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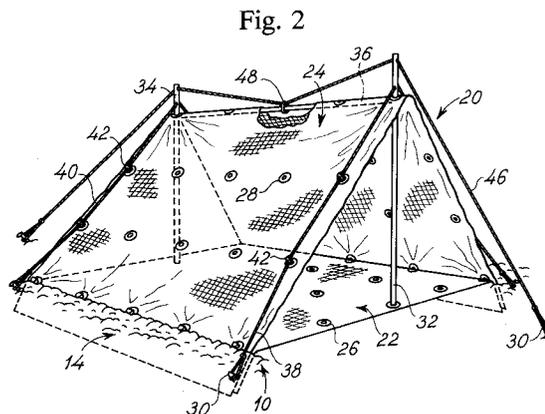
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54 **Tent or windshield and method for establishing a tent or a windshield.**

57 A tent or a windshield comprises a first foil (22) having a rectangular configuration and constituting the bottom of a raised tent and a second foil (24) having a rectangular configuration and constituting a fly sheet of the raised tent. At its outer edges, the first foil, seen in the longitudinal direction of the tent, is provided with reinforced anchor rings whereas the second foil, at its outer edges, seen in the longitudinal direction of the tent, is provided with reinforced anchor rings (28) which is adapted to be placed opposite to and in registration with the reinforced anchor rings of the first foil (26) for receiving of plugs or similar attachment (30) devices for securing of the first and the second foils to the ground (10). In the raised, tent a guy rope (46) extends between two tent poles on top of which a girder (36) is fixated, the guy rope being fixated to a centre area of the girder by means of a fixation and suspension ring (48) for supporting the central area of the girder.



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The present invention relates to a tent or a windshield, or to be more explicit a tent or a windshield to be used as a relief tent, i.e. a tent used by aid organizations and forwarded to relief camps, e.g. in connection with accomodation of persons who are refugees or homeless or displaced because of catastrophes of nature.

To a large extent, relief work of this kind is performed by the aid organizations of the United Nations, especially in e.g. Africa, in connection with drought and hunger catastrophes or political conflicts. Tent or windshields to be used in connection with relief work have to meet very specific requirements as regards construction which is of vital importance for the ability of the tent construction to be used for relief work as especially the economic considerations of an aid project very much restrict the types of tent constructions to be approved and to be used.

Thus, in connection with relief work it is of vital importance that the most are made of the allowances available. In this context this means that the allowances are spent on the largest number of tents possible. However, not only the price, but also the weight of the tent plays an important part, as tents for relief work are most often forwarded by air freight to an area of catastrophe. Therefore, the tent construction has to be not only as cheap as possible, but only as light as possible.

Moreover, a tent for relief work has to be easily raised. Even persons who are not skilled in this respect must be able to understand the method of raising the tent without detailed written instructions. In numerous instances, such written instructions will furthermore make the tent more expensive and be of no use at all, since relief work often involves persons of different nationality and different native languages, and therefore they cannot all be provided with written instructions in their own mother tongue. Furthermore, the persons who are to raise the relief tent cannot be expected to be able to read or to have a written language.

Due to these requirements to a simpel, easy and cheap assembly, technical constructions as used e.g. in connection with camping equipment, are not applicable at all, as firstly such technical constructions raise the price for the relief tent, secondly in numerous instances make the tent either more heavy or more complex.

Within the prior art, various relief tent constructions are known comprising conventional tent constructions having a tent bottom and a fly sheet together with tent poles and guy ropes.

It is an object of the present invention to provide a tent or a wind-shield designed for relief work and meeting the above mentioned requirements.

To be more explicit, it is an object of the present invention to provide a tent or a windshield

5 designed for relief work which tent is of a very simpel construction and comprises a minimum number of components. It is a further object of the invention to provide a tent designed for relief work which tent is produced at a low price and is simple to use, i.e. is easily raised.

10 The above requirements and the above objects together with numerous other objects and advantages which will be evident from the following detailed description of the present invention are obtained by means of a tent or a windshield in accordance with the present invention which is characterised by comprising a first foil or canvas having a rectangular configuration and constituting the bottom of a raised tent and defining the longitudinal and transverse directions relative to the raised tent, a second foil or canvas having a rectangular configuration and constituting a fly sheet of the raised tent and extending further in the transverse direction of the tent relative to the first foil, two tent poles and a girder serving the purpose of carrying the fly sheet of the raised tent and extending substantially in the longitudinal direction of the tent, and guy ropes for fixating the tent poles in the raised tent by securing the guy ropes to the ground by means of plugs or similar attachment devices, the first foil being provided with reinforced anchor rings at its outer edges relative to the longitudinal direction of the tent, and the second foil being provided with reinforced anchor rings at its outer edges relative to the longitudinal direction of the tent and being adapted to be placed opposite and in registration with said reinforced anchor rings of the first foil for receiving plugs or similar attachment devices for securing the first and second foils to the ground.

20 The tent or the windshield according to the present invention is characterized by comprising a minimum of components, to be more explicit it comprises two foils, a set of tent poles and a girder together with belonging guy ropes which foils are formed with reinforced anchor rings for fixation of the foils jointly to the ground by means of plugs or similar attachment devices. By means of this construction, a very simple and economically favorable light weight tent or windshield is obtained. The anchor rings which are a characteristic feature of the tent or the wind shield according to the present invention and which are provided in the first foil as well as in the second foil for joint fixation of the first and the second foils to the ground may be provided as reinforced anchor rings in the outer edges of the foils or as anchor rings placed in lines along the edges of the foils and extending in the directions corresponding to the longitudinal direction of the tent. Alternatively and preferably, the reinforced anchor rings are provided in the first foil as well as in the second foil placed in quadratic nets covering

the first foil and the second foil, respectively. Thus, an especially simple construction is obtained as the mutual distance between the anchor rings of the first foil and the mutual distance between the anchor rings of the second foil is identically defined by quadratic nets in which the reinforced anchor rings are placed covering the first and the second foils.

The first and the second foils of the tent or windshield according to the invention may be made from various materials, the first foil basically serving the purpose of establishing a dust tight and preferably also water tight bottom of the tent and moreover serving the purpose of providing a profile when the tent is raised.

Unlike the canvas of numerous conventional tent constructions, the second foil of the tent according to the present invention must be strong enough to resist influences when the tent is raised, by means of the tent poles, the girder and the guy ropes, as the second foil is affected by weather conditions which affections are not necessarily absorbed by other components of the tent as e.g. separate tension guy ropes and accordingly must be absorbed by the second foil itself. According to the presently preferred and most simple embodiment of the tent according to the present invention, the first foil and the second foil are, however, made from the same material which furthermore in accordance with an alternative embodiment may be assembled into one foil formed tube thus comprising two integrally assembled foil parts constituting the first foil and the second foil of the tent according to the present invention and each being provided with the reinforced anchor rings characterizing the tent according to the present invention.

