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**Datasheet for the decision  
of 1 June 2007**

**Case Number:** T 0622/06 - 3.2.06

**Application Number:** 98106221.9

**Publication Number:** 0875309

**IPC:** B21D 11/12

**Language of the proceedings:** EN

**Title of invention:**

Perfected bending method for bending machines and relative bending machine

**Patentee:**

M.E.P. Macchine Elettroniche Piegatrici S.p.A.

**Opponent:**

SCHNELL S.p.A.

**Headword:**

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**Relevant legal provisions:**

EPC Art. 123(2), 100(b), 100(a), 54, 56

**Keyword:**

"Amendments contrary to Art. 123(2) EPC (no, after amendment)"

"Sufficient disclosure to carry out the invention as claimed (yes)"

"Novelty and inventive step (yes)"

**Decisions cited:**

T 0175/86, T 0409/91

**Catchword:**

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Case Number: T 0622/06 - 3.2.06

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.06  
of 1 June 2007

**Appellant:**  
(Opponent)

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**Decision under appeal:**

Decision of the Opposition Division of the  
European Patent Office posted 24 February 2006  
rejecting the opposition filed against European  
Patent No. 0875309 pursuant to Article 102(2)  
EPC.

**Composition of the Board:**

**Chairman:** W. Sekretaruk  
**Members:** M. Harrison  
G. Kadner

## Summary of Facts and Submissions

- I. The opponent (appellant) filed an appeal against the opposition division's decision of 24 February 2006 rejecting the opposition against European patent EP-0 875 309, and requested that the patent be revoked.

The following references were cited by the appellant:

D1: CH-336 349

D2: FR-2 553 314

- II. With its summons to oral proceedings, the Board informed the parties of its provisional opinion.
- III. In the oral proceedings of 1 June 2007, the respondent filed a new request including amended independent claims 1 and 3. The respondent requested that the decision under appeal be set aside and that the patent be maintained on the basis of claims 1 to 10 of this request.
- IV. Claim 1 of the application as filed reads as follows:

"Perfected bending system for bending machines employed for the shaping of metal shapes, particularly, but not exclusively, for round pieces (11) used for reinforcement purposes, the bending machines including a working plane (19) cooperating with at least a drawing device (12) including one or more pairs of rolls (15), the rolls (15) having at least a working position ("I") wherein they are closed on the round piece (11) in order to feed it forward, the drawing device (12) cooperating with at least one bending

assembly (13b) arranged downstream thereof and with at least one shearing assembly (14), there also being included possible contrasting means and/or gripping means acting on the round piece (11) at least during the bending step, the system being characterised in that, at the end of the feeding and positioning step of the round piece (11) in correspondence with the relative bending assembly and before the bend is made, the rolls (15) of the drawing device (12) are temporally arranged in an open position ("II") where they do not interfere laterally and are not in contact with the round piece (11) so as to allow the portion which is already bent and located after the bending assembly to fall onto the working plane (19), returning subsequently to the closed working position ("I"), so as to act as a contrasting element to the bending, before the at least one bending assembly (13b) acts on the round piece (11).

- V. Claims 1 and 3 of the request filed in oral proceedings read as follows:

Claim 1:

"Perfected bending method for bending machines employed for the shaping of metal pieces, particularly, but not exclusively, for round pieces (11) used for reinforcement purposes, the bending machines including a working plane (19) cooperating with at least a drawing device (12) including one or more pairs of rolls (15), the rolls (15) having at least a working position ("I") wherein they are closed on the metal piece (11) in order to feed it forward, the drawing device (12) cooperating with at least one bending assembly (13b) arranged downstream of said drawing

device (12) and with at least one shearing assembly (14), there also being included possible contrasting means and/or gripping means acting on said metal piece (11) at least during the bending step, the method comprising the step of feeding and positioning at least one metal piece (11) in correspondence with the relative bending assembly, and the step of bending said metal piece (11), the method being characterized in that, before said bending step, the rolls (15) of the drawing device (12) are temporally arranged in an open position ("II") where they do not interfere laterally and are not in contact with said metal piece (11) so as to allow the portion which is already bent and located after the bending assembly to fall onto the working plane (19), returning subsequently to the closed working position ("I"), so as to act as a contrasting element to the bending, before the at least one bending assembly (13b) acts on said metal piece (11)."

