

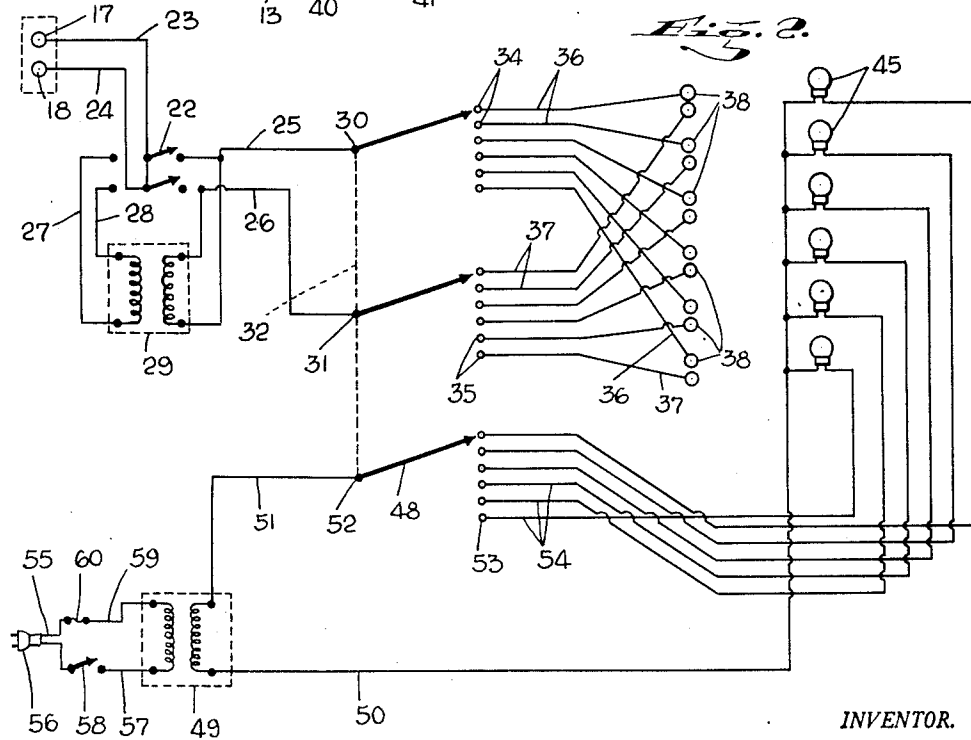
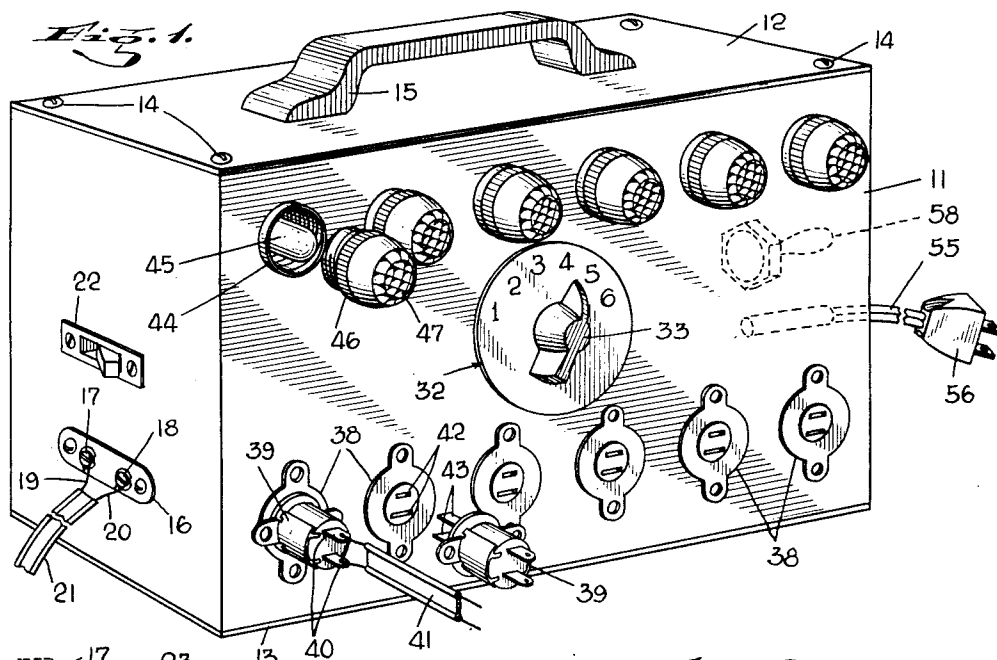
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ELECTRIC CIRCUIT DISTRIBUTION DEVICE

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ELECTRIC CIRCUIT DISTRIBUTION DEVICE

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1 Claim. (Cl. 175-298)

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This invention relates to a distribution device for use in electrical circuits for selectively connecting an input line with one of a plurality of output lines and, particularly, to a device of the class described having visual indicating means to designate which of the output lines is in circuit with said input lines.

