



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/GB91/01709 (22) International Filing Date: 3 October 1991 (03.10.91) (30) Priority data: 9022204.3 12 October 1990 (12.10.90) GB 9111464.5 28 May 1991 (28.05.91) GB (71) Applicant (for all designated States except US): PRIESTLEY CROSSLEY LIMITED [GB/GB]; Cragg Road Works, Mytholmroyd, Hebden Bridge, West Yorkshire HX7 5EY (GB). (72) Inventors; and (75) Inventors/Applicants (for US only) : CROSSLEY, David, Michael [GB/GB]; Wyngarth, Nest Lane, Mytholmroyd, Hebden Bridge, West Yorkshire HX7 5AZ (GB). CROSSLEY, Robert, Nigel [GB/GB]; 37a Stocks Avenue, Mytholmroyd, Hebden Bridge, West Yorkshire HX7 5BD (GB). CROSSLEY, Jack [GB/GB]; Wyngarth, Nest Lane, Mytholmroyd, Hebden Bridge, West Yorkshire HX7 5AZ (GB).		(74) Agent: BRAY, Lillian, Janet; L.J. Bray & Co., Raw Holme, Midgehole Road, Hebden Bridge, West Yorkshire HX7 7AF (GB). (81) Designated States: AT (European patent), AU, BE (European patent), CH (European patent), DE (European patent), DK (European patent), ES (European patent), FR (European patent), GB (European patent), GR (European patent), IT (European patent), LU (European patent), NL (European patent), SE (European patent), US. Published <i>With international search report.</i> <i>With amended claims.</i>
(54) Title: A FIXING DEVICE (57) Abstract A fixing device for retaining an item in a fixed position with respect to a wall or other surface (10) comprises a screw or a nail (1, 15) with a head (6) and a body (7) to retain the item in position. A collar (3) with a screw-threaded portion (4) is located around the screw or nail (1, 15) adjacent its head (6). A head attachment (2) is screwed to the collar (3) to cover the head (6) and to provide a decorative finish to the fixing device. The collar (3) can be countersunk (5) to accommodate the head (6) of the screw or the nail (1, 15) and in a preferred embodiment is countersunk identically at both ends to provide a hollow portion (5) to accommodate the head (6) of the screw or nail (1, 15) at one end and an annular projection (9A) to bite into the wall or other surface (10) at the other end.		

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⁺ Any designation of "SU" has effect in the Russian Federation. It is not yet known whether any such designation has effect in other States of the former Soviet Union.

A FIXING DEVICE

The present invention relates to a fixing device and, in particular, to a device for attaching items to a wall or other surface.

When it is desired to mount items on a wall the conventional fixing means used is either a screw or a nail. However, as it usually necessary to produce a decorative or aesthetically pleasing result, screws are most often used, the head of the screw being hidden by a cap.

The present invention has been developed with a view to providing a fixing device which is decorative in use and which in certain embodiments can be augmented to provide a range of items such as coat hooks, rails, handles, wine racks and the like which can be constructed or demounted as desired simply by the attachment of the appropriate parts to the already positioned device in the wall.

According to the present invention there is provided a fixing device comprising an engagement means in the form of a screw or a nail with a head and a body to retain the device and thereby an item in a fixed position with respect to a wall or other surface, a collar with a screw-threaded portion located around the engagement means adjacent the head, and a head attachment which can be screwed to the collar to cover the head and to provide a decorative finish to the fixing device.

Preferably, the collar is countersunk to accommodate the head of the screw or the nail and externally screw-threaded for the connection of the head attachment thereto.

Preferably, the collar is provided with one or more projections to bite into the wall or other surface.

Preferably, the collar is countersunk identically at both ends to provide a hollow portion to accommodate the head of the screw or nail at one end and to provide an annular projection to bite into the wall or other surface at the other end.

