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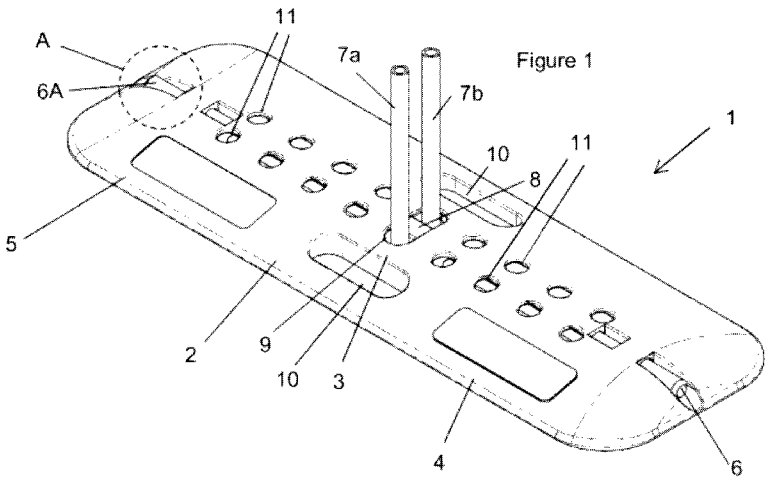


Figure 1

(57) Abstract: A base for a temporary barrier, comprising (i) a support portion of plastics material on which is provided an upwardly extending spigot or socket for engaging with a part of the barrier; (ii) a first elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support portion to a first remote end; (iii) a first elongate stiffening member which is connected to the first stabilising member and extends horizontally from adjacent the first remote end towards the support portion; (iv) a second elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support portion to a second remote end in a direction opposite to the first stabilising member; and (v) a second elongate stiffening member which is connected to the second stabilising member and extends horizontally from adjacent the second remote end towards the support portion; wherein the first and second stiffening members are separate and do not define a continuous stiffening member extending from adjacent the first remote end of the first stabilising member to adjacent the second remote end of the second stabilising member. The use of the stiffening members, provides stiffness to the elongate stabilising members and means that the profile of the stabilising members can be kept low so as to reduce the danger of a pedestrian tripping over a foot of the base.

WO 2016/139486 A1

BASE FOR A TEMPORARY BARRIER

This invention relates to a base for supporting a temporary barrier.

In some case, a temporary barrier such as a fence may be provided with support posts, and a base for supporting a post may have a socket for receiving an end portion of a support post. Alternatively, if an end part of the fence support post is hollow and open ended - for example the support post is in the form of a tube - the base may have a spigot which is received within the end part of the support post. Other barriers such as panels of plastics material may be provided with a support post or spigot and the base will have a socket for receiving an end portion of that. In other cases such a barrier panel of plastics material may be provided with a socket to receive a spigot projecting from a base.

The bases may be made of concrete or of plastics material, such as recycled plastics material. Their function is to prevent unwanted displacement of the support post and to resist the temporary barrier, such as a fencing panel, being knocked or blown over. A problem with such bases is that they may present a trip hazard to pedestrians. A number of solutions have been proposed, such as colouring the base with a bright colour.

An object of the present invention is to provide a base which presents a significantly smaller trip hazard.

According to one aspect of the invention there is provided a base for a temporary barrier, comprising (i) a support portion of plastics material on which is provided an upwardly extending spigot or socket for engaging with a part of the barrier; (ii) a first elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support portion to a first remote end; (iii) a first elongate stiffening member which is connected to the first stabilising member and extends horizontally from adjacent the first remote end towards the support portion; (iv) a second elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support portion to a second remote end in a direction opposite to the first stabilising member; and (v) a second elongate stiffening member which is

connected to the second stabilising member and extends horizontally from adjacent the second remote end towards the support portion; wherein the first and second stiffening members are separate and do not define a continuous stiffening member extending from adjacent the first remote end of the first stabilising member to adjacent the second remote end of the second stabilising member.

The use of the stiffening members provides stiffness to the elongate stabilising members and means that the profile of the stabilising members can be kept low so as to reduce the danger of a pedestrian tripping over a foot of the base. In preferred embodiments, therefore, each stabilising member is of low profile. By low profile is meant that the height of the stabilising members over major parts of their respective lengths is below a height that would provide a significant risk of tripping for a pedestrian. In accordance with some embodiments of the invention, the height of the stabilising members over major parts of their respective lengths does not exceed about 40 mm. However, in some preferred embodiments of the invention the stabilising members have lower heights than 40 mm. In these preferred embodiments, at least over a major part of the length of the stabilising members from their respective remote ends, the height of the stabilising member, above the ground on which the base is resting, does not exceed about 35 mm, or about 30 mm, or about 25 mm, or about 20 mm, or about 15 mm or about 12.5 mm. In some embodiments, the preferred maximum height over the major part of the length of each stabilising members is about 25 mm.

Preferably the upper surface of the elongate part of each stabilising member is profiled so as to avoid abrupt edges, for example having rounded edges and a rounded end, so as to reduce further the risk of tripping.

Where it is said that the height a stabilising member above the ground on which the base is resting, does not exceed a particular dimension, in some embodiments this refers to not exceeding that dimension at least for a length of the elongate part of the stabilising member from its end to a point which at least about 95% of the length of the stabilising member from its remote end, or about 90%, or about 85% or about 80% where about 75%, or about 70%, or about 65%, or about 60%, or about 55%, or about 50%.

Where it is not possible to define an exact length of a stabilising member, for example because it is not a separate element of the base, the above references to the length of the stabilising member from its remote end are references to the distance from the remote end of the stabilising member to the upwardly extending axis of the spigot or socket of the base.

The two stabilising members may be of the same longitudinal extent, or the arrangement may be asymmetrical. The length of the stabilising members will depend on the application for which the base is intended, and will be chosen to prevent tipping over of the barrier with which the base is to be used.

The stiffening members serve to reinforce the stabilising members. The stiffening members may be in the form of rods or tubes and in general will be of the same or similar profiles although they could have different profiles. Their lengths may depend on the lengths of their respective stabilising member. The stiffening members may be of a suitable material to so as to be substantially rigid, or to be semi-rigid so as to have a sufficient degree of flexibility to assist in assembly of the base. The respective stiffening members could be of different materials but in preferred materials they are of the same materials. For example the members may be of a metal such as steel. However, in preferred embodiments, the members are of a fibre reinforced plastic material. Preferably the members are manufactured by a pultrusion technique. Such a member may comprise fibres, for example of glass or carbon, in a suitable resin such as a vinyl ester resin. Such members have been used in the reinforcement of concrete. For reasons of cost, it is preferred to use glass fibres in a resin matrix, formed by pultrusion. Generally such a stiffening member will have increased resilience as compared to metal members.

As noted above, the stiffening members may be in the form of rods. The rods may have a hollow centre, so as to be tubular. The stiffening members may have any desired cross section, such as being circular, oval, square, oblong, flat, cruciform or any other desired cross section, whether solid or hollow.

One or each stiffening member may terminate short of the support portion. Alternatively, one or each stiffening member may extend to the support portion. In

such an arrangement, one or each stiffening member may be joined to the support portion.

In some embodiments one or each stiffening member comprises a plurality of sub-members. These may abut, or be joined together, or be sufficiently closely spaced from each other, so that the sub-members of one stiffening member effectively define a continuous stiffening member.

In some embodiments, the respective stiffening members may have facing ends which abut or are joined together or are sufficiently closely spaced from each other, so that the stiffening members effectively define a continuous stiffening member. In such embodiments, the invention may thus be varied so that whilst there are separate first and second stiffening members, effectively the stiffening members do define a continuous stiffening member extending from adjacent the first remote end of the first stabilising member to adjacent the second remote end of the second stabilising member.

The engagement of the base with a barrier may be directly, for example by means of a socket of the base receiving a spigot of the barrier panel; or a spigot of the base engaging with a socket of the barrier panel; or the engagement with the barrier may be by way of a socket of the base receiving the end of a support pole for a barrier or a fence; or a spigot of the base engaging within a hollow support pole of a barrier or fence.

There may be a plurality of spigots or sockets on the base. This is applicable in particular where the base engages with poles of a fence since if two spigots or bores are provided the base will provide a junction between two fencing panels.

The or each spigot or socket may be formed by plastics material, by metal, or by a combination of materials.

Some embodiments of the present invention involve the use of an upwardly extending member providing a spigot for the base which engages in a hollow fencing support pole. However, some embodiments use an upwardly extending member which is hollow so as to serve as a socket to receive e.g. a fence pole.

Preferably, there are two spaced upwardly extending members, and others could be provided if desired.

The or each upwardly extending member may be made of metal, such as steel. The or each upwardly extending member may be in the form of a tube. The free end of the or each upwardly extending member may be chamfered to facilitate insertion into a support tube for fencing or the like. Alternatively, it could taper and this could be provided by using a plurality of upwardly extending member portions of different external diameter, joined together in series. Similarly if a socket is provided, this could be wider initially to assist insertion of a fence pole or the like, and will then narrow to provide a secure seating of the pole. Again this could be achieved by using a plurality of upwardly extending member portions of different external diameter, joined together in series.

In a preferred arrangement, the or each upwardly extending member has a lower end which is connected to an open ended hollow member extending in the direction of the stiffening member, into which each stiffening member passes. The or each upwardly extending member then passes upwardly through an associated aperture in the support portion of the base. If there is a plurality of upwardly extending members, there may be an individual aperture for each upwardly extending member or there may be a common aperture for a plurality of upwardly extending members.

In some embodiments, the lower surface of the hollow member is flat. The hollow member may for example be a portion of box section. The cross section of the hollow member may be rectangular, for example square. However the cross section of the hollow member may be of any other cross section, such as circular, elliptical or polygonal. The hollow member may be of metal such as steel.

If an upwardly extending member defining a spigot or socket is metal, and the hollow member is also metal, then the two may be joined together by welding. In one embodiment, there are two metal upwardly extending members joined to a common hollow member, on opposite sides thereof, to form a metal component. An equivalent component could instead be a moulded or fabricated component of other material such as plastics. Assembly is simple in such arrangement, with the or each

upwardly extending member being pushed through the aperture in the support member, and each stiffening member being pushed into position, into the hollow member. If the hollow member is of metal and the stiffening members are of metal, they could be welded to the hollow member.

The ends of the stabilising members may be provided with portions which restrain their respective stiffening member against longitudinal movement when the stiffening member is in position, at least one of the portions being capable of flexion so that the stiffening member can be inserted, and then returning resiliently to keep it in position.

The stabilising members define feet for the base and could be of an appropriate high visibility colour such as yellow or orange.

In some embodiments, for each stabilising member there could be a plurality of laterally spaced stiffening members, which are preferably substantially parallel to each other. In some embodiments as described above, each stiffening member could extend from adjacent the remote end of the first stabilising member to adjacent the remote end of the second stabilising member. In other embodiments as described above, each stabilising member could have separate stiffening members.

A stiffening member could extend through a bore or an open recess formed in a respective stabilising member.

A base in accordance with embodiments of the invention presents a reduced risk of tripping to pedestrians, because the protruding foot is of low profile, preferably has rounded edges, and is preferably brightly coloured.

