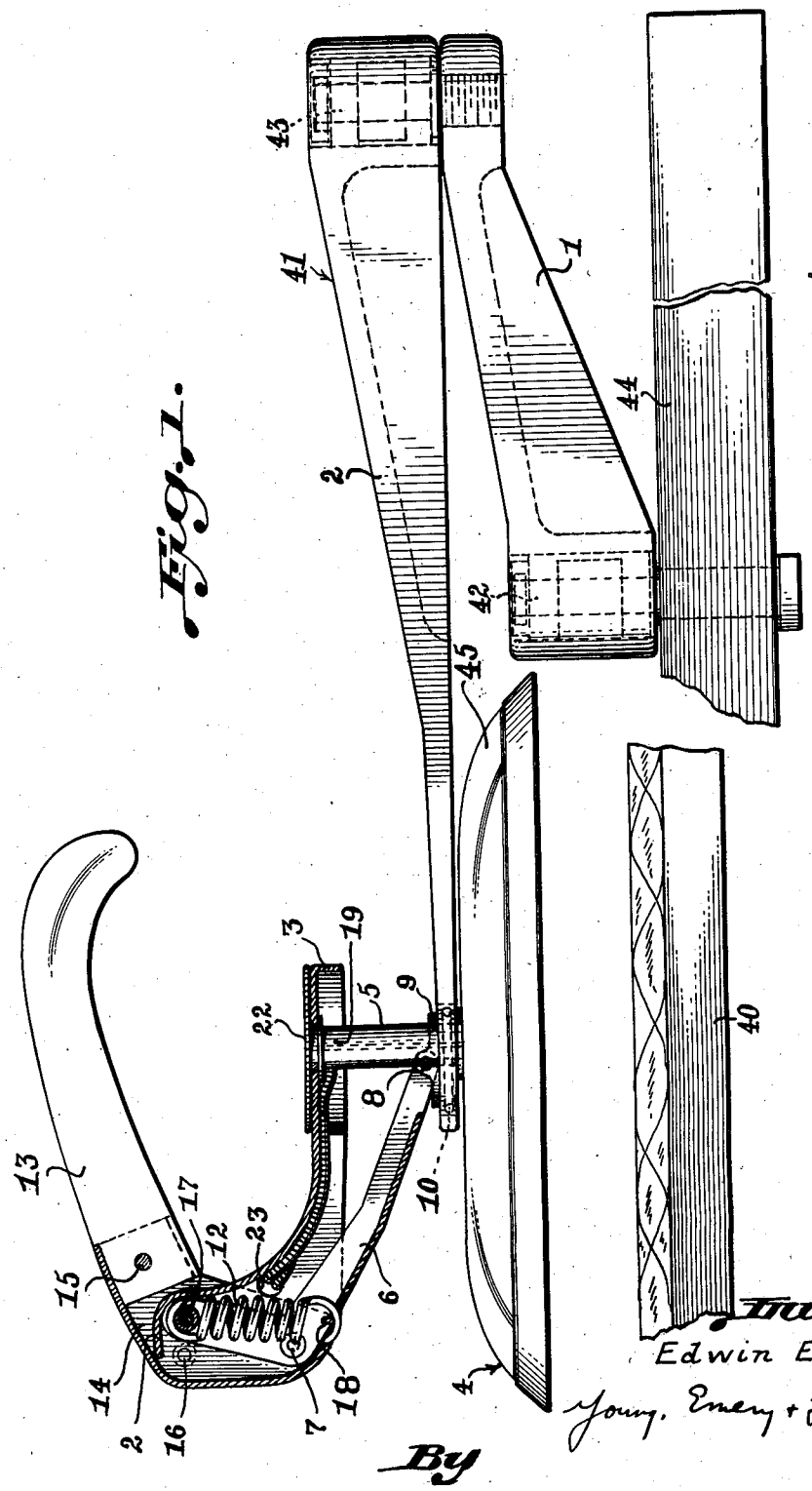
Feb. 18, 1941. E. E. FOSTER 2,231,896

IRONING DEVICE

Filed Jan. 9, 1937 4 Sheets-Sheet 1

Fig. 1.



