United States Patent

Crowley

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[54] UNIVERSAL BLANKET CONTROL

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[73] Assignee: **Northern Electric Company**, Chicago, Ill.

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[21] Appl. No.: **54,315**

[52] **U.S. Cl.** **219/492**

[51] **Int. Cl.** **H05b 1/02**

[58] **Field of Search** 219/492, 493, 334, 511

[56] **References Cited**

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Primary Examiner—George Harris
Assistant Examiner—F. E. Bell
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[57] **ABSTRACT**

A blanket control which may be used with blankets of different power requirements. The invention replaces a plurality of controls required for blankets at the present time. A temperature-responsive switch is controlled by a resistor which is connected in parallel with the applied voltage so that the temperature-responsive switch may be adjusted to apply power for a predetermined time which is independent of the power required for the appliance.

7 Claims, 7 Drawing Figures

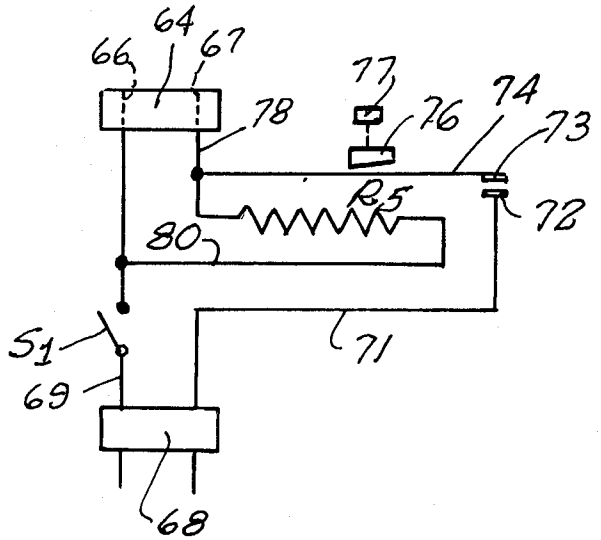

Fig. 4

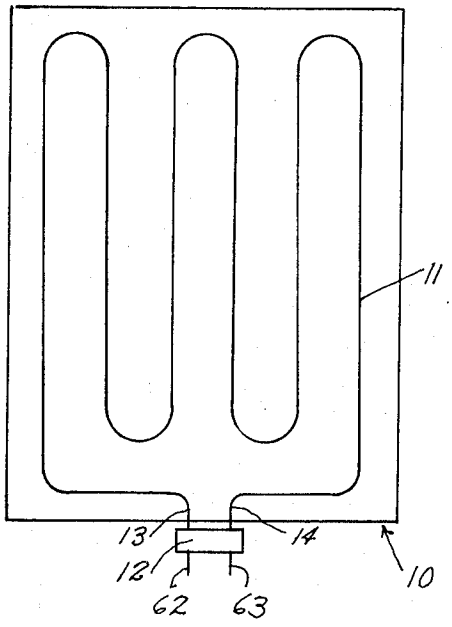

Fig. 5

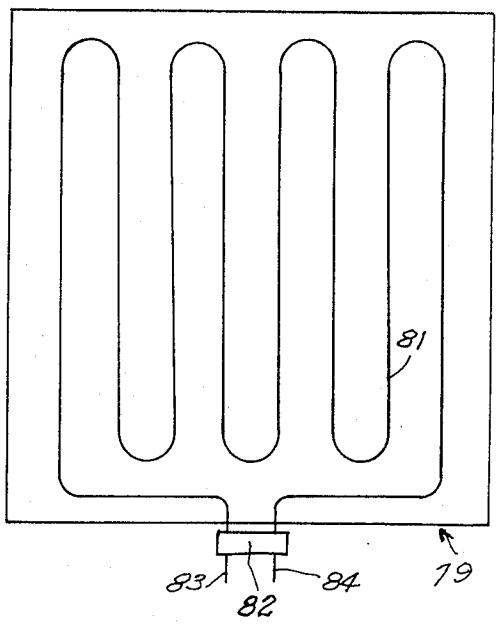

Fig. 6

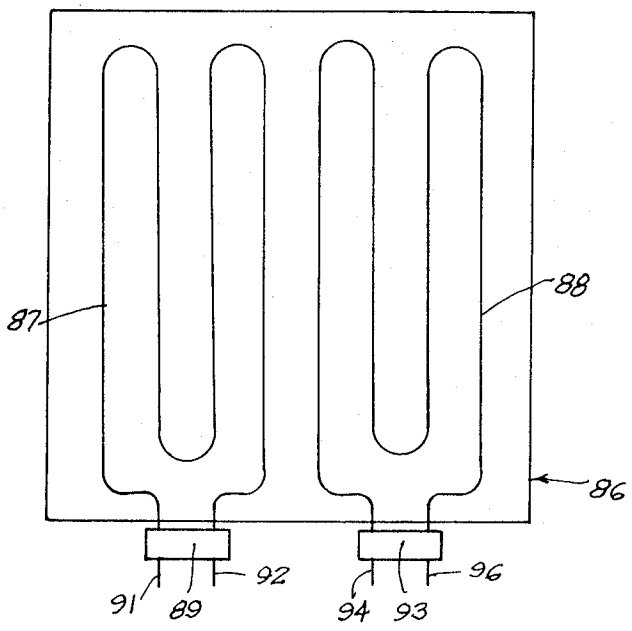

Fig. 7

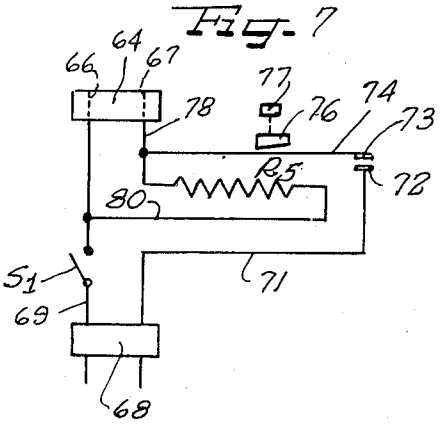

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Fig. 1
(PRIOR ART)

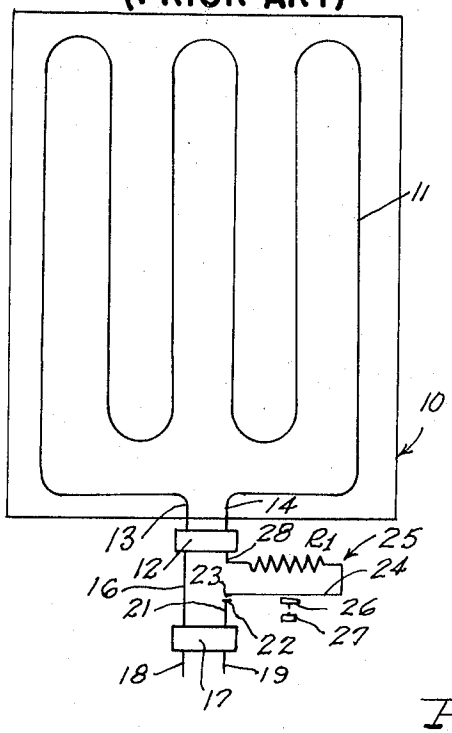


Fig. 2
(PRIOR ART)

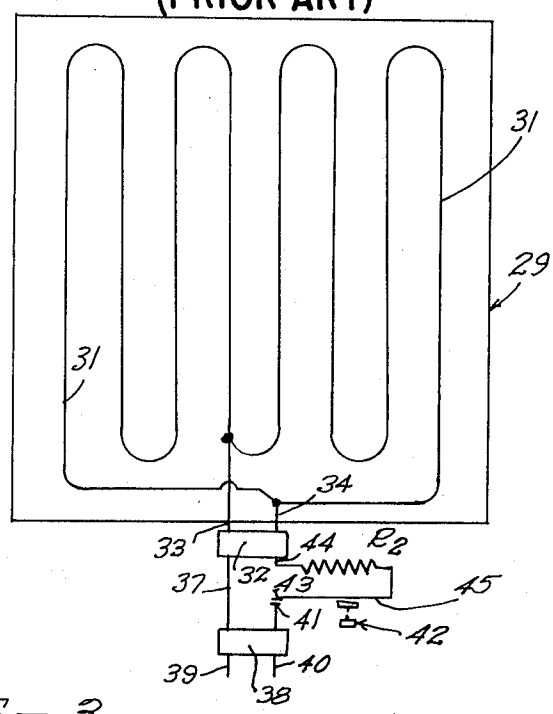
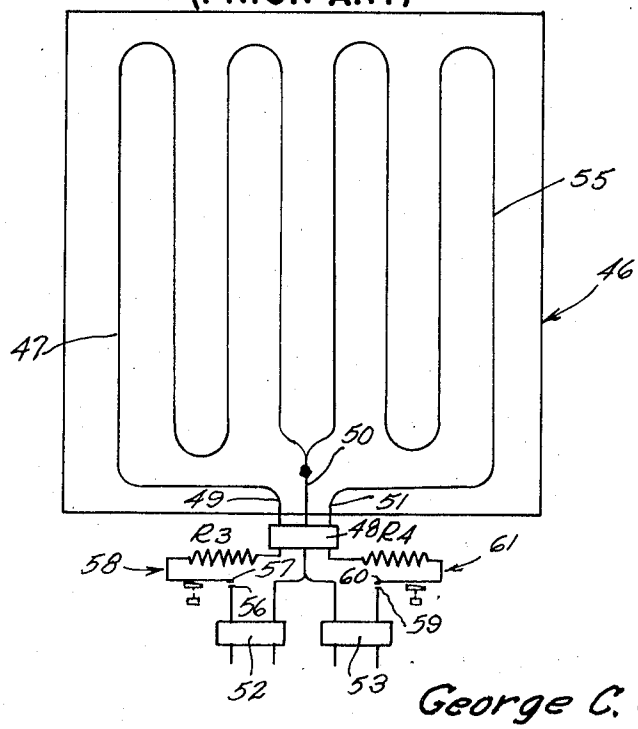


