

(No Model.)

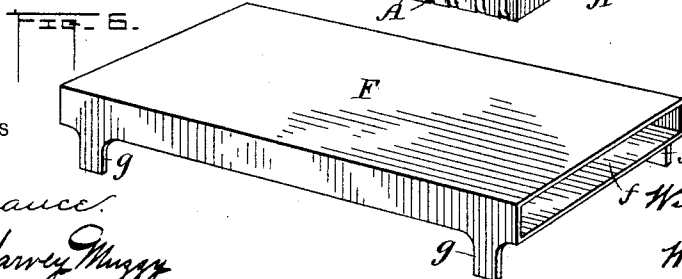
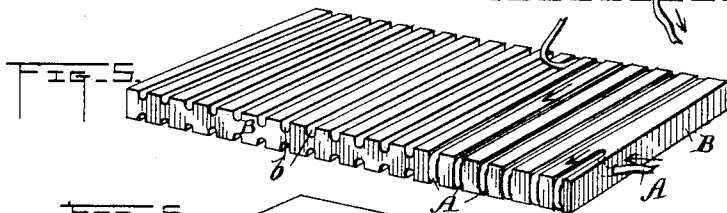
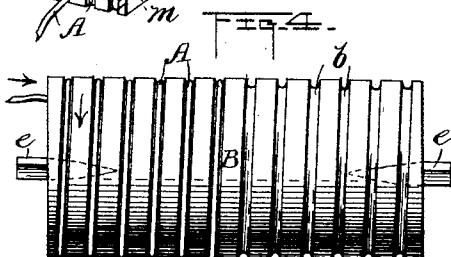
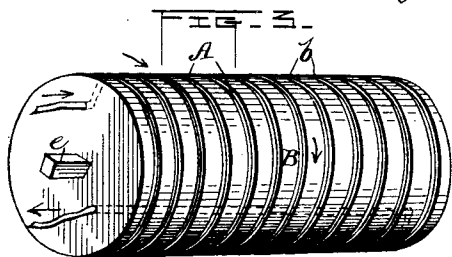
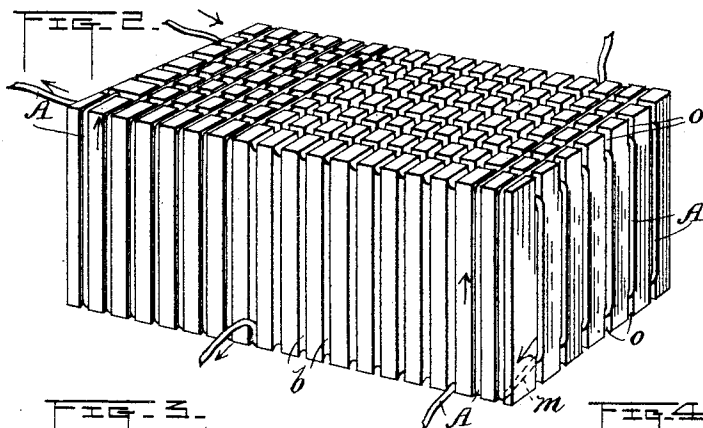
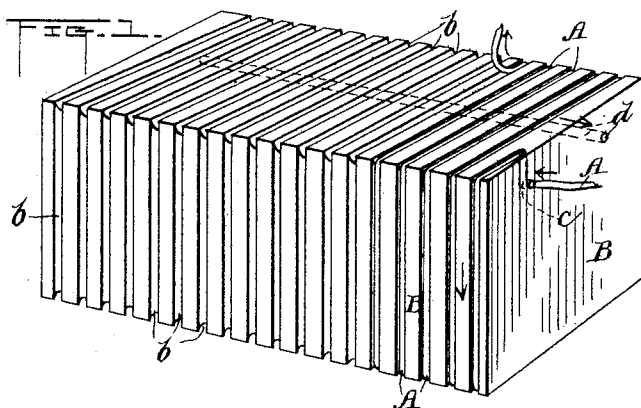
2 Sheets—Sheet 1.

W. MITCHELL.

ELECTRIC HEATING CORE FOR SMOOTHING IRONS.

No. 460,980.

Patented Oct. 13, 1891.



WITNESSES

Cleverance
W. Harvey Muzzey

INVENTOR

W. Mitchell
W. H. Babcock
Attorneys

(No Model.)

