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R. E. DUDLEY ET AL

3,462,183

SHOCKPROOF DOORKNOB

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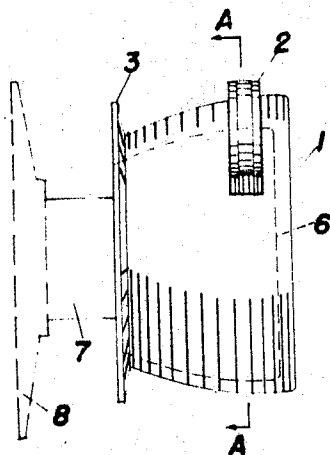


FIG. 1

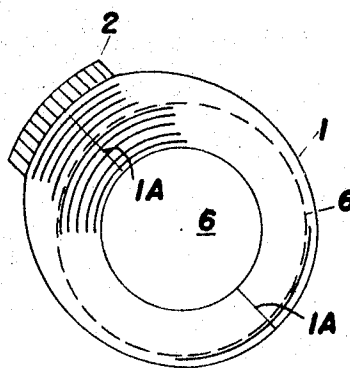


FIG. 2

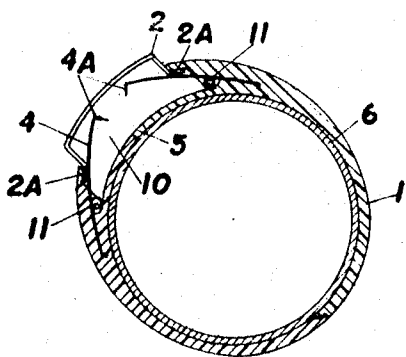


FIG. 3

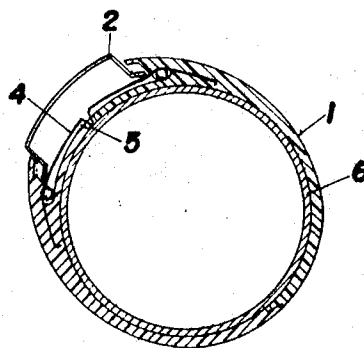


FIG. 4

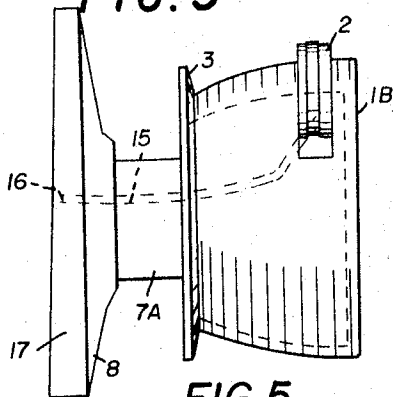


FIG. 5

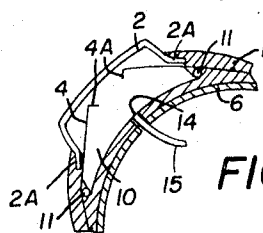


FIG. 6

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SHOCKPROOF DOORKNOB

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6 Claims

ABSTRACT OF THE DISCLOSURE

A metallic, grounded doorknob having an insulated cover and an initially non-grounded, conducting button moves to grounded position under the influence of a person's hand and extracts static electricity from the person's body when the doorknob is grasped, without noticeable shock to the person.

Buildings and rooms containing carpeting, rugs and other fabric floor covering tend to produce static electricity when a person walks over the covering. Certain atmospheric conditions greatly increase the intensity of the static electricity and causes considerable annoyance and, at times, pain to a person. Particularly annoying is the jump of a spark of static electricity from a doorknob to the person's hand in attempting to open the door.

A major object of the invention is to provide a doorknob which reduces the spark from static electricity and actually extracts the static electricity from the person's body without noticeable shock to the person.

Another object of the invention is to provide a doorknob which is initially insulated from a ground and provides means for subsequently grounding the doorknob when in the grasp of the user so as to extract static electricity from the body without a spark.

Other objects and advantages of the invention may be readily ascertained by referring to the following description and appended illustrations in which:

FIG. 1 is a side elevational view of an insulated doorknob according to the invention;

FIG. 2 is a front elevational view of the doorknob of FIG. 1;

FIG. 3 is a cross-sectional view of the doorknob of FIG. 1, taken along section line A—A, with the grounding button in non-grounded position;

FIG. 4 is a similar cross-sectional view, taken along section line A—A, with the grounding button depressed into grounded position;

FIG. 5 is a side elevational view of a modified form of the invention; and

FIG. 6 is a detailed fragment, in section, of the embodiment of FIG. 5.

In the embodiment selected for illustration, an insulating cover 1 having a conducting button 2 mounted in the side thereof and a flange 3 is mounted on a doorknob 6, which, in turn, is mounted on a shaft 7 which is connected to a lock mechanism, not shown, in conventional manner. A cover plate 8 completes the assembly. The insulating cover may be made of rubber-synthetic plastic, or the like which does not conduct electricity and insulates a person's hand from the grounded metal of the doorknob. The button 2 is reciprocally secured in the insulating cover and is biased outwardly by conducting spring arms 4 mounted in a cavity 10 in the cover.

