

[54] **STATIC ELECTRICITY DESHOCKER**

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[58] Field of Search **317/2 R, 2 B**

[56] **References Cited**

UNITED STATES PATENTS

3,099,774	7/1963	Crane.....	317/2 B
3,621,164	11/1971	Backer.....	317/2 R
3,711,742	1/1973	Pinkham, Jr.....	317/2 R

Primary Examiner—L. T. Hix

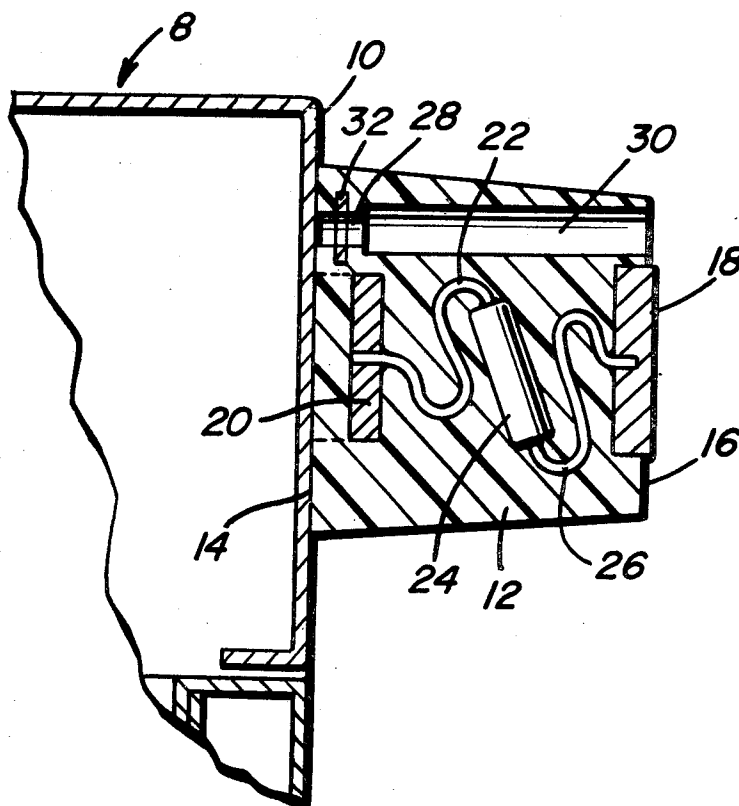
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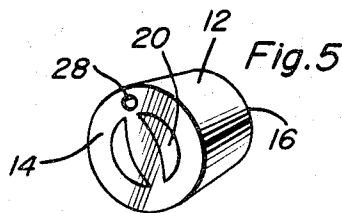
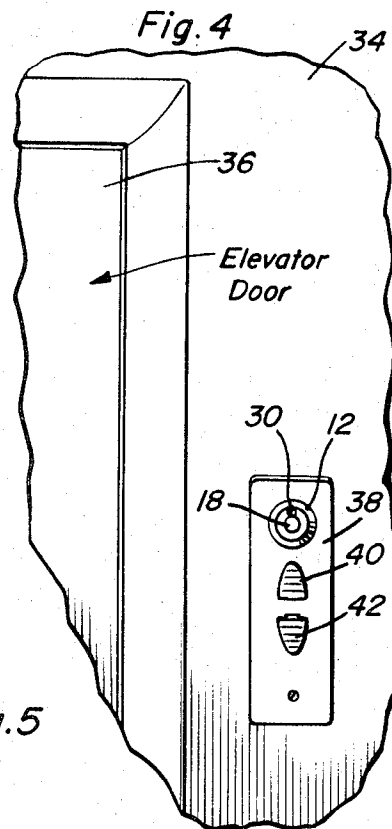
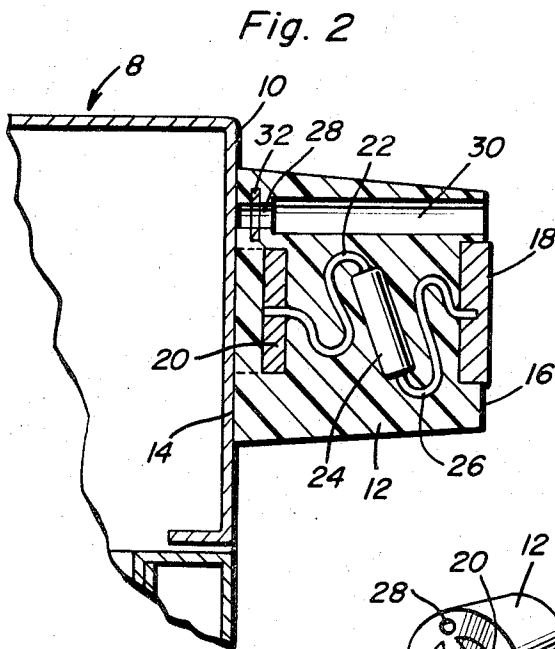
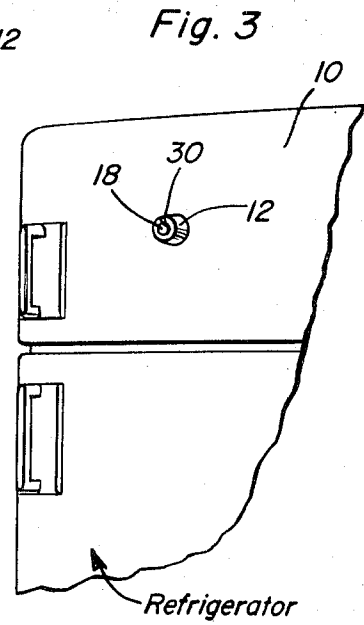
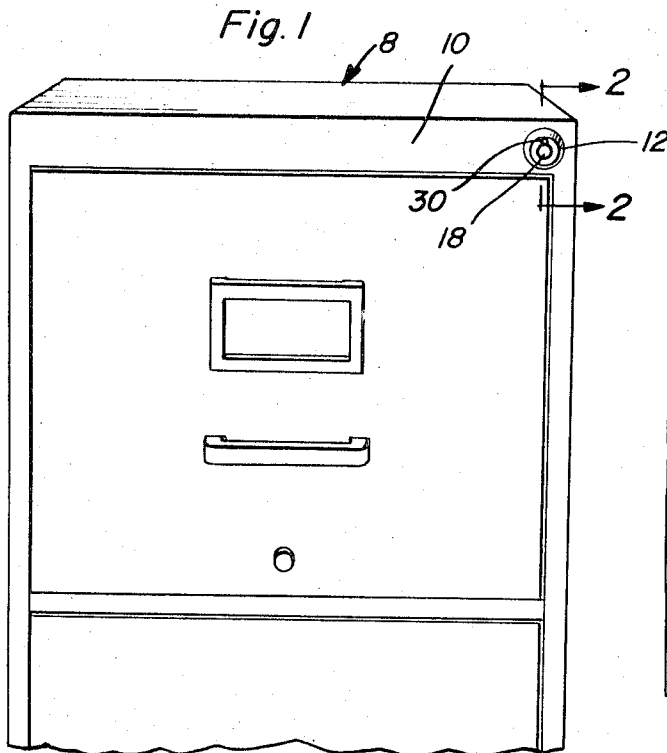
[57] **ABSTRACT**

