March 9, 1943. D. W. THOMAS 2,313,181

IRONING BOARD

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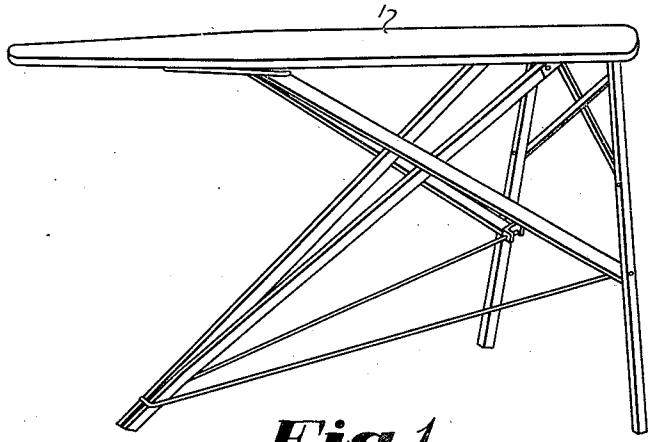


Fig. 1

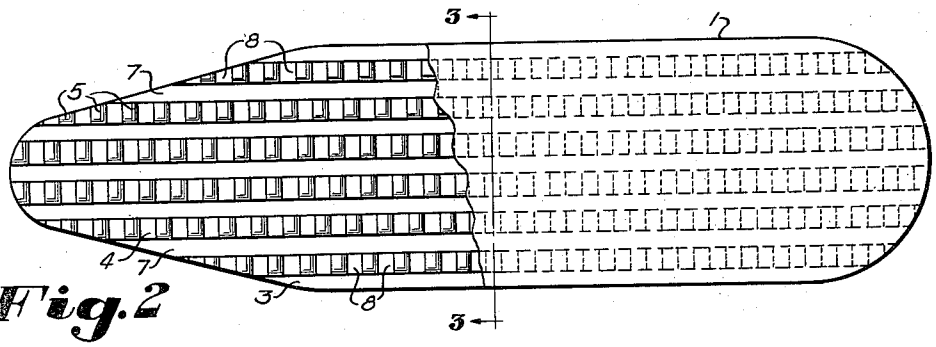


Fig. 2

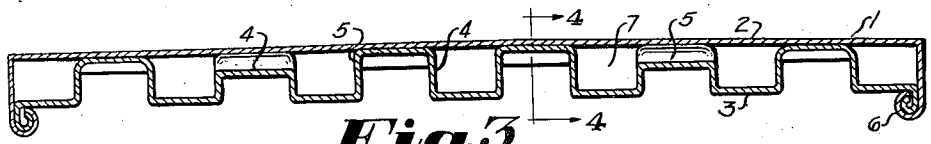


Fig. 3

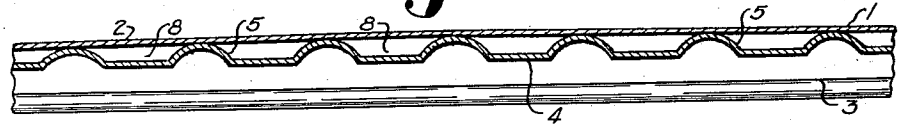


Fig. 4

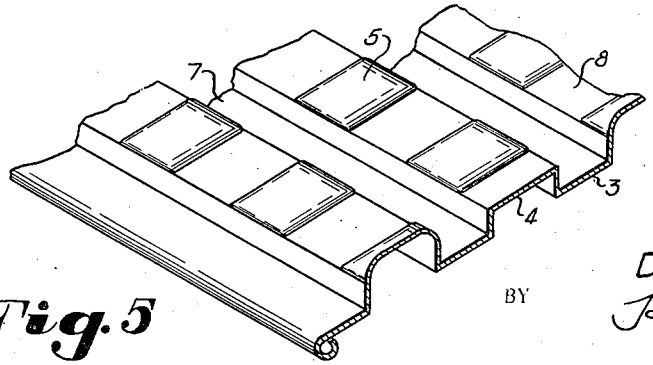


Fig. 5

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IRONING BOARD

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6 Claims. (Cl. 38—137)

The present invention, relating as indicated to ironing tables, is particularly concerned with the manufacture of a metallic structural element adapted for use as the top of an ironing table or analogous structure in which strength, absence of fire danger, low weight and low cost are important. The invention, while adapted for various uses as will be evident from its construction as hereinafter described will here be illustrated in the form of a folding ironing table of generally conventional type.

