

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MOMENTUM DYNAMICS CORPORATION,
Petitioner,

v.

WITRICITY CORPORATION,
Patent Owner.

IPR2021-01166
Patent 8,304,935 B2

Before JAMESON LEE, MIRIAM L. QUINN, and SCOTT RAEVSKY,
Administrative Patent Judges.

QUINN, *Administrative Patent Judge.*

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Momentum Dynamics Corporation (“Petitioner”) filed a Petition (Paper 2, “Petition” or “Pet.”) requesting an *inter partes* review of claims 1–23 (“the challenged claims”) of U.S. Patent No. 8,304,935 B2 (Ex. 1001, “the ’935 patent”) pursuant to 35 U.S.C. §§ 311–319. WiTricity Corporation (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Preliminary Response” or “Prelim. Resp.”).

The standard for institution is set forth in 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition and the Preliminary Response shows that “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314; *see also* 37 C.F.R. § 42.4(a) (2020) (“The Board institutes the trial on behalf of the Director.”). Upon consideration of the Parties’ contentions and the evidence of record, we conclude that Petitioner has established a reasonable likelihood of prevailing in demonstrating the unpatentability of at least one challenged claim of the ’935 patent. Accordingly, we grant Petitioner’s request and institute an *inter partes* review.

II. BACKGROUND

A. *Real Parties in Interest*

Petitioner states that “[t]he real party-in-interest is Momentum Dynamics Corporation (‘Petitioner’).” Pet. 76. Patent Owner identifies itself, WiTricity Corporation, as the real party in interest. Paper 3, 1.

B. *The ’935 Patent*

The ’935 patent, titled “Wireless Energy Transfer Using Field Shaping to Reduce Loss,” relates to “wireless energy transfer, also referred

to as wireless power transmission.” Ex. 1101, code (54), 1:32–34. The ’935 patent addresses “a need . . . for a wireless power transfer scheme that is capable of transferring useful amounts of electrical power over mid-range distances or alignment offsets” to “enable useful energy transfer over greater distances and alignment offsets than those realized with traditional induction schemes, but without the limitations and risks inherent in radiative transmission schemes.” *Id.* at 2:6–13.

Figure 38 of the ’935 patent, reproduced below, is a block diagram of a wireless power transmission system employing a two-resonator system. *Id.* at 10:33–34, 58:62–64.

Fig. 38

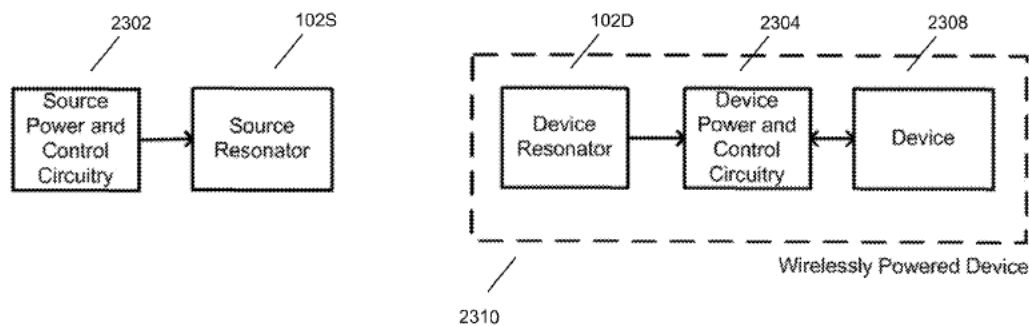


Figure 38 is a block diagram of a wireless power transmission system employing a two-resonator system. *Id.* at 10:33–34, 58:62–64. Figure 38 shows a wirelessly powered or charged device 2310 that includes or consists of device resonator 102D and device power and control circuitry 2304, along with device or devices 2308 to which either DC or AC, or both AC and DC power, is transferred. *Id.* at 58:62–59:10. The energy or power source for a system may include the source power and control circuitry 2302, and a source resonator 102S. *Id.* Thus, device or devices 2308 receive power

from device resonator 102D and power and control circuitry 2304. *Id.* For example, device resonator 102D and circuitry 2304 delivers power to device/devices 2308 that “may be used to recharge the battery of the device/devices, power the device/devices directly, or both when in the vicinity of the source resonator 102S.” *Id.*

The '935 patent explains that lossy extraneous materials and objects may be parts of an apparatus, in which a high-Q resonator is to be integrated, and provides that “dissipation of energy in these lossy materials and objects may be reduced by a number of techniques” including:

by using a high conductivity material or structure to partly or entirely cover lossy materials and objects in the vicinity of a resonator

by placing a closed surface (such as a sheet or a mesh) of high-conductivity material around a lossy object to completely cover the lossy object and shape the resonator fields such that they avoid the lossy object.

by placing a surface (such as a sheet or a mesh) of a high-conductivity material around only a portion of a lossy object, such as along the top, the bottom, along the side, and the like, of an object or material.

by placing even a single surface (such as a sheet or a mesh) of high-conductivity material above or below or on one side of a lossy object to reduce the strength of the fields at the location of the lossy object.

Id. at 35:65–36:20. Thus, the '935 patent explains, the impact of lossy materials on the quality factor of a resonator can be reduced by “us[ing] high-conductivity materials to shape the resonator fields such that they avoid the lossy objects.” *Id.* at 35:7–10.

Figure 19 the '935 patent, reproduced below, illustrates a magnetic resonator with a lossy object in its vicinity completely covered by a high-conductivity surface. *Id.* at 8:38–40.

Fig. 19

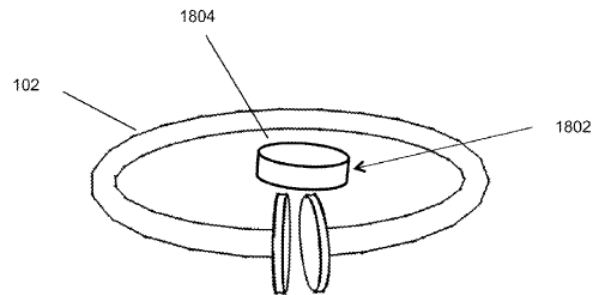


Figure 19 illustrates a magnetic resonator with a lossy object in its vicinity completely covered by a high-conductivity surface. *Id.* at 8:38–40. In particular, Figure 19 shows a capacitively-loaded loop inductor forming magnetic resonator 102 and a disk-shaped surface of high-conductivity material 1802 that completely surrounds lossy object 1804 placed inside the loop inductor. *Id.* at 36:20–31. The '935 patent explains that some lossy objects may be components, such as electronic circuits, that may need to interact with, communicate with, or be connected to the outside environment and thus cannot be completely electromagnetically isolated, but partially covering a lossy material with high conductivity materials may still reduce extraneous losses while enabling the lossy material or object to function properly. *Id.*

The '935 patent further explains that another way to reshape the unperturbed resonator fields is to “use high permeability materials to completely or partially enclose or cover the loss inducing objects, thereby reducing the interaction of the magnetic field with the loss inducing objects.” *Id.* at 39:10–15, 39:28–34. The '935 patent then explains:

It may be desirable to keep both the electric and magnetic fields away from loss inducing objects. As described above, one way to shape the fields in such a manner is to use high-conductivity

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