A static electricity discharging, arresting and shock

eliminating device characterized by a body of any suitable configuration, shape, color and design made of non-conductive and insulative material, plastics for example together with a permanent magnet embedded therein. The body in a preferred embodiment, has an inward end surface designed and adapted to be supportively fastened on a relatively stationary supporting and grounding surface and an outward end surface embodying means indicative of a place or locale which, under ordinary circumstances, would be contacted or touched with the hand or finger. Discharge means is incorporated in the body through the medium of which built-up static electricity is intercepted, arrested and reduced to non-shocking state. The discharge means features an appropriate resistor which serves to slow up the flow of static electricity discharged from the user. The permanent magnet serves as a method of attaching the lead wire from the resistor, a contact point for electrical current flow to a metal surface and a means for securing the deshocker to a ferrous metal surface.

6 Claims, 5 Drawing Figures





STATIC ELECTRICITY DESHOCKER

The present invention relates to certain new and useful improvements in a static electricity arresting, discharging and shock eliminating device, more particularly, an adaptation which is self-contained and aptly suitable for accessible use on a filing cabinet, typewriter, vehicle instrument panel, T.V. knobs, kitchen appliances and the like.

Persons conversant with the art to which the invention relates are aware that discharge devices which utilize a resistor in one manner or another with a view toward reducing shock to an acceptable minimum are old and well known. One static discharging apparatus is shown in U.S. Pat. No. 3,621,164 and which has to do with its use in conjunction with doorknobs, switches, push buttons and the like and which functions to discharge an accumulated charge of static electricity in a now generally well known manner. Because it is related to the matter in hand, attention is invited to the static discharge device covered in U.S. Pat. No. 3,099,774 granted to John J. Crane. These prior patents and others, which need not be cited here, clarify that it is common knowledge to utilize non-shocking devices to cope with the stated problem.

In carrying out the underlying principles of the instant invention a simple, practical and economical adaptation has been devised and functions, as experience has shown, to discharge the buildup of static electricity from the human body in such a manner that the exasperating, dangerous and sometimes humiliating shock frequently encountered, when touching a metallic surface or object, is reduced to a practical minimum and, in most instances, virtually eliminated.

Briefly, the herein disclosed static electricity arresting, discharging and shock reducing appliance or device comprises a body of suitable shape and size which is made of any insulative non-conductive material, wood or plastic material for example, said body having a readily accessible and adequately exposed surface or portion embodying an easy-to-spot means which marks and is indicative of the place where physical contact with said body is aptly made. Discharge means is incorporated in the body and it is through the medium of this means that the build-up flow of static electricity is intercepted, arrested and reduced to a non-shocking state or degree. The discharge means embodies, that is one feature thereof, a self-contained resistor whose critically important resistive value is at least 10 megohms.

In carrying out a feasible form of the invention, the aforementioned body is provided with an inward end surface which can be superimposed upon a supporting and static electricity grounding surface, a file cabinet for example. The body is further provided with a permanent magnet embedded therein for mounting on a ferrous surface and a specific construction for receiving a screw type fastener.

Also and by way of introduction and with further reference to the resistor which has a value of approximately ten megohms, the electrical rating thereof is approximately one-fourth to one-half watt. Tests have shown that a resistor of this value will restrict even the most severe static discharge from the human body to a grounding source without discomfort to the individual.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully

hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout.

FIG. 1 is a view in perspective showing a fragmentary portion of a file cabinet and showing, in the upper right-hand corner the static electricity arresting, discharging and shock reducing device sometimes referred to as a deshocker.

FIG. 2 is an enlarged fragmentary detail view with parts in section and elevation taken approximately on the plane of the vertical section line 2—2 of FIG. 1 looking in the direction of the indicating arrows.

FIG. 3 is a fragmentary perspective view of a rotation of a kitchen appliance, for example a refrigerator showing how the device can be applied and used thereon.

FIG. 4 is a fragmentary elevational view showing how the invention is used on and in association with a push button or escutcheon plate associated with an elevator door and wherein the device is fastened on a non-ferrous plate.

FIG. 5 is a view in perspective of the device by itself showing the inward substantially flat end and the recessed attaching magnet.

By way of introduction to the description of the details, it is reiterated that it is within the purview of the inventive concept to incorporate the invention in and as a part of an appliance, fixture or vehicle where it would become a permanent component part thereof. While this is not herein shown, it would seem sufficient to merely mention this aspect of the invention. Insofar as the disclosed invention is concerned, it is a self-contained ready-to-install attachment susceptible of use on filing cabinets, typewriter, automobile instrument panels, kitchen appliances and the like which, as is evident are some of the places where individuals unexpectedly encounter an electrical shock. It may be added that a typical example of its use would be to have the invention conveniently located on a filing cabinet so that an office worker who at one time or another would accumulate static electricity simply by walking on a carpeted surface or even when wearing certain articles of apparel could touch the deshocker prior to touching the filing cabinet surface. Then, too, and on an instrument panel or other location of an automobile the invention well serves its purpose in that it can be conveniently touched prior to getting out of the automobile. Another situation in which the invention would lend itself to acceptable use might be in furniture stores where various fabrics and heavy carpeting generate an abundance of static electricity.

