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REMOTE ELECTRICAL CONTROL

2,840,765

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2 Sheets-Sheet 1

Fig. 1

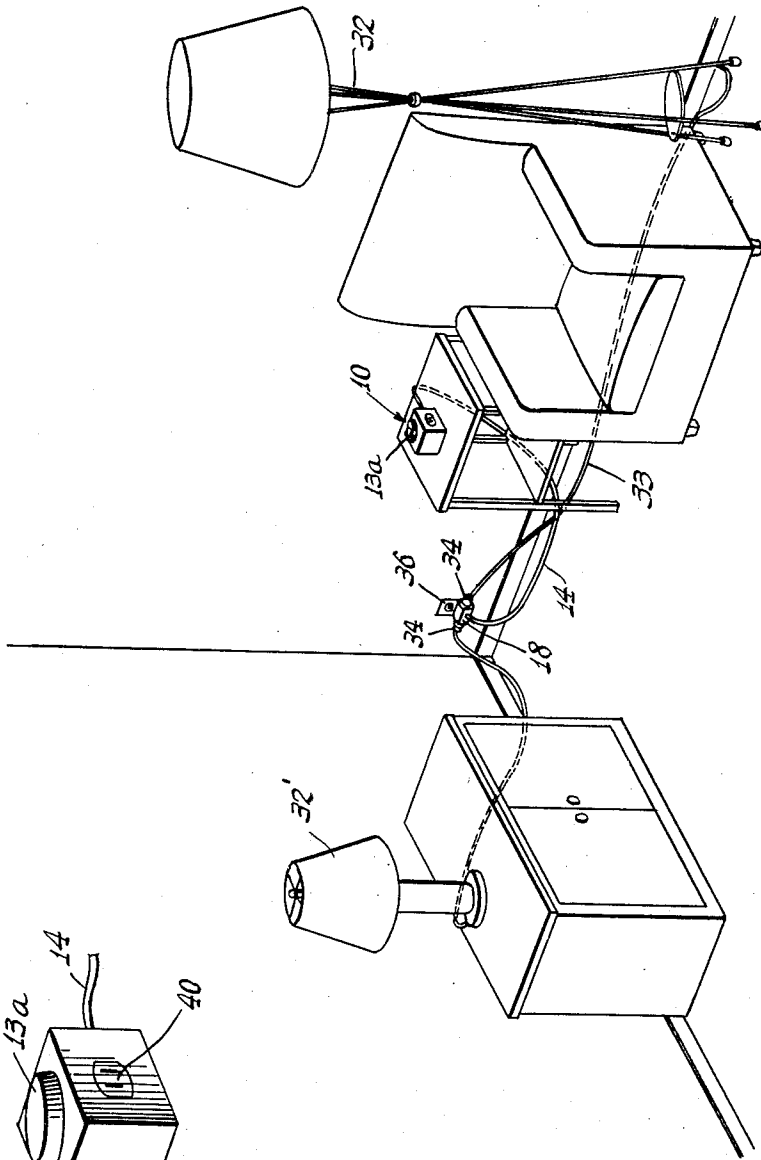
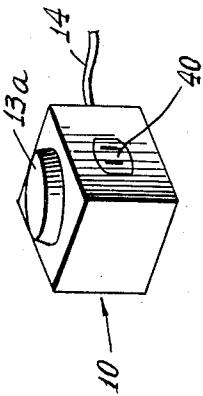


