

Sept. 9, 1958

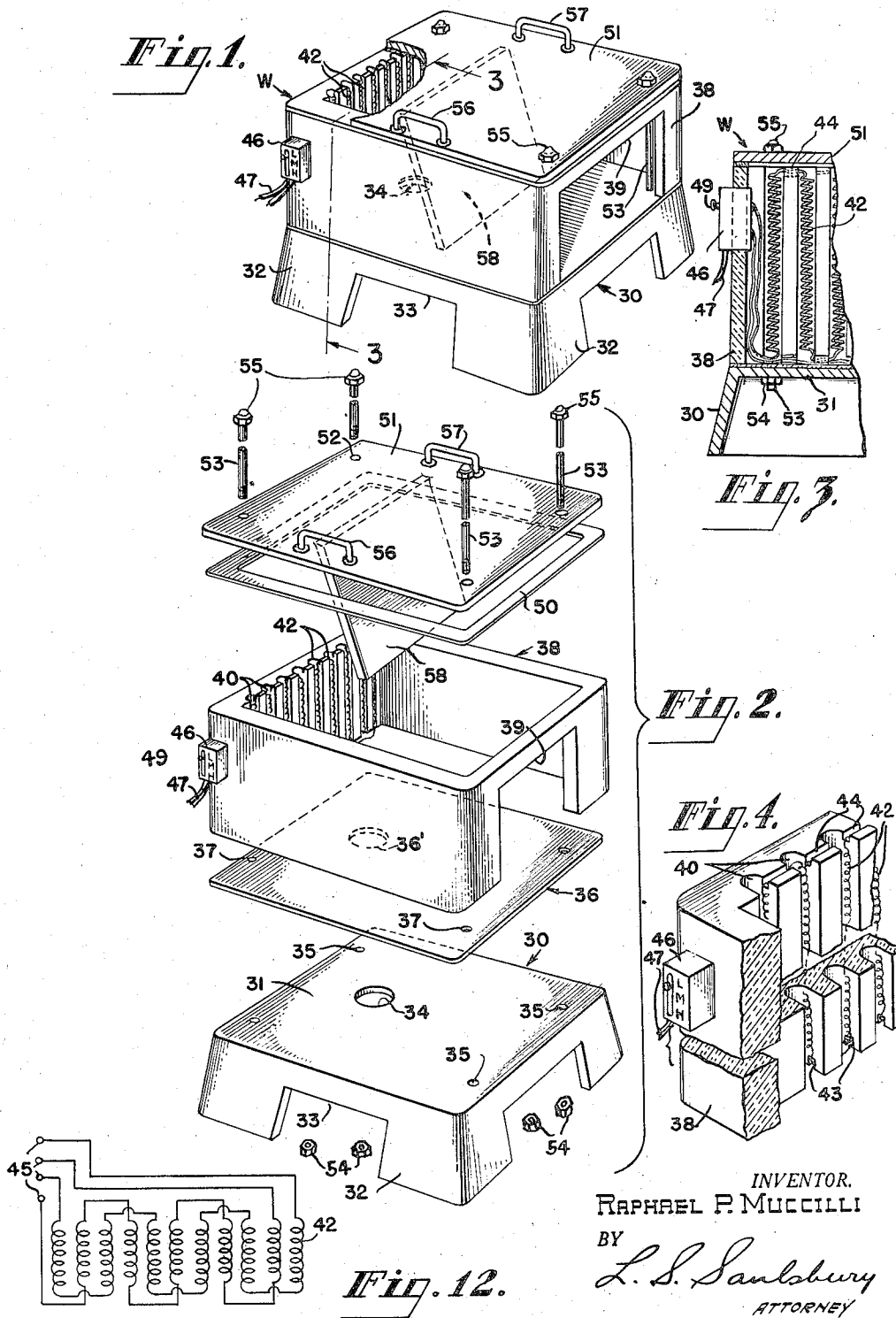
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2,851,573

FOOT WARMER AND ATTACHMENTS THEREFOR

Filed Dec. 18, 1956

4 Sheets-Sheet 1



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4 Sheets-Sheet 2

Fig. 5.

