

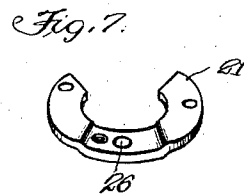
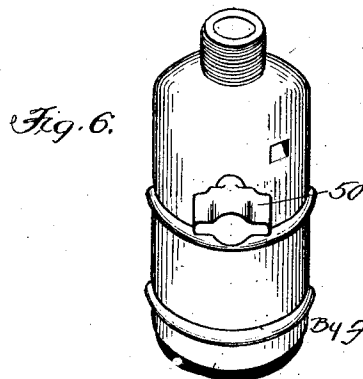
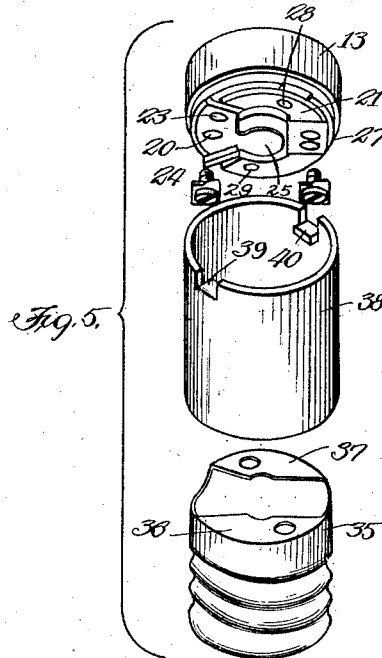
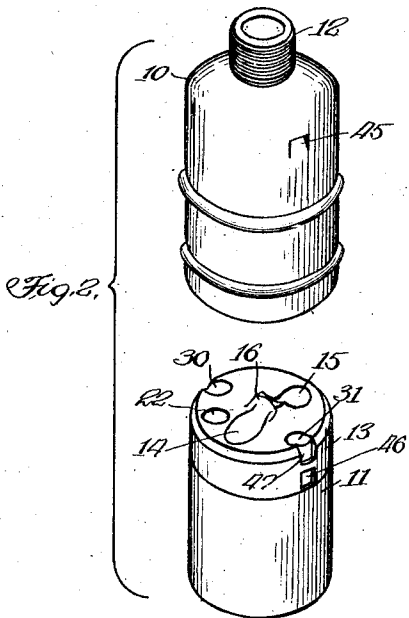
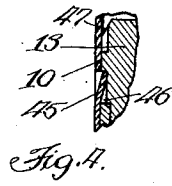
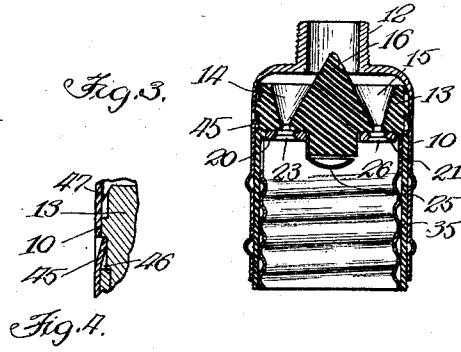
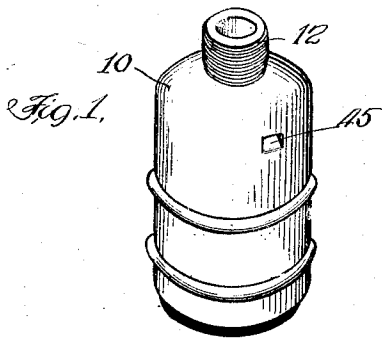
April 15, 1930.

J. CUTHBERT

1,754,984

ELECTRIC SOCKET

Filed May 21, 1920



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UNITED STATES PATENT OFFICE

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ELECTRIC SOCKET

Application filed May 21, 1920. Serial No. 383,082.

This invention relates to electric sockets.

It relates more particularly to sockets such as used with ordinary electric lamp and connector plugs.

One of the objects of the invention is to provide an improved electric socket.

