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D E C I S I O N
of 4 June 2002

Case Number: T 1075/99 - 3.2.3

Application Number: 93830458.1

Publication Number: 0653517

IPC: E01C 19/10

Language of the proceedings: EN

Title of invention:

Plant for producing bituminous conglomerate in continuous work cycle

Patentee:

Ghirardelli, Giorgio

Opponent:

MARINI S.p.A.

Headword:

-

Relevant legal provisions:

EPC Art. 83, 56

Keyword:

"Disclosure - sufficiency (yes)"
"Inventive step - (yes)"

Decisions cited:

-

Catchword:

-



Case Number: T 1075/99 - 3.2.3

D E C I S I O N
of the Technical Board of Appeal 3.2.3
of 4 June 2002

Appellant: MARINI S.p.A.
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 12 October 1999
rejecting the opposition filed against European
patent No. 0 653 517 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: F. E. Broesamle
Members: U. Krause
J. P. B. Seitz

Summary of Facts and Submissions

I. The appeal contests the decision of the Opposition Division, dated 23 July 1999 and issued in writing on 12 October 1999, to reject the opposition against European Patent No. 0 653 517. The opposition was based on the grounds of Article 100(a) (lack of novelty and inventive step) and 100(b) EPC and supported by the following documents:

D1: WO-A-88/08052

D2: IT-U-199 020

D3: US-A-2 421 345

D4: US-A-4 427 376

D5: EP-A-0 442 790

D6: IT-A-1 220 131

D7: EP-A-0 352 648

II. The single independent claim 1 of European Patent No. 0 653 517 reads as follows:

"1. Plant for producing bituminous conglomerate in continuous work cycle, comprising a closed operative plant supported on a frame with three aligned bridges (1) completed with a bearing network structure (2) with beams (3), slanting towards the unloading side, which structure supports, on couple with rotary bearings (4) with rollers (5), a cylindrical rotary furnace (6-7), into which inert

product coming from an elevator (13) is fed, and above the cylindrical furnace, always supported by the network structure (2), a parallelepipedal filtering unit (34);

- the cylindrical furnace (6-7) consisting of an initial part of smaller diameter (6) forming a drying chamber (16) and of a subsequent part of larger diameter (7) forming a combustion chamber (17); in said drying chamber (16) the product, moved by sets of vanes, proceeds due to gravity effect to come into the combustion chamber (17), at the end of which the product climbs on a rotary elevator equipped with a set of vanes (18) and is unloaded in continuous work cycle by means of a chute (24) into a mixing chamber (23), where nonasphaltic road oil at 140° is let in through a duct (25) and where other material made of fine dust of cement is let in through a screw conveyor (26), and from which the product ready to be used is unloaded by means of a hopper (31);
- the cylindrical furnace (6-7) using a burner (32), which, through a duct provided in a cylindrical structure (21), lets in a flame through a mouth (33), thereby creating a heat flow countercurrent compared to the material advancing into the drying chamber (16) and into the combustion chamber (17);
- to better mix the product its intermittent unloading being actuated by three hydraulic cylinders (28) equipped with timers for regulating the operative times, said cylinders (28) open a set

of equidistant portholes (29) for the unloading of the product ready to be used which proceeds in continuous way;

- the filtering unit (34) providing separators (35) which divide inside sectors (36) equipped with sets of fabric filters (37), and providing an intake manifold (38) with an air propeller (39) for getting out the purified air through a stack (40);
- a prompt re-employment of the fine dust of cement kept by the fabric filters (37) being realized in that the dust falls into a cone-shaped duct (47) having at its end an Archimedean screw (48), which screw (48) loads said dust into a duct with an Archimedean screw (50), which re-puts the dust into the mixing chamber (23) through a screw conveyor (26)."

III. The Appellant (Opponent) filed the notice of appeal together with a statement of the grounds of appeal on 30 November 1999, the appeal fee having been paid on 17 November 1999.

In a communication pursuant to Article 11(2) RPBA the Board pointed out that there were a number of rather specific and detailed features distinguishing the subject-matter of claim 1 from the prior art disclosed by D1, and that the decision on the issue of inventive step would have to take account of all these features, not only of the feature concerning the chute for unloading the material from the combustion chamber to the mixing chamber on which the grounds for appeal were based.

Oral proceedings were held on 4 June 2002.

