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D E C I S I O N
of 29 February 1996

Case Number: T 0981/93 - 3.2.1

Application Number: 87201727.2

Publication Number: 0265975

IPC: B21B 13/00, B21B 31/06

Language of the proceedings: EN

Title of invention:
Modular rolling stand

Patentee:
DANIELI & C. OFFICINE MECCANICHE S.p.A.

Opponent:
SMS Schloemann-Siemag AG

Headword:
-

Relevant legal provisions:
EPC Art. 123(2), 56

Keyword:
"Amendments - added subject-matter (no)"
"Inventive step - (yes) after amendment"

Decisions cited:
-

Catchword:
-

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Case Number: T 0981/93 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 29 February 1996

Appellant: (Proprietor of the patent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 20 September 1993 revoking European patent No. 0 265 975 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: F. A. Gumbel
Members: P. Alting van Geusau
G. Davies

Summary of Facts and Submissions

I. The mention of the grant of European patent No. 0 265 975 in respect of European patent application No. 87 201 727.2, filed on 10 September 1987, was published on 4 March 1992.

II. Notice of opposition was filed on 3 December 1992 on the grounds of Article 100(a) EPC. The opposition alleged lack of inventive step of the claimed subject-matter and was supported by the documents:

D1: EP-A-0 057 101
D2: US-A-2 722 392
D3: GB-A-1 049 763.

III. By decision dated 20 September 1993 the opposition division revoked the patent.

The opposition division took the view that, when starting from the closest prior art as shown in D1, the skilled person would regard it a normal design procedure to combine all the features set out in claim 1, especially as the advantages achieved by such an aggregation, which itself lacked any combinatory effect, could be readily contemplated in advance.

IV. An appeal was lodged against this decision on 9 November 1993, with payment of the appeal fee on the same day. The statement of grounds of appeal was filed on 8 January 1994.

V. In preparation for the oral proceedings auxiliarily requested by the respondent, the Board informed the parties with communication dated 31 July 1995 that the amended claim 1, filed by the appellant with letter

dated 7 July 1994, contained subject-matter which did not appear to meet the requirements of Article 123 EPC and was therefore not acceptable. The Board observed that the appellant placed great emphasis on the modular aspect of the rolling mill in accordance with the patent enabling thereby a simple installation and replacement of single roll mill stands; however, corresponding features were not to be found in claim 1.

VI. Oral proceedings were held on 29 February 1996 in the presence of both parties. At the oral proceedings the appellants filed new claims 1 to 6 and an amended description columns 1 to 5. The appellants requested that the decision under appeal be set aside and that the patent be maintained with the claims and description filed at the oral proceedings together with the figures as granted.

Claim 1 of this request reads as follows:

"1. Modular rolling stand (10; 110) comprising a pair of rolls (12, 13; 112, 113) mounted on a supporting frame which is fixed to an independent base (37) including a baseplate (17), characterised in that said independent base (37) supports an electric motor (11) for driving said rolls (12, 13; 112, 113), said motor being provided with cooling means (21), an electric control panel (22), a channel (18) for discharging slag and electric and/or hydraulic feeder and service conduits (24, 26-34) located in predetermined areas of said base (37), said slag discharge channel (18) and said feeder and service conduits (24, 26-34) being positioned cross-wise to the lengthwise vertical plane of the stand and being provided, at each end thereof, with connecting means suitable for carrying out electric and/or hydraulic connections to corresponding slag discharge channels and

supply or usage conduits of rolling stands which are located upstream or downstream of said rolling stand (10; 110)."

VII. In support of their request the appellants relied essentially on the following submissions:

In the closest prior art, as shown in D1, a number of rolling mill stands were mounted on a movable mill stand base so as to enable the stand to be removed from the mill line for servicing or to replace it by a substitute stand. Although the object was quite similar to the object to be solved by the patent in suit, still much work was involved when installing or exchanging such known mill stand. On the other hand, in accordance with the patent, the mill stand base not only supported the mill stand but was provided with all necessary further equipment for operating the mill stand, including also the means for connecting it to the other mill stands of the rolling mill. In such a manner a rolling mill was provided that was composed of a number of self-contained modular rolling stands which concept greatly facilitated the installation of a rolling mill and shortened the time necessary for replacement of a rolling mill stand in the rolling mill street. Neither this concept nor the constructional details specified in claim 1 for achieving the simple installation and exchange was known from or suggested in any of the cited documents.

