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AN ARTICLE OF FURNITURE

This invention relates to an article of furniture and, in particular, to a modular seating arrangement which is configurable to realise a number of desired seating configurations.

5 The invention is applicable, for example, in places where it is desired to have modular seating arrangements, such as in departure lounges at airports or waiting areas in professional offices, hospitals, halls and the like. A number of seating arrangements are known to be suitable for such applications, however they tend to suffer from a lack of flexibility in configuration and are difficult to assemble.

10 It is an object of the present invention to provide modular seating arrangement which can be assembled into various desired configurations with great flexibility and relative ease.

According to the present invention there is disclosed a modular seating arrangement configurable to realise any one of a number of desired seating
15 configurations, said arrangement comprising, in combination, at least one spine of substantially uniform transverse cross-sectional shape and of predetermined length, at least a pair of supporting stands each of which has a rebated part of complimentary shape to said cross-sectional shape of said spline and which receives said spine at spaced apart locations to support said spine, a plurality of seat frames each having a seat and a
20 backrest, and at least one elongate seat frame support for each said seat frame, each said seat frame support having one end thereof shaped to engage with said spine and the other end thereof being shaped to be connected to said seat frame.

Preferably there are two seat frame supports at each side of a seat frame. A pair of seat frame supports on one side of a seat frame can also be fixed to an adjacent
25 seat frame.

The arrangement can also comprise a further component being an arm rest, the arm rest having two ends each with means adapted to engage, and extend between, the said other ends of two seat frame supports on one side of a seat frame.

Preferably the seat frame supports are configured to engage a spine and engage
30 a seat adjacent its front edge. A backrest support is also provided and configured to engage a spine and engage a seat frame at an upper location on the backrest.

If desired, a spine can have an upstanding section at some intermediate point along its length. A side table can also be provided which has receiving means to engage an upstanding section, and preferably at an end of a spine.

35 Preferably a modular seating arrangement can be configured to include a right angled corner to allow an L-shaped configuration of a plurality of seat frames with a side table being located at the corner.

In order that the invention might be further explained, a preferred embodiment will now be described with reference to the accompanying drawings, in which:



Fig. 1 shows an exploded perspective view of a modular seating arrangement constructed in accordance with the preferred embodiment;

Fig. 2 shows another arrangement;

Fig. 3 shows yet a further arrangement;

5 Fig. 4 shows a still further arrangement;

Fig. 5 shows a perspective view of part of the arrangement of Fig. 4; and

Figs. 6A-6D each illustrate in plan or perspective view one of a number of other seating configurations arranged at various angles with respect to side tables.

As seen in Fig. 1, the arrangement includes a number of basic modular seating
10 components. There is a spine 10 which is of regular cross-section (rectangular in this embodiment) and which extends for a particular predetermined length. There is also a seat frame 12 shaped in the form of a backrest 14 and a seat 16. The spine 10 is supported above the ground or a floor by at least two stands 6. The stands have a rebated section 8 which is of complementary shape to a part of the spine 10 so as to
15 receive and hold the spine 10 in place. Whilst a minimum of two stands 6 is required in any arrangement, where there are a large number of seat frames 12, additional stands 6 are required to be spaced along the spine 10 to adequately support the load.

The seat frame 12 is generally moulded to conform to the shape of a person sitting thereupon. The seat frame 12 is mounted from the spine 10 by two frame
20 supporting arms, namely a first arm 18 and a second arm 20 which are of slightly differing shape. The arms 18,20 each have at one end a rebated part 32 which is complementarily shaped to a part of the spine 10. These ends 32 engage the spine 10, and are fixed to the spine by a locking screw arrangement in the form of a screw 22 and which passes through screw hole 24 in one end 32 and into the other end 32. The other
25 ends 34 of the arms 18,20 are respectively fixed to a point on the backrest 14 and at the front edge of the seat 16, thereby mounting the seat frame 12 from the spine 10 for use. This then constitutes a minimum or basic arrangement which can be replicated to realise any one of a number of desired arrangements.

Fig. 2 shows an arrangement where three chair frames 12 are located side by
30 side and supported by four sets of supporting arms 18,20 with all the supporting arms 18,20 other than those at the ends of a row supporting two adjacent seat frames 12.

Fig. 1 also shows an arm rest 26 which can, if desired, be incorporated in a desired arrangement. The ends 36 of the arm rest 26 each engage the respective ends 34 of the supporting arms 18,20 which fasten to the seat frame 12. Fig. 1 shows the mating
35 configuration of the bifurcated ends 36 of the arm rest 26 with the ends 34 of the supporting arms 18,20. A pin or bolt (not shown) secures the arm rest 26, the respective arms 18,20 and the seat frame 12 in a common assembly and forms a truss which provides additional strength and rigidity.

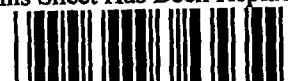


Fig. 3 shows a configuration where an arm rest 26 has been incorporated only at each end of a row having three seats. It is equally possible to provide an arm rest 26 between each of the seat frames 12 given the flexibility of the system.

