

Electrical hand-held steam brush

The invention relates to an electrical hand-held steam brush having a water tank, a piston pump and an electrically heated steam producer.

A hand-held steam brush is already known (DE-OS 21 03 560). This appliance does not have
 5 any pre-assembled individual parts and the water tank is fixedly installed inside the appliance. With an appliance of this kind it is possible for the user to fill the appliance with water while it is still electrically live and in this way run
 10 a risk of an electric shock. The pump is separate from the water tank. The disadvantage of this is that if the appliance is not used for some time the pump dries out. This significantly impairs the operating qualities of the pump. From DE-OS
 15 22 03 469, another hand-held steam brush is known wherein the essential components can be pre-assembled. However, here again the pump is separate from the water tank, resulting in the disadvantages described above. Admittedly, the water tank is releasably
 20 connected to the hand-held steam brush but it has to be laboriously unscrewed from the appliance in order to fill it up. Both these known appliances have the further disadvantage that when the water tank is half empty the pump does not suck in any
 25 water when the brush is used in an inclined position. This means that these hand-held steam brushes are virtually only operational in a vertical position.

According to the invention, there is provided an electrical hand-held steam brush comprising
 30 a carrier providing brush holding means externally thereof, an electrically heated steam producer being releasably connected to the inside of the carrier and communicating with atmosphere via at

least one steam channel in said carrier, an electrical connection cavity being at least partly defined by the carrier and a cover being releasably connected to the carrier so as to cover the steam producer
5 and said cavity, wherein a handle is releasably connected to the cover and contains a water tank, there being a wall dividing said tank into a storage chamber and an overflow chamber and a piston pump adapted to supply said steam producer with water,
10 said pump being disposed in the water tank and communicating with said overflow chamber by a pump intake tube passing through the dividing wall.

At least in the preferred embodiments of the invention, there is provided a hand-held steam
15 brush which consists of a few pre-assembled individual parts, the electrical connections of which are securely protected from harmful influences such as water and vapour and the water tank of which can easily be removed, whilst its operational qualities
20 are not affected by long periods of disuse. In particular, the water tank with the pump and pump actuating means and the carrier with steam producer and connection cavity each constitute a pre-assembled unit. Furthermore since the pump is disposed in
25 the water tank it cannot dry out even over long periods of disuse and thereby put the pump out of action.

Preferably said electrical connection cavity is closed by a lid and said cover is releasably
30 connected to the carrier by a push-in hinge so as to cover both the steam producer and the lid of said cavity. Preferably the water tank serves as the handle which is releasably secured to the cover.

35 In a preferred embodiment the wall dividing the water tank into an overflow chamber and a storage chamber is provided in the region of the fill opening

of the water tank and includes a vent, an overflow channel being provided to connect the storage and overflow chambers. As a result, the hand-held steam brush may be used both vertically and horizontally.

5 As a result of the constant movement of the brush the overflow chamber is constantly filled from the storage chamber so that even if the storage tank is almost empty and the hand-held steam brush is held in an inclined position, water is taken

10 in through the intake tube extending into the overflow chamber and can be evaporated in the steam producer. Advantageously, the pump actuating means and the tank securing means may be articulated on the water tank so as to be pivotable about an axis counter

15 to the force of a spring. In this way, it is possible to save on one compression spring and one spindle and the appliance can be kept very small in construction since two functions can be performed by one device. Furthermore, the tank securing means and the pump

20 actuating means can form a unit with the water tank.

Preferably, the pump piston is connected to the pump actuating means by a linkage, the axis of this linkage extending substantially at right

25 angles to the axis of the pump cylinder, so that the pump can be operated by thumb pressure, thereby substantially simplifying the handling of the steam brush.

Preferably, the handle and the carrier define

30 a cable channel which enables a connecting cable to be securely held without affecting the handling of the brush.

A fill opening of the water tank is preferably closed off by a cap provided with a protective

35 rubber sleeve. On the cap there may be provided a hanging device for convenient storage of the hand-held steam brush.

A specific embodiment of the invention will now be described by way of example and with reference to the accompanying drawing which shows a cross-section of the hand-held steam brush.

