Jan. 23, 1945. S. STONE 2,368,048

ELECTRIC STEAM IRON

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Fig. 2.

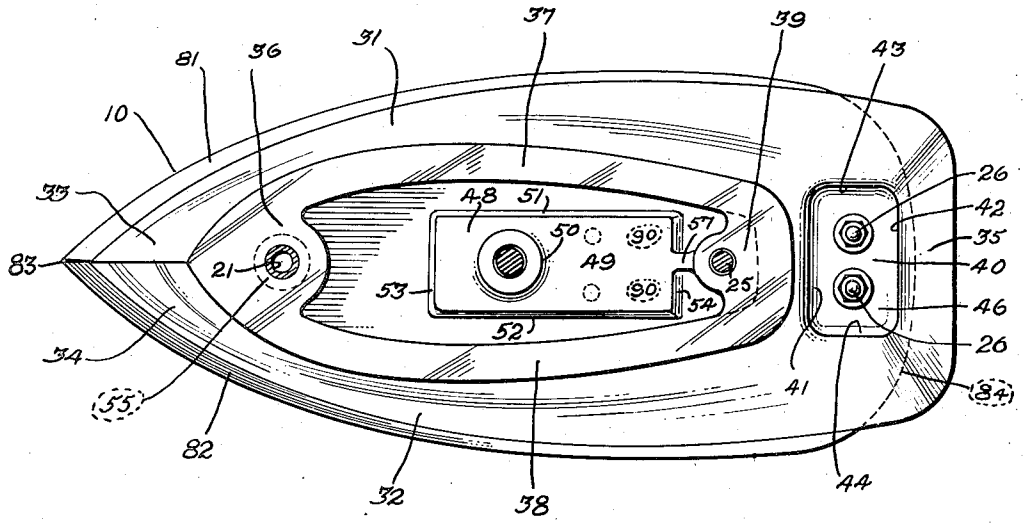
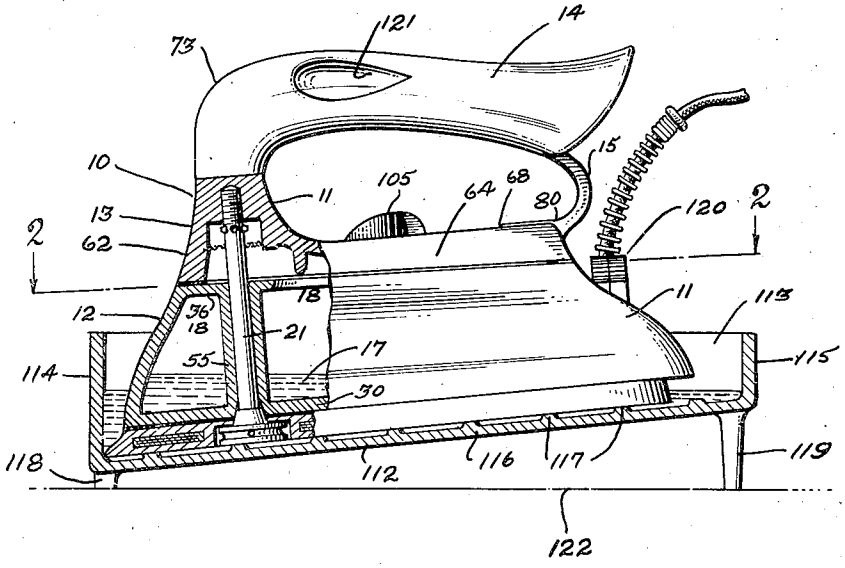


Fig. 1.



INVENTOR.
Seymour Stone

BY Richard S. Temko
ATTORNEY

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ELECTRIC STEAM IRON

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Fig. 3.

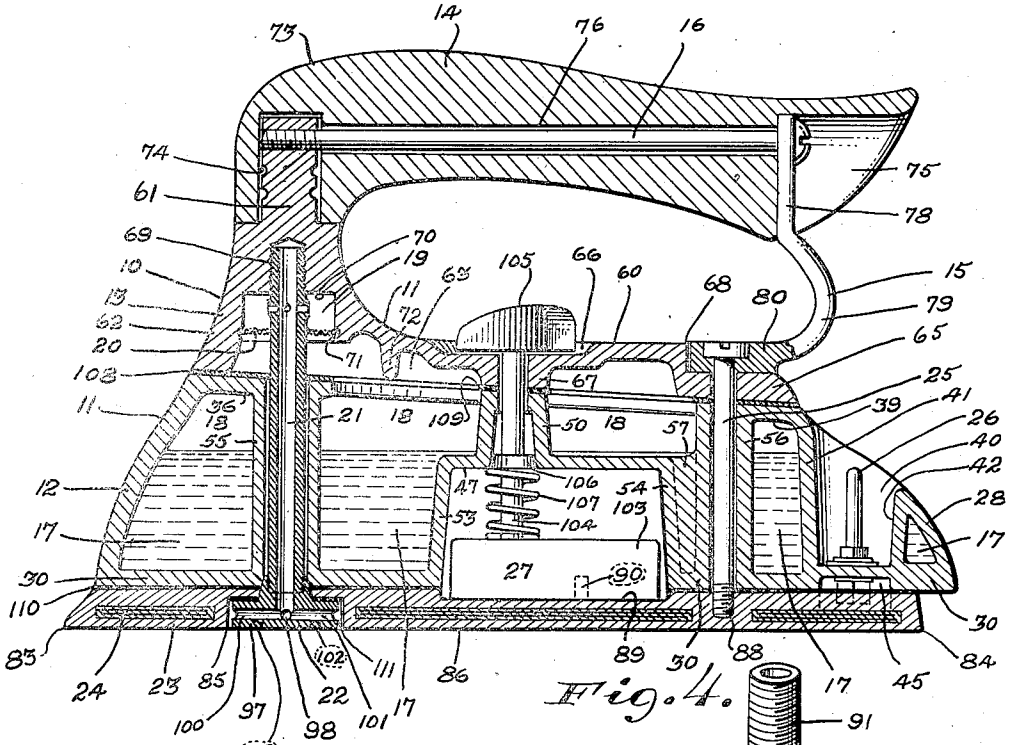


Fig. 5.

