

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOSEPH M. KLOBUCAR

Appeal No. 1999-1738
Application No. 08/854,516

ON BRIEF

Before McCANDLISH, Senior Administrative Patent Judge, COHEN 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, 5 and 6.

Claims 2-4, the only other claims remaining in this application, stand allowed.

BACKGROUND

The appellant's invention relates to a method of rapidly cooling a regenerative thermal oxidizer. An understanding of the invention can be derived from a reading of exemplary claim 1, which appears 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:

Gross et al. (Gross)	5,101,741	Apr. 7, 1992
Houston	5,417,927	May 23, 1995
Klobucar et al. (Klobucar)	5,538,420	Jul. 23, 1996

The following rejections stand before us for review.

1. Claims 1, 5 and 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Houston.
2. Claims 1, 5 and 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Gross.
3. Claims 1, 5 and 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Klobucar.

Reference is made to the main and reply briefs (Paper Nos. 9 and 11) and the answer (Paper No. 10) for the respective positions of the appellant and the examiner with regard to the merits of these rejections.

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. For the reasons which follow, we cannot sustain any of the examiner's rejections.

Each of Houston, Gross and Klobucar discloses a regenerative thermal oxidizer or incinerator comprising a combustion chamber and at least two, but preferably three, heat exchangers (or regenerators) in communication with the combustion chamber, each of the heat exchangers having a flow valve or separate inlet and outlet flow valves for selectively communicating the regenerator with either a source of impure air to be cleaned or a clean air discharge stack or a source of purge air (which may be either recycled air from the clean air discharge or a separate source of clean air). The valves are controlled such that, at any given time, one of the heat exchangers acts as an inlet heat exchanger for delivering impure air to the combustion chamber, a second heat exchanger acts as an outlet heat exchanger for delivering cleaned air from the combustion chamber to the discharge stack and the purge air passes through the third heat exchanger into the combustion chamber and out through the outlet heat exchanger. At predetermined intervals, the positions of the valves are altered such that the roles of the heat exchangers are sequentially interchanged.

Houston further discloses a fuel gas supply line 36 connected to the impure gas inlet 15 by a line 57 and connected directly to the combustion chamber 25 by a line 56. A temperature sensor 103 for monitoring the temperature of the combustion chamber controls a fuel shut-off valve 100 to adjust the flow of fuel in accordance with the temperature of the combustion chamber. Contrary to the examiner's assertion on page 3 of the answer, the temperature sensor 103 is not disclosed as controlling cyclic operation of the valves in conduits 61-68 and 71-73. During the first part of a cycle interval, a valve 54 in the line 57 remains open so that fuel is mixed with the impure air prior to its entry into the combustion chamber, thereby improving the destruction efficiency of the oxidizer. The valve 54 is closed by a control 52 during the last 1 to 19% of the cycle interval to minimize the impurity in the inlet heat exchanger (regenerator) during this time, thereby minimizing the impurity in the cleaned air passing through that same heat exchanger when it becomes an outlet heat exchanger during a subsequent cycle interval. If necessary or desired for a particular process, a valve 53 in the line 56 can be opened during the portion of the cycle interval in which the valve 54 is closed to supply fuel directly to the combustion chamber.

The disclosures of Gross and Klobucar are both directed to cleaning or bake-out cycles in which extremely hot air is passed through the heat exchangers to bake-out any residues accumulating therein. Gross achieves this by providing an inlet manifold isolation valve 48 in the dirty air inlet manifold 38 and a valve 46 in an alternate inlet line 44. During normal

operation, the valve 46 is closed and the valve 48 is open so that dirty air is delivered through the heat exchanger 24, 26 or 28 which is then acting as the inlet heat exchanger to the combustion chamber 22 and then passed out through the outlet heat exchanger. During a cleaning cycle, the valve 48 is closed, thereby cutting off delivery of dirty air to the inlet manifold 38 and the valve 46 is opened to deliver the dirty air directly to the combustion chamber 22 via the alternate inlet line 44. Consequently, the air passing through the system is raised to an unusually high temperature. The inlet and outlet valves 34, 36 of the heat exchangers continue to cycle during the cleaning cycle (column 3, lines 65-66). The high temperature air passes outwardly through the heat exchangers 24, 26 and 28 and through the valves 34, 36 as they are cyclically opened, baking-out or oxidizing dried or condensed fluids along the way. Klobucar, on the other hand, provides a separate air source 56 which is passed through a burner 54 and then delivered to an inlet branch 32 leading to a heat exchanger 24, 26, 28. This hot air passes through the inlet heat exchanger, into the combustion chamber and out through the outlet heat exchanger to bake-out or oxidize deposits therein.

As apparently recognized by the examiner, none of the references, Houston, Gross and Klobucar, applied in rejecting the claims mentions a cool-down procedure for the incinerator or oxidizer or discloses a step of increasing the cycle time of the open inlet and outlet valves to rapidly cool the regenerative thermal oxidizer as required by independent claim 1 and claims 5 and 6 which depend from claim 1. Nevertheless, the examiner points out that "[t]he prior art

references are capable of increasing the cycle time as one desires" and asserts that it would have been obvious to operate the inlet and outlet valves of any of Houston, Gross and Klobucar in the manner claimed in order to efficiently cool the regenerative thermal oxidizer (answer, pages 3-5).

Rejections based on 35 U.S.C. § 103 must rest on a factual basis. In making such a rejection, the examiner has the initial duty of supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968).

While the examiner may be correct that the prior art apparatus is capable of increasing the cycle time as desired, none of the applied references teaches or suggests a method of operation in this manner. The mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification. See In re Mills, 916 F.2d 680, 682, 16 USPQ2d 1430, 1432 (Fed. Cir. 1990); In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). In this instance, the examiner has adduced no evidence that one of ordinary skill in the art would have appreciated that increasing the cycle time of the heat exchanger inlet/outlet valves would improve the rate of cool-down of the regenerator or that such a technique was known in the art at the time of the appellant's invention for rapid cool-down of a regenerative thermal oxidizer. Therefore, it

appears to us that the examiner has impermissibly resorted to speculation or hindsight reconstruction in rejecting the appellant's claims.

Accordingly, we cannot sustain any of the examiner's rejections of claims 1, 5 and 6 under 35 U.S.C. § 103 as being unpatentable over any of Houston, Gross and Klobucar.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1, 5 and 6 under 35 U.S.C. § 103 is reversed.

REVERSED

HARRISON E. McCANDLISH)	
Senior Administrative Patent Judge)	
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)	BOARD OF PATENT
IRWIN CHARLES COHEN)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
JENNIFER D. BAHR)	
Administrative Patent Judge)	

Appeal No. 1999-1738
Application No. 08/854,516

Page 8

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Appeal No. 1999-1738
Application No. 08/854,516

Page 9

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