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TOOL SALES DISPLAY THEFT ALARM

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2 Claims. (Cl. 340—280)

This invention relates to the art of displaying merchandise for sale and particularly to a system for protecting articles so displayed from theft.

We have discovered that in displaying electric shop tools, for examination by customers, it helps the sale of these to provide electric service outlets adjacent the table on which the tools are displayed and into which the service cords of these tools may be plugged to enable the customer to operate each tool so as to get an idea how it works. We have found however that when displaying tools in this manner there is an occasional theft of a tool which is accomplished merely by the thief removing the service cord of a tool from the outlet into which it is plugged and walking off with the tool.

It is an object of the present invention to provide a tool sales display theft alarm which may be embodied with any table on which tools are displayed and will provide a multiple of outlets into which service cords of individual tools may be plugged to permit any of these tools to be energized by actuating the switch provided on the tool, but which will give an alarm whenever the service cord of one of these tools is removed from the outlet into which it has been plugged.

The manner of accomplishing the foregoing object as well as further objects and advantages will be made manifest in the following description taken in connection with the accompanying drawings in which

FIG. 1 is a diagrammatic perspective view of a merchandise display table having a preferred embodiment of the present invention incorporated therewith.

FIG. 2 is a wiring diagram of the alarm system shown in FIG. 1.

FIG. 3 is a diagrammatic sectional view of one of the individual service outlets incorporated with the invention and showing the plug of a service cord about to be inserted in said outlet.

Referring specifically to the drawings, the invention is shown in FIG. 1 as associated with a table 10 including a top 11 and legs 12. The invention is embodied in a cabinet 13 which is secured to the bottom of the table top 11 and is supplied with two-pole electric current through leads L1 and L2 confined within a cable 14. The front wall 15 of cabinet 13 is provided with a row of holes 16 near its upper edge, which, in the preferred embodiment disclosed, are eight in number, and in series of eight service outlets 17 are mounted in said holes so that each of these is exposed to the insertion therein of prongs 18 and 19 of a plug 20 of a service cord 21 of a tool 22 resting on table 10 for the purpose of supplying electric current to said tool.

Each of the outlets 17 includes a molded plastic box 27, the internal structure of which is diagrammatically shown in FIG. 3. Electric terminals 28 and 29 having screws 30 and 31 are rigidly mounted within the box 27 in holes 32 and 33 provided in the latter. Formed on the terminals 28 and 29 and extending therefrom in parallel relation are two flexible J-shaped electric contacts 34 and 35, plug prongs 18 and 19 having access through holes 40 and 41 in box 27 for camming engagement respectively with contacts 34 and 35 so as to shift these contacts away from each other and make good electrical connection between the prongs 18 and 19 and the contacts 34 and 35.

This engagement of prong 19 with contact 35 shifts the inner extremity 42 of this contact into engagement with

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a contact 43 provided on a terminal 44 which is rigidly mounted on the box 27 and disposed centrally within the latter. The box 27 is also provided with a hole 45 through which a conductor 46 may be extended for connection, as by the application of solder 47, to terminal 44. It is now to be noted that the contact 43 and the free end 42 of contact 35 are closely spaced before the prongs 18 and 19 of a plug 20 are inserted into the outlet 17, so that insertion of the plug 20 and engagement of the prong 19 with the free end 42 of contact 35 shifts this contact into engagement with contact 43. It is further pointed out that the conductor 46 of each of the series of outlets 17 excepting the last one of these on the right as shown in FIG. 2 is connected to terminal 29 of the next outlet 17 to the right thereof in said series. The conductor 46 of the outlet 17 on the extreme right in FIG. 2 is connected to one terminal of a relay 48 having an armature switch arm 49 which, when said relay is de-energized, is spring urged into its broken line position 50 against a contact 51. The contact 51 and the other terminal of relay 48 are connected by suitable conductors to lead L1 the latter also being connected to terminals 28 of all of the service outlets 17. Relay switch arm 49 is connected to one of the primary terminals of a low voltage transformer 55 while the other primary terminal of the latter is connected to lead L2. The secondary terminals of the transformer 55 are connected by suitable conductors to any desired kind of alarm either visible or auditory such as the electric bell 56 shown in FIG. 2. This alarm may be located together with the relay 48 and transformer 55 within the cabinet 13 or it may be at any desired remote location.

