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(54) Decking components

(57) A lightweight decking plank has male and female connecting members formed at its opposite longitudinal edges, at least one component of each connecting member comprising a hollow section, and the connecting members being arranged such that when the male connector of one plank is engaged with the female connector of an adjacent plank, at least parts of the hollow sections of the respective connectors are positioned in vertical alignment with one another and form an essentially rigid load-supporting connection between the upper and lower surfaces of the assembly at the region of inter-connection.

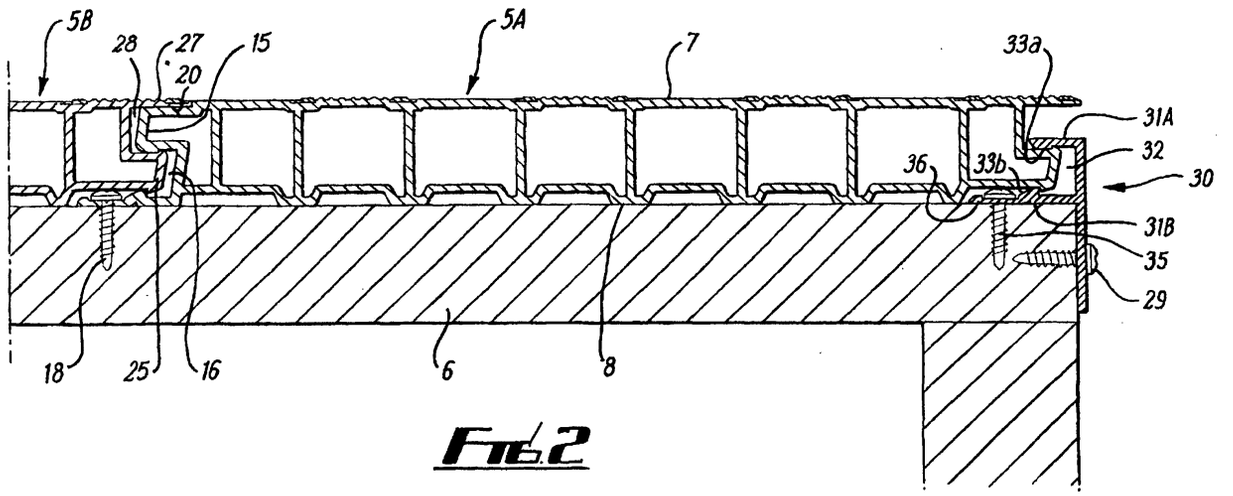

FIG.2

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Description

[0001] This invention relates to decking systems and components for use in the construction of decking systems.

[0002] It is known to construct decking systems from a plurality of elongated hollow sections or planks arranged side by side, interconnected at adjacent longitudinal edges and supported on a substantially rigid base structure. Decking systems of this kind are used, for example, for the surfacing of boat jetties or other structures.

[0003] Decking systems for such purposes are designed for relatively heavy duty and are of substantial size and cross-section to impart the necessary strength and rigidity to withstand the loads and wear to which they are subjected during use. Similar decking systems are potentially suitable for the construction of garden decking, verandas around caravans or other purposes. However such uses require a structure of lighter weight and less cost and this can create problems in ensuring sufficient strength at the joints between adjacent planks.

[0004] According to the present invention there is provided a lightweight decking plank having male and female connecting members formed at its opposite longitudinal edges, at least one component of each connecting member comprising a hollow section, the connecting members being arranged such that when the male connector of one plank is engaged with the female connector of an adjacent plank, at least parts of the hollow sections of the respective connectors are positioned in vertical alignment with one another.

[0005] Preferably the connecting members are constructed such that when inter-connected an essentially rigid load-supporting connection is formed between the upper and lower surfaces of the assembly at the region of inter-connection.

[0006] Preferably the overlapping hollow sections are provided with means to retain them against disengagement after inter-connection. Said retaining means may comprise longitudinally extending hook like projections formed on the respective components. The hook like projections or other retaining means preferably also serve to retain the planks in engagement with separate starter strips serving to secure edge regions of the decking assembly in position on a supporting structure.

[0007] Preferably one hollow section is provided on each connecting member and is adapted for engagement in a complimentary recess in the other connecting member of an adjacent plank, the height of the projecting hollow section on each plank being approximately equal to half the height of the plank.

[0008] Alternatively one of said connecting members may incorporate two projecting hollow-section connecting components spaced apart by a recess engageable by a single hollow-section connecting component on an adjacent plank, the height of each of the hollow section components being approximately equal to one third of the height of the plank.

