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D E C I S I O N
of 2 December 2004

Case Number: T 0691/03 - 3.2.5

Application Number: 96103057.4

Publication Number: 0732201

IPC: B41F 27/10

Language of the proceedings: EN

Title of invention:
Concentric double sleeve for a rotary printing cylinder

Patentee:
ERMINIO ROSSINI S.p.A.

Opponents:
Stork Screens B.V.
Rotec Hülsensysteme GmbH
E.I. Du Pont De Nemours and Company
AKL Flexo Technik GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (no)"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0691/03 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 2 December 2004

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Decision under appeal:
Interlocutory decision of the Opposition Division of the European Patent Office posted 30 April 2003 concerning maintenance of European patent No. 0732201 in amended form.

Composition of the Board:

Chairman: W. Moser
Members: P. E. Michel
W. Widmeier

Summary of Facts and Submissions

I. Appellants I and II (opponents 02 and 03) lodged appeals against the interlocutory decision of the Opposition Division maintaining European patent No. 0 732 201 in amended form.

In the decision under appeal, it was held that the grounds of opposition did not prejudice the maintenance of the patent as amended.

II. Oral proceedings were held before the Board of Appeal on 2 December 2004. The parties as of right I and II (opponents 01 and 04) were not represented at the oral proceedings. Neither did they file any written submissions.

III. Appellants I and II requested that the decision under appeal be set aside and the European Patent No. 0 732 201 be revoked.

The respondent (patentee) requested that the appeal be dismissed.

IV. Claim 1 of the patent as maintained by the Opposition Division reads as follows:

"1. A sleeve (3) for a rotary rotogravure or flexography printing cylinder (1) comprising a generally steel mandrel (2) to be rotated about its axis (K) when used in a printing machine, said sleeve (3) being able to be removably mounted on said mandrel (2) and be coupled in a torsionally rigid manner to this latter, the sleeve (3) comprising two cylindrical

portions (5, 6) removably associated with each other, a first outer portion (5) being mounted about the second inner portion (6), said portions (5, 6) being torsionally locked together so as to form a single body during the rotation of the mandrel, the cylindrical portions (5, 6) being tubular, the inner portion (6) having an internal cavity (14) enabling the sleeve to be mounted on the mandrel (2), characterised in that its inner portion (6) is layered, and in that its inner portion comprises an outer layer (8) and an inner layer (10) of high rigidity material, between said layers there being a further layer (9) of expanded polyurethane."

V. The following documents are referred to in the present decision:

H4-H25: Documents relating to an alleged prior use
D1: EP-A-0 546 973
D2: "Cylinder Sleeves for Flexography" Part I, Flexo, August 1993, pages 76, 77, 96 and 97
D3: "Cylinder Sleeves for Flexography" Part II, Flexo, September 1993, pages 38, 39 and 41
D4: Product Review, Flexo, June 1993, page 53
D5: "Plate cylinders and mounting materials", EFM training manual
D7: EP-A-0 278 017
D8: US-A-5,468,568
D9: US-A-5,216,954
D10: Atlas adapter sleeve, Rotec GmbH & Co. KG, 10/2004
D11: US-A-5,819,657
E6: US-A-4,583,460
E7: GB-A-1 581 232

VI. In written and oral proceedings, appellants I and II argued essentially as follows:

The subject-matter of claim 1 of the patent in suit lacks an inventive step over known double sleeve arrangements as known, for example, from the prior use of documents H4 to H25 and documents D3 and D4. The thickness of the adapter sleeve in such arrangements is limited, since they must be flexible in order to permit air mounting.

The problem to be solved is therefore to provide a thicker adapter sleeve which can nevertheless be air mounted onto a printing mandrel or cylinder.

The solution to this problem is rendered obvious by the teachings of documents D7 and E6, that is, to use a sleeve having a sandwich construction.

The subject-matter of claim 1 of the patent in suit also lacks an inventive step over the disclosure of document D1, even if the additional composite layer disclosed at column 3, lines 43 to 46 is considered to be permanently fixed to layer 8.

It would be obvious to make the additional composite layer detachable in view of the disclosure of documents D2 to D5, which discuss the disadvantages arising from a permanent attachment of print matrices to the printing sleeve.

The patent in suit does not disclose the invention sufficiently clearly and completely for it to be

carried out by a person skilled in the art and accordingly does not satisfy the requirement of Article 83 EPC. In particular, claim 1 includes within its scope rigid spacer sleeves which cannot be air mounted on a mandrel. Document D11 demonstrates that a core member of expanded polyurethane is regarded as non-expandable.

VII. In written and oral proceedings, the respondent argued essentially as follows:

The sleeve disclosed in documents H4 to H25 is intended to fill a small, i.e. 1.5 mm, gap between a mandrel and a printing sleeve. A 3 mm thick monolithic sleeve is also known from document D8. It would not occur to the person skilled in the art to use a sandwich sleeve, such as that known from document E6, since these are in a different technical field. If it was necessary to fill a larger gap, a number of thin adapter sleeves would be used.

Document D9 discloses at column 6, lines 3 to 19 a different solution to the problem of varying the development, that is, to replace the outer sleeve by one of a different thickness.

Document D2 does not disclose a sleeve over sleeve arrangement. Documents D3 and D4 do not contain any suggestions as to how to modify the print development.

The sleeve of the present invention is distinguished over the sleeve known from document E6 in that channels are provided to enable air mounting of the outer sleeve.

Document D10 shows an air mountable adapter sleeve comprising a carbon fibre reinforced tube. It is thus not necessary to use a layered sleeve as the adapter sleeve in order to enable air mounting.

