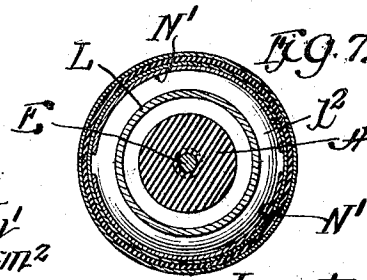
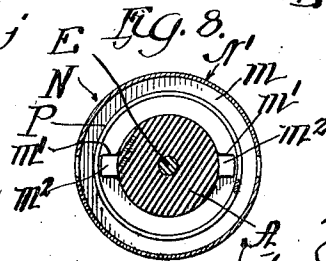
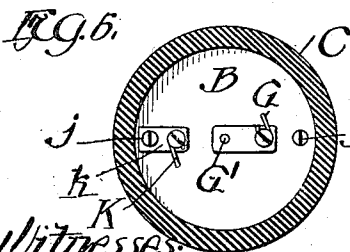
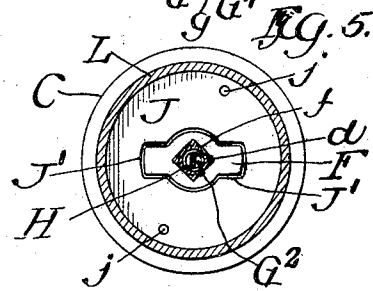
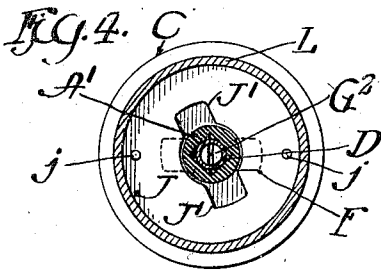
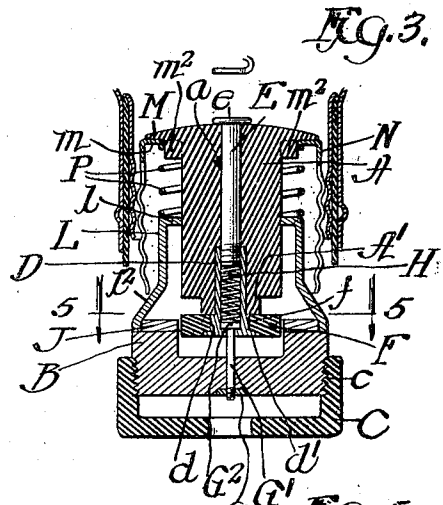
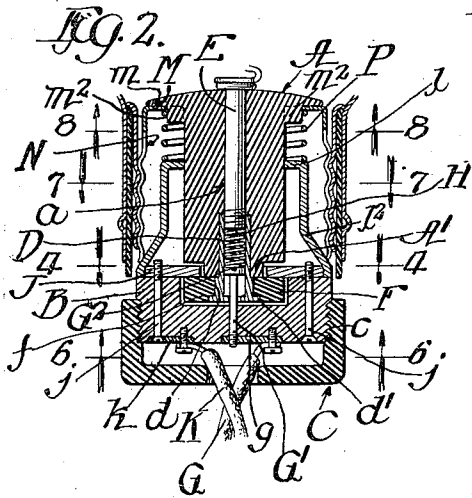
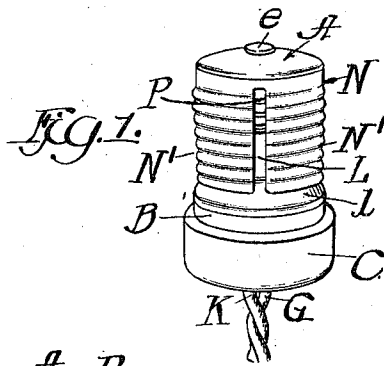


R. S. BLAKE.  
ATTACHMENT PLUG.  
APPLICATION FILED SEPT. 2, 1910.

1,012,975.

Patented Dec. 26, 1911



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## ATTACHMENT-PLUG.

1,012,975.

Specification of Letters Patent.

Patented Dec. 26, 1911.

Application filed September 2, 1910. Serial No. 530,243.

*To all whom it may concern:*

Be it known that I, ROBERT S. BLAKE, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Attachment-Plugs; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improvement in attachment plugs adapted to be inserted into a wall socket or other electrical contact receptacle for connecting electric conductors, and consists of the matters hereinafter described and more particularly pointed out in the appended claims.