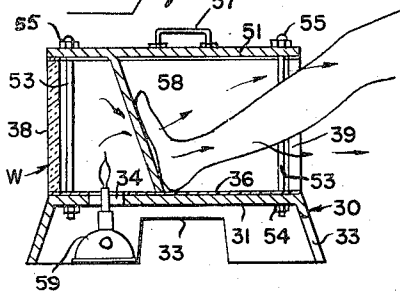


Fig. 6.

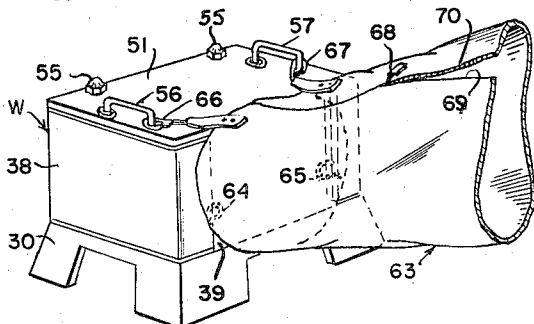
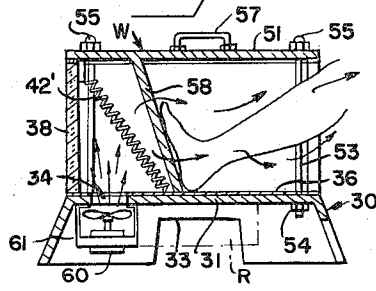


Fig. 7.

Fig. 8.

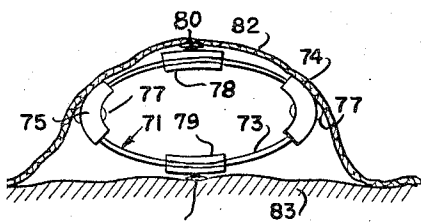
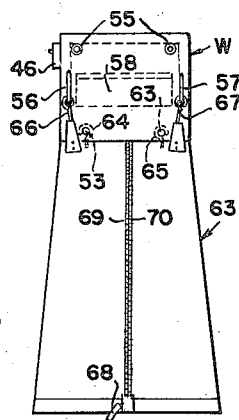


Fig. 10.

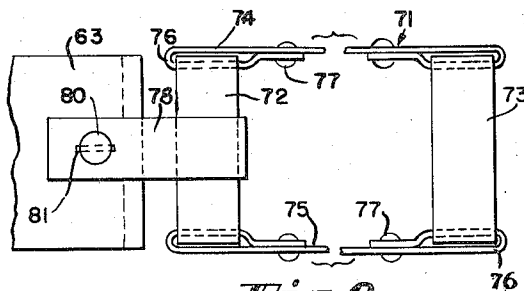


Fig. 9.

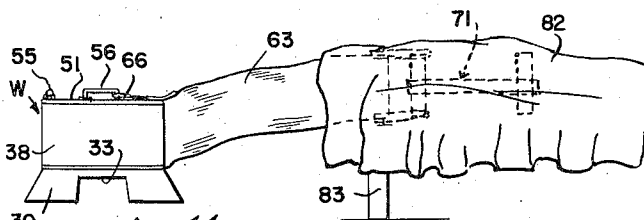


Fig. 11.

