



**PATENTS ACT 1977**

APPLICANT Kevin Hickey

ISSUE Whether patent application  
number GB 0913355.4 complies  
with section 1(1)(b)

HEARING OFFICER J E Porter

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**DECISION**

**Introduction**

- 1 Patent application GB 0913355.4 entitled "A ladder incline angle indicator" was filed in the name of Mr Kevin Hickey on 31 July 2009. It was published as GB 2 472 258 A on 2 February 2011.
- 2 Following several rounds of correspondence, the applicant has been unable to convince the examiner, Mr Colin Walker, that the invention as claimed involves an inventive step over the prior art and so is patentable in terms of section 1(1)(b).
- 3 The applicant therefore asked to be heard, and the matter came before me at a telephone hearing held on 30 April 2012. Mr Hickey represented himself and the examiner was also present at the hearing.

**The law**

- 4 Section 1(1) deals with the conditions for grant of a patent, and states that:

*A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say -*

  - (a) *the invention is new;*
  - (b) *it involves an inventive step;*

*[other provisions not relevant]*
- 5 Section 3 then sets out how the presence of an inventive step is determined:

*An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).*
- 6 It is well-established that the approach to adopt when assessing whether an

invention involves an inventive step is to work through the steps set out by the Court of Appeal in *Windsurfing*<sup>1</sup> and restated by that Court in *Pozzoli*<sup>2</sup>. These steps are:

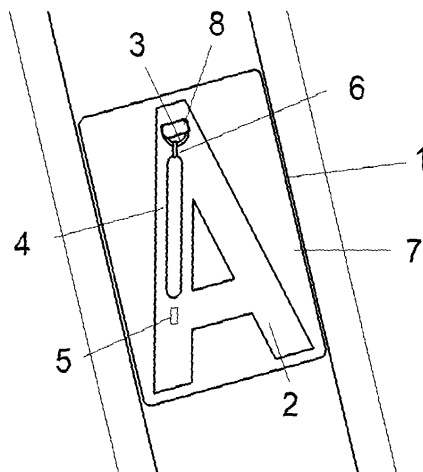
- (1)(a) Identify the notional "person skilled in the art"
- (1)(b) Identify the relevant common general knowledge of that person;
- (2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;
- (3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;
- (4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

7 Mr Hickey made some submissions in respect of the way in which I should approach some of these steps, which I consider as a part of my analysis below.

### The invention

8 The invention is concerned with an indicator to show when a ladder is positioned at the correct, or an acceptable, angle of incline.

9 In particular, the invention involves a weighted indicator under which is presented a symbol. Both the indicator and the symbol are to be mounted onto the side of a ladder. The symbol is presented in the form of a capital letter 'A', and is designed so that the indicator becomes positioned centrally within one limb of the 'A' at the point where the ladder is positioned optimally. The width of the limb of the 'A' is used to indicate the limits of acceptable ladder angle – outside of which the ladder is unsafely positioned. Figure 2 of the drawings illustrates the invention thus:



10 The latest claims set, which was filed on 1 August 2011, comprises one independent claim and four dependent claims. The independent claim reads:

<sup>1</sup> *Windsurfing International Inc. v Tabur Marine (Great Britain) Ltd* [1985] RPC 59

<sup>2</sup> *Pozzoli SpA v BDMO SA* [2007] EWCA Civ 588, [2007] FSR 37

*A ladder incline angle indicator comprising of a distinctive symmetrical character "A" where the peripheral angled edges of the character are equidistant and parallel to angles determined centrally within the character design by symmetrical degrees of angles generally accepted as the correct and safe incline angle for placing ladders against a vertical support, positioned at the upper axis of the angle forming the angled sides of the character is affixed a mounted housing accommodating a semi circular tubular rail with its radial axis in unison with the characters upper axis and affixed at a sufficient distance from the character to permit the rail to guide a tubular weighed indicator connected to the rail by a hoop to prevent frictional drag to travel along the rail unhindered and pointing downwardly by means of gravity and response to movements made during ladder placement, when the angle of ladder placement is correct the indicator will have travelled sufficiently along the rail to align the upper length of the indicator with the upper axis of the character with the lower length of the indicator to align and register with graphic markings made equidistant from the characters angled peripheral edge notifying the user that the correct and safe incline degree angle for placing ladders is achieved, the upper axis of the angle of the character also creating an axis for radius and angles dictating the features and width of the character and the width of the peripheral edges of the character which are limited in distance to permit an acceptable tolerance of the required ladder incline degree angle guiding the user to observe the characters peripheral edge as an additional measurement guide of the tolerance of the correct angle, the character "A" also being positioned and affixed squarely to a rectangular base plate of similar incremented proportion to the character to allow positioning of the ladder incline angle indicator squarely onto the side of a ladder.*

### **Arguments and analysis**

- 11 The examiner maintains that the claims define an invention which does not involve an inventive step, when considered in light of certain identified prior art. His position was set out most recently in his examination report of 14 October 2011, and was reiterated in his report of 17 February 2012. Detailed arguments against the examiner's position are contained in the applicant's responses dated 31 July 2011, 14 December 2011 and 16 April 2012.
- 12 What I must do is determine whether the invention does or does not involve an inventive step, within the meaning of the legislation. To do so, I will work through the *Windsurfing/Pozzoli* steps set out above.