[0009] Preferably one of said connecting members incorporates a longitudinally extending, laterally projecting flange at its upper edge adapted to locate in a complimentary depression formed at the adjacent upper longitudinal edge of an adjacent plank member. Preferably also a longitudinally extending mounting flange projects from a lower edge of the other connecting member of the plank and is provided with means to secure same, and hence the associated plank, to a sub-structure. Preferably said means comprises apertures to receive securing screws.

[0010] Preferably also the upper surface of said plank incorporates a surface pattern, said connectors being arranged to maintain uniformity and continuity of said surface pattern when adjacent planks are inter-connected. The surface pattern may be designed to impart non-slip characteristics to the upper surface of the plank.

[0011] An embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:-

Fig. 1 is a vertical cross-section through a decking plank according to one embodiment of the invention;

Fig. 2 is a similar cross-section showing a starter strip, one complete decking plank and part of an adjacent decking plank; and

Fig. 3 is an enlarged fragmentary cross-section showing connecting components of adjacent planks engaged with one another.

[0012] Referring to Fig. 1, there is shown a vertical cross-section through an elongated decking component or plank 5 formed by extrusion from synthetic plastics material. The plank 5 is of hollow section having an upper surface 7 and a lower surface 8 inter-connected by a plurality of vertical webs 9 which serve to impart rigidity to the plank. Male and female connecting members 10 and 11 are provided at the opposite longitudinal edges of the plank and are of complementary form such that the longitudinal edges of adjacent planks may be connected to one another to form a continuous decking structure.

[0013] Each of the male connecting members 10 includes a longitudinally extending projection 15 of hollow section located at the upper region of the edge of the plank. A longitudinally extending securing flange 17 projects outwardly from the lower edge of the plank and defines between it and the projection 15 a longitudinally extending recess or channel 16. The flange 17 is provided with holes (not shown) spaced apart longitudinally of the flange through which screws 18 shown in Figs. 2 and 3 may be inserted to secure the plank to a supporting structure 6. Undercut hook-like formations 19a and 19b are provided at the upper and lower regions of the

recess 16 and co-operate with complimentary formations on the female connecting member of an adjacent plank to secure the planks together as described hereafter. A shallow, longitudinally extending recess 20 is formed in the upper edge of the plank above the projection 15 and serves to receive a component of the female connecting member of an adjacent panel as described hereafter.

[0014] The female connecting member 11 formed at the opposite longitudinal edge of the plank 5 includes a longitudinally extending projection 25 of hollow section located at the lower region of the edge of the plank, the projection 25 being shaped and dimensioned to form a close fit within the recess 16 in the opposite edge of an adjacent plank. Outwardly directed, longitudinally extending projections 26a and 26b are formed on the projection 25 and are adapted to engage with the projections 19a and 19b on the male connecting member of an adjacent plank to retain the planks in engagement with one another. A flange 27 projects horizontally from the upper edge of the plank 5 and defines with the projection 25 a recess 28 above the projection 25 adapted to receive the projection 15 on an adjacent plank member as described below.

[0015] Figs. 2 and 3 show male and female connectors of adjacent planks 5A and 5B inter-engaged with one another, the projection 15 on plank 5A engaging the recess 28 of the plank 5B, while the projection 25 of plank 5B locates in the recess 16 of plank 5A. The projections 19a and 19b on plank 5A engage with the projections 26a and 26b respectively on plank 5B to retain the connecting members and hence the adjacent planks in engagement with one another. The projecting flange 27 on plank 5B seats in the recess 20 in the upper surface of plank 5A and maintains continuity of the surface pattern from one plank to the other.

[0016] The dimensions of the projections 15 and 25 are such that each is approximately equal to half the height of the associated plank. Thus when the planks are inter-engaged, portions of the projections at 15 and 25 are arranged vertically above one another provide a rigid load bearing connection between the flange 27 at the upper edge of the plank 5B and the flange 17 at the lower edge of the plank 5A at the zone of inter-connection. The inter-connection between the planks does not therefore form a point of weakness but can withstand a load similar to that which the planks as whole are designed to support and the overall structure need not therefore be over engineered to compensate for weaknesses at the zones where the planks are inter-connected.

[0017] Fig. 2 also shows a starter member 30 comprising an elongated extruded plastics component adapted to be secured by screws 29 to an edge of the supporting structure 6. The starter member 30 has spaced upper and lower flanges 31A and 31B defining a longitudinally extending recess or channel 32 adapted to receive the projection 25 of the first plank 5 of a decking assembly and incorporates undercut projections 33a and 33b engageable with the projections 26a and 26b to retain the plank 5 in engagement with the starter member. The starter member is also secured in place by screws 35 engaged through apertures (not shown) in an extension 36 of the lower flange 31B.

