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**Datasheet for the decision
of 10 July 2019**

Case Number: T 0424/18 - 3.2.05

Application Number: 11829068.3

Publication Number: 2623320

IPC: B41C1/02, B41N1/18

Language of the proceedings: EN

Title of invention:

Full-automatic gravure plate-making processing system

Applicant:

Think Laboratory Co., Ltd.

Relevant legal provisions:

EPC Art. 56

Keyword:

Inventive step - (yes)



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Case Number: T 0424/18 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 10 July 2019

Appellant: Think Laboratory Co., Ltd.
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted on 22 August 2017
refusing European patent application No.
11829068.3 pursuant to Article 97(2) EPC.

Composition of the Board:

Chairman M. Poock
Members: T. Vermeulen
C. Brandt

Summary of Facts and Submissions

- I. The applicant filed an appeal against the decision of the examining division issued on 22 August 2017 to refuse European application No. 11829068.3.
- II. The examining division found that the requirement of Article 56 EPC was not fulfilled in view of document D2 (EP 1 642 713 A1) in combination with the common general knowledge.
- III. The following documents are also referred to in this decision:

D3 EP 1 449 649 A2;
D4 English abstract and front page of
 JP H10-193551 A;
D5 JP 2004-223751 A;
D6 JP 2008-221589 A;
D7 JP 2004-243536 A.

Documents D2 and D3 were cited in the Supplementary Search Report, document D4 was submitted with the statement setting out the grounds of appeal sent with letter of 14 December 2017 and documents D5 to D7 were cited in the International Preliminary Report on Patentability under Chapter 1 of the PCT.

- IV. The appellant requested to set the decision aside and to grant a patent on the basis of the documents filed with telefax of 9 July 2019.
- V. The independent claim of the sole request on file reads as follows (the feature numbering used by the board is introduced in square brackets):

"1. [A] A fully automatic gravure plate-making processing system, in which a roll to be prepared is transferred by using industrial robots only, comprising:

[B] a first industrial robot (16) for chucking and handling an unprocessed plate-making roll (20);

[C] a second industrial robot (30) for chucking and handling the unprocessed plate-making roll;

[D] a roll stock apparatus (22a, 22b), a photosensitive film coating apparatus (24), a laser exposure apparatus (26), an ultrasonic cleaning apparatus (70, 36A) with a drying function, a grinding wheel polishing apparatus (34), and a paper polishing apparatus (21), which serve as processing apparatus arranged in a handling area of the first industrial robot (16); and

[E] a degreasing apparatus (38), a copper plating apparatus (40), a developing apparatus (42), an etching apparatus (44), a resist removal apparatus (46), a surface hardening film forming apparatus (48), and an ultrasonic cleaning apparatus (36, 36B), which serve as processing apparatus arranged in a handling area of the second industrial robot (30), and

[F] further comprising a roll transfer placement table (50) provided at a position at which the handling area of the first industrial robot (16) overlaps with the handling area of the second industrial robot (30),

[G] wherein the first industrial robot (16) and the second industrial robot (30) are configured to transfer the unprocessed plate-making roll therebetween, to thereby perform plate-making processing, such that the roll to be prepared is transferred without using a stacker crane."

VI. The appellant argued essentially as follows:

The subject-matter of claim 1 was inventive.

In paragraph [0096], document D2 disclosed a running-type industrial robot in place of the stacker crane 8 and the transferring unit U. A similar running-type industrial robot was described and shown in document D4, from which it was clear that the running-type industrial robot was a travelling robot that required a running lane. This meant that a large space and a long time was needed to go back and forth between the different processing apparatus. In contrast, the invention dealt with a fully automatic gravure preparation processing system, in which a roll to be prepared was transferred by using fixed-type industrial robots only, without the need for a running lane or a stacker crane. In doing so, space was saved and the rolls were manufactured more quickly.

