Summary of the Invention

According to a first aspect of the present invention there is provided a plumbing sealing arrangement comprising:

a passageway having an inlet adapted to be connected to a waste outlet and an outlet adapted to be connected to a soil stack;

a one way valve located between the passageway inlet and outlet, the one way valve adapted to permit the passage of fluid through the passageway in one direction only from the inlet to the outlet, the one way valve comprising a duckbill shaped value; and

a trap arranged to permit a liquid seal to be formed between the passageway inlet and the passageway outlet;

wherein, in normal use, at least a portion of the one way valve is immersed in the liquid seal.

In one embodiment of the present invention, the sealing arrangement, in use provides a double barrier (a liquid barrier and a one-way valve) between a bath, shower or basin and a soil stack to which the sealing arrangement is connected. Immersing a portion of the one way valve in the liquid seal reduces the height of the sealing arrangement, permitting it to be used in confined spaces. Such an arrangement is useful in hot or low humidity environments where, for example, the liquid retained in a trap can evaporate permitting odours from the soil pipe to pass through the trap into the surrounding environment. The provision of a one-way valve, in addition to the liquid seal, provides a back-up seal in the event of the liquid seal failing. In the alternative, should the one-way valve become damaged and fail, the seal across the sealing arrangement is maintained by the liquid seal.

kink, ensuring that a seal is maintained. Incorporating a crease or kink can permit a reduction in the length of the one-way valve without a loss of performance.

The valve outlet may be immersed, in normal use, in the liquid seal.

In one embodiment the valve outlet is lower than the passageway outlet.

According to a second aspect of the present invention, there is provided a trap comprising a passageway having an inlet adapted to be connected to a waste outlet and an outlet adapted to be connected to a soil stack, the trap being arranged to permit a liquid seal to be formed between the passageway inlet and the passageway outlet;

wherein the trap is adapted to accommodate a one-way valve in such a way that in normal use, at least a portion of the one way valve is immersed in the liquid seal.

The trap may incorporate a portion adapted for mounting the one-way valve.

The trap may include a portion for locating or clamping a flange defined by the one-way valve.

According to a third aspect of the present invention there is provided ~~a plumbing sealing arrangement comprising:~~

~~a passageway having an inlet adapted to be connected to a waste outlet and an outlet adapted to be connected to a soil stack;~~

~~a one way valve located between the passageway inlet and outlet, the one way valve adapted to permit the passage of fluid through the passageway in one direction only from the inlet to the outlet; and~~

~~a trap arranged to permit a liquid seal to be formed between the passageway inlet and the passageway outlet;~~

~~wherein, in normal use, at least a portion of the one way valve is lower than the passageway outlet~~

a plumbing sealing arrangement comprising:

a passageway having an inlet adapted to be connected to a waste outlet and an outlet adapted to be connected to a soil stack;

a one way valve located between the passageway inlet and outlet, the one way valve adapted to permit the passage of fluid through the passageway in one direction only from the inlet to the outlet; and

a trap arranged to permit a liquid seal to be formed between the passageway inlet and the passageway outlet;

wherein, in normal use, at least a portion of the one way valve is lower than the passageway outlet; and

wherein the one way valve comprises a duckbill shaped valve.

It will be understood that features listed as non-essential with respect to one aspect may be equally applicable to the other and have not been repeated for brevity.

Brief Description of the Drawings

An embodiment of the present invention will now be described with reference to the accompanying drawings in which:

Figure 1 is a section view through a waste trap, according to an embodiment of the present invention; and

Figure 2 is a perspective view of a one-way valve used in the trap of Figure 1.

Detailed Description of the Drawings

Reference is firstly made to Figure 1, a section view showing a plumbing sealing arrangement generally indicated by reference numeral 10, according to an embodiment of the present invention.

The plumbing sealing arrangement 10 comprises a passageway 12 having an inlet 14 adapted to be connected to a waste outlet (not shown) and an outlet 16 adapted to be connected to a soil stack (not shown). A one-way valve 18 is located between the passageway inlet 14 and the passageway outlet 16, the one-way valve 18 is adapted to permit the passage of fluid

flexible wall, the first and second flexible walls being arranged to define a valve throughbore.

17. The plumbing sealing arrangement of claim 16, wherein the first and second flexible walls are arranged to normally lie in a valve throughbore closed position in which the valve throughbore is sealed

18. The plumbing sealing arrangement of either of claims 16 or 17, wherein a valve inlet is held open by a valve flange connected to an upper portion of the first and second flexible walls.

19. The plumbing sealing arrangement of claim 18, wherein the valve flange is adapted to be trapped between the trap body and the partitioning member.

20. The plumbing sealing arrangement of any preceding claim, wherein the one-way valve comprise a polymeric material.

21. The plumbing sealing arrangement of any preceding claim, wherein the one-way valve is injection moulded or otherwise moulded.

22. The plumbing sealing arrangement of any preceding claim, wherein the one-way valve includes at least one crease or kink transverse to longitudinal valve axis.

23. The plumbing sealing arrangement of any preceding claim, wherein a valve outlet is immersed, in normal use, in the liquid seal.

24. The plumbing sealing arrangement of any preceding claim, wherein a valve outlet is lower than the passageway outlet.

~~25. A trap comprising a passageway having an inlet adapted to be connected to a waste outlet and an outlet adapted to be connected~~

~~to a soil stack, the trap being arranged to permit a liquid seal to be formed between the passageway inlet and the passageway outlet;~~

~~wherein the trap is adapted to accommodate a one-way valve in such a way that in normal use, at least a portion of the one-way valve is immersed in the liquid seal.~~

~~26. The trap of claim 25, wherein the trap incorporates a portion adapted for mounting the one-way valve.~~

~~27. The trap of either of claims 25 or 26, wherein the trap includes a portion for locating or clamping a flange defined by the one-way valve.~~

25~~8~~. A plumbing sealing arrangement comprising:

a passageway having an inlet adapted to be connected to a waste outlet and an outlet adapted to be connected to a soil stack;

a one way valve located between the passageway inlet and outlet, the one way valve adapted to permit the passage of fluid through the passageway in one direction only from the inlet to the outlet; and

a trap arranged to permit a liquid seal to be formed between the passageway inlet and the passageway outlet;

wherein, in normal use, at least a portion of the one way valve is lower than the passageway outlet; and~~.~~

~~29. A plumbing seal according to claim 28 in which~~ wherein the one way valve comprises a duckbill shaped valve.