Nov. 18, 1947. R. VELEZ 2,431,213

ELECTRICAL PLUG

Filed Jan. 14, 1947

Fig. 1

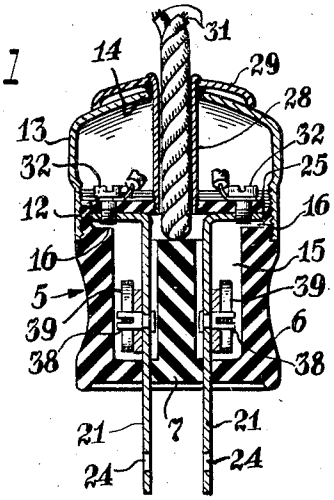
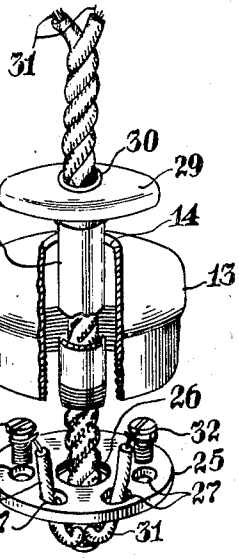


Fig. 4



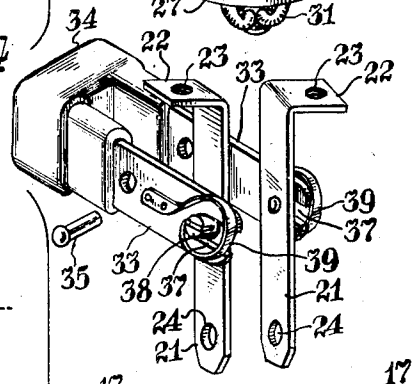
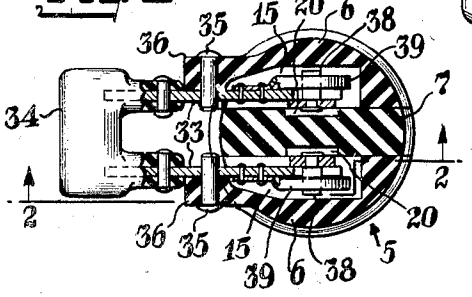


Fig. 3



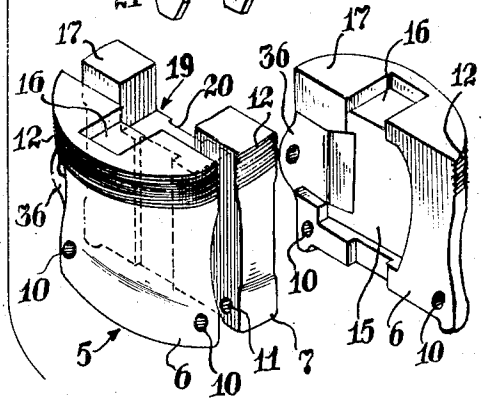
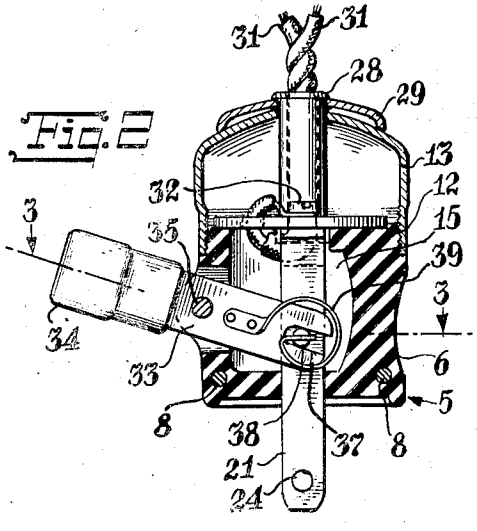


Fig. 2



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Patented Nov. 18, 1947

2,431,213

UNITED STATES PATENT OFFICE

2,431,213

ELECTRICAL PLUG

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Application January 14, 1947, Serial No. 721,983

5 Claims. (Cl. 173—361)

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This invention relates to electrical plugs.

A primary object of the present invention is to provide an electrical plug with means for eliminating the strain on the flexible conductors and plug parts when disconnecting the plug from the socket.

