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(54) CHRISTMAS TREE STAND

(57) A Christmas tree stand (1) with a base (2) and a fastening member (3), the fastening member (3) including a Christmas tree fastening part (4), a plastically deformable bending part (5) and a base fastening part (6), by which is achieved that a Christmas tree can be righted

with modest use of tools just by setting the tree in the desired position, where deformation occurs in the bending part (5), and where there are uniform degrees of freedom for deformation in all directions.

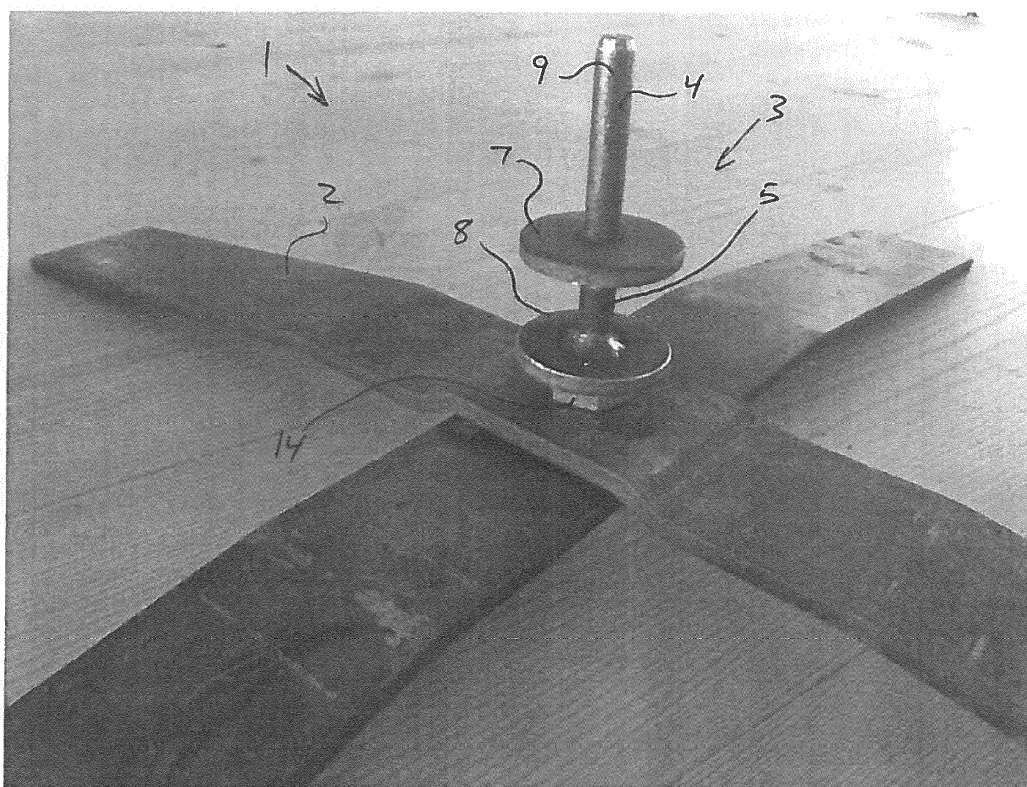


Fig 5

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Description

Field of the Invention

[0001] The present invention concerns a Christmas tree stand with a base and a fastening member, the fastening member including a Christmas tree fastening part, a plastically deformable bending part, and a base fastening part.

Background of the Invention

[0002] There are many different solutions for Christmas tree stands. Common to many of these solutions is that they are awkward to mount and furthermore that it is cumbersome to adjust the tree so as to stand vertically upright. Frequently adjusting screws are applied, which unfortunately can be difficult to access when the Christmas tree stand is mounted on the tree.

[0003] A Christmas tree stand under the trade name Juletræs fod 1-2-tree is also known where only a hole is to be drilled into the cut end of the Christmas tree, after which the Christmas tree stand can be screwed on the tree. When the Christmas tree and the Christmas tree stand are raised up again, the Christmas tree can be pressed into the desired position by deforming at least part of the Christmas tree stand. Here, the drawback is, among others, that it is necessary to screw the stand firmly into the tree, and therefore it is necessary to transport the tree together with the stand. The Christmas tree stand also has the drawback that it does not provide the same degrees of freedom of deformation in all directions.

[0004] US 5522177 further discloses a Christmas tree stand where a pin is driven into the tree and where there is a rigid, however bendable arm at one side, on which side there is also a screw for mounting in the Christmas tree whereby the Christmas tree is further reinforced. This Christmas tree stand, however, does not provide the same degrees of freedom of deformation in all directions either.

Object of the Invention

[0005] It is the object of the invention to enable setting a Christmas tree on a Christmas tree stand without or with very modest use of tools and then right the Christmas tree without use of tools, just setting the tree in the desired position as deformation occurs in a predetermined part of the Christmas tree stand, where there are uniform degrees of freedom of deformation in all directions.

[0006] It is also an object of the invention to ensure that the Christmas tree does not dry up and loses its needles.

[0007] Finally, it is an object of the invention to ensure that the cut end part of the Christmas tree and the entire transition to the Christmas tree stand can be hidden or covered.

Description of the Invention

[0008] According to a first aspect of the invention, the above mentioned object is achieved by a Christmas tree stand as described by introduction and as indicated in the preamble of claim 1, namely a Christmas tree stand with a base and a fastening member, the fastening member including a Christmas tree fastening part, a plastically deformable bending part and a base fastening part, wherein the fastening member further comprises a first flange between the Christmas tree fastening part and the plastically deformable bending part and additionally a second flange between the plastically deformable bending part and the base fastening part.

[0009] This will enable righting a Christmas tree without use of tools, only by setting the tree in the desired position as deformation occurs in a predetermined part of the Christmas tree stand, namely the plastically deformable bending part where there are uniform degrees of freedom of deformation in all directions.

[0010] As the plastically deformable bending part is disposed between the Christmas tree fastening part and the base fastening part there are many ways in which these two parts can be designed. The Christmas tree fastening part can e.g. be a three-jaw chuck which is clamped around the cut end of the Christmas tree, or a holder encircling the cut end part of the Christmas tree and from where screws are screwed into the side of the Christmas tree. Also, the base fastening part can e.g. be a collar that is put upon a corresponding end pin on the base, or it may be a ball retained by clamping means in the base.

[0011] The base can also be designed in many ways, from an embodiment where the base is a plate of round, oval, or e.g. four-edged shape to an embodiment where the base has a number of legs that may be drawn out and adjusted in height. Yet an alternative embodiment is a base that can be collapsed, where the base e.g. comprises several members which can be folded/rotated/turned in over each other like, e.g. a cross where all ends can be turned so that they lie along the same axis. Yet an alternative embodiment can be a plurality of circle segments that can be turned in over each other, but which in turned out position constitute a substantially circular base.

[0012] This will enable having a Christmas tree stand where base and fastening member are integrated in a unit, but still providing the possibility of an at least partially collapsible Christmas tree stand that takes up less space when not in use.

[0013] Even if the Christmas tree stand is an integrated unit, several options for the material are present, where the base e.g. can be made of wood, metal, composites or polymer whereas the fastening member can be made of metal, such as steel, or of composite material.

