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**D E C I S I O N**  
**of 22 February 2006**

**Case Number:** T 0502/05 - 3.2.01

**Application Number:** 97121534.8

**Publication Number:** 0836015

**IPC:** F16B 31/04

**Language of the proceedings:** EN

**Title of invention:**

Method of and device for mechanical tensioning of bolts, studs  
and the like

**Applicant:**

Junkers, John K.

**Opponent:**

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**Headword:**

-

**Relevant legal provisions:**

EPC Art. 54(2)

**Keyword:**

"Novelty (no) - all requests"

**Decisions cited:**

-

**Catchword:**

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Case Number: T 0502/05 - 3.2.01

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.01  
of 22 February 2006

**Appellant:** Junkers, John K.  
(Opponent) 8 Stonewall Road  
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**Representative:** Hanson, William Bennett  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 5 October 2004  
refusing European application No. 97121534.8  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** S. Crane  
**Members:** J. Osborne  
S. Hoffmann

## Summary of Facts and Submissions

- I. The appeal is directed against the decision posted 5 October 2004 refusing European patent application 97 12 1534.8.
  
- II. The examining division found that the subject-matter of the independent claims 1 and 7 directed to a method and product respectively did not involve an inventive step with respect to the disclosure of:  
  
D1: US-A-3 565 472.
  
- III. With its statement of grounds of appeal the appellant filed amended claims according to a main and first and second auxiliary requests.
  
- IV. The board summoned the appellant to oral proceedings and in a communication pursuant to Article 11(1) RPBA indicated its provisional opinion *inter alia* that the subject-matter of the independent claims according to the main and first auxiliary requests was not new in comparison with the disclosure of D1.
  
- V. With a letter dated 17 February 2006 the appellant requested that a patent be granted on the basis of claims 1 to 12 according to respective main, first or second auxiliary requests all filed therewith or, as a third auxiliary request, on the basis of only claims 1 to 4 of the second auxiliary request.

VI. On 21 February 2006 the appellant informed the board that it would not attend the oral proceedings. Oral proceedings were held on 22 February 2006 in the appellant's absence.

VII. Claim 1 according to the main request reads:

"A method of elongating and relaxing a stud (1) having an axis and arranged in an object (2), the method comprising the steps of connecting the stud (1) with a first, inner part (4) of a tensioning device which is movable in an axial direction of the stud so as to pull the stud (1) in the axial direction to elongate the stud (1) and thereby to tension it in the object (2) or to reduce the pull on the stud and thereby to relax the stud (1); and connecting the first part (4) with a second, outer part (3) of the tensioning device which is rotatable about said axis; engaging a disc-shaped friction element (5) with the first part (4) so that the second part (3) is not firmly engaged with the friction element (5) but instead is freely turnable relative to the friction element (5) while freely abutting against the latter (5); and applying a force to the parts (3, 4) of the tensioning device whereby the second part (3) is rotated and the first part (4) is moved only in the axial direction to move the stud (1) in the axial direction so as to elongate the stud (1) and apply to the object (2) a clamping force so that the two parts (3, 4), the stud (1) and the friction element (5) cannot rotate or move axially relative to an object (2) surface and vice versa, and a unitary structure is produced with all components which are immovably clamped with one another, characterised in that characterised in that (*sic*) a holding force is

applied by a tool to the first inner part (4) via first engaging means (13) and simultaneously an opposite equal active force is applied by said tool to the second part (3) via second engaging means (8) of the second part so that when the outer part (3) is rotated its surface (10) abuts against the surface (19) of the friction element (5) and is thereby prevented from further axial movement while the inner part (4) is moved only in an axial direction due solely to the co-operation between the threads 11.14 of the outer and inner parts and the friction element (5)."

Claim 1 according to the first auxiliary request is identical to that of the main request.

Claim 1 according to the second auxiliary request differs from that of the main request by the additional wording that the second engaging means are "facing away from the object (a)".

VIII. The appellant's submissions as regards novelty may be summarised as follows:

There are two essential differences between the subject-matter of claim 1 according to the main request and the disclosure of D1. The first is that D1 does not teach the use of a single tool. In the present application a single tool applies a holding force to the first part which directly engages the stud. The same tool applies an active force to the second part which engages with the first part so that with interaction of these features the active and holding forces are equal and opposite. The indications in D1 of how to put into effect what might be considered a

disclosure of a single tool are unclear. The only clear and consistent teaching relates to the use of two tools. The statement in D1 that if the object to which the stud is affixed is static the applied counter-torque must be equal to the active torque is incorrect. The second essential difference is that the components of the device presently claimed interact by friction to prevent the inner sleeve from rotating. The component named in D1 as a washer functions only as a washer and so requires the application of a force by a counter-holding tool whereas the similar component in the application functions as a friction element.

