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[54] **ELECTRICAL PLUG GUARD**

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[52] **U.S. Cl.** ..... **339/42,** 339/196 R

[51] **Int. Cl.** **H01r 13/44**

[58] **Field of Search** 339/36, 42, 40, 59, 339/60, 61, 62, 63, 94, 195, 196

[56] **References Cited**

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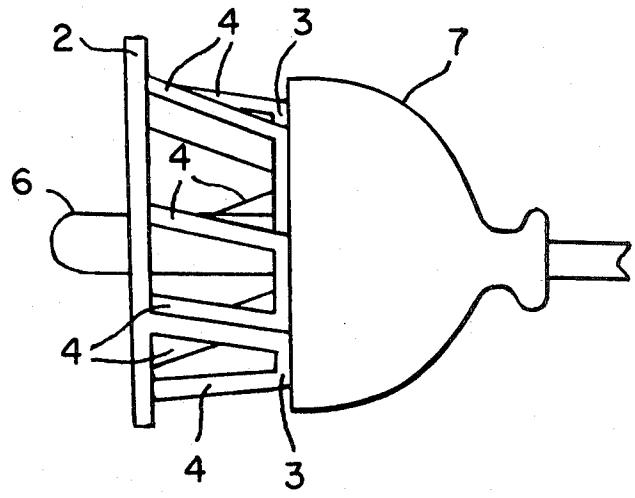
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Attorney—Ernest S. Kettelson

[57] **ABSTRACT**

An electrical plug guard comprising a flat disc, a central body portion, slots therein for receiving and frictionally holding the prongs of an electrical plug, an outer rim to extend radially beyond the periphery of the plug when the disc is placed adjacent thereto by inserting the prongs through the slots in the said central body portion of the disc, resilient electrically nonconductive ribs extending from and around said central body portion joining it resiliently to said outer rim, said resiliently joining ribs permitting longitudinal movement of the outer rim away from the central body portion when pressure is applied against the rim and permitting return of said outer rim back to the plane of the central body portion when such pressure is released, said ribs providing a protective cage around the prongs of the electrical plug when the outer rim is moved longitudinally away from the central body portion frictionally held adjacent to the electrical plug to prevent a person's fingers from accidentally touching the prongs and resulting in electrical shock when connecting or disconnecting the plug to an electrical outlet.