D2 also related to simple and quick replacement of one or more operating stands but did not go further than detachably mounting of the rolling stand on a fixed base and the use of quick release conduits. D3 concerned a pair of rolling stands which were shiftably mounted on a common frame detachably secured to foundation skids and did therefore not go further than what was already known from D1.

The modular set-up of a claimed rolling mill was now clearly specified in the present claim 1 by the special arrangement on a common base plate of a mill stand, a motor, crosswise positioned feeder and service conduits and a slag discharge channel, the conduits and channel all being provided at each end thereof with corresponding connections to the rolling stands located upstream and down stream of the rolling stand.

VIII. The respondents (opponents) requested rejection of the appeal and revocation of the patent in its entirety. Their submissions can be summarised as follows:

The features of claim 1 relating to the connection of the discharge channel, feeder and service conduits to other rolling stands located upstream or downstream of the rolling stand was not disclosed in the application as originally filed and therefore claim 1 did not meet the requirements of Article 123(2) EPC. For this reason alone claim 1 was not acceptable.

Although novel, the subject-matter of claim 1 lacked an inventive step in view of the teachings of D1 and D2 and their application by the skilled person with a view to further facilitating installation of a rolling mill, particularly when smaller rolling mills were concerned.

Placing the stand on a separate bed plate so that the stands can be accurately positioned after servicing of the stands was already known from D1 and the skilled person only had to add further features of the mill to this bed plate. The incorporation of the drive motor on the bed plate was rather based on economical considerations than on technical ones. A clear indication of such trend could be observed with electric tools such as electric drills, circular saws and

grinders which were not any longer sold as an additional tool to an electric motor but as a complete machine tool incorporating the drive motor.

Normally the mill stands included feed lines for hydraulic and cooling fluids which would also be the case in the stand known from D1. Document D2 disclosed how such feed lines could be adapted to give quick connection with the feed lines mounted in the foundation and therefore the further adaptation to include such known features on the mill stand bed plate was not inventive. The crosswise position of the conduits followed from the fact that connections should be made between the successive mill stands in a mill street and therefore did not add matter of inventive significance either.

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*

2.1 Claim 1 is essentially based on the subject-matter of the granted claims 1 and 6, which themselves are based on the originally filed claims 1 and 6. The additional features introduced into the claim, such as the use of a baseplate and connecting means for connecting electric and/or hydraulic conduits and the slag discharge channel to corresponding slag discharge channels and supply or usage conduits of upstream or downstream rolling stands follow from the description of the modular rolling

stand, in particular on page 3, lines 2 to 4 and page 7, lines 1 to 10 of the originally filed description (see also the patent, column 2, lines 35 to 37 and column 4, line 55 to column 5, line 8).

2.2 The respondents submitted that in accordance with the originally filed documents connections were made to slag discharge channels and supply or usage conduits which were located upstream or downstream of the rolling stand but that there was no indication that these connections concerned connections to other rolling stands.

Although it is true that the respective original passages do not include the words "of rolling stands", it follows immediately for a skilled reader from the above-cited passages of the originally-filed description (see in particular page 7, lines 1 to 10) that the modular rolling stand in accordance with the patent is adapted for use as an exchangeable module in a mill street and that therefore the crosswise connections clearly were intended to make the required through-connections to the upstream and downstream rolling stands.

2.3 In view of the above assessments, it is concluded that the subject-matter of present claim 1 is fully disclosed in the originally-filed application documents and therefore meets the requirements of Article 123(2) EPC. Since the present claim 1 includes all the features of granted claim 1 and has been further limited, also the requirements of Article 123(3) EPC are fulfilled.

Claim 1 is now satisfactorily related to the closest prior art document (D1) and in this respect complies with Rule 29(1) EPC.

2.4 The dependent claims 2 to 6 are essentially repetitions of the granted claims 2 to 5 and 7, and originally filed claims 2 to 5 and 8, respectively. These claims therefore do not give rise to objections either.

2.5 The description has been amended to include a commentary on the closest prior art (D1) and to bring the description into line with the subject-matter now claimed. Some further amendments concern linguistic corrections. Hence, these amendments do not give rise to objections under the EPC.