According to another aspect of the invention, there is provided a base as described in accordance with all of the aspects set out above, but modified to exclude the stiffening member or members. In such an arrangement, there may be provided:

a base for a temporary barrier, comprising (i) a support portion of plastics material on which is provided an upwardly extending spigot or socket for engaging with a

part of the barrier; (ii) first and second elongate, horizontally extending, low profile ground engaging stabilising members of plastics material connected to the support portion, the stabilising members extending in diametrically opposite directions from the support portion to respective remote ends of the stabilising members; each stabilising member being of a material which is sufficiently stiff whereby the stabilising members are not provided with a stiffening member. By “low profile” is meant a stabilising member having the properties and / or height as described earlier;

All features of this base, with the exception of the presence of the stiffening member or members, may be as described above in connection with all other aspects of the invention.

The material of the stabilising members will be a high performance plastics material such as a nylon or another suitable engineering grade polymer; a fibre reinforced plastics material; a self-reinforced advanced plastics material in which a polymer matrix is reinforced by highly oriented polymer fibres, usually derived from the same polymer; or a polymer such as polyethylene produced by polymerisation catalysed by one or more metallocenes or metallocene derivatives. A metallocene comprises a positively charged metal ion sandwiched between two negatively charged cyclopentadienyl anions. This is in contrast to a stabilising member which does need a stiffening member, which may be of polyethylene for example. However, it will be appreciated that such materials may be used for a stabilising member which does require a stiffening member.

In another arrangement, the or each upwardly extending member has a lower end which is connected to an additional member extending in the direction of the stiffening member, such as a hollow member as described above. However, in this alternative arrangement the additional member is extended along the stabilising members by a sufficient distance so that it provides a stiffening effect itself and there is no need for additional stiffening members. If an upwardly extending member defining a spigot or socket is metal, and the additional member is also metal, then the two may be joined together by welding. In one embodiment, there are two metal upwardly extending members joined to a common additional member, on opposite sides thereof, to form a metal component.

The additional member may be hollow or could be solid.

According to another aspect there is provided a base as above described in accordance with any of the aspects of the invention, in combination with one or more barrier portions. For example, the base could be in combination with a pole of a fencing panel or in combination with two poles of two fencing panels. Alternatively, the base could be in combination with a panel of a barrier with an integrally provided socket or spigot.

In some embodiments, the support portion of the base and the first and second stabilising members are integrally formed, for example being a single moulding of plastics, for example formed by injection or blow moulding. In some embodiments, particularly those for use with a barrier panel of plastics rather than a support pole for fencing, the support portion of the base is provided with an integrally formed upwardly extending plastics part which can either define a spigot or socket of the base, or can be provided with a separate socket or spigot member which can be a separately moulded member, for example injection moulded.

The stabilising members may be connected to the upwardly extending part of the support portion, part way up, for example by curved transition regions.

In one embodiment of the invention there is a support portion of the base which is formed of one component, and a second component which provides both stabilising members and a connection portion between the two stabilising members and is connected to the support portion. For example, the connecting portion could be provided with an aperture which receives part of the support portion. This is applicable to embodiments which have separate stiffening members and to embodiments of the invention which have a single, continuous stiffening member.

Thus viewed from one additional aspect, the invention provides a base for a temporary barrier, comprising (i) a support portion of plastics material on which is provided an upwardly extending spigot or socket for engaging with a part of the barrier; (ii) a first elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support

portion to a first remote end; (iii) a first elongate stiffening member which is connected to the first stabilising member and extends horizontally from adjacent the first remote end towards the support portion; (iv) a second elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support portion to a second remote end in a direction opposite to the first stabilising member; and (v) a second elongate stiffening member which is connected to the second stabilising member and extends horizontally from adjacent the second remote end towards the support portion; wherein a first component of the base of moulded plastic defines the support portion, and a second component of the base provides both stabilising members and a connection portion between the two stabilising members, the connection portion being connected to the support portion;

and wherein the first and second stiffening members are portions of a continuous stiffening member extending from adjacent the first remote end of the first stabilising member to adjacent the second remote end of the second stabilising member.

Viewed from another additional aspect, the invention provides a base for a temporary barrier, comprising (i) a support portion of plastics material on which is provided an upwardly extending spigot or socket for engaging with a part of the barrier; (ii) a first elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support portion to a first remote end; (iii) a first elongate stiffening member which is connected to the first stabilising member and extends horizontally from adjacent the first remote end towards the support portion; (iv) a second elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support portion to a second remote end in a direction opposite to the first stabilising member; and (v) a second elongate stiffening member which is connected to the second stabilising member and extends horizontally from adjacent the second remote end towards the support portion; wherein a first component of the base of moulded plastic defines the support portion, and a second component of the base provides both stabilising members and a connection portion between the two stabilising members, the connection portion being connected to the support portion;

and wherein the first and second stiffening members are separate and do not define a continuous stiffening member extending from adjacent the first remote end of the first stabilising member to adjacent the second remote end of the second stabilising member.

Viewed from another additional aspect the invention provides a base for a temporary barrier, comprising (i) a support portion of plastics material on which is provided an upwardly extending spigot or socket for engaging with a part of the barrier; (ii) first and second elongate, horizontally extending, ground engaging stabilising members of plastics material connected to the support portion, the stabilising members extending in diametrically opposite directions from the support portion to respective remote ends of the stabilising members; and (iii) an elongate stiffening member which is connected to the first stabilising member and to the second stabilising member and extends horizontally from adjacent the remote end of the first stabilising member to adjacent the remote end of the second stabilising member; wherein a first component of the base of moulded plastic defines the support portion, and a second component of the base provides both stabilising members and a connection portion between the two stabilising members, the connection portion being connected to the support portion.

In the preceding three aspect of the invention, the support portion could be of relatively inexpensive, relatively low quality plastics material such as recycled PVC. The second component typically will be of injection or blow moulded plastics which is of higher quality. Typically the recycled plastics will be of a grey or black colour but in some embodiments this can be concealed by an upwardly extending part of the connection portion which serves as a cover or partial cover for the support portion.

All of the preferred and optional features described above may also be applied to these aspects of the invention.

In some embodiments of the invention, the support portion consists of or includes a ballast member, which serves to provide a ballast weight. Such a ballast member could be of relatively dense material compared to the material of the remainder of

the base, for example being relatively inexpensive, relatively low quality plastics material such as recycled PVC. Typically the recycled plastics will be of a grey or black colour but in some embodiments this may be concealed at least partially by an upwardly extending part of the support portion or an upwardly extending part of a connection portion, in the manner as described above. The presence of a ballast weight is particularly useful where the support post for the temporary barrier is a pole of a fencing panel.

The ballast weight will be of relatively low quality plastics as compared to other components of the base, such as the stabilising members and the support portion. These other components typically will be of injection or blow moulded plastics which is of higher quality.

In some embodiments, the stabilising members serve as a cover, or at least a partial cover, for the or each stiffening member.

In some embodiments a base with a ballast weight is used with a barrier panel such as a moulded plastics panel. However in the case of such panels, the panel itself could be constructed to have a concentration of mass lower down which will serve as a built in ballast so a separate ballast weight is not necessary. In the case of such barriers, which may be provided with means to interlock with other barriers, it may be sufficient to have a single bore which receives a support post for a single panel or a single spigot which engages with the barrier panel.

According to another aspect of the invention that excludes the stiffening member or members, there may be provided:

a base for a temporary barrier, comprising (i) a support portion of plastics material on which is provided an upwardly extending spigot or socket for engaging with a part of the barrier; (ii) first and second elongate, horizontally extending, low profile ground engaging stabilising members of plastics material connected to the support portion, the stabilising members extending in diametrically opposite directions from the support portion to respective remote ends of the stabilising members; wherein a first component of the base of moulded plastic defines the support portion, and a second component of the base provides both stabilising members and a connection

portion between the two stabilising members, the connection portion being connected to the support portion; and wherein the second component is of a material which is sufficiently stiff whereby the stabilising members are not provided with a stiffening member. By “low profile” is meant a stabilising member having the properties and / or height as described earlier.

The materials described above in relation to the second component may also be used for the support portion. In some embodiments there may be a support portion of one plastics material and the stabilising members may be of a different material such as a high performance plastics material such as a nylon or another suitable engineering grade polymer; a fibre reinforced plastics material; a self-reinforced advanced plastics material in which a polymer matrix is reinforced by highly oriented polymer fibres, usually derived from the same polymer; or a polymer such as polyethylene produced by polymerisation catalysed by one or more metallocenes or metallocene derivatives, as described above.

Some embodiments of the various aspects of the invention will now be described with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of a first embodiment of a base in accordance with the invention;

Figure 2 is a bottom plan view;

Figure 3 is a side elevation;

Figure 4 is an underneath perspective view;

Figure 5 is an end view;

Figure 6 is an end view of a metal component comprising two spigots and a hollow box section;

Figure 7 is an enlarged view of the portion marked A on Figure 1;

Figures 8a, 8b and 8c show alternative spigots;

Figure 9 is a perspective view showing a number of bases stacked in an offset manner;

Figure 10 shows a base in use;

Figure 11 is a perspective view of a modified base;

Figure 12 is an end view of the modified base;

Figure 13 is a schematic perspective view of another embodiment of a base for receiving fence poles;

Figure 14 is an underneath perspective schematic view of the base of Figure 13;

Figure 15 is a section through the base of Figures 13 and 14.

Figure 16 shows how the stiffening members are located in a hollow portion;

Figure 17 shows an alternative arrangement which does not require an additional stiffening member;

Figure 18 shows how the base may be configured differently;

Figure 19 is a perspective view of a base for receiving a spigot of a barrier in accordance with an aspect of the invention;

Figure 20 is a top plan view of the base of Figure 19;

Figure 21 is an underneath plan view of the base;

Figure 22 is a side view of the base;

Figure 23 is a section on the line A-A of Figure 22;

Figure 24 is a perspective view of a modified base for receiving a spigot of a barrier;

Figure 25 is a view corresponding to Figure 23, but showing a modified stiffening arrangement;

Figure 26 is a perspective view of another embodiment of a base in accordance with an aspect of the invention;

Figure 27 is a perspective view of another embodiment of a base in accordance with an aspect of the invention;

Figure 28 is a perspective view of another embodiment of a base in accordance with an aspect of the invention;

Figure 29 is a perspective view of another embodiment of a base in accordance with an aspect of the invention;

Figure 30 is a perspective view of another embodiment of a base in accordance with an aspect of the invention;

Figure 31 is a perspective view of another embodiment of a base in accordance with an aspect of the invention;

Figure 32 is a perspective view of another embodiment of a base in accordance with an aspect of the invention;

Figure 33 is a perspective view of one component of the base of Figure 32;

Figure 34 is a perspective view of another component of the base of Figure 32; and

Figure 35 is a perspective view of the stiffening rod of the base of Figure 32.

Referring now in detail to the Figures, in Figures 1 to 7 there is shown a base 1 for receiving fence poles. This base comprises a moulded part 2 of plastics, defining an

integrally formed central support member 3, first stabilising member 4 and second stabilising member 5. The base 1 further comprises a first stiffening rod 6, a second stiffening rod 6A and a pair of metal spigots 7a and 7b projecting up from the support member. The metal spigots are connected, e.g. by welding to a hollow box section 8 and project upwardly through an aperture 9 in the support member. The stiffening rods 6 and 6A are connected to their respective stabilising members 4 and 5 and pass into and are joined to the hollow box section 8. The stiffening rod passes continuously from adjacent the free end of stabilising member 4 to adjacent the free end of stabilising member 5. The free end of Figure 6 shows the metalwork used, comprising the spigots 7a, 7b welded to the box section 8. Figure 16 shows how the rods 6 and 6A pass into the box section 8.

