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**Datasheet for the decision  
of 16 December 2010**

**Case Number:** T 0277/10 - 3.2.07

**Application Number:** 06760441.3

**Publication Number:** 1899112

**IPC:** B25B 15/02

**Language of the proceedings:** EN

**Title of invention:**

Combination driver and combination fastener for hexagonal and lobed-head fastening systems

**Applicant:**

Synthes GmbH

**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 (all requests)"

**Decisions cited:**

-

**Catchword:**

-



Case Number: T 0277/10 - 3.2.07

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.07  
of 16 December 2010

**Appellant:**  
(Applicant)

Synthes GmbH  
Eimattstrasse 3  
CH-4436 Oberdorf (CH)

**Representative:**

Lusuardi, Werther  
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**Decision under appeal:**

Decision of the Examining Division of the  
European Patent Office posted 28 July 2009  
refusing European patent application  
No. 06760441.3 pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** H. Meinders  
**Members:** K. Poalas  
E. DufRASne

## Summary of Facts and Submissions

- I. The appellant (applicant) lodged an appeal against the decision of the Examining Division refusing European patent application 06 760 441.3.
- II. In its decision, the Examining Division held that the subject-matter of claim 1 is not novel over D1 (GB-A-2 353 240).
- III. Oral proceedings before the Board took place on 16 December 2010. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request or, in the alternative, of one of the auxiliary requests I to IV, all filed with letter dated 11 October 2010, or of one of the auxiliary requests V to VII (new), filed during the oral proceedings.

The claims 1 of the main request and the auxiliary requests I to IV and V(new) to VI(new) read as follows:

Main request

"A driver including a shaft defining a longitudinal axis and only one driving tip,  
A) said tip including alternating flutes (20) and crests (30),  
B) each one of the flutes (20) is curved in transverse cross section;  
C) each one of the crests (30) including a first-side surface (32) and an opposing second-side surface (34), each one of the first-side surface (32) and the second-side surface (34) is substantially straight in

transverse cross section; whereby  
D) the flutes (20) are capable of driving a fastener having a lobed recess and the first-side and second-side surfaces (32, 34) of the crests (30) are capable of driving another fastener having a straight-walled, hexagonal recess".

Claim 1 according to the auxiliary request I reads as follows:

"A driver including a shaft defining a longitudinal axis and only one driving tip,  
A) said tip including alternating flutes (20) and crests (30),  
B) each one of the flutes (20) is curved in transverse cross section;  
C) each one of the crests (30) including a first-side surface (32) and an opposing second-side surface (34), each one of the first-side surface (32) and the second-side surface (34) is substantially straight in transverse cross section; whereby  
D) the shape of said flutes (20) is lobed; and  
E) said crests (30) have the shape of truncated lobes so that the crests (30) are configured to engage conventional hexagonal-head fasteners; and wherein  
F) the flutes (20) are capable of driving a fastener having a lobed recess and the first side and the second-side surfaces (32, 34) of the crests (30) are capable of driving another fastener having a straight-walled, hexagonal recess".

Claim 1 according to the auxiliary request II reads as follows:

"A driver including a shaft defining a longitudinal axis and only one driving tip,  
A) said tip including alternating flutes (20) and crests (30),  
B) each one of the flutes (20) is curved in transverse cross section;  
C) each one of the crests (30) including a first-side surface (32) and an opposing second-side surface (34), each one of the first-side surface (32) and the second-side surface (34) is substantially straight in transverse cross section; whereby  
D) said driver has six crests (30); and  
E) said crests (30) have the shape of truncated lobes; and wherein  
F) the flutes (20) are capable of driving a fastener having a lobed recess and the first-side and the second-side surfaces (32, 34) of the crests (30) are capable of driving another fastener having a straight-walled, hexagonal recess".