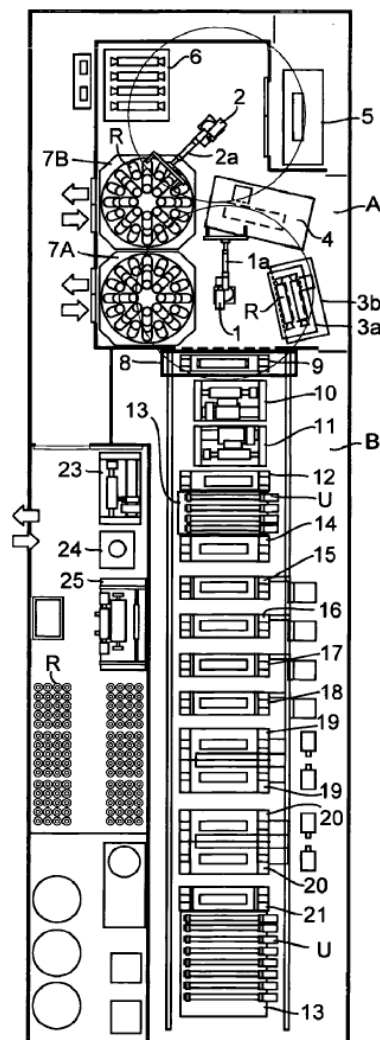
In the claimed invention, a roll transfer placement table provided at the position where the handling areas of the robots overlap eliminated the use of running-type industrial robots. Element 9 shown in figure 1 of document D2 did not correspond to such a table. The figure did not show that the handling areas of the two industrial robots overlap. Neither document D2 nor document D4 showed a fully automatic gravure preparation system comprising circular intersecting handling areas.

Reasons for the Decision

Inventive Step

1. In the impugned decision the inventive step assessment of the subject-matter defined in claim 1 starts from document D2. This is not disputed by the applicant.

2. Figure 1 of document D2 reproduced alongside shows the lay-out of a gravure plate-making factory. In the robot room A a first industrial robot 1 chucks and transfers unprocessed plate-making rolls R between one of the roll stock apparatus 7A and 7B, a photosensitive film coating apparatus 3b, a laser exposure apparatus 4 and a relay table device 9. A second industrial robot 2 handles rolls R between the roll stock apparatus 7B, a sintering device 5 and a cooling device 6 (cf. paragraph [0087]). The plating room B houses among others a degreasing apparatus 14, a copper plating apparatus 19, a developing apparatus 15, a resist removal apparatus 17 and a surface hardening film forming apparatus 20. A stacker crane 8 is mounted at the ceiling of the plating room B in order to handle the rolls R with the help of a



cassette-type roll chuck rotary transferring unit U (cf. paragraphs [0089] and [0094]).

According to paragraph [0096] of document D2, the stacker crane 8 and the cassette-type roll chuck rotary transferring unit U may be replaced by a further industrial robot. In this embodiment the rolls R are transferred and the processing system functions without using a stacker crane.

As the claim wording is not limiting in this respect, both a fixed industrial robot and a running-type industrial robot are encompassed by feature C. In the judgment of the board, it is therefore immaterial whether or not the further industrial robot mentioned in paragraph [0096] of document D2 is of the type requiring a running lane in the plating room B.

Per definition, a "relay" device serves to receive and pass on an object. The relay table device 9 of document D2 must consequently be provided at a position that enables passing on the rolls R from the robot room A to the plating room B, i.e. at which the handling area of the first industrial robot 1 overlaps with the handling area of the further industrial robot.

In view thereof, the board concludes that features A, B, C, F and G are disclosed by document D2.

3. In point 1.1 of the Reasons for the impugned decision the examining division holds that document D2 *"does not explicitly disclose the ultrasonic cleaning apparatus and the grinding wheel polishing and the paper polishing apparatus"*. The examining division then concludes that the subject-matter of claim 1 differed from the disclosure of D2 in that *"the specific*

apparatus defined in claim 1 are arranged in the handling area of the first industrial robot and that the specific apparatus defined in claim 1 are arranged in the handling area of the second industrial robot".

The board concurs with the examining division that there is no mention in document D2 of any ultrasonic cleaning apparatus. Nor can its presence be derived from figure 1.

Although a sand paper grinding device is mentioned in paragraph [0093] and two grinding devices 10 and 11 are arranged in the plating room B depicted in figure 1, there is no unambiguous disclosure in the prior art document of a grinding wheel polishing apparatus and a paper polishing apparatus arranged in a handling area of the first industrial robot 1.

The board sees a further difference with respect to document D2 in the arrangement of the etching apparatus. Whilst there is no doubt that at least some printing roll making methods listed in paragraphs [0072] to [0080] of document D2 rely on an etching apparatus to generate the gravure cells in the copper surface of the rolls, the prior art document does not reveal in which room or in the handling area of which industrial robot the etching apparatus is arranged.

4. In summary, the subject-matter of claim 1 differs from the system known from document D2 by
- an ultrasonic cleaning apparatus with a drying function,
 - a grinding wheel polishing apparatus, and
 - a paper polishing apparatus,
- all arranged in a handling area of the first industrial robot (feature D),

and by

- an etching apparatus and
 - an ultrasonic cleaning apparatus,
- both arranged in a handling area of the second industrial robot (feature E).

