May 11, 1954 A. D. BAYLOR 2,678,415

INDICATING DEVICE FOR USE IN REMOTE CONTROL OF ELECTRIC MOTORS

Filed Dec. 30, 1950

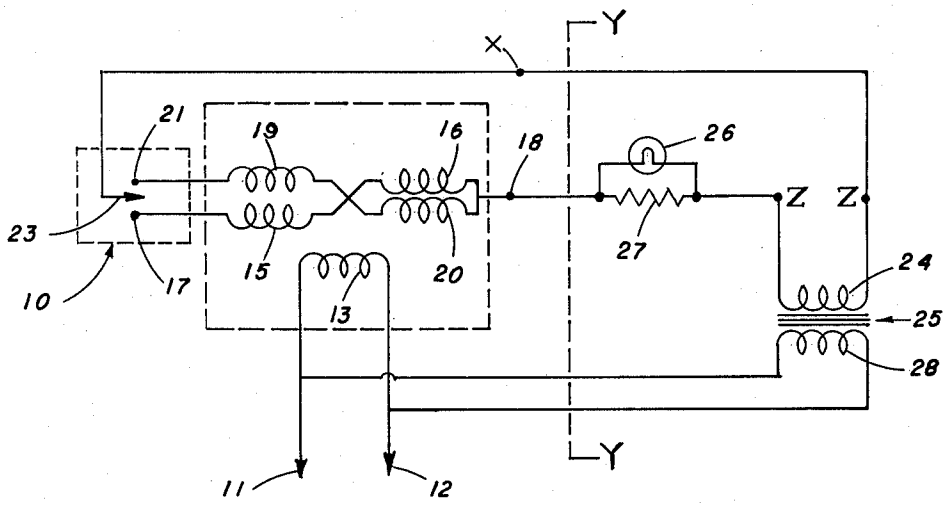


Fig 1

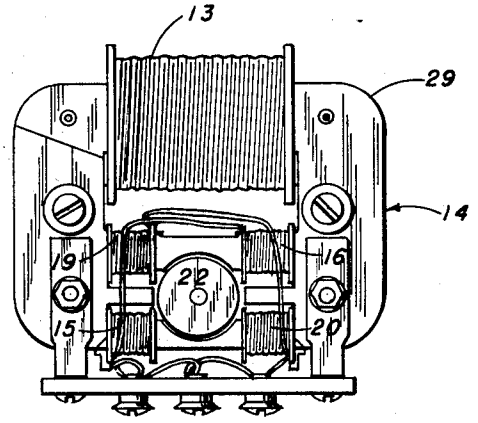


Fig 2

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Patented May 11, 1954 2,678,415

UNITED STATES PATENT OFFICE

2,678,415

INDICATING DEVICE FOR USE IN REMOTE CONTROL OF ELECTRIC MOTORS

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Application December 30, 1950, Serial No. 203,723

2 Claims. (Cl. 318—208)

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The present invention relates generally to indicating devices of particular utility in the remote control of television receivers and specifically to a novel circuit for a dial light which is illuminated when a remote control device is in operation. Various devices for the remote control of television receivers are well known. They solve the problem involved in permitting the tuning of a television receiver when the operator is sitting in an easy chair or otherwise disposed in a location remote from the television receiver. One fundamental remote control device includes a reversible electric motor which automatically turns the rotor of a continuous tuner, such operation being conventionally performed manually in receivers which are not remotely controlled. The reversible motor turns the tuner rotor one way or the other until the tuning device or selector is adjusted to receive the desired channel. Such a device conventionally includes a reversible motor such as that illustrated in Fig. 2 and a reversing switch such as that designated by the reference numeral 10 in Fig. 1. In accordance with the present invention the remote control device is provided with an indicator in the form of a dial lamp which is energized when the motor is running, the light illuminating a dial and the indicia thereon (not shown) so that the operator can observe when to turn the motor on or off. The present invention also provides a novel circuit for energizing this dial lamp.

The primary object of the present invention is to provide a simplified indicating device including a lamp circuit and a lamp for illuminating the rotating dial of a television receiver tuner.

For a better understanding of the invention, reference is made to the following description of the accompanying drawings, in which there is illustrated a preferred embodiment of remote control indicating device for television receivers.

In the drawings:

Fig. 1 is a schematic diagram of the indicator lamp circuit in accordance with the invention; and

Fig. 2 is a top plan view of a suitable commercially available reversible shading coil motor which is utilized in the inventive combination.