Claim 1 according to the auxiliary request III reads as follows:

"A driver including a shaft defining a longitudinal axis and only one driving tip,  
A) said tip including alternating flutes (20) and crests (30),  
B) each one of the flutes (20) is curved in transverse cross section;  
C) each one of the crests (30) including a first-side surface (32) and an opposing second-side surface (34), each one of the first-side surface (32) and the second-side surface (34) is substantially straight in transverse cross section; whereby

- D) said driver has six crests (30);
- E) said crests (30) have the shape of truncated lobes;
- F) each of the first-side surface (32) and second-side surface (34) of said crests (30) form an angle of 120° therebetween; and wherein
- G) the flutes (20) are capable of driving a fastener having a lobed recess and the first-side and the second-side surfaces (32, 34) of the crests (30) are capable of driving another fastener having a straight-walled, hexagonal recess".

Claim 1 according to the auxiliary request IV reads as follows:

- "A driver including a shaft defining a longitudinal axis and only one driving tip,
- A) said tip including alternating flutes (20) and crests (30),
  - B) each one of the flutes (20) is curved in transverse cross section;
  - C) each one of the crests (30) including a first-side surface (32) and an opposing second-side surface (34), each one of the first-side surface (32) and the second-side surface (34) is substantially straight in transverse cross section;
  - D) the flutes (20) are capable of driving a fastener having a lobed recess and the first-side and the second-side surfaces (32, 34) of the crests (30) are capable of driving another fastener having a straight-walled, hexagonal recess;
  - E) each one of the flutes (20) including a first-side portion (22) and a second-side portion (24),
  - F) the flute first-side portions (22) being capable of driving a fastener having a lobed recess during

clockwise rotation and the flute second-side portions (24) are capable of driving a fastener having the lobed recess during counter-clockwise rotation; and  
G) the crest first-side surfaces (32) are capable of driving a fastener having a hexagonal recess during clockwise rotation and the crest second-side surfaces (34) are capable of driving a fastener having a hexagonal recess during counterclockwise rotation".

Claim 1 according to the auxiliary request V (new) reads as follows:

"The combination of a fastener having a lobed recess or a straight-walled, hexagonal recess with a driver including a shaft defining a longitudinal axis and only one driving tip,

A) said tip including alternating flutes (20) and crests (30),

B) each one of the flutes (20) is curved in transverse cross section;

C) each one of the crests (30) including a first-side surface (32) and an opposing second-side surface (34), each one of the first-side surface (32) and the second-side surface (34) is substantially straight in transverse cross section;

whereby

D) the flutes (20) are capable of driving the fastener having a lobed recess and the first-side and second-side surfaces (32, 34) of the crests (30) are capable of driving the fastener having a straight-walled, hexagonal recess, and wherein

E) channels are formed between the fastener and the driver".

Claim 1 according to the auxiliary request VI (new) reads as follows:

"A combination of a first fastener having a lobed recess, a second fastener having a straight-walled, hexagonal recess, and a driver including a shaft defining a longitudinal axis and only one driving tip, A) said tip including alternating flutes (20) and crests (30), B) each one of the flutes (20) is curved in transverse cross section; C) each one of the crests (30) including a first-side surface (32) and an opposing second-side surface (34), each one of the first-side surface (32) and the second-side surface (34) is substantially straight in transverse cross section; whereby D) the flutes (20) are capable of driving the first fastener and the first-side and second-side surfaces (32, 34) of the crests (30) are capable of driving the second fastener".

Claim 1 according to the auxiliary request VII (new) reads as follows:

"A combination of a first fastener having a lobed recess, a second fastener having a straight-walled, hexagonal recess, and a driver including a shaft defining a longitudinal axis and only one driving tip, A) said tip including alternating flutes (20) and crests (30), B) each one of the flutes (20) is curved in transverse cross section; C) each one of the crests (30) including a first-side surface (32) and an opposing second-side surface (34),



each one of the first-side surface (32) and the second-side surface (34) is substantially straight in transverse cross section;

whereby

D) the flutes (20) are capable of driving the first fastener and the first-side and second-side surfaces (32, 34) of the crests (30) are capable of driving the second fastener, and

E) channels are formed between the fastener and the driver".

