F. J. RUSSELL.

WEATHERPROOF ELECTRICAL RECEPTACLE.

APPLICATION FILED JAN. 25, 1908.

1,036,010. Patented Aug. 20, 1912.

Fig. 1.

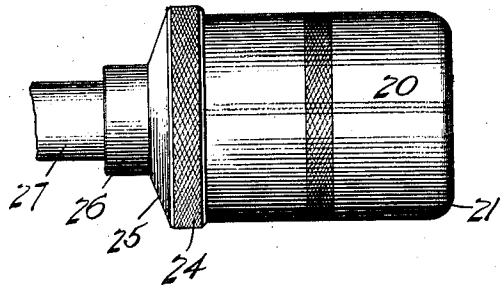


Fig. 2.

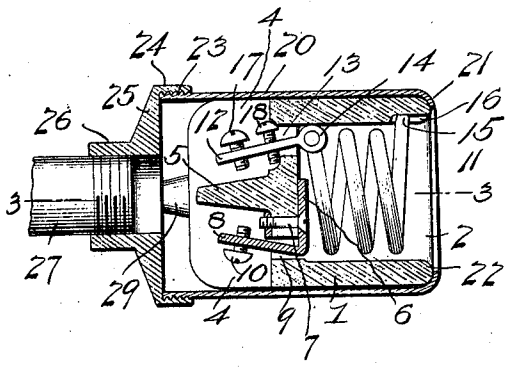


Fig. 3.

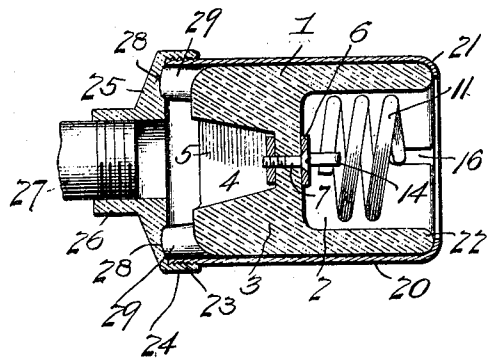


Fig. 4

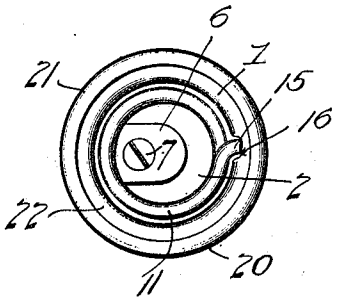


Fig. 6.

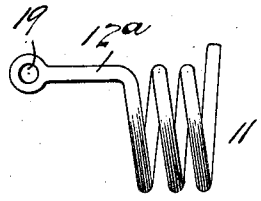
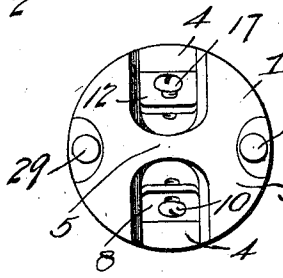


Fig. 5.



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WEATHERPROOF ELECTRICAL RECEPTACLE.

1,036,010. Specification of Letters Patent. Patented Aug. 20, 1912.

Application filed January 25, 1908. Serial No. 412,600.

To all whom it may concern:

Be it known that I, FRANK J. RUSSELL, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Weatherproof Electrical Receptacles, of which the following is a specification.

This invention relates to an improved electrical receptacle designed to receive and connect with the standard forms of electrical connecting plugs, such as the common incandescent lamp plugs and extension circuit plugs.

One of the general objects of the invention is to provide a receptacle construction wherein the various parts thereof are compactly arranged and housed in such a manner as to provide a very effective type of weatherproof receptacle particularly applicable to incandescent lamps intended for use out of doors or located in places exposed to weather conditions. In this connection, the invention contemplates means for thoroughly and completely housing the various parts of the receptacle and especially the wire terminals, and wire terminal connections, so that when the lamp or other connecting plug is screwed in place, no contacts or wire terminal connections whatever are exposed to the action of the weather. Furthermore, the improved construction provides for a snug fit of the porcelain receptacle body within its outer protective casing, and a secure interlocking of these elements to prevent relative rotation thereof.

Another object of the invention is to provide an improved weatherproof receptacle wherein the wire terminals are held in the most effective and advantageous positions, thoroughly insulated from each other, and well spaced from the base or cap of the casing, thus affording ample room for the leading-in wires.

