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ARMORED PLUG RECEPTACLE.

APPLICATION FILED JUNE 22, 1908.

**911,844.**

Patented Feb. 9, 1909

Fig. 1.

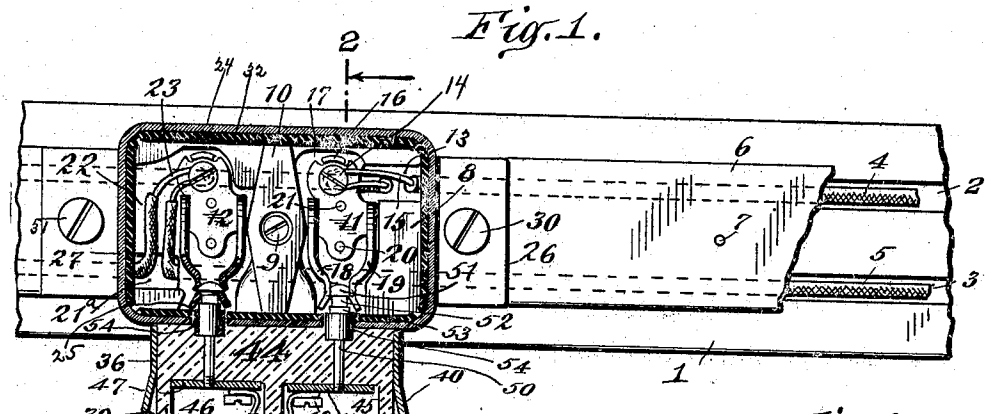



Fig. 3.

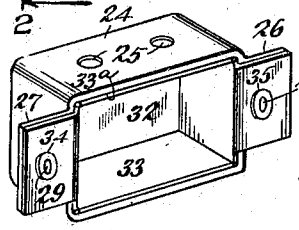



Fig. 2

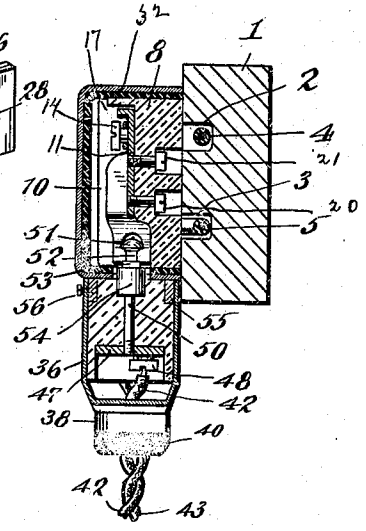



Fig. 4.

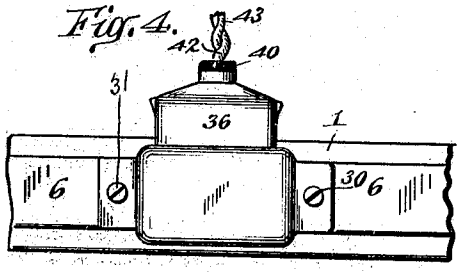



Fig. 5.

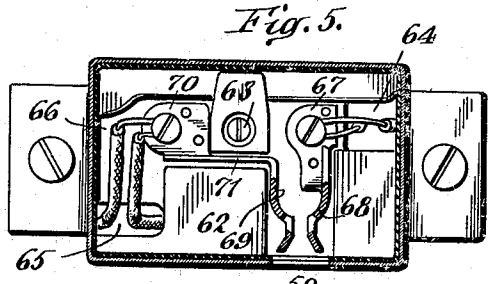
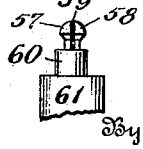



Fig. 6.




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## ARMORED PLUG-RECEPTACLE.

No. 911,844. Specification of Letters Patent. Patented Feb. 9, 1909.

Application filed June 22, 1908. Serial No. 439,787.

*To all whom it may concern:*

Be it known that I, RALPH A. SCHOENBERG, a citizen of the United States, and a resident of New York city, county and State of New York, have invented certain new and useful Improvements in Armored Plug-Receptacles, of which the following is a specification, taken in connection with the accompanying drawings, which form a part of the same.

This invention relates to armored plug receptacles and more particularly to a construction thereof such that the "plug" may be very readily interfitted with its receptacle and may be very quickly detached therefrom, either by a pull, in the normal direction usual to devices of this general nature, or also by a push or pull in many other directions at an angle to such normal.

