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**Datasheet for the decision
of 19 January 2012**

Case Number: T 0074/10 - 3.2.06
Application Number: 01124348.2
Publication Number: 1174534
IPC: D05B37/02, D05B3/06, D05B19/12,
D05B69/20
Language of the proceedings: EN

Title of invention:

Buttonhole darning sewing machine

Applicant:

JUKI CORPORATION

Opponent:

Dürkopp Adler AG

Headword:

Relevant legal provisions:

EPC Art. 54, 56, 84, 123(2)

Keyword:

Main request - claim 1 not novel; Auxiliary requests 1 and 2 -
late filed, not clearly allowable, not admitted; Auxiliary
request 3 - claim 1 novel and inventive (yes)



Case Number: T0074/10 - 3.2.06

D E C I S I O N
of the Technical Board of Appeal 3.2.06
of 19 January 2012

Appellant: Dürkopp Adler AG
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted 19 November 2009
rejecting the opposition filed against European
patent No. 1174534 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman: M. Harrison
Members: G. de Crignis
W. Sekretaruk

Summary of Facts and Submissions

- I. The opposition against European patent No. 1 174 534 was rejected by the opposition division by way of its decision posted on 19 November 2009.
- II. On 13 January 2010 the appellant (opponent) filed an appeal against this decision. In its grounds of appeal received at the European Patent Office on 29 March 2010, the appellant argued why the subject-matter of claim 1 lacked at least inventive step with respect to D1 DE-C-141227.
- III. In its reply dated 26 July 2010, the respondent (proprietor) provided arguments as to why the subject-matter of claim 1 was both novel and involved an inventive step with respect to D1.
- IV. With its communication of 6 September 2011 sent as an annex to the summons to oral proceedings, the Board gave its provisional opinion, whereby the features regarded by the respondent as being novel over D1 were addressed, it being indicated where these features seemed to find correspondence in D1.
- V. Oral proceedings were held on 19 January 2012.

The appellant requested that the decision under appeal be set aside and that the patent be revoked.

The respondent requested that the appeal be dismissed or the patent be maintained on the basis of the claims of auxiliary request 1, filed 19 December 2011, or with the following documents: claim 1, description column 1, column 2 together with Appendix A, columns 3

- 10, filed as auxiliary request 2 on 19 January 2012, description columns 11 - 73 and drawings Figures 1 - 112 as granted,
or with the following documents: claim 1, description column 1, column 2 together with Appendix A, columns 3 - 73, filed as auxiliary request 3 on 19 January 2012, drawings Figures 1 - 112 as granted.

VI. Claim 1 of the main request (i.e. claim 1 as granted) reads as follows, whereby the lettering (a) to (d) has been inserted by the Board to identify particular features for later reference:

"(a) A buttonhole darning sewing machine in which a buttonhole darning seam comprising right and left side sewing portions to be formed on the right and left side portions of a long and narrow buttonhole and a lock stitch sewing portion to be formed at least in one end portion of each of the right and left side sewing portions is formed, and a buttonhole having a length corresponding to said side sewing portions is formed within said buttonhole darning seam along said side sewing portions by means of a cloth cutting knife (16), characterized by

(b) control means which moves said cloth cutting knife (16) up and down during formation of said side sewing portions of said buttonhole darning seam to thereby form said buttonhole,

(c) by knife downward movement start timing setting means for setting the downward-movement start timing of said cloth cutting knife (16) during formation of said side sewing portions, and

(d) by operation means for operating the downward-movement timing of said cloth cutting knife (16) in accordance not only with the length of said buttonhole

but also with the length of the cutting edge of said cloth cutting knife (16)."

In independent claim 1 of auxiliary request 1, after feature c) and before feature d) the following is added:

"by buttonhole/knife cutting edge length setting means for setting not only the length of said buttonhole but also the length of the cutting edge of said cloth cutting knife (16) and"

Additionally, feature d) is complemented at the end by adding "set by the buttonhole/knife cutting edge length setting means."

