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D E C I S I O N
of 28 September 2000

Case Number: T 0418/98 - 3.2.4

Application Number: 93202715.4

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Language of the proceedings: EN

Title of invention:
Feeder apparatus for stacked articles

Patentee:
PITNEY BOWES INC.

Opponents:
NEOPOST LTD
Francotyp-Postalia Aktiengesellschaft & Co.

Headword:
Mixed mail/PITNEY

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (yes)"

Decisions cited:
T 0037/82

Catchword:
-



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D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 28 September 2000

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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 27 March 1998
rejecting the oppositions filed against European
patent No. 0 581 392 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: C. A. J. Andries

Members: P. Petti

C. Holtz

Summary of Facts and Submissions

- I. Two oppositions filed against the European patent No. 581 392, each based upon Article 100(a) EPC, were rejected by the decision of the opposition division dispatched on 27 March 1998.
- II. On 9 April 1998 the appellant (opponent II) lodged an appeal against this decision and simultaneously paid the appeal fee. A statement setting out the grounds of appeal was received on 30 July 1998.
- III. Oral proceedings were held on 28 September 2000.

During the oral proceedings the respondent (proprietor) filed amended versions of Claim 1 upon which a main request and seven auxiliary requests were based.

Claim 1 of the respondent's main request reads as follows:

- "1. Feeder apparatus for stacked articles comprising:
- (a) a hopper region (10) for receiving a stack (11) of articles, said hopper region consisting of a deck (12), a side wall (22), and an upstream wall (21),
- (b) transport means (50) located in the hopper region (10) for moving articles toward the side wall (22) and in a downstream direction away from the upstream wall (21), said transport means (50) having a plurality of rollers whose axes of rotation form an acute angle with the side wall (22) in such a manner that the rollers drive articles both in a forward direction as well as

sideways toward the side wall, and

(c) said rollers of said transport means and the hopper region cooperating to cause said articles as they are moved downstream to assume a shingled configuration with lower articles in the stack (11) being advanced downstream ahead of upper articles in the stack."

IV. The appellant as well as the other party (Opponent I) argued that the subject-matter of Claim 1 of the patent as granted did not involve an inventive step having regard to documents DE-A-1 561 155 (FD10), DE-A-3 734 268 (FD7) and US-A-4 653 742 (ND4).

V. The appellant requests that the decision under appeal be set aside and the patent be revoked.

The other party supported the request of the appellant.

The respondent requested that the decision under appeal be set aside and the patent be maintained in an amended version on the basis of the following documents:

Claims: 1 to 16 according to the main request submitted in the oral proceedings,

Description: columns 1 to 2 as submitted in the oral proceedings and columns 3 to 12 as granted,

Drawings: Figures 1 to 27 as granted.

Alternatively, the respondent requested that the decision under appeal be set aside and the patent be

maintained in an amended version according to one of the auxiliary requests.

Reasons for the Decision

1. The appeal is admissible.
2. *The claimed subject-matter and the amendments (main request)*
 - 2.1 The amendments to the claims only concern Claim 1 which differs from Claim 1 of the patent as granted in that the features
 - (i) "said hopper region **consisting of** a deck (12), a side wall (22), and an upstream wall (21)", and
 - (ii) "**said rollers of** said transport means and **the** hopper region cooperating to cause ..."have replaced respectively the features "said hopper region comprising a deck (12), a side wall (22), and an upstream wall (21)" and "said transport means and hopper region cooperating to cause ..." (emphasis added).
 - 2.1.1 The amendment according to item (i) can be clearly derived from the drawings (see Figures 1 to 6). This amendment makes it clear that the hopper region comprises only two walls and a deck, defining in this way the so called "guideless hopper" (see column 3, lines 2 to 10, 33 and 46 to 50).

It can be derived from the description and the

drawings of the patent that the upstream wall 21 provides back support for the stack of articles, that the side wall 22 acts as a reference wall against which the articles are aligned and that the deck 12 (with the rollers) provides support for the stack.

According to Claim 1 the rollers of the transport means 50 are "located in the hopper region", drive the articles "both in a forward direction as well as sideways toward the side wall" and cooperate with the hopper region "to cause said articles ... to assume a shingling configuration...". Thus, it is clear that the hopper (with its deck and its walls) and the rollers define a region in which the articles of the stack 1) are transported downstream, 2) are "registered" (i.e. aligned) against the side wall and 3) assume a shingling configuration.