The present invention will now be described by way of example with reference to the accompanying drawings, in which:-

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Figure 1 is a side view of a first embodiment of the present invention;

Figure 2 is a cross-sectional side view of the embodiment shown in Figure 1;

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Figures 3A, 3B and 3C show respectively three cross-sectional views of alternative collars for the embodiment shown in Figures 1 and 2;

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Figure 4 is a part cross-sectional view of part of a fixing device with a modified collar, as shown in Figure 3C, when in use;

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Figure 4A is a view similar to Figure 4 but including a modified head attachment ;

Figure 5 shows a modification to the embodiment shown in Figures 1 and 2;

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Figure 6 shows a collar forming part of a second embodiment of the invention;

Figure 7 shows a modified collar for use in the second embodiment of the invention.

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With reference to Figures 1 and 2, the first embodiment of the invention comprises a screw 1 with a screw-on decorative head attachment or cover 2. The screw 1 is provided with a metallic cup-shaped cylindrical collar 3 which has an exterior screw-thread 4. The interior of the collar 3 is countersunk and chamfered as at 5 to accommodate the head 6 of the screw snugly and the collar 3 locates around the body 7 of the screw-threaded portion of the screw 1 adjacent the head 5. The cover or head attachment 2 comprises a cup-shaped boss with a cylindrical internally screw-threaded aperture 8 therein. Hence, in use, after the screw 1 and the collar 3 have been secured to a wall, the cover 2 is screwed over the collar 3 to hide the screw head 6 and provide the desired decorative effect.

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As shown in Figures 3A and 3B, the collar 3 can be provided with projections which bite into the wall when the screw 1 is tightened in position. These projections can comprise an annular ridge 9A or serrations 9B formed on the base of the collar 3. These are provided to assist in holding the collar 3 in place and to prevent the collar 3 and the cover 2 from being rotatable about the screw head 6. However, if appropriate, the base of the collar 3 can be left flat as shown in Figures 1 and 2.

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In a further development of this concept, as shown in Figure 3C and in use in Figure 4, the collar 3 is countersunk 5 at both ends, preferably identically. This has the advantage that it does not matter which way the screw 1 is inserted into the the collar 3 making it quicker and easier for the user. In addition, the two countersunk portions 5 enable the head 6 of the screw 1 to be accommodated in a hollow portion of the collar 3 at one end and provide an annular ridge 9A, similar to that shown in Figure 3A, at the other end. The ridge 9A frictionally engages the wall or other surface 10 when the screw 1 is

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tightened and bites into it to prevent the collar 3 being rotated around the screw head 6 either during fixing of the head attachment 2 or thereafter.

5 In a further modification as shown in Figure 4A, the length of the screw-threaded portion of the collar 3 is made slightly greater than the length of the screw-threaded aperture 8 in the head attachment 2. This ensures that a small gap 2A is left between the head attachment 2 and the
10 surface 10 after the attachment 2 has been fully screwed on to the collar 3 to prevent the frictional engagement between the collar 3 and the surface 10 being weakened.

 The embodiment shown in Figure 2 can be expanded as
15 shown in Figure 5. Here, the collar 3 which fits around the screw 1 is longer and the head attachment 2 comprises a boss with a cylindrical internally screw-threaded aperture 11 formed all the way through it. In use, the boss 2 is screwed over the collar 3, as before, but so that other
20 attachments can also be screwed into the aperture 11. In Figure 5 are shown externally screw-threaded rods 12 and an example of a nut 13 provided with several internally screw-threaded apertures 14. The collar 3, the rods 12 and the nut 13 can be screwed together to form part of a kit of
25 parts enabling items such as a wine-rack, a rail, or a set of hooks, for example, to be attached to the screw 1 and several like it, as desired. The kit of parts is simply mounted on or demounted from the fixing device at will.

30 It will be appreciated that apart from having a single aperture 11, the head attachment of boss could be tapped at any location on its surface to enable other components of a kit of parts to be screwed to it out of alignment with the screw 1.

