Title: PICTURE HANGER

Abstract: A device for aiding the mounting of an object on a wall, which device includes: a body shaped and configured to be held in abutment with a wall on which the object is to be mounted; an elongate member which is configured to extend outwardly from the body; a locating means which defines an opening for receiving the elongate member complementally therethrough and to allow displacement of the locating means along a substantially portion of the length of the elongate member; a mounting formation which is configured to extend outwardly the locating means, the mounting formation being configured to permit an object to be mounted on the wall to be mounted thereon; and a retaining means for retaining the locating means in a desired position on the elongate member, the retaining means comprising complementary male-and-female mating formations which are arranged on the elongate member and opening of the locating means.
This invention relates to a device for aiding the mounting of an object, typically a picture or the like, on a wall.

According to a first aspect of the invention there is provided a device for aiding the mounting of an object on a wall, which device includes:

a body shaped and configured to be held in abutment with a wall on which the object is to be mounted;

an elongate member which is configured to extend outwardly from the body;

a locating means which defines an opening for receiving the elongate member complementally therethrough and to allow displacement of the locating means along a substantially portion of the length of the elongate member;

a mounting formation which is configured to extend outwardly the locating means, the mounting formation being configured to permit an object to be mounted on the wall to be mounted thereon; and

a retaining means for retaining the locating means in a desired position on the elongate member, the retaining means comprising complementary male-and-female mating formations which are arranged on the elongate member and opening of the locating means.
An aperture may be defined in the body for receiving any suitable attachment means therethrough for attaching the device to the wall. The attachment means may include any suitable nail or wall plug.

The elongate member may be formed integrally the body. The body may be of generally circular shape and may be thicker than the elongate member so that in an operative mounted condition of the device, the elongate member is spaced from the wall.

The locating means may be in the form of a sleeve which defines a generally parallelepipedal opening or passageway.

The mounting formation may be generally hook-shaped for holding a tie member of an object to be mounted captive therein in an operative hanging condition of the object to be mounted.

The complementary male-and-female mating formations may be in the form of a rack-and-ratchet or gear-and-ratchet assembly. A gear or rack of the rack-and-ratchet or gear-and-ratchet assembly may be arranged to extend longitudinally the elongated member. The gear or rack may be formed by plurality of generally wedge or saw tooth shaped recesses which are defined in the elongate member substantially along its length. A ratchet of the rack-and-ratchet or gear-and-ratchet assembly may be arranged to extend or depend inwardly from an inner wall defining the opening or passageway. The ratchet may be generally wedge shaped and may be biased to extend inwardly the
wall of the opening towards the gear or rack. The ratchet and/or gear may be formed from any suitable resiliently deformable material to facilitate complementary interengagement therebetween.

The recesses may be orientated to facilitate displacement of the ratchet from a free end of the elongated member towards the body, and to inhibit displacement in the opposite direction.

It is however to be appreciated that the retaining means may include any suitable interference fit assembly for retaining the locating means in position relative to the elongate member in a desired position relative thereto.

Any one or more of the parts and/or components of the device may be formed from any suitable synthetic plastics material. Any one or more of the parts and/or components of the device may be formed from any suitable nylon or polyamide material. Preferably, one or more of the parts and/or components of the device may be formed from any suitable fibreglass polyamide composite material, typically wherein the fibreglass content is 15% thereof.

According to a second aspect of the invention there is provided a device for aiding the mounting of an object on a wall, which device includes:

a body shaped and configured to be held in abutment with a wall on which the object is to be mounted;
an elongate member having a mounting formation arranged at one end thereof on which the object is to be mounted in use;

a receiving means arranged on the body, the receiving means defining an opening or passageway for receiving the elongate member complementally therethrough and to allow displacement of the elongate member substantially along its length relative to the body; and

a retaining means for retaining the elongate member and with it the mounting formation in a desired position relative to the body, the retaining means comprising complementary male-and-female mating formations which are arranged on the elongate member and opening of the receiving means.