[0014] Also, the flanges will provide the Christmas tree with a better bearing face and provide the fastening member with a better bearing face against the Christmas tree

stand, which in both cases will facilitate and ensure deformation of the bending part. In this context, a flange is to be regarded as a support that bears on at least part of the cut end face of the Christmas tree, and such a flange does not necessarily have to be a solid plate part but may possibly be constituted by a number of radial fingers or similar extending from one or the other or both of the fastening parts.

[0015] By the term flange is also meant discs, wheels, nuts or anything having the function of a flange.

[0016] A flange is essential as it will prevent the wrong parts of the fastening member from bending, and therefore neither the Christmas tree fastening part nor the base fastening part. A flange will just ensure that a bending moment e.g. applied on the Christmas tree is transmitted to the bending part through the Christmas tree fastening part and the flange between the Christmas tree fastening part and the bending part.

[0017] In a second aspect, the present invention also concerns a Christmas tree stand wherein the Christmas tree stand is in two parts divided into a base and a fastening member, the base including means for receiving a base fastening part.

[0018] This enables placing the Christmas tree stand at the desired place, then mounting the fastening member on the Christmas tree, and finally positioning the fastening member with the Christmas tree on the Christmas tree stand. Handling and transporting the whole Christmas tree stand together with the Christmas tree are thereby avoided, and instead only the fastening member together with the Christmas tree have to be handled and transported to the place where the base is positioned, at which place the fastening member and the base are joined.

[0019] The receiving means in the base can e.g. be a sleeve or bushing for receiving a pin from the fastening member, or vice versa where the receiving means in the base can be a pin for receiving a sleeve from the fastening member, as well as in alternative embodiments the receiving means may include quick couplings, snap couplings, or squeeze couplings that furthermore can be foot operated and spring-loaded quick locks.

[0020] In a third aspect, the present invention also concerns a Christmas tree stand where the bending part is made of a material with lower elastic modulus or with lesser rigidity than the Christmas tree fastening part and the base fastening part, respectively.

[0021] This will further facilitate plastic deformation of the bending part. An example is a fastening member of a nickel alloy where the Christmas tree fastening part and the base fastening part are made of a nickel/chromium/molybdenum alloy with an elastic modulus of 208 GPa, while the bending part is made of a nickel/copper alloy with an elasticity modulus of 179 GPa or an acid-proof stainless steel AISI 316 with an elastic modulus of 195 GPa.

[0022] Other ways of combining a bending part with a suitable plastic deformability are e.g. combining metals

like steel and alloys such as chromium/vanadium, or composite materials such as CerMet consisting of ceramics and metallic materials. The elastic modulus is of course significant to the cross-sectional dimension of the bending part, but also to the length of the bending part. The longer bending part, the easier it will be to perform bending/adjustment of the direction of a Christmas tree. In an alternative embodiment, the entire fastening member can be of one material with the same elastic modulus, but where the bending part has a somewhat lesser cross-sectional area than the other parts.

[0023] In a fourth aspect, the present invention also concerns a Christmas tree stand wherein at least the bending part is at least covered by a material with better elastic properties than the material of the bending part.

[0024] This will enable covering, surrounding, enveloping, casting round or embedding the bending part in a material with better elastic properties than the material of the bending part. If the bending part e.g. is a nickel/copper alloy, the material surrounding the bending part can e.g. be a rubber or polymer material with better elastic properties than the nickel/copper alloy in question.

[0025] Where the Christmas tree fastening part can be hidden in the Christmas tree, and the base fastening part can be hidden in the base, the plastically deformable bending part can thus be hidden by e.g. a surrounding rubber material e.g. having a shape corresponding to the outer contour of the flanges and extending from the first flange to the second flange. Parts of the flanges may therefore be covered by the said material as well. This will provide the bending part with a substantially stronger visual expression and will also make it easier to hold fast around the bending part when the Christmas tree fastening part is to be drawn, turned or removed from the Christmas tree.

[0026] In a fifth aspect, the present invention also concerns a Christmas tree stand wherein the Christmas tree fastening part includes at least one pin.

[0027] This will enable drilling a hole in a Christmas tree, inserting the pin of the Christmas tree fastening part, putting the fastening member on the base and performing the final righting. The pin can e.g. be 08-10 mm, with a length of about 50-70 mm, and it can be made of steel or aluminium, advantageously with a strength e.g. corresponding to EN S235JR or EN AW-1050. Other unalloyed/alloyed steel types or materials with corresponding properties can also be used, and the parts can be made in other dimensions than those mentioned here.

[0028] Insertion of the at least one pin can be effected by the hole having greater dimension than the pin, or a corresponding dimension, and so that the pin therefore readily can be inserted in the hole. Alternatively, the hole can have lesser dimension than the pin whereby the pin is to be driven into the hole by means of e.g. a hammer.

[0029] Several pins can also be provided in the Christmas tree fastening part, where the pins e.g. are placed in pre-drilled holes at the end part of the Christmas tree, where the holes e.g. are pre-drilled with a jig. Alterna-

tively, the pins can subsequently be fixed on the fastening member by means of fastening means such as screws, snap locks or similar, and where the pins e.g. can be fixed in a perforated disc which at the same time constitutes the flange between the Christmas tree fastening part and the bending part.

[0030] In a sixth aspect, the present invention also concerns a Christmas tree stand wherein the at least one pin is pointed.

[0031] This will enable knocking the pin into the tree, as e.g. with nails, whereby the drilling of holes in the tree is avoided. In a preferred embodiment, in order to ensure that the pin can be driven into the tree the pin can be made of steel with suitable carbon content, e.g. between 0.3% and 1.7%, enabling hardening for better strength properties and hardness. The stronger the material, the smaller dimension it may have, and all things considered a smaller piece of material is easier to hammer into the tree than a bigger.

[0032] A pin can be placed in a pre-drilled hole as an alternative, whereas at least a second pin can be knocked into the tree. The pins to be knocked into the tree can e.g. be smaller than the pin to be placed in the pre-drilled hole. In a further alternative, holes can be pre-drilled after which pins are knocked into the holes for better fastening.

[0033] In a seventh aspect, the present invention also concerns a Christmas tree stand wherein the at least one pin is a stud bolt.

[0034] This will enable screwing the fastening member pin into the Christmas tree, whereby the fastening member will be fixed and not in danger of falling out while handling the Christmas tree with the fastening member, and thus before placing it in the base. In a preferred embodiment, the stud bolt can be screwed into the end part of the Christmas tree, possibly in a pre-drilled hole in order to facilitate the screwing action. In a preferred embodiment, a self-tapping screw thread can be used in pre-drilled holes.

[0035] In an eighth aspect, the present invention also concerns a Christmas tree stand wherein the base fastening part includes at least one pin.

[0036] This will enable inserting the pin of the base fastening part into the base. The pin can e.g. be 08-10 mm, with a length of about 50-70 mm, and it can be made of steel or aluminium, advantageously with a strength e.g. corresponding to EN S235JR or EN AW-1050. Other unalloyed/alloyed steel types or materials with corresponding properties can also be used, and the parts can be made in other dimensions than those mentioned here.

[0037] The at least one pin of the base fastening part can possibly be clamped in a screwgun in order to facilitate screwing in cases where the at least one pin of the Christmas tree fastening part is a stud bolt to be screwed into the end part of a Christmas tree.