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 In a second embodiment, as shown in Figures 6 and 7,

a nail 15 is used instead of the screw 1. Here, the nail is provided with a resilient plastics collar 16, which is substantially cylindrical with a longitudinal aperture 17 through which the body or stem 18 of the nail 15 passes. The head 19 of the nail 15 can be accommodated in a countersunk portion of the collar or can simply abut one end 20 of the collar 16, which can be slightly dished or chamfered to seat the head 19 as shown in the drawings.

10 In Figure 6, the plastics collar 16 is provided with an external screw-thread so that decorative head attachments can be screwed thereto to cover the head 19 of the nail in a similar way to the first embodiment shown in Figures 1 and 2. However, in a variation as shown in Figure 15 7, the collar 16 can be a two-part collar having a inner resilient plastics portion 21 which is push-fitted into an outer metallic sleeve 22 which is provided with the external screw-thread 23.

20 In yet a further modification, the collar 16 can be similar to that shown in Figure 3C but with a cylindrical plastics core similar to the portion 21 in Figure 7. This will enable the collar 16 to seat the head of the nail and provide a annular projection to bite into the wall when the 25 fixing device is used.

In both the arrangements shown in Figures 6 and 7, the central aperture 17 through the collar has a diameter slightly less than the diameter of the nail being used therewith so that the nail frictionally engages with the 30 collar to prevent the collar 16 from being easily rotatable about the stem 18 of the nail 15.

The head attachment for the fixing device can be made 35 in any decorative shape with ornamentation if appropriate. It can also be made an appropriate shape to serve a

specific purpose. For example, if the head attachment is provided with an annular groove, the device can be used for hanging pictures or mirrors by means of a decorative cord or chain which can locate in the groove. In another application, the head attachment can be shaped so that it can be used as a door knob for a cupboard. This has the advantage that the fixing device does not show through on the inside of the door.

10 In a modification suitable for use with a large head attachment, for example for use as a knob on a banister or similar, the collar 3 can be made sufficiently large to accommodate a plurality of screws or nails. Three screws or nails would be appropriate for a banister knob. It is also possible to use the device to fix a light fitting and here the collar 3 could be provided with sufficient screws to support the fitting as well as a central aperture through which electrical wiring could be threaded.

20 When necessary, a washer can be used with the device and this can be also be made decorative and part of the overall design of the device.

25 Whilst it is anticipated that the head attachment and collar of the first embodiment will be made of metal in most cases, it is also envisaged that a plastics material, such as nylon could be used. Likewise, in the second embodiment, the head attachment can be either metal or a plastics material.

30 The invention is suitable for use with any type of screw or nail. For example, wood screws can be used for attachment of items via the fixing device to wooden surfaces but self-tapping screws can be used for attachment to metal surfaces.

It will be appreciated that in use, the fixing device is used in the same way as a conventional screw or nail but with the collar located around the head of the screw or nail and the items to be fastened to a wall or other surface by the device adjacent the collar rather than the head of the screw or nail. After the screw or nail has been firmly anchored to the surface in the usual way, the head attachment is then screwed to the collar to cover the head of the screw or nail and provide the decorative finished effect required.

CLAIMS

1. A fixing device comprising an engagement means in the form of a screw (1) or a nail (15) with a head (6,19) and a body (7,18) to retain the device and thereby an item in a fixed position with respect to a wall or other surface (10), and characterised in that it also comprises a collar (3,16) with a screw-threaded portion (4,23) located around the engagement means (1,15) adjacent the head (6), and a head attachment (2) which can be screwed to the collar (3,16) to cover the head (6) and to provide a decorative finish to the fixing device.

2. A device as claimed in Claim 1, characterised in that the collar (3,16) is countersunk to accommodate the head (6,19) of the screw (1) or the nail (15) and externally screw-threaded for the connection of the head attachment (2) thereto.

3. A device as claimed in Claim 1 or Claim 2, characterised in that the collar (3,16) is provided with one or more projections (9A,9B) to bite into the wall or other surface (10).

