Oct. 24, 1939. R. H. HUMMERT 2,177,409

UNIVERSAL JACK SWITCH

Filed Nov. 13, 1937

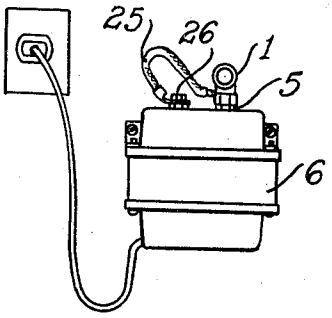


Fig. 4.

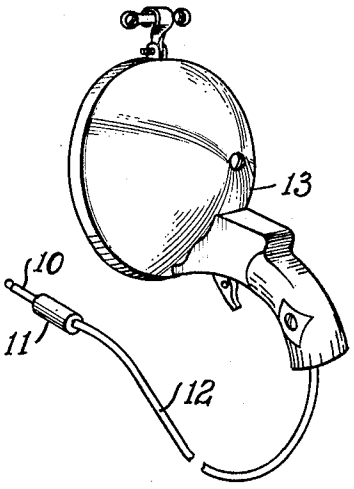


Fig. 3.

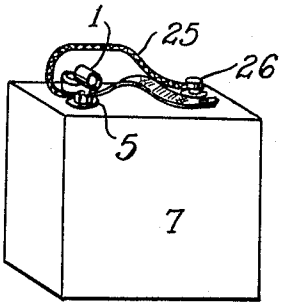


Fig. 5.

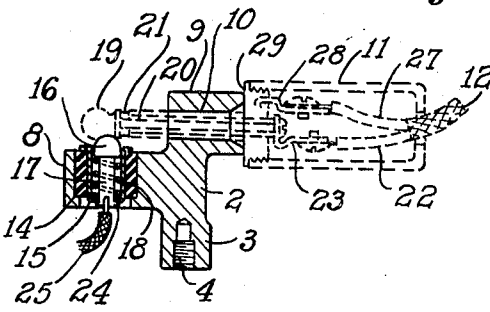


Fig. 1.

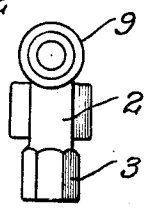


Fig. 2.

INVENTOR,
Robert H. Hummert,
BY
Howard A. Smith,
His ATTORNEY

Patented Oct. 24, 1939 2,177,409

UNITED STATES PATENT OFFICE

2,177,409

UNIVERSAL JACK SWITCH

Robert H. Hummert, Dayton, Ohio, assignor to S. H. Thomson Manufacturing Company, Dayton, Ohio, a corporation of Ohio

Application November 13, 1937, Serial No. 174,479

2 Claims. (Cl. 173—324)

This invention relates to new and useful improvements in universal jack switches.

It is one of the principal objects of my invention to provide a simple, solid, positive jack switch for use in buildings and on automobiles as well as on all types of wet and dry batteries wherever they are employed.

A further object of the invention is to provide a jack switch which cannot be made inoperative through accidents that incapacitate the ordinary switches of this type, nor is it as susceptible to shorting.

My jack switch is universal in that by means of it an electrical connection may be easily changed from one electrical unit to another. For example, when my jack switch is employed, a spot lamp may be easily disconnected from the transformer of a house circuit and connected to a portable battery unit, and vice versa.

My jack has the qualities of positiveness, simplicity and sturdiness wherever it is used, and makes possible an easy and quick connection of spot lamps or other electrical devices to transformers, batteries and the like.

Other important and incidental objects will be brought out in the following specification and particularly set forth in the subjoined claims.

In the accompanying drawing illustrating my invention, Figure 1 is a longitudinal sectional view taken through my universal jack switch, showing the plug in a circuit closing position within the jack. Figure 2 is an end view of the jack. Figure 3 is a perspective view of a pistol grip spot lamp carrying a plug adapted to fit my universal jack. Figure 4 is a perspective view of a house current transformer equipped with my jack that is adapted to receive the plug on the spot lamp.

And Figure 5 is a perspective view of a portable dry battery equipped with my jack ready to receive the plug so that the battery may be the source of current supply for the light.

Referring to the accompanying drawing for a detailed description of my invention, the numeral 1 designates a one-piece jack member, preferably a casting, having a straight part 2 terminating at its lower end in a hexagonal portion 3 with an internally threaded or tapped hole 4. By means of a wrench applied to its hexagonal portion 3, the jack 1 may be screwed down upon one terminal 5 of a house current transformer 6, a portable dry battery 7 or other electrical unit. (See Figures 4 and 5.)

The casting 1 has a lateral extension 8 just below a right-angled tubular part 9 adapted to receive the projecting sleeve end 10 of a plug 11 on the end of a conducting cord 12 attached to an electrical appliance such as the pistol grip spot lamp 13.

