

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte LI YOUNG

Appeal No. 2002-0063
Application No. 09/324,825

ON BRIEF¹

Before FRANKFORT, NASE, and BAHR, Administrative Patent Judges.
NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 21 to 34, which are all of the claims pending in this application.

We REVERSE.

¹ On February 22, 2002, the appellant waived the oral hearing (see Paper No. 19) scheduled for March 6, 2002.

BACKGROUND

The appellant's invention is directed to reaction vessels with heating and cooling capabilities, and more particularly to such vessels having cooling units which uniquely rely upon phase change coolant injection (specification, p. 1). A copy of the claims under appeal is set forth in the appendix to the appellant's brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Barnebey et al. (Barnebey)	2,472,362	June 7, 1949
Morey	2,739,221	Mar. 20, 1956
Vieth	3,143,167	Aug. 4, 1964
Strehler et al. (Strehler)	4,030,314	June 21, 1977
Williams et al. (Williams)	4,117,881	Oct. 3, 1978
Redikultsev et al. (Redikultsev)	4,276,264	June 30, 1981
Imig et al. (Imig)	4,346,754	Aug. 31, 1982
Tyler	5,123,477	June 23, 1992
Richard	5,176,202	Jan. 5, 1993
Charm et al. (Charm)	5,489,532	Feb. 6, 1996
Kondo et al. (Kondo)	EP 0 400 965 A3	Dec. 5, 1990

Claims 21 to 27 stand rejected under 35 U.S.C. § 103 as being unpatentable over Kondo in view of Strehler and Morey.

Claims 21 to 34 stand rejected under 35 U.S.C. § 103 as being unpatentable over Redikultsev in view of Strehler and Morey.

Claims 21 to 34 stand rejected under 35 U.S.C. § 103 as being unpatentable over Charm in view of Strehler and Morey.

Claims 21 to 34 stand rejected under 35 U.S.C. § 103 as being unpatentable over Barnebey in view of Strehler and Morey.

Claims 21 to 27 or 21 to 34 stand rejected under 35 U.S.C. § 103 as unpatentable over the prior art as applied to claims 21 to 27 or 21 to 34 above, and further in view of Williams, Imig, Tyler, Richard or Vieth.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejections, we make reference to the final rejection (Paper No. 7, mailed April 11, 2000) and the answer (Paper No. 17, mailed May 18, 2001) for the examiner's complete reasoning in support of the rejections, and to the brief (Paper No. 16, filed February 1, 2001) for the appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art references, and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we will not sustain any of the rejections under 35 U.S.C. § 103 before us in this appeal for the reasons which follow.

Claim 21, the only independent claim on appeal, reads as follows:

A reaction vessel system, which comprises:

(a.) at least one reaction vessel having an upper portion and a lower portion;

(b.) at least one cooling unit functionally connected to said at least one vessel at one of said upper portion and said lower portion, to impart controlled cooling thereto, said cooling unit including:

(i.) a cooling element in proximity to said vessel and having an inlet port for injection of a liquid phase change coolant, a heat absorbent area, and an outlet port for removal of said phase change coolant in a gaseous state; and,

(ii.) injection means for injection of a phase change coolant in liquid form into said inlet port of said cooling element for creation of cooling by phase change from a liquid state to a gaseous state and;

(c.) at least one heating unit functionally connected to said at least one vessel at the other of said upper portion and said lower portion relative to said at least one cooling unit, to impart controlled heating thereto; and,

(d.) control means connected to said at least one cooling unit and said at least one heating unit for programmable automatic control of said injection means to control at least one of on/off flow and rate of flow, and to control at least one of on/off heating and rate of heating, said control means including a programmable device.

The pertinent teachings of the applied prior art relied upon by the examiner are set forth on pages 2-4 of the final rejection.

After the scope and content of the prior art are determined, the differences between the prior art and the claims at issue are to be ascertained. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966). In the rejections before us in this appeal, the examiner has not ascertained the differences between the prior art and the claims at issue.² Based on our analysis and review of the four primary references (i.e., Kondo, Redikultsev, Charm and Barnebey) and claim 21, it is our opinion that the differences are (1) a cooling unit including (i) a cooling element in proximity to the vessel and having an inlet port for injection of a liquid phase change coolant, a heat absorbent area, and an outlet port for removal of said phase change coolant in a gaseous state and (ii) injection means for injection of a phase change coolant in liquid form into the inlet port of the cooling element for creation of cooling by phase change from a liquid state to a gaseous state; and (2) control means connected to the at least one cooling unit and the at least one heating unit for programmable automatic control of the injection means to control at least one of on/off flow and rate of

² As set forth in Manual of Patent Examining Procedure (MPEP) § 2141 "Patent examiners carry the responsibility of making sure that the standard of patentability enunciated by the Supreme Court and by the Congress is applied in each and every case" and that Office policy has consistently been to follow Graham v. John Deere Co. in the consideration and determination of obviousness under 35 U.S.C. § 103.

flow, and to control at least one of on/off heating and rate of heating, the control means including a programmable device.

With regard to the above-noted differences, the examiner determined (answer, pp. 2-4) that (1) it would have been obvious to one of ordinary skill in the art to have replaced each of the cooling means of the four primary references with a phase change coolant type as taught by Strehler (at 18-21); and (2) it appears that control system is taught by Strehler/Kondo and Strehler/Redikultsev.³

The appellant argues that the applied prior art does not suggest the claimed subject matter. We agree. The examiner has not set forth a prima facie case of obviousness for the following reasons. First, the coolant type taught by Strehler (at 18-21) is not disclosed as being a phase change coolant type.⁴ Second, the examiner has not provided any rationale as to why it would have been obvious at the time the

³ While the reference to Morey is cited in the statement of the rejection in each of the rejections before us in this appeal, the examiner never applied Morey in any determination of obviousness in any of the rejections.

⁴ Strehler teaches a freezing unit 10 consisting of a freezing chamber 11 disposed within a housing 12. A pair of air circulating systems are provided which include air inlet passages 13 in the upper portions of opposite walls of the chamber 11, connected to air outlet passages 14 in the lower portions of those chamber walls by ducts 15. Each of the ducts 15 contains a blower 16 and a heater unit 17. Each of the air inlet passages 13 is aligned to direct the air flow past a coolant inlet passage 18 disposed in an adjacent chamber wall through which the coolant is introduced in a flow path transverse to the air flow. The coolant inlet passages 18 are connected by transfer lines 19 to the coolant source 20 as shown in Figure 1. Flow of coolant through the transfer lines 19 is controlled by a solenoid valve 21.

invention was made to a person of ordinary skill in the art to have replaced each of the cooling means of the four primary references with a phase change cooling system. Third, the examiner has not even alleged that it would have been obvious at the time the invention was made to a person of ordinary skill in the art to have provided the reaction vessel system of the four primary references with a control means as set forth in claim 21. Thus, the examiner has failed to establish that it would have been obvious at the time the invention was made to a person of ordinary skill in the art to have modified any of the four primary references to arrive at the claimed subject matter of claim 21.

For the reasons set forth above, the decision of the examiner to reject claim 21, and claims 22 to 34 dependent thereon, under 35 U.S.C. § 103 is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 21 to 34 under 35 U.S.C. § 103 is reversed.

REVERSED

CHARLES E. FRANKFORT
Administrative Patent Judge

JEFFREY V. NASE
Administrative Patent Judge

JENNIFER D. BAHR
Administrative Patent Judge

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