The rods 6, 6A are of fibre reinforced resin, manufactured by pultrusion.

Apertures 10 are provided to facilitating lifting and manipulation. A series of pairs of apertures 11 are provided along the stabilising members 4, 5 to assist in stacking, as described below. In each pair the spacing between the apertures 11 matches the spacing between the spigots 7a and 7b. The pairs of apertures are spaced at regular intervals along the stabilising members 4, 5.

Figures 7 show how a portion 12 at the remote end of the stabilising member 5 restricts longitudinal movement of the stiffening rod 6A. The remote end of the stabilising member flexes to permit insertion of the stiffening rod 6A and then snaps back to hold the stiffening rod 6A in place. A similar structure is provided at the remote end of the stabilising member 4 so that the stiffening rod 6 is secured in place.

The upper ends of the spigots may be chamfered, as shown at 13 in Figure 8a, to facilitate insertion into a tubular fence post. Alternatively, the spigot may be provided with a tapered end 14 as shown in Figure 8b. Figure 8c shows how an alternative spigot could be provided with a taper by means of spigot portions 15 and 16 of reduced diameter.

Figure 9 shows a series of bases 1 stacked on each other with the pairs of spigots 7 of each base projecting through the regularly spaced pairs of apertures 11 of the

bases above. The bases can thus be stacked in a space saving manner, for storage or transport

Figure 10 shows, diagrammatically, a fence panel 17 with a supporting pole 18 received on one of the spigots 7a of the base 1. A second supporting pole 19 is received on the other of the spigots 7b and carries a second fence panel 20.

In an embodiment illustrated in Figures 11 and 12, instead of spigots a base 21 has upwardly extending socket portions 22a and 22b which receive a support pole for a barrier such as fencing. Otherwise, the construction corresponds to that of the preceding embodiment.

Instead of a one piece plastic moulding, the part 2 of the base could be made of a number of separate mouldings that are joined together, such as a central moulding defining the support member, which is connected by a joint to one moulding defining the stabilising member 4 and is connected by a joint to one moulding defining the stabilising member 5.

Additional ballast in the form of, for example, prefabricated weights or sandbags for the stabilising members could be used to provide additional stability if required.

With reference to Figure 3, laterally extending metal tabs 23 and 24 could be provided at the ends of box section 8, to engage against portions of the moulded plastics part 2 and assist in ensuring stability of the construction.

The plastics part 2 of low profile in the above embodiments, throughout its length. It has rounded edges along its sides and at both ends to reduce further the risks of tripping. The plastics part may also be coloured brightly to bring the attention of the base to pedestrians.

Figures 13 to 15 illustrate, in schematic form only, a modification of the embodiments of Figures 1 to 12. There is a moulded plastics component 42 with upwardly projecting metallic spigots or socket 43 and 44. In this embodiment there are four stiffening rods, 45 and 45A on one side and 46 and 46A on the other side. Again these are preferably of fibre reinforced resin made by pultrusion. Rods 45

and 45A pass into and are connected by a metal box section 47; and rods 46 and 46A pass into and are joined by a metal box section 48. The box sections are interconnected by a metal cross member 49, to which are connected the sockets or spigots 43 and 44, for example by welding, which pass upwardly through apertures in the component 42. In a practical embodiment of such an arrangement, other features of the base would correspond to those of the embodiments of Figures 1 to 12, modified as appropriate to account for the fact that there are two stiffening rods rather than one central stiffening rod.

Figure 16 show diagrammatically how, in the embodiment of Figures 1 to 12, the rods 6 and 6A pass into the box section 8.

Figure 17 shows how, in a modification of the arrangement of Figures 1 to 12, the rods 6A and 6B can be dispensed with and the box section extended to form a stiffener 50. The box section could be replaced by another cross section of member and can be hollow or solid.

Figure 18 shows how, in the embodiment of Figures 1 to 12, the apertures 11 can be used for a different purpose, to receive the spigots 7 in another position so as to form an asymmetric base.

In the illustrated embodiments, the major parts of the stabilising members from their free ends to where they join the support member, are low profile. These parts of the stabilising members have rounded edges along their sides and at their free ends to reduce further the risks of tripping. The base or at least the stabilising members can also be coloured brightly to bring the attention of the base to pedestrians.

In embodiments of the various aspects of the invention there may be various features. Moulded components may be made from different materials, including composites. The base could be one piece or two moulded components, the second component giving added weight. The base could be symmetrical or asymmetrical, with stabilising feet of different lengths. The base may or may not be reinforced with a reinforcing bar, such as an element made by pultrusion, or a steel bar or other means. A reinforcing bar could run the whole length of the base or there could be two pieces at each end but not through the middle. A reinforcing bar could be a

single component centrally located or two pieces offset laterally from the centre. There could be at least one separate element that snaps in to provide a customer nameplate or is brightly coloured/reflective for added visibility. These features can be used in various combinations with each other and with other features of the bases described.

Figure 19 shows an embodiment of an aspect of the invention, in the form of a base 25 for receiving a spigot portion of, for example, a plastics barrier. The base comprises an integrally moulded plastic component defining an upwardly extending support member 26 from which project a stabilising member 27 and a stabilising member 28 in diametrically opposed directions. There are curved transition portions 29 and 30 respectively between stabilising member 27 and support member 26, and stabilising member 28 and support member 26.

The support member 26 is provided with a socket 31 in the form of a bore passing vertically downwards part way through the support member, with an opening at is upper end. The socket can receive a spigot of a barrier (not shown). The socket could be an integral part of the support member 26, or could be a separate plastics component connected to the support member, for example by co-moulding, bonding or any other suitable technique.

In this embodiment, the interior of the support member 26 is provided with a ballast weight in the form of a block 32 of plastics material, such as high density recycled PVC. In some embodiments, part of the bore 31 forming the socket could pass through the ballast weight. The ballast weight could be omitted in some embodiments.

A stiffening rod 33A passes through and is connected to the stabilising member 28.The rod passes under part of support member 26 and in a groove 34A formed in the bottom face of ballast weight 32. A second stiffening rod 33B passes through and is connected to the stabilising member 27. The rod passes under part of support member 26 and in a groove 34B formed in the bottom face of ballast weight 32.

Each rod 33 is of fibre reinforced resin, manufactured by pultrusion. The ends of the stabilising members 27 and 27 are provided with downwardly projecting portions 35 and 36 which prevent movement of the respective rod out from its position. The ends of the stabilising members are resilient so that an end can be bent upwardly to permit insertion of the respective rod, and will then flex back to retain it in position.

At least part of the socket 31 could be provided with a series of circumferentially spaced, radially inwardly extending ridges 37 to engage the surface of a spigot inserted into the socket.

Figure 24 shows a base which is similar to that of Figures 19 to 23, with a support member 38, stabilising members 39 and 40, a socket 41 in the support member and a pair of stabilising rods (not shown), one for each stabilising member. In this embodiment, the support member is less substantial than in the previous embodiment because it does not contain a separate ballast weight. This base is for use with a barrier which provides its own ballast weight.

Figure 25 shows a modification of the embodiment of Figures 19 to 23. Instead of each stabilising member 28, 27 being provided with a single, centrally arranged, stiffening rod 33A and 33B, each stabilising member is provided with a laterally spaced pair of stiffening rods. Only those stiffening rods 142, 143 for the stabilising member 27 can be shown in this Figure. Each rod passes through and is connected to its respective stabilising member. Each rod passes under part of the support member, and is retained n a respective groove formed in the bottom face of the ballast weight.

Figure 26 shows another base in accordance with an aspect of the invention. In this embodiment there is a single moulding 144 of PVC which provides both the support member 145 and two stabilising members 146 and 147. There is a single stiffening rod 148 of a composite formed by pultrusion. The moulding 144 may be painted in a high visibility colour such as yellow. The support member 145 has a socket of circular cross section to receive a circular member.

Figure 27 shows another base 149 in accordance with an aspect of the invention. This has a PVC moulding which forms the support member 150 and is visible apart

from is lowest part. A separate component 51 provides the two stabilising members 52 and 53, and is of a high strength / stiffness engineering polymer such as nylon, or of a composite material. This embodiment does not need a separate stiffening member to provide the stabilising members with sufficient stiffness. The component 51 is provided with an aperture 54 and the support member 150 passes through this and is interlocked with the component 51.

Figure 28 shows another base 55 in accordance with an aspect of the invention. This has a PVC moulding which forms the support member 56 and is visible apart from is lowest part. A separate component 57 provides the two stabilising members 58 and 59 and is provided with an aperture 60 to receive the support member 56. To this extent the construction is similar to that of the embodiment of Figure 27. However, the component 57 is of a less stiff polymer such as polyethylene and is provided with a single stiffening rod 61 of a composite formed by pultrusion. In this embodiment the two stabilising members are of different lengths, with stabilising member 58 being shorter than stabilising member 59 so as to minimise obstruction on that side of a barrier or the like which the base supports.

Figure 29 shows another base 62 in accordance with an aspect of the invention. In this embodiment there is a single moulding of PVC which provides both the support member 63 and two stabilising members 64 and 65. There are two separate stiffening rods 66 and 67, respectively for stabilising members 64 and 65, each being of a composite formed by pultrusion. The moulding 62 may be painted in a high visibility colour such as yellow. The support member 63 has an aperture 70 of generally square cross section, to receive a generally square post (not shown). Portions 68 and 69 may receive snap in elements to provide customer nameplates for example or brightly coloured / reflective elements for enhancing visibility.

Figure 30 shows another base in accordance with an aspect of the invention. In this embodiment there is a single moulding 71 which provides both the support member 72 and two stabilising members 73 and 74. The moulding 71 is of a high strength / stiffness engineering polymer such as nylon, or of a composite material. This embodiment does not need a separate stiffening member to provide the stabilising members with sufficient stiffness. In other respects the base is similar to the embodiment of Figure 29.

Figure 31 shows another base in accordance with an aspect of the invention. In this embodiment there is a single moulding 75 which provides both the support member 76 and two stabilising members 77 and 78. The moulding 75 is of relatively low stiffness polymer such as polyethylene. In this embodiment, the base is stiffened by two laterally spaced, parallel stiffening members 79 and 80 each being of a composite formed by pultrusion. In this embodiment the two stabilising members are of different lengths, with stabilising member 77 being shorter than stabilising member78 so as to minimise obstruction on that side of a barrier or the like which the base supports.

Figure 32 shows another base 81 in accordance with an aspect of the invention, which in some respects is similar to the bases of Figures 27 and 28. A component 82 provides the two stabilising members 83 and 84. In this embodiment, in contrast to the embodiment of Figure 28, the stabilising members are of the same length, but they could be of different lengths. A central part 85 of the component 82 is provided with an aperture 86. A support member 87, which is a separate component and is a PVC moulding, passes through aperture 86 and is interlocked with the component 82.The support member is provided with a socket 88. The component 82 is of a less stiff polymer such as polyethylene and is provided with a single stiffening rod 89 of a composite formed by pultrusion. The component 82 is provided with channels 90 to receive the rod 89.

As shown more clearly in Figures 33 to 35, the support member 87 has a lower part 91 to interlock with the component 82. This lower part is provided with a channel 92, which is open downwardly, to receive the rod 89.

