A connection includes a first female member and a second male member. Engageable threads are provided on the inner surface of the female member and the outer surface of the male member. At least one slot is formed in the threads on the inner surface of the female member or in the threads on the outer surface of the male member or both, the slot or slots extending substantially longitudinally of the female member and/or the male member. Each of the slots has a depth greater than the depth of the threads so that when the male member is engaged in the female member, a passageway or passageways past the threads is provided by the slot or slots.
DRain, particularly for use in a gravity-fed drainage system

FIELD OF THE INVENTION

[0001] This invention relates primarily to drains and has been devised particularly, though not necessarily solely, for use as a drain in a gravity-fed drainage system.

[0002] Most drains presently available for use in gravity-fed drainage systems, such as shower drains, have male and female members which are engagingly threaded so that the male member may be screwed into the female member in such a way that peripheral flanges on the female and male member respectively are positioned in use above and below the supporting structure, for example, the shower tray. A seal, such as a compressible o-ring, is then usually positioned between the underside of the tray and the upper surface in use of the flange on the female member. This construction causes a space to be created between the flanges on the male member and the female member into which water can become positioned, for example, if the drain is poorly installed or if there is matter, such as a splinter of wood, leading to distortion of the seal. If the o-ring seal inadequately seals between the flange on the female member and the underside of the tray water can leak through the space and in time can cause damage to the supporting floor. If the floor is wooden ultimately parts of the floor may rot away. This, of course, is disadvantageous.

SUMMARY OF THE INVENTION

[0003] It is, therefore, an object of the present invention to provide a connection and/or a drainage member and/or a drainage construction which will obviate or minimize the foregoing disadvantages in a simple yet effective manner or which will at least provide the public with a useful choice.

[0004] Accordingly, in one aspect, the invention consists in a connection comprising a first female member and a second male member, engageable threads on the inner surface of the female member and the outer surface of the male member, at least one slot formed in the threads on the inner surface of the female member or in the threads on the outer surface of the male member or both, the slot or slots extending substantially longitudinally of the female member and/or the male member, each of the slots having a depth greater than the depth of the threads so that when the male member is engaged in the female member, a passageway or passageways past the threads is provided by the slot or slots.

[0005] Preferably, there are a plurality of slots.

[0006] Preferably, there are four slots.

[0007] Preferably, the slots are provided in the female member.

[0008] Preferably, the slots extend downwardly to a depth such that, in use, the slot extends past the threads in the male member.

[0009] Preferably, the male and the female members are substantially open at each end thereof.

[0010] Preferably, the slots taper inwardly away from the end from which the slot extends.

[0011] Preferably, the side walls of the slot are shaped so that the closed face of the slot is narrower than the open face of the slot.

[0012] In a further aspect, the invention consists in a drainage member comprising a female member substantially open at each end, threads on the inner surface of the female member, at least one slot formed in the threads on the inner surface of the female member, the slot or slots extending longitudinally of the female member and the or each slot having a depth greater than the depth of the threads so that the slot or slots provide a passageway or passageways past the threads in use.

[0013] Preferably, a plurality of slots is provided.

[0014] Preferably, four slots are provided.

[0015] Preferably, the slots taper inwardly away from the end from which the slot extends.

[0016] Preferably, the side walls of the slot are shaped so that the closed face of the slot is narrower than the open face of the slot.

[0017] In a still further aspect the invention consists in a drainage construction comprising a first female member and second male member, co-operating threads on the inner surface of the female member and the outer surface of the male member, at least one slot being formed in the threads on the inner surface of the female member or in the threads on the outer surface of the male member, or both, the slot or slots extending substantially longitudinally of the female member or the male member, or each slot having a depth greater than the depth of the threads across which the slot is provided so that when the male member is engaged in the female member, a passageway or passageways past the threads is provided by the slot or slots.

[0018] Preferably, a plurality of slots is provided.

[0019] Preferably, there are four slots.

[0020] Preferably, the slots extend downwardly to a depth such that, in use, the slot extends past the threads in the male member.

[0021] Preferably, the slots taper inwardly away from the end from which the slot extends.

[0022] Preferably, the side walls of the slot are shaped so that the closed face of the slot is narrower than the open face of the slot.

[0023] Preferably, the slots are provided in the female member.

[0024] Preferably, the male and female members are open at each end.

[0025] Preferably, the male and female member have spaced apart flanges at the inlet end of there of in use, a space being defined between the flanges when in use, the passageway or passageways extending from the space to the open lower end in use of the female member.

[0026] To those skilled in the art to which the invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the scope of the invention as defined in the appended claims. The disclosures and the description herein are purely illustrative and are not intended to be in any sense limiting.
BRIEF DESCRIPTION OF THE DRAWINGS

[0027] One preferred form of the invention will now be described with reference to the accompanying drawings in which,

[0028] FIG. 1 is a cut-away perspective view of a female member for use in the invention,

[0029] FIG. 2 is a perspective top view of the female member of FIG. 1.

[0030] FIG. 3 is a cross-sectional view of a connection or drainage constructions according to one preferred form of the invention, and

[0031] FIG. 4 is a further part cross-sectional view of the construction of FIG. 3.

DETAILED DESCRIPTION OF THE DRAWINGS

[0032] Referring to the drawings a connection, a drainage member and/or drainage construction are provided as follows. A female member 1 is provided which is open at end 2 and opposite end 3. In the embodiment shown in FIG. 1 the opening at the end 2 is of substantially larger diameter than the opening at end 3 but this will depend upon the purpose and geometry of the construction in which the drainage member is to be used. A cylindrical section 4 is provided into which internal threads 5 are cut.

