



(51) International Patent Classification:
A45F 5/02 (2006.01) A41F 19/00 (2006.01)

(21) International Application Number:
PCT/AU2011/000379

(22) International Filing Date:
31 March 2011 (31.03.2011)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
2010901350 31 March 2010 (31.03.2010) AU

(71) Applicant (for all designated States except US): **JACK-ET BRACKET PTY LTD** [AU/AU]; PO Box 275, Mornington, Victoria 3931 (AU).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MONRO, William Donald** [AU/AU]; 6 Andrew Place, Mornington, Victoria 3931 (AU). **FALCONER, Hamish Scott** [AU/AU]; 1/214 Albert Street, East Melbourne, victoria 3002 (AU).

(74) Agent: **ALLENS ARTHUR ROBINSON PATENT & TRADE MARKS ATTORNEYS**; 530 Collins St, Melbourne, Victoria 3000 (AU).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: A BRACKET ASSEMBLY

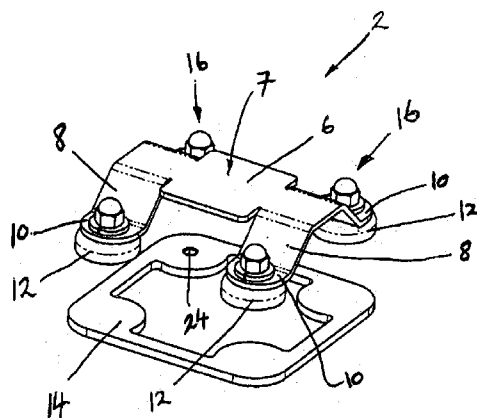


FIGURE 1A

(57) Abstract: A bracket assembly (2) for providing an attachment point on a surface for supporting an article. The bracket assembly (2) includes a body member 6 arranged so as to be held against a region of the surface by way of magnetic association therewith. The body member has a support region (7) from which the article may be supported. The body member 6 may be arranged so that, when in use, the support region (7) is spaced from the surface.

A BRACKET ASSEMBLY

Field of the Invention

The present invention relates to a bracket assembly. In one aspect, the
5 invention relates to a bracket assembly arranged for providing a moveable attachment point on a surface such as that of a garment.

Background of the Invention

In this specification, where a document, act or item of knowledge is referred to or discussed, this reference or discussion is not an admission that the
10 document, act or item of knowledge or any combination thereof was at the priority date:

- (i) part of common general knowledge; or
- (ii) known to be relevant to an attempt to solve any problem with which this specification is concerned.

15 It is often necessary for workers to operate communications equipment for carrying out their occupational duties. For example, many field personnel in the safety/rescue industries carry communications equipment on their clothing so as to be readily contactable by a central communications centre when in the field. In such situations, deficiencies in communications technology can present
20 potentially fatal situations. Similar considerations are also relevant for workers operating machinery on construction sites.

Currently, many such devices are generally attached to user's clothing in a way that seeks not to impede or restrict the user's movement while using the equipment.

25 Although many attachment systems have been proposed over time, most have been found to be awkward, clumsy and cumbersome to use, and, in some cases, defeat the purpose which they are intended to serve.

Further, current attachment systems tend to accommodate only a narrow range of equipment on a very limited number of garments.

Summary of the Invention

According to a first aspect, there is provided a bracket assembly for providing an attachment point on a surface for supporting an article, the bracket assembly including:

- 5 a body member arranged so as to be held against a region of the surface by way of magnetic association therewith, the body member having a support region for providing support to the article, the body member arranged so that, when in use, the support region is spaced from the surface.

- 10 According to another aspect, there is provided a bracket assembly for providing an attachment point on a surface for carrying an article, the bracket assembly including:

- 15 a body member arranged so as to be held against a region of the surface by way of magnetic association therewith, the body member having a carrier region for providing carriage for the article, the body member arranged so that, when in use, the carrier region is spaced from the surface.

- 20 In one application, the surface to which the body member of the bracket assembly is applied may be a metallic surface. In this context, the body member of the bracket assembly may be placed against any metallic surface such as for example the inside of a working machine cab or side wall of metal sheds, offices, or site sheds. The surface is preferably of a type that is magnetically responsive to the body member. The magnetic association between the surface and the body member therefore does not need to be premised on the basis of dual polarity, ie, in one embodiment, the metallic surface does not need to be formed of a material opposite in magnetic polarity to the body member.

- 25 The body member may be further arranged so as to provide rigid carriage for or support to the article.

The body member may comprise a magnetic material. In one embodiment, the body member may comprise one or more magnetic elements arranged so as to, when in use, be in magnetic association with the surface.

- 30 In a further application, the body member is arranged to be held against a layer of a material of a garment. In this embodiment, the bracket assembly may

further comprise a base member arranged to be associated with the garment such that, when in use, the or each magnetic element is arranged in magnetic association with the base member thereby allowing the bracket to be held against the surface of the layer of material of the garment. The base member may be
5 formed from a magnetic material or a non-ferrous material.

When applying the bracket assembly to the garment, the base member is arranged on a first side of the layer of material (internal facing side of material), and the body member is arranged to be placed against a second side of the material (external facing side of material) at a position where the body member
10 substantially overlies the region of material where the base member has been placed. Therefore, when the base member and the body member are placed on opposites sides of the layer of material of the garment, the magnetic attraction between the or each magnet and the base member is sufficient to hold the body member against the external facing side of the material. Further, the magnetic
15 association between the magnetic element(s) and base member may be such that the bracket assembly can be used with garments having one or more layers of material, or layers of varying thicknesses.

In general, embodiments of the bracket assembly according to the first aspect, when used with apparel, can be advantageous in that:

- 20 • the bracket assembly may be readily transferable between different apparel (ie, different garments);
- the bracket assembly may provide a more stable attachment platform than epaulettes or shirt pockets;
- the bracket assembly tends to not penetrate the garment when in use; and,
- 25 • the bracket assembly may provide an attachment point that is not limited to any single position on the garment.

In one application, the bracket assembly of the first aspect is used to provide support to a UHF handheld radio unit. When used in this context, one or more of the following advantages may be realised:

- safety and efficiency on work sites can be increased leading to an increase in operation time;
- replacement and repair costs of UHF units may be reduced;
- such radio units may be better maintained as they are less likely to fall off the worker's body;
- the number of repetitive messages may be reduced;
- extended UHF battery life due to lower sound volume being required;
- in some situations, use of the bracket assembly allows workers to use both hands during tasks;
- the volume dial on the UHF unit is less likely to be inadvertently rolled to the low or off position;
- the bracket assembly does not have to be repositioned when getting in and out of vehicles or machinery if positioned appropriately on the wearer's garment;
- distortion on radio may be reduced as the optimum volume while using the bracket assembly is generally in the order of 60%;
- creates confidence and re-assurance that calls are being heard the first time and being answered promptly;
- increase in UHF radio range due to being placed higher on the user's body;
- in comparison to prior over the shoulder strap systems, use of the bracket assembly allows the radio unit to be placed against the user's shoulder to allow a direct line of sound to the ear, rather than projecting the sound outwards at 90 degrees from the chest;
- users are not restricted to specific clothing as the bracket assembly can be applied to a wide variety of garment types; and
- lanyard systems can create a situation where the UHF radio connected to the lanyard can become a potential choking hazard. Use of the bracket

assembly of the present invention can minimise the risk of causing a choking hazard when climbing in and out of heavy plant machinery.

