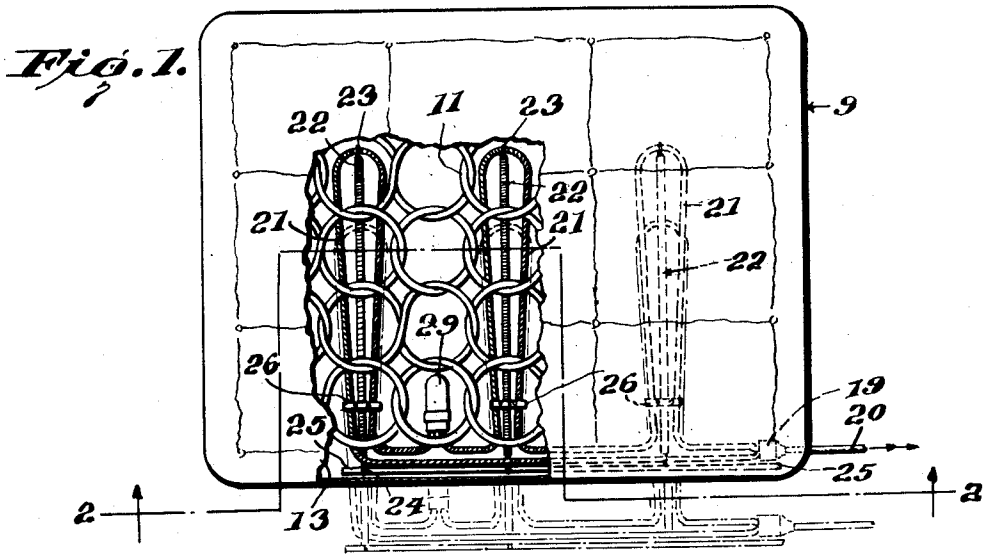
May 1, 1934. F. WIEDENMANN 1,957,401

MATTRESS AND HEATING MEANS THEREFOR

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Fig. 1.



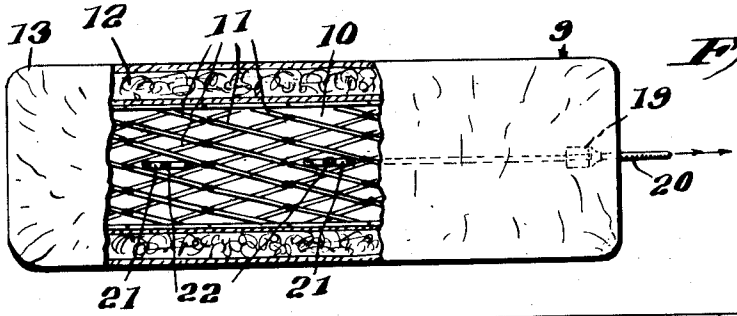
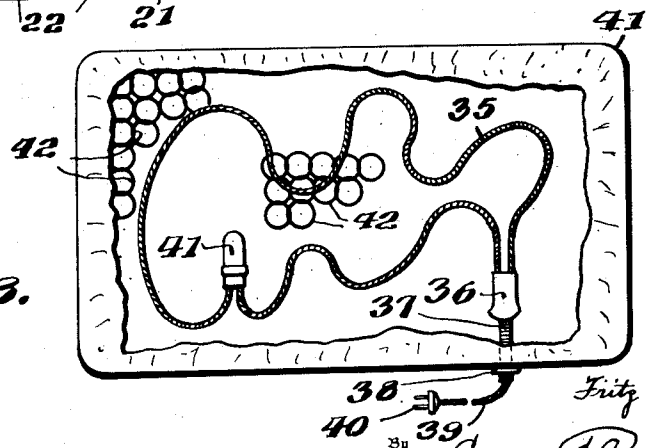


Fig. 2.

Fig. 6.



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Fig. 3.