The improved attachment plug is of the type that may be caused to engage within the internally screw-threaded shell of a socket without screwing it into said socket and includes a collapsible, externally threaded shell, which may be inserted into the socket while collapsed; means for expanding the shell after it has been thus inserted, to cause its thread to engage with the thread of the internally threaded shell of the socket; and means for locking it in that position.

In the drawings:—Figure 1 is a perspective view of the attachment plug as it appears before it is inserted into the wall socket. Fig. 2 is a longitudinal central section of the plug attachment shown with its shell expanded and engaged with the internally threaded shell of a wall socket. Fig. 3 is a similar section showing the parts as they are when the shell is collapsed and the plug attachment partially withdrawn from the socket. Fig. 4 is a cross-section through the plug attachment on the line 4—4 of Fig. 2. Fig. 5 is a cross-section through Fig. 3 on the line 5—5 thereof. Fig. 6 is a cross-section through Fig. 2 on the line 6—6 thereof. Fig. 7 is a cross-section through the plug attachment on the line 7—7 of Fig. 2. Fig. 8 is a cross-section through the plug attachment on the line 8—8 of Fig. 2.

My improved plug attachment embraces a plug A; a base B; and a cap C. The plug A is preferably made of porcelain and is bored centrally to provide a longitudinal aperture *a* which is larger in diameter at its

lower end to receive a tube D, and of smaller diameter at its upper end to receive a bolt E which is threaded into the upper end of the said tube D. The head *e* of said bolt forms the central contact of the plug attachment. The plug has a reduced part A<sup>1</sup> at its rear end to which is secured a cross-bar F, preferably made of fiber. The tube D projects from the rear of the plug and is there square in cross-section, as shown at *d*, where it engages within the square aperture *f* in the cross-bar F. This construction prevents angular movement of the cross-bar. The end of the tube D is closed being provided with a flanged head *d*<sup>1</sup> which holds the cross-bar against the end of the plug A.

The base B consists of an annular block of porcelain or fiber externally threaded near its bottom to receive the internally threaded flange *c* of the cap C. To the bottom of said base is secured a terminal plate *g* to which is connected one of the electric conductors G and into which is screw-threaded the end of a bolt G<sup>1</sup>. Said bolt passes through a central aperture formed through the base B and through an aperture in the closed end of the tube D and has a head G<sup>2</sup> located within the tube D and adapted to slide therein. A coiled spring H bears between the lower end of the bolt E and the head of the bolt G<sup>1</sup> and serves to electrically connect them. To the top of the base B is secured a flat metallic ring J which surrounds the reduced end A<sup>1</sup> of the plug and projects inwardly beyond the ends of the cross-bar F. Said ring is secured to the base by means of longitudinal bolts *j* which extend through suitable apertures in the base and are threaded into said ring. One of said bolts passes through a terminal plate *k* to which is connected a conductor K.

L is a cone member secured to the top of the base B. As shown herein, it consists of a tubular shell provided with an in-turned flange *l* at its upper end which engages against the body of the plug A and at its base with a cone *l*<sup>1</sup>. The lower edges of the cone embrace the ring J to which it is soldered or secured in any other convenient manner.

At the upper end of the plug is formed an annular shoulder M against which rests a flange *m* of a split threaded contact shell N. The lower edges of said shell are adapted to be brought into engagement with the cone

7. Said flange *m* of the shell is provided with diametrically opposed notches *m*<sup>1</sup> which are adapted to be engaged by radial shoulders *m*<sup>2</sup> on the plug A which thus prevent the rotation of said shell with reference to said plug. Two sections N<sup>1</sup>, N<sup>1</sup> of said shell are adapted to collapse toward the plug A. A coiled spring P bears between the upper flanged end of the cone member L and the flange *m* of the contact shell N and thus holds said shell in place, and at the same time tends to hold the shell and cone apart, so that the shell sections N<sup>1</sup>, N<sup>1</sup> will be collapsed on the plug A.

15 In the ring J are formed diametrically opposed notches J<sup>1</sup> through which the ends of the cross-bar F are adapted to pass when the base is rotated into position to bring said notches in line with the end of said bar.

20 The operation of the device is as follows:—Consider the plug with the parts as illustrated in Fig. 1. The cap C is grasped and the attachment as a whole is pushed into the socket, the shell N being collapsed, as clearly to be seen in Fig. 3. When the end of the plug reaches the limit of its movement, the further movement of the base and cap causes the conical base of the cone member to expand the shell and this movement of the base with reference to the plug forces the ring J beyond the cross-bar F, the notches J<sup>1</sup> in said ring permitting this movement. The cap and base are then rotated or given a part turn which bring the notches J<sup>1</sup>, J<sup>1</sup> of the ring to one side of the ends of the cross-bar (as clearly to be seen in Fig. 4), so that the ring engages against said cross-bar and locks the parts in expanded relation. To remove the plug attachment the operation is reversed.

