

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 30

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte PETER R. LEE and FRANCIS S. BAKER

Appeal No. 1998-1296
Application 08/199,304

HEARD: May 17, 2000

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

DECISION ON APPEAL

This is an appeal from the decision of the examiner finally rejecting claims 1-4, 12-17, 19-24 and 26-28 (Paper No. 21). At that point in the prosecution, claims 5-11, 18

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and 25 had been allowed. However, the examiner subsequently withdrew one of the rejections under 35 U.S.C. § 103¹ and indicated that claims 3, 4, 12, 14, 17, 20, 21, 24 and 27 contained allowable subject matter (Answer, page 2). As a result, only claims 1, 2, 13, 15, 16, 19, 22, 23, 26 and 28 remain before us on appeal.

The claims on appeal are directed to an apparatus for the initiation of a propellant (claims 1, 2, 13, 15, 16 and 19) and a method for the initiation of a propellant (claims 22, 23, 26 and 28). These claims have been reproduced in an appendix to the Brief.

THE REFERENCES

The references relied upon by the examiner to support the final rejection are:

Christianson 3,601,054 Aug. 24,
1971

Microwave Resonant Absorption of Potential Exothermic
Compounds, Final Report (General Dynamics) Dec.
22, 1989

¹The rejection of claims 1-4, 12-15 and 22 as being unpatentable over Tahara in view of General Dynamics.

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THE REJECTION

Claims 1, 2, 13, 15, 16, 19, 22, 23, 26 and 28 stand rejected under 35 U.S.C. §103 as being unpatentable over Christianson in view of General Dynamics.

Rather than attempt to reiterate the examiner's full commentary with regard to the above-noted rejection and the conflicting viewpoints advanced by the examiner and the appellants regarding the rejection, we make reference to the Examiner's Answer (Paper No. 24) and the Appellants' Briefs (Papers No. 23 and 25).

OPINION

The test for obviousness is what the combined teachings of the prior art would have suggested to one of ordinary skill in the art. See, for example, *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In establishing a *prima*

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facie case of obviousness, it is incumbent upon the examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See ***Ex parte Clapp***, 227 USPQ 972, 973 (Bd. Pat. App. & Int. 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from the appellant's disclosure. See, for example, ***Uniroyal ,Inc. V. Rudkin-Wiley Corp.***, 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1052 (Fed. Cir.), *cert. denied*, 488 U.S. 825 (1988).

The appellants' invention deals with the initiation of propellants by the use of microwave energy. As manifested in claim 1, the invention comprises a combustion chamber, a charge of propellant in the chamber and means for igniting the propellant by microwave heating, with the means for igniting the propellant in turn comprising a source of microwave energy, a microwave transparent window in a wall of the chamber, means for applying microwaves from the source, and

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microwave sensitive material for absorbing microwave energy to heat and ignite the propellant. The claim also requires that at least a portion of the combustion chamber be "a substantially resonant cavity having a fixed size for the microwaves." Similar presentations of the invention appear in independent apparatus claim 13 and in independent method claim 22.

Christianson is directed to igniting propellant by the use of electromagnetic radiation. In the structure disclosed, the propellant chamber is provided with a parabolic surface to reflect the microwave energy and focus it upon clusters of microwave sensitive material imbedded in the propellant. While there are some similarities between the Christianson system and the appellants' invention, as the examiner acknowledges in the rejection, Christianson does not disclose providing the propellant chamber with a resonant cavity having a fixed size for the microwaves. For this feature, the examiner looks to General Dynamics, concluding that the teachings of General Dynamics would have motivated one of ordinary skill in the art to incorporate a resonant cavity in

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the Christianson ignitor. We do not agree.

General Dynamics is a report on investigation into "the microwave resonant absorption of ten energetic compounds" over a particular frequency range (Executive Summary). The objective of the tests was to determine if significant resonant absorption occurred in the selected materials, and whether the radiation could be used to detonate the compounds (page 1). No detonation, deflagration or decomposition of any of the samples was observed (page 21), so it is clear that the means utilized did not constitute an apparatus or method for the initiation of a propellant. More important to our analysis of the obviousness of the subject matter recited in the appellants' claims, however, is

that even giving the text of this reference its most charitable interpretation, it is clear to us that it does not teach utilizing a resonant cavity at all, much less a resonant cavity positioned within the combustion chamber.

The mere fact that the prior art structure could be modified does not make such a modification obvious unless the

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prior art suggests the desirability of doing so. See ***In re Gordon***, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). In the present case, we fail to perceive any teaching, suggestion or incentive in the applied references which would have led one of ordinary skill in the art to modify or augment the structure disclosed by Christianson in such a manner as to meet the terms of independent claims 1, 13 and 22. We are not persuaded otherwise by examiner's opinion on page 4 of the Answer that the "sharp peaks" in resonance observed in the General Dynamics tests would have provided the requisite suggestion to the artisan "because . . . [such] would promote a faster and more energetic ignition." In this regard, it is notable that the examiner has provided no evidence in support of this conclusion. Moreover, even if that were the case, the requirement for a "resonant cavity" has not been reached, and that is what the claims require.

It therefore is our opinion that the combined teachings of Christianson and General Dynamics fail to establish a *prima facie* case of obviousness with respect to the subject matter recited in the claims, and we will not sustain the rejection.

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The decision of the examiner is reversed.

REVERSED

NEAL E. ABRAMS)
Administrative Patent Judge)
)
) BOARD OF PATENT
JOHN P. McQUADE)
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