Fig. 1 shows a further option available for realising a desired configuration, in that the spine 10 is provided with an upstanding portion 28, which receives a side table 30. The side table 30 has a corresponding mating recess (not illustrated) on the underside thereof to receive the upper end of the upstanding portion 28. A side table 30 can be provided at either end of a row of seat frames 12, between adjacent seat frames 12 or at the vertex of an L-shaped configuration as shown in Fig. 4. In Fig. 4 a second spine is arranged to engage the first spine 10. In this case the stand 6 shown in Fig. 1 is moved slightly to the left away from the upstanding section 28. In the alternative, a single spine can be manufactured to include the right angle, although it is preferable to standardise on straight spine sections which can inter-engage at various angles to realise a desired configuration, since this reduces the volume of the arrangement in its knocked down form prior to assembly. Fig. 5 shows a view of the configuration of Fig. 4 in perspective. The locations of the arm rest 26 and the stands 6 can be clearly seen.

Fig. 6A shows two banks each of three seat frames 12 in a straight line interposed by a single side table 30. This arrangement is a form of variant to Fig. 4.

Fig. 6B is also a variant to Fig. 4, in that a second side table 30 has been included, as has an additional bank of three chair frames 12. In this instance the side table 30 has been styled or shaped away from being regularly sided.

Figs. 6C and 6D show that angular arrangements of banks of chair frames are possible other than the straight-line configuration of Fig. 6A or the right angled configuration of Fig. 6B. In this instance, the respective spines 10 are located in a rebated section 8 of a stand of the side table 30 at an obtuse angle with respect to each other. Fig. 6C is a plan view, whilst Fig. 6D is a perspective view of two slightly different configurations.

The arrangements of Figs. 6A-6D again illustrate the flexibility of configuration of the modular seating components constructed in accordance with the present invention.

From the foregoing it will be appreciated that the invention discloses modular seating components which are readily and easily configurable to a desired arrangement. Once such a configuration is implemented there is no problem with subsequently reconfiguring the arrangement, or removing it to another location.

It will be appreciated by those skilled in the art that various modifications and alterations can be made and still fall within the broad inventive scope of the invention, examples of which have been described in the foregoing. For example, the first arm 18 and second arm 20 can be identical to save on the unit cost of manufacture. It is also possible that the arms 18,20 form a friction or snap fit onto the spine 10. In addition, if the seat frame 12 is sufficiently strong, the supporting arm 18 can be omitted and the seat frame 12 is then supported by the spine 10 and arm 20.





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1. A modular seating arrangement configurable to realise any one of a number of desired seating configurations, said arrangement comprising, in combination, at least one spine of substantially uniform transverse cross-sectional shape and of predetermined length, at least a pair of supporting stands each of which has a rebated
5 part of complimentary shape to said cross-sectional shape of said spine and which receives said spine at spaced apart locations to support said spine, a plurality of seat frames each having a seat and a backrest, and at least one elongate seat frame support for each said seat frame, each said seat frame support having one end thereof shaped to engage with said spine and the other end thereof being shaped to be connected to said
10 seat frame.
2. An arrangement as claimed in claim 1 wherein for each said seat frame support there is a corresponding elongate backrest support, each said backrest support having one end thereof shaped to engage with said spine and the other end thereof being shaped to be connected to said seat frame, said seat frame support and said backrest
15 support extending respectively forwardly and rearwardly of said spine when connected to said seat frame.
3. An arrangement as claimed in claim 2 wherein a single seat frame support and a single backrest support constitute a support pair, there being one more support pair than the number of seat frames with a support pair being located alongside
20 each side of each said seat frame.
4. An arrangement as claimed in claim 2 and further comprising an elongate arm rest having two extremities, one extremity of said arm rest being connected to the other end of said seat frame support and the other extremity of said arm rest being connected to the other end of said backrest support.
- 25 5. An arrangement as claimed in any one of claims 1-4 wherein said spine has an upstanding portion engageable with the underside of a table to thereby support said table.
6. An arrangement as claimed in claim 5 wherein said upstanding portion and table are located adjacent one end of a spine to position said table at the end of a row
30 of said seat frames.
7. An arrangement as claimed in claim 5 wherein said upstanding portion and table are located at the intersection of two spines to position said table between two rows of said seats.
8. An arrangement as claimed in claim 7 comprising a first plurality of
35 tables and a second plurality of spines, said second plurality being greater by one than said first plurality.



* C L M S *

An Article of Furniture

Abstract

An arrangement of linking modular furniture is disclosed. There is a spine (10) supported by spaced apart stands (6). On each spine are located a number of seat frames (12). The seat frames are supported by at least one arm (18,20) and preferably by arm rests (26) which together with the arms (18,20) form a truss. A table (30) is also provided. A large number of different configurations can be formed by assembly of the above components.

