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**Datasheet for the decision  
of 7 June 2011**

**Case Number:** T 2208/09 - 3.2.08

**Application Number:** 04290307.0

**Publication Number:** 1447572

**IPC:** F16B 5/04

**Language of the proceedings:** EN

**Title of invention:**

Wire fastening and method of assembly

**Applicant:**

ILLINOIS TOOL WORKS INC.

**Opponent:**

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**Headword:**

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**Relevant legal provisions:**

EPC Art. 56

**Relevant legal provisions (EPC 1973):**

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**Keyword:**

"Inventive step (no)"

**Decisions cited:**

-

**Catchword:**

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Case Number: T 2208/09 - 3.2.08

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.08  
of 7 June 2011

**Appellant:** ILLINOIS TOOL WORKS INC.  
3600 West Lake Avenue  
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**Representative:** Bloch, Gérard  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 12 June 2009  
refusing European patent application  
No. 04290307.0 pursuant to Article 97(2) EPC.

**Composition of the Board:**

**Chairman:** T. Kriner  
**Members:** M. Alvazzi Delfrate  
E. Dufrasne

## Summary of Facts and Submissions

- I. By decision posted on 12 June 2009 the examining division refused European patent application No. 04 290 307.0.
- II. The appellant (applicant) lodged an appeal against this decision on 11 August 2009, paying the appeal fee on the same day. The statement setting out the grounds for appeal was filed on 7 October 2009.
- III. Oral proceedings before the board of appeal were held on 7 June 2011.
- IV. The appellant requested that the appealed decision be set aside and that a patent be granted on the basis of the main request or, in the alternative, of one of the first and second auxiliary requests, all filed with letter dated 7 October 2009.
- V. Claim 1 according to the main request reads as follows:  
  
"A method of securing a wire (2) to a substrate (4) comprising the steps of:  
providing a clip (6) having a substrate side (11) and a wire hole (12);  
feeding the wire (2) into said wire hole (12);  
characterized in that it further comprises the steps of:  
heading said wire (2) to form a wire head (10) that is larger than said wire hole (12);  
positioning said wire head (10) adjacent to said substrate side (11);

positioning said substrate side (11) adjacent to said substrate (4); and  
fastening said member (6) to the substrate (4)."

Claim 1 of the first auxiliary request differs from claim 1 of the main request in that:

- the substrate (4) is a "ceiling" and the clip (6) is a "ceiling clip"; and
- the ceiling clip has "... a wire head recess (14) in said substrate side ..." and the wire head is positioned "... adjacent to said ceiling side (11) in said wire head recess (14)".

Claim 1 of the second auxiliary request differs from claim 1 of the first auxiliary request in that:

- the ceiling clip is "generally flat" and has "a fastener hole";
- the wire head recess is "surrounding said wire hole (12)";
- the wire head is formed by "substantially simultaneously cutting and heading said wire (2) to form a wire head (10) on said ceiling side of said clip";
- the feature that the wire head is larger than the wire hole has been omitted; and
- the fastening is performed "by driving a fastener (8) through said fastener hole (22) into said ceiling (4)".

VI. The following documents are relevant for the present decision:

D2: US-A-5 364 053; and

D3: GB-A-1 482 891.

VII. The arguments of the appellant can be summarised as follows:

The method according to claim 1 of the main request comprised a step according to which the substrate side of the clip is positioned adjacent to the substrate. The term "adjacent" implied that the substrate and the substrate side of the clip had a boundary in common. Even considering the definitions of this term given in the Oxford or Cambridge Online Dictionaries, the clip and the support had to be at least very close to each other. By contrast D2, which represented the most relevant prior art, disclosed a method where the clip was not positioned adjacent to the substrate. According to D2 the clip was arranged on the head of a screw which was not close to the substrate, so that the distance between the substrate and the clip could be adjusted. Therefore, D2 did not disclose said step of claim 1 mentioned above.

Moreover, D2 did not disclose that the clip was fastened to the substrate, since it was possible to move it along the screw, which was the sole element fastened to the substrate.

As it was clear that D2 did not disclose heading the wire either, the method according to claim 1 of the

main request was distinguished from D2 by the features of the characterising part of the claim.

The object to be achieved starting from D2 was to provide a less cumbersome method of securing a wire to a substrate, while better controlling the length of the wire and reducing the stress on the clip. This object was achieved thanks to said distinguishing features, as described in paragraph [0016] of the application. Heading allowed the wire to be secured to the clip in a few, simple and precise steps without the cumbersome steps of looping and wrapping disclosed in D2. Moreover, it made it possible to bring the clip in contact with (i.e. adjacent to) the support. In this way the stress on the clip was reduced in comparison with the arrangement shown in Figure 4 of D2, wherein the clip could bend on the fastener.

Starting from D2 it was not obvious to achieve said object according to claim 1, since this document already disclosed, in Figure 8, an arrangement which avoided looping and wrapping of the wire, namely by soldering it to the clip.

As to D3, this document related to the field of tension wires. Since the wires for hanging suspended ceiling structures, to which D2 related, were not tension wires, the person skilled in the art would not have considered D3. Moreover, even if he had combined the teachings of these two documents, he would not have arrived at the claimed method, since forming a head on the wire shown in Figure 4 of D2 prevented the clip 46 from being positioned adjacent to the substrate.

Therefore, the subject-matter of claim 1 of the main request involved an inventive step.

