July 9, 1968 T. H. PEAVEY 3,392,361

GROUNDING DEVICE

Filed April 6, 1966

Fig. 1.

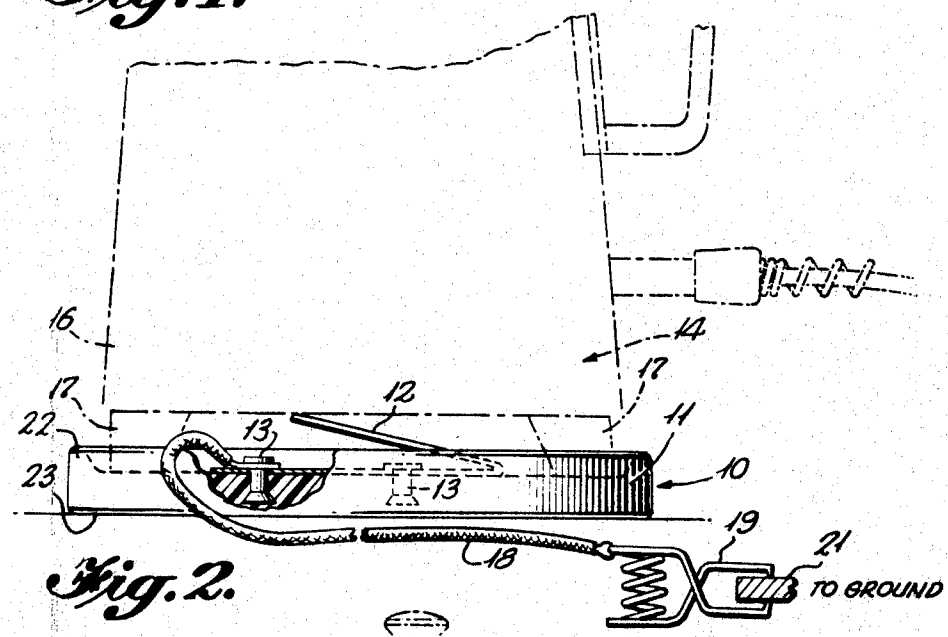


Fig. 2.

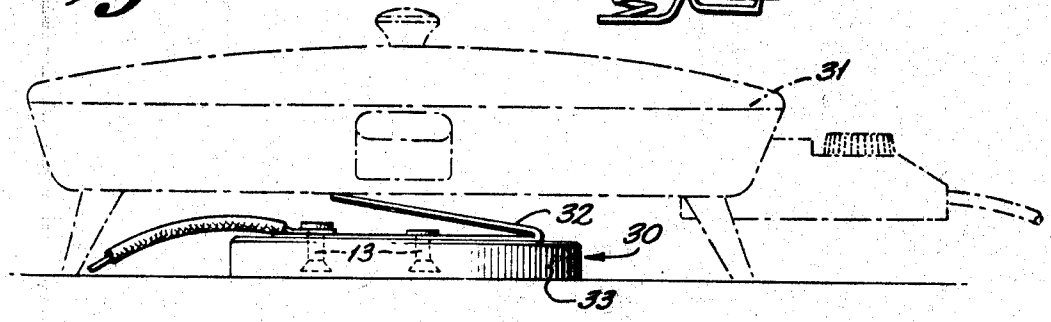


Fig. 3.

