

APPARATUS FOR HEATING A MIRROR

The invention relates to apparatus for heating a mirror and in particular, to reduce condensation on a mirror located in a humid environment, such as a bathroom or shower room.

Mirrors located in bathrooms and shower rooms have the disadvantage that they are frequently covered in condensation caused by hot air, for example from hot water in a bath or shower, condensing on the cooler surface of the mirror. This problem makes it difficult for a mirror in a bathroom or shower room to be used effectively, as the condensation on the mirror prevents a user seeing their image clearly in the mirror.

In accordance with an aspect of the present invention, apparatus for heating a mirror comprises a heating element adapted to be thermally coupled to a mirror, the heating element being electrically coupled to a power supply and a switch to control the supply of power from the power supply to the heating element.

In accordance with another aspect of the present invention, a method of reducing condensation on a mirror comprises thermally coupling a heating element to the mirror, electrically coupling the heating element to an electrical power supply via a switch to control the supply of power to

the heating element.

An advantage of the invention is that by heating the mirror, condensation on the mirror is reduced.

Preferably, the apparatus also includes a thermosensor which controls the temperature of the mirror in response to the ambient air temperature in the vicinity of the mirror.

Typically, the mirror is a wall mirror mounted in a room of a building and the switch may be a flow switch coupled to a hot water pipe so that the apparatus is switched on when hot water flows through the pipe.

Preferably, the heating element is thermally coupled to the back of the mirror and most preferably to the back of the reflective material which forms the reflective surface of the mirror.

Typically, the apparatus is located behind the mirror where the mirror is mounted on a wall surface. The invention is particularly useful where the mirror is located in a bathroom or shower room.

An example of apparatus for heating a mirror in accordance with the invention will now be described with reference to the accompanying drawings, in which:-

Figure 1 is a circuit diagram of apparatus for heating a mirror;

Figure 2 is a plan view showing a mirror located in a bathroom and using the apparatus of Figure 1; and,

Figure 3 is a rear view of the mirror in Figure 2, showing a heating element attached to the rear of the mirror.

Figure 1 is a circuit diagram showing apparatus for heating a mirror. The apparatus includes an AC power supply 1 which is connected via a live wire 2 to a switch 3 which is coupled to a temperature actuated switch 5. The switch 5 is activated by an analog temperature controller 6 which receives signals from a temperature transducer 7 and a thermosensor 14 (see Figure 2). Alternatively, the analog temperature controller 6 may be replaced by a digital temperature controller.

The temperature transducer 7 is thermally coupled to thermal copper strips 8 and the thermal copper strips 8 are coupled between the temperature actuated switch 5 and a neutral line 9 from the AC power supply 1.

In use, the apparatus shown in Figure 1 is used to heat a mirror by attaching the thermal copper strips 8 to the rear of a mirror 10 (see Figure 3). The thermal copper strips 8 form a heating element on the rear of the mirror 10. The

thermal copper strips 8 cover sufficient surface area of the rear of the mirror to heat substantially all of the surface area of the mirror, and the thermal copper strips 8 may cover all or substantially all of the rear surface area of the mirror. Typically, the thermal copper strips 8 are attached to the rear of the reflective material, such as the metal film or foil forming the reflective surface of the mirror.

As shown in Figures 2 and 3, the mirror 10 may be mounted in a bathroom 11 on a sidewall 12 above a basin 13. The power supply 1 may be in the form of a domestic 240V power supply. If the apparatus is used for a mirror in a hotel bathroom, the power supply 1 may be the hotel's 240V electrical power supply.

As shown in Figure 3, a thermosensor 14 monitors the room temperature. The temperature transducer 7 monitors the temperature of the mirror. If the temperature of the mirror is less than the room temperature, the analog temperature controller 6 closes the temperature actuated switch 5 so that electrical power may be supplied to the thermal copper strips 8 which heat the mirror 10. When the analog temperature controller 6 detects, via the temperature transducer 7 and the thermosensor 14, that the temperature of the mirror is the same as or greater than the temperature of the room 11, the analog temperature controller 6 opens the temperature actuated switch 5 to stop power being supplied to the copper

strips 8.

In use, the switch 3 may be a flow switch which is coupled to a hot water pipe 15 entering the bathroom 11, as shown in Figure 3, so that when hot water flows through the pipe 15 (which would mean that hot water is being used in the bathroom 11) the switch 3 closes and thereby activates the heating circuit for the mirror 10. Accordingly, the circuit shown in Figure 1 may be activated by a user turning on a hot water tap in the bathroom 11.

Alternatively, the switch 3 may be connected to a manual switch which may be operated by a user to heat the mirror 10 if there is condensation on the mirror 10.

Heating of the mirror 10 using the thermal copper strips 8 and the circuit shown in Figure 1 will minimise the possibility of steam or vapour in the room 11 condensing on the mirror and preventing a user seeing a clear image of himself in the mirror.

The invention has the advantage that by heating the mirror the likelihood of vapour or steam condensing on the mirror is reduced if the mirror is heated to the temperature of the room. This has the advantage, especially in bathrooms and shower rooms that condensation on the mirror is reduced.

CLAIMS

1. Apparatus for heating a mirror comprises a heating element adapted to be thermally coupled to a mirror, the heating element being electrically coupled to a power supply and a switch to control the supply of power from the power supply to the heating element.
2. Apparatus according to claim 1, and further comprising a thermosensor.
3. Apparatus according to claim 1 or claim 2, wherein the switch is a flow switch adapted to be mounted on a hot water pipe.
4. A method of reducing condensation on a mirror comprises thermally coupling a heating element to the mirror, electrically coupling the heating element to an electrical power supply via a switch to control the supply of power to the heating element.
5. A method according to claim 4, wherein the heating element is thermally coupled to the back of the mirror.
6. A method according to claim 5, wherein the heating element is thermally coupled to the rear of the reflective surface of the mirror.



7. A method according to any of claims 4 to 6, wherein the mirror is a wall mirror mounted in a room of a building.

