

Internal distribution code:

- (A) [-] Publication in OJ
- (B) [-] To Chairmen and Members
- (C) [-] To Chairmen
- (D) [X] No distribution

**Datasheet for the decision
of 29 August 2018**

Case Number: T 1458/14 - 3.2.05

Application Number: 07012006.8

Publication Number: 1826009

IPC: B41J2/175

Language of the proceedings: EN

Title of invention:

Ink cartridge and inkjet printer

Patent Proprietor:

Brother Kogyo Kabushiki Kaisha

Opponents:

Pelikan Hardcopy Production AG
ARTECH GmbH design + production in plastic

Relevant legal provisions:

EPC Art. 123(2)

Keyword:

Amendments - added subject-matter (yes)

Decisions cited:

G 0002/10



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1458/14 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 29 August 2018

Appellant: Brother Kogyo Kabushiki Kaisha
(Patent Proprietor) 15-1 Naeshiro-cho,
Mizuho-ku,
Nagoya-shi, Aichi-ken 467-8561 (JP)

Representative: Prüfer & Partner mbB
Patentanwälte · Rechtsanwälte
Sohnckestraße 12
81479 München (DE)

Respondent I: Pelikan Hardcopy Production AG
(Opponent 1) Gewerbestrasse 9
8132 Egg (CH)

Representative: Meissner Bolte Partnerschaft mbB
Postfach 86 06 24
81633 München (DE)

Respondent II: ARTECH GmbH design + production in plastic
(Opponent 2) Feldbachacker 10
44149 Dortmund (DE)

Representative: Jochen Schäperklaus
Fritz Patent- und Rechtsanwälte
Partnerschaft mbB
Postfach 1580
59705 Arnsberg (DE)

Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
2 May 2014 concerning maintenance of the
European Patent No. 1826009 in amended form.**

Composition of the Board:

Chairman	M. Poock
Members:	S. Bridge
	J. Geschwind

Summary of Facts and Submissions

- I. The appeal was lodged against the interlocutory decision of the opposition division that the European patent No. 1 826 009 as amended according to the 7th auxiliary request meets the requirements of the EPC.
- II. Two oppositions were filed against the patent as a whole. Both were based on Article 100(a) EPC (lack of novelty, Article 54 EPC and lack of inventive step, Article 56 EPC) and Article 100(c) EPC.
- III. Oral proceedings were held before the board of appeal on 29 August 2018.
- IV. The appellant (patent proprietor) requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of any of the sets of claims filed with the statement of grounds of appeal as main request and auxiliary requests 2 to 4, or auxiliary requests 1, 1A and 3A as filed with the letter of 27 July 2018.
- V. The respondents (opponent 1 and opponent 2) requested that the appeal be dismissed.
- VI. Claim 1 according to the main request reads as follows:

"1. An ink cartridge (3), comprising:
a first detection portion (60) positioned on the ink cartridge (3) so as to be detectable by a detector (14) of an image forming apparatus (1) to detect a residual ink amount in the ink cartridge (3) when the ink cartridge (3) is installed in the image forming apparatus (1);
characterized by:

a second detection portion (66, 76, 93) positioned on the ink cartridge (3) so as to be detectable by the detector (14) during installation and removal of the ink cartridge (3) into/from the image forming apparatus (1);

wherein the second detection portion (66, 76, 93) is aligned with the first detection portion in a first direction in which the ink cartridge (3) is inserted into the image forming apparatus (1) during installation of the ink cartridge (3) into the image forming apparatus (1)."

VII. Claim 1 according to auxiliary request 1 only differs from claim 1 according to the main request in that the following text is added at the end of the claim:

"and wherein the second detection portion (66, 76, 93) is disposed at a position away from the first detection portion toward a leading side and surface of the ink cartridge (3) that is first inserted into the image forming apparatus".

VIII. Claim 1 according to auxiliary request 1A only differs from claim 1 according to the main request in that the following text is added at the end of the claim (the differences with respect to claim 1 according to auxiliary request 1 have been underlined by the board):

"and wherein the second detection portion (66, 76, 93) is disposed at a position apart and away from the first detection portion at a predetermined distance toward a leading side and surface of the ink cartridge (3) that is first inserted into the image forming apparatus".