#### Step 1 – identify the notional skilled person and their common general knowledge

- 13 In his examination report of 14 October 2011, the examiner considered the skilled person to be someone "skilled in the art of ladder construction with a particular knowledge of angle indication devices". He went on to attribute to this skilled person common general knowledge which includes "general engineering practices and the standard features of both ladders and angle indication devices". At the hearing, he suggested that the common general knowledge was summed up by the disclosure of the various documents cited as relevant to the present case, which he regarded as showing what was "standard in the art".
- 14 It is clear from Mr Hickey's arguments made in writing and at the hearing that he disagrees with the examiner's assessment of obviousness, and this includes the examiner's assessment of the skilled person and his common general knowledge. However, I was unable to discern any particular alternative view that Mr Hickey put forward specifically in respect of step 1 – other than his view that the skilled person would not arrive at the present invention on the basis of what is already known in the prior art.

- 15 In my view, the examiner is right to identify the notional skilled person as someone who is skilled in ladder construction and related matters, and I agree that this person would be someone with an engineering background or experience. I note that it is well-established from case-law that the notional skilled person is a competent worker who has no inventive ingenuity but is able to make routine workshop developments.
- 16 The common general knowledge of such a person would, it seems to me, include common mechanical engineering principles and techniques, and in particular would comprise knowledge of a variety of fixed and moveable couplings, and their advantages and disadvantages. I am not convinced that his common general knowledge would extend to the content of particular, individual patent specifications.

### Step 2 – identify the inventive concept

- 17 At the hearing, the examiner summarised his view of the inventive concept – which tallied with that set out in his examination report of 28 August 2009. Thus he viewed the inventive concept as a weighted indicator which is connected to a semi-circular rail attached to a surface, where the surface has a character ‘A’ on it, with the top of the ‘A’ located at the semi-circular rail. This character provides a graphical indication of the safe inclination of the ladder, which is when the weighted indicator is within the boundaries of the character ‘A’. In his examination report of 14 October 2011, the examiner also included the point that the weighted indicator is free-swinging and slides along the rail.
- 18 There has been a debate between the examiner and Mr Hickey over whether the present invention comprises a “pendulum” and has a pivot point (of which, more later). However, I did not detect in Mr Hickey’s written or oral submissions any particular disagreement with the assessment of the present invention as set out above, which mentions neither a pendulum nor a pivot point.
- 19 Claim 1 is somewhat lengthy, and there are a number of outstanding objections to claim clarity which remain unresolved – but in my view these do not prevent identification of the inventive concept for the purposes of this decision, which tallies closely with that adopted by the examiner.
- 20 I consider the inventive concept to be a ladder incline angle indicator which comprises a weighted indicator under which is presented a symbol ‘A’, where that symbol is positioned on a rectangular base plate and the indicator is connected via a hoop to a semi-circular rail which is positioned near to the top of the symbol. The indicator hangs downwards and travels along the rail unhindered as the ladder angle changes such that – when the correct ladder angle is obtained – the indicator travels along the rail and is aligned with a marking which is central within a limb of the ‘A’. Furthermore, the width of the limbs of the ‘A’ are used to indicate the limits of acceptable ladder angle.

### Step 3 – identify the differences between the state of the art and the inventive concept

- 21 It is first necessary to consider the disclosures contained in the prior art

documents cited by the examiner, which are listed in paragraph 6 of the examiner's report of 14 October 2011. What those documents disclose does not appear to be in dispute. Most show a variety of ladder inclination indicators, designed to be mounted onto the side of a ladder.