The button 2 is reciprocally mounted in an opening 11 in the insulated cover 1 and is retained in position by flared edges 2A of the button 2. An opening 5 in the cover permits bent-in ends 4A of spring arms 4 to be moved into contact with the metallic doorknob 6. The pair of spring arms 4 are mounted on helical, conducting springs

11 to provide means for aiding the spring arms to move the button 2 back into extended and non-grounded position. The spring arms may be, also, flat springs of suitable conducting material, such as spring steel, arranged to hold the button out under normal position and permit it to move in under the influence of the grasp of a person.

When a person grasps the doorknob, his hand comes in contact with the button 2 which, in normal position, is not grounded so there is no spark jumping from the hand to the button. On grasping the doorknob, however, the button is depressed in the cavity 10, forcing the springs downwardly so that the ends 4A enter the opening 5 and move into contact with the metal doorknob inside. This completes the circuit between the static electricity stored in the body and the grounded metal of the knob, as shown in FIG. 4. Since the hand of the person is in firm contact with the metal of the plunger, the spark jump occurs between the springs and the grounded doorknob, and not between the hand and the button. A non-conducting petroleum oil may be stored in the cavity 5 to noticeably decrease the distance that the spark will jump between the spring ends 4A and the grounded doorknob.

A similar result may be obtained by insulating the entire doorknob from contact with the grounded lock mechanism and, by using a similar button closing spring loaded contacts, which has one side in contact with the grounded lock mechanism, depressing the button engages the contacts and completes the circuit with the grounded lock. In such a case the doorknob itself may be made of non-conducting material, or the shaft 7 may be made of non-conducting material, completely insulating the doorknob from the lock mechanism. A simple wire lead from a position under the plunger to the lock mechanism provides the circuit when the button is depressed to contact the end of the lead to the lock mechanism. FIGS. 5 and 6 show this modification where a non-conducting doorknob 1B mounted on a non-conducting shaft 7A is provided with a button 2, similar to that of FIG. 1 the contact ends 4A of spring arms 4 are arranged to touch contact point 14 to which is connected a lead or conductor 15 attached at its opposite end 16 to grounded lock mechanism 17 mounted on the door. In this manner the person is able to grasp the doorknob without obtaining a shock, and depressing the button grounds the person's body with the grounded lock mechanism, extracting the static electricity without a shock to the person.

The button may be made of insulating material with a metallic contact extending around the button so as to contact a person's hand as well as the springs. As illustrated in FIG. 2, the insulating cover may be made in halves for installation on existing doorknobs, the covering being divided along parting lines 1A. The insulating cover may, also, be made as an integral part of the doorknob. Various modes of decoration may be achieved by making the cover in other styles, etc. For example, the flange 3, which prevents a hand from slipping off the doorknob into contact with the conducting cover plate, may be enlarged or reduced in size to change the shape of the cover. With plastics for the covering, different colors may be used, changing the appearance of the doorknob.

While the invention has been described by reference to a particular embodiment, there is no intent to limit the spirit or scope of the invention to the precise details so set forth, except as defined in the following claims.

We claim:

1. A method of making a grounded conducting doorknob shockproof comprising covering a major portion of the extended portions of said doorknob with an electrical insulating covering; mounting a reciprocable, conducting button in said covering in a normally non-grounded position; biasing said button in said non-grounded position; and providing a normally open contact

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between said conducting button and said grounded doorknob whereby when a user grasps and squeezes said doorknob said button is depressed to close said contact between said button and said doorknob to extract static electricity from the person of the user without a spark.

2. A shockproof doorknob comprising an electrical conducting doorknob mounted on a grounded, conducting latch mechanism; means for connecting said doorknob and said latch mechanism; a non-conducting cover encompassing a major portion of said doorknob; a conducting button mounted on said doorknob cover for limited reciprocal movement extending through said non-conducting cover toward and away from the surface of said doorknob; means biasing said button in extended normally non-conducting position, said button being reciprocable inwardly to a retracted position from said non-conducting position; and means forming an electrical contact between said button in retracted position and said latch mechanism, whereby a user's hand initially contacts said non-grounded button and on grasping and squeezing said doorknob said button is moved into contacting position with said grounded latch mechanism to extract static electricity from the user without a spark.

3. A shockproof doorknob according to claim 2 wherein said doorknob is made of a metal conducting material and is in electrical conducting contact with said latch mechanism, and said insulating cover encompasses the periphery of said doorknob.

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4. A shockproof doorknob according to claim 3 wherein said insulating cover is formed of two halves fitting over an installed doorknob including means for securing said halves together.

5. A shockproof doorknob according to claim 3 wherein said means biasing said button in normally non-conducting position is a conducting spring normally insulated from said doorknob and in electrical contact with said button, and said conducting spring forms the contact between said button and said doorknob on depressing said button.

6. A shockproof doorknob according to claim 2 wherein said conducting doorknob is insulated from said latch mechanism and a conducting wire secured at one end to said latch mechanism extends to a point with its opposite end in position to be contacted by said button when depressed to form a closed circuit between said depressed button and said latch mechanism.

References Cited

UNITED STATES PATENTS

3,306,643 2/1967 Reed ----- 292-347 X

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U.S. Cl. X.R.

174-5; 317-2