4. A device as claimed in any one of Claims 1 to 3, characterised in that the collar (3,16) is countersunk identically at both ends to provide a hollow portion (5) to accommodate the head (6,19) of the screw (1) or nail (15) at one end and to provide an annular projection (9A) to bite into the wall or other surface (10) at the other end.

5. A device as claimed in any one of Claims 1 to 4, characterised in that the head attachment (2) is secured to the collar (3,16) in such a way as to leave a gap (2A) between the adjacent surfaces of the head attachment (2) and the wall or other surface (10) to which the device is

fixed.

6. A device as claimed in Claim 5, characterised in that the head attachment (2) has a screw-threaded aperture (8) to engage with the screw-threaded portion (4,23) of the collar (3,16), the length of the screw thread on the head attachment (2) being less than that on the collar (3,16) to enable the gap (2A) to be formed between the head attachment (2) and the wall or other surface (10) when the attachment (2) is screwed on to the collar (3,16).

7. A device as claimed in any one of Claims 1 to 6, characterised in that the collar (16) comprises a plastics insert (21).

8. A device as claimed in Claim 7, characterised in that the aperture (17) in the plastics insert (21) through which the body (2,18) of the screw (1) or nail (15) passes has an initial diameter less than that of the body (2,18) so as to frictionally engage same.

9. A device as claimed in Claim 7 or Claim 8, characterised in that the plastics insert (21) is substantially cylindrical and push-fitted inside an outer sleeve (22).

10 A device as claimed in any one of Claims 1 to 9, characterised in that the head attachment (2) is tapped to enable a functional article (12,13) to be attached directly to it.

AMENDED CLAIMS

[received by the International Bureau
on 14 February 1992 (14.02.92);

original claims 1-3 replaced by amended claim 1; claim 4 replaced
by amended claim 2; claims 5-10 unchanged but renumbered as claims 3-8 (2 pages)]

1. A fixing device comprising an engagement means in the
form of a screw (1) or a nail (15) with a head (6,19) and a
5 body (7,18) to retain the device and thereby an item in a
fixed position with respect to a wall or other surface
(10), a collar (3,16) with a screw-threaded portion (4,23)
located around the engagement means (1,15) adjacent the
head (6), and a head attachment (2) which can be screwed to
10 the collar (3,16) to cover the head (6) and to provide a
decorative finish to the fixing device and characterised in
that the collar (3,16) is chamfered at both ends adjacent
the screw-threaded portion (4,23) and countersunk at one
end to provide a hollow portion (5) to accommodate the head
15 (6,19) of the screw (1) or nail (15), the chamfer at the
other end providing an annular projection (9A) which can
bite into the wall or other surface (10).

2. A device as claimed in Claim 1, characterised in that
20 the collar (3,16) is countersunk identically at both ends
to provide the hollow portion (5) and the annular
projection (9A).

3. A device as claimed in Claim 1 or Claim 2,
25 characterised in that the head attachment (2) is secured to
the collar (3,16) in such a way as to leave a gap (2A)
between the adjacent surfaces of the head attachment (2)
and the wall or other surface (10) to which the device is
fixed.

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4. A device as claimed in Claim 3, characterised in that
the head attachment (2) has a screw-threaded aperture (8)
to engage with the screw-threaded portion (4,23) of the
collar (3,16), the length of the screw thread on the head
35 attachment (2) being less than that on the collar (3,16) to
enable the gap (2A) to be formed between the head

attachment (2) and the wall or other surface (10) when the attachment (2) is screwed on to the collar (3,16).

5 5. A device as claimed in any one of Claims 1 to 4,
characterised in that the collar (16) comprises a plastics
insert (21).

10 6. A device as claimed in Claim 5, characterised in that
the aperture (17) in the plastics insert (21) through which
the body (2,18) of the screw (1) or nail (15) passes has an
initial diameter less than that of the body (2,18) so as to
frictionally engage same.

15 7. A device as claimed in Claim 5 or Claim 6,
characterised in that the plastics insert (21) is
substantially cylindrical and push-fitted inside an outer
sleeve (22).

