BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS | BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE | CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [X] To Chairmen

D E C I S I O N
of 22 October 1998

Case Number: T 0222/97 - 3.2.1

Application Number: 89117570.5

Publication Number: 0353788

IPC: B21B 1/02, B21J 5/00

Language of the proceedings: EN

Title of invention:
Press apparatus for reducing widths of hot slabs and slab widths reducing method using the apparatus

Patentee:
Kawasaki Steel Corporation, et al

Opponent:
SMS Schloemann-Siemag Aktiengesellschaft

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

Keyword:
"Withdrawal of opposition"
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0222/97 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 22 October 1998

Appellant: (Proprietor of the patent)
Kawasaki Steel Corporation
1-28, Kitahonmachi-dori 1-chome
Chuo-ku
Kobe City (JP)

Representative:
Kosmin, Gerald Emmanuel
Haseltine, Lake & Co.
Hazlitt House
28 Southampton Buildings
Chancery Lane
London, WC2A 1AT (GB)

Respondent: (Opponent)
SMS Schloemann-Siemag Aktiengesellschaft
Eduard-Schloemann-Strasse 4
40237 Düsseldorf (DE)

Representative:
Valentin, Ekkehard, Dipl.-Ing.
Patentanwälte
Hemmerich-Müller-Grosse-
Pollmeier-Valentin-Gihske
Hammerstrasse 2
57072 Siegen (DE)

Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 20 December 1996 revoking European patent No. 0 353 788 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: F. Gumbel
Members: M. Ceyte
V. Di Cerbo

Summary of Facts and Submissions

I. The appellant is proprietor of European patent No. 0 353 788 (application No. 89 117 570.5).

II. The patent was opposed by the respondent (opponent) on the ground of lack of patentability.

The following state of the art was inter alia opposed:

D1: EP-A-0 112 516

III. In its decision of revocation posted on 20 December 1996 the Opposition Division held that the subject-matter of granted claims 1 and 3 was not inventive having regard to document D1 and that amended claim 3 according to the auxiliary request then on file did not comply with the requirements of Article 123(2) EPC.

IV. On 24 February 1997 the appellant (patent proprietor) lodged an appeal against this decision, the appeal fee having been paid on 20 February 1997.

The statement of grounds of appeal was filed on 21 April 1997.

V. By telecopy dated 9 February 1998 the respondent withdrew its opposition. It took no further part in the appeal proceedings.

VI. Oral proceedings were held on 22 October 1998.

The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of claims 1 to 5 and the amended description submitted to the Board during the hearing, together with the drawings as granted.

During the hearing the appellant presented detailed arguments why in its opinion the subject-matter of independent claims 1 and 3 now on file was novel and inventive over the prior art.

Amended independent claims 1 and 3 read as follows:

"1. A method of reducing the width of a hot slab (7) by using width reduction heads (6) to which are attached a pair of anvils (8) movable towards and away from each other in width directions of the hot slab (7) and by feeding the slab (7) between the pair of anvils (8) disposed respectively adjacent to the edges of the slab (7), each anvil (8) having a parallel portion (14) which is substantially parallel to the feed direction of the hot slab and an inclined portion (15) at the entry side of the feed direction and being associated with means for adjusting the position of the anvil (8) with respect to the hot slab, wherein the anvils are urged towards and away from the slab (7) in accordance with a predetermined cycle of movement, each cycle including at least one period during which the anvils are in a position such as to cause the desired reduction in the width of the slab; characterised in that:

the method uses eccentric presses for reciprocatively driving the width reduction heads (6) by means of sliders (4);

during preforming an end of the slab, the method comprises a step adjusting each of said width reduction heads (6) in a direction closing the anvils (8) during an opening stroke of the slider (4) to obtain a distance to be reduced by one anvil (8) in a first stage preforming, then effecting the first stage preforming during a closing stroke of the slider (4), thereafter adjusting each of said width reduction heads (6) along its respective slider (4) to obtain a distance according to a desired reduced distance in the

same manner as in the first stage preforming and effecting preforming during a closing stroke of the slider (4) in the same manner as in the first stage when required, thereby concomitantly adjusting the position of the anvils relative to the sliders (4) at the commencement of each of said cycles of movement; and

during steady width reduction of the slab, the method comprises the steps of setting the distance to be reduced of the slab within a range in which the anvils (8) and the hot slab (7) do not interfere with each other during its advancing, feeding the hot slab (8) during the opening stroke of the slider (4) through a distance determined by the distance to be reduced and the angle of the inclined portion at the entry side, and repeating the cycle for reducing to the desired reduced distance during the closing stroke of the slider (4) to effect the reduction in width progressively."