This invention furthermore has in objective a receptacle and detachable interfitting plug, either or both of which may be exteriorly armored or sheathed with a relatively thick shock-and-wear-resisting material and be otnerwise composed of simple and inexpensive elements so arranged as to contribute simplicity and durability in installation and service.

In the accompanying drawings showing two illustrative embodiments of this invention, and in which the same reference numerals refer to similar parts in the several figures. Figure 1 is a longitudinal section showing the details of the normally inclosed elements of the receptacle, and also its detachable companion member or so-called "plug" connected in operative relation therewith. Fig. 2 is a section taken transversely to Fig. 1 along lines 2—2 thereof and showing certain details not clearly apparent from Fig. 1. Fig. 3 is a perspective looking into the cover or sheath for the receptacle and showing the exterior armor of metal as well as the interior lining of suitable insulating material, such as so-called "fiber". Fig. 4 is an exterior elevation showing the relation and general appearance of the parts when assembled with the plug uppermost as distinguished from Fig. 1 in which the plug underlies the receptacle. Fig. 5 is a section of a modified form of my receptacle especially adapted for the reception of a branch line connection comprising a single split commutator plug. Fig. 6 is fragmentary view of the commutator plug adapted to coöperate with the receptacle shown by Fig. 5.

In the illustrative embodiments of this invention shown in the drawings, the receptacles are assumed to have a fixed mounting, as is usual with wall sockets which are customarily employed in cases where it is required to place a portable lamp, telephone or other device in circuit at one or another of a number of positions, in such places as libraries, offices, cafés or the like. The main line leads connect with a pair of terminals in each of the receptacles, and the branch line leads (which are flexible) are joined to a complementary pair of terminals carried by the removable plug and adapted to be pushed into the socket-piece and so complete the circuit through the lamp or other device. Thus, as shown by Fig. 1, the receptacle may be mounted on or adjacent to a molding 1 provided with channels 2 and 3 serving to embed and sufficiently separate the mains 4 and 5. These mains may be normally concealed from view by an elongated cover 6 which may be retained in place by suitable fastening devices such as the nail indicated by 7. The receptacle itself preferably includes a block 8 of insulating material, such as porcelain, which also has the desired quality of being fire-proof. Block 8, as will be apparent from the drawings, serves on the one hand as a means instrumental in supporting the connection and terminal pieces, and on the other hand may be utilized to position the armored sheath, or the sheath may be depended upon to position the inclosed parts, as may be desired. To this end, I may provide the block 8 with one or more apertures, such as that shown in the center thereof for the reception of the retaining screw 9, whereby the block may be affixed to the molding 1. In the case of the duplex form exemplified by Fig. 1, this screw 9 may be positioned in the center of a crosswise-extending ridge 10 which may have its uppermost surface arranged near to or in abutment with the inner face of the insulated fiber lining of the armored sheath, if desired. This ridge, so to speak, divides the block into halves, each of which is devoted to separate terminal pieces, the one being the positive and the other being the negative. Although there may be cases in which these two halves of the block will be similarly constructed and arranged, still in the case of the form shown, it is to be observed that the two halves are to a certain extent dis-similar. I prefer the last mentioned arrangement in those cases in which the receptacle is so

formed and disposed that the detachable plug takes into a side nearer to one than to the other of the mains, but while the halves of the block 8 differ somewhat, I nevertheless also prefer to utilize similar or substantially similar terminal pieces 11 and 12, thus effecting an economy by way of manufacture. Thus, the right-hand half or side of the block 8 provides an inlet aperture 13 leading directly upwardly into proximity with the binding screw 14 of the terminal piece 11. This enables an intermediate portion 15 of the wire 4 from which the insulation has been removed to be doubled or looped around the shank of the binding screw 14, which upon being screwed home will tightly grip the bared but not severed intermediate portion of the wire 4, thereby establishing a good electrical connection with the terminal piece 11. This is a very advantageous arrangement in that the wire is not cut. To prevent the rotation of the screw-head from tending to force the wire from underneath the head, I may provide a small uprising lug 16 at the end of piece 11 near the periphery of the screw head. The terminal piece itself will also be counter sunk within a suitably shaped recess 17 in the right hand side of block 8 and may provide integral upturned and outwardly extending wings 18 and 19. As a means serving to secure the terminal pieces in place I may employ one or more screws such as those indicated by 20 and 21 having their heads seated in suitable recesses in the under side of block 8 and having their shanks rising through such blocks into a screw threaded attachment with the bed portion of the terminal pieces. The wings 18 and 19 are stiffly resilient and they narrow together near their extremities and then preferably spread or flare outwardly so as to facilitate the entrance of the projecting terminal of the plug. In their more closely approaching portions, these wings 18 and 19 are intended to enable the annular flange of the head of the projecting terminal of the detachable plug to engage therebetween and thereby be separably retained in place.