Claim 3:

"Bending machine for metal pieces (11) comprising:

- a working plane (19),
  - at least a drawing device (12) including one or more pair of rolls (15), the rolls (15) having at least a working position ("I") wherein they are closed on the metal piece (11) in order to feed it forward,
  - at least a bending assembly (13a, 13b) arranged downstream of said drawing device (12),
  - at least a shearing assembly (14) cooperating with said drawing device (12) and
  - possible gripping and/or contrasting elements able to act on said metal piece (11) at least during the bending steps,
- characterized in that

said rolls (15) of said drawing device (12) are adapted to be temporally arranged in an open position ("II") where they do not interfere laterally and do not contact with said metal piece (11) and cause the already made and partially lifted bend to fall, due to their own weight, onto said working plane (19), and to return subsequently to the closed working position ("I"), so as to act as a contrasting element to the bending, before the at least one bending assembly (13b) acts on said metal piece (11)."

VI. The appellant's arguments relevant to the decision can be summarised essentially as follows:

Article 123(2) EPC:

(a) The feature "at the end of the feeding and positioning step of the round piece (11) in correspondence with the relative bending assembly and before the bend is made, the rolls (15) of the drawing device are temporally arranged in an open position" (referred to as feature "y3") was present in claim 1 as filed, but was absent from present claim 1 under consideration. No basis existed for its removal. Present claim 1 also defined a difference to claim 1 as filed by use of the words "before said bending step". Present claim 1 thus allowed the piece (11) to be first bent on a different machine and then put in the bending machine of claim 1, whereas claim 1 as filed required a succession of bending steps on the same machine. The same applied to claim 3 under consideration.

(b) The feature "a working plane (19) cooperating with at least a drawing device (12)" (referred to as feature "y1") was not present in claim 3, but was in claim 1 as

filed. Since claim 1 as filed was a "system" claim, the only possible feature for use in a claim to a "machine" stemming from claim 1 had to be a concretely defined structural element. The terminology as filed was unspecific, meaning that Article 69 EPC was required to interpret it, which in turn meant that the description (paragraphs [0028] and [0029] of the granted patent) had to be used for this purpose. With this interpretation, a "limiting element" had to be included in claim 3 if Article 123(2) EPC were not to be contravened.

(c) Claim 1 as filed was a "system" claim. This was amended during prosecution to become both a method claim (claim 1) and a device claim (claim 3). Claim 1 as filed could not be both and thus could not provide protection for both a method and a machine. No support for a machine claim by itself existed. The only description of the machine in the application included a "limiting element". Since this feature was not in claim 3, claim 3 was a generalisation of the structural features implied by claim 1 as filed.

Article 100(b) EPC:

(a) A discrepancy existed between the claims and description, since a "limiting element" was required in the invention according to the description, but was not defined in claim 3.

A "limiting element" was also an essential feature. Lack of an essential feature was objectionable in a granted patent via Article 100(b) EPC as explained in for example T175/86. Moreover, without a limiting

element, there was no guarantee that a metal piece which were released by the drawing device would actually fall on to the working plane. Without a limiting element, the metal piece could not reliably be made with bends in the same plane since it could not be made to reliably fall onto the working plane, and also not in the correct orientation; the underlying problem defined in the patent was then not solved - at least in a very large number of cases. Without a limiting element being defined, the skilled person could thus not carry out the claimed invention. T409/91, page 3, supported the correctness of this objection.

(b) It was also not disclosed how, when a bent piece was held in the drawing device, it could be fed further downstream for additional bending. Although the initial bend could pass through the bending device by being arranged to lie in a vertical plane, this was not disclosed in the patent. A skilled person could not carry out the invention without this additional information.

Article 100(a) EPC:

Claim 3 lacked novelty over D1. Paragraph [0026] of the opposed patent confirmed that the machine of the invention was "conventional", so this meant it was a "known" machine. This was also mentioned by the examining division in its first substantive communication. All the structural features defined in claim 3 were known from D1; the machine of D1 was also suitable, with proper adjustment of the cam system of the device (see page 3, lines 106 to 113 of D1), to perform the purely functional limitations of claim 3. Claim 3 accordingly lacked novelty.



