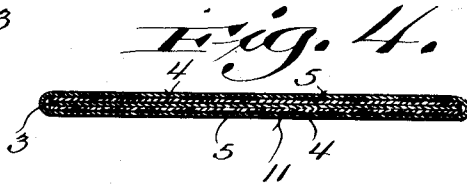
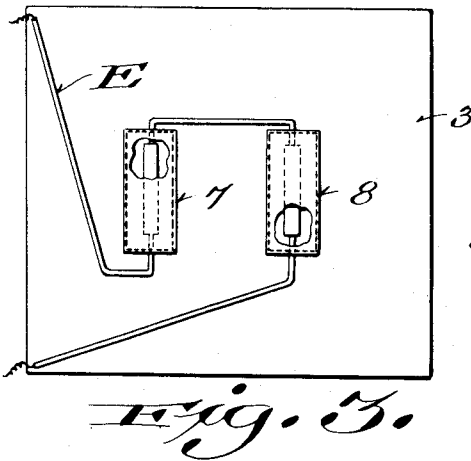
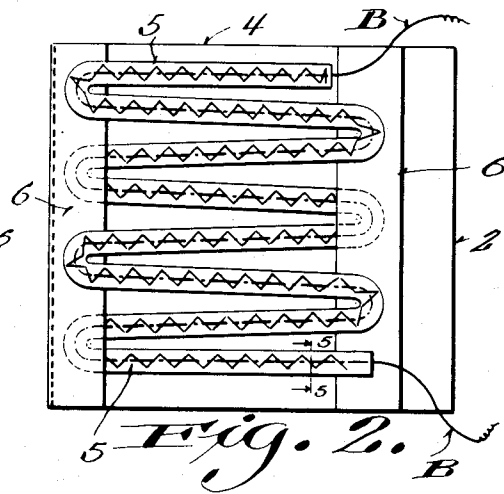
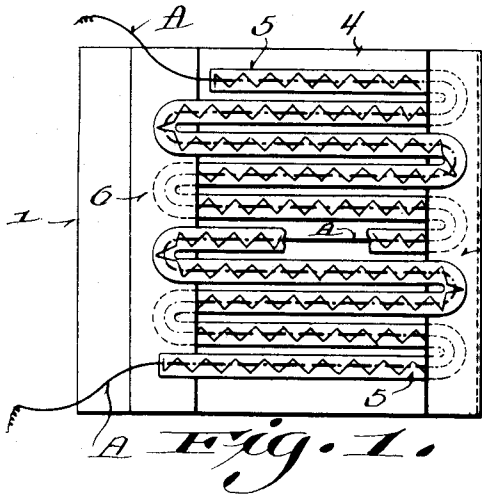
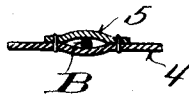


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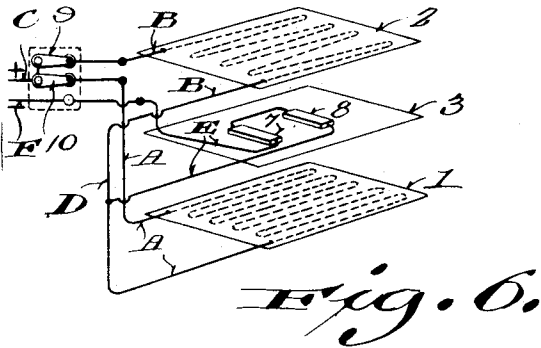
Patented Feb. 13, 1917.



*Fig. 5.*



*Fig. 7.*



Inventor:

Harvey E. Bloomer

Witness,  
 [Signature]

Boyd & Young  
 Attorneys.

# UNITED STATES PATENT OFFICE.

HARVEY E. BLOOMER, OF MILWAUKEE, WISCONSIN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE SUN-RAY MFG. CO., OF OSHKOSH, WISCONSIN.

## ELECTRIC HEATING-PAD.

1,215,610.

Specification of Letters Patent.

Patented Feb. 13, 1917.

Application filed November 15, 1915. Serial No. 61,709.

*To all whom it may concern:*

Be it known that I, HARVEY E. BLOOMER, a citizen of the United States, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Electric Heating-Pads; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to the subject of electric heating pad of the type that is shown, for example in my allowed application Serial No. 860,656 filed Sept. 8, 1914, and the primary aim of the invention is to produce a heating pad the temperature of which can be regulated to produce a low, medium or high degree of heat at the will of the user. Another object of the invention is to equip the pad with a thermostatic controller that will automatically act to break the circuit in the event of an excessive current and thereby prevent injury or discomfort to the user.

A further object of the invention is to produce a heating pad in which the cost of production is reduced to the minimum, and in which simple yet practical means are provided for preventing short circuiting of the heating current.

Other and further objects of the invention will be apparent from the following detailed description.

One simple embodiment of the improved heating pad is shown in the accompanying drawings, wherein—

Figure 1 is a detail plan view of what I term the medium temperature section of the improved heating pad.

