

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 35

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte CHYN Y. WONG and CHUNG M. WONG

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Appeal No. 1999-1889  
Application No. 08/366,988

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ON BRIEF

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Before BARRETT, RUGGIERO, and BARRY, Administrative Patent Judges.

BARRY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from an examiner's rejection of claims 1, 3, 5, 6, 10, and 12-26. We affirm-in-part.

BACKGROUND

The invention at issue in this appeal is an ink jet cartridge. Ink jet cartridges are used in printing machines such as printers, plotters, and photocopiers. During use, a

cartridge is connected to the print head of a printing machine to supply ink to the machine's print head to enable it to print characters or images. The ink is held in the container by a vacuum producing material therein. When the ink in the cartridge has been consumed, the cartridge is replaced. Accordingly, the useful life of a cartridge is determined by subtracting the volume of ink remaining in the foam material after use from the volume of ink stored in the cartridge before use.

The appellants' ink jet cartridge uses foam (or foam pads) of two densities. The lower density foam is distant an opening through which the cartridge is connected to a print head. Its lower density enables the foam to store a great volume of ink and release the ink to the higher density foam, which is between the lower density foam and the opening. The higher density foam controls the rate that ink flows to the print head unit and creates a high vacuum pressure to prevent ink from leaking through the opening.

Claim 1, which is representative for present purposes,  
follows:

1. An ink cartridge, comprising first and second vacuum producing materials respectively having first and second vacuum producing capacities respectively for dispensing and storing ink, the first and second materials being in surface-to-surface contact with each other enclosed inside a cartridge body, the cartridge body having a communication opening through one side of the cartridge body that is in communication with the first material for discharging the ink from the first material and the cartridge body and a venting hole in the one side of the cartridge body for balancing pressure inside and outside of the cartridge body.

The prior art applied by the examiner in rejecting the claims follows:

Koitabashi et al. ("Koitabashi"), European Patent Application 0581531, Feb. 1994

Barta, Translation of French Patent 2,229,320 (Dec. 1974).

Claims 1, 3, 5, 6, 10, 13, and 16-22 stand rejected under 35 U.S.C. § 103(a) as obvious over Koitabashi. Claims 12, 14, 15, and 23-26 stand rejected under § 103(a) as obvious over Koitabashi in view of Barta. Rather than reiterate the arguments of the appellants or examiner in toto, we refer the

reader to the briefs and answer for the respective details thereof.

OPINION

After considering the record, we are persuaded that the examiner did not err in rejecting claims 1, 3, 5, 10, 12-17, 21, 23, and 25. We are persuaded, however, that she did err in rejecting claims 6, 18, 19, 20, 22, 24, and 26. Accordingly, we affirm-in-part.

We begin by noting that the references represent the level of ordinary skill in the art. See In re GPAC Inc., 57 F.3d 1573, 1579, 35 USPQ2d 1116, 1121 (Fed. Cir. 1995) (finding that the Board of Patent Appeals and Interferences did not err in concluding that the level of ordinary skill was best determined by the references of record); In re Oelrich, 579 F.2d 86, 91, 198 USPQ 210, 214 (CCPA 1978) ("[T]he PTO usually must evaluate ... the level of ordinary skill solely on the cold words of the literature."). Of course, "[e]very patent application and reference relies to some extent upon knowledge

of persons skilled in the art to complement that [which is] disclosed ....'"

In re Bode, 550 F.2d 656, 660, 193 USPQ 12, 16 (CCPA 1977) (quoting In re Wiggins, 488 F.2d 538, 543, 179 USPQ 421, 424 (CCPA 1973)). Those persons "must be presumed to know something" about the art "apart from what the references disclose."

In re Jacoby, 309 F.2d 513, 516, 135 USPQ 317, 319 (CCPA 1962). With these principles in mind, we consider the obviousness of the following logical groups of claims:

- claims 1, 3, 5, 12-17, 23, and 25
- claims 6, 18-20, 22, 24, and 26
- claims 10 and 21.

We begin with claims 1, 3, 5, 12-17, 23, and 25.

#### I. Claims 1, 3, 5, 12-17, 23, and 25

Claims that are not argued separately stand or fall together. In re Kaslow, 707 F.2d 1366, 1376, 217 USPQ 1089, 1096 (Fed. Cir. 1983)(citing In re Burckel, 592 F.2d 1175, 201 USPQ 67 (CCPA 1979)). When the patentability of dependent claims is not argued separately, moreover, the claims stand or fall with the claims from which they depend. In re King, 801

F.2d 1324, 1325, 231 USPQ 136, 137 (Fed. Cir. 1986)(citing In re Sernaker, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983) and Burckel, 592 F.2d at 1178-79, 201 USPQ at 70.)

