

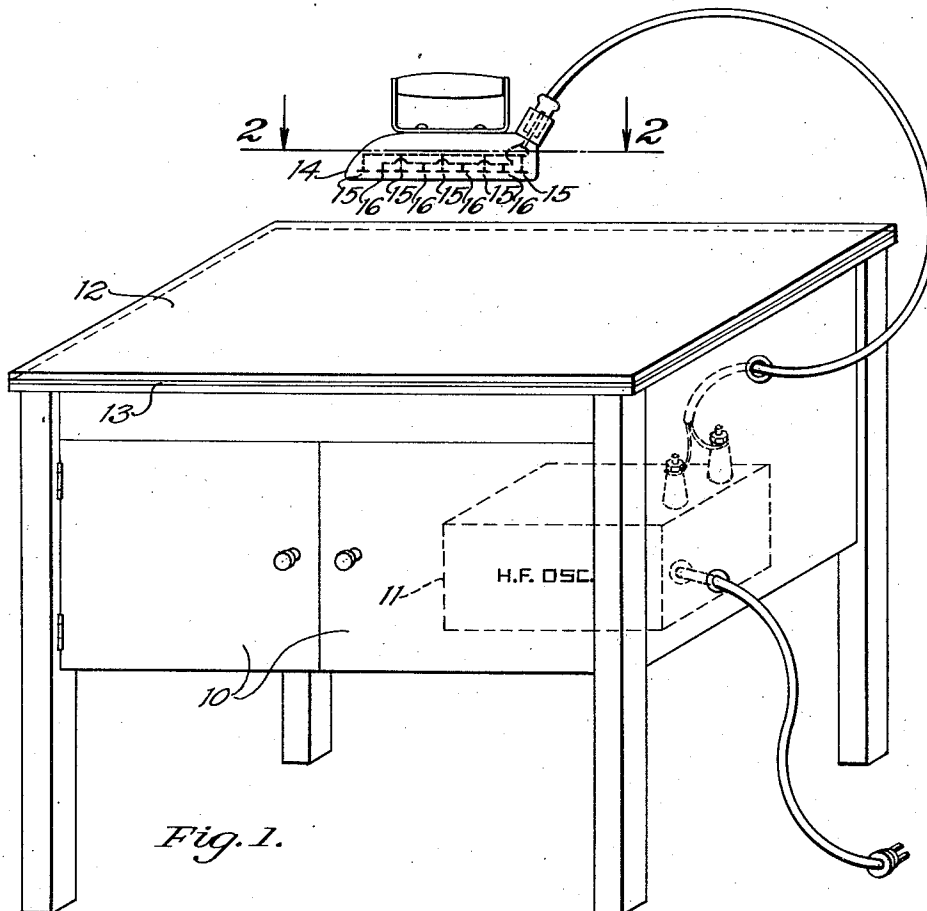
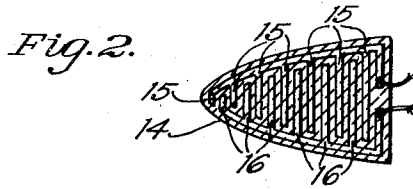
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2,449,318

ELECTROSTATIC IRONING APPARATUS

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ELECTROSTATIC IRONING APPARATUS

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4 Claims. (Cl. 219—19)

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This invention relates to electrostatic heating apparatus and relates more particularly to hand irons providing electrostatic heat for pressing and drying damp cloth and the like.

The ordinary hand iron in order to be effective has to have its ironing surface at such a high temperature that the material being ironed may easily be scorched or burned.

This invention provides a hand iron having a plurality of spaced interlaced electrodes in its base with alternate electrodes connected to the opposite sides of a high frequency oscillator. Electrostatic fields are set up between the adjacent electrodes and when the iron is placed upon a damp cloth, the cloth is a dielectric in the electrostatic fields and by hysteresis action, is heated. The power absorbed by the cloth from the electrostatic fields and, therefore, the heat produced in the cloth, is proportional to the moisture content of the cloth. Therefore since the heat produced varies in accordance with the dampness of the cloth, as the cloth is dried by the application of the iron, the heat becomes less and less until when the cloth is completely dry, relatively no heat is produced.

The ironing surface of the iron is not heated so that it may be left upon the surface of the cloth being ironed, for any period of time without any scorching or burning of the cloth.

The iron is designed for use with an ironing board or table preferably having a metallic ply formed in its supporting surface. This metallic ply forms a free electrode which is capacity coupled to the electrodes in the iron, when the iron is placed upon the table, the electrical capacity between the free electrode and the electrodes in the iron being greater than the capacity between the alternately connected electrodes in the iron. The effective electrostatic field is, therefore, provided to a major extent between the free electrode and the other electrodes. By providing such a free electrode, the size of the hand iron may be reduced considerably over that which would be necessary were the free electrode not provided, and lower voltages may be supplied to the electrically connected electrodes.