Fig. 1

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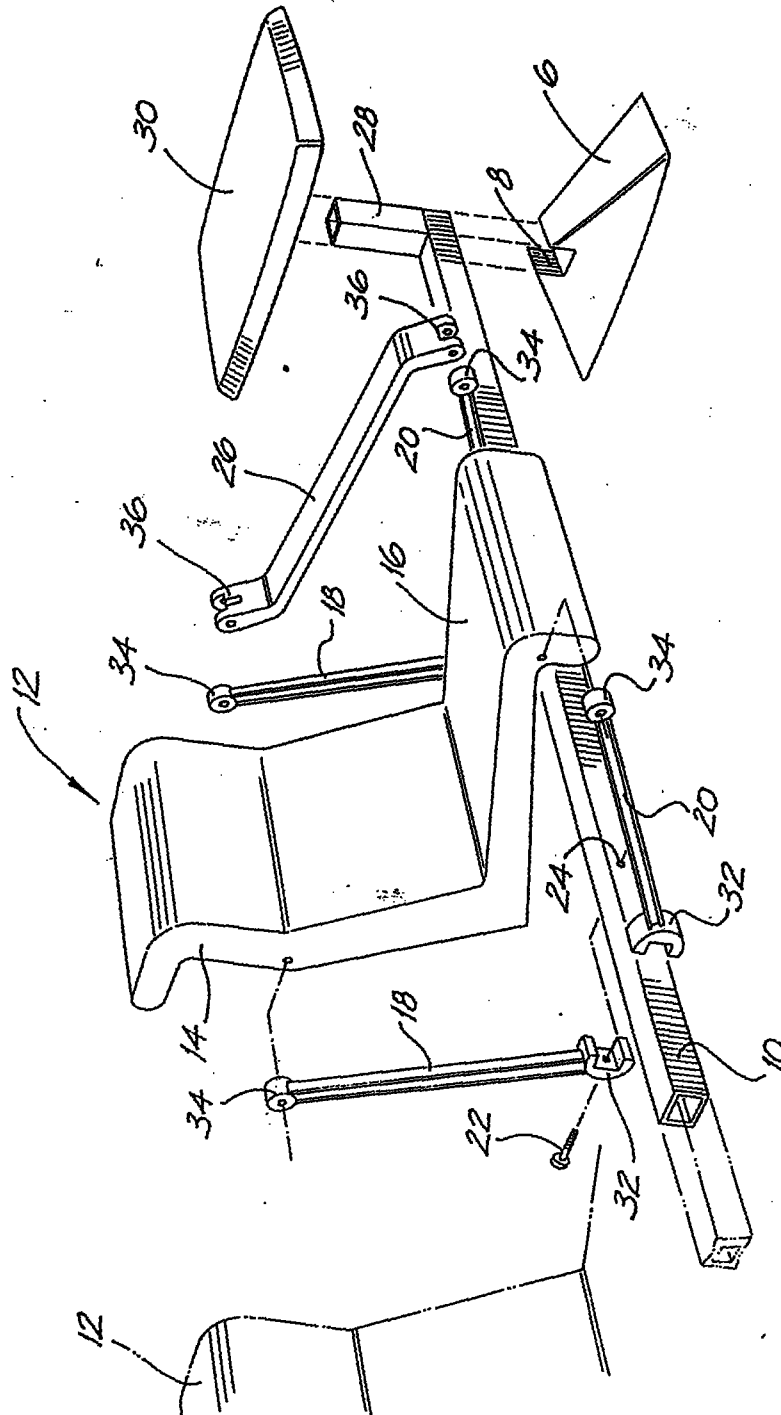


FIG. 1

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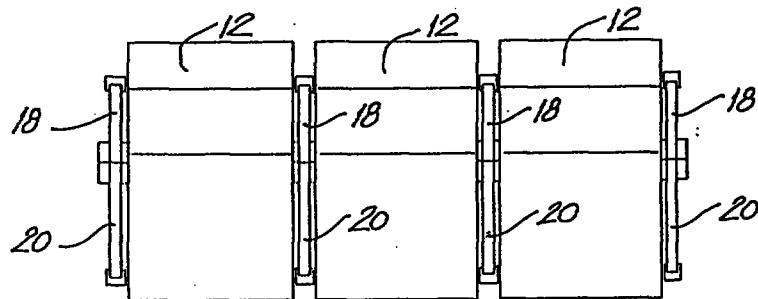


