W. R. KELTING.

ELECTRICAL PLUG AND RECEPTACLE.

APPLICATION FILED MAR. 5, 1913.

1,137,634.

Patented Apr. 27, 1915.

2 SHEETS—SHEET 1.

Fig. 1.

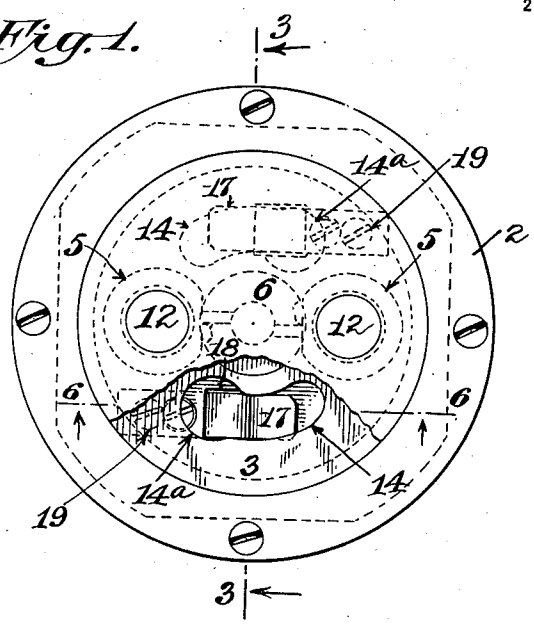
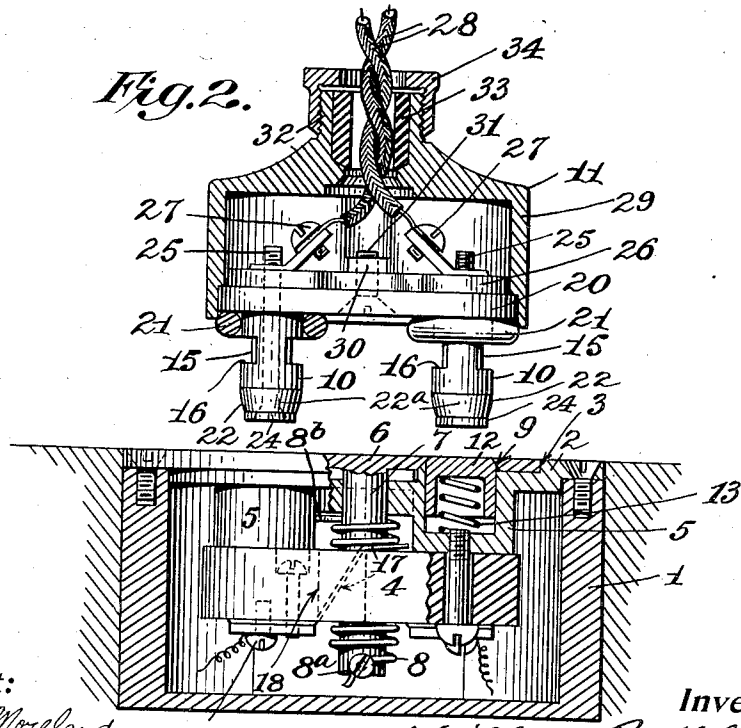