- 22 The simplest arrangements appear to be found in GB 2 296 767 A (Robertson), FR 2 686 938 A1 (Camps) and DE 41 16 852 A1 (Ottowitz). Robertson shows a pivoted arrow mounted on a circular dial attached to the side of a ladder, the dial having a red half and a green half. Camps shows a diamond-shaped indicator pivoting on a pin and which is free to point to marked areas on the ladder side. Ottowitz shows a pointer hanging from a pivot on the ladder's side, which points to a marked scale located either on the ladder side or protruding from it.
- 23 US 5 956 855 (Foss) and US 5 680 707 (Wy-Tech) are slightly more complex devices. Foss discloses an arrow indicator mounted on a pivot, which is free to swing and point to one of two green-coloured "safe zones" indicating the range of safe ladder angles. Both shallower and more steep angles are indicated as unsafe. The whole device is mounted in a rectangular plastic base and shell. Wy-Tech similarly shows a pivoting pointer which can indicate both safe and unsafe inclinations, using a window in the pointer and a coloured zone on the device's face. Again the device is contained in a rectangular housing for mounting on the side of a ladder.
- 24 Also cited by the examiner is US 2 527 972 (Brock), which shows an indicator comprising a pivoting pointer and a fixed scale – although this appears to be designed to indicate when an object is level (the specification refers to leveling "house trailers") rather than indicating a safe angle of incline.
- 25 In the examiner's view, the difference between the prior art disclosures and the inventive concept of the present case resides solely in the mechanism for affixing the weighted indicator. As he sets out in his examination reports of 14 October 2011 and 17 February 2012, he views the prior art mechanisms as each having an indicator which is a freely-swinging pendulum pivoting about an axis located at one end of the indicator. He views the present invention as using a weighted indicator in the form of a pendulum on a rail, which can slide freely along that rail.
- 26 On the specific point about whether the present invention comprises a pendulum, Mr Hickey disagrees strongly. The indicator does not, he says, exhibit pendulum motion in any way – because a pendulum needs a specific point about which it freely swings. His invention doesn't swing but travels along the rail, and this movement cannot properly be characterised as a swinging motion at all.
- 27 The examiner disagrees. His argument is that the indicator swings freely about a notional pivot point which is at the centre of a circle defined by the curvature of the rail. Thus he accepts that the indicator moves along the semi-circular rail, but characterises that motion as pendulum-like motion about the notional pivot point, which is located some way above the rail itself.
- 28 At the hearing we explored these points in some detail, but in fact I do not think that the debate about whether Mr Hickey's invention amounts to a pendulum or not is central to the matter to be determined. At the hearing, I pointed out to Mr

Hickey that the examiner had tended in other contexts to use the term “weighted indicator” and I asked him if he had any objection to that definition. He confirmed that he did not – rightly in my view – and that is the term I shall use.

- 29 Mr Hickey’s broader point is that his invention takes an entirely different approach to the problem of indicating correct ladder inclination from that set out in the prior art. The cited documents show, he says, a “pendulum-type marker that rotates at a given pivot point” whereas his invention uses the travel of the indicator along the semi-circular rail in response to ladder movement and the force of gravity. Without movement along the rail, he argues, the indicator would not be correctly positioned with respect to the character ‘A’ and so would fail to give a correct indication of the safety (or otherwise) of the ladder angle. Because the weighted indicator does travel along the rail under gravity, it is able to reach the correct point on the rail so that it can hang in a way which is equidistant to the sides of a limb of the ‘A’, thus indicating the correct ladder angle.
- 30 Mr Hickey also points out that the chosen symbol ‘A’ differs completely from the prior art, and that this is about more than just aesthetics – it is necessary for the symbol ‘A’ to have its limbs at the right angles and to be of the right thickness. He also argued that the horizontal bar of the ‘A’ ensured correct alignment of indicator and graphic on the ladder.
- 31 I have considered these arguments carefully, and have reviewed the written exchanges. Having done so, I think it is clear that there are some features which are shared by the present invention and the prior art. Both Mr Hickey’s invention and the prior art devices comprise weighted indicators of some sort, which are free to move with respect to the ladder, and which interact with symbols or scales of some description in order to show either the correct angle or a range of acceptable ladder angles. Furthermore, both Mr Hickey’s invention and the devices of Foss and Wy-Tech are mounted on a rectangular base plate.
- 32 It follows that the difference between the inventive concept identified in step 2 and the prior art is that, in the present invention, the weighted indicator is free to move with respect to the ladder by virtue of being connected via a hoop to a semi-circular rail, such that the indicator can travel along the rail. A further difference is the positioning of the rail near the top of a symbol ‘A’, which is a different symbol from those used in the prior art to indicate the correct or safe range of angles.

Step 4 – is the difference obvious to the skilled person?