Independent claim 1 of auxiliary request 2 differs from claim 1 of auxiliary request 1 in that in the amended feature c), the wording "and further including" replaces the word "by", and in that a comma has been added after the wording "cloth cutting knife (16)".

The sole claim of auxiliary request 3 is the same as that of auxiliary request 2.

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

The subject-matter of claim 1 of the main request concerned a buttonhole darning sewing machine including control means, knife downward-movement start timing setting means and operation means for operating the downward-movement timing of the cloth cutting knife, which means were all only generally defined without any particular limitations having been included. In the prior art, it was also not necessary that such means had to be present in the form of separate distinct means but they could be represented by a combination of

parts of the machine. Therefore, the buttonhole darning sewing machine disclosed in D1 included such means, in the form of segment k, such that the subject-matter of claim 1 was not novel.

The subject-matter of claim 1 of the first auxiliary request was late-filed and should not be admitted. The amendments were not only taken from the wording of claim 2 but included a term originating from paragraph [0047] of the granted patent. This paragraph specified an embodiment which included further features, in particular a CPU and switches. Due to the omission of these features the requirements of Article 123(2) EPC were not met. Additionally the term buttonhole/knife cutting edge length setting means was not clear as it did not specify whether such means were two independent means or whether one setting means for both parameters had to be present (Article 84 EPC 1973).

Dependent claims 2 and 3 of the first auxiliary request corresponded to originally filed claims 3 and 4 which were dependent only on claim 1. The combination with the subject-matter of originally filed claim 2 was not originally disclosed (Article 123(2) EPC).

The second auxiliary request included description passages which were not consistent with the wording of the claim (Article 84 EPC 1973). In view of its late filing during the oral proceedings, such a request should not be admitted into the proceedings.

The subject-matter of claim 1 of the third auxiliary request was not novel. The additional feature of the buttonhole/knife cutting edge length setting means was present in D1 in the form of the segment k which had to be consistent with the length of the buttonhole as well

as with the length of the knife cutting edge length. It thus acted as a setting means since it "set", by being matched to, the buttonhole length and the knife cutting edge length.

When considering the knife downward-movement start timing setting means, the buttonhole/knife cutting edge length setting means and the operation means as necessarily to be represented by separate means, the problem starting from the buttonhole darning sewing machine of D1 was to provide easier adaptation to different lengths of the knife cutting edge and of the buttonhole. The skilled person always had to take into account the length of the buttonhole as well as the length of the knife cutting edge when setting the length of segment k in D1 in order to achieve a correct cut for the buttonhole. No inventive skills were necessary to arrange the buttonhole/knife cutting edge length setting means to be an additional element to the start timing setting means.

VIII. The arguments of the respondent may be summarised as follows:

The subject-matter of claim 1 of the main request concerned a buttonhole darning sewing machine including distinct control means, knife downward-movement start timing setting means and operation means for operating the downward-movement timing of the cloth cutting knife. D1 did not disclose the latter two features (c) and (d) as claimed. First, there were no knife downward movement start timing setting means at all, merely a means (cam m) which at some unknown time during contact of the forward edge of the gradual gradient of segment k with the lower end of lever f, would cause the knife to start moving either upwards or downwards. As regards

feature (d), the cutting knife in D1 was disclosed as being insignificant in the feed direction and was intended for a plurality of discrete cuts both when rising and falling whereas the patent in suit concerned a cutting knife having a significant extension such that the length of the knife had to be taken into account as specified in feature (d). Feature (d) of the claim was also not fulfilled in D1 because an alteration of the length of the knife cutting edge or the button hole length had no effect with regard to the timing of the downward movement. Additionally, the adjustability of the segment k in D1 was not clearly disclosed in a way that enabled a skilled person to carry out this feature. Therefore, the subject-matter of claim 1 was novel.

