

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. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOAN VERMEERSCH
and MARC VAN DAMME

Appeal No. 1998-3012
Application 08/751,764

HEARD: October 10, 2001

Before PAK, WARREN and OWENS, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

Decision on Appeal

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 1 through 4 and 6 through 14, which are all of the claims in the application. Claim 1, as it stands of record, is illustrative of the claims on appeal:

1. An imaging element comprising (i) on a hydrophilic surface of a lithographic base an image forming layer comprising dispersed in a hydrophilic binder hydrophobic thermoplastic polymer particles and a cross-linking agent capable of cross-linking said hydrophilic binder upon heating in a ratio between 1 :100 and 200:1 by weight versus the hydrophilic binder and (ii) a compound capable of converting light to heat, said compound being comprised in said image forming layer or a layer adjacent thereto wherein said hydrophilic binder is a compound selected from the group consisting of polyvinylalcohol, dimethylhydantoin-formaldehyde resin, a poly(meth)acrylamide, a polyhydroxyethyl(meth)acrylate, a polyvinylmethylether, a gelatin and a polysaccharide.

The appealed claims, as represented by claim 1, are drawn to an imaging element comprising (i) an image forming layer on the hydrophilic surface of a lithographic base which comprises hydrophobic thermoplastic polymer particles and a cross-linking agent capable of cross-linking the specified hydrophilic binder upon heating are dispersed in the binder, and (ii) a compound capable of converting light to heat that is present either in the image forming layer or a layer adjacent thereto. Claim 7, dependent on claim 1, further requires that the specified hydrophilic binder comprises reactive groups and the cross-linking agent is capable of reacting with the reactive groups under the influence of heat. Claim 10 is drawn to a method for making a lithographic printing plate from the imaging element of claim 1. According to appellants, the “heat-sensitive imaging element . . . can be used to obtain printing plates having a high printing endurance” (specification, page 3).

The references relied on by the examiner are:

Vrancken et al. (Vrancken)	3,476,937	Nov. 4, 1969
Gardner et al. (Gardner) (published European Patent Application)	0 599 510	Jun. 1, 1994

The examiner has rejected appealed claims 1 through 4 and 6 through 14 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Gardner and Vrancken.¹

Appellants state in their brief (page 4) that the appealed “claims will be argued as two groups” wherein the first group is claims 1 through 4, 6 and 9 through 14 and the second group is claims 7 and 8, and separately argue the patentability of the second group of claims (*id.*, pages 7-8). While the examiner incorrectly observes that “[a]pellants’ brief states that the claims will be argued as a single group” (answer, page 2), he does address appellants’ arguments with respect to the second group of claims (*id.*, pages 5-6). Appellants point out their statement and arguments with respect to claims 7 and 8 in their reply brief (pages 1-2). Based on this record, we find that appellants have separately argued claims 7 and 8 and thus, we decide this appeal based on appealed claims 1 and 7 as representative of the two groups of claims. 37 CFR § 1.192(c)(7) (1997).

We affirm.

Rather than reiterate the respective positions advanced by the examiner and appellants, we refer to the examiner's answer and to appellants' brief and reply brief for a complete exposition thereof.

Opinion

We have carefully reviewed the record on this appeal and based thereon find ourselves in agreement with the examiner that the claimed imaging element encompassed by appealed claims 1 and 7 would have been obvious over the combined teachings of Gardner and Vrancken to one of ordinary skill in this art at the time the claimed invention was made.

As an initial matter, we find that, when considered in light of the written description in the specification as interpreted by one of ordinary skill in this art, *see, e.g., In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997), the plain language of appealed claim 1 requires that the imaging element comprise an image forming layer on the hydrophilic surface of a lithographic base, wherein the image forming layer comprises a specified hydrophilic binder in which is dispersed hydrophobic thermoplastic polymer particles and a cross-linking agent capable of cross-linking said hydrophilic binder upon heating, and a compound capable of converting light to heat, said compound being comprised in said image forming layer or a layer adjacent thereto. The plain language of dependent claim 7 further requires that the specified hydrophilic binder comprises reactive groups and the cross-linking agent is capable of reacting with the reactive groups under the influence of heat, although it seems to us that the specified hydrophilic binders of claim 1 all have a reactive group, particularly one or more of the three specified in appealed claim 8.²