The subject-matter of claim 1 thus involves an inventive step.

The objection under Article 83 EPC was introduced for the first time at the oral proceedings. In the absence of the consent of the respondent, the objection should not be admitted into the proceedings.

Reasons for the Decision

1. *Late filed documents D10 and D11*

At the oral proceedings, the respondent and appellant II requested that documents D10 and D11 respectively be admitted into the proceedings. Neither document is, however, considered to be decisive for the outcome of the case. It is also noted that both documents were published after the date of filing of the patent in suit. Accordingly the documents are not admitted into the proceedings.

2. *Inventive step*

2.1 Prior art

The most relevant prior art can be divided into layered sleeves comprising a plurality of layers and sleeves

having separable outer and inner portions which are torsionally locked together so as to form a single body during the rotation of the mandrel.

2.1.1 Layered sleeves

Document D1 discloses a sleeve comprising an inner sleeve 6, an intermediate sleeve 7, and an external sleeve 8, the sleeves being fixed to one another. The passage at column 3, lines 38 to 48 of this document discloses three alternative arrangements. It is argued on behalf of appellant II that, since the passage at column 3, lines 43 to 46, of document D1 dealing with one of these three alternatives, does not specify whether or not the optional composite sleeve covering the external sleeve 8 is removably mounted thereon, this constitutes a disclosure of both a removable and a fixed composite sleeve. This cannot be accepted. Silence regarding a particular feature cannot be regarded as being a disclosure of that feature.

Whilst document D1 refers at column 2, line 49, to the material of the inner sleeve 6 as being of slightly radially expandable material, such a material cannot be excluded from the definition of claim 1 that the inner layer is of high rigidity material in view of the identity of function of the inner layer in the prior art and in the patent in suit.

The subject-matter of claim 1 is distinguished over the embodiment disclosed at column 3, lines 43 to 46 of document D1 in that the composite layer (regarded as the outer cylindrical portion) is removably associated with the outer sleeve (constituting the outer layer of

the second inner portion), and the elastic intermediate sleeve is replaced or supplemented by a layer of expanded polyurethane.

Document E6 also discloses a layered sleeve as discussed below under point 2.4.

2.1.2 Separable sleeves

It has not been contested by the respondent that the alleged public prior use before the priority date of the patent in suit, represented by documents H4 to H25, did in fact take place by virtue of the sale and delivery of two adapter sleeves to Firma Herbert Holm without any obligation to maintain secrecy. It is further not disputed that the prior use constitutes a disclosure of a sleeve for a rotary rotogravure or flexography printing cylinder having all the features of the pre-characterising portion of claim 1. The prior use does not, however, include the feature that the inner portion comprises an outer layer and an inner layer of high rigidity material, between said layers there being a further layer of expanded polyurethane.

A similar disclosure is available from documents D2, D3 and D4. That is, the use of a double sleeve, the inner sleeve being a relatively thin spacer or adapter sleeve.

2.2 Closest prior art

The closest prior art is represented by the public prior use of documents H4 to H25. The inner portion of the sleeve, that is, the adapter sleeve, known from

this public prior use is made of a glass fibre reinforced synthetic material and is intended to allow an external sleeve to be mounted on a mandrel where the external sleeve has an internal diameter which is too large for the mandrel, as set out in the declaration of Mr. Holm (document H25). The adapter sleeve is intended to be mounted on the mandrel by means of air mounting, in which air under pressure acts on the inside surface of the sleeve to expand the sleeve and thereby allow it to be slid onto the mandrel. However, the thickness of such a sleeve is limited, owing to the necessity of allowing expansion of the sleeve under air pressure.

2.3 Object of the invention

The object of the invention is accordingly to provide a sleeve which can be air mounted on a mandrel and which permits larger gaps between mandrel and printing sleeve to be spanned.

2.4 Solution

According to claim 1 of the patent in suit, this problem is solved by the provision of an adapter sleeve, referred to in the claim as the "inner portion", which comprises an outer layer and an inner layer of high rigidity material, between said layers there being a further layer of expanded polyurethane.

Document E6 proposes a printing sleeve having an outer layer and an inner layer of fibre reinforced resin, between said layers there being two further layers, the inner layer of which is of a compressible plastics foam such as closed cell polyethylene and the outer layer of

which is of a rigid foam, such as closed cell polyurethane (column 5, lines 6 to 41).

The purpose of the sleeve is to make it possible for a single core to be used for printing with a plurality of different repeat lengths, that is with a plurality of different circumferences (column 1, lines 59 to 61).

The person skilled in that art seeking a solution to the above problem would thus apply this concept to an adapter sleeve without the exercise of inventive ingenuity, and thereby arrive at a sleeve as defined in claim 1. Whilst the sleeve of document E6 includes a compressible plastics foam layer as well as a layer of closed cell polyurethane between the outer and inner layers, this is not excluded by the wording of claim 1 which merely specifies that between the outer and inner layers there is a further layer of expanded polyurethane.

It was argued on behalf of the respondent that it would be necessary to modify the sleeve as disclosed in document E6 by the provision of radial channels in order to enable a printing sleeve to be air mounted thereon. The presence of means such as radial channels to enable air mounting of the outer portion on the inner portion is not, however, specified in claim 1.

The subject-matter of claim 1 thus does not involve an inventive step. In view of this, it is not necessary to consider the objection raised by appellant II under Article 100(b), since the appellants do not have a relevant legal interest.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

M. Dainese W. Moser