Sept. 24, 1940. L. H. PECK 2,215,712

ELECTRICAL CONVENIENCE OUTLET

Filed Dec. 12, 1938

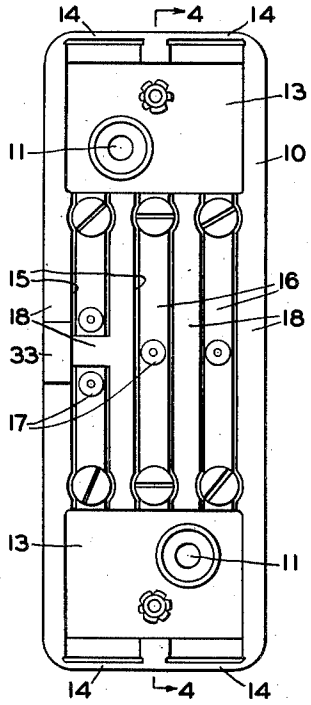

FIG.-1

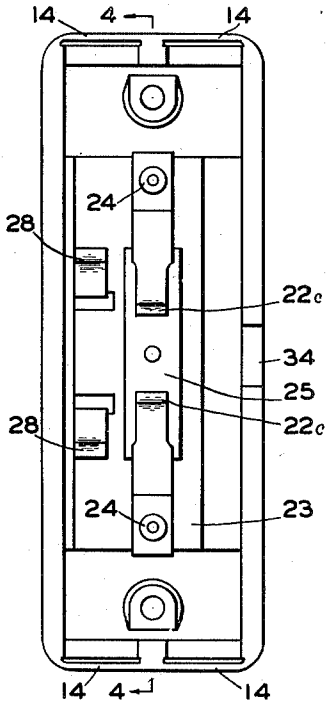

FIG.-2

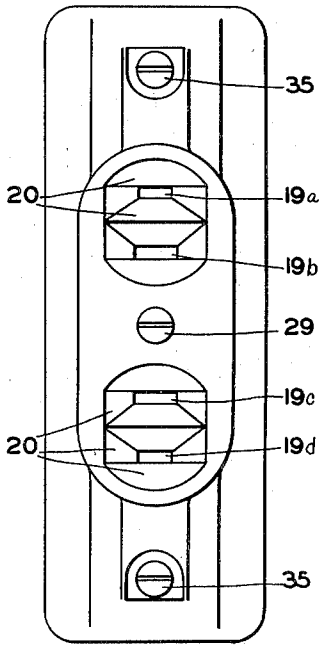

FIG.-3

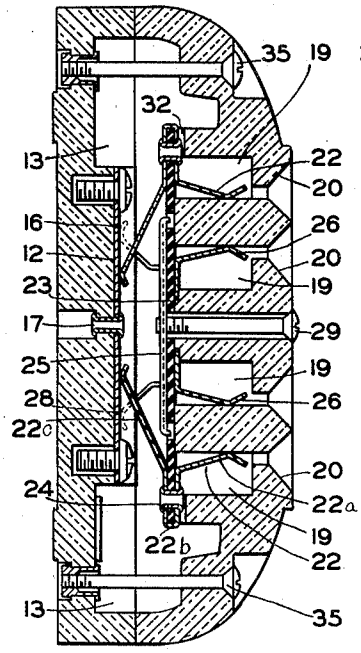

FIG.-4

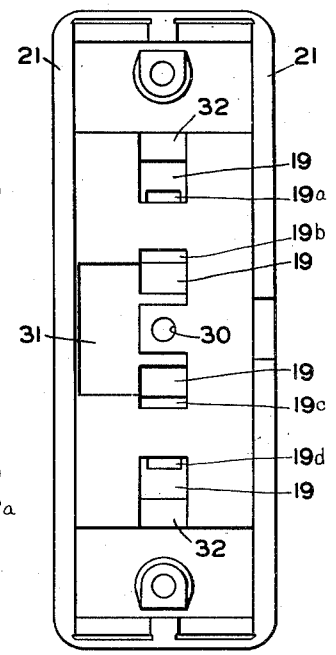

FIG.-5

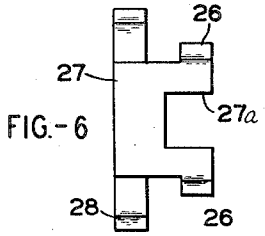

FIG.-6

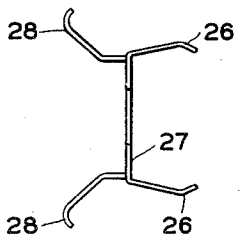

FIG.-7

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UNITED STATES PATENT OFFICE

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ELECTRICAL CONVENIENCE OUTLET

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Application December 12, 1938, Serial No. 245,138

5 Claims. (Cl. 173—330)

This invention relates to improvements in electrical convenience outlets adapted to be connected in an electrical circuit and to receive the prongs of a base plug or the like to attach electrical devices for energization by the circuit.

