

Feb. 4, 1941.

J. K. SEBO

2,230,815

PRESSING IRON

Filed Aug. 29, 1939

2 Sheets-Sheet 1

Fig. 2.

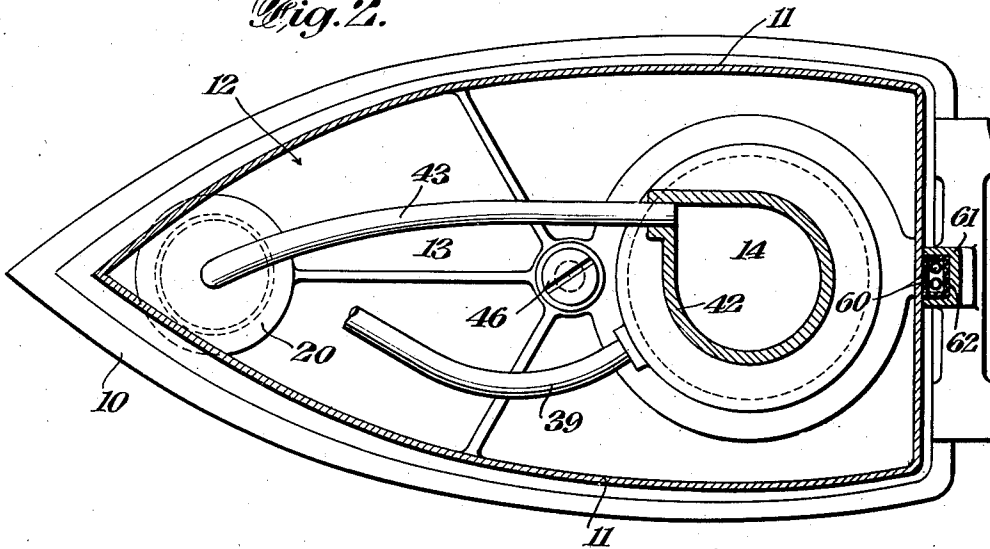
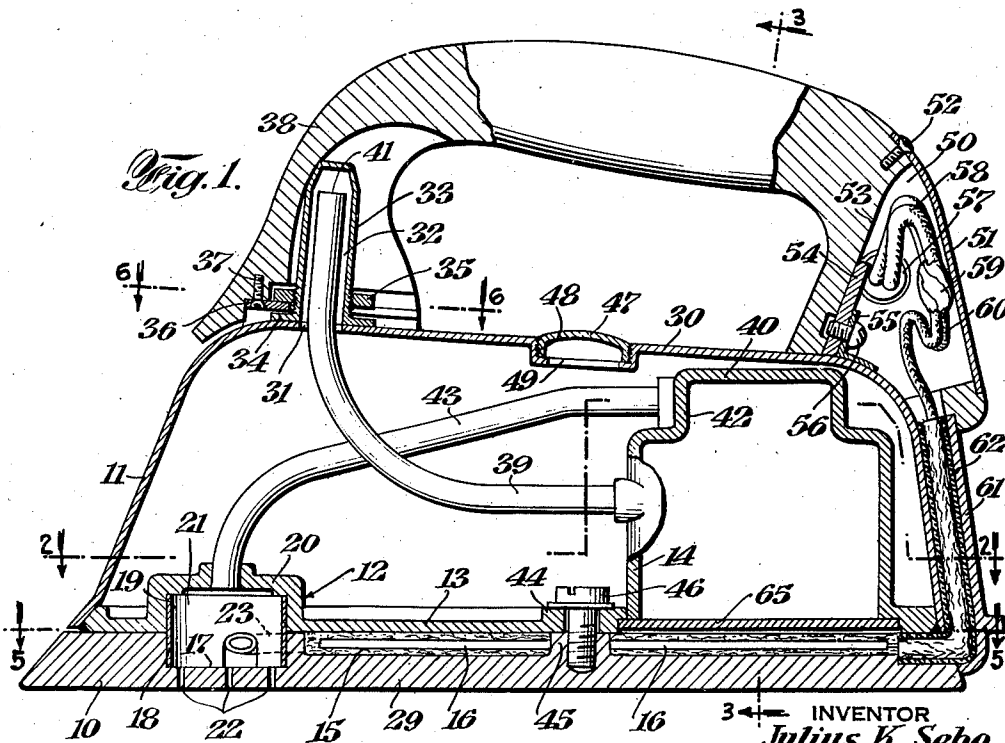


Fig. 1.



