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File Number: T 174/90 - 3.2.5

Application No.: 84 102 421.9

Publication No.: 0 120 357

Title of invention: Actuator assembly for a picker head in a wire cloth making machine

Classification: D03D 47/12

D E C I S I O N
of 30 June 1992

Proprietor of the patent: TRINCA COLONEL SILVIO & FIGLIO SERGIO S.n.

Opponent: Emil Jäger GmbH & Co KG

Headword:

EPC Article 56

Keyword: Inventive step (yes, after amendment)



Case Number : T 174/90 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 30 June 1992

Appellant : Emil Jäger GmbH & Co KG
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Respondent : TRINCA COLONEL SILVIO
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Decision under appeal : Decision of Opposition Division of the European
Patent Office dated 9 January 1990 rejecting the
opposition filed against European patent
No. 0 120 357 pursuant to Article 102(2) EPC.

Composition of the Board :

Chairman : C.V. Payraudeau
Members : M.H.M. Liscourt
A. Burkhardt

Summary of Facts and Submissions

- I. The Appellant filed an opposition against the European patent No. EP-B1-0 120 357 based on the grounds that the subject-matter of this patent was lacking an inventive step having regard to the state of the art represented by the prior use of the wire ribbon weaving loom model ST-EBS manufactured and made available to the public by the Appellant as illustrated by an advertising prospect No. 8.60.2000 (D1) published in 1960 and a workshop drawing No. 1695 (D2) dated 1942.
- II. The Opposition Division rejected the opposition and maintained the patent in an unamended form, considering that its subject-matter was new and inventive in view of the cited prior art.
- III. The Appellant (Opponent) filed an appeal against this decision and referred in his grounds for appeal to another prior art document DE-C-844 275 (D3) submitting that this new citation should be considered by the Board of Appeal in application of Article 114(1) EPC since it corresponded to the weaving loom which was the subject-matter of the prior use.
- IV. After the Board of Appeal had decided to take document D3 into consideration under Article 114(1) EPC, oral proceedings were held at the end of which the Respondent (Patentee) requested that the decision under appeal be set aside and the patent be maintained in an amended form on the basis of a new Claim 1 filed during the oral proceedings, the Claims 2 to 10 and the drawings of the granted patent, amended pages 1 to 3 of the description filed with a letter dated 25 May 1992 and column 3 to column 7 of the granted patent.

The new Claim 1 according to the request of the Respondent reads as follows:

"An actuator assembly for a picker head in shuttleless looms for making wire cloth and the like, characterized in that it comprises a meshing gear pair (2, 3) having a 1:1 ratio, whereof one gear (2) is rigid with the frame of the loom and is journalled on to the loom crankshaft and the other (3) is caused to follow a substantially epicycloidal path around it, said other gear (3) being rigid with a disk assembly (7) with which a first connecting rod element (13) is articulatedly engaged, which connecting rod element is coupled to one end of a rod linkage (16) comprising three points of articulation (15, 33, 50) and having a second end articulated to the frame of the loom and a third end articulated to a second connecting rod element (51) for reciprocating the picker head actuating carriage (54), the position of at least one (33) of said points of articulation being adjustable."

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

VI. In support of his request, the Appellant essentially submitted the following arguments:

It is not contested that the subject-matter of the invention is novel with respect to the cited prior art according to D3 since it differs thereof by the following features:

- (a) the device is used with a shuttleless loom;
- (b) the gear ratio is 1/1 instead of 1/2;

- (c) one of the articulation points of the actuating mechanism is adjustable.

However, all these features are self-evident for the person skilled in the art. There is no invention to use the epicycloidal gear drive known from D3 in a shuttleless loom. The person skilled in the art having chosen to use such epicycloidal gear would automatically use a 1/1 ratio in a shuttleless loom. As regards the feature relating the adjustability of the articulation of the actuating mechanism, it belongs to the normal capacities of the skilled technician to devise such means when the need appears.