In the illustrated embodiments, the major parts of the stabilising members from their free ends to where they join the support member are low profile. These parts of the stabilising members have rounded edges along their sides and at their free ends to reduce further the risks of tripping. The base or at least the stabilising members can also be coloured brightly to bring the attention of the base to pedestrians.

In embodiments of the various aspects of the invention there may be various features. The moulded elements may be made from different materials, including

composites. The base could be one piece or two moulded components, the second component giving added weight. The base could be symmetrical or asymmetrical, with stabilising feet of different lengths. The base may or may not be reinforced with a reinforcing bar, such as an element made by pultrusion, or a steel bar or other means. A reinforcing bar could run the whole length of the base or there could be two pieces at each end but not through the middle. A reinforcing bar could be a single component centrally located or two pieces offset laterally from the centre. That there could be at least one separate element that snaps in to provide a customer nameplate or is brightly coloured/reflective for added visibility. These features can be used in various combinations with each other and with other features of the bases described.

Claims

1. A base for a temporary barrier, comprising:

(i) a support portion of plastics material on which is provided an upwardly extending spigot or socket for engaging with a part of the barrier;

(ii) a first elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support portion to a first remote end;

(iii) a first elongate stiffening member which is connected to the first stabilising member and extends horizontally from adjacent the first remote end towards the support portion;

(iv) a second elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support portion to a second remote end in a direction opposite to the first stabilising member; and

(v) a second elongate stiffening member which is connected to the second stabilising member and extends horizontally from adjacent the second remote end towards the support portion;

wherein the first and second stiffening members are separate and do not define a continuous stiffening member extending from adjacent the first remote end of the first stabilising member to adjacent the second remote end of the second stabilising member.

2. A base as claimed in claim 1, wherein the height of the stabilising members over major parts of their respective lengths does not exceed about 40 mm, preferably about 35 mm, or about 30 mm, or about 25 mm, or about 20 mm, or about 15 mm or about 12.5 mm.

3. A base as claimed in claim 2, wherein the heigh of the stabilising members does not exceed that dimension at least for a length of the elongate part of the stabilising member from its end to a point which at least about 95% of the length of the stabilising member from its remote end, preferably about 90%, or about 85% or about 80% where about 75%, or about 70%, or about 65%, or about 60%, or about 55%, or about 50%.

4. A base as claimed in claim 1, 2 or 3, wherein the stiffening members are in the form of rods or tubes.

5. A base as claimed in any preceding claim, wherein the stiffening members are of a suitable material so as to be substantially rigid, or to be semi-rigid so as to have a sufficient degree of flexibility to assist in assembly of the base.

6. A base as claimed in any preceding claim, wherein the members are of a fibre reinforced plastic material.

7. A base as claimed in any preceding claim, wherein the or each stiffening member terminates short of the support portion.

8. A base as claimed in any of claims 1 to 6, wherein the or each stiffening member extends to the support portion.

9. A base as claimed in claim 8, wherein the or each stiffening member is joined to the support portion.

10. A base as claimed in any preceding claim, wherein the or each stiffening member comprises a plurality of sub-members.

11. A base as claimed in any preceding claim, wherein the base comprises a plurality of spigots or sockets.

12. A base as claimed in any preceding claim, wherein the free end of the or each upwardly extending member is chamfered or tapered to facilitate insertion into a support tube for fencing or the like.

13. A base as claimed in claim 12, wherein the or each upwardly extending member comprises a plurality of upwardly extending member portions of different external diameter, joined together in series.

14. A base as claimed in any of claims1 to 11, wherein the or each upwardly extending member is a socket which is wider at the top to assist insertion of a fence

pole or the like, and narrows towards the bottom to provide a secure seating of the pole.

15. A base as claimed in any preceding claim, wherein the or each upwardly extending member has a lower end which is connected to an open ended hollow member extending in the direction of the stiffening member, into which each stiffening member passes.

16. A base as claimed in claim 15, wherein the or each upwardly extending member passes upwardly through an associated aperture in the support portion of the base.

17. A base as claimed in claim 15 or 16, wherein the lower surface of the hollow member is flat.

18. A base as claimed in claim 17, wherein the hollow member is a portion of box section.

19. A base as claimed in any of claims 15 to 18, wherein the or each upwardly extending member is metal, the hollow member is metal and the two are joined together by welding.

20. A base as claimed in claim 19, wherein the base comprises two metal upwardly extending members joined to a common hollow member, on opposite sides thereof.

21. A base as claimed in any preceding claim, wherein the ends of the stabilising members are provided with portions which restrain their respective stiffening member against longitudinal movement when the stiffening member is in position, at least one of the portions being capable of flexion so that the stiffening member can be inserted, and then returning resiliently to keep it in position.

22. A base as claimed in any preceding claim, wherein for each stabilising member there are a plurality of laterally spaced stiffening members, which are preferably substantially parallel to each other.

23. A base as claimed in any preceding claim, wherein the or each stiffening member extends through a bore or an open recess formed in a respective stabilising member.

24. A base for a temporary barrier, comprising:

(i) a support portion of plastics material on which is provided an upwardly extending spigot or socket for engaging with a part of the barrier;

(ii) first and second elongate, horizontally extending, low profile ground engaging stabilising members of plastics material connected to the support portion, the stabilising members extending in diametrically opposite directions from the support portion to respective remote ends of the stabilising members;

each stabilising member being of a material which is sufficiently stiff whereby the stabilising members are not provided with a stiffening member.

25. A base as claimed in any preceding claim, wherein the material of the stabilising members is a high performance plastics material such as a nylon, a fibre reinforced plastics material, a self-reinforced advanced plastics material in which a polymer matrix is reinforced by highly oriented polymer fibres, or a polymer produced by polymerisation catalysed by one or more metallocenes or metallocene derivatives.

26. A base as claimed in any preceding claim, wherein the support portion of the base and the first and second stabilising members are integrally formed.

27. A base as claimed in any preceding claim, wherein the support portion of the base is provided with an integrally formed upwardly extending plastics part which can either define a spigot or socket of the base.

28. A base as claimed in claim 27, wherein the stabilising members are connected to the upwardly extending part of the support portion part way up, preferably by curved transition regions.

29. A base as claimed in any of claims 1 to 25, wherein the base comprises a support portion which is formed of one component, and a second component which

provides both stabilising members and a connection portion between the two stabilising members and is connected to the support portion.

30. A base as claimed in claim 29, wherein the connecting portion is provided with an aperture which receives part of the support portion.

31. A base for a temporary barrier, comprising:

(i) a support portion of plastics material on which is provided an upwardly extending spigot or socket for engaging with a part of the barrier;

(ii) a first elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support portion to a first remote end;

(iii) a first elongate stiffening member which is connected to the first stabilising member and extends horizontally from adjacent the first remote end towards the support portion;

(iv) a second elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support portion to a second remote end in a direction opposite to the first stabilising member; and

(v) a second elongate stiffening member which is connected to the second stabilising member and extends horizontally from adjacent the second remote end towards the support portion;

wherein a first component of the base of moulded plastic defines the support portion, and a second component of the base provides both stabilising members and a connection portion between the two stabilising members, the connection portion being connected to the support portion; and

wherein the first and second stiffening members are portions of a continuous stiffening member extending from adjacent the first remote end of the first stabilising member to adjacent the second remote end of the second stabilising member.

32. A base for a temporary barrier, comprising:

(i) a support portion of plastics material on which is provided an upwardly extending spigot or socket for engaging with a part of the barrier;

(ii) a first elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support portion to a first remote end;

(iii) a first elongate stiffening member which is connected to the first stabilising member and extends horizontally from adjacent the first remote end towards the support portion;

(iv) a second elongate, horizontally extending, ground engaging stabilising member of plastics material which is connected to and extends from the support portion to a second remote end in a direction opposite to the first stabilising member; and

(v) a second elongate stiffening member which is connected to the second stabilising member and extends horizontally from adjacent the second remote end towards the support portion;

wherein a first component of the base of moulded plastic defines the support portion, and a second component of the base provides both stabilising members and a connection portion between the two stabilising members, the connection portion being connected to the support portion; and

wherein the first and second stiffening members are separate and do not define a continuous stiffening member extending from adjacent the first remote end of the first stabilising member to adjacent the second remote end of the second stabilising member.

33. A base for a temporary barrier, comprising:

(i) a support portion of plastics material on which is provided an upwardly extending spigot or socket for engaging with a part of the barrier;

(ii) first and second elongate, horizontally extending, ground engaging stabilising members of plastics material connected to the support portion, the stabilising members extending in diametrically opposite directions from the support portion to respective remote ends of the stabilising members; and

(iii) an elongate stiffening member which is connected to the first stabilising member and to the second stabilising member and extends horizontally from adjacent the remote end of the first stabilising member to adjacent the remote end of the second stabilising member;

wherein a first component of the base of moulded plastic defines the support portion, and a second component of the base provides both stabilising members

and a connection portion between the two stabilising members, the connection portion being connected to the support portion.

34. A base as claimed in any of claims 31 to 33, wherein the support portion is formed of relatively inexpensive, relatively low quality plastics material such as recycled PVC.

35. A base as claimed in claim 34, wherein the second component is formed of injection or blow moulded plastics which is of higher quality.

36. A base as claimed in claim 34 or 35, comprising an upwardly extending part of the connection portion which serves as a cover or partial cover for the support portion.

37. A base as claimed in any of claims 31 to 36, wherein the support portion consists of or includes a ballast member which serves to provide a ballast weight.

38. A base as claimed in claim 37, wherein the ballast member is of relatively dense material compared to the material of the remainder of the base.

39. A base as claimed in any of claims 31 to 37, wherein the stabilising members serve as a cover, or at least a partial cover, for the or each stiffening member.

40. a base for a temporary barrier, comprising

(i) a support portion of plastics material on which is provided an upwardly extending spigot or socket for engaging with a part of the barrier;

(ii) first and second elongate, horizontally extending, low profile ground engaging stabilising members of plastics material connected to the support portion, the stabilising members extending in diametrically opposite directions from the support portion to respective remote ends of the stabilising members;

wherein a first component of the base of moulded plastic defines the support portion, and a second component of the base provides both stabilising members and a connection portion between the two stabilising members, the connection portion being connected to the support portion; and

wherein the second component is of a material which is sufficiently stiff whereby the stabilising members are not provided with a stiffening member. By “low profile” is meant a stabilising member having the properties and / or height as described earlier.

