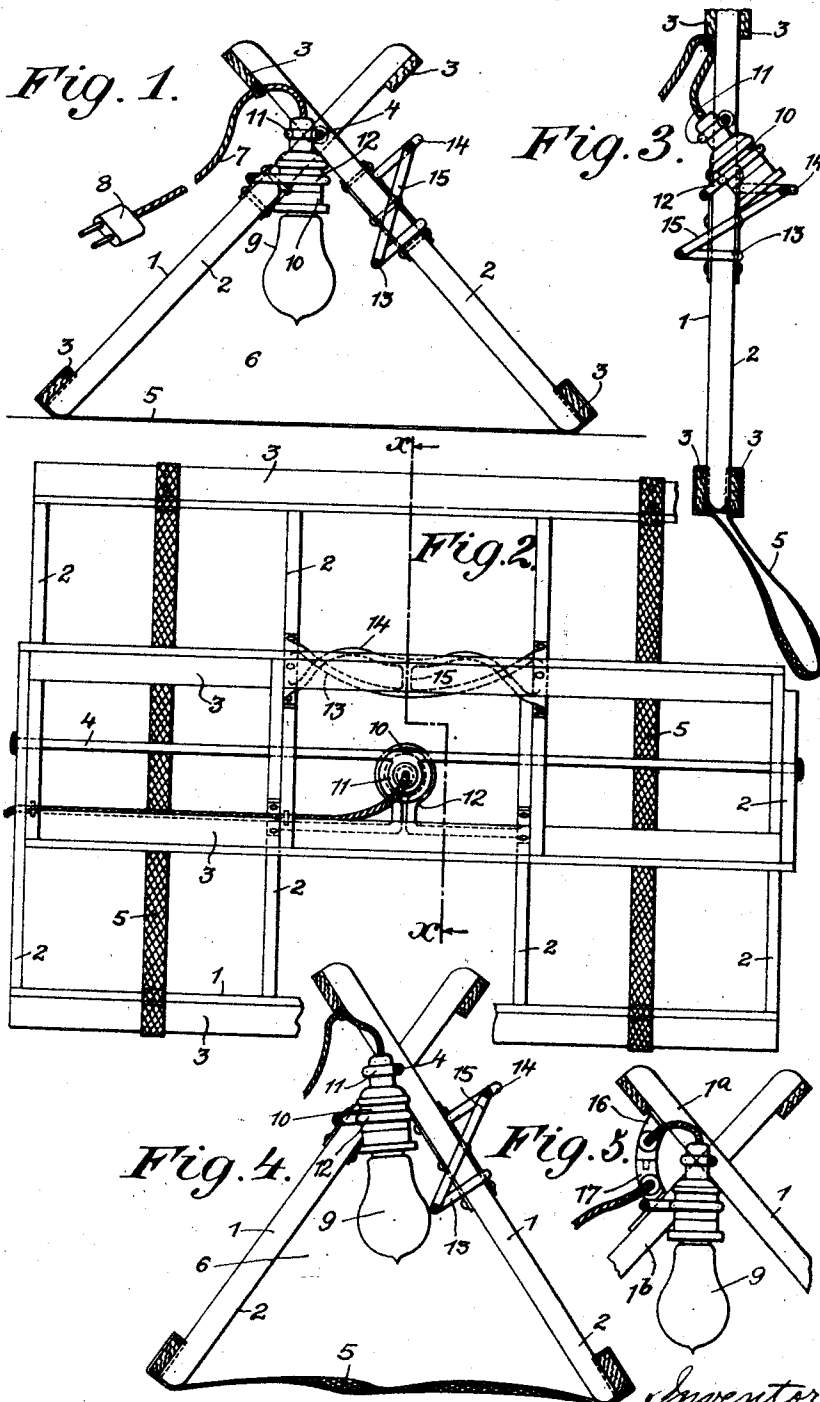


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H. GUGGENBÜHL
ELECTRIC BED WARMER
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UNITED STATES PATENT OFFICE.

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ELECTRIC BED WARMER.