In this regard, the working plane in D1 could be considered as the vertical plane defined by plates 31. Figs. 13 and 14 showed that a wire (f) was bent by the action of projections 33. Any twist of the wire away from the working plane would cause the wire to rise and, when released, to fall under its own weight onto that working plane. As regards the temporal opening action of the rolls of the drawing device and the closing thereof, this was disclosed e.g. in Figs. 3 and 5 and the related description. It was also clear when looking at Fig. 6 of D1 that a screw wheel 24 could be operated manually to clamp and release the wire via the rolls of the drawing device when desired and thus the machine was suitable to perform the functions defined in claim 3, even if it was not described as being used that way. Likewise, although the drawing device with rolls (8, 9) was not originally intended to act as a contrasting element, it was suitable for this.

(b) Regarding inventive step, objections were maintained only against claim 3.

Applying the problem/solution approach, the problem to be solved starting from D1 was to tune the cams in D1 such that a bend in a metal piece could be made subsequently to a previously made bend in the same plane thereof. This problem was a result of twisting forces being stored in the wire due to e.g. forces in the drawing device.

This problem was mentioned in D2 (see page 1, line 36 to page 2, line 10) so that D2 was clearly relevant. The problem was also solved in D2, by the clamps of the

drawing means releasing the wire completely (see page 2, line 31 to page 3, line 13) so as to release the stored twisting forces and then by closing the clamps again to make the next bend and thus allowing the drawing means to act as a contrasting element. Even though clamps were used instead of rolls, this did not alter the teaching of releasing the wire to release any stored tensions. D2 disclosed not only releasing the wire after making the whole article (e.g. a stirrup), but also releasing the wire after making a single bend (see e.g. page 3, line 6). Applying this teaching to D1, the skilled person would arrive at the subject matter of claim 3 without using inventive skill.

Starting from D2, the only difference in claim 3 was the use of grippers instead of rolls. As D2 stated that drawing by rolls was simpler than drawing by grippers, it would be evident to use moveable rolls as in D1.

VII. The respondent's arguments relevant to the decision can be summarised essentially as follows:

Article 123(2) EPC:

(a) The subject matter of feature "y3" was still in claim 1, merely separated into different parts within the claim. A word-for-word correspondence was not required. The disclosure in the patent description only gave a basis for one interpretation; this disclosure had not changed since filing.

(b) Feature "y1" was implicitly present in claim 3; merely the fact that all parts were in the same machine implied that a "cooperation" existed as defined by "y1". Also, claim 3 later defined that the opening of the

drawing device caused the metal piece to fall onto the working plane. Claim 3 additionally contained exactly the same structural limitations as were present in claim 1 as filed. The "limiting element" was merely a preferred feature and was notably in dependent claim 2 as filed, so clearly not essential.

(c) Claim 1 as filed contained both method and device features. Although claim 1 was then split into a method and device claim, this did not change the fact that both a method and device were originally disclosed in the application. The use of functional features to define a device was allowed, and all the functional features of claim 1 as filed remained in present claim 3. Likewise, the method features of present claim 1 were all as originally stated within the system of claim 1.

Article 100(b) EPC:

(a) The "limiting element" was not an essential feature, but merely an auxiliary safety means. The device worked without it and this was evident to a skilled person. The limiting device was only required where a bent portion being fed forwards might rotate, during feeding, through more than 90°. This situation was not the norm.

(b) Different forms of bending devices could be used to allow already bent pieces to be fed through the bending device. The description explained the device and method sufficiently.

Article 100(a) EPC:

(a) Regarding novelty, D1 did not disclose a working plane as defined in claim 3. This plane had to be

suitable to let the bent wire fall onto it when the drawing device was opened. Nothing allowed the bent wire in D1 as shown in Figs. 13 and 14 to fall as defined. The rollers (8, 9) of the drawing device did not act as a contrasting element because they were sprung loaded and nowhere was it stated that the springs were of sufficient force to act as a contrasting element to the force produced by the bending assemblies. Adjustment of the cams and/or operation of parts of the machine of D1 as suggested by the appellant required modification of the machine disclosed in D1. The subject-matter of claim 3 was therefore novel.

(b) Regarding inventive step

It was noted that the appellant had only maintained its arguments against inventive step in the subject matter of claim 3. The problem to be solved was to provide a machine for creating a bend in a wire in the same plane as a previous bend. D2 was not suitable to solve this problem, let alone in the way defined in claim 3. D2 taught the use of clamps and not rolls, so it taught away from the solution in claim 3. Moreover, one clamp had to be permanently in gripping contact with the wire as it was fed forward, which also taught away from the solution in claim 3. In the D2 machine, any stored torsion was only released once the metal piece having one or more bends had been entirely finished and was to be cut. This was a different problem to that in the contested patent where the problem related to the relationship between a previous and a subsequent bend. No disclosure existed of releasing a wire between two bend operations to cause it to fall onto a plane as defined.

D2 was less suitable as a starting point for considering inventive step. D2 involved a different solution entirely whereby the wire was always clamped by at least one clamp between bends so as to prevent any rotation occurring.

## **Reasons for the Decision**

### 1. *Article 123(2) EPC*

- 1.1 The Board concludes that the subject matter of feature "y3" ("at the end of the feeding and positioning step of the round piece (11) in correspondence with the relative bending assembly and before the bend is made, the rolls (15) of the drawing device are temporally arranged in an open position") of claim 1 as filed, is still present in its entirety in claim 1 under consideration.

Firstly, the term "round piece" in filed claim 1 has been replaced by the term "metal piece". The round piece was a preferred feature of filed claim 1 due to the wording "...shaping of metal shapes, particularly, but not exclusively, for round pieces (11)...". This is also supported in the originally filed description (see fifth paragraph on page 1).

Secondly, present claim 1 contains the following terminology: "the step of feeding and positioning at least one metal piece (11) in correspondence with the relative bending assembly," and "before said bending step, the rolls (15) of the drawing device (12) are temporally arranged in an open position ("II") where

they do not interfere laterally and are not in contact with said metal piece (11) so as to allow the portion which is already bent and located after the bending assembly...". Thus, although not worded identically, it is unambiguous from this wording that the opening of the drawing device rolls occurs before the bending step and that the bending step itself refers to the operation performed on the metal piece which itself is already bent and located after the bending assembly. It is further unambiguous that this occurs at the end of the feeding and positioning step, since claim 1 defines explicitly not only feeding and positioning before bending, but also that the rolls are opened to allow a portion to fall, namely a portion which has already been bent, which can only be the portion which is present in the device due to it being fed and positioned.

Thus, the subject matter embedded in feature "y3" is present in its entirety in present claim 1.

The Board does not agree with the appellant's arguments that claim 1 as filed defined a set of steps which is no longer in present claim 1, and that filed claim 1 required all steps to be performed on a single machine. Claim 1 as filed and present claim 1 both allow the theoretical possibility that the metal piece is bent initially on a first machine followed by bending again subsequently on a second machine into which it has been inserted, even though such a construction of the claims would be extremely artificial.

Likewise, regarding the appellant's contention that aspects of feature "y3" are missing also from claim 3,

the Board notes that the machine defined within claim 1 as filed, beyond its explicit structural machine features, merely had to be suitable for the operations defined as being performed on it. The Board however can identify no structural apparatus feature in claim 1 as filed which goes beyond the features already defined in claim 3, since all implied structural elements within "y3" are in claim 3 at least in the form of functional terminology.

- 1.2 Regarding the feature "y1" ("a working plane (19) cooperating with at least a drawing device (12)") objected to by the appellant as lacking from claim 3, the Board notes that the type of "cooperation" required between the two parts is not specified in feature "y1". Thus, the inclusion of the terminology in claim 3 "rolls of said drawing device...in an open position...cause the already made and partially lifted bend to fall, due to their own weight, onto said working plane", which does define a specific cooperation, renders any inclusion of the more general terminology in feature "y1" superfluous.

The appellant has argued that Article 69 EPC requires use of the description to determine which features should be in an apparatus claim in the case of a feature ("cooperating with") which is unspecific and that interpretation of the claim by use of the description leads to the inevitable conclusion that a structural "limiting element" is required in claim 3. The Board however concludes that nothing in the application as filed implies that the "cooperation" in the machine must involve the use of a limiting element (see the explanation in the following paragraph). Thus

there is no reason to investigate the further matter of whether it is appropriate to use Article 69 EPC in this regard, as this approach presupposes the necessity of a limiting element, which is not the case.

Paragraph [0028] of the granted patent (which corresponds to an identical passage in the filed application) cited by the appellant, does indeed start with the words "According to the invention, the bending machine...has an element to limit the lift...". Paragraph [0029] defines further possible features of the limiting element. However, these sections are subsequent to sections indicating that the invention "is set forth and characterised in the main claim, while the dependent claims describe variants of the idea of the main embodiment", it being noted that the feature "limiting element" appears first in dependent claim 2 of the claims as filed. Also, paragraph [0048] of the patent (which also corresponds to an identical passage in the filed application) starts with the wording "The bending machine 10 comprises, in this case, a limiting element 20...". Thus the Board concludes that the skilled person is faced with a disclosure in the filed application which does not present the "limiting element" as an essential feature. Therefore, no need exists to include the feature "limiting element" in claim 3.

- 1.3 Claim 1 as filed is directed to a "system". However, the Board can only conclude that the claim defines features of the machine in addition to method features for using the machine, these latter features also providing functional limitations for the machine itself. The disclosure provided by claim 1 thus gives a basis



for both a method claim and a machine claim. The fact that claim 1 as filed was a system claim, which did not unambiguously provide "protection" for a machine and a method separately of each other, is not an issue which the Board considers relevant in this context, since it is "disclosure" which is the important issue and not what "protection" might be envisaged to be provided by an originally filed claim. Further, claim 2 as filed states "System as in Claim 1, in which the bending machine (10) comprises...", from which it is evident that claim 1 concerned also, within its subject matter, a machine and not only a method of using a machine.

The Board also cannot concur with the appellant's further argument that claim 3 is a generalisation of the structural features implied by filed claim 1. All structural and functional features of the machine within claim 1 as filed have been included in the subject matter of present claim 3. As also mentioned above, the description does not present the feature "limiting element" anyway as being an essential feature for inclusion in a bending machine.

The requirements of Article 123(2) EPC are thus fulfilled.

2. *Article 100(b) EPC*

- 2.1 As explained above with regard to Article 123(2) EPC, the feature "limiting element" is not disclosed in the application as filed as being an essential feature of the machine, nor the method. It thus lacks relevance to consider whether lack of an essential feature would constitute an objection under Article 100(b) EPC.

Decision T175/86 cited by the appellant concerns the case where there was an alleged lack of consistency between the description and the claims relating to different quoted sizes of particulate material, and it was mentioned that, if present, such a lack of clarity (which was essentially objectionable under Article 84 EPC) could lead to an insufficiently clear disclosure for carrying out the invention and thus would possibly be objectionable under Article 83 EPC (Article 100(b) EPC). In the present case however, such a situation does not exist. The skilled person is presented, even in the claims themselves, with sufficient information for carrying out the invention. The disclosure in the description is not contrary to that in the claims, even if some parts of the description describe the process also using a limiting element. The functioning of the limiting element is explained in e.g. paragraphs [0056] to [0058] of the patent and this functions as a means by which the already bent section may not turn through more than 90°. A requirement of independent claims 1 and 3 is not that such a twist must be prevented, nor that reliability of the device is ensured in a way which allows it to master every situation encountered. The skilled person thus realises that the limiting element performs an auxiliary function, since the opening of the rolls of the drawing device alone is sufficient to allow the bent metal piece to fall onto the working plane. Further, even though the machine parts shown in Fig. 1 of the patent include a limiting element, it is readily identifiable that omitting the limiting element therefrom does not prevent the device from operating as claimed. The findings made in T409/91 also do not affect this conclusion, since the subject matter presented to a skilled person on reading the

patent description is not at variance with the subject matter covered by the claims.