[0038] In a ninth aspect, the present invention also concerns a Christmas tree stand wherein the Christmas tree stand further includes a water bowl surrounding the Christmas tree fastening part.

[0039] This will enable extending the time by which the Christmas tree will dry up and thereby losing its needles, which e.g. for common spruce and omorika occurs earlier than in the case of Norman spruce and nobilis. In a preferred embodiment, the bottom of the water bowl is an integrated part of the flange between the Christmas tree fastening part and the bending part; alternatively, the bottom of the water bowl can be an integrated part of the flange between the bending part and the base fastening part, and finally the bottom of the water bowl can be fastened e.g. by means of welding to one or the other flange.

[0040] In an alternative embodiment, the water bowl can be made of polymer in one or more pieces that are put onto or assembled around the fastening member, e.g. by gluing or joining with gaskets.

[0041] In a tenth aspect, the present invention also concerns a Christmas tree stand wherein the Christmas tree stand further includes a fastening member cover.

[0042] This will enable hiding or just covering the cut end of the Christmas tree and the entire transition to the base. In a preferred embodiment, the fastening part cover is a self-tightening spring band known as "slapwrap". In an alternative embodiment, it can also be in the form of a single cylindrical tube piece, possibly with a spring-loaded hinging, or a tube piece divided into two pieces assembled around the cut end of the Christmas tree and the entire transition to the base by means of a snap coupling, quick lock, magnets, or similar.

[0043] In an embodiment, the Christmas tree stand is with a colour that anonymises the Christmas tree stand, i.e. it has a colour which is neutral, e.g. greenish, but the Christmas tree stand can also appear as a more visible element, as ornamented, painted or decorated in other ways.

Description of the Drawing

[0044] The invention will now be explained more closely in the following by description of non-limiting embodiments with reference to the drawing, where:

Fig. 1 shows a Christmas tree stand with a base and a fastening member;

Fig. 2 shows a base and a fastening member, partially mounted on a Christmas tree;

Fig. 3 shows a base and a fastening member, completely mounted on a Christmas tree;

Fig. 4 shows a Christmas tree stand with a base and a fastening member, where the Christmas tree stands substantially in vertical position;

Fig. 5 shows a Christmas tree stand with a base and an applied fastening member;

Fig. 6 shows a base as seen from the bottom;

Fig. 7 shows a folded base as seen from the top side;

Fig. 8 shows a folded base as seen from the side;

Fig. 9 shows a Christmas tree stand with a base and a fastening member with water bowl.

List of designations

[0045]

- 1 Christmas tree stand
- 2 base
- 3 fastening member
- 4 Christmas tree fastening part
- 5 bending part
- 6 base fastening part
- 7 first flange
- 8 second flange
- 9 pin, Christmas tree fastening part
- 10 pin, base fastening part
- 11 Christmas tree
- 12 hole
- 13 end part
- 14 receiving means
- 15 water bowl
- 16 bottom, water bowl

Detailed Description of Embodiments of the Invention

[0046] Fig. 1 shows a Christmas tree stand 1 with a base 2 and a fastening member 3, the fastening member including a Christmas tree fastening part 4, a plastically deformable bending part 5, and a base fastening part 6. Fig. 1 also shows that the fastening member 3 further comprises a first flange 7 between the Christmas tree fastening part 4 and the plastically deformable bending part 5 and additionally a second flange 8 between the plastically deformable bending part 5 and the base fastening part 6. Fig. 1 also shows that the Christmas tree fastening part 4 has a pin 9 and that the base fastening part 6 has a pin 10.

[0047] Finally, Fig. 1 shows a Christmas tree 11 with a pre-drilled hole 12 in the cut end part 13 of the stem, such that the Christmas tree 11 is prepared for use together with the invention.

[0048] Similar to Fig. 1, Fig. 2 shows a Christmas tree stand 1 with a base 2 and a fastening member 3, but where the Christmas tree fastening part 4 is partially mounted in the pre-drilled hole 12 of the Christmas tree in the cut end part 13 of the stem. In addition, Fig. 2 shows receiving means 14 on the base 2 intended for reception of the base fastening part 6.

[0049] Similar to Fig. 1, Fig. 3 shows a Christmas tree stand 1 with a base 3 and a fastening member 3, but where the Christmas tree fastening part 4 is completely mounted in the pre-drilled hole 12 of the Christmas tree in the cut end part 13 of the stem. At the centre of the base 2 appear receiving means 14 for receiving the pin on the base fastening part 6. The receiving means 14 are here provided as a bolt with a throughgoing hole for receiving the pin 10. The bolt furthermore has the purpose of holding the base 2 together, something which also will appear on Figs. 6, 7 and 8.

[0050] Fig. 4 shows a Christmas tree stand 1 where a Christmas tree 11 stands substantially in vertical position.

[0051] Fig. 5 shows a Christmas tree stand with a base 2 and an applied fastening member 3, wherein the Christmas tree fastening part 4, the first flange 7, the plastically deformable bending part 5, and the second flange 8 are visible. However, the base fastening part 6 cannot be seen as it is inserted in the receiving means 14.

[0052] Fig. 6 shows a base 2 seen from below with receiving means 14 which are constituted by a bolt, as mentioned above, where the bolt has a length such that it bears on the floor under the base 2. Hereby is achieved that a base 2 that can be centrally reinforced as shown here such that it does not flex under the weight of a Christmas tree.

[0053] Fig. 7 shows a collapsed base 2 as seen from above, and Fig. 8 shows a collapsed base 2 as seen from the side.

[0054] Fig. 9 shows a Christmas tree stand 1 with a base 2 and a fastening member 3 with a water bowl 15, the bottom 16 of the water bowl 15 constituting the flange 7.

Claims

1. A Christmas tree stand (1) with a base (2) and a fastening member (3), the fastening member (3) including a Christmas tree fastening part (4), a plastically deformable bending part (5) and a base fastening part (6), **characterised in that** the fastening member (3) further comprises a first flange (7) between the Christmas tree fastening part (4) and the plastically deformable bending part (5) and additionally a second flange (8) between the plastically deformable bending part (5) and the base fastening part (6)
2. Christmas tree stand (1) according to claim 1, **characterised in that** the Christmas tree stand (1) is in two parts divided into a base (2) and a fastening member (3), the base (2) including means for receiving (14) a base fastening part (6).
3. Christmas tree stand (1) according to claim 1 or 2, **characterised in that** the bending part (5) is made of a material with lower elastic modulus than either of the Christmas tree fastening part (4) and the base fastening part (6).
4. Christmas tree stand (1) according to any of claim 1 to 3, **characterised in that** at least the bending part (5) is at least covered by a material with better elastic properties than the material of the bending part.
5. Christmas tree stand (1) according to any of claim 1 to 4, **characterised in that** the Christmas tree fastening part (4) includes at least one pin (9).