"3. A press apparatus for reducing the width of a hot slab (7), comprising feeding means (16, 17, 18, 19) for feeding the slab in a feed direction, a pair of anvils (8) adapted to move towards and away from each other in width directions of the hot slab (7), each anvil (8) having a parallel portion (14) substantially parallel to the feed direction of the hot slab (7) and an inclined portion (15) on the entry side in the feed direction, width adjusting means (5, 11, 12, 13) for adjusting the position of the anvils (8), and urging means (2, 3, 4, 6) for urging the anvils (8) towards and away from the slab (7) in accordance with a predetermined cycle of movement; characterised in that:

the press apparatus is for carrying out the method according to claim 1 or 2;

said urging means comprises eccentric presses for reciprocatively driving by means of sliders (4) width reduction heads attached to each said anvil (8), said width adjusting means (5, 11, 12, 13) being incorporated in said eccentric presses and

said width adjusting means (5, 11, 12, 13) is arranged to adjust each of said width reduction heads (6) in a direction closing the anvils (8) during an opening stroke of the slider (4) to obtain a distance to be reduced by one anvil (8) in a first stage preforming, so that the first stage preforming can be effected during a closing stroke of the slider (4), thereafter to adjust each of said width reduction heads (6) along its respective slider (4) to obtain a distance according to a desired reduced distance in the same manner as in the first stage preforming so that preforming can be effected during a closing stroke of the slider (4) in the same manner as in the first stage when required, thereby concomitantly adjusting the position of the anvils (8) relative to the sliders (7) at the commencement of each of said cycles of movement when preforming an end of the slab, and arranged to make a minimum distance between the anvils (8) equal to the desired reduced distance in steady width reduction of the hot slab (7) by setting the distance to be reduced of the hot slab (7) within a range in which the anvils (8) and the hot slab (7) do not interfere with each other during its advancing;

and in that said feeding means (16, 17, 18, 19) is arranged to feed the hot slab (8) during the opening stroke of the slider (4) through a distance determined by the distance to be reduced and the angle of the inclined portion at the entry side."

Amended claims 1 and 3 are based on claims 1 and 3 of the auxiliary request filed with the statement of grounds of appeal, with additional features taken from granted claim 2.

VII. In its response to the statement of grounds of appeal the respondent submitted in essence, that

- the subject-matter of claims 1 and 3 according to the then existing requests lacked novelty over document D1

and that

- claim 3 of the auxiliary request did not comply with the requirements of Article 123(3) EPC.

As already stated, the respondent afterwards withdrew its opposition and took no further part in the appeal.

Reasons for the Decision

1. The appeal is admissible

2. *Article 123(3) EPC*

Before withdrawal of its opposition, the respondent had challenged the admissibility of claim 3 of the then existing auxiliary request having regard to Article 123(3) EPC by drawing attention to the fact that the last sentence of granted claim 3 ("adjusting means incorporated in said eccentric means") did not figure in amended claim 3.

This does no longer apply to present amended claim 3 which states in its characterising part that the adjusting means are incorporated in the eccentric press.

3. *Novelty*

3.1 Document D1, when considering particularly Figures 1, 2a to 2c and pages 6 to 9 discloses the following features stated in the pre-characterising part of claim 1:

(1) A method of reducing the width of a hot slab,

(2) by using a pair of anvils adapted to move towards and away from each other in width directions of the hot slab,

(3) each anvil having a parallel portion substantially parallel to the feed direction of the hot slab and an inclined portion on the entry side in the feed direction,

(4) the anvils being associated with width adjusting means for adjusting the position of the anvils with respect to the hot slab,

(5) wherein the anvils are urged towards and away from the slab in accordance with a predetermined cycle of movement (Figure 2-c).

Document D1 does not disclose the following characterising features of claim 1:

(6) the first stage of preforming an end of the slab and

(7) the subsequent stage of steady reduction of the slab width.

The claimed first stage of preforming (6) comprises the substeps of:

(i) adjusting each of the width reduction heads in a direction closing the anvils during an opening stroke of the slider to obtain a distance to be reduced by one anvil

(ii) then effecting the first stage preforming during a closing stroke of the slider and

(iii) thereafter adjusting each of said width reduction heads along its respective slider to obtain a distance according to a desired reduced distance as in the first stage preforming and effecting preforming during a closing stroke of the slider in the same manner as in the first stage when required.

In contrast, even if it is supposed that having regard to the statements on page 12, lines 19 to 28 the known device according to document D1 may possibly comprise eccentric presses for reciprocatively driving - by means of sliders - width reduction heads attached to the anvils, the known method would comprise during the first stage preforming an adjustment of the width reduction heads in a direction opening the anvils so that the slab can be fed between the anvils; then moving the anvils by the width reduction heads in the slab width direction for effecting the preforming of the end of the slab to a predetermined amount. After such preforming, the anvils are vibrated and the width reduction heads are no longer actuated.

