July 8, 1941. J. A. BUCKLEY 2,248,605

ELECTRIC PLUG CONNECTION

Filed Oct. 5, 1939

FIG. 1

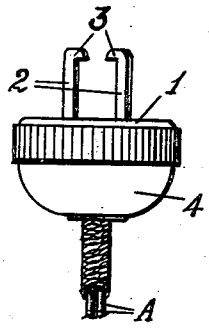



FIG. 2

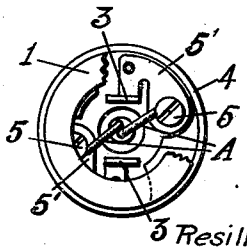



FIG. 4

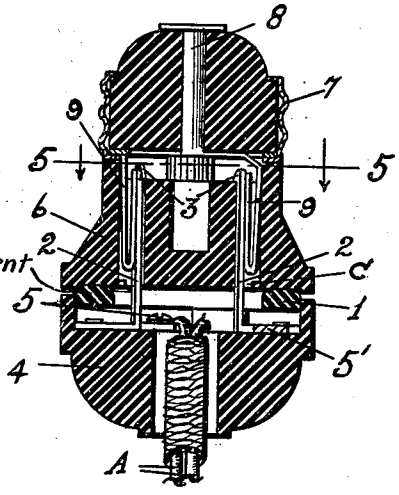



FIG. 3

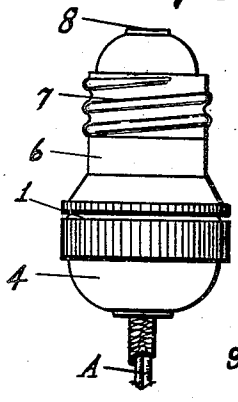



FIG. 6

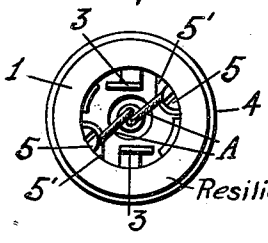



FIG. 5

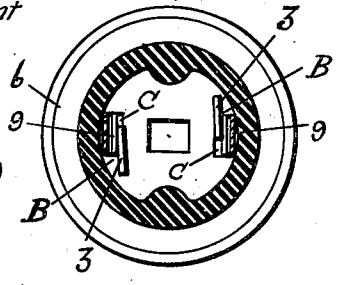



FIG. 7

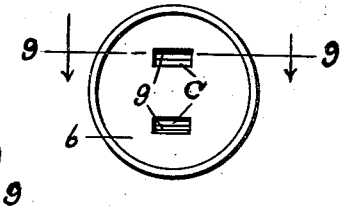



FIG. 9

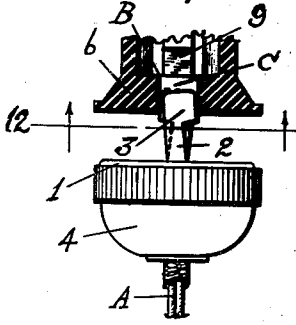



FIG. 8

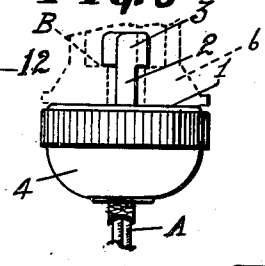



FIG. 10

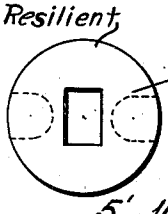



FIG. 11

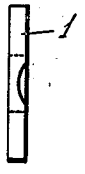



FIG. 14

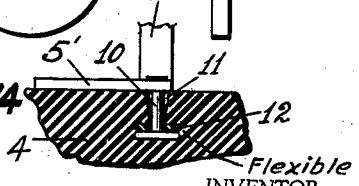



FIG. 12

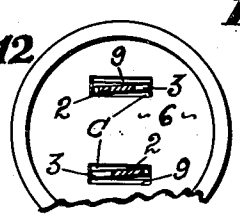
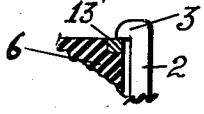



FIG. 13




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Patented July 8, 1941 2,248,605

# UNITED STATES PATENT OFFICE

2,248,605

## ELECTRIC PLUG CONNECTION

John A. Buckley, Wichita, Kans.

