

APPARATUS FOR FORMING A WALL

This invention relates to apparatus for forming a wall.

According to the invention, there is provided wall forming apparatus comprising a plurality of wall forming modules adapted to be disposed edge to edge and wherein each module forms an item of furniture.

The barrier has particular applications as a fence or a barrier for a swimming pool or sports field/court.

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

Fig. 1 shows perspective views of an embodiment of the invention from front and rear.

Fig. 2 is a cross sectional view in the direction of the arrows A of fig. 1.

Fig. 3 is a sectional view across B-B of Fig. 1 of a

cabinet module.

Fig. 4 is a perspective part exploded view of columns forming part of the wall of Fig. 1.

Fig. 5 is a sectional view across C-C of Fig. 4.

Fig. 6 shows a modification of the embodiment of the invention.

With reference to the figures, an embodiment of the wall of the invention is shown.

The wall comprises a plurality of modules 10 which are arranged edge-to-edge. The modules 10 are pre-formed in the shape of an item of furniture, for example a seat 12 or cabinet 13.

The modules 10 are prefabricated in concrete and are preferably formed from more than one component. As shown in Fig. 2, each seat 12 comprises a seat member 15 disposed upon a support member 16 and concealed panel 17. Likewise, the cabinet 13 comprises a support 70, rear cum bottom panel 74, top cum side panel 76, doors 78 and concealed panel 79. The concealed panels 17, 79 are preferably faced with a decorative covering 80. In general, each module comprises a number of components

suitably sized in such a way that heavy lifting machinery is not required to assemble the wall in situ.

Columns 14 (Figs. 4 and 5) are provided at intervals, each column having an inner casing comprising a plurality of interlocking inner casing members 21 and, an outer casing comprising a plurality of interlocking outer casing members 22, the casing members being formed from precast concrete or burnt clay. Concrete is poured in between the casings to form the column 14 which is finished with a capping piece 23. Steel bars or mesh are used to reinforce the concrete 14.

Between two adjacent columns 14, a frame 17 is provided which comprises horizontal top square section tube 30 and horizontal bottom steel tube 32, both formed from mild steel, between which, at regular intervals, are welded vertical flat crossmembers 34 so as to provide a frame 17 of ladder-shaped form. The horizontal members 30, 32 engage suitably shaped bores in the outer casing 20 of columns 14 to which the frame 17 is engaged. The bores can either be formed at the pre-casting stage or may be drilled subsequently.

A plurality of panels 18 prefabricated either in concrete or burnt clay are connected to the frame 17,

each panel 18 being disposed between adjacent cross members 34. Each panel includes a panel member 40 provided with a channel 42 for receiving the tube 32 and a cap member 44 which forms a channel 46 for receiving both the square sectioned tube 30 and a free end 47 of a said panel member 40 as shown in Fig. 2.

The frame 17 is disposed at a different height to the modules 10 so that, together, the modules 10 and panels 18 provide a wall of increased height.

A method of assembling the wall will now be described.

In order to ensure adequate foundations, a foundation trench 50 is provided and a layer of 100mm thick reinforced concrete strip footing 52 is cast at the base of the trench 50 to carry the loading of the components of the wall. Above this footing 52, a plurality of foundation supports 54, which in this embodiment are of similar construction to the seat supports 16, are laid edge to edge are cemented to the strip footing 52. The voids 56 between the supports 54 are backfilled with spoil removed from the trench 50 and consolidated, after which a further layer of 50mm thick reinforced concrete 58 is cast in situ upon the supports. The consolidated soil forms a base on which layer 58 can be cast without the use of temporary formwork. The supports act to support the weight above in the event of the backfill settling. The foundation supports are disposed so as to be slightly below the finished floor level (e.g. 160mm below).

Steel starter bars are placed where the columns will be situated before the strip footing 52 is cast.

The columns 14 are erected using the inner and outer casing members disposed on the strip footing 52 initially only up to the height of the finished floor level. Column steel bars are placed in between the casings and concrete is then poured in between the casings, at the same time as the concrete layer base 58 is cast upon the supports 54.