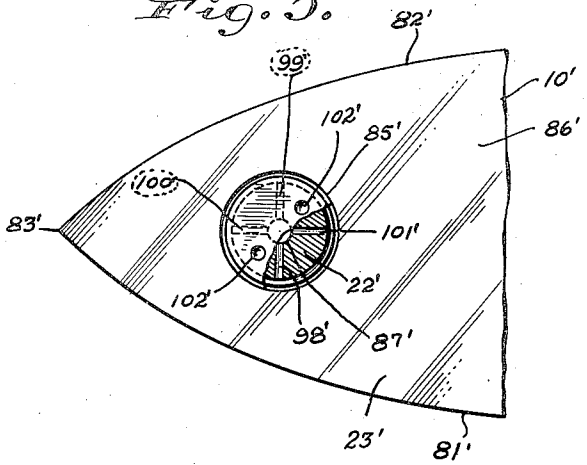
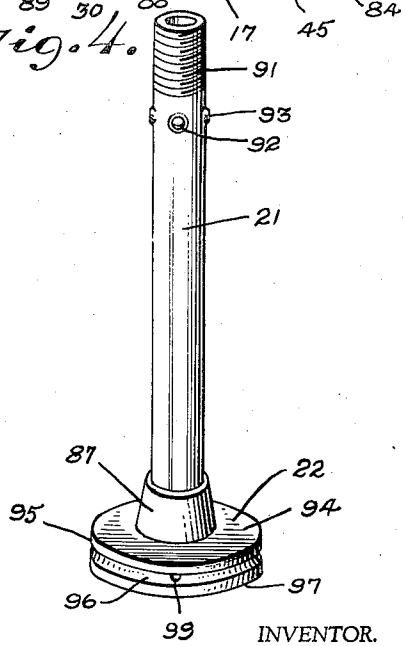


Fig. 4.



INVENTOR.
Seymour Stone

BY Richard S. Temko
ATTORNEY

Jan. 23, 1945. S. STONE 2,368,048

ELECTRIC STEAM IRON

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Fig. 6.

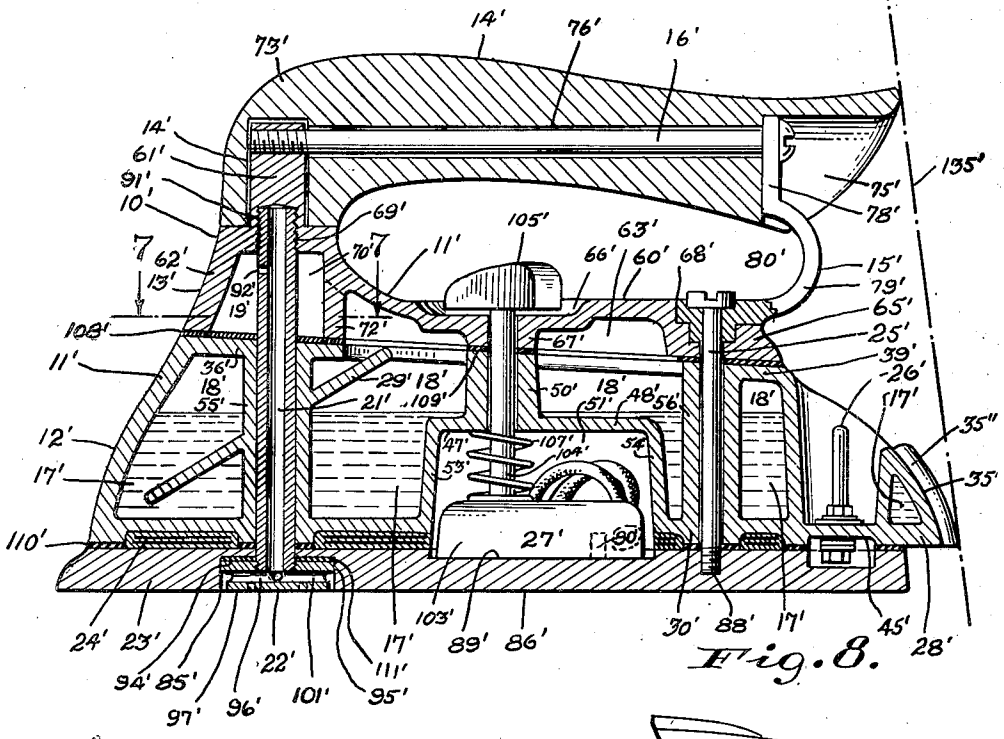


Fig. 8.