The foils of the tent according to the present invention may be made from any suitable material which preferably and as described above must be able to resist the influences to which the tent is exposed. Such foil material is indeed known within the art and comprises i.a. reinforced or non-reinforced plastics foils, e.g. PVC-foils, tarpaulin foils, tarpaulin canvas or tent canvas or other foil materials as e.g. co-extruded or laminated foils such as metallized PVC-, PP- or PE foils. The material presently preferred for the foils of the tent according to the present invention is fibre-reinforced plastics foil, especially polyester fibre reinforced LD-PE foils of the kind which have gained ground within other technical fields, especially for covering of scaffoldings and to be used as underroofs.

The two tent poles and the girder serving the purpose of carrying the second foil of the raised tent may be designed so that the two tent poles are placed outside the area limited by the first foil, the first foil serving the purpose of providing a profile when the tent is raised. In the presently

preferred embodiment of the tent according to the present invention the second foil is, however, provided with anchor rings for receiving the tent poles which are of a length enabling the tent poles in the raised tent to extend upwards through the anchor rings in the fly sheet, the guy ropes of the tent comprising a first guy rope extending in the longitudinal direction of the tent between the two tent poles and being secured to the upper, free ends of the tent poles and furthermore being fixated to a central point of the girder by means of a fixation and suspension ring for carrying the central area of the girder.

By this special embodiment of the tent or the wind shield according to the present invention, a construction is provided which enables the span of the girder to be extended beyond the upper limit of the strength of the girder. Thus, it is obvious to persons skilled in the art that the maximum length of the girder is determined partly by its strength, including especially its thickness of material and the nature of its material, and partly by the size of the fly sheet, i.e. the size of the second foil, to be carried by the girder.

According to known tent constructions, it is common practice to support the carrying girder by means of a separate or an extra tent pole which is mounted so as to carry the center point of the girder. However, such a construction shows considerable disadvantages. Firstly, disadvantages in consideration of convenience as a tent pole mounted in the middle of a tent makes the tent less applicable compared to a tent having no such carrying tent pole. A separate, carrying tent pole moreover causes a rise in the price of the tent compared to a tent without such extra tent pole and it also causes an increase in weight which is very unfortunate in connection with tents for relief work, as described above.

By means of the special embodiment of the tent poles and the first guy rope as described above, it thus becomes possible, exclusively by providing the fixation and suspension ring for carrying the center area of the girder, to provide a larger tent than would otherwise have been possible without the special guy rope support of the girder, or equivalently to produce the girder of a thinner and more light material than would have been possible without the special girder support provided by means of the above described first guy rope and the fixation and suspension ring.

Preferably, the first guy rope furthermore serves the purpose of securing the two tent poles, the guy rope extending further from the free ends of the tent poles and in the raised tent being fixed to the ground by means of plugs or similar attachment devices.

The tent may furthermore comprise extra guy ropes, especially two further guy ropes attached at the upper, free ends of the tent poles and in the raised tent extending along the upper side of the fly sheet and being secured to the ground by means of plugs or similar attachment devices.

As explained above, the tent or the windshield according to the present invention is characterized by being of an especially simple construction, being light and inexpensive and furthermore being extremely easy to raise. Moreover, the tent according to the present invention is characterized by being easily combined with other identical tents and thus constitute a larger, tent forming one unit, as for instance two, four or even more tents may be raised in continuation of each other for providing a joint longitudinal tent or windshield.

The above requirements, the above purposes together with numerous other purposes, advantages and features which will be evident from the following detailed description of the invention are furthermore obtained in accordance with the present invention by means of a method for establishing a tent or a windshield in which

- a first foil or canvas is provided, the first foil or canvas having a rectangular configuration and constituting a bottom of a raised tent, and the first foil or canvas defining a longitudinal and transverse direction relative to the raised tent,
- a second foil or canvas is provided, the second foil or canvas having a rectangular configuration and constituting a fly sheet of the raised tent, and the first foil or canvas extending further in the transverse direction of the tent relative to the first foil, the first foil at its outer edges, seen in the longitudinal direction of the tent, being provided with reinforced anchor rings, and the second foil at its outer edges, seen in the longitudinal direction of the tent, being provided with reinforced anchor rings,
- two tent poles, a girder and guy ropes and plugs or similar attachment devices are provided,
- the first foil is placed on the ground,
- the second foil is placed on said first foil, the reinforced anchor rings of the second foil being placed opposite to and in registration with the reinforced anchor rings of the first foil,
- plugs or similar attachment devices for fixating of the first and said second foils to the ground are mounted in the anchor rings being placed opposite to each other and in registration in the first and the second foils,
- the second foil is suspended over the girder being mounted on the tent poles, and

- the tent poles are fixated by means of the guy ropes for securing to the ground by means of the plugs or the attachment devices.

Thus, the method of establishing a tent or a windshield according to the present invention is characterised in the tent being raised in an especially simple way exclusively by means of two foils, two tent poles, a girder and guy ropes for securing the tent poles and the plugs or similar attachment devices. In accordance with the method according to the present invention for establishing a tent or a windshield, the two foils of the tent are secured to the ground by anchoring the foils jointly by means of plugs or similar attachment devices mounted in the reinforced anchor rings placed opposite each other and in registration in the first and the second foil.

According to an especially favourable embodiment of the method according to the present invention, a first foil and a second foil are provided by cutting the foils from a continuous sheeting of foil material as a number of tents are thus established by cutting a continuous foil sheeting and by using a set of tent poles, girders, guy ropes and plugs to match.

The foil which is used in accordance with the method according to the present invention is moreover preferably characterized by the features of the tent according to the present invention as described above.

The support aspect of the present invention as described above is established preferably in accordance with the method according to the present invention by mounting the tent poles in such a manner that they extend through anchor rings provided in the second foil and that the girder is supported by a guy rope mounted so as to extend in the longitudinal direction of the tent between the two tent poles and to be fastened to the upper free ends of the tent poles and to be fixated to a central area of the girder by means of a fixation and suspension ring.

In the following, the invention will be described in details with reference to the drawing in which

Fig. 1 is a schematic and perspective view of the first step of raising a tent in accordance with the invention,

Fig. 2 is a view corresponding to the view of Fig. 1 of a raised tent in accordance with the invention,

Fig. 3a, 3b, 3c and 3d are detailed views of a tent according to the invention,

Fig. 4a is a view corresponding to the views of Fig. 1 and 2 of an alternative embodiment of a tent according to the invention,

Fig. 5 is a schematic view of the procurement of two foils for the tent according to the invention,

Fig. 6 is a schematic view of a fixation and suspension ring for the tent according to the invention, and

Fig. 7a, 7b and 7c are detailed views of the attachment of tent poles and a girder in the tent according to the invention.