20 8. A device as claimed in any one of Claims 1 to 7,
characterised in that the head attachment (2) is tapped to
enable a functional article (12,13) to be attached directly
to it.

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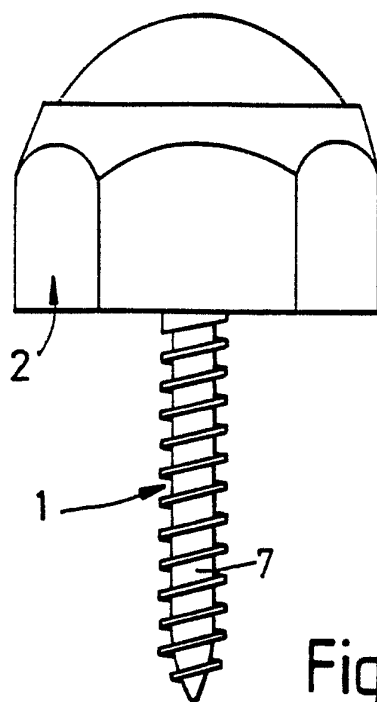


Fig. 1

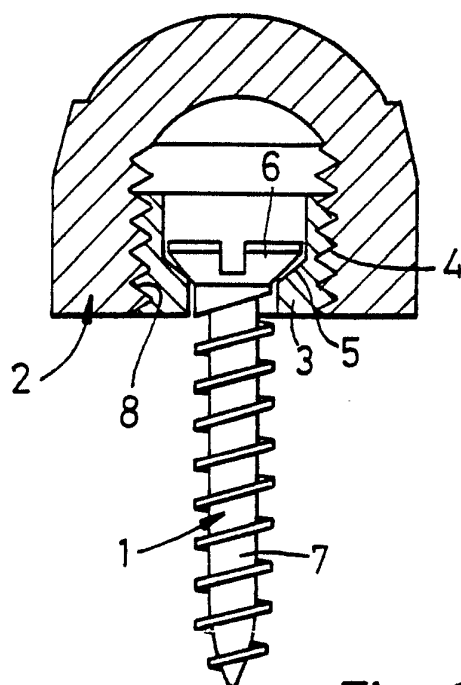


Fig. 2

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Fig. 3A

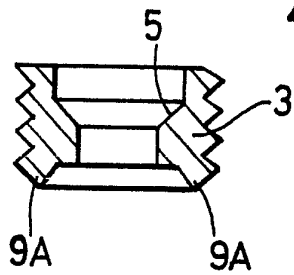


Fig. 3B

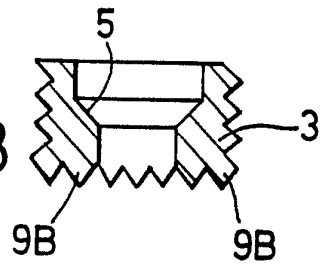


Fig. 3C

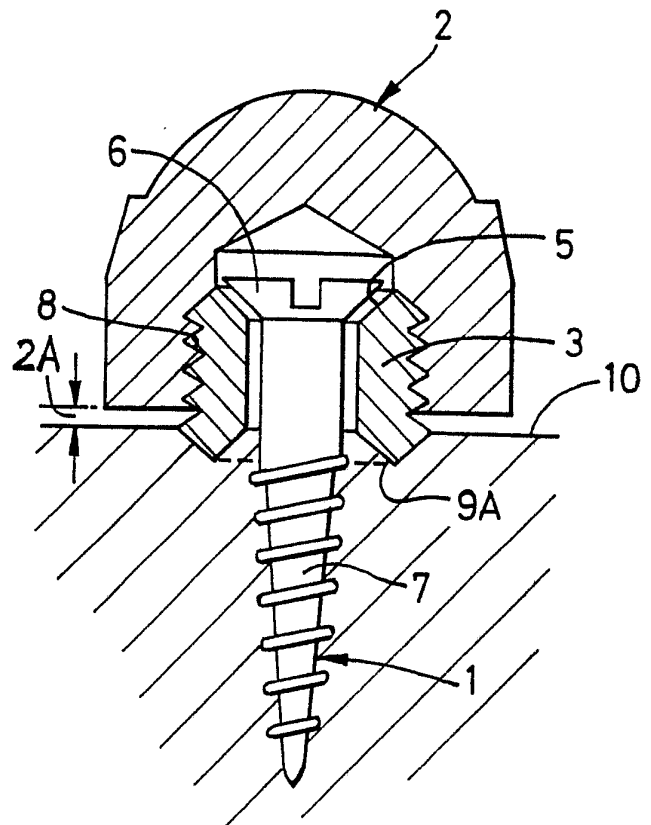
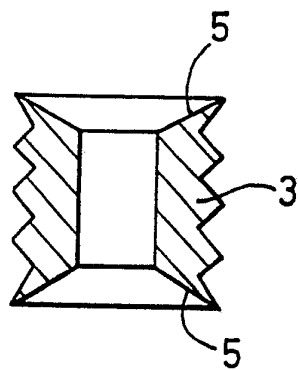