FIG. 2

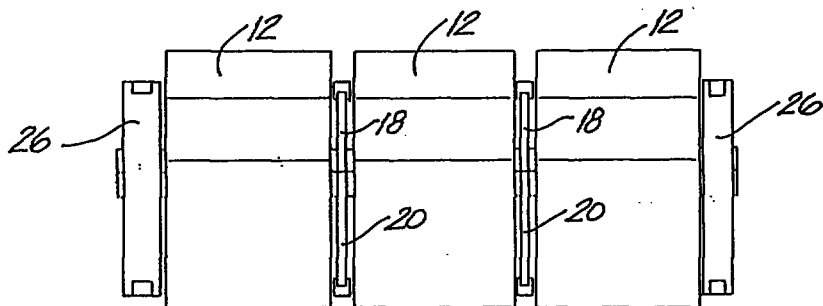


FIG. 3

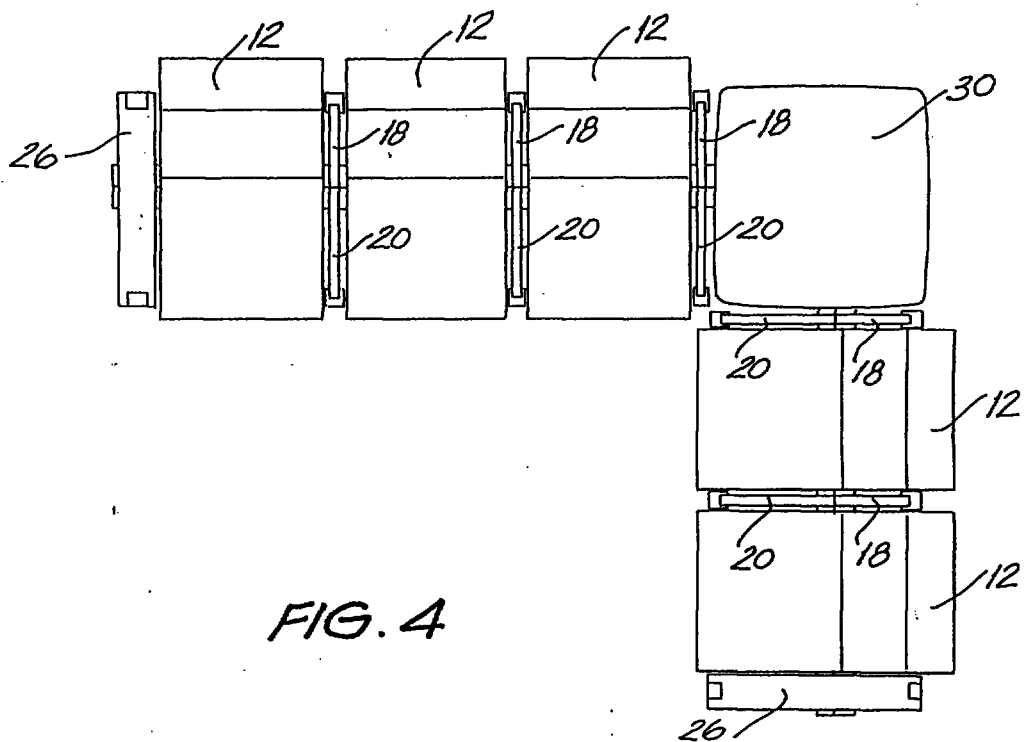


FIG. 4

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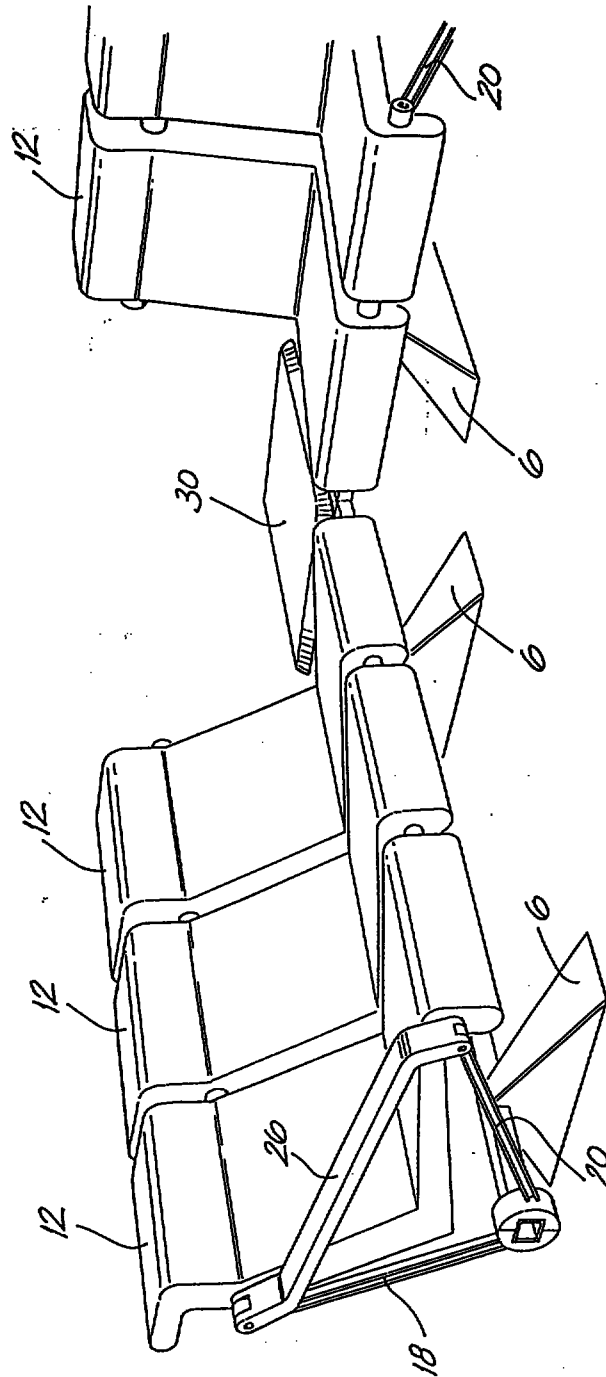