The additional feature in claim 1 according to the second auxiliary request requires engagement at the end portion of the second part and provides the benefit that no space is necessary between adjacent assemblies to permit the tool to be applied to the nut.

### **Reasons for the Decision**

1. The application relates to the tensioning of threaded elements such as studs protruding from the surface of an object. The use of a conventional nut to stretch a stud suffers from the disadvantage that friction in the threads creates torsional stress in the stud. In the device according to the application a stud protruding from a face of an object is isolated from the friction arising from rotation of the nut ("second part") by the presence of an additional ("first") part located between the nut and the stud. This first part is prevented from rotation by engagement with a disc-shaped ("friction") element clamped between the nut and

the object. The operation of the device with equal and opposite forces by a single tool avoids the need for an external abutment for the tool.

*Main request - Novelty*

2. D1 relates to a device for tensioning a stud in an object and which comprises a sleeve forming a first part for threaded engagement on the stud, a nut forming a second part for threaded engagement on the first part and a washer which is non-rotatably connected with the first part and located between the second part and the object. In the embodiment according to figures 4a, 4b the disc-shaped washer is connected to the inner part by splines. In use the device according to D1 causes the first part to move only in an axial direction by virtue of co-operation between the threads of the first and second parts and the action of the washer in preventing rotation of the first part.

2.1 The disclosure of D1 generally refers to the use of two tools, a counter-holding tool for application directly to the washer and a further tool such as a dynamometric wrench for turning the nut. It is explained that if the object which holds the stud is rotatable the application of an excessive counter-holding force will not be problematic since it will merely result in rotation of the object. If, on the other hand, the object is unable to rotate excess torque applied by the counter-holding tool to the washer would cause the sleeve to rotate and apply torque stress to the stud. According to D1, in order to avoid this "the counter-holding torque has to be equal to the torque applied to the nut". A new paragraph then begins with the

statement that this "can be accomplished by a tool, which is connected between the nut and the washer ...". The third and final sentence of the paragraph states "by these arrangements, the nut can be tightened without the usage of any specially arranged counter-holding tool." In the opinion of the board this is a clear disclosure to the skilled person of the simultaneous application of equal and opposite torques by a single tool. Whilst the additional explanations in the second sentence of the paragraph regarding the forces exerted by a single tool operating on both the nut and the sleeve may not be easily understandable, the concept of using the single tool is sufficiently straightforward that the skilled person would not be hindered from putting it into effect. Indeed, the appellant admits that power tools suitable for the purpose are well known.

- 2.2 The appellant argues that D1 contains no disclosure that the washer is a friction element within the meaning of the present claims. Although D1 does not concern itself with the theory behind the operation of the device it is implicit that a frictional force will be generated between the washer and the object when clamped against it by the nut and that the washer therefore will provide additional frictional drag to the sleeve. Indeed, the present patent specification contains no indication of any special features which render the friction element more capable of fulfilling its function than the washer of D1. Since the device according to the present patent and that according to D1 have corresponding constituent parts used in the same way it is implicit that the two devices will function in the same way. This approach applies equally



to the appellant's contention that D1 is incorrect in stating that the counter-holding torque has to be equal to the torque applied to the nut in order to avoid the risk of applying torque to a stud in a static object. As set out above, the patent specification contains no indication of any difference between the device of D1 and that presently claimed which would support the notion that equal and opposite torques are applicable to operation of the presently claimed device but not the prior art.

- 2.3 The board concludes from the above that D1 does disclose a method as defined in claim 1 which therefore lacks novelty. The main request therefore fails.

*Novelty - first auxiliary request*

3. Claim 1 of this request is identical to that of the main request. This request therefore also fails.

*Novelty - second auxiliary request*

4. Claim 1 according to this request contains the additional feature that the location of the second engaging means on the second part are "at the end portion of the second part facing away from the object".

- 4.1 The nut of D1 comprises conventional hexagonal flats which extend essentially the full thickness of the nut between one face directed towards the object and a second face directed away from the object. The wording of the present claim specifies that the engaging means are "at an end portion" which does not require that they extend fully to the end face. Indeed, in the

embodiment in the present patent the "engaging means" are splines which extend away from the end face and which, in practice, would be separated from the end face by a chamfer. It follows that even if the hexagonal flats according to D1 were separated from the end faces by a chamfer, there still would be no distinguishing feature. The flats according to D1 therefore form engaging means "at the end portion of the second part facing away from the object" within the meaning of the claim.

- 4.2 It follows from the above that the additional feature in claim 1 according to this request fails to establish novelty of the subject-matter. This request also therefore must fail.

*Novelty - third auxiliary request*

5. Since claim 1 according to this request is identical to that according to the second auxiliary request the two requests must suffer the same fate.

**Order**

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

The appeal is dismissed.

The Registrar:

The Chairman:

A. Vottner

S. Crane