More particularly, the invention relates to a device of the class described in the form of a junction box for selectively distributing a common input signal, such as the signal from a television antenna to one of a plurality of output terminals adapted for coupling with independent means responsive to said signal.

In the hookup of certain electrical circuits, where it is desired to employ a single input signal for activating a plurality of devices, it sometimes happens that it is impossible to couple the input signal with more than one such device without seriously impairing the performance of the coupled devices, thus for example, with a normal television antenna satisfactory results are obtained when the antenna is coupled directly to a single television set but attempts to connect a second set in parallel to the antenna circuit results in interferences between the two sets so that reception on one, or both, is impaired. It is, of course, possible by the use of a special antenna having means for boosting the antenna signal to operate a plurality of sets from the single antenna input without seriously impairing the performance of the sets but this special antenna installation is rather costly both in its initial installation and its maintenance.

The problems above mentioned are particularly serious in stores and showrooms where it is desired to display at will a number of different television sets. Since the cost of a special antenna of the type mentioned is generally not warranted, it has been necessary, in order to properly demonstrate different television sets using the conventional type of antenna, to continuously interchange connections between the antenna line and the particular set to be demonstrated. This procedure, however, is time-consuming and highly impractical.

An object of my invention is to provide a simple and convenient device for simultaneous coupling with a plurality of television sets, said device having means for instantaneously switching an input antenna signal to any one of the coupled sets. A further object of my invention is to provide a device of the character described having visual means for indicating at a glance

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which circuit is coupled with the antenna input signal.

These and other objects of the invention will be better understood from the following description, when taken together with the accompanying drawing, in which one adaptation of my invention is shown with the various parts thereof identified by suitable reference characters in each of the views and, in which:

Fig. 1 is a perspective view of a compact junction box made according to my invention; and

Fig. 2 is a diagrammatic illustration of the electrical circuits within the box shown in Fig. 1.

As shown in the drawing, my device comprises a box or casing 10 having an assembled side wall unit 11 and detachable top and bottom walls 12 and 13 fastened to the side wall unit by suitable means, as indicated by the screws 14. The box 10 is a relatively small compact size and is preferably provided with a handle 15 on the top wall thereof to provide for easy carrying and moving of the box.

One end of the box is provided with an external terminal plate 16 having means, as indicated by the screws 17, 18, for coupling with the leads 19, 20 of a television antenna wire or cable 21.

Above the terminal plate 16 is a switch 22 which, as shown in Fig. 2 of the drawing, is a double pole double throw switch for coupling the leads 23, 24 directly with the wires 25 and 26 or alternatively for coupling said leads with the wires 27, 28 connected with a transformer 29 which, in turn, is connected with the wires 25, 26.

The purpose of the transformer 29 is to accommodate my device for use with either 72 ohm or 300 ohm resistance antenna cables, these being the cables most commonly employed commercially and the transformer is preferably designed to balance the 72 ohm antenna signal to correspond with a 300 ohm antenna signal. In other words, when a 300 ohm antenna is coupled with the screws 17 and 18, the switch 22 will be in the position shown in Fig. 2 to connect the lines 23, 24 directly with the lines 25, 26; whereas, if a 72 ohm antenna line is used, the switch 22 will be moved to the reversed position, thus bringing the transformer 29 into the antenna circuit. It will, of course, be understood that the device 22 can be made to accommodate antennas having different resistances by merely employing a multiple throw, double pole switch in place of the switch 22 and additional matching transformers corresponding with the transformer 29.

The lines 25 and 26 are connected to the poles

30, 31 of a multiple throw, double pole switch 32. The switch 32 is preferably of the rotary-type, as seen in Fig. 1, having a suitable control and indicator knob 33 for moving the switch to its various operative positions, six such positions being shown in the drawing. From corresponding terminals 34, 35 of the switch 32, wires 36, 37 are connected to six outlet terminals 38 which, as shown in Fig. 1 of the drawing, are preferably in the form of female outlet sockets arranged along the lower portion of the front wall of the box 10.

The sockets 38 are adapted to receive conventional plugs 39 having means, as indicated by the terminals 40, for coupling directly with the antenna lead 41 of a television set. The apertures 42 in the sockets 38 are preferably of slightly different size to receive correspondingly shaped prongs 43 on the plugs 39 to insure proper orientation of the antenna lead 41 with respect to the input antenna wire or cable 21.