The subject-matter of claim 1 of the first auxiliary request was filed in reply to the communication of the Board and should be admitted. The amendments concerned the insertion of the wording of claim 2 into the subject-matter of claim 1 and the insertion of a term originating from paragraph [0046] of the patent application. This paragraph described an embodiment which included merely optionally the features of switches and a CPU. Hence, the omission of these features was allowable without contravening Article 123(2) EPC. Additionally, the term buttonhole/knife cutting edge length setting means was clear as it specified specific means which allowed setting, in the sewing machine, of both the length of the knife cutting edge as well as the length of the buttonhole (Article 84 EPC 1973); in particular, the amendment to feature (c) merely involved the inclusion essentially of claim 2 as granted, while the amendment in feature (d) merely referred back to the same elements defined in feature

(c), whereby neither amendment should be open to an objection under lack of clarity.

The subject-matter of claim 1 of the first auxiliary request was novel. No specific buttonhole/knife cutting edge length setting means was disclosed in D1. The problem when starting from D1 was to provide an easier adaptation of the machine to take account of two different parameters, namely the length of the knife cutting edge and the length of the buttonhole. Both lengths could be chosen and set in the claimed setting means which was a further means compared to the knife downward-movement start timing setting means. The skilled person had no incentive to address such a problem since D1 clearly taught away from changing the cutting edge length and no setting means anyway were suggested. The lengths of the knife cutting edge and of the buttonhole could, at best, be understood as being pre-set in the form of a single segment k according to the teaching of D1. Hence, any setting means in the machine of D1 would be superfluous and the skilled person would not even consider such a possibility.

The subject-matter of claim 1 of the second auxiliary request was further amended by expressing more clearly the independence of the buttonhole/knife cutting edge length setting means from the knife downward-movement start timing setting means. No such independent means were disclosed in D1. Additionally the dependent claims had been deleted in the second auxiliary request. The description has been amended to be consistent with the wording of claim 1, whereby adaptation of the description to be consistent with claim 1 had been done by referring to aspects of a sewing machine rather than to aspects of the invention.

The third auxiliary request removed reference to aspects of the invention which the Board considered inconsistent, as well as removing other inconsistencies to which objection had been made.

Reasons for the Decision

1. Main Request - Novelty

- 1.1 D1 discloses a buttonhole cutting mechanism in a darning sewing machine in which a relatively narrow knife (as seen in the feeding direction of the material) continuously creates, when activated, discrete cuts either before forming the first side sewing portion or after beginning of the second side sewing portion (see e.g. page 1, lines 1 to 26). The overall design of the machine is shown in Figures 1 to 4 of D1. The cloth cutting knife a is movable via levers f and c which are linked via pivoting axis d. The movement of the levers is initiated by segment k (which is positioned on an indexing disk i) via a push rod o and a gear p.

- 1.2 In D1, the disclosure of features a) and b) of claim 1 (see the feature-by-feature split in item VI above) was not a matter of dispute between the parties, nor does the Board find any reason to find differently in this regard. The disclosure in D1 of features c) and d) of claim 1 has however been a matter of dispute between the parties, it being noted that the Board had already expressed its opinion in the annex to the summons that the features of "knife downward movement start timing setting means" and "operation means" such as defined in claim 1 by features (c) and (d), appeared to correspond

to segment k when considering its action and the way the machine of D1 operated.

- 1.3 D1 refers to the length of the segment k as being of a length and adjustable in order to be consistent with the length of the buttonhole (page 2, lines 4 to 7 and 44 to 47). Functionally, the length of segment k determines the time duration in which the cutting action is performed. Segment k includes a front corner (see Figure 2) which initiates the movement of the knife a and thus corresponds to a knife movement start timing setting means.
- 1.4 Concerning this issue, the respondent considered the claimed knife downward-movement start timing setting means as defined in claim 1, only to concern explicitly the start timing of the downward movement whereas in D1 the front edge of segment k provides a start timing for the reciprocating movement without specifying which movement (upward or downward) started first, due to an unknown rotational position of a cam m which causes, via lever c, the knife a to be driven.
- 1.5 In this respect the wording of feature c) in claim 1 requires that the start for the timing of the downward movement is set "during" formation of the side sewing portions. Accordingly no exact point in time is claimed for the start of the downward movement and hence only the beginning of the downward movement of the knife "during" formation of the side sewing portions is claimed. In view of such generally claimed start timing setting means, the Board concludes that the corner of segment k disclosed in D1 corresponds to the knife downward movement start timing setting means of the patent in suit since via the start of the reciprocating