Lastly, the appellant's objection that the underlying problem described in the patent (see e.g. paragraphs [0013] and [0014]) would not be solved in a very large number of cases unless a limiting element were present, is also not seen as relevant to the matter of Article 100(b) EPC. Firstly, the appellant has provided no evidence for its allegation that the device would not operate without a limiting element in a large number of cases. Secondly, there is no requirement of the claims that the features therein should be able to solve all different types of bend and twist problems occurring in such a machine.

- 2.2 Regarding the appellant's further objection that it was not disclosed how an already bent piece should be fed further downstream in the machine for additional bending, the Board concludes that it is well within the skilled person's knowledge to know how to arrange this. The bending assemblies shown in the patent could be made retractable below the working plane for example, as is *per se* known in the art. Additionally or alternatively, different bending assemblies could be used which have portions moveable into and out of the path of movement. Bending operations could also be performed in such a way as to leave the initially produced bent portion always downstream of the bending device and by leaving an appropriate spacing between the bending assembly and the drawing device. The appellant's suggested operation requiring the bent portion to lie in a vertical plane so as to pass through e.g. the rolls of the drawing device shown in

Fig. 1 of the patent is merely an alternative and not a requirement.

The Board therefore concludes that the patent presents the skilled person with sufficiently clear and complete information in order to carry out the invention as claimed. The appellant's objections under Article 100(b) EPC therefore do not hold.

### 3. *Article 100(a) EPC*

#### 3.1 Novelty

The Board concludes, as explained below, that the features in the characterizing part of claim 3, which are to be seen in combination, are not disclosed in D1.

The rolls 8, 9 in D1 of the drawing device are suitable to fulfil the definition of being "adapted to be temporally arranged in an open position where they do not interfere laterally and do not contact with said metal piece". However they do not fulfil the latter part of the terminology used for this feature, namely they are not adapted to be opened temporally in such a way that they are able to "cause the already made and partially lifted bend to fall due to its (*sic*) own weight, onto said working plane". This is because in D1 (see e.g. Fig. 1) a shearing device 26 is placed between the bending assemblies and the drawing device. This operates to sever the wire before the bending operation can start (see e.g. page 3, lines 84 to 96 and e.g. Figure 13). Thus no action of the drawing device can have any effect whatsoever on an already made and partially lifted bend. Although the machine of

D1 could be altered, e.g. by changing the cam control system to change the operation of the timing of the severing device, or by removing it for example, this is not within the disclosure of D1. In this regard, the appellant has argued that D1 does disclose such alterations at page 3, lines 106 to 113, since here it is stated that it is workshop practice to make alterations to the cams. However, there is no disclosure within D1 of making a specific alteration to the cam which would be such that it would meet the requirements of claim 3; this would only be possible with hindsight of the alterations required.

Similarly, the drawing device rolls are not suitable to "return subsequently to a closed working position" in such a way as to "act as a contrasting element to the bending, before the at least one bending assembly acts on said metal piece", because the wire on which the bending elements could possibly act is already severed, and is then separated from the drawing device at least by means of the severing device itself. It cannot therefore be in operative contact with the drawing device, since the shearing device necessarily operates before the bending device can operate. Even if *arguendo* the wire were bent elsewhere first (e.g. on a different machine) and then put onto the bending assemblies of D1 in some way, it is not disclosed that the machine is arranged such that this bent piece of wire could bypass the shearing assembly in order that the rolls of the drawing device could act on it in some way. Without adaptation of the machine in D1, this feature of claim 3 is therefore not present in D1.

D1 therefore does not disclose a machine containing the features defined functionally in the characterizing portion of claim 3. The subject matter of claim 1 is therefore new with respect to the disclosure in D1 and the requirements of Article 54 EPC are met.

### 3.2 Inventive step

Starting from D1 as the closest prior art, the Board determines that the problem to be solved is to provide a machine for producing a bend in a metal piece which will lie in the same plane as an already made bend. Although the appellant alleged that the problem to be solved concerned tuning of the cams of D1, the Board considers this not to be objective since tuning of the cams for any particular purpose would require hindsight knowledge of the effect to be obtained.