IV. The appellant argued essentially as follows:

*Formal issues*

The basis of the decision appealed is defective because the cited communication dated 24 April 2003 was not pertaining to the European examination but had been issued during the international phase under the PCT.

The assertion in point I.4 of the decision appealed regarding the amendments to the claims does not mention the second independent claim 17 which indeed had been changed.

*Claim 1 of the main request - Inventive step,  
Article 56 EPC*

The driver according to claim 1 of the main request differs from the driver 30A shown in figure 5 of D1 in that the flutes are curved in transverse cross section. The presence of curved flutes is a prerequisite for using the driver for fasteners having a lobed socket, ie. a Torx® socket.

The problem to be solved can be seen in modifying the driver 30A of D1 so that its driver tip becomes capable of driving fasteners having either a hexagonal socket or a lobed socket, i.e. a Torx® socket.

D1 is, however, directed to an adaptor for a ratchet spanner using for each type of fastener a distinct driver having only one appropriate driver tip. The skilled person finds no incentive in D1 to use the driver 30A shown in figure 5 as a double-functioning driver tip.

*Claim 1 of the auxiliary requests I to IV - Inventive step, Article 56 EPC*

For the same reasons as argued for claim 1 according to the main request the subject-matter of claim 1 of each of said requests involves an inventive step.

*Claim 1 of auxiliary request V (new) - Inventive step, Article 56 EPC*

There is no indication in D1 to a design of the driver tip which forms channels between the driver tip and the recess in the fastener, nor to providing the driver according to claim 1 in combination with either a fastener having a lobed recess or a fastener having a straight-walled, hexagonal recess.

*Claim 1 of auxiliary request VI (new) - Inventive step,  
Article 56 EPC*

In addition there is no hint in D1 to provide the driver according to claim 1 in combination with a fastener having a lobed recess as well as a fastener having a straight-walled, hexagonal recess.

*Claim 1 of auxiliary request VII (new) - Inventive step,  
Article 56 EPC*

There is no indication in D1 to form channels between the driver tip and the fastener recess, nor to providing the driver according to claim 1 in combination with a fastener having a lobed recess as well as a fastener having a straight-walled, hexagonal recess.

- V. The arguments of the Board as presented in its annex to the summons to oral proceedings and in the oral proceedings are as given below.

## **Reasons for the decision**

### 1. *Formal issues*

- 1.1 Since the present application has a priority date of 27 May 2006 it is an obvious clerical error present in Section I.3 of the impugned decision stating that the first communication was dated 29 April 2003 instead of the correct 11 April 2008.

The Board considers that this obvious clerical error has no relevance or influence with respect to the decision finding process of the examining division, nor with respect to the impugned decision itself.

Further, the reference in this communication under Article 94(3) EPC to the (extensive) objections made previously, in the International Preliminary Examination Report, meets with no objection, see the case law of the Boards of Appeal, 6th edition, 2010, Chapter VII.B.2.6. The same holds true for the refusal of the application after only one such communication, if no substantive amendments are made to the claim (*ibidem*).

1.2 The appellant's argument concerning the not-mentioning of the amendments made in claim 17 is also of no relevance for the impugned decision since the latter is based only on lack of novelty of the subject-matter of claim 1, as is the present decision.

2. *Claim 1 of the main request - Inventive step, Article 56 EPC*

2.1 The Board finds that from figure 5 and its relevant text on page 7 of D1 it is not unambiguously derivable that the flutes of the driver 30A are curved in transverse cross section. As a consequence thereof the Board finds that the subject-matter of claim 1 is novel over said driver 30A. Independently thereof it finds, however, that said flutes are to be seen by the person skilled in the art as being capable of driving a fastener having a lobed recess. Contrary to the appellant's view, it would make no sense to have flutes

in the sides of an otherwise hexagonal key, if it were not for having the second function of also driving such fasteners. Figure 5 of D1 shows on the one hand the classical hexagonal driver 30 with a hexagonal cross-section over its full length and on the other hand the hexagonal driver 30A with its tip remaining on the one hand hexagonal with six straight-walled crests, but also having six flutes in the flat sides of the driver. The person skilled in the art recognises that the structural difference between the classical hexagonal driver 30 and the hexagonal fluted driver 30A lies in the technical function of the latter, namely the possibility of also driving fasteners with a socket other than an hexagonal one, namely one with a 6-lobed recess.