Fig. 7



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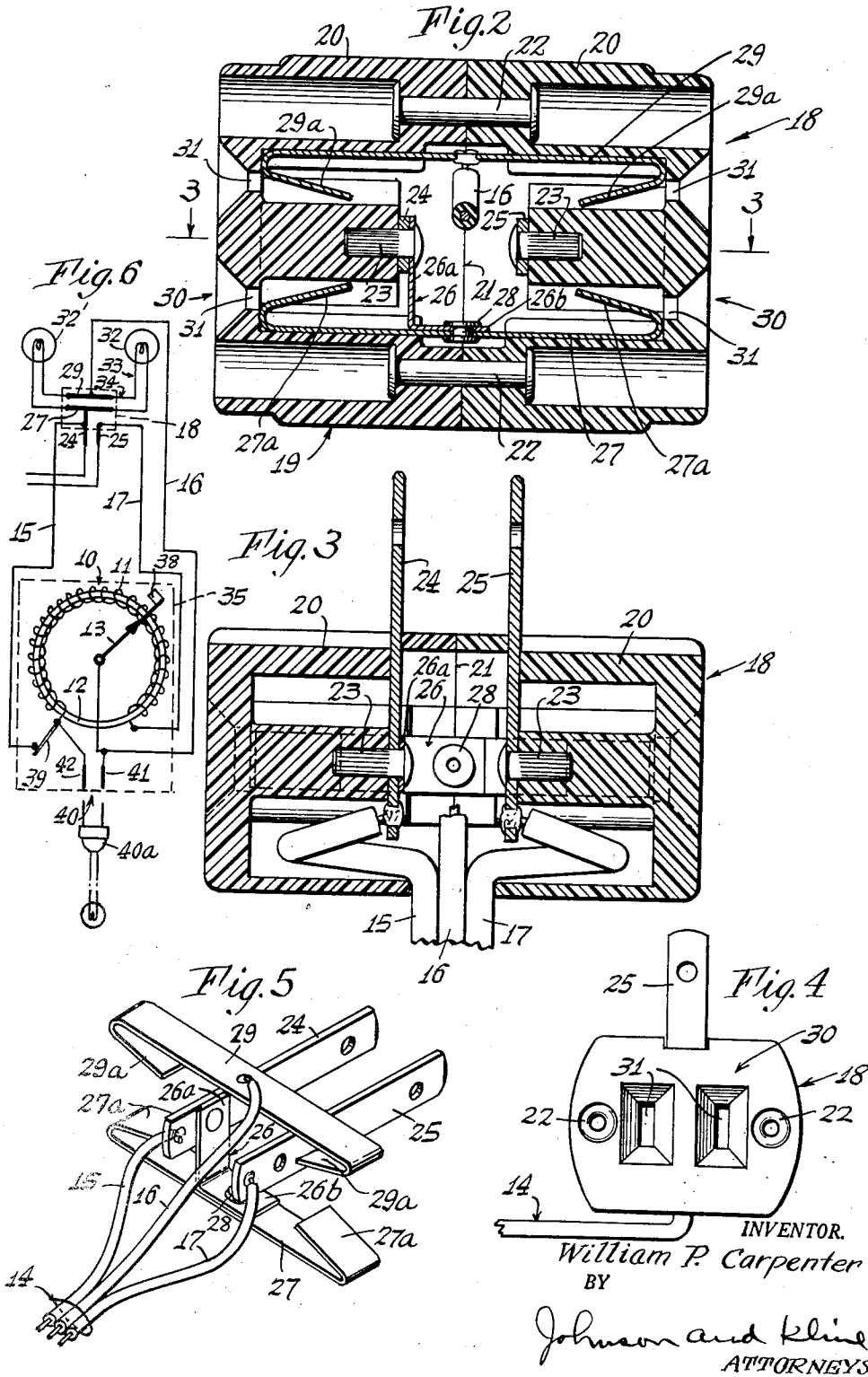
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## REMOTE ELECTRICAL CONTROL

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3 Claims. (Cl. 315-276)

This invention relates to remote electrical controls and more particularly to a connector which provides for releasable and convenient connections between an electrical outlet, a control unit and an electrical device to be controlled.

An object of this invention is to provide a control unit with a novel and improved connector arranged as a plug receptacle which enables a control unit to be inserted between a conventional plug receptacle and an electrical device having a standard attachment plug, to control the amount of power fed to the device, and which connector permits a convenient, readily attached and detached connection therebetween without the necessity of breaking the line cord wires of the device.

Another object of this invention is to provide a control with an improved connector which can be included in an electrical circuit to establish remote control of an external electrical device in a simple, quick manner, without the use of special tools or the possession of special knowledge, which is inexpensive to manufacture, and which prevents connecting the device to a control unit in any but a predetermined operative manner.

A further object of this invention is to provide for the remote control of a plurality of electrical devices by the use of a single connector and a single control.

Another object, more specifically, is to provide for the control of the brilliancy of a lamp or other illuminating means by means of an autotransformer, remotely positioned from the lamp and also from the outlet supplying the electrical energy and in which only a single additional cable is required for electrically connecting the elements.

