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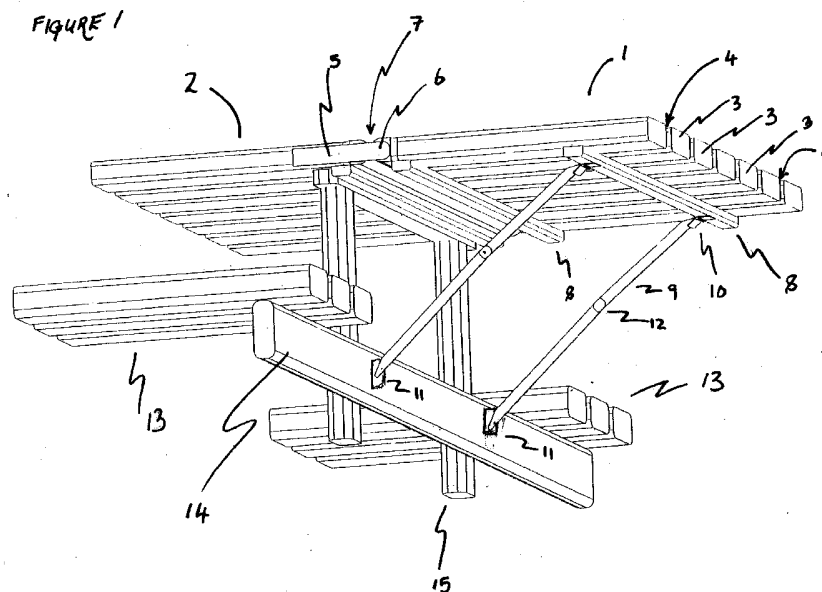
(71) Applicant(s):  
**Andrea Miriam Bunn**  
**The Anvil Inn, St Andrews Lane,**  
**Congham, KINGS LYNN, PE32 1DU,**  
**United Kingdom**  
  
**David Michael Bunn**  
**The Anvil Inn, St Andrews Lane,**  
**Congham, KINGS LYNN, PE32 1DU,**  
**United Kingdom**  
  
**Roderick Stanley Lunness**  
**34 Church Lane, ROYDON, PE32 1AR,**  
**United Kingdom**  
(72) Inventor(s):  
**Roderick Stanley Lunness**

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(56) Documents Cited:  
**GB 2163643 A** **GB 0728828 A**  
**DE 029612131 U** **US 4993109 A**  
**US 4801175 A** **US 3692358 A**  
**US 1803545 A**  
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INT CL<sup>7</sup> **A47B**  
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(continued on next page)

(54) Abstract Title: **Slatted hinged table leaf with anti-finger trapping gap**

(57) A leaf (1) is hingeably connected to a table top, which may be a picnic bench, (2) via a pivot (6). The leaf provides a means to extend the area of the table top. The table top and the leaf comprise a plurality of spaced apart slats (3) with gaps (4) between the slats. The leaf is pivoted upwards and is held in position via a pivotal strut / reflex hinge (9 - 11). The strut is braced on a cross member (8) and a support member (14). The leaf is spaced away from the table top to provide a gap (7) there between so that fingers or hands cannot be trapped. The opposing edges of the leaf and table may be provided with a bullnose or rounded profile to reduce injury (24, 25, Fig 10). A collar (20, Fig 7) or lock may be used to prevent accidental lowering of the leaf.



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(74) Agent and/or Address for Service:

**i.p.21 Limited**

**Central Formalities Department,**

**Norwich Research Park, Colney,**

**NORWICH, NR4 7UT, United Kingdom**

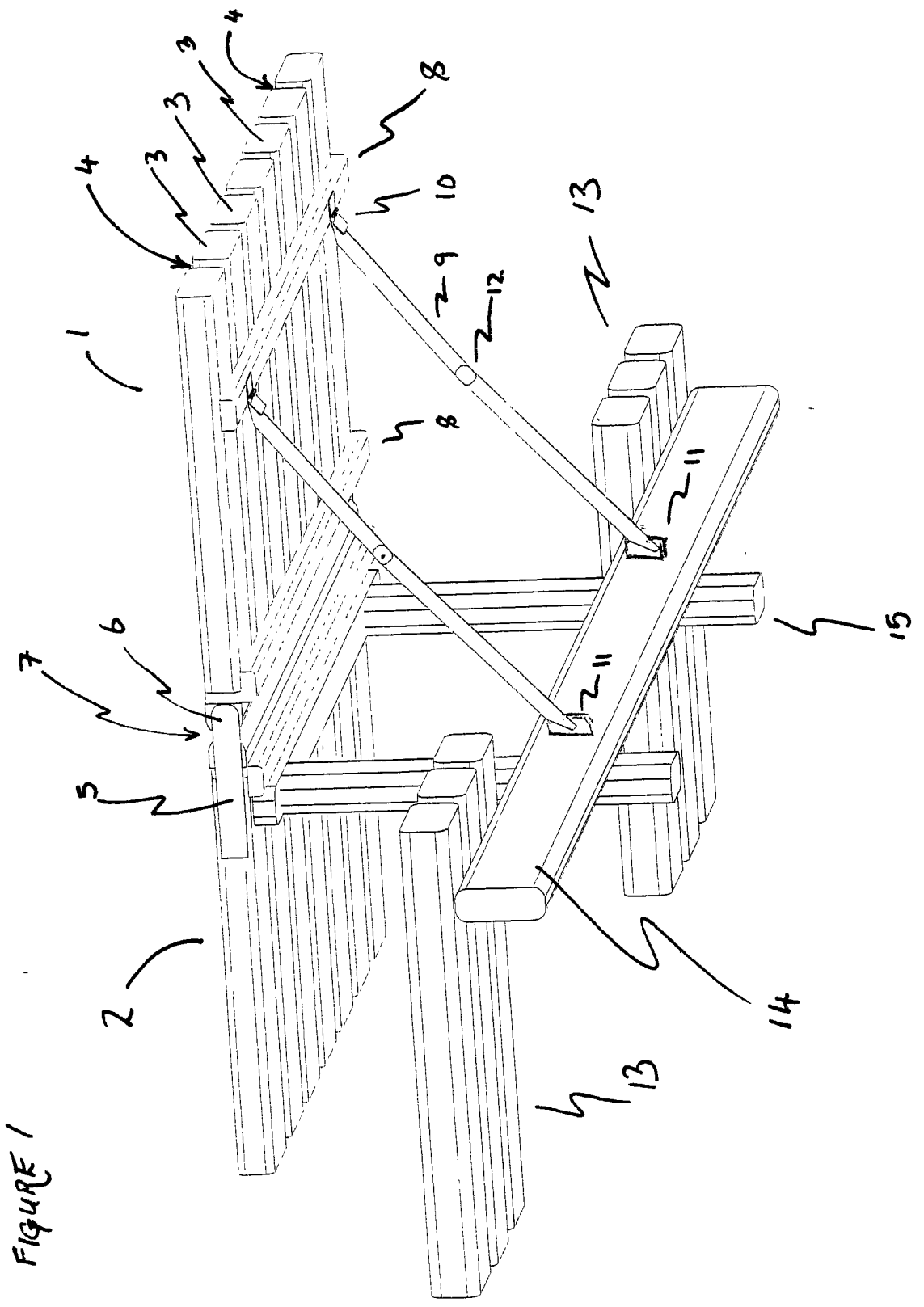
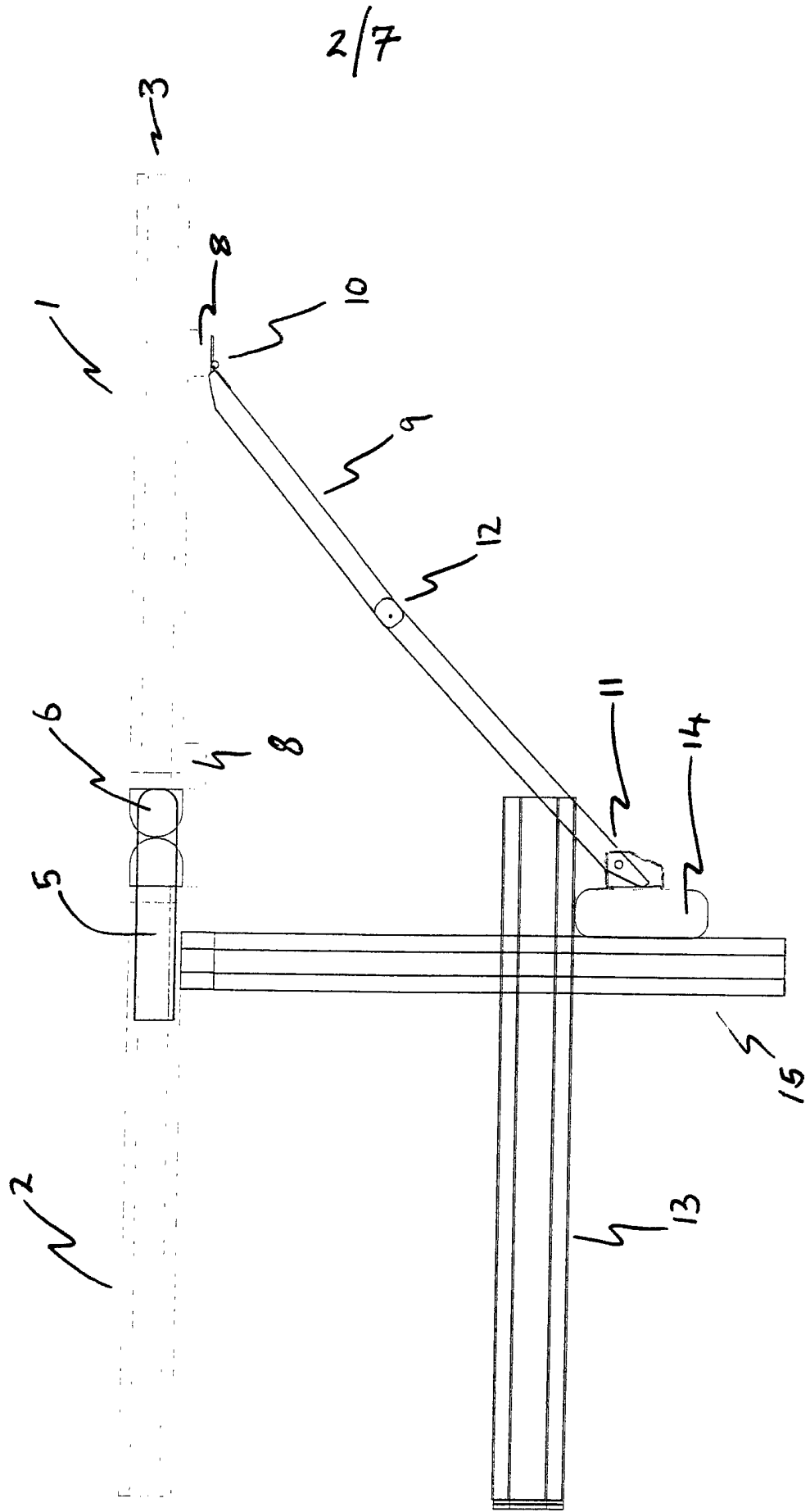


