Dec. 11, 1934. F. E. BAKER 1,984,008

ELECTRICALLY HEATED PRESSING AND IRONING ELEMENT

Original Filed Oct. 18, 1929

Fig. 1.

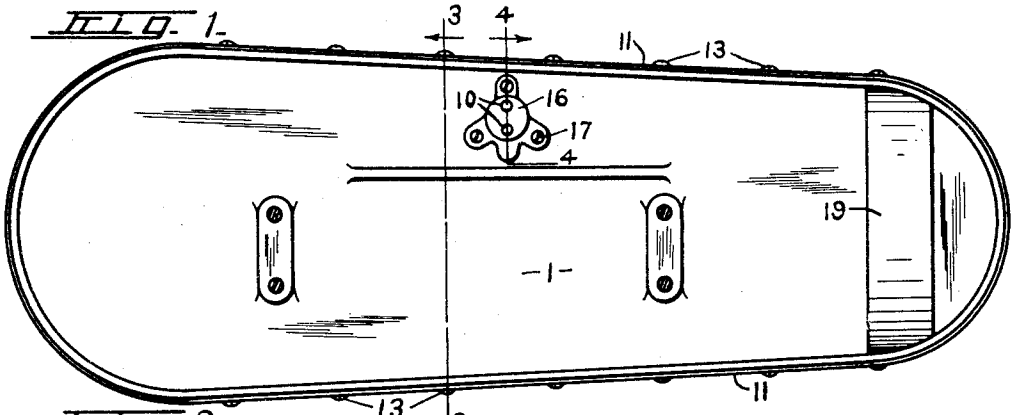


Fig. 2.

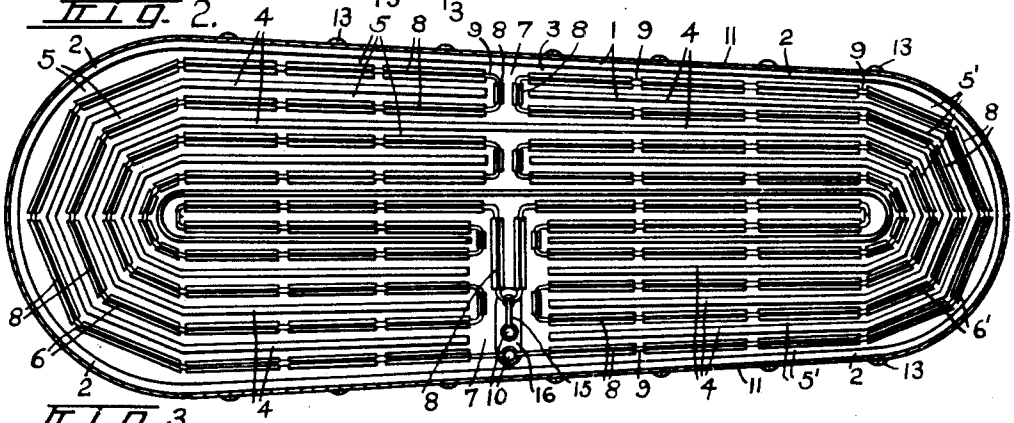


Fig. 3.

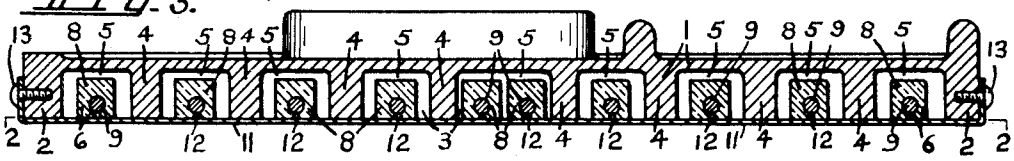


Fig. 4.

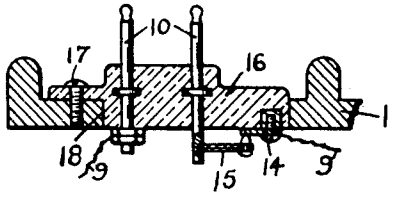


Fig. 5.

