

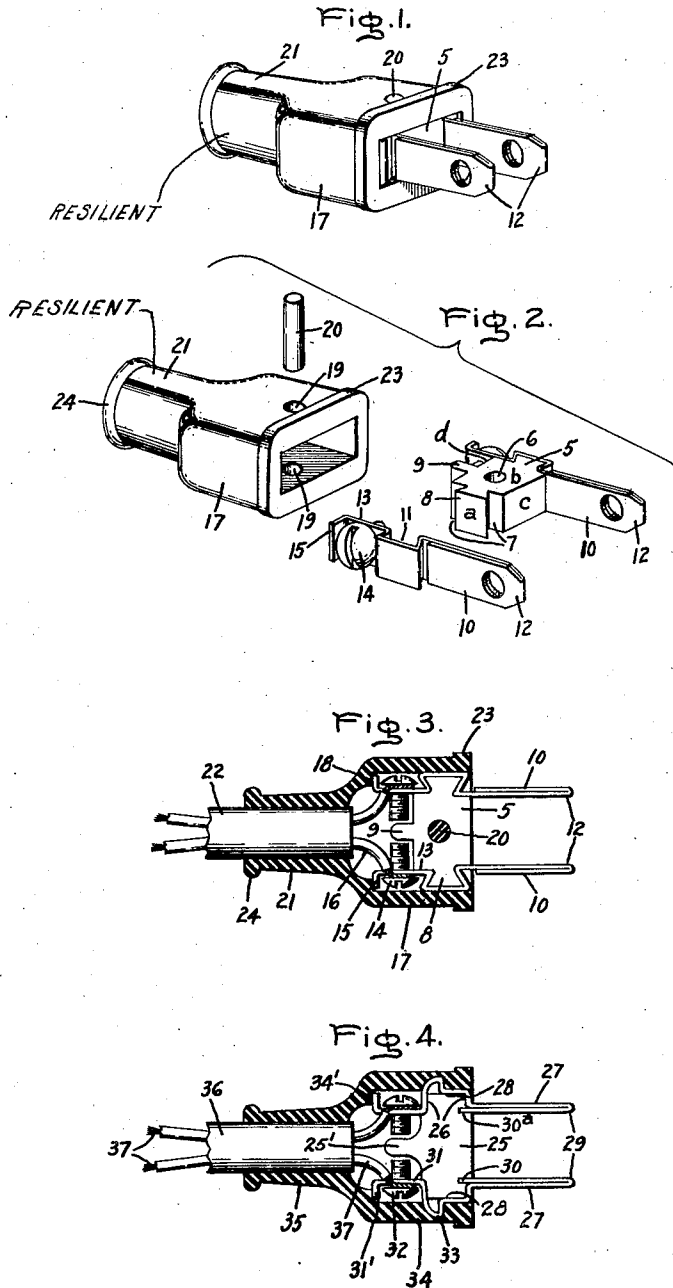
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PLUG CAP

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PLUG CAP

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7 Claims. (Cl. 173—361)

The present invention relates to plug caps and especially to rubber covered plug caps adapted to be used with standard receptacles and constitutes a division of the copending application of George B. Benander, Serial No. 2,915, filed January 22, 1935, now Patent No. 2,162,544 dated July 13, 1939.

The object of the invention is to provide an improved rubber covered plug cap which is simple and rugged in structure, reliable in operation, and may be manufactured at low cost.

In the drawing, Fig. 1 is a perspective view of an assembled plug cap; Fig. 2 is an exploded view of the plug cap shown in Fig. 1; Fig. 3 is a side view, in cross section, of an assembled plug cap, and Fig. 4 is a sectional view of a modification.

Referring to the drawing, Figs. 1 to 3, 5 indicates a mounting block formed of suitable insulating material having an opening 6 in its center. Preferably the mounting block is formed of a hard insulating material such as a moulding compound comprising an artificial resin and a filler. Mounting block 5 is oblong and for convenience may be considered as having ends *a*, sides *b*, a top *c* and bottom *d*. Extending transversely of the top and bottom of the block adjacent to its ends are undercut grooves 7 which form dove-tailed projections 8. At the central portion of the bottom of the mounting block is a finger or barrier 9.