Application October 5, 1939, Serial No. 298,031

2 Claims. (Cl. 173—343)

My invention relates to an electric plug connection, and has for its principal object means to lock the plug to the base in its relative circuit closing position.

A further object of my invention is to provide a lock that will engage and disengage by turning movement of the plug at the time of its snug engagement with the base.

A still further object of my invention is to provide a locking means that will automatically function with respect to its locking feature.

A still further object of my invention is to provide, in a standard plug and base, prongs that will lock the plug and base to snug engagement as well as make and break the current.

A still further object of my invention is to provide a locking means by altering the shape of a standard prong; in other words, to remove a portion of the prong edges to form a hook on each thereof.

A still further object of my invention is to provide a cushion between the plug and base for snug engagement of the locking feature, which is accomplished by resilience of the cushion.

A still further object of my invention is to provide, in some instances, a metallic keeper for the prong hook to avoid deterioration of the shoulder as a keeper, which otherwise would be of insulation material.

A still further object of my invention is to avoid additional expense over that provided in an ordinary manufactured plug and base, the plug insertible and operative without altering the plug and base body structures.

These and other objects will hereinafter be more fully explained, reference being had to the accompanying drawing, forming a part of this specification, in which like characters will apply to like parts in the different views.

Referring to the drawing:

Fig. 1 is a side view of the plug, being turned for a diagonal view of the prong, showing the hooks oppositely extending from their respective shanks.

Fig. 2 is a view of the pronged end of the plug, parts removed for convenience of illustration.

Fig. 3 is a side view of the plug and base assembly.

Fig. 4 is an enlarged sectional view longitudinal of Fig. 3.

Fig. 5 is a sectional view taken on line 5—5 in Fig. 4, looking in the direction of the arrows.

Fig. 6 is an end view of the plug as modified for automatic connection.

Fig. 7 is an end view of the base illustrating the position of the circuit closing means as seen through the slots.

Fig. 8 is a side view of Fig. 6, the base engagement shown by dotted lines.

Fig. 9 is a similar view of the plug shown in Fig. 8 and a sectional view of the base taken on line 9—9 in Fig. 7.

Fig. 10 is a plane view of a flexible washer for the prong end of the plug.

Fig. 11 is an edge view of Fig. 10.

Fig. 12 is an enlarged view, the shanks being in section taken on line 12—12 in Fig. 9, to illustrate the angular position of the shanks as the hooks enter their respective slots.

Fig. 13 is an enlarged view of a modification of the shoulder for hook engagement.

Fig. 14 is a fragmentary view enlarged to illustrate the mounting of the modified prongs.

My invention herein disclosed consists of a locking means for an electric plug to its base, comprising prongs and an annular elastic washer 1, the prongs consisting of a shank portion 2 and a hook 3 on the outer extremity, the hooks oppositely extending from their respective shanks, the prongs being rigidly carried by a plug body 4, each of which has a screw 5 threadedly engaging in a transversely positioned plate 5' of each shank, whereby the circuit wires A are clamped firmly to the shanks by the screws in a conventional way. The structure of the base is of standard make, comprising an insulation body 6, having a metallic threaded sleeve 7 secured thereto, a headed pin 8 axially extending into the said insulated body portion, and a pair of oppositely disposed leaf spring connectors 9, one of which is connected to the metallic sleeve, while the other is connected to the said pin, by which means when the plug prongs are inserted, as shown in Fig. 4, the electric circuit is connected in the usual manner. In addition to such connection, my invention provides a rigid locking means for the engagement of the plug at the instant of snug engagement of the confronting ends of said plug and base, and at which point of engagement I have provided, as above stated, an elastic annular washer to substitute the usual asbestos concealing disc for the end of the plug body where the prongs connect, the washer being greater in thickness than the disc, for compression, by which means tension is provided for snug engagement of the hooks on their respective shoulders B that are provided in the

base as shown in Fig. 5, the said hooks being engaged and disengaged by a restricted turn of the plug, it being understood that the prongs are of lesser thickness and width than slots C in the base. Being so arranged, will provide the above mentioned turn of the plug for the purpose set forth.