Here, the appellants indicate, "claims 1 and 3 stand or fall together ...." (Appeal Br. at 5.) Rather than arguing separately the patentability of dependent claim 12, they merely refer to "the same reasons as given above for claim 1," (id. at 18), from which the former claim depends. Therefore, claims 1, 3, and 12 stand or fall together in a group; we select claim 1 to represent the group.

The appellants also indicate, "claims 13 to 16 stand or fall together," (id. at 5), and "claims 14, 15 and 23 stand or fall together." (Id.) Therefore, claims 13-16 and 23 stand or fall together in a second group; we select claim 13 to represent the second group.

In addition, the appellants indicate, "claims 5 and 17 stand or fall together ...." (Id.) Rather than arguing

separately the patentability of dependent claim 25, they merely refer to "the same reasons as given above for claim 5," (*id.* at 20), from which the former claim depends. Therefore, claims 5, 17, and 25 stand or fall together in a third group; we select claim 5 to represent the third group. With these representations in mind, we address the obviousness of the claims.

The appellants make three arguments. First, they argue, "Koitabashi, et al. reference ... disclose only a single absorbing material 2003. There is no disclosure in the Koitabashi, et al. reference of first and second materials in surface-to-surface contact ...." (Appeal Br. at 9.) The examiner responds, "Koitabashi et al teaches that the 'absorbing material 2003 is separated into three parts, and is compressed beforehand, and thereafter, it is accommodated therein' to meet the limitation as claimed." (Examiner's Answer at 3.)

"Claims are not interpreted in a vacuum, but are part of and are read in light of the specification." Slimfold Mfg.

Co. v. Kinkead Indus., Inc., 810 F.2d 1113, 1116, 1 USPQ2d 1563, 1566 (Fed. Cir. 1987)(citing Hybritech Inc. v. Monoclonal Anti-bodies, Inc., 802 F.2d 1367, 1385, 231 USPQ 81, 94-95 (Fed. Cir. 1986); In re Mattison, 509 F.2d 563, 565, 184 USPQ 484, 486 (CCPA 1975)). "In the patentability context, claims are to be given their broadest reasonable interpretations." In re Van Geuns, 988 F.2d 1181, 1184, 26 USPQ2d 1057, 1059 (Fed. Cir. 1993) (citing In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989)).<sup>1</sup>

Here, representative claim 1 specifies in pertinent part the following limitations: "first and second vacuum producing materials respectively having first and second vacuum producing capacities respectively for dispensing and storing ink, the first and second materials being in surface-to-

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<sup>1</sup> Claims are given such interpretation because during examination an "applicant may then amend his claims, the thought being to reduce the possibility that, after the patent is granted, the claims may be interpreted as giving broader coverage than is justified." In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969).

surface contact with each other ...." Similarly, representative claim 13 specifies in pertinent part the following limitations: "first and second vacuum producing materials inside the cartridge body and respectively having first and second vacuum producing capacities respectively for dispensing and storing ink, the first and second materials each having one side only in surface-to-surface contact with each other ...."

Rather than teaching two different vacuum producing materials, the appellants' specification discloses two different densities of the same material, viz., "two different density foams or foam pads for the storage of the ink." (Spec. at 4.) Giving the claims their broadest reasonable interpretation in light of the specification, the limitations require inter alia a vacuum producing material featuring at least two different densities in surface-to-surface contact with each other.

The applied prior art discloses the limitations. Specifically, Koitabashi teaches "an ink container for ... ink

to be supplied to an ink jet recording head ...." P. 3, ll. 3-4. "[T]he main body of the ink container ... accomodat[es] a vacuum producing material ...." P. 7, ll. 40-42. As shown in Figure 43 of the reference, the "material 2003 is separated into ... parts." P. 19, ll. 46-47. More specifically, "there are high compression ratio portion A432," id. at l. 47, and "minimum compression ratio portion A434 ...." Id. at 47-48. The Figure also shows that the portions are in surface-to-surface contact with each other.

Because Koitabashi's vacuum producing material is separated into a high compression ratio portion and a minimum compression ratio portion and the portions in surface-to-surface contact with each other, we are persuaded that the applied prior art discloses the limitations of "first and second vacuum producing materials respectively having first and second vacuum producing capacities respectively for dispensing and storing ink, the first and second materials being in surface-to-surface contact with each other" and "first and second vacuum producing materials inside the cartridge body and respectively having first and second vacuum

producing capacities respectively for dispensing and storing ink, the first and second materials each having one side only in surface-to-surface contact with each other ...."

Second, the appellants argue, "there is no teaching in the Koitabashi, et al. reference toward ... the vent being in the same side of the cartridge body as the communication opening for discharging ink." (Appeal Br. at 11.) The examiner responds, "Koitabashi et al teach that 'the position of the air vent is not limited ...' (pg. 10, lines 20-25, also see Figs. 5-9, various positions of vent 13); it would be obvious to one of ordinary skill in the art that the venting hole in the above-mentioned embodiments (Figs 35-38, 42, 43) can be reposition [sic] to be on the one side of the cartridge body wherein the walls of the cartridge body around the second material are then fully sealed for the purpose of allowing ink and air volume expansion in the cartridge." (Final Rejection at 2-3.)

