

W. W. BUCKTON.
 COMBINED ELECTRIC CONNECTING PLUG, SOCKET, AND SWITCH.
 APPLICATION FILED APR. 24, 1909.

948,041.

Patented Feb. 1, 1910.

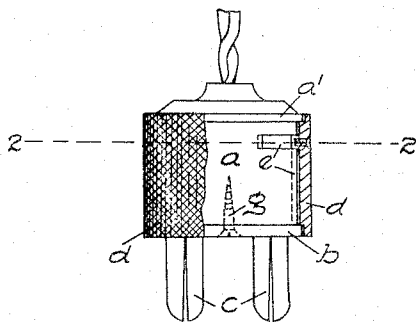


Fig. 1.

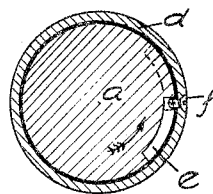


Fig. 2.

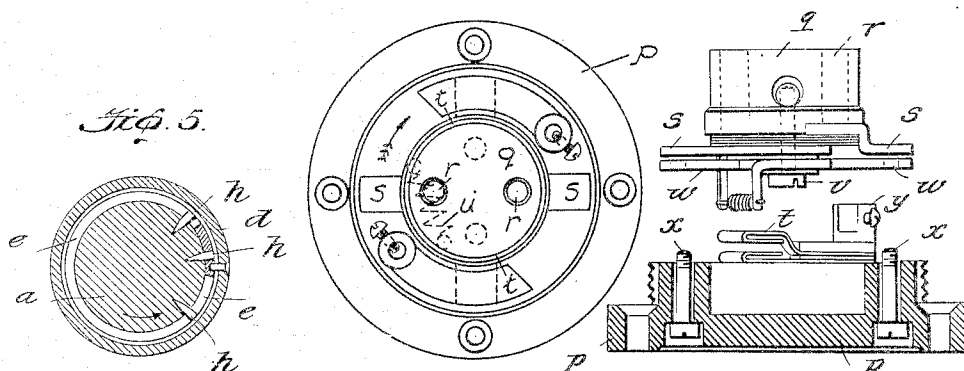


Fig. 3.

Fig. 4.

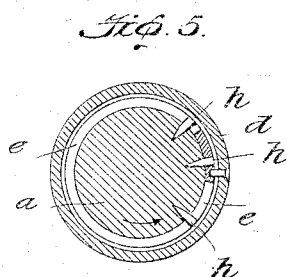
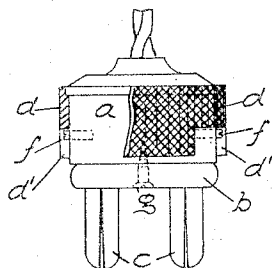


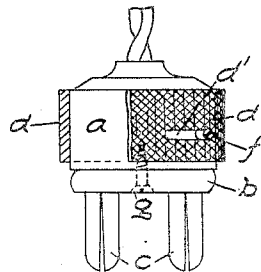
Fig. 5.

Fig. 6.



Witnesses:
 Henry Thomas
 J. George Barry.

Fig. 7.



Inventor:
 William Woodger Buckton
 by his attorneys
 Thomas Lewis

UNITED STATES PATENT OFFICE.

WILLIAM WOODYER BUCKTON, OF WESTMINSTER, LONDON, ENGLAND.

COMBINED ELECTRIC CONNECTING PLUG, SOCKET, AND SWITCH.

948,041.

Specification of Letters Patent.

Patented Feb. 1, 1910.

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To all whom it may concern:

Be it known that I, WILLIAM WOODYER BUCKTON, a subject of the King of Great Britain, and resident of Westminster, in the county of London, England, have invented new and useful Improvements in Combined Electric Connecting Plugs, Sockets, and Switches, of which the following is a specification.

10 The present invention relates to a means for imparting a "quick break" to the switch of a combined plug, socket and switch fitting which is independent of the motion imparted directly to the switch blades by the operator in "switching off."

15 Combined connecting plugs, sockets and switches are in general use to-day of a type wherein the plug on being inserted in the socket forms the handle of the switch and wherein the plug on being turned through a portion of a revolution operates the switch to either complete or interrupt the circuit between the wires attached to the terminals of the plug and the main circuit connected to the spring terminals of the switch.

20 A spring is commonly employed which tends to withdraw the switch-blade or blades quickly away from the spring contacts when the plug and socket are turned so as to interrupt the circuit, but no means have been provided to insure a "quick-break" under all conditions of operation, as the plug and socket can be held against the action of the spring, thereby preventing the switch-blade or blades springing rapidly away from the contacts.

My invention consists in incasing the exterior cylindrical portion of the plug with a loosely fitting ring or cylinder which is held by the person using the fitting. This ring is so attached to the plug as to allow the plug and consequently the socket to revolve sufficiently, when "switching-off," to enable the switch-blade or blades to be drawn out of connection with the spring contacts under the influence of the spring only. By this means an instantaneous and quick interruption of the circuit is attained quite independent of the operator.