The foregoing description of the terminal piece 11, and the function and method of connecting the same, applies equally to the piece 12 on the left-hand side of block 8, save however that the aperture 21ª for the incoming wire is located on the side nearest the plug, *i. e.*, overlying the other main 5. In this instance, a shallow channel 22 is made in the block 8 to enable the bared loop 23 to be brought into connection with the screw of the terminal piece 12, as appears quite clearly from the drawing. It may be noted in this connection, that the outer extremities of the wings are somewhat wider than their inner portions connecting them with the beds of the terminal pieces, and in consequence, the block 8 is provided with a somewhat deeper seat to accommodate such outer extremities. This widened-extremity feature is of advantage from the standpomt of making a connection with the detachable plug member, and at the same time this arrangement may be readily and inexpensively manufactured, since the wings 18 and 19 may be stamped up from a single piece, and the extra depth of the extremities will be provided for without increasing the circumscribing boundary of the blank which is stamped up.

In connection with the receptacle parts above described, I also propose to use an armored sheath lined with insulating material. This is shown more clearly by Fig. 3 in which 24 indicates a cover member of rectangular shape constructed of fairly heavy sheet steel, brass or other durable material capable of withstanding very severe treatment in the way of knocks and the like. This armored sheath provides also side, or otherwise-located, apertures 25 positioned for a proper registry with the plug retaining wings of the terminal pieces 11 and 12, and it may also provide laterally extending flanges 26 and 27 having screw holes 28 and 29 through which screws 30 and 31 may be passed, thus securing the same to the molding, wall or other adjacent supporting structure. This armored sheath, I furthermore propose to insulate with a lining 32 which may be formed of fiber or other suitable material and which may be integral throughout, being stamped from a single piece. To this end, side pieces 33 and 33ª may have an integral connection with the center piece and in like manner the lining may integrally extend transversely underneath the flanges 26 and 27 to which it may be secured by eyelets 34 and 35. This lining will of course provide apertures in registry with the apertures 25 in the armored sheath.

Turning now to the construction of the plug which may be employed in connection with the receptacle shown by Figs. 1, 2 and 3, it will be of course evident that while I prefer the form shown, nevertheless other constructions may be resorted to. Here also, I have made use of an armored sheath 36 which is of rectangular shape, open at one end and at its other end provided with the dome 37 which terminates in its rise, in an annular collar 38 in which is seated an insulating bushing. It may here be noted that this sheathing also provides side protruding parts 39 and 40 whose purpose it is to enable the fingers to better grasp the device and thus prevent slipping when detaching or affixing the same. For the insulating bushing, I prefer to use a pair of telescoping collars 40ª and 41 which screw together and clamp each other in place within the collar 38. The branch line wires 42 and

43 enter the armored plug through the insulating bushing 40ª, and pass through an apertured plate 43 of insulating material, and thence into connection with the terminals carried by the insulating block 44 which is inclosed within the armored sheath 36. This insulating block 44 may be constructed of porcelain and provides seats 45 and 46 for the terminal plates 47 which are preferably similar and are mounted in the bottoms of said seats and provided with screws 48 for establishing connections with the leads 42 and 43.

Terminal members 50 project from the outer face of block 44, each having a head 51 preferably having a short distance from its conical extremity a somewhat blunt peripheral edge or rim which is received and detachably retained between the indented portions of the spring wings 18 and 19 above mentioned. This blunt peripheral rim may be formed by providing a shallow neck 52 in the shank of the terminal piece 50. So also, a shoulder 53 may either be flush with the outer face of the block 44 or may be slightly counter-sunk therein as shown in the drawings, such shoulder serving as a means of preventing rear movement of the piece 50, thereby enabling it to be screw threaded to the plate 47 to clamp both of these pieces in place in the block. It is to be noted that an insulating collar or sleeve 54 may also be provided on the protruding shoulder of the terminal piece 50, and may have one end counter-sunk, thereby preventing short circuits due to the contact of the metallic sheath when the plug is inserted in its receptacle. It may here be noted that when the parts are properly assembled in the plug, the exposed face of the block 44 will either be flush with the outermost rim of the protecting sheath 36 or will lie slightly therewithin. To retain the block in position, I may provide it with side indentations 55 which are engaged by a screw 56. Obviously this will suffice to retain the block 44 in place. It is also to be noted that the terminal pieces 50 project no very great distance beyond the outer face of the block 44, and this in connection with their peculiar shape, enables them to be retained by the spring wings 18 and 19, without however interfering with their easy separation therefrom at any angle and even by a direct pull on the flexible branch line wires. By having the sheath armored, that is of more than usual strength and thickness, the device is exceedingly well adapted to withstand severe usage.