Along the upper portion of the front wall of the box 10, I have shown six light sockets 44 adapted to receive the bulbs 45, and which are internally threaded to receive knurled members or hoods 46 having translucent end portions 47, preferably characterized by color and contour to provide a bright illumination when a bulb 45 is lighted.

As will be seen in Fig. 2 of the drawing, the bulbs 45 are controlled by a single pole, multiple throw switch element 48 which is integrally coupled with the switch 32 and controlled by the knob 33.

Current for lighting the bulbs 45 is supplied through a transformer 49 for converting the normal 115 volt A. C. current to the 6.3 volts required in the pilot lights 45. One output terminal of the transformer 49 is connected through the wire 50 to each of the lights 45 and the other output terminal is connected through the wire 51 to the fixed pole 52 of the switch element 48. The six contacts 53 engaged by the element 48 are, in turn, connected through the wires 54 with the corresponding lights 45.

It will, of course, be apparent that the coupling of the wires 54 with the lights 45 is so arranged as to illuminate the light directly above the socket shown in Fig. 1 of the drawing, which is in closed circuit by reason of the position of the switch control knob 33.

In coupling the transformer 49 with a source of 115 volt current, I employ a conventional lead line 55 having a plug 56 for insertion in a conventional outlet; one wire 57 of the line 55 is connected to the transformer 49 through a switch 58 mounted on the end wall of the box 10, as shown in Fig. 1 of the drawing. The other wire 59 of the line 55 is connected to the transformer 49 through a fuse 60 in accordance with the usual procedure.

It will be apparent from the foregoing description that, after complete assemblage of my junction or control box, all connections and adjustments required in the normal use of the box can be made from the outside, thus for example, in setting-up the control box for operation, it is necessary merely to insert the plug 56 in an ordinary 110-115 volt outlet socket, attach the leads 19 and 20 of an antenna line 21 to the terminals 17, 18 and insert in the sockets 38 the plugs 39 connected with antenna leads 41 for a number of different television sets. When it is desired to demonstrate a particular set, the switch 58 is thrown to close the pilot light circuit and the

control knob 33 of the switch 32 is moved to the position corresponding with the position of the antenna line 41 of the set to be tested. The only adjustment then necessary to switch the antenna lead to another set is rotary adjustment of the control knob 33 and it will be apparent that, with the device, as shown in the drawing, it is possible to have as many as six television sets tuned to a particular broadcast and, by merely turning the control knob 33, the visual reception can be switched instantaneously to any of the six sets thus permitting a direct comparison of the type reception retained in different sets. In this connection, it will be noted that, in the operation of the device, only one set at a time is in circuit with the antenna lead 21 so that, even with the six television sets plugged into the control or junction box 10 and tuned for reception, the visual reception in the particular set selected by the control knob 33 is in no way impaired by the other tuned sets.

Since by virtue of the size of the television sets an arrangement of several sets for display purposes may cover a considerable area, the illuminating pilot lights provide a simple and practical means for indicating to the demonstrator what set is in circuit with the antenna without having to closely examine the position of the control knob 33. If the pilot light system is not needed, however, it can be turned off by merely throwing the switch 58 without, in any way, interfering with the primary function of the control or junction box.

My device has been described particularly in connection with television circuits since it overcomes a marked inconvenience and meets a distinct need in the sale and demonstration of television sets; it will be understood, however, that the device can also be employed in other instances where an electrical signal desired for coupling with a plurality of devices can produce the desired results only when coupled with one such device. One illustration of my control unit is in the demonstration of speakers for radios, amplifying systems and the like. A number of speakers plugged into my device could then be interchangeably coupled with a radio or amplifier or permit direct comparison of the reception and tone qualities obtained in the different speakers or amplifiers.

Other uses and adaptations of my particular box or control device will occur to those versed in the art.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

A junction box for selectively placing any one of a plurality of television sets in circuit with a single television antenna, said junction box comprising an outer casing, input terminal means on one wall of said casing for coupling of television antenna lines therewith, a plurality of output terminals on another front wall of said casing forming means for coupling antenna leads of a plurality of television sets therewith, a double pole multiple throw switch within said casing and wired to said input and output terminals, means including a control knob on said front wall of the casing for actuating said first named switch and for indicating which output terminal is in circuit with said input terminal in different positions of said first named switch, said last named means including a plurality of pilot lights on said casing corresponding in number with the number of said outlet terminals, an independent

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source of current and a multiple throw switch for actuating said pilot lights, and said last named switch and first named switch both being coupled with said control knob to provide actuation of a different pilot light as each output terminal is placed in circuit with said input terminal.

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