Fastened to the mounting block 5 are contacts 10. The contacts are fastened to the mounting block by dove-tailed grooves 11 in the contacts into which projections 8 fit. The projections 8 are adapted to be slid sidewise into the grooves and engage the grooves with a tight fit. The contacts are of a width equal to the thickness of the block so that when in position the edges of the contacts are flush with the faces of the block. This provides a firm fastening means between the mounting block and the contacts and one which may be made at low manufacturing cost. Furthermore, the fastening means is solid and holds the contacts firmly against movement in any direction. The portions of the contacts beyond grooves 11 form prongs 12 which are adapted to fit a standard plug receptacle. The prongs are formed by doubling the metal back on itself. By this arrangement the use of comparatively thin metal in making the contacts is possible. This permits a saving in manufacturing costs. The portion of the contacts back of grooves 11 forms tabs 13 in which the binding screws 14 are held. At right angles to the ends of the tabs 13

are flanges 15 which cooperate with the binding screws to hold wires, such as those indicated at 16, in place. The shorting of the circuit by contact of the binding screws is prevented by the finger 9 which lies between the two screws.

The mounting block and contacts as a unit fit in a flexible rubber casing 17 leaving only the prongs exposed. The flanges 15 of the contacts rest on shoulders 18 in the casing. The casing is provided with openings 19 which correspond in position with the opening 6 of the mounting block when the unit is in place in the casing. The unit and the casing are held together by a locking pin 20 which passes through the corresponding openings. When the pin is in place, its ends are flush with the surface of the casing. The pin fits the openings tightly enough so that it is held in place by friction. Below the section of the casing occupied by the unit, the casing narrows down to form a neck 21 which is of a size to permit the passage of a cable such as shown at 22. Adjacent to the outer end of the casing is a bead 23 which reinforces the edge of said casing. Also the lower end of the neck 21 is reinforced by a bead 24.

To wire the plug cap for use, the cable is slipped through the neck of the casing and the wires contained in the casing are attached to the binding posts 14. At this time, the contacts may or may not be assembled on the mounting block. After the wires are connected to the contacts and the contacts have been mounted on the mounting block, the assembled unit comprising the mounting block with the contacts thereon is then pushed into the casing until the flanges 15 rest on the shoulders 18 and the several openings 6 and 19 are in alignment. The pin 20 is then passed through the openings and the plug cap is ready for use.

This construction has the advantage that it is simple in structure and composed of few parts, permitting its manufacture at low cost. It can be taken apart readily in order to repair or replace the cable and is easily assembled. The wiring is totally concealed by the mounting block, giving a neat appearing plug cap. The cap being flat sided facilitates locating the prongs in the proper relation to the slots in any receptacle.

The modification shown in Fig. 4 comprises a mounting block 25 which has transversely extending grooves or notches 26 at its four corners which form oppositely extending projections. At the central portion of the mounting block is a finger or barrier 25'. Mounted on the block 25 are contacts 27, each of which is reversely bent

to form a rectangular slot 28. The walls forming slots 28 fit over the ends of the mounting block in the grooves or notches 26. A prong 29 extends outward beyond the slot 28 of each contact and is formed by doubling the contact strip back on itself. The doubled back portion of each prong extends back beyond its companion portion to form a finger 30. The fingers 30 rest in recesses 30^a in the mounting block and aid in holding the contacts on the mounting block. When the contacts and mounting block are assembled, the contacts are slid sidewise onto the mounting block, the slots 28 fitting the notches 26 and the fingers 30 sliding into recesses 30^a. This gives a firm fastening means with a minimum of parts. Mounted in tabs 31 which extend inwardly from the slots 28 are binding screws 32. The tabs 31 are provided with flanges 31' which cooperate with the binding screws 32 to hold the connecting wires.