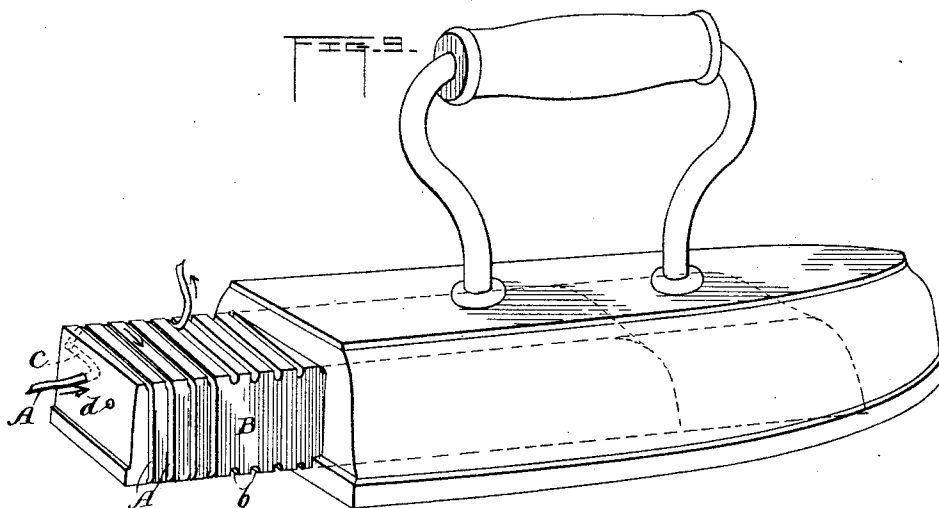
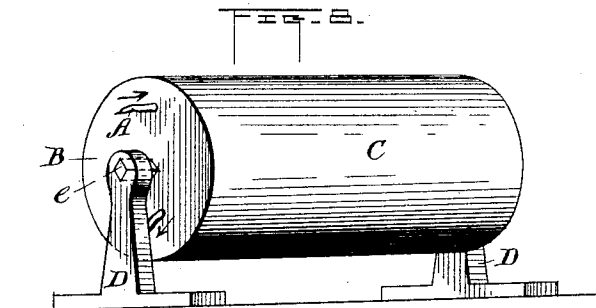
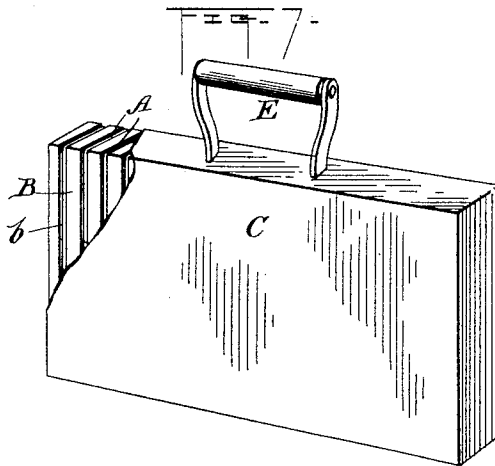
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WITNESSES

Gloverance.
W. H. Muzzy

INVENTOR

Willis Mitchell
by
W. A. Babcock
Attorney

UNITED STATES PATENT OFFICE.

WILLIS MITCHELL, OF MALDEN, ASSIGNOR TO THE BUTTERFIELD-MITCHELL
ELECTRIC HEATING COMPANY, OF BOSTON, MASSACHUSETTS.

ELECTRIC HEATING-CORE FOR SMOOTHING-IRONS.

SPECIFICATION forming part of Letters Patent No. 460,980, dated October 13, 1891.

Application filed March 24, 1891. Serial No. 386,204. (No model.)

To all whom it may concern:

Be it known that I, WILLIS MITCHELL, a citizen of the United States, residing at Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Electric Heating-Cores for Smoothing-Irons; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The chief object of this invention is to provide a new core for the wire of electric heaters which shall separate the coils or spirals thereof absolutely and insulate them from each other, while holding each in its proper position.

To this end my invention consists, mainly, in a block or solid piece of soapstone or other insulating material in any suitable form, having grooves for the wire cut in its sides or ends or both. This core is especially designed for use in bed-warmers, flat-irons, cylindrical smoothing devices, cooking utensils, and other small articles, but of course is not confined thereto.

In the accompanying drawings, Figure 1 represents a perspective view of my improved core, having grooves in its sides and the heating-wire wound thereon, but partly broken away. Fig. 2 represents a similar view of a block having grooves in its sides, but not in its ends, the wire being wound endwise as well as crosswise, and broken away to show the grooves. Fig. 3 represents in perspective as a modification a cylindrical core having circumferential grooves. Fig. 4 represents a side elevation of the same with the wire wound thereon. Fig. 5 represents a perspective view of another modification, having a flat form, with the wire wound in grooves in its sides and partly broken away. Fig. 6 represents a metallic shell, open at one end to receive this latter core and constituting with it an electrically-heated griddle. Fig. 7 represents in perspective a bed-warmer consisting of a core made according to this latter form and heavily coated with paint or other material to hide the wires, the side being slightly broken away to show them and this covering. Fig. 8 represents a heating-cylin-

der constructed as in Fig. 3 and coated with pulverized soapstone and asbestos; and Fig. 9 represents a hollow flat-iron body adapted to receive a modified form of core, also shown in said figure.