FIGURE 2



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FIGURE 3

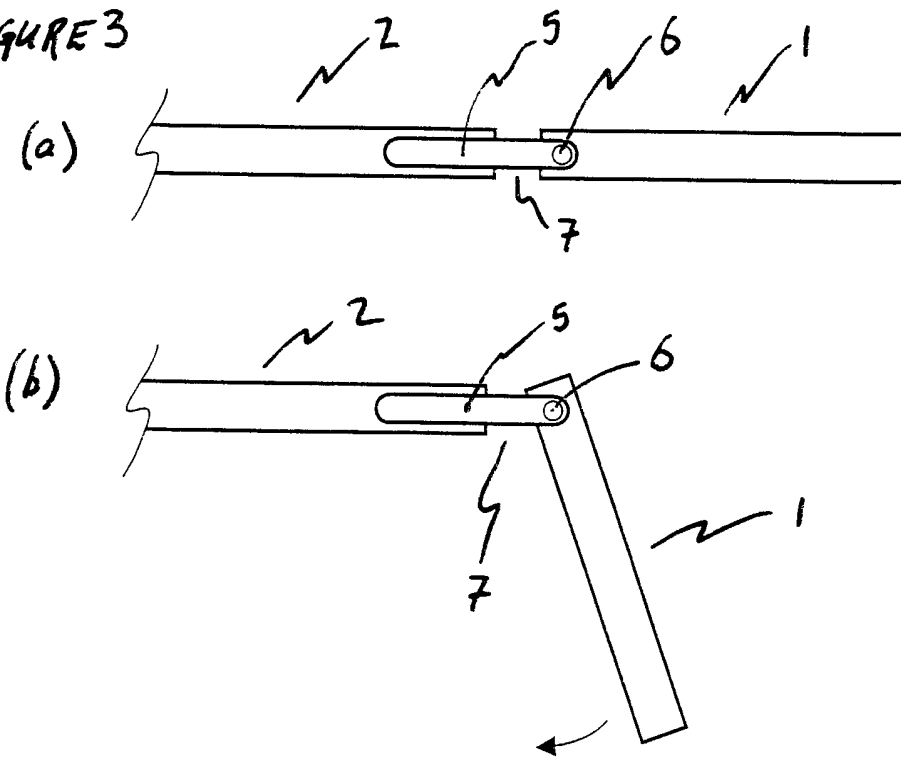
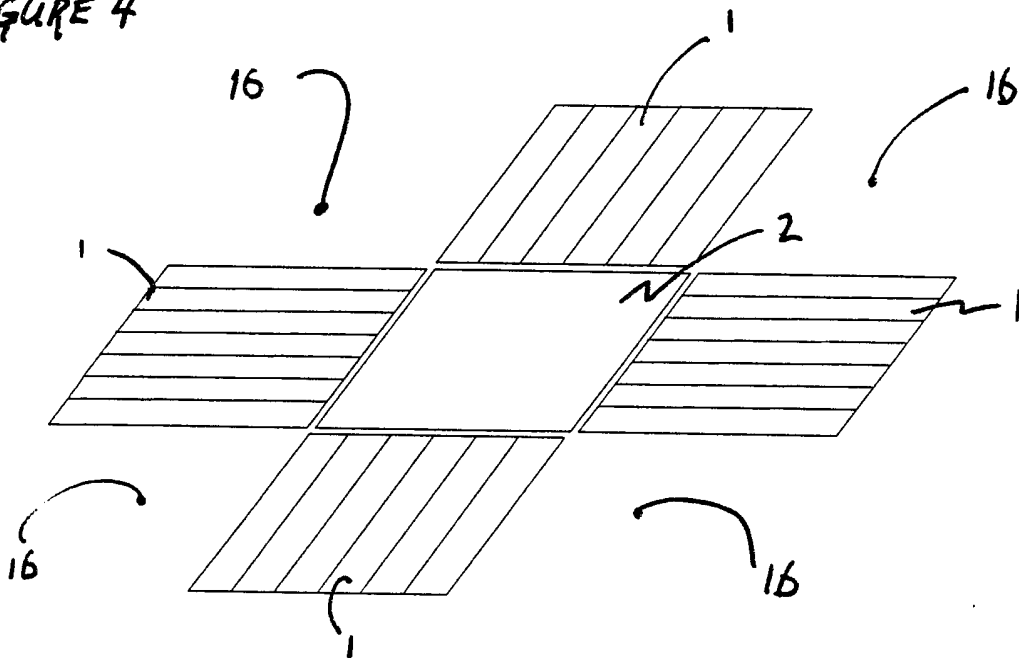
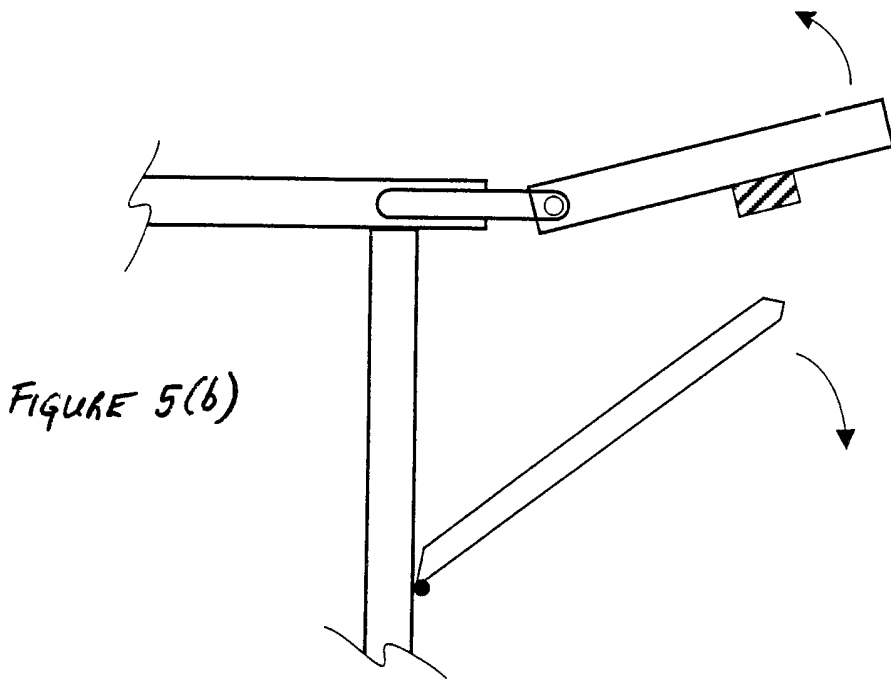
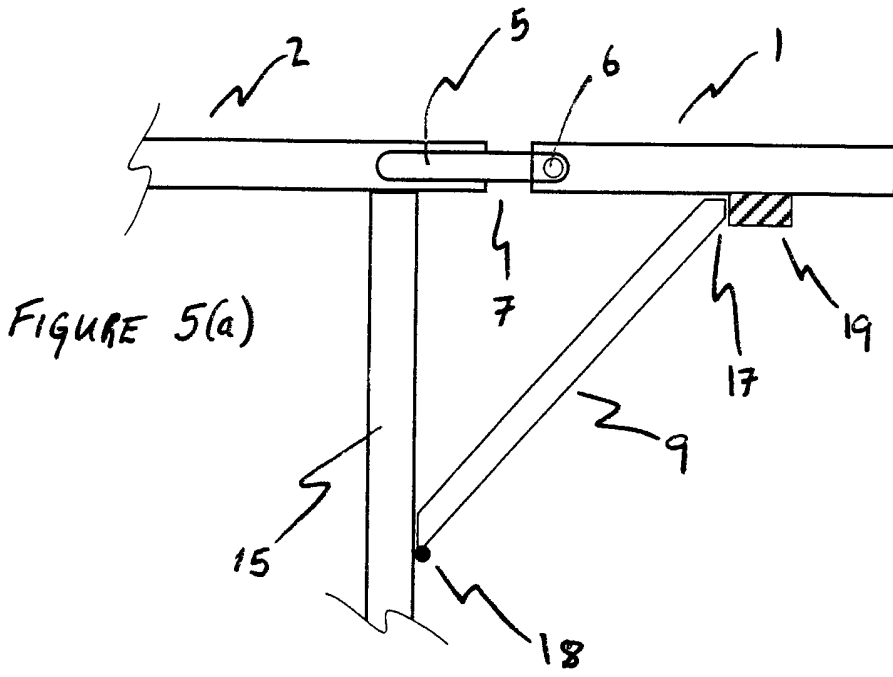


