thus, no inserts whatever are used, and the center terminal is held in position and insulated from the outer shell by the impervious material of the molded casing.

Referring now to the drawing in which like reference numerals denote corresponding parts throughout the several views, the numeral 10 indicates a stationary bed plate upon which is secured the lower section 11 of a horizontally split die. The numeral 12 indicates the upper die section which is adapted to be forced downwardly by any suitable power means, such as a hydraulic press (not shown).

The contact faces of the die sections 11 and 12 are provided with complementary recesses 13 and 14, shaped according to the desired external configuration of the body 15 of the weather-proof socket 16, such as shown in Fig. 4.

In order to support a screw shell 17 concentrically between the die sections 11 and 12, provision is made of a removable plate member 18, having a "force" plug 19 projecting forwardly therefrom. The lower edge of the plate 18 is adapted to rest upon the bed plate 10 adjoining the lower die section 11. The plug or "force" 19 comprises an enlarged short cylindrical rear section 20, a truncated intermediate conical section 21, a threaded section 22 of uniform diameter, and a reduced cylindrical end nose 23.

The rear cylindrical section 20 is fitted into a circular recess 24 provided in the face of the removable plate 18, and said "force" 19 is detachably secured in said recess by means of a stud screw 25 passing through said plate and screwed into a tapped concentric hole 25a located in said "force" 19.

Electric current is adapted to be supplied to the socket through a pair of insulated conductors 26 and 27 which are surrounded in the completed socket by a pair of bosses 28 and 29, forming an integral part of the exterior insulating casing. Before molding the socket 16, the bared end of the insulated conductor 26 will be electrically connected to the unthreaded reduced section 17a of the screw shell 17 as by soldering.

The bared end of the other insulated conductor 27 is reinforced by a bell-mouthed eyelet 30 fitted tightly thereupon, and said eyelet is adapted to fit into a suitable aperture 31 formed concentrically in the nose 23 of the "force" 19. The eyelet 30 serves as the center terminal of the weather-proof socket.

In order to properly position the lead wires 26 and 27 before the molding operation, said wires 26 and 27 are bent in the manner shown

in Fig. 2 and are held in this position by being tightly wedged within a pair of restricted apertures 32 and 33 provided in co-acting faces of the die sections 11 and 12.

5 Molding operation

In molding the insulating casing of the socket 16, the sequence of operations will be as follows:

10 *First.*—The screw shell 17 with the conductor 26 soldered to the exterior thereof will be threaded upon the force plug 19, this operation being preferably performed at a work-bench away from the molding press.

15 *Second.*—One-half the required amount of water-proof, insulating, moldable material, such as phenol condensation product, preferably in the form of a compressed "pill" 34 will then be placed in the recess 13 of the lower die section 11.

20 *Third.*—The plate 18 with the force plug 19 and assembled shell 17 will be laid upon the bed plate 10 in proper relation to the lower die 11, this operation partially crushing the pill 34, as shown in Fig. 1.

25 *Fourth.*—The eyelet 31 will be placed upon the end of the bared conductor 27 and fitted within the aperture 31 of the plug 19, and the insulated portions of the conductors 26 and 27 will then be laid in the restricted groove sections of the apertures 32 and 33 in the lower die section 11, as shown in Fig. 2.

30 *Fifth.*—Another pill 35 of the moldable material will be laid upon the top of the screw shell 17, as shown in Fig. 1.

35 *Sixth.*—The hydraulic press will be closed by moving the upper die downwardly into tight engagement with the lower die, as shown in Fig. 3.

40 *Seventh.*—Steam or other heating medium will then be passed around the die sections in suitable jackets, not shown, for the desired length of time.

Eighth.—The press may then be opened to permit the separation of the die sections, and the cooling and removal of the completed molded socket 16 therefrom.

45 *Ninth.*—The molded socket 16 may then be unscrewed from the force plug 19.