The object of my invention is to provide a metal ironing table which combines convenient weight to sufficient strength, and which has in addition the safety factor which no wooden table can have, namely, the complete elimination of any fire hazard. A further object is to provide a metal ironing board so constructed and designed that a heating element can be included within the box-like board structure with absolute freedom from fire danger. Other objects will be apparent in the subsequent description.

Folding ironing boards have been in use for many years and consist of a flat top made from a single piece of wood and folding legs either of wood or metal hinged to the lower surface of the board to fold flat against the board proper when not in use. In this structure the wooden top is obviously the weakest element because it is subjected to severe and varying conditions such as heat from the ironing operation, bending moments at the outer unsupported end which is spaced a very considerable distance from the forward legs, compression from the iron's weight and the pressure imposed upon it by the user. The repeated absorption and yielding up of moisture, the gradual further drying out of the wood in some climates, and the rough usage result in checking, warping, cracking and finally in the breaking of the top.

Various attempts have been made to produce a metal top for an ironing table for analogous uses without success. The requirements of such an article are severe and varied. Its cost and weight must approximate closely those of a wooden top. It must have uniform minimum resistance substantially all over its surface to the operating pressure of the iron and it must withstand severe bending strains imposed upon its forward overhanging end portion which is unsupported for a considerable distance. This end portion is also weakened by being narrowed with respect to the width of the main portion of the board in order to accommodate shirts, sleeves and the like which are slipped over the extending end. For example, a conventional board is approximately four and one-half feet long, one and one-quarter feet wide, and in wood weighs from seven and one-half to nine and one-half pounds, depending upon the particular wood used and the amount of contained moisture at any given time. It must support forty pounds on the extended narrow end without undue deflection, setting or breakage, and it must withstand transverse bending strains of more than that amount. Previous attempts at metal boards have weighed 50% to 100% more than the conventional wooden boards, at two to three times the cost.

My improved board has the strength and weight of a wooden board at a comparable cost. It secures these characteristics by fabricating a given weight of metal in the form of sheets into a closed box-like structure of a predetermined minimum compressive strength over its entire area with high resistance to bending moments longitudinally, transversely and diagonally. Its box-like characteristic not only gives it extreme strength for its weight, but lends itself perfectly to the inclusion of electrical heating elements to warm the upper surface and facilitate and hasten the ironing operation, which is one purpose to which the board may be adapted, as will be explained later herein.

To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims; the annexed drawing and the following description setting forth in detail certain structure embodying the invention, such disclosed means constituting, however, but one of various structural forms in which the principle of the invention may be used.

In said annexed drawing:

Fig. 1 is a perspective view of an ironing board mounted on a set of folding legs;

Fig. 2 is a top plan view of the ironing board top with the legs removed;

Fig. 3 is a transverse cross-sectional view of the ironing board, taken on the line 3—3 of Fig. 2;

Fig. 4 is a fragmentary longitudinal cross-sectional view of the ironing board, taken on the line 4—4 of Fig. 3; and

Fig. 5 is a fragmentary perspective view of the metal sheet comprising the lower half of the ironing board, showing the structure thereof.

Referring more particularly to the drawing, Fig. 1 shows an ironing table consisting of a top 1 and a conventional set of folding legs secured

thereto, the legs being shown in their extended or open position and being foldable against the lower surface of the top.

The top consists of two thin sheets of metal 2 and 3, the top or upper sheet 2 being preferably crowned transversely to a slight extent, i. e., approximately one-eighth of an inch, such crown being desirable in order to avoid any possibility of the top buckling while in use. The sheet 2 is also crowned longitudinally to a very slight extent. The extent of transverse and longitudinal crowning is not such as to interfere with the ironing operations. The lower sheet 3 is corrugated to form a series of transversely spaced longitudinally extending corrugations 4 of inverted U-shaped angular cross-section, that is to say the corrugations consist of flat upper portions and vertical sides. These upper portions of the corrugations 4 are pressed or indented to provide a series of longitudinally spaced projecting portions in the form of embossments or buttons 5 extending above the plane of the upper flat portions of the corrugations 4. These embossments or buttons may be of any desired shape, although I prefer to form them with a more or less rectangular outline, having a transverse cross-section which is straight for the major portion thereof and is curved at the ends, and a longitudinal cross-section which is curved for the entire length thereof. This form of button provides desired strength and effective support for the sheet 2.

