May 18, 1943 H. B. FAY 2,319,397

IRONING TABLE

Original Filed Aug. 6, 1938 2 Sheets-Sheet 1

Fig. 1.

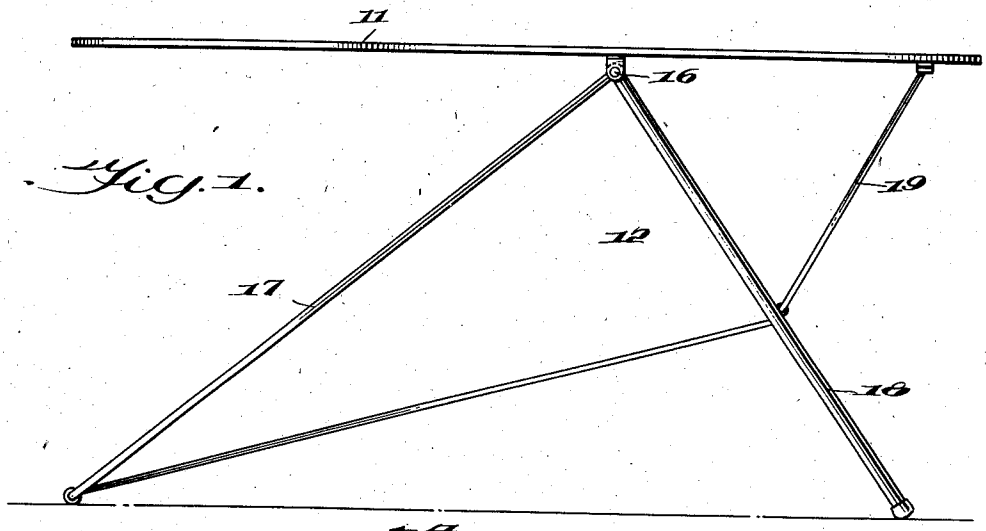


Fig. 2

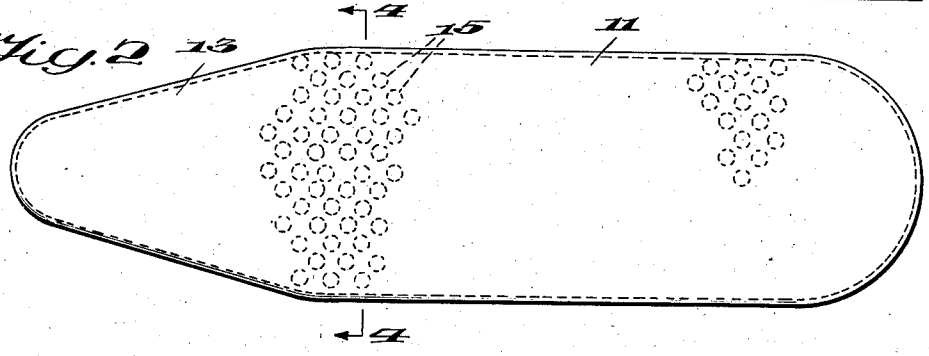
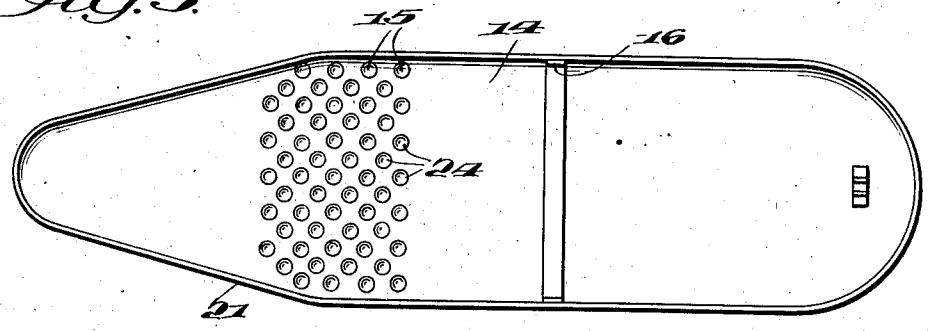


Fig. 3.



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IRONING TABLE

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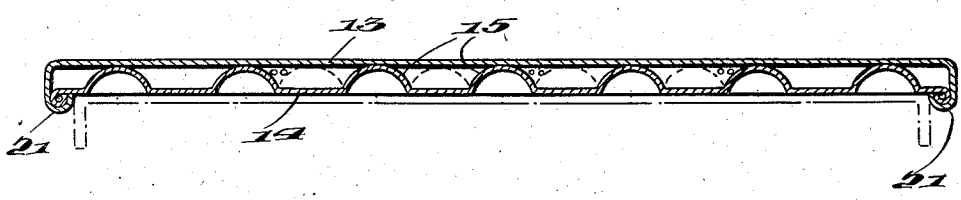


Fig. 4.

Fig. 5.

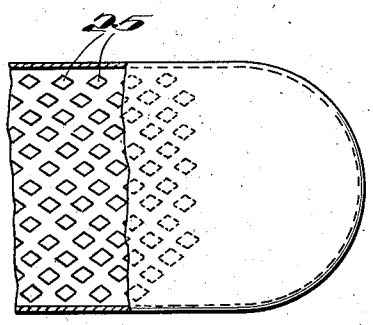
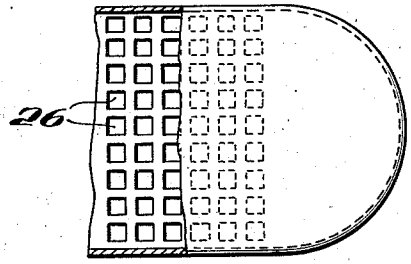


Fig. 6.



