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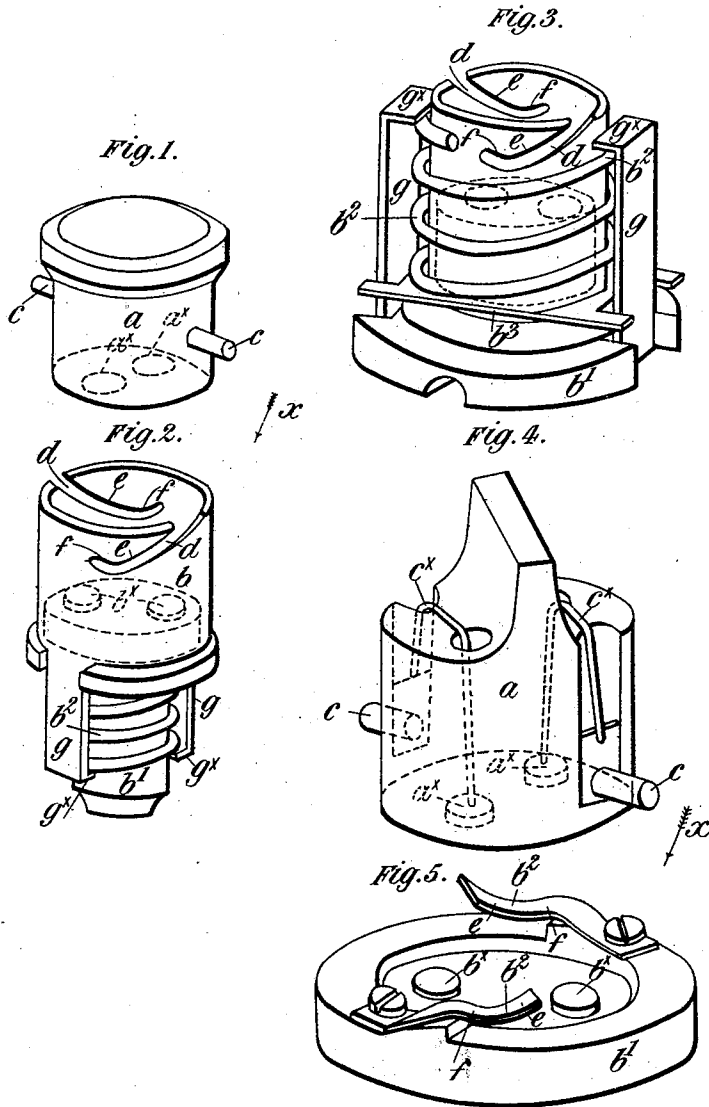
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C. L. R. E. MENGES.

ELECTRIC CONNECTING DEVICE FOR LAMP HOLDERS, WALL PLUGS, &c.

(Application filed Mar. 14, 1898.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

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ELECTRIC CONNECTING DEVICE FOR LAMP-HOLDERS, WALL-PLUGS, &c.

SPECIFICATION forming part of Letters Patent No. 642,995, dated February 6, 1900.

Application filed March 14, 1898. Serial No. 673,850. (No model.)

To all whom it may concern:

Be it known that I, CHARLES LUDWIG RUDOLPH ERNEST MENGES, electrician, a subject of the Queen of the Netherlands, residing at 82 and 84 Balistraat, The Hague, in the Kingdom of the Netherlands, have invented certain new and useful Improvements in Electric Connecting Devices Applicable to Lamp-Holders, Wall-Plugs, and the Like, of which the following is a specification.

This invention relates to improvements in electric connecting devices applicable to lamp-holders, wall-plugs, and the like, it being a feature of the invention that the fastening is obtained by screw action, while, however, the plug of the ordinary bayonet-holder may be employed.

The essential characteristics of this invention are, first, that the holder is provided with rigid non-elastic contact-pieces; second, that the holder is provided with a movable sleeve having helical surfaces or slots with which the projecting pins on the plug engage, so that by turning the plug, while its end face bears upon the contacts in the holder, it screws the sleeve up, so as to compress or extend a spring with which the latter is provided, thus pressing together the contacts for the transmission of the current. It is to be remarked that the rigid contacts referred to under the first are only possible by using the device with helical surfaces referred to under the second, for with the usual bayonet-slot it would be practically impossible to insert the plug if the contacts were not elastic. In order to prevent the plug from turning back again of its own accord, small recesses are formed at the extremities of the said helical surfaces, which to a certain extent act as oppositely-inclined screw-threads and tend under the action of the aforesaid spring to cause the plug to screw itself still farther in without, however, rendering it impossible to unscrew the same by hand.

Owing to the fact that in my improved connecting devices the transmission of the current is effected not by means of small springs, as is the case with the ordinary bayonet-joint sockets, but by means of substantial rigid contact surfaces or terminals, the said con-

nection is in this respect well adapted for safety-fuses and for use with large currents, while, moreover, the making of a good contact is not dependent upon any manipulation in the insertion of the plug and the latter cannot become loose of itself.