FIG. 5

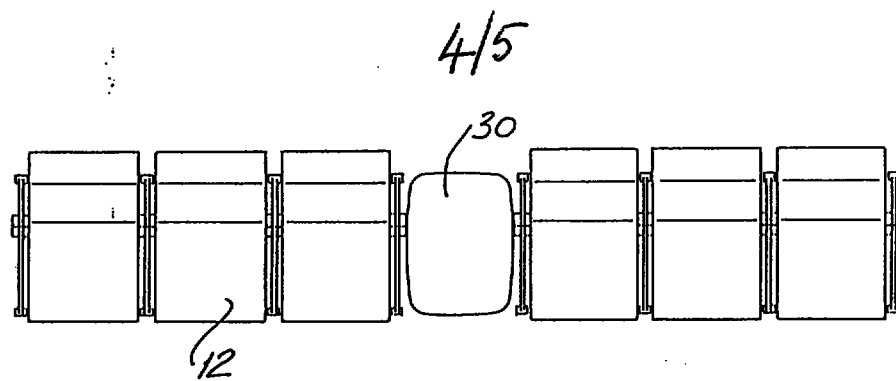


FIG. 6A

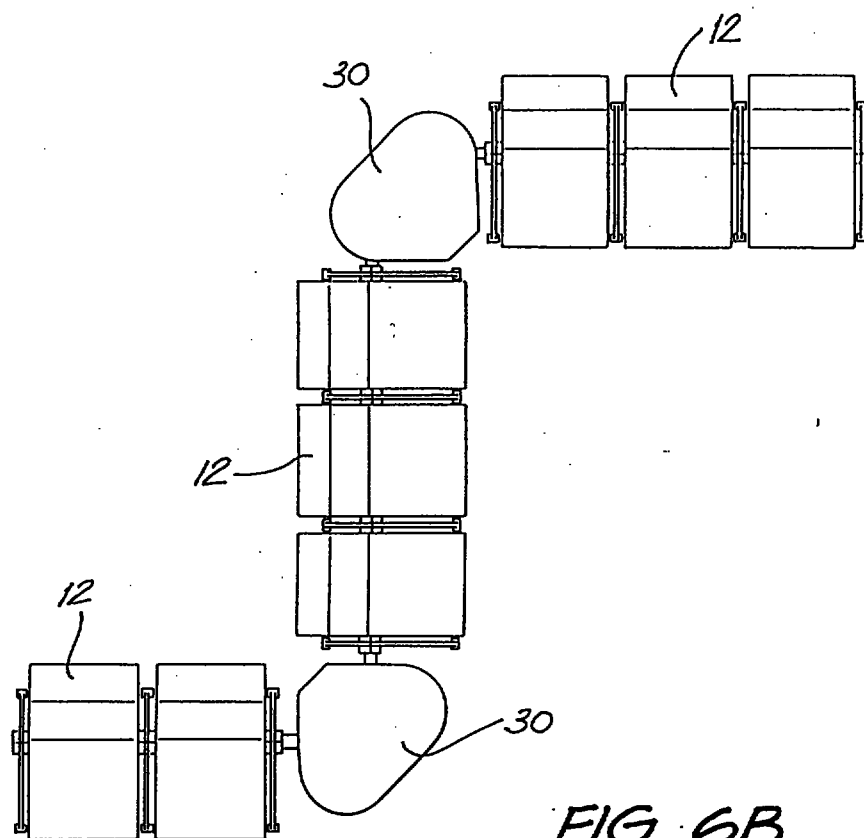
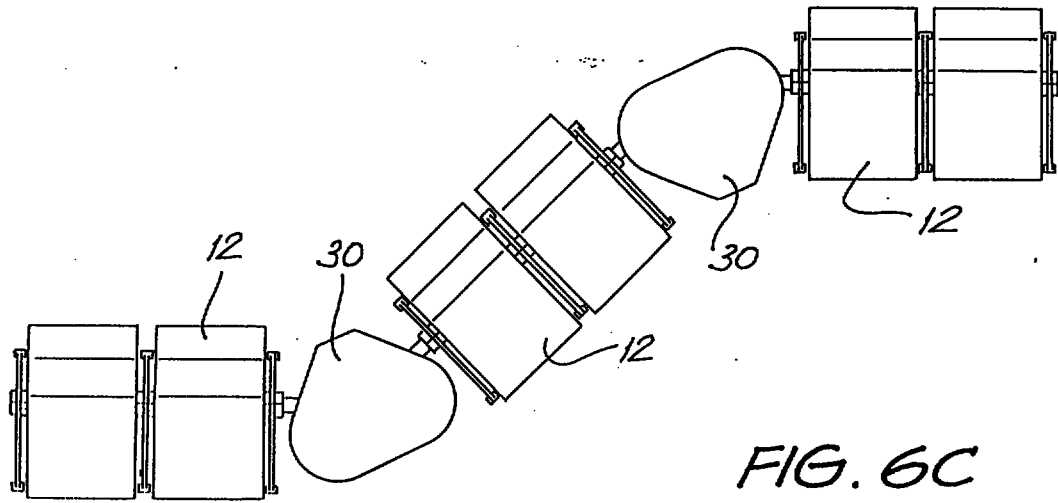
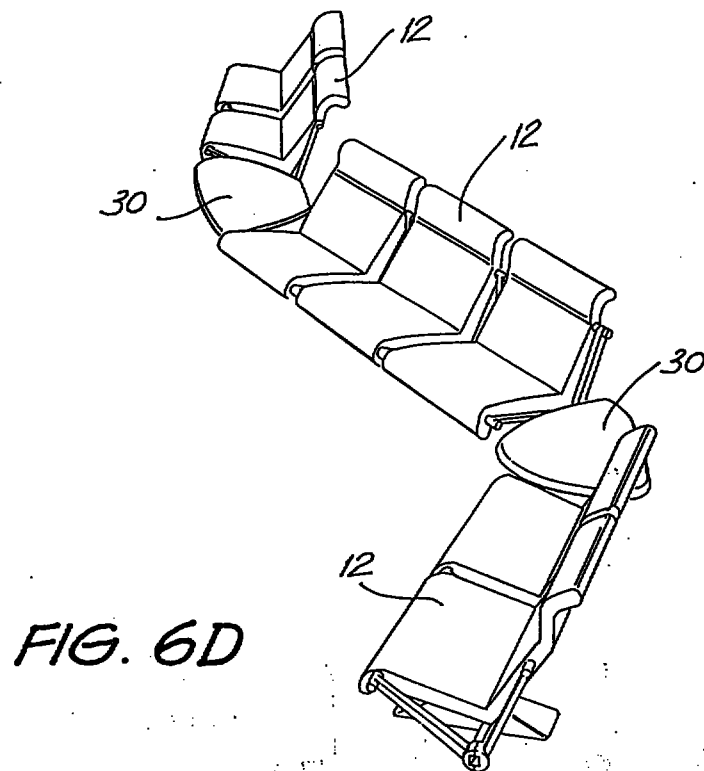