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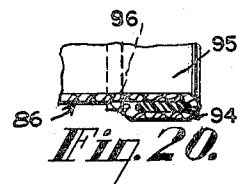
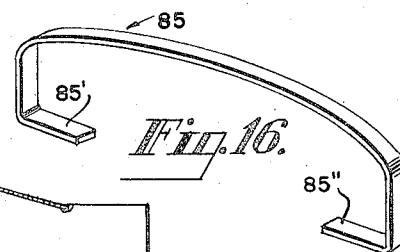
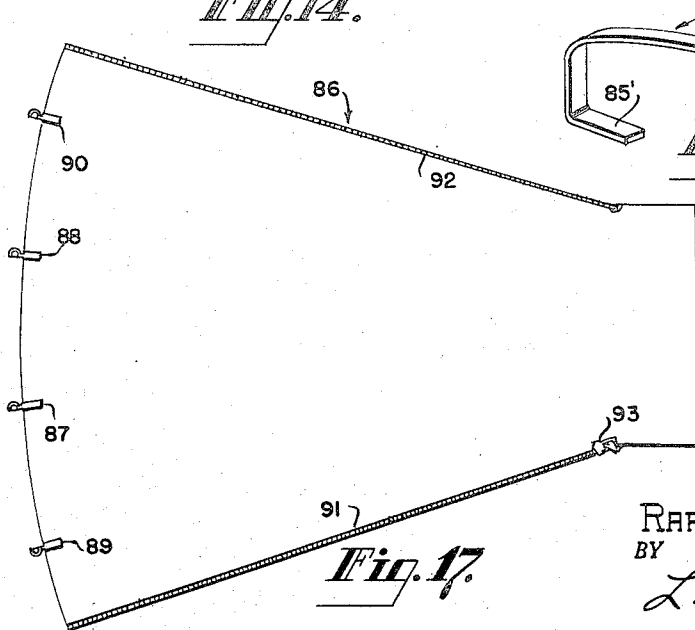
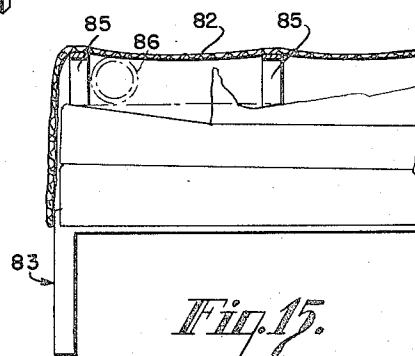
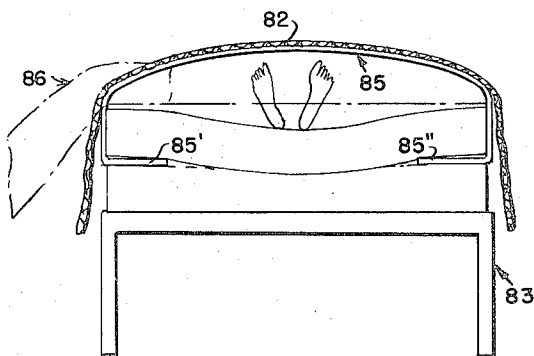
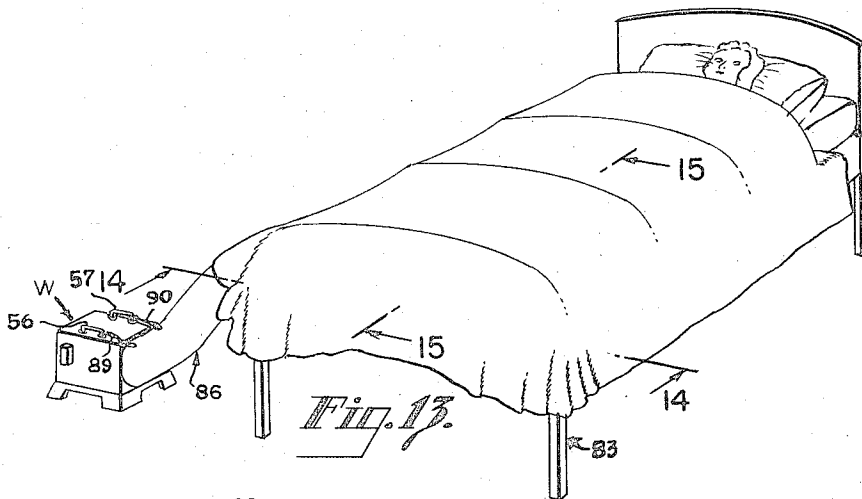
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4 Sheets-Sheet 3



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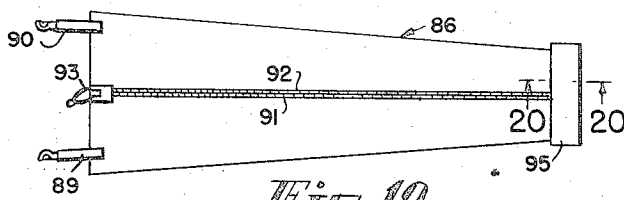


Fig. 19.

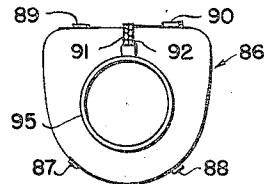


Fig. 18.