IX. Claim 1 according to auxiliary request 2 only differs from claim 1 according to auxiliary request 1 in that

the following text is added to the preamble of the claim:

"a cartridge body (20, 70, 91) that has an ink tank (31) containing ink,
an ink supply passage (32) for supplying ink from the ink tank (31) of the cartridge body to a print head (2), and
an air introduction passage (33) for introducing air into the ink tank (31) of the cartridge body (20, 70, 91);".

- X. Claim 1 according to auxiliary request 3 only differs from claim 1 according to auxiliary request 1 in that the following text is added at the end of the claim:

"wherein the ink cartridge (3) includes a side wall, and a first protrusion (34), that projects outward and extends downward, is formed on the side wall at a substantial central portion with respect to a height direction of the ink cartridge (3),
wherein the first detection portion (60) is disposed in the first protrusion (34),
wherein the second detection portion (66, 76, 93) includes a rib-like second protrusion provided at the side wall and impermeable to light".

- XI. Claim 1 according to auxiliary request 3A only differs from claim 1 according to auxiliary request 1A in that the following text is added at the end of the claim:

"wherein the ink cartridge (3) includes a side wall, and a first protrusion (34), that projects outward and extends downward, is formed on the side wall at a substantial central portion with respect to a height

direction of the ink cartridge (3), the protrusion having a light permeable wall, wherein the first detection portion is provided by an interface between ink contacting the light permeable wall and the light permeable wall of the first protrusion (34) to allow detection of a residual ink amount in the ink cartridge (3) based on reflectance of the ink and the wall with respect to light emitted and received by the detector, wherein the second detection portion (66, 76, 93) includes a rib-like second protrusion provided at the side wall".

XII. Claim 1 according to auxiliary request 4 only differs from claim 1 according to auxiliary request 3 in that the final feature is amended as indicated below:

"wherein the second detection portion (66, 76, 93) includes a rib-like second protrusion provided at the side wall ~~and~~, impermeable to light and extending in the extending direction of the first protrusion (34), wherein the first protrusion (34) and the second protrusion are provided along a mounting/installation direction of the ink cartridge (3)."

XIII. The arguments of the appellant in the written and oral proceedings can be summarised as follows:

The application as filed discloses that "*the protrusion 34 is formed **on** one side wall of the ink cartridge 3*" (application as published paragraph [0065]). According to paragraph [0046], "*the light shielding plate 60 is disposed **in** an inner space of the protrusion 34 ...*". Taken together, the plate 60 as the first detection portion in the first embodiment is disposed **in** the protrusion **on** the cartridge body (emphasis in all above

citations added by the appellant). In consequence, claim 1 of all requests covers the first embodiment with figures 2, 3, 4 and 7.

Figure 3 shows protrusion 34 containing the first detection portion 60 can move along with protrusion 66 disposed along the insertion direction. Figure 7 shows a top view of protrusion 34 and the second detection portion (protrusion 66) placed between the light emitting and receiving portions 14a, 14b of sensor 14. Therefore, the light shielding plate 60 is aligned with the protrusion 66. The light shielding plate 60 is not visible in figure 7, because it is hidden by protrusion 66.

The term "*aligned*" is used to describe portions 76a, 76b of protrusion 76 (a modification of protrusion 66) in the embodiment of figures 9A and 9B in the context of sequential light blocking, when the portions 76a, 76b sequentially pass between, or in front of, the sensors, which is the same process as the one which occurs with respect to protrusion 34, which includes the first detection portion (plate 60 or ink interface at its wall), and protrusion 66 or 76 as described throughout the specification. The technical contribution of the alignment of portions 76a, 76b is described in the remainder of paragraph [0072]: thus an alignment of two portions is used synonymously with an arrangement allowing detection of both portions by the same sensor when the cartridge is moved along the insertion direction. This is the same arrangement as described in paragraph [0008] (lines 33 to 39). Figure 4 in combination with the top view cross section of figure 7 discloses that the rib 66 (second detection portion) is vertically aligned with the corresponding protrusion 34, which includes the light shielding plate 60 (first