Some features of the present invention are similar to those of devices disclosed in my copending applications Serial No. 218,339, filed July 9, 1938, and Serial No. 245,139, filed December 12, 1938.

The objects of the present invention are to provide a device of this type consisting of a few parts cheaply constructed and easily assembled and in which the parts which carry electricity are so placed and protected by dielectric that the device will not only meet the requirements of the fire underwriters but will be far safer than required by any code known to me.

Other objects of the present invention include the construction and arrangement of the parts so that the incorrect assembly is impossible and correct assembly is easy and obvious. The invention also comprises the various arrangements of the parts so as to carry out all of the above mentioned purposes.

In the drawing, Fig. 1 is a top plan view of a base portion; Fig. 2 is a bottom plan view of a top cover portion adapted to be assembled with the base portion to provide a complete device; Fig. 3 is a top plan view of the cover portion of Fig. 2; Fig. 4 is a central longitudinal section of the assembled device taken along similarly numbered lines of Figs. 1 and 2; Fig. 5 is a bottom plan view of the cover portion of Fig. 2 with the electrical contacts removed; while Figs. 6 and 7 show a plan view and end elevation respectively of one of the contacts shown in Figs. 2 and 4.

The embodiment here shown and described is a device adapted for open wiring and therefore the width of the unit is approximately 1¾ inches so as to fit on the narrow edge of a 2 x 4. However it will be understood by those skilled in this art that my device is applicable to other locations and therefore I do not restrict myself to this specialized form of the device but reserve the right to modify it for other applications.

In the form shown, the base member of the device 10 is formed of a single block of dielectric, such as porcelain, there being openings 11 through the bottom through which members may be passed to fasten the base portion to a 2 x 4 or the like. The central portion of the base at 12 is raised somewhat leaving depressed portions 13 at each end through which conductor wires may be led through suitable openings which may be made in any of the knock-out portions 14 which in this form of the device are formed partly in the base member and partly in the cover member at each end of the device. The raised portion 12 is provided with parallel grooves 15 spaced transversely of the base and running from end to end of the raised portion 12. Electrical conductors 16 are permanently fastened in these grooves as by the grommets 17. For some purposes I desire to make one of the conductors in two parts as shown at the left in Fig. 1 and in any case adjacent conductors are insulated from each other by means of the block of dielectric and are separated by the raised portions of the block marked 18. This base member of the device may be permanently connected in an electrical circuit and the cover member carrying the convenience outlet may be attached or detached as desired for inspection, repairs, etc.

The cover member is preferably formed of a single block of dielectric, such as porcelain, which is adapted to form a convenience outlet for the reception of the prongs of one or more base plugs. In the present embodiment I have shown an outlet adapted to receive two base plugs but it will be understood that in many respects my device may be used for any number of base plugs. The block has four alined openings 19 through it in the present embodiment, these openings being just large enough at the face of the block to permit the entrance of the base plug prongs. In the present instance these openings are adapted to accommodate polarized prongs and to this end the openings 19*a* and 19*d* are of less width than the openings 19*b* and 19*c*. Preferably the upper surface of the block is suitably bevelled at 20 to guide the base plug prongs to the openings. The central portion of the block through which these openings pass is thicker as will be evident from Fig. 4 and the outer edges of the block are brought down in comparatively thin walls at 21 to meet the base member so that when the device is assembled the parts are completely enclosed in dielectric.

Contacts arranged in pairs lie within the openings 19 so as to resiliently engage the prongs of base plugs inserted through the openings 19*a* to 19*d* inclusive. These contacts are of course arranged in pairs and by a novel arrangement the contacts are completely housed in dielectric where they engage the base plugs and have integral portions passing outside of such housing to engage the electrical conductors in the base member. To the best of my knowledge this is a novel construction regardless of the specific form of the parts by which it is accomplished. The specific form here shown comprises a contact 22 in each pair of contacts formed of a flat strip of copper or the like which has a portion 22*a* lying in the opening 19 to contact a base plug prong, a portion 22*b* bent around the end of a sheet of dielectric 23 and secured thereto by a grommet 24, and a portion 22*c* lying on the other side of the sheet 23 and bent so as to resiliently engage one of the conductors 16. The other contact of each pair