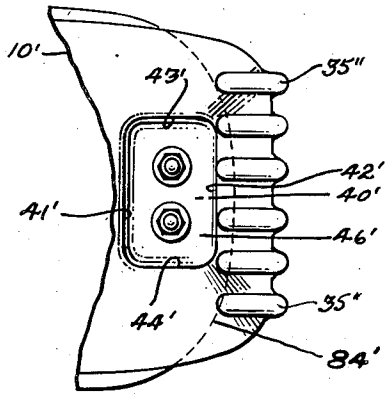
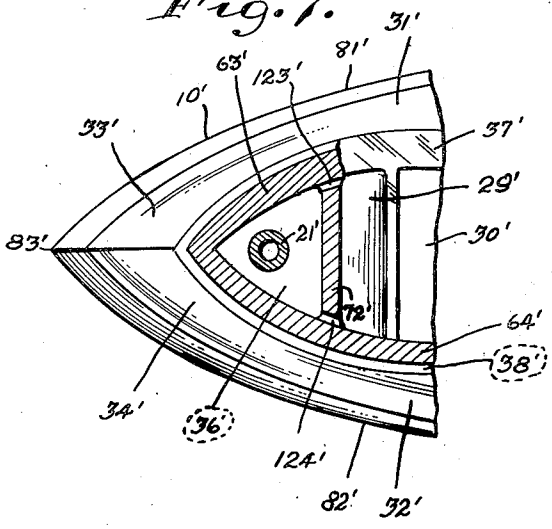


Fig. 7.



INVENTOR
Seymour Stone
BY
Richard S. Jemko
ATTORNEY

Patented Jan. 23, 1945 2,368,048

UNITED STATES PATENT OFFICE

2,368,048

ELECTRIC STEAM IRON

Seymour Stone, New York, N. Y., assignor to Robert L. Berenson, New York, N. Y.

Application May 2, 1941, Serial No. 391,565

6 Claims. (Cl. 38—77)

This invention relates generally to pressing irons, and more particularly to pressing irons of the type having a self-contained steam generator for discharge upon the material being pressed during the ironing operation.

Among the objects of the present invention lies the provision of a steam iron which is convenient and foolproof in operation, requiring no special skill in the use thereof and which is completely safe.

Steam irons as such have been known in the prior art and they have been open to a number of serious disadvantages. Among these disadvantages is the fact that in certain constructions, when the steam pressure in the iron rises to within certain limits, the steam forming chamber is subject to bursting. Another disadvantage in prior constructions lies in the fact that many of such devices in use discharge very wet steam and quantities of water. This wet steam or hot water has an extremely deleterious effect on certain fabrics such as silk or rayon, and especially those of a thermoplastic nature such as those woven of cellulose acetate fibres. With this loss of water, the consumption of the water within the steam forming chamber or other reservoir is increased so that the need for refilling the chamber with water becomes more frequent. Another disadvantage of prior constructions lies in the fact that the iron itself is in the form of or has associated therewith a tank or other reservoir for the containing of water. Access to this tank or reservoir is gained by means of a small port closed by a threaded plug. Since the leakage of steam through this port lowers the efficiency of the iron, it is customary to provide the plug with a gasket and to turn the same into its seat tightly. Owing to the expansion or contraction of the metal bordering the port or in the plug, as the case may be, the plug frequently becomes tightly wedged or "frozen" in place, requiring special tools to remove the same. Also by reason of the small size of the port and by reason of the fact that the inside of the water tank or reservoir is invisible, it becomes necessary to use a funnel and to pour in through the port by means of the funnel, a certain predetermined amount of water, previously measured.

It is, therefore, an object of the present invention to provide an iron incorporating a novel filling structure, thereby avoiding the disadvantages just described. In accordance with the present invention, the filling of the iron with liquid to the proper level requires only a simple dipping motion and does not require the movement of any valves or ports on the iron itself.

Another object herein lies in the provision of steam iron structure which by reason of the simplicity in the organization thereof, permits of large scale production at low cost, with a consequent wide use.

Another object herein lies in the provision of steam iron structure in which the steam carrying tube serves also to integrate certain of the parts of which the iron is composed.

Another object herein lies in the provision of steam iron structure particularly adapted to prevent the emission from the iron of any wet steam or drops of water, a fault commonly referred to as "spitting."

A feature of the invention lies in the fact that substantially a complete dismantling of the important functional parts of the iron may be accomplished by removing two screws. This permits of low cost manufacture and convenient and low cost servicing.

Another object herein lies in the provision of a steam iron in which the heating area of the sole plate is increased so as to be practically equal to the heating area of the sole plate of irons lacking the steam producing feature.

Another object herein lies in the provision of structure of the class described wherein the water tank or container is so organized with relation to the iron body that a great deal of the cubic capacity of the body is utilized for the storage of water and the generation of steam. This results in only a short interval of idle time during which the iron raises the water to the boiling point, and it also results in a lower overall height so that the iron is more convenient in use and presents a more desirable streamlined appearance.

Another object herein lies in the provision of structure for the conducting of steam from the steam forming chamber to the outlet in the sole plate in such a manner as to reduce the tendency of the steam entering the tube to carry with it into the passage formed thereby any water that is temporarily adjacent the entrance to the passage. In accordance with the present invention, the splashing of water within the body of the iron upon the entrance to the passage for the steam being emitted, is reduced to a minimum.

These objects and other incidental ends and advantages will more fully appear in the progress of this disclosure and be pointed out in the appended claims.

In the drawings forming a material part here-

of, similar reference characters designate corresponding parts throughout the several views of each embodiment, in which:

Figure 1 is a side elevational view, partly in section, showing a first embodiment of the invention in the filling process and resting in the filler stand, with the electrical attachment plug in place.

Figure 2 is an enlarged horizontal sectional view of the iron shown in Figure 1 as seen from the plane 2—2 thereof, the electrical attachment plug and the filler stand being removed for purposes of clarity.

Figure 3 is an enlarged vertical section view, partly in elevation, of the iron shown in Figure 1, the attachment plug and stand not being shown.

Figure 4 is an enlarged view in perspective of the steam delivery tube as removed from the iron proper.

Figure 5 is a fragmentary bottom plan view, partly in section, of the forward portion of a second embodiment of the invention.

Figure 6 is a vertical sectional view, partly in elevation, corresponding generally to Figure 3, but showing a second embodiment of the invention.