Application filed August 16, 1921. Serial No. 492,703.

To all whom it may concern:

Be it known that I, HERMANN GUGGENBÜHL, a citizen of the Republic of Switzerland, residing at Muhlestrasse 227, Ruschlikon, in the Canton of Zurich and Republic of Switzerland, have invented certain new and useful Improvements in Electric Bed Warmers, of which the following is a specification.

This invention relates to an electric bed warmer which, while enabling the bed to be uniformly warmed, prevents overheating to an extent liable to lead to the danger of fire, a danger which is present in the case of electric bed warmers in which the source of heat comes in contact with the bed clothes.

Moreover, means are provided, in the improved bed warmer, so that it can be supplied with current to warm the bed only when it is in its operative position, the source of heat being prevented from coming into action when the bed warmer is in its inoperative position.

According to this invention the improved bed warmer consists of a collapsible framework forming, when in use in the bed, a hollow space for the reception of an electrical source of heat, and safeguards, arranged on said framework which allow the source of heat to be used only when the framework is in its operative position.

When use is made of an electric source of heat, e. g. a 60-70 watts carbon-filament incandescent lamp and an ordinary coverlet on the bed, the temperature of the bedclothes rises to 70° Celsius (158 F.) is well covered, in about 1 to 2 hours. If the heating be continued, about 100° Celsius (212 F.) will be reached in a few hours, and this temperature is not exceeded if the heating be continued indefinitely, the loss of heat outwardly from the thoroughly warmed bed clothes is then equal to the heat supplied.

If a double coverlet be used, the temperature in the bed rises somewhat, but never attains a dangerous height.

In its inoperative position, the improved bed warmer takes up only a very small amount of space, a circumstance which facilitates storage. The running expenses are low.

Two typical embodiments of the subject of the invention are illustrated in the accompanying drawings wherein Figure 1 is a vertical section of one form of bed warmer on the line *x-x* Figure 2, showing the device in its operative position, Figure 2 is a plan thereof, Figure 3 is a vertical section thereof showing the bed warmer in its collapsed or inoperative condition, Figure 4 is a similar section to Figure 1 showing how the bed warmer would be folded in the event of the bulb of the incandescent lamp not having been removed; and Figure 5 shows a modified form of safety appliance.

In the example shown in Figures 1 to 3, 1 denotes a collapsible framework, consisting of two frames—each composed of four cross pieces 2 and two longitudinals 3—a pivotal shaft 4 common to both frames and beyond which portions of the frames project upwards; and flexible strips 5, for example of fabric, limiting the extent to which the frames can be opened out. In the opened out position of the framework, the frames form a space 6 open on all sides, in which the source of heat—adapted to be attached by means of a conductor 7 and a plug 8, to a wall plug and consisting preferably of an electric glow lamp 9—is mounted in such a way that it cannot come into contact with the bed clothes, all danger of the bed being heated or set on fire being therefore obviated. The upper part of the socket 10 of the glowlamp 9 is secured by an eye 11 forming part of the shaft 4, while its middle part is secured by a strap 12 to the frame 1.

For use, the framework 1 is opened out and inserted between the mattress and the coverlet, or between the top and bottom sheets, the glow lamp 9 being inserted in the holder 10, and the plug 8 connected up. In the event of the user forgetting to take out the plug 8 at the proper time, no excessive overheating of the bed can, however, occur, since the glow lamp does not come in contact with the bedclothes, and the air space 6 formed between the mattress and the coverlet by the framework 1 is large. After the bed warmer has been used, the glow lamp 9 is detached and the framework 1 is collapsed, as shown in Figure 3, so that

it can be stored in a small space. The bed warmer is very simple to handle, and the bed is warmed in a very uniform manner.