2.1.1.1 The appellant and the other party argued that this amendment contravenes Article 123(2) EPC because the drawings also show a plate 28 which can be considered as being a part of the hopper, this plate 28 being positioned, according to Figure 2, upstream of the dotted line 25 which indicates the transition between the deck 12 of the hopper region 10 and the deck 27 of the singulator 15.

The board cannot accept this argument because it is clear from the drawings and its corresponding portions of the description that the plate 28 is a part of the singulator module 15. Indeed, Figures 2 to 6 are different views of the same feeder of Figure 1. Therefore, although Figure 2 could give the impression that plate 28 is fixed to the upper part 24 of the side wall 22, it is clear from Figures 3 to

6 that the plate 28 is not fixed to the side wall 22 which can be moved apart from the rear edge of the deck 12 to form an open slot 35. The function of the plate 28 is to limit the height of **shingled** mail entering the singulator module (see the description of the patent: column 4, lines 33 to 36). Thus, it is clear that the shingling of the stack occurs in the hopper region before the articles enter the singulator module. Furthermore, it can be understood from Claim 15 of the patent as granted that the plate 28 is a part of the singulator, in so far as the singulator is defined in this dependent claim as "having a deck (27) for receiving articles from the deck (12) of the hopper region (10) ... and means (28) located above the deck transition for blocking movement downstream of articles above a certain level".

2.1.2 The amendment according to item (ii) can also be clearly derived from the drawings (see Figures 1 to 6). This amendment makes it clear that the shingling effect is obtained on account of a cooperation between rollers and the hopper region.

2.1.2.1 With respect to this feature defining the cooperation between rollers and hopper region (i.e. feature (c) of Claim 1) it has to be noted that this feature has a functional character in so far as it defines a result to be obtained.

This feature generalises at a high level of abstraction features disclosed in a more specific way in the description of the patent, in particular those features which define the inclination of the deck 12 and the upstream wall 21 of the hopper on the one

hand (the hopper region) and the eccentric configuration of the rollers on the other hand (the rollers). Namely: according to the description of the patent the deck 12 of the hopper is angled upward by an angle of about $4^\circ - 6^\circ$ and slanted sideways about 6° , the upstream wall 22 is oriented about $100^\circ - 110^\circ$ from the surface of the deck, so that the stack can be leaned toward the upstream wall 21 and toward the side wall 22. Moreover, the rollers are described as having offset portions 56, 57 in order to provide a fluffing action of the stack. Thus, it is clear from the description (see column 11, lines 46 to 57 and column 9, lines 9 to 11) that the desired shingled effect results from the combined forward and fluffing action of the rollers together with the angled deck and back support. In other words, the description makes it clear how the result defined by feature (c) can be obtained.

- 2.2 The amendments to the description concern its adaptation to the amended Claim 1 and the indication of the background art.
- 2.3 These amendments do not contravene the requirements of Article 123 EPC.
- 2.4 It is clear from the context of Claim 1 that the rollers have three functions, in so far as each roller contributes
- to move the articles of the stack in a downstream direction,
 - to move them toward the sidewall in order to align them against it, and

- to cause them to assume a shingled configuration.

The features of Claim 1, in particular the feature that the lower articles in the stack are advanced downstream ahead of upper articles in combination with the feature that the rollers drive the articles, make it clear that the same rollers are arranged to provide support for the stack in the hopper region and to impart a conveying force to the lower surface of the lowest article.

3. *The prior art*

3.1 Document DE-A-1 561 155 (FD10) discloses a feeder apparatus comprising an hopper region ("Schacht" 1) for receiving a stack 56 of articles, the hopper region comprising two side walls, an upstream wall 6 and a downstream wall 7, the feeder apparatus also comprising transport means in the form of a belt conveyor, which is partly located in the hopper region for moving the articles in a downstream direction from the upstream wall, said stack being supported by a portion of the conveyor belt. The belt conveyor 8 and the hopper region (namely the walls 6 and 7) cooperate to cause the articles as they are moved downstream to assume a shingled configuration with lower articles in the stack being advanced downstream ahead of upper articles in the stack.