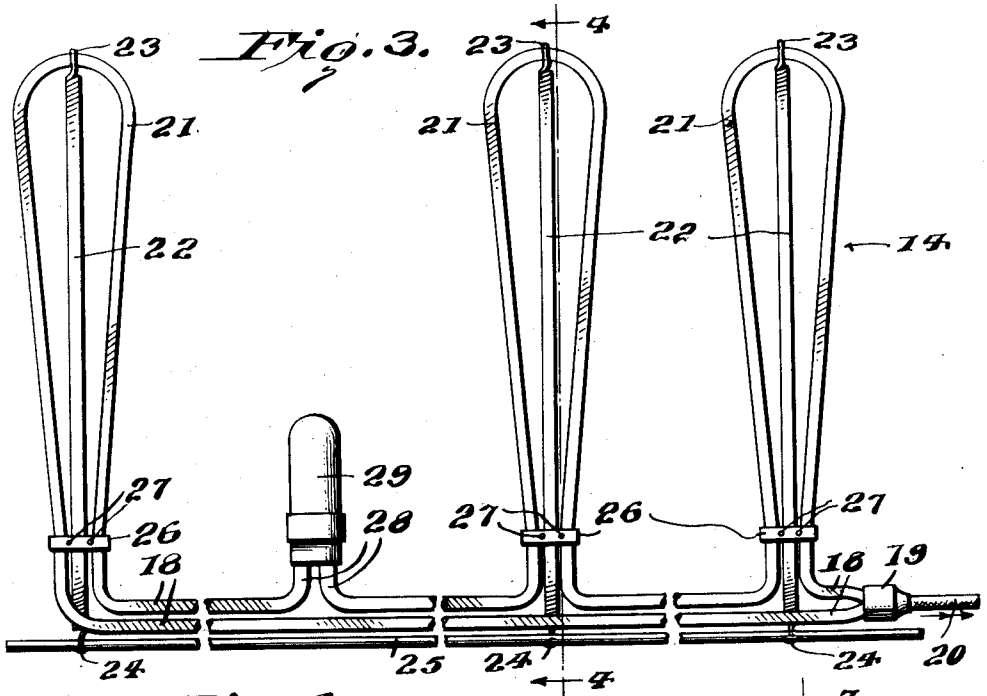
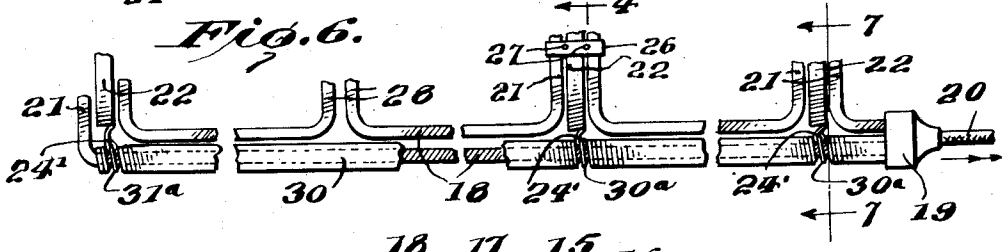


Fig. 6.



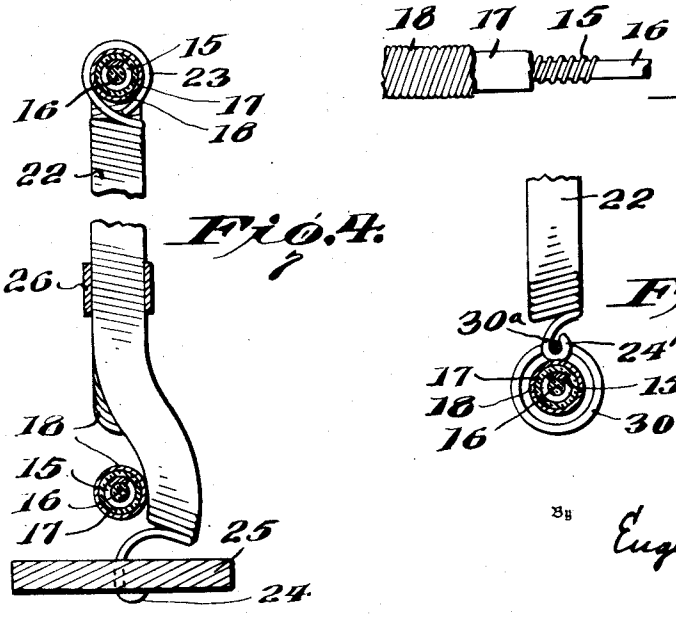


Fig. 4.

Fig. 5.

Fig. 7.

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UNITED STATES PATENT OFFICE

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MATTRESS AND HEATING MEANS THEREFOR

Fritz Wiedenmann, Stuttgart, Germany

Application November 2, 1933, Serial No. 696,416
In Germany September 19, 1932

12 Claims. (Cl. 219—46)

My invention relates to improvements in mattresses and has particular reference to a heating means therefor, thereby doing away with the necessity of using hot water bottles and similar expedients as bed warmers for sick people and those who are sensitive to cold.

Briefly stated, the invention has for its primary object to provide for the heating of the entire area of the mattress in a safe and efficient way,—the nature of the invention being that it may be incorporated in old as well as new mattresses without difficulty; there being means, preferably the mattress springs, for preventing contact of the heating means with the upholstered exterior portion of the mattress.

The invention also resides in a novel mattress heating unit which incorporates novel heating element carrying and form-defining means among other features.