- IV. The Appellant requests that the decision under appeal be set aside and that the patent be revoked. The Respondent (Proprietor) requests that the appeal be dismissed and that the patent be maintained as granted (main request). He auxiliarily requests that the decision under appeal be set aside and that the patent be maintained on the basis of his auxiliary request, i.e. with claim 1 as granted being replaced by the amended claim 1 filed with letter dated 13 April 2000.
- V. The essential arguments of the parties can be summarized as follows:

(a) Appellant:

The most relevant feature of claim 1 was the presence of the continuously operating chute between the combustion chamber and the mixing chamber to prevent backfiring. The chute could be fixed or rotating with the drum. Since the document D1 disclosed a rotating diaphragm with adjustable openings which together operate as a chute in a continuous working cycle, the essential feature of claim 1 was known from the document representing the closest prior art. Thus, the decision on inventive step had to be based on the other differences between D1 and the patent.

The missing description of D1 and its chute means in the patent resulted in a lack of disclosure because a knowledge thereof, especially as far as the continuous transport of the material from the combustion chamber to the mixing chamber and the positioning of the burner exit inside the furnace was concerned, was required by

the expert in order to be able to realise the invention in a correct way. Furthermore, claim 1 was not properly drafted because it did not reflect the fact that the feature of the chute was prior art, thereby causing confusion as to the subject of the invention.

(b) Respondent:

The transport of the material from the combustion chamber to the mixing chamber through the chute was described in column 2, lines 38 to 43 of the patent. A skilled person did not have any problem in realising this feature on the basis of that description without knowing D1. The other arguments raised in this connection did not concern the question of sufficiency of disclosure.

As to inventive step, the subject-matter of claim 1 differed from the disclosure of D1 in a number of respects, each being non-obvious in view of the available prior art. The disclosure of the adjustable door openings in D1 could not be equated with a chute and the rotation of the openings would cause a distributed, intermittent discharge of the material through the lower openings, as compared to the compact, continuous discharge through the chute in claim 1, and an undesired communication of the mixing chamber with the combustion chamber through the upper openings, whereas no such communication was possible through the chute of the patent. The intermittent unloading of the material by the timed opening of three portholes resulted in better mixing of the material in the mixing chamber. The position of the filtering unit with inside separators above the furnace allowed for a better recovery and easier recycling of fine dust suspended in

the air flow. The use of two consecutive Archimedean screws for recycling the dust into the mixing chamber provided for an enhanced recycle efficiency and a better control of the recycled quantity of the dust.

As to the auxiliary request, the added feature defining an inner circular fixed part expressed more clearly the separation of the combustion chamber from the mixing chamber.

Reasons for the Decision

1. The appeal meets the requirements of Articles 106 to 108 EPC and of Rules 1(1) and 64 EPC and is, therefore, admissible.
2. *Main request*
 - 2.1 Disclosure of the invention (Articles 100(b) and 83 EPC)
 - 2.1.1 The Appellant argues that the disclosure of the invention was insufficient with respect to the continuous unloading of the product from the combustion chamber to the mixing chamber by means of a chute because a skilled person would require information from D1 to carry out the invention in this respect. The Board cannot follow this argument. The term "chute" has a clearly defined meaning in the art, and the continuous unloading or discharging operation is described in column 2, lines 29 to 43, and shown in Figure 1, as being effected by means of vanes which extend radially from the cylindrical wall of the furnace into the combustion chamber at its downward end

and continuously rise the product to fall into the chute for discharge into the mixing chamber. This information is sufficient for a skilled person to carry out the invention in this respect and it is, therefore, not necessary to refer to other information such as document D1.

2.1.2 The further arguments of the Appellant do not concern grounds under Article 100(b). The questions of whether claim 1 should be drafted in a two-part form or not and of whether the positioning of the burner exit inside the furnace was an essential feature of the invention which should be included in claim 1, relate to clarity aspects of the claim which cannot be taken into consideration in opposition and opposition appeal proceedings unless such clarity problems, if at all existent, arose out of amendments made to the claim. This is not the case for claim 1 of the main request which, therefore, has to be accepted in its granted form and interpreted in a technically sensible way, if at all necessary.

2.2 Novelty (Article 100(a) and 54 EPC)

It is undisputed, and also found by the Board, that none of the available prior art documents discloses a plant as defined in claim 1. No further comments are therefore required with respect to novelty.