50 My invention is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of a plug of ordinary construction to which my invention has been applied, with the ring broken partly away. Fig. 2 is a sectional plan view of the

same on the line 2—2 of Fig. 1. Fig. 3 is a plan view of a socket and switch of a convenient type for use with my improved plug, as described, with the cover removed. Fig. 4 is an elevation partly in section, of the socket and switch shown in Fig. 3, the revoluble portion being shown detached from its base and one contact only being shown on the base, namely that which engages with the left hand blade on the revoluble portion. Fig. 5 is a sectional plan view similar to Fig. 2, of a modified form of construction of the plug. Fig. 6 is a view similar to Fig. 1 of an alternative construction, and Fig. 7 is a similar view of a further modification.

70 The plug *a* is made as usual with an insulating disk *b* in which are fitted the usual contact pins *c*. The plug *a* is surrounded by the loosely fitting ring *d*.

In the preferred construction shown in Figs. 1 and 2 the ring is held in its place between a flange *a*¹ at the top of the plug and the insulating disk *b*. I make the ring *d* to extend to the top of the flange *a*¹ above, and to the bottom of the insulating disk *b* below, so that it is impossible for the fingers of the operator to hold the plug fast when gripping the ring *d*. In the plug handle *a* is cut a groove *e* extending part way around the plug and also downward, bayonet shaped. (See Figs. 1 and 2). The ring *d* is fitted with a pin *f*, which, when the ring *d* is in position on the plug handle is adapted to turn in the groove *e*. The ring is preferably slipped on the plug handle before the insulating disk *b* is fixed in position, the vertical groove *e* allowing the pin *f* to pass. When the disk *b* is secured by the screws *g*, the ring *d* is held against detachment from the plug handle. The groove *e* may be made to run right around the plug handle for convenience in manufacture, and pins *h*, see Fig. 5, may be inserted in the groove as stops to limit the play or turning movement of the plug within the ring.

100 The socket shown in Figs. 3 and 4 is of well-known construction. The base plate *p* carries the revoluble socket portion *q* on which are the contact sleeves *r*. On the plug being inserted in the socket *q* and being turned in the direction of the arrow, the contact arms *s* of the switch, which are permanently connected to the contact sleeves *r* in the socket *q*, engage with the contact springs *t*. A spring *u* tends to bring the

arms *s* quickly back into the "off" position as soon as the socket *q* is turned by means of the plug in the opposite direction to the arrow sufficiently to bring the contact arms *s* out of engagement with the spring contacts *t*. The revoluble portion *q* turns upon the pin or pivot *v*, carried by the plate *w*. This plate *w* is secured to the base *p* by screws *x x*. Terminal screws *y y* serve to connect the spring contacts *t t* to the circuit leads.

Now when the socket shown in Figs. 3 and 4 is used with the plug, illustrated in Figs. 1 and 2, and the plug is turned to switch off the current, the slot *e* will allow the plug *a* to spring back quickly under the action of the spring *u*, the pin *f* fixed on the ring sliding freely in the slot *e*, and it will be impossible for the person switching off the current to hold the plug against the action of the spring *u*. A quick break is thus insured.

Alternative constructions of plugs fitted with loose rings according to this invention are shown in Figs. 6 and 7.

In the constructions shown in Fig. 6 two pins *f* are fixed in the plug handle and work in slots or recesses *d'* in the ring *d* so as to allow the ring *d* to have play on the plug holder.

In the construction shown in Fig. 7 the pin *f* works in a slot *d'* in the body of the ring *d*. This construction renders it unnecessary to have a flange on the plug handle *a* to keep the ring *d* in position.

I wish it to be understood that I do not confine myself to the exact forms of construction of my invention shown in Figs. 1, 2, 5, 6 and 7, nor to the exact construction of switch shown in Figs. 3 and 4, these being given by way of example only.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In a combined electric connecting plug socket and switch, a plug, a socket, having a revoluble portion, a spring which tends to draw the said revoluble portion into the "off" position, on the plug being partially turned, means for making electrical connection between the plug and the revoluble portion of the socket, and a ring fitting the plug loosely and allowing the plug to turn in it

to a limited extent, as and for the purpose set forth.

2. In a combined electric connecting plug socket and switch, a plug, a socket having a revoluble portion which is normally held in the "off" position by a spring, means for making electrical contact between the plug and the revoluble portion of the socket, a ring fitting the plug loosely, and allowing the plug to turn in it, to a limited extent but secured against detachment from the plug, as and for the purpose set forth.

3. In a combined electric connecting plug socket and switch, a plug, a socket having a revoluble portion, which is normally held in the "off" position by a spring, means for making electrical contact between the plug and the revoluble portion of the socket, a ring fitting the plug handle loosely, a groove running part way around the plug handle and a pin on the ring fitting loosely in said groove, as and for the purpose set forth.

4. In a combined electric connecting plug socket and switch, a plug, a socket having a revoluble portion, which is normally held in the "off" position by a spring, means for making electrical contact between the plug and the revoluble portion of the socket, a ring fitting the plug handle loosely, and having a bayonet shaped groove running vertical to the plug handle and part-way around it, a pin on the ring fitting loosely in said groove, and means for holding the ring normally against detachment from the plug handle, as and for the purpose set forth.

5. In a plug for use with a combined electric connecting plug socket and switch mechanism, having a spring controlled revoluble portion, a loosely fitting ring surrounding the handle of said plug and arranged to allow of a limited turning movement between the plug and ring, as and for the purpose set forth.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two witnesses, this fifth day of April 1909.

WILLIAM WOODYER BUCKTON.

Witnesses:

LOVELL NEWTON REDDIE,
ARTHUR JOHN COOLEY.