Inventor,
Edwin E. Foster
Young, Emery & Thompson
Attys.

By

Feb. 18, 1941. E. E. FOSTER 2,231,896

IRONING DEVICE

Filed Jan. 9, 1937 4 Sheets-Sheet 2

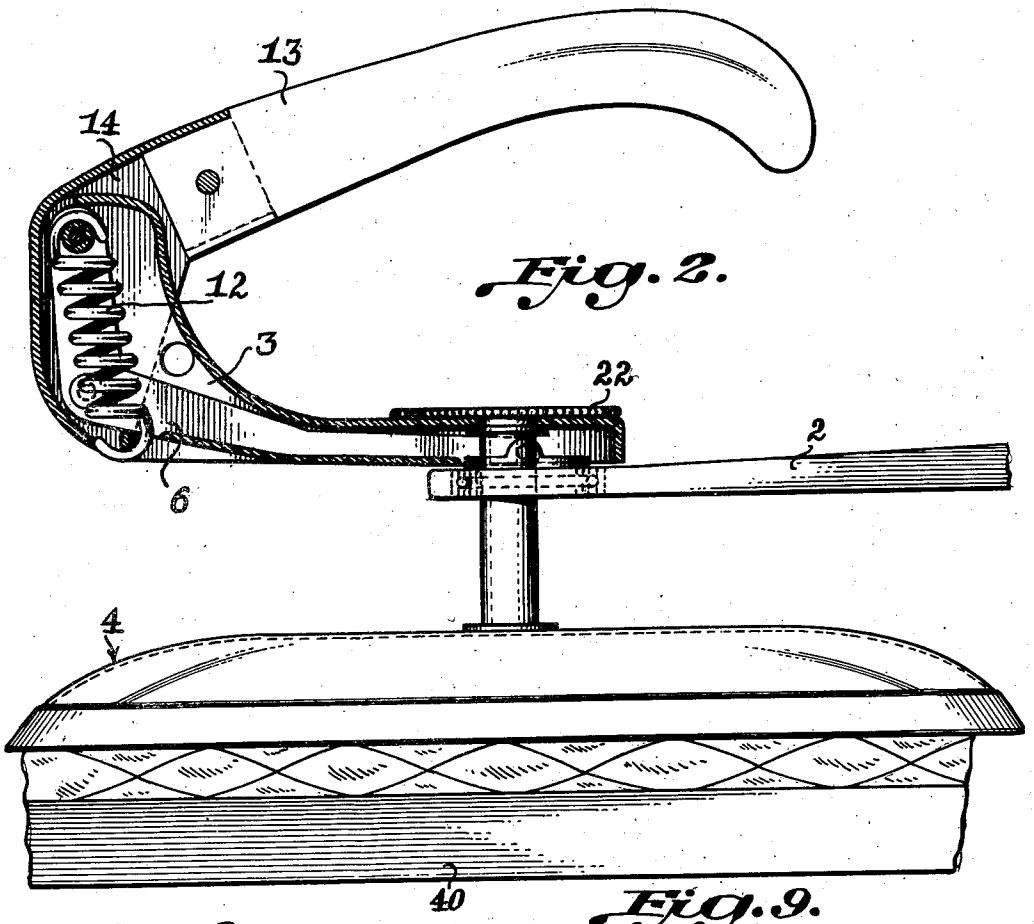


Fig. 2.

Fig. 8.

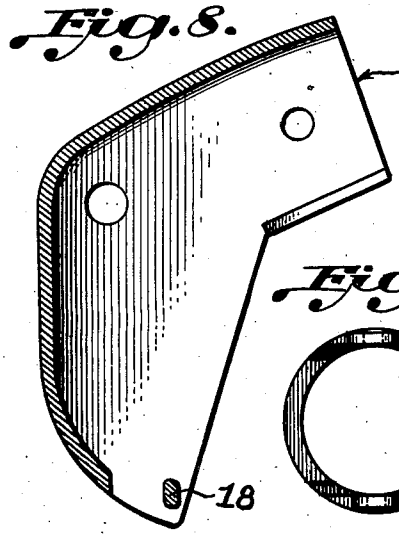


Fig. 9.

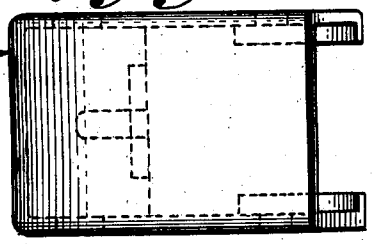


Fig. 11.

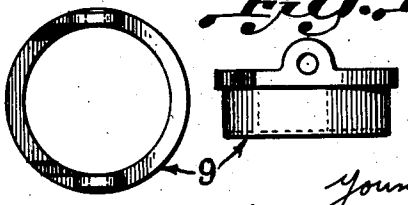


Fig. 10.

Inventor;
Edwin E. Foster

Young, Emery & Thompson

By Attys.

Feb. 18, 1941. E. E. FOSTER 2,231,896

IRONING DEVICE

Filed Jan. 9, 1937 4 Sheets-Sheet 3

Fig. 3.

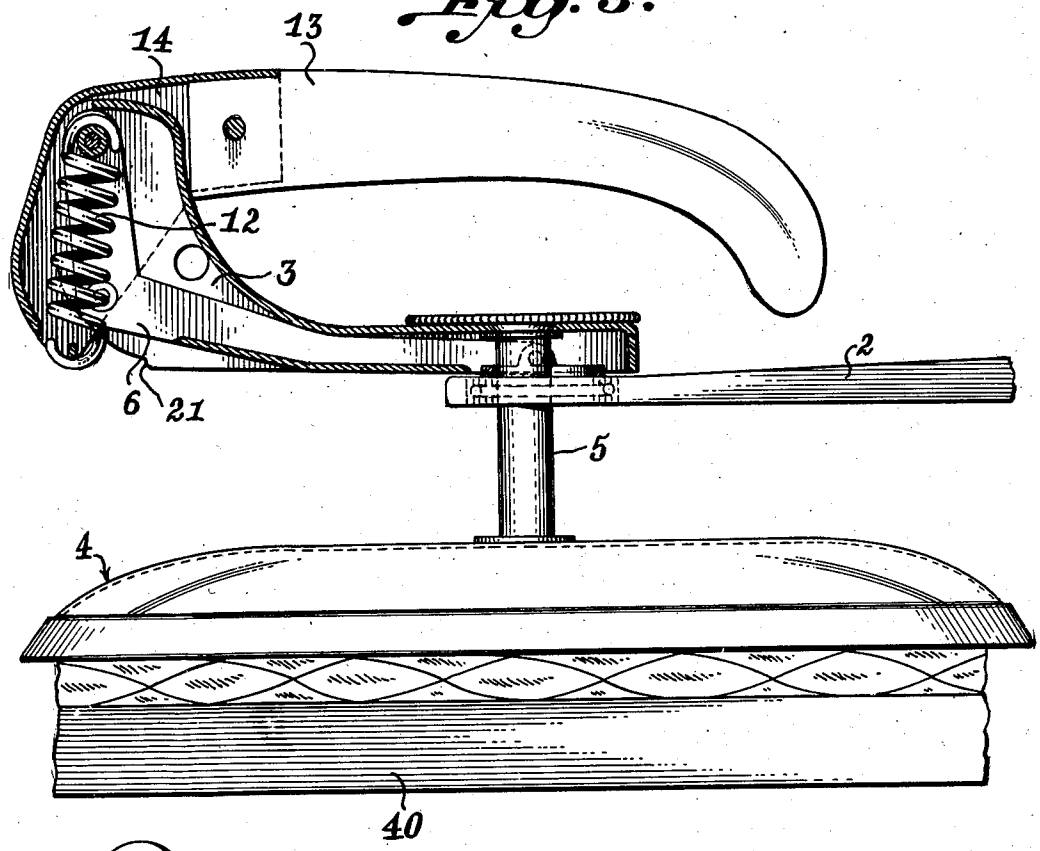


Fig. 7.

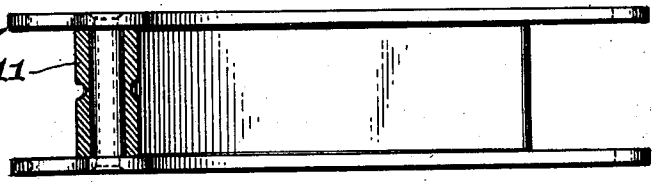


Fig. 6.

Inventor,
Edwin E. Foster
Young, Emery & Thompson
Attys.

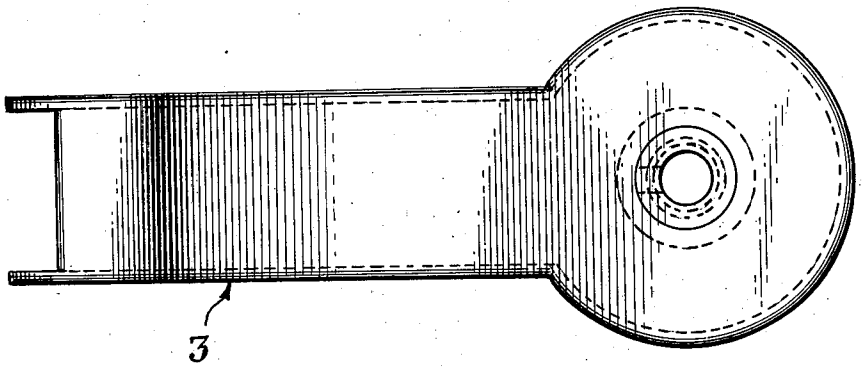
By

Feb. 18, 1941. E. E. FOSTER 2,231,896

IRONING DEVICE

Filed Jan. 9, 1937 4 Sheets-Sheet 4

Fig. 5.



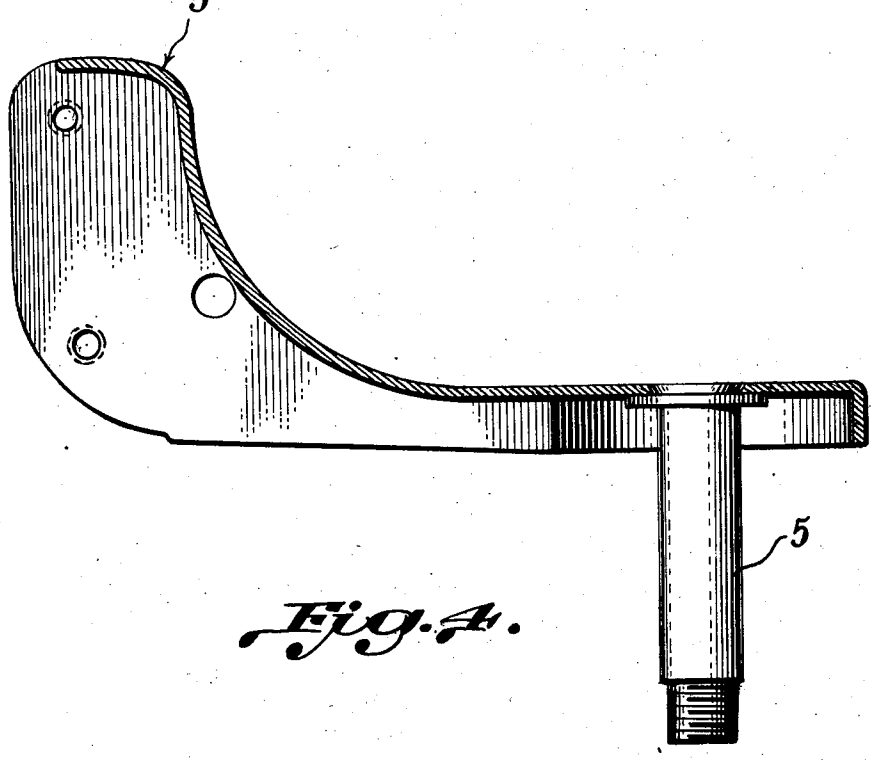


Fig. 4.