detection portion in this embodiment) in its inner space. According to paragraph [0044] the light shielding plate 60 is disposed in the vertical plane parallel to the sheet of figure 4. In view of figure 7, both portions (light shielding plate 60 and rib 66, or portion 76a and portion 76b) pass between, or in front of, the sensors during installation of the cartridge. In other words, to be "*aligned*" means that the two detection portions are aligned along a direction with respect to the sensors, in order to allow detection. Thus the detection portions do not need to be aligned in three-dimensional space.

With regard to the variant embodiment of paragraph [0084]:

- figure 7 relate to this embodiment, because a cartridge body 20 is referred to in paragraph [0084];
- although the reflective ink-wall interface that forms the first detection portion appears offset from the rib 66 in figure 7, the second detection portion is also similarly offset, because its light blocking surface similarly blocks light on just a single side of rib 66. Given this, when the rib 66 counts as a whole, although just one side surface technically absorbs light, then the rib 66 has to be compared with both opposed walls of the protrusion 34 which may serve as a basis for interfaces. Then, in view of figure 7, the vertical alignment of rib 66 and protrusion is perfect.

Further, figure 2B showing cartridge body 20 reveals that unlike the top view of figure 7, the rib 66 has a width transitioning to that of the inner space of protrusion 34, such that the absorbing surface of rib 66 and one inner wall of protrusion 34 are in line in

the vertical direction. Figure 9 (showing cartridge body 70) reveals there is no difference in offset.

Figure 2B discloses that the space inside protrusion 34 is narrow: the skilled person would dispose the plate 60 centrally, because not to do so would be disadvantageous. The first detection portion would thus be aligned with the rib 66 of the second detection portion.

Alternatively, the entire inner surface of the protrusion 34 may be used as the reflective ink-wall interface depending on where the detector of the unclaimed image forming apparatus is arranged. As the central part of the protrusion 34 is aligned with the second detection portion 66, there is a basis for the claimed feature.

In summary, the feature "*aligned with*" is compatible with all embodiments disclosed in the application as originally filed, so that the requirements of article 123(2) EPC are met.

XIV. The arguments of the respondents in the written and oral proceedings can be summarised as follows:

Claim 1 of all requests contains added subject-matter, because the feature "*the second detection portion (66, 76, 93) is aligned with the first detection portion in a first direction ...*" has no basis in the application documents as filed, so that the requirements of article 123(2) EPC are not met.

The disclosure of paragraph [0008] is broader than the particular special case of the detection portions being aligned. Paragraph [0008] does not provide a basis for

the alignment of the detection portions. The amendment concerning a possible "*alignment*" of the first and second detection portions belatedly introduces for the first time a particular configuration and forms an intermediate generalisation which has no basis in the application as filed.

The skilled person directly and unambiguously understands the term "*aligned*" used in the context of paragraph [0072] of the application as published to mean that the two plate shaped detection portions 76a, 76b of protrusion 76 lie in the same plane as shown in figure 9B.

The light shielding plate 60 (first detection portion) is disposed inside protrusion 34 and is thus not disposed "*on*" the cartridge as required by claim 1 of all requests. The configurations shown in the figures thus do not fall under the scope of claim 1 of any of the requests and thus cannot provide a basis for the contested feature.

Furthermore, the light shielding plate 60 is not shown in the cross sectional view of figure 7, because the cross section is taken below plate 60 as shown in figure 4. Figure 7 thus cannot provide a basis for the contested feature. The light shielding plate 60 is only shown in figure 4 where it is merely described as "*disposed in the vertical plane parallel to the sheet of FIG. 4*" (paragraph [0044]). This is not sufficient to directly and unambiguously disclose an alignment of the first and second detection portions.

The variant features of the invention set out in paragraph [0084] of the application as published were not directly and unambiguously disclosed in combination

with the features of the particular configurations shown in the figures. Such combinations of features have no direct and unambiguously basis in the application as filed. Even if such a combination were considered, the ink-wall interface of protrusion 34 facing the detectors 14a and 14b shown in figure 7 are laterally offset from, and therefore not aligned with, the second detection portion 66.