Another object is to provide means for facilitating the breaking of the electrical connection between the plug blades and socket contacts.

Another object is to provide means for returning the movable parts of the plug to normal condition.

Another object is to provide a device of this kind that is simple in construction, economical to manufacture and highly efficient in use.

Other objects and advantages of the invention will be understood from the description thereof to follow taken in connection with the accompanying drawing in which—

Fig. 1 is a vertical sectional view of an electrical plug embodying my invention.

Fig. 2 is a vertical sectional view thereof taken on the plane of the line 2—2 of Fig. 3.

Fig. 3 is a cross sectional view taken on the plane of the line 3—3 of Fig. 2.

Fig. 4 is an exploded perspective view of the improved plug.

Referring to the drawing, the plug comprises a sectional insulating casing or housing 5 formed of complemental sections 6 with a spacing plate 7 therebetween. The sections and plate are secured together by pins 8 extending through aligned holes 10 and 11 in the bottom ends of the sections and plate, respectively. The top ends of the sections and plate are externally screw threaded as indicated at 12 for receiving a cap or cover member 13, which cap is provided with a central opening 14.

Each section of the casing is formed with a central recess 15 and a communicating groove 16 in the top wall 17 thereof and a notch 18 in the edge of the lower wall thereof. The spacing plate 7 is formed with a cut-away portion 19 at its top end and with opposed grooves 20 centrally thereof.

A pair of blades or prongs 21 are positioned in the casing. Each blade has a bent angled portion 22 at one end thereof having a screw-threaded hole 23. A hole 24 may be formed in the other end of the blade.

Mounted on the upper surface of the angled portions 22 of the blades is an insulating disc member 25 formed with a central screw threaded opening 26 and with spaced holes 27 adjacent its outer edge. A tubular member 28 has one

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end threaded into the opening 26 of the disc member and its other end extends through the opening 14 of the cover to the outside thereof. A disc member or button 29 having a central opening 30 is secured to the upper end of the tubular member for closing the opening in the cover and for serving as a finger piece.

The blades 21 normally protrude outwardly of the casing between the spacing plate 7 and sections 6, through the notches 18 and grooves 20 in the plate and sections, the angled portions 22 of the blades normally seating in the grooves 16 in the top walls of the sections.

A pair of flexible conductors 31 in twisted formation pass through the tubular member 28 and the individual conductors are connected to the blades 21 and fastened to the disc member 25 by passing through two of the holes 27 thereof and having their ends fastened to terminal screws 32 which extend through the other holes of the disc member and are threaded into the openings 23 of the blades.

The blades 21, disc member 25, conductors 31 and tubular member 28 are adapted to move as a unit inside the cap 13, the button 29 moving along with the tubular member 28. The apparatus for moving this unit comprises a yoke or frame member consisting of spaced arm members 33 connected at one end by a handle member 34. The arm members extend inwardly through the side of the casing between the spacing plate and sections into the recesses 15. Each arm member is pivoted midway its ends to a pin 35 supported by an integral perforated lug portion 36 formed on one edge of the section 6 of the casing. The inner end of each arm member is slotted as indicated at 37 whereby said inner end is interlocked with a slotted pin 38 carried by the adjacent blade 21. The arm members 33 normally extend at a slight angle to the horizontal as seen in Fig. 2 with the handle 34 positioned above the axes of the pins 35. The arm members are urged to such angled position by a flat coil spring 39 mounted adjacent the inner end of each arm member, one end of said spring being fastened to the arm member and its other end being fitted into the slot in the pin 38 carried by the blade 21.

Normally the plug parts are positioned as shown in Fig. 2. In use, the blades 21 are inserted into the openings of the socket (not shown) in the usual manner by manually exerting pressure on the casing 13 and button 29 whereby said blades will be forced into engagement with the contacts in said socket openings, the bottom end of the casing engaging the outer surface of the socket.