movement it also initiates the start of the downward movement during formation of the side sewing portions.

1.6 D1 discloses further that after the cutting action has been initiated, levers c and f cooperate in their motions around pivot axes d and g and maintain the cutting action for as long as the segment k is in the corresponding angular position. Hence, the combination of all these parts interacts according to the teaching of D1 as operation means for operating the movement timing of the cloth cutting knife and hence correspond to the operation means claimed in feature d) of claim 1.

1.7 On this issue, the respondent considered that no such means were disclosed in D1 and in particular that the segment k was independent of the length of the knife cutting edge, since a change in knife cutting edge length would seemingly not alter when the downward movement timing should start.

1.8 According to D1 the length of segment k determines the time during which the cutting action takes place and thus has - mandatorily - to be chosen dependent on the length of the desired buttonhole (e.g. in order to cut the required length and not a greater length for instance). Implicitly, the length of the segment k necessarily has to be consistent with the pre-set length of the cutting edge of the knife blade in order to arrive at a correctly cut hole. D1 (page 2, lines 4 - 7) discloses in this respect that the length of the segment k is adjustable and is dimensioned such that the knife a cuts into the cloth for a length of time corresponding to the length of the buttonhole (*"Die Länge des Segments k ist verstellbar und so bemessen, dass das Messer a so lange in den Stoff einsticht, als*

es der Länge des Knopfloches entspricht.") and that as soon as the buttonhole length changes, the segment k is correspondingly adjusted, so that the knife cuts through again by the corresponding length" ("sobald die Knopflochgröße sich verändert, wird nur das Segment k entsprechend verstellt, so dass nun auch das Messer den Stoff auf die entsprechende Länge durchschneidet." (page 2, lines 44 - 47)).

Hence, a skilled person must construct segment k by taking these dependencies into account since the correct cut of the buttonhole is directly dependent thereon.

1.9 Accordingly, in D1,

- the leading corner (i.e. the sloped ramp portion) of segment k initiates the movement of the knife a and corresponds to a knife movement start timing setting means;

- levers c and f, and pivot axes d and g cooperate with segment k as long as the segment k is in the corresponding angular position to maintain the reciprocating action of the cutting knife and thus these parts commonly interact as operation means.

1.10 Hence, the subject-matter of claim 1 is not novel over D1 and the requirements of Article 54 EPC are not fulfilled.

2. *Enabling disclosure of D1*

The respondent argued that D1 provided no enabling disclosure for the adjustment of segment k. Therefore, he considered this document as not disclosing feature (d). Whilst D1 refers in the passages cited under point 1.8 above to such an adjustment only in a very general form without specifying any defined adjustment means,

the Board does not see any problem for the skilled person in providing the segment k either with an adjustable portion which allows the increase or reduction of the cutting time or to insert different segments k with differing lengths. In any case an adjustment is possible corresponding to the desired buttonhole and the applied cutting knife. No evidence that such an adjustment would not be possible has been put forward. In as far as claim 1 of this request is concerned however, an adjustment is not even required since feature (d) merely requires that the operation means operates the downward-movement timing "in accordance ... with" the length of the buttonhole and the length of the cutting edge of the knife, whereby the terminology "in accordance ... with" is unspecific as to what particular accordance is required. Thus, the selection of a segment k of appropriate length and arranging this appropriately on disk i already causes this to operate the downward-movement timing in accordance with these two parameters.