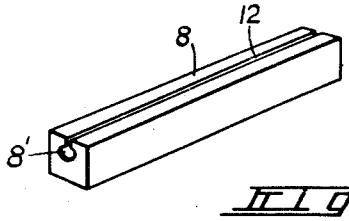
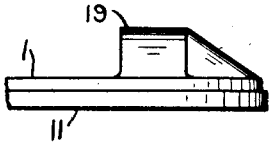


Fig. 6.



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ELECTRICALLY HEATED PRESSING AND IRONING ELEMENT

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Application October 18, 1929, Serial No. 400,652
Renewed October 19, 1934

2 Claims. (Cl. 219—19)

This invention relates to an electrically heated pressing and ironing element adapted to be used more particularly for ironing previously dampened laundry work but obviously may be used in connection with garment pressing machines for pressing and shaping trousers, coats, vests, skirts and other articles of wearing apparel which may, if necessary, be moistened by a dampened cloth or by any other moistening means commonly employed in such work.

That is, this pressing element is adapted to be used as the buck or press head of any garment pressing machine in which one of the elements is movable toward and from the other and either or both of the elements are heated and the main object of the present invention is to provide an electric heater constructed and associated with the pressing element in such manner as to cause a more uniform, expeditious and efficient distribution of electric heat over practically the entire area of and closely adjacent to the ironing surface of said element than has heretofore been practised.

In other words I have sought to obtain a maximum heating efficiency of the ironing surface with a minimum consumption of current, consistent with the wide distribution of the heat over practically the entire ironing surface of the pressing element and incidentally to reduce the time period for heating said surface from a cold state to a required ironing temperature resulting in conservation of time, labor and electric energy in the ironing operation.

Another object is to coordinate the electric heater and pressing element in which it is mounted in such manner that the heater may be easily and quickly assembled or removed either as a unit or in sections and to construct the heater in such manner that when placed in operative position within the pressing element the heat therefrom will be projected directly against a relatively thin presser plate for quickly heating the same throughout the area of said element.

Another object is to construct the heater in the form of a chain made up of similar insulating sections or more or less varying lengths and to provide these insulating sections with lengthwise apertures therethrough closely adjacent one side thereof and to thread the heating wire through the apertures for tying the sections together end to end and to arrange the sections in the pressing element with the thinner walls of the apertures closely adjacent the presser plate so as to obtain a rapid transfer of the heat from the wire to said plate.

A further object is to provide the thinner walls of the insulating sections with relatively narrow slits or openings through which the heat may pass more rapidly than would be the case if these walls were solid.

Other objects and uses relating to specific parts of the pressing element and heater will be brought out in the following description.

In the drawing:—

Figure 1 is a top plan of a pressing element embodying the various features of my invention.

Figure 2 is an inverted plan of the same element except that the presser plate is shown in section taken on line 2—2, Figure 3, showing the electric heaters in operative position.

Figure 3 is an enlarged transverse sectional view taken in the plane of line 3—3, Figure 1.

Figure 4 is an enlarged detail sectional view taken in the plane of line 4—4, Figure 1, showing the manner of mounting the terminals of the heater circuit and thermostat upon the pressing element.

Figure 5 is a perspective view of one of the insulating sections for the heater wire.

Figure 6 is a side elevation of the smaller end of the press-head showing more particularly the supplemental smoothing surface for bands and similar narrow articles.

In order that my invention may be clearly understood I have shown an elongated pressing element tapered longitudinally in top plane somewhat similar in outline to those used in dry-cleaning and pressing establishments for pressing and shaping garments and comprising a substantially flat and relatively shallow body portion 1 which is preferably cast in one piece from aluminum composition or equivalent comparatively light but strong and durable material having a high degree of heat conductivity and also capable of retaining the heat for considerable periods of time when the heater circuit is broken.