- 33 The examiner considers that it would be obvious to the skilled person to use a hoop and rail mechanism to achieve the necessary “free angular motion” of the indicator, in place of the pivoted mechanisms of the prior art.
- 34 One of Mr Hickey’s reasons for disagreeing with this is that he cannot (as he put it in his letter of 31 July 2011) “accept a skilled person within the trade...has arrived at the solution given the patent searches have not revealed such”.
- 35 In patent law terms this argument is a non-starter. An invention not only has to be new (i.e. not done before) but it also has to be inventive (i.e. sufficiently

different from what has been done before). If the claimed invention is not to be found within the prior art, then that tells you it has not been done before. But it does not tell you whether it is sufficiently different from what has been done before. It is new, but it may or may not be inventive – further analysis is required.

- 36 Mr Hickey then set out a number of reasons why he felt his invention was not obvious. He explained how his invention required “four points of alignment” in order to show the correct ladder angle. At the hearing, he identified these four points as: the base of the weighted indicator, the top of the indicator, the point where the indicator joins the rail, and what he called “the axis of the ‘A’”.
- 37 Mr Hickey also argued that the symbol or markers used are of a completely different nature from the prior art, again showing a lack of obviousness. His argument was that the prior art markers indicate rotation, whereas his symbol does not indicate rotation – instead correct ladder position is shown by the movement of the indicator in conjunction with the parallel edges of the ‘A’. His point here is that the ladder angle is only rendered properly if the indicator can move along the rail and so maintain parallel alignment with the limb of the ‘A’. If the weighted indicator was pivoted at the top point of the ‘A’, this would render incorrect indications with relation to the ‘A’ symbol, because at certain angles the indicator would not be in parallel alignment with the relevant limb of the ‘A’.
- 38 I have given these arguments careful thought. With reference to the differences identified in step 3, I will first consider the identified difference of the weighted indicator being free to move with respect to the ladder by virtue of being connected via a hoop to a semi-circular rail, such that the indicator travels along the rail.
- 39 In my view, the skilled person would understand from the prior art and his common general knowledge that it is necessary to fix the weighted indicator in such a way that it is free to move under gravity with respect to the ladder, in order properly to indicate ladder angle. Given his engineering background and common general knowledge, including a variety of fixed and moveable couplings, I am satisfied that he would know that a pin or other pivot affixed to the indicator would be one way of achieving this, but he would also know of other common or standard ways to achieve such a coupling. One such common coupling mechanism would be to hang the indicator on a hoop or rail, not unlike the way in which a key fob may be attached to a key ring, thus achieving the free movement required. Thus the first identified difference is not an inventive one.
- 40 I now turn to the second identified difference, which is the positioning of the rail near the top of a symbol ‘A’. The prior art teaches the skilled person that a suitably-attached weighted indicator can interact with a graphic or scale to show the correct ladder angle or a range of acceptable angles. Therefore, having fixed his indicator to the ladder so that it moves freely using a hoop or rail arrangement, I consider that the skilled person would not be exercising any inventive ingenuity if he were to note the teaching of the prior art and so use some form of symbol to mark the position taken by the weighted indicator when at the optimum angle and at the limits of acceptable or safe angles. That includes the use of the chosen ‘A’ symbol or other such symbols of similar effect.

- 41 As noted earlier, Mr Hickey made a further point at the hearing about the horizontal bar of the symbol 'A' being used to align the base plate correctly on the ladder. However, in my view it would be immediately apparent to the skilled person that it was necessary to fit any inclination device correctly to the ladder in order to get an accurate reading, and he would not be exercising any inventiveness if he chose to make some form of mark on the device to help achieve this alignment.
- 42 It follows that I consider the invention of claim 1 to lack an inventive step.
- 43 Dependant claims 2 and 3 refer to fixing the device to a ladder, either releasably or permanently, by one of a number of conventional means (pressure-sensitive adhesive with release material, moulding, riveted). These claims also refer to construction of the device from conventional materials ("metal, aluminium or plastic"). Claim 4 refers to the indicator and hoop being made of the same materials. None of these features therefore bestow an inventive step.
- 44 Claim 5 refers to "printed graphic indicators equidistant to the peripheral edge" of the symbol 'A', for angle determination. I am not certain if these are the same "graphic markings made equidistant from the characters angled peripheral edge" of claim 1. Whether they are or not, I do not see that they bestow inventiveness on the invention as set out in claim 1.

### **Conclusion**

- 45 Mr Hickey's device is a neatly-designed and aesthetically pleasing one, and the use of the 'A' symbol ties in nicely with his "Anglesafe" brand. But I conclude for the reasons given above that the invention as claimed does not contain an inventive step.
- 46 I can find no further disclosure in the specification upon which patentable claims might be based. I therefore refuse the application under section 18(3) for failure to comply with section 1(1)(b). In the event, it is not necessary for me to consider the outstanding objections to lack of clarity.

### **Appeal**

- 47 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal must be lodged within 28 days.

**Dr J E PORTER**

Deputy Director acting for the Comptroller