Although D1 discloses a machine comprising the same features as those defined in the preamble of claim 3, its operation (see also the explanation given above under novelty) involves the activation of a shearing mechanism prior to operation of the bending assemblies. Any cooperation via the wire between the drawing device and the bending assemblies is thus prevented. Any stored torsional forces in the wire, due e.g. to feeding of the wire through the drawing rolls, are released. Thus, no alteration of the drawing device control mechanism in D1, e.g. by tuning the cams as alleged by the appellant, would play a role in solving a problem concerning successive bends being made in a wire, unless the shearing device were also altered in some manner to allow the drawing device to maintain its hold on the wire when the bending assemblies were

operated. No disclosure in D1 itself hints at such a construction. D1 simply feeds a wire, cuts it so that no connection exist with the portion of wire in the drawing device, bends the cut-off piece of wire and then ejects it.

D2 concerns release of a wire after a bend or stirrup has been made (see e.g. page 3, lines 4 to 8), which causes forces accumulated upstream to be released. This occurs immediately prior to, during, or immediately after cutting. D2 contains no indication that the control mechanism should act such that its clamps should both be released after a first bent piece has been forwarded and before a subsequent bend is to be made in the same piece. Where subsequent bends are made, it is apparent that one clamp of the two clamp drawing device must always be in gripping contact with the wire being bent (see e.g. page 2, line 31 to page 3, line 3 or page 4, lines 30 to page 5, line 3) so as to prevent any rotation.

Thus, whilst D2 admittedly solves the problem of releasing certain torsional forces, these are however forces created upstream of the drawing device (see e.g. page 3, lines 3 to 7). The release of forces in D2 is thus conceived for an entirely different purpose, not comparable to the problem underlying the invention. Even if the teaching of D2 were to be combined with D1 in some way without using inventive skill, this would result at best in the roller drawing device (8, 9) of D1 being altered by using the teaching of D2 such that immediately before, during or after the straight wire were cut by shearing device (26), it would be opened to release the forces accumulated in the wire upstream.

This however would occur before any bending took place, since in D1 cutting is required before bending. Further, return of the drawing device of D1 to its closed position would then also not allow the drawing device to act in any way as a contrasting element as the wire will already at that stage have been cut by the shearing device 26. The features in the characterizing portion of claim 3 would thus not be obtained by the combination of D1 and D2.

Since, even for this reason alone, the skilled person would not arrive at the subject matter of claim 3 by combining D2 and D1, the appellant's further argument (that the use of clamps in D2 and not rolls as in D1 was not relevant when considering the underlying teaching of D2 and the definition of rolls in present claim 3) does not need to be considered further.

In regard to D2 as a starting point for considering inventive step, the appellant alleged that D2 showed all features of claim 3 apart from drawing device rolls. However, the appellant failed to identify where all features of claim 3 are disclosed in D2, in particular the functionally defined features in the characterizing portion. The Board itself concludes that the feature combination in the characterizing portion of claim 3 is not known from D2 (even when ignoring the fact that "rolls" are defined). Further, and as mentioned above, D2 relates to a machine in which rotation of the wire is entirely prevented by the alternate gripping actions of the two clamps as the wire is moved forward for successive bending operations, whereby one clamp is always in gripping contact therewith. The clamps are both released only in conjunction with cutting of the



wire after completion of a product (be this a product with a single bend or one with multiple bends) and so the problem which is solved by claim 3 of the opposed patent would not arise in D2, nor does D2 provide a solution. The Board therefore does not concur with the appellant's view that the skilled person would merely need to replace the clamps of D2 by the drawing rolls of D1, since such a replacement would still not allow a skilled person to arrive at a device having all the features of claim 3.

Consequently the Board concludes that the subject matter of claim 3 involves an inventive step and that the requirements of Article 56 EPC are met.

The appellant's objections under Article 100(a) EPC therefore do not hold.

**Order**

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

1. The decision under appeal is set aside.
  
2. The case is remitted to the opposition division with the order to maintain the European patent with claims 1-10 as filed during the oral proceedings, and the description and drawings as granted.

The Registrar:

The Chairman:

M. Patin

W. Sekretaruk