Other benefits may also be realised.

For either application, the arrangement of the body member may be
5 substantially the same.

The support region of the body member may be arranged so that the article can be releasably attached thereto. The magnetic element(s) may be arranged so as to be releasably coupled to the body member of the bracket assembly. The body member may comprise one or more leg portions extending therefrom, the or each
10 leg portion arranged so as to have a respective magnetic element provided therewith.

One or more of the leg portions may be arranged to terminate in a respective foot portion. In this embodiment, each foot portion is arranged to have a respective magnetic element provided therewith. In one arrangement, the or each
15 magnetic element is coupled to a respective foot portion. In an alternative embodiment, the magnetic element(s) may be moulded with each respective leg or foot portion of the body member.

The leg portion(s) may be arranged so that, when the body member is applied to the garment, the support region of the body member is spaced from the surface
20 of the garment thereby allowing sufficient space between the surface of the garment and the body member for receiving a securing mechanism of the article therebetween. One advantage of this arrangement is that the body member can accommodate a larger range of articles which may be supported by the bracket assembly.

25 The base member may be housed within a pocket formed on the inside surface of the layer of material of the garment.

The base member may be formed from a magnetic material or may be non-ferrous.

The support region of the body member may be arranged for supporting at
30 least one of a UHF radio transmitter, a remote speaker phone, secondary scuba regulators, mobile phones, epirbs, handheld GPS units, magazine clips for

containing ammunition. It will be appreciated that the support region of the body member may be arranged to support many other devices.

The body member may be planar or non-planar.

In one embodiment, the body member is of generally rectangular form and
5 comprises four leg portions extending outwardly from the body member, pairs of leg portions being disposed at opposite ends of the body member. Each leg portion is arranged so as to terminate in a respective foot portion.

In another embodiment, the body member comprises one pair of opposed leg portions, each leg portion extending outwardly from the body member, whereby
10 each leg portion is arranged so as to terminate in a respective foot portion.

In each of the above embodiments, one or more of the leg portions extends away from the body member at an angle of inclination to the planar surface of the body member. Furthermore, a magnetic element is fastened to each foot portion. Each foot portion may be arranged so as to lie substantially flat against the surface
15 to which it is to contact to maximise the magnetic association therewith.

The base member may comprise release means for separating the body member from the base member in the event the magnetic attraction is too strong. In one embodiment, the release means comprises a bore formed in the base member at a region thereof so that, when the body member overlies the base
20 member, at least a portion of the body member overlies a portion of the opening of the bore. The bore may be threaded so as to receive a threaded shaft such as a screw, so that the screw may be wound through the bore so as to contact the body member, or respective magnetic element, and therefore separate the body member from the base member.

25 According to a further aspect there is provided a garment having a region arranged so as to be in magnetic association with a bracket assembly according to the invention.

In one embodiment, the garment may comprise one or more layers of material which comprise or carry a metallic substrate and therefore capable of
30 being placed in magnetic association with the magnetic element(s) of the body member so that the body member may be held against the garment.

In another embodiment a pocket is formed on the internal side of the garment for housing a base member so that the base member may be arranged in magnetic association with a bracket assembly according to the first aspect.

According to a third aspect there is provided a method for attaching a
5 bracket assembly of the first aspect of the invention to a garment, the method comprising:

providing a metallic base member and arranging the base member with the garment so that a bracket assembly according to the first aspect of the invention may be held thereagainst by way of magnetic association with the base member.

10 The method may further comprise arranging the base member on the internal surface of the garment and placing the body member against the external facing surface substantially over the region where the base member is positioned.

In another aspect the present invention provides a bracket assembly for providing an attachment point on a surface for supporting an article, the bracket
15 assembly including:

an apertured, generally planar body member and a pair of opposed leg portions extending from the body member, the aperture capable of receiving part of the article so that the bracket assembly provides support for the article, the leg portions terminating in a region capable of magnetic association with a
20 corresponding surface that is sympathetic to magnetism.

In another aspect the present invention provides a bracket assembly for providing an attachment point on a surface for carrying or supporting an article, the bracket assembly including:

a generally planar body member and a pair of opposed leg portions
25 extending from the body member,

the body member defining with the surface an aperture therebetween capable of receiving part of the article so that the bracket assembly provides carriage or support for the article, the leg portions terminating in a region capable of magnetic association with a corresponding surface that is sympathetic to
30 magnetism.

In another aspect the present invention provides a bracket assembly for providing an attachment point on a surface for carrying or supporting an article, the bracket assembly including:

- 5 a generally planar body member and a pair of opposed leg portions extending from the body member, and
- a base member,
- the body member and the base member defining an aperture therebetween,
- the aperture capable of receiving part of the article so that the bracket assembly provides carriage or support for the article, the leg portions terminating
- 10 in a region capable of magnetic association with the base member.

Any of the above described embodiments may be provided with a means for reducing sliding and/or contact friction between the body member and the surface or region to which it is to be applied when the body member is moved or slid across the surface of region.

- 15 One or more covering elements may be provided and arranged to substantially cover a portion of a respective magnetic element of the bracket assembly. Therefore, in one embodiment, the covering elements serve to assist in reducing the effective co-efficient of sliding friction between the magnetic elements and the surface to which they are to be applied in applications where
- 20 injury may result by application/removal of the body member from the surface (or garment fabric which may overlay the base member). Use of the covering elements may be useful in situations where compliance with relevant health and safety regulations is required.

- In another embodiment, the or each covering element is arranged for
- 25 releasable or permanent attachment to a respective magnetic element.

The covering element(s) may be formed so that their attachment to a respective magnetic element is such that they remain attached thereto during use. In this regard, the covering element(s) may each be arranged so as to have a snap fit, press fit, interference fit or similar, with a respective magnetic element.

The or each covering element may be suitably formed so that, in use, the effective co-efficient of friction when the magnetic elements are moved relative to the surface (or garment fabric which may overlay the base member) is reduced. In some embodiments, the effective co-efficient of friction between the magnetic
5 elements and surface may be reduced by around 50-80%. Further, it will be appreciated that, when the bracket assembly is applied to clothing, the co-efficient of friction between the magnetic elements and the fabric may also be reduced.

It will be appreciated that the covering elements serve to reduce the effect of sliding friction thereby allowing, in one respect, the bracket assembly to be
10 more easily removed from the surface to which it is applied (ie, often by sliding the bracket assembly relative to the surface to which it is applied). Although it is recognised that use of the covering elements may, in some instances, result in a slight reduction in the pulling capacity of the magnetic elements, the configuration of the covering elements should not be such that the magnetic
15 association with the base member, or metallic surface, compromises the ability of the bracket assembly to retain the article against the surface appropriately.