5 The hand-held steam brush shown in the drawing consists of a water tank 12 serving as a handle, a steam producer 5 and a piston pump 22. The piston pump 22 is mounted in the tank 12 and connected to the steam producer 5 via a hose line 30. A
10 carrier 1 includes steam channels 4 which connect the steam producer 5 to the atmosphere. The steam producer 5 is secured to the inside 6 of the carrier 1. An electrical connection cavity comprises a connection box 7 for the electrical connecting
15 cables, cable clips and traction relief formed on the inside 6 of the carrier 1. The connection box 7 can be closed off by means of a lid 8. The outside 2 of the carrier 1 forms an outer wall of the hand-held steam brush and includes a brush
20 holder 3 which releasably holds a brush 39. A cover 9 is releasably fixed to the carrier 1 via a push-in hinge 10. The water tank 12 is divided by a dividing wall 13 into a storage chamber 14 and an overflow chamber 15. Provided in the dividing
25 wall 13 is an overflow channel 31 and a vent 35. A pump intake tube 27 and a pump pressure tube 32 with associated valve mechanisms 33, 34 extend through the dividing wall 13 into the overflow chamber 15.

30 Pump actuating means 16 and tank securing means 17 are articulated on the water tank 12 so as to be pivotable about a common spindle 19. The pump actuating means 16 consist of a key 36 and a linkage 20 which is movably connected to
35 the key 36 and the pump piston 21. When the key 36 is pivoted about the spindle 19 counter to the pressure of a spring 18, the piston 21 is moved

in the direction of the arrow by the linkage 28 extending substantially at right angles to the cylinder axis 29 and the water is conveyed from the pump cylinder 37 through the hose line 30 into the steam producer 5. The spring 18 urges the key 36 and hence the piston 21 back into their original positions. At the same time, water is sucked into the pump cylinder 37 from the overflow chamber 15. The tank securing means 17 consist of a latch 38 which can be pivoted about the spindle 19 counter to the pressure of the spring 18. Using the latch 38, the tank 12 can be securely fastened to the cover 9 and can readily be removed from the cover 9 again at any time, e.g. for filling, by pivoting the latch counter to the pressure of the spring 18.

The free end of the water tank 12 is closed off by a protective cap 24. A hanging device 41 and a protective rubber sleeve 25 for a connecting cable are formed on the protective cap 24. A cable channel 23 in which there is mounted a cable protector 40 for the connecting cable is formed in the wall 26 of the water tank and on the carrier 1. This ensures that the connecting cable is safely guided to the connection box 7 and cannot therefore interfere with the handling of the appliance.

When the hand-held steam brush is operated, the overflow chamber 15 is constantly filled with water from the storage chamber 14 via the overflow channel 31 and prevented from running back by the dividing wall 13. As a result, water can be sucked in and evaporated in the steam producer 5 even when the tank 12 is almost empty and the brush is held in an inclined position.

Modifications of the invention or the specific embodiment thereof referred to or suggested herein may be apparent to those skilled in the art and

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this disclosure is intended to encompass any such
modifications.

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Claims

1. An electrical hand-held steam brush comprising a carrier providing brush holding means externally thereof, an electrically heated steam producer being releasably connected to the inside of the carrier and communicating with atmosphere via at least one steam channel in said carrier, an electrical connection cavity being at least partly defined by the carrier and a cover being releasably connected to the carrier so as to cover the steam producer and said cavity, wherein a handle is releasably connected to the cover and contains a water tank, there being a wall dividing said tank into a storage chamber and an overflow chamber and a piston pump adapted to supply said steam producer with water, said pump being disposed in the water tank and communicating with said overflow chamber by a pump intake tube passing through the dividing wall.
2. A brush as claimed in claim 1, wherein said electrical connection cavity is closed by a lid and said cover is releasably connected to the carrier by a push-in hinge so as to cover both the steam producer and the lid of said cavity.
3. A brush as claimed in claim 1 or 2, wherein said dividing wall includes a vent and an overflow channel connects the storage and overflow chambers.
4. A brush as claimed in claim 1, 2 or 3, wherein pump actuating means and tank securing means are articulated on the handle so as to be pivotable about a spindle counter to the force of a spring and the pump actuating means are operatively connected to the pump piston via a linkage.



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5. A brush as claimed in claim 4, wherein the axis of the linkage extends substantially at right angles to the axis of the pump cylinder.
6. A brush as claimed in any preceding claim,
5 wherein the handle and carrier define a cable channel.
7. A brush as claimed in claim 6, wherein a cable protector is fixed in the channel.
- 10 8. A brush as claimed in any preceding claim, wherein a protective cap with a hanging device and a protective rubber sleeve for a cable is fixed to the free end of the handle.
- 15 9. A brush as claimed in any preceding claim, wherein the handle and the outer wall of the water tank form a unit.
10. An electrical hand-held steam brush substantially
20 as hereinbefore described with reference to the accompanying drawing.
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