In carefully considering the applied prior art, we find that, as pointed out by the examiner (Paper No. 7, pages 2-3), Gardner would have disclosed to one of ordinary skill in the art an imaging element comprising a layer or coating of a hydrophobic heat softenable hydrophobic component (component A) is dispersed in a hydrophilic binder (component B) which is on the hydrophilic surface of a lithographic base, wherein the transfer of heat from a substance capable of transforming light into heat at least

¹ The examiner refers to the Office action of September 16, 1997 (Paper No. 7) for a statement of the rejection.

partially coalesces the coating, the hydrophilic binder has reactive groups or precursor therefor which will cause insolubilization of the layer at elevated temperatures, and the exposed imaging layer can be developed with an aqueous medium prior to heating to effect insolubilization (page 2, lines 18-29 and 39-48). Gardner would have further disclosed that, *inter alia*, component A can be hydrophobic thermoplastic polymer particles and component B can be cross-linkable, and if a mixture, the ingredients of component B can be “mutually reactive” (page 2, lines 6-12, 30-31, 33 and 37). The reference discloses examples of polymers for component B which contain carboxylic acid or other groups that confer solubility and which can form a mixture with non-polymeric cross-linking agents (page 3, lines 20-33) and provides working examples demonstrating such mixtures (Gardner Examples 7 and 18, pages 5 and 6-7). The exemplified radiation-absorbing substances that cause coalescence of the coating include carbon black (page 3, lines 45-47, and Gardner Examples 7 and 18). Gardner discloses that the images formed with the imaging element have high durability (e.g., abstract).

As further pointed out by the examiner (Paper No. 7, pages 2-3), Vrancken would have disclosed to one of ordinary skill in this art an imaging element comprising a layer of hydrophobic thermoplastic polymer particles can be dispersed in a hydrophilic binder that can contain a reactive agent that will “harden” the binder, which is on the hydrophilic surface of a lithographic base, wherein the transfer of heat from a substance capable of transforming light into heat coalesces the particles in the layer, the exposed imaging layer can be developed with an aqueous medium prior and the hydrophilic binder can then be “hardened” with heat (e.g., col. 1, lines 19-35, col. 2, lines 17-28, col. 3, line 75, to col. 4, line 53, col. 6, lines 7-51, col. 8, lines 20-38, and col. 11, lines 12-20). Vrancken would have further disclosed that the binder can be, *inter alia*, gelatin, a polysaccharide, polyvinyl alcohol and polyacrylic acid, which can be “hardened for . . . higher mechanical strength,” such as hardening a gelatin “by reaction with an aldehyde such as formaldehyde or glyoxal” (col. 4, lines 2-26). In Vrancken Example 1, an imaging element is used which comprises a layer from two separately applied

² Since Claims 1, 7 and 8 appear to be substantial duplicates, in the event that these claims are held to be allowable, see Manual of Patent Examining Procedure § 706.03(k) Duplicate Claims (8th ed., August 2001; 700-52).

compositions, the first containing a mixture of gelatin and glyoxal and the second containing polyethylene particles dispersed in gelatin.