It is to be noted that the annular recess 36 included between the reduced lower end of the screw shell 17 and the bell-mouthed end of the eyelet 30 will be completely filled with the molded insulating composition, whereby a smooth flush base will be produced with only the center terminal eyelet 30 projecting into the socket cavity. If desired, the eyelet 30 may be omitted and the bare end of the conductor wire 27 stripped of its insulation may be inserted into the aperture 31 of the force plug 19 to serve as the center terminal.

Any other suitable form of center contact terminal may also be employed, such as a spring clip, an eyelet clip, a coil spring, etc., within the spirit and scope of this invention.

60 If desired, the operation of the press may be the reverse of that herein described. Thus, the upper die section may be held stationary and the lower die section moved upwardly.

Modified method

70 In the modified method illustrated in Fig. 5, a cylindrical blank shell 37 having initially smooth side walls 38 will be employed instead of the threaded shell 17 shown in Figs. 1, 2, and 3. In operation, the shell 37 will be loosely slipped over the threaded force plug 19, and during the molding operation the thin side wall 38 will be

forced inwardly and caused to assume the shape of the threads 22 of the plug 19.

While there have been disclosed in this specification two forms in which the invention may be embodied, it is to be understood that these forms are shown for the purpose of illustration only, and that the invention is not to be limited to the specific disclosures but may be modified and embodied in various other forms without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claims.

Having thus fully described the invention, what is claimed as new and for which it is desired to secure Letters Patent is:

1. The method of producing a weather-proof lamp socket having a pair of electric lead conductors extending from the base thereof which comprises supporting a shell blank with one conductor attached thereto upon a threaded apertured plug, inserting the stripped end of the other conductor into the aperture of said plug, compressing moldable insulating material about said blank and conductors to hermetically embed them within said socket, and unscrewing the completed socket from said plug.

2. The method of producing a weather-proof lamp socket with conductor wires extending from the base thereof which comprises screwing a threaded shell blank having one conductor wire soldered thereto upon a threaded apertured plug, inserting the end of another conductor wire into the aperture of said plug, and compressing moldable insulating material about said blank and wires.

3. The method of producing a weather-proof lamp socket with conductor wires extending from the base thereof, which comprises screwing a threaded shell blank having one conductor wire soldered thereto upon a threaded apertured plug, attaching a terminal member to the end of another conductor, inserting said terminal member into the aperture of said plug, and compressing moldable insulating material about said blank and wires.

4. The method of producing a weather-proof lamp socket having a pair of conductor wires extending therefrom, which comprises supporting a cylindrical metal blank having one conductor attached thereto on a solid exteriorly threaded plug having a concentric aperture at its end, inserting the end of the other conductor into said aperture to form the center terminal of said socket, compressing moldable insulating material about the exterior of said blank and wires to cause said blank to assume the shape of said plug.

5. The method of producing a weather-proof lamp socket with conductor wires embedded in the base thereof, which comprises placing a metal shell having a conductor electrically connected thereto upon a threaded force plug, surrounding said shell by the sections of a split die, inserting the end of another conductor into said plug, placing powdered insulating material moldable by heat between said die sections and said plug, and applying heat and pressure to the exterior thereof.

6. The method of producing a water-proof lamp socket with a pair of conductors integrally embedded therein, which comprises first threading a screw shell blank having a conductor attached thereto upon a threaded force plug, positioning said force plug coaxially with said sta-

tionary die, inserting the bared end of the other conductor in a socket in said plug, placing molding material in said stationary die, moving a second die against said stationary die, and subjecting said dies to heat and pressure to cause said material to completely fill the void cavities between said dies, said shell and said wires.

7. The method of producing a weather-proof lamp socket having a pair of electric lead conductors extending from the base thereof, which

comprises supporting a threaded shell blank with one conductor attached thereto upon a threaded apertured plug, inserting the stripped end of the other conductor into the aperture of said plug, compressing moldable insulating material about said blank and conductors to hermetically embed them within said socket, and unscrewing the completed socket from said plug.

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