

SPECIFICATION

Steam iron water level indicator

- 5 This invention relates to lightweight steam irons, and, more particularly, plastic irons with an improved water level indicator.

It is common practice to provide steam irons with a visual water level indicator. Some indicate the water level only when the iron is in a vertical or filling position, and others indicate the level only when the iron is in a horizontal ironing position. Some indicate water level in both positions. Such indicators have been complex structures using tubes or relatively large openings in the side walls of the iron and generally consisting of numerous small parts that must be accurately fitted during assembly.

In accordance with the present invention there is provided a steam iron comprising; an enclosed plastics housing disposed over a soleplate, the housing being provided with a handle and forming a water tank from which water is delivered to the soleplate; and an enclosed blow-moulded rectangular translucent tubular water level indicator nested in a niche formed at an edge of the housing extending parallel to the handle, the niche having back, bottom and end sides and the indicator including spaced integral tubes projecting into the top of the water tank through corresponding apertures in the back side of the niche, the tubes being secured to the housing inside the tank such that the indicator is locked in the said niche.

The indicator is preferably of the same basic material as the housing and may comprise, for example, polypropylene.

The tubes are preferably secured inside the tank by heat staking them to the inner surface of the tank.

In the accompanying drawings by way of example only:

40 *Figure 1* is a dotted perspective view of a steam iron incorporating the present invention shown in solid lines;

Figure 2 is a cross-section on line 2-2 of *Figure 1*;

Figure 3 is a cross-section on line 3-3 of *Figure 2*;

45 and,

Figure 4 is a perspective of the integral blow-moulded tubular water level indicator.

The invention is described in connection with a lightweight steam iron that uses a conventional aluminium soleplate, such as shown in our US patent 4,031,638, which is attached by suitable means to plastic skirt and housing portions, the upper portion of the iron being all plastic and formed to provide an internal water tank. Referring first to *Figure 1*, there is shown an electric steam iron that includes a soleplate 10 with a plurality of ports not shown to distribute steam through the soleplate for steaming fabrics while ironing in the conventional manner. The iron is provided with a first plastic plate 60 12 above the soleplate and coextensive with the soleplate to form a skirt portion around the soleplate being spaced from the soleplate and supported thereon by conventional structure to provide an opening 14 for circulation of air. Because of the proximity to the heated soleplate, plate 12 may be a

phenolic to resist the heat. Directly above the plate 12 and secured thereto in any conventional manner and preferably sealed at 15 is a second plastic housing 16 which has an enclosed or open handle 18 that is preferably molded as part of the housing.

Conventionally, the soleplate 10 is generally a material such as cast aluminium with an electrical heating element cast in the soleplate and secured thereto and which is controlled by a thermostat knob means 20 suitably calibrated for the common fabrics and with the iron operable through a cord not shown all well known in the art. The iron is filled with water through an opening in recess 22 and may have a spray nozzle 24 or alternatively, may have extra surge capacity, either operable by button 26 and the iron is operable dry or steaming depending on the position of the control knob 28, which when in the up position as shown, permits water from an internal reservoir or tank 30 to selectively drip and deliver water into a boiler cavity for generation and subsequent distribution of steam all as well known. For storing, the iron can be tilted to its heel rest position where a suitable support means 30 provides stability. As described, the iron uses two main plastic components such as plate 12 with its skirt portion and housing 16 which, when sealed together at 15 provide walls for an internal water tank 30 and the housing and plate also enclose other internal iron operating components.

95 An entirely integral elongate rectangular niche 34 is formed in the upper edge of housing 16 and extends parallel to handle 18. This is the conventional location of many tubular water level gauges in prior art irons. Because of the moulded and formed plastic construction, elongate niche 34 is rectangular in cross-section, substantially square as shown, and has back side 36, bottom side 38, and opposite end sides 40 formed to snugly nest and accommodate a water level indicator 32. For connecting with the internal water tank 30, there is provided a pair of apertures 42 formed directly in the back side 36 and facing outwardly of the iron body formed by housing 16. Thus, communication between the niche and the top of the internal tank 30 is provided. Cooperating with the niche in a tight snugly nested arrangement is the separate integral blow-moulded corresponding shaped, translucent tubular water level indicator 32 that fits in the niche tightly against all three sides 36, 38 and 40, the indicator being formed to complete the edge of housing 16 to provide a symmetrical outer housing surface as shown in *Figure 2*. Preferably, indicator 32 is transparent and is made of the same material as housing 16, conveniently polypropylene, to avoid sealing problems as explained below. Indicator 32 is a blow-moulded plastic tube 44 provided with a pair of integral spaced tubes 46 projecting at each end as shown in *Figure 4*. The tubes 46 are long enough to extend through apertures 42 into the top of tank 30.

125 Because the housing 16 and water level indicator 32 are both made of the same plastics material, their coefficients of expansion are identical and a structure that does not require any seals or mastic is possible. A watertight fitting between the tubes 46 and back side 36 is provided by spreading the tubes

- on the interior of back wall 36 by a simple heat staking operation. The water level indicator is thus simply formed, as a single-piece construction, aesthetically fitting into the iron, is easily assembled
- 5 with no extra parts on the assembly line, and has high visibility in both horizontal ironing and vertical storage positions.

CLAIMS

- 10 1. A steam iron comprising: an enclosed plastics housing disposed over a soleplate, the housing being provided with a handle and forming a water tank from which water is delivered to the soleplate;
- 15 and an enclosed blow-moulded rectangular translucent tubular water level indicator nested in a niche formed in an edge of the housing extending parallel to the handle, the niche having back, bottom and end sides and the indicator including spaced integral
- 20 tubes projecting into the top of the water tank through corresponding apertures in the back side of the niche, the tubes being secured to the housing inside the tank such that the indicator is locked in the said niche.
- 25 2. A steam iron according to claim 1 in which the indicator and the plastics housing are formed of the same material.
3. A steam iron according to claim 2 in which each tube is secured to the housing by heat staking.
- 30 4. A steam iron according to claim 2 or claim 3 in which the plastics housing and the indicator are formed of polypropylene.
5. A steam iron according to any one of the preceding claims in which the indicator is provided
- 35 with two of the said tubes, one at substantially each end of the indicator.
6. A steam iron according to claim 1 and substantially as herein described with reference to the accompanying drawings.

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