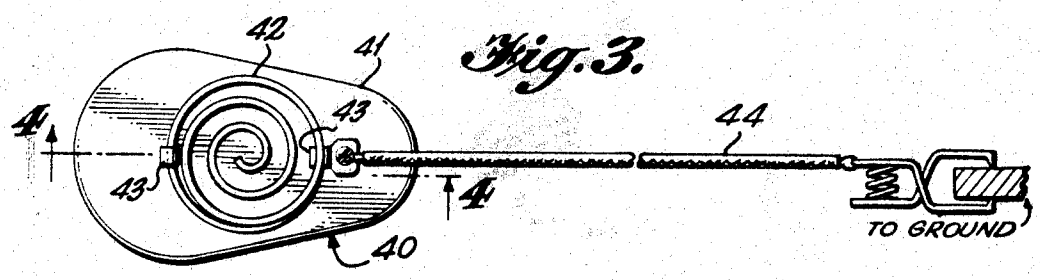
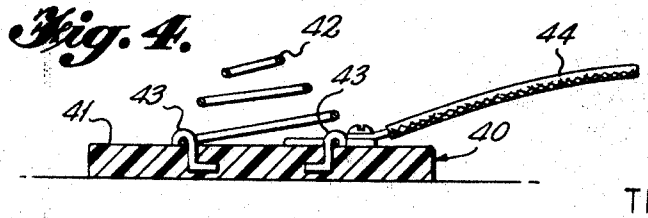


Fig. 4.



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GROUNDING DEVICE

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ABSTRACT OF THE DISCLOSURE

A grounding apparatus including a base member made of insulating material. A resilient conductor is attached to the base member and extends upwardly therefrom to engage the bottom metal surface of an electrical appliance resting thereover. The conductor can be connected to a convenient grounded object to ground the appliance.

Introduction

This invention relates to apparatus for automatically grounding a portable electrical appliance, and more particularly, to apparatus for engaging the bottom surface of an appliance resting thereover having a metal bottom to thereby ground the appliance.

State of the prior art

Many electrical appliances having metal housings are in common use in homes and in industry. These appliances are normally operated by a 110–120 volt power supply which can be fatal if applied to the human body. Not infrequently, through faulty wiring or excessive wear to the insulation on the wiring, the power supply becomes short circuited to the housing of an appliance. If an individual who is grounded comes in contact with the housing of such an appliance, death or serious injury can result.

Numerous grounding devices have been employed in the past but none has been entirely satisfactory. This is not necessarily because of mechanical failures in the prior grounding devices, but more often because they were inconvenient and/or awkward to employ and consequently were frequently unused.

Objects

It is an object of the present invention to provide new and improved apparatus for conveniently and automatically grounding an electrical appliance.

It is another object of the present invention to provide a device for supporting and grounding a portable electrical appliance without requiring the operator to make repeated electrical connections to ground the appliance.

Drawings

Other objects, advantages and aspects of the invention will become apparent by reference to the following detailed description and drawings of a specific embodiment thereof, wherein:

FIG. 1 is a side elevation view with portions removed of a grounding device embodying the principles of the invention wherein the device is in contact with the bottom surface of an electrical appliance shown in phantom lines;

FIG. 2 is a side elevation view of another embodiment of the invention in which the legs of the electrical appliance straddle the grounding device;

FIG. 3 is a plan view of another embodiment in which the grounding device is in the shape of a helix; and

FIG. 4 is a cross-sectional view taken along line 4—4 of FIG. 3 and showing the helical shape of the grounding device.

Description of the invention

In FIG. 1 there is shown a grounding device designated generally **10** which includes a portable base **11** made

of electrical insulating material. A resilient spring **12** made of electrically conductive material is secured to the base **11** by suitable fastening means such as rivets or screws **13—13**. The spring **12** is generally in the shape of a leaf spring and extends upwardly from the base **11** so as to engage the bottom surface of a portable electrical appliance **14**, shown for exemplary purposes as a coffee pot. Such appliances normally have a metal housing **16** and legs **17—17** made of insulating material. The spring **12** extends upwardly a distance which is sufficient to make positive electrical contact with the housing **16**. The other end of the spring **12** is connected by a wire **18** and an alligator clip **19** to a grounded object **21**, such as a water pipe.

The portable insulating base **11** is provided with an upstanding peripheral edge **22** to confine the legs **17—17** on the top surface of the base. The bottom surface **23** of the base **11** is flat and is made of a material which will not mar the surface on which it is resting.

