

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CANON INC.,
Petitioner,

v.

INTELLECTUAL VENTURES I LLC,
Patent Owner.

Case IPR2014-00535
Patent 7,315,406 B2

Before THOMAS L. GIANNETTI, JAMES A. TARTAL, and
PATRICK M. BOUCHER, *Administrative Patent Judges*.

BOUCHER, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. Background

Canon Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) pursuant to 35 U.S.C. §§ 311–319 to institute an *inter partes* review of claims 1–31 of U.S. Patent No. 7,315,406 B2 (“the ’406 patent”). After consideration of a Preliminary Response (Paper 7) filed by Intellectual Ventures I LLC (“Patent Owner”), the Board instituted trial on September 24, 2014. Paper 9 (“Dec.”).

During the trial, Patent Owner timely filed a Patent Owner Response (Paper 15, “PO Resp.”), and Petitioner timely filed a Reply to the Patent Owner Response (Paper 22, “Reply”). An Oral Hearing was held on June 24, 2015 (Paper 36, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c). This is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the claims on which we instituted trial. Based on the record before us, Petitioner has demonstrated by a preponderance of the evidence that claims 1–31 are unpatentable.

B. Related Proceedings

The ’406 patent has been asserted against Petitioner in *Intellectual Ventures I LLC v. Canon Inc.*, 13-cv-473-SLR (D. Del.). Pet. 1.

C. The '406 Patent

The '406 patent describes scanning circuit structures for scanners capable of reducing distortion during high-speed image signal transmission. Ex. 1001, col. 2, ll. 3–7. Figure 2 of the '406 patