

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MOMENTUM DYNAMICS CORPORATION,
Petitioner,

v.

WITRICITY CORPORATION,
Patent Owner.

IPR2021-01127
Patent 9,306,635 B2

Before JAMESON LEE, SALLY C. MEDLEY, and SCOTT RAEVSKY,
Administrative Patent Judges.

RAEVSKY, *Administrative Patent Judge.*

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Momentum Dynamics Corporation (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–8 of U.S. Patent No. 9,306,635 B2 (Ex. 1001, “the ’635 patent”). WiTricity Corp. (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”). Based on these submissions, we instituted an *inter partes* review of claims 1–8 (Paper 7, “Decision” or “Dec.”). Subsequent filings include a Patent Owner Response (Paper 9, “PO Resp.”) and a Petitioner Reply (Paper 11, “Reply”). An oral hearing was held on August 3, 2022, and a copy of the transcript was entered into the record. Paper 26 (“Tr.”).

We have jurisdiction over this proceeding under 35 U.S.C. § 6(b). After considering the evidence and arguments of the parties, we determine that Petitioner has proven by a preponderance of the evidence that claims 1–8 of the ’635 patent are unpatentable. *See* 35 U.S.C. § 316(e). We issue this Final Written Decision pursuant to 35 U.S.C. § 318(a).

II. BACKGROUND

A. *The ’635 patent*

The ’635 patent relates to systems for “wireless energy transfer” using “coupled electromagnetic resonators.” Ex. 1001, 1:11, 4:16–17. These systems can be used to power many household devices, industrial devices, and commercial devices, and may be used in vehicle charging applications. *Id.* at 1:17–18, 6:3–4.

The systems attempt to “minimize or reduce the electric and magnetic fields at a distance away from the system.” *Id.* at 51:29–31. To illustrate, Figure 40 of the ’635 patent is reproduced below:

Fig. 40

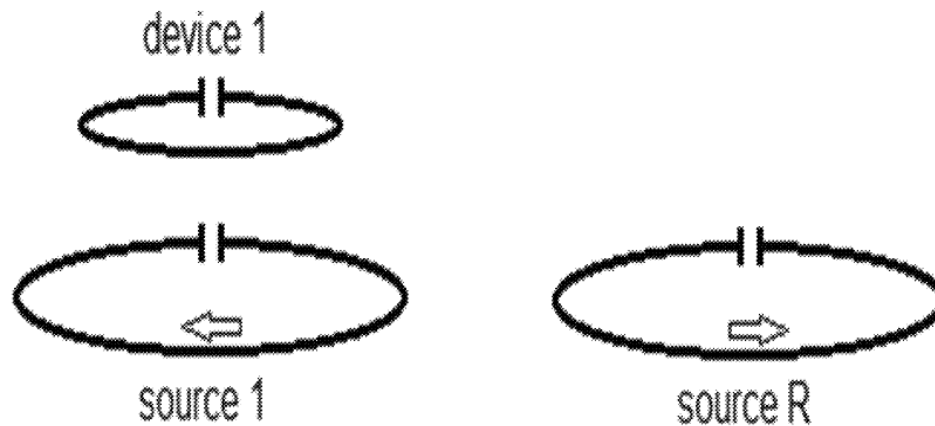


Figure 40 depicts a system with dipole cancellation using multiple source resonators. *Id.* at 3:64–65. Each resonator may include an inductive or capacitive element. *Id.* at 8:38–42. The system includes two source resonators (source 1, source R) and a device resonator (device 1). *Id.* at 52:36–39. The first source resonator (source 1) converts electrical energy from an energy source into oscillating magnetic fields that may be captured by the device resonator (device 1) to effectuate wireless power transfer to a device coupled with the device resonator (device 1). *See id.* at 7:4–18. The purpose of the additional resonator (source R) is to cancel the dipole moment far from the system. *Id.* at 52:38–39. The additional resonator (source R) accomplishes this using current that is exactly or substantially out of phase with the source resonator (source 1). *Id.* at 52:39–42.

To get the most cancellation, source 1 and source R can be designed with identical or near identical sizes and have an equal number of wires, with dipole orientations that are substantially the same, and with substantially the same amount of current. *Id.* at 52:42–47. This design performs better when the centers of the wireless power system and the source R are not very far from each other. *Id.* at 53:3–5.

B. Challenged Claims

Petitioner challenges claims 1–8 of the '635 patent. Claim 1 is illustrative:¹

1. A system for wireless power transfer, comprising:
 - [a] a first source magnetic resonator comprising a conductive first coil having one or more loops coupled to at least one capacitor;
 - [b] a second source magnetic resonator comprising a conductive second coil having one or more loops, the second source magnetic resonator positioned at a non-zero distance from the first source magnetic resonator; and
 - [c] a device magnetic resonator positioned closer to the first source magnetic resonator than to the second source magnetic resonator, wherein during operation of the system:
 - [d] a first current flowing in the first source magnetic resonator generates a first magnetic field that couples to the device magnetic resonator to transfer operating power to the device magnetic resonator, and the magnetic field has a first dipole moment;
 - [e] a second current flowing in the second source magnetic resonator generates a second magnetic field having a second dipole moment, wherein a direction of the first dipole moment is substantially opposite to a direction of the second dipole moment; and
 - [f] wherein the first and second source magnetic resonators are positioned so that the second magnetic field at least partially cancels the first magnetic field outside a spatial region through which power is transferred from the first source magnetic resonator to the device magnetic resonator.

¹ For convenience, we use Petitioner's element labeling. *See* Pet. 12.

C. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 2), supported by the declaration of Dr. David Arnold (Ex. 1003):²

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–8	102 ³	Kanno ⁴
1–8	103(a)	Kanno

III. ANALYSIS

A. Principles of Law

Petitioner bears the burden to demonstrate unpatentability. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). At this preliminary stage, we determine whether the information presented in the Petition shows a reasonable likelihood that Petitioner would prevail in establishing that at least one of the challenged claims would have been obvious over the proposed combinations of prior art. *See* 35 U.S.C. § 314(a).

To show anticipation under 35 U.S.C. § 102, each and every claim element, arranged as in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359 (Fed. Cir.

² Patent Owner did not submit an expert declaration in support of its Patent Owner Response.

³ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. §§ 102, 103 effective March 16, 2013. Because the challenged patent was filed before March 16, 2013, we refer to the pre-AIA version of §§ 102, 103. The parties do not dispute that the pre-AIA statutes apply.

⁴ U.S. Patent No. 8,698,350 B2, issued Apr. 15, 2014 to Kanno (“Kanno”) (Ex. 1005).

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