The free electrode since not being connected in the electrical circuit, may be grounded so that no electrical charges may be induced upon its surface.

An object of the invention is to provide electrostatic heat with a hand iron.

Another object of the invention is to utilize a metallic cloth supporting surface as a free electrode and to utilize electrodes in a hand iron

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connected to a high frequency oscillator, for heating the cloth with electrostatic heat.

The invention will now be described with reference to the drawing, of which:

Fig. 1 is a projected view of an ironing table having a high frequency oscillator contained therein, and of a hand iron having electrodes in its base connected to the oscillator, the table having a metal ply, and

Fig. 2 is a sectional view along the lines 2—2 of Fig. 1.

The table illustrated by Fig. 1 has the doors 10 which provide access to the oscillator 11 supported in the interior of the table. The oscillator 11 is a conventional oscillator utilizing electronic tubes for producing high frequency alternating current which, for example, may be twenty megacycles.

The table top 12 has a metallic ply 13 which in ironing, acts as a free electrode as will be described.

The hand iron 14 has in its base, the metallic electrodes 15, which are connected to each other and to one side of the oscillator 11, and the metallic electrodes 16 which are connected to each other and the other side of the oscillator. The electrodes 15 and 16 are parallel and extend crosswise the iron with their lower surfaces parallel to the lower surface of the iron. The electrodes 15 are arranged alternately with the electrodes 16 so that they may be considered as interlaced.

The body and handle of the iron should be of non-metallic material for avoiding the production of electrostatic charges thereon.

When a damp cloth is placed on the table top 12 and the oscillator 11 is energized and the iron 14 pressed against the cloth, electrostatic fields are produced between the electrodes 15 and 16 and the metallic ply 13 below the surface 12 acting as a free electrode capacitively coupled to the electrodes 15 and 16. The electrostatic fields produce heat in the cloth so that the cloth may be ironed by movement of the hand iron 14 in the usual manner.

It is preferred that the oscillator 11 be of the push-pull type disclosed in the E. L. Crandell, U. S. Patent No. 2,298,038. With this type of oscillator, a free electrode is maintained at ground potential so that there can be no voltages induced in the table top 12 and no harm caused by electrical shock, to the operator of the iron.

While one embodiment of the invention has been described for the purpose of illustration, it should be understood that the invention is not limited to the exact apparatus and arrangement

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of apparatus disclosed as modifications thereof may be suggested by those skilled in the art without departure from the essence of the invention.

What is claimed is:

1. Ironing apparatus comprising in combination, a hand ironer having a body portion of non-metallic material, a plurality of spaced electrodes embedded within the body portion of said ironer, an oscillator, means connecting said electrodes to said oscillator, a cabinet housing said oscillator, and means forming a portion of said cabinet providing a surface for supporting the material to be ironed and providing a free electrode capacitively coupled to said electrodes when said ironer is placed upon said material.

2. Ironing apparatus comprising in combination, a hand ironer having a body portion of non-metallic material, a plurality of interlaced, spaced electrodes embedded within the body portion of said ironer, a pair of electrical conductors connecting alternate of said electrodes together, an oscillator, means connecting said conductors to said oscillator, a cabinet housing said oscillator, and means forming a portion of said cabinet providing a surface for supporting the material to be ironed and providing a free electrode capacitively coupled to said electrodes when said ironer is placed upon said material.

3. Ironing apparatus comprising in combination, a hand ironer having a body portion of non-metallic material, a plurality of interlaced spaced electrodes embedded within the body portion of said ironer, a pair of electrical conductors connecting alternate of said electrodes together, an oscillator, means connecting said conductors to the output circuit of said oscillator, a cabinet housing said oscillator, said cabinet providing a surface for supporting the material to be ironed, and means located below said supporting surface providing a free electrode capacitively coupled

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to said electrodes when said ironer is placed upon said material.

4. Ironing apparatus comprising, an oscillator, a housing for said oscillator, a slab-like support providing an ironing surface, said housing being disposed immediately below and attached to the under side of said support, a hand ironer having a body portion of non-metallic material, a plurality of spaced electrodes embedded within the body portion of said ironer, means connecting alternates of said electrodes to opposite sides of the output circuit of said oscillator, and means located below the ironing surface of said slab-like support and providing a free electrode capacitively coupled to said electrodes when said ironer is brought into ironing contact with material placed upon said support.

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