

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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 ROGERIO TADEU RAMOS, BERNARD ELIE THERON, ANDREW J. REISCHER, WILLIAM F. MURPHY, IAN DAVID BRYANT and DAVID J. WILKINSON

Appeal No. 2003-0331
Application No. 09/106,608

HEARD: JUNE 10, 2003

Before ABRAMS, STAAB and BAHR, Administrative Patent Judges.
BAHR, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-30, which are all of the claims pending in this application.

We REVERSE

BACKGROUND

The appellants' invention relates to the separation of oil well fluid mixtures and, in particular, the down-hole separation of the multi-phase oil/gas/water mixtures

produced by an oil well (specification, page 1). A copy of the claims under appeal is set forth in the appendix to the appellants' brief.

The examiner relied upon the following prior art references in rejecting the appealed claims:

Howell	5,443,120	Aug. 22, 1995
Shaw et al. (Shaw)	5,996,690	Dec. 7, 1999 (filed Sep. 26, 1997)

Claims 1-30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Howell in view of Shaw.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejection, we make reference to the answer (Paper No. 20) for the examiner's complete reasoning in support of the rejection and to the brief and reply brief (Paper Nos. 19 and 21) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellants and the examiner. As a consequence of our review, for the reasons which follow, we cannot sustain this rejection.

Each of independent claims 1, 7, 15 and 21 calls for, *inter alia*, two separate flow paths each having an opening in a non-vertical well section having an angle of **40 to 90**

degrees to the vertical and forming a gravity separator, with the openings being vertically separated, a detector in the vicinity of one of the openings, and flow controlling equipment (a pump in claims 15 and 21) using measurements from the detector. Howell discloses a down-hole gravity separator comprising a portion of a wellbore 12 with an upper flow path (tubing 18) and a lower flow path (passage 21), with the openings of the passages being vertically separated. Howell teaches (column 4, lines 2-7) that

it is preferred and is highly beneficial to complete at least that portion of wellbore 11 which passes through producing formation 12 at an angle to the vertical, i.e. "inclined" wellbore. By inclining the wellbore, a much better gravity separation of fluids occurs within the wellbore.

According to Howell (column 4, lines 22-32), the production fluids, which are comprised of the produced hydrocarbons and some remaining water, flow upward under differential pressure through tubing 18 to the surface. While some water remains in the production fluids, the volume of water is substantially reduced, thereby also significantly reducing both the hydrostatic back-pressure on the formation 123 and the water separation and handling problems at the surface.

As conceded by the examiner, Howell lacks a flow control device or pump and a detector located in the vicinity of at least one of the openings for use in controlling the flow control device, as called for in each of the independent claims. To overcome this

deficiency, the examiner relies on the teachings of Shaw and determines that it would have been obvious to modify Howell to include such a detector and a pump being operationally controlled by the detector in order to maximize the rate of production of hydrocarbon and to determine when the producing formation was no longer producing hydrocarbon (answer, pages 4-5).

Shaw discloses a down-hole hydrocyclone separator in a wellbore for separating water from oil, with an elaborate array of sensors, valves and pumps used in conjunction with the hydrocyclone separator to achieve the proper separation and to optimize the performance of the separator. The control system and sensors are described in detail in columns 3-5 of Shaw.

As pointed out by appellants (brief, page 7), Shaw teaches a hydrocyclone separator which is much more complex than a gravity separator and requires an elaborate system of sensors and controllers to ensure its proper operation. This is in contrast to a gravity separator which relies on gravity, not the operation of a plurality of fluid control devices, for its operation. We find in neither Howell nor Shaw an appreciation of a need for detection and flow control equipment in a gravity separator of the type taught by Howell to optimize the performance of the separator, much less any suggestion to locate a detector in the vicinity of one of the openings as called for in appellants' independent claims.

Additionally, we do not agree with the examiner (see answer, page 4) that Howell's broad teaching of an "inclined" wellbore is sufficient to teach under principles of inherency the particular angle range of 40 to 90 degrees called for in independent claims 1, 7, 15 and 21 (or 40 to 60 degrees as in claims 5, 12, 19 and 26). Under principles of inherency, when a reference is silent about an asserted inherent characteristic, it must be clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991). We see nothing in the use of the term "inclined" or the other teachings of Howell which would have led persons skilled in the art to recognize that an inclination angle of 40 to 90 degrees is necessary.

For the foregoing reasons, we conclude that the teachings of Howell and Shaw are insufficient to establish a prima facie case of obviousness of the subject matter of claims 1-30.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-30 under 35
U.S.C. § 103(a) is reversed.

REVERSED

NEAL E. ABRAMS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
LAWRENCE J. STAAB)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
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JENNIFER D. BAHR)	
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