2.3 Inventive step (Article 100(a) and 56 EPC)

2.3.1 The most pertinent prior art is document D1 disclosing several different embodiments of a plant for continuously producing a bituminous conglomerate with the common features of a cylindrical furnace in which

the inert product advances in a direction countercurrent to a heated gas produced by a burner through a drying and combustion chamber and finally to a mixing chamber wherefrom it is discharged. In the embodiment of figures 1 and 2 the combustion chamber is separated from the mixing chamber by a diaphragm or wall (118) of the rotating furnace and the product is transported from the combustion chamber to the mixing chamber by means of vanes (121) through a number of "adjustable door openings" (120) described on page 10, lines 6 to 11 and shown in the figures to be positioned circumferentially in the wall and to have inclined or bent wall portions towards the combustion chamber. The product is discharged from the furnace through an outlet which is not described in detail, whilst the combustion gases leave the furnace at the product inlet through a flue.

2.3.2 Thus, essentially the following differences between the subject-matter of claim 1 and the plant disclosed in D1 can be identified:

- (1) the product is transferred "in continuous work cycle" from the combustion chamber to the mixing chamber by means of a chute;
- (2) the product is intermittently discharged from the mixing chamber by means of three hydraulic cylinders equipped with timers and opening a set of equidistant portholes;
- (3) a filtering unit with separators dividing the unit into sectors equipped with sets of fabric filters is provided above the furnace; and

(4) fine dust falling from the filtering unit into a cone-shaped duct is recycled into the mixing chamber by a first Archimedean screw conveying the dust from the cone-shaped duct into a further duct and a second Archimedean screw conveying the dust from the further duct into the mixing chamber through the screw conveyor which is also used for transporting fresh cement dust into the mixing chamber.

It will have to be determined whether these features, which correspond to features (b), (d), (e) and (f+c) identified in the decision under appeal, are obvious for a skilled person in view of the available prior art.

2.3.3 Feature (1) defines a continuously operating chute for transferring the product from the combustion chamber to the mixing chamber. This implies, in the Board's view, a fixed orientation of the chute because any chute may operate as a chute only when in a defined upright orientation and a continuous operation requires the chute to remain in this defined orientation.

The Appellant essentially argues that the plurality of adjustable door openings disclosed in D1 together act as a continuously operating chute, thereby anticipating or at least suggesting feature (1).

This argument is not convincing for the following reasons. The explanation on page 10, second paragraph, of D1 as to how the dried product is transported from the combustion chamber to the mixing chamber "with adjustable rate ... by the falling-rolling advancing movement by cooperating helicoidal feeders" may indeed

suggest that the bent portions of the adjustable door openings (120) as shown in Figures 1 and 2 should be moveable flaps serving the purpose of not only adjusting the flow area of the openings but also of acting as chutes for collecting the material raised by the vanes or feeders (121) and falling down therefrom.

However, this arrangement would neither correspond to feature (1) nor render it obvious. Since the openings and the moveable flaps of D1 are provided in the dividing wall (118) of the rotating furnace and, therefore, rotate together with the furnace, each opening and flap would operate as a "chute" only for a short time when in a lower position where it is in an appropriate upright orientation to be working as a chute, thereby causing an intermittent discharge of the material through each of the openings when at their lower position. This is in contrast to the definition of the continuously operating chute of claim 1 which, as set out above, must have a fixed orientation. Moreover, this difference cannot fairly be said to be obvious because it represents a different way of applying the "chute"-concept and requires modifications of the furnace of D1 which go into a different direction because the chute cannot form an integral part of the rotating furnace as in D1: the various small "chutes" of D1, together with a portion of the dividing diaphragm or wall (118), will have to be removed and a fixed chute must be installed as a separate component from the rotating furnace to always retain its upright orientation for continuous operation. The possible advantage of this new solution is stated with regard to feature (b) on page 7 of the decision under appeal.

Since no other document discloses a chute for this purpose, feature (1) cannot be considered as an obvious modification of the plant disclosed in D1.

2.3.4 The Appellant has not brought forward any arguments concerning the obviousness of features (2), (3) and (4). These features define the product discharge, gas filter and dust recycle apparatus in a very specific and detailed way which is only remotely related to corresponding solutions in the available prior art, for example a flap for intermittently discharging the product from the mixing zone in D5 and recycling filtered material from filters to a mixer in D6. There is, therefore, no reason to deviate from the opinion expressed in the decision under appeal (page 7, comments on features (d), (e) and (f)) in this respect.

2.3.5 In summary, none of the features (1) to (4) distinguishing the subject-matter of claim 1 from the plant disclosed in D1 can be considered as obvious, and claim 1 therefore meets the requirement of inventive step.

2.4 It is concluded that the grounds of Article 100(a) and 100(b) EPC do not prejudice the maintenance of the patent as granted, which is according to the main request of the Respondent.

3. *Auxiliary request*

Since the patent can be maintained on the basis of the main request, there is no need to consider the auxiliary request.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

A. Counillon

F. E. Brösamle