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

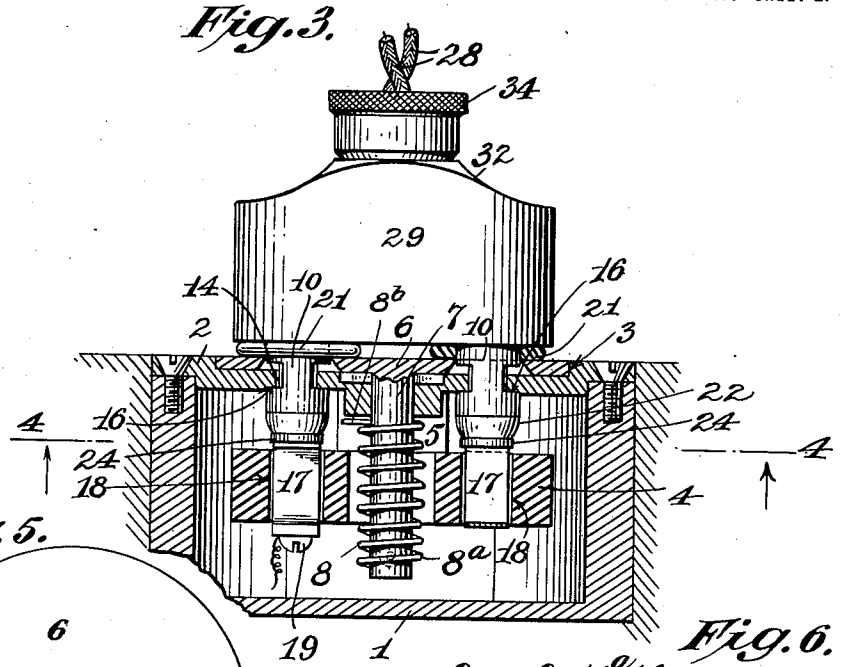


Fig. 5.

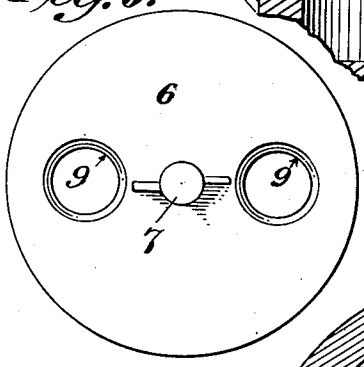


Fig. 6.

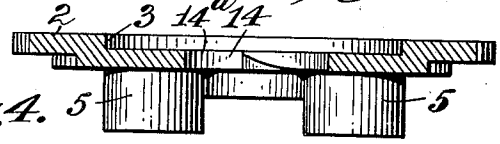
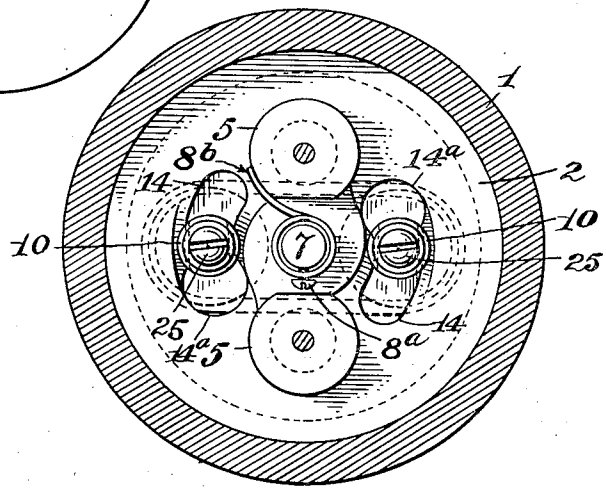


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM R. KELTING, OF NEW YORK, N. Y.

ELECTRICAL PLUG AND RECEPTACLE.

1,137,634. Specification of Letters Patent. Patented Apr. 27, 1915.

Application filed March 5, 1913. Serial No. 751,975.

To all whom it may concern:

Be it known that I, WILLIAM R. KELTING, a citizen of the United States, residing at New York, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Electrical Plugs and Receptacles, of which the following is a specification.

My invention relates to an improved electric plug and receptacle especially adapted for, but not necessarily limited to, use as a floor receptacle, and has the advantages of effectiveness, relative simplicity, and the advantage of excluding dirt and moisture and of giving a finished appearance to the installation.

Further, the improvement has other advantages which will be apparent to those skilled in the art from an understanding of the following description of the invention in connection with the drawings.

These show only one of the specific forms of embodiment which my invention is adapted to take, and in them—

Figure 1 is a plan view of an electrical receptacle within my invention, a portion being broken away to reveal underneath structure; Fig. 2 is a vertical section, partly in elevation, of the same receptacle together with my improved plug adapted for use therewith; Fig. 3 is the same showing the plug and receptacle in engaged position, the plug being shown wholly in elevation and the receptacle being shown in vertical section on the line 3—3 in Fig. 1 looking in the direction of the arrows; Fig. 4 is a horizontal section on the line 4—4 in Fig. 3 looking in the direction of the arrows; Fig. 5 is an underneath plan view of the rotatable disk part of the receptacle; and Fig. 6 is a vertical section, partly in elevation, of a stationary cover of the receptacle.

I will now describe the specific devices of the drawings, reserving it to the claims to point out the novel features and to define the scope of the invention.