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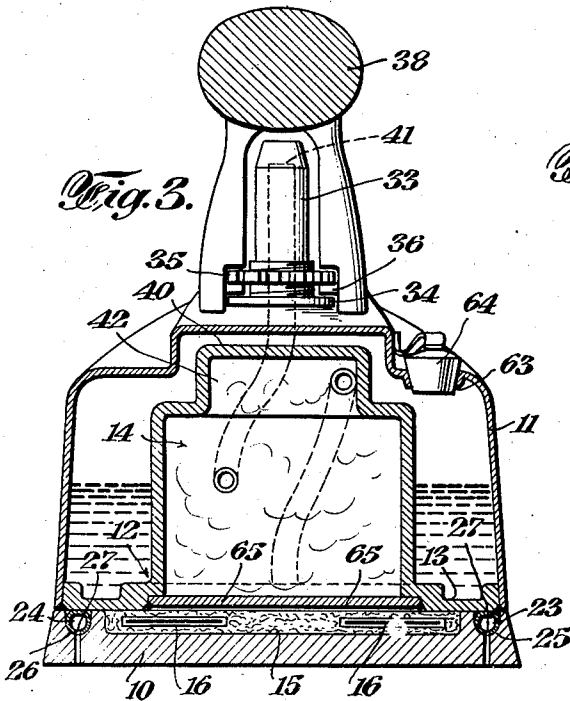
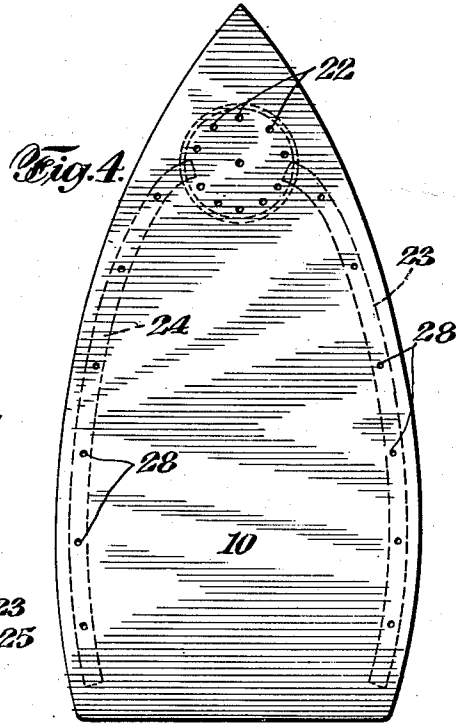
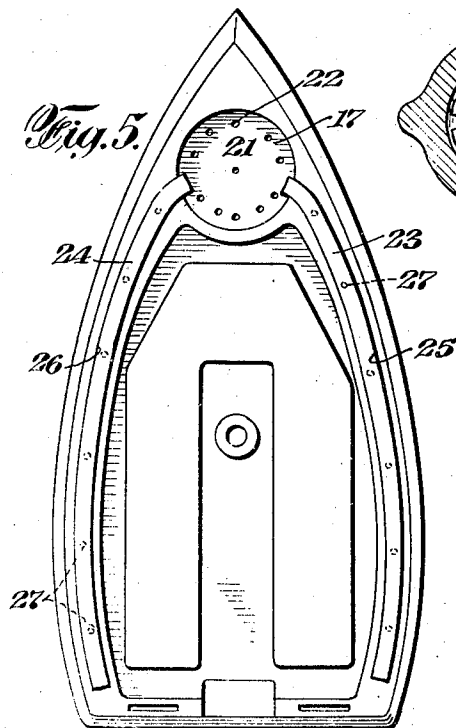
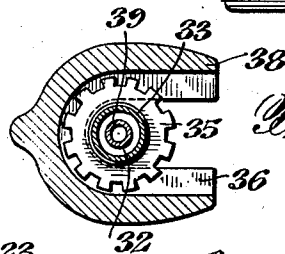
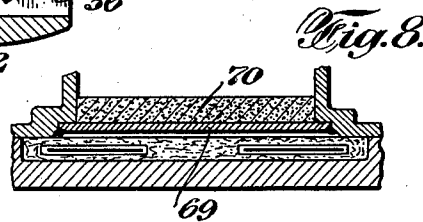
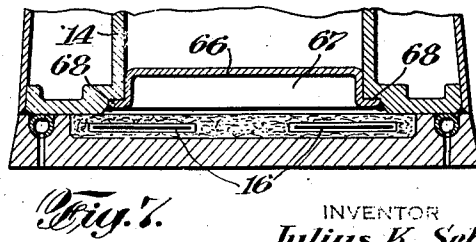
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PRESSING IRON

Filed Aug. 29, 1939

2 Sheets-Sheet 2



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2,230,815

PRESSING IRON

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Application August 29, 1939, Serial No. 292,413

5 Claims. (Cl. 38-77)

This invention relates to pressing irons, particularly of the type designed for generating steam for discharge upon the material being pressed during the ironing operation.