Tents of the type described in the present invention, i.e. a relief tent, must meet very heavy constructive demands. Thus, firstly the tent must be easy to raise as it will be necessary for non-skilled people to raise the tent without detailed instructions since written instructions will not be available because they would partly make the tent more expensive, and partly increase the weight of the tent, and because the tent is expected to be used by persons of different native languages or by persons who are not able to read or to write. Secondly, the tent must be as light as possible as in connection with relief work it is of vital importance that the individual tent to be sent by air freight weighs as little as possible in order for the consignment to contain as many tents as ever possible. Thirdly, the tent must be stable in order for the tent not to overturn during extreme weather conditions, i.e. strong wind and rain. Finally and fourthly, the tent must be of a construction enabling as inexpensive manufacture as possible as in connection with relief work the number of tents to be provided is determined by the size of the allowance granted.

The demands specified above, which are in fact mutually contradictory, are met by means of a tent according to the present invention. In Figs. 1 and 2 of the drawing, detailed and perspective views of a first embodiment of the tent or the windshield according to the present invention are shown.

The reference numeral 10 designates the surface of the ground in which a furrow 12 are dug. On the ground 10 an underfoil or a first foil 22 is placed as shown in Fig. 1, which underfoil or first foil is of roughly quadratic configuration. As evident from Fig. 1, the underfoil 22 is provided with a number of rings 26 placed in a quadratic net covering the entire underfoil 22. Above the underfoil 22, a canvas or a second foil 24 are placed, which canvas or second foil is, like the underfoil 22, provided with rings 28 forming a quadratic net. Unlike the underfoil 22, the canvas 24 has a longitudinal or rectangular configuration, the canvas forming an overlap as is evident from Fig. 1. The canvas and the underfoil, 22 and 24, respectively, are placed in such a manner that the outermost longitudinal edge parts of the underfoil and the canvas extend downwardly into the dug furrow 12. The underfoil 22 and the canvas 24 are furthermore placed in a manner so that the rings 26 and 28, respectively, are placed above each other at

the above mentioned outermost longitudinal edge parts of the underfoil and the canvas. By means of a number of plugs, totally five plugs in the embodiment illustrated, the underfoil and the canvas are secured to be ground 10 at the above mentioned outermost longitudinal edge parts, the plugs, which are designated the reference numeral 30, being beaten into the ground through the rings 26 and 28 which are placed opposite each other and in registration. This detail is illustrated in Fig. 3a and will be described in details below. At the opposite outermost longitudinal edge parts of the underfoil and the canvas, a furrow is dug corresponding to the furrow 12, and edge parts of the underfoil and the canvas are secured to the ground in the same way as described above by means of a number of plugs, in the embodiment illustrated five plugs.

In Fig. 2, a tent 20 is illustrated comprising the above described foils 22 and 24 and being raised during a number of further steps by using the foils 22 and 24 and supplementary two tent poles 32 and 34, a girder 36 and a total of three guy ropes 38, 40 and 46. The tent poles 32 and 34 are, as illustrated in Fig. 2, placed in a ring situated on the center line of the underfoil 22 at one of the outermost transversal edges of the underfoil 22. The tent pole 32 extends further, as illustrated in Fig. 2, through a ring 28 in the canvas 24, the ring being placed on the center line of the canvas and at an outermost transversal edge of the canvas. Correspondingly, the other tent pole 34 is located at the opposite end of the tent, i.e. in a ring 26 in the underfoil 22 at the opposite transversal edge of the underfoil, the tent pole 34 correspondingly extending through a ring 28 in the canvas which ring is situated at the center line of the canvas 24 and at the opposite transversal edge of the canvas.

A girder 36 is mounted between the tent poles 32 and 34, as illustrated in details in Fig. 3c, which girder serves the purpose of supporting the canvas 24 resting on the girder 36 as illustrated in Fig. 2. The raised tent in its entirety is designated the reference numeral 20 and seen in a cross-sectional view it has the configuration of an isosceles triangle. This configuration is obtained by the symmetrical position of the tent poles in relation to the center line of the underfoil and the canvas, but another cross section configuration may be realized by e.g. using other rings than the ones mentioned above and positioned on the center line of the canvas and the underfoil for securing of the tent poles 32 and 34, the inclined surfaces of the canvas in the embodiment illustrated in Fig. 2 having the edge lengths of 3 units. In this context, one unit is defined as the distance between two rings in the quadratic nets in which the rings 26 and 28 are positioned in the underfoil 22 and in the canvas 24,

whereas the underfoil correspondingly has a quadratic ground area with the length of 5 units. Based on simple geometrical relations, an alternative tent may be realized in which the side surfaces of the canvas have edge lengths of 3 and 4 units, respectively, whereas the underfoil correspondingly has the edge length of 5 units. Thus, the well known right-angled 3-4-5 triangle of geometry is realized, but also other geometrical cross section configurations may be realized which is obvious to persons skilled in the art.

As illustrated in Fig. 2, the tent poles 32 and 34 are fastened by means of the transverse guy ropes 38 and 40. The guy ropes 38 are fastened to a respective tent pole 32 and 34, respectively, as shown in Fig. 3c, and are threaded through a number of anchor rings 42 which are illustrated in details in Fig. 3b and which are mounted in the rings 28 placed at the outer transverse edges of the canvas 24. The free ends of the guy ropes 38 and 40 are secured to the ground 10 by means of plugs of preferably the same configuration as the plugs described above being used for securing the canvas and the underfoil to the ground as described above with reference to Fig. 1. As will be obvious to persons skilled in the art, the guy ropes 38 and 40 serve the purpose of keeping the canvas 24 stretched in order to prevent the canvas 24 from fluttering in the wind, and moreover they serve the purpose of fastening the tent poles 32 and 23 in the transverse direction of the tent. Correspondingly, as will be obvious to persons skilled in the art, the guy rope 46 serves the primary purpose of fastening the tent poles 32 and 34 in the longitudinal direction of the tent. Thus, the guy rope 46 is mounted so as to extend through a hole in the upper part of the tent poles 32 and 34 and is secured to the ground 10 by means of plugs 30. The guy rope 46 furthermore serves the essential purpose of supporting the girder 36.