Reasons for the Decision

1. *Article 100(c) EPC*

1.1 The objections of the respondents concern the amended feature of claim 1 (all requests) "*the second detection portion (66, 76, 93) is aligned with the first detection portion in a first direction in which the ink cartridge (3) is inserted into the image forming apparatus (1) during installation of the ink cartridge (3) into the image forming apparatus (1)*" and in particular with the two detection portions being "*aligned*".

1.2 In decision **G 2/10** of 30 August 2011 (point 4.3 of the Reasons, first paragraph), the Enlarged Board of Appeal stated the following: "*The importance and the applicability, without exception, of Article 123(2) EPC was underlined in the jurisprudence of the Enlarged Board of Appeal as early as in its opinion **G 3/89** and decision **G 11/91** (OJ EPO 1993, 117 and 125, relating to amendments by way of correction). From these rulings it follows that any amendment to the parts of a European patent application or of a European patent relating to the disclosure (the description, claims and drawings) is subject to the mandatory prohibition on extension laid down in Article 123(2) EPC and can therefore,*

*irrespective of the context of the amendment made, only be made within the limits of what a skilled person would derive directly and unambiguously, using common general knowledge, and seen objectively and relative to the date of filing, from the whole of these documents as filed, points 1., 1.3 and 3. of the Reasons" (emphasis added by the board). The underlined text is frequently referred to as the "gold standard" for assessing any amendment for its compliance with Article 123(2) EPC (see **G 2/10**, point 4.3 of the Reasons, last paragraph).*

In the present case, it is thus necessary to determine whether the skilled person would derive directly and unambiguously, using common general knowledge, and seen objectively and relative to the date of filing, from the whole of these documents as filed the feature "*the second detection portion (66, 76, 93) is aligned with the first detection portion in a first direction in which the ink cartridge (3) is inserted into the image forming apparatus (1) during installation of the ink cartridge (3) into the image forming apparatus (1)*" from the application documents as filed.

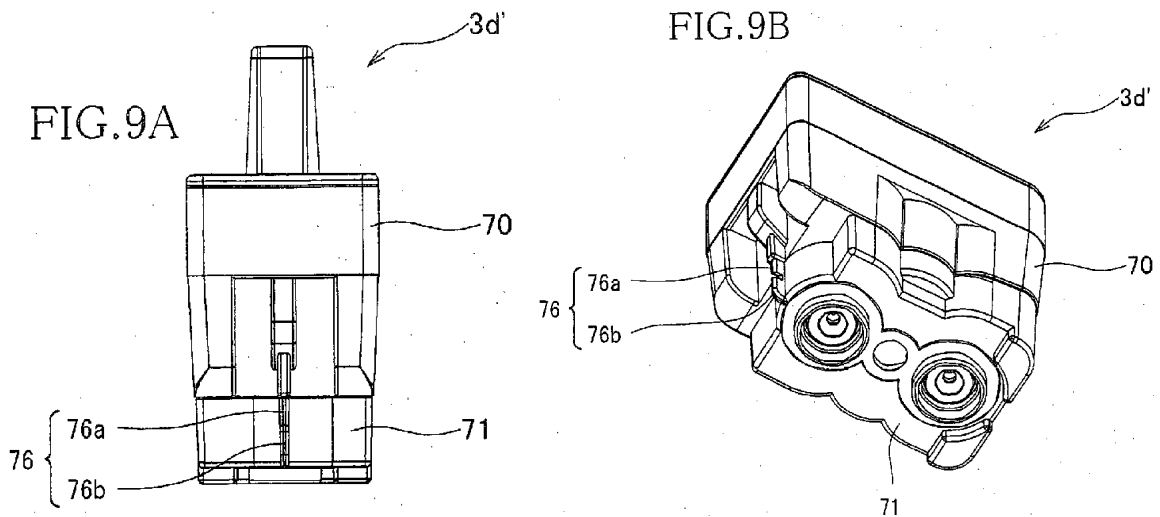
- 1.3 This feature is not disclosed in the text of the description or claims of the application as originally filed.
- 1.3.1 Paragraph [0008] of the application as published generally discloses that "*[t]he second detection portion may be positioned away from the first detection portion along the ink cartridge in a direction in which the cartridge is installed, the second detection portion may be detected by the detector only during installation or removal of ink cartridge in one predetermined direction into or from the image forming apparatus*".