Representative claim 1 specifies in pertinent part the following limitations: "the cartridge body having a

communication opening through one side of the cartridge body that is in communication with the first material for discharging the ink from the first material and the cartridge body and a venting hole in the one side of the cartridge body for balancing pressure inside and outside of the cartridge body." Similarly, claim 13 specifies in pertinent part the following limitations: "the cartridge body having a communication opening through one side of the cartridge body that is in communication with an opposite side of the first material from the one side of the first material for discharging the ink from the first material and the cartridge body and a venting hole for balancing pressure inside and outside of the cartridge body" and representative claim 5 adds the following limitations: "wherein the venting hole is in the one side of the cartridge body." Accordingly, the limitations of claims 1 and 5 require inter alia positioning a venting hole in the same side of an ink cartridge as an ink discharging opening.

The applied prior art would have suggested the limitations. "'All of the disclosures in a reference must be

evaluated for what they fairly teach one of ordinary skill in the art.'"

In re Lemelson, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968) (quoting In re Boe, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966)).

Here, Koitabashi teaches that various arrangements of its venting hole would have been within the level of skill in the art. Specifically, "[t]he number, the configuration, the size and the like of the air vent can be properly determined by the ordinary skilled in the art in consideration of the evaporation of the ink." P. 10, ll. 23-25. In one such arrangement, Figure 6 of the reference shows the air vent 13 positioned in the same side of Koitabashi's ink container as an opening "for connection with an ink jet recording head ...." P. 7, ll. 40-41. The air flow arrangement of Figure 6 offers the advantage that "the ink supply can be carried out with small pressure loss ... and therefore, a high speed printing operation can be carried out with stability." P. 12, ll. 16-18.

Because employing the air flow arrangement shown in Figure 6 in the ink container shown in Figure 43 would have enabled ink supply to be carried out with small pressure loss and a high speed printing operation to be carried out with stability, we are persuaded that the teachings from the applied prior art would have suggested the limitations of "the cartridge body having a communication opening through one side of the cartridge body that is in communication with the first material for discharging the ink from the first material and the cartridge body and a venting hole in the one side of the cartridge body for balancing pressure inside and outside of the cartridge body" and "the cartridge body having a communication opening through one side of the cartridge body that is in communication with an opposite side of the first material from the one side of the first material for discharging the ink from the first material and the cartridge body and a venting hole for balancing pressure inside and outside of the cartridge body ... wherein the venting hole is in the one side of the cartridge body." Therefore, we affirm the rejection of representative claim 1 and of claims 3 and

12, which fall therewith. As to claim 5, there remains one argument as to its parent claim, viz., claim 13, to address.

Third, the appellants argue, "[w]ith respect to the embodiments of Figs. 36 and 42, for example, it will be appreciated that if, on the one hand, the first-material layer on the right is limited to the bottom stratum to meet the one-side requirement of a claim 13, the first-material layer is no longer for dispensing ink because the stratum in question is below the communication opening for ink supply. On the other hand, if the one side of the first-material layer on the right extends upwardly along the line A 361 or A 421, all of the one side is no longer in contact with the second, ink-storing material below the line A361 or A 421." (Appeal Br. at 17.) The examiner responds, "Koitabashi et al disclose all basic claimed features of the invention of an ink cartridge comprising first and second vacuum producing materials (e.g. embodiments in Figs. 35-38, 42, 43, first material being in communication with the ink supply) of higher and lower density respectively, being in surface-to-surface contact with each other in the cartridge body ...." (Final Rejection at 2.)

Representative claim 13 specifies in pertinent part the following limitations: "the surface-to-surface contact of the first and second materials extending over all of only the one side of the first material ...." Accordingly, the limitations require inter alia that the surface-to-surface contact of the two different densities extends over all of one side of the first density material.

The applied prior art discloses the limitations. As mentioned regarding the first argument, Figure 43 of Koitabashi shows that its high compression ratio portion A432 and its minimum compression ratio portion A434 are in surface-to-surface contact with each other. The Figure also shows that the contact extends over all the left side of the high compression ratio portion.

Because Koitabashi's surface-to-surface contact between its high compression ratio portion and minimum compression ratio portion extends over all of one side of the former, we are persuaded that the applied prior art discloses the limitations of "the surface-to-surface contact of the first

and second materials extending over all of only the one side of the first material ...." Therefore, we affirm the rejection of claim 13 and of claims 14-16 and 23, which fall therewith.