Description of the Drawings

Two embodiments of the bracket assembly will now be further explained and illustrated by reference to the accompanying drawings in which:

20 Figure 1A shows a perspective view of one embodiment of the bracket assembly in accordance with the present invention; and,

Figure 1B shows an exploded view of the bracket assembly of Figure 1A;

Figure 1C shows a perspective view of the bracket assembly of Figures 1A and 1B when in magnetic association with a base member;

25 Figure 1D shows a perspective view of the bracket assembly of Figures 1A-1C when located against a garment;

Figure 1E shows a perspective view of the bracket assembly of Figure 1D when supporting a handheld radio transmitter/receiver device;

Figure 1F shows a cross-section of Figure 1D;

30 Figure 1G shows a cross-section of Figure 1E;

Figure 2A shows a perspective view of another embodiment of the bracket assembly in accordance with the present invention; and,

Figure 2B shows an exploded view of the bracket assembly of Figure 2A;

Figure 2C shows a perspective view of the bracket assembly of Figures 2A
5 and 2B when in magnetic association with a base member;

Figure 2D shows a perspective view of the bracket assembly of Figures 2A-
2C when located against a garment;

Figure 2E shows a perspective view of the bracket assembly of Figure 2D
when supporting a handheld radio transmitter/receiver device;

10 Figure 3A shows a cross section view of a covering element positioned
about a respective magnetic element of the bracket assembly according one
embodiment of the present invention; and,

Figure 3B shows a perspective view of the covering element shown in
Figure 3A prior to positioning about a respective magnetic element.

15 Detailed description of the drawings

Figures 1A to 1G illustrate a first embodiment of a bracket assembly 2 for
providing an attachment point on a surface for carrying or supporting an article,
such as for example a handheld radio transmitter unit. The bracket assembly 2
includes a body member 6 arranged against a region of the surface whereby the
20 body member 6 is configured with a support region 7 arranged so that the article
may be spaced from the surface.

In one application, the surface to which the body member 6 of the bracket
assembly 2 is applied may be a metallic surface. In this embodiment, the body
member 6 of the bracket assembly 2 may be placed against any metallic surface
25 such as for example the inside of a working machine cab or side wall of metal
sheds, offices, or site sheds. The surface is preferably of a type that can engage
with the body member magnetically.

In another application, the bracket assembly 2 is used in conjunction with a
garment 4 (shown in Figures 1E to 1G). In this embodiment, the body member 6
30 of the bracket assembly 2 can be used as an attachment point for supporting many

types of articles in locations that are convenient to the garment wearer for either operating the article or merely storing the article between use. The description of the embodiment of the bracket assembly 2 as used in conjunction with a garment is continued throughout the remainder of the following description.

5 As shown in Figures 1A to 1C, bracket assembly 2 includes four leg portions 8 extending away from the body member 6 at opposite ends thereof. Each leg portion 8 is arranged to terminate with a respective foot portion 10. Each leg portion 8 is arranged to extend away from body member 6 at an angle of inclination thereto.

10 The support region 7 of the body member 6 is arranged to provide a supporting platform to which an article may attach. In the arrangement shown in Figures 1A to 1C, the leg portions 10 are arranged to provide a space between the surface to which the body member 6 is applied and the support region 7. For use with the garment 4, the arrangement between the support region 7 and foot
15 portions 10 allows the article to be spaced from the surface of the garment thereby providing sufficient space for receiving, between the support region 7 and the surface of the garment 4, a fastening element of the article, such as for example a pivoting spring loaded clamp or clip as is common on most handheld radio units.

 Foot portions 10 are arranged so that they each may have respective
20 magnetic elements 12 coupled to their underside faces by fastening assembly 16. Fastening assembly 16 includes a spring washer 18 which is placed over a threaded portion 22, extending from each magnetic element 12 (when passed through bore 23 formed in a respective foot portion 10), and clamped in position against the foot portion 10 by nut 20.

25 The skilled person will appreciate that many other fastening arrangements may be used to fasten the magnets to the underside of the foot portions 10. For example, an adhesive fastening arrangement may be readily employed.

 When the bracket assembly 2 is used in conjunction with the garment 4, the assembly may further comprise a base member 14 which is arranged with the
30 garment so that it is in magnetic association with the body member 6 thereby allowing the body member to be held against the garment. The magnetic

members 12 and base member 14 are selected so as to be capable of magnetic association with each other. However, it will be appreciated that if the garment 4 comprises sufficient material that is capable of being magnetically associable with the magnetic elements 12, then base member 14 may not be required.

5 When the bracket assembly 2 is assembled to the garment 4 (shown in Figures 1F and 1G), the base member 14 is positioned at a region of the garment 4 where the body member 6 is to be held against. The base member 14 is arranged so as to be placed against the inside surface of a layer of material of garment 4, and the body member 6 then applied to opposite surface of the layer of material
10 that corresponds with the position of base member 14, thereby sandwiching the layer of material between base member 14 and body member 6. The magnetic attraction between the magnetic elements 12 and the base member 14 thereby ensures the body member 6 is held against the layer of material of the garment 4. The magnetic attraction between the magnetic elements 12 and the base member
15 14 may be arranged to be stronger or weaker by selecting different materials depending on the number of layers of material involved or the thickness of the layers. It will be readily appreciated that such form of attachment does not penetrate the layer of material of the garment.

 The garment 4 may be arranged having a pocket (not shown) sown therein
20 being of appropriate configuration to house the base member 14. The skilled person will however appreciate that the garment does not need to have a pocket specifically sown therein for accommodating the base member 14, as the magnetic attraction between the base member 14 and the magnetic elements 12 is generally sufficient to ensure that both are held in any desired position against any region of
25 the garment.

 The support region 7 may be arranged so that many different types of articles may be removably secured thereto. For example, the support region 7 may be arranged so that a standard handheld radio unit may be attached thereto. For example, the radio unit may comprise a spring loaded clamp assembly which
30 may be opened so as to engage with the support region 7 thereby releasably clamping the radio unit to the body member 6.

In use, the bracket assembly 2 (with radio unit attached) may be placed on the garment 4 near the wearer's neck thereby allowing the user to easily hear and operate the unit.

As shown in Figures 1D and 1E, the bracket assembly 2 is applied to the shoulder region of the garment 4, and used to support a UHF handheld radio unit. The radio unit may be conveniently held in position when not in use but can be easily and readily used without the inconvenience of being removed from the body member 6.

Figures 2A to 2E show another embodiment of the present invention, generally representing a smaller version of the bracket assembly 2. Bracket assembly 30 of this embodiment includes a body member 32 having two opposed or opposite leg portions 34 extending away from the body member 32 at opposite directions to one another and at an angle of inclination to the body member. The body member 32 is configured with a support region 35.

Each leg portion 34 is arranged so as to terminate with respective foot portions 36. Magnetic elements 12 are coupled to respective foot portions 36. When the bracket assembly 30 is to be used with a garment, the magnetic elements 12 are selected so that they may, when in use, be placed in magnetic association with a base member 38 when the bracket assembly 30 is arranged in position against the garment's surface. The body member 32 of the bracket assembly 30 comprises an aperture 44 which assists when attaching the transmitter/receiver portion of a remote radio communications device thereto (as shown in Figure 2E). The skilled person will appreciate that the attachment of the bracket assembly 30 to a garment is achieved in the same way as that for bracket assembly 2.