This disclosure is cast in much more general terms ("*may be positioned away from ... in a direction ...*") than the particular special case of the first and second detection portions having to be aligned. Insofar as the disclosure of paragraph [0008] is concerned, it is only necessary for both detection portions to pass in front of the detector on the image forming apparatus during installation of ink cartridge. Singling out the special case in which the first and second detection portions are, in addition, "*aligned*" adds technical information which has no basis in paragraph [0008]. The appellant's approach which seeks to have the precise term "*aligned*" of the claims interpreted more broadly according to paragraph [0008] is contrary to article 84 EPC 1973, first sentence, according to which "*[t]he claims shall define the matter for which protection is sought*". Thus, if a specific term is to be given an unusual definition, then this definition would have had to have been included in the text of the claim. This was not done.

- 1.3.2 The term "*aligned*" does occur in paragraph [0072] of the application as published in the context of the example of figures 9A and 9B and refers to the detection portions 76a and 76b into which the protrusion 76 of the second detection portion is split: "*The protrusion 76 is of substantially a fork shape with detection portions 76a, 76b vertically aligned*": This passage only refers to the second detection portion and thus does not provide a basis concerning the disposition of the first and second detection portions relative to the direction in which the ink cartridge is inserted into the image forming apparatus during installation of the ink cartridge into the image forming apparatus.

1.3.3 Interpretation of the term "aligned" as used in the description as filed

The board cannot follow the appellant's interpretation that the skilled person would necessarily only understand the term "aligned" in the context of the rest of paragraph [0072] which discloses that "[w]hen the large ink cartridge 3d' is mounted on/installed in or removed from the holder 4, the light from the light emitting portion 14a is blocked twice by the detection portions 76a, 76b of the protrusion 76". Whether the detection portions 76a, 76b of the protrusion 76 may also block the light from the light emitting portion 14a twice when they are slightly offset from one another while still passing between the light emitting and light receiving parts of a detector 14 such as the one shown in figure 7 is not actually discussed in paragraph [0072] of the application as published, nor is it directly and unambiguously disclosed that an intended particular meaning to be given to the term "aligned" is such as to cover such a configuration either when used in that paragraph or when subsequently used in a claim.



Instead the term "aligned" as used in paragraph [0072] of the application as published only refers to the two plate like protrusions 76a and 76b as shown in figures

9A and 9B and is thus understood by the skilled person to mean that the generally planar protrusions 76a and 76b lie in a same plane.

In consequence, the skilled person understands the term "*aligned*" used in the feature "*the second detection portion (66, 76, 93) is aligned with the first detection portion in a first direction in which the ink cartridge (3) is inserted into the image forming apparatus (1) during installation of the ink cartridge (3) into the image forming apparatus (1)*" to mean that the first and second detection portions must lie in a same plane.

1.3.4 In summary, contrary to what has been advanced on behalf of the appellant, there is nothing in the text of the description or claims of the application as filed which would cause the skilled person to interpret the expression "*the second detection portion (66, 76, 93) is aligned with the first detection portion ...*" as synonymous with an arrangement allowing detection of both portions by the same sensor when the cartridge is moved along the insertion direction, given that the issue of "*the second detection portion (66, 76, 93) [being] aligned with the first detection portion in a first direction ...*" was not disclosed or addressed in any way in the text of the application as filed. Such an interpretation would require the skilled person to actively seek to derive a generalisation concerning the configuration of the ink cartridge, an activity which is not needed when there is a direct and unambiguous disclosure.

1.4 Since the contested feature is not disclosed in the text of the description or claims of the application as originally filed, the only remaining possibility consists of the figures relating to embodiments of the

invention. This raises the question what are the embodiments of the invention as claimed in claim 1.