5. In various passages of the description (e.g. paragraphs [0009] or [0020]), the application mentions the technical effect of "achieving space saving". Dividing the different processing apparatus in two groups according to the handling area of the first and the second industrial robot, respectively, and balancing the size of each group strikes the board as a plausible way to save space for the entire processing system. The view of the examining division that *"no special effect is attributed to the specific arrangement of the apparatus in the handling areas of the two industrial robots"* (cf. Reasons 1.1 of the impugned decision) can therefore not be endorsed.

The introduction of an ultrasonic cleaning apparatus in each of the respective handling areas, on the other hand, allows to clean the rolls at different stages during the plate-making process.

The objective technical problem is therefore two-fold: to achieve space saving and to perform a thorough cleaning in the fully automatic gravure plate-making processing system.

6. The inventive step reasoning of the impugned decision skips the definition of the objective technical problem and immediately turns to the obviousness with regard to the common general knowledge of the skilled person. In point 1.1 of the Reasons, the examining division argues that *"all apparatus arranged in the handling areas of*

the industrial robots of the fully automatic gravure plate-making processing system defined in present claim 1 are well known to the skilled person in the field of gravure plate-making".

The application itself indicates that this is indeed the case for most of the processing apparatus of features D and E, see in particular paragraphs [0026] to [0028] and [0034] to [0039] of the description. Nevertheless, the board is not persuaded that an ultrasonic cleaning treatment is common in the art of gravure plate-making. Contrary to the other processing apparatus, ultrasonic cleaning is not referred to as "conventionally known" in the application, nor is it mentioned in any of the prior art documents cited by the examining division.

Even if ultrasonic cleaning is recognised as a notorious surface treatment in various technical areas, the mere adoption of an ultrasonic cleaning apparatus in a gravure plate-making processing system with the aim of performing a thorough cleaning would still not result in the claimed subject-matter in an obvious manner. In the absence of any pointer in the prior art to that effect, the board judges that the act of arranging *several* ultrasonic cleaning apparatus, *one in each robot handling area*, while equipping the apparatus in the first handling area with *a drying function*, can only be driven by hindsight.

7. Furthermore, the board cannot agree with the blanket statement made in the impugned decision in respect of the arrangement of the different processing apparatus of features D and E (cf. Reasons 1.1):

"The arrangements of the apparatus in the handling areas of the two industrial robots of the fully automatic gravure plate-making processing system according to claim 1 are merely one of several straightforward possibilities which the skilled person would select, depending on the circumstances, namely the type of plate he wants to produce, without the need of inventive skill."

Admittedly, once the stacker crane 8 and the cassette type roll chuck rotary transferring unit U of document D2 are replaced by a further industrial robot as suggested in paragraph [0096], it is credible that the skilled person will be incited to optimise the space in the plating room B and re-arrange at least some of the in-line processing apparatus in the handling area of the further industrial robot, similar to the configuration in the robot room A.

The board can also conceive that the skilled person, in an attempt to achieve space saving, would opt to move the grinding device 10 or 11 from the plating room B to the robot room A. This is suggested in paragraph [0069] of document D3, which shows in figure 11 a processing system very similar to the one disclosed in D2.

Yet there is no reason why the skilled person would mount a paper polishing apparatus in the handling area of the first industrial robot 1 in document D2. Both embodiments of document D3 (cf. figures 1 and 11) place the paper polishing apparatus 13 in the handling area of the second industrial robot 2 within the robot room A, at the opposite end from the plating room B and well outside the handling area of the first industrial robot 1. This would encourage the skilled person to place a paper polishing apparatus at a similar location in the

robot room A of document D2, allowing a direct transfer to and from the roll stock apparatus 7B, the cooling apparatus 6 and the sintering apparatus 5 but out of reach of the first industrial robot 1, contrary to what is required by feature D.

8. None of the further prior art documents that were cited in the examination proceedings mentions ultrasonic cleaning or suggests a solution to the space saving problem along the lines of features D and E. Contrary to the claimed solution, the paper polishing apparatus 13 of document D5 is installed in the plating room B in line between the degrease apparatus 8 and the developing apparatus 20. Documents D4, D6 and D7 do not disclose a paper polishing apparatus at all.
9. In conclusion, the subject-matter of claim 1 is not obvious having regard to the state of the art and therefore involves an inventive step pursuant to Article 56 EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the examining division with the order to grant a patent in the following version:

Description:

Pages 1, 2, 3, 6-27 as originally filed
Page "1a" (continuation of paragraph [0003], 2 pages)
and pages "4 amended" and "5 amended" filed with
telefax of 9 July 2019

Claims:

No. 1-6 filed with telefax of 9 July 2019

Drawings:

Sheets 1/3-3/3 as originally filed.

The Registrar:

The Chairman:



N. Schneider

M. Poock

Decision electronically authenticated