5 Cognizance is taken of other devices intended to perform the aforesaid function, but it has been found that many of such devices generally discharge extremely wet steam and quantities of water, thereby not only producing unsatisfactory results, but also requiring frequent refillings of the water chamber or boiler within the iron. It is primarily within the contemplation of my invention to eliminate these shortcomings that are inherent in most commercial devices of this class, an objective which I accomplish by providing a secondary or intermediate steam chamber where-
10 in the hot liquid condensate or previously generated steam is heated or superheated to produce dry steam, in one form of my device, or steam of a predetermined degree of wetness in other forms.

It is another object of my invention to provide a safe and positive means of generating steam within the body of the iron, and distributing it to various portions of the sole plate of the iron for
20 discharge upon the material being pressed.

Another object of my invention is to enable ready access to be had to the interior of the iron, for repair or replacement of parts. And in this aspect of my invention, it is another object to enable the device to be readily assembled and dis-
30 assembled.

Certain steaming irons are outside of the popular price range because of the high cost of their manufacture, this being generally due to the intricate machining operations required for the production of the various steam conduits. It is one of my objectives to reduce the manufacturing cost of devices of this category by providing a separate unit containing a suitable conduit system
40 completely assembled outside of the iron proper, and adapted to be readily and easily assembled in place without any machining operations.

It is a matter of common knowledge that some materials, such as short fibre cotton goods or starch-containing material, require wet steam, whereas others, such as silks and rayons, require relatively dry steam. It is within the contemplation of this invention to enable a single form
50 of iron to be adapted to operatively produce either dry or wet steam, without any structural changes therein other than the employment of a readily interchangeable or movable element of predetermined heat-transmitting properties.

55 And another object of this invention is to at-

tain the aforesaid objectives with a simple and easily handled device.

Other objects, features and advantages will appear from the drawings and a description hereinafter given.

Referring to the drawings;

Figure 1 is a vertical section of a pressing iron showing one embodiment of my invention.

Figure 2 is a section of Figure 1 taken substantially along line 2-2.

Figure 3 is a section of Figure 1 taken along line 3-3.

Figure 4 is a bottom view of the device of Figure 1.

Figure 5 is a section of Figure 1 taken substantially along line 5-5.

Figure 6 is a fragmentary section of the device of Figure 1 taken substantially along line 6-6.

Figure 7 is a fragmentary vertical section substantially like that of Figure 3, of a modified form of my invention, and

Figure 8 is a section like Figure 7 of still another modified form of my invention.

In the drawings the pressing iron is illustrated as containing a sole plate 10 upon which is superimposed the hollow shell 11 and the inner unit 12 comprising a cover plate 13 for the said sole plate, a secondary or intermediate chamber 14, and inlet and outlet steam pipes to be hereinafter described. The sole plate 10 contains the depressed portion 15 along the middle and rear thereof for accommodating the electric heating element 16 of conventional structure well-known in the art. The forward region of the sole plate is provided at the upper surface thereof with a circular recessed portion 17 accommodating a cylindrical shell 18 which extends upwardly into the hollow interior 19 of the casing 20 formed integral with the forward portion of the member 12. The shell 18 hence forms the outlet steam chamber 21 communicating with the perforations 22 at the base of this chamber, and with the two distributing conduits 23 and 24 positioned within the substantially longitudinal channels or grooves 25 and 26, respectively, at the lateral sides of the sole plate. The undersides of said conduits 23 and 24 contain a plurality of spaced perforations 27 which are in registry with a corresponding plurality of perforations 28 in the sole plate. It will thus be seen that the outlet chamber 21 communicates with the surface 29 of the sole plate through the perforations 22 and 28.