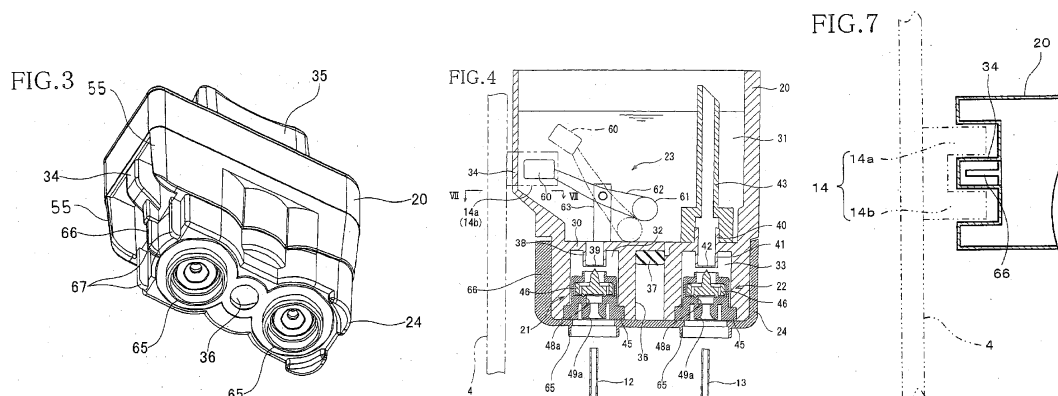
- 1.4.1 Claim 1 according to all requests requires "*a first detection portion (60) positioned **on** the ink cartridge...*" (emphasis added by the board).
- 1.4.2 However, according to paragraph [0008] of the application as published, "*[t]he first detection portion may be a light shielding plate formed of a material that is substantially impermeable to light. The light shielding plate may be movably provided **in** the cartridge body so as to change position in response to variations in an amount of ink in the cartridge body*" (emphasis added by the board). Indeed, figures 2A, 2B, 2C, 3, 4 and 7 relate to a same configuration (paragraph [0024]) in which "*[a] light shielding plate 60 of the shutter mechanism 23 is disposed **in an inner space** of the protrusion 34*" and "*[t]he light shielding plate 60 is a thin plate member that has a predetermined area and is disposed in the vertical plane parallel to the sheet of FIG. 4*" (paragraphs [0032], [0044], emphasis added by the board).
- 1.4.3 The board thus agrees with the appellant in that figures 2, 3, 4 and 7 relate to a same configuration in which the "*[t]he first detection portion*" in form of "*light shielding plate 60*" is disposed **inside** protrusion 34 on the ink cartridge 3. However, contrary to the appellant's position, the board does not accept that this may also be described as the "*first detection portion (60) [is] positioned **on** the ink cartridge...*" (emphasis added by the board): the "*light shielding plate 60*" constituting the "*first detection portion*" is clearly not "*positioned **on** the ink cartridge...*", because it is disposed inside protrusion 34 and is thus inside

(and not "on") the cartridge 3. The fact that the protrusion 34 is provided "on" the cartridge does not mean that anything disposed inside the protrusion is somehow displaced to end up being disposed "on" the cartridge as well.

1.4.4 There is also no basis in the application as filed to give the term "on" the broader meaning of "is part of". The appellant's approach of seeking to re-interpret clear words used in a claim to achieve an overlap with all of the disclosure in the description is again contrary to article 84 EPC, first sentence, according to which "[t]he claims shall define the matter for which protection is sought".

1.4.5 In consequence, the configurations shown in the figures do not constitute embodiments of the invention as claimed in claim 1 (all requests).

1.5 Nevertheless, the opposition division considered that the contested feature was supported by figures 3 and 7 which show the protrusion 34 (inside which the first detection portion 60 can move) and the second detection portion 66 (contested decision, page 25, sections 5.2 and 5.3).