- 2.2 The driver according to claim 1 therefore differs from the driver 30A only in that each one of the flutes is curved in transverse cross section.

This additional feature allows the driver to properly drive fasteners having a Torx® socket.

- 2.3 The problem to be solved can therefore be seen in assuring that the driver 30A properly drives also fasteners having a Torx® socket.

- 2.4 For the skilled person, figure 7 of D1 shows a cylindrical driver 30D with a cross-shaped driving tip having four straight-walled crests and flutes for driving a fastener with a cross-head such as a "Phillips" or "Pozidriv" screw. It also shows driver 30C with a hexagonal driving tip having six curved crests and six curved flutes. It is immediately

apparent to him, and this was also acknowledged by the appellant, that the latter due to its curved flutes, is meant to properly drive a fastener having the well-known Torx® socket.

The skilled person trying to solve the above-mentioned problem would apply said teaching inherently present in the cylindrical driver 30C as shown in figure 7 to the design of the flutes of the hexagonal driver 30A and make said flutes curved in transverse cross-section, without the need to exercise an inventive activity.

- 2.5 The appellant argued that D1 only teaches that for each type of fastener a separate driver has to be used, having only one appropriate driver tip. The skilled person would not be led by said teaching to develop a double-functioning driver tip.

The Board is of a different opinion: the question is not how to develop a double functioning driver tip, as that is already the teaching of the driver tip of the driver 30A, which is the starting point for the discussion of inventive step, see point 2.1 above.

The problem to be solved is therefore less ambitious: how to make the driver capable of **properly** driving a fastener having a Torx® socket, which for the reasons mentioned above does not involve an inventive step.

For this the driver 30C with the curved flutes is the proper solution.

For the above-mentioned reasons the subject-matter of claim 1 does not involve an inventive step and the

requirements of Article 56 EPC are not met.

3. *Claims 1 of the auxiliary requests I to IV - Inventive step, Article 56 EPC*

- 3.1 Claim 1 of auxiliary request I differs from claim 1 according to the main request in that
- D) the shape of the flutes is lobed and
  - E) the crests have the shape of truncated lobes so that the crests are configured to engage conventional hexagonal recess fasteners.

The crests of the hexagonal driving tip 30A shown in figure 5 of D1 have the same shape and the same function as the crests with the shape of truncated lobes shown in figures 6 and 7 of the present application. As they originate from the original hexagonal shape of the driver 30A and have on each side of each crest the remainder of the flat hexagonal sides, they are configured to engage conventional fasteners with a hexagonal recess. The crests of the driving tip 30A shown in figure 5 of D1 therefore anticipate feature E).

The appellant acknowledged that since in the originally filed application no specific definition is given to the expression "lobe"/"lobed", feature D) is actually identical with feature B) of claim 1 stating that "each one of the flutes is curved in transverse cross section".

Therefore, for the same reasons as argued for claim 1 according to the main request the subject-matter of claim 1 of the auxiliary request I does not involve an

inventive step.

- 3.2 Claim 1 of auxiliary request II differs from claim 1 according to the main request in that
- D) the driver has six crests, and
  - E) the crests have the shape of truncated lobes.

The crests of the driver 30A of figure 5 of D1 result from its original hexagonal shape, are therefore six in number and anticipate the above-mentioned feature D). For feature E) the same applies as developed under point 3.1 above.

- 3.3 Claim 1 of auxiliary request III differs from claim 1 according to the main request in that
- D) the driver has six crests,
  - E) the crests have the shape of truncated lobes, and
  - F) each of the first-side surface and second-side surface of the crests form an angle of  $120^\circ$  therebetween.

