Jan. 5, 1954 J. D. VOSKRESENSKI 2,664,653

STEAM AND DRY IRON

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Fig. 1

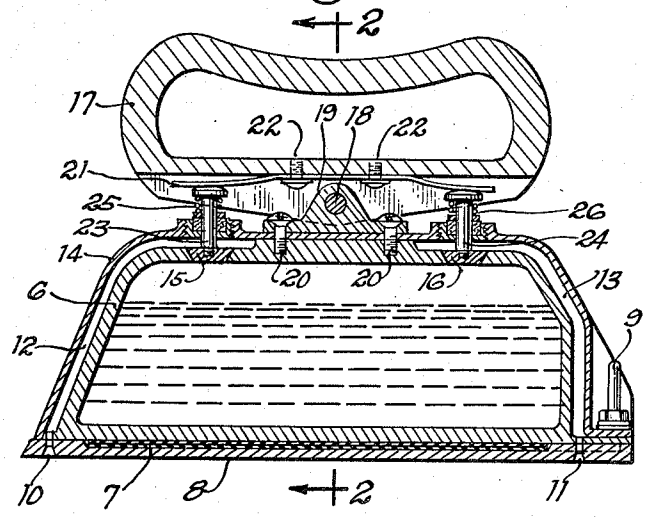


Fig. 2

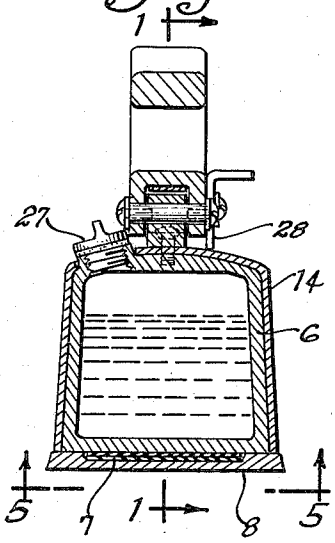
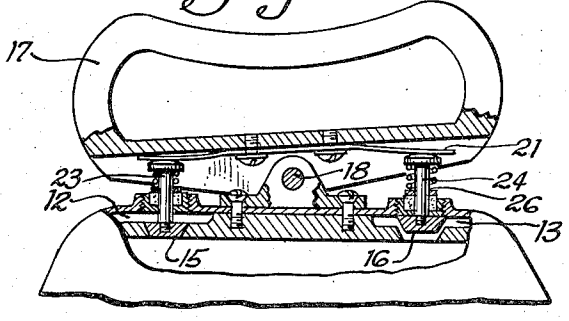


Fig. 3



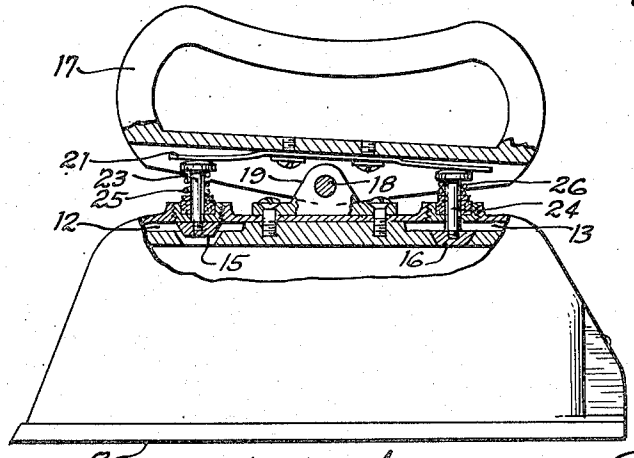
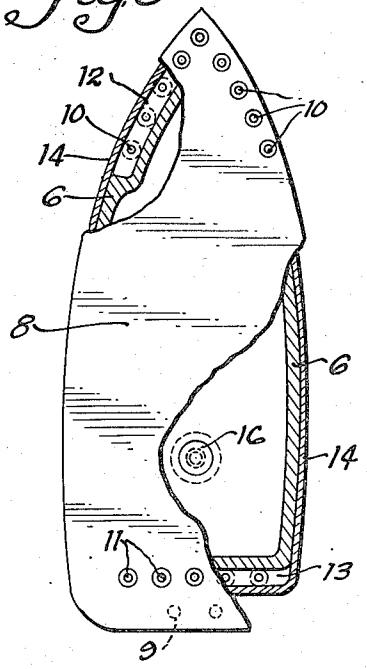


Fig. 4

Fig. 5



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STEAM AND DRY IRON

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5 Claims. (Cl. 38—77)

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This invention relates to an improved steam and dry iron.