Fig. 3
(PRIOR ART)



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UNIVERSAL BLANKET CONTROL

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates in general to a control for electrical appliances such as electric blankets.

2. Description of the Prior Art

Electrical blankets are made in different sizes and require different amounts of power. A twin bed blanket might require 130 watts at 1.1 amps, a double bed single-control electric blanket may require 180 watts at 1.56 amps and a double bed double-control electric blanket might require 180 watts with 0.78 amperes in each of the individual circuits. A temperature-responsive slope heater of the bimetallic type is conventionally connected in series with the current applied to such blankets and since each type of blanket requires different current requirements, a different size resistor is installed adjacent the temperature-responsive bimetallic element to obtain the desired control. In the production and assembly of blankets, a different temperature-responsive element is required for each type of blanket having different current requirements and different values of resistors must be provided in each of the temperature-responsive elements for the particular type of blanket. This requires that a number of temperature controls must be stocked so that the particular temperature control is supplied for each type of blanket.

SUMMARY OF THE INVENTION

The present invention provides a common blanket control that may be used with blankets of different types and having different power requirements and eliminates the need to stock a plurality of controls which must be matched with blankets of different types. The temperature-responsive control includes a resistor which is connected in parallel with the applied voltage and controls the time on and time off of the blanket independently of the power applied to the blanket. Substantial savings in production, shipping and packaging costs result, since the single control can be used with any type and size electric blanket. Also, replacement and repair problems are reduced in that a single control may be stocked by distributors and dealers for use with any type of blanket. The present control may also be used as a replacement part for those blankets which have previously been sold which had controls of different types and can be used with blankets or other appliances from any manufacturer since the time on and off of the temperature control is independent of the power requirements of the appliance.

Other objects, features and advantages of the invention will be readily apparent from the following description of a preferred embodiment thereof taken in conjunction with the accompanying drawings, although variations and modifications may be effected without departing from the spirit and scope of the novel concepts of the disclosure, and in which:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a twin bed electric blanket with a control according to the prior art;

FIG. 2 illustrates a double bed single-control electric blanket according to the prior art;

FIG. 3 illustrates a double bed double-control blanket of the prior art;

FIG. 4 illustrates a twin bed electric blanket;

FIG. 5 illustrates a double bed single-control electric blanket;

FIG. 6 illustrates a double bed double-control electric blanket; and

FIG. 7 illustrates the temperature control of the present invention which may be used with blankets of all types.

DESCRIPTION OF THE PREFERRED EMBODIMENT

FIGS. 1 through 3 illustrate electric blankets with controls of the prior art. A different control is used with each type of blanket. For example, FIG. 1 illustrates a twin bed electric blanket designated generally as 10 which has a heating element 11 that has output leads 13 and 14 connected to a plug 12. A power plug 17 has contacts 18 and 19 for connection to a suitable power supply and contact 18 is connected by lead 16 to lead 13 through the plug 12. A control 25 has a lead 28 which is connected by plug 12 to the lead 14 and a temperature-controlling resistor R1 is connected in series between lead 28 and bimetallic strip 24 which carries contact 23. Contact 22 engages contact 23 and is connected by lead 21 to contact 19. A cam 26 which is controlled by a knob 27 adjusts the spacing of the bimetallic strip 24 relative to contact 22 so as to control the application of power.

FIG. 2 illustrates a double bed single-control electric blanket of the prior art. The blanket is designated as 29 and has a heating element 31 which has a pair of leads 33 and 34 which are connected to an input plug 32. Lead 33 is connected to lead 37 through the plug 32 and to a power plug 38 which has a first contact 39 which is connected to the lead 37. The other contact 40 of plug 38 is connected to contact 41 of the bimetallic control. The bimetallic strip 45 supports a contact 43 that engages contact 41. The position of the bimetallic 45 may be controlled by the cam and knob 42. A resistor R2 is connected between the bimetallic strip 45 and lead 44 which connects to lead 34.