The two sheets are placed with the smooth top sheet 2 resting on the buttons or projecting portions 5 of the lower sheet and are then rigidly secured together, preferably by spot welding. Obviously, however, all of the buttons need not be welded or otherwise secured to the top sheet to maintain the desired relationship between the sheets. This forms the two sheets into a box-like structure, as shown in Fig. 3, which is the equivalent of a wooden top in stiffness. In order to preserve and accommodate the transverse crown of the upper sheet and to insure contact of all of the buttons with such sheet, the buttons 5 are made of gradually decreasing depth from the center rows to the side edges of the board, that is to say, the buttons in the rows next to the center rows will be slightly shallower in depth than the buttons in such center rows, and the buttons in the outermost rows will be slightly shallower in depth than the buttons in the rows adjacent the center rows.

To aid in obtaining the desired longitudinal strength without excess weight, the edges of the two sheets are flanged downwardly and then rolled or bent to form a stiffening flange 6 completely around and under the edge or periphery of the board or top 1. The width of this flange should be sufficient to prevent lateral buckling and the depth should be such as to supplement the stiffness of the box top proper and increase the strength of the entire structure. The use of such flange 6 is for practical or commercial reasons rather than strictly structural strength as it allows for the use of very thin sheets and projections of a depth that are easily pressed into the sheet. In forming the projections 5, it is advantageous to have the projections in one row staggered with respect to those in the adjoining rows, as this provides increased strength.

It is to be noted that the strength of the board against stresses applied thereto is derived primarily from the corrugations in the lower sheet, and that these corrugations provide therebetween channels or spaces 7. In communication with these channels or spaces 7 are the spaces 8 between the buttons 5. The spaces 7 and 8 are admirably adapted for the passage of an electrical heating element or cord (not shown) wherewith a desired heating effect may be imparted to the board.

The weight and thickness of the two sheets of metal forming the board or top should of course be such as to obtain the desired lightness and strength, approximating those of a wooden board such as is now in general use. To obtain these results, the depth of the projections and their size must be closely determined in order to obtain a maximum strength with the desired weight. The use of a reinforcing flange aids in obtaining the necessary longitudinal strength, particularly with the overhang usually employed at the nose of the board. The height of the projections or buttons is limited by the stretch of the metal employed and the spacing therebetween.

From the foregoing it will be observed that my metal board combines the strength of a new wooden top with the desirability of long life of metal. The use of my metal top eliminates the cracking and warping of a wooden top, but its greatest advantage is the complete elimination of the fire hazard always heretofore present. The cost of a metal top as described above approximates that of a wooden top.

In addition, my metal top, being formed in a box-like structure with upper and lower sheets being spaced apart by metallic members, provides natural and necessary avenues in which heating coils can be placed so as to give a uniform distribution and consequent uniform temperature all over the board top.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the structure herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. A metallic ironing board comprising spaced metallic sheets, one of which is substantially flat and the other of which is longitudinally corrugated to provide enclosed channels extending longitudinally of the board, said corrugations having buttons protruding outwardly therefrom and in contact with the other sheet, the space between said buttons forming passages communicating with said channels, certain of said buttons being rigidly united to said upper sheet.

2. An ironing board comprising an upper sheet and a lower sheet, both sheets being formed of sheet metal, said upper sheet having downturned flanges at its marginal edges, said flanges being in clamping engagement with the edges of said lower sheet, and said lower sheet having corrugations therein provided in their upper portion with longitudinally spaced buttons engaging said top sheet.

3. An ironing board comprising a relatively flat upper metal sheet and a lower metal sheet having corrugations therein, said corrugations having buttons protruding outwardly therefrom at spaced points and contacting said upper sheet, said buttons having a central transverse cross-section which is of inverted substantially U-shape with the top portion flat throughout the major portion thereof.

4. A metallic ironing board comprising an

upper and a lower sheet, said upper sheet being transversely crowned, and said lower sheet having transversely spaced corrugations, each of which has a multiplicity of longitudinally spaced buttons protruding upwardly therefrom, said buttons contacting said upper sheet, and the buttons in successive corrugations from the center of the board to the sides thereof being of gradually decreasing depth.

5. A metallic ironing board comprising an upper sheet providing a smooth ironing surface and a lower sheet, said sheets being secured to each other at spaced points, said lower sheet having longitudianlly extending corrugations, and said upper sheet being transversely crowned.

6. A metallic ironing board comprising an upper sheet and a lower sheet having longitudinally extending corrugations, said corrugations having buttons protruding therefrom and in contact with the other sheet and secured thereto at spaced points, said upper sheet being crowned transversely of said board.

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