For features D) and E) the same applies as developed under points 3.2 and 3.1 above, respectively. As the six crests of the driver 30A originate from its regular hexagonal outer shape, their respective first and second sides must form an angle of  $120^\circ$ , anticipating thereby feature F).

- 3.4 Claim 1 of auxiliary request IV differs from claim 1 according to the main request by
- E) each one of the flutes including a first-side portion and a second-side portion,
  - F) the flute first-side portions being capable of driving a fastener having a lobed recess during



clockwise rotation and the flute second-side portions are capable of driving a fastener having a lobed recess during counter-clockwise rotation; and

G) the crest first-side surfaces are capable of driving a fastener having a hexagonal recess during clockwise rotation and the crest second-side surfaces are capable of driving a fastener having a hexagonal recess during counterclockwise rotation.

When the driving tip 30A is provided with flutes being curved in transverse cross-section as discussed for claim 1 of the main request, see points 2.4 and 2.5 above, the flutes of the driving tip 30A will include a first-side portion and a second-side portion (feature E), of which in any case the application does not give any further details. The crests will have the first and second side-surfaces as in feature F), see points 3.1 and 3.3 above. When said driver is used for driving a fastener with a hexagonal recess or a lobed recess, then automatically the first and second side-surfaces of the crests and the first and second side-portions of the flutes of such driver will operate according the above-mentioned features F) and G).

3.5 As a result, the subject-matters of claims 1 of the auxiliary requests II to IV do not involve an inventive step for the above-mentioned reasons.

4. *Claim 1 of auxiliary request V (new) - Inventive step, Article 56 EPC*

Claim 1 of auxiliary request V (new) defines the combination of a fastener having a lobed recess or a straight-walled, hexagonal recess with a driver

according to claim 1 of the main request, with the additional feature E) according to which channels are formed between the fastener and the driver.

When the driving tip 30A is provided with flutes curved in transverse cross-section as discussed in points 2.4 and 2.5 above and said driver is used as expected for driving a fastener with a hexagonal recess respectively a lobed recess, then its flutes, respectively its truncated crests will not be in contact with the inner walls of the hexagonal recess, respectively with the inner corners between the lobes of the lobed recess and thus form automatically a channel, anticipating thereby feature E).

Therefore, for the same reasons as argued for claim 1 according to the main request the driver of claim 1 of the auxiliary request V (new) does not involve an inventive step.

If the non-inventive driver of claim 1 of the auxiliary request V (new) is designed for driving a fastener having either a lobed recess or a straight-walled, hexagonal recess it cannot be inventive to provide such a driver together with either hexagonal fasteners or lobed fasteners, or with a combination of both, for that matter.

Sets of a driver, with appropriate driving tips, and appropriate fasteners are generally known.

Therefore, the subject-matter of claim 1 of auxiliary request V (new) does not involve an inventive step.

5. *Claim 1 of auxiliary request VI (new) - Inventive step, Article 56 EPC*

Claim 1 of auxiliary request VI claims the combination of a fastener having a lobed recess, a fastener having a straight-walled, hexagonal recess with a driver according to claim 1 of the main request.

For the same reasons as argued above for claim 1 according to the main request, see points 2.4 and 2.5 above, the driver of claim 1 of auxiliary request VI (new) does not involve an inventive step.

Providing such a driver together with both types of fasteners is obvious for the reasons mentioned in point 4 above.

Therefore, the subject-matter of claims 1 of auxiliary request VI (new) does not involve an inventive step.

5.1 *Claim 1 of auxiliary request VII (new) - Inventive step, Article 56 EPC*

Claim 1 of auxiliary request VII (new) claims the combination of a fastener having a lobed recess, a fastener having a straight-walled, hexagonal recess with a driver according to claim 1 of the main request, whereby

E) channels are formed between the fastener and the driver.

For the combined reasons as argued above for the claims 1 according to the auxiliary requests V (new)

and VI (new) the subject-matter of claim 1 of auxiliary request VII (new) does not involve an inventive step.

**Order**

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

The appeal is dismissed.

The Registrar:

The Chairman:

G. Nachtigall

H. Meinders