One of the features of this invention resides in the provision of having a novel and improved connector for permitting the connection of a variable control unit such as an autotransformer between the conventional plug receptacle and an electrical device having a standard attachment plug. Another feature is the provision of having only a single cable connecting the control unit to the connector which obviates the unsightliness and complexity of a plurality of cables or lines and permits the placing of the control unit in a conveniently accessible location remote from the connector and external device to be controlled. Still another feature resides in constructing the connector with a plurality of sockets so that it may concurrently operate a plurality of electrical devices.

Other features and advantages will hereinafter appear. In the accompanying drawing:

Figure 1 is a perspective of a plurality of electrical lighting appliances connected for remote control by means of an arrangement incorporating features of the invention.

Fig. 2 is a vertical sectional view taken through the center of the connector.

Fig. 3 is a second view perpendicular to the figure of Fig. 1.

Fig. 4 is an end elevation of the connector.

Fig. 5 is a perspective of the electrical components in the connector.

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Fig. 6 is a schematic diagram of the control.

Fig. 7 is a perspective of the housing.

Referring to the drawings, there is shown perspective-ly in Fig. 1, a variable control unit generally indicated by the reference numeral 10 and two lamps 32 and 32' electrically connected to the control unit in order to be remotely controlled thereby. The unit in the illustrated embodiment, as schematically shown in Fig. 6, consists of a variable autotransformer having a toroidal coil 11 wound about an annular magnetic core 12. For varying the output voltage from the autotransformer, a movable brush contact 13 is positioned for pivotal movement along the commutator surface (not shown) of the coil 11. The brush is connected to a knob 13a for enabling manual manipulation of the brush contact. A single cable 14 extends from the autotransformer and is formed with three leads 15, 16 and 17. It will be understood that movement of the knob will vary the power output of the control unit 10 and accordingly the luminosity of the lamps 32 and 32'.

In order to provide for a simple, foolproof, inexpensive connecting means between the source of electrical energy and an electrically operated device such as a lamp, there is provided a novel and improved connector generally indicated by the reference numeral 18. By virtue of the construction and assemblage of the connector, it is capable of being utilized by simply plugging it into a conventional plug receptacle 36, and a lamp or other electrical device having a standard attachment plug 34 is plugged into a socket formed on the connector.

The connector as shown in Figs. 2 and 3 has a molded body generally indicated by the reference numeral 19 made from insulating material. While other thermo-setting or thermoplastic material may be employed, preferably the material is "Bakelite." The body 19 is composed of two sections 20, 20, symmetrical in shape, and of such a configuration as to contain the electrical components of the connector in spaced, nonconducting relation. The sections 20 abut on a line 21 and are held in such relationship by eyelets 22 which have their ends spun over to maintain the parts in the desired position. Each of the sections 20 has a stud-like insert 23 molded therein. Contact prongs 24 and 25 are maintained in position by these inserts, which preferably may also have their heads spun over. The prongs 24 and 25 are of such shape and spaced a distance apart which enables them to be received within the conventional plug receptacle 36. A right-angle bracket 26 is attached by one leg 26a to the prong 24 as by one of the inserts 23 and has its other leg 26b fastened to a contact bar 27. A rivet 28 is preferably employed, though spot welding, soldering, etc. may be also advantageously used. Another contact bar 29 is positioned transversely of the prongs 24 and 25 and parallel to the bar 27 and maintained by the configuration of the section 20 in the adapter 18. The parts 23-29 inclusive are formed from conducting material.

The cable 14 is connected to the following portions of the connector: Lead 15 is connected as by soldering to the prong 24, lead 16 is connected to the contact bar 29, and lead 17 is connected to the prong 25. The cable 14 is of sufficient length so that the control unit 10 may be placed any desired distance from the connector 18. For example, the control unit in a housing 35 with the exterior knob 13a for moving the contact 13 may be placed on a table 37 remote from the connector 18 and receptacle 36. The cable constitutes the only connection or line between the connector 18 and the control unit 10.