40 I claim as my invention:—

1. An attachment plug comprising a plug member, a shell contact member surrounding said plug member and having sections which are normally collapsed on said plug member, a cone-member movable on said plug member within said shell member, a spring surrounding said plug member and interposed between said shell member and said cone-member and being adapted to resist the movement of said cone-member within said shell member when the cone-member is moved toward a position to expand said shell member, and means for locking said cone-member against longitudinal movement on said plug member when said cone-member has been brought into position to expand said shell member.

2. An attachment plug comprising a plug member, a shell contact member surrounding said plug member and having sections which are normally collapsed on said plug member, a cone-member adapted to expand said shell member, said cone-member being longitudinally movable on said plug mem-

ber within said shell member, means interposed between said cone-member and said shell member adapted to resist the movement of said cone-member within said shell member when the cone-member is moved toward the position for expanding said shell member, a base to which said cone-member is secured, a cross-bar secured to the outer end of said plug member, a locking member carried by said base adapted to interlock with said cross-bar, and mechanical connections between said base and plug member adapted to permit limited longitudinal and rotatable movement of said base with reference to said plug member.

3. An attachment plug comprising a plug member, a normally collapsed shell contact member surrounding said plug member, a cone-member movable longitudinally on said plug member within said shell member, yielding means interposed between said cone-member and said shell member adapted to yield when the cone-member is moved toward a position to expand said shell member, a base to which said cone-member is secured, mechanical connections between said base and said plug member adapted to permit said base to have both longitudinal and rotatable movement with reference to said plug member, a cross-bar at the outer end of said plug member, and a fixed laterally projecting part carried by said base, said cross-bar being adapted to engage beneath said fixed part carried by said base.

4. An attachment plug comprising a plug member of insulating material, said plug having an annular flange at its upper end, a shell contact member surrounding said plug and having an intumed flange engaged beneath said plug flange, said shell contact member having longitudinal sections normally collapsed toward said plug, and said shell flange and plug flange having interlocking parts to prevent rotation of said shell, a metallic cone-member embracing a hollow cylindric member having an intumed flange bearing against said plug and a hollow conical base adapted to expand the sections of said shell, a spring interposed between said cone member and the flange of said shell contact member, an insulating base to which said cone member is secured, and interlocking parts carried by said insulating base and said plug member adapted to lock the parts in expanded relation.

5. In an attachment plug comprising a plug member, a normally collapsed shell contact member surrounding said plug member, a metallic cone-member movable on said plug member within said shell member, a spring surrounding said plug member and interposed between said cone-member and said shell member adapted to resist the movement of said cone-member within said shell member when said cone-member is

5 moved into position to expand said shell member, an insulating base movable longitudinally of the plug member with said cone-member, an apertured disk secured to the top of said insulating base and mechanically and electrically connected to said cone-member, said insulating base having a central aperture of greater diameter than the aperture in said disk, said plug member 10 having a reduced end adapted to pass through the aperture in said disk, and a cross-bar secured to the reduced end of said plug member adapted to pass through the aperture in said insulating base, said disk 15 having notches to permit the passage of said cross-bar.

6. In an attachment plug embracing a plug member, a shell contact member surrounding said plug member and having longitudinal sections normally collapsed on said plug member, a cone-member longitudinally movable on said plug member within said shell member, a spring surrounding said plug member and interposed between said cone-member and said shell member, a 25 base to which said cone-member is secured,

said plug member having a reduced end and a central longitudinal aperture of different diameters, a tube located in the lower larger aperture, a bolt located in the upper smaller aperture and threaded into the upper end of said tube, a second bolt having a head located in said tube and a shank projecting below said tube, a spring interposed between the lower end of the first bolt and the head of the 35 second bolt, a cross-bar provided with a polygonal recess, said tube projecting below the end of the reduced part of the plug into the recess of said cross-bar and having a cross-section adapted to fit said recess, and 40 a flanged closure at the end of said tube adapted to rigidly secure said cross-bar to said plug.

In testimony that I claim the foregoing as my invention I affix my signature in the 45 presence of two witnesses, this 25th day of August A. D. 1910.

ROBERT S. BLAKE.

Witnesses:

C. CLARENCE POOLE,  
GEORGE R. WILKINS.