It follows that the stage of preforming consists in document D1 in adjusting the width reduction heads without actuating the vibrating means so as to compress or preform the end of the slab to a desired

predetermined amount. There is thus no disclosure of the claimed sub-steps (i) and (ii) of the characterising feature (6), which comprise an opening and respectively a closing stroke of the sliders; and also the following sub-step (iii) is missing since there is afterwards no further adjusting of the width reduction heads.

In the claimed method the anvils and the hot slab do not interfere during advancing of the hot slab (in the claimed subsequent stage (7) of steady reduction of the slab). This is not the case in the known method according to document D1, where the hot slab is fed substantially continuously against the anvils and thus abuts against the same.

Therefore, in the Board's judgement the subject-matter of claim 1 is novel over the sole document D1 relied on by the respondent in the appeal proceedings.

3.2 Claim 3 relating to a device for carrying out his method states in essence the same features as claim 1 in terms of "means for".

Therefore, for the same reasons given hereinabove in respect of the claim 1 the subject-matter of claim 3 for a device is also novel over this prior art document.

4. *Inventive step*

4.1 Claim 1 is based in its precharacterising portion on the known press type method of reducing ~~of~~ a hot slab disclosed in document D1. This known method comprises employing a pair of anvils, at least one of which has an inclined press surface adapted to vibrate in the slab width direction; and moving the slab substantially

continuously while continuing the vibration of the anvil. The anvils are also associated with width adjusting means for adjusting the position of the anvils with respect to the hot slab.

According to the appellant's submissions a method of this kind suffers from the drawback that the width regulating means is adjusted only once, at the very start of operation. There is no opening of the anvils during the steady operation of the press wherein the width reduction is achieved by vibration in a substantially continuous manner and steady interference between the anvils and the slab resulting in surface quality problems with the slab.

Therefore the technical problem to be solved by the present invention may be seen in providing a method for reducing the width of a hot slab, which overcomes this disadvantage and yields a higher quality product.

This problem is in essence solved by the specific way of preforming the end of the slab and the subsequent stage of steady reduction of the slab width, as defined in the characterising part of claim 1.

As previously stated, at the very start of operation, the width regulating means is in document D1 adjusted only once, without concomitantly moving the slider so as to preform or press the end of the slab to a desired predetermined width, and then the slab is fed substantially continuously by rapidly vibrating the anvils. No width adjustment is effected during the vibration of the slab. There is no disclosure or suggestion in document D1 of the specific preforming stages (6) stated in the characterising part of claim 1.

The same applies to the claimed subsequent stage (7) of steady reduction of the slab width:

It is observed that document D1 addresses and solves a problem which is substantially different from that underlying the patent in suit. The method and apparatus proposed therein are intended to solve the problem of speeding up the pressing of a slab avoiding as far as possible the delay caused by suspending the slab feed (page 3, lines 8 to 15). Accordingly the slab is fed substantially continuously (page 4, lines 24 to 25) by rapidly vibrating the anvils. By proceeding in this way it is avoided to discontinuously move the slab in increments of accurate predetermined distance as required by the characterising step (7); furthermore no time is required for stopping and positioning the slab at the end of each increment of predetermined distance.

The present invention thus operates in a totally different way:

As in essence required by the characterising feature (7), there is a deliberate predetermined cycle of operation in which the slab is fed in an increment of constant predetermined distance, stopped before it abuts against the anvils and then pressed. The slab is not at all moved and pressed continuously against the anvils.

It follows that in the present invention there is time to adjust, if necessary, the position of the anvils at the commencement of each cycle. In document D1 such adjustment is impossible because the slab is moved continuously. Accordingly, confronted with the problem

underlying the patent in suit, that is to avoid interference between the anvils and the hot slab during operation of the press, the skilled person would have not considered the teaching of document D1 which leads away from the claimed invention.

Therefore, in the Board's judgement, the subject-matter of method claim 1 involves an inventive step (Article 56 EPC).

4.2 Independent claim 3 for a press apparatus comprises in essence the same features as in claim 1. Accordingly for the same reasons given hereinabove, the subject-matter of claim 3 is also inventive having regard to the disclosure of document D1.

5. Dependent claims 2, 4 and 5 concern particular embodiments of the invention claimed in claims 1 and 3, respectively, and are likewise allowable.

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 in amended form with the following documents:

   Claims 1 to 5, and description as submitted at the oral proceedings; drawings as granted.

The Registrar:

S. Fabiani

The Chairman:

F. Gumbel