The upper wall 30 of the shell 11 slopes upwardly in a forwardly direction, the forward portion thereof containing an opening 31 in com-

munication with the interior of the primary steam chamber 32 formed by the elongated tubular casing 33 and the flange 34 mounted upon and secured to said wall 30. The outer surface of casing 33 above flange 34 is threaded, and has mounted thereover the nut 35 adapted to cooperate with the U-shaped plate 36 secured by screw means 37 to the handle 38 for the purpose of holding said handle in fixed and secured position upon shell 11.

Suitably secured to the wall of the intermediate chamber 14 and communicating with the interior thereof is the steam inlet pipe 39, the upper end of which extends through opening 31 and into the primary chamber 32 to the upper region thereof. It will be noted that the said opening 31, being in the elevated forward portion of the shell 11, is at a higher level than the roof or uppermost portion 40 of intermediate chamber 14, and that the uppermost terminal 41 of pipe 39 is considerably above the highest portion of the shell 11 which forms the main water reservoir of the iron. The upper portion 42 of the intermediate chamber 14 is preferably of reduced proportions, and has suitably attached thereto the outlet pipe 43 which extends through the casing 20 and communicates with the outlet steam chamber 21.

The cover plate 13 of the unit 12 contains the boss 44 which is superimposed upon a corresponding boss 45 on the sole plate; and the two plates 13 and 10 are secured together by the screw 46 in operative engagement with said bosses. In vertical registry with said screw 46 is the cap 47 which is suitably secured in any known manner within the recessed portion 48 of the roof 30 of shell 11, the said cap 47 forming a closure for the opening 49 in said recessed portion.

As aforesaid, the handle 38 is provided at the forward portion thereof with the U-shaped holding plate 36 which is disposed between nut 35 and the flange 34. Upon a rotative manipulation of nut 35, the plate 36 can be forced downwardly for securing the handle 38 in place. The rear portion of the handle contains a hollow or recessed portion 50, this being provided with a cover plate 51 secured by fasteners 52 to the handle as shown. The front wall 53 of the hollow portion 50 has secured thereto the plate 54 which in turn is secured to the angle bar 55 welded to the top of shell 11, the screws 56 operatively extending through the angle bar 55 and plate 54. Extending through an aperture 57 in the lateral wall of the hollow portion 50 of the handle are the insulated electric wires 58, which are electrically joined at 59 to the wires 60 extending down through the conduit or channel 61 for electrical connection with the heating elements 16. The conductors 60 are illustrated as being surrounded by suitable insulation such as 62 within the conduit 61.

In the operation of this device water is poured through the opening 63 (see Figure 3) in the shell or reservoir 11 to a suitable level, and thereafter the plug 64 is closed. Upon an operative closing of the electrical circuit through the conductors 58 and 60, first vapor and then steam is generated, such vaporous fluids passing up into the primary chamber 32. Due to the fact that the tubular casing 33 passes upwardly into the handle 38, and is quite remote from the uppermost level of the water in shell 11, there will be little chance for any of the water from the bubbling surface of the boiling body of water in the

shell to reach the upper terminal 41 of the pipe 39, particularly while the iron is at rest. But when the iron is operatively manipulated, the consequent agitation of the water within the shell may cause not only the steam but also quantities of water to enter the primary chamber 32 and pass into the opening 41 of said pipe 39. To avoid permitting such wet fluids to pass directly to the sole plate, as occurs in most conventional structures of this class, any steam, water or condensate that had reached the upper region of the primary chamber 32 is directed through inlet pipe 39 into the secondary or intermediate chamber 14. As soon as any of these fluids strike the walls or the base plate 65 forming the floor of the chamber 14, it will immediately be transformed into relatively dry steam under the influence of the heating element 16 therebelow. This superheated or dry steam naturally rises and enters the outlet pipe 43, wherefrom it flows into the outlet chamber 21 to be distributed to the perforations 22 and 28 and discharged therefrom upon the material being ironed. And during the entire time that the steam is being generated within the shell 11, the cycle above described is in continuous process, the wet steam and water particles rising to the top of the primary chamber 32 to be conducted into the intermediate chamber 14, and then transformed into relatively dry steam upon contact with the plate 65 or the walls of the chamber which are heated by conduction.

It will be observed that it is utterly impossible for any water or wet steam originally generated in the boiler or shell 18 to pass directly either to the material being ironed, or to the chamber 14, the path of such steam being circuitous and extending from the highest point of the shell to an outwardly disposed chamber 32 and then back again into the interior of the shell 11 to the intermediate chamber 14. And it will further be observed that the walls of the chamber 14 are at all times in a highly heated condition, due to the direct conduction of the heat from the heating elements 16, and also due to the fact that certain of these walls are surrounded by a hot fluid. Due to the fact that the primary chamber 32 is disposed at the forward and highest part of the shell, it is obvious that as soon as steam or vapors are generated they will immediately pass up into the said chamber; and due to the fact that the intermediate chamber 14 is disposed at the rear of the shell, the fluid or condensate flowing through pipe 39 will pursue an extended course, as aforesaid.