[0018] To construct a decking assembly, the starter strip is first secured in place by means of the screws 31 and 35 and the first plank 5A is engaged in the recess 32. The plank 5A may then be secured to the structure 6 by screws 18 inserted through the securing flange 17 at the opposite longitudinal edge of the plank. A subsequent plank 5B may then be connected to the free edge of the plank 5A by engaging the female connector 11 of plank 5B with the male connector 10 of plank 5A in the manner shown in Figs. 2 and 3. The opposite longitudinal edge of plank 5B may then be secured to the substructure 6 by screws 18 inserted through the flange 17 of plank 5B and subsequent planks may then be fitted in the same way. By virtue of the overlapping hollow section projections 15 and 25, the joints formed between successive planks are load-bearing, thereby eliminating potential points of weakness at these zones.

[0019] Various modifications may be made without departing from the invention. For example the shape, size and dimensions of the planks may be altered substantially and the connecting means may differ from those described, subject only to providing an essentially rigid, load-bearing connection between the planks at the zones of inter-connection. In one modification there may be two projecting hollow sections formed at one edge of a plank adapted to engage with a single hollow section formed at the opposite edge of an adjacent plank. In some cases the securing flange may be omitted and the projecting connecting members may be a push fit in the complimentary recesses, the hook-like retaining projections being omitted.

[0020] Whilst endeavouring in the foregoing specification to draw attention to those features of the invention believed to be of particular importance it should be understood that the Applicant claims protection in respect of any patentable feature or combination of features hereinbefore referred to and/or shown in the drawings whether or not particular emphasis has been placed thereon.

Claims

1. A lightweight decking plank having male and female connecting members formed at its opposite longitudinal edges, characterised in that at least one component of each connecting member (10,11) comprising a hollow section (15,25), the connecting members being arranged such that when the male connector (15) of one plank (5A) is engaged with the female connector (25) of an adjacent plank (5B), at least parts of the hollow sections of the respective

connectors are positioned in vertical alignment with one another.

2. A lightweight decking plank according to claim 1 characterised in that said connecting members (10,11) are constructed such that when inter-connected an essentially rigid load-supporting connection (15,25) is formed between the upper and lower surfaces (27,17) of the assembly at the region of inter-connection.

3. A lightweight decking plank according to claim 1 or 2 characterised in that the overlapping hollow sections (15,25) are provided with means (19A, 26A) to retain them against disengagement after inter-connection.

4. A lightweight decking plank according to claim 3 characterised in that said retaining means comprise longitudinally extending hook like projections (19A, 26A) formed on the respective components (15,25).

5. A lightweight decking plank according to claim 3 or 4 characterised in that said retaining means (26A) are also adapted to retain the planks (5) in engagement with separate starter strips (30) serving to secure edge regions of the decking assembly in position on a supporting structure (6).

6. A lightweight decking plank according to any preceding claim characterised in that one hollow section (15,25) is provided on each connecting member (10,11) and is adapted for engagement in a complimentary recess (28,16) in the other connecting member of an adjacent plank, the height of the projecting hollow section (15,25) on each plank being approximately equal to half the height of the plank.

7. A lightweight decking plank according to any of claims 1 to 5 characterised in that one of said connecting members (10,11) incorporates two projecting hollow section connecting components spaced apart by a recess engageable by a single hollow-section connecting component on an adjacent plank, the height of each of the hollow-section components being approximately equal to one third of the height of the plank.

8. A lightweight decking plank according to any preceding claim characterised in that one of said connecting members (11) incorporates a longitudinally extending, laterally projecting flange (27) at its upper edge adapted to locate in a complimentary depression (20) formed at the adjacent upper longitudinal edge of an adjacent plank member.

9. A lightweight decking plank according to any preceding claim characterised in that a longitudinally extending mounting flange (17) projects from a lower edge of the other connecting member (10) of the plank (5) and is provided with means to secure same, and hence the associated plank, to a sub-structure.

10. A lightweight decking plank according to claim 9 characterised in that said means comprises apertures to receive securing screws (18).

11. A lightweight decking plank according to any preceding claim characterised in that the upper surface (7) of said plank (5) incorporates a surface pattern, said connectors (10,11) being arranged to maintain uniformity and continuity of said surface pattern when adjacent planks are inter-connected.

12. A lightweight decking plank according to claim 11 characterised in that said surface pattern is designed to import non-slip characteristics to the upper surface of the plank.