3.2 Document DE-A-3 734 268 (FD7) does not concern a feeder apparatus for stacked articles but a device for aligning a single mail envelope 16 against a side wall 42. This device comprises a deck 14, a side wall 42 and first transport means for moving the envelope towards the side wall 42 and second transport means

60, 18 for moving the envelope in a downstream direction, the first transport means comprising a roller 82 whose axis of rotation forms an acute angle with the side wall and a hemispherical part 88 arranged in a cavity 89 of the deck 14, this roller 82 cooperating with the hemispherical part 88 so as to impart a conveying force **on the upper surface** of an envelope when the envelope is positioned between the roller 82 and the hemispherical part 88. Moreover, the conveying system formed by roller 82 and part 88 cooperates with a braking finger 97 so as to produce a rotation of the envelope in order to align it with respect to the side wall 42.

3.3 Document US-A-4 653 742 (ND4) discloses a feeder apparatus comprising a hopper region 1 for receiving a stack 2 of paper sheets, the hopper region consisting of two side walls 1d, an upstream wall 1c, a downstream wall 1b and a deck 1a for supporting the stack, the feeder apparatus also comprising transport means located in the hopper region for moving the sheets in a downstream direction, the transport means comprising a plurality of rollers 5, 20 whose axes of rotation form an angle of 90° with the side walls in such a manner that the rollers may drive the lowermost of the sheets in a forward direction. The downstream wall 1b has a lower edge forming with deck 1a of the hopper an ejection port 3 through which the lowermost sheet of the stack is conveyed.

It can be derived from Figures 1 and 5 that the stack of sheets abuts on the downstream wall 1b and that the shape of the lower edge of the downstream wall 1b is such that a lower portion of the stack can assume a shingled configuration. In other words, it can be

assumed that the rollers 5, 20 and the downstream wall 1b of the hopper region cooperate to cause the sheets as they are moved downstream to assume a shingled configuration with lower articles in the stack being advanced downstream ahead of upper articles in the stack.

4. *Novelty (main request)*

The subject-matter of Claim 1 is novel (Article 54 EPC) with respect to the cited prior art. Novelty was not disputed.

5. *Inventive step (main request)*

5.1 With respect to inventive step the appellant and the other party essentially considered in their argumentations either document FD10 or document ND4 as being the primary source of information (i.e. the source disclosing the closest prior art) and referred to document FD7 as a secondary source of information.

5.1.1 According to document FD10 the stack of sheets abuts on the upstream wall of the hopper, whereas according to document ND4 the stack abuts on the downstream wall. It has to be considered that in both these known feeders the stack of sheets must be adjusted manually against a wall of the hopper. Thus, in each of these feeders problems arise when the feeder is used to process mixed mail, i.e. mail of varying size and thickness. Therefore, the problem to be solved is to provide a feeder apparatus capable of processing mixed mail.

5.1.2 The subject-matter of Claim 1 differs from the

apparatus according to document FD10 in that

- (a) the hopper region **consists of** a deck, an upstream wall and a sidewall (guideless hopper),
- (b) the transport means comprises a plurality of rollers (driving the articles),
- (b') the axes of rotation of the rollers form an acute angle with the side wall in such a manner that the rollers drive articles both in a forward direction as well as sideways toward the side wall.

Having regard to the observations in section 3.3 above, the subject-matter of Claim 1 is distinguished from the apparatus according to document ND4 by features (a) and (b').

5.1.3 The distinguishing feature (a) results in a more accessible hopper (guideless hopper). The distinguishing feature (b') results in providing a transport mechanism for the articles of the stack which is capable of aligning the articles against the sidewall of the hopper. Both features (a) and (b') - in combination - eliminate the need for a guide in the hopper region in front of which the stack of articles has to be manually adjusted and, thus, render the feeder capable of handling mixed mail.

Therefore, the board is satisfied that the above mentioned problem is solved by the combination of features of claim 1.

5.1.4 With respect to document FD7 the appellant and the

other party essentially argued as follows:

This document, which concerns a mail processing device comprising a deck and a sidewall, teaches the use of a roller for moving an envelope not only in a downstream direction but also towards a sidewall against which the article has to be aligned, the roller having an axis of rotation forming an acute angle with the sidewall in such a manner that the roller drives the envelope in a forward direction as well sideways towards the sidewall. This known device is suitable for handling mail of different size. The skilled person, when concerned with the problem of processing mixed mail, would turn to document FD7, apply its teaching to the closest prior art device (document FD10 or ND4) and arrive at a device as claimed in Claim 1.

