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(54) STEAM IRON

(71) We, ROWENTA-WERKE GmbH, a Germany body corporate, of 605 Offenbach am Main, Waldestrasse 232-256, Federal Republic of Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:-

This invention relates to a steam iron. Such an iron generally has a handle, a water tank, a thermostat and a soleplate with an evaporating chamber therein.

Steam irons are known in which the evaporating chamber provided in the iron baseplate is covered by a releaseable plate for example the iron disclosed in German (Federal Republic) Patent Specification No. 1 140 542. This has the advantage that the inside of the evaporating chamber is accessible in the simplest way by removing the plate and any lime deposit present therein can be removed. It is also known from the specification to design the evaporating chamber as a labyrinth, in order to achieve better evaporation of the water, supplied via a feed regulator, and to prevent unevaporated drops of water from running out of the baseplate.

A disadvantage of steam irons of this type may be a poor heat transfer between the heating element and evaporating chamber. The whole of the heating element is never in proximate thermal contact with the evaporating chamber. The part of the evaporating chamber remote from the body of the steam iron soleplate, and the inner part of the evaporating chamber, do not have any proximate thermal contact with the heating element. The consequence thereof is that steam irons of this type may possess only low steaming capacity and drops of water of small diameter are mixed with the quantities of steam emerging at the baseplate. Furthermore, known steam irons are inclined to accumulate lime. As a result, in the calcified state the evaporating chamber is very difficult to open.

According to the invention there is provided an electric steam iron having a soleplate with a water evaporating chamber covered by a releasable cover plate, wherein the evaporating chamber consists of a labyrinth chamber in flow communication with a booster chamber surrounding the labyrinth chamber in a generally horizontal direction in the ironing orientation of the iron, the booster chamber being generally coplanar with the labyrinth chamber and being in substantially proximate thermal contact with an electrical heating element of the iron.

Preferably the junction between the labyrinth chamber and the booster chamber is arranged in the region of the supply of the labyrinth chamber remote from the point of water supply Advantageously the steam outlet holes are connected only to a region of the booster chamber in the front region of the steam iron. A metal foil may cover the evaporating chamber, being arranged between the steam iron soleplate and the releasable plate.

At least in a preferred embodiment of the invention the water supplied to the evaporating chamber is evaporated completely. Even drops of water of extremely small diameter which run out of the labyrinth chamber are converted into steam completely in the booster chamber. In practice, a dry steam emerges at the soleplate. The exceptional heat transfer is made possible by the electrical heating element arranged directly above the booster chamber in the ironing orientation of the iron. Efficient evaporation is also assisted by the metal foil which is arranged between the releasable plate and the evaporating chamber and rests in a heat-conductive manner against bridges of the labyrinth. Furthermore, the plate can be released easily at all times, as no lime can

be desposited on the region of the plate facing the evaporating chamber.

An embodiment of the invention will now be described by way of example and with reference to the accompanying drawings, in which:-

Figure 1 is a side view, partly in section, of a steam iron in accordance with the invention; and

Figure 2 is an underneath plan view of the steam iron baseplate with the releasable plate removed.

The steam iron shown by way of example consists of an iron soleplate 1, a cover 2, a handle 3 and a water tank 4. In the soleplate 1 there is provided an evaporating chamber 5 consisting of a labyrinth chamber 6 and a booster chamber 7 surrounding the labyrinth chamber. Water is supplied from the water tank 4 into the evaporating chamber via a feed regulator 8. An electrical heating element 9 is cast or pressed into the soleplate 1 and serves to heat the soleplate, and to evaporate water. The temperature is controlled via a thermostat 10.

The evaporating chamber 5 is covered by a plate 11 which is screwed to the soleplate 1. Steam outlet holes 12 provided in the plate 11 are connected to the part of the booster chamber 7 in the front region of the iron. Between plate 11 and soleplate 1 there are arranged a gasket 13, of rubber or asbestos, and a metal foil 14.

The labyrinth chamber 6 and the booster chamber 7 are generally co-planar, and the bottom of each is defined by the plate 11.

Feed regulator 8 feeds water to a drip-feed point 15 located in the front region of the labyrinth chamber 6. As it vapourises, the water moves thence in the direction of the arrow through the labyrinth, any drops of water disintegrating against ribs 17 provided. In the region of the labyrinth chamber 6 remote from the drip-feed point 15 there is the junction with the booster chamber 7. Here, the water vapour mixture is deflected. On its way through the booster chamber 7 to the steam outlet holes 12 in the front region of the booster chamber 7, any fractions of liquid are totally evaporated.

WHAT WE CLAIM IS:-

1. An electric steam iron having a soleplate with a water evaporating chamber covered by a releasable cover plate, wherein the evaporating chamber consists of a labyrinth chamber in flow communication with a booster chamber surrounding the labyrinth chamber in a generally horizontal direction in the ironing orientation of the iron, the booster chamber being generally coplanar with the labyrinth chamber and being in substantially proximate thermal contact with an electrical heating element of the iron.

2. An electric steam iron as claimed in claim 1, wherein the labyrinth chamber and the booster chamber are joined together at a position removed from a point of water supply to the labyrinth chamber.

3. An electric steam iron as claimed in claim 1 or 2, wherein steam outlet holes are connected only to a region of the booster chamber in the front region of the steam iron.

4. An electric steam iron as claimed in claim 1, 2 or 3, wherein a metal foil which covers the evaporating chamber is arranged between the soleplate and the cover plate.

5. An electric steam iron, substantially as hereinbefore described with reference to the accompanying drawings.

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1 SHEET *This drawing is a reproduction of the Original on a reduced scale*

Fig. 1

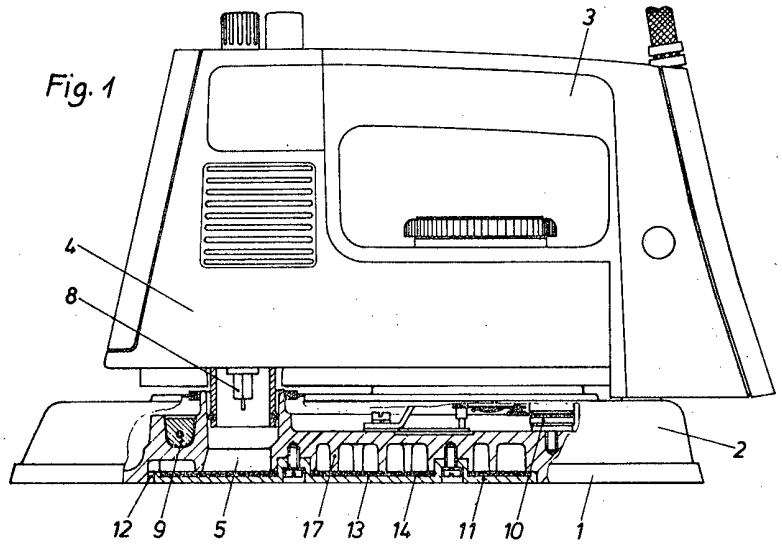


Fig. 2