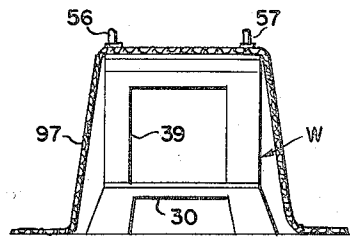
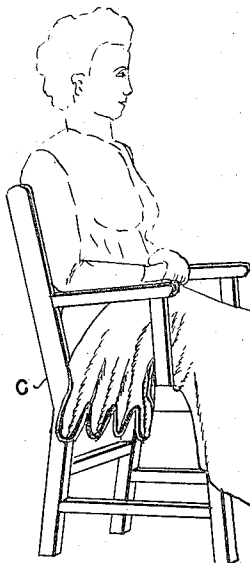


Fig. 22.

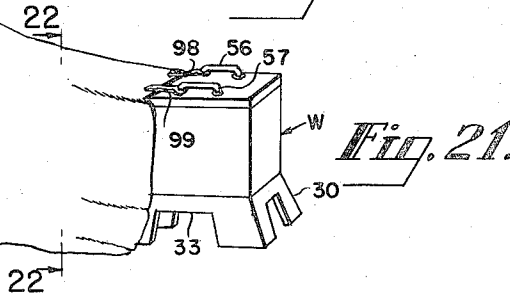


Fig. 21.

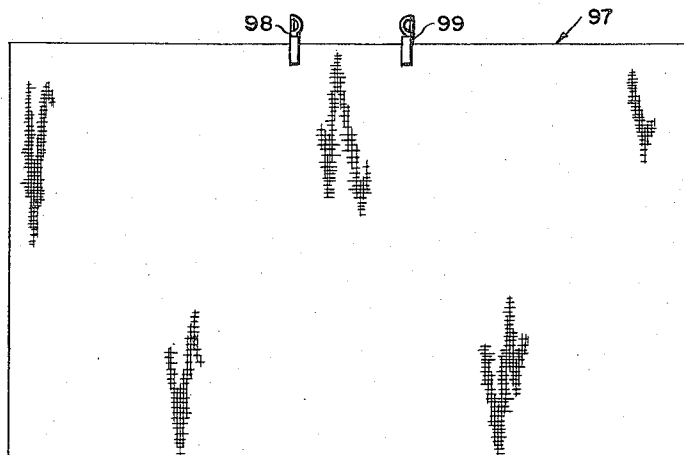


Fig. 23.

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FOOT WARMER AND ATTACHMENTS THEREFOR

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Application December 18, 1956, Serial No. 629,109

11 Claims. (Cl. 219—19)

This invention relates to a foot warmer and skirt, blanket and bed-warming attachments therefor.

It is the principal object of the present invention to provide a foot warmer for use in a house or any other location where a person may be seated in which air drawn into the warmer at the bottom is heated electrically or by gas and the heated air caused to be directed over the feet positioned therein and outwardly over the legs.

It is another object of the invention to provide a foot warmer that has an inclined heated foot rest plate lying well within the foot warmer and on which the bottoms of the feet are placed and spaced from the sides thereof to permit the heated air to flow therearound and onto the feet and legs whereby the bottoms of the feet will be heated directly by conduction and the top of the feet and legs heated by convection and by radiation from the wall surfaces of the warmer.

It is still another object of the invention to provide a foot warmer having an opening or foot envelope through which the legs are extended to place the feet on the foot rest lying therewithin with skirt and blanket attachments that can be readily attached for the warmer over the opening so that the heated air will be caused to be directed well upwardly over the legs and larger areas of the body to therapeutically treat the body as well as the feet.

It is a further object of the invention to provide a foot warmer having conduit attachments and supports for bed covering so that the warmer can be adapted not only to treat the legs but to direct a flow of heated air into the bed and over the entire body of the occupant and to warm the bed.

It is a still further object of the invention to provide a foot warmer with suitable attachments therefor that has a controlled heating coil arrangement so that the amount of heat desired by the user may be regulated.

Other objects of the invention are to provide a foot warmer having the above objects in mind which is of simple construction, has a minimum number of parts, inexpensive to manufacture, adapted to be formed of ceramic materials, retains heat, rigid, compact, easily transported, of pleasing appearance, consumes little storage space with its attachments, effective and efficient in use.