The board cannot follow this argument for the following reasons:

- (a) The device disclosed in document FD7 is suitable for handling **single** mail envelopes which are manually fed to the first transport means (driven roller 82 and hemispherical part 88; see section 3.2 above). The structure of this first transport means, namely the fact the driven roller 82 is positioned above the deck 12 so as to impart a conveying force on the **upper** surface of the envelope, renders the device unsuitable for handling a stack of envelopes. Although the introductory part of the description of document FD7 refers (see column 3, lines 17 to 20) to the possibility of using the device in automatic mail processing machines, the embodiment

described in detail referring to the drawings concerns a device to which the envelopes are manually fed (see inter alia column 6, lines 16 to 18). In any case, the automatic feeding would require a feeding unit by which the envelopes are individually fed (i.e. one after the other) to the first transport means (see column 2, line 63 to column 3, line 2). Furthermore, the device according to either document FD10 or document ND4 requires a transport means supporting the stack of sheets, the conveying force being imparted on the lower surface of the lowest sheet. Therefore, there is incompatibility between the structure of the first transport means 82, 88 of the device according to document FD7 and the structure of the transport means of the feeder according to either document FD10 or document ND4. Since Claim 1 defines rollers arranged not only to provide support for the stack in the hopper region but also to impart a conveying force to the lower surface of the lowest article (see section 2.4 above), the above mentioned incompatibility makes it unlikely for the skilled person to combine the teaching of documents FD7 and FD10 or ND4.

- (b) In the present case, the rollers of the feeder apparatus defined by Claim 1 have three different functions (see section 2.4 above), providing therefore a compact apparatus. The feeder apparatus according to either document FD10 or document ND4 is provided with a conveyor (rollers in ND4, a conveyor belt in FD10) having only two functions, namely that of moving the

sheets of the stack in a downstream direction and that of contributing to cause them to assume a shingled configuration, whereas the roller 82 of the device according to document FD7 has two other functions, namely that of moving an envelope in a downstream direction and that of moving it towards the sidewall. However, none of these documents can suggest the idea of a transport means having three functions. On the one hand, the function of moving the article sideways towards a sidewall of the hopper in order to align them against a sidewall cannot be suggested by document FD10 or ND4 because the feeders known from these documents are provided with a hopper developed for receiving a stack which has to be manually adjusted in place. On the other hand, the function of using the roller as a means for producing shingling of the articles cannot be derived from document FD7 because the device known from this document is unsuitable for handling a stack of envelopes.

Therefore, the skilled person would not combine the contents of documents FD7 and FD10 or ND4.

- 5.2 The appellant and the other party argued that the skilled person would apply the teaching of document FD7 to the feeder apparatus according to document FD10 or ND4 keeping in mind that the articles of a stack have to be necessarily processed in such a manner that the lower articles in the stack are advanced downstream ahead of upper articles in the stack so that the skilled person would arrive at the feeder according to Claim 1. Having regard to the comments above this argument is not relevant. In any

case, even if the skilled person were to combine document FD7 with document FD10 or ND4, he would not necessarily arrive at a feeder as defined in Claim 1. The combination of these disclosures could lead for instance to a device in which the articles of the stack firstly are processed in the hopper region so as to be moved in a downstream direction and caused to assume a shingled configuration when they are moved downstream, and then are singulated so as to be fed individually to a further station in which they are oriented so as to be aligned against a reference wall.

- 5.3 The argument of the appellant according to which claim 1 does not completely define the invention in so far as it does not refer to the fluffing means which produces together with the forward movement of the article in stack the shingling effect is not relevant because it relates to the clarity of the claim (see also the comments in section 2.1.2.1 above).

The decision T 37/82 (OJ EPO 1984, 71), which the other party referred to during the oral proceedings, is not relevant in the present case because it is clear that the distinguishing feature (a) and (b') contribute to the solution of the problem of handling mixed mail.

- 5.4 Having regard to the above comments, the board finds that the subject-matter of Claim 1 of the respondent's main request involves an inventive step as required by Article 56 EPC.

6. The patent can therefore be maintained on the basis

of the main request. Therefore, there is no need to consider the auxiliary requests of the respondent.

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 the following version:

Claims: 1 to 16 according to the main request submitted in the oral proceedings,

Description: columns 1 to 2 as submitted in the oral proceedings and columns 3 to 12 as granted,

Drawings: Figures 1 to 27 as granted.

The Registrar:

The Chairman:

N. Magouliotis

C. Andries