[0033] One or more slots, and preferably a plurality such as four slots, are provided across the threads 5. The slot or slots 6 are preferably shaped so that the female member can be formed by the use of a collapsing core mould to facilitate the speed of operation of the mould. Thus, for example, the slots 6 may taper from the upper end 7 to the lower end 8 at an angle as can be determined for the particular use to which particularly the female member is to be put. In the embodiment shown in FIGS. 1 and 2, which are for use as a shower tray drain, the angles may be about 7 degrees. It can also be seen that the side walls, for example, 9 and 10 of the slot, can be shaped, such as curved, so that the back wall of the slot 6 is a little narrower than the open space opposite the back wall of the slot 6.

[0034] The slots 6 are provided so that they extend inwardly a greater distance than the threads. This can be clearly seen for example in FIG. 1. Again the exact distance that the slots extend past the threads will depend on the actual use to which the embodiment is put but in the embodiment shown in FIG. 1 the depth is for example, two to three times the depth of the threads. At the bottom of the slot 6 a ledge 12 is provided and in such a construction the ledge 12 must be at a position lower than the maximum downward extent of threads 20 on an inner male member 21. The male member 21 is also open at the upper end 22 and the lower end 23 thereof. Thus for example, the lower end 24 of the threads 5 terminates below the lower end 25 of the threads 20. Referring to FIG. 4 it can be seen that ledge 12 is therefore below the position of the lower end 25.

[0035] In alternative constructions the slots 6 could be cut into the male member 21 or indeed slots could be provided in both members.

[0036] In other embodiments of the invention again depending on the geometry of the construction ledge 12 may not be provided, for example, where the inlet and outlet opening of the female member are substantially similar in diameter.

[0037] In use the female member 2 is brought up under the, for example, shower tray 30 so that an outwardly extending flange or rim 31 for example, having an upstand 32 butts the underside of the tray 30 and the male member is then screwed into the female member so that an outwardly extending rim 35 on the male member abuts the upper surface of the tray 30. An o-ring 36 may provide a seal between the underside of the member 30 and the flange 31. The provision of the slots 6 mean that any water collecting between the flanges 35 and 31 will drain to the outlet of the female member through the slots 6.

[0038] Thus, it can be seen that at least in the preferred form of the invention, a connection and/or a drainage member or drainage construction are provided which have the advantage that any water collecting in the vicinity of the flanges which clamp above and below the supporting structure, such as a shower tray, will tend to drain away from that position through the slot or slots 6. It is a particular advantage of the construction of the preferred form of the construction that a collapsing core mould can be used for high speed production of the female member. Furthermore, the slots 6 reduce any tendency for capillary action up the threads to occur.

What I claim is:

1. A connection comprising a first female member and a second male member, engageable threads on the inner surface of the female member and the outer surface of the male member, at least one slot formed in the threads on the inner surface of the female member or in the threads on the outer surface of the male member, or both, the slot or slots extending substantially longitudinally of the female member and/or the male member, the or each slot having a depth greater than the depth of the threads so that when the male member is engaged in the female member, a passageway or passageways past the threads is provided by the slot or slots.

2. A connection as claimed in claim 1, wherein there are a plurality of slots.

3. A connection as claimed in claim 2, wherein there there are four slots.

4. A connection as claimed in claim 1, wherein the slots are provided in the female member.

5. A connection as claimed in claim 4, wherein the slots extend downwardly to a depth such that in use the slot extends past the threads in the male member.

6. A connection as claimed in claim 1, wherein the male and the female members are substantially open at each end thereof.

7. A connection as claimed in claim 1, wherein the slots taper inwardly away from the end from which the slot extends.

8. A connection as claimed in claim 1, wherein the sides of the slot are shaped so that the closed face of the slot is narrower than the open face of the slot.

9. A drainage member comprising a female member substantially open at each end, threads on the inner surface of the female member, at least one slot formed in the threads on the inner surface of the female member, the slot or slots extending longitudinally of the female member and the or
each slot having a depth greater than the depth of the threads so that the slot or slots provide a passageway or passageways past the threads in use.

10. A drainage member as claimed in claim 9, wherein a plurality of slots are provided.

11. A drainage member as claimed in claim 10, wherein four slots are provided.

12. A drainage member as claimed in claim 9, wherein the slots taper inwardly away from the end from which the slot extends.

13. A drainage member as claimed in claim 9, wherein the side walls of the slot are shaped so that the closed face of the slot is narrower than the open face of the slot.

14. A drainage construction comprising a first female member and second male member, co-operating threads on the inner surface of the female member and the outer surface of the male member, at least one slot being formed in the threads on the inner surface of the female member or in the threads on the outer surface of the male member, or both, the slot or slots extending substantially longitudinally of the female member or the male member, the or each slot having a depth greater than the depth of the threads across which the slot is provided so that when the male member is engaged in the female member a passageway or passageways past the threads is provided by the slot or slots.

15. A drainage construction as claimed in claim 14, wherein a plurality of slots are provided.

16. A drainage construction as claimed in claim 15, wherein there are four slots.

17. A drainage construction as claimed in claim 14, wherein the slots extend downwardly to a depth such that in use the slot extends past the threads in the male member.

18. A drainage construction as claimed in claim 14, wherein the slots taper inwardly away from the end from which the slot extends.

19. A drainage construction as claimed in claim 14, wherein the side walls of the slot are shaped so that the closed face of the slot is narrower than the open face of the slot.

20. A drainage construction as claimed in claim 14, wherein the slots are provided in the female member.

21. A drainage construction as claimed in claim 14, wherein the male and female members are open at each end.

22. A drainage construction as claimed in claim 14, wherein the male and female member have spaced apart flanges at the inlet end of there of in use, a space being defined between the flanges when in use, the passageway or passageways extending from the space to the open lower end in use of the female member.

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