3. *Novelty*

Novelty of the subject-matter of claim 1 follows from the fact that none of the cited documents discloses a modular rolling stand incorporating, in addition to the roll stand, an electric motor with its cooling means and an electric control panel as well as a crosswise positioned slag discharge channel and crosswise positioned feeder and service conduits comprising connecting means for carrying out connections to upstream and downstream rolling stands.

Novelty was not in dispute in the appeal proceedings.

4. *Inventive step*

4.1 The Board and the parties are in agreement that D1 discloses the prior art to which the preamble of claim 1 is related.

This document discloses a modular rolling mill stand which is attached to a bed plate together with which the stand may be introduced into and withdrawn from the mill. In this manner installation and positioning of the

stand relative to the pass-line is facilitated and down-time of the mill due to stand replacement is reduced.

The present patent aims at further facilitation of the installation of a rolling mill and to shorten the time necessary for replacement of a rolling mill stand (see the paragraph substituting column 1, lines 53 to 58 filed at the oral proceedings).

4.2 The combination of features of present claim 1 of the patent in suit provides a modular rolling mill stand which is ready for use as an individual rolling mill unit. It is completely finished and can be tested as regards all its parts before being despatched from the manufacturer's factory thereby reducing the time involved and the problems encountered in despatch, storage, assembly and timing of start-up of the machine (see column 5, lines 17 to 40 of the patent). Because all conduits and also the channel for discharge of slag are mounted on the common rolling mill base and are positioned crosswise, attachment to the upstream and downstream rolling mill stands is relatively easy, which further facilitates installation or replacement of the stand.

4.3 Although D1 relates to a similar problem to be solved as the patent in suit, only the stand itself is made exchangeable and therefore additional assembly and testing work must be carried out "on the spot". Nothing is derivable from D1 in respect of conduit connections to be made.

4.4 In this respect the respondents relied upon D2 which discloses quick connecting means between a mill stand and its support and between conduits.

However, here the connections are made between a fixed base plate and the interchangeable mill stand including the respective conduit connections.

The concept underlying the subject-matter of claim 1, i.e. the connection between individual, completely equipped rolling mill stands in the cross-wise direction in order to enable a quick installation of the multi-stand plant with a minimum of civil work and installation work on the plant, is not derivable from this prior art.

4.5 In fact this concept, which involves the use of a modular self-contained rolling mill stand which is functionally complete and equipped to the other stands of the rolling mill by means of the crosswise arrangement of all feeder and service conduits including the slag discharge channel, does not have any antecedent in the cited documents nor is it hinted at in the available prior art documents.

Furthermore, the skilled person does not find any suggestion in the cited documents as to how to improve the installation or exchange of a rolling mill stand, other than measures related to the mill stands themselves.

As already mentioned, although D2 discloses the use of quick release conduits, this is limited to connections from a fixed base to the stand of one and the same mill stand. D3 is less relevant and essentially concerns a pair of rolling mill stands mounted on a common underframe, which are adjustable relative to the underframe transversely to the pass line of the mill in order to bring different passes of the stands into agreement. Neither a channel for discharging slag nor

electric and/or hydraulic feeder and service conduits are referred to in this document.

4.6 Even if the skilled person would incorporate the drive motor on the baseplate of the stand disclosed in D1 for the economical reasons suggested by the respondents, for which no verifiable evidence was presented other than the skilled persons knowledge of handheld machine tools incorporating a drive motor, there is no objectively deductible lead why the skilled person would then also incorporate the channel for discharging slag and the electric and/or hydraulic conduits in predetermined areas of the base and in particular arrange them in crosswise manner and provide each end thereof with connecting means to make connections to channels and supply or usage conduits of stands which are located upstream or downstream of the rolling stand. In the absence of any suggestion in the available prior art to the above mentioned features, the respondents' line of argument is apparently based on hindsight rather than on steps the skilled person would have taken in order to solve the problem underlying the invention after objective analysis of the prior art.

4.7 The Board therefore comes to the conclusion that the subject-matter of present claim 1 cannot be derived in an obvious manner from the cited prior art and accordingly involves an inventive step (Article 56 EPC). This claim, together with dependent claims 2 to 6, the amended description and the granted drawings therefore form a suitable basis for maintenance of the patent in amended form.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to maintain the patent on the basis of the following documents:

   Claim 1 to 6 and description submitted at the oral proceedings;

   Figures as granted.

The Registrar: The Chairman:

S. Fabiani F. Gumbel