However, only figure 4 explicitly shows the light shielding plate 60 forming the first detection portion. Figure 7 is a sectional view of the ink cartridge taken

along the line VII-VII of figure 4 and thus starts below the first detection portion (light shielding plate 60) which is therefore not visible in figure 7. In consequence, the lateral position of the first detection portion 60 inside protrusion 34 is not disclosed in figure 7.

The cross sectional view of the cartridge disclosed in figure 4 discloses a cross hatched second detection portion 66 and a light shielding plate 60 which is not cross hatched: figure 4 thus does not provide a basis for claiming that the second detection portion 66 and a light shielding plate 60 are "*aligned*", since, in accordance with conventional drawing conventions, they do not necessarily both lie in the cross sectional plane of figure 4. Corresponding paragraph [0044] of the application as published which discloses that "*the light shielding plate 60 is [...] disposed in the vertical plane parallel to the sheet of FIG. 4*" also does not permit the conclusion that the first and second detection portions are aligned.

The appellant's argument that the illustrated narrow width of the protrusion 34 shown in the figures would cause the skilled person to centre the light shielding plate 60 inside the protrusion 34 is speculative, since the exact disposition of the light shielding plate 60 is not disclosed in the application as filed and may be further influenced by additional considerations.

Thus there is no direct and unambiguous disclosure of the light shielding plate 60 inside protrusion 34 being aligned with the second detection portion 66. Furthermore, a light shielding plate 60 which is not aligned with the second detection portion 66 (e.g. by being slightly offset therefrom inside protrusion 34) would

not affect the detection processes of the invention, because such a first detection portion 60 would still be detectable by the detection arrangement 14a and 14b on either side of the protrusion 34 as disclosed in figure 7. The claimed alignment is thus also not an implicitly necessary feature of the configurations shown in the figures.

Therefore, even if the configurations of the figures had fallen under the scope of claim 1 according to all requests, they do not provide a direct and unambiguous disclosure of the contested feature either.

1.6 With respect to the variant "*without using the light shielding plate 60*" of paragraph [0084] of the application as published, there is no detailed disclosure of the corresponding cartridge. A detailed embodiment of such a cartridge is thus not directly and unambiguously disclosed.

1.6.1 Even if the skilled person nevertheless were to refer to the existing figures in lieu of such an embodiment, figure 7 discloses that the second detection portion 66 is offset from the inner side of the walls of protrusion 34 where the interface of the ink and the wall of the cartridge body reflects light to be received by the light receiving portion of the detector. Thus figure 7 cannot provide a basis for the contested alignment of the first and second detection portions, even if it were related to the variant "*without using the light shielding plate 60*" of paragraph [0084] of the application as published.

1.6.2 Figures 2B and 9A and 9B are exterior views of ink cartridges and do not directly and unambiguously disclose the wall thickness of protrusion 34 in

relation to the second detection portion 66 or 76a and 76b. Thus contrary to the position of the appellant, these figures do not provide a direct and unambiguous basis for an alignment of the inner wall of protrusion 34 and the second detection portion 66, 76a and 76b. Furthermore, as already noted above, there is no basis for assuming that these figures also relate to the variant embodiment of paragraph [0084].

1.6.3 The board also cannot follow the further argument presented on behalf of the appellant, that since all of the inner walls of protrusion 34 are suitable for detection by a suitably positioned detector on the (unclaimed) image forming apparatus, it would be possible to position the detector such that the part of the protrusion 34 which was aligned with the second detection portion 66 would serve as first detection portion. The argument merely demonstrates that the configuration of figure 7, when hypothetically modified in a particular and undisclosed manner, may not be incompatible with the contested feature. Ignoring that this proposed modification of the figures is in itself already speculative, an argument merely indicating a potential implementation of the contested feature is not the same as identifying a direct and unambiguous disclosure of the contested feature in the application documents as filed.

1.7 In consequence, there is no direct and unambiguous disclosure of the "*the second detection portion (66, 76, 93) is aligned with the first detection portion in a first direction ...*" in the application documents as filed. Claim 1 according to all requests does not meet the requirements of of article 100(c) EPC in combination with article 123(2) EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



N. Schneider

M. Poock

Decision electronically authenticated