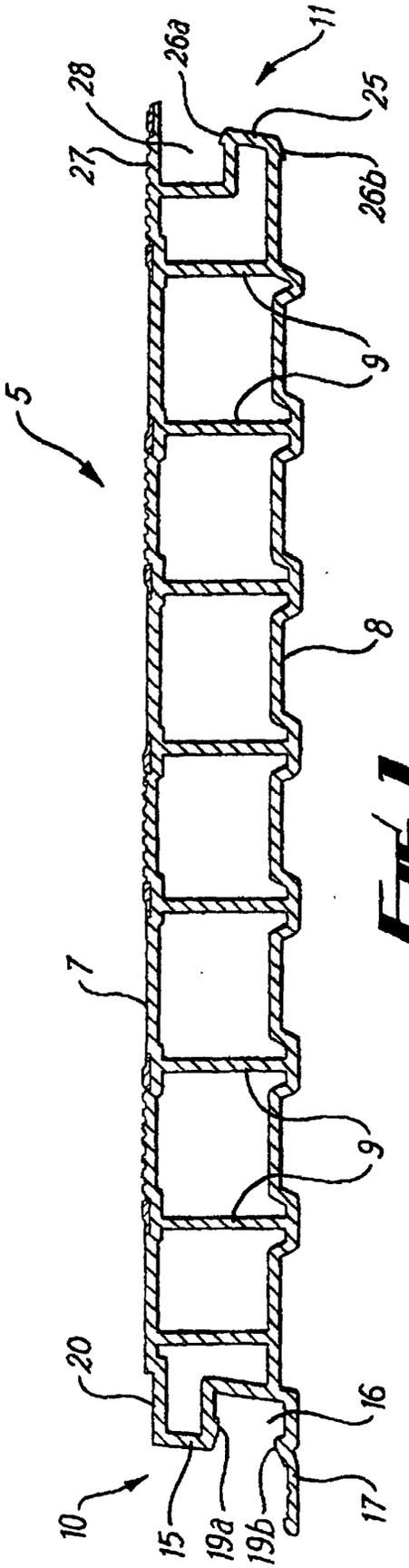

FIG. 1

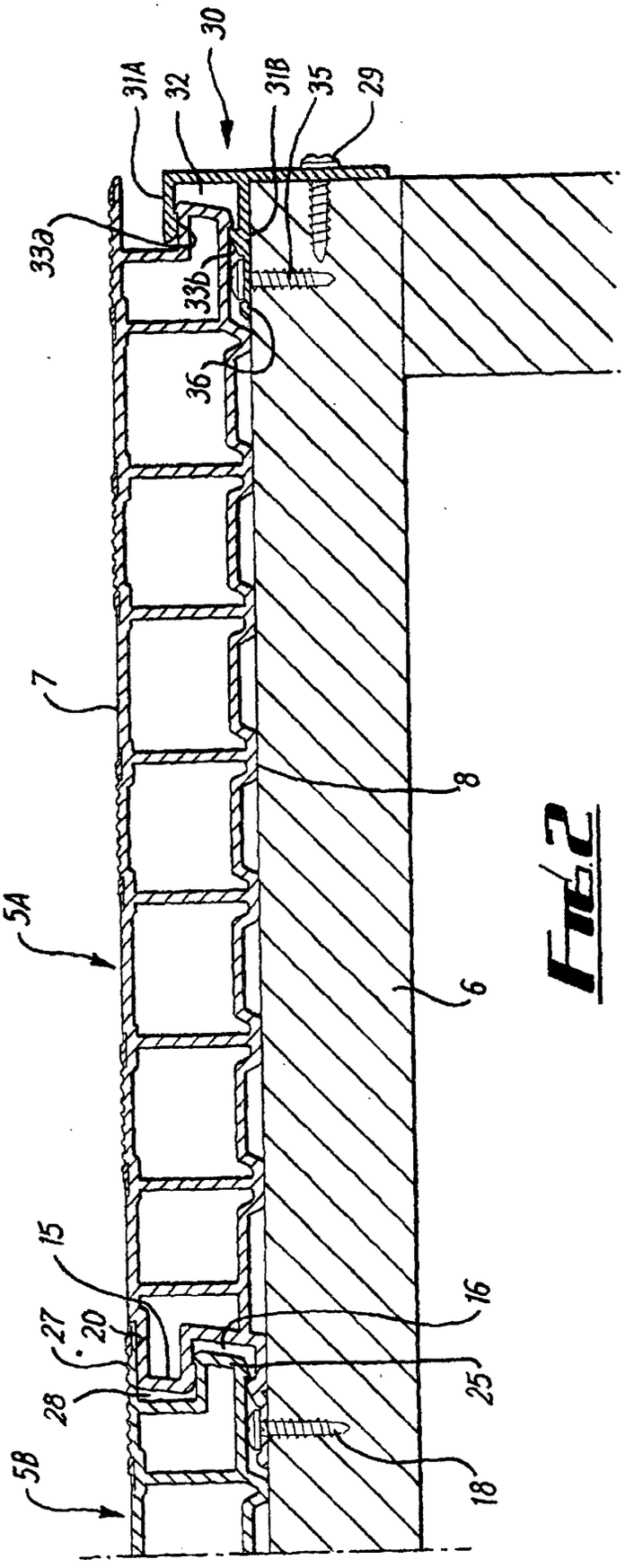

