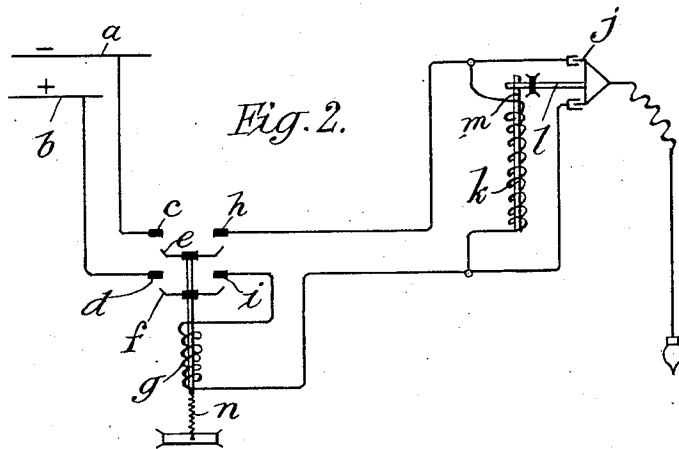
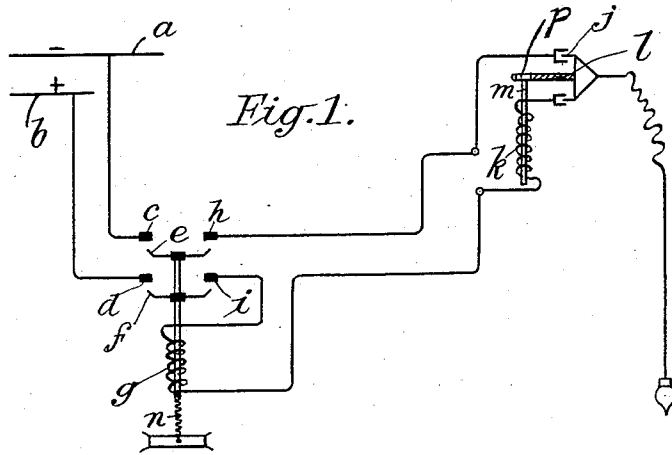


E. E. ROGERS.
 LOCK FOR ELECTRIC PLUGS.
 APPLICATION FILED FEB. 16, 1911.

1,017,110.

Patented Feb. 13, 1912.



Witnesses
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LOCK FOR ELECTRIC PLUGS.

1,017,110.

Specification of Letters Patent.

Patented Feb. 13, 1912.

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To all whom it may concern:

Be it known that I, ERNEST EDWARD ROGERS, a subject of the King of Great Britain and Ireland, residing at 23 Wilton Crescent, Wimbledon, London, S. W., England, have invented certain new and useful Improvements in Locks for Electric Plugs, of which the following is a specification.

This invention relates to a system of isolating and feeding electric cables and fittings for portable or fixed electric lamps or other fittings in coal bunkers, mines, and magazines; and in spirit, petrol, and other similar stores and places such as show rooms where highly inflammable materials are kept. This is accomplished by means of electrically interlocked sockets and plugs with automatic double pole switches, the windings of both these fittings being connected either in series with the lamp circuit or the winding of the former in parallel with the lamp circuit or any service section.

The object of my invention is to lock the plug automatically so that the connection cannot be established or interrupted while the service section is alive, and to cause all switching to be effected outside the compartment where the portable lamp or other electric fitting is situated, it being thus necessary to isolate the said service section or cables, before any alteration can be effected, by means of the double pole switch operated either manually or automatically.

The idea of the system is to prevent electric sparking occurring in places likely to be charged with gas or stored with inflammable articles, due to the shipping or unshipping of electric fittings, or the abrasion of an electric cable after a compartment has been shut down. For this purpose one of the electro-magnets or a solenoid-core is caused by the electric current to engage in a lug or engage an arm or any part of the plug of a portable lamp for example.

In order to clearly describe my improved system, I will refer to the accompanying drawings, in which:

Figure 1 is a diagrammatical view showing the arrangement connected in series. Fig. 2, is a similar view of the parts connected partly in parallel.