The tent 20 is of such large dimensions that the girder 36 is not able to carry the weight of the canvas 24 unless the girder is produced from a very strong and heavy material which would substantially increase the total weight and price of the tent. Within the field of tent production, a well known practical technical solution to this basic supporting problem has involved the use of an extra tent pole mounted in the middle of the tent for carrying the central area of the girder. However, such an extra tent pole is neither desirable, nor necessary, as firstly it reduces the applicability of the tent, secondly it considerably increases the weight and price of the tent, and thirdly it may be substituted by a special fixation and suspension ring 48 providing in collaboration with the guy rope 46 the same mechanical support as a separate, extra tent pole. Thus, as shown in Fig. 2, the centre

point of the girder 36 is supported by the above mentioned fixation and suspension ring 48 mounted on the girder 36 and extending through a ring 28 in the canvas.

5 In Fig. 2, the reference numeral 14 furthermore designates soil which has been thrown into the furrow 12 shown in Fig. 1 and thus secures the lowest free longitudinal edge parts of the underfoil 22 and the canvas 24 to the ground.

10 Fig. 3a shows in details a detail of the foils 22 and 24, i.e. the detail described above, according to which the foils 22 and 24 are jointly fixated by means of the plug 30 to the ground as the plug 30 is mounted in the rings 26 and 28 which is placed opposite each other and in registration.

15 In Fig. 3b, a detail of the canvas 24 is illustrated, which detail supplementarily shows the embodiment of the fixation ring 42 mounted in one of the rings 28 in the canvas 24, as shown in Fig. 2. The fixation ring 42 comprises a plate part 43 from one side of which a ring part 44 projects upwardly, which ring part is mounted so as to extend through the center hole of the ring 28. The plate part 43 thus serves the purpose of abutting on the inner side of the canvas 24.

20 In Fig. 3c, a detail of the tent pole 32 is shown illustrating the fixation of the girder 36 and the guy ropes 38 and 46 in relation to the tent pole 32. As shown in Fig. 3c, the girder has a projecting spike 50 received in a hole 66 of the tent pole 32. The guy rope 46 is correspondingly received in a throughgoing hole 62 of the tent pole 32 which hole 62 extends parallelly with the hole 66. The guy rope 38 is, as shown in Fig. 3c, received in a throughgoing hole 64 which is provided in a position between the holes 62 and 66 and extends perpendicularly to these holes. As will be evident to persons skilled in the art, the hole 64 may, if preferred, be mounted above the hole 62. Such a mutual positioning of the holes 62, 64 and 66 is not considered completely perfect, as in accordance with a preferred positioning the guy ropes 38 and 40, respectively, are placed in a level just above the upper side of the canvas 24. As will be evident to persons skilled in the art the tent pole 34 is produced with holes as described above with reference to Figs. 3c.

25 In the embodiment of the tent 20 described above, the tent is composed of a loose underfoil 22 and a canvas 24. If preferred, these may, however, be gathered into a joint foil formed tube, as is shown in Fig. 3c and 4. Thus, in Fig. 4, an alternative embodiment of the tent is illustrated which embodiment comprises a joint canvas and underfoil 52 and 54, respectively, which is produced with rings 56 and 58, respectively, corresponding to the above described canvas and underfoils 22 and 24, respectively. Fig. 3d shows a detail of this alter-

native embodiment of the tent, Fig. 3d corresponding to the detail shown in Fig. 3a and Fig. 1 illustrating a lowermost corner of the joint canvas and underfoils 52 and 54 which form a folded edge part which - just like the uttermost longitudinal edge parts of the underfoil 22 and the canvas 24 - is buried in the furrow 12 in the ground 10 by means of filled up soil 14. Furthermore, as shown in Fig. 3d and corresponding to the above description of the presently preferred first embodiment of the tent according to the present invention, the canvas and the underfoil 52 and 54 are secured to the ground by means of plugs 60 led through the rings 56 and 58 and pressed or hammered into the ground 10.

The tent 20 described above may be delivered as a prepacked unit comprising the undercover 22, the canvas 24, the tent poles 32 and 34, the girder 36, the guy ropes 38, 40 and 46, a number, preferably eight, of fixation rings 42, one fixation and suspension ring 48 and a number, preferably sixteen, of plugs. The tent 20 may alternatively be provided by cutting the foils 22 and 24 on site from a continuous sheet of material which is illustrated schematically in Fig. 5 showing the two foils 22 and 24 provided by separating the foil 24 from the foil 22 as schematically indicated by the reference numeral 68 showing a pair of scissors.

Thus, for relief work a foil material sheeting may advantageously be provided enabling the production of a number of tents, e.g. eight, with belonging tent poles, girders, guy ropes, fixation rings, fixation and suspension rings and plugs. Hereafter, the foils 22 and 24 are cut from the material sheetings on site whereas the other components are distributed to the various tents.

Furthermore, it is noted that the tent shown in Fig. 2 may in a simple manner be elongated by raising a corresponding tent in continuation of the tent 20, the one tent pole, e.g. the tent pole 32 shown in Fig. 2, being utilized as one of the tent poles of the second, adjacent tent, and the guy ropes 46 being elongated to support the girder of the neighbour tent, corresponding to the girder 36. Correspondingly, the guy rope 38 may be utilized for gathering the canvas 24 and the canvas of the neighbour tent. In this way, not only two, but in fact any large number of tents may be combined into one elongated tent or windshield.

In Fig. 6, the fixation and suspension ring 48 is illustrated in details. The fixation and suspension ring centrally comprises a plate part 70 serving the purpose of abutting on the inner side of the canvas 24, as from opposite sides of the plate part 70 two rings, the ring 72 and the ring 73, respectively, extend upwardly and downwardly. The ring 72 defines an aperture which is substantially larger than the ring 73 and serves the purpose of receiving the girder 36, whereas the ring 73 serves the purpose

of receiving the guy rope 46. The fixation and suspension ring 48 is thus mounted in the tent by the girder 36 being mounted in the ring 72, and thereafter the ring 73 is led through the ring 28 in the canvas 24, as finally the guy rope 46 is threaded through the ring 73, as shown in Fig. 2.

In Fig. 7a, 7b and 7c, an alternative embodiment of the details of Fig. 3c of the tent is shown in details, i.e. the details of the joining of the tent pole and the belonging girder. Thus, Fig. 7a shows a part of a cross section of the tent pole 74 which differs from the above described tent poles 32 and 34 in that the tent pole 74 only comprises a tube piece, preferably made from aluminum, without holes or borings corresponding to the holes 62, 64 and 66. In substitution for the holes 62, 64 and 66, the tent pole 74 is provided with a fitting 76 comprising a cast plastics fitting mounted in the rear end of the tube 74 and having a spike-formed part 78 extending upwards from the tent pole 74, in which spike-formed part 78 two transversal borings 82, 84 are provided serving the purpose of receiving guy ropes, and furthermore an upper, forked part is provided which is shown in details in Fig. 7c and in this figure is designated the reference numeral 84. The spike-formed part 78 of the fitting 76 is adapted to cooperate with a through-going hole in the girder of the tent which girder is shown in Fig. 7a and is designated the reference numeral 86. The girder 86 shown in Fig. 7a differs from the girder described with reference to Figs. 2 and 3c in that the girder 86, as is clearly evident from Fig. 7b, is provided with a pressed and flattened part 88 in which a through-going hole 90 is provided for mounting of the projecting, spike-formed part 78.

