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ELECTRIC WARM-AIR HAND DRIER
WITH FRAGRANCE DISPENSER



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Field of the Invention

The invention relates to an electric warm-air hand drier having a blower, a heating element and a fragrance dispenser disposed in the air stream of the blower. The invention also relates to a fragrance dispenser for attachment to a warm-air hand drier.

Background of the Invention

A warm-air hand drier with a fragrance dispenser is previously known from DE 299 07 125 U1. There, the fragrance dispenser is housed in an additional chamber of the hand drier and comprises a reservoir containing liquid fragrance. A wick projects from said chamber to the warm air stream and in so doing releases fragrance.

Said construction is of an elaborate design and requires a housing tailored to said purpose.

US-PS 4,383,377 illustrates and describes a standard warm-air hand drier, in which a receptacle containing fragrance is mountable in the cold-air inlet region. Although said receptacle may also be retro-fitted on an appliance manufactured and assembled in a standard manner, said method is also very elaborate because additional drill holes have to be provided in the appliance and/or modifications have to be made to the appliance. Admittedly, there in Fig 9, by way of a suggestion the fragrance dispenser is also disposed at the

warm-air side of the air flow path but there are no indications whatsoever about how this is to be realised constructionally.

A common feature of both prior art proposals is that, although fragrance dispensers are known, in terms of their constructional association with the appliance, they are extremely elaborate, thereby considerably increasing the cost of such an appliance.

Summary of the Invention

In accordance with an aspect of the present invention there is provided an electric warm-air hand drier having a blower, a heating element and a fragrance dispenser disposed in the air stream of the blower, characterised in that the fragrance dispenser comprises a holder with a chamber for receiving a fragrance cartridge, and means to secure the holder firmly to part of the housing in the outlet region of the air flow.

A warm-air hand drier according to the present invention makes it possible to position a fragrance dispenser in the simplest possible manner on a standard warm air hand drier, namely in such a way that it is easy to operate and not overly apparent from the outside. Moreover, it can be constructively as easy to manufacture as possible.

Advantageously, the securing means are resilient for releasable clipping engagement with the part of the drier housing to which the dispenser is attached, in particular the ribs of an air outlet grille. Conveniently the securing means comprise hook elements which have a snap-fit connection with the ribs of the grille.

According to another aspect the invention provides a fragrance dispenser for releasable attachment to an air outlet grille of an electric warm-air drier, comprising a fragrance cartridge holder with a chamber for receiving a replaceable fragrance cartridge, and resilient clipping elements for engagement with the grille to secure the dispenser to the grille.

As indicated above clamping hooks can conveniently serve to clamp the dispenser firmly to the ribs of the outlet grille.

Brief Description of the Drawings

The invention is now described by way of example with reference to the drawings. The drawings show:

Figure 1 a partial view of the base region of a warm-air hand drier with air inlet and air outlet openings;

Figure 2 an enlarged view of the holding element of the fragrance cartridge; and

Figure 3 a partial cross section of the air outlet grille.

Detailed Description of the Invention

Fig. 1 shows the housing 1 of a warm-air hand drier having an air inlet opening 2 and air outlet openings 3. A crossflow blower with a downstream heating element or radiator 4 (not visible in Fig. 1) is disposed in the interior of the appliance between air inlet opening 2 and air outlet opening 3. A

proximity sensor, which is not shown in detail, registers the presence of hands for drying underneath the hand drier and subsequently switches on the blower and radiator 4 for a preset time. The warm air exiting from the air outlet opening 3 reliably dries the hands within said time.

In installation locations such as toilets, for example, it is desirable to release fragrance into the ambient air. A particularly simple and effective way of doing so is to use the hand drier. In the air outlet region 3 it is customary to provide ribs 8 in order to prevent hands coming into contact with live components, e.g. heating element 4. The ribs 8 are suitable for receiving a holder 6, which receives the actual fragrance cartridge 5. The warm air exiting from the appliance sweeps around said fragrance cartridge 5, which is fastened laterally by means of the holder 6, on which clamping hooks 7 are provided, to parts of the hand drier. Here, as parts of the hand drier, the ribs 8 present themselves.

Fig. 2 shows an enlarged view of the holder 6. It comprises a front panel 9 having a central opening 10, disposed behind which is a chamber, into which a fragrance cartridge 5 may be placed. Said chamber is delimited at both ends by brackets 11 and 11a, which retain the fragrance cartridge 5. A gripping recess 12 enables trouble-free insertion of the holder 6 into the hand drier. For said purpose, clamping hooks 7 are disposed behind the front panel 9 and have catches 13, which upon insertion of the holder 6 into the hand drier latch behind the ribs 8 of the outlet grille and hence prevent the holder 6 and fragrance cartridge 5 from falling out.