- VII. The Respondent submitted in support of the inventiveness of the subject-matter of new Claim 1 that it was not obvious for the person skilled in the art to use an epicycloidal gear drive in order to transmit the motion of the crankshaft of the shuttleless loom to the picker head. The picker head has to move at a very high speed and in perfectly time relationship with the position of the loom sley. In particular the picker head should come to a stop before the end of its travel for enabling the sley to properly work and it was not foreseeable that such a motion could be achieved with an epicycloidal gear drive. The adjusting mechanism is also necessary to obtain the properly time^d relationship between the picker head and the sley for different types of cloth and nothing in the cited prior art suggests the use of such adjustment means.

Reasons for the Decision

- 1. The only prior art cited by the Appellant is the document D3 which corresponds to the loom model ST-EBS allegedly made available to the public by the Appellant before the priority date of the patent in suit.

2. As admitted by the Appellant, the actuator assembly of the valid Claim 1 differs from the device disclosed in D3 in that it is applied to a shuttleless loom (feature (a)), the ratio between the gear journalled on the driving shaft of the loom and the gear of the actuating assembly is 1/1 instead of 1/2 (feature (b)) and one of the points of articulation of the transmission mechanism is adjustable (feature (c)). Another difference which has been pointed out by the Board is that one of the meshing gears is journalled on the main shaft of the loom whereas in the loom according to document D3, the corresponding gear is journalled on a shaft perpendicular to the main shaft of the loom (feature (d)).
3. In view of the above differences, the subject-matter of Claim 1 is new (Article 54 EPC).
4. According to the description of the patent in suit, the actuator assembly for the picker head of a weaving loom for making wire cloth usually consists^s of a complex mechanism driven by the drive shaft of the loom. In such looms like the one disclosed in the IT-A-1 126 425 considered by the Respondent as representing the nearest state of the art, said actuator assembly contributes to the complexity of the loom and cannot provide a high rate of operation for the picker head.
5. Thus, the problem underlying the present invention is to provide an actuator assembly which can be operated at high speed in a precise way in relation to the position of the sley while holding the weft wire under a relatively constant tension.
6. This problem is credibly solved by an actuator assembly according to Claim 1 showing the above-mentioned differences (a) to (d) mentioned in point 2 above with respect to the loom disclosed in document D3.

7. The first difference consists in applying the epicycloidal mechanism known from D3 for a shuttle loom to a shuttleless loom.

Considering the differences which exist between the two types of looms this adaptation does not appear obvious to the person skilled in the art. In the normal weaving looms, the weft is inserted in the shed by way of a weft spool contained in a shuttle. The shuttle is propelled from one side of the loom to the other. The weft yarn or wire is retained at its end in the previously beaten shed and is unreeled from a spool contained in the shuttle on its way to the other side of the loom. Therefore, the weft yarn after it has been introduced in the shed remains motionless whatever the motion of the shuttle may be.

On the contrary, in a shuttleless loom, the weft yarn has to be pulled out from a spool outside the shed to the other side of the shed. It is therefore absolutely necessary that the weft yarn should stop its motion while maintaining ^{it} ~~the~~ yarn under tension at the end of each stroke during a sufficiently long period to allow the beating of the inserted yarn into the shed. Therefore, the movement of the picker head of a shuttleless loom has to follow a quite different timing as the one to be applied to the shuttle of a usual loom. *being*

Consequently, the person skilled in the art having to solve the problem of the present invention would not have had any reason to try adapting an actuator assembly for a shuttle to the actuation of the picker head of a shuttleless loom. Moreover, even in case the person skilled in the art would have envisioned to use a mechanism such as disclosed in the document D3 in a shuttleless loom, he would not have found in the state of the art any information as to the technical measures to be

taken to make this adaptation. Even if the Board agrees that the use of a 1/1 ratio is obvious in view of the difference of functioning between a normal loom and a shuttleless loom, the other differences, which provide additional advantages over the prior art, like easy adjustability to different picker head motions and reduced complexity of the actuator assembly, are in no way suggested by the state of the art and are not obvious.

8. For the reasons given above, the subject-matter of Claim 1 involves an inventive step (Article 56 EPC). Claims 2 to 10 are dependent upon Claim 1 and are therefore also patentable.
9. The other requirements of the EPC being also satisfied, the patent may be maintained as amended (Article 102(3)).

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted back to the first instance with the order to maintain the patent in an amended form as requested by the Respondent (Patentee) (point IV of the decision).

The Registrar:



A. Townend

The Chairman:



C. Payraudeau