Other objects and advantages of the invention will become apparent to those skilled in the art as the description proceeds, reference being had to the accompanying drawings which illustrates certain now-preferred forms of the inventive concept.

In the drawings,

Figure 1 is a plan view of a mattress incorporating my invention, a portion being broken away to show the heating unit, and the dotted lines illustrating how the heating unit can be inserted and removed.

Figure 2 is an edge elevational view, partly broken and partly in section, to illustrate the position of the heating unit and how the springs keep it away from the upholstered portion of the mattress;

Figure 3 is a plan view of one form of heating unit that may be employed, it being the form shown in Figures 1 and 2;

Figure 4 is an enlarged sectional view, partly broken, taken on the line 4—4 of Figure 3;

Figure 5 is a detail view, in elevation, and showing the construction of the heating element, per se;

Figure 6 is a fragmentary plan view of a slightly modified heating unit wherein the carrier or supporting element for the heating element conduit, takes the form of a preferable receiving sleeve for a portion of the same;

Figure 7 is an enlarged sectional view taken on the line 7—7 of Figure 6, and

Figure 8 is a plan view of a mattress, partly broken away to show a further modified form of heating unit.

Referring to the drawings by reference characters, Figure 1 illustrates what may be a conventional mattress 9 having the springs 11 which are covered by the upholstery comprising the padding 12 and outer covering 13. This provides the interior spring-receiving chamber 10 extending substantially the full width and length of the mattress.

The application of a heating unit to this chamber 10 will obviously heat the entire upper surface of the mattress and thus assure a comfort to the occupant of the bed that would be unobtainable with simply the use of a hot water bottle.

The heating unit 14 may, as shown in Figures 1 and 2, be kept spaced away from the upholstery by the springs 11. It thus serves to effectually heat the chamber 10. The heating unit 10 need not extend the whole, or even a substantial part, of the length or width of chamber 10. This is obvious. However, if the unit is applied to a mattress other than a spring mattress, as it may be, the heating unit would preferably occupy a greater area of the mattress than when it is in a chamber such as 10.

The details of the unit 14 are shown in Figures 3, 4 and 5. Referring to Figure 5, resistance wire 15 is wound upon a flexible core of insulating material, such as for instance asbestos twine. Over the wire 15 is a covering of insulating material 17 to protect the wire 15 from contact with the flexible conduit 18, which latter is preferably of metal.

As shown the conduit 18, and of course the insulated resistance wire therein defines a loop, the ends of which are carried by the adapter or carrier 19 which provides connection means between the resistance wire 15 and the wire 20 leading to a wall plug or other outlet not shown.

In carrying out the invention the loop provided by conduit 18 is preferably formed with a plurality of minor loops of elongated form as shown at 21. These minor loops 21 are held generally to form by means of a guide element which in the present instance takes the form of a somewhat flexible tubular rod such as a stiff closely wound coil spring 22. One end of the guide or stiffening member 22 is engaged to the outer end of its loop 21, while the other end is secured as at 24 (see Figure 4) in a hole or otherwise to a carrier strip or backing member 25.

Thus the backing member 25 with the stiffening members 22 support the major loop that is provided by conduit 18 and also the minor loops 21 thereof, since it will be evident that clamps 26 secure the sides of such minor loops 21 to the

intermediate stiffening member or guide 22. Screws or the like serve to draw the opposed portions of the clamp 26 into operative position.

In order that the heat may be kept below a certain predetermined degree I preferably provide the unit 14 with a thermostat 29 of any well known type incorporating a cut out switch. This thermostat is carried by casing or conduit portions 28 of 18, and as shown is preferably disposed between two of the minor loops 21 so that it will be protected by the mattress. The thermostat will be held in place by the springs 11 just the same as is the loop portion of the unit 14. Of course, as indicated the details of the thermostatic switch are immaterial to the present invention, and consequently they have not been shown.

The structure of Figures 6, 7 differs from that of Figures 3 and 4 only in the backing member and in the means for attaching the stiffening or guide members thereto. Here, instead of the backing member taking the form of a strip 25 as in Figures 3 and 4, it is a tube 30; and preferably a flexible tube of spring metal made after the fashion of a coil spring. Thus the tubular backing member 30 may house the side of the conduit-defined loop opposite to that from which the minor loops 21 extend, and in this way cooperate with the guide members 22 and their clamps 26 in preventing any material separation of the two sides of the major loop defined by conduit 18. The stiffening members 22 (or guides) in each form are preferably of resilient material.

In each instance the outer ends of the flexible reinforcing strips or guides 22 have a loose connection with the looped outer ends of the minor loops 21 so as to permit of relative shifting ocassioned by bending of the minor loop 21 when it is being inserted into the springs 11.