Generally, the bracket assembly 30 offers a smaller and lighter weight version of the bracket assembly 2 that can be used to, in some instances, support smaller articles. For example, the bracket assembly 30 can be used to support much lighter remote microphone speaker unit 42 (shown in Figure 2E). This may be particularly helpful for personnel in the armed forces (or police personnel) where microphone/speaker units can be placed below, for example, their rank and serial number and not on their epaulettes.

Some of the advantages of this embodiment are as follows:

- the bracket assembly 30 can be made much lighter; and,
- the bracket assembly 30 can be placed closer to a desired position on the user's shoulder than what might be otherwise achieved with the larger bracket assembly 2;

As shown in the Figures, the base members 14, 38 of respective bracket assemblies 2, 30 may also comprise a release means which includes a threaded bore 24, 46 arranged to receive a complementary threaded member (not shown) which may serve to assist release of the body members 6, 32 when magnetically engaged with the respective base members 14, 38 (ie. the threaded member being wound within bore 24, 46 so as to force the body member and respective base member apart). In the event the magnetic association is too strong, the release means may act as a fail safe to allow the body member to be removed from its base member. The bore 24, 46 is located at a region of the respective base members 14, 38 where a magnetic element 12, when in use, will be positioned so as to cover at least a portion of the opening of the bore. It will be appreciated that bore 24, 46 may not be threaded and may simply comprise an aperture suitably dimensioned for receiving a complementary member therein which may assist in separating the body member from its respective base member.

When the release means is used, the threaded portion of an appropriately dimensioned screw or similar can be inserted within the bore 24, 46 from the underside of the respective base member and wound until the tip of the screw contacts the underside of the magnetic element 12. Further winding will act to separate the magnet from the base member so that the body member and the base member can be pried apart.

For each embodiment of the bracket assemblies 2, 30, it will be appreciated that more than one threaded bore can be used if required. The bore 24, 46 need not be threaded. Furthermore, other forms of release means may be used to assist in prying the bracket and the base member apart if needed.

The bracket assemblies 2, 30 may be used for providing support to a wide variety of devices. Such devices include the following, a UHF radio transmitter, a

remote speaker phone, secondary scuba regulators, mobile phones, epi-rb's, handheld GPS units, cameras, or magazine clips containing ammunition for police or military personnel. It will be appreciated that other devices may be readily supported.

- 5 Body members 6, 32 of respective bracket assemblies 2, 30 may be produced or machined from many different materials such for example plastic, acrylonitrile butadiene styrene (ABS), glass filled nylon, stainless steel or aluminium or other metallic materials. Other materials may include exotic materials such as carbon fibre, fibreglass which offer good strength to weight
- 10 characteristics. Furthermore, the body members 6, 32 may be manufactured in such a way so that the magnetic element(s) 12 may be moulded with respective leg 8, 34 and/or foot 10, 36 portions.

 Base members 14, 38 may be produced from a magnetic or non-ferrous material. The magnetic elements 12 may comprise any known magnetic material

15 that, when in use, provides a magnetic association with the material selected for base members 14, 38.

 Any of the above described embodiments may be provided with a means 58 for reducing sliding friction (ie. co-efficient of sliding friction) between the body member 6, 32 and the surface or region to which it is to be applied when the body

20 member is moved or slid across the surface or region.

 With reference to Figures 3A and 3B, any of the above described embodiments may be provided with one or more covering elements 60 which are arranged to substantially cover a portion of base 64 of a respective magnetic element 12 of bracket assemblies 2, 30. The covering elements 60 may be suitably

25 arranged for releasable, or permanent, attachment to a respective magnetic element 12. Therefore, in one embodiment, the covering elements 60 serve to assist in reducing the effective co-efficient of sliding friction between the magnetic elements 12 and the surface (or garment fabric which may overlay the base member 14, 38) to which they are to be applied in applications where injury may

30 result by application and/or removal of the body member 6, 32. Use of the covering elements 60 may be useful in situations where compliance with relevant health and safety regulations is mandated.

The covering element 60 may be formed so that their attachment to a respective magnetic element 12 is such that they remain attached thereto during use. In this regard, covering elements 60 may each be sufficiently dimensioned so as to provide a snap fit, press fit, interference fit or similar, with a respective
5 magnetic element 12.

The covering elements 60 may be arranged to cover all or only a portion of the sidewall of the respective magnetic elements 12.

The covering elements 60 may be suitably formed so that, in use, the effective co-efficient of sliding friction (when the magnets are moved or slid across
10 the surface or garment fabric which may overlay the base member 14, 38) is reduced by around 50-80% in some embodiments. In one embodiment, each covering element 60 may be formed from plastic having a thickness in the order of 0.5mm (found to provide satisfactory performance). It will be readily appreciated that other materials may be used to form the covering elements 60 whereby the
15 material and thickness may be selected so as to achieve the desired performance.

It will be appreciated that the covering elements 60 serve to reduce the effect of sliding friction thereby allowing the bracket assembly to be more easily removed from the surface to which it is applied (ie, often by sliding the bracket assembly relative to the surface to which it is applied). Although it is recognised
20 that use of the covering elements 60 may, in some instances, result in a slight reduction in the pulling capacity of the magnetic elements 12 (in some embodiments, use of the covering elements 60 may reduce the pulling capacity of the magnetic elements 12 collectively from 22.5kgs to around 19kgs), the configuration of the covering elements 60 should not be such that magnetic
25 association with the base member, or metallic surface, compromises the ability of the bracket assembly to retain the article against the surface appropriately.

In an alternative embodiment, the covering elements 60 may comprise appropriately dimensioned elements of suitable material arranged with adhesive so they may attach to base 64 of respective magnetic elements 12. It will be
30 appreciated that many different attachment arrangements may be realised by the skilled person.

Modifications and improvements to the invention will be readily apparent to those skilled in the art. Such modifications and improvements are intended to be within the scope of this invention. For example, the leg portions 8, 34 may extend away from the body member in any desired direction and/or any angle of inclination relative to their respective body members 6, 32. Furthermore, the body members of the respective bracket assemblies may be arranged in any desired shape or configuration. For example, the shape of the body member may be that of a company logo or comprise a novelty shape. Furthermore, the body member may be arranged to carry an indicia of any kind.

The word 'comprising' and forms of the word 'comprising' as used in this description and in the claims do not limit the invention claimed to exclude any variants or additions.

The claims defining the invention are as follows:

1. A bracket assembly for providing an attachment point on a surface for supporting an article therefrom, the bracket assembly including:

a body member arranged so as to be held against a region of the
5 surface by way of magnetic association therewith, the body member having a support region from which the article may be supported; the body member arranged so that, when in use, the support region is spaced from the surface.
2. A bracket assembly according to claim 1 wherein the body member is
10 arranged so as to provide rigid support to the article.
3. A bracket assembly according to claim 1 or claim 2 wherein the body member comprises one or more magnetic elements arranged so as to be in magnetic association with the surface.
4. A bracket assembly according to any one of claims 1 to 3 wherein the
15 magnetic elements are arranged to releasably couple to the body member.
5. A bracket assembly according to any one of the preceding claims wherein the body member comprises one or more leg portions extending therefrom, the or each leg portion arranged so as to have a respective magnetic element coupled thereto.
- 20 6. A bracket assembly according to any one of the preceding claims wherein the or each leg portion terminates in a respective foot portion arranged so as to be in magnetic association with the surface.
7. A bracket assembly according to claim 6 wherein one or more of said foot portions has a magnetic element provided therewith.
- 25 8. A bracket assembly according to any one of the preceding claims wherein the surface is that of a layer of material of a garment; the bracket assembly further comprising a base member arranged to be associated with the garment such that, when in use, the or each magnetic element is in magnetic association therewith thereby allowing the bracket to be held
30 against the layer of material.