In addition to the foregoing objects, one of the distinctive features of the present invention resides in an improvement in the construction and mounting of the plug holder, commonly termed the lamp holder of the receptacle. This part of the invention involves the provision of a spiral or spirally coiled wire plug holder constituting the side plug contact for the receptacle and also acting as the threaded element thereof for engaging the threads of the electrical plug of the lamp or other fixture. The invention has in view a novel manner of mounting this spiral wire plug holder so that it will properly perform the above noted functions, while at the same time obviating the usual tendency of a coil of this character from hugging or pinching the plug when unscrewing same. This feature of the invention therefore provides greater elasticity of the lamp or plug support, thus insuring good contact, and wide separation of opposite-polarity parts. Also, the construction referred to admits of the manufacture of a simpler and stronger lamp holder, which will be much more durable than the common thin shells. Furthermore, the special mounting of the wire plug holder insures the self adjustment to adapt it to plugs of variable size.

With these and other objects in view, which will more readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

The essential features involved in carrying out the objects above indicated are necessarily susceptible to structural modification, and also to embodiment in different forms of receptacles, without departing from the scope of the invention, but preferred embodiments of the latter are shown in the accompanying drawings, in which:

Figure 1 is a side elevation of a weatherproof electrical receptacle embodying the present invention. Fig. 2 is a longitudinal sectional view thereof. Fig. 3 is a similar view on the line 3—3 of Fig. 2. Fig. 4 is an end view of the receptacle. Fig. 5 is a bottom end view of the porcelain receptacle body. Fig. 6 is an elevation of the spiral plug holder, illustrating a modification wherein one end of the wire coil may be extended to form one of the wire terminals.

Like references designate corresponding parts in the several figures of the drawings.

The receptacle proper embodies a porcelain or equivalent body designated in its entirety by the reference numeral 1 and preferably formed of a single piece of porcelain or other insulating material. This integral, or one-piece, receptacle body 1 is preferably of the usual cylindrical form and is provided therein with the plug receiving socket 2 for the accommodation of the electrical connecting plug carried by the incan-

descent lamp or other electrical fixture. Also, the said receptacle body is formed with a thickened, or stout integral bottom section 3, which is of a solid formation so as to provide a closed bottom for the receptacle body, and this closed bottom section 3 constitutes a supporting base upon which is mounted and carried the plug contacts and the wire terminals associated therewith. In this connection, it is to be observed that the said bottom section 3 of the receptacle body is formed in what may be termed its outer or bottom side with transversely disposed deep housing pockets 4 for the wire terminals to be presently referred to and separated by an insulating bridge piece 5 projecting from the bottom section 3 at right angles to the plane of the pockets 4 and extending from wall to wall of the latter, thereby entirely isolating the individual wire terminals from each other respectively upon opposite sides of the bridge.

Any suitable center plug contact may be employed for the receptacle, such for instance as utilizing for this purpose a center contact plate 6 exposed at the bottom, and center, of the plug receiving socket 2, and held fast upon the bottom section 3 of the body by means of a screw or equivalent fastening 7. This center contact plate may have any suitable wire terminal connection therewith, but a practical construction is suggested in the drawings, viz: that of having the said center plug contact constituting one member or arm of an angle plate, the other member or arm of which is designated by the reference number 8, and is arranged to project through a clearance opening 9 provided in the bottom section 3 so as to extend into one of the housing pockets 4 and form one of the wire terminal elements. Hence, the said arm or member 8 of the angle plate is formed integrally with one end of the center plug contact 6, and to provide for the proper connection of one of the leading-in wires thereto, the said element 8 is fitted with a binding screw or equivalent device 10.

A distinctive feature of the present invention resides in the side plug contact which is also designed to act in the capacity of a holder for the lamp or other electrical plug. This combined plug holder and side plug contact consists of a spiral or spirally coiled length of wire designated in the drawings by the number 11, and adapted to be arranged within the plug receiving socket so as to receive and contact with the electrical plug, and thus constituting an elastic holder therefor. The spirally coiled body of the wire plug holder 11 is of a sufficient length to provide an effective holder and contact for the electrical plug, while at the same time the spiral convolutions of the holder necessarily form threads engaging those of the plug, and furthermore, by having the coiled body of a sufficiently open formation, the same will readily adjust itself to plugs of variable sizes.

In the use of a spiral wire plug holder, usually formed of spring wire, a feature of practical importance is the mounting thereof. Heretofore holders of this character have been objectionable on account of the tendency of the coil following and binding the electrical plug when it is unscrewed, but the present invention proposes to correct that tendency by mounting the wire plug holder in the manner shown in the drawings. Referring to the latter, it will be seen that one end of the coil forming the wire holder is held at the bottom of the receptacle body by the wire terminal associated therewith. This may be effected in various ways, such for instance as shown in Fig. 2 of the drawings, wherein the wire terminal element 12 is illustrated as being a separate plate extending through a clearance opening 13 in the bottom section 3 and having a suitable coupling connection 14 at its inner end with the innermost end of the said coil forming the wire holder 11. The opposite or outer end of the coil forming the said wire holder is provided with a laterally deflected terminal 15 constituting a holding tongue and loosely and slidably interlocked with a short, longitudinally disposed keeper groove 16 formed in the inner face or side of the receptacle body, usually at or contiguous to the outer edge of the said body. The effect of this construction is that the wire coil is held in such a manner as to maintain a fixed relation of the convolutions of the coil, and particularly preventing the coil from following the electrical plug in either the screwing or unscrewing operation, thus obviating pinching or binding, as in the case of a free end coil.