1 is a receptacle having a stationary cover 2 with a central stepped-down portion forming a circular recess or cup 3.

4 is a stationary disk of insulating material secured in underneath spaced relation to the cover 2 by means of a pair of hollow posts 5.

6 is a rotatable disk fitting down into the cup 3 flush with the top of the cover 2. This disk has a central round stem 7 which extends downwardly with bearing fit through a hole in the bottom of the cup 3, and thence through a larger hole in the disk 4. 8 is a coiled spring surrounding this stem under compression with one end 8^a attached thereto and with its other end 8^b bearing against one of the posts 5, so that the effect of the spring is to hold the disk 6 seated snugly in the bottom of the cup and at the same time make it tend to rotate back into a normal position after it has been rotated therefrom. The disk 6 has two holes 9 through it acting as spanner holes to receive the legs 10 of the plug 11 subsequently to be described, and whereby the twisting of the plug rotates the disk. 12, 12 are automatic closures for these holes 9 consisting of hollow buttons working in the hollow posts 5 normally pressed up from below by the springs 13 so as to enter and fill the holes 9, as best shown in Fig. 2, whenever the disk 6 occupies its normal position. The periphery of these buttons is beveled to engage the undercut periphery of the holes 9 so that the buttons are stopped from being forced too far through the holes, the ideal condition being that the buttons shall snugly seal the holes flush with the top of the disk, so that, as far as practicable, dirt and moisture will be excluded from entering.

14, 14 are a pair of circular slots through the bottom of the cup 3 which are uncovered by the holes 9 when the disk is rotated out of its normal position. These slots are too narrow to permit the legs 10 of the plug to enter them until the far ends of the slots are reached, whereat they have enlarged portions 14^a permitting said legs of the plug to be forced down through them.

The legs of the plug having been forced in as far as they will go, the plug is then given a reverse twist or rotation to make the legs travel backwardly through the slots which they can now do because their sides are notched at 15, so that the thickness of the notched portion of each leg is less than the width of the slots 14. The further result of the construction is that shoulders 16 are provided on these legs which underlie the edges of the slots and so prevent the plug from being accidentally withdrawn. As the legs of the plug in this reverse rotation approach the ends of the slots 14, their ends ride up on the metal strips 17 to make electrical contact therewith. These strips are roughly S-shaped with the middle portion

of the S located in a hole 18 through the disk 4 of insulating material, and with its upper end free to be contacted with by the legs of the plug as just described, and with its lower end fixed under one of the binding posts 19 on the said disk 4 for making electrical connection with the electric wiring or mains underneath the floor, down into which the receptacle 1 is set with its cover 2 flush with the floor surface. The foregoing is on the assumption, of course, that the device is being used as a floor receptacle which is its main intended, but not its only, utility.

This brings us to a description of the plug itself. This consists of a metal cross-piece or plate 20 having the already described metal legs 10 which are tubular or hollow. These legs are notched at 15 for the purpose already described and said legs between these notches and the cross-plate 20 are surrounded with preferably rubber gaskets 21.

22, 22 are insulating bushings fitting up into the hollow legs 10 and provided with heads 22ª which fill out or continue the ends of the legs.

24, 24 are brass washers constituting the contact extremities of the legs held in that position by screws 25 which pass centrally up through the bushings 22, the hollow legs 10, the cross-plate 20, and finally through an insulating strip 26 and binding posts 27 located therein, from which the leads 28 proceed to the fan or other instrumentality to which current is to be delivered.

A cap or cover is provided for the plug consisting of an elongated box 29 whose bottom is the cross-plate 20, the box having screw tapped internal lugs 30 projecting from its sides, and screws 31 being provided which project up through the plate 20 and engage the threaded holes in said lugs 30. The top of this cap 29 has shoulders and a neck 32 like a bottle. The wires 28 come out through this neck which is bushed with insulating material 33. Finally, 34 is a perforated cap which screw-connects with the neck to finish the plug.

The use and operation of the described device may now be summarized.