Inventor:
Edwin E. Foster

By Young, Emery & Thompson
Attys.

Patented Feb. 18, 1941 2,231,896

UNITED STATES PATENT OFFICE

2,231,896

IRONING DEVICE

Edwin E. Foster, Austin, Tex., assignor to Majik-Ironers, Inc., Austin, Tex., a corporation of Texas

Application January 9, 1937, Serial No. 119,879

21 Claims. (Cl. 38—30)

The present invention relates to an ironing device and constitutes an improvement over the construction shown and described in applicant's co-pending application Serial No. 69,143 filed March 14, 1936. The object of the present invention is to simplify the structural details and to apply them to an iron of the movable type instead of in a flat plat type as will be clearly understood from the following description taken in connection with the accompanying drawings in which like parts indicate corresponding parts throughout and in which:

Figure 1 is a side view partly in section of the ironing device,

Fig. 2 is a similar view showing the iron, the arm and the board in which the iron has been moved in contact with the board,

Fig. 3 is a similar view showing the handle actuated relative to the iron,

Fig. 4 is a side view partly in section of the handle bracket,

Fig. 5 is a top view of the handle bracket,

Fig. 6 is a side view partly in section of the lever arm,

Fig. 7 is a top view of the lever arm partly in section,

Fig. 8 is a side view partly in section of the pivoting member,

Fig. 9 is a top view of the pivoting member,

Fig. 10 is a side view of the collar, and

Fig. 11 is a top view of the collar.

As clearly shown in Fig. 1 the ironing device is of the type in which an ironing board 40 has an arm 41 pivoted at 42 to a stationary support 44 of the board 40. The arm 41 is composed of two sectional portions 1 and 2 pivoted to each other at 43 and these two sectional portions 1 and 2 merely move in parallel horizontal planes but they do not have any vertical movement. In other words the iron 4 may be moved by the handle 13 over the board 40 in any direction. The construction of the iron and its operating parts are as follows.

The handle bracket 3, shown separately in Figs. 4 and 5 is secured to the main part of the iron 4 by means of the hollow post 5. A lever arm 6, shown separately in Figs. 6 and 7 is pivotally connected to the handle bracket at the bearing point 7 and the lower end of the lever 6 is pivotally connected at the point 8 to a collar 9 shown separately in Figs. 10 and 11 which is fixed to the inner race of a ball bearing 10. The outside race of the bearing 10 is pressed into and secured to the portion 2 of the arm 41.

A handle 13 is provided which is preferably made of a composition material such as hard rubber and is fixed to a pivoting member 14, separately shown in Figs. 8 and 9, by means of the rivet 15. This member 14 is pivotally mounted to the handle bracket 3 at the point 16 by means of studs, thereby permitting the upper end 17 of the lever 6 to coincide with the point 16 without interference. A spring 12 is provided as shown in Figs. 1–3 tensioned at one end to the member 14 at the point 18 and the other end around the bearing sleeve 11 which is provided in the upper end of the lever 6.

The electric wires to the heating element in the iron 4 may pass through the opening 23 in the handle bracket 3 where it may be further supported by a coil spring and also by other suitable means. The iron itself is similar to any regular electric iron and it may be pointed at both ends instead of only at one end. As illustrated the cover 45 of the iron is quite low in order to save space and the iron may be provided with a thermostat which can be adjusted by means of a disk dial 22 operating through the hollow post 5.

As clearly seen in Fig. 1 the iron 4 is supported in a counterbalanced condition on the arm 41 through the members 6, 3 and 5 by means of the spring 12. The spring 12 is of course always under tension and very little effort is required to move the iron down on the board from the position shown in Fig. 1 to that shown in Fig. 2. It will be noted from Figs. 1 and 2 that the arm 41 does not move vertically but that the iron itself is moved vertically between the positions of Figs. 1 and 2. In Fig. 3 the handle 13 has been moved down to the position shown in Fig. 3 but this requires very little effort.