FIG. 6B

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AN ARTICLE OF FURNITURE

REPLACEMENT SHEETS		SG
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This invention relates to an article of furniture and, in particular, to a modular seating arrangement which is configurable to realise a number of desired seating configurations.

The invention is applicable, for example, in places where it is desired to have modular seating arrangements, such as in departure lounges at airports or waiting areas in professional offices, hospitals, halls and the like. A number of seating arrangements are known to be suitable for such applications, however they tend to suffer from a lack of flexibility in configuration and are difficult to assemble.

It is an object of the present invention to provide a modular seating arrangement which can be assembled into various desired configurations with great flexibility and relative ease.

According to the present invention there is disclosed a modular seating arrangement comprising:

- at least one spine having a substantially uniform transverse cross-sectional shape;

- at least one spine supporting means for supporting said at least one spine relative a floor surface;

- at least one chair having a seat and a backrest formed as a unitary structure;

- at least one seat support extending from said at least one spine to said at least one seat;

- means for connecting the at least one seat support to the at least one spine;

- means for connecting the at least one seat support to the at least one seat;

- at least one backrest support extending from said at least one spine to said at least one backrest;

- means for connecting the at least one backrest support to the at least one spine;

and

- means for connecting the at least one backrest support to the at least one backrest;

wherein the means for connecting the at least one seat support to the at least one spine and the means for connecting the at least one backrest support to the at least one spine are separable.

Preferably a modular seating arrangement can be configured to include a right angled corner to allow an L-shaped configuration of a plurality of seat frames with a side table being located at the corner.

In order that the invention might be further explained, a preferred embodiment will now be described with reference to the accompanying drawings, in which:

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Fig. 1 shows an exploded perspective view of a modular seating arrangement constructed in accordance with the preferred embodiment;

Fig. 2 shows another arrangement;

Fig. 3 shows yet a further arrangement;

Fig. 4 shows a still further arrangement;

Fig. 5 shows a perspective view of part of the arrangement of Fig. 4; and

Fig. 6A-6D each illustrate in plan or perspective view one of a number of other seating configurations arranged at various angles with respect to side tables.

The means for connecting the at least one seat support to the at least one spine and the means for connecting the at least one backrest support to the at least one spine preferably co-operate to releasably secure the at least one seat support relative to the at least one backrest support.

The at least one spine preferably extends between a first end and a second end, and said at least one spine supporting means preferably includes a first stand that supports said first end, and a second stand that supports said second end in such a manner that said at least one spine extends substantially parallel to the floor surface.

The at least one chair may face in a forward direction and said at least one seat support may extend forwardly and upwardly from said at least one spine to said at least one seat. In one alternative, the at least one chair may face in a forward direction and said at least one backrest support may extend linearly rearwardly and upwardly from said at least one spine to said at least one backrest.

The means for connecting the at least one seat support to the at least one spine preferably includes an end of said at least one seat support that is configured to engage said at least one spine and said means for connecting the at least one backrest support to the at least one spine preferably includes an end of said at least one backrest support that is configured to engage said at least one spine, and said ends of said at least one seat support and said at least one backrest support are preferably releasably secured adjacent one another to capture said at least one spine therebetween. A screw may secure the ends of said at least one seat support and the at least one backrest support relative to the at least one spine.