41. A barrier comprising a base as claimed in any preceding claim with one or more barrier portions mounted thereto.

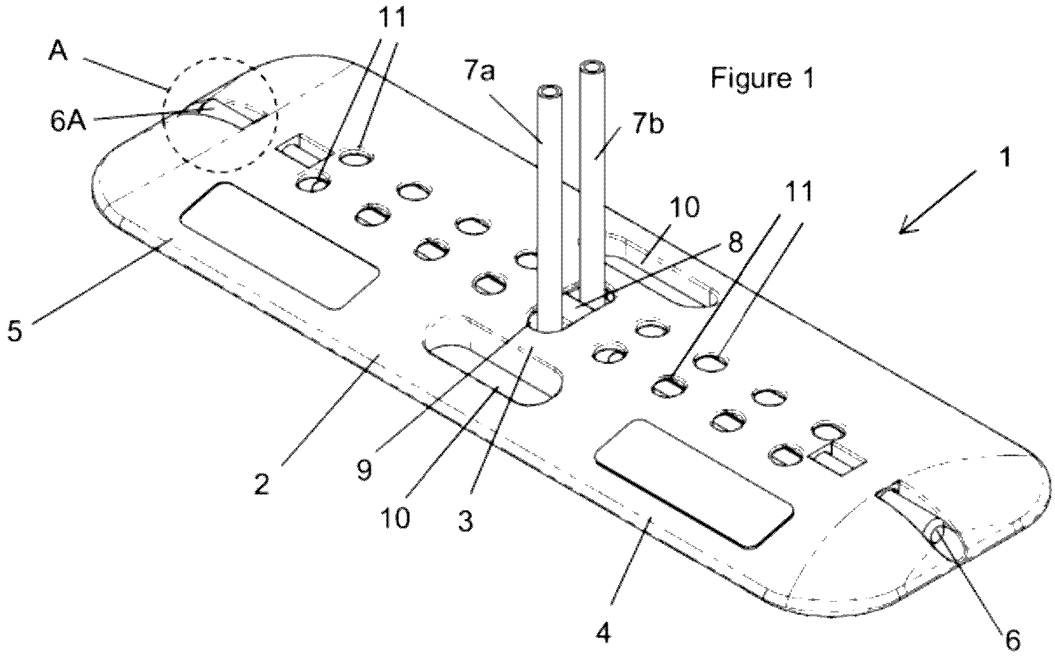


Figure 1

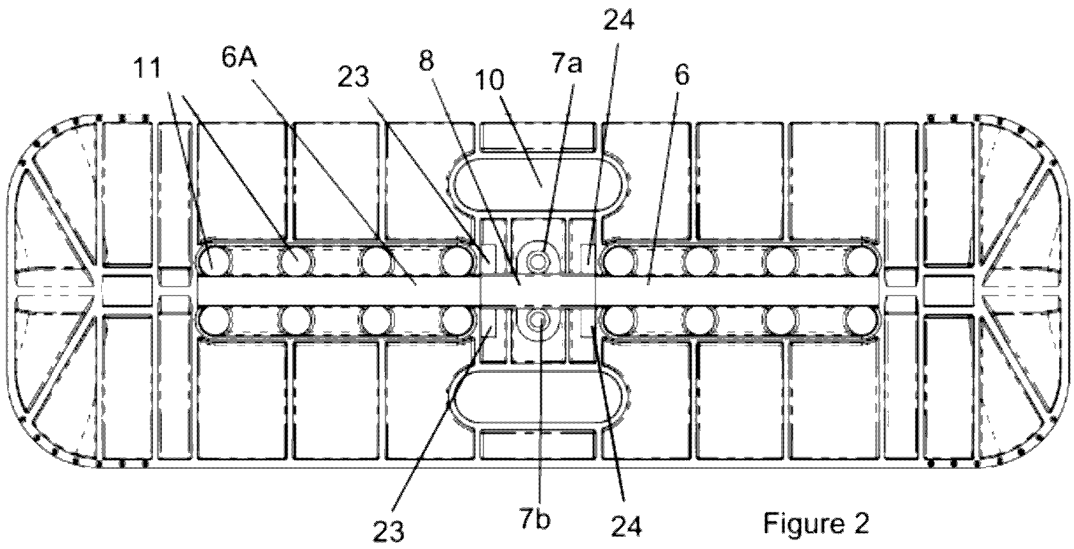


Figure 2

Figure 3

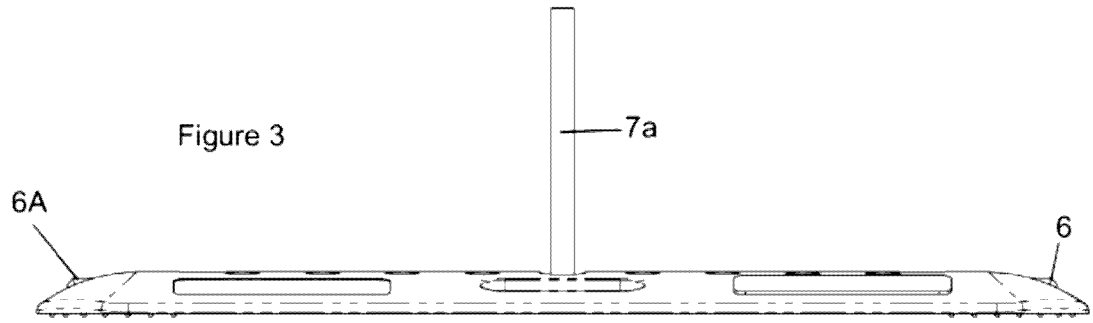
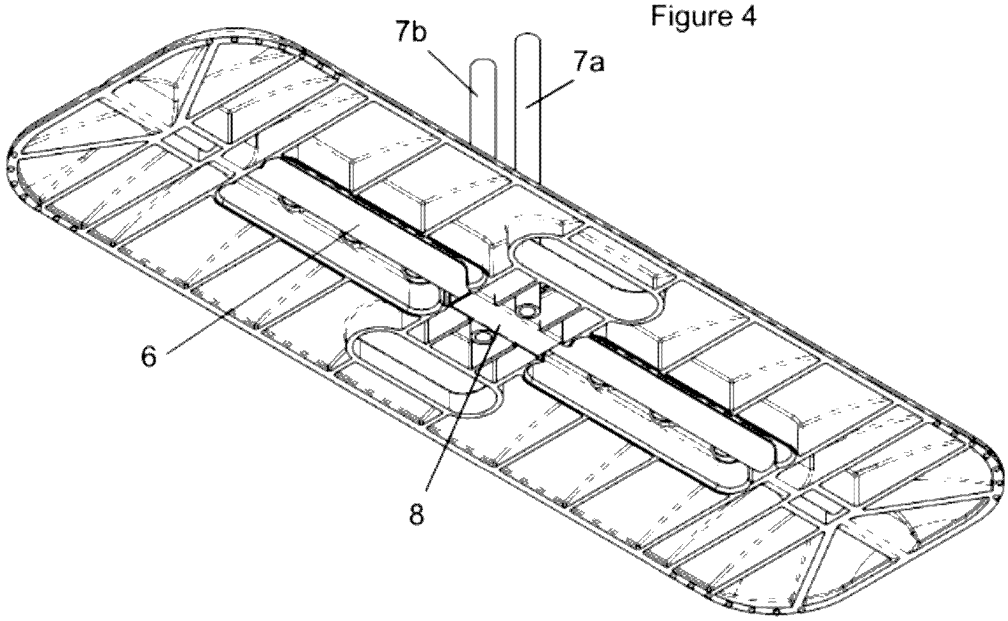


Figure 4



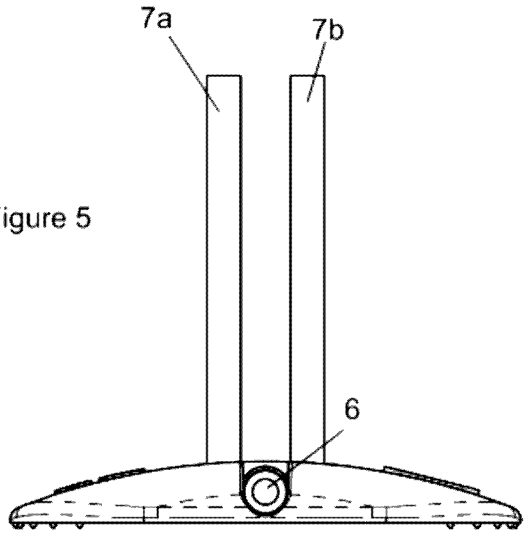


Figure 5

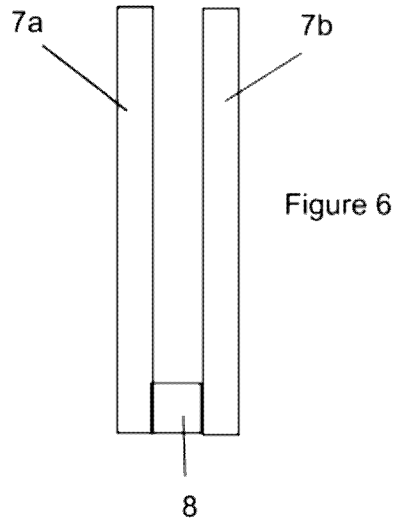


Figure 6

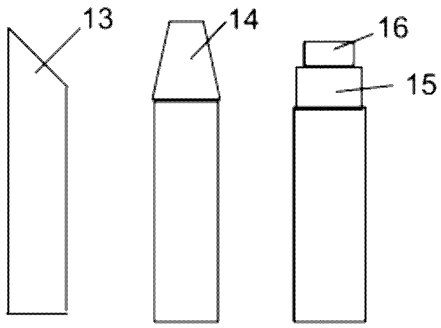


Figure 8

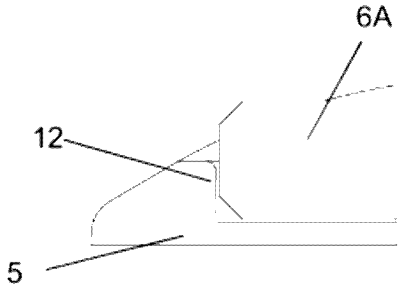
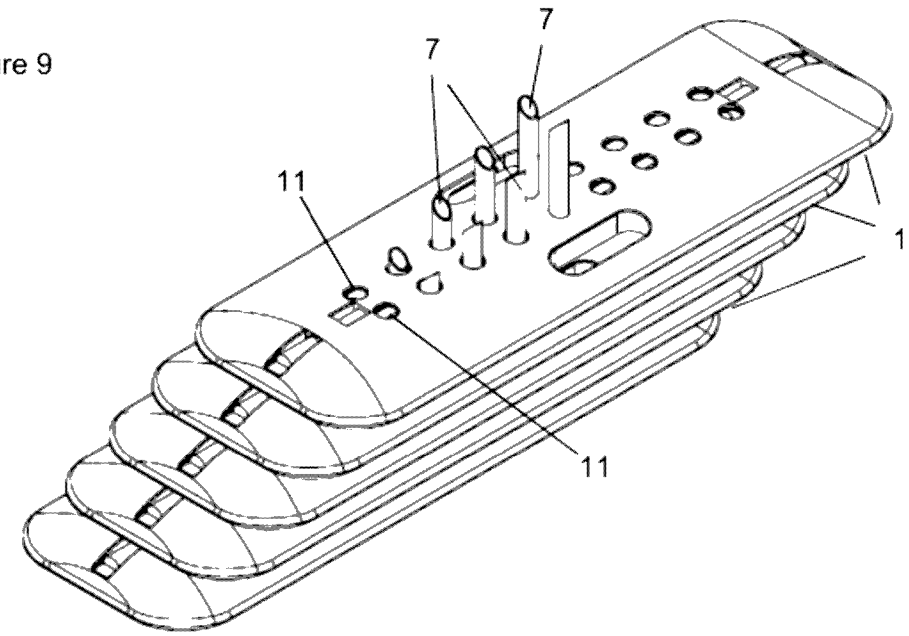