A filing cabinet is denoted by the numeral 8 and as shown in FIGS. 1 and 2, the device is mounted in the upper right-hand corner with the supporting surface on which the device is usually mounted being denoted by the numeral 10 with this surface being a refrigerator door in FIG. 3. The device itself is preferably made from moldable plastic material having the desired insulative and non-conductive properties although other materials such as wood can be used. The device includes a body 12 that is cylindrical in form and is of elongated dimension. An inward surface 14 is planar or flat and may be superimposed on the support surface 10 of the filing cabinet 8 as is clearly evident in FIG. 2. The outward end 16 is mainly flat but has a central area or portion provided with a finger-contacting element, here in the form of a metal disc 18 which is embedded and provides a conveniently accessible and readily us-

able touch-button. It will be evident that the overall body is primarily of one-piece or unitary construction of molded plastic, foam plastic or the like with the component parts embedded or otherwise disposed therein. One of the embedded parts is a suitable permanent magnet 20 as best shown in FIGS. 2 and 5 which is flush with the surface 14 and in practice it adheres to the surface of the wall or ferrous support surface 10 for supportively retaining the overall device 12 in a given position. The magnet 20 receives a terminal end portion of one lead wire 22 carried by a resistor 24. The other lead wire is denoted at 26 and it too is carried by the resistor and has an end portion unified with the metal button or disc 18. The lead wires 22 and 26 on the resistor 24 are connected to the magnet 20 and disc 18 in any suitable manner such as by press fit into a bore, using solder or potting material, glue, various mechanical fasteners or other mechanical methods. The magnet 20 may be varied as to shape and size as may the body 12. Thus, the non-conductive body serves to accommodatingly confine and support the components and at the same time insulates the components electrically. In addition, it prevents the user from touching a metal surface.

The aforementioned disc 18, that is the button, constitutes an area or place which the user contacts with a finger before attempting to touch the metal surface 10. The resistor 24 serves to slow up the static electricity discharged from the user thus avoiding the impact of the often encountered electrical shock. The magnet 20 provides three essential functions as follows: (1) provides method of attaching resistor lead wire, (2) provides contact point for electrical current flow to metal surface 10, and (3) provides means for securing the deshocker to a ferrous metal surface such as 10.

It is within the purview of the invention to provide the body with means whereby a screw-threaded headed fastener can be employed for attaching the device to a support surface, when the device is used on a non-ferrous metal. The arrangement shown in FIG. 2 comprises a bore 28 to accommodate a screw or the like and a relatively enlarged counterbore 30 which permits the screw to be inserted and secured in place by the use of a suitable screwdriver. When a screw is employed, the magnet lends itself to the aforementioned purpose of providing a contact point for electrical current flow to a metal surface. If foam plastic is used to form body 12 or if reinforcement is desired, a washer 32 may be embedded in the body 12 in order to form part of bore 28 and which may be in electrical contact with a screw (not shown) and the magnet 20.

In cases where it is found desirable to use the invention where metals are non-ferrous, such as aluminum, bronze or brass, and the magnet would not adhere thereto, the invention could either be secured directly to the metal by bolts or screws, or even clips or clamps (not shown) or in fact by making contact by a wire pigtail (not shown) from the resistor and terminating with an electrical clip. This capability may be characterized as one of the features of the overall invention.

In FIG. 4 the numeral 34 designates a wall and 36 an elevator door. The up-and-down buttons on the escutcheon plate 38 are denoted at 40 and 42 respectively. Here the body 12 is mounted on the upper end of the escutcheon plate and can be held in place by the mounting screw which normally secures the escutcheon plate in position being received in the bore 28 with

the head thereof engaged with the shoulder at the inner end of counterbore 30.

When the body is constructed of plastic material, an attaching tab may be formed thereon at the inner end for receiving a mounting screw. Alternatively, a ring of metal or plastic having an attaching tab thereon may be positioned over the tapering body and secured in position by friction or by snapping into a shallow groove at the large end of the body.