The main body or frame 1 is provided with a relatively narrow marginal flange 2 extending entirely around its outer edges and of uniform depth vertically to form an inner heating chamber 3 of corresponding depth except that the heating chamber is provided with relatively narrow spaced partitions 4 dividing said heating chamber into a series of channels 5 and 5′ for receiving a pair of opposite heating units 6 and 6′.

These heater units 6 and 6′ are arranged lengthwise of and within the channels 5 and 5′ so that the heater units may extend throughout the major portion of the area of the heating chamber from the ends of the frame 1 inwardly

except that the inner ends of the channels merge into a cross channel 7 substantially midway between the ends of the frame as shown more clearly in Figure 2.

The channels 5 and 5' and 7 are of uniform depth somewhat less than the vertical thickness of the frame 1 to form a continuous outer wall across one side of the heating chamber 3 and channels into which the heating chamber is subdivided, said outer wall being of sufficient thickness to prevent excessive dissipation of the heat and also retain the heat for a considerable period of time after the circuit is broken.

The channels 5 and 5' of each set are connected to form one continuous channel having return bends at their outer ends and return connections through the cross channel 7 at their inner ends.

That is, they begin at the central cross channel 7 near the rear lengthwise flange 2 and extend endwise along the curved ends of the flange 2 to the cross channel and then return outwardly around the bends through the next adjacent channels to the cross channel and thence outwardly through the third inner channel to the cross channel and again outwardly from the cross channel and return thereto to communicate with the inner end of the middle channel which latter is of sufficient width to receive two rows of the insulating blocks for the heater as shown in Figure 2.

This tortuous continuation of the channels at each end of the frame 1 covers practically one-half of the area of the heating chamber and owing to this continuity the heating elements 6 may be easily and quickly assembled within the heating chamber after the insulators have been threaded upon the heater wire in a manner presently described.

The fact that the channels 5 and 5' at each end of the frame 1 are connected to each other constitutes in reality two continuous but tortuous channels, one for each of the heating units 6 and 6' respectively.

Each of these heater units comprises a multiplicity of hollow or tubular insulator sections 8 of porcelain or equivalent material and an electrical resistance wire 9 threaded sequentially through the several insulators and electrically connected in a manner hereinafter described to a pair of terminals 10 shown more clearly in Figure 4.

That is, the insulator sections 8 are strung in sequence upon its corresponding wire 9 somewhat in the manner of threading beads on a string and are preferably made in a variety of different lengths so that when assembled upon the heater wire the entire heater unit may be assembled in and conform to the tortuous winding of the channels 5 and 5' in which the heater units are placed as shown more clearly in Figures 2 and 3.

The cross sectional form and area of the insulator sections 8 are made to conform approximately to the cross sectional form and area of the channels 5 and 5' into which they are placed but are of sufficiently less cross sectional form and area than the said channels to permit them to be easily and quickly placed in operative position therein and removed therefrom thereby greatly expediting the work of assembling the heating units within the heating chamber of the pressing element 1.

As illustrated the cross sectional form of the channels 5 and insulating sections 8 is substantially rectangular or nearly square while the lengthwise openings therethrough for receiving the heater wire 8 are arranged in relatively close proximity to one side thereof so as to bring the heater wire of each unit into corresponding close proximity to said ironing plate for quickly transferring the heat therethrough.

The sides of the insulator sections 8 adjacent the plate 11 are provided with relatively narrow slits 12 communicating with the openings as 8' through which the heater wires 9 are passed so as to accelerate the transfer of the heat from said wire to the ironing plate.

This ironing plate 11 is extended entirely across the open sides of the heating chamber 3 and channels 6 and 6' and is preferably made of relatively thin sheet metal to enable the same to be quickly heated, the marginal edges of said plate being bent upwardly along the corresponding edges of the head 1 and secured thereto by screws 13 or equivalent fastening means which permits the plate to be readily removed when desired as for example, when removing or replacing the heater units, see Figure 3.