The supply mains *a* and *b* are tapped in an ordinary manner and connected with stationary line contacts *c* and *d* respectively. An insulated double pole switch having con-

tacts *e, f*, is connected with an electro-magnet or solenoid *g* and is operated by a key in such a manner as to bring the contacts *e* and *f* against the line contacts *c* and *d* respectively and thereby bridge the gaps between the latter and their corresponding stationary rear line contacts *h* and *i* for the service section. The conductor from one of the last named contacts is connected with the winding of the electro-magnet or solenoid *g* so as to energize the same and keep the double pole switch in contact, and said conductor then leads through solenoid *k* to one of the sockets of a wall plug *j* or other electrical fitting. The other conductor leads direct to the other socket of the said wall plug *j* or other electrical fitting. The wall plug *j*, for example, has its arm *l* provided with a transverse perforation *p* so disposed that when the plug is placed on its socket, the core *m* of the solenoid *k* will enter or cause a hook to enter the perforation *p* of said arm *l* and thereby interlock the plug and prevent it from being removed while the current is "on" in the service section.

In Fig. 1, the connections are shown in series and the plug *j* can be inserted but cannot be withdrawn unless the current is switched off at the externally situated double pole switch.

In Fig. 2, the connections are shown in parallel thereby preventing the plug *j* from being either inserted or withdrawn, when the current is "on" the connections being readily understood from the diagrams without further detailed description. For making and breaking the circuit at the double pole switch, the afore-mentioned key is turned by a responsible operator so that the contacts *e f* establish or disestablish connection with the line contacts *d, i* and *c, h* respectively by operating the armature of the magnet or the core of the solenoid *g*. A spring *n* may be provided for aiding the withdrawal of the said contacts. The switch also breaks circuit automatically should the current fail.

The system could be employed with great advantage for coal bunker and magazine lighting on ships and for shell factory and magazine lighting in establishments ashore.

With respect to coal bunker lighting the system would appear especially advantageous as it would carry with it its own precautionary measures which are so essential.

A man would always replace a lamp plug on a "dead circuit" and he would be magnetically prevented from indiscriminately disconnecting a lamp plug from its socket when the circuit was alive. All switching would be done outside of the bunker which, although appearing inconvenient at first is not so because the operation of filling a coal bunker is not one which may be required to be done at a moment's notice. Moreover, when the man had left the bunker the operation of switching "off" the lamps would automatically operate a double pole switch thus isolating the electric cables in the bunker on both poles, and effectually preventing any subsequent sparking taking place through an earth set up by abrasion of a cable after the compartment has been shut down. The same remarks would apply to other compartments already enumerated. The double pole switch would have fitted an indicator which would show when the lamp was on and off.

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

1. The combination with a plug having between its terminals an arm provided with a transverse perforation, a socket, a solenoid through which one of the socket-wires is connected, and a core within the solenoid projected through said perforation when the current flows; of the line wires, and a switch connecting them with the socket wires.

2. The combination with a plug having between its terminals an arm provided with a transverse perforation, a socket, a solenoid through which one of the socket-wires is connected, and a core within the solenoid projected through said perforation when

the current flows; of the line wires, a switch for connecting them with the socket wires, and an electro-magnet in circuit in one of the socket wires and holding said switch closed when the current flows.

3. The combination with a plug having between its terminals an arm provided with a transverse perforation, a socket, a solenoid through which one of the socket-wires is connected, and a core within the solenoid projected through said perforation when the current flows; of the line wires, their terminals being spaced from the terminals of the socket wires, a double-pole switch whose contacts are adapted to bridge said terminals, and an electro-magnet in circuit in one of the socket wires and tending to hold said switch closed when the current flows.

4. The combination with a plug having an arm provided with a perforation, a socket, an electro-magnet in circuit in one of the socket wires, and means actuated by the armature of said magnet for projecting an element through said perforation when the current flows; of the line wires, their terminals being spaced from the terminals of the socket wires, a double-pole switch whose contacts are adapted to bridge said terminals, and an electro-magnet in circuit in one of the socket wires and tending to hold said switch closed when the current flows.

In testimony whereof I have affixed my signature, in presence of two witnesses.

ERNEST EDWARD ROGERS.

Witnesses:

ALBERT JONES,
RICHARD CLARK.