

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* LON E. BELL and ROBERT W. DILLER

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Appeal 2007-3143  
Application 10/215,163  
Technology Center 3700

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Decided: April 17, 2008

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Before LINDA E. HORNER, DAVID B. WALKER, and BIBHU R.  
MOHANTY, *Administrative Patent Judges*.

HORNER, *Administrative Patent Judge*.

DECISION ON APPEAL

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#### STATEMENT OF THE CASE

Lon E. Bell and Robert W. Diller (Appellants) appeal under 35 U.S.C. § 134 from the Examiner's decision in the Office Action dated June 22, 2005 finally rejecting claims 46-64 (Notice of Appeal, filed December 1, 2005). We have jurisdiction over this appeal under 35 U.S.C. § 6(b) (2002). The Appellants, in the Appeal Brief filed on March 17, 2006, expressly address the final rejection of only claims 47 and 56-64 (App. Br. 1, 3). The Appellants chose not to contest the final rejection of claims 46 and 48-55 (*id.*).<sup>1</sup> 37 C.F.R. § 41.43(c) (2007) states, in pertinent part, "An appeal, when taken, must be taken from the rejection of all claims under rejection which the applicant or owner proposes to contest." Because the Appellants have chosen not to contest the final rejection of claims 46 and 48-55, they are deemed to have withdrawn the appeal as to these claims and have thereby authorized cancellation of these claims from the application. We hereby dismiss the appeal as to the rejection of claims 46 and 48-55 and suggest that the Examiner cancel these claims once the application is returned to his jurisdiction. *See* MPEP § 1215.03. The appeal continues as to the remaining claims 47 and 56-64.

#### SUMMARY OF DECISION

We REVERSE.

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<sup>1</sup> In fact, the Appellants attempted to cancel claims 46 and 48-55 from the application in an After-Final Amendment, filed September 22, 2005 (App. Br. 3).

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## THE INVENTION

The Appellants' claimed invention is to a personal environment appliance that provides heating and/or cooling in a localized area, such as a work area (Spec. 2: ¶0009). Claim 47, reproduced below, is representative of the subject matter on appeal.

47. A personal environment appliance that provides heating and/or cooling in a localized area, the personal environment appliance comprising:

at least one electric motor driving at least one fan;

at least one inlet air path to a low pressure side of the at least one fan;

a thermoelectric device having a first side and a second side;

a first plurality of fin heat exchangers in thermal communication with the first side of the thermoelectric device, wherein inlet air passes the first plurality of fin heat exchangers along a first direction of flow and changes temperature, the first plurality of fin heat exchangers substantially thermally isolated from one another in the first direction; and

at least one outlet for the air that has passed the first plurality of fin heat exchangers to provide temperature control of the localized area.

## THE REJECTIONS

The Examiner relies upon the following as evidence of unpatentability:

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Fenton	US 4,065,936	Jan. 3, 1978
Mill	US 5,499,504	Mar. 19, 1996
Chang	GB 2 267 338 A	Jan. 12, 1993

The following rejections are before us for review:

1. Claims 47, 63, and 65 are rejected under 35 U.S.C. § 103(a) as unpatentable over Chang and Fenton.
2. Claims 56-64 are rejected under 35 U.S.C. § 103(a) as unpatentable over Chang, Fenton, and Mill.

## ISSUE

The Appellants contend that neither Chang, Fenton, nor Mill teaches or suggests a plurality of fin heat exchangers substantially thermally isolated from one another in the direction of flow (App. Br. 6-10). The Examiner found that “Fenton et al., teach the use of thermal gap barrier 24 between first 10 and second pair of thermoelectric heat exchanging modules with fins 36 in a counter-flow thermoelectric heat pump system for the purpose of providing substantial thermal isolation between the heat exchanging modules with fins” (Ans. 4). The issue before us is whether the prior art teaches or suggests fin heat exchangers that are thermally isolated from one another in the direction of flow.

## FINDINGS OF FACT

We find that the following enumerated findings are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d

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1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

1. Fenton discloses a counter-flow, two-channel thermoelectric heat pump (Fenton, col. 2, ll. 26-28; Fig. 1).
2. The heat pump includes a first pair of thermoelectric modules 10 and a second pair of thermoelectric modules 11, with a hot plate assembly positioned above the modules and a cold plate assembly positioned below the modules (Fenton, col. 2, ll. 48-54 and 58-62).
3. Upon energizing the modules, heat is passed from the cold plate segments 16, 17 into the modules to the hot plate segments 13, 14 (Fenton, col. 3, ll. 1-4).
4. Fenton further discloses that a thermal barrier 24 is interposed between the first and second sets of thermoelectric modules to separate the hot and cold plate assemblies, so that longitudinal heat transfer along the hot and cold plates is minimized and the efficiency of the system is enhanced (Fenton, col. 3, ll. 8-16; Fig. 1).
5. The thermal barrier 24 thermally isolates the sections of the hot and cold plates in the direction of flow (Fenton, Fig. 1).
6. An exploded view of one section of the heat pump is shown in Figure 3 of Fenton (Fenton, col. 3, ll. 28-30).