9 Claims, 4 Drawing Figures



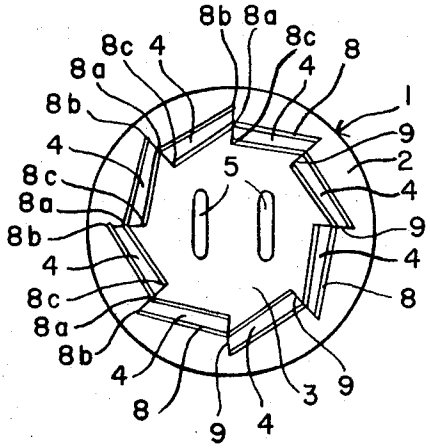


FIG. 1

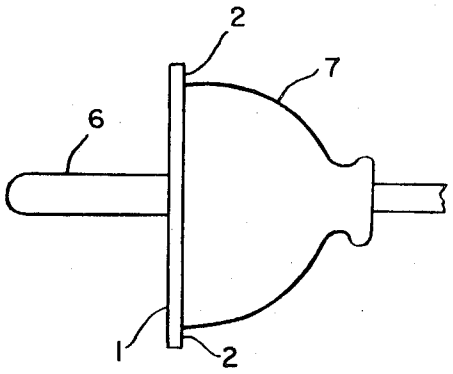


FIG. 2

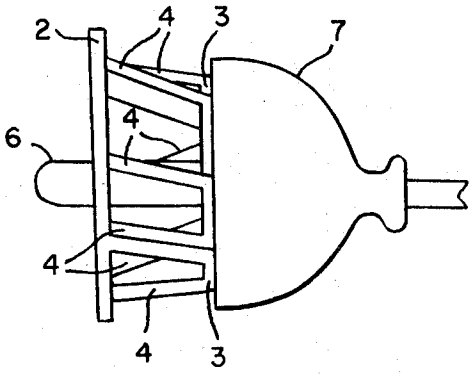


FIG. 3

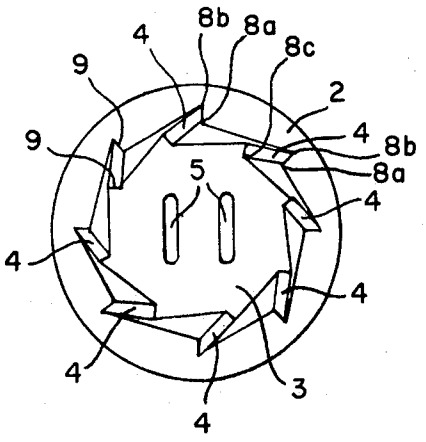


FIG. 4

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ELECTRICAL PLUG GUARD

BACKGROUND OF THE INVENTION

This invention relates to an electrical plug guard in the form of a flat disc having an outer rim surrounding a central body portion and joined resiliently by resilient electrically non-conductive ribs extending around and between the outer rim and central body portion, the latter including slots to receive and frictionally hold the prongs of an electrical plug whereby the body portion is held adjacent to the plug when pressure is applied against the outer rim, which extends radially beyond the periphery of the electrical plug, to move the rim away from the plug causing the resliently joining ribs to become extended and form a protective cage around the prongs of the plug. A person's fingers when grasping the plug for insertion into an electrical outlet are thereby protected, since if they slip or accidentally move beyond the edge of the plug they contact the outer rim of the disc pressing it forward causing the ribs to extend and the protective cage to form to prevent contact between the person's fingers and prongs of the electrical plug when they are being inserted into an electrical outlet. When the plug is inserted in the outlet, the outer rim is brought back into the plane of the central body portion by the resiliency of the ribs whereby the entire device becomes a flat disc with all parts lying in the same plane. This invention is particularly useful in that it can be made simply and inexpensively, for example by merely one stamping operation which cuts slots in a plastic disc body in a manner and arrangement described below to simultaneously provide the resilient ribs connecting the outer rim to the central body portion and the slots for frictionally receiving the prongs of an electrical plug. Conventional safety plugs heretofore known have required complicated mechanical construction, are expensive to make, relatively quick to fail, and are usually incorporated as a part of the plug itself. The plug guard in accordance with this invention can be purchased separately, made of various sizes and shapes for use with a wide variety of electrical plugs on electrical appliances, extension cords and the like already purchased and in use.

SUMMARY OF THE INVENTION

An electrical plug guard which comprises a flat disc, an outer rim portion of greater circumference than that of an electrical plug with which it is to be used, a central body portion, slots therein to receive and frictionally hold the prongs of an electrical plug, and resilient electrically non-conducting ribs extending around and between said outer rim portion and said central body portion to join together in resilient relationship, said ribs forming a protective cage around the electrical prongs when said outer rim portion is moved away from said electrical plug towards an electrical outlet in which said plug is being inserted, said ribs and outer rim portion resiliently returning to the plane of the central body portion when pressure on the outer rim portion is released thereby returning to the form of a flat disc.

It is an object of this invention to provide an electrical plug guard in the normal form of a flat disc, deformable into a protective cage around the prongs of an electrical plug to which it is affixed when pressure is applied to the outer rim of the disc, and resiliently returnable to the original form of a flat disc when pressure against the outer rim is released.

It is an object of this invention to provide an electrical plug guard which may be sold separately for use on already existing electrical plugs.

It is an object of this invention to provide an electrical plug guard which may be made by a single cutting operation of slots in a flat disc of electrically non-conducting resilient material to form a central body portion, an outer rim portion movable longitudinally therefrom, resilient ribs between and connecting said outer rim and central body portions and slots in said central body portion for frictionally mounting on the prongs of an electrical plug.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of the electrical plug guard in accordance with this invention.

FIG. 2 is an elevation view of this invention showing the plug guard mounted on an electrical plug.