In Figures 6 and 7 the members 22 terminate in hooks 24' which engage a convolution 30*a* of member 30, as shown.

A further modification is shown in Figure 8 wherein backing members such as 25, 30 are eliminated; and likewise the guide or stiffening members 22.

Here, the resistance wire-containing conduit is designated at 35. The heating unit, that is to say resistance wire and insulation, within conduit 35 is the same as in Figure 5, or may be. A carrier, or adapter 36 carries the terminals of the looped conduit 35 and makes connection with the wire 39 leading to wall plug 40. The wire 39 leads outwardly from member 36 through what is preferably a flexible conduit 37 carried thereby.

In Figure 8 the mattress is designated by 41 and its coil springs by 42. The looped conduit is carried around within the mattress and supported by the springs 11 the same as in Figure 1, all as indicated in Figure 8. This form would be most adapted for installation in mattresses at the factory when they are being made. The adapter-carried conduit 37 will preferably carry the attaching plate 38 which may be secured to the side of the mattress in any suitable way. The form shown in Figure 8 may also have the thermostatic cut out switch 41 to prevent the device from getting too hot.

To apply the device to the mattress it is only necessary (especially with the forms shown in Figs. 3 and 6), to cut a slit in the side or end of the mattress and insert the unit; then sew up the slit. The members 22 guide the minor loops 21 and hold them generally to shape when the device is being inserted; and the backing member (25 or 30) also cooperates in this respect.

It will be plain that the invention is susceptible of many mechanical expressions within the spirit and scope of the subject matter claimed hereinafter. The embodiments shown and described herein are therefore to be taken as illustrative rather than limitative.

Having thus described my invention, what I claim is:

1. The combination of a mattress having a spring receiving compartment therein, a heating element in said compartment, and means associated with the springs in said compartment for spacing the heating element from the walls of the compartment.

2. The combination of a spring mattress having a spring-receiving compartment, springs in said compartment, and a heating element in said compartment and engaged by said springs whereby to space the heating element away from the walls of the compartment.

3. The combination of a spring mattress having a spring-receiving compartment, springs in said compartment, a heating element comprising a major loop of helically wound and flexible conduit-carried resistance wire, said major loop providing a plurality of elongated minor loops, a combined hand grip and carrier member for said major loop, minor loop-supporting means associated with said carrier, said springs engaging and supporting said minor loops, and said minor loop-supporting means providing a sustaining guide for directing said minor loops into engagement with said springs.

4. A mattress heater comprising a resistance wire providing major and minor loops, an elongated carrier for said major loop, flexible encasing means for said wire, and minor loop-supporting means carried by said carrier.

5. The combination set forth in claim 4, and said minor loop supporting means providing connections with said minor loops at different points in the direction of the length of said minor loops.

6. A mattress heater or the like comprising a flexible conduit-encased resistance wire providing a major loop, one side of said major loop providing a plurality of laterally extending elongated minor loops, an elongated carrier adjacent said other side of said major loop, supports for said respective minor loops and carried by said carrier, said minor loop supports having loop engaging portions adjacent to and remote from said carrier whereby to hold said carrier, major and minor loops assembled.

7. A mattress heater or the like comprising a flexible conduit-encased resistance wire providing a major loop, one side of said major loop providing a plurality of laterally extending minor loops, a flexible spring-like carrier for the other side of said major loop and receiving the same, and minor loop supporting means carried by said spring like carrier.

8. A mattress heater or the like comprising a flexible conduit, a resistance wire extending through said conduit and insulated therefrom, means for disposing said resistance-wire-carrying conduit to provide major and minor loops and comprising a head-like backing member, and laterally extending minor loop-carrying arms carried by said backing member whereby to give the device a substantially rake-like form, the backing member providing a hand grip for inserting or removing the device from operative position in a mattress.

9. The combination set forth in claim 8 and

said backing member and minor loop-carrying arms being resilient.

10. The combination set forth in claim 8, and said backing member being a spring-defined tube and providing a housing for a portion of said major loop.

11. The combination set forth in claim 8, but wherein said loop-carrying arms are resilient spring-like members, and said backing member is a spring-defined tube providing a housing for a portion of said major loop, and spring-defined tube providing said backing member being spread at certain points to provide isolated convolutions constituting attaching portions for said minor loop-carrying arms.

12. A mattress heater or the like comprising a flexible metal conduit, a resistance wire in said conduit and extending therethrough and insulated therefrom, an electrical outlet wire carrier element providing a support for the ends of said conduit whereby to dispose same in a loop, and connecting said resistance wire an outlet wire carried by said carrier element, a flexible casing supporting said outlet wire carrier element, and a mattress attaching member carried by said flexible casing.

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