As will be evident for persons skilled in the art, this embodiment of the tent pole 74 and the girder 86 makes it possible that a number of girders can be mounted in continuation of each other by using the fitting 76 shown in Fig. 7a which is thus utilized for fixation of the two girders 86 belonging to two individual tents.

As will be well known for persons skilled in the art, the tent described above may be produced from any suitable, preferably strong foil or tent material. In the presently preferred embodiment a reinforced plastics foil is used, i.e. a polyester fiber reinforced LD-PE foil. The foil is strengthened by polyester fibers of a thickness of 1000 denier which is welded into a 0.1 mm and 0.15 mm LD-PE foil in combination constituting a 0.25 mm reinforced LD-PE foil. Alternative materials for the foils 22, 24, 52, 54 are other reinforced or unreinforced plastics foils, e.g. PVC, tarpaulin foil, tarpaulin cloth or canvas or some other foils material, e.g. aluminum foil coated plastics foil as e.g. PVC, PP or PE foil. The tent poles 32 and 34 and the girder 36 may be produced from any suitable material as for instance

aluminum, steel, plastics material, e.g. PVC or fiber reinforced plastics material, e.g. fibre glass.

### Example

A prototype of the tent shown in Fig. 1 and 2 was produced from two foils, i.e. the polyester fibre reinforced 0.25 mm LD-PE-foil described above and manufactured by the applicant during several years, e.g. for use as underroof foil. The underfoil 22 had the dimensions 475 cm x 400 cm and was provided with a total of 25 rings 26, placed symmetrically on the mainly quadratically configured underfoil with a quadratic net raster distance of 95 cm. The canvas 24 was made from the same sheeting as the underfoil 22 and had a width of 400 cm and a length of 665 cm and was provided with a total of 35 rings 28, also placed in a quadratic net raster distance of 95 cm.

Aluminum tubes, each of a length of 240 cm, an outer diameter of 30 mm and a wall thickness of 1.5 mm, was used for the tent poles 32 and 34 whereas the girder 36 was produced from an aluminum tube at a length of 380 cm, an outer diameter of 25 mm and a wall thickness of 1 mm. The guy ropes 38 and 46 were made from woven nylon thread.

### REFERENCE NUMERALS

10	ground
12	furrow
14	thrown soil
20	tent
22	underfoil or first foil
24	canvas or second foil
26	ring
28	ring
30	plug
32	tent pole
34	tent pole
36	girder
38	guy rope
40	guy rope
42	fixation ring
43	plate part
44	ring part
46	guy rope
48	fixation or suspension ring
50	spike
52	cloth or canvas
54	folded part of canvas
56	ring
58	ring
60	plug
62	hole
64	hole
66	hole

68	scissors
70	plate part
72	largest ring part
73	smallest ring part
5	74 tent pole
76	fixation fitting
78	protruding, spike-formed part
80	hole
82	hole
10	84 forked part
86	girder
88	pressed or flattened part
90	hole

### 15 Claims

1. A tent or windshield, said tent or windshield comprising a first foil or canvas having a rectangular configuration and constituting the bottom of a raised tent and defining the longitudinal and transverse directions relative to the raised tent, a second foil or canvas having a rectangular configuration and constituting a fly sheet of the raised tent and extending further in the transverse direction of the tent relative to the first foil, two tent poles and a girder serving the purpose of carrying the fly sheet of the raised tent and extending substantially in the longitudinal direction of the tent, and guy ropes for fixating the tent poles in the raised tent by securing the guy ropes to the ground by means of plugs or similar attachment devices, said first foil being provided with reinforced anchor rings at its outer edges relative to the longitudinal direction of the tent, and said second foil being provided with reinforced anchor rings at its outer edges relative to the longitudinal direction of the tent and being adapted to be placed opposite and in registration with said reinforced anchor rings of said first foil for receiving plugs or similar attachment devices for securing said first and second foils to the ground.
2. The tent according to claim 1, said reinforced anchor rings of said first foil and said second foil being placed in quadratic nets covering said first foil and said second foil, respectively.
3. The tent according to claims 1 or 2, said first foil and said second foil being made from the same material.
4. The tent according to claim 3, said first foil and said second foil being assembled into a conduit formed by said foils.

5. The tent according to claim 3 og 4, said first foil and said second foil being made from reinforced plastics foil, especially polyester reinforced LD-PE foil.
6. The tent according to any of the claims 1-5, said second foil being made with anchor rings for receiving said tent poles, said tent poles being of a length enabling said tent poles in said raised tent to extend through said anchor rings in said fly sheet, and said guy ropes comprising a first guy rope extending in said raised tent in said longitudinal direction of said tent between said two tent poles and being fixated to the upper free end of said tent poles and furthermore being fixated to a central point of said girder by means of an anchor and suspension ring for carrying the central area of said girder.
7. The tent according to claim 6, the first guy rope extending further from said free ends of said girders and in the raised tent being fixated to the ground by means of plugs or similar attachment devices.
8. The tent according to claim 6 or 7, said guy ropes comprising two further guy ropes, said two further guy ropes being fixated at the uppermost free ends of said girders and extending in the raised tent along the upper side of said fly sheet and being fixated to the ground by means of plugs or similar attachment devices.
9. Method for establishing a tent or a windshield in which:
- a first foil or canvas is provided, said first foil or canvas having a rectangular configuration and constituting a bottom of a raised tent, and said first foil or canvas defining a longitudinal and transverse direction relative to said raised tent,
  - a second foil or canvas is provided, said first foil or canvas having a rectangular configuration and constituting a fly sheet of said raised tent, and said first foil or canvas extending further in the transverse direction of said tent relative to said first foil, said first foil at its outer edges, seen in the longitudinal direction of said tent, being provided with reinforced anchor rings, and said second foil at its outer edges, seen in the longitudinal direction of said tent, being provided with reinforced anchor rings,
  - two tent poles, a girder and guy ropes and plugs or similar attachment devices
- are provided,
- said first foil is placed on the ground,
  - said second foil is placed on said first foil, said reinforced anchor rings of the second foil being placed opposite to and in registration with said reinforced anchor rings of said first foil,
  - plugs or similar attachment devices for fixating of said first and said second foils to the ground are mounted in said anchor rings being placed opposite to each other and in registration in said first and said second foils,
  - said second foil is suspended over the girder being mounted on the tent poles, and
  - said tent poles are fixated by means of said guy ropes for securing to the ground by means of said plugs or said attachment devices.
10. Method according to claim 9, said first and said second foils being cut from one and the same sheet of foil material.
11. Method according to claim 9 or 10, said tent further having any characteristics of the tent according to claims 2-5.
12. Method according to claim 9, 10 or 11, said tent poles being adapted in such a manner that they extend through anchor rings of said second foil and said girder being carried by a guy rope extending in the longitudinal direction of said tent between said two tent poles and being fixated to the upper, free ends of said girders and being fixated to a central point of said girder by means of an attachment and suspension ring.
13. Method according to claim 12, said tent furthermore having any of the characteristics of the tent according to claim 7 or 8.