The modules 10 are assembled upon the concrete layer 58 using cement mortar or adhesive.

The columns are then built up to their final height using further inner and outer frame members and constructed in two stages, first up to the top level of the modules 10 and then to the final height. After the frame 17 has been engaged with the adjacent columns 14, concrete is poured into the remaining part of each column 14 so as to stiffen the frame.

The panels 18 are then connected to the frame 17 by engaging the panel member 40 with the lower tube 32 and fixing the cap member 44 over free end 47 and square sectional tube 30, the panel member 40 and cap 44 then

being cemented together in place.

Finally, the capping pieces 23 are placed on top of the columns 14.

A finish such as epoxy or fungus resisting paint or ceramic tiles is finally applied to the surfaces of the wall components. If cast-in situ terrazzo finish is required, coloured cement and chippings are used for the casting of the various components instead of ordinary cement and aggregate. They may be polished in the factory before delivery to site. The panels 18, column outer casing 20, and capping pieces 23 and 44 can be made from burnt clay with or without glazing, if required.

Some advantages of the embodiment of the invention as described above are that the wall is multi-purpose and, in addition to forming a fence-type barrier, could be used to create an outdoor room, for example a summer house, with the addition of a suitable roof. The wall is also particularly useful for enclosing an outdoor games court (e.g. a tennis court) playing field or, particularly, a swimming pool. Due to the modular construction of the wall components, construction may be effected without the use of high power lifting gear and other heavy powered machinery. The modular

construction also allows mass production under factory conditions and assembly using less skilled workers.

Furthermore, the wall is weather proof, maintenance free and permanent and its foundation construction allows subsidence caused by ground settlement, for example to be easily rectified at minimal cost.

Whilst the modules illustrated form a seat or cabinet, this is not to be construed as limitative and the modules could form other items of furniture, such as a cupboard, worktop, barbeque stand or flower box, for example.

For extended lengths of wall, the provision of seats and other fixtures may be omitted over part of the wall's length and replaced by panels 18 installed in the same way as described above but sitting on an additional tube with further vertical cross members welded between the additional tube and tube 32 as shown in fig. 6.

CLAIMS

1. Weather proof wall forming apparatus comprising a plurality of wall forming modules adapted to be disposed edge to edge and where each module forms an item of furniture.

2. Apparatus as claimed in claim 1 further comprising a plurality of columns adapted to be disposed between pluralities of said modules.

3. Apparatus as claimed in claim 2 wherein each column comprises a plurality of prefabricated interlockable sections.

4. Apparatus as claimed in claim 2 or claim 3 further comprising panel means adapted to be disposed between two of said columns at a different height to said modules.

5. Apparatus as claimed in claim 4 wherein said panel means comprises a frame and a plurality of panels coupled to the frame.

6. Apparatus as claimed in claim 5 wherein the frame comprises first and second spaced elongate members and each panel includes first and second channels adapted to receive the first and second elongate members



respectively.

7. Apparatus as claimed in claim 6 wherein each panel comprises a panel member adapted to extend between the elongate member and having the first channel formed at one end, and a cap member forming the second channel and adapted further to receive a free end of the panel member to hold the panel member in place on the frame.

8. Apparatus as claimed in claim 6 or claim 7 wherein the frame is ladder-shaped and the panels are each disposed between cross members of the ladder.

9. Apparatus as claimed in any one of the preceding claims wherein a said module comprises a seat.

10. Apparatus as claimed in any any one of the preceding claims wherein a said module comprises a cabinet, cupboard, work top, barbeque stand or flower box.

11. Apparatus as claimed in any one of the preceding claims wherein the modules are formed from concrete or burnt clay.

12. Apparatus as claimed in any one of the preceding claims wherein a said module comprises at least two pre-fabricated components.



13. A wall formed from apparatus as claimed in any one of the preceding claims.

14. Weather proof wall forming apparatus substantially as hereinbefore described, with reference to the accompanying drawings.

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