For a better understanding of the invention, reference may be had to the following detailed description taken in connection with the accompanying drawing, in which

Figure 1 is a top perspective view of the foot warmer embodying the features of the present invention,

Fig. 2 is an exploded perspective view of the foot warmer showing the respective parts elevated one above the other,

Fig. 3 is a fragmentary vertical sectional view of the foot warmer taken on line 3—3 of Fig. 1,

Fig. 4 is a fragmentary perspective view of the jacket part showing the manner in which the heating wire elements are carried therein and the adjustable heat control switch,

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Fig. 5 is a vertical sectional view of the heater adapted to have heat supplied by a Bunsen burner,

Fig. 6 is a vertical sectional view of the same structure adapted for use with a forced air fan with the cooling coils lying forwardly of the fan,

Fig. 7 is a perspective view of the heater and of a skirt attachment secured over the outlet opening thereof,

Fig. 8 is a top plan view of the heater and of the full skirt attachment drawn together,

Fig. 9 is a fragmentary plan view of a fabric heated air duct and a bed clothing support,

Fig. 10 is an end elevational view of the bed clothing support under the weight of bed covers,

Fig. 11 is an elevational view of the warmer fabric heated air duct and bed clothing support extended to the bottom end of the bed,

Fig. 12 is a wiring diagram of the electric heating arrangement,

Fig. 13 is a perspective view of a heater and a bed with a modified form of the clothing support,

Fig. 14 is a transverse sectional view of a bed taken on line 14—14 of Fig. 13,

Fig. 15 is a fragmentary longitudinal sectional view of the bed as viewed on line 15—15 of Fig. 13,

Fig. 16 is a perspective view of one of the bed clothing supporting elements,

Fig. 17 is a layout of a modified fabric duct used for delivering heated air to the bed and employing a slide fastener arrangement to close the sides of the same,

Fig. 18 is an end elevational view of the complete fabric duct with the sides drawn together,

Fig. 19 is a top plan view of the duct,

Fig. 20 is an enlarged fragmentary longitudinal sectional view of the outer end of the fabric duct taken on line 20—20 of Fig. 19,

Fig. 21 is a perspective view of the warmer with the person seated in a chair with the feet lying within the warmer and of a blanket connected to the warmer and extended upwardly over the legs of the person,

Fig. 22 is a vertical sectional view taken through the blanket on line 22—22 of Fig. 21 and looking in elevation into the opened front end of the warmer, and

Fig. 23 is a layout view of the blanket.

Referring now particularly to Figs. 1 to 4 and 12, there will be described foot warmer W by itself. An open base 30 has a square top 31 and downwardly flared sides 32 with recesses 33 therein. In the top 31 is a large air hole 34 through which air passes from the underside of the base into the warmer. The base top 31 has bolt holes 35 lying respectively adjacent the respective corners thereof. An insulating member 36 of the same size as the top 31 of the base 30 is laid over the top so that its holes 36' and 37 register with the respective holes 34 and 35 in the top.

A jacket body 38 rests upon the pad and has a front opening 39 through which the feet of the user are extended. The rear wall of the jacket 38 has a plurality of vertically-extending grooves 40 in which heating elements 42 are disposed. Extending between the upper and lower ends of the grooves are lower and upper slots 43 and 44 through which the connections for the heating elements may be extended. These heating elements are wired and assembled upon the jacket 38 in accordance with the wiring arrangement shown in Fig. 12 and are connected to terminals 45 of a control box 46 which is supplied with electric current through a cable 47 that can be plugged into any wall outlet receptacle. The heating elements 42 can be arranged singularly, in series, or parallel by placing the adjustable heat control box button 49 for the desired indicated heating selection, to give low, medium or high heat.

Over the upper edge of the jacket 38 there is placed

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an air tight gasket 50 and a top cover plate 51. This top cover plate 51 has bolt holes 52 adjacent each corner thereof which register with the holes 37 of the insulating member 36 and the holes 35 of the base top 30. Rods 53 extend through these holes and are sustained on their lower ends by nuts 54 engaging with the underface of the top 31. The upper ends of these rods are threaded and cap nuts 55 are tightened down thereover to engage the cover plate 51 and to hold the plate against the upper edge of the jacket 38 and the assembly tightly secured together. These rods 53 lie inwardly of the front and back portions of the jacket 38. U-shaped handles 56 and 57 are secured to the cover at the opposite sides of the warmer so that the warmer may be lifted and carried thereby.