Fig. 1

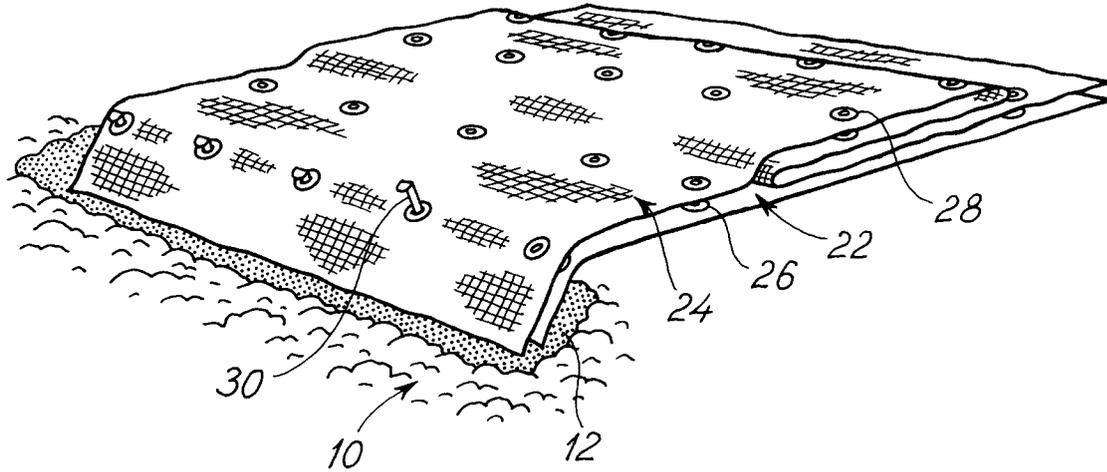


Fig. 2

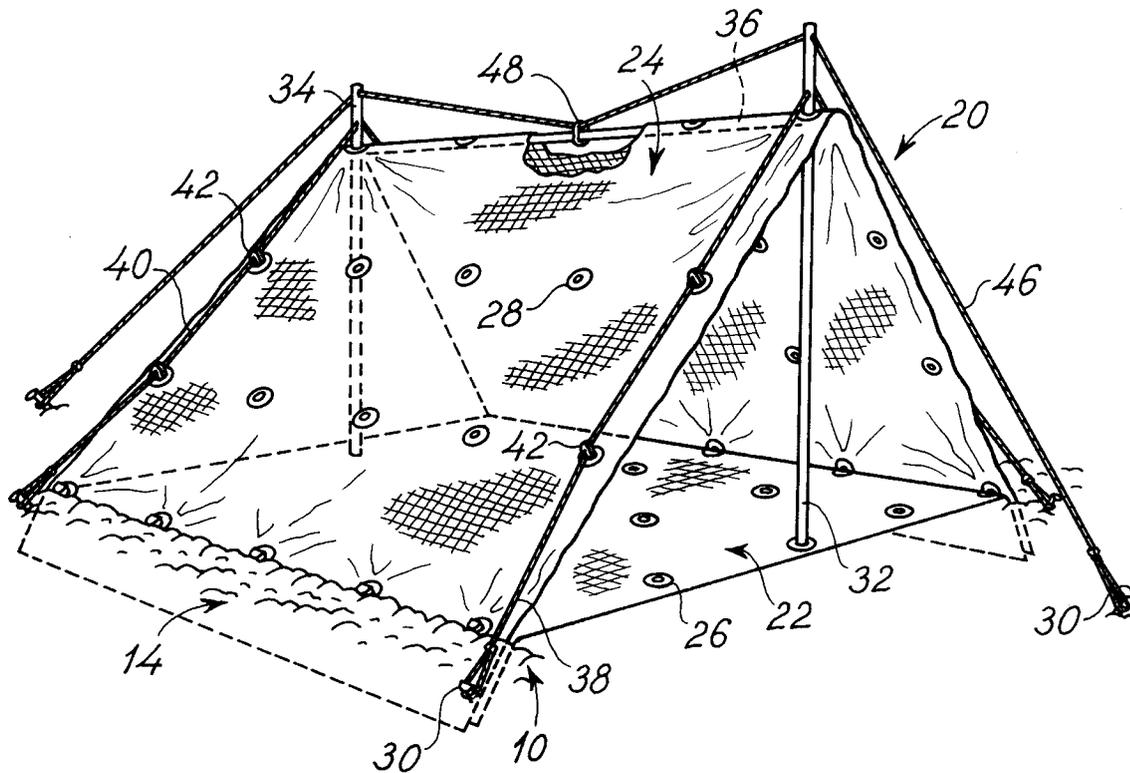


Fig. 3a

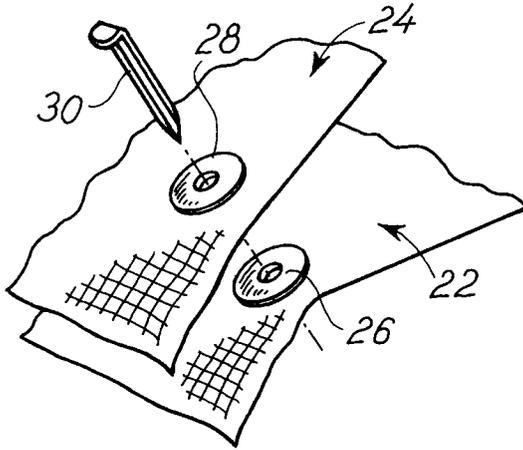


Fig. 3b

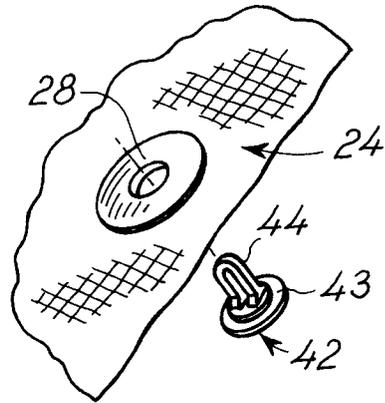


Fig. 3c