9. A bracket assembly according to any one of the preceding claims wherein the surface is that of a layer of material of a garment; the bracket assembly further comprising a base member arranged to be associated with the garment so as to be placed adjacent a first side of the layer of material so that, when in use, the or each magnetic element, when placed against a second side of said layer of material, is in magnetic association with the base member thereby allowing the bracket to be held against the layer of material.
10. A bracket assembly according to any one of the preceding claims wherein four leg portions extend from the body member, each terminating with foot portions arranged to have respective magnetic elements coupled thereto.
11. A bracket assembly according to any one of the preceding claims wherein two leg portions extend from the body member, each terminating with foot portions arranged to have respective magnetic elements coupled thereto.
12. A bracket assembly according to any one of the preceding claims wherein the support is arranged for supporting at least one of a UHF radio transmitter, a remote speaker phone, secondary scuba regulators, mobile phones, epirbs, handheld GPS units, cameras, and magazine clips for containing ammunition.
13. A bracket assembly according to any one of claims 8 to 12 wherein the base member comprises release means for separating the body member from the base member.
14. A bracket assembly according to claim 13 wherein the release means comprises a bore formed in the base member at a region thereof so that, when the body member overlies the base member, at least a portion of the body member overlies a portion of the opening of the bore.
15. A bracket assembly for providing an attachment point on a surface for supporting an article, the bracket assembly including:
- an apertured, generally planar body member and a pair of opposed, leg portions extending from the body member, the aperture capable of receiving part of the article so that the bracket assembly provides support

for the article, the leg portions terminating in a region capable of magnetic association with a corresponding surface that is sympathetic to magnetism.

16. A bracket assembly for providing an attachment point on a surface for carrying an article, the bracket assembly including:

5 a body member arranged so as to be held against a region of the surface by way of magnetic association therewith, the body member having a carrier region for providing carriage for the article, the body member arranged so that, when in use, the carrier region is spaced from the surface.

- 10 17. A bracket assembly for providing an attachment point on a surface for carrying or supporting an article, the bracket assembly including:

 a generally planar body member and a pair of opposed leg portions extending from the body member,

 the body member defining with the surface an aperture therebetween capable of receiving part of the article so that the bracket
15 assembly provides carriage or support for the article, the leg portions terminating in a region capable of magnetic association with a corresponding surface that is sympathetic to magnetism.

18. A bracket assembly for providing an attachment point on a surface for carrying or supporting an article, the bracket assembly including:

20 a generally planar body member and a pair of opposed leg portions extending from the body member, and

 a base member,

 the body member and the base member defining an aperture therebetween, the aperture capable of receiving part of the article so that
25 the bracket assembly provides carriage or support for the article, the leg portions terminating in a region capable of magnetic association with the base member.

19. A bracket assembly according to any one of the preceding claims, further comprising a means for reducing friction between the body member and

the surface or region to which it is to be applied when the body member is moved across the surface or region.

20. A bracket assembly according to any one of claims 3 to 14, wherein one or more covering elements are arranged to cover a portion of a respective magnetic element so as to reduce friction between the or each magnetic element and the surface to which they are to be applied when the body member is moved across the surface.

21. A method for attaching a bracket to a garment comprising:
providing a metallic base member and arranging the base member with the garment so that a bracket assembly according to any one of claims 1 to 14 may be held thereagainst by way of magnetic association with the base member.

22. A method according to claim 21 further comprising, arranging the base member on the internal surface of the garment; and, placing the body member against the external facing surface substantially over the region where the base member is positioned.

23. A bracket assembly substantially as hereinbefore described and with reference to any one or more of the accompanying Figures.

