

STEAM IRON

The invention relates to a steam iron including a water tank and an electrically heated vaporising chamber.

It is known to provide such an iron, which
 5 may also include a connecting tube between the vaporising chamber and an inner chamber of the tank, and a drip valve for the supply of water from the tank into the vaporising chamber, this being mounted in an electrically heated sole-plate
 10 of the iron. Steam irons of this type have long been known. They may be used either as dry irons or as steam irons, as desired. It is known from DE-OS 29 07 619 to provide a dividing wall in the tank, constructed as a baffle plate which serves
 15 to dampen any surges in the water. For steam ironing, a measured quantity of water from the tank is fed into the steam chamber provided in the sole-plate of the iron via a drip valve. As the hydrostatic pressure of the column of water acting on the valve
 20 decreases, the quantity of steam produced in the steam chamber and coming out of the sole-plate is sharply reduced. In addition, during the ironing operation, pressure builds up in the steam chamber, affecting the quantity of water flowing out of
 25 the drip valve. In order to balance out this pressure difference within the steam chamber and the interior of the tank, it has already been proposed that the tank and the vaporising chamber be connected to each other by means of a pressure balancing
 30 tube (DE-AS 1 095 779). As a result of the balancing out of pressure between the tank and the steam chamber, the steam output measured over a certain period of time is admittedly increased compared with a steam iron without any pressure balancing,

but the quantity of steam coming out of the sole-plate is continuously reduced as the contents of the tank decrease as a result of the hydrostatic pressure.

5 According to the invention there is provided a steam iron including a water tank and an electrically heated vaporising chamber, said tank having first and second chambers, a drip valve arranged to supply water from said first chamber to said vaporising
10 chamber, said first chamber being connected to atmosphere, the lower regions of said first and second chambers being interconnected and the region of the second chamber above the filling level of the tank being connected to the vaporising chamber.

15 Preferably, the iron includes a sole-plate in which the vaporising chamber is formed.

At least in a preferred embodiment of the invention, a steam iron is provided from whose water tank an approximately uniform quantity of
20 water is fed into the vaporising chamber throughout the entire steam ironing operation, so that the quantity of steam coming out of the sole-plate remains constant, irrespective of the contents of the tank. The pressure building up in the vaporising
25 chamber during steam ironing is conveyed into the second tank chamber, which is otherwise sealed, via the connection between these two chambers. Excess pressure is formed in the second tank chamber and the water flows into the first tank chamber
30 which is connected to atmosphere. As a result, a higher column of water and hence a greater hydrostatic pressure is produced over the drip valve. When the valve is opened, a uniform quantity of water flows out of the tank into the vaporising chamber.
35 The quantity of vapour leaving the sole-plate remains constant irrespective of the quantity of liquid in the tank. Advantageously, the first tank chamber is connected to atmosphere via the tank filling

opening. Preferably, the tank is divided into said first and second chambers by a dividing wall sealingly connected to an inner wall of said tank. It is also preferred that the connection between
5 the region of the second chamber above the filling level of the tank and the vaporising chamber is provided by a tube the mouth of which in the second chamber is disposed substantially in the region of the dividing wall.

10 Preferably, the first and second chambers are interconnected by an opening between the dividing wall and the base of the tank. In this case the base may have a downwardly displaced portion from which said dividing wall is spaced. Alternatively,
15 the first and second chambers may be interconnected by a conduit mounted below the tank base, such as for example, a U-shaped tube.

An embodiment of the invention will now be described by way of example and with reference
20 to the accompanying drawing, which shows a vertical sectional view through a steam iron in accordance with the invention.

The part of the steam iron shown in the drawing shows part of the sole-plate 13, the vaporising
25 chamber 9 and the heating element 14. The vaporising chamber 9 is sealed off by a cover 15. The water supply container or tank 1 which can be filled up via the tuft-like filling opening 12 is mounted above the sole-plate 13. After the ironing operation
30 has finished, any water remaining in the water tank 1 can be emptied out through the filling opening 12. During steam ironing, the water is conveyed from the tank 1 through the drip valve 8 into the vaporising chamber 9. For dry ironing, i.e. ironing
35 without steam, the water supply is interrupted by closing the drip valve 8. The interior of the tank is sub-divided by a dividing wall 2 into a first chamber which is under atmospheric pressure

and a second chamber which is not directly connected to atmosphere. In this embodiment the first chamber is a front chamber 4 and the second chamber is a back chamber 5. Between the tank base 6 and the dividing wall 2 is a throughflow opening 7 which is provided in the sump 16 formed by a bead-like convexity in the tank base 6. Between the vaporising chamber 9 and the interior of the back chamber 5 is mounted a connecting tube 10 the mouth 11 of which ends above the water level in the back chamber 5. The water flowing into the heated vaporising chamber 9 is converted therein from the liquid phase into the vapour phase. The excess pressure produced as a result of the increase in volume also prevails in the back chamber 5 as a result of the arrangement of the connecting tube 10. Thanks to the excess pressure prevailing here, water is conveyed from the back chamber 5 into the front chamber 4 which is only under atmospheric pressure. As a result the water level in the front chamber 4 rises and this in turn increases the static pressure acting on the drip valve 8. Independently of the water supply in the tank 1, the static pressure of the water column acting on the valve 8 is kept at the same level throughout the steam ironing process. This in turn evens out the quantity of water flowing out of the tank 1 into the vaporising chamber 9 during steam ironing and consequently also evens out the quantity of vapour which is released into the fabric being ironed through the steam exit holes 17 provided in the sole-plate 13. The quantity of steam emerging from the sole-plate does not decrease sharply until the water tank 1 is completely empty. This sharp reduction in the quantity of steam shows the user that the water tank 1 needs to be refilled with water. The arrangement of the throughflow opening 7 in the sump 16 makes it possible to use virtually

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all the contents of the tank without any substantial decrease in the quantity of steam emerging. The same effect can also be achieved if the dividing wall 2 is fixedly connected to the base 6 of the
5 water tank 1 and the two chambers 4 and 5 are connected to each other via a U-shaped tube fixed underneath the tank base 6.



CLAIMS

1. A steam iron including a water tank and an electrically heated vaporising chamber, said tank
5 having first and second chambers, a drip valve arranged to supply water from said first chamber to said vaporising chamber, said first chamber being connected to atmosphere, the lower regions of said first and second chambers being interconnected
10 and the region of the second chamber above the filling level of the tank being connected to the vaporising chamber.
2. A steam iron as claimed in claim 1, including a sole-plate in which said vaporising chamber is
15 formed.
3. A steam iron as claimed in claim 1 or 2, wherein said first chamber is connected to atmosphere via a water filling opening.
4. A steam iron as claimed in claim 1, 2 or
20 3, wherein said tank is divided into said first and second chambers by a dividing wall sealingly connected to an inner wall of said tank.
5. A steam iron as claimed in claim 4, wherein the connection between the region of the second
25 chamber above the filling level of the tank and the vaporising chamber is provided by a tube the mouth of which in the second chamber is disposed substantially in the region of the dividing wall.
6. A steam iron as claimed in claim 4 or 5,
30 wherein the first and second chambers are interconnected by an opening between said dividing wall and the base of said tank.
7. A steam iron as claimed in claim 6, wherein said tank base has a downwardly displaced portion
35 from which said dividing wall is spaced to form said opening.
8. A steam iron as claimed in any of claims 1 to 5, wherein the first and second chambers are



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interconnected by a conduit mounted below the base of said tank.

9. A steam iron substantially as hereinbefore described with reference to the accompanying drawing.