Another object is to provide an improved socket wherein the outer shell and the contact cartridge are substantially inseparably joined together.

Another object is to provide a unitary contact cartridge for carrying the contacts insulated from the outer shell.

Another object is to provide a socket wherein the outer shell and contact cartridge are assembled and held together by snap action.

Another object is to provide a socket which is efficient and reliable in operation, easily and inexpensively manufactured and readily installed.

Other objects and advantages will appear from the specification and claims.

An embodiment of the invention is illustrated in the accompanying drawing.

In the drawing:—

Fig. 1 is a perspective of an improved keyless socket.

Fig. 2 is a perspective of a socket, showing the outer shell and contact cartridge separated.

Fig. 3 is a longitudinal section of the socket of Fig. 1.

Fig. 4 is an enlarged section through the snap catch which holds the shell and cartridge together.

Fig. 5 is a separated perspective of a contact cartridge.

Fig. 6 is a perspective of an improved key socket, and

Fig. 7 is a perspective of one of the conductor terminals.

The socket comprises, in general, an outer shell 10 and a contact cartridge 11.

Outer shell 10 may be made of suitable metal, such as drawn or spun brass, and may be of any desired shape, size and ornamental design. The front end of the shell is open for receiving the plug of a lamp, connector or other electrical device. The rear of the shell is partly closed, having an open projec-

tion 12 through which the conductors pass into the socket.

The contact cartridge is a unitary structure for insertion into the outer shell to form a complete socket. It has a base 13 of substantially cylindrical shape and composed of suitable insulating material, such as porcelain.

Base 13 is provided with a pair of converging funnel-shaped openings 14 and 15 through which conductors may pass from the front side to the rear side thereof. The insertion of the conductors into the socket, and to the terminals hereinafter described, is facilitated by extending the adjacent converging walls of openings 14 and 15 into a wedge-shaped projection 16.

Secured on the front of base 13 are a pair of conductor terminals 20 and 21. Terminal 20 is of arcuate-shape and rests within a recess in the front face of base 13. It is provided with a threaded opening for receiving the end of a holding rivet or screw extending through opening 22 in base 13. Opening 22 is countersunk from the rear face of the base to conceal the head of the holding rivet or screw and provide a shoulder for engaging the head of the rivet or screw to clamp the terminal to the base. Terminal 20 is also provided with an opening 23, registering with the smaller end of opening 14, through which a conductor may be inserted from the rear of the socket. A threaded opening is also provided for a conductor terminal screw 24.

A center contact 25 of substantially Z shape is clamped between base 13 and terminal 20 and in electrical contact with that terminal. Contact 25 has a somewhat spherical shaped head lying above the center of base 13. This head is spaced slightly above the plane of the base to provide a flexible contact for the center contact of the plug with which the socket is to cooperate.

Terminal 21 is also of arcuate shape and rests in a recess in the front face of base 13 to be thoroughly insulated from contact 20. This terminal has an opening 26, registering with opening 15 for the passage of one of the conductors. It also has a threaded opening for receiving a conductor terminal screw 27.

Terminal 21 is held to base 13 by a pair of rivets or screws 28 and 29. The heads of rivets or screws 28 and 29 lie within countersunk openings 30 and 31, respectively, in the base and the rivets or screws are riveted over or screwed into threaded openings in terminal 21.

Terminals 20 and 21 are made of suitable material such as punched brass.

In order that the conductors may be inserted from the rear of the socket and secured to the proper terminals from the front thereof and to render it unnecessary to open any part of the socket to make the necessary connections, the terminals may be of the character of the terminals set forth in Patent No. 1,166,114, December 28, 1915.

An inner plug receiving shell 35 is secured to base 13 by being clamped thereto with terminal 21. Shell 35 is provided, at its rear end, with a pair of inwardly projecting ears or fins 36 and 37. These ears are provided with holes through which rivets or screws 28 and 29 pass.

Inner shell 35 may be threaded or otherwise constructed to form the outer socket contact to be engaged by the outer contact of the plug with which the socket is to cooperate.