The object of this invention is to provide a steam iron with several distinct advantages in construction over current types of steam irons which advantages or features make the steam iron of this invention easier to operate and hence more practical and useful.

The feature of this invention is the supplying of steam to the article being ironed in advance of, and while moving the iron across the article whether in a frontward or backward direction.

However, if the operator desires to iron dry, he may shut off the supply of steam and use the device of this invention as a dry iron.

An equally important feature of this invention is the controlling of the supply of steam through either the front or rear ports of the iron to the article being ironed as desired. The operation of the means for controlling the supply of steam is simple and coincides with the normal movement by hand of any iron over an article to be ironed.

The several features and advantages of the steam iron of this invention will be more fully understood from the following description of a preferred embodiment of such steam iron along with the attached drawing of same, in which like reference characters designate the same elements in the several views, in which:

Figure 1 is a vertical sectional view along line 1—1 of Figure 2.

Figure 2 is a vertical sectional view along line 2—2 of Figure 1.

Figure 3 is a partial side elevation view with a broken away section to show relative positions of elements in hand controlling means when iron is moving backward.

Figure 4 is a side elevation view with a portion broken away to show the relative position of elements in hand controlling means when iron is moving forward.

Figure 5 is a view of the bottom of the iron with some steam ports shown and fragmentary sections broken away from the remaining front and rear ports to show their relation to steam chambers and also other details of construction of the iron.

Most of the details of construction and features of this invention are shown in Figure 1 which represents a side view of the steam iron when standing free on any horizontal surface. The iron is shown horizontally level, as well as the handle and the water level in the combination water and steam chamber. In this position no steam is discharged through either the front or rear ports. Thus the iron of this invention can be used optionally as any dry iron because the heat is imparted to the flat ironing surface by an electrical element which also heats the water in the steam and water chamber. However, when using this iron as a dry iron the handle which operates the steam controls must be held in a normally horizontal position so that the front and rear steam valves are held in closed position, or the operator may fasten the shut off of steam supply during dry ironing.

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The water chamber of the steam iron is indicated as 6 and the upper section of the chamber becomes a steam dome when the water is heated sufficiently by electrical element 7. The heating element is encased in the bottom of the iron by a flat ironing surface 8 and connection between usual electric cords and the heating element 7 is made by wiring not shown to the electrical terminals 9.

A plurality of steam ports represented by 10 are located in the flat ironing surface 8 around the front end of the iron and a similar plurality of ports 11 are located in the flat surface 8 around or across the back end of the iron. The front ports 10 lead to the forward steam chamber 12 while the rear ports 11 connect with the rear steam chamber 13. The front steam chamber 12 may encircle the forward part of the iron and back along the sides of the iron as far as desired. Similarly the back steam chamber 13 may extend across the back as shown and also extend back along the sides of the iron as desired. However, in order to accomplish one of the features of the iron of this invention the front and rear steam chambers cannot be connected. The chambers are formed between the wall of the combination water and steam chamber 6 and the outside casing 14 of the iron. In areas of the side walls beyond the limits of front steam chamber 12 and rear steam chamber 13 the casing 14 and wall 6 of the combined steam and water chamber are contiguous as seen in Figures 2 and 5 of the accompanying drawing.

A steam valve 15 controls the passage of steam from the steam and water chamber 6 to the front steam chamber 12 and a similar valve 16 controls passage of steam into the rear chamber 13. In Figure 1 the two steam valves 15 and 16 are shown in closed positions. In Figure 4 valve 15 is open and 16 is closed which would be their relative positions when the iron is being moved forward. In Figure 3 front valve 15

is closed while rear valve 16 is open which would be their relative positions when the iron is being moved backward. The operation of these steam valves 15 and 16 is accomplished by handle 17 which is free to rock on pin 18 in trunnion 19 which is bolted by means 20, or in any other way connected to casing 14.

A strip of spring steel 21 is fastened to the underside of handle 17 by any means, such as bolts 22, and is preformed so that its two end sections bear down on the heads of valve stems 23 and 24 so as to keep steam valves 15 and 16 closed as shown in Figure 1. The usual means to seal the steam in chambers 12 and 13, such as packing glands, rings, etc., around the valve stems, are shown. In addition coil springs 25 and 26 are shown around the valve stems 23 and 24 so as to press upwards under the heads of the stems. These springs would cause both steam valves 15 and 16 to pop open were it not for the resistance to such movement provided by spring steel 21. The strip of spring steel normally has to overcome the combined pressure of the coil spring pushing the head of the valve stem up and the steam pressure pushing up against the steam valve.