The ironing device operates as follows:

The operating spring 12 is under initial tension and is of such strength that it will lift the weight of the complete iron when the weight of the operator's hand is removed from the handle. The additional weight of the operator's hand will cause the complete iron to move downward until it touches the material to be ironed at which time the point 17 on the lever 6 will coincide with the point 16 on the bracket 3 and the imaginary point 19 will coincide with the point 8. Now since the pivot point 17 of the spring 12 and the pivot point 16 of the member 14 which supports the other end of the spring 12 are in or near coincidence the weight of the operator's hand will cause the handle to move downward about the pivot point 16 and the center line of the tension spring 12 will be shifted clock-wise to the opposite side of the point 7 where it will then cause the iron

to apply pressure in addition to its own weight upon the material to be ironed. The pressure may be varied if desired by providing an adjustable stop at the point 20 where the member 14 hits the handle bracket 3. When in its lifting position as shown in Fig. 1, the member 14 hits the member 3 at the point 21, Fig. 3, which stop should be originally designed along with the strength of the spring to provide the proper effective lifting force to a little more than necessary to overcome the weight of the complete iron.

The arm members 1 and 2 have no vertical movement but are capable of pivoting 360 degrees at the shoulder 42, the elbow 43, and the wrist or bearing 10. This makes it possible to move the iron which is mounted on the arm at the wrist through any horizontal movement over and near the ironing board. The iron derives its vertical movement from the L-shaped member 6 which is pivoted to the handle bracket 3 at the point 7 and to the sleeve 9 at the point 8. The sleeve 9 is connected to the arm 2 through the ball bearing assembly 10. The hollow post 5 which connects the iron 4 to the handle bracket 3 is free to move vertically, to revolve, and to tilt without being hindered by the sleeve 9. The other end of the L-shaped member 6 carries the pivot pin 17 over which one end of the tension spring 12 is hooked. The handle 13 fits into the member 14 which is pivoted to the handle bracket 3 at the point 16. The lower end of the pivoting member 14 carries the edge 18 on which the lower end of the spring 12 rides.

Figure 1 shows the iron when in its raised position.

Figure 2 shows the iron after it has been moved adjacent the ironing board, but before the pressure is applied. Point 8 now coincides with the imaginary point 19, and point 17 coincides with the point 16. The lower end of member 14 hits the stop 21 on handle bracket member 3, and as will be seen in Figure 2, the center line of the tension spring 12 is to the right of point 7 thereby still causing a counterweighting effect on the iron.

Figure 3 shows the mechanism after the handle 13 has been moved downward by the mere weight of the operator's hand, and it will be noted that the center line of the spring 12 is now on the left or opposite side of point 7. The tension in spring 12 now causes the iron to apply pressure on the material to be ironed. The greater the distance that the center line of the spring 12 is to the left of the point 7 the greater will be its effective pressure on the iron. At the time the center line of the spring is directed on point 7, it is neither lifting nor pressing; it has the effect of being on dead center. Likewise the distance of the center line to the right of point 7 determines the effective counterweighting force of the spring 12. The strength of the spring 12 is determined by the maximum pressure desired, and the stop 21 is then located at such a point that the correct counterweighting force will be had. The distance of the edge 18 below point 7 is also important because variation of this dimension has the effect of increasing or decreasing the counterweighting force at the top or bottom of the lifting stroke. By properly locating the edge 18 as to distance below point 7 and to the right of point 7, a perfect floating or counterweighting effect of the iron may be obtained through the entire limits of its vertical stroke. On the drawings the distance between point 7 and point 17 is shown to be equal to the distance between point 7 and point 16. Therefore the point 17 will exactly coincide with point 16 at the time the iron is adjacent to the material to be ironed. In this case the weight of the operator's hand will automatically apply the pressure, but the handle will not return automatically. Or if the operator prefers to adjust the height of the ironing board slightly upward the iron will touch the material just before the point 17 coincides with point 16, and this will cause the handle to rise or untrip automatically.