Referring now specifically to Fig. 1 of the drawings, a suitable source of alternating current (not shown), generally a 110 volt household supply, is connected to terminals 11 and 12 across which is disposed the main field coil 13 of the motor, the motor being designated by the reference numeral 14 in Fig. 2. This motor includes a set of counter-clockwise wound, serially arranged shading coils 15 and 16 connected between contact 17 and terminal 18, and a set of serially arranged, clockwise wound shading coils 19 and 20 connected between contact 21 and terminal 18. It is well known to those skilled in the art that set 15 and 16 is conventionally short-circuited to cause rotation of the motor rotor 22 in one direction, and set 19, 20 is short-circuited to start the motor rotor in the other direction. The terminal 18 is conventionally connected to point X, and the circuit elements to the right of the dashed line Y in Fig. 1 are not conventionally provided. Those circuit elements to the right of line Y are a part of the inventive combination presently described. A selector switch 10 of the single-pole double-throw type or equivalent is included in the controlling equipment disposed at the remote location of the operator. A movable conductive arm of switch 10 is, in accordance with the invention, connected in series circuit with secondary 24 of a transformer 25 and the dial lamp 26, the latter being shunted by a resistor 27. A 6.3 volt, 0.15 ampere dial lamp has been found satisfactory. The transformer 25 includes a secondary 24 and a primary 28, the primary being connected across the input terminals 11 and 12. A 6.3 volt secondary 24 has been found to be satisfactory, the required voltage rating being the same as that of the lamp.

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In conventional circuitry the terminal 18 is connected to point X and the elements 26, 27, and 24 are not provided. The switch 10 is operated to short-circuit either set of shading coils, causing the motor rotor to turn in either direction, as is well known to those skilled in the art. The present invention provides a very simple means for energizing the indicator lamp 26 when the motor 14 is running. The advantageous indication and illumination of the dial are obtained without the introduction of any complexity into the reversing circuits for the motor 14. The dial lamp 26 is suitably shunted with a parallel resistor 27 so that excessive current does not flow through the lamp when the normal shading coil current flows. The parallel combination of lamp 26 and resistor 27 is placed in series with the common terminal 18 of the two sets of shading coils. If it be imagined that the points Z—Z illustrated in Fig. 1 are connected together, the closing of a switch 10 would cause the dial lamp to glow, but the added resistances in series with the shading coils would reduce the shading coil

current to such an extent that the motor **14** would not be allowed to develop its full torque. On the other hand, the provision of an auxiliary voltage source **24**, in series with both the dial lamp and the shading coils, in the proper phase, brings the shading coil current back to the proper level, point **18** then in effect being at a zero difference of potential with respect to point X, so that the motor develops its starting torque and the dial lamp glows with normal brightness.

Referring again to Fig. 2, as stated above the shading coil motor therein indicated is of a readily available commercial type. It comprises a U-shaped metallic frame **29**. A rotor **22** is journaled in suitable bearings for rotation as shown. Wound centrally on the frame is a main field coil **13**. The motor is additionally provided with two sets of shading coils **15**, **16** and **19**, **20** as above described.

The construction and operation of shading coil motors per se are well understood in the art and are discussed in such publications as Lawrence, Principles of Alternate Current Machinery, McGraw-Hill Book Co., Inc., New York, 1940, page 609. The construction of television receiver cabinets and the location of tuner control dials and dial lamps are well understood to those skilled in the art, so that these elements are not shown in detail in the drawings.

While there has been shown and described what is at present considered to be the preferred embodiment of the invention, it will be understood that various equivalents may be substituted therein without departing from the scope of the invention as defined by the appended claims.

I claim:

1. In a television receiver remote control device of the type which includes a reversible shading coil motor having two independent pairs of shading coil windings in two branch circuits and a terminal common to said circuits, a novel indicating device comprising a load including a dial lamp in series with said terminal, an auxiliary voltage source in series with said load, and single-pole double-throw switching means for selectively serially encircuiting said lamp and voltage source with either of said sets of coils and at the same time closing the circuit of that set only.

2. In a television receiver remote control device of the type which includes a reversible single-phase induction type shading coil motor having a field coil and two independent shading coil circuits and a terminal common to said circuits, a novel indicating device comprising a dial lamp in series with said terminal, a transformer having a primary in parallel with said field coil and a secondary providing an auxiliary voltage source in series with said dial lamp, and single-pole double-throw switching means for selectively serially encircuiting said lamp and voltage source with either of said sets of coils and at the same time closing the circuit of that set only.

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