

UNITED STATES PATENT OFFICE

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QUICK-BREAK SWITCH

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The present invention relates to electrical devices and more specifically to switches and has for its object the production of a simple switch of the quick-break type so constructed as to reduce to a minimum the actual arcing distance and thus obviate the danger of short-circuiting.

Preferably the switch of the invention is of the plug and socket type, in which one of the members comprises two parts, one part of which is movable with the other member as disconnection is being made, said movable part being quickly returned to normal and disengaged position when disconnection is actually effected.

Other and further objects and advantages of the invention will appear from the accompanying description taken in connection with the attached drawings in which:

Fig. 1 is a section taken through the switch showing the switch members in closed and connected position.

Fig. 2 is a similar view showing the positions of the members just before disconnection thereof is actually made.

Fig. 3 is a perspective view of the parts of the socket member.

Fig. 4 is an enlarged vertical cross-section on the line 4—4 of Fig. 2.

Referring to the several figures of the drawing:

1 indicates a portion of a receptacle or block of insulating material provided with an opening 2 therein forming a shoulder 3, said opening being provided with an outlet 4 and being enlarged at its opposite end to form a second shoulder 5. Said opening receives a hollow, metallic, tube-like and fixed part of a socket indicated at 6 which is provided with longitudinal slots 7 therein. The rear end of said tube 6 is provided with an annular flange 8 which may provide the rear wall of the opening 2. Said flange 8 has fixed thereto or made an integral part thereof a projection or stud 9 receiving a pin 10 of the conductor 11 which is connected with any source of current supply whereby electrical connection is made with the socket. The forward and open end of the fixed tube 6 is indicated at 12.

Slidably mounted on and interfitted with the fixed tube 6 is the movable sleeve part 13 of the socket, the rear end of which is provided with an outwardly extending annular flange 14 adapted to contact with the face of the flange 8 while the forward end of said member 13 is provided with an inwardly extending flange 15. The rear end of said movable sleeve part 13 is provided for a certain distance with the longitudinal slots 16 to permit said rear end of said movable part to expand slightly when it is slipped over the fixed part 6 and thus to firmly grip said fixed part 6. The forward end of said slidable part is provided with a series of longitudinal slots 17.

18 indicates a compression spring lying within the enlarged portion of the opening 2 and engaging the shoulder 5 within said opening and the flange 14 on the slidable part of the socket 13 and tending by its action to retain said slidable part rearwardly on the fixed tube 6 so that the flange 14 will engage the face of the flange 8 as shown in Fig. 1. The grip portion of a plug is indicated at 19 and has a conductor 20 connected therewith. Said plug is metallic in character and indicated at 21. It is grooved adjacent its forward end as indicated at 22.

When it is desired to make connection between the plug and socket the end of the plug is inserted through the outlet opening 4 and through the movable sleeve part 13 causing the forward end of said sleeve to expand slightly because of the slots 17 and permit said sleeve to receive the end of the plug. The plug is then pushed forwardly into the fixed tube 6 and its forward end 12 will likewise expand slightly because of the slots 7 to permit said tube to receive the end of said plug and make close engagement therewith. Electrical connection is thus established between the plug and socket. When it is desired to disconnect the plug from the socket, the plug is pulled therefrom in the usual manner. After the plug is free from engagement with the fixed tube 6 the flange 15 of the sleeve 13 snaps within the groove 22 on the plug and a continued pulling of the plug draws the movable sleeve with it against

the action of the spring 18. When the sleeve reaches the end of its forward movement caused by the abutment of the flange 15 with the shoulder 3 a further pulling of the plug will cause the end of the sleeve to expand because of the slots 17 whereupon the flange 15 is released from its engagement with the groove 22 and the plug may be withdrawn from the sleeve to break the connection between the plug and socket. Immediately upon disconnection of the members the spring 18 by its action quickly returns the sleeve part 13 to its original or normal position on the fixed tube 6 thus effecting a quick-break disconnection and obviating any danger of short-circuiting.

What I claim as my invention is:

A switch consisting of a plug, provided with a groove therein, a fixed tube for receiving said plug, a sleeve slidable on said fixed tube, a flange on said sleeve for engaging within said groove and a spring carried by said sleeve and tending to move the same from connection with said plug.

Signed at New York, in the county of New York and State of New York, this 1st day of December, A. D. 1926.

EDWARD M. ROTHEN.

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