Figure 7 is a fragmentary horizontal sectional view as seen from the plane 7—7 on Figure 6.

Figure 8 is a fragmentary plan view showing the heel portion and some adjacent parts of the second embodiment of the invention.

Turning now to the first embodiment of the invention illustrated in Figures 1 to 4 inclusive, the device, generally indicated by numeral 10, comprises broadly, a hollow body 11 composed of first and second body elements 12 and 13, a handle 14, a handle supporting bracket 15, a handle retaining bolt 16, a water reservoir 17, a first steam chamber 18, a second steam chamber 19, a screen 20, a conduit 21, a conduit head 22, a sole plate 23, a heating element 24, a retainer bolt 25, electrical contacts 26, a thermostat 27, and a hollow heel 28.

The first body element is the main body of the device and is preferably composed of a hollow casting of some material not deleteriously affected by heat or water. The body element 12 includes a bottom wall or portion 30, curved side walls 31 and 32 having corresponding front portions 33 and 34, and a rear wall 35. The upper edge of the walls 31 and 32 as well as the rear wall 35 have an inwardly extending peripheral flange, including the front flange portion 36, the side flange portions 37 and 38, as well as the rear flange portion 39. The rearmost portions of the side walls 31 and 32 and the back wall 35 are provided with a downwardly extending well 40, including the front well portion 41, the rear well portion 42, and the side well portions 43 and 44. The bottom wall 30 adjacent the rearmost portion thereof is provided with a recess 45, forming the bottom well portion 46.

Substantially centrally of the first body element 12, the bottom wall 30 is provided with an upwardly extending recess 47, thus forming the thermostat casing 48, including the top wall 49, the neck 50, side walls 51 and 52, the front wall 53, and the rear wall 54.

Disposed substantially along the central longitudinal axis of the first body element 12 and forwardly of the wall 53 is a conduit carrying tube 55. The conduit carrying tube is preferably cast integrally with the first body element 12 and extends substantially vertically between the upper surface of the bottom wall 30 and the lower surface of the front flange portion 36. Disposed substantially along the central longitudinal axis of the first body element 12 and rearwardly of the wall 54 is a retainer bolt carrying tube 56. The retainer bolt carrying tube is preferably cast integrally with the first body element 12 and extends substantially vertically between the upper surface of the bottom wall 30 and the lower surface of the rear flange portion 39. The tube 56 and the rear wall 54 may be connected by means of a web 57. The upper surfaces of the flange portions 36 to 39 inclusive are preferably plane and at the same level as the upper surface of the neck 50.

The second body element 13 is preferably a single casting of materials similar to that of which the first casting is composed and is of irregular configuration best seen in Figure 3. The second body element 13 includes a top wall 60, a shank portion 61, a front wall 62, side walls 63 and 64, and a rear wall 65. The top wall 60 includes a downwardly extending depression 66 and a downwardly extending neck 67. The rear wall 65 is provided with a handle supporting bracket receiving recess 68, and the wall 65 therebelow is provided with an orifice, which, when the body elements 12 and 13 are assembled, is in alignment with the opening in the tube 56 and the neck 67 is provided with an orifice which aligns with a corresponding orifice in the neck 50. The shank 61 may be cylindrical in horizontal section and is provided with a horizontally disposed threaded orifice arranged longitudinally with respect to the device 10. The lower portion of the shank 61, that is to say, below the handle 14, is provided with an upwardly extending threaded bore 69 and a second steam chamber forming bore 70. The bore 70 is provided with a substantially horizontally disposed annular groove 71 which is adapted to receive the edge of the screen 20, which is of a resilient nature and expands into the said groove, the screen 20 having a central orifice penetrated by the conduit 21. Disposed between the lowermost portions of the shank 61 and the neck 67 is a baffle 72. The baffle 72 extends downwardly to a level substantially on a line with the plane undersurface of the walls 62 to 65 inclusive. The baffle 72 extends transversely of the device 10, forming a continuous web between the walls 63 and 64.

The handle 14 is preferably composed of durable heat insulating material such as wood or molded composition, a suitable molded composition being a plastic of a type sold under the trade name of "Bakelite." The front portion 73 of the handle 14 is provided with an upwardly extending bore 74 adapted to receive the upper portion of the shank 61 while the rear portion of the handle 14 is provided with a recess 75 adapted to receive the upper portion of the handle supporting bracket 15. The handle 14 is provided with a longitudinally disposed rear opening bore 76 adapted to receive the handle retainer bolt 16. The handle supporting bracket 15 is of irregular configuration best seen in Figure 3, and includes the handle engaging portion 78, the rearwardly offset portion 79 and the first body engaging portion 80.

The sole plate 23 is preferably a casting having the lower surface thereof substantially plane and smooth and the general external configuration thereof is best seen in Figures 2 and 3, and includes the curved side edges 81 and 82, the point 83, and the rear edge 84. The heating element

24 may be of any usual known construction, as for example, nichrome resistance wire wound and positioned by means of mica sheets. The heating element in accordance with the first embodiment of the present invention is incorporated into the sole plate by casting the material of which the sole plate is formed about the heating element as a core. The rear portion of the sole plate is provided with a pair of recesses through which the leads from the heating element are brought up to the contacts 26. These recesses are disposed adjacent to recess 45.

The sole plate 23 in the forward portion, substantially along the central longitudinal axis thereof, is provided with a circular recess 85 extending upwardly from the pressing or lower surface 86. The portion of the sole plate lying above the recess 85 is provided with an aperture in the form of a frusto-conical seat adapted to receive the collar portion 87 of the head 22. The sole plate 23 in the rear portion thereof is provided with a threaded socket 88 adapted to receive the lower threaded end of the retainer bolt 65. In the central portion thereof, the sole plate 23 is provided with a depression 89 and a pair of integral upwardly projecting thermostat locating pins 90. The pins 90 engage corresponding pockets in the lower surface of the thermostat 27.