7. Figure 3 shows a detailed view of a hot plate assembly having a fin assembly including a plurality of fins 37 and spacers 38 provided over a hot plate 36 (Fenton, col. 3, ll. 47-49).
8. Figure 3 further shows the direction of air flow using arrows labeled “Cold” and “Ambient” (Fenton, Fig. 3).
9. The spacers 38 separate or thermally isolate the fins 37 from adjacent fins 37 in a direction perpendicular to the direction of air flow arrows of Figure 3 (Fenton, Fig. 3).
10. Further, the heat exchangers 13, 14 on either side of the thermal barrier gap 24 in Fenton are in thermal communication with different thermoelectric devices 10 and 11.
11. As such, Fenton does not show a plurality of fin heat exchangers in thermal communication with the same thermoelectric device and these same heat exchangers substantially thermally isolated from one another in the direction of flow.
12. Chang discloses a heat exchanger 2 having a plurality of corrugated fins 22 welded together and vertically arranged in parallel with one another (Chang, Fig. 2).
13. The fins 22 of Chang are not thermally isolated in the direction of flow. As shown in Figure 2, the only gap between the fins 22 is in a direction perpendicular to the direction of flow (Chang, Fig. 2).
14. Mill discloses an air distribution unit for a desk-mounted personal environment system containing a thermoelectric heat pump with a

- series of thermoelectric elements 32 and heat exchangers 33 having sets of vertical parallel fins mounted on the outer faces of the thermoelectric elements 32 (Mill, col. 1, ll. 4-6, col. 3, ll. 45-54).
15. The fin heat exchangers 33 of Mill are not thermally isolated in the direction of flow, i.e., from the bottom of the device to the top. As shown in Figure 4, the heat exchangers 33 are mounted across several thermoelectric elements 32, with no thermal gap between the fins in the direction of flow. Rather, the only gap between the fins is in a direction perpendicular to the direction of flow.

#### PRINCIPLES OF LAW

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’’’ *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S.Ct. at 1734 (“While the sequence of these

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questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”)

In rejecting claims under 35 U.S.C. § 103(a), the examiner bears the initial burden of establishing a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992); *see also In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the appellant. *Id.* at 1445; *see also Piasecki*, 745 F.2d at 1472. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *Id.*

## ANALYSIS

Independent claims 47 and 63 require “a first plurality of fin heat exchangers in thermal communication with the first side of the thermoelectric device” and “the first plurality of fin heat exchangers substantially thermally isolated from one another in the first direction [of flow].” As such, the claims call for both (1) a plurality of fin heat exchangers to be in thermal communication with the same thermoelectric device, and (2) that these heat exchangers are thermally isolated from one another in the direction of flow.

The Examiner found that Chang does not disclose a thermal gap between the heat exchanger fin elements in the direction of flow (Ans. 4). We agree (Facts 12 & 13).

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The Examiner relied on Fenton to teach “a plurality of heat exchanger fin elements substantially thermally isolated from one another in the direction of flow.” In particular, the Examiner found that Fenton teaches “the use of thermal gap barrier 24 between first 10 and second [11] pair of thermoelectric heat exchanging modules with fins 36 in a counter-flow thermoelectric heat pump system for the purpose of providing substantial thermal isolation between the heat exchanging modules with fins” (*id.*). The problem with the Examiner’s position is that the fin heat exchangers in Figure 1 of Fenton are not in thermal communication with the same thermoelectric device (Facts 1-5, 10).

Further, if we examine the plurality of fins of the heat exchanger in thermal communication with a single thermoelectric element, as shown in Figure 3, we find that these fins are thermally isolated from one another in a direction perpendicular to the direction of flow (Facts 6-9). As such, Fenton does not show a plurality of fin heat exchangers in thermal communication with the same thermoelectric device where these heat exchangers are substantially thermally isolated from one another in the direction of flow (Fact 11). Thus, the Examiner has failed to set forth a *prima facie* case of obviousness, and we will not sustain the rejection of independent claims 47 and 63 and dependent claim 64 as unpatentable over Chang and Fenton.

The Examiner relies on Mill in the rejection of dependent claims 56-62 to teach a personal environment unit which rests on a surface of a table and a user-operated control panel (Ans. 4-5). Mill does not cure the

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deficiency of Fenton (Facts 14 & 15). Thus, the Examiner has failed to set forth a *prima facie* case of obviousness, and we will not sustain the rejection of claims 56-62 as unpatentable over Chang, Fenton, and Mill.

#### CONCLUSIONS OF LAW

We conclude the Appellants have shown that the Examiner erred in rejecting under 35 U.S.C. § 103(a) claims 47, 63, and 64 as unpatentable over Chang and Fenton and claims 56-62 as unpatentable over Chang, Fenton, and Mill.

#### DECISION

The decision of the Examiner to reject claims 47 and 56-64 is reversed. The appeal is dismissed as to uncontested claims 46 and 48-55.

REVERSED

JRG

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