

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board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. 34

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte YOSHIKI HASHIMOTO

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Appeal No. 2000-0196  
Application 08/796,478

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ON BRIEF

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Before JERRY SMITH, LALL and BLANKENSHIP, Administrative Patent Judges.

LALL, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-5, 7-10 and 15-17. Claim 6 has been indicated as allowable, and claims 11-14 have been canceled.

The disclosed invention relates to an ultrasonic levitation and transport system in which an essentially flat-

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bottomed body is maintained in a levitated condition by the acoustic pressure produced by an ultrasonic generator. The generator produces so-called "in-phase" acoustic radiation, wherein the wavefronts extend in parallel with the "means for vibrating" (radiating surface) of the ultrasonic generator, owing to longitudinal vibration of the generator which in turn drives (vibrates) the radiating surface. The system does not employ any sort of radiation reflector, and therefore the levitating position of the levitating body is not dependent upon the creation of a nodal interference pattern with reflected wavefronts. The system of the invention is most advantageously used as a transport system, where a series of generators are used to create a "levitational roadway" for the transported bodies. Motive force for transport can also be provided by external means such as air moves, or by a deflected portion of the original ultrasonic energy. A further understanding of the invention can be achieved by reading the following claim.

Claim 1<sup>1</sup> reads as follows:

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<sup>1</sup> Amendment G, filed June 9, 1998, after the final rejection (Paper No. (continued...))

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1. An object levitating apparatus, comprising: means for vibrating uniformly in-phase and having upper and lower surfaces, and an ultrasonic excitation device that is attached to the lower surface of the means for vibrating, said ultrasonic excitation device exciting the means for vibrating such that the means for vibrating vibrates longitudinally, roughly perpendicular to the upper surface, so that sound waves are generated and a radiated pressure is generated by said sound waves emitted from said means for vibrating for levitating an object without the use of a reflector above said object.

The examiner relies on the following references:

Rey	4,284,403	Aug. 18,
1981		
Barmatz et al. (Barmatz '435)	4,549,435	Oct. 29,
1985		
Dorr	4,735,096	Apr.
5, 1988		
Murphy	4,753,579	Jun. 28,
1988		

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<sup>1</sup>(...continued)

25) has been indicated on its face to be approved for entry. See Paper No. 26. However, it appears that this amendment has not been physically entered into the record. For our purposes, we consider claim 1 as amended by this amendment and we leave it to the examiner to make sure the entry of this amendment in the record. We note that there is another amendment after the final rejection, amendment F, (Paper No. 23), which was filed on March 17, 1998. This amendment was not approved for entry. See Paper No. 24.

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Barmatz et al. (Barmatz '823)            4,777,823                            Oct.  
18, 1988

Danley et al. (Danley)                    5,036,944<sup>2</sup>                            Aug. 6, 1991

Claims 1, 10 and 15 stand rejected under 35 U.S.C. § 103  
as being unpatentable over Barmatz '823 in view of Rey.

Claims 2, 4, 5 and 7-9 stand rejected under 35 U.S.C. §  
103 as being unpatentable over Barmatz '823 in view of Rey and  
Danley.

Claim 3 stands rejected under 35 U.S.C. § 103 as being  
unpatentable over Barmatz '823 in view of Rey and Murphy.

Claims 16 and 17 stand rejected under 35 U.S.C. § 103 as  
being unpatentable over Barmatz '435 in view of Dorr.

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<sup>2</sup> The examiner has listed another U.S. Patent to Danley et al.  
(4,757,227). However, from the body of the rejection it is clear that Danley  
et al. (5,036,944) is the patent which is really being used. For our purposes,  
we have considered Danley 5,036,944 in our decision.

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Rather than repeat the arguments of the appellant and the examiner, we make reference to the briefs<sup>3</sup> and the answer for the respective details thereof.

#### OPINION

We have considered the rejections advanced by the examiner in the supporting arguments. We have, likewise, reviewed the appellant's arguments set forth in the briefs.

We affirm-in-part.

In our analysis, we are guided by the general proposition that in an appeal involving a rejection under 35 U.S.C. § 103, an examiner is under a burden to make out a prima facie case of obviousness. If that burden is met, the burden of going forward then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); In

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<sup>3</sup> A Reply brief was filed as Paper No. 30 on March 26, 1999. The examiner objected to this reply brief. See Paper No. 31. Appellant filed a substitute reply brief on May 5, 1999 as Paper No. 32, which was entered into the record. See Paper No. 33. Therefore, our reference here to the reply brief is a reference to the substituted reply brief.

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re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). We are further guided by the precedent of our reviewing court that the limitations from the disclosure are not to be imported into the claims. In re Lundberg, 244 F.2d 543, 113 USPQ 530 (CCPA 1957); In re Queener, 796 F.2d 461, 230 USPQ 438 (Fed. Cir. 1986). We also note that the arguments not made separately for any individual claim or claims are considered waived. See 37 CFR § 1.192(a) and (c). In re Baxter Travenol Labs., 952 F.2d 388, 391, 21 USPQ2d 1281, 1285 (Fed. Cir. 1991) ("It is not the function of this court to examine the claims in greater detail than argued by an appellant, looking for nonobviousness distinctions over the prior art."); In re Wiechert, 370 F.2d 927, 936, 152 USPQ 247, 254 (CCPA 1967)("This court has uniformly followed the sound rule that an issue raised below which is not argued in this court, even if it has been properly brought here by reason of appeal is regarded as abandoned and will not be considered. It is our function as a court to decide disputed issues, not to create them.").

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At the outset, we note that of the claims on appeal, claims 1, 2, 4, 5, 7-9, 10 and 15 have the recited limitation of "without the use of a reflector above said object."