The conduit 21 is preferably formed of a piece of tubing provided at the upper end thereof with threads 91 and at the lower end thereof with threads which engage the collar portion 87. The conduit 21 near the upper end thereof and below the threads 91 is provided with a plurality of orifices 92. The orifices 92 are preferably spaced equidistantly about the conduit 21 and have outwardly directed nipples 93.

The head 22 is preferably of circular shape, having an upper surface 94, an annular vertical surface 95, an annular groove 96, and a bottom surface 97.

The collar portion 87 is integral with the head 22 and extends upwardly from the upper surface 94 thereof. The collar portion 87 has a centrally vertically disposed bore as well as an enlarged bore having threads on the inner surface thereof which are adapted to engage the threads on the lower terminal of the conduit 21. The head 22, on the same level as the annular groove 96, is provided with a plurality of passages 98, 99, 100 and 101, which radiate from the centrally vertical bore of said head 22. The lower surface 97 of the head 22 is provided with a pair of spaced indentations 102 which are to receive the wrench having correspondingly spaced projections. the said projections being disengageably seatable in said indentations, said wrench not being shown.

The thermostat 27 may be of any standard construction well known in the art to which the present invention relates, and the same consists of a body 103, the lower surface of which is provided with indentations adapted to receive the pins 90, previously described. The thermostat 27 has upwardly extending therefrom a control spindle 104 which is provided at the upper end thereof with the control knob 105. The control knob 105 is detachably attachable to the upper end of the spindle 104. The spindle 104 travels upwardly through the neck 50 and the neck 67, and the knob 105 is positioned within the depression 66 for rotation about a vertical axis therein. The thermostat body 103 is maintained downwardly in engagement with the pins 90 by means of the washer 106 and the expansive coil spring 107.

The main top gasket 108 has the general configuration of the upper edge of the first body element 12, and therefore is adapted to lie above the flange portions 36 to 39 inclusive. The front portion thereof is provided with an orifice to permit passage therethrough of the conduit 21 and the rear portion thereof is provided with an orifice through which the bolt 25 may pass. This gasket is of any suitable material which has a relatively critical value at which the same will rupture under pressure, as this gasket constitutes the principal safety device in the iron to prevent explosion under excessive pressure. The nature of the gasket is such that when the steam pressure within the steam chamber formed by the first and second body elements reaches a value which is too high, the gasket will blow out the side and release the excess pressure, thus providing a positive and foolproof safety device.

A small circular gasket 109 is disposed between the necks 50 and 67 and is provided with an orifice through which the spindle 104 may pass. The sole plate gasket 110 has an external configuration corresponding to the upper edge of the sole plate 23, and inwardly of the edge is provided with orifices through which the collar portion 87, the thermostat 27, the bolt 25, and the heads of the contacts 26, may pass. The orifices through which the thermostat 27 and the contact heads 26 pass, are preferably of sizes corresponding to the chambers formed thereat by the shape of the recess formed by the walls 51 to 54 inclusive and the recess 45.

The assembly or disassembly of the device 10 is a relatively simple matter, and by way of example, one method of assembling said device is here given. The second body element 13 is taken and the upper end of the conduit 21 is screwed into the threaded bore 69. Next, the screen 20 is slipped over the lower end of the conduit 21 and is pushed into its seat in the lower annular groove 71.

The contact pins 26 are attached to the bottom well portion 46 by means of insulated bushings in a well known manner. With the spring 107 and the washer 106 thereon, the thermostat is put in place with the spindle 104 penetrating the necks 50 and 67, the gasket 109 having previously been cemented to one of the said necks.

The heating element 24 is connected to the thermostat 27 and the contacts 26 by conductors in a well known manner, not shown, which penetrate the gasket 110.

The gasket 108 is laid in place and the body element 12 is placed over the conduit 21, the said conduit penetrating the conduit carrying tube 55.

The gasket 110 is put into place and the bolt 25 is passed through the lower portion of the bracket 15, the rear wall 65, the gasket 108, the retainer bolt carrying tube 56, and the gasket 110.

The sole plate 23 is now put in place and is secured thereat by rotating the bolt 25 and by placing the gasket 111 and the head 22 upon the lower end of the conduit 21 and tightening the same, the thread in the portion 87 co-acting with the threads on the lower end of the conduit 21. The tightening of the head is accomplished by means of a special wrench previously described, while an ordinary screwdriver may rotate the bolt 25. When the head 22 is in its fully seated position, the lower surface 97 thereof is coplanar with the lower surface of the sole plate 23.

Next, the handle 14 is put in place by placing the front portion 73 upon the shank portion 61. The bolt 16 is next passed through the portion

78 of the bracket 15, the bore 76 and finally is screwed into the shank portion 61. The handle 105 may now be put in place.

The filler stand 112 is preferably in the form of a hollow vessel having side walls 113 and front and rear walls 114 and 115 respectively. The bottom wall 116 is provided with a plurality of ribs 117 adapted to hold the sole plate 23 slightly above the upper surface of the bottom wall 116 when the device 10 is placed in the filler stand. The bottom wall 116 preferably has a slight forward tilt and may be so maintained by means of the front legs 118 and rear legs 119. The fluid capacity of the filler stand 112 is preferably equal to the exact amount of water which is desired shall be placed in the device 10 when the same is loaded for use.