6. Christmas tree stand (1) according to claim 5, **characterised in that** the at least one pin (9) is pointed.
7. Christmas tree stand (1) according to any of claim 5 to 6, **characterised in that** the at least one pin (9) is a stud bolt. 5
8. Christmas tree stand (1) according to any of claim 1 to 7, **characterised in that** the base fastening part (6) includes at least one pin (10). 10
9. Christmas tree stand (1) according to any of claim 1 to 8, **characterised in that** the Christmas tree stand (1) further includes a water bowl (15), the water bowl (15) surrounding the Christmas tree fastening part (4) and including at least a container part that extends from the flange (7) in the same direction as the at least one pin (9). 15
10. Christmas tree stand (1) according to any of claim 1 to 9, **characterised in that** the Christmas tree stand (1) further includes a covering for the fastening member. 20

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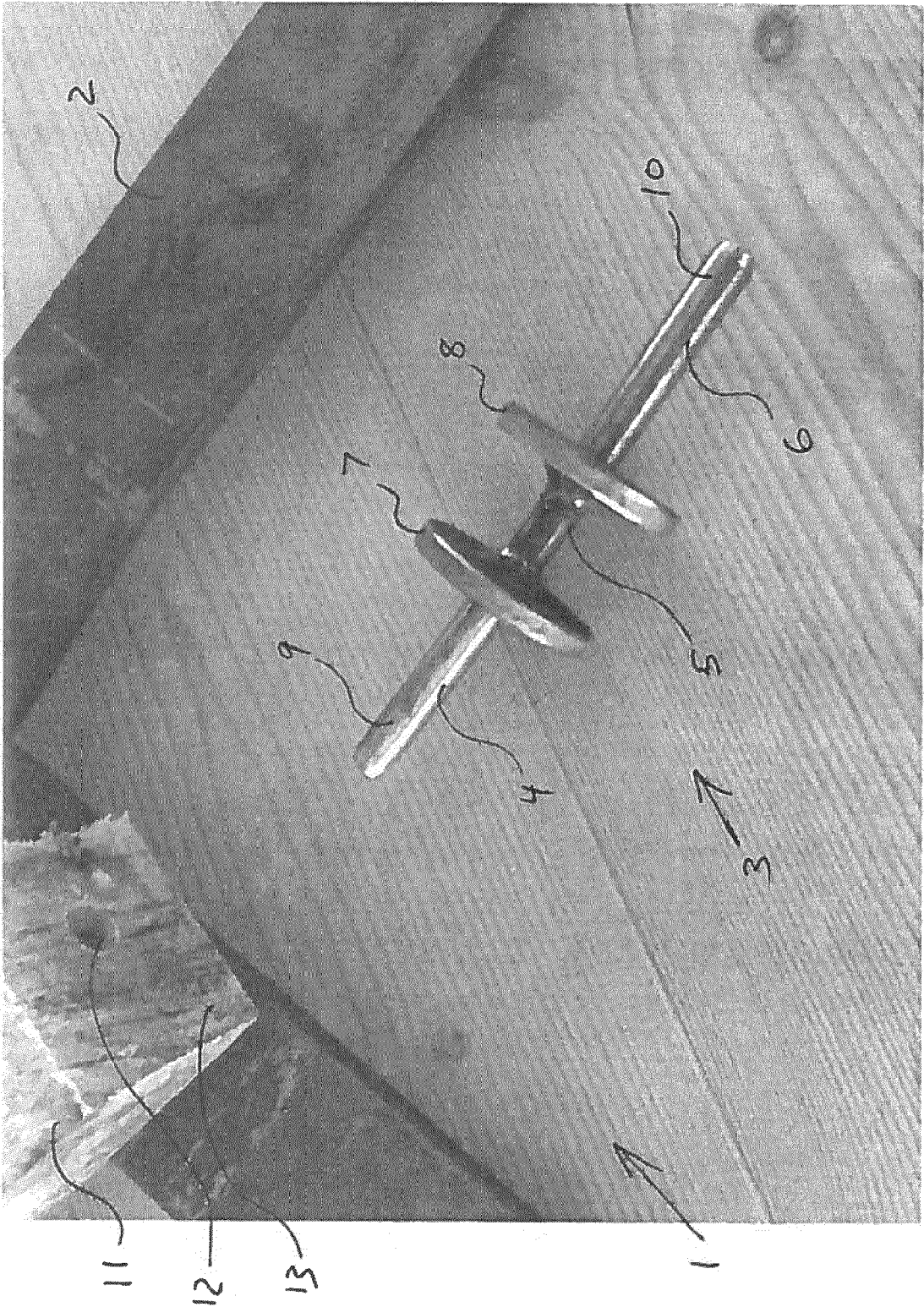