Thus, when the appliance **14** is placed on the base **11**, the spring **12** automatically engages the bottom surface of the housing **16** and connects the appliance to ground. If the housing **16** is short circuited by accident to the power supply, the operator is not injured by contact with the housing and the current is connected to ground. The proper functioning of the device requires only that the grounding device **10** be connected initially to the ground. Thereafter, the appliance **14** may be repeatedly removed and returned to the base **11** with assurance that it will be automatically grounded without further attention by the operator.

In FIG. 2 there is shown another embodiment of the invention which includes a grounding device, generally designated **30**. In this embodiment the portable insulating base **33** of the device is dimensioned so that the legs of an appliance **31**, shown for exemplary purposes as a frying pan, straddle the grounding device **30**. A spring **32** which is connected to ground (not shown) extends upwardly to contact the bottom surface of the appliance **31**. Preferably, the base **33** has a length and width which is substantially greater than its thickness. This permits the base to be slid under an appliance while in situ. When the portable appliance is raised and subsequently returned to its resting position, the grounding device **30** will be in position to automatically ground the appliance.

In FIGS. 3 and 4 there is shown another embodiment of a grounding device designated generally **40**. The device includes a portable base **41** made of insulating material. A conductive, resilient spring **42** is mounted thereon by clamps **43—43** and is connected to ground by a wire **44**. The spring **42** is in the shape of a helix which extends upwardly. As in the other embodiments, the spring **42** is adapted to engage the bottom surface of a portable appliance supported above the base. The base **41** may be shaped to conform to the legs of a particular appliance, such as in the embodiment in FIG. 1, or may be designed to rest between the legs of the appliance, as in the embodiment in FIG. 2.

For example, where the appliance is one which operates at a high temperature for prolonged periods of time, it is preferable to use a wire having a high heat resistance for the connection to ground. Also, if the appliance has a plastic bottom with only a metal retaining screw, it is preferable to use a resilient conductor which has a greater surface area for contacting the screw. In such case the springs **12** and **32** can be provided with a flat metal plate at their upper extremity which contacts the metal retaining screw. The resilient conductor may also be provided with a wear resistant tip.

Further, where the screw head is countersunk into a nonconductive base a compressible metal pad, such as

a coarse steel wool, can be used. Such a pad can either be mounted on the springs **12** or **32** or can be directly mounted on the insulating base member and connected to the ground wire. The pad should have a relatively large upper surface area and enters the countersink to contact the metal retaining screw.

It is to be understood that the above-described arrangements of apparatus and construction of elemental parts are simply illustrative of an application of the principles of the invention, and many other modifications may be made without departing from the invention.

I claim:

1. A portable apparatus for grounding an electrical appliance having a conducting bottom surface to an adjacent grounded object which comprises:

a portable insulating base member adapted to be removably disposed on a supporting surface;

a resilent conductor attached to said base member and extending upwardly therefrom to engage the bottom surface of an electrical appliance disposed above said base member; and

quick detachable means for releasably connecting said resilient conductor to a grounded object so that when said base member is moved from said supporting surface said quick detachable means can be released and reconnected to another grounded object.

2. Apparatus as recited in claim **1** wherein said resilient conductor is in the shape of a helix.

3. Apparatus as recited in claim **1** wherein said resilient conductor is in the shape of a leaf spring.

4. Apparatus as recited in claim **1** wherein said insulating base member has substantially flat bottom and top surfaces, said member is substantially greater in length and width than in depth, said depth being relatively small to permit the base to slide under the electrical appliance, said conductor being attached to and extending upwardly from said top surface.

5. Apparatus as recited in claim **1** wherein the insulating base has a generally dish-shaped upper surface for supporting the electrical appliance therein.

6. Apparatus as recited in claim **5** wherein said resilient conductor is in the shape of a helix.

7. Apparatus as recited in claim **5** wherein said resilient conductor is in the shape of a leaf spring.

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