As explained regarding the second argument, the limitations of claim 5 have been found obvious. Therefore, we affirm the rejection of representative claim 5 and of claims 17 and 25, which fall therewith. We proceed to claims 6, 18-20, 22, 24, and 26.

#### II. Claims 6, 18-20, 22, 24, and 26

The appellants argue, "[i]f Figs. 35 to 38, 42 and 43 of the Koitabashi, et al. patent are thought to suggest the two materials, the rejection still fails because the walls around neither are fully sealed." (Appeal Br. at 14.) The examiner responds, "having the vent hole and the communication opening on the same side of the cartridge body would result in the walls surrounding the second material being fully sealed." (Examiner's Answer at 4.)

Claims 6, 18-20, 22, 24, and 26 specify in pertinent part the following limitations: "walls of the cartridge body around the second material are fully sealed." Accordingly, the limitations require inter alia that the walls of the cartridge body surrounding the second density are sealed fully.

The examiner fails to show a teaching or suggestion of the limitations in the applied prior art. "'A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.'" In re Bell, 991 F.2d 781, 782, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) (quoting In re Rinehart, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976)).

Here, the walls of the ink container surrounding Koitabashi's minimum compression ratio portion A434 are not sealed fully. To the contrary, the bottom of the minimum compression ratio portion abuts a "small compression ratio portion (intermediate capillary force) A433 at the bottom portion of the ink chamber 2006." P. 19, ll. 48-49. Figure

43 shows, moreover, that the minimum compression ratio portion is also catercorner to a clearance, which is labeled in Koitabashi's Figure 6 as element 8.

Relying on Barta to disclose "dams (5) projecting from opposite inside surfaces of a cartridge body that intersects opposites sides of the surface-to-surface contact between two vacuum producing materials (6, 7), wherein the ratio of thickness of a first material (6) to the thickness of the second material (7) appears to be about 1:3," (Final Rejection at 3), the examiner fails to allege, let alone show, that the additional reference cures the defect of Koitabashi. Because Koitabashi's minimum compression ratio portion abuts a small compression ratio portion and is catercorner to a clearance, we are not persuaded that the teachings from the applied prior art would have suggested the limitations that "walls of the cartridge body around the second material are fully sealed." Therefore, we reverse the rejection of claims 6, 18-20, 22, 24, and 26. We conclude with claims 10 and 21.

III. Claims 10 and 21

The appellants argue that the claims "require[] that the first material, which is for dispensing ink, be compressed '... only sufficiently for outwards holding pressure against the cartridge body.' This cannot be true of the ink-dispensing material in the Koitabashi, et al. reference, because, as shown in Figs. 35-37 it is the most compressed in order to achieve its ink-supplying function clearly shown by the heavy arrows in Fig. 37, for example." (Appeal Br. at 15.) The examiner responds, "Koitabashi et al disclose ... initial outer dimensions of the first material exceed inner dimensions of an accommodating space for the first material (pg. 10, lines 10-12)." (Final Rejection at 2.)

Claims 10 and 21 specify in pertinent part the following limitations: "initial outer dimensions of the first material exceed inner dimensions of an accommodating space for the first material in the cartridge body only sufficiently for outwards holding pressure against the cartridge body." Giving the claims their broadest reasonable interpretation, the limitations require inter alia that the initial outer

dimensions of the first material exceed inner dimensions of a space in the cartridge body so as to hold the material outward against the cartridge body when inserted therein.

The applied prior art would have suggested the limitations. Koitabashi teaches that the initial outer dimensions of its vacuum producing material exceed inner dimensions of a space in the ink container to hold the material outward against the container when inserted therein. Specifically, "[i]t is desirable that a foamed material ... is cut-into a desired dimension, and it is squeezed into the vacuum producing material container so as to provide the desired pore density and the capillary force." P. 10, ll. 10-12.

Because Koitabashi's foamed material is squeezed into its vacuum producing material container so as to provide the desired pore density and the capillary force, we are persuaded that the teachings from the applied prior art would have suggested the limitations of "initial outer dimensions of the first material exceed inner dimensions of an accommodating

space for the first material in the cartridge body only sufficiently for outwards holding pressure against the cartridge body." Therefore, we affirm the rejection of claims 10 and 21 as obvious over Koitabashi.

#### CONCLUSION

In summary, the rejection of claims 1, 3, 5, 10, and 12-17, 21, 23, and 25 under § 103(a) is affirmed. The rejection of claims 6, 18-20, 22, 24, and 26 under § 103(a), however, is reversed. The affirmance is based only on the arguments made in the briefs. Arguments not made therein are neither before us nor at issue but are considered waived.

No time for taking any action in connected with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART

LEE E. BARRETT	)	
Administrative Patent Judge	)	
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	)	BOARD OF PATENT
JOSEPH F. RUGGIERO	)	APPEALS
Administrative Patent Judge	)	AND
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