might be a separate member but for ease of manufacture and assembly I have formed the contacts 26 as parts of a single piece of metal best seen in Figs. 6 and 7. This piece of metal has a flat central portion 27 cut out at 27a to accommodate an assembly bolt and having the contacts 26 upstanding on one side thereof and substantially normal thereto. Offset from the contacts 26 and bent back on the opposite side of the portion 27 are the portions 28 which are bent so as to resiliently engage another one of the conductors 16 in the base portion of the device. When the device is assembled the contacts 22 and 26 are alined and lie in the openings 19 while the portions 22c overlie and engage the central conductor 16 of the base and the portions 28 overlie and engage the conductor 16 shown at the right in Fig. 1. In other words the device of Fig. 2 is turned over on top of the device of Fig. 1 in the assembly operation. Referring to Fig. 4 on the inner or base member side of the sheet of dielectric 23 I place a small piece of metal 25 having a hole threaded in the center thereof and an assembly bolt 29 passing through the hole 30 in the cover block is threaded into the plate 25 and holds the sheet of dielectric flat against the inner face of the cover block closing the openings 19 and holding all of the contacts in proper position. Referring to Fig. 5 the cover block has a slight depression at 31 of approximately the thickness of the plate 27 so that this portion of the plate is embedded to that extent in the cover block and the sheet of dielectric 23 lies tight against the cover block. For the same reason slight depressions are formed at 32 of approximately the thickness of the portion 22b of the end contacts to permit a flush assembly. The depressions 31 and 32 snugly embrace the parts lying in them when the device is assembled so as to prevent twisting of the contacts.

A raised portion 33 on one side of the base member coacts with a notch 34 of the cover member which insures the assembly of the parts in a predetermined manner so that the inner contact portions will always engage certain of the conductors 16 as desired. The cover block is held on the base by bolts 35 at each end which enter threaded members embedded in the base. When thus assembled as shown in Fig. 4 the contact portions 22c and 28 are compressed and resiliently held in contact with the conductors 16.

What I claim is:

1. In a convenience outlet, a block of dielectric, there being two pairs of openings through said block for receiving base plug prongs, all of said openings being in alinement, a sheet of dielectric closing the inner ends of said openings, two pairs of metal contacts lying on the block side of said sheet and entering said openings, said contacts having integral metal portions passing to the other side of said sheet, means securing said sheet to said block to hold said contacts in position, and a base member secured to said block, said base member having electrical conductors engaging said metal portions on the other side of said sheet.

2. In a convenience outlet, a block of dielectric, there being two pairs of openings through said block for receiving base plug prongs, all of said openings being in alinement, a sheet of dielectric closing the inner ends of said openings, two pairs of metal contacts lying on the block side of said sheet and entering said openings, said contacts having integral metal portions passing to the other side of said sheet, means securing said sheet to said block to hold said contacts in position, a base member carrying electrical conductors spaced transversely of said line of openings, and at least one contact of each pair of contacts having its integral metal portion bent laterally to cause the portion on the other side of said sheet to overlie one of said conductors in the base member, and means securing said base member to said block.

3. In a convenience outlet, a block of dielectric, there being two pairs of openings through said block for receiving base plug prongs, all of said openings being in alinement, a sheet of dielectric closing the inner ends of said openings, two pairs of metal contacts lying on the block side of said sheet and entering said openings, said contacts having integral metal portions passing to the other side of said sheet, means securing said sheet to said block to hold said contacts in position, a base member secured to said block and carrying conductors adapted to engage said contact portions, there being more than two of said conductors at least one of which lies to one side of said line of openings, one contact portion of each pair of contacts engaging one of said conductors, the other contact portion of each pair of contacts engaging another of said conductors, and coacting means on said block and base member insuring assembly of the parts in a manner to cause said contact portions to overlie predetermined conductors.

4. In a convenience outlet, a block of dielectric, there being two pairs of openings through said block for receiving base plug prongs, all of said openings being in alinement, a sheet of dielectric closing the inner ends of said openings, two pairs of metal contacts lying on the block side of said sheet and entering said openings, the contact of each pair lying nearest the end of said sheet being a metal strip folded over the end of said sheet and secured thereto and having a portion bent outwardly from the other face of said sheet, the other contact of each pair being a prong upstanding from one side of a flat piece of metal lying between said sheet and block, said piece of metal having portions offset laterally from its prong contacts and bent outwardly from the other side of said flat piece, and a base member secured to said block, there being electrical conductors on said base member engaging said outwardly bent portions of said contacts.

5. In a convenience outlet, a block of dielectric, there being a pair of openings through said block for receiving base plug prongs, a sheet of dielectric closing the inner ends of said openings, a pair of metal contacts lying on the block side of said sheet and entering said openings, said contacts having connected metal portions passing to the other side of said sheet, a base member secured to said block, said base member and block completely enclosing said sheet and contacts, said base member having electrical conductors engaging said metal portions on the other side of said sheet, means securing said sheet to said block, and there being deformations on said block coacting with said contacts on the block side of said sheet to hold said contacts firmly in position.

LEE H. PECK.