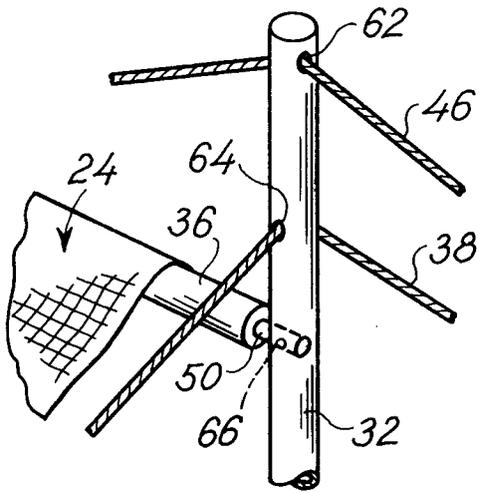


Fig. 3d

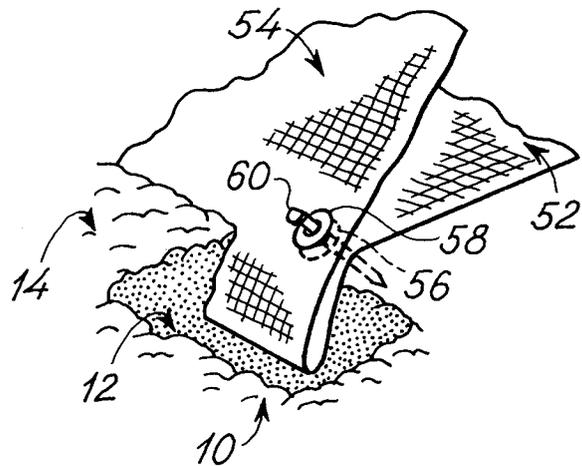
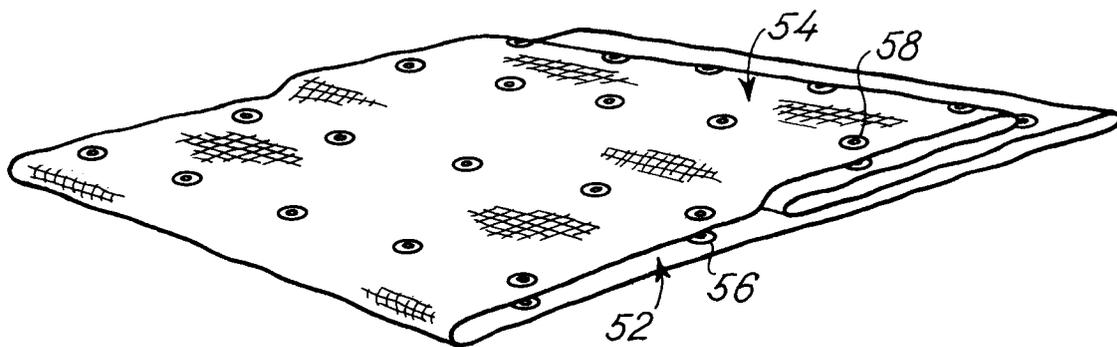


Fig. 4



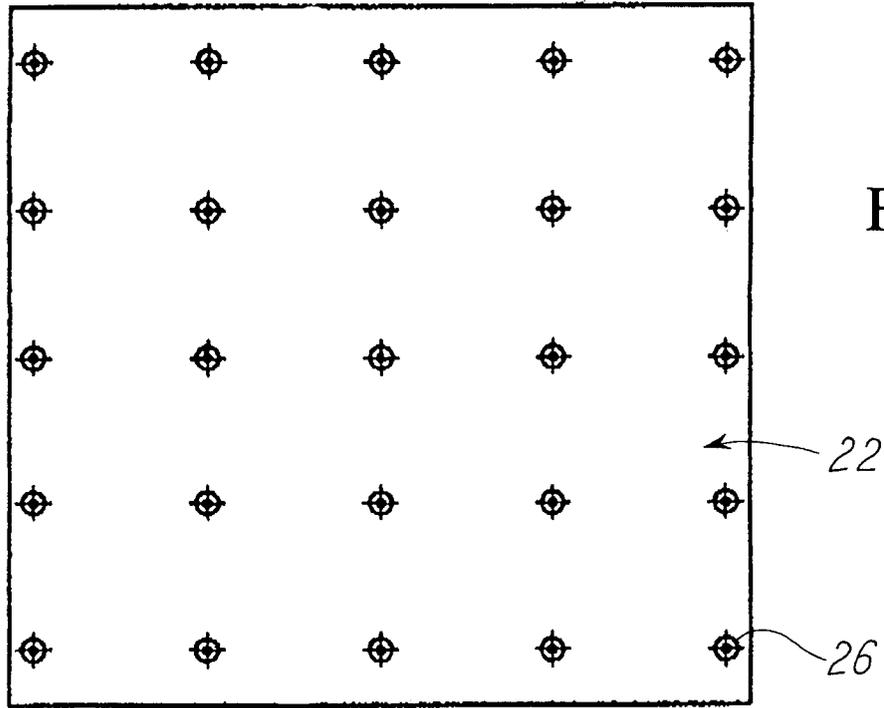
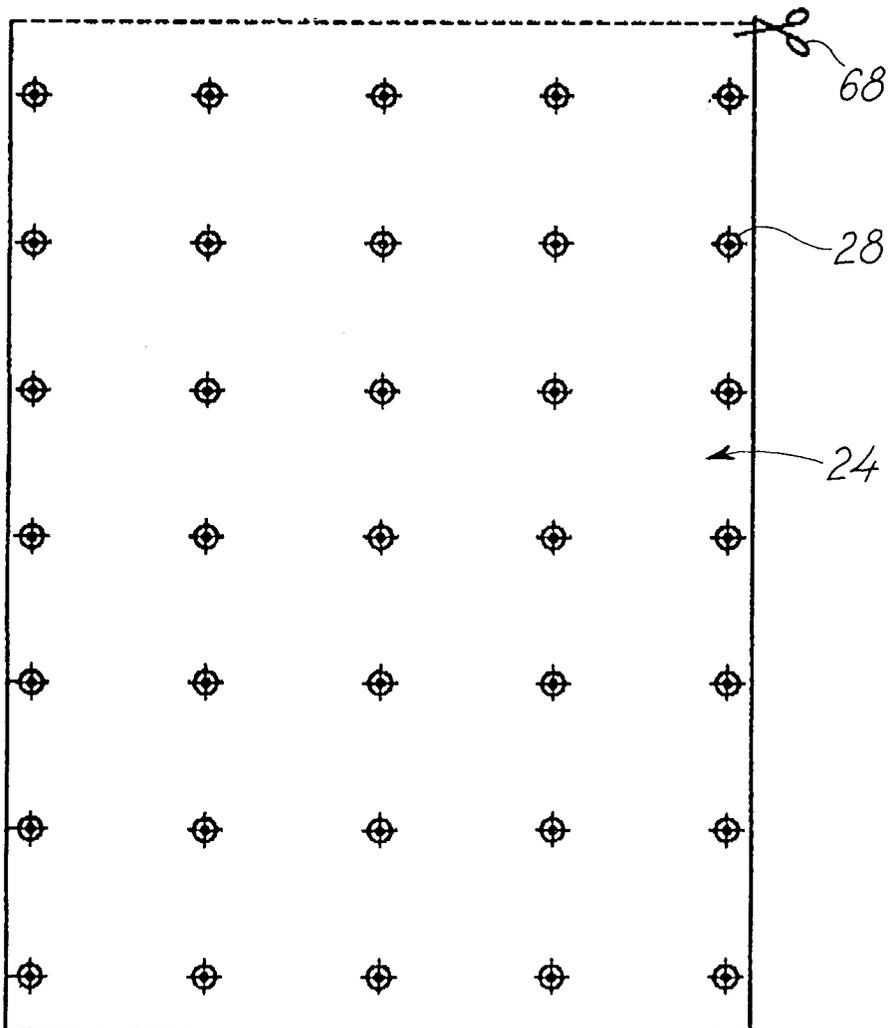