The connector is provided on opposing faces with a female receptacle or socket, generally indicated by the reference numeral 30. These receptacles are formed by

apertures 31 in the sections 20 and with bent-over portions 27a and 29a of the contact bars 27 and 29 respectively. The female receptacles are of such a shape and size as to conveniently receive the prongs of the standard attachment plug 34.

The operation of the device is as follows:

The prongs 24 and 25 are plugged into the conventional plug receptacle 36, and a lamp 32 or other external electrical device having a line 33 to which is attached a standard attachment plug 34 is received within one of the female receptacles 30. Current then flows from the prong 25 through line 17, coil 11 and line 15 to the prong 24 which energizes the coil of the autotransformer. Energy to the lamp 32 is derived from the prong 24, bracket 26, contact bar 27 and bent-over portion 27a. The other side of the line for the lamp is through bent-over portion 29a, bar 29, lead 16 and brush contact 13. With the contacts of the attachment plug 34 in engagement with the bars 27 and 29, the lamp 32 will be energized and the amount of energization will depend upon the position of the brush 13 on the coil 11 of the autotransformer 10. Accordingly, movement of the brush 13 about the coil 11 will vary the luminosity of the lamp 32.

A description of only one lamp 32 has been given. However, another lamp 32' as indicated in Fig. 1 and in the schematic diagram, Fig. 6, may be plugged into the other side of the connector 18 and be similarly controlled by the control unit 10.

In the specific embodiment shown and at present preferred, the autotransformer 10 is provided with an "on-off" switch as schematically illustrated in Fig. 6 to open the circuit to the lamps when they are at their lowest degree of brilliancy. The particular arrangement employed is shown schematically in Fig. 6 and consists of an insulated segment 38 attached to the brush contact 13 for movement therewith. A normally closed switch 39, such as a micro-switch, is positioned in the line 15 and structurally located to be in the path of movement of the insulated segment 38 for operation thereby when the power to the lamps is at a minimum. Accordingly, movement of the contact counterclockwise decreases the luminosity of the lamps and then finally disconnects them from the circuit.

As shown schematically in Fig. 6 and in perspective in Fig. 7, a receptacle 40 for receiving a standard attachment plug 40a may be located in one side of the housing 35 of the autotransformer 10, if such is found desirable. The contacts 41, 42 of the receptacle 40 are attached to the line 15 and the line 16 respectively by connections inside the housing 35.

It will be apparent from the foregoing description that there has been provided a novel connection for use with an autotransformer which permits the remote control of an external electrical device, such as a lamp, and that only one cable between the control unit 10 and the connector is necessary. Furthermore, no addi-

tional electrical parts are necessary to connect the elements together; neither is any electrical skill nor experience. The lamp or other external electrical device to be controlled is easily connected and the parts can only be connected in a predetermined operating relationship.

Variations and modifications may be made within the scope of the claims and portions of the improvements may be used without others.

I claim:

1. A remote control, for an electric lamp having a plug, to control the luminosity thereof comprising a housing adapted to be supported on a support; a variable autotransformer mounted in and enclosed by the housing, said autotransformer having a manually operable knob accessible from the exterior of the housing for varying the output of the autotransformer; a multiwire cable connected to the autotransformer and terminating in an attachment plug; said plug having prongs for insertion into a standard household outlet and a socket for receiving the plug of the lamp whereby the cable and plug connects the input of the autotransformer with the prongs and the output of the autotransformer with the lamp.

2. The invention as defined in claim 1 in which the autotransformer includes a movable element attached to the knob and a switch operated by the movable element at a predetermined position thereof to open the circuit between the prongs and the autotransformer.

3. An electrical remote control for providing detachable connection between a plug receptacle and lamp having an attachment plug for controlling the brilliancy of the lamp comprising an autotransformer having a coil and a movable contact selectively positionable on the coil to vary the output, a cable having at least three leads, a lead connected to each end of the coil, and a third lead connected to the movable contact, a connector having an insulated body and two parallel prongs extending therefrom adapted to enter the receptacle, a pair of contact bars within the body and joining therewith to form a socket for receiving the plug of the lamp, the leads connected to the ends of the coil being connected to the prongs and the third lead being connected to one of the contact bars, and a conductor within the body connecting a prong with the other contact bar whereby the autotransformer may be connected to the lamp to remotely control the brilliancy of the lamp.

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