Referring to the wire terminal element 12, the same is disposed upon the opposite side of the bridge 5 from the terminal 8, and is equipped with a binding screw 17, and also with a guard screw or equivalent retaining device 18 to hold the plate constituting the terminal 12 in fixed position within the bottom section of the receptacle body. A modification of this wire terminal element is suggested in Fig. 6, wherein the inner end of the wire coil is illustrated as being formed with an integral arm extension 12^a constituting a wire terminal and having an end opening 19 for the binding screw.

The wire plug holder device described necessarily subserves the functions indicated in an electrical receptacle employed in any manner, but one of the important phases of this invention resides in making a weatherproof receptacle, and to that end it is proposed to combine with the receptacle body an outer protective casing 20. This casing

is in the form of a cylindrical metal sleeve or shell snugly fitting and receiving the receptacle body 1 and completely and entirely housing the same. At one end, the casing sleeve 20 is provided with an inturned bearing flange or lip 21 reaching over and closely fitting the rounded nose 22 formed by the rounded outer edge of the porcelain or body 1, and at its opposite end the casing sleeve is threaded, as at 23, to receive the threaded flange 24 of a screw cap 25 constituting what may be termed the screw base cap of the receptacle. This base cap may be provided with a central coupling neck 26 to receive the end of a pipe or equivalent element 27, which serves to support the receptacle and also carries the leading-in wires therefor.

In order to prevent relative turning of the parts, the cap 25 is provided upon its inner side with the diametrically opposite retaining seats, recesses, or notches 28 with which are separably interlocked the diametrically opposite lock studs 29 projected from diametrically opposite portions of the porcelain bottom section 3 and preferably forming integral parts of the latter. When the parts are screwed together, as shown particularly in Figs. 2 and 3, it will be apparent that the body or porcelain 1 is drawn tightly into interlocked engagement with the base or base cap 25 and is thus prevented from turning, while the said studs 29 also serve to hold the porcelain or body 1 spaced from the base or base cap 25 in such a manner as to afford ample room for accommodating the leading-in wires and their connection with the wire terminals. At the same time, the receptacle presents, externally, a very compact and desirable form of construction for use in any position exposed to weather conditions.

From the foregoing it is thought that the construction, action, and many advantages of the herein described receptacle will be readily apparent without further description, and it will be understood that changes in the form, proportion and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

I claim:

1. An electrical receptacle comprising a body cup, a spiral wire plug holder adapted to permit an electrical plug to be freely screwed into and out of the same and arranged wholly within the body cup, said wire plug holder having its outer extremity coupled to the body cup, and holding means for securing the other terminal of the coil to the base portion of the cup.

2. An electrical receptacle comprising a body cup, a spiral wire plug holder arranged within the cup and having its outer terminal coupled to the wall of the cup, and a wire terminal held at the base of the cup and constituting a holding means for the inner terminal of the coil.

3. In an electrical receptacle, the body, and a spiral wire plug holder supported within the body and having one of its extremities loosely interlocked with the body, said holder permitting a plug to be freely threaded into and out of the same.

4. In an electrical receptacle, the body, and a spiral wire plug holder supported within the body and having the extremity of the outermost convolution loosely interlocked with the body, said holder permitting a plug to be freely threaded into and out of the same.

5. In an electrical receptacle, the body having a keeper groove in its side, and a spiral wire plug holder supported within the body and having its outer terminal interlocked in said groove, said holder permitting a plug to be freely threaded into and out of the same.

6. In an electrical receptacle, the body having a closed bottom portion, a center plug contact seated on said bottom portion and having a wire terminal element connected therewith, a spiral wire plug holder arranged within the body and having one terminal loosely interlocked with the latter to prevent its turning in said body, and a second wire terminal element extending through the bottom portion of the body and connected with the inner terminal of the wire coil.

7. In an electrical receptacle, the body carrying the plug contacts and wire terminals and provided with rearwardly projecting lock studs, and an outer protective casing inclosing said receptacle and including a base cap having recessed seats that receive the free ends of said studs and being spaced by said studs from the body.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

FRANK J. RUSSELL.

Witnesses:

EDWARD A. PERPALL,

THEO. STOLL.