In order to prevent the glow lamp 9 from operating except when the framework 1 is in its open position, the following safeguards are provided:—

A bow 13 is arranged and secured on the framework 1 in such a manner as not to touch the glow lamp 9 when the framework 1 is fully opened out. If, however, the user has forgotten to detach the lamp from the holder before folding the framework, the bow 13 will come in contact with the glow lamp 9, so that the framework can only be closed to a very small extent as shown in Figure 4. The bed warmer when in this condition could continue to heat without giving rise to any danger of super-heating; but the impact of the bow 13 against the glow lamp 9 is intended to warn the operator of his omission to detach the bulb, and to remind him so to do, thus preventing the lamp from being in use while the framework is in the folded position. With the same object, a second bow 14, see Figure 3, may be secured to the framework 1 above the bow 13 so as to lie in front of the opening in the lamp holder 10 when the framework 1 is folded up, and thus prevent the glow lamp 9 from being inserted into the holder when the framework 1 is in its closed position. An intermediate member 15 connecting the safety bows 13 and 14 together, is also brought into position—transversely to the bow 14—opposite the opening in the lamp holder when the framework 1 is folded, and still more effectually prevents insertion of the lamp while the framework is closed. It is thus quite impossible to pass current to the device while in its folded position in the bed. When the framework is closed, as in Figure 3, the laterally projecting safety bow 14 and the intermediate member 15 protect the lamp holder from injury by blows.

As shown in Figure 5, two plug members 16 and 17 may be mounted on two parts 1^a and 1^b of the framework 1 which turn in opposite directions when the framework 1 is opened out or folded, the plug member, 16 being adapted to be connected with the glow lamp 9, and the other member, 17, with the wall plug of usual pattern. It will be evident that when the frame work is opened out, the plug members 16 and 17 will make electrical contact, while when the framework is folded up, the plug members 16 and 17 will automatically separate and thus switch off the current, automatically.

Means for protecting the lamp holder may also be employed in this case.

In place of a glow lamp, any other electrical source of heat could also be used. Such source need only absorb 60 watts.

In place of plug contacts, a switch socket for switching on the lamp should be provided on the conductor.

The framework can also be covered with material which is pervious to air, and may be constructed of wood or other material. To lock the framework in its open position, the longitudinal members 3 on the same side can be connected together by a flexible strip provided with buckles, buttons, push-buttons, or the like.

What I claim is:

1. An electric bed warmer comprising a collapsible framework forming when in use in a bed a hollow space for the reception of an electrical source of heat, and means operating to prevent complete collapsing of the frame work until the said electrical source has been removed from its operative position.

2. An electric bed warmer having a framework composed of two frames adapted to rotate on a common axis and provided with means for limiting the extent to which said frames can be opened out, a portion of each frame projecting upwardly above said axis.

3. An electric bed warmer as claimed in claim 2, provided with a bow secured to the framework and adapted to come into contact with the lamp when the frame is folded if the glow lamp has not been removed, and a bow also secured to the frame work and adapted to extend in front of the opening in the lamp holder when the device is in its folded position, thus preventing the insertion of the glow lamp.

4. An electric bed warmer as claimed in claim 3, wherein the two bows are connected together by an intermediate member which, when the framework is folded, is also adapted to be brought in front of the opening in the lamp holder transversely to the second of said bows.

5. An electric bed warmer as claimed in claim 2 provided with plug members in the heating current circuit, said plug members being attached to parts of the framework which turn in opposite directions during the opening and folding of the framework, so that said plug members may make electrical contact when the framework is opened out, and break the circuit when the framework is folded up.

6. An electric bed warmer comprising a collapsible framework forming when in use in a bed a hollow space for the reception of an electrical source of heat, means operating to prevent complete collapsing of the framework until the said electrical source has been removed from its operative position, and means operating to prevent insertion of said electrical source into operative position until the framework has been opened out.

7. An electric bed warmer comprising a

collapsible framework forming when in use
in a bed a hollow space for the reception of
an electrical source of heat, a holder for an
electric lamp, an electric lamp detachably
5 carried by said holder, and means carried by
the framework adapted to strike against
said lamp when the framework is partially
collapsed to prevent complete collapsing of

said framework until the lamp has been
removed.

In testimony whereof I have affixed my
signature in presence of two witnesses.

HERMANN GUGGENBÜHL.

Witnesses:

C. MÜLLER,

F. HEIM.

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