Operation

The operation of the device 10 is preferably as follows. The electrical contact plug 120 is connected to a suitable source of current and placed upon the pins 26 in a well known manner. The iron is allowed to heat to a temperature substantially above the boiling point of water. The filler stand 112 is filled with cold water. The device 10 in its heated condition is placed in the filler stand. The contact of the water in the stand with the sole plate and the first body element, cools the same, causing a contraction of the air therewithin, which had been previously expanded when the iron was heated. The contraction of the air causes a vacuum within the principal steam chamber of the iron and sucks in the water from the filler stand. This sucking will continue until the water in the filler stand drops below the level of the opening around the edge of the lower surface 97 of the head 22. Depending upon the level of the surface 122 or the adjustment in height of the legs 118 and 119, the entire or substantially the entire contents of the filler stand will be sucked into the iron 10. The iron may be removed from the filler stand and placed upon its heel or may be allowed to remain in the stand. In a relatively short time, the water within the iron will be raised to the boiling temperature and steam from said iron will pass upwardly through the screen 20 through the orifices 92, downwardly through the conduit 21, through the passages 98–101 and out through the circular openings surrounding the bottom of the head 22.

The iron, thus in a steam emitting condition, may be used in a usual manner, the temperature being regulatable by manipulation of the knob 105. The thumb-rest 121 in the handle 14 makes the device more comfortable and easy to handle. As the iron is moved back and forth in the pressing movement with the pressing surface 86 in contact with the material being treated, splashing of the water within the steam chamber formed by the first and second body elements is inhibited by means of the baffle 72 and any splashed water is prevented from entering the steam carrying conduit 21 by the screen 20 and the nipples 93.

It may be noted here that as best seen in Figure 3, the water chamber extends rearwardly of the contact pins 26 so that the heel space normally wasted in prior constructions is utilized for carrying water. It may also be noted that the forwardmost portion of the heating element 24 is positioned in advance of the steam emitting circular orifice at the periphery of the bottom wall 97 of the head 22.

Turning now to the second embodiment of the invention illustrated in Figures 5 to 8 inclusive, the device, generally indicated by numeral 10', comprises broadly, a hollow body 11' composed of first and second body elements 12' and 13', a handle 14', a handle supporting bracket 15', a handle retaining bolt 16', a water reservoir 17', a first steam chamber 18', a second steam chamber 19', a steam carrying tube or conduit 21', a conduit head 22', a sole plate 23', a heating element 24', a retainer bolt 25', electrical contacts 26', a thermostat 27', and a hollow heel 28'.

The first body element 12' is the main body of the device and is preferably composed of a hollow casting of some material not deleteriously affected by heat or water. The body element 12' includes a bottom wall or portion 30', curved side walls 31' and 32' having corresponding front portions 33' and 34', and a rear wall 35'. The upper edge of the walls 31' and 32' as well as the rear wall 35' have an inwardly extending peripheral flange, including the front flange portion 36', the side flange portions 37' and 38', as well as the rear flange portion 39'. The rearmost portions of the side walls 31' and 32' and the back wall 35' are provided with a downwardly extending well 40', including the front well portion 41', the rear well portion 42', and the side well portions 43' and 44'. The bottom wall 30' adjacent the rearmost portion thereof is provided with a recess 45', forming the bottom well portion 46'.

Substantially centrally of the first body element 12', the bottom wall 30' is provided with an upwardly extending recess 47', thus forming the thermostat casing 48', including the top wall 49', the neck 50', side walls 51', the front wall 53', and the rear wall 54'.

Disposed substantially along the central longitudinal axis of the first body element 12' and forwardly of the wall 53' is a conduit carrying tube 55'. The conduit carrying tube is preferably cast integrally with the first body element 12' and extends substantially vertically between the upper surface of the bottom wall 30' and the lower surface of the front flange portion 36'. Surrounding the tube 55' and connecting the inner surfaces of the curved side walls 31' and 32' thereat, is a main baffle 29'. The upper edge of the baffle 29' is preferably at the same level as the flange portions 36' to 38' inclusive. The lower forward edge of the baffle 29' is disposed a short distance above the upper surface of the bottom wall 30', thus allowing for the passage of steam or water therearound. Disposed substantially along the central longitudinal axis of the first body element 12' and rearwardly of the wall 54' is a retainer bolt carrying tube 56'. The retainer bolt carrying tube is preferably cast integrally with the first body element 12' and extends substantially vertically between the upper surface of the bottom wall 30' and the lower surface of the rear flange portion 39'. The upper surfaces of the flange portions 36' to 39' inclusive are preferable plane and at the same level as the upper surface of the neck 50'.

The second body element 13' is preferably a single casting of materials similar to that of which the first casting is composed and is of irregular configuration best seen in Figure 6. The second body element 13' includes a top wall 60', a shank portion 61', a front wall 62', side walls 63' and 64', and a rear wall 65'. The top wall 60' includes a downwardly extending depression 66' and a downwardly extending neck 67'. The rear wall 65' is provided with a handle supporting bracket receiving recess 68', and the wall 65' therebelow is provided with an orifice, which, when the body elements 12' and 13' are assembled, is in align-

ment with the opening in the tube 56' and the neck 67' is provided with an orifice which aligns with a corresponding orifice in the neck 50'. The shank 61' may be cylindrical in horizontal section and is provided with a horizontally disposed threaded orifice arranged longitudinally with respect to the device 10'.

The lower portion of the shank 61', that is to say, below the handle 14', is provided with an upwardly extending threaded bore 69' and a second irregularly shaped steam chamber forming bore 70'. Disposed between the bore 70' and the neck 67' is a baffle 72'. The baffle 72' extends downwardly to a level substantially on a line with the plane undersurface of the walls 62' to 65' inclusive. The baffle 72' extends transversely of the device 10', forming a continuous web between the walls 63' and 64', except for the slots 123' and 124'.