An aperture may be defined in the body for receiving any suitable attachment means there through for attaching the device to the wall. The attachment means may include any suitable wall nail or wall plug.

The receiving means may be formed integrally the body. The receiving means may be in the form of a sleeve which may define a generally parallelepipedal opening or passageway.

The mounting formation may be generally hook shaped for holding a tie member of an object to be mounted captive therein in an operative hanging condition of the object to be mounted.
The complementary male-and-female mating formations may be in the form of a rack-and-ratchet or gear-and-ratchet assembly. A gear or a rack of the rack-and-ratchet or gear-and-ratchet assembly may be arranged to extend longitudinally the elongate member. A ratchet of the rack-and-ratchet or gear-and-ratchet assembly may be arranged to extend or depend inwardly from an inner wall defining the opening or passageway towards the rack or gear.

The ratchet may be generally wedge shaped and may be biased to extend inwardly a wall of the opening towards the rack or gear. The ratchet and/or gear may be formed from any suitable resiliently deformable material to facilitate complementary interengagement therebetween. The gear or rack may be formed by plurality of generally wedge or saw tooth shaped recesses which may be defined in the elongate member substantially along its length. The recesses and/or ratchet may be orientated to facilitate displacement of the ratchet from a free end of the elongate member towards the body, and to inhibit displacement in the opposite direction.

The retaining means may include any suitable interference fit assembly for retaining the elongate member in position relative to the receiving means in a desired position relative thereto.

Any one or more of the parts and/or components of the above device may be formed from any suitable synthetic plastics material. Any one or more of the parts and/or components of the device may be formed from any suitable nylon or polyamide material. Preferably, one or more of the parts and/or components of the device may be formed from any suitable fibreglass polyamide composite material, typically wherein the fibreglass content is 15% thereof.
The device may include an accessory for aiding in the mounting of the body on a wall, the accessory having a base which has a recess defined therein for receiving the body complementally therein and locating formations extending from the base which are configured to be received complimentally an end portion of a Hilti® mounting apparatus. The accessory may be formed from any suitable resiliency deformable material.

A device for aiding the mounting of an object on a wall in accordance with the invention will now be described by way of examples with reference to the accompanying drawings.

In the drawings:-

Figures 1 to 3 show front and sectioned side views of a first embodiment of a device for aiding the mounting of an object on a wall in accordance with the invention;

Figures 4 to 6 show sectioned side views of a second embodiment of the device;

Figures 7 to 9 show sectioned side views of a third embodiment of the device;

Figure 10 shows a three dimensional view of a part of the third embodiment for aiding the mounting thereof on a wall; and

Figures 11 and 12 show a three dimensional and sectional view respectively of a fourth embodiment of the device in accordance with the invention.
Referring now to figures 1 to 3, reference numeral 10 generally depicts a first embodiment of a device for aiding the mounting of an object such as a picture (not shown) on a wall 12 in accordance with the invention.

The device 10 includes a generally tear-shaped body 14 having a receiving means in the form of a sleeve 16 which is formed integrally a tapered portion of the body 14. The sleeve 16 defines a generally parallelepipedal passage 18 which is configured and/or shaped to receive a free end of an elongate member in the form of a cable tie 20 therethrough to allow relative displacement between the body 14 and elongate member 20 to permit the position of the picture relative to the wall to be adjusted substantially vertically according to a user’s requirements. The elongate member 20 has a generally hook shaped mounting formation 22 arranged at an opposing end thereof for receiving for example the picture wire (not shown) of the picture to be mounted on the wall 12.