Fig. 5



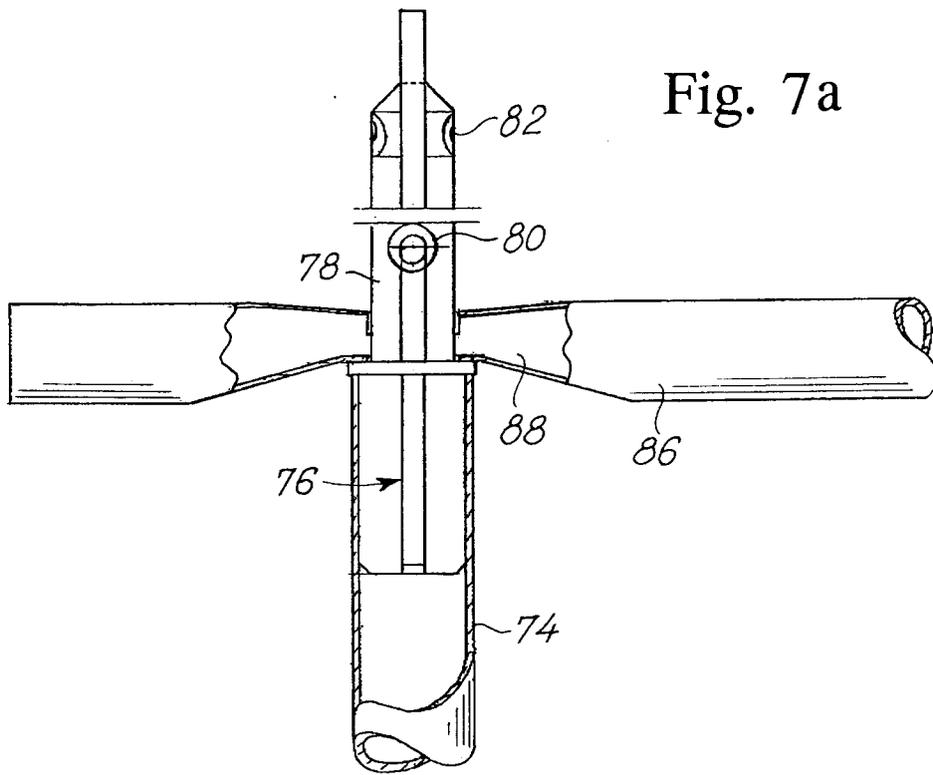


Fig. 7a

Fig. 7b

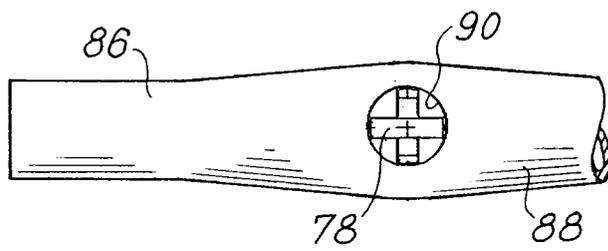


Fig. 6

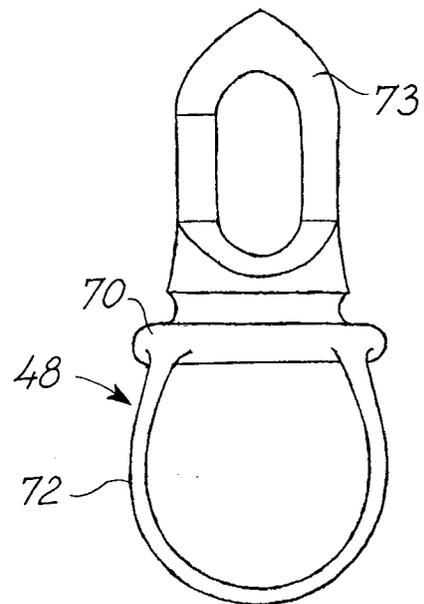
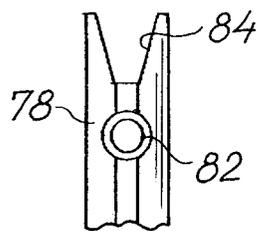


Fig. 7c





European Patent  
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EUROPEAN SEARCH REPORT

Application Number  
EP 94 61 0050

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	DE-C-262 480 (SALZMANN & COMP.) * the whole document * ---	1,2,8,9	E04H15/00 E04H15/34 E04H15/54
A	GB-A-716 310 (ODD GUNNAR AUGUST LIDEN) * the whole document * ---	1,2,8,9	
A	US-A-2 299 078 (CRAIG ET AL) * the whole document * ---	1,9	
A	WO-A-94 09232 (POLYSHEET) * page 1, line 1 - line 18 * * page 3, line 18 - line 27; figure 1 * ---	2	
A	WO-A-94 11187 (HAAGER) ---		
A	DE-C-51 688 (ALFRED FRANZ) ---		
A	DE-A-35 12 299 (SCHANG) -----		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			E04H
Place of search	Date of completion of the search	Examiner	
THE HAGUE	16 March 1995	Vrugt, S	
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