Figure 7

Figure 9



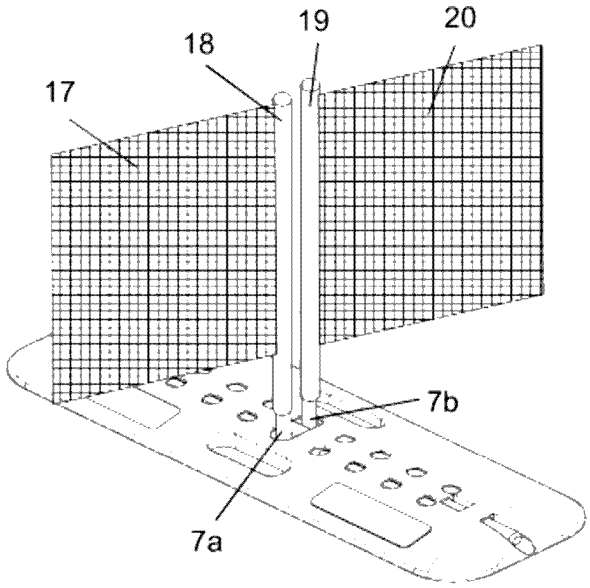


Figure 10

Figure 11

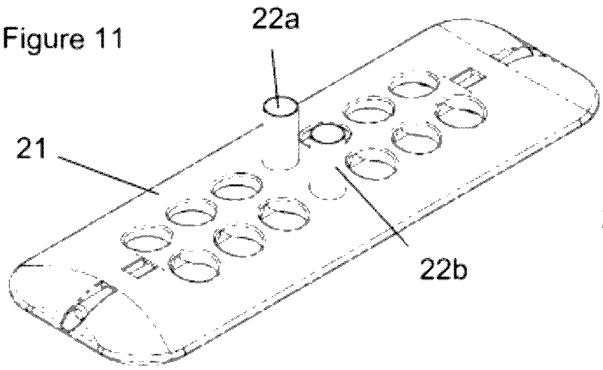


Figure 12

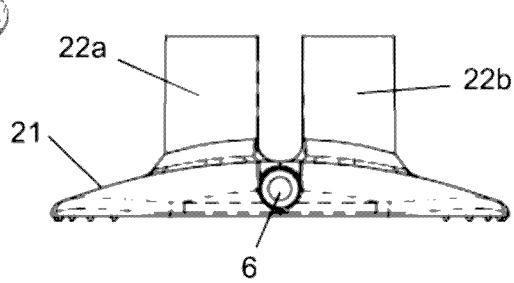


Figure 13

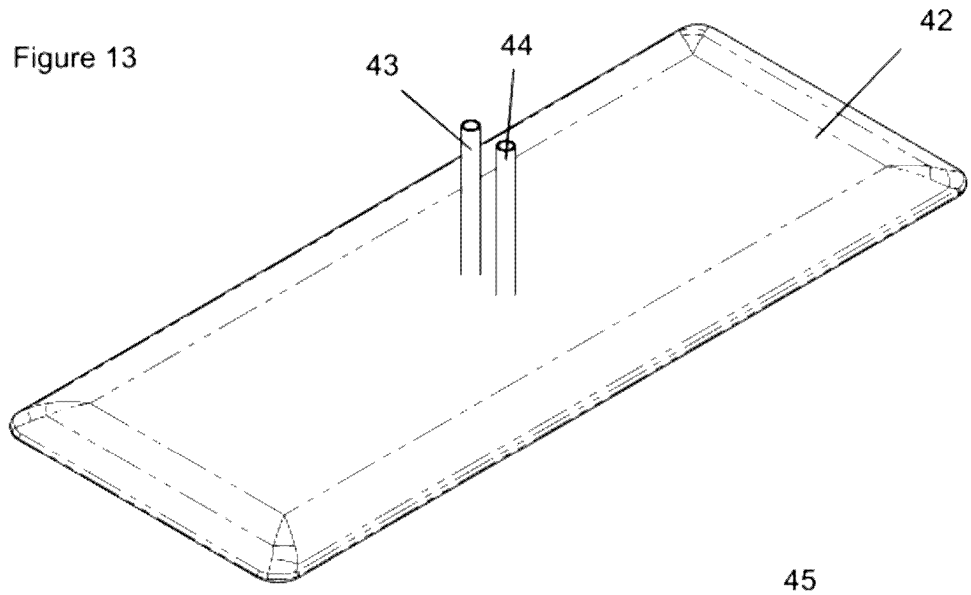


Figure 14

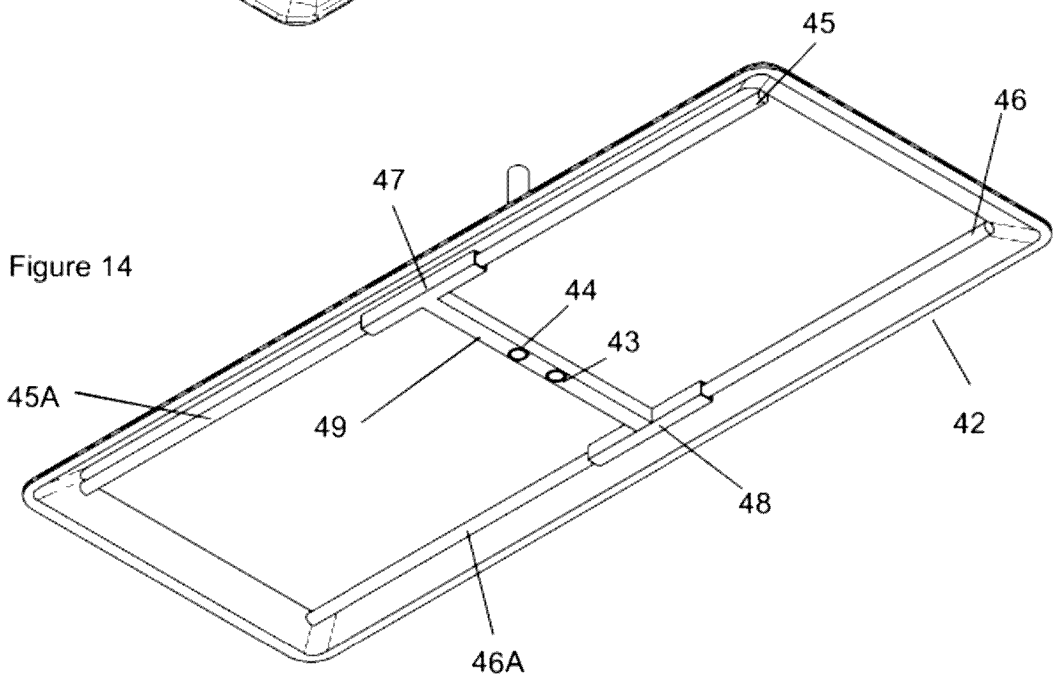


Figure 15

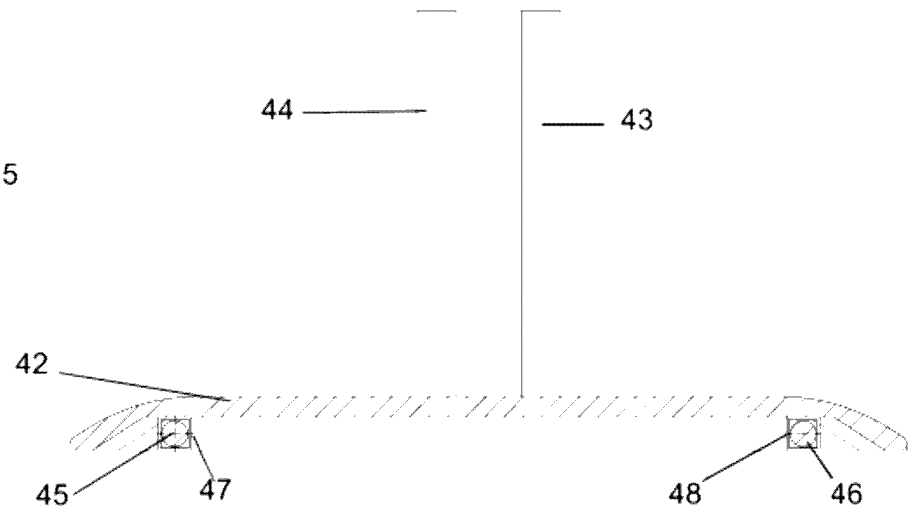


Figure 16

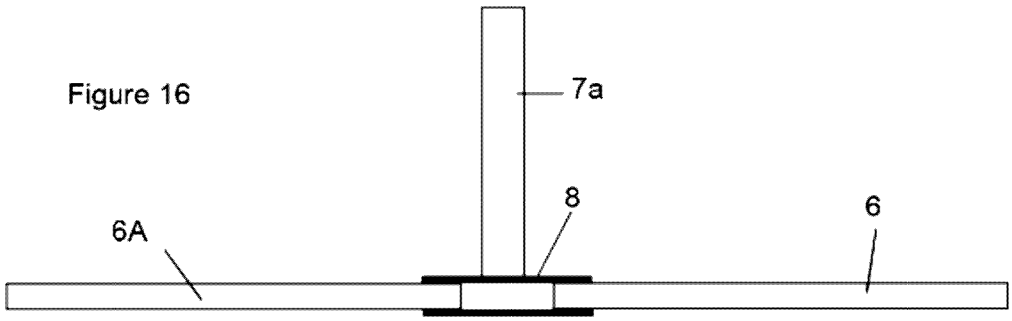


Figure 17

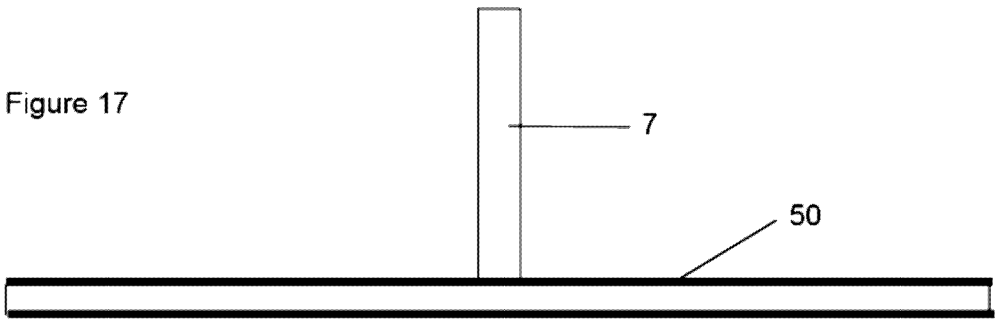
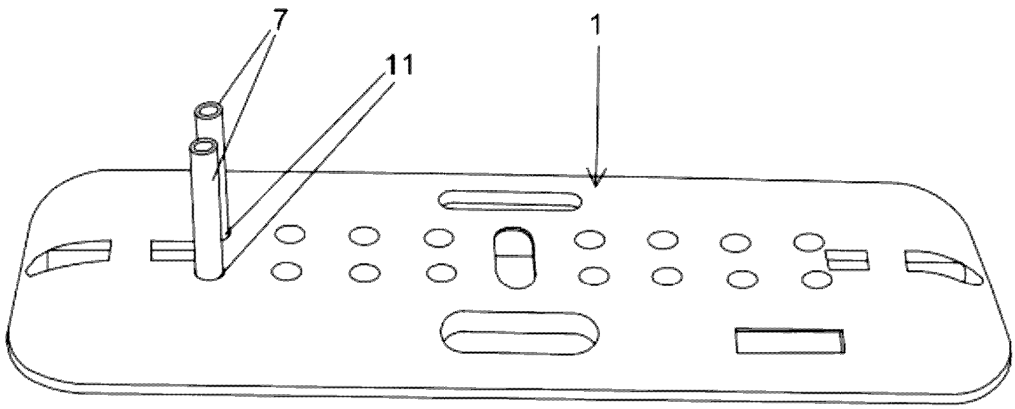