The reason for the handle untripping of its own accord may be understood more clearly by referring to Figure 1. In this view the points 16 and 17 are in an exaggerated out of coincidence position, but this shows what would occur if the board were raised to the height of the surface of the iron and the handle forced downward to a position where a center line of spring 12 would be on the left side of point 7. Since the handle and member 14 pivot about the point 16 and cause the edge 18 to describe an arc about point 16 the spring 12 will have to stretch the distance between its present length (the distance between points 17 and 18) and its new length which would be the new distance between point 17 in Figure 1 and point 18 in Figure 3. In other words, points 16, 17 and 18 now form a triangle with the spring 12 as one side of the triangle. If the two points 16 and 17 are kept stationary and the third point 18 moved to the left and the distance between 18 and 16 kept the same, then the distance between points 18 and 17 will have to increase.

A further useful result may be obtained by lengthening the distance between points 7 and 17 so that point 17 will fall just above point 16, and cause a cam action when the handle is shifted to the pressure position. The cam action tends to stretch the spring the correct amount that is necessary to compensate for the temporary settling or spring in the pad, frame and arm. In other words, by making the point 17 fall directly above point 16 the handle will still trip easily and return to its untripped position. So that if there is considerable temporary spring in the arm, frame and pad the point 17 should fall just above and slightly to the right of point 16, and as the pressure is applied the point 17 will stay above but move to the left of point 16.

I claim as my invention:

1. An ironing device comprising an iron, a handle bracket secured to the iron, an arm on which the iron is supported and movable in a horizontal plane, said iron being vertically movable with respect to the arm, a pivoting member having an operating handle for guiding the iron on an ironing board and pivotally mounted on the handle bracket, a lever arm connected at one end to the first-mentioned arm and the other end to the handle bracket, and a spring constantly under tension and having one end secured to the pivoting member and the other end to the lever arm, the force of said spring counterbalancing the weight of the iron when the iron is raised from the board and applying ironing pressure on the board by operation of the pivoting member and the handle.

2. An ironing device comprising an iron, an arm on which the iron is supported and movable in a horizontal plane, said iron being vertically movable with respect to the arm, handle members for supporting the iron on the arm, and means provided in the handle members to counter-balance the weight of the iron on the

arm and to apply ironing pressure on an ironing board when the iron contacts the board.

3. An ironing device according to claim 2, in which a post is provided connecting the iron to the handle.

4. An ironing device according to claim 2, in which the means constitutes a spring which is constantly tensioned and the force of which is utilized to counterbalance the iron and to create the ironing pressure.

5. An ironing device comprising an iron, a handle, intermediate members between the handle and the iron, an arm pivoted at one end to an ironing surface to permit rotation in a horizontal plane and connected at the other end to the intermediate members; and means interconnecting the handle and the intermediate members to counter-balance the iron when raised from the ironing surface, said iron being movable vertically relative to the arm and said means also exerting an ironing pressure when the iron contacts the board and the handle has been actuated relative to the intermediate members.

6. An ironing device according to claim 5, in which the arm is in two jointed parts so that the iron can reach all points on the board.

7. An ironing device comprising an iron, an arm movable in a horizontal plane pivoted at one end to an ironing surface and having the iron mounted on the other end rotatably and movable vertically relative hereto, a handle for the iron cooperating with the end of the arm to which the iron is mounted and having a part thereof movable relative to the other part, and means in the handle responsive to actuation of the movable part of the handle to counter-balance the weight of the iron and to apply an ironing pressure when the iron is moved on the ironing surface.

8. An ironing device according to claim 7, in which the means includes a spring shiftable to two positions of which one position counter-balances the iron and the other position provides the force for the ironing pressure.