Fig. 4A

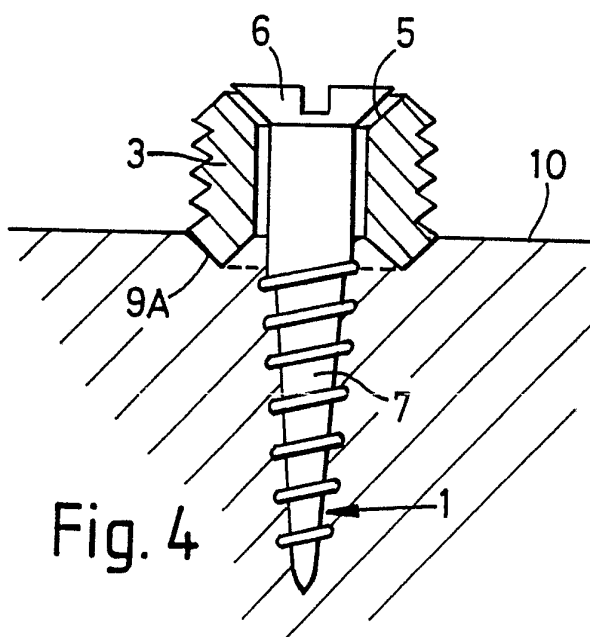


Fig. 4

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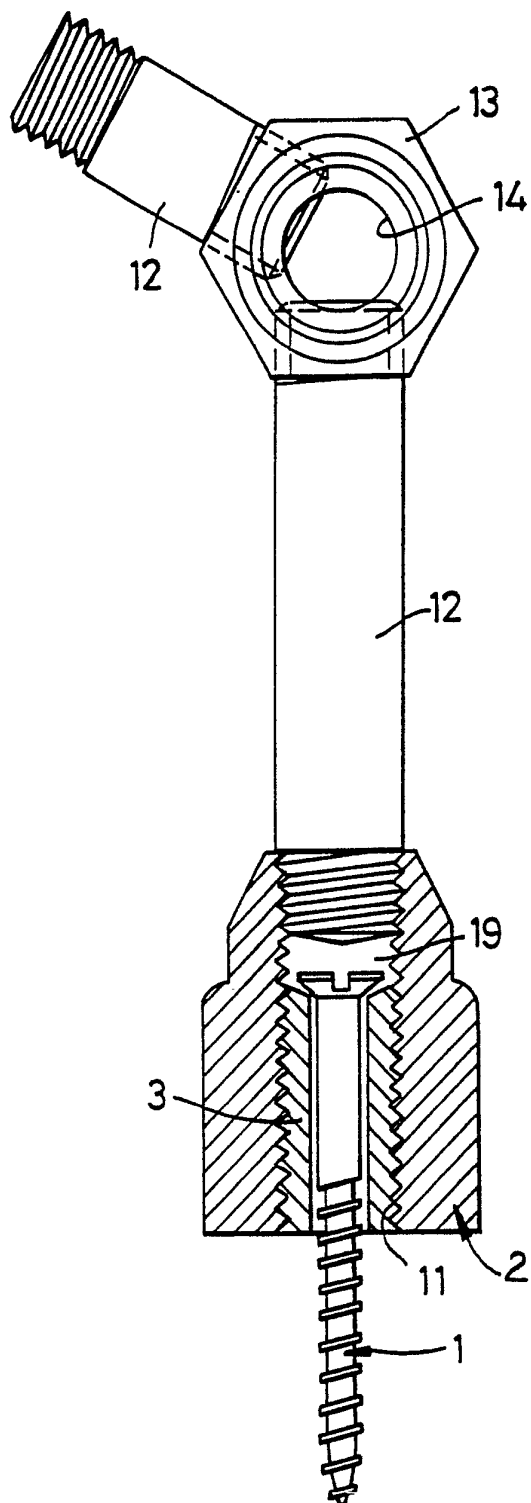