FIGURE 4



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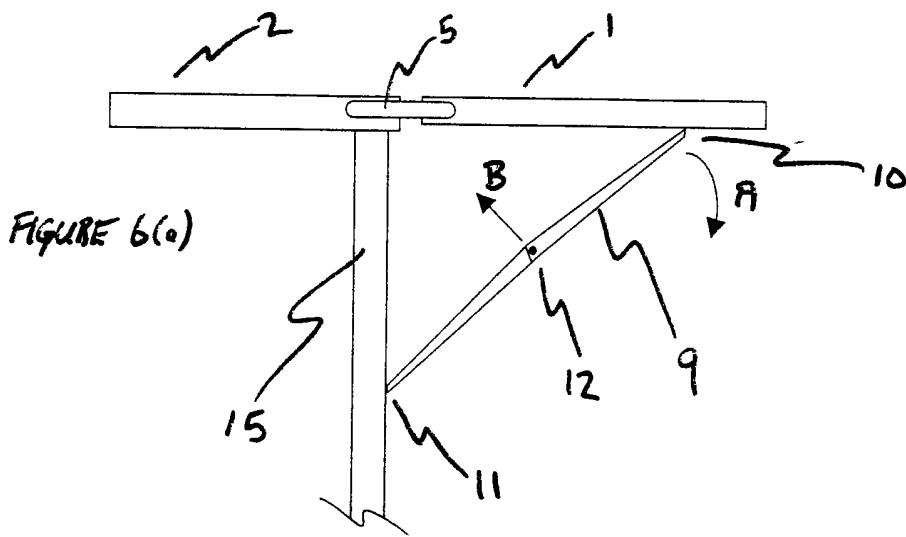


FIGURE 6(b)

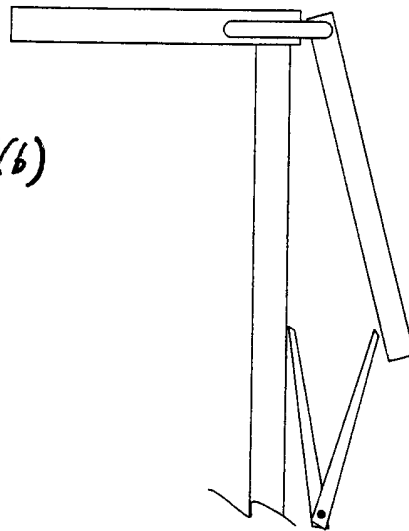
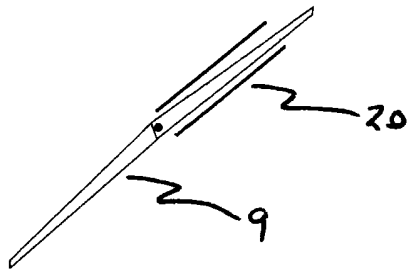


FIGURE 7

(a)



(b)

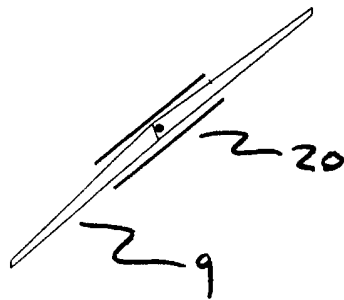
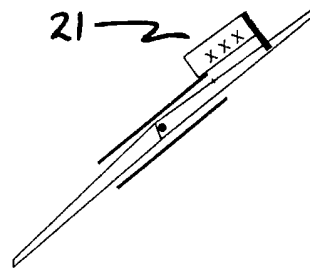


FIGURE 8



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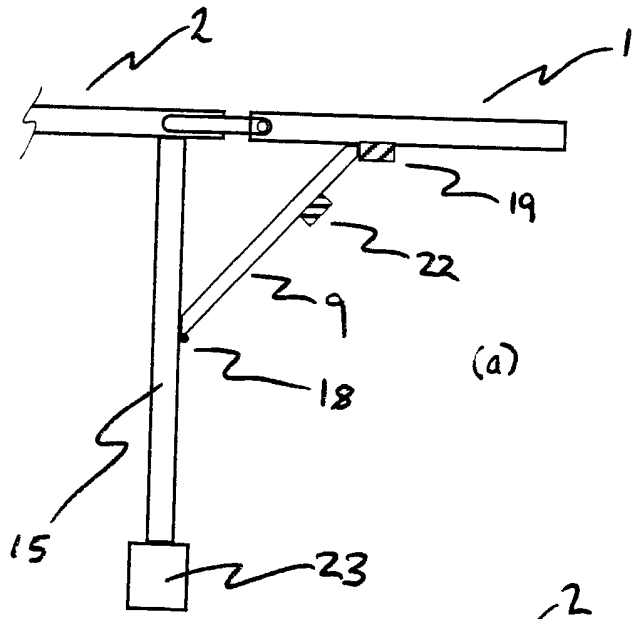
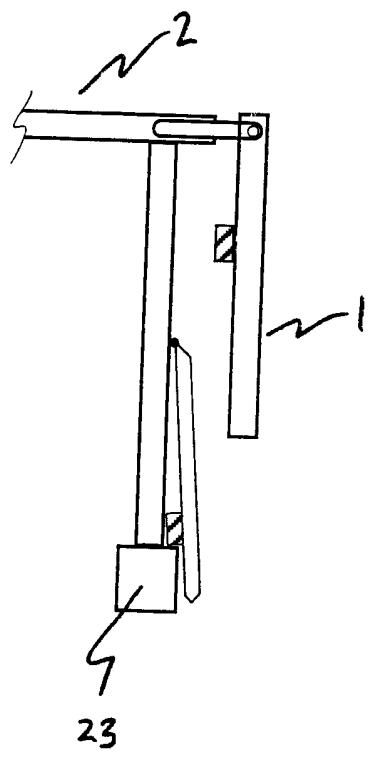
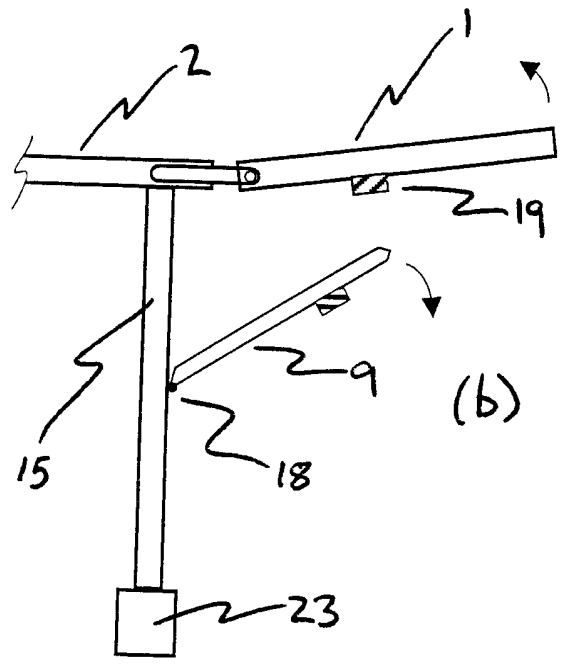