In Figs. 6, 8, and 9 is shown the prongs modified for automatic engagement, the action of which is substantially as follows: Each prong, as above stated, has a transversely positioned base to seat in an appropriate depression formed in the plug body and being secured by a headed pin 10 embedded in the body substance, the pin to loosely engage in an aperture 11, slightly funneled, as shown in Fig. 14, and to permit a slight longitudinal movement thereof, a flexible washer 12, positioned on the head, will compress sufficiently for the rocking movement required for the prongs as they enter the slots, but resume their normal vertical position when the hook moves inward from engagement with their respective shoulders that are aligned with the ends of the slots. To remove the plug, the same is accomplished by a clockwise movement, whereby the shank adjacent its base will engage on the outer end corner of the slot, as a fulcrum to rock the hook from engagement with the shoulder sufficient to withdraw the plug. Such turning movement may slantingly position the shank as shown in Fig. 12, the hooks being disengaged. It will be seen that the prong shanks vary in length as provided in the base structure. In other words, the shoulders referred to in the base arrangements are positioned a greater distance from the outer end inward, two specimens of which are illustrated, one of which is shown in Fig. 4, while the other is shown in Fig. 9. In either event, the prongs are of sufficient length to form a hook a spaced distance inward from the outer ends of the prongs.

In Fig. 13 is shown a modification for the shoulders by virtue of a metallic element formed by a bar 13 transversely positioned to the slot and being embedded in the body substance of the base, by which means the corner is preserved against excessive wear by metallic hook engagement.

While I have shown and described a flexible means for the prongs through the medium of a flexible washer at the end of the anchor pin, I do not wish to be restricted to such alone, as the plug body throughout may be of flexible substance to permit rocking movement of the prongs, and such other modifications may be made as lie within the scope of the appended claims.

Having fully described my invention what I claim as new and desire to secure by Letters Patent is:

1. In an electric plug connection, a plug and base of the class described, a resilient element carried by the plug in such a way that the end of the base will seat thereon as outward tensioning means of the base from the plug, a pair of plates seated on the plug, each plate having a prong secured thereto and extending therefrom at right angle, each prong having sides and edges and a hook outwardly extending from one edge of each prong oppositely, the direction of the extension of the hooks being clockwise with respect to rotation, a headed pin to secure each plate to the plug rockably, there being an aperture in the plug of a greater diameter than that of the pin and in which the pin will engage, a rubber washer rockably positioned on the pin in contact with its head, the washer to seat about the inner end of the aperture whereby the prongs may be rocked for engagement of their hooks, the washer to normally erect the prongs at the time of their engagement whereby the base and plug are locked together, the base having slots spaced apart and extending inwardly and being in parallelism with the axis of the base, said slots having sides and edges, a metallic block for each slot seated in the base adjacent its respective edge, and upon which the said prong hooks will engage respectively when said plug and base are compressed on the resilient element as tensioning means for the hook engagement, the edge portions at the outer end of the slots to contact with the prong to disengage the hooks by a clockwise rotary movement of the plug whereby said plug and base are free to separate.

2. In an electric plug connection, a plug and base of the class described, a resilient element carried by the plug in such a way that the end of the base will seat thereon as outward tensioning means of the base from the plug, a pair of plates seated on the plug, each plate having a prong secured thereto and extending therefrom at right angle, the plates to function as carrying means for the prongs and to which electric current conductors are attached, each prong having sides and edges and a hook outwardly extending from one edge of each prong oppositely, the direction of the extension of the hooks being clockwise with respect to rotation, a headed pin to secure each plate to the plug rockably, there being an aperture in the plug of a greater diameter than that of the pin and in which the pin will engage, a rubber washer rockably positioned on the pin in contact with its head, the washer to seat about the inner end of the aperture whereby the prongs may be rocked for engagement of their hooks, the washer to normally erect the prongs at the time of their engagement whereby the base and plug are locked together, the base having slots spaced apart and extending inwardly and being in parallelism with the axis of the base, said slots having sides and edges, a metallic block for each slot seated in the base adjacent its respective edge, and upon which the said prong hooks will engage respectively when said plug and base are compressed on the resilient element as tensioning means for the hook engagement, the edge portions at the outer end of the slots to contact with the prongs to disengage the hooks by a clockwise rotary movement of the plug whereby said plug and base are free to separate.

JOHN A. BUCKLEY.