The subject-matter of claim 1 of the first and second auxiliary requests involved an inventive step for the same reasons. Moreover, the methods claimed in these requests were further distinguished from the method of D2 by the recess for the wire head in the substrate side of the clip (first and second auxiliary requests) and the step of simultaneously cutting and heading the wire (second auxiliary request). These features respectively allowed an accurate positioning of the wire head and increased precision of the length of the wire, as described in paragraphs [0018] and [0038] of the application in suit. Since these features were not taught by the prior art either, the subject-matter of claim 1 of the first and second auxiliary requests involved an inventive step also for these reasons.

## **Reasons for the Decision**

1. The appeal is admissible.
2. Inventive step - main request
  - 2.1 D2 discloses (see Figure 4 and column 8, line 32 to column 9, line 18) a method of securing a wire (40) to a substrate (ceiling) comprising the steps of providing a clip (securement member 46) having a substrate side and a wire hole (51), and feeding the wire into said wire hole (see column 9, line 66 to column 10, line 3).

2.2 In the method described in D2 the clip is attached to the substrate in an adjustable manner by fastener 38, a screw that can be screwed or unscrewed to adjust the distance between the clip and the substrate. Even if some movement of the clip along the screw is possible, this operation is, contrary to the view of the appellant, a fastening step, since the term "fastening" merely indicates that two objects are attached to each other. This is also confirmed by the wording of D2 itself, which describes screw 38 as a fastener, i.e. an element which fastens an object to another one, in this case the clip 46 to the ceiling. Therefore, D2 also discloses the step of fastening the member to the substrate.

2.3 Moreover, the word "adjacent" does not necessarily imply, as argued by the appellant, that two objects share a boundary. The Cambridge Online Dictionary, for instance, defines this term as meaning very near, next to, or touching (emphasis added). The definition given by the Oxford Dictionary Online, according to which "adjacent" means lying near or close to, adjoining, contiguous, bordering, not necessarily touching, is even more explicit. As Figure 4 of D2 shows that the clip and the substrate are next or near to each other, this document also discloses that the substrate side of the clip is positioned adjacent to said substrate.

2.4 Starting from the method disclosed in D2, the object underlying the method of claim 1 of the main request can be seen in avoiding the need to loop and wrap the wire, which is a cumbersome process, while providing good control of the length of the wire (see paragraph [0005]).



This object is achieved by heading said wire to form a wire head that is larger than said wire hole and positioning said wire head adjacent to said substrate side.

Contrary to what has been submitted by the appellant, these features do not reduce the stress on the clip. According to paragraph [0016] of the application this effect is obtained by a small centre-to-centre distance between the wire and the fastener. The claimed method and the method disclosed by D2 do not differ in this respect. Moreover, there is no physical reason why a clip which can bend on the fastener, as shown in Figure 4 of D2, should be subject to greater stress than a clip which is pressed to a substrate. Hence, the object underlying the claimed invention cannot involve the reduction of the stress on the clip.

- 2.5 D3 relates to tension wires, which are wires supported at one end by an anchoring body, with upset heads (see page 1, lines 21-23). Contrary to the opinion of the appellant the wires for hanging suspended ceiling structures shown in D2 are also tension wires, since they are supported by the clip and put under tension by the load of the suspended ceiling structure. Therefore, the person skilled in the art trying to achieve the object above would also have considered the teaching of D3.

This document discloses that providing tension wires with upset heads has been known for a considerable time (see page 1, lines 18-23). For the person skilled in the art it is evident that this technique does not

require looping and wrapping the wire and allows control of the wire length. Hence, D3 rendered it obvious to try to achieve the object above by heading said wire to form a wire head that is larger than said wire hole and positioning said wire head adjacent to said substrate side.

The fact that D2 itself discloses in Figure 8 a different technique which does not require looping and wrapping the wire fails to convince to the contrary, since more than one obvious way of achieving a given object may exist.

The appellant's argument that a combination of the teachings of D2 and D3 would have resulted in an arrangement wherein the clip 46 is not positioned adjacent to the substrate is not convincing either, since, as explained above, the term "adjacent" merely means next or near to each other, as shown in Figure 4 of D2.

In view of the above, the subject-matter of claim 1 of the main request does not involve an inventive step.

3. Inventive step - auxiliary requests

3.1 The subject-matter of claim 1 of the first auxiliary request is further distinguished from D2 by a wire head recess in the substrate side of the clip wherein the wire head is positioned. This feature serves the purpose of allowing an accurate positioning of the wire (see paragraph [0018] of the application in suit).

However, this arrangement is a standard way of positioning a headed wire, which is also suggested by the term "seating surface" in D3 (see page 1, lines 26 to 32) and whose advantages in terms of accurateness of the positioning can be easily foreseen by the person skilled in the art. Therefore, it was obvious to provide said feature for said purpose and the subject-matter of claim 1 of the first auxiliary request does not involve an inventive step.

- 3.2 The subject-matter of claim 1 of the second auxiliary request is further distinguished from D2 by the step of cutting and heading the wire "substantially simultaneously".

According to the appellant this feature provides increased precision of the wire length. However, no reason can be seen why "substantially simultaneously" heading and cutting the wire should increase the precision of its length. Indeed, paragraph [0038] of the application, cited by the appellant, merely states that heading and cutting can be done substantially simultaneously in one simple step at a predetermined position on the wire, which is more precise than looping the wire. Hence, it associates the increase in precision to the cutting and heading as compared to looping and not to the fact that said steps are performed substantially simultaneously.

Therefore, no technical effect can be associated with the step of cutting and heading the wire "substantially simultaneously", which is merely one of the several possible choices for carrying out cutting and heading the wire while applying the teaching of D3. Hence, said

choice was obvious and the subject-matter of claim 1 of the second auxiliary request also does not involve an inventive step.

**Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:

V. Commare

T. Kriner