Fig 1

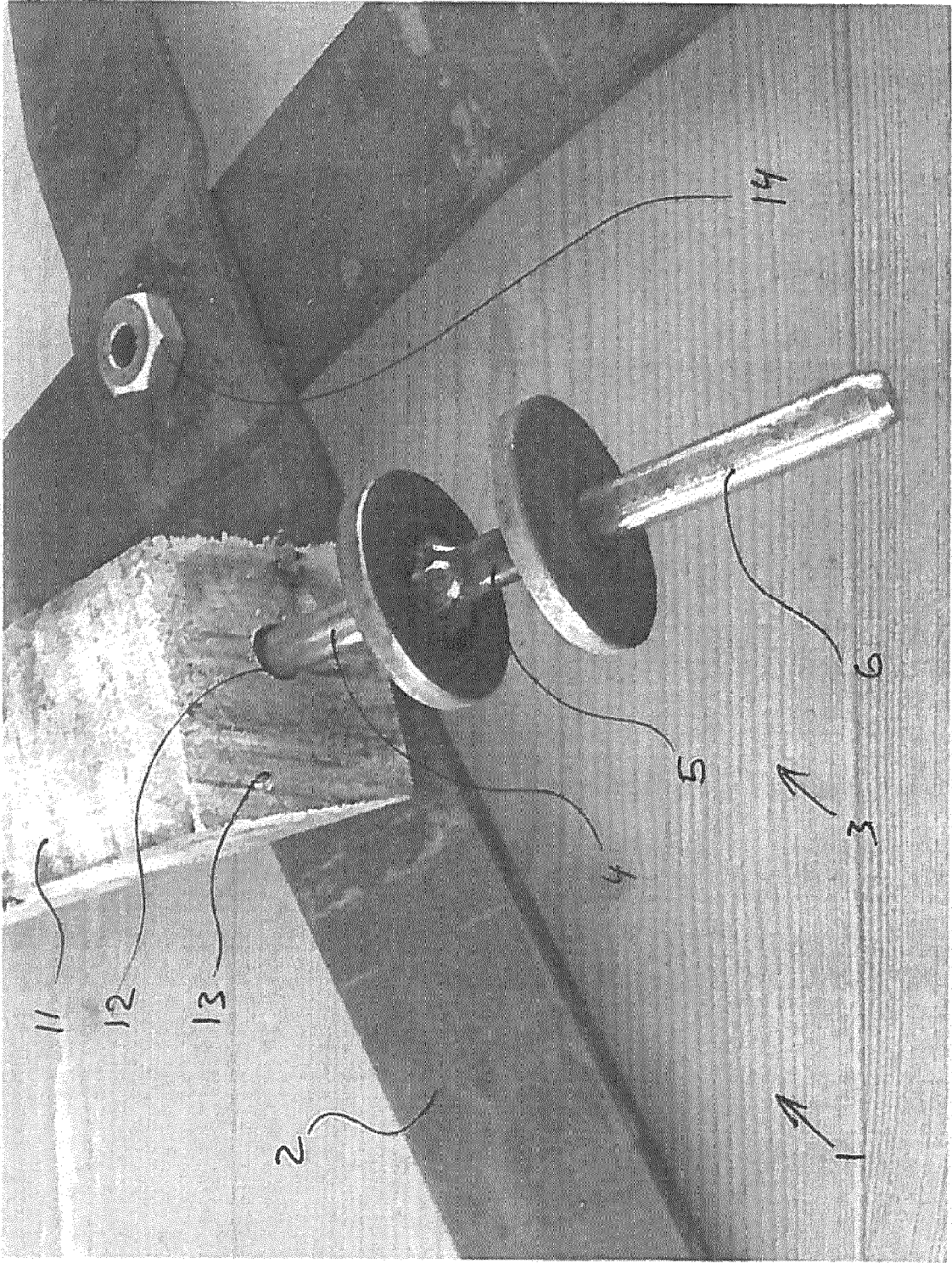


Fig 2

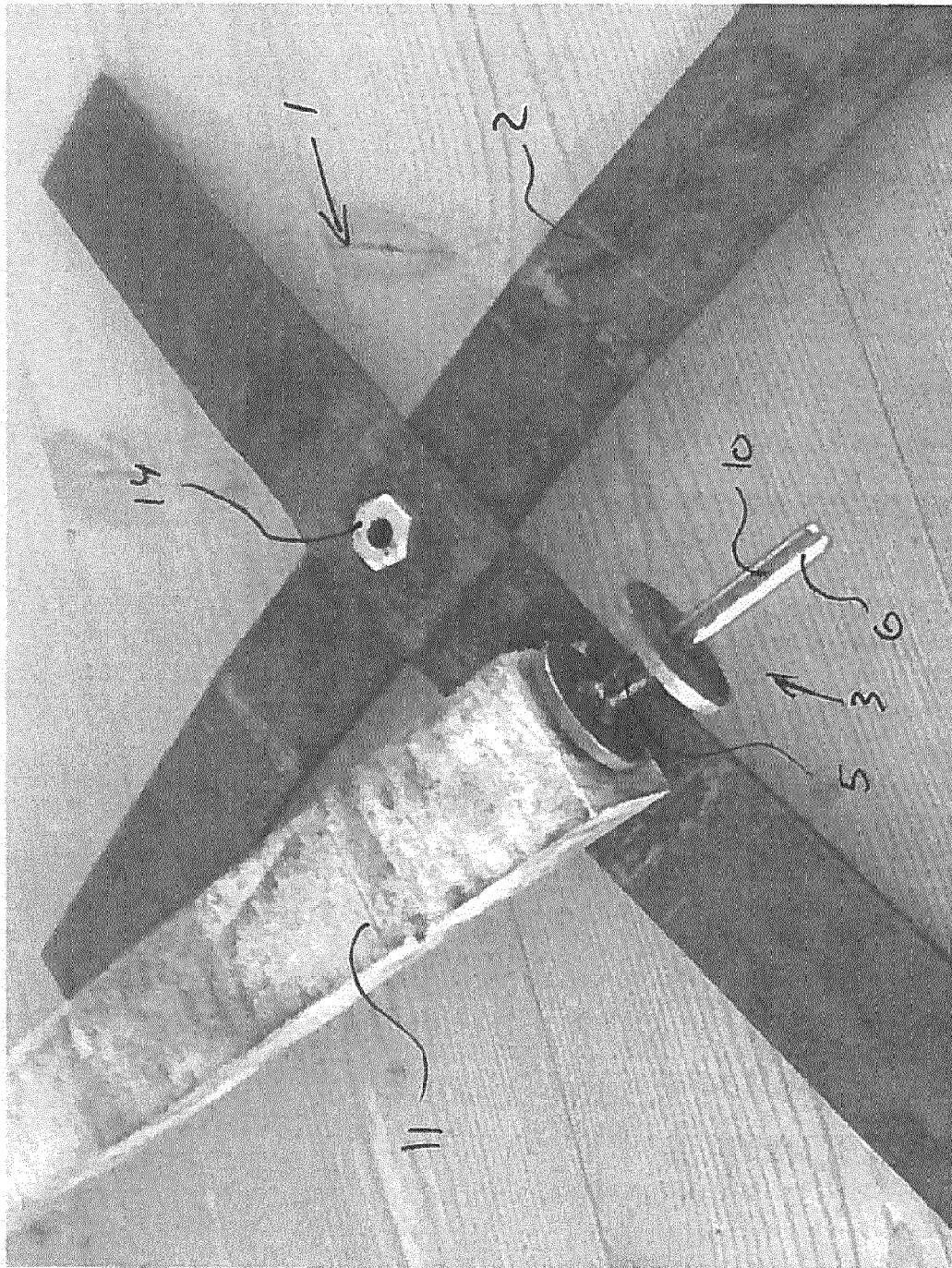


Fig 3

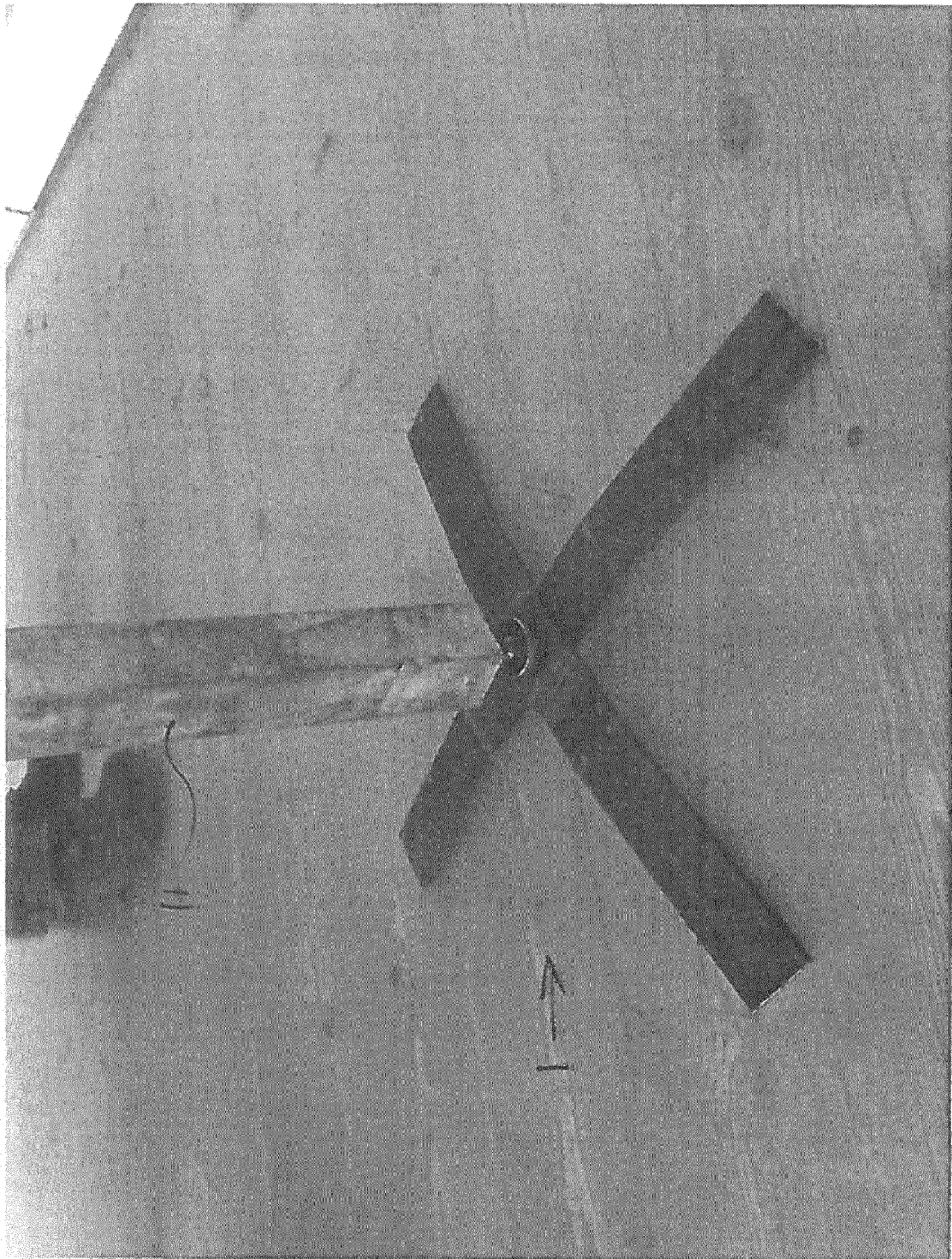


Fig 4

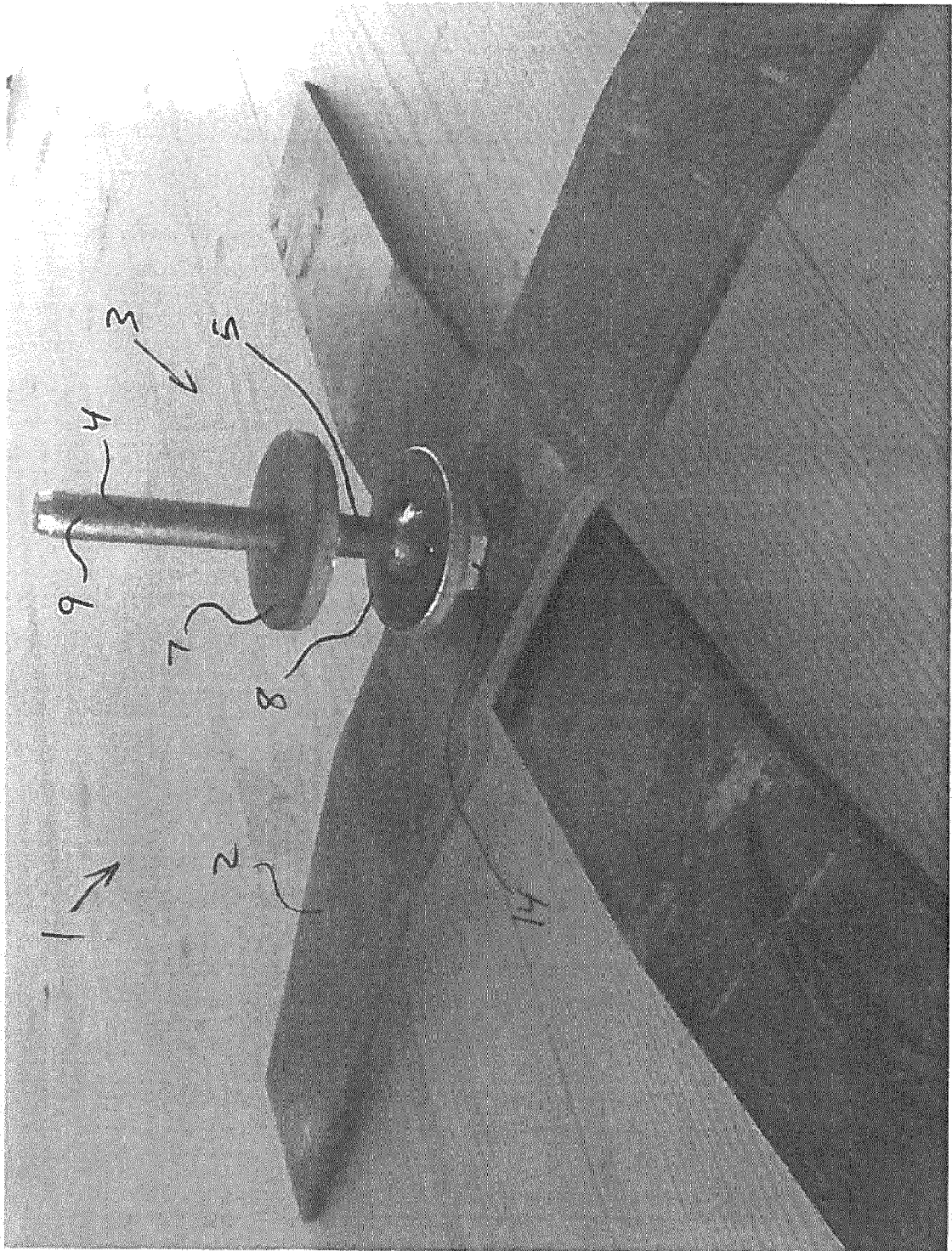


Fig 5

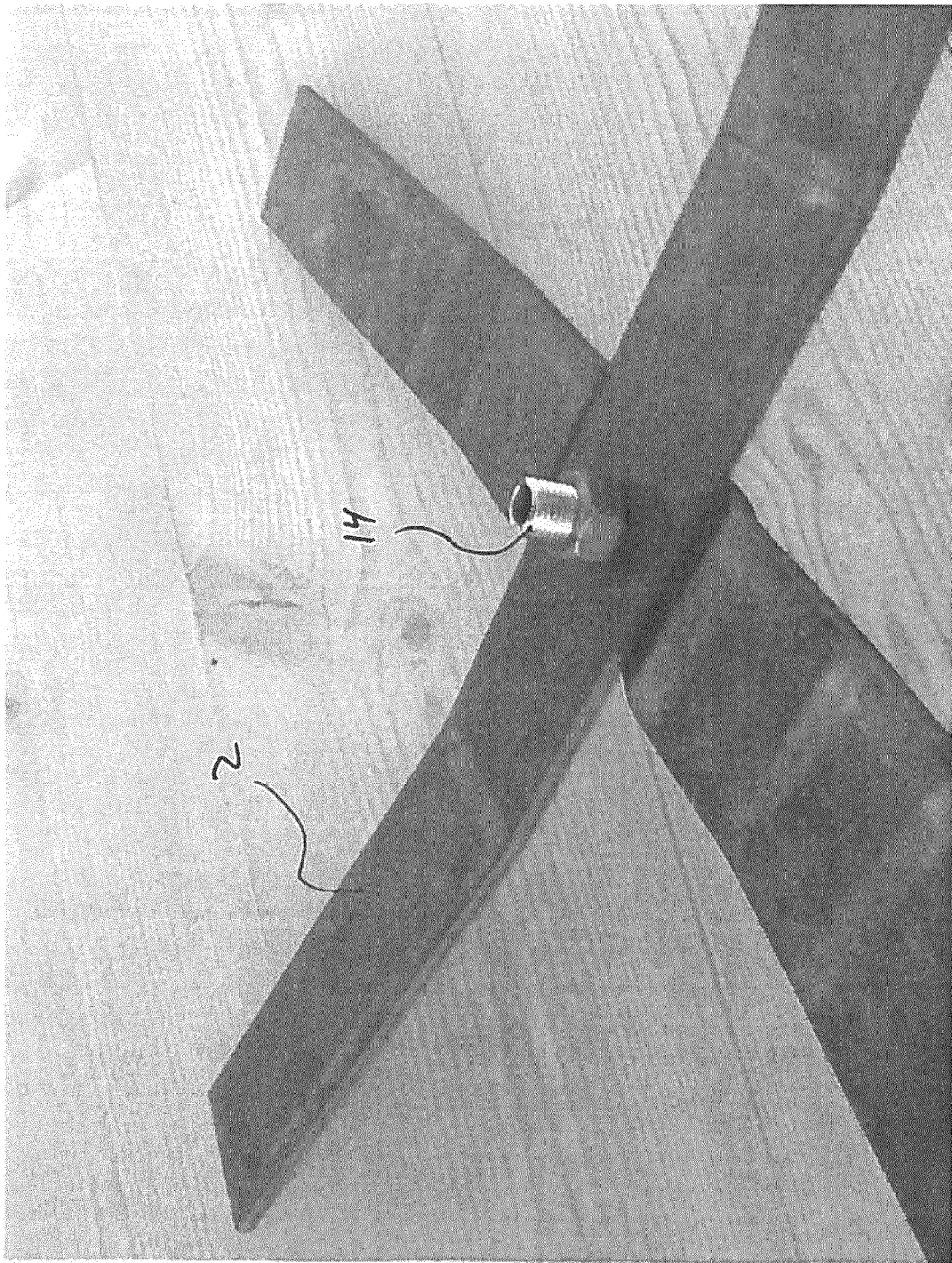


Fig 6

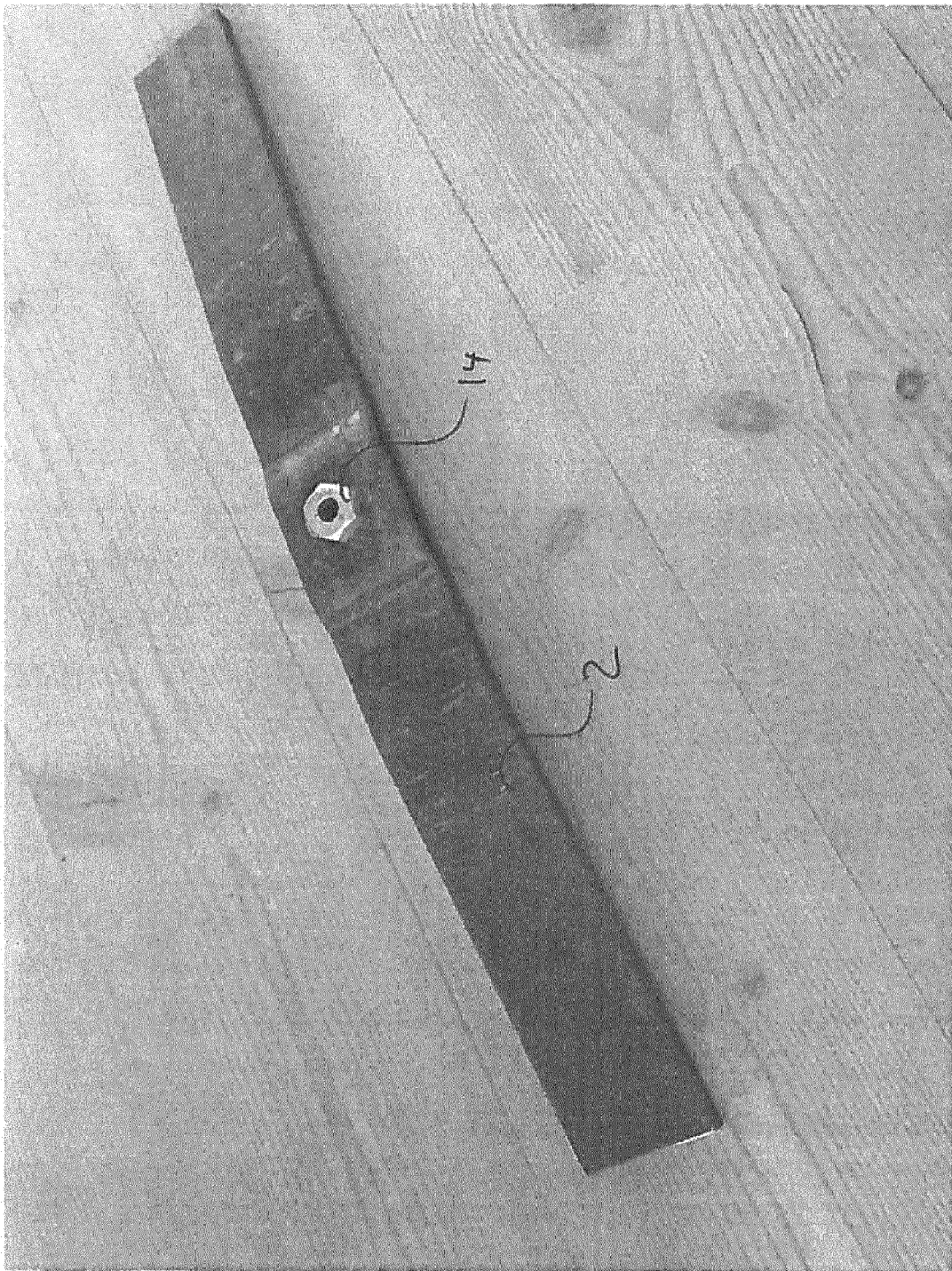


Fig 7

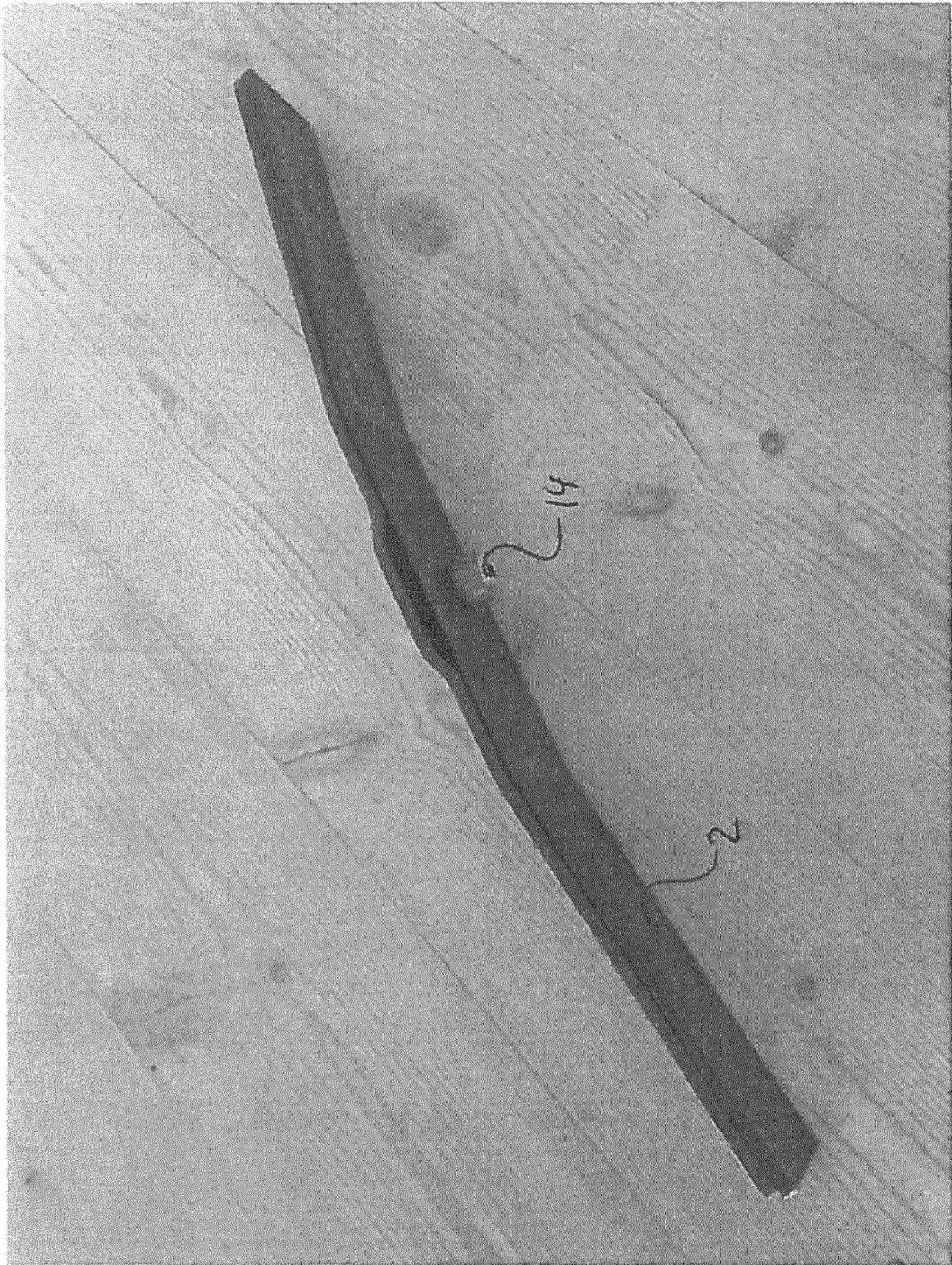