FIGURE 9



(c)

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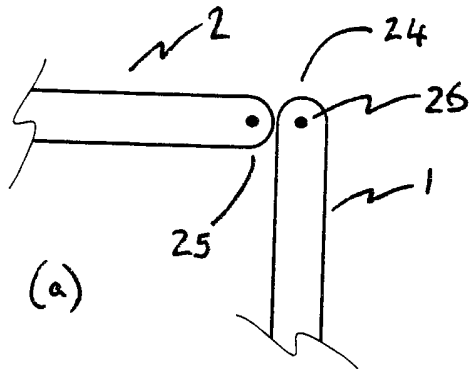


FIGURE 10

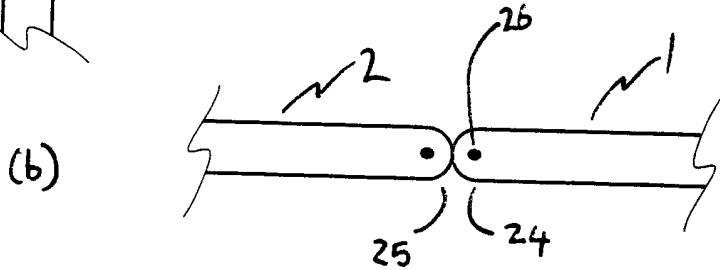


FIGURE 11

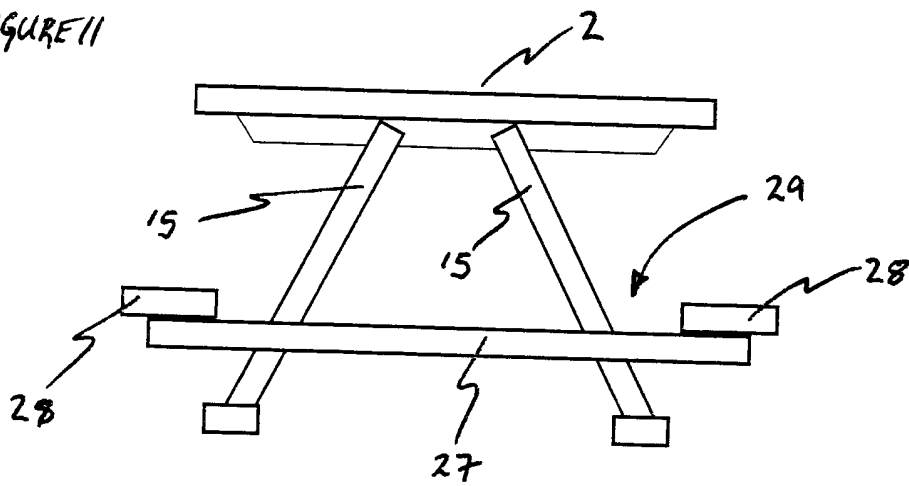
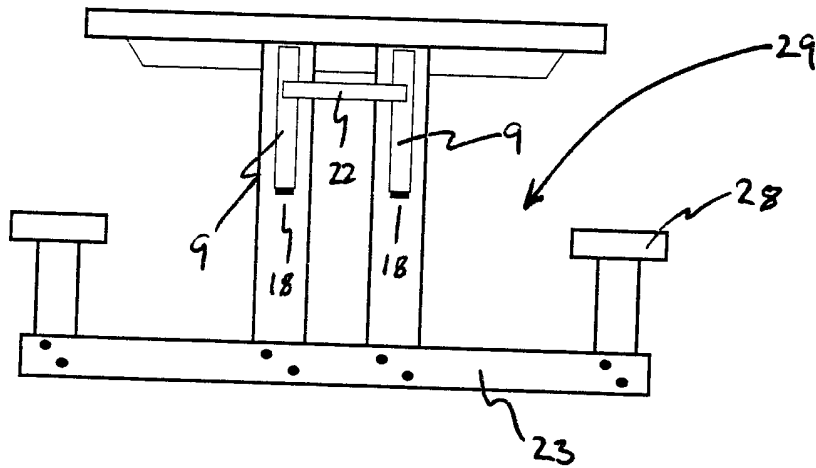


FIGURE 12



5

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- 1 -

A TABLE LEAFField of the Invention

15

The invention relates to extensions for table tops, particularly for tables that are intended for use outdoors.

Background and Prior Art known to the Applicant

20

Extendable tables are generally known. One particular example is a dining table that has a table top composed of two parts. The table is provided with a mechanism to allow the two parts to be slid away from each other to reveal a support on which additional sections or 'leaves' may be inserted. Variants of this design allow several leaves to be inserted to  
25 increase the size of the dining area as required.

Another such example is the 'drop-leaf' table. In this design, an additional leaf is hinged along an edge of a dining table. Often, a complete width 'piano hinge' is used to ensure that there is a close fit between the leaf and the permanent top of the table. Once the leaf  
30 has been raised, it is supported in its extended position by a number of means. Commonly, in the so-called gate-leg table, an additional table leg is provided on a pivoting mounting, and may be swung out from underneath the table to support the

extended leaf. In another variant, elongate runners or support members may be slid out from underneath the permanently mounted table top to support the extended leaf.

5 It is a characteristic of all of these designs that the connection between the permanent table top and the extending leaf is designed to eliminate, or at very least minimise, the gap between the permanent table top and the extended leaf once extended. In the simplest case, the leaf and table top have a flat-face abutment, often supplemented by a peg and hole arrangement to ensure proper alignment. In other cases, the edges of the permanent table top and extending leaf may be so shaped – often with a concealed semi-circular  
10 moulding – so as to prevent any gap between the two in both the extended and unextended configuration.