The receptacle having been connected with the mains and properly set in the floor, or other location, the spring 8 will normally keep the disk 6 in its normal position wherein its spanner holes are closed by the buttons 12. Dirt and water are thus effectively excluded at all joints from getting into the interior of the receptacle. Should now it be desired to make an electrical connection from the floor mains to any device, for example, a fan,—the legs of the plug will be pushed into the spanner holes and the disk 6 rotated by twisting the plug until the enlarged ends 14ª of the slots are reached, whereupon the legs of the plug are pressed down as far as they will go through these enlarged portions 14ª, and then the plug is given a reverse twist until the ends of its legs make the contact with the conducting strips 17 of the receptacle binding posts. This completes the act of electrically connecting the fan with the floor mains and the plug may be left in this position as long as desired. The gaskets 21 act to seal the mouths of the holes through which the legs of the plug project. Vice versa, to remove the plug, it is rotated to carry its legs away from the ends of the contact strips 17 to the enlarged ends 14ª of the slots, then the legs are wholly withdrawn, whereupon the spring 8 rotates the disk 6 back into its normal position with its holes over the buttons 12 which thereupon spring up into and fill said holes.

Having thus described my invention, what I claim is:

1. In an electrical device of the class described, the combination of contact means within the device, a perforate rotatable plate over said means, plug means for making electrical contact with the aforesaid contact means by way of the perforation in the plate after said plate has been rotated from a normal position, and means for closing the perforation in the plate when in its normal position.

2. In an electrical device of the class described, the combination of contact means within the device, a perforate rotatable plate over said means, plug means for making electrical contact with the aforesaid contact means by way of the perforation in the plate after said plate has been rotated, and means giving said plate tendency to rotate into a normal position wherein the plug means cannot reach the contact means through the perforation in the plate, and means for closing the perforation in the plate when in its normal position.

3. In an electrical device of the class described, the combination of contact means within the device, a perforate rotatable plate over said means, plug means for making electrical contact with the aforesaid contact means by way of the perforation in the plate after said plate has been rotated from a normal position, and means for closing the perforation in the plate when in its normal position comprising a spring-pressed button at the perforation in the rotatable plate when said plate is in its normal position, said button then springing up into said perforation.

4. In an electrical device of the class described, the combination of contact means within the device, a perforate rotatable plate over said means, plug means for making electrical contact with the aforesaid contact means by way of the perforation in the plate after said plate has been rotated, and means giving said plate tendency to rotate

into a normal position wherein the plug means cannot reach the contact means through the perforation in the plate, and means for closing the perforation in the plate when in its normal position comprising a spring-pressed button at the perforation in the rotatable plate when said plate is in its normal position, said button then springing up into said perforation.

5. In an electrical device of the class described, the combination comprising a shallow cup, a disk snugly rotatable within the cup, said disk and the bottom of the cup having holes through them which aline in one position of the rotation of the disk, electrical contact means supported below the hole in the bottom of the cup, plug means insertible in the hole in the disk to rotate the disk to carry its hole into alinement with the hole in the bottom of the cup, said plug then being insertible through said holes to make electrical contact with the aforesaid contact means, means giving the disk rotative tendency into a position wherein the disk and the cup-bottom holes are out of alinement, and a spring pressed button located at the disk hole when the disk is in normal position, said button then springing up into the hole.

6. In an electrical device of the class described, the combination comprising a shallow cup, a disk snugly rotatable in said cup, said disk having a hole through it and the bottom of the cup having a slot through it which the disk hole travels over when the disk is rotated, plug means insertible in the hole in the disk to rotate the disk and carry its hole into alinement with the hole in the bottom of the cup, said hole in the bottom of the cup being narrower than the disk hole except at an enlarged part wherein it permits the plug which has been inserted through the disk hole to also be inserted through said enlarged part, said plug having its body part reduced in size to permit it to travel back through the narrower part of the slot, and contact means located under the bottom of the cup to be contacted with by said plug.

7. In an electrical device of the class described, the combination comprising a shallow cup, a disk snugly rotatable in said cup, said disk and the bottom of the cup having holes through them which aline in one position of the rotation of the disk, contact means supported under said hole in the cup-bottom, means giving the disk tendency to rotate into a normal position wherein its hole is out of alinement with the cup-bottom hole, a hollow post under the cup-bottom in communication through said bottom with the hole in the disk when in normal position, and a spring pressed button mounted in said hollow post to spring up into the disk hole when in its normal position.

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

WILLIAM R. KELTING.

Witnesses:
E. W. SCHERR, Jr.,
EDNA A. MORELAND.