3. *Auxiliary requests 1 and 2*

3.1 Auxiliary request 1 was filed after the communication sent by the Board and auxiliary request 2 was filed during the oral proceedings. According to Article 13(1) of the Rules of Procedure of the Boards of Appeal (RPBA), it lies within the discretion of the Board to admit late filed requests into the proceedings. It is also established case law of the Boards that in order to be admitted such requests should be clearly allowable at least in the sense that they do not result in further objections, which is not the case for these requests, for the following reasons.

- 3.2 Concerning auxiliary request 1, its claim 1 includes subject-matter based upon originally filed claims 1 and 2; its dependent claims 2 and 3 correspond to originally filed claims 3 and 4 each of which was dependent only on claim 1 as originally filed. Hence, the combination of the subject-matter of originally filed claims 3 and 4 with the subject-matter of an independent claim 1 including the subject-matter of originally filed claim 2 has not been originally disclosed; accordingly there is also no embodiment present in the description which would disclose such a combination and nor did the respondent submit that there was one. Therefore, such combination defines subject-matter which extends beyond the content of the application as originally filed (Article 123(2) EPC), as a consequence of which auxiliary request 1 is not clearly allowable and thus not admitted into the proceedings.
- 3.3 Concerning auxiliary request 2, it includes a single claim, independent claim 1, and thus obviates the objection mentioned above with respect to previous dependent claims 2 and 3. In the summary of the invention of the description, amendments by the respondent have however been made which refer to several advantages of the invention or of particular embodiments of the invention such as a sewing apparatus or a sewing machine on which only a special cloth cutting knife can be mounted. However, claim 1 does not specify any feature which would result in such alleged advantages. Therefore, the description is inconsistent with the claim and thus not supported thereby (Article 84 EPC 1973) and hence *a priori* such a request is not clearly allowable. The Board thus exercised its discretion not to admit auxiliary request 2 into the proceedings.

4. *Auxiliary request 3*

4.1 Amendments

4.1.1 Article 123(2) EPC

Claim 1 includes the subject-matter of originally filed claims 1 and 2. The description has been brought into conformity with such subject-matter. The appellant considered further features like a CPU and the switches as being disclosed as mandatory in such an embodiment. However, on the one hand, the originally filed claims 1 and 2 cover generally such subject-matter and on the other, the further features like the CPU or the switches are disclosed as being optional in the description (see originally filed page 11, line 10 corresponding to paragraph [0049] of the patent in suit and originally filed page 10, lines 15 to 19 corresponding to paragraphs [0043] to [0045] of the patent in suit). Hence, the requirement of Article 123(2) EPC is met.

4.1.2 Article 84 EPC 1973

Concerning the feature of the buttonhole/knife cutting edge length setting means, the appellant considered it not to be clear whether one or two means were to be considered and whether these means were separate from the knife downward-movement start timing setting means and the operation means.

The wording of the claim "further including..." clearly specifies the buttonhole/knife cutting edge length setting means as a means in addition to the other means specified in the claim. Therefore, the claimed knife

downward-movement start timing setting means and operation means are present separately from the buttonhole/knife cutting edge length setting means. The wording also clearly identifies the buttonhole/knife cutting edge length setting means as a means being responsible for both settings i.e. the buttonhole length and the knife cutting edge length. Accordingly, the requirements of Article 84 EPC 1973 are met.

4.2 Novelty

4.2.1 D1 is the sole prior art document cited in the proceedings and, as indicated *supra*, discloses the features of claim 1 of the main request. Accordingly, it remains to be assessed whether D1 discloses in addition to providing knife-downward-movement start timing setting means and operation means also the further feature concerning buttonhole/knife cutting edge length setting means for setting not only the length of the buttonhole but also the length of the cutting edge of the cloth cutting knife.

