The invention relates to electrical plugs and sockets. Despite numerous disadvantages, the conventional bayonet types of plug and socket have long been used. Among the disadvantages is the matter of danger to children from inserting metallic objects into the socket apertures.

Another disadvantage is the fact that conventional plugs and the attendant conductors project outwardly several inches from the socket. Where the plug is located on a baseboard or low on a wall, furniture cannot be moved to a position flush against the wall. Furthermore, by moving furniture against the plug, the plug is damaged and, at times, the connection with the wire is torn loose, with an attendant risk of shock or short.

It is therefore an object of the invention to provide an electrical outlet device which makes it difficult for a child to get shocked.

It is another object of the invention to provide an electrical outlet which is relatively low in profile and which therefore enables furniture to be moved close to a wall.

It is a further object of the invention to provide an outlet which is rugged, durable and long-lived, yet which is relatively inexpensive.

It is another object of the invention to provide a generally fireproof outlet.

Other objects, together with the foregoing, are attained in the embodiment described in the following description and shown in the accompanying drawings in which:

FIGURE 1 is a perspective view, showing the plug and socket in exploded relation;
FIGURE 2 is a top plan view of the socket;
FIGURE 3 is a transverse section of the socket, the plane of the section being indicated by the line 3—3 in FIGURE 2;
FIGURE 4 is a median longitudinal section of the socket, the plane of the section being indicated by the line 4—4 in FIGURE 3;
FIGURE 5 is a bottom plan view of the socket;
FIGURE 6 is a top plan view of the plug;
FIGURE 7 is a transverse sectional view of the plug, the plane of the section being indicated by the line 7—7 in FIGURE 6;
FIGURE 8 is a side elevation view of the plug, partially in section and showing the cover in exploded position; and
FIGURE 9 is a bottom plan view of the plug.

While the electrical outlet device of the invention is susceptible of numerous physical embodiments depending on the environment and requirements of use, a substantial number of devices have been made and tested and have performed in an eminently satisfactory manner.

The electrical outlet device, generally designated by the reference numeral 12, comprises a plug 13 and a socket 14.

The socket 14 is preferably molded or cast of a durable and non-conductive material into a generally elongated, rectangular, parallelepiped-shaped housing 15. In order to accomplish one of the important objects of the invention, the side profile of the housing is made low, the result being that when the socket is installed on a wall, over the conventional wiring outlet box, the socket extends outwardly from the wall only a very short distance.

A screw 16 serves to attach the socket to the usual wall outlet box.

It is to be recognized that while the form of the device shown in FIGURE 1 is mounted exteriorly on the wall, by suitable modification the socket could be recessed into the wall so that the outer or exposed face would be substantially flush with the wall.

Formed within each end of the housing is a longitudinal recess 17 having an opening 18 adapted to receive and confine the plug 13 in snug relation. That portion of the recess 17 is defined by a floor 19 having formed therein a spaced, parallel pair of slots, or tracks 21, preferably in the cross-sectional shape of an inverted, truncated triangle.

The tracks 21 serve to receive and guide a corresponding spaced, parallel pair of metallic contacts 26 (see FIGURES 7—9) projecting downwardly from the base 27 of the plug 13.

Adapted to register with the plug contacts 26, in fully inserted position of the plug, is a pair of metallic contact plates 31, the plates 31 being connected by metallic strip conductors 32 to a pair of terminal screws 33 to which the wires of the outlet box (not shown) are connected. The contact plates 31 and the strip conductors 33 are placed in the mold prior to casting the housing so that they are integrally formed with the housing. A pair of shallow wells 34 provides a suitably depressed location for the terminal members 33.

While the socket arrangement so far described comprises a housing with a pair of longitudinal recesses open at the ends of the housing, it is equally possible to extend the recesses inwardly from the side edges of the housing or, if desired, to form recesses in the top of the housing, from the bottom of which wells lateral recesses can be run, each recess including a floor and parallel tracks in the floor as heretofore described, to receive the contacts projecting from the plug base. In this construction, the plug would first be positioned in the well, then laterally inserted into the recess.

Furthermore, while the structure as previously shown and described relates to 110 volt systems, it is apparent to one skilled in the art that by the addition of suitable third contacts and attendant conductors, a 220 volt plug and socket arrangement could be effected.

The plug 13 includes a main body portion 41 having formed therein a chamber 42 (see FIGURE 8) providing access to a pair of screw terminals 43 to which is connected the wires 44 of a conductor 46 extending from the chamber 42 through a passageway 47, thence to the electrical fixture or equipment to be energized. A cover plate 51 of non-conductive material is snap-fitted over the chamber, the cover being retained by an off-set snap latch 52 insertable into a corresponding recess 53 (see FIGURE 8).

Conveniently, a handle 56 is provided on the end of the plug from which the conductor 46 extends. The handle end of the plug body is contoured to register with the corresponding end of the socket housing so that with the plug in inserted position, a smooth over-all effect is obtained with only the handle extending outwardly, for easy withdrawal of the plug when desired.

The plug 13 and the socket recess 17 are carefully formed to achieve a close fit and the contours of the projecting metallic contacts 26 are also in close conformity with the cross-sectional configuration of the tracks 21, particularly in that portion of the tracks where the contact plates 31 are in apposition or in face to face engagement with the plug contacts 26. A minimum of electrical contact resistance is thereby achieved. The portion of the tracks 21 other than in the area of the contact plates 31 can be somewhat less snug to permit the
outward escape of the air ahead of the plug as the plug is inserted.

If desired, the plug can be made so as to be lodged quite tightly in the socket by slightly increasing the vertical thickness of the pair of ledges 61, or shoulders, on the plug (see FIGURE 1) relative to the corresponding dimension of the registering channel 62 in the socket recess, thus providing a very snug fit.

It can therefore be seen that I have provided a durable, safe and efficient plug and socket arrangement.

What is claimed is:

An electrical outlet comprising:

(a) a non-conductive socket housing of generally rectangular parallelepiped configuration, said housing including a recess open at one end and being defined by a planar floor provided with a pair of parallel recessed tracks extending inwardly away from said one end, said recess being further characterized by a pair of channels on opposite lateral sides of said recess, said channels extending inwardly away from said one end;

(b) a pair of metallic contact plates adjacent the inner ends of said tracks, said plates being exposed by said tracks;

(c) a non-conductive plug conforming substantially to the shape of said recess and including a pair of lateral shoulders conforming closely to the cross-section of said channels and being snugly engageable with the walls of said channels as said plug is inserted in said recess; and,

(d) a spaced pair of metallic contacts projecting from said plug and shaped to slide in said tracks, said contacts being located on said plug in such location and having a length sufficient to engage said plates in inserted position of said plug.

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