The at least one seat support may have one end thereof shaped to be connected to an extremity of the at least one seat distal from the at least one spine. This shaped end may occupy a position adjacent the at least one seat and a bolt may extend through the end and the seat.

The at least one backrest support preferably has one end thereof shaped to be connected to an extremity of the at least one backrest distal from the at least one spine. The end may occupy a position adjacent the backrest and a bolt may extend through the end and the at least one backrest.

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A single seat support and a single backrest support preferably constitute a support pair, there preferably being one more support pair than the number of seats with a support pair being located alongside each side of each said seat. A first bolt may extend through a first seat support, the seat and a second seat support and a second bolt may extend through a first backrest support, the backrest and a second backrest support.

It will be understood that the modular seating arrangement of the present invention may be configurable to realise any one of a number of desired seating configurations. The modular seating arrangement may further comprise an elongate arm rest having two extremities, one extremity of said arm rest being connected to the other end of said backrest support.

The at least one spine may have an outstanding portion engageable with the underside of a table to thereby support said table. This upstanding portion and table are preferably located adjacent one end of said at least one spine to position said table at the end of a row of said seats. In one alternative, the upstanding portion and table are located at the intersection of two spines to position said table between two rows of said seats. In this case the modular seating arrangement may comprise a first plurality of tables and a second plurality of spines, said second plurality being greater by one than the centre of the first plurality.

The arrangement of the present invention may comprise a spine, a plurality of seat frames each having a seat and a backrest formed as a unitary structure, each said seat frames being supported from said spine separately by an elongate seat support extending from said spine to connect with said seat at an extremity of said seat distal from said spine said seat support and said elongate backrest support forming separate parts of the support pair, and there being a support pair located alongside each side of each said seat frame, each said seat support having one end thereof shaped to engage with said spine and extending forward of said spine and the other end thereof being shaped to be connected to said seat and each said backrest support having one end thereof shaped to engage with said spine and extending rearwardly of said spine and the other end thereof being shaped to be connected to said backrest.

Fig. 3 shows a configuration where an arm rest 26 has been incorporated only at each end of a row having three seats. It is equally possible to provide an arm rest 26 between each of the seat frames 12 given the flexibility of the system.

Fig. 1 shows a further option available for realising a desired configuration, in that the spine 10 is provided with an upstanding portion 28, which receives a side table 30. The side table 30 has a corresponding mating recess (not illustrated) on the underside thereof to receive the upper end of the upstanding portion 28. A side table 30 can be provided at either end of a row of seat frames 12, between adjacent seat frames 12 or at the vertex of an L-shaped configuration as shown in Fig. 4. In Fig. 4 a second

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spine is arranged to engage the first spine 10. In this case the stand 6 shown in Fig. 1 is moved slightly to the left away from the upstanding section 28. In the alternative, a single spine can be manufactured to include the right angle, although it is preferable to standardise on straight spine sections which can inter-engage at various angles to realise a desired configuration, since this reduces the volume of the arrangement in its knocked down form prior to assembly. Fig. 5 shows a view of the configuration of Fig. 4 in perspective. The locations of the arm rest 26 and the stands 6 can be clearly seen.

Fig. 6A shows two banks each of three seat frames 12 in a straight line interposed by a single side table 30. This arrangement is a form of variant to Fig. 4.

Fig. 6B is also a variant to Fig. 4, in that a second side table 30 has been included, as has an additional bank of three chair frames 12. In this instance the side table 30 has been styled or shaped away from being regularly sided.

Figs. 6C and 6D show that angular arrangements of banks of chair frames are possible other than the straight-line configuration of Fig. 6A or the right angled configuration of Fig. 6B. In this instance, the respective spines 10 are located in a rebated section 8 of a stand of the side table 30 at an obtuse angle with respect to each other. Fig. 6C is a plan view, whilst Fig. 6D is a perspective view of two slightly different configurations.

The arrangements of Figs. 6A-6D again illustrate the flexibility of configuration of the modular seating components constructed in accordance with the present invention.

From the foregoing it will be appreciated that the invention discloses modular seating components which are readily and easily configurable to a desired arrangement. Once such a configuration is implemented there is no problem with subsequently reconfiguring the arrangement, or removing it to another location.

It will be appreciated by those skilled in the art that various modifications and alterations can be made and still fall within the broad inventive scope of the invention, examples of which have been described in the foregoing. For example, the first arm 18 and second arm 20 can be identical to save on the unit cost of manufacture. It is also possible that the arms 18,20 form a friction or snap fit onto the spine 10. In addition, if the seat frame 12 is sufficiently strong, the supporting arm 18 can be omitted and the seat frame 12 is then supported by the spine 10 and arm 20.