Figure 18



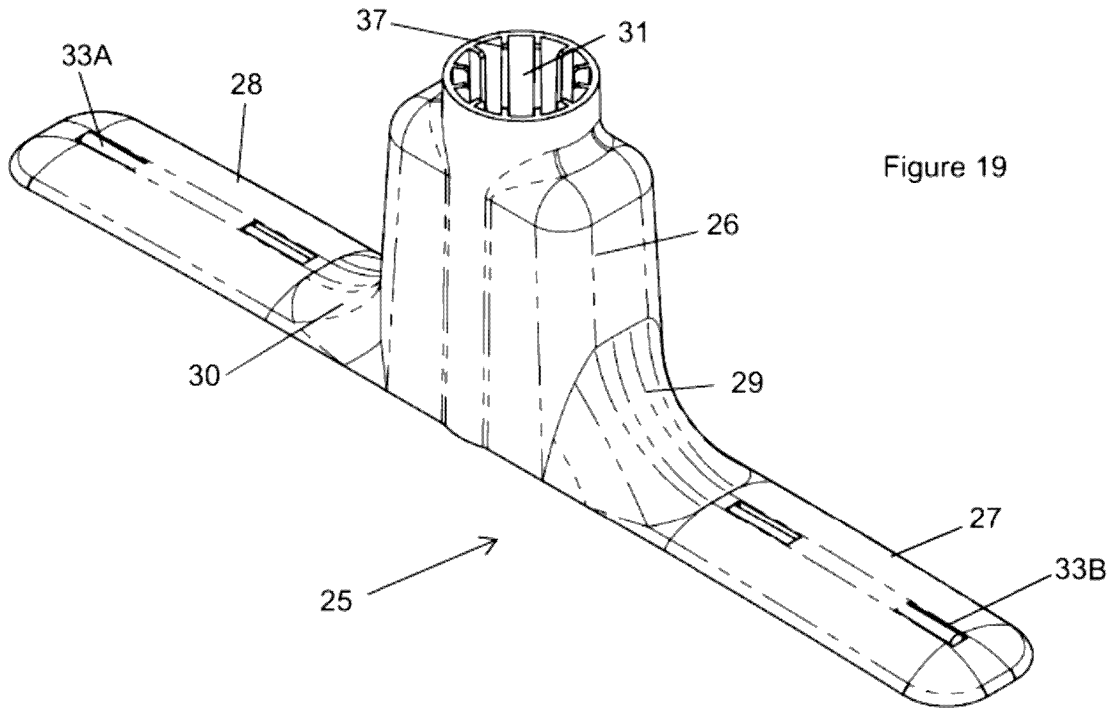


Figure 19

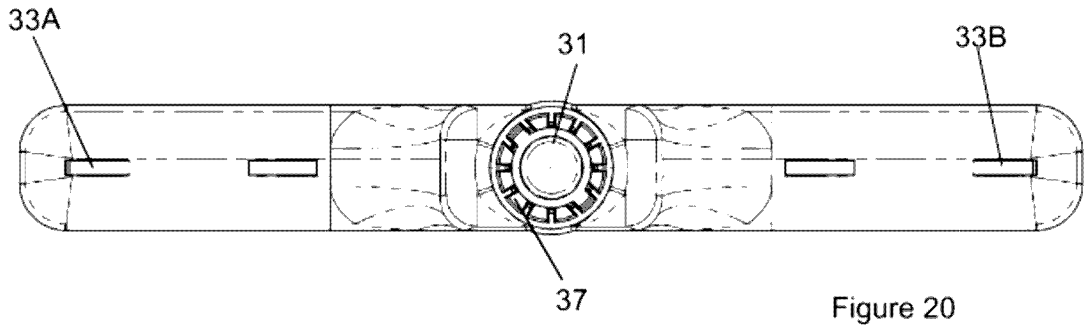


Figure 20

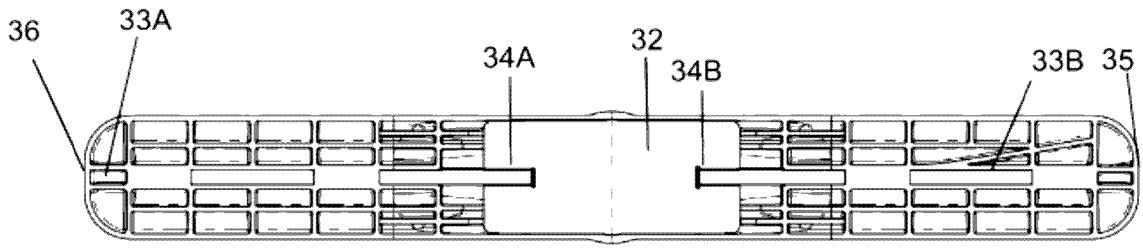
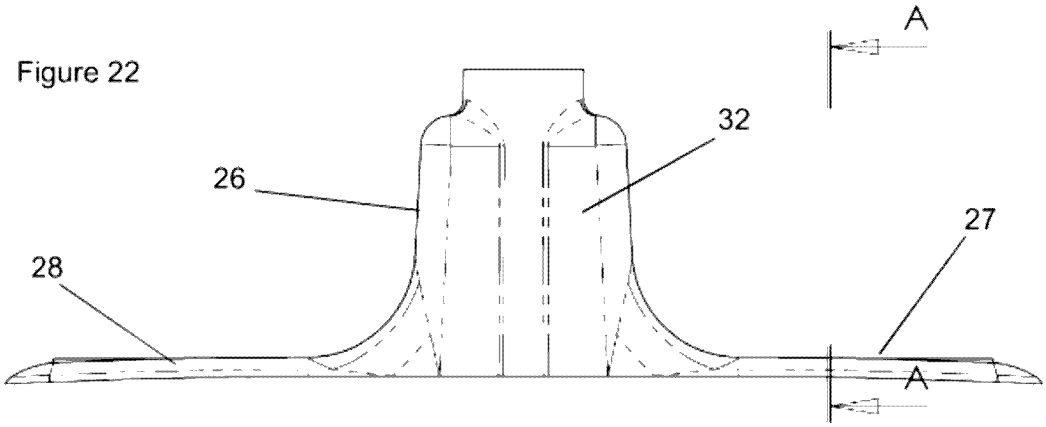


Figure 21

Figure 22



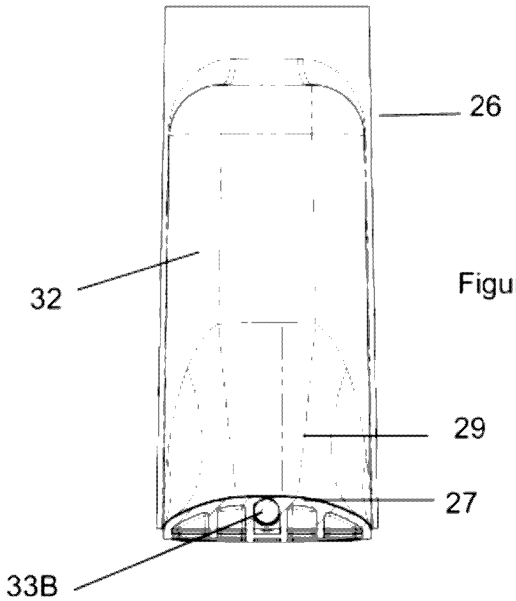


Figure 23

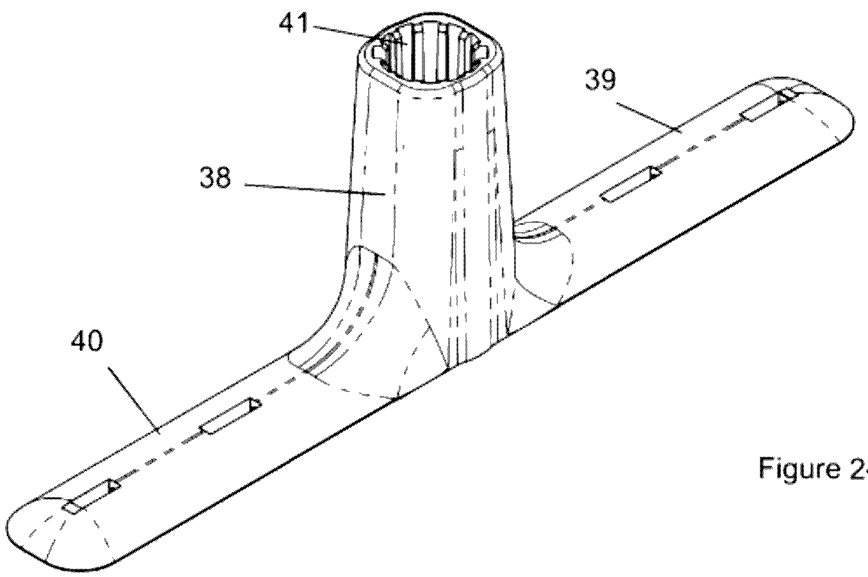


Figure 24

Figure 25

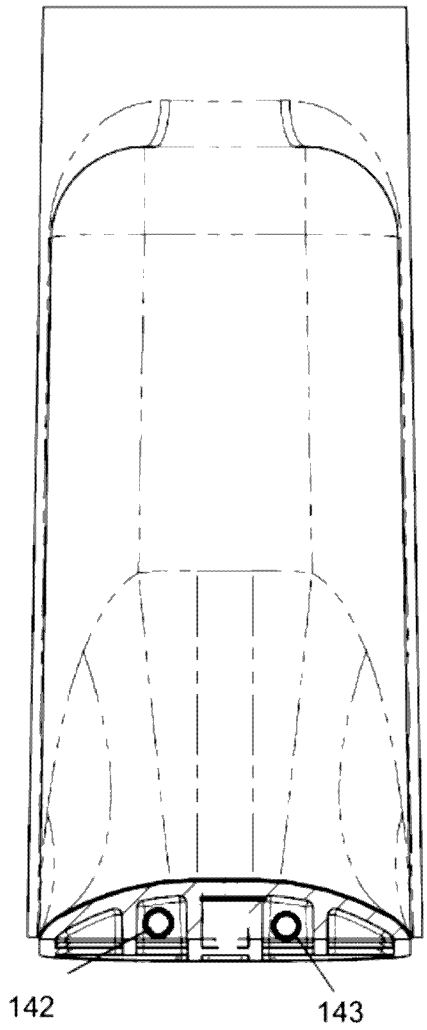
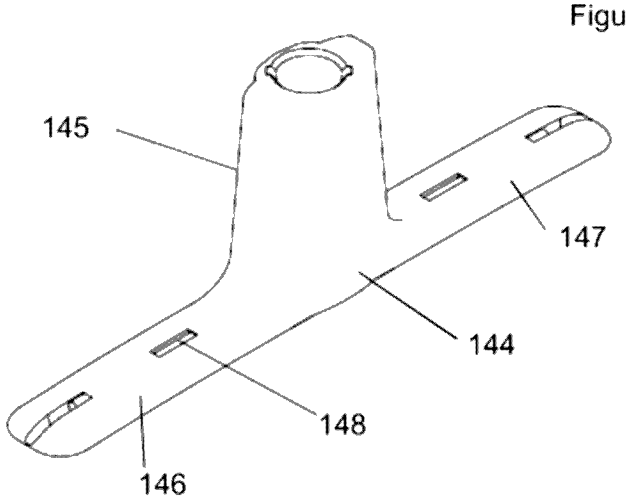