In the said drawings, A designates the heating-wire which forms part of an electric circuit, and B the core on which it is wound. This core is preferably of soapstone, but may be of any other solid insulating material. As shown in Fig. 1, a continuous helical groove B is made in its sides to receive the wire, said groove being of sufficient depth to hold the wire spirals in their proper position and the interval between one spiral of the groove and the next on either side being such as to insure the best heating action of the electric current passing through the wire, as determined by experiment. For convenience both ends of the wire leave the core or block at the same end, one end of the wire passing thereto through a short oblique inner passage *c* from the nearer groove and the other end of the wire being passed through a longitudinal inner passage *d*, extending from end to end of the said core or block. This construction is repeated in Fig. 5, except that the groove is broken into a number of parallel grooves, occupying the same position, by the ungrooved edges of the flattened core, these being too narrow to need grooving. The form shown in Figs. 3 and 4 has the continuous groove of Fig. 1, and also the passages *c d*, arranged correspondingly to those above described, the chief difference being that the core in the one case is a rectangular cubical figure, whereas in the other it is cylindrical. This cylindrical core has gudgeons *e* screwed into its ends, they being available for suspending it under ear-seats or suspending it in bearings on standards D, as shown in Fig. 8. A coating C of mingled asbestos and pulverized soapstone is given to it, as shown in this latter figure, and becomes as hard as the core itself, practically embedding the wire therein and hiding it. To apply this coating mix together approximately equal parts of pulverized asbestos and pulverized soapstone, with enough of any adhesive material to form a paste or mortar. Then heat the soapstone core by the electrical current.

Then turn off the said current and spread the aforesaid mixture on the said heated core. The heat will cause it to harden, forming the desired coating; or, as shown in Fig. 7, a heating-core having one of the forms above described may be heavily painted over and used as a bed-warmer or foot-warmer or for any other heating purpose. It is preferably provided with a handle E; or, as shown in Fig. 6, a flat hollow case F, having one end *f* open, may receive the flat form of core shown in Fig. 5 and be used with it as an electric griddle. Legs *g* are provided, giving this article a table-like appearance.

As shown in Fig. 2, a block of the form shown in Fig. 1 may be grooved spirally endwise as well as around its sides. The grooves of each set cut through those of the other set, so that neither is strictly continuous. The lengthwise grooves *o* are deeper than the grooves *b* to avoid contact of the coils of wire with each other and consequent short-circuiting. I wind the wire first in the lengthwise grooves *o* and then back on the sides of the block or core in the grooves *b* to the end of the block where the winding began. A short passage *m* from the last lengthwise groove *o* on the right to the nearest crosswise groove *b* extends through one corner of the block and allows this transfer of the wire from one set of grooves to the other, the direction of winding, as in the other figures, being indicated by arrows.

Heating-cores constructed as hereinbefore described are capable of being used in a great variety of ways and with many kinds of covering or incasement. A few of these have herein been explained and illustrated; but such a core, wherever used, is a part of my invention. It dispenses with all other insulation and holds the wire absolutely in its position and arrangement of greatest efficiency.

Of course the core may have the same grooved construction without being made of insulating material and will answer well if the wire is coated. The grooves are arranged to hold each spiral of the wire in a space or interval about ten or twelve times its own width, varying more or less according to the work to be done.

Any form of core shown may of course be coated like the cylinder shown in Fig. 8, or painted like the bed-warmer shown in Fig. 7, or put into a hollow casing, as suggested by the hollow griddle-shell in Fig. 6 or the flat-iron body of Fig. 9, which last receives a core of the form shown also in said figure. This

core is rounded at the upper corner of one end to fit the end of the cavity in the shell. Otherwise it has substantially the construction shown in Fig. 1.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a wire forming part of an electric circuit and wound in a heating coil or spiral, a solid core of insulating material which is grooved to receive the said wire and provided with a passage permitting the return of the wire to the end of the core where the winding began, substantially as set forth.

2. In combination with a wire forming part of an electric circuit, a core or block which is provided with a set of spiral grooves running crosswise and a similar set running lengthwise, the wire being wound first in one set of grooves and then in the other, for the purpose set forth.

3. In combination with a wire forming part of an electric circuit, a core which is provided with a set of grooves running crosswise and a set running lengthwise of the said block, one set of grooves being deeper than the other set, and the said wire being wound first in the deeper grooves and afterward in the shallower ones, substantially as set forth.

4. In combination with a wire forming part of an electric circuit, and a grooved core on which it is wound, a coating of powdered soapstone and asbestos for the outside of the said core and wire, substantially as set forth.

5. In an electrically-heated utensil, the combination of a non-metallic bar or core inclosed within the body of it, and a wire forming part of an electric circuit, which is wound on said core, each spiral of the wire being in a space or interval about ten or twelve times its own width, more or less, according to the work to be done, substantially as set forth.

6. A grooved core, in combination with a wire wound thereon in the groove or grooves thereof and forming part of an electric circuit, the said core being provided with a passage through a part of it for one end of the said wire to extend outward from the grooves through one end of the said core, substantially as and for the purpose set forth.

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

WILLIS MITCHELL.

Witnesses:

ARTHUR B. SMITH,
WILLIAM P. CUTLER.