FIG. 3 is an elevation view of this invention showing the plug guard mounted on an electrical plug with the outer rim portion of the plug guard moved outwardly from the plug body and illustrating the connecting resilient ribs forming a protective cage around the prongs of the electrical plug.

FIG. 4 is a perspective view of this invention taken from the rear of the plug guard showing the outer rim portion moved away from the central body portion and the resilient ribs forming a protective cage.

DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to the drawings in detail, the electrical plug guard in accordance with this invention may consist of a round flat disc generally designated **1**, having an outer rim **2**, a central body portion **3**, and ribs **4** therebetween connecting outer rim **2** with central body portion **3**. Slots **5** are formed in central body portion **3** to receive and frictionally hold the prongs **6** of an electrical plug **7**. Two slots **5** are illustrated in FIG. **1** for receiving two prongs of an ordinary household electrical plug. It is obvious however that one or more additional slots or holes may be formed in the central body portion **3** to receive one or more additional prongs of an electrical plug, such as a third prong for a ground, so this invention may be used with a wide variety of electrical plugs. The circumference of outer rim **2** is greater than the circumference of the electrical plug **7** on which it is used to enable contact with outer rim **2** by a person's fingers when grasping plug **7** for insertion into an electrical outlet.

The ribs **4** are formed by cutting slots **8** in the disc **1** in accordance with the following arrangement. Each rib **4** is bordered by a slot **8** beginning from a midpoint **8*a*** and diverging in one direction to a first end point **8*b*** ending at the inner edge of outer rim **2** and in an opposite direction to a second end point **8*c*** ending at the outer edge of central body portion **3**. The slots **8** are arranged circumferentially around the disc **1** so that midpoint **8*a*** to first end point **8*b*** of each slot is substantially parallel to and spaced radially from second end point **8*c*** to midpoint **8*a*** of the next adjacent slot **8**. Further, first end point **8*b*** of each slot **8**, midpoint **8*a*** of the first adjacent slot **8** in one circumferential direction, and second end point **8*c*** of the second adjacent slot **8** in the same circumferential direction, are in radial alignment when outer rim **2** and central body portion **3** are in the same plane, each of said points spaced apart with first end points **8*b*** lying radially farthest from the central

axis, said radially aligned midpoints 8*a* lying radially second farthest from the central axis, and said radially aligned second end points 8*c* lying closest to the central axis. Each rib 4 is thereby formed between midpoint 8*a* to first end point 8*b* of one slot and inwardly spaced second end point 8*c* to midpoint 8*a* of a next adjacent slot in which midpoint 8*a* of the first slot is radially aligned with second end point 8*c* of the next adjacent slot and in which first end point 8*b* of the first slot is radially aligned with midpoint 8*a* of the next adjacent slot.

FIG. 1 illustrates eight slots 8 which in the manner described above have eight series of radially aligned first end points 8*b* of one slot 8, midpoints 8*a* of an adjacent second slot 8, and second end points 8*c* of a third slot 8 which is adjacent to the second slot 8, the series of eight radially aligned points being spaced equidistantly apart around the disc 1. Thus, eight ribs 4 are formed in the embodiment of this invention illustrated in FIG. 1.

When outer rim 2 is moved out of the plane of central body portion 3 and away therefrom causing ribs 4 to extend to provide a protective cage around prongs 6, the second end points 8*c* are moved out of radial alignment with first end points 8*b* and midpoints 8*a* since outer rim 2 tends to rotate axially with respect to central body portion 3 when it is moved longitudinally away therefrom.

A suitable material for the flat disc body 1 is polypropylene although other materials having similar properties of resiliency and electrical non-conductivity may be used.

The electrical plug guard in accordance with this invention is mounted on an electrical plug 7 by inserting prongs 6 through slots 5 until the disc 1 is flush against the inner face of plug 7. Slots 5 are made just large enough to frictionally engage prongs 6 and to frictionally hold central body portion 3 against the inner face of plug 7. When plug 7 is to be inserted into an electrical outlet, a person's fingers will contact outer rim 2 of disc 1 in the event they extend beyond the body of electrical plug 7, thus forcing outer rim 2 away from plug 7 while central body portion 3 of disc 1 is held against plug 7 by the frictional engagement of slots 5 with prongs 6. This forces ribs 4 to become extended forming a protective cage around prongs 6 to prevent a person's fingers from coming into contact with said prongs when they are inserted into an electrical outlet thereby protecting against electrical shock.

