

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ISAO TOMIOKA, TAKESHI NAKANO, MIKIO FURUKAWA,
YOSHIKI ECHIGO and MASATO WADA

Appeal No. 1998-2203
Application 08/428,497

ON BRIEF

Before KIMLIN, OWENS and JEFFREY T. SMITH, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the examiner's final rejection of claims 15-20, which are all of the claims remaining in the application.

Appeal No. 1998-2203
Application 08/428,497

THE INVENTION

The appellants claim a process for producing a polyimide paper by making a poly(amic acid) paper from a poly(amic acid) fibrid and then imidizing the paper. Claim 15 is illustrative and is appended to this decision.

THE REFERENCES

Morgan	2,999,788	Sep. 12, 1961
Sander et al. (Sander '058)	4,091,058	May 23, 1978
Sander et al. (Sander '640)	4,098,640	Jul. 4, 1978
Vaughan (British patent specification)	1,207,485	Oct. 7, 1970
Teijin Limited (FR '004) ¹ (French patent application)	2,179,004	Nov. 16, 1973

THE REJECTIONS

Claims 15-20 stand rejected under 35 U.S.C. § 103 as follows: over Vaughan in view of FR '004 and either Sander '640 or Sander '058, and over Morgan in view of Vaughan and FR '004.

OPINION

We reverse the aforementioned rejections. We need to

¹ Citations herein to this reference are to an English translation thereof, a copy of which is provided to the appellants with this decision.

Appeal No. 1998-2203
Application 08/428,497

address only claim 15, which is the broadest independent claim.

*Rejection over Vaughan in view of FR '004 and
either Sander '640 or Sander '058*

Vaughan discloses a process for producing polyimide shaped articles such as films and fibers by chemically or thermally treating poly(amic acid) shaped articles (page 1, lines 10-21; page 6, line 100 - page 7, line 4; page 13, lines 5-23). Vaughan's poly(amic acid) is made by "condensation of a dianhydride of aromatic character and a diprimary amine of aromatic character in an organic liquid medium in which the reactants are sufficiently soluble to undergo polymerization in the liquid phase, but which is per se a non-solvent for the poly(amic acid) and is miscible with minor amounts of water, and in which medium a minor amount of water is present at least during the latter part of the reaction" (page 2, lines 27-38). Vaughan's poly(amic acid) can have the structure shown in formula 2 of the appellants' claim 15 (page 4, lines 48-89). Vaughan's organic liquid media include ketones and ethers (page 2, lines 69-88), which

Appeal No. 1998-2203
Application 08/428,497

are solvents used by the appellants in combination with water (specification, page 13). Vaughan does not disclose that the shaped articles to be imidized can include poly(amic acid) paper made from a poly(amic acid) fibrid (page 6, line 100 - page 7, line 4).

The appellants acknowledge that making polyimide paper from a polyimide fibrid was known in the art, but do not acknowledge that it was known in the art to make a poly(amic acid) paper from a poly(amic acid) fibrid and then imidize the paper to form a polyimide paper (specification, pages 2-3).²

The portion of FR '004 relied upon by the examiner (answer, page 3) discloses making polyimide pulp particles by a precipitation process involving shearing (page 4, item 3;³ pages 7-8).

The examiner relies (answer, page 3) upon the Sander

² It is axiomatic that our consideration of the prior art must, of necessity, include consideration of the admitted prior art. See *In re Hedges*, 783 F.2d 1038, 1039-40, 228 USPQ 685, 686 (Fed. Cir. 1986); *In re Davis*, 305 F.2d 501, 503, 134 USPQ 256, 258 (CCPA 1962).

³ Item 3 on page 4 of the FR '004 translation is called "aromatic polyamides", but the structure shows that the compounds are aromatic polyimides.

Appeal No. 1998-2203
Application 08/428,497

references for a disclosure of forming fibrils from poly(amide-imide) resins (abstract of each reference).

The examiner argues that in view of the above disclosures, "it would have been obvious to use polyamic acid of Vaughan to make polyimide precursor fibrils in view of French 2,179,004 and the Sander et al. patents" (answer, page 4). The examiner, however, does not explain why these references would have fairly suggested, to one of ordinary skill in the art, making poly(amic acid) paper from a poly(amic acid) fibril and converting the poly(amic acid) paper to polyimide paper. The examiner, therefore, has not carried the burden of establishing a *prima facie* case of obviousness of the claimed invention over Vaughan in view of FR '004 and Sander '640 or Sander '058. Consequently, we reverse the rejection over these references.

Rejection over Morgan in view of Vaughan and FR '004

The examiner relies upon Morgan's example 102, which discloses 6-6 nylon fibers formed by precipitation, and column 55 which discloses fibrils made from heat convertible polymers which, Morgan states, are polymers that can be

converted to higher melting products by heating at temperatures near their melting point (col. 18, line 5; col. 55, lines 10-15). The examiner argues that "[i]t would have been obvious to employ the polyamic acid of Vaughan as the heat convertible polymer in Morgan especially since French 2,179,004 shows it is well known to employ such heat convertible polymer precursor in making shear precipitated pulp" (answer, page 4). This argument is not well taken because, first, the examiner has not established that the polymers disclosed by Vaughan are heat convertible as that term is used by Morgan. Second, even if Vaughan's polymers are heat convertible according to Morgan's definition of that term, the examiner has not explained why Morgan's teaching of heat converting polymers to higher melting products would have led one of ordinary skill in the art to form Vaughan's poly(amic acid) into a fibrid, make the fibrid into a paper, and then heat the paper to convert it to polyimide paper. The teaching in FR '004 relied upon by the examiner, as discussed above, pertains to making pulp by a precipitation process involving shearing. The examiner does not explain, and it is not apparent, why a disclosure of making pulp in this manner,

Appeal No. 1998-2203
Application 08/428,497

in combination with the other disclosures relied upon by the examiner, would have fairly suggested, to one of ordinary skill in the art, making a poly(amic acid) paper from a poly(amic acid) fibrid and then converting the paper to polyimide paper.

For the above reasons, we conclude that the examiner has not established a *prima facie* case of obviousness of the appellants' claimed invention over Morgan in view of Vaughan and FR '004. Accordingly, we reverse the rejection over this combination of references.

DECISION

The rejections of claims 15-20 under 35 U.S.C. § 103 over Vaughan in view of FR '004 and either Sander '640 or Sander '058, and over Morgan in view of Vaughan and FR '004, are reversed.

REVERSED

Appeal No. 1998-2203
Application 08/428,497

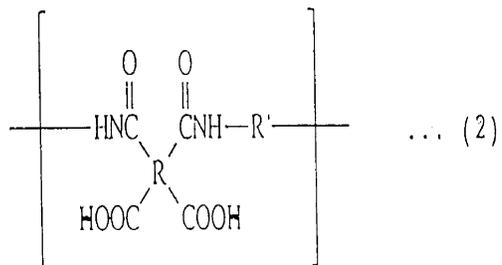
	EDWARD C. KIMLIN)	
	Administrative Patent Judge)	
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	TERRY J. OWENS)	BOARD OF
PATENT	Administrative Patent Judge)	APPEALS AND
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Appeal No. 1998-2203
Application 08/428,497

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Appeal No. 1998-2203
Application 08/428,497



wherein R is a tetravalent aromatic group having at least one six-membered carbon ring, wherein two pairs of the tetravalent elements each bond to adjacent carbon atoms on a six-membered carbon ring, and R' represent a divalent aromatic group having 1 to 4 six-membered carbon ring.