The catches 13 are fashioned in such a way that, while the holder 6 under all operating conditions is secured firmly to the hand drier, it is not however fixed so firmly that tools, for example, would be required to remove the holder 6.

Figure 3 shows the holder 6 fitted in the hand drier. Here it is clearly evident how the clamping hooks 7 enclose the ribs and therefore fix the holder 6 to the hand drier. It is further evident that the exiting warm air may sweep freely around the fragrance cartridge 5, this being made possible by the opening 10 inside the holder 6. It is also possible to see the grip recess 12, which enables easy gripping of the holder 6.

It is also perfectly possible for the holder 6 with an inserted fragrance cartridge 5 to be placed onto the ribs 8 in the middle region of the air outlet grille, thereby leading to far more extensive fragrancing of the room because here there are higher temperatures and also a higher rate of air flow, which releases far more fragrance. Thus, the user himself may at any time determine the fragrance intensity by appropriate positioning of the fragrance dispenser 5.

The fragrance cartridge 5 as such is commercially known and is already used in stationary fragrance dispensers, which are often mounted on the walls of toilets. The fragrance cartridge 5, which in the present case is of a candle-like design, has a useful life of around 4-6 weeks. To exchange the fragrance cartridge 5, the holder 6 provided with the recessed grip 12 is unclipped and, after the used fragrance cartridge 5 has been removed and a new fragrance cartridge inserted, clipped back on again.

CLAIMS

1. An electric warm-air hand drier having a blower, a heating element, an air outlet grille with ribs, and a fragrance dispenser comprising a holder with a front panel and a chamber behind the front panel for receiving a fragrance cartridge, the fragrance dispenser being secured to the air outlet grille with the front panel positioned against the outer sides of two adjacent ribs, and the chamber located between the two adjacent ribs.
2. An electric warm-air hand drier according to claim 1, wherein the holder has resilient securing means for releasable clipping engagement with the grille ribs.
3. An electric warm-air hand drier according to claim 2, wherein the holder has a gripping means, and the securing means comprise hooks, by means of which the holder is fixable to the ribs of the air outlet grille.
4. An electric warm-air hand drier according to claim 3, wherein the hooks extend rearwardly from the front panel on opposite sides of the chamber and latch behind the inner edges of the ribs.
5. An electric warm-air hand drier according to claim 3 or 4, wherein the gripping means comprises a gripping recess at a side edge of the front panel.
6. An electric warm-air hand drier according to any one of claims 3 to 5, wherein the hooks engage around the remote sides of the ribs.

7. An electric warm-air hand drier according to any one of claims 1 to 6, wherein the chamber for receiving the fragrance cartridge has brackets for retaining the fragrance cartridge in the chamber.
8. An electric warm-air hand drier according to claim 8, wherein the brackets extend rearwardly from the front panel at opposite ends of the dispenser and have inwardly directed projections at their ends for holding a cartridge against the front panel.
9. An electric warm-air hand drier according to any one of claims 1 to 8, wherein the front panel has an opening through which a cartridge disposed in the chamber is visible.
10. A fragrance dispenser for attachment to an outlet grille of a warm-air hand drier, comprising a holder with a front panel, a chamber for receiving a fragrance cartridge, resilient hooks extending rearwardly from the front panel on opposite sides of the chamber for clipping engagement with adjacent ribs of the outlet grille, and brackets extending rearwardly from the front panel at opposite ends of the chamber for retaining a fragrance cartridge releasably in the chamber.
11. A fragrance dispenser according to claim 10, wherein the front panel has a gripping recess at a side edge thereof.
12. A fragrance dispenser according to claim 10 or 11, wherein the front panel has an opening through which a cartridge disposed in the chamber is visible.

13. A fragrance dispenser according to any one of claims 10 to 12, wherein the hooks are disposed on the front panel for engagement around the remote sides of the adjacent ribs and to latch around the inner edges of the ribs.
14. A fragrance dispenser according to any one of claims 10 to 13, wherein the brackets have inwardly directed projections at their ends for holding a cartridge against the front panel.
15. An electric warm-air hand drier substantially as described herein with reference to the accompanying drawings.
16. A fragrance dispenser substantially as described herein with reference to the accompanying drawings.