4.2.2 In D1 these lengths are pre-set when mounting an indexing disk i having a specific segment k. No further setting means are disclosed which would allow an adaptation to changed lengths of the buttonhole or of the edge of the cutting knife. The description of D1 points to the adjustability of the segment k in order to adapt the machine to an altered length of the buttonhole (see also point 1.8 above). However, it is not disclosed how to carry out such adaptation. A possibility for such adaptation might be - as set out under point 2 above - to exchange the segment k or, in the alternative, to alter the length of the segment k via an undisclosed mechanism. Accordingly, no setting means are clearly and unambiguously disclosed in this

respect. Setting means for changing the length of the edge of the cutting knife are not at all necessary in D1 since an exchange of the knife is not considered (page 2, lines 38 - 43 and claim 2). However neither of these is disclosed in D1. Additionally, segment k has been specified as being part of the operation means (see point 1.9 above) and thus cannot simultaneously be part of a further (and thus distinct) setting means.

4.2.3 Hence, there is no distinct setting means disclosed in D1 which would allow the length of the buttonhole and the length of the cutting edge of the cloth cutting knife to be set. Accordingly, the introduced features of claim 2 render the subject-matter of claim 1 of this request novel.

4.3 Inventive step

4.3.1 Taking into account the above specified difference, both parties arrived at an objective problem. The appellant argued partly that no objective problem existed because D1 already performed all these functions as defined by the various setting means. However, the Board rejected this approach as the presence of additional setting means in this regard clearly allows greater flexibility when adjusting the machine for different operations. The then commonly argued objective problem, namely to provide means for an easier adaptation to a changed cutting edge of the knife and to a changed length of the buttonhole was then taken into account when considering inventive step.

4.3.2 A skilled person searching for a solution to this problem found no teaching in D1 to consider any provisions for changing the length of the cutting edge

of the knife blade at all. To the contrary, D1 considers the use of the same knife (with a narrow edge) for providing buttonholes of various sizes as being a significant advantage (D1, page 1, line 9; page 2, lines 39 - 44). Accordingly, D1 teaches away from a distinct setting means for providing variations in the length of the knife blade.

4.3.3 The appellant's argument to demonstrate that the claimed invention would not involve an inventive step was based upon the possibility disclosed in D1 to adjust the length of the segment k which according to his view would render obvious a buttonhole/knife cutting edge length setting means since the skilled person had, in the form of the operation means in D1, such a possibility already. Moreover, the skilled person could separate the function of an operation means from the function of a setting means if this were desired. To put such a theoretic possibility into practice by dividing these functions into different means would not involve an inventive step.

4.3.4 However, no hint or suggestion to add any setting means to the operation means is present in D1. Since the adjustment to different lengths of the buttonhole can be effected via an adjustment of the operation means, albeit not providing a separate setting possibility, no further setting means are necessary in this respect. Indeed setting means for the adjustment to different lengths of the knife edge are not to be considered at all since it is stated as being an advantage of the device disclosed in D1 that the knife does not need to be changed irrespective of any particular buttonhole to be cut.

4.3.5 Hence, also the problem of providing an easier adaptation to different lengths is not evident from or suggested in D1 when considered by a skilled person.

4.3.6 The alternative provided by the subject-matter of claim 1, namely to separate the functions of knife downward-movement start timing setting means, buttonhole/knife cutting edge length setting means and operation means into separate means provides the advantage that such distinct means allow more flexibility of the machine. Hence, such modification provides an alternative for which no teaching is present in the cited prior art and accordingly such distinct setting means are a non-obvious alternative to the pre-set operation means disclosed in the prior art.

The subject matter of claim 1 thus involves an inventive step in respect of the cited prior art (D1).

4.4 Description adaptation

The description was adapted to the new independent claim 1. Neither the appellant nor the Board found that further adaptation was required.

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 the following documents:

- claim 1, description column 1, column 2 together with Appendix A, columns 3 - 73, filed as auxiliary request 3 on 19 January 2012,
- drawings, Figures 1 - 112 as granted.

The Registrar:

The Chairman:



M. Patin

M. Harrison

Decision electronically authenticated