The examiner finds that Gardner “does not disclose the particular hydrophilic polymers set forth in the instant claims” (Paper No. 7, pages 2-3). Based on the evidence in the combined teachings of Gardner and Vrancken, we agree with the examiner’s conclusion that one of ordinary skill in this art would have used the binders of Vrancken in the imaging elements of Gardner because the hydrophilic binders of Vrancken and the hydrophilic binders of Gardner are used in “similar heat sensitive elements” and Vrancken discloses that the hydrophilic binders are cross-linkable (Paper No. 7, pages 2-3). Indeed, we determine that, *prima facie*, one of ordinary skill in this art would have found in the combined teachings of Gardner and Vrancken the reasonable suggestion that the hydrophilic binders, such as gelatin which is capable of cross-linking or “hardening,” used in imaging elements on the hydrophilic surface of a lithographic base by Vrancken can be used as hydrophilic binders, which are capable of cross-linking, in imaging elements on the hydrophilic surface of a lithographic base by Gardner with the reasonable expectation of successfully obtaining imaging elements, on the hydrophilic surface of a lithographic base, that can be cross-linked and thus providing images that are durable as taught in Gardner. The hydrophilic binders of Vrancken satisfy the conditions for a hydrophilic binder used as component B stated in Gardner, which we disclosed above, because the hydrophilic binders of Vrancken are “hardenable” or cross-linkable and the “hardening” or cross-linking agent is mixed with the binder. Several of the binders of Vrancken also contain reactive groups, including carboxylic acid groups which are present in the binders exemplified by Gardner, and the “hardening” or cross-linking of gelatins with an aldehyde upon the application of heat is disclosed by Vrancken. We observe that aldehydes are disclosed by appellants to be heat-activatable cross-linking agents (specification, sentence bridging pages 8-9).

Indeed, each of Vrancken and Gardner discloses the same kind of imaging elements containing cross-linked binders that provide durable images.

Therefore, *prima facie*, one of ordinary skill in this art following the combined teachings of Gardner and Vrancken would have reasonably used the binders of Vrancken in the imaging elements of Gardner, *see In re Corkill*, 771 F.2d 1496, 1497-1500, 226 USPQ 1005, 1006-08 (Fed. Cir. 1985);

In re Skoll, 523 F.2d 1392, 1397-98, 187 USPQ 481, 484-85 (CCPA 1975), although this person would have reached the same imaging elements by following the teachings of Vrancken alone. *See Merck & Co., Inc. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807, 10 USPQ2d 1843, 1845-46 (Fed. Cir. 1989); *In re Lemin*, 332 F.2d 839, 841, 141 USPQ 814, 815-16 (CCPA 1964).

Accordingly, one of ordinary skill in this art following the combined teachings of Gardner and Vrancken or of Vrancken alone would have reasonably arrived at the claimed imaging element encompassed by appealed claims 1 and 7.

Accordingly, since a *prima facie* case of obviousness has been established over the applied references by the examiner, we have again evaluated all of the evidence of obviousness and nonobviousness based on the record as a whole, giving due consideration to the weight of appellants' arguments advanced in their brief and reply brief. *See generally, In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); *In re Johnson*, 747 F.2d 1456, 1460, 223 USPQ 1260, 1263 (Fed. Cir. 1984); *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984).

We have carefully considered all of appellants' arguments. Contrary to appellants' position, not only does Vrancken disclose the image durability benefits of the combination of a cross-linkable hydrophilic binder dispersant for hydrophobic thermoplastic particles, such as gelatin, with a heat activated "hardening" or cross-linking agent, such as an aldehyde, but it does so in disclosing the same kind of imaging elements that provide durable images as disclosed in Gardner. It is clear that gelatin is specified in appealed claim 1 as a hydrophilic binder and contains reactive groups as specified in appealed claim 7, and that the aldehydes formaldehyde and glyoxal are capable of cross-linking gelatin under the influence of heat as specified in appealed claims 1 and 7. Thus, in viewing the evidence in Gardner and Vrancken as a whole, the claimed imaging element as encompassed by appealed claims 1 and 7 would have been reasonably suggested to one of ordinary skill in this art by the combined teachings thereof and by the teachings of Vrancken alone, and appellants in their brief and reply brief have not relied on any evidence in the record which would patentably distinguish the claimed invention.

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in the combination of Gardner and Vrancken with

appellants' countervailing evidence of and argument for nonobviousness and conclude that the claimed invention encompassed by appealed claims 1 through 4 and 6 through 14 would have been obvious as a matter of law under 35 U.S.C. § 103(a).

The examiner's decision is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

CHUNG K. PAK)	
Administrative Patent Judge)	
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CHARLES F. WARREN)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
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)	
TERRY J. OWENS)	
Administrative Patent Judge)	

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Breiner & Breiner
115 North Henry Street
P.O. Box 19290
Alexandria, VA 22320-0290