The handle 14' is preferably composed of durable heat insulating material such as wood or molded composition, a suitable molded composition being a plastic of a type sold under the trade name of "Bakelite." The front portion 73' of the handle 14' is provided with an upwardly extending bore 74' adapted to receive the upper portion of the shank 61' while the rear portion of the handle 14 is provided with a recess 75' adapted to receive the upper portion of the handle supporting bracket 15'. The handle 14' is provided with a longitudinally disposed rear opening bore 76' adapted to receive the handle retainer bolt 16'. The handle supporting bracket 15' is of irregular configuration best seen in Figure 6, and includes the handle engaging portion 78', the rearwardly offset portion 79' and the first body engaging portion 80'.

The sole plate 23' is preferably a casting having the lower surface thereof substantially plane and smooth and the general external configuration thereof is best seen in Figures 6 and 7, and includes the curved side edges 81' and 82', the point 83', and the rear edge 84'. The heating element 24' may be of any usual known construction, as for example, nichrome resistance wire wound and positioned by means of mica sheets. The heating element in accordance with the second embodiment of the present invention is disposed above the sole plate by placing said element 24' in correspondingly disposed upwardly extending recesses in the bottom wall 30'. The rear portion of the bottom wall 30' is provided with a pair of recesses through which the leads from the heating element are brought up to the contacts 26'. These recesses are disposed adjacent to recess 45'.

The sole plate 23' in the forward portion, substantially along the central longitudinal axis thereof, is provided with a circular recess 85' extending upwardly from the pressing or lower surface 86'. The portion of the sole plate lying above the recess 85' is provided with an aperture adapted to receive the lower portion of the conduit 21'. The sole plate 23' in the rear portion thereof is provided with a threaded socket 88' adapted to receive the lower threaded end of the retainer bolt 65'. In the central portion thereof, the sole plate 23' is provided with a depression 89' and a pair of integral upwardly projecting thermostat locating pins 90'. The pins 90' engage corresponding pockets in the lower surface of the thermostat 27'.

The conduit 21' is preferably formed of a piece of tubing having threaded ends. The upper threads 91' are adapted to engage the threaded bore 69' and the lower threads engage the upper portion of the head 22'. The conduit 21' near the upper end thereof and below the threads 91' is provided with a single orifice 92'. The orifice 92' is forwardly directed.

The head 22' is preferably of circular shape, having an upper surface, an annular vertical surface 95', an annular groove 96', and a bottom surface 97'. The lower portion of the head 22' below the groove 96' is reduced in size as best seen in Figure 6.

The upper portion of the head 22' has a centrally vertically disposed bore 87' having threads on the inner upper surface thereof which are adapted to engage the threads on the lower terminal of the conduit 21'. The head 22', on the same level as the annular groove 96', is provided with a plurality of passages 98', 99', 100' and 101', which radiate from the centrally disposed bore 87' of the said head 22'. The lower surface 97' of the head 22' is provided with a pair of spaced indentations 102' which are to receive the wrench having correspondingly spaced projections, the said projections being disengageably seatable in said indentations, said wrench not being shown.

The thermostat 27' may be of any standard construction well known in the art to which the present invention relates, and the same consists of a body 103', the lower surface of which is provided with indentations adapted to receive the pins 90', previously described. The thermostat 27' has upwardly extending therefrom a control spindle 104' which is provided at the upper end thereof with the control knob 105'. The control knob 105' is detachably attachable to the upper end of the spindle 104'. The spindle 104' travels upwardly through the neck 50' and the neck 67', and the knob 105' is positioned within the depression 66' for rotation about a vertical axis therein. The thermostat body 103' is maintained downwardly in engagement with the pins 90' by means of the expansive coil spring 107'.

The main top gasket 108' has the general configuration of the upper edge of the first body element 12', and therefore is adapted to lie above the flange portions 36' to 39' inclusive. The front portion thereof is provided with an orifice to permit passage therethrough of the conduit 21' and the rear portion thereof is provided with an orifice through which the bolt 25' may pass. The gasket is of any suitable material which has a relatively critical value at which the same will rupture under pressure, as this gasket constitutes the principal safety device in the iron to prevent explosion under excessive pressure. The nature of the gasket is such that when the steam pressure within the steam chamber formed by the first and second body elements reaches a value which is too high, the gasket will blow out laterally and release the excess pressure, thus providing a positive and foolproof safety device.

A small circular gasket 109' is disposed between the necks 50' and 67' and is provided with an orifice through which the spindle 104' may pass.

The sole plate gasket 110' has an external configuration corresponding to the upper edge of the sole plate 23', and inwardly of the edge is provided with orifices through which the heating element 24', the thermostat 27', the bolt 25', and the heads of the contacts 26', may pass. The orifices through which the thermostat 27' and the contact heads 26' pass, are preferably of sizes corresponding to the chambers formed thereat

by the shape of the recess 47' and the recess 45'.

The rear wall 35' is provided with a plurality of spaced ribs 35'' which are substantially vertically arranged.

The assembly or disassembly of the device 10' is a relatively simple matter, and by way of example, one method of assembling said device is here given. The second body element 13' is taken and the upper end of the conduit 21' is screwed into the threaded bore 69'.

The contact pins 26' are attached to the bottom well portion 46' by means of insulated bushings in a well known manner. With the spring 107' thereon, the thermostat is put in place with the spindle 104' penetrating the necks 50' and 67', the gasket 109' having previously been cemented to one of the said necks.

The heating element 24' is connected to the thermostat 27' and the contacts 26' by conductors in a well known manner.

The gasket 108' is laid in place and the body element 12' is placed over the conduit 21', the said conduit penetrating the conduit carrying tube 56'.