FIG. 3 illustrates a double bed double-control electric blanket of the prior art. The blanket 46 has two heating elements 47 and 55 which are connected to leads 49, 50 and 51 that are received in plug 48. The lead 50 is a common lead of the heating elements 47 and 55. A pair of bimetallic controls with slope heaters are designated generally as 58 and 61. The heater control 58 has a power plug 52 which connects to a suitable power supply. One of the contacts of the plug 52 is connected to a contact 56 of the control 58. A bimetallic strip supports a contact 57 that engages contact 56. The bimetallic strip is connected to a resistor R3 which has its other side connected to lead 49 through plug 48. The other contact of plug 52 is connected to lead 50 through the plug 48.

The power plug 53 has a contact which is connected to contact 59 of the control 61. A contact 60 is supported on a bimetallic of the control 61 and engages contact 59. A resistor R4 is connected in series between the contact 60 and lead 51 of the heating element 55.

The electric blankets illustrated in FIGS. 1 through 3 require controls of three different types. For example, if the twin bed blanket of FIG. 1 has a 130-watt capacity, it will draw 1.1 amperes when power is applied to it and the resistor R1 must have a value such that the proper time on and time off is obtained.

The double bed single-control heating element of FIG. 2 has a 180-watt capacity and 1.56 amperes. The double bed double-control blanket of FIG. 3 might have a 180-watt capacity and 0.78 amperes in each of the heating elements 47 and 55. Thus, each of the controls illustrated in FIGS. 1, 2 and 3 will require resistors of different values.

FIG. 7 illustrates the universal control of this invention and comprises a power plug 68 that has contacts that may be inserted into a suitable power receptacle. One of the contacts of the power plug 68 is connected to lead 69 which is connected through an on-off switch S1 to the plug 64 formed with female contacts 66 and 67. The female contact 66 is connected to lead 69. Female contact 67 is connected to lead 78 which is connected to a bimetallic strip 74 that carries a contact 73 on its free end which engages contact 72. Contact 72 is connected by lead 71 to the second contact of plug 68. A resistor R5 has one side connected to lead 78 and the other side is connected by lead 80 to lead 69 so that power will be applied to the resistor R5 when the contacts 72 and 73 are closed. A knob 77 controls a cam 76 for adjusting the spacing between the contacts 72 and 73 by moving bimetallic strip 74.

The plug 64 mates with plug 12 of the twin bed blanket 10 illustrated in FIG. 4. Plug 12 has male contacts 62 and 63 that are receivable in the female contacts 66 and 67 of a plug 74.

FIG. 5 illustrates a double bed blanket 79 for use with a single control such as illustrated in FIG. 7. The heating element 81 of the blanket 79 connects to a plug 82 that has male plugs 83 and 84 that fit plug 64 of the control of FIG. 7.

FIG. 6 illustrates a double bed double-control blanket 86 which has a pair of heating elements 87 and 88. The heating element 87 is connected to a plug 89 that has male contacts 91 and 92 that may be inserted into the plug 64 of a control according to FIG. 7. Heating element 88 is connected to a plug 93 that has male contacts 94 and 96 that may be connected into a second control such as illustrated in FIG. 7. The double-control blanket of FIG. 6 would be used with two controls such as shown in FIG. 7.

It is to be noted that the single control illustrated in FIG. 7 is adapted to be used with any of the blankets illustrated in FIGS. 4, 5 and 6 and that only the single-control is required for operation of these blankets. This is because the resistor R5 is connected in parallel with the power supply when the contacts 72 and 73 engage and the control cycles on and off as a function of time independent of the load being controlled.

Thus, the number of controls is substantially reduced and the need to match the control with a particular type blanket is eliminated since the one control can be used with any type blanket.

It will be understood that modifications and variations may be effected without departing from the spirit and scope of the novel concepts of the present invention.

I claim as my invention;

1. A universal control for an electrical appliance such as an electric blanket comprising a pair of power leads, a pair of power supply leads for connection to an electrical appliance, one of said power leads connected to one of said power supply leads, a heating resistor connected directly across said power supply leads, a temperature-responsive means connected to the second power supply lead and movable to engage the second power lead, and said heating resistor mounted adjacent said temperature-responsive means to heat it when the temperature-responsive means engages the second power lead.

2. A universal control for an electrical appliance according to claim 1 wherein the time that said temperature-responsive means engages said second power lead is independent of the current passing through said temperature-responsive means so that said control may be used with appliances of different power requirements.

3. A universal control according to claim 2 wherein said temperature-responsive means is a bimetallic strip.

4. A universal control according to claim 3 comprising a pair of contacts with one of said contacts mounted on said bimetallic strip and the second contact connected to said second power lead.

5. A universal control according to claim 4 comprising means for adjusting the position of said bimetallic strip relative to said second contact.

6. A universal control according to claim 5 wherein said means for adjusting the position of said bimetallic strip comprises a cam rotatably supported adjacent to and engageable with said bimetallic strip.

7. A universal control according to claim 6 comprising an on-off switch connected in one of said power leads.

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