Figure 26



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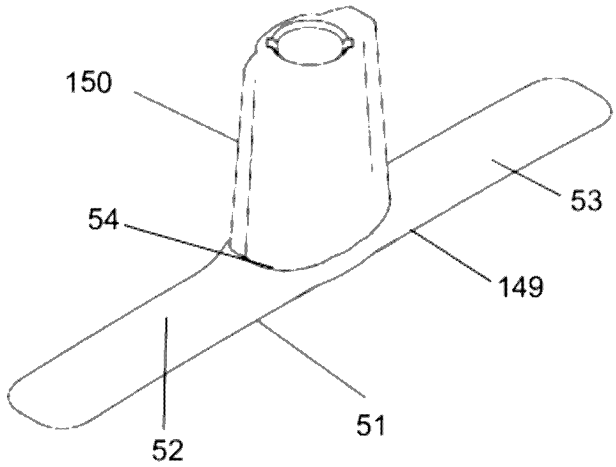

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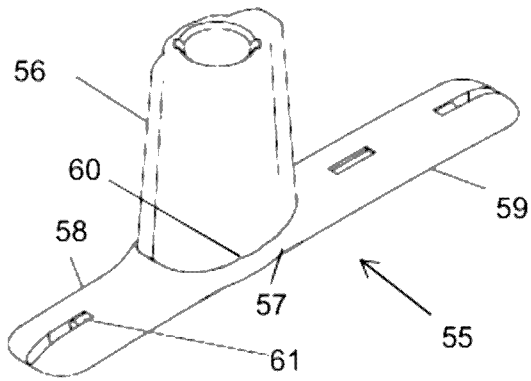

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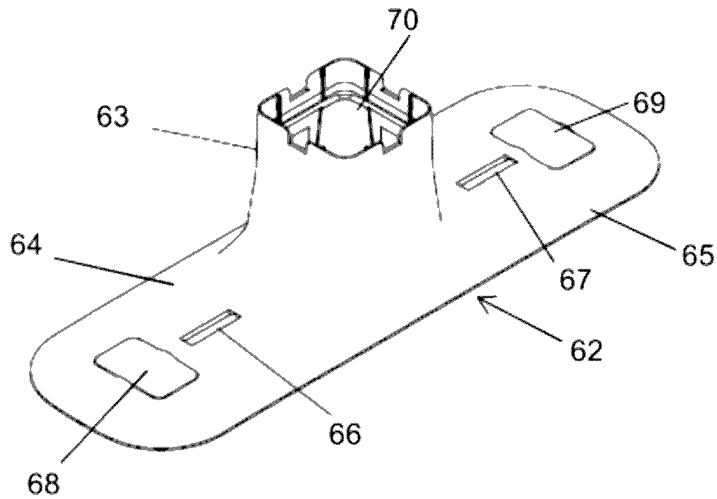

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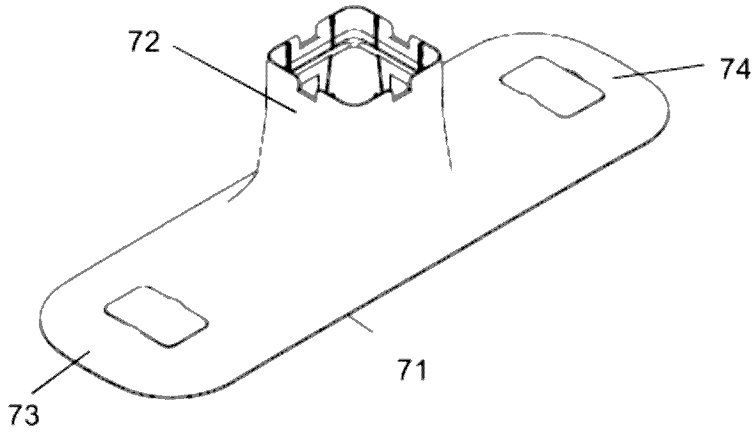

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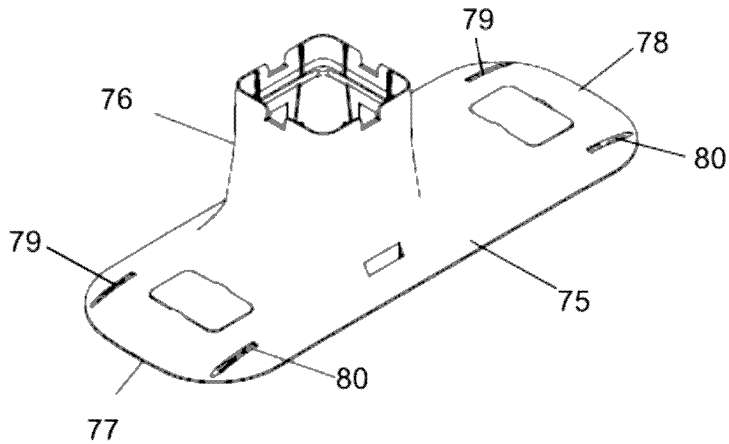


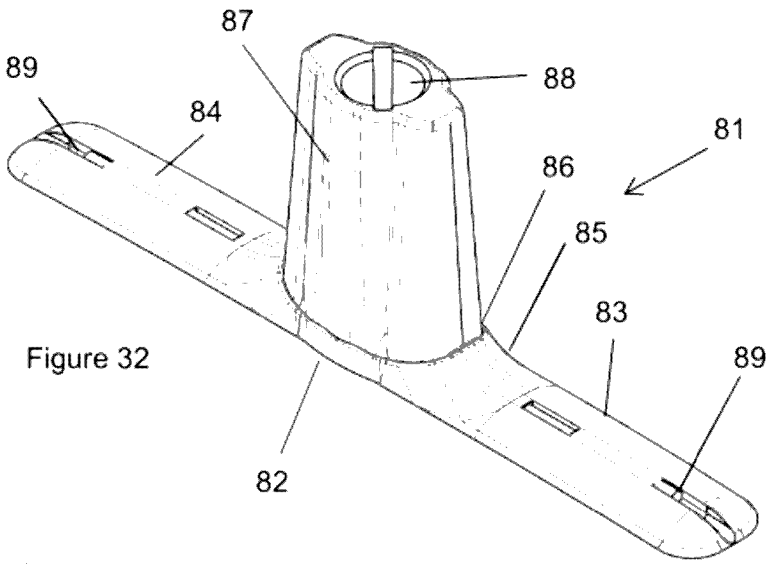
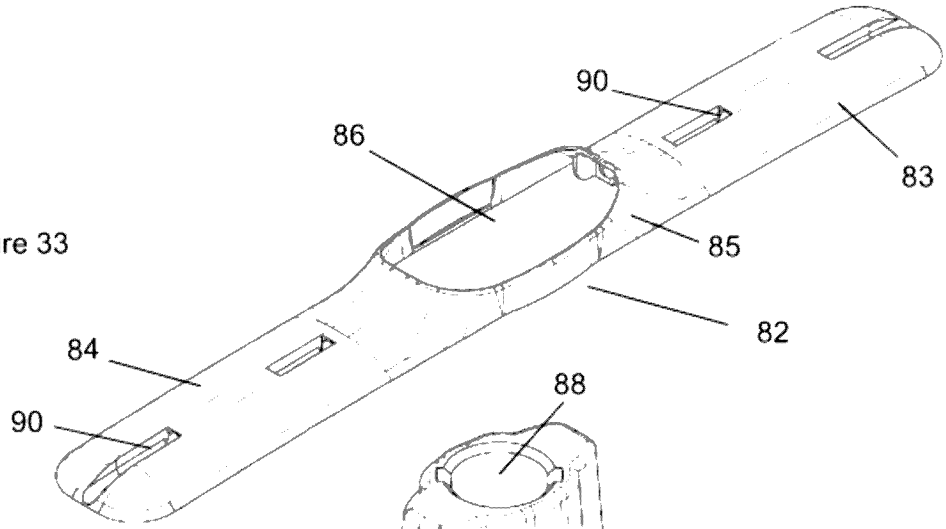


Figure 32



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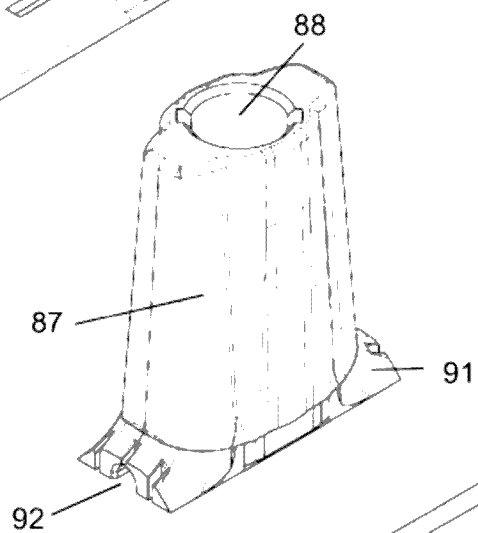

Figure 34

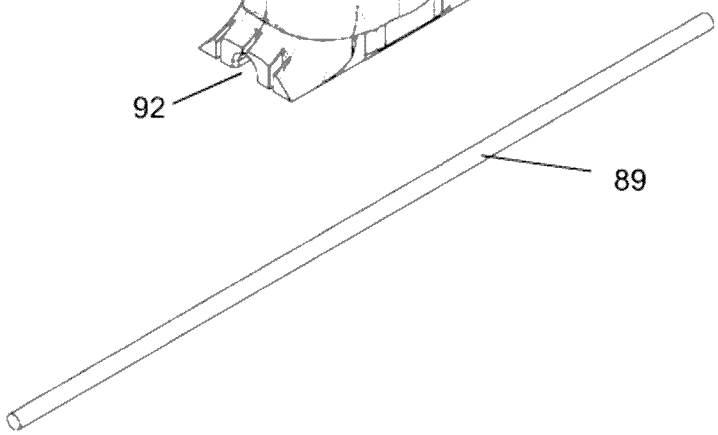

Figure 35

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2016/050573

A. CLASSIFICATION OF SUBJECT MATTER
INV. E01F9/692 E04H12/22
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
E01F E04H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2012/038741 A2 (LAYNE RICHARD [GB]) 29 March 2012 (2012-03-29) page 1, lines 3-4 page 4, line 28 - page 5, line 2 page 10, lines 19-23 page 12, lines 18-20; claims 1,22; figures 4b,5a,5c,5e	1,4,5, 11,23, 26,41

A,P	WO 2015/033135 A1 (OXFORD PLASTIC SYS LTD [GB]) 12 March 2015 (2015-03-12) the whole document	1

A	US 2008/237560 A1 (DEHLSEN BRIAN [AU]) 2 October 2008 (2008-10-02) the whole document	1

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[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
20 June 2016	27/06/2016

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Stern, Claudio

1

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2016/050573

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 484 225 A (WARNER RANDY L [US]) 16 January 1996 (1996-01-16) the whole document -----	1

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/GB2016/050573

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2012038741 A2	29-03-2012	EP 2619384 A2	31-07-2013
		US 2014145046 A1	29-05-2014
		WO 2012038741 A2	29-03-2012
WO 2015033135 A1	12-03-2015	NONE	
US 2008237560 A1	02-10-2008	NONE	
US 5484225 A	16-01-1996	CA 2139832 A1	11-07-1995
		US 5484225 A	16-01-1996