When pressure against outer rim 2 is released, the resiliency of ribs 4 and their integral connection between outer rim 2 and central body portion 3 as formed in the manner described above causes outer rim 2 and ribs 4 to return to the plane of central body portion 3 thus being again in the form of a flat disc.

The disc may be very thin, on the order of one-sixteenth inches thick or less. To facilitate extension of ribs 4 and movement of outer rim 2 away from central body portion 3, the portions of ribs 4 between first end points 8*b*, midpoints 8*a*, and second end points 8*c*, may be slightly notched to lessen the thickness between such points from that of outer rim 2, central body portion 3 and the intermediate portions of ribs 4, thus providing hinge means or hinge lines 9. Such hinge lines 9 may be formed by notching one or both sides of disc 1 between the points as described. The thickness of hinge lines 9 will depend on the material used to make the plug guard. For example, if polypropylene is used, the hinge lines 9 may be on the order of one-thirty secondths of an inch or approximately half the thickness of the remaining portions of the plug guard.

The particular form of the invention described herein and illustrated in the accompanying drawings are preferred embodiments, and various changes in the size, shape, materials and arrangement of parts may be made without departing from the spirit of the invention or the scope of the attached claims.

Having thus set forth my invention, what I claim is:

1. An electrical plug guard comprising a flat disc having a central body portion, slots therein for receiving and frictionally holding the prongs of an electrical plug, an outer rim portion of said disc which extends radially beyond the periphery of an electrical plug when mounted thereon, and slotted means to permit longitudinal movement of said outer rim portion with respect to said central body portion, said slotted means simultaneously providing an electrically non-conductive barrier around the prongs of an electrical plug when said outer rim portion is moved longitudinally away from said central body portion and an electrical plug on which it is mounted.

2. An electrical plug guard as set forth in claim 1, wherein said slotted means to permit longitudinal movement of said outer rim portion with respect to said central body portion consists of resilient material joining said outer rim portion to said central body portion.

3. An electrical plug guard as set forth in claim 1, wherein said flat disc, said central body portion, said outer rim portion, and said slotted means to permit longitudinal movement of said outer rim portion with respect to said central body portion are of the same material and thickness.

4. An electrical plug guard as set forth in claim 1, wherein said slotted means to permit longitudinal movement of said outer rim portion with respect to said central body portion includes ribs joining said outer rim portion to said central body portion.

5. An electrical plug guard as set forth in claim 1, including slots forming said slotted means to permit longitudinal movement of said outer rim portion with respect to said central body portion, said slots being interposed between and around said outer rim portion and said central body portion to provide ribs integrally joining said outer rim portion to said central body portion.

6. An electrical plug guard as set forth in claim 5, wherein said slots include a midpoint and diverge in one direction towards a first end point at the inner edge of said outer rim portion and diverge in a different direction towards a second end point at the outer edge of said central body portion, the first end point of each of said slots being radially aligned with the midpoint of the slot next adjacent in a circumferential direction, and with the second end point of the next following slot in the same circumferential direction when said outer rim portion and said central body portion are in the same plane, said arrangement of slots providing ribs integrally joining said outer rim portion to said central body portion.

7. An electrical plug guard as set forth in claim 6, including resilient hinge means joining said outer rim portion and said central body portion to said ribs.

8. An electrical plug guard as set forth in claim 7, wherein said hinge means include notches cut partially

into said disc on lines between said radially aligned first end points, midpoints, and second end points of the respective slots forming said ribs.

9. An electrical plug guard as set forth in claim 8, wherein said flat disc is no greater than one-sixteenth of an inch thick, wherein said central body portion, said outer rim portion and said ribs are of the same material, wherein said material is resilient and electrically non-conductive.

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