While by the foregoing I have described a receptacle and a coöperating plug having two spaced terminal pieces, it is to be understood that this invention may assume many apparently different forms and still retain many of the more essential features thereof. Thus, the plug may provide, in lieu of a pair of widely spaced distinct terminal pieces, a single piece composed of two or more segments after the fashion of a commutator and following the general plan illustrated by Fig. 6. In this case, the plug will have a head of the same general character as that utilized in Fig. 1, except that such head will consist of two or more segments 57 and 58 separated by a piece of insulating material 59 and provided if desired with an insulating collar 60. These parts may project from a suitable block 61 adapted to be conveniently handled. The receptacle itself will also be materially different from that shown in Figs. 1 to 3. That is to say, while the block 62 may be retained in place by a screw 63, and be provided with inlet apertures 64 and 65, together with the channel 66, somewhat closely following the plan in this particular of Fig. 1, a greater difference will exist with respect to the terminal pieces. Thus, the terminal piece 67 instead of providing two wings or bifurcations, is shown to have a wing 68 on one side for one pole, and the opposite companion wing 69 extends from the other terminal piece 70, the block being provided with a groove for the intermediate portion 71. This receptacle will however be also provided with an armored sheath and its relation to the plug is such that the latter may also be removed at any angle or by a direct pull on the flexible cord.

It will thus be perceived that I have succeeded in devising a structure well adapted to achieve the several ends in view. The device is very convenient to use, being easily separable at any angle and by being armored, is is practically indestructible, even under the severest usage. The wires do not have to be cut, since they may be merely looped into connection with the binding screws, and the device may therefore be employed with greater ease and without rendering likely breaks in the circuits.

Having thus described this invention in connection with two illustrative embodiments thereof, to the details of which I do not desire to be limited, what is claimed as new and what is desired to be secured by Letters Patent is set forth in the appended claims.

1. In a detachable armored molding receptacle, the combination of a hollow inclosing metal sheath provided with apertures and adapted to be detachably secured to a molding, an insulating block secured to the molding covered and protected by the sheath, a ridge on the block, terminal pieces secured to the block on each side of the ridge and a plurality of wings on each terminal piece, the wings being in alinement with the apertures in the sheath.

2. In a detachable armored molding receptacle, the combination of a hollow inclosing metal sheath provided with apertures and adapted to be detachably secured to a

molding, an insulating block secured to the molding covered and protected by the sheath, a ridge on the block, terminal pieces secured to the block on each side of the ridge, a plurality of indented or notched wings on each terminal piece, the wings being in alinement with the apertures in the sheath, and a plug having grooved heads to coöperate with the indented or notched wings of the terminal pieces, the plug being adapted to be separated from the receptacle at any angle.

3. In a detachable armored molding receptacle, the combination of a hollow inclosing metal sheath provided with apertures and adapted to be detachably secured to a molding, an insulating block secured to the molding covered and protected by the sheath, a ridge on the block, terminal pieces secured to the block on each side of the ridge and a plurality of wings on each terminal piece, the wings being in alinement with the apertures in the sheath, a plug having heads to coöperate with the wings of the terminal pieces, an armored sheath or covering forming a part of the plug and provided with integral protruding parts to prevent the slipping of the hand of the user when the plug is attached or detached from the receptacle, the plug being adapted to be separated from the receptacle at any angle.

4. A detachable armored plug receptacle comprising a block of insulating material, means for exteriorly securing said block to a supporting structure in overlying relation with a pair of electrical mains, a pair of electrical mains, a pair of terminals carried by said block, a pair of notched or indented wings carried by each terminal piece, binding posts on the terminals for enabling said mains to be looped into contact with the terminal pieces, a metal armored sheath provided with apertures in alinement with the wings of the terminal pieces and adapted to substantially cover and protect the block, a plug provided with wires and with grooved heads to coöperate with the notched or indented wings, the parts being so arranged that an accidental or intentional blow at any angle upon the plug or the wires carried by the same, will cause the heads carried by the plug to become disengaged from the wings and the plug from the receptacle.

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