When the operator of the steam iron decides to move it forward, he naturally presses on the rear of the handle so that the front of the iron will slide over the article being pressed. Thus in the normal operation of the iron he inclines the handle down in the rear and it rocks on pin 18 so that the forward part of the handle is up. This movement of the handle causes steam valve 15 to open up whereas steam valve 16 is firmly shut as shown in Figure 4.

Similarly if the operator decides to pull the iron backwards across the article being ironed, he bears down on the forward end of the handle, and thus on the front of the iron, thereby releasing pressure on the back end of the rockable handle and the back of the iron, so that the iron will slide backward over the article being ironed. This manipulation of the handle in turn closes steam valve 15 tight and allows steam valve 16 to open as shown in Figure 3.

The obvious reason for so operating the handle of the steam iron is to simultaneously operate the steam valves and thus supply moist steam through ports 10 when moving the iron forward while ironing, and through ports 11 when moving the iron backward. Thus supplying moist steam to the article being ironed eliminates otherwise sprinkling or wetting the article before ironing. Thus it will be observed the use of the steam iron of this invention is to a degree foolproof because the manipulating of the steam valves by the handle corresponds with the natural movement of the presser's arm in ironing.

Water may be supplied to the combined water and steam chamber through a port closed by removable plug 27 shown in Figure 2.

As already explained, the passage of steam from the steam dome into either front or rear steam chambers and thence to the front or rear steam ports is stopped by the closing of steam valves 15 and 16 when the iron is in a horizontal position as shown in Figure 1. But if the operator wishes to use the iron of this invention as a dry iron in any inclined position, he can lock the rockable handle in a position parallel to the ironing surface 8 by any suitable means 28 indicated in Figure 2. The operator can also use the steam iron as a dry iron with the handle locked as explained on a horizontal surface and pay no attention to the natural tendency of the handle to rock in normal movement of the iron to the right and left over the article being pressed.

Although the preferred embodiment of the features of the steam and dry iron of this invention illustrated and described herein relate to a type of such iron for use in a home, the iron of this invention could be used to very good advantage in large tailoring and pressing establishments with only one incidental change. In commercial establishments there is usually a central steam boiler and the steam is piped to the different pressing stations. For such uses the iron of this invention would require only a flexible hose connection for supplying steam into the opening shown in Figure 2 after removal of plug 27. In such case the chamber 6 would not be charged with water to be converted by heat into steam but would be supplied steam from a central source, and the steam from the chamber would be supplied to the front and rear ports of the iron and otherwise controlled, as previously described.

Other modifications and constructions of the features of this invention are possible but the principles of control and distribution of steam as well as the means for doing that as illustrated and described herein are claimed as invention.

What I claim is:

1. A combination steam and dry iron comprising a body having a water chamber therein and front and rear steam chambers about the water chamber spaced therefrom by a wall, a bottom plate having a forward portion formed with openings communicating with the front steam chamber and a rear portion formed with openings communicating with the rear steam chamber, a heating unit for heating the bottom plate and water in the water chamber, said wall having at its top a front opening connecting the front steam chamber with the water chamber and a rear opening connecting the rear steam chamber with the water chamber, front and rear valves individually movable downwardly into closing relation to the front and rear openings, spring means urging said valves upwardly out of closing relation to the openings, a handle over said body pivoted between the valves for rocking movement and having a front portion overhanging the front valve and a rear portion overhanging the rear valve and when rocked in predetermined directions out of a horizontal position serving to hold one valve closed while allowing the other valve to move upwardly to an opened position.

2. The structure of claim 1 wherein the handle carries spring means engaging upper ends of the valves and holding both valves closed when the handle is in its horizontal position but allowing excessive steam pressure in the steam chamber to move the valves upwardly to an opened position.

3. The structure of claim 1 wherein each valve has a stem extending upwardly and having a head at its upper end, the spring means for urging the valves upwardly consisting of helical springs fitting about the valve stems with their upper ends bearing against the heads of the stems and exerting upward pressure thereon.

4. The structure of claim 1 including spring means yieldably resisting upward movement of the valves and consisting of an elongated resilient strip extending longitudinally of the handle and

secured intermediate its length to an under surface of the handle, end portions of the resilient strip being free from the handle and bearing upon the valves and yieldably resisting upward movement of the valves.

5. The structure of claim 1 wherein the valves have stems projecting upwardly from the body of the iron, the valves being urged upwardly towards an opened position by springs mounted about the valve stems, and the spring means resisting upward movement of the valves to an opened position consists of a resilient strip secured to the handle and having portions engaging upper ends of the valves and individually resisting upward movement of the valves.

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