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CLAIMS

1. A modular seating arrangement comprising:
at least one spine having a substantially uniform transverse cross-sectional shape;
at least one spine supporting means for supporting said at least one spine relative a floor surface;
at least one chair having a seat and a backrest formed as a unitary structure;
at least one seat support extending from said at least one spine to said at least one seat;
means for connecting the at least one seat support to the at least one spine;
means for connecting the at least one seat support to the at least one seat;
at least one backrest support extending from said at least one spine to said at least one backrest;
means for connecting the at least one backrest support to the at least one spine;
and
means for connecting the at least one backrest support to the at least one backrest,
wherein the means for connecting the at least one seat support to the at least one spine and the means for connecting the at least one backrest support to the at least one spine are separable.
2. A modular seating arrangement according to Claim 1, wherein the means for connecting the at least one seat support to the at least one spine and the means for connecting the at least one backrest support to the at least one spine co-operate to releasably secure the at least one seat support relative to the at least one backrest support.
3. A modular seating arrangement according to Claim 1 or 2, wherein said at least one spine extends between a first end and a second end, and said at least one spine supporting means includes a first stand that supports said first end, and a second stand that supports said second end in such a manner that said at least one spine extends substantially parallel to the floor surface.
4. A modular seating arrangement according to any one of Claims 1 to 3, wherein said at least one chair faces in a forward direction and said at least one seat support extends forwardly and upwardly from said at least one spine to said at least one seat.
5. A modular seating arrangement according to any one of Claims 1 to 4 wherein said at least one chair faces in a forward direction and said at least one backrest



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support extends linearly rearwardly and upwardly from said at least one spine to said at least one backrest.

6. A modular seating arrangement according to any one of Claims 1 to 5 wherein said means for connecting the at least one seat support to the at least one spine includes an end of said at least one seat support that is configured to engage said at least one spine and said means for connecting the at least one backrest support to the at least one spine includes an end of said at least one backrest support that is configured to engage said at least one spine, and said ends of said at least one seat support and said at least one backrest support are releasably secured adjacent one another to capture said at least one spine therebetween.

7. A modular seating arrangement according to Claim 6 wherein a screw secures said ends of said at least one seat support and said at least one backrest support relative to said at least one spine.

8. A modular seating arrangement according to any one of Claims 1 to 7 wherein said at least one seat support has one end thereof shaped to be connected to an extremity of said at least one seat distal from said at least one spine.

9. A modular seating arrangement according to Claim 8 wherein said shaped end occupies a position adjacent said at least one seat and a bolt extends through said end and said seat.

10. A modular seating arrangement according to any one of Claims 1 to 9 wherein said at least one backrest support has one end thereof shaped to be connected to an extremity of said at least one backrest distal from said at least one spine.

11. A modular seating arrangement according to Claim 10 wherein said end occupies a position adjacent said backrest and a bolt extends through said end and said at least one backrest.

12. A modular seating arrangement according to any one of Claims 1 to 11 wherein a single seat support and a single backrest support constitute a support pair, there being one more support pair than the number of seats with a support pair being located alongside each side of each said seat.

13. A modular seating arrangement according to any one of Claim 12 wherein a first bolt extends through a first seat support, the seat and a second seat support and a second bolt extends through a first backrest support, the backrest and a second backrest support.

14. A modular seating arrangement according to any one of Claims 1 to 13 wherein the modular seating arrangement is configurable to realise any one of a number of desired seating configurations.

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15. A modular seating arrangement according to any one of Claims 1 to 14 further comprising an elongate arm rest having two extremities, one extremity of said arm rest being connected to the other end of said backrest support.

16. A modular seating arrangement according to any one of Claims 1 to 15 wherein said at least one spine has an outstanding portion engageable with the underside of a table to thereby support said table.

17. A modular seating arrangement as claimed in Claim 16 wherein said upstanding portion and table are located adjacent one end of said at least one spine to position said table at the end of a row of said seats.

18. A modular seating arrangement as claimed in Claim 16 wherein said upstanding portion and table are located at the intersection of two spines to position said table between two rows of said seats.

19. A modular seating arrangement according to Claim 18 comprising a first plurality of tables and a second plurality of spines, said second plurality being greater by one than the centre of the first plurality.

20. A modular seating arrangement according to any one of Claims 1 to 19 wherein said arrangement comprises a spine, plurality of seat frames each having a seat and a backrest formed as a unitary structure, each said seat frames being supported from said spine separately by an elongate seat support extending from said spine to connect with said seat at an extremity of said seat distal from said spine said seat support and said elongate backrest support forming separate parts of the support pair, and there being a support pair located alongside each side of each said seat frame, each said seat support having one end thereof shaped to engage with said spine and extending forward of said spine and the other end thereof being shaped to be connected to said seat and each said backrest support having one end thereof shaped to engage with said spine and extending rearwardly of said spine and the other end thereof being shaped to be connected to said backrest.

21. An arrangement as hereinbefore described with reference to the accompanying description.

22. An arrangement as hereinbefore described with reference to the accompanying drawings.



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Date: 15 DEC 1997

An Article of FurnitureAbstract

An arrangement of linking modular furniture is disclosed. There is a spine (10) supported by spaced apart stands (6). On each spine are located a number of seat frames (12). The seat frames are supported by at least one arm (18,20) and preferably by arm rests (26) which together with the arms (18,20) form a truss. A table (30) is also provided. A large number of different configurations can be formed by assembly of the above components.

Fig. 1

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