Depending from the underside of the cover plate 51 in an inclined manner is a foot rest portion 58. This foot rest has its side edges spaced from the side walls of the jacket body 38 so that the heated air may pass therearound. The bottom edge extends fully down to the top 31 so that none of the heated air passes thereunder. The air in passing upwardly through the hole 34 in the base 30 and corresponding hole 36' of the insulating member 36, is heated by the heating elements 42 lying in the vertically-extending grooves and this heated air passes around the sides of the foot rest portion 58 to warm the feet, through the foot opening 39 and upwardly over the legs of the person.

The principal parts of this warmer are made of ceramic refractory concrete, burned clay or any other material which will retain and store heat. The foot rest 58 will be heated by radiation from the heating elements 42 as well as by the heated air. The bottoms of the feet of the person will be heated directly by conduction by the stored heat of the foot rest and tops of the feet and legs by convection of the heated air passing around the sides of the foot rest through the warmer. The feet are also warmed by radiation from the inner faces of the jacket 38 and top plate 51.

In Fig. 5, there is shown the warmer being heated from a Bunsen burner 59 that extends upwardly through the opening 34 in the top 31 of the base. This heater is sufficient to warm up the material and maintain the temperature of this material for continuous heating and warming of the feet. The heated air will still be passed around the foot rest 58 and over the feet and legs of the user as explained above.

In Fig. 6, there is shown an electric fan 60 secured by a bracket 61 to the underside of the top 31 of the base 30 to forcibly direct air upwardly through the opening 34 and around the sides of the foot rest 58. Cooling elements 42' are preferably arranged as shown to be inclined so that the air passing through and between the cooling elements 42' will be cooled and passed about the sides of the rest 58. The cooling elements are supplied with cooling liquid from the refrigerating unit R. In place of the cooling elements and unit R, carbon dioxide ice may be disposed in the space where the cooling units 42 are located and the fan stilled to pass the air thereover. It is particularly desirable to make use of the fan when attachments are added to the warmer to direct heated air through a duct to a distant bed in a manner later to be described, and for this purpose the fan is retained.

Referring now particularly to Figs. 7 and 8, there is shown a skirt attachment 63 for the warmer. This skirt has spaced hook members 64 and 65 adapted to be extended into the opening 39 in the jacket 38 and about the respective laterally-spaced rods 53 in order to hold the skirt attached to the warmer along its bottom side. With the legs extended into the opening and the feet placed against the foot rest 58 the skirt can be drawn upwardly about the legs of the patient or person and by means of snap hooks 66 and 67 the skirt can be secured at the respective handles 56 and 57. Thereafter, the skirt can

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be finally closed about the top of the legs by pulling a slide fastener 68 and drawing together slide fastener edges 69 and 70 of the skirt to the full extent thereof as shown in Fig. 8.

Referring now particularly to Figs. 9, 10 and 11, there is shown a bed cover support 71 that is fitted into the bed and to which the duct 63 is connected. This bed cover support 71 has two plastic supporting rings 72 and 73 slightly bendable under load and which are tied together by semi-rigid straps 74 and 75 which are looped at their ends as indicated at 76 and fastened by rivets 77 about the rings 72 and 73. Straps 79 and 80 are secured about the top and bottom of ring 72 and are made secure to the end of fabric duct 63 by provision of a button 80 secured to one end of strap 78 and extended through a button hole in the duct 63 and a button hole 81 in the other end of the strap 78 or 79. With this bed cover support 71 in place on the bed 83 as illustrated in Fig. 11 the bed clothes or blanket 82 can be supported thereupon, the support and the fabric duct being extended into the end of the bed. Warm air from the warmer will pass through the duct and into the bed to warm it. In times of extreme cold or for therapeutically heating a patient this bed cover support can be left in the bed 83 and the occupant extend his feet through the ring 73 so that the warm air will be directed against the bottoms of the feet and upwardly over his legs.

Referring now to Figs. 13 to 17, an arrangement is shown wherein the entire bed can be warmed and a patient lying in the bed can be supplied with warm air over the full extent of his or her body. According to this arrangement bed clothes support members 85 are placed at intervals throughout the length of the bed. These members are provided with inwardly bent ends 85' and 85'' which are disposed under the mattress as best shown in Fig. 14 so that the members 85 will be held upright. These members support the blanket 82. An air duct 86 connected to the warmer W is extended into the bed under the blanket 82 and close to one of the supports 85. A flow of warm air will pass into the bed and over the occupant.