1/9

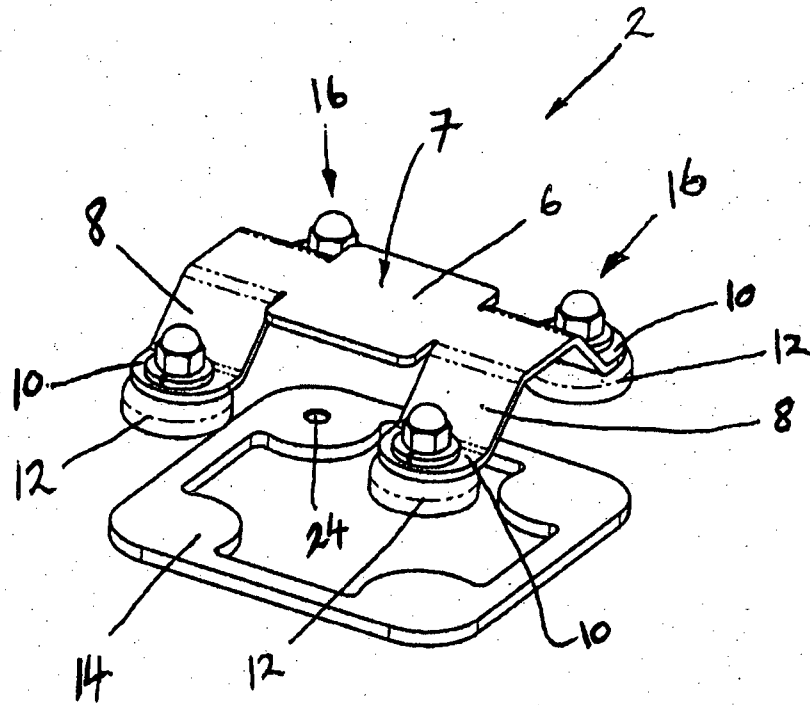


FIGURE 1A

2/9

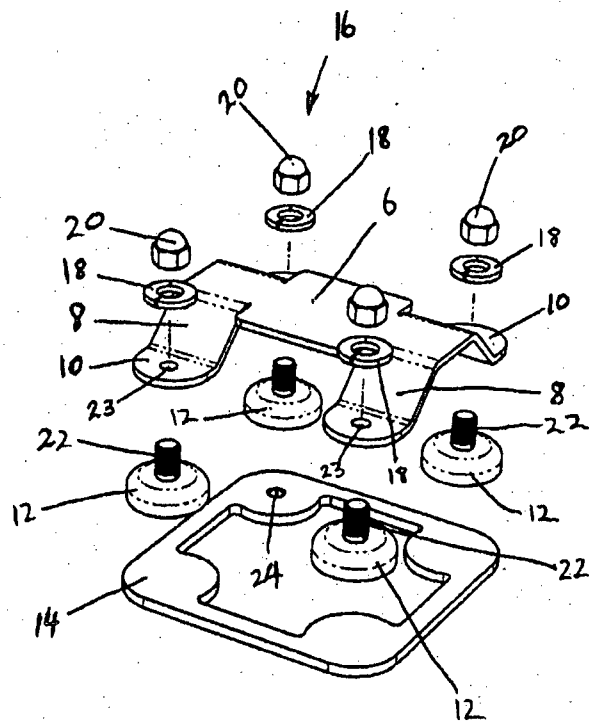


FIGURE 1B

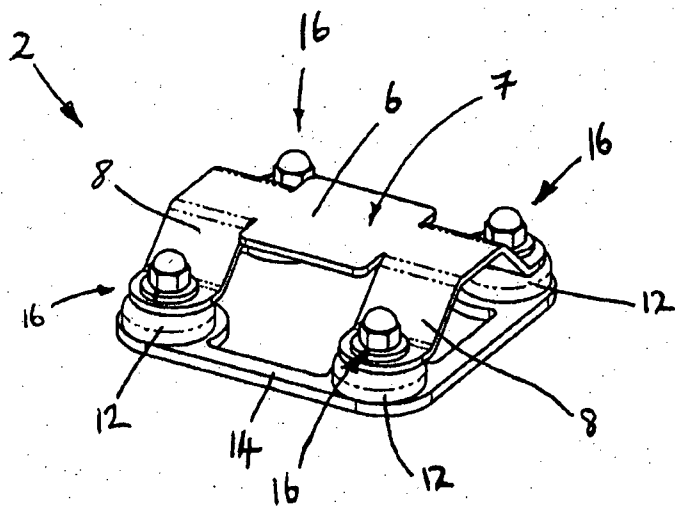


FIGURE 1C

3/9

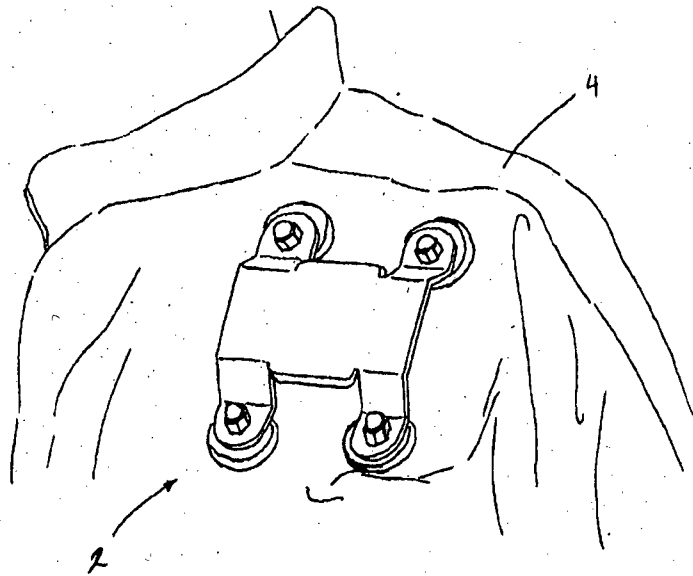


FIGURE 1D

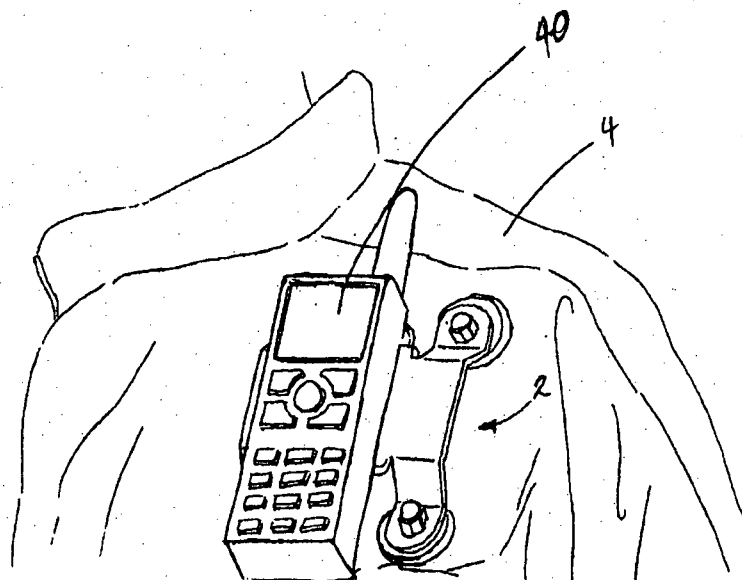


FIGURE 1E

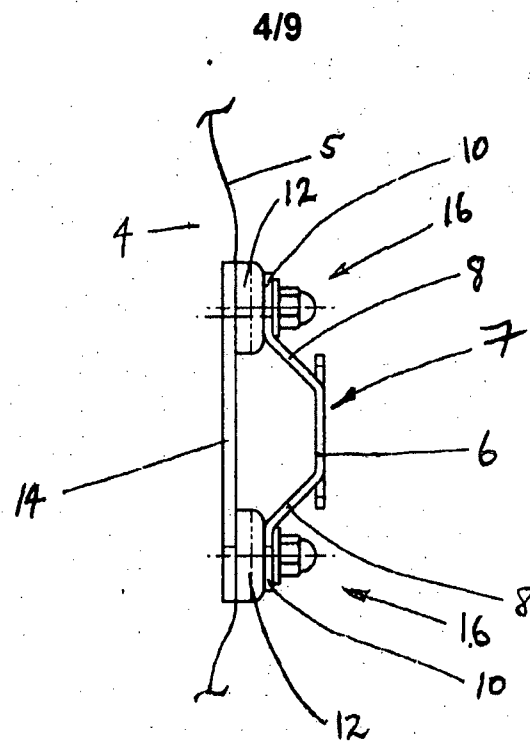


FIGURE 1F

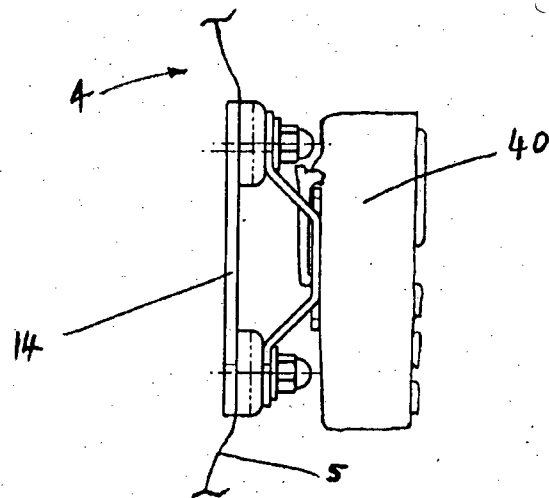


FIGURE 1G

5/9

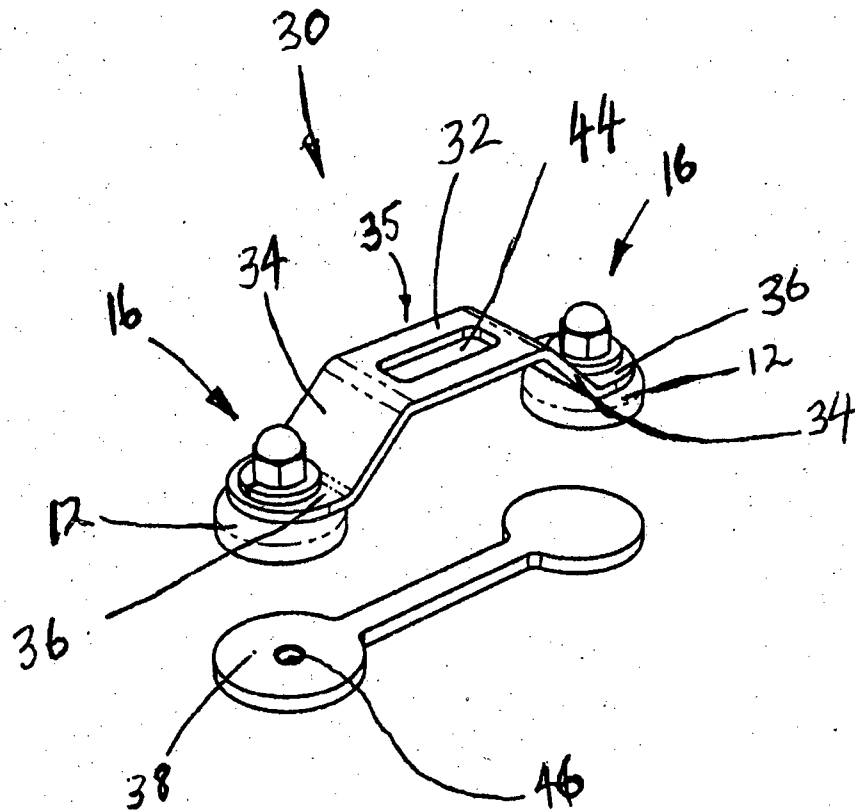


FIGURE 2A

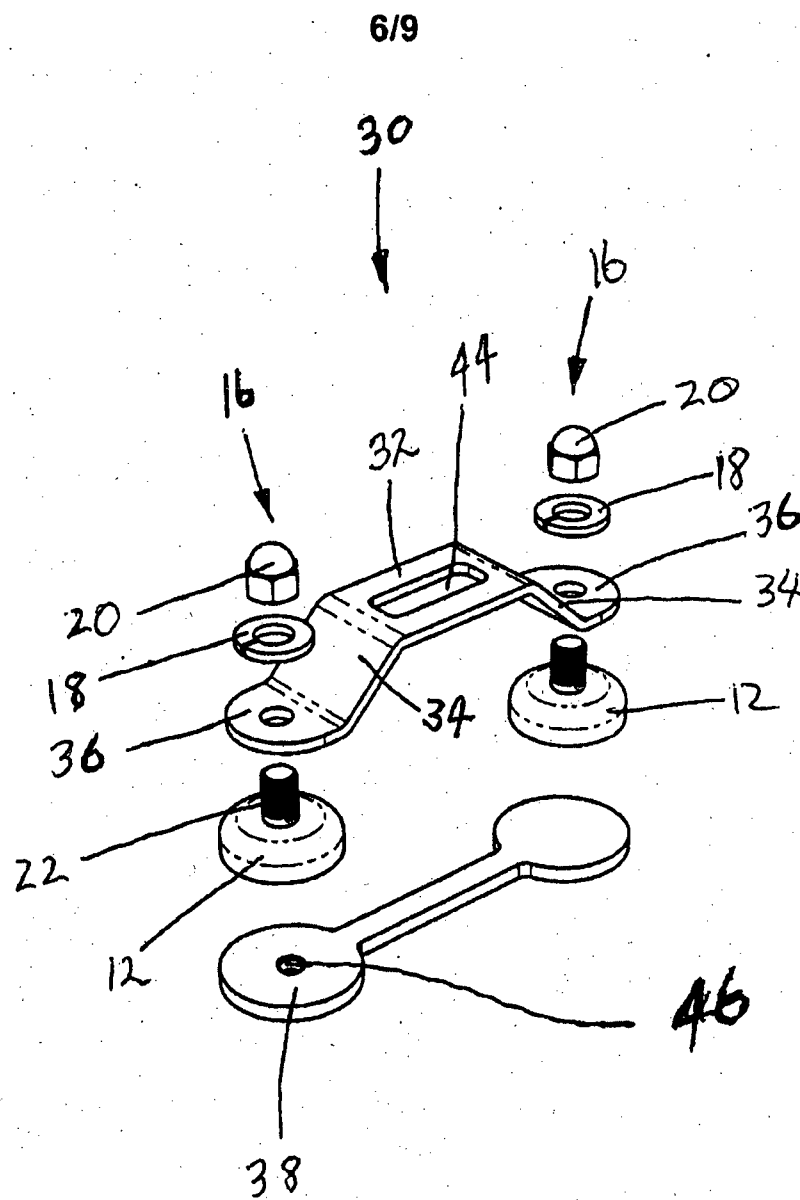


FIGURE 2B

7/9

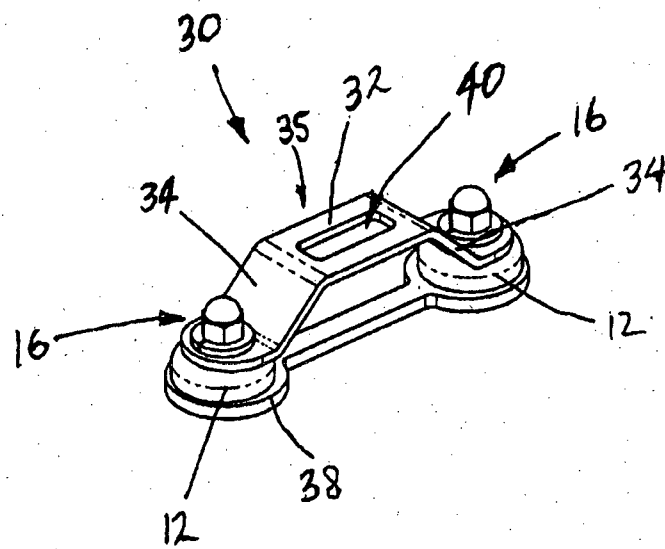


FIGURE 2C

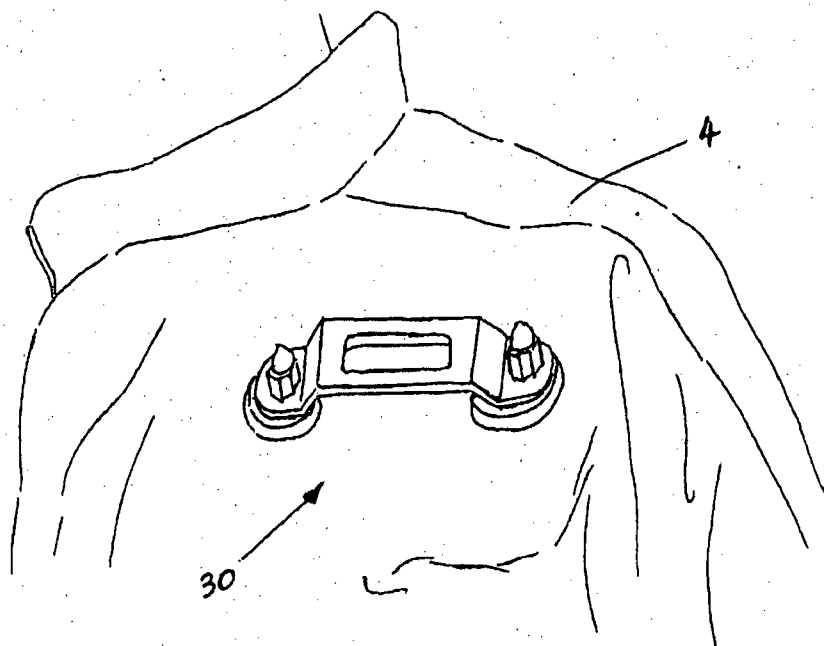


FIGURE 2D

8/9

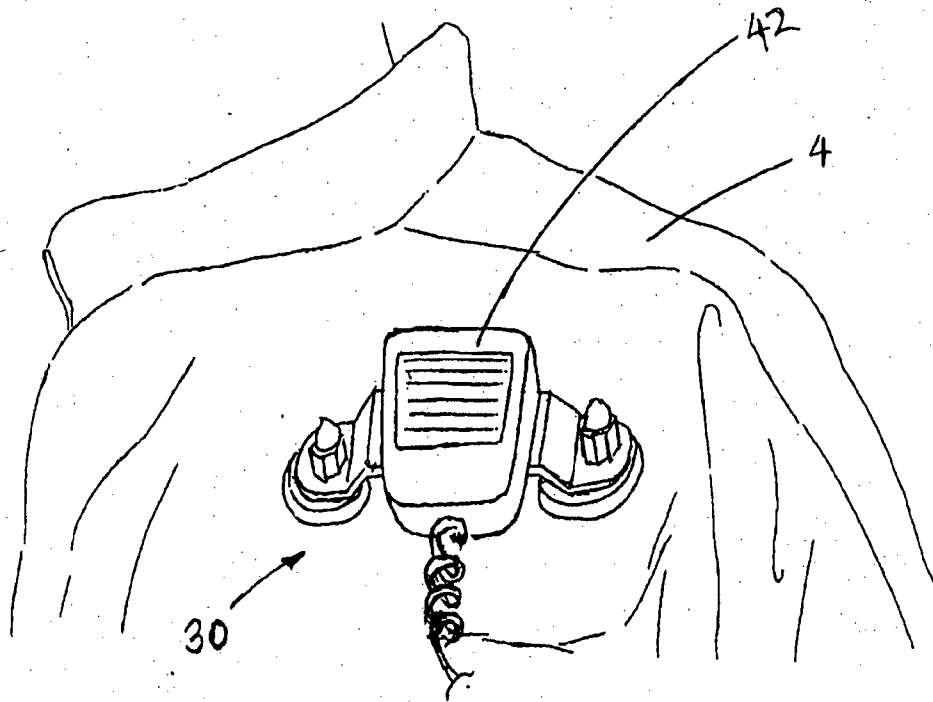


FIGURE 2E

9/9

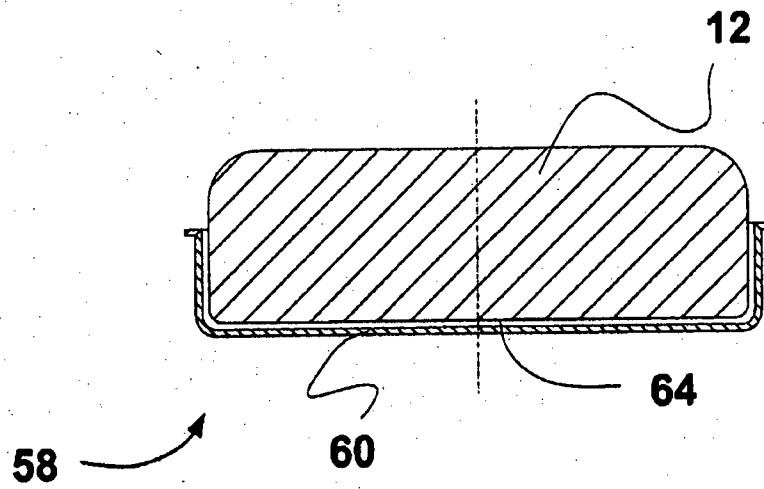


FIGURE 3A

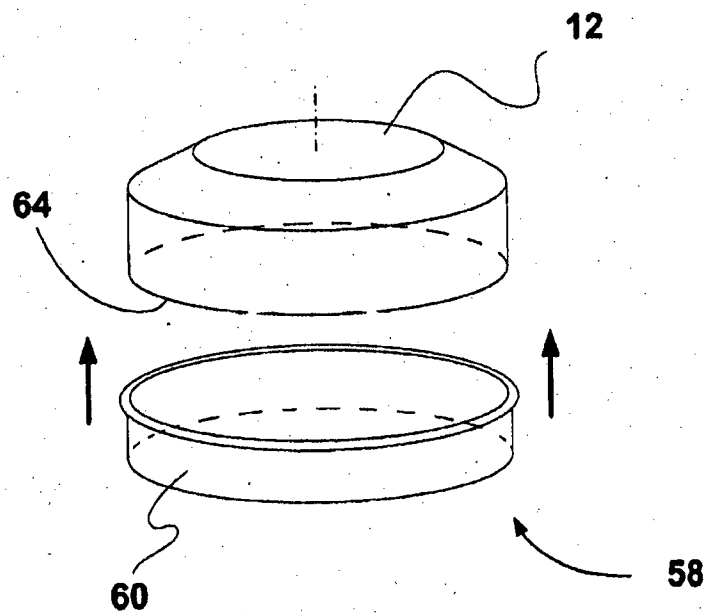


FIGURE 3B

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2011/000379