Claims 3, 16 and 17 and 15 do not have the limitation of "without the use of a reflector above said object."

The examiner and appellant disagree regarding the presence of this limitation being disclosed by Barmatz '823. The examiner asserts (final rejection at pages 2-8, and answer at page 4) that the means of levitation in the device of Barmatz '823 is identical to that of the applicant. The examiner continues that "[l]evitation is achieved without use of a reflector as noted in the examiner's response to applicant's remarks" (final rejection at page 5). Appellant argues, brief at page 5, that "nowhere in Barmatz '823 is it taught or suggested that the main reflector can be removed, which indeed would be antithetical to the core teachings of the reference since Barmatz is a resonant system. By way of contrast, the instant claims specifically indicate that the object is levitated 'without the use of a reflector above said object.' This limitation in the claims reflects the

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fundamental difference in the operational principal as between the invention and Barmatz."

We agree with appellant's position. We have looked at the various embodiments of the levitating device in Barmatz '823, and, like appellant, we have not found any embodiment which does not require the use of a reflector for its operation. The examiner relies on Barmatz alone for the teaching of a levitating device operating without the use of a reflector above said object. The other references used by the examiner in rejecting various claims rely on different combinations of the references for teachings other than the one recited above and do not cure this deficiency of Barmatz '823. Therefore, we do not sustain the obviousness rejection of claims 1 and 10 over Barmatz '823 and Rey; of claims 2, 4, 5, and 7-9 over Barmatz '823, Rey and Danley.

With respect to claim 3, the limitation "without the use of a reflector above said object" is not recited. However, claim 3 calls for "a traveling device ... comprises an air flowing device that blows air onto said object ...." The examiner uses Murphy for the teaching of a traveling means by blowing air over the levitated object. See final rejection at

pages 8 and 9. However, we agree with appellant that Murphy does not teach the claimed feature. (Brief at page 9).

Instead, Murphy discloses an ultrasonic fan. Moreover, we agree with appellant that there is no motivation for adding Murphy to the combination of Barmatz '823 and Rey. Therefore, we do not sustain the obviousness rejection of claim 3 over Barmatz, Rey and Murphy.

With respect to claims 16 and 17, claim 16 requires a specific structure which requires a straight horn and an ultrasonic excitation device comprising of a conical horn which is attached to the lower surface of the straight horn. The examiner asserts (final rejection at page 9) that "Barmatz [435] shows (fig. 4) an object levitating apparatus comprising: a straight horn (84) having upper and lower surfaces, and an excitation device." The examiner admits that ultrasonics excitation device in Barmatz '435 does not comprise a conical horn. However, the examiner contends that conical horn 31 of Dorr would have been an obvious substitute for ultrasonic excitation device 86 for exciting the straight horn of Barmatz in Figure 4. See final rejection at pages 9 and 10. Appellant argues, brief at page 10, that "[t]here is,

... no teaching in either reference which would lead one to fix Dorr's conical horn to the bottom of Barmatz' straight horn." The examiner cites column 1, lines 54-61 of Dorr as a motivation for attaching its conical horn to the straight horn of Barmatz '435 stating that all energy is delivered to the front of the structure. However, the energy distribution in Dorr's system is not directed to the problem of having a straight horn levitating an object above the straight horn. Without the benefit of appellant's invention, an artisan would not have had any motivation to combine the conical horn of Dorr, which is simply a generic ultrasonic transducer, to attach to the straight horn of Barmatz '435 to arrive at the claimed structure of claim 16. Therefore, we do not sustain the obviousness rejection of claim 16 and its dependent claim 17 over Barmatz '435 in view of Dorr.

Lastly, we take claim 15. The examiner rejects claim 15 over Barmatz '823 in view of Rey. Final rejection at pages 5 and 6. Appellant argues, brief at page 7, that "[t]he 'broadest reasonable interpretation' of claim 15 ... would be that wherein the surface which is the 'bottom' of the levitator is defined when the object is levitating." We do

not agree with the appellant's interpretation that the bottom of the object is defined when the object is levitating. The claim simply calls for "placing said object having said flat bottom above a surface of the vibrator...." A reasonable interpretation of this language is that the object does have a flat bottom but the orientation of the flat bottom is not specifically defined. As such, Barmatz '823 alone in Figure 1a shows a levitating object 12b having a flat bottom even though the bottom is not in the orientation alleged to be recited in the claim by appellant. Moreover, Rey discloses at column 3, lines 19-22, that the object levitated may be solid or liquid of any shape and will have a size less than the size of the surface of the reflector. From this teaching, we find that an artisan would have been motivated to levitate in Barmatz '823 objects of different shapes including an object having a flat bottom. Therefore, we sustain the obviousness rejection of claim 15 over Barmatz '823 in view of Rey.

In conclusion, we have sustained the obviousness rejection of claim 15 over Barmatz '823 in view of Rey; while we have not sustained the obviousness rejection of claims 1 and 10 over Barmatz '823 and Rey; of claims 2, 4, 5, and 7-9

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over Barmatz '823 in view of Rey and Danley; of claim 3 in view of Barmatz '823 in view of Rey and Murphy; and of claims 16 and 17 in view of Barmatz '435 in view of Dorr.

The decision of the examiner rejecting claims under 35 U.S.C. § 103 is affirmed-in-part.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

	Jerry Smith	)	
	Administrative Patent Judge	)	
		)	
		)	
		)	
	Parshotam S. Lall	)	BOARD OF
PATENT	Administrative Patent Judge	)	APPEALS AND
		)	INTERFERENCES
		)	
	Howard B. Blankenship	)	)
	Administrative Patent Judge	)	

PSL/cam

Sughrue, Mion, Zinn, MacPeak & Seas

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