Fig.2

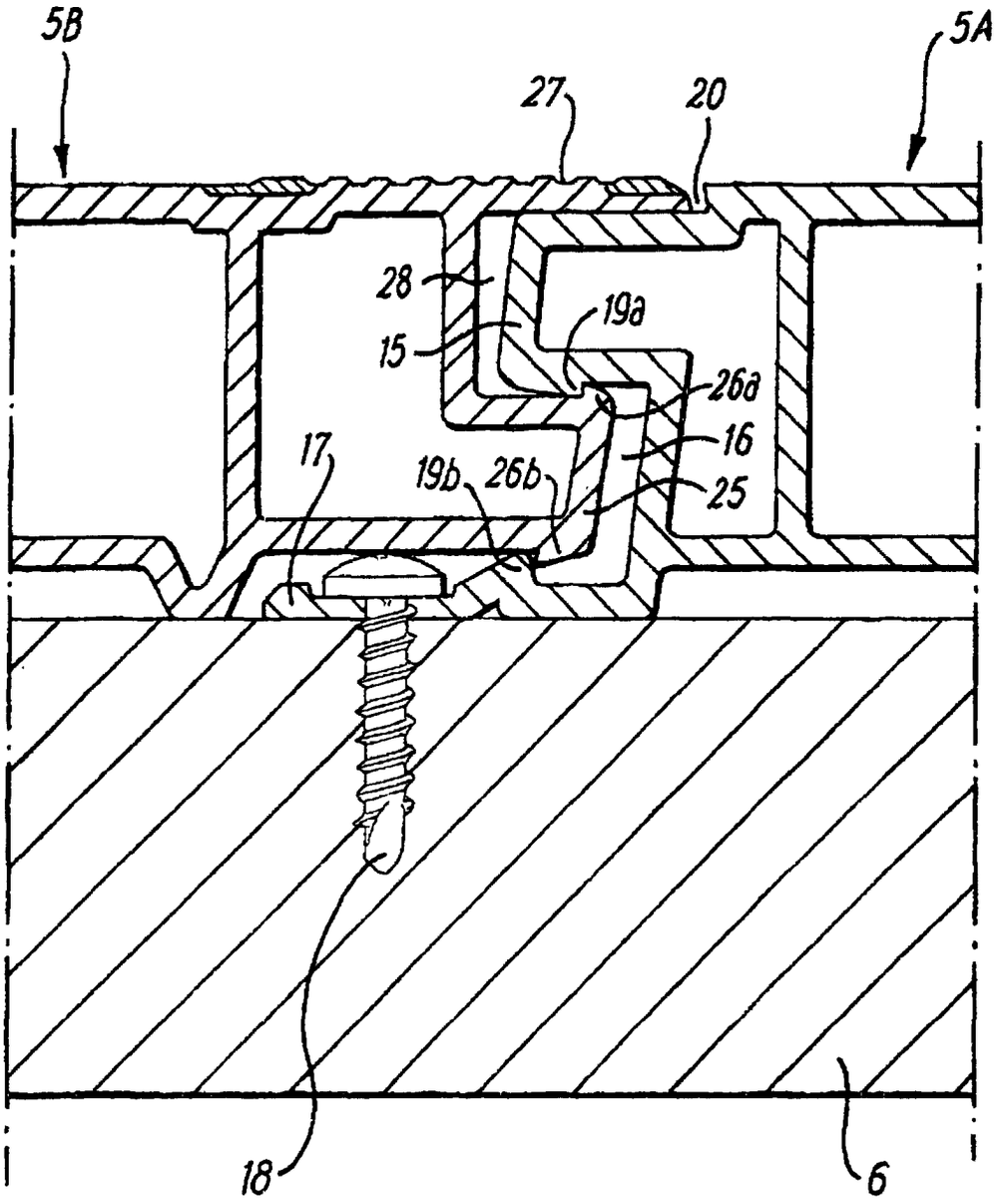

FIG. 3