Operation

From the above description it will be clear that when service cord plugs 20 are inserted in all of the outlets 17 of the invention the switches 60 formed in these outlets by the contacts 35 and 43 thereof are closed, thereby connecting all of the terminals 29 of the outlets 17 to the main lead L2 and causing the relay 48 to be energized thereby holding switch armature 49 in its full line open position as shown in FIG. 2 thereby interrupting the primary winding circuit of the transformer 55 and rendering the alarm 56 inoperative.

Whenever the service cord plug 20 thus cooperating with one of the outlets 17 to maintain the alarm 56 inoperative, is pulled from its outlet so as to release the contact 35 thereof from engagement of the prong 19 of said plug therewith, the switch 60 of that outlet automatically opens, thereby opening the circuit of the relay 48 permitting the armature arm 49 thereof to be spring urged to its broken line position 50 in FIG. 2 thus closing the primary circuit of the line transformer 55 and energizing the alarm bell 56.

Wherever the removal of the plug 20 from one of the outlets 17 is the act of a person intending to steal a tool, such as the tool 26, from the table 10, the alarm thus given by the present invention at once attracts the attention of the storekeeper to the display table 10 thereby foiling the attempted theft.

We claim:

1. An alarm system comprising: a series of female two-pole electric service outlet receptacles, each of said receptacles comprising a dielectric base having guides for guiding two prongs of an electric service cord plug when the latter is plugged into said receptacle, first and second electric screw terminals fixed on opposite sides of said base, two flexible metallic electric contacts fixed at one end respectively on said terminals and extending freely therefrom alongside said guides whereby said prongs will be guided into engagement with and flex free end portions of said contacts when inserted into said receptacle,

thereby making electric connection respectively between said prongs and said contacts, that one of said contacts which is fixed on the second terminal having a rebent J-shaped free end portion which is so engaged, a third electric terminal fixed on said base, and a third contact fixed on said third terminal and extending within said J-shaped contact end portion aforesaid and out of contact therewith excepting when said J-shaped contact is engaged and flexed by insertion of said plug into said receptacle, at which time said J-shaped contact is flexed against and into electrical connection with said third contact; two main circuit leads L1 and L2 for supplying current to said receptacles, lead L1 connecting to the first terminals of all of the receptacles in said series, and lead L2 connecting to the second terminal of the first receptacle in said series, the third terminal of each of said receptacles, excepting the last receptacle in said series, being connected to the second terminal of the next following receptacle in the series; and a current responsive alarm device energized by an electric circuit which draws its current from lead L1 and from the third terminal of the last receptacle in said series.

2. An alarm system comprising: a series of female two-pole electric service outlet receptacles, each such receptacle comprising a dielectric base having guides for guiding two prongs of an electric service cord plug when the latter is plugged into said receptacle, first and second electric terminals fixed on opposite sides of said base, two flexible metallic electric contacts fixed at one end respectively on said terminals and extending freely there-

from alongside said guides whereby said prongs will be guided into engagement with free end portions of said contacts when inserted into said receptacle, thereby making electric connection respectively between said prongs and said contacts, a third electric terminal fixed on said base, and a third contact fixed on said third terminal and disposed adjacent said contact which is fixed on said second terminal but out of contact therewith, but being so related thereto that insertion of said plug into said receptacle produces an electrical connection between said third contact and the contact fixed on said second terminal; two main circuit leads L1 and L2 for supplying current to said receptacles, lead L1 connecting to the first terminals of all of the receptacles in said series, and lead L2 connecting to the second terminal of the first receptacle in said series, the third terminal of each of said receptacles, excepting the last receptacle in the series, being connected to the second terminal of the next following receptacle in the series; and a current responsive alarm device energized by an electric circuit which draws its current from lead L1 and from the third terminal of the last receptacle in said series.

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