9. An ironing device according to claim 7, in which the means includes a spring shiftable to two positions of which one position counterbalances the iron and the other position provides the force for the ironing pressure, said spring having its energy permanently stored therein whereby the force thereof is utilized in its different positions relative to the parts of the handle.

10. An ironing device comprising an arm pivoted at one end to an ironing surface so that the arm may move in a horizontal plane, an iron vertically movable relative to the arm, a handle bracket of the other end of the arm connected directly to the iron, a pivoting member pivoted to the handle bracket and having a manual grip portion secured therein, a lever arm pivoted at one end to the handle bracket and the other end secured to the other end of the arm, and a constantly stored energy unit having two ends connected at one end to the pivoting member and the other end to the lever arm which provides the force necessary to counter-balance the weight of the iron on the arm and to apply ironing pressure when the pivoting member is actuated by the grip portion relative to the handle bracket and the lever arm.

11. An ironing device according to claim 10, in which the energy unit is in the form of a coiled tension whereby the force thereof is utilized in one position to counter-balance the weight of the iron and in another position to effect the ironing pressure when said spring is moved in its different positions relative to the cooperating parts of the handle bracket.

12. An ironing device according to claim 10, in which a ball bearing is provided in the first mentioned arm at the securing point of the lever arm which permits rotation of the iron and its handle bracket.

13. An ironing device according to claim 10, in which the handle bracket is provided with a post to one end of which the iron is secured and the other end has the handle bracket secured thereon.

14. An ironing device according to claim 10, in which a ball bearing is provided in the first mentioned arm at the securing point of the lever arm which permits rotation of the iron and its handle bracket, and in which a collar is provided which forms one race for the ball bearing and the securing element for the lever arm to the first mentioned arm.

15. An ironing device comprising an iron movable at will on an ironing surface, a handle for the iron, a constantly tensioned spring pivotally mounted in the handle, and means for shifting the spring in the handle whereby the force in the spring applies an ironing pressure without the expenditure of its energy.

16. An ironing device according to claim 15, in which the means comprises elements for moving the tensioned spring to become effective or non-effective for ironing pressure.

17. An ironing device comprising an iron, means for supporting the iron over an ironing surface so that the iron may be moved horizontally at will, means whereby the iron may be moved vertically relative to the supporting means, a handle for the iron, and means in the handle to counterbalance the iron on the supporting means and also to automatically apply an ironing pressure between the iron and the ironing surface when the iron contacts the ironing surface when the means in the handle is actuated by said handle.

18. An ironing device comprising an iron, means for supporting and guiding the iron over an ironing board so that the iron may be manually moved parallel to the ironing surface of the board in any direction, a movable handle for the iron, and a constantly-tensioned spring in the handle responsive to movement of the handle to raise the iron relative to its supporting means and to apply an ironing pressure when the iron contacts the ironing surface upon actuation of the movable handle.

19. An ironing device according to claim 18, in which the means for supporting and guiding the iron over the ironing board includes two arms pivoted to each other at one end and at the other ends pivoted to the ironing board and to the iron.

20. An ironing device comprising an iron having an actuatable element connected to the iron, means for supporting the iron over an ironing surface to permit movement over the ironing surface parallel thereto, and a constantly-tensioned spring and actuator therefore secured to and associated with the iron and the actuatable element to counterbalance the iron on the supporting means and to apply an ironing pressure between the iron and the ironing surface upon

operation of the actuator by the actuatable element.

21. An ironing device comprising an iron, means for supporting and guiding the iron over an ironing board so that the iron may be manually moved parallel to the ironing surface of the board in any direction, a movable handle for the iron, and a constantly-tensioned spring the handle responsive to movement of the ha dle to raise the iron relative to its supporti means and to apply an ironing pressure wh the iron contacts the ironing surface upon act ation of the movable handle.

EDWIN E. FOSTER.

CERTIFICATE OF CORRECTION.

Patent No. 2,231,896. February 18, 1941.

EDWIN E. FOSTER.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, second column, line 1, claim 11, after "tension" insert the word --spring--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 8th day of April, A. D. 1941.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)