These designs have evolved both for aesthetic reasons, and also to prevent crumbs and other food spillages from either entering the mechanism, or from falling onto the dining  
15 room floor beneath the table.

Despite the fact that dining room tables are used in a relatively controlled context of a dining room, and during formal dining, it is known that the extending mechanisms can sometimes be accidentally displaced leading to collapse of the extended leaf with  
20 consequent alarm, spillage, and potential for injury. It will also be well known to anyone who has sat at a gate-leg table that the additional leg often limits access to the table, and diners frequently have to resort to sitting with one leg either side of the additional table leg.

25 Finally, in households having a number of members who require assistance with eating (such as children, the elderly or infirm) it is often difficult for a supervising adult to gain access to the dining table and diner to render the necessary assistance.

30 For outdoor dining, especially in public houses, tables of an open slatted-top design are often used, and these are invariably provided with integral seating (also of a slatted design). In the context of outdoor eating, the slatted top provides the benefit that crumbs and other food residues that fall onto the table may easily be brushed to one side, to fall through the gaps between the slats and onto the ground – the problems of food falling

onto carpets are not an issue in this context, and the slatted nature of the table top is a positive advantage. Other evident advantages are that spillage of drinks, and the inevitable rain that causes liquid build-up on the table top can be equally easily dealt with by again brushing the liquid to the nearest gap where it can conveniently trickle away, rather than fall onto the laps of those seated at the table. The provision of known table extending devices, as above, removes these advantageous features.

It is an object of the present invention to attempt a solution to these and other problems

#### 10 Summary of the Invention

In its broadest aspect, the invention provides a table leaf (an extension for a table top) comprising a plurality of slats (bearing members, arranged in a spaced-apart fashion to define gaps between adjacent members), joined together to form the leaf. In this way, the advantageous features of the slatted-top table may be enjoyed on the extended table.

Preferably, the table leaf includes connection means configured so as to define a gap between the leaf and the table top, to which, in use, it is connected, when said leaf is in its table-top-extending position. Providing this feature gives two particular advantages: firstly, it prevents a user's fingers being trapped between the rising leaf and the permanent table top; this is particularly important in the outdoor dining context of a public house, where families are often present, and there is an increased risk of children's fingers being trapped. Secondly, the provision of a second such gap adds to the debris/fluid-removal advantages of a slatted table top alone.

25 In another broad aspect of the invention, the edge of the leaf that abuts a table top is shaped to a "bullnose" configuration, i.e. the edge has a rounded, e.g. circular or semi-circular profile, centred on the axis about which the leaf swings, such that any gap between the leaf and the table top remains of substantially the same width during operation of the leaf, thus minimising the chance of trapping fingers during operation. Preferably, the edge of a table top to which a leaf abuts, in use, would be similarly shaped

In any of the above aspects, it is further preferable that the underside (in use) of the leaf is provided with an elongate cross-member, preferably substantially parallel to the intended line of connection with a target table top, and the support member is adapted to engage with the leaf at the abutment of the cross-member and leaf. In this way, the engagement of support member with leaf is immune to lateral movement of the support member that might be introduced by the generally more generous manufacturing tolerances of exterior furniture, and by the less than careful likely users of the device

In a further, and particularly preferred aspect, the support member is hingeably connected to the leaf, is hingeably connectable to a target table; and comprises a reflex hinge. Such hinges are known in themselves, and are described in greater detail below. In this aspect, it is especially preferred that the reflex hinge is further provided with a slideable collar that can be slid over the reflex hinge to prevent unintended lowering of the leaf from its extended position. This additional safety device is especially advantageous in the context of outdoor dining, where small and boisterous children are likely to be running about. Parents might be less than totally vigilant, and the children could knock away the support device with disastrous consequences. In a further advantageous aspect, the support member and leaf are provided with a lock to prevent unauthorised lowering or raising of the leaf from or to its extended position. This provision allows the landlord, or restaurateur to control the raising and lowering of the table leaf, so providing a means to prevent accidents for which he might otherwise be held to be responsible. It is particularly advantageous if the lock comprises a combination lock. In this way, bar staff can be issued with the appropriate code to control all tables, without the need to issue multiple keys

Included within the scope of the invention is a table leaf extension substantially as described herein, with reference to and as illustrated by any appropriate combination of the accompanying drawings

Also included within the scope of the invention is a table top incorporating an extension  
5 described above, wherein the slats in the extension are so sized and arranged as to match an arrangement of slats on the table top. Not only does this have the side effect of greater aesthetic appeal, but the alignment of the slats and gaps in the table top and the leaf prevents any toppling of items that may be moved from the table top to the leaf caused by slat misalignment.

10

#### Brief Description of the Drawings

The invention will be described with reference to the accompanying drawings in which:

15

Figure 1 is a perspective view of an embodiment of the invention showing a leaf attached to a permanent table top;

Figure 2 shows an elevation of the embodiment of figure 1;

20

Figure 3 is a schematic elevation of a connection between a leaf of the present invention and a table top;

Figure 4 illustrates an embodiment of the invention comprising a plurality of leaves  
25 attached to a permanent table top;

Figure 5 is a schematic elevation of an embodiment of the invention having a lateral movement resistant support strut,

30 Figure 6 illustrates an embodiment of the invention using a reflex hinge,

Figure 7 illustrates a detail of an embodiment of the invention with an adapted strut to prevent unintended lowering of a table leaf; and

Figure 8 illustrates a detail of an embodiment of the invention that provides an adapted  
5 strut to prevent unauthorised lowering of the leaf.

Figure 9 illustrates an embodiment of the invention showing the stowing of the leaf support.