Fig. 2 is a similar view of the low temperature section of the pad.

Fig. 3 is a similar view of the thermostatic or temperature regulating section of the pad.

Fig. 4 is a sectional view of the pad.

Fig. 5 is a sectional view taken on the line 5—5 Fig. 2.

Fig. 6 is a diagrammatic view of the pad.

Fig. 7 is a view similar to Fig. 5, but illustrating a variation of the invention.

The improved heating pad is in the form of a blanket, pad, or the like, and it is mainly and preferably formed of flexible material, such as canvas or other suitable non-conducting material. The heater is

preferably formed of three sections, the two outer ones, 1 and 2 being respectively the medium temperature section, the low temperature section, and the intermediate section 3, which is the thermostatic, or temperature controlling section.

The medium temperature section 1 and the low temperature section 2 are the same in structure except the necessary difference in arrangement of the coils or convolutions of the conductive wires, each section including the base or foundation sheet 4 to which the conductive wires are secured by means of the inclosing tape 5, the tapes being formed of suitable non-conductive material and stitched to the sheet 4 in such a manner as to both securely fasten the tape to the sheet and also the conductive wires in proper position for effective heating. It is preferred, but not essential that the tape 5 be an unbroken length of material that conforms to the contour of the convolutions of the conductive wires, and at the points where the parallel sections of the conductive wires meet, the sheet 4 has what I term spacing strips 6, formed of suitable non-conducting material stitched to the sheet and tape 5. It is noted that the adjacent bends of wire which connect the parallel sections are alternately disposed on opposite sides of the respective spacing strips. The function of this arrangement is that under certain conditions considerable shrinkage of the body sections would occur which would tend to project the bends of the wire outwardly of the inclosing tape 5, or other securing means, with a consequent liability of a short circuiting contact, it being understood that in practical applications of the present structure the parallel wire sections would be disposed closer together and would be relatively longer than illustrated. By referring more particularly to Figs. 1 and 2 of the accompanying drawing, it will be observed that the spacing strips are so disposed that they overlap each alternate junction of the parallel sections of the conductive wires, and underlap the remaining junction. By this means the strips 6 efficiently separate and firmly hold separated, such junctions, so that short circuiting of the conductive wires is prevented.

Various means may be resorted to to obtain the difference in the degree of heat

produced, by selectively controlling circuits each including one of the two heating sections 1 and 2, and in the present instance the conductive wires of the section 1 are disposed closer together than the wires B of section 2, thus procuring differing total lengths of wire in the sections.

The thermostatic, or regulating section 3 is equipped with suitable thermostatic elements, such for example as of the expansive type that automatically break the heating circuit in the event of excessive current, the same being conventionally illustrated in Figs. 3 and 6 and designated by the numerals 7 and 8.

The improved pad is diagrammatically illustrated in Fig. 6 of the accompanying drawings, and by referring thereto it will be observed that the feed wire C is connected to the conductive wire B by the manually operable switch 9, and the conductive wire A is suitably connected to the feed wire C by the manually operated switch 10. As will be apparent by opening one of the switches, the heating section controlled thereby is cut out while the other section will be heated as the circuit thereof is closed. Or, as shown in Fig. 6, by closing both switches, both heater sections are placed in circuit with the feed wire, through their circuit connection D, thereby imparting heat to both sections with a resulting increase in the normal temperature of the pad. In any event, the outlet for the heating current is by the circuit wire E that connects circuit connector D with the rheostat elements 7 and 8, the latter having the outlet or return connection F. And as will be obvious, the thermostat will break the current in the event of an excessive supply of the heating current, in a manner well understood.

The heating pad in its finished state is preferably inclosed by a jacket 11 that is

formed of material that is impervious to moisture.

Fig. 7 of the accompanying drawings illustrates a variation of the invention, wherein the conductive wire is incased by insulating material 12, as an additional safeguard and also to add to the durability of the pad as the insulating medium obviously prevents the tape and sheet becoming worn through contact with the wire.

I claim:

1. A heating pad comprising a sheet of material, a resistance member secured to said sheet of material, a second sheet of material, a second resistance member of lower resistance secured to said second sheet of material, a third sheet of material, thermostat members carried by said third sheet of material, means for securing said sheets together, wires extending from the resistance and thermostat members and corresponding wires of the resistance and thermostat members being disposed at adjacent edge portions of the respective sheets.

2. A heating pad including a body sheet of material, resistance wires secured on the body sheet and bent to procure a series of parallel stretches, and spacing strips carried by the body strip at the ends of said stretches and overlapping alternate adjacent bends of the wire, whereby to prevent contact of the bends upon shrinkage of the body sheet, and consequent projection of the bends past the securing means of the said stretches of wire.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

HARVEY E. BLOOMER.

Witnesses:

GEO. W. YOUNG,  
M. E. DOWNEY.