Inner shell 35 is insulated from the outer shell 10 by a sleeve 38 of fiber or other suitable insulating material. Sleeve 38 is provided with a pair of inwardly projecting ears 39 and 40. These ears may be formed by making shallow parallel cuts in the rear edge of the sleeve and bending inwardly the small portions of the sleeve between the cuts. Ears 39 and 40 lie between base 13 and inner shell 35, and when the rivets or screws 28 and 29 are riveted over or turned home, hold the insulating sleeve in place.

The contact cartridge may be assembled by first placing center contact 25 in position and clamping it in place by positioning contact 20 in its recess and riveting over or turning home its fastening rivet or screw. Next sleeve 38 is positioned against the base and inner shell 35 is placed therein, terminal 21 is dropped within the inner shell and the shell, sleeve and terminal are securely clamped to base 13 by riveting over or turning home rivets or screws 28 and 29.

The inner and outer socket contacts, conductor terminals and insulating sleeve and base are thus formed into a complete cartridge unit such as shown in Fig. 2.

The contact cartridge is substantially inseparably held within outer shell 10 by snap acting cooperating elements on the shell and cartridge.

Shell 10 is provided with an inwardly projecting tongue 45. Tongue 45 may be formed by slotting the shell and bending inwardly the small section of the wall between the slots. The abrupt edge of the tongue thus formed is toward the rear of the socket to form, in effect,

a latch bolt for holding the cartridge within the shell. There may be one or more of these tongues. Two have been found to give excellent results.

Base 13 of the cartridge is provided with a notch 46 for each tongue on the outer shell. Notches 46 have abrupt rear walls, forming ledges back of which tongues 45 may be snapped when the cartridge is inserted axially. When so united by the snap action of the cooperating tongues and ledges, it is practically impossible to remove the cartridge.

To assist in the insertion and proper positioning of the cartridge within the outer shell, base 13 is provided with a sloping notch 47 at the rear of each ledge. The inner walls of notches 47 slope outwardly toward the front of the base so that, when inserting the cartridge, the inturned tongue of the shell may be readily positioned and easily slipped over the edge of the base to snap back of their respective ledges.

Fig. 6 shows the appearance of a key socket constructed, in general, in the same manner as hereinbefore described. The insulating base of the cartridge, in addition to carrying conductor terminals, plug contacts, etc., also carries the necessary mechanism operable by a key 50 for interrupting and completing the circuit.

A form of cartridge of the key type which has been found to give excellent results is disclosed in my copending application, Serial No. 383,085, filed May 21, 1920, (card No. 1,953), executed May 3, 1920.

The improved socket is of neat and pleasing appearance. It is rugged and, since the cartridge and shell are inseparably united, there is practically no liability of its coming apart. By providing terminal screws such as shown in the patent hereinbefore referred to, it is unnecessary to open or separate the socket to connect or disconnect the socket from the conductors. The advantages of an inseparable socket are thus made available.

The terminal cartridges may be assembled and held in stock and, when occasion requires, can be readily inserted in sockets of any desired form and design.

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

1. A contact cartridge for axial insertion into a socket shell comprising an insulating base, a pair of conductor terminals, a center contact held in position on said base by one of said terminals, and a plug receiving shell and insulating sleeve held in position on said base by the other of said terminals, said terminals being located within the plug receiving shell.

2. A contact cartridge for insertion into a socket shell comprising in a unitary structure, an insulating base provided with openings for the passage of conductors therethrough, contact terminals secured to said base and having

openings registering with the openings in
said base, a center contact held to said base by
one of said terminals, a plug engaging shell,
an insulating sleeve surrounding said shell,
said shell and sleeve being held to said base
5 by the other of said terminals, and a latch ele-
ment for cooperating with an element on the
socket shell for holding the cartridge within
a socket shell, said contact terminals being
10 located within the plug receiving shell.

In testimony whereof I hereunto subscribe
my name.

JOHN CUTHBERT.

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