Should it be desired to stand the iron on end with the forward portion upwardly disposed, as is frequently done between pressing operations, it is obvious that any condensate that may be present in the pipe 39 will immediately flow into the intermediate chamber 14.

If it is desired to disassemble this device, or to separate the member 12 from the sole plate 10, the cap 47 is removed by any convenient means, and a screw driver inserted through the opening 49 to rotatively manipulate the screw 46, whereby the sole plate can readily be detached. In the event it is desired to sever the conductors 60 from the wires 58, all that need be done is to remove the cover plate 51 and disconnect the two sets of wires.

In Figure 7 is shown a slightly modified form of my invention in which the floor plate 66 is slightly different in form from plate 65 shown in Figures 1 and 3. In this form of my inven-

tion, the plate constituting the floor of the intermediate chamber 14 is elevated above the region of the heating elements 16 to provide an air space 67, the said plate being secured in place by means of the flanges 68 in underlying engagement with the recessed portions at the base of the chamber. The space 67 obviously serves as an insulating medium and thereby reduces the temperature of plate 66, so that the fluids entering the chamber will be transformed into a wetter steam than that produced by the first-described structure.

In the further modification of Figure 8 it will be seen that the floor plate 69 has superimposed thereon a layer 70 of insulating material, preferably of absorbent properties such as plaster of Paris, whereby the fluid entering the intermediate chamber will be absorbed by the said layer and then evaporated under the influence of the heating element, to produce relatively wet steam, wherever that may be necessary.

It will be observed that in the forms of my invention shown in Figures 3, 7 and 8, the floor plates 65, 67 and 69 can be interchangeably employed without altering the rest of the structure, so that irons of this type can be readily fabricated for generating steam of various predetermined degrees of wetness.

It will also be noted that the unit 12, with the pipes 39 and 43 can be readily assembled in convenient manner, and then secured in place and encased within the shell 11, without any machining operations.

It is of course understood that the structure above described and shown in the drawings is illustrative of my invention and not employed by way of limitation, inasmuch as numerous changes and modifications may be made therein within the scope of the appended claims without departing from the spirit of this invention.

What I claim is:

1. In a pressing iron, a perforated sole plate, a water reservoir thereabove, a primary steam chamber communicating with the upper portion of the reservoir and disposed at the front portion thereof, an intermediate steam chamber positioned within said water reservoir rearwardly with respect to said primary chamber and in communication therewith, an outlet steam chamber at the region of the front of the sole plate

and communicating with the perforations in the sole plate, steam conduit means between the intermediate and outlet chambers, and electric heating means between said sole plate and the undersides of said reservoir and intermediate chamber.

2. In a pressing iron, a perforated sole plate, a water reservoir thereabove, a primary steam chamber communicating with the upper portion of the reservoir and disposed at the front portion thereof, an intermediate steam chamber positioned within said water reservoir rearwardly with respect to said primary chamber and in communication therewith, said intermediate chamber being disposed in contact with the sole plate, the underside of the intermediate chamber comprising a removable member of predetermined heat-transmitting properties, conduit means between the intermediate chamber and the perforations in the sole plate, and electric heating means disposed between the upper surface of the sole plate and the undersides of said reservoir and intermediate chamber.

3. In a pressing iron, the combination according to claim 2, the said removable member having a portion thereof elevated and in spaced relation to the heating means.

4. In a pressing iron, the combination according to claim 2, further provided with a layer of porous heat-insulating material over said removable member.

5. In a pressing iron, a perforated sole plate, a hollow shell superimposed over said plate, a primary steam chamber at the upper portion of the shell, a handle being detachably secured to the shell and having a portion thereof surrounding the primary chamber, the primary chamber comprising an elongated casing with a flanged base secured to the upper surface of the shell, the handle having secured thereto a U-shaped plate straddling the said casing, and a nut in threaded engagement with said casing and in engagement with the upper surface of the plate for forcing it and the handle down towards the shell upon a rotary manipulation of the nut; and steam conduit means communicating between said primary chamber and the perforations in the sole plate.

JULIUS K. SEBO.