The yoke member will remain in the position shown in Fig. 2. When it is desired to break the electrical connection between the blades 21 and the contacts in the socket, the handle 34 of the yoke member is manually moved toward the socket or downwardly as viewed in Fig. 2 whereby the arm members 33 will pivot about their pivot pins 35 and move the inner ends of the arm members upwardly or outwardly carrying the blades 21 outwardly along with them thus disconnecting the blade members and the contacts in the socket. The plug may be completely removed from the socket by pulling the conductors 31 or cover 13 outwardly without danger of injuring the conductors or other parts of the plug.

Changes in details may be made without departing from the spirit or principle of the invention.

I claim:

1. An electrical plug comprising a casing having side openings, movable conducting blades in said casing having ends normally projecting outwardly thereof for connection with socket contacts, means for connecting said blades to a source of electric current, an external yoke member comprising a pair of spaced arms extending through said openings into the casing, said arms being pivotally mounted midway their ends to the casing and having their inner ends operatively connected to the blades for moving said blades inwardly of the casing to break the connection between the blades and the socket contacts and springs carried by said arms adjacent their inner ends operatively connected to the blades for moving said blades outwardly of the casing to normal position.

2. An electrical plug comprising a casing having side openings, movable conducting blades in said casing having ends normally projecting outwardly thereof for connection with socket contacts, means for connecting said blades to a source of electric current, an external yoke member comprising a pair of spaced arms extending through said openings into the casing, said arms being pivotally mounted midway their ends to the casing and having their inner ends operatively connected to the blades for moving said blades inwardly of the casing to break the connection between the blades and the socket contacts, springs carried by said arms adjacent their inner ends operatively connected to the blades for moving said blades outwardly of the casing to normal position and a handle connecting the outer ends of said arms for actuating the yoke member.

3. An electrical plug comprising an insulating casing having side openings, a cap member secured to one end thereof and forming an extension thereof, said cap member having a central opening, a pair of movable conducting blades extending through said casing and having ends projecting outwardly of the casing and adapted to be connected to socket contacts, an insulating disc member secured to said blades and having a central opening, a tubular member having one end secured to the central opening of said disc member and having its other end projecting through the opening in said cap member to the exterior thereof for receiving conductors for connection to said blades and an external yoke member extending through said openings in the casing, said yoke member being pivotally mounted on the

casing and operatively connected to the blades for moving said blades, disc member and tubular member as a unit whereby the outwardly projecting ends of the blades are moved inwardly of the casing away from the socket contacts to break the connection therewith.

4. An electrical plug comprising an insulating casing having side openings, a cap member secured to one end thereof and forming an extension thereof, said cap member having a central opening, a pair of movable conducting blades extending through said casing and having ends projecting outwardly of the casing and adapted to be connected to socket contacts, an insulating disc member secured to said blades and having a central opening, a tubular member having one end secured to central opening of said disc member and having its other end projecting through the opening in the cap member to the exterior thereof for receiving conductors for connection to said blades, an external yoke member extending through said openings in the casing, said yoke member being pivotally mounted on the casing and operatively connected to the blades for moving said blades, disc member and tubular member as a unit whereby the outwardly projecting ends of the blades are moved inwardly of the casing away from the socket contacts to break the connection therewith and spring means for moving said blades, disc member and tubular member to normal outward position.

5. An electrical plug comprising an insulating casing having side openings, a cap member secured to one end thereof and forming an extension thereof, said cap member having a central opening, a pair of movable conducting blades extending through said casing and having ends projecting outwardly of the casing and adapted to be connected to socket contacts, pins carried by said blades, an insulating disc member secured to said blades and having a central opening, a tubular member having one end secured to said central opening of the disc member and having its other end projecting through the opening in the cap member to the exterior thereof for receiving conductors for connection to said blades, an external yoke member comprising a pair of spaced arms extending through said side openings into the casing, said arms being pivotally mounted midway their ends to the casing and having their inner ends operatively connected to the blades for moving said blades, disc member and tubular member as a unit whereby the outwardly projecting ends of the blades are moved inwardly of the casing away from the socket contacts to break the connection between the blades and the socket contacts and springs carried by said arms adjacent their inner ends and operatively connected to the blades for moving said blades, disc member and tubular member to normal position.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,047,623	Felts	July 14, 1936
2,134,345	Sheeran	Oct. 25, 1938
2,323,736	Tousley	July 6, 1943