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UNITED STATES PATENT OFFICE

2,319,397

IRONING TABLE

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Original application August 6, 1938, Serial No. 223,441. Divided and this application January 16, 1941, Serial No. 374,781

5 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.

This application is a division of my copending application Serial No. 223,441 filed August 6, 1938, entitled "Ironing table structure."

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 but 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 weighted 50% to 100% more than the conventional wooden boards, at two or 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 is shown and claimed in my copending divisional application Serial No. 304,096 filed Nov. 13, 1939.

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 drawings 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 drawings:

Figure 1 is a side elevation of an ironing board mounted on a set of folding legs;

Figs. 2 and 3 are a top plan view and a bottom plan view, respectively, of the ironing board top with the legs removed;

Fig. 4 is a cross-section on the line 4—4 of Fig. 2;

Fig. 5 is a top plan view of a section of a top with a portion of the top sheet removed, showing diamond-shaped projections or buttons;

Fig. 6 is a view similar to Fig. 5 but showing the projections as being square.

In Fig. 1 is shown an ironing table consisting of a top 11 and a conventional set of folding legs 12 suitably secured thereto, the legs being shown in their extending position and being foldable forwardly about their hinge attachment 16 to the top, the forward rods 17 being hinged to the legs 18 as well as the rear supporting rods 19.

In my preferred form of board or top shown in Figs. 1 to 4 I use two thin sheets of metal 13 and 14, the top sheet 13 being flat, while the bottom

sheet 14 is pressed or indented to form a series of projecting portions or buttons 15 spaced above the plane of the sheet. These portions 15 may be of any desired shape, although I prefer to make them with a curvilinear peripheral outline, either elliptical or round.

The two sheets are placed with the smooth top sheet 13 resting on the buttons or projections 15 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 fastened) to maintain the desired relationship between the sheets. This forms the sheets into a box-like structure as shown in Fig. 4, the equivalent of a wooden top in stiffness.

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 21 completely around and under the edge or periphery of the board or top 11. 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 21 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 circular or oval projections, it is advantageous to have the projections so arranged that a line connecting the edges 24 of any row will extend beyond a line connecting the edges of an adjacent row of projections. By this construction, the two sheets are formed into a braced girder construction as well as being formed into merely a box and the strength or stiffness of the board is increased.

Where the projections are not circular in form but are elongated projections 25, as those shown in Fig. 5, or other shaped projections, such as shown in Fig. 6, the same general box and girder construction of the two sheets is obtained.

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 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 may 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. In an ironing table top, the combination of two metal sheets placed one over the other with the top sheet substantially flat, and means to space the two sheets consisting of buttons pressed out of the plane of the lower sheet and rigidly secured in contact with the top sheet, the edges of the sheets being formed into a continuous interengaging downturned flange, to form a stiff box-like structure.

2. In an ironing table top, the combination of two thin metal sheets, the top sheet being flat and provided with a smooth, continuous, imperforate, unobstructed, ironing surface, and being of insufficient strength to support the iron independently, the bottom sheet being deformed to provide portions out of the normal plane of the sheet, said portions being in contact with and rigidly secured to said top sheet to support the latter and to form said two sheets into a rigid ironing table top, the edges of the sheets being formed into a continuous downturned flange to form a stiff box-like structure.

3. In an ironing table top, the combination of two thin metal sheets, the top sheet being flat and provided with a smooth, continuous, imperforate, unobstructed, ironing surface, and being of insufficient strength to support the iron independently, the bottom sheet being deformed to provide portions out of the normal plane of the sheet, said portions being in contact with and rigidly secured to said top sheet to support the latter and to form said two sheets into a rigid ironing table top, said top sheet having a depending peripheral flange extending below the level of the adjacent edge of said bottom sheet and formed into a bead of substantial cross-section under and in contact with said bottom sheet.

4. In an ironing table top having at one end a tapered nose portion, the combination of two thin metal sheets, the top sheet being flat to form the ironing surface and of insufficient strength to support the iron independently, the bottom sheet being deformed to provide portions out of the normal plane of the sheet, said portions being in contact with and rigidly secured to said top sheet to support the latter and to form said two sheets into a rigid ironing table top, said top sheet having a depending peripheral flange extending below the adjacent edge of said bottom sheet and turned inwardly of the peripheral edge of the board to cover the raw edge of the bottom sheet.

5. In an ironing table top having at one end a tapered nose portion, the combination of two thin metal sheets, the top sheet being flat to form the ironing surface and of insufficient strength to support the iron independently, the bottom sheet being deformed to provide portions out of the normal plane of the sheet, said portions being in contact with and rigidly secured to said top sheet to support the latter and to form said two sheets into a rigid ironing table top, said top sheet having a depending peripheral flange extending below the adjacent edge of said bottom sheet and turned inwardly of the peripheral edge of the board and formed into a bead of substantial cross section to cover the raw edge of the bottom sheet and to eliminate hand contact with the edge of the flange.

HORACE B. FAY.