Fig. 5

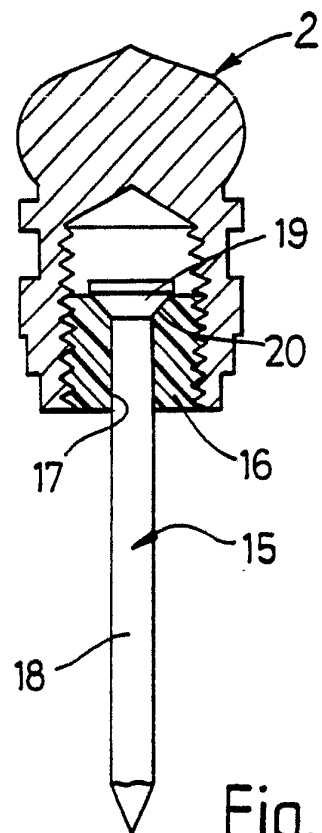


Fig. 6

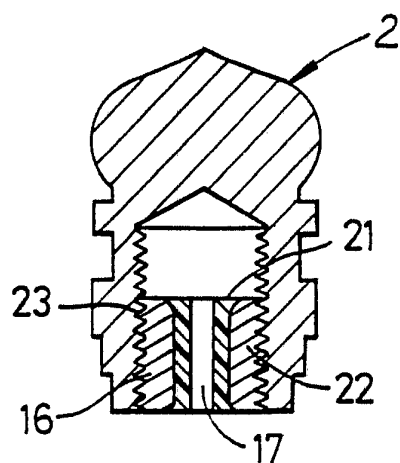


Fig. 7

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 91/01709

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC Int.Cl. 5 F16B37/14		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	F16B	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	EP,A,0 125 040 (WORRALLO, ANTHONY CHARLES) 14 November 1984 see page 5, line 7 - page 8, line 21; figures 1-6 ---	1-3, 10
X	GB,A,603 268 (JEAN PAUL DENIES) 8 July 1948 see the whole document ---	1, 2
A	BE,A,661 354 (RAPID S.A.) 16 July 1965 see page 3, line 5 - page 4, line 17; figures ---	1
A	GB,A,850 856 (EDWARD IAN WEIDNER) 12 October 1960 see the whole document ---	7
¹⁰ 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 document 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 "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 "A" document member of the same patent family		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
15 JANUARY 1992	30. 01. 92	
International Searching Authority	Signature of Authorized Officer	
EUROPEAN PATENT OFFICE	ARESO Y SALINAS <i>Luis Ares</i>	

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO. GB 9101709
SA 52031**

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the European Patent Office EDP file on
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A-0125040	14-11-84	AU-B- 571810	21-04-88
		AU-A- 2643184	18-10-84
		CA-A- 1245084	22-11-88
		GB-A, B 2140522	28-11-84

GB-A-603268		BE-A- 435823	

BE-A-661354	16-07-65	FR-A- 1397500	

GB-A-850856		None	
