

# Ex parte Brandt et al.

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte HARRY BRANDT  
and JOHN H. TAIT

Appeal No. 96-1035  
Application 08/129,692<sup>1</sup>

HEARD: November 12, 1996

MAILED

DEC 12 1996

PAT. & T.M. OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES

Before MEROS, HAIRSTON and STAAB, Administrative Patent Judges.

MEROS, Administrative Patent Judge.

## DECISION ON APPEAL

This appeal is from the examiner's rejection of claims 1-4, 6-19, 24 and 25.

Claims 26 and 27, the remaining claims, have been allowed by the examiner.

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<sup>1</sup> Application for patent filed September 17, 1993. According to appellant, the application is a continuation-in-part of Application 08/056,353, filed April 30, 1993.

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The rejected claims are directed to a method for treating and disposing of salt-containing waste water (e.g. brine). The claimed process comprises treating the salt-containing waste water in a reverse osmosis unit and/or a combustion heat evaporator whereby a concentrated salt solution is obtained, adjusting (diluting) the salt concentration of said concentrated salt solution such that when it is subsequently injected into a permeable subterranean formation (well) it will not plug the permeability of that formation, and injecting the so adjusted salt solution into the subterranean formation.

Claim 1 is illustrative of the claimed subject matter and reads as follows:

1. A method for treating and disposing of brine resulting from the production of oil and/or gas, comprising:

recovering brine during production of oil and/or gas, the recovered brine having a salt concentration greater than 500 parts per million (ppm) so that said recovered brine is unsuitable for surface disposal;

passing said recovered brine through a reverse osmosis unit to yield a first liquid stream having a salt concentration that is not in excess of 500 ppm and a second liquid stream having a salt concentration that is greater than the salt concentration of the recovered brine;

passing said second liquid stream through a combustion heat evaporator to yield a heated third liquid stream and water vapor, said third liquid stream having a salt concentration that is greater than the salt concentration of said second liquid stream and said water vapor resulting by evaporation of water from the second liquid stream in said evaporator being vented to atmosphere or condensed;

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mixing said heated third liquid stream with a liquid to yield a heated fourth liquid stream having a salt concentration (1) greater than said recovered brine and (2) less than saturation at temperature and pressure conditions existing in an underground reservoir formation for disposal of said heated fourth liquid stream; and

injecting said heated fourth liquid stream into said underground reservoir formation while maintaining the salt concentration of said fourth liquid stream at less than saturation at said temperature and pressure of said underground reservoir formation to prevent plugging of said underground reservoir formation during and after injection of the fourth liquid stream into said underground reservoir formation.

The examiner relies on the following references:

Williams	3,165,452	Jan. 12, 1965
Conger	4,083,781	Apr. 11, 1978
O'Connor	4,366,063	Dec. 28, 1982
Volland	5,132,090	Jul. 21, 1992

Claims 1-4, 6-19, 24 and 25 stand rejected under 35 USC § 103 as follows<sup>2</sup>:

I. Claims 1-4, 6-9, 12, 15-19, 24 and 25 as being unpatentable over Conger in view of O'Connor;

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<sup>2</sup> The examiner's statement of the rejection refers to "prior Office action paper number 9" which Office action in turn refers to "paper no. 6". As the examiner should know, the M.P.E.P., Section 1208 provides that only those statements of Grounds of rejection as appear in a single prior action may be incorporated into the Examiner's Answer by reference. The examiner's failure to comply with the M.P.E.P. has caused undue hardship in considering and understanding the rejections which certainly are not a model of clarity.

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II. Claims 10 and 13 as being unpatentable over Conger in view of O'Connor and Williams; and

III. Claims 11 and 14 as being unpatentable over Conger in view of O'Connor and Volland.

After consideration of the entire record before us, including the respective positions of the examiner and the appellants, we find that the examiner has not established a prima facie case of obviousness as to the claimed subject matter as a whole. Accordingly, we will not sustain the rejections.

The claimed process comprises the essential steps of treating salt-containing waste water in a reverse osmosis unit and/or a combustion heat evaporator whereby a concentrated salt solution is obtained, adjusting (diluting) the salt concentration of said salt solution such that when the solution is subsequently disposed of in a subterranean formation (well) it will not plug the permeability of the subterranean formation at the temperature and pressure conditions therein, and injecting the so adjusted (diluted) salt solution into the subterranean formation.

While the cited references may teach or, at least, render obvious the treatment of a salt solution in a reverse osmosis unit and/or a combustion heat evaporator whereby a concentrated salt solution is produced, we find no teaching or suggestion in the references, and none has been pointed out by the examiner, of thereafter diluting (adjusting) the salt content of the

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concentrated salt solution such that the solution will not cause plugging of the permeability of a subterranean formation (well) when disposed therein, and only then injecting the salt solution into the subterranean formation (well) as here claimed.

We recognize, of course, that O'Connor suggests pumping a concentrated brine solution obtained from a reverse osmosis unit into a subsurface disposal well (col. 4, lines 2-4). However, O'Connor does not teach or suggest diluting (adjusting) the salt content of the concentrated brine solution such that the solution will not cause plugging of the permeability of the subsurface disposal well when disposed therein, as here claimed.

The examiner urges that "state regulations" and the Code of Federal Regulations, Title 40<sup>3</sup> (pertaining to the protection of the environment) somehow regulates the temperature, pH, concentration, and pressure of brine solutions injected into wells (Examiner's Answer, page 3; Supplemental Examiner's Answer). However, not only has the examiner failed to identify the "state regulations" or the particular provisions of the Code of Federal Regulations which are relied upon, but the examiner has also failed to set forth a cogent explanation as just why

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<sup>3</sup> A copy of the Code of Federal Regulations relied on by the examiner was made of record with the amendment filed on April 14, 1995 (Paper No. 12).

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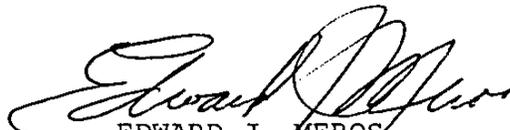
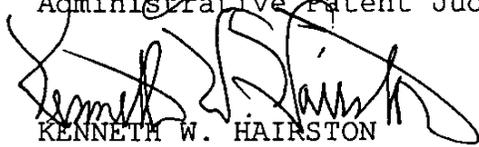
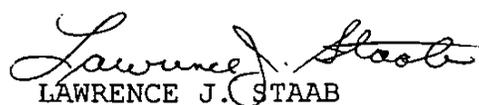
said regulations would have led or motivated one of ordinary skill in the art to dilute (adjust) the salt content of a brine solution after it has been concentrated in a reverse osmosis unit and/or a combustion heat evaporator and only then inject the diluted (adjusted) brine solution into an injection well at conditions which prevent plugging of the permeability of the injection well as here claimed. As pointed out by the court in In re Freed, 425 F.2d 785, 787, 165 USPQ 570, 571 (CCPA 1970),

"[A] determination of obviousness must be based on facts and not on unsupported generalities".

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Accordingly, we reverse the examiner's § 103 rejections of  
claims 1-4, 6-19, 24 and 25.

REVERSED

	)	
EDWARD J. MEROS	)	
Administrative Patent Judge	)	
	)	
KENNETH W. HAIRSTON	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
LAWRENCE J. STAAB	)	
Administrative Patent Judge	)	

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