10 Figure 10 illustrates a cross-section of a detail of the leaf – tabletop abutment.

Figure 11 illustrates a cross-section of a known table type

Figure 11 illustrates a cross-section of an exterior table with improved seat access, and  
15 showing the location of the leaf support members

#### Description of the Preferred Embodiments

Figure 1 is a perspective illustration of an embodiment of the invention showing a table  
20 leaf, generally indicated by 1, connected to a permanent table top, generally indicated by  
2. The table leaf 1 is comprised of a plurality of slats 3, i.e. darning members, arranged in  
a spaced-apart fashion to define gaps for between adjacent members. The slats are joined  
together, in this case by a pair of cross members 8 to form the leaf 1

25 The leaf 1 is connected to the permanent table 2 by an edge-mounted hinge mechanism 5  
located on either side of the table. The hinge mechanism 5 pivots at the point indicated by  
6. The hinge mechanism 5 is so arranged as to position the table leaf 1 in a spaced-apart  
fashion from the permanent table top 2 when in its extended position, thus defining a gap  
7 between the leaf 1 and the table top 2

30

When in its extended position, the table leaf 1 is supported by a support member 9 that, in  
this embodiment, takes the form of a reflex hinge. Hinges of this type are generally  
known, and are hingeably attached at their upper end 10 to the cross member 8, and at

their lower end 11 to a support member 14. The reflex hinge 9 has a pivotal connection 12 located near its centre point. The operation of this reflex hinge will be described in more detail below

5 In this embodiment, the support member 14 is attached to the legs 15 of the table, and this also carries two seating platforms, or benches 13 extending along the edge of the table. Also of note in this particular embodiment, is that the slats 3 of the table leaf 1 are so sized and arranged as to match the arrangement of slats on the table top 2. Apart from having the side-effect of making an aesthetically-pleasing arrangement, the alignment of  
10 the slats and gaps in the table top 2 and the leaf 1 prevents any toppling of items that may be moved from the table top 2 to the leaf 1 caused by slat misalignment.

Figure 2 is an elevational view of an embodiment of the invention illustrating a slatted leaf 1 hingeably connected to a permanent table top 2 by means of a similar hinge  
15 mechanism 5 to that illustrated in figure 1. Again, the table leaf support member 9 comprises a reflex-type strut hingeably mounted at the top 10 to the cross member 8, at the bottom 11 to the support member 14, and again hinged at the centre point 12. The cross member 14 is, again, in this embodiment connected to the legs 15 of the table, and also serves to support the seating platform 13.

20

Figure 3 illustrates schematically, and in an elevational view, an embodiment of the invention with the table leaf 1 hingeably connected at its edge to the permanent table top 2 by means of a hinge arrangement 5. The configuration of the leaf 1 table top 2, and hinge 5 defines a gap 7 between the leaf 1 and the table top 2. As illustrated in figure 3(b) when  
25 the leaf is lowered into its non-extending position, the gap 7 between the leaf 1 and the table top 2 is maintained at all times, thus eliminating the risk of a user or bystander trapping their fingers in the mechanism

Figure 4 illustrates an embodiment of the invention where a permanent table top 2 is  
30 provided with a plurality of extending leaves 1 on each edge of the table top 2. In this example, four such leaves are shown, one on each edge of the table top. It is envisaged that more or fewer such leaves could also be used. The particular advantage of this arrangement is that the resulting cross-shaped extended table defines spaces for access 16

on either side of each of the extending leaves 1. This allows a parent or supervising adult to easily gain access to the table area in front of a diner sitting adjacent one of the outside edges of an extending leaf. In this particular embodiment, the permanent table top 2 is of solid construction. Such an arrangement might be particularly advantageous where  
5 drinks, serving dishes, condiments etc may be placed on the solid top 2 with diners sitting at each of the extending leaves 1, the extending leaves having a slatted construction (illustrated schematically) allowing crumbs and spillages to pass through the table top.

Figure 5 illustrates another embodiment of the invention. As before, the extending leaf 1  
10 is hingeably connected to the permanent table top 2 by a hinge arrangement 5, in a spaced-apart fashion to define a gap 7 between the leaf 1 and the table top 2. In this embodiment, the leaf 1 is provided with an elongate cross member 19, substantially parallel to the intended line of connection with the table top 2. The support member 9 is hingeably connected at its lower end 18 to a leg 15 of the table. The upper end 17 of the  
15 support member 9 is so shaped as to fit the abutment region between the cross member 19 and the leaf of the table. This arrangement is particularly advantageous, in the context of exterior furniture which of necessity is unlikely to be made to the same standards of craftsmanship as internal dining tables. Expansion of the wood and the use of loose fitting hinges at the lower end 18 is likely to lead to some lateral movement of the support  
20 member 9, and the provision of an elongate cross member and such an abutment means leads the arrangement to be resistant to lateral movements of the support member 9. In order to disengage the mechanism to lower the leaf, the leaf 1 may be raised a little, as illustrated in figure 5(b) to allow the support member 9 to be lowered out of the way. The leaf 1 can then be lowered to a non-extending position.

25 Figure 6 illustrates the operation of the so-called 'reflex hinge'. The operation of the reflex hinge when acting as a support member 9 is such that its central pivotal connection 12 can only operate through a restricted range of angular movement, typically a little over 180°. In this fashion, it operates much like a human knee joint. In its extended  
30 configuration, shown in figure 6a, the turning moment caused by the weight of the leaf 1 is illustrated by the arrow A. This puts the support member 9 into a state of compression, urging the pivotal connection 12 in the direction illustrated by the arrow B, and up against its end stop. In order to lower the leaf to its unextended position, the leaf 1 is raised a

little and the pivotal connection 12 pushed in a direction opposite to arrow B. The connection member then folds in the opposite direction to allow the leaf to be lowered, as illustrated in figure 6(b).

5 Figure 7 illustrates a particularly advantageous embodiment of the invention where the support member 9 is in a form of a reflex hinge, and an additional collar – shown in cross-section as 20 – is provided to slide over the hinge to cover, or restrict, the movement of the central pivotal connection 12. In this way, when the leaf 1 is in its extended position (illustrated in figure 6a) the collar 20 can be slid into place to prevent accidental lowering  
10 of the leaf

In an especially preferred embodiment, illustrated in figure 8, the support member comprises a lock, preferably of the combination type, to prevent unauthorised raising or lowering of the table leaf. It is envisaged that, in the context of an outdoor seating area at  
15 a restaurant or public house, the combination would only be known to the landlord or bar staff, who would then be able to raise or lower the leaf as required, in the knowledge that accidental or unauthorised raising or lowering of the leaf would be prevented.