The air duct 86 is constructed slightly differently than the air duct 63 so that the outer end of the duct may support the blanket. This duct has fasteners 87 and 88 adapted to be connected to the rods inside of the warmer and fasteners 89 and 90 which are secured to the handles 56 and 57 of the warmer.

This duct has separable fastener strips 91 and 92 which can be drawn together by a slide 93. In the outer end of the duct is a plastic ring 94 that is enclosed by a hem 95 that is stitched at 96. This hemmed end 95 is placed under the bed clothes and the plastic ring 94 prevents its collapse.

As shown in Figs. 21, 22, and 23, the warmer W has a blanket 97 connected thereto so that a person seated in a chair C and with her feet in the warmer can be covered by the blanket 97. The blanket 97 is tied by the fasteners 98 and 99 to their respective handles 56 and 57 of the warmer W.

A damper may be placed in the duct to regulate the flow of air to the bed. Also, a thermostat may be placed in the bed, and connected to the heating elements to control the temperature of the air in the bed.

It should now be apparent that there has been provided a foot warmer into which the feet of the user can be extended and supplied with heated air which can pass over the feet and legs to warm them.

It should also be apparent that the warmer can have the heated air forced by the user of a fan to increase the circulation and the warmer may be adapted for use with gas as well as electricity. The temperature can be regulated for the desired heat by adjusting button 49 in the switch 46 located on the side of the warmer.

It should also be apparent that a refrigerating unit element R could be installed in the base and with the

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heat turned off cool air can be forced over the body when desired as in anesthesia, for treating a patient.

It should be further apparent that attachments for directing the air to a remote location and into a bed can be connected to the warmer and the warmer used for warming a bed or to therapeutically treat the patient.

While various changes may be made in the detailed construction, it shall be understood that such changes shall be within the spirit and scope of the present invention as defined by the appended claims.

What is claimed is:

1. A warmer comprising an open base, a jacket body resting over the base and having a front opening through which the feet can be extended, a cover extending over the jacket body, means for securing the base, jacket body and cover together, an inclined foot rest within the jacket body and extending between the base and cover and against which feet extended into the opening may rest, means for heating the air within the jacket body in rear of the foot rest, and said base having an opening therein in rear of said foot rest, said foot rest being spaced from the sides of the jacket to allow the heated air to be passed about the sides of the rest and onto the top of the feet and outwardly through the front opening and over the legs while the bottoms of the feet engage the foot rest to be heated by conduction therefrom.

2. A warmer comprising an open base, a jacket body resting over the base and having a front opening through which the feet can be extended, a cover extending over the jacket body, means for securing the base, jacket body and cover together, an inclined foot rest within the jacket body and extending between the base and cover and against which feet extended into the opening may rest, means for heating the air within the jacket body in rear of the foot rest, said means for heating the air in rear of the foot rest comprising vertically-extending electric heating elements, the back of the jacket body having vertically extending grooves for housing said heating elements, and slots extending between the ends of the grooves to contain the connecting wires between the heating elements so that the assembly of heating elements may be supported in its entirety upon the jacket body wall.

3. A warmer comprising an open base, a jacket body resting over the base and having a front opening through which the feet can be extended, a cover extending over the jacket body, means for securing the base, jacket body and cover together, an inclined foot rest within the jacket body and extending between the base and cover and against which feet extended into the opening may rest, means for heating the air within the jacket body in rear of the foot rest, and said heating means comprising heating elements mounted on the jacket body in rear of the foot rest and a switch for controlling the current supplied to the heating elements so that the low, medium and high heats can be obtained from the warmer.

4. A warmer comprising an open base, a jacket body resting over the base and having a front opening through which the feet can be extended, a cover extending over the jacket body, means for securing the base, jacket body and cover together, an inclined foot rest within the jacket body and extending between the base and cover and against which feet extended into the opening may rest, means for heating the air within the jacket body in rear of the foot rest, and said means for securing the parts together comprising through bolts, certain of said through bolts lying respectively adjacent the side of the front opening but within the interior of the warmer, and an air duct attachment having fastener elements adapted to be connected to said rods to hold the attachment aligned with the opening.