The gasket 110' is put into place and the bolt 25' is passed through the lower portion of the bracket 15', the rear wall 65', the gasket 108', the retainer bolt carrying tube 56', and the gasket 110'.

The sole plate 23' is now put in place and is secured thereat by rotating the bolt 25' and by placing the gasket 111' and the head 22' upon the lower end of the conduit 21' and tightening the same, the thread in the upper portion of the head 22' co-acting with the threads on the lower end of the conduit 21'. The tightening of the head is accomplished by means of a special wrench previously described, while an ordinary screwdriver may rotate the bolt 25'. When the head 22' is in its fully seated position, the lower surface 97' thereof is co-planar with the lower surface of the sole plate 23'.

Next, the handle 14' is put in place by placing the front portion 73' upon the shank portion 61'. The bolt 16' is next passed through the portion 78' of the bracket 15', the bore 76' and finally is screwed into the shank portion 61'. The handle 105' may now be put in place.

The filler stand for use with the second embodiment of the invention may be the same as that described in connection with the first embodiment.

Operation

The operation of the device 10' is preferably as follows. An electrical contact plug is connected to a suitable source of current and placed upon the pins 26' in a well known manner. The iron is allowed to heat to a temperature substantially above the boiling point of water. The filler stand is filled with cold water. The device 10' in its heated condition is placed in the filler stand. The contact of the water in the stand with the sole plate and the first body element, cools the same, causing a contraction of the air therewithin, which had been previously expanded when the iron was heated. The contraction of the air causes a vacuum within the principal steam chamber of the iron and sucks in the water from the filler stand. This sucking will continue until the water in the filler stand drops below the level of the opening around the edge of the lower surface 97' of the head 22'. The iron may be removed from the filler stand and placed upon its heel so that it rests upon the ribs 35'' and the rear end of the handle 14' so that a surface upon which it might rest would correspond to the dot-dash line 135', or, the iron may be allowed to remain in the stand. In a relatively short time, the water within the iron will be raised to the boiling temperature and the steam from said iron will pass upwardly through the slots 123' and 124' through the orifice 92, downwardly through the conduit 21', through the passages 98'–101' and out through the circular opening 85' surrounding the bottom of the head 22'.

The iron, thus in a steam emitting condition, may be used in a usual manner. As the iron is moved back and forth in the pressing movement with the pressing surface 86' in contact with the material being treated, splashing of the water within the steam chamber 18' formed by the first and second body elements is inhibited by means of the baffle 72 and any splashed water is prevented from entering the steam carrying conduit 21' by reason of the placement of the orifice 92' and the trapping action of the chamber 19'.

It may be noted here that as best seen in Figure 6, the water chambers extends rearwardly of the contact pins 26' so that the heel space normally wasted in prior constructions is utilized for carrying water. It may also be noted that the forwardmost portion of the heating element 24' is positioned in advance of the steam emitting circular orifice 85'.

The structure of the iron is particularly adapted for operation in the manner described hereinabove by reason of the fact that the lower portions of the iron are substantially hermetically sealed, except, of course, the entrances to the tubes 21 or 21' so that when the iron is dipped into the water for the purpose of filling the same, no water may enter the iron to affect the electrical heating element therein. Also by reason of the fact that the contact pins 26 or 26' are disposed within a relatively deep well, the water into which the iron is dipped is prevented from short-circuiting the contacts.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

I claim:

1. In combination: a steam iron comprising: a hollow body, the bottom portion of which is adapted to act as a pressing plate; said hollow body being hermetically sealed with the exception of an opening in the said bottom portion, said opening serving for the admission of water to and the exit of steam from said hollow body; and a filler stand in the form of a hollow vessel having a peripheral wall and adapted to contain water, said filler stand being of a size capable of receiving the bottom portion of the hollow body and of a fluid cubic capacity less than the cubic capacity of the hollow body, said filler stand having means to support the hollow body in position with relation thereto whereby water in the stand may have access to said opening.

2. In combination: a steam iron comprising a hollow body, the bottom portion of which is adapted to act as a pressing plate; said hollow body being hermetically sealed with the exception of an opening in said bottom portion, said opening serving for the admission of water to and the exit of steam from said hollow body; and a filler stand in the form of a hollow vessel having a peripheral wall and adapted to contain water, said filler stand being of a size capable of receiving the portion of the hollow body having the

opening and of a fluid capacity sufficient only to fill the hollow body to a predetermined level.

3. The combination claimed in claim 2, with the addition of means on the filler stand to support the hollow body with the opening therein spaced from the inner surface of the filler stand juxtaposed to said opening.

4. The combination claimed in claim 2, with the addition of ribs on the filler stand adapted to support the hollow body in spaced juxtaposition.

5. A steam pressing device adapted to be filled by dipping in water, comprising: a hollow body; an electrical heating element disposed at the lower portions of said body; said body being provided with an upwardly opening well disposed inwardly and spaced from the periphery of said hollow body, said well being continuous at the juncture of the bottom and side portions thereof and thereby providing a hollow portion in said body positioned between said well and said periphery; and electrical contacts in said well connected to said heating element; said well acting to prevent said water from reaching said contacts when the device is placed in water below the level of the lowest portion of the upper edge of the side walls of said well.

6. A steam pressing device for use with water, comprising: a hollow body having a rear wall; an electrical heating element disposed at the lower portions of said body; said body having an upwardly opening well disposed forwardly and spaced from said rear wall, said well being water tight at the lower portions thereof, thereby providing a hollow portion in said body positioned between said well and said rear wall, said hollow portion being adapted to contain water or steam; and electrical contacts in said well connected to said electrical heating element; said well acting to prevent said water from touching said contacts when the device is placed in water the level of which is below the opening of said well.

SEYMOUR STONE.