In a further and particularly advantageous embodiment of the invention, the support  
20 members are located towards either edge of an extendable leaf 1 (as illustrated in figure 1) to allow chairs and especially wheelchairs to be positioned between the struts, to allow free access to the surface of the extended leaf 1. This arrangement is particularly advantageous when the permanent table top 2 and table is provided with fixed seating such as illustrated by 13 in figure 1. Such fixed seating is inappropriate for elderly, infirm  
25 and especially wheelchair-bound diners, and the present invention allows them to participate fully in the outdoor dining experience

Figures 9 (a)-(c) illustrate the operation of a particularly preferred embodiment of the invention. In this embodiment, two support members 9 are provided (illustrated in end-  
30 elevational view in Figure 12). The support members 9 are joined to each other by a transverse tie-bar 22. It can be seen that the arrangement and size of the support members 9, the hinge position 18, legs 15, and a foot member 23, are such that when the leaf 1 is lifted up from its in-use position in Figure 9(a), the support member drops towards the

table legs 15, as illustrated in Figure 9(b), finally coming to rest adjacent the leg 15 and foot member 23 of the table, as illustrated in Figure 9(c). The tie-bar 22 is so positioned on the support members 9 so as to assume a “stowed” position, tucked in above the foot member 23. The leaf 1, then drops down to cover the support members 9. For clarity, the leaf 1 in Figure 9 is shown in a spaced-apart relationship with the support members 9. For preference, the hinge arrangement would be such to bring the leaf, in its lowered position, close to the support member (also in its lowered position). In this way, the hinge 18 is protected from the elements by the lowered support member 9, and also by the lowered table leaf 1. The tight configuration of leaf and support member in this lowered configuration also reduces the presence of tripping hazards

Figure 10 illustrates, in cross-section, a particularly preferred embodiment of the invention. The end 24 of the leaf 1 that abuts the table top 2 has a “bullnose” configuration – a rounded edge (in cross-section) centred on the axis 26 about which the leaf swings. Preferably, and as illustrated in this embodiment, the end 25 of the table top 2 has a similarly rounded profile.

Figure 11 illustrates an end elevation of a typical design of outdoor table. In this design, bench-type seating 28 is supported by a seat-support member 27, which is itself attached to the legs 15 of the table. In consequence, the seat-support member 27 causes an obstruction in the area indicated by 29, and prevents users sliding onto the seat from one end. This is particularly inconvenient for users of limited mobility, who could otherwise assume a position at the table as completely able-bodied users would. Figure 12 illustrates an improved table wherein the seat support member 27 of Figure 11 is replaced by a ground-engaging foot member 23 from which the seating 28 may be supported. Also illustrated in Figure 11 is the positioning of the table leaf support members 9, the hinges 18, and the transverse tie-bar 22

CLAIMS

- 1 A table leaf (an extension for a table top) comprising a plurality of slats (bearing members, arranged in a spaced-apart fashion to define gaps between adjacent members),  
5 joined together to form the leaf
- 2 A table leaf according to claim 1 including connection means configured so as to define a gap between the leaf and the table top, to which, in use, it is connected, when said leaf is in its table-top-extending position
3. A table leaf according to either of claims 1 or 2 wherein the edge of the leaf that abuts  
10 the table top is shaped to a “bullnose” configuration.
4. A table leaf according to any preceding claim wherein the underside (in use) of the leaf is provided with an elongate cross-member, preferably substantially parallel to the intended line of connection with a target table top, and the support member is adapted to engage with the leaf at the abutment of the cross-member and leaf.
- 15 5. An extension according to any of claims 1 to 4 wherein the support member:
  - is hingeably connected to the leaf;
  - is hingeably connectable to a target table; and
  - comprises a reflex hinge.
6. An extension according to claim 5 where the reflex hinge is further provided with a  
20 slideable collar that can be slid over the reflex hinge to prevent unintended lowering of the leaf from its extended position
7. An extension according to any preceding claim wherein the support member and leaf are provided with a lock to prevent unauthorised lowering or raising of the leaf from or to its extended position
- 25 8. An extension according to claim 7 wherein the lock comprises a combination lock.

9. A table leaf extension substantially as described herein, with reference to and as illustrated by any appropriate combination of the accompanying drawings
10. A table top incorporating an extension according to any preceding claim wherein the slats in the extension are so sized and arranged as to match an arrangement of slats on the  
5 table top.

**Amendments to the claims have been filed as follows**

1. A table leaf being an extension for a table top and comprising a plurality of slats in the form of bearing members, arranged in a spaced-apart fashion to define gaps between  
5 adjacent members, the slats being joined together to form the leaf.

2. A table leaf according to claim 1 including connection means configured so as to define a gap between the leaf and the table top, to which, in use, it is connected, when said leaf is in its table-top-extending position.

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3. A table leaf according to either of claims 1 or 2 wherein the edge of the leaf that abuts the table top is shaped to a bullnose configuration.

4. A table leaf according to any of the preceding claims wherein the underside in use of  
15 the leaf is provided with an elongate cross-member, preferably substantially parallel to the intended line of connection with a table top, and the member is adapted to engage with the leaf at the abutment of the cross-member and leaf.

5. A leaf according to any of claims 1 to 4 wherein the support member:  
20 is hingeably connected to the leaf;  
is hingeably connectable to a target table; and  
comprises a reflex hinge.

6. A leaf according to claim 5 where the reflex hinge is further provided with a slideable collar that can be slid over the reflex hinge to prevent unintended lowering of the leaf  
25 from its extended position.

7. A leaf according to any preceding claim wherein the support member and leaf are provided with a lock to prevent unauthorised lowering or raising of the leaf from or to its extended position.
- 5 8. A leaf according to claim 7 wherein the lock comprises a combination lock.
9. A table leaf substantially as described herein, with reference to and as illustrated by any appropriate combination of the accompanying drawings.
- 10 10. A table top incorporating a table leaf according to any preceding claim wherein the slats in the leaf are so sized and arranged as to match an arrangement of slats on the table top.



INVENTOR IN PEOPLE

Application No: GB0515333.3

Examiner: Gareth Jones

Claims searched: 1-10

Date of search: 25 August 2005

### Patents Act 1977: Search Report under Section 17

#### Documents considered to be relevant:

| Category | Relevant to claims | Identity of document and passage or figure of particular relevance |
|----------|--------------------|--|
| A        | -                  | GB2163643 A<br>(ROBERTS)   |
| A        | -                  | US4993109 A<br>(STEVENS)   |
| A        | -                  | US3692358 A<br>(SUNG)  |
| A        | -                  | GB728828 A<br>(FREEDLAND)  |
| A        | -                  | US4801175 A<br>(ALBANESE)  |
| A        | -                  | US1803545 A<br>(CASPER)  |
| A        | -                  | DE29612131 U<br>(HERBST) 17-10-96 See fig 2.                       |

#### Categories:

|   |  |   |   |
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| X | Document indicating lack of novelty or inventive step  | A | Document indicating technological background and/or state of the art  |
| Y | Document indicating lack of inventive step if combined with one or more other documents of same category | P | Document published on or after the declared priority date but before the filing date of this invention          |
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#### Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC<sup>X</sup> :

A4L

Worldwide search of patent documents classified in the following areas of the IPC<sup>07</sup>

A47B

The following online and other databases have been used in the preparation of this search report



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