5. A warmer comprising an open base, a jacket body resting over the base and having a front opening through which the feet can be extended, a cover extending over the jacket body, means for securing the base, jacket body and cover together, an inclined foot rest within the jacket

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body and extending between the base and cover and against which feet extended into the opening may rest, means for heating the air within the jacket body in rear of the foot rest, said means for securing the parts together comprising through bolts, certain of said through bolts lying respectively adjacent the side of the front opening but within the interior of the warmer, an air duct attachment having fastener elements adapted to be connected to said rods to hold the attachment aligned with the opening, and lifting handles for the warmer extending upwardly from the cover element and at opposite sides thereof, and other fastening elements on the air duct attachment adapted to be releasably secured to the lifting handles.

6. A warmer comprising an open base, a jacket body resting over the base and having a front opening through which the feet can be extended, a cover extending over the jacket body, means for securing the base, jacket body and cover together, an inclined foot rest within the jacket body and extending between the base and cover and against which feet extended into the opening may rest, means for heating the air within the jacket body in rear of the foot rest, and lifting handles extending upwardly from the cover and at the respective opposite sides thereof, a blanket attachment that may extend over the top of the warmer and over the legs of the user, and fastening elements on the blanket adapted to be respectively releasably secured to the respective lifting handles.

7. A warmer comprising an open base, a jacket body resting over the base and having a front opening through which the feet can be extended, a cover extending over the jacket body, means for securing the base, jacket body and cover together, an inclined foot rest within the jacket body and extending between the base and cover and against which feet extended into the opening may rest, means for heating the air within the jacket body in rear of the foot rest, said means for securing the parts together comprising through bolts, certain of said through bolts lying respectively adjacent the side of the front opening but within the interior of the warmer, an air duct attachment having fastener elements adapted to be connected to said rods to hold the attachment aligned with the opening, lifting handles for the warmer extending upwardly from the cover element and at opposite sides thereof, and other fastening elements on the air duct attachment adapted to be releasably secured to the lifting handles, and said air duct having separable sides, slide fastening strips extending along the separable sides of the air duct, and a slide fastener operable over the fastening strip to draw the sides of the air duct together and the air duct over the legs of the user of the warmer.

8. A warmer comprising an open base, a jacket body resting over the base and having a front opening through which the feet can be extended, a cover extending over the jacket body, means for securing the base, jacket body and cover together, an inclined foot rest within the jacket body and extending between the base and cover and against which feet extended into the opening may rest, means for heating the air within the jacket body in rear of the foot rest, and an air duct and the warmer means for connecting the air duct to the warmer over the front opening thereof, and a bed clothes support detachably connected to the outer end of the air duct and adapted to support the bed cover to permit the flow of air thereunder.

9. A warmer comprising an open base, a jacket body resting over the base and having a front opening through which the feet can be extended, a cover extending over the jacket body, means for securing the base, jacket body and cover together, an inclined foot rest within the jacket body and extending between the base and cover and against which feet extended into the opening may rest, means for heating the air within the jacket body in rear of the foot rest, an air duct and means for connecting

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the air duct to the warmer over the front opening thereof, a bed clothes support detachably connected to the outer end of the air duct and adapted to support the bed cover to permit the flow of air thereunder, and said bed cover support comprising self-supporting slightly bendable longitudinally-spaced rings, semi-rigid straps connecting the rings together and holding them against longitudinal displacement from one another, and releasable strap means extending from one of the rings to the end of the duct to connect the bed cover support thereto.

10. A warmer comprising an open base, a jacket body resting over the base and having a front opening through which the feet can be extended, a cover extending over the jacket body, means for securing the base, jacket body and cover together, an inclined foot rest within the jacket body and extending between the base and cover and against which feet extended into the opening may rest, means for heating the air within the jacket body in rear of the foot rest, and an air duct with the semi rigid end construction adapted to support a bed covering.

11. A warmer comprising an open base, a jacket body

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resting over the base and having a front opening through which the feet can be extended, a cover extending over the jacket body, means for securing the base, jacket body and cover together, an inclined foot rest within the jacket body and extending between the base and cover and against which feet extended into the opening may rest, means for heating the air within the jacket body in rear of the foot rest, and bed cover support means comprising strap supports having inturned ends adapted to lie under the edges of the mattress while supporting the bed cover thereabove.

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