The insulator sections 8 of suitable length to conform to the particular portions of the channels into which they are adapted to be placed are successively strung upon the wire 8 of each heater unit as the sections are placed in said channels until each heater unit is completed after which one end of the wires preferably nearest the rear side of the pressing element is attached to one of the binding posts or terminals 10 while the other ends of the heater units are brought through additional insulating sections 8 in the cross channel 7 and attached to one of the members 14 of an electro-thermostatic switch 15 having its other member electrically connected to and preferably mounted upon the inner end of the other terminal 10 as shown in Figure 4.

These terminals 10 and thermostatic switch 15 are mounted upon an insulator block 16 which is secured by screws 17 to the outer side of the head 1 to extend through an aperture 18 in said head as shown in Figure 4, so that the terminals 10 may protrude some distance above the outer wall of the head for receiving an electrical plug, not shown, but which may be connected to any available source of electric energy, the inner ends of the terminals being allowed to protrude into the heating chamber for conveniently receiving the ends of the heater wires of both units.

The smaller end of the head 1 is provided with a relatively narrow upwardly projecting ironing or smoothing member 19 extending from side to side thereof and rounded in cross section to permit the smoothing of bands, ribbons and other narrow articles by simply drawing them transversely across said rounded surface, the front portion of which is inclined downwardly to the end of the head for a similar purpose, it being understood that this upwardly projecting portion 19 will be heated by the same electrical heating element within the head.

The thermostatic switch 15 is set or adjusted to allow the heat within the head to reach a predetermined ironing temperature and to automatically open the switch for breaking the heater circuit when the temperature exceeds said predetermined degree, thereby rendering the operation of the press head safe against overheating in the hands of inexperienced or careless users.

When assembling the heater units 6 and 6'

within the head, the latter is preferably placed upon a support in inverted position or with the open sides of the channels 5 uppermost before the presser plate 11 is secured in place, the insulator sections 8 are then threaded one by one, end to end in sequence, upon the heater wire 9 and the threaded sections are then successively dropped or placed into their respective places in the channels 5, this operation being continued until the channels are filled throughout their lengths, the ends of the heater wire being then connected to the terminals 10 in the manner previously described.

The insulator sections are arranged sufficiently close to each other end to end to prevent contact of any portions of the heater wire with the metal parts of the head except to the terminals 10 through the medium of the thermostatic switch 15 and are loosely seated in the channels so that they may automatically drop into their respective positions.

The presser plate 11 is then secured in operative position across the open sides of all of the channels after which the head is placed right side up with the presser plate 11 at the bottom to allow the insulator sections of the heater units to rest upon said presser plate with the thin walls of their wire openings adjacent said plate under which conditions the heat produced by the energizing of the wire will be almost instantly transferred to the presser plate not only through the thin walls of the insulator sections but also through the relatively narrow slits 12 which are of less width than the wire 9 to prevent the displacement of the wire therethrough.

Although I have shown and described the presser head as provided with a plurality of connected channels for receiving the heater units, it is obvious that the partitions 4 dividing the heating chamber into said channels may be omitted and the heater units arranged in substantially the manner described within the chamber, or a single heating unit made up of the insulating sections 8 and heater wire 9 may be placed within the chamber and arranged in more or less tortuous compact relation to extend over practically the entire area of said chamber without departing from the spirit of this invention.

What I claim is:

1. An electrically heated pressing element having a cross channel intermediate its ends and separate sets of U-shaped channels extending in opposite directions from the cross channel, an imperforate presser plate extending across the open sides of all of the channels, separate sets of tubular insulator sections arranged in the U-shaped channels at opposite sides of the cross channel, and an electric heater wire passed continuously through the tubular insulators of both sets and having its terminals arranged in the cross channel.

2. An electrically heated pressing element having a cross channel intermediate its ends and separate sets of U-shaped channels extending in opposite directions from the cross channel, an imperforate presser plate extending across the open sides of all the channels, and a heater wire having its terminals in the cross channels and extending in the U-shaped channels backwardly and forwardly on the opposite sides of the cross channel and extending across the cross channel to form a continuous tortuous heating element for securing a more even distribution of heat to the presser plate.

FRANK E. BAKER.