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Datasheet for the decision of 16 November 2010

Case Number: T 0332/09 - 3.2.05

Application Number: 03425316.1

Publication Number: 1364783

IPC: B41F 17/26

Language of the proceedings: EN

Title of invention:
High-speed printing machine with flexo printing matrix for sheets transported via a continuous suction belt conveyor

Patentee:
Cintio, Maria Teresa

Opponent:
BARBERAN, S.A.

Headword:
-

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step (no)"

Decisions cited:
-

Catchword:
-

Case Number: T 0332/09 - 3.2.05

D E C I S I O N
of the Technical Board of Appeal 3.2.05
of 16 November 2010

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Decision under appeal:
Interlocutory decision of the Opposition Division of the European Patent Office posted 22 December 2008 concerning maintenance of European patent No. 1364783 in amended form.

Composition of the Board:

Chairman: W. Zellhuber
Members: P. Michel
M. J. Vogel

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the decision of the Opposition Division maintaining European Patent No. 1 364 783 in amended form.

II. Oral proceedings were held before the Board of Appeal on 16 November 2010.

The appellant requested that the decision under appeal be set aside and that the patent in suit be revoked in its entirety.

The respondent (patent proprietor) requested, as a main request, that the appeal be dismissed, or, as an auxiliary measure, that the decision under appeal be set aside and the patent in suit be maintained on the basis of the set of claims filed as auxiliary request on 15 October 2010.

III. Claim 1 as maintained by the opposition division (main request) reads as follows:

"1. High—speed flexo printing machine comprising:
- a roll (01) supporting a flexo printing matrix (03);
- a counter—roll (21) that co—operates with said roll (01) with matrix;
— at least an inking assembly (26, 27, 28) comprising an inking roll (02) in contact with the flexo printing matrix (03);
— at least one continuous perforated conveyor belt (04) wound around a motor roll (22) and a return roll (23) that moves on a suction-operated surface (05);

said machine being **characterized in that**

the cylindrical external surface of the inking roll (02) is provided with micro-incisions and partially immersed in water or solvent ink contained in a chamber (07), a small tank (09) or a channel,

and in that

said conveyor belt (04) is arranged to move forward through the matrix (03) and the counter roll (21) to support the sheets/panels (06) during their forward movement through the matrix (03) and the counter roll (21)."

Claim 1 of the auxiliary request reads as follows:

"1. High—speed flexo printing machine comprising multiple printing groups, wherein each printing group comprises:

- a roll (01) supporting a flexo printing matrix (03);
- a counter—roll (21) that co—operates with said roll (01) with matrix; and
— at least an inking assembly (26, 27, 28) comprising an inking roll (02) in contact with the flexo printing matrix (03);

and wherein said machine further comprises:

— a continuous perforated conveyor belt (04) wound around a motor roll (22) and a return roll (23) that moves on a suction-operated surface (05);

said machine being **characterized in that**

the cylindrical external surface of the inking roll (02) is provided with micro-incisions and partially immersed in water or solvent ink contained in a chamber (07), a small tank (09) or a channel,

and in that

said conveyor belt (04) is arranged to move forward through the matrixes (03) and the counter rolls (21) to support the sheets/panels (06) during their forward movement through the matrixes (03) and the counter rolls (21)."

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

E18: US-A-4,186,661
E20: DE-A-199 21 271
E23: US-A-4,711,172
E30: "Technical report on the objective technical problems deriving from the use of a continuous suction belt installed on high speed high resolution flexograph printing machine", Prof Dott Ing Sauro Longhi, 3 August 2009

V. The appellant argued substantially as follows in the written and oral procedure:

Document E20 is the closest prior art. Claim 1 of the main request is distinguished from the disclosure of document E20 in that the conveyor belt has a suction-operated surface. Such a conveyor is known from document E23 and it is obvious to combine these documents, suction being just one of many obvious ways to ensure stability of the sheets on the conveyor. The type of printing technology is not relevant to the choice of conveyor system.

The subject-matter of claim 1 of the main request thus lacks an inventive step.

Claim 1 of the auxiliary request does not specify where the suction-operated surface is positioned on the conveyor, so that the presence of a longer belt is not relevant, and the subject-matter of claim 1 of the auxiliary request also lacks an inventive step.

VI. The respondent argued substantially as follows in the written and oral procedure:

Document E20 is the closest prior art. Insofar as problems of stability of the sheets on the conveyor arise, this problem can be solved by increasing the area of adhesive. There is no hint to replace the adhesive by a suction-operated conveyor, particularly since a suction belt tends to decrease stability.

