

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte OMAR FAROOQ

Appeal No. 1997-3175
Application 08/521,545

ON BRIEF

Before WINTERS, OWENS and WALTZ, *Administrative Patent Judges*.
OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

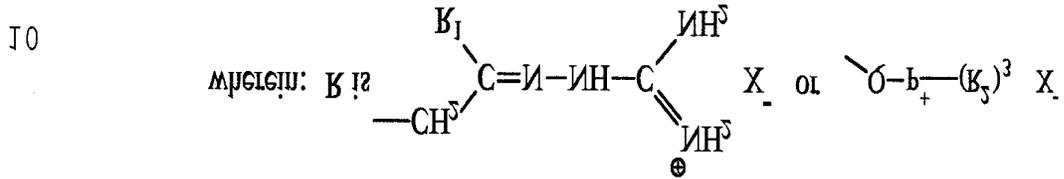
This is an appeal from the examiner's final rejection of claims 1-5, 12 and 13, which are all of the claims remaining in the application.

THE INVENTION

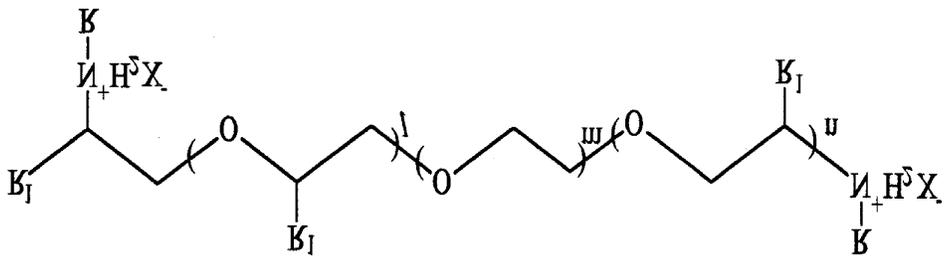
Appellant claims a mordant having a recited general formula. Appellant states that the mordant is useful for ink jet receptors and the like (specification, page 1, lines 10-

12). Claim 1 is illustrative:

1. A mordant of the general formula:



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and: R¹ is an alkyl group of 1 to 6 carbon atoms, and R² is an alkyl, aryl, aralkyl, or alkaryl group of up to 10 carbon atoms inclusive; l and n are integers of 2 or greater; m is an integer of 5 or greater; and Q represents $-(\text{CH}_2)_y-$ wherein y is 1-20; and each X⁻ is independently an anion.

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THE REFERENCES

Delfino et al. (Delfino) 1987	4,695,531	Sep. 22,
Breton et al. (Breton) 1992	5,129,948	Jul. 14,
Farooq et al. (Farooq) 1994	5,354,813	Oct. 11,

THE REJECTION

Claims 1-5, 12 and 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of Farooq, Delfino and Breton.

OPINION

We have carefully considered all of the arguments advanced by appellant and the examiner and agree with appellant that the aforementioned rejection is not well founded. Accordingly, we reverse this rejection. We need to address only claim 1, which is appellant's sole independent claim.

Farooq discloses a mordant having guanyl hydrazone salt

moieties attached to a polymeric backbone through N-heterocycles or N,N-dimethylaminoethyl methacrylate moieties, such that the N-heterocycles or N,N-dimethylaminoethyl methacrylate moieties are N-quaternized by the guanyl hydrazone moieties (abstract; structures in columns 2-5).¹ Farooq does not disclose appellant's polymeric backbone or attachment of the guanyl hydrazone salt moieties to the backbone through appellant's $N^+H_2X^-$ group.

Breton discloses an ink composition which includes, for the purpose of reducing the drying time of the ink while maintaining good print quality, an additive which can be a polyether diamine based on a predominantly polyethylene oxide backbone (col. 2, lines 25-35; col. 4, lines 17-64). The polyether diamine can be Jeffamine® ED-2001 (col. 4, line 61), which is one of the materials which can be used to form the backbone of appellant's mordant (specification, page 8, lines 12-21).

The examiner uses Delfino to link the Farooq and Breton

¹It appears that in the Class I structure (col. 5, lines 23-37), "=O-NH-" should be "=N-NH-".

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references. Delfino discloses a polymeric mordant having guanyl hydrazone salt moieties attached to a polymeric backbone through -COO- or -COO-alkylene- linkages (abstract; col. 7, lines 22-40). The teaching by Delfino relied upon by the examiner (answer, pages 4-5) for linking the Farooq and Breton references is the following (col. 7, lines 41-50):

The mordants useful in the present invention can comprise units derived from copolymerizable monomers, such as acrylates, acrylamides, vinyl acetates, styrenes, vinyl-ethers, vinyl-ketones, vinyl-alchols [sic], unsaturated chlorides and nitriles, with the proviso that such copolymer units be in such a quantity as not to modify the characteristics of the mordants useful to the purposes of the present invention; acceptable quantities are for instance up to 20% by weight, more preferably up to 10% by weight.

The examiner argues that Delfino would have indicated to one of ordinary skill in the art that Farooq's guanyl hydrazone moieties could be attached to other polymers, provided that Delfino's proviso is met (answer, page 5). The examiner interprets this proviso as requiring that the characteristics of the mordant are not interfered with, and argues that Breton's polymer would meet this proviso because it is usable in ink jet compositions (answer, page 10).

Delfino's proviso, however, states that the copolymer

units must be present in such a quantity as not to modify the characteristics of the mordants, and states that acceptable quantities are, for example, up to 20 wt% (col. 7, lines 45-50). The repeating units in the Breton Jeffamine® polymers relied upon by the examiner (answer, page 5) are of sufficient quantity that the backbone has a molecular weight of at least 600 (col. 4, lines 56-63). The portion of Farooq's disclosed mordants which correspond to appellant's "R" group have molecular weights of no more than about 413.² A mordant formed by using one of Farooq's N-heterocycles or N,N-dimethylaminoethyl methacrylate moieties to link the portion of Farooq's mordants which correspond to appellant's "R" group with one of Breton's polymers, therefore, would not fall within the exemplified acceptable copolymer unit quantities disclosed by Delfino, and the examiner has not explained why one of ordinary skill in the art, nevertheless, would have considered such a combination to be suitable. Thus, even if Delfino is interpreted as indicating that any copolymer which meets the proviso would be suitable as a

² When X = C₄F₉SO₃.

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backbone for the disclosed mordant and even if, as argued by the examiner (answer, pages 9-10), one of ordinary skill in the art would have considered Breton's polymer as a possible backbone for Farooq's mordant because Breton's polymer is used in an ink composition, the examiner has not established a *prima facie* case of obviousness.

Moreover, the examiner has not explained why, even if the references were combined as proposed by the examiner, appellant's claimed invention would be obtained. Farooq's guanyl hydrazone salts are attached to the backbone via N-heterocycles or N,N-dimethylaminoethyl methacrylate, and those of Delfino are attached via -COO- or a -COO-alkylene group. The examiner has not explained why the references would have led one of ordinary skill in the art to appellant's mordant in which the guanyl hydrazone salts are attached to the backbone by a $N^+H_2X^-$ group.

For the above reasons we conclude that the examiner has not carried the burden of establishing a *prima facie* case of obviousness of appellant's claimed invention.

DECISION

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The rejection of claims 1-5, 12 and 13 under 35 U.S.C.
§ 103 over the combined teachings of Farooq, Delfino and
Breton is reversed.

REVERSED

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SHERMAN D. WINTERS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
TERRY J. OWENS))
Administrative Patent Judge)	APPEALS AND
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)	INTERFERENCES
)	
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