In my improved connecting devices the advantages of the ordinary screw connection and of the bayonet connection between the socket and plug are combined, while the disadvantages of both are obviated. In addition to this my improved devices possess the advantage when employed for safety-fuses that the insertion of the wrong plug—that is to say, a plug for too high or for too low a strength of current—can be prevented by providing the sockets with deeper helical surfaces or with special slots, the plugs for the different strengths of current having their pins so arranged that they will only engage with the surfaces or slots of the sockets to which the said plugs properly correspond.

According to the arrangement of the contacts between the socket and plug the device may serve for various purposes. For instance, if the two helical surfaces are not included in the circuit the device may be used for incandescent electric lamps, for single-pole safety-fuses, for two-wire-connecting plugs, and the like.

Referring to the accompanying drawings, in which all the figures are perspective views, Figures 1 and 2 show, respectively, the plug and holder of an electrical connecting device having my invention applied thereto. Fig. 3 shows another form of holder for the said device. Fig. 4 shows the plug of another form of electrical connecting device constructed according to my invention. Fig. 5 shows a base-plate which takes the place of a socket and serves to receive the said plug.

Referring more particularly to Figs. 1 and 2, *a* is the body of the plug, and *b* is the socket which is movably connected to a stem or base *b'*, a spring *b²* being interposed between these two parts. *c c* are the pins on the plug which engage the socket, and *d d* are the slots in which the said pins engage, these slots having helical surfaces *e*, which twist or wind partially around the surface of the sockets after

the manner of screw-threads, but which at their inner ends change their direction and terminate in oppositely-inclined portions f .

The socket b is capable of movement end-
 5 wise or in the direction of its axis, but cannot turn around such axis. It is therefore drawn toward the plug a upon the insertion of the latter in the direction of the arrow x by the action of the pins c upon the helical surfaces
 10 e , while the rigid contacts or terminals a^x of the plug bear against the corresponding rigid contacts b^x of the socket.

g g are arms extending longitudinally from the wall of the socket b . These arms are bent
 15 inward at g^x and engage under the spiral spring b^2 , which opposes any upward movement of the cylinder relatively to the stem b' and to the contacts b^x , and so provides the necessary pressure to insure proper electrical
 20 connection of the contacts a^x and b^x .

The construction of holder shown in Fig. 3 is substantially similar to that shown in Fig. 2, with the exception that the said holder is provided with a base-plate b' instead of with
 25 a stem, and that the arms g are secured to the base-plate instead of to the socket and therefore project in the opposite direction to those shown in Fig. 2. The socket b is, moreover, provided with a cross-bar b^3 to take the thrust
 30 of the spring b^2 , this cross-bar having recessed extremities embracing the arms g . Instead of the plug and holder having each only two contacts three such contacts may be provided, the device being thereby adapted for use
 35 with a polyphase-current circuit, for example. With the same object the device may likewise be used with two contacts, as shown, and the third conductor of the polyphase circuit
 40 connected to the socket b , in which case the third terminal of the circuit should also be connected with the pins c . In this case, therefore, the two helical surfaces e f act together
 45 as current-conveying contacts for the pins c . If, however, the two helical surfaces are electrically insulated from each other, acting each as an electric contact for each of the two pins
 50 c , then we have on the holder and on the plug each four contacts. Such a form of connecting device applied to a double-pole safety-fuse is shown in Figs. 4 and 5, the helical surfaces e f being formed upon separate spring-pieces b^2 , secured upon a base b' of insulating material, the elasticity of which spring-pieces serves in lieu of the extra spring b^2 , as

shown in Figs. 2 and 3, to hold the plug a ,
 55 by means of the pins c , down in the contacts b^x of the holder. With the two contacts b^x and the spring-pieces b^2 there are thus four terminals with which electrical connection
 60 may be made. The contacts a^x on the plug a are electrically connected with the pins c , as shown, by fusible wires c^x , so that when the plug is secured to the base-plate the current can pass from the springs b^2 to the terminals b^x through the said fusible wires in
 65 the plug. A connecting device of this construction thus answers very advantageously for double-pole safety-fuse.

Obviously I may apply to the ordinary types of bayonet lamp-holders the improved slots
 70 d , having continuous and oppositely-curved surfaces e f , thus enabling the plugs of such lamp-holders to be disengaged by a simple turning movement.

What I claim is—

1. The combination with a plug provided with rigid end contact-pieces and laterally-projecting pins, of the herein-described holder
 75 composed of a socket portion and base portion and rigid end contact-pieces and provided with helical surfaces for engagement
 80 of said laterally-projecting pins of the plug, said socket being movable in the direction of the axis of the holder but retained by spring action, so that when said plug is turned into
 85 said socket, with the said pins and helical surfaces in engagement, the said socket will be pushed back against the spring action, thereby pressing together the contact-pieces
 90 of the plug and holder, substantially as described.

2. A double-pole safety-fuse consisting of a plug provided with contact-pieces and laterally-projecting pins, a socket or holder provided with contact-pieces and having helical
 95 surfaces for engagement with said lateral pins of the plug, and fuse-wires having their ends connected respectively to the said lateral pins and to the contact-pieces of the plug, substantially as described.

In testimony whereof I have hereunto set my hand, in presence of two subscribing witnesses, this 3d day of March, 1898.

CHARLES LUDWIG RUDOLPH ERNEST MENGES.

Witnesses:

W. W. NUYGENS,
 W. N. NUYGENS.