The type of printing technology used in the machine of document E23 is not clear. However, it appears to be an offset machine having a blanket cylinder 9 in which the problems of stability addressed by the present invention do not arise. Document E23 is concerned with the problems which arise when the cylinder 9 is lifted, and not the problem of stability during printing. There is no indication that the conveyor of document E23 would be suitable for a flexo printing machine. In an offset printing machine, the printing cylinder contributed to stability, whilst in a flexo printing machine, stability at the printing cylinder is reduced. in addition, document E23 does not disclose a perforated conveyor belt.

As demonstrated by document E30, there exists a prejudice against the use of a suction conveyor in flexo printing machines.

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

The presence of multiple printing units necessitates a longer conveyor, giving rise to additional problems which increase the prejudice against the use of a suction conveyor in a flexo printing machine.

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

Reasons for the Decision

Main request

1. *Inventive step*

1.1 Closest prior art

Document E20, with particular reference to the embodiment of Figure 5 and the passage at column 7, lines 36 to 43, is regarded as representing the closest prior art, as accepted by both parties. This document discloses a flexo printing machine in which a conveyor belt passes through the printing nips. The sheets are retained on the conveyor (240) by means of a peelable adhesive (214) located on the conveyor band at the leading edges of the sheets.

The subject-matter of claim 1 is distinguished from the disclosure of document E20 in that the flexo printing machine is a high-speed flexo printing machine; the

surface of the inking roll is provided with micro-incisions and is partially immersed in water or solvent ink contained in a chamber, a small tank or a channel; and in that the conveyor belt is perforated and moves on a suction-operated surface.

Whilst document E20 does not provide details of the inking assembly, it is accepted by the respondent, referring to document E18, that the features of the inking assembly specified in claim 1 are well known features in the art of flexo printing (see page 4 of the submission filed 14 August 2009).

In addition, the reference to a "high-speed" flexo printing machine cannot contribute to an inventive step, since it is generally desirable to increase machine speed.

The question of inventive step thus hinges on whether or not it involves an inventive step to use a vacuum conveyor either in place of the use of a peelable adhesive, or in addition thereto.

1.2 Problem to be solved

The use of a vacuum conveyor results in an improvement in the stability of the sheets or panels on the conveyor. The problem to be solved can thus be regarded as being to improve the stability of the sheets or panels on the conveyor.

1.3 Solution

Document E23 discloses a printing machine having a suction belt (2) which transports the sheets or panels to be printed through the printing nip. The cylinder 9, which, together with the counter cylinder 11 forms the printing nip, is referred to as a printing cylinder, such as a blanket cylinder (column 2, line 55), so that the machine may be an offset printing machine or use another technology. Whilst document E23 does not show or describe the surface of the conveyor belt, it is implicit in the use of suction that there must be perforations in order to allow the suction to act on the sheets.

The skilled reader of document E23 appreciates that the choice of conveyor is largely dependant on the type of substrate to be printed, it being necessary for all forms of printing to maintain the substrate in a stable position on the conveyor. A conveyor having a suction-operated surface would thus be considered for a high speed flexo machine, particularly if it is intended to print panels for which the use of a peelable adhesive would not provide the desired stability.

The respondent argues that there exists a prejudice against the application of such a conveyor in a flexo printing machine, referring to document E30. The Board does not, however, accept that the existence of such a prejudice at the priority date of the patent in suit has been established. In particular, document E30 refers to potential problems for which the patent in suit does not offer a solution in terms of technical features of the conveyor, for example, material

overlaps at the joint necessary to form a continuous conveyor and the provision of holes in the joint area causing weakening. Claim 1 does not specify the presence of a joint and does not specify the location of the suction-operated surface.

1.4 The subject-matter of claim 1 thus does not involve an inventive step.

Auxiliary request

2. Inventive step

Claim 1 differs from claim 1 of the main request in that it is specified that the printing machine comprises a plurality of printing groups. However, both documents E20 and E23 also relate to printing machines comprising a plurality of printing groups.

In addition, whilst the presence of a plurality of printing groups has the effect of requiring a longer conveyor belt, it is noted that claim 1 does not specify the extent and location of the suction-operated surfaces and it has not been established to the satisfaction of the Board that there existed a prejudice against the use of a suction conveyor in a flexo printing machine having multiple printing units at the priority date of the patent in suit.

The subject-matter of claim 1 thus does not involve an inventive step.

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:

D. Meyfarth W. Zellhuber