Set in a counterbored portion of the lateral extension 8 of the jack 1 is a fiber insulating sleeve 14 in which a flanged bushing 15 is set to form a guide for a semispherical contact button 16. The latter is mounted on a longitudinally movable conductor stem 17 surrounded by a helical spring 18. This spring exerts an upward pressure upon the contact button 16 to hold it in the path of inward movement of the grooved ball head 19 on the outer end of a conducting rod 20 which passes through and is internally insulated from the sleeve end 10 of the hollow plug 11. The head 19 is insulated from the outer end of this sleeve 10 by a fiber washer 21. To the inner end of the conducting rod 20 one end of a wire 22 is secured by terminal connecting means 23, said wire being a part of the cord 12 leading to the spot lamp 13.

The contact button 16 is limited in its outward movement by a flange 24 on the lower end of the stem 17, that engages the bottom of the flanged bushing 15. Secured to the lower end of the stem 17 is an insulated wire 25 which leads to the terminal 26 of the secondary coil of the electrical unit whose other terminal 5 of that coil carries the jack 1. Two of such units, to wit, the transformer 6 and the battery 7 are shown in Figures 4 and 5 respectively.

The other wire 27 of the cord 12 is secured by terminal connecting means 28 to a flanged contact bushing 29 secured in the outer threaded end of the hollow plug 11. The outer disc or face portion of this bushing engages the inner end of the tubular part 9 of the jack to receive current from the terminal 5 through the body of the jack which is insulated from the rod 20 connected with the wire 22.

An easy connection is effected between the plug 11 and the jack 1 by thrusting the head 19 of the plug through the tubular part 9 of the jack over and into engagement with the button contact 16. The engagement between the latter and the head 19 of the plug is a tensioned one because of the spring 18 that surrounds the stem 17. This spring upon which the button contact 16 rests, makes it possible for the head 19 of the plug to be easily engaged with, and withdrawn from, that contact by a lateral movement of the plug.

It is now seen that my one-piece jack is sturdy, simple and positive and not subject to accidental

injuries which easily incapacitate other jack connections from use. The jack is free to swivel around the stem 17 so that it will not break off easily, thus simplifying it from an insulating and wearing standpoint.

The plug 11 carried by the electrical appliance is easily inserted in the tubular part 9 of the jack to make an electrical connection with the current-supplying unit. For example, the pistol grip spot lamp 13 of Figure 3 may be easily connected to the house current transformer 6 by means of my jack, and as easily withdrawn from it and connected to the portable battery 7 if the house current fails or for any other reason. My jack is thus a universal one in the sense of its extreme adaptability to current-supplying electrical units to which it is desired to quickly, positively and strongly connect electrical appliances.

Having described my invention, I claim:

1. A jack of the character described adapted for cooperation with a plug having a cylindrical contact member and an end ball contact, said jack comprising a metal casting having an internally threaded end portion for electrical attachment to one terminal of an electric unit to support said casting thereon and having a cylindrical passage adapted to receive the cylindrical contact member of the plug for electrical and mechanical attachment thereof, said casting having a stem receiving passage extending substantially transversely of the plug receiving passage, a stem longitudinally movable in said stem receiving passage and having a rounded contact end projecting beyond said passage and adapted for yielding engagement with the end ball contact of the plug, means insulating said stem from the casting, spring means urging said stem towards the axis of said plug receiving passage, and a wire fixed to the end of said stem which is remote from its contact end and adapted for connection to the second terminal of the electric unit.

2. A jack of the character described comprising a metal body member having an internally threaded end portion for electrical attachment to one terminal of an electric current supply unit to support said body member thereon, and having a portion integral with the internally threaded portion and provided with a cylindrical passage adapted to receive a plug for electrical and mechanical attachment thereof, said body member having a stem receiving passage extending substantially transversely of the plug receiving passage, a stem longitudinally movable in said stem receiving passage and having a rounded contact head projecting beyond said passage and adapted for engagement with the end of the plug, means insulating said stem from the body member, a helical spring surrounding said stem and engaging the head thereof for urging said stem towards the axis of said plug receiving passage to engage its contact end with the plug, and a wire fixed to the end of said stem which is remote from its contact end and adapted for connection to the second terminal of the electrical unit.

ROBERT H. HUMMERT.

CERTIFICATE OF CORRECTION.

Patent No. 2,177,409. October 24, 1939.

ROBERT H. HUMMERT.

It is hereby certified that the name of the assignee in the above numbered patent was erroneously described and specified as "S. H. Thomson Manufacturing Company" whereas said name should have been described and specified as The S. H. Thomson Manufacturing Company, of Dayton, Ohio, a corporation of Ohio, as shown by the record of assignments in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 5th day of December, A. D. 1939.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)