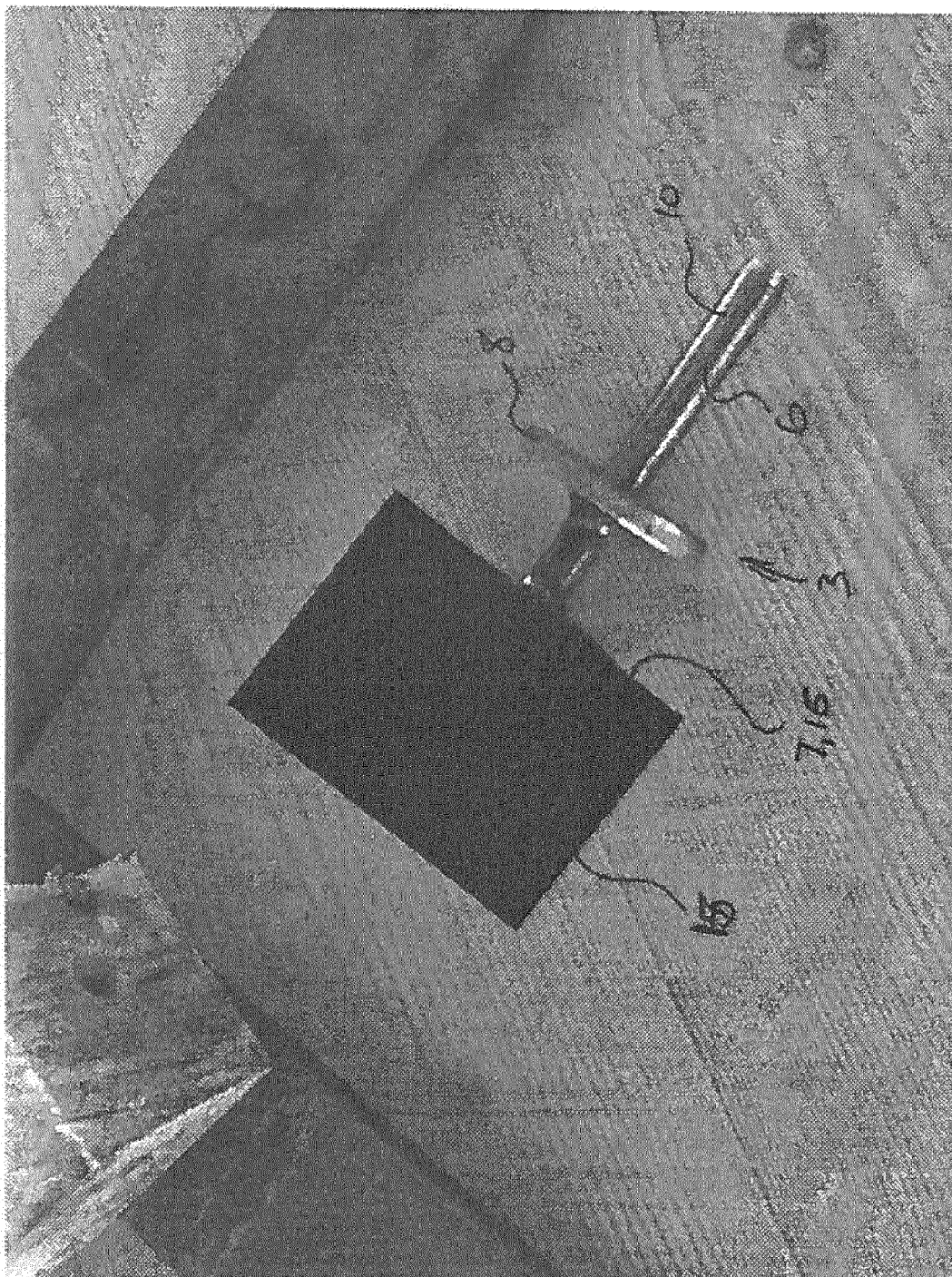


Fig 8



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EUROPEAN SEARCH REPORT

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 5 687 946 A (CHO) 18 November 1997 (1997-11-18) * column 10, last paragraph - column 11, line 5; figures 12B, 16B *	1, 2, 5, 7, 8, 10	INV. A47G33/12
X	WO 2004/113659 A2 (YASHER) 29 December 2004 (2004-12-29) * paragraph [0053]; figures 2, 10, 13 *	1, 2, 5, 8	
A	DE 299 12 464 U1 (KRINNER) 7 October 1999 (1999-10-07) * claim 2; figure 3 *	1-3, 5, 6, 8	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47G
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 15 August 2016	Examiner Beugeling, Leo
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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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The members are as contained in the European Patent Office EDP file on
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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