The reversely bent section of the contact which forms the rectangular slot 28 is further bent to form hooks 33. A casing 34 which fits around the assembled mounting block and contacts is provided with recesses in its walls in which the hooks 33 fit. This provides a simple means of fastening the assembled unit comprising the mounting block and the contacts in the casing. The hooks 33 are shaped with a straight front section and a curved rear section so that it is easy to slip the assembled unit into the casing but more difficult to remove it. The flanges 31' of the contacts rest on shoulders 34' in the casing thereby correctly positioning the assemblage within the casing. The casing has a neck 35 through which a cable 36 of any standard type passes. Leads 37 contained in the cable are fastened to the binding screws 32.

This construction has all the advantages enumerated above for the previous construction and is further advantageous in that it does not require any external parts to fasten the unit in the casing.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A plug cap comprising a mounting block having transversely extending grooves on opposite sides, contact members having slot forming edges adapted to slide into said grooves to fasten the contact members to the mounting block in fixed position, hooks extending outwardly from the portions of said contact members forming said slots, and casing of flexible insulating material adapted to be pulled over and surround the assembled mounting block and contacts, said casing having walls in which said hooks fit to hold the casing around the assemblage.

2. A plug cap comprising a mounting block having outwardly extending projections, contact members having grooved sections adapted to fit said projections and hold the contacts in fixed position on the mounting block, said contact members being provided with tabs at their inner ends having flanges thereon, a casing adapted to fit the assembled mounting block and contacts, said casing having shoulder rests for receiving said contact flanges to position the assemblage in said casing, and means for holding the casing and assemblage together.

3. A plug cap comprising a mounting block having outwardly extending projections, contact members having grooved sections adapted to engage said projections and hold the contact mem-

bers in fixed positions on the mounting block, said contact members being provided with tabs adjacent said grooved sections having flanges thereon, terminal binding screws mounted on said tabs between said flanges and grooved sections and cooperating with said flanges for connection with electrical conductors, a casing adapted to fit the assembled mounting block and contacts, said casing having shoulder rests for receiving said contact flanges to position the assemblage in said casing, and means for holding the casing and assemblage together.

4. A plug cap comprising a mounting block having transversely extending grooves on opposite sides, contact members having slots forming edges adapted to slide into said grooves to secure the contact members to the mounting block, hooks extending outwardly from said slots having straight front sections and curved rear sections and a casing of resilient insulating material adapted to slide over said curved sections to house the assembled mounting block and contacts, said casing having side walls engaging the front straight sections of said hooks when in assembled position to prevent removal of said casing.

5. A plug cap comprising a mounting block having transversely extending grooves on opposite sides, contact members having slots forming edges adapted to slide into said grooves to secure the contact members to the mounting block, a hook extending outwardly from each of said slots and a casing of resilient insulating material adapted to fit the assembled block and contacts and having end walls forming shoulders engaging the inner ends of said contact members for positioning the assemblage in said casing, said casing having side walls in which said hooks fit to hold the casing around the assemblage.

6. A plug cap comprising a mounting block having an opening and dove-tailed projections on two opposite sides, contact members having grooves which form corresponding dove-tailed recesses adapted to be slidably mounted over and engage with the projections to hold the contact members in fixed positions on said block, a casing adapted to fit the assembled block and contacts and having walls forming shoulders engaging the inner ends of said contact members for positioning the assemblage in said casing, said casing having openings therein which correspond in position to the opening in the block and a pin which fits in said openings to secure the casing to the assemblage.

7. A plug cap comprising a mounting block having an opening and dove-tailed projections on two opposite sides, contact members having grooves which define corresponding dove-tailed recesses adapted to be slidably mounted over and engaged with the projections to hold the contact members in fixed positions on said block, the ends of said contact members being provided with flanges, terminal screws mounted on said contact members between said flanges and dove-tailed recesses, a casing adapted to fit the assembly block and contacts having end walls forming shoulders engaging the flanged ends of said contact members for positioning the assembly in said casing, said casing having openings therein which correspond in position to the opening in said block, and a pin which fits in said openings to secure the casing to the assembly.

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