The button 18 may be in the form of a metal disc or it may be a conventional garment-type button of pearl, plastic or other non-conductive material in which event, the wire lead 26 may pass out through one hole in the button and then back through another hole in the button so that when a finger is engaged with the button, it will contact the lead wire and thus be electrically connected to the resistor 24. Also, in wood doors and in other installations, a wire lead of any suitable length may be positioned so that it can be easily connected to any ferrous object that may be remotely located with respect to the contact button.

When installed in an automobile, the body may be permanently secured to or built into the vehicle structure in a convenient location accessible to the operator and/or passengers. In such an installation, the magnet 20 may be used or omitted as desired with the resistor being connected to a grounding surface in any suitable manner.

With the construction illustrated, the resistive element is continuously in contact with a grounding surface, no tools are required to mount the deshocker on a ferrous surface, no effort is required on the user's part in order for the deshocker to function, the deshocker is portable due to the dual function of the magnet as a securing device and as a conductor or contact to the grounding surface, the resistive element is sufficient to restrict the most severe static discharge from the human body to a grounding surface without discomfort to the individual, and the deshocker is not restricted to any one specific item for its function or use.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described and accordingly all suitable modifications and equivalents may be restored to, falling within the scope of the invention.

What is claimed as new is as follows:

1. A static electricity arresting, discharging and shock reducing device comprising a body made of insulative non-conductive material, said body having a readily accessible amply exposed surface embodying easy-to-spot means which is indicative of the place where physical contact with said body is aptly made, and discharge means incorporated in said body through the medium of which the built-up flow of static electricity is continuously intercepted, arrested and reduced to a non-shocking state, said discharge means embodying a self-contained resistor, said body being provided with an inward end surface which is applicably superimposed upon a supporting and static electricity grounding surface, and further provided with an outward end surface within the circumscribing limits of said easy-to-spot contact means and which is localized for readily accessible finger-touching use, said easy-to-spot contact means comprising a conductive member which

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is embedded in, is substantially flush with the encompassing surface of said outward end surface, and is cooperatively associated with and electrically connected to said resistor, said resistor having a first lead wire with one end joined to the resistor and the other end electrically connected to said finger-touching member, said resistor being provided at its other end with a second lead wire and also wherein said body is provided at its inward end with an embedded permanent magnet, said second lead wire being operatively connected to said magnet, and said magnet having a surface which is exposed by way of said inward end and is accordingly adapted to adhere retentively to said supporting and grounding surface, said magnet additionally providing an electrical contact for the flow of static electricity to its termination point on a metal surface.

2. The static electricity arresting and shock reducing device defined in and according to claim 1 wherein said body is provided with components which are embedded and confined in said body.

3. A static electricity deshocker comprising a resistor having portions defining the ends of a flow path there-through, means exposing one portion of the resistor for contact by a person having a built-up static electrical charge, means electrically connecting another portion of the resistor to a body capable of receiving the static charge to establish an electric flow path for the static electrical charge through the resistor whereby the resistor

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controls the rate of flow thereby eliminating the shock caused by rapid discharge of a static electrical charge which occurs when a person having such a built-up charge directly contacts such a body, said deshocker including a body of non-conductive material, said means connecting the resistor to a body including a permanent magnet in said body with a portion thereof exposed to the external surface thereof to (1) provide an attaching point for a lead wire to the resistor, (2) provide a contact point for electrical current flow to a grounding metal surface, and (3) provide a means for securing the deshocker to a grounding ferrous metal surface.

4. The structure as defined in claim 3 wherein said means exposing one portion of the resistor includes a conductive metal member in the body exposed to an external surface thereof opposed to the magnet and providing an attaching point for another lead wire of the resistor.

5. The structure as defined in claim 3 wherein said body includes a bore therethrough, said bore adapted to receive a screw-threaded fastener for mounting the body on non-ferrous grounding surfaces.

6. The structure as defined in claim 3 wherein said body includes means associated therewith for mounting the body on a supporting surface of non-ferrous material.

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