A. CLASSIFICATION OF SUBJECT MATTER		
Int. Cl.		
A45F 5/02 (2006.01) A41F 19/00 (2006.01)		
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)		
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)		
IPC & ECLA: WPI, EPODOC: A45F, A41F, A41D and keywords magnet, attach, hold, bracket, mount, support, hook, hang, frame, screw, nut, bolt, stud, spigot, leg, arm, face, member, platform, foot, base, sandwich, laminate, clamp, embed, space, gap, distance, margin, void, separation and like terms		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 7356882 B1 (GUADAGNO IV et al) 15 April 2008 Abstract, column 3 line 9 to column 4 line 67, all figures	1-11, 13, 15-22
X	US 2008/0023508 A1 (HARCHOL) 31 January 2008 Abstract, page 3 paragraph 0034, fig 4C	1-22
☒ Further documents are listed in the continuation of Box C ☒ See patent family annex		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 20 May 2011		Date of mailing of the international search report 23 MAY 2011
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. +61 2 6283 7999		Authorized officer IAN HILL AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No : +61 2 6283 3145

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2011/000379

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claim Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.23:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
Claim 23 does not comply with Rule 6.2(a) because it relies on references to the description and/or drawings.

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2011/000379

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member
US	7356882	NONE
US	2008023508	NONE
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.		
		END OF ANNEX