A retaining means in the form of a gear-and-ratchet or rack-and-ratchet assembly is provided to retain the elongate member 20 in the sleeve 16 in the desired position. More particularly, the rack-and-ratchet assembly is provided by a rack 24 which extends between the free end and the hook 22 of the elongate member 20 and a ratchet 26 which extends inwards at an angle from an inner side of the sleeve 16. In operation, the free end of the elongate member 20 is pulled through the sleeve 16 until a desired position is reached. The angle of the ratchet 26 serving to allow the rack 24 to be pulled in the direction of arrow 28 towards the sleeve 16 whilst resisting displacement in the
opposite direction as a result of the angle of engagement of the end of the ratchet 26 with a member of the rack 24.

The body 14, sleeve 16 and elongate member 20 of the device 10 are formed from any suitable resiliently deformable material, typically any suitable synthetic plastics material.

The device 10 further includes an attachment means in the form of a wall nail 30 for attaching the body 14 via an aperture 32 to the wall 12. As can be best seen in figures 2 and 3, the aperture 32 has a shoulder 34 which is shaped to receive a complimentary cap 36 which fits interference fashion over the free end of the nail 30 and which serves to maintain the nail 30 substantially in register with the aperture 32.

In the second embodiment shown in figures 4 to 6, the body 14 is attached to the wall 12 via a wall plug 38 and screw 40 arrangement.

In the third embodiment shown in figures 7 to 10, the body 14 is attached to the wall 12 using a Hilti® nail fastener 42 for nailing the nail 30 into the wall 12. In this embodiment, an accessory 44 (shown in figure 10) is provided for aiding the driving of the nail 30 into the wall 12 using the Hilti® nail fastener 42 wherein the accessory 44 has a base 46 which has a recess 48 and hole 50 defined therein for receiving the body 14 complementally therein and locating formations 52 extending from the base 46 which are configured to be received complimentally an end portion of a Hilti® fastener
42. The accessory 44 is formed from any suitable resiliency deformable material.

Referring now to figures 11 and 12, reference numeral 110 generally depicts a fourth embodiment of a device for aiding the mounting of an object such as a picture (not shown) on a wall (not shown) in accordance with the invention.

The device 110 includes a body 112 having an elongate member 114 which is configured to extend outwardly therefrom, a locating means in the form of a sleeve 116 which defines a generally parallelepipedal opening 118 for receiving the elongate member 114 complementally therethrough and to allow displacement of the sleeve 116 along a substantially portion of the length of the elongate member. A mounting formation in the form hook 120 is configured to extend outwardly the sleeve 116. A retaining means in the form of a rack-and-ratchet or gear-and-ratchet assembly 122 is provided for retaining the sleeve 116 and hook 120 in a desired position on the elongate member 114.

An aperture 124 is defined in the body 112 for receiving any suitable attachment means such as a nail, screw or wall plug therethrough for attaching the device 110 to the wall.

The elongate member 114 is formed integrally the body 112. The body 112 is thicker than the elongate member 114 so that in an operative mounted condition of the device, the elongate member 114 is spaced from the wall.
The hook 120 is shaped for holding a tie member of an object to be mounted captive therein in an operative hanging condition of the object to be mounted.

A gear or rack 126 of the rack-and-ratchet or gear-and-ratchet assembly 122 is arranged to extend longitudinally the elongated member. The gear or rack 126 is formed by plurality of generally wedge or saw tooth shaped recesses 128 which are defined in the elongate member 114 substantially along its length. A generally wedge shaped ratchet 130 of the rack-and-ratchet or gear-and-ratchet assembly 122 is arranged to extend or depend inwardly from an inner wall defining the opening 118. The ratchet 130 is biased to extend inwardly the wall of the opening 118 towards the gear or rack 126. The ratchet 130 and gear 126 are formed from any suitable resiliently deformable material to facilitate complementary interengagement therebetween.

The recesses 128 and ratchet 130 are orientated and/or inclined to facilitate displacement of the ratchet 130, and with it the hook 120, from a free end of the elongated member 114 towards the body 112, and to inhibit displacement in the opposite direction. The recesses 128 are typically spaced in 1mm increments to facilitate adjustment and/or alignment of the picture according to a user's requirements.

The applicant believes that a device in accordance with the invention is advantageous in that it provides a cost effective and simplified alternative to adjustable picture hangers presently available on the market.
It is to be appreciated that a device as hereinbefore described is not limited to the precise constructional details as set out hereinabove and which may be varied as desired.
CLAIMS

1. A device for aiding the mounting of an object on a wall, which device includes:

   a body shaped and configured to be held in abutment with a wall on which the object is to be mounted;

   an elongate member which is configured to extend outwardly from the body;

   a locating means which defines an opening for receiving the elongate member complementally therethrough and to allow displacement of the locating means along a substantially portion of the length of the elongate member;

   a mounting formation which is configured to extend outwardly the locating means, the mounting formation being configured to permit an object to be mounted on the wall to be mounted thereon; and

   a retaining means for retaining the locating means in a desired position on the elongate member, the retaining means comprising complementary male-and-female mating formations which are arranged on the elongate member and opening of the locating means.

2. A device as claimed in claim 1 wherein an aperture is defined in the body for receiving any suitable attachment means therethrough for attaching the device to the wall.
3. A device as claimed in claim 2 wherein the attachment means includes any suitable nail or wall plug.

4. A device as claimed in any of the preceding claims wherein the elongate member is formed integrally the body.

5. A device as claimed in claim 4 wherein the body is thicker than the elongate member so that in an operative mounted condition of the device, the elongate member is spaced from the wall.

6. A device as claimed in any one of proceeding claims wherein the locating means is in the form of a sleeve which defines a generally parallelepipedal opening or passageway.

7. A device as claimed in any one of the preceding claims wherein the mounting formation is generally hook-shaped for holding a tie member of an object to be mounted captive therein in an operative hanging condition of the object to be mounted.

8. A device as claimed in any one of the preceding claims wherein the complementary male-and-female mating formations are in the form of a rack-and-ratchet or gear-and-ratchet assembly.
9. A device as claimed in claim 8 wherein a gear or rack of the rack-and-ratchet or gear-and-ratchet assemblies is arranged to extend longitudinally the elongated number.

10. A device as claimed in claim 9 wherein the gear or rack is formed by plurality of generally wedge or saw tooth shaped recesses which are defined in the elongate member substantially along its length.

11. A device as claimed in any one of claims 8 to 10 wherein a ratchet of the rack-and-ratchet or gear-and-ratchet assembly is arranged to extend or depend inwardly from an inner wall defining the opening or passageway.

12. A device as claimed in claim 11 wherein the ratchet is generally wedge shaped and which is biased to extend inwardly the wall of the opening.

13. A device as claimed in claim 12 wherein the ratchet and/or gear is formed from any suitable resiliently deformable material to facilitate complementary interengagement therebetween.

14. A device as claimed in claim 14 wherein the recesses are orientated to facilitate displacement of the ratchet from a free end of the elongated member towards the body, and to inhibit displacement in the opposite direction.
15. A device as claimed in claim 1 wherein the retaining means includes any suitable interference fit assembly for retaining the locating means in position relative to the elongate member in a desired position relative thereto.

16. A device as claimed in any of the preceding claims wherein any one or more of the parts and/or components of the device are formed in any suitable synthetic plastics material.

17. A device as claimed in any of the preceding claims wherein any one or more of the parts and/or components of the device are formed in any suitable nylon or polyamide material.

18. A device as claimed in any of the preceding claims wherein any one or more of the parts and/or components of the device are formed in any suitable fibreglass polyamide composite material.

19. A device for aiding the mounting of an object on a wall, which device includes:

a body shaped and configured to be held in abutment with a wall on which the object is to be mounted;

an elongate member having a mounting formation arranged at one end thereof on which the object is to be mounted in use;

a receiving means arranged on the body, the receiving means defining an opening or passageway for receiving the elongate member complementally
therethrough and to allow displacement of the elongate member substantially along its length relative to the body; and

a retaining means for retaining the elongate member and with it the mounting formation in a desired position relative to the body, the retaining means comprising complementary male-and-female mating formations which are arranged on the elongate member and opening of the receiving means.

20. A device as claimed in claim 19 wherein an aperture is defined in the body for removing any suitable attachment means there through for attaching the device to the wall.

21. A device as claimed in claim 20 wherein the attachment means includes a suitable wall nail or wall plug.

22. A device as claimed in any one of claims 19 to 21 wherein the receiving means is formed integrally the body.

23. A device as claimed in any one of claims 19 to 22 wherein the receiving means is in the form of a sleeve which defines a generally parallelepipedal opening or passageway.

24. A device as claimed in any one of claims 19 to 23 wherein the mounting formation is generally hook shaped for holding a tie member of an
object to be mounted captive therein in an operative hanging condition of the object to be mounted.

25. A device as claimed in any one of claims 19 to 24 wherein the complementary male-and-female mating formations are in the form of a rack-and-ratchet or gear-and-ratchet assembly.

26. A device as claimed in claim 25 wherein a gear or a rack of the rack-and-ratchet or gear-and-ratchet assemblies is arranged to extend longitudinally the elongate member.

27. A device as claimed in claim 25 or 26 wherein a ratchet of the rack-and-ratchet or gear-and-ratchet assemblies is arranged to extend or depend inwardly from an inner wall defining the opening or passageway.

28. A device as claimed in claim 27 wherein the ratchet is generally wedge shaped and which is biased to extend inwardly a wall of the opening.

29. A device as claimed in claim 28 wherein the ratchet and/or gear is formed from any suitable resiliently deformable material to facilitate complementary interengagement therebetween.
30. A device as claimed in claim 29 wherein the gear or rack is formed by plurality of generally wedge or saw tooth shaped recesses which are defined in the elongate member substantially along its length.

31. A device as claimed in claim 30 wherein the recesses are orientated to facilitate displacement of the ratchet from a free end of the elongate member towards the body, and to inhibit displacement in the opposite direction.

32. A device as claimed in claim 19 wherein the retaining means includes any suitable interference fit assembly for retaining the elongate member in position relative to the receiving means in a desired position relative thereto.

33. A device as claimed in any of claims 19 to 32 wherein any one or more of the parts and/or components of the device are formed in any suitable synthetic plastics material.

34. A device as claimed in any of claims 19 to 33 wherein any one or more of the parts and/or components of the device are formed in any suitable nylon material.

35. A device as claimed in any of claims 19 to 34 wherein any one or more of the parts and/or components of the device are formed in any suitable fibreglass polyamide composite material.
36. A device including any new and inventive integer or combination of integers, substantially as herein described and/or with reference to the accompanying drawings.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC®: A47G 1/16 (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)
IPC®: A47G

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)
WPI, Fulltext

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<td>JP 2003070622 A (TANAKA, A.) 11 March 2003 (11.03.2003) figures 1-9</td>
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<td>X</td>
<td>WO 2007/053081 A1 (ERIKSSON-BRADLEY, S.) 10 May 2007 (10.05.2007) page 13, lines 15-19, 24-28; page 18 lines 25-30; figures</td>
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<td>US 2002/01 09064 A1 (ZULLER) 15 August 2002 (15.08.2002) figure 8; claim 1</td>
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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 or 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 24 November 2010 (24.11.2010)
Date of mailing of the international search report 02 December 2010 (02.12.2010)

Name and mailing address of the ISA/AT
Austrian Patent Office
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Continuation of first sheet

Continuation 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:

Claims Nos.: 36 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 36 does not mention technical features (see PCT Rules 6.2 (a) and 6.3 (a)).

Continuation 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. Claims 1-18, 36 partly
2. Claims 19-35, 36 partly

1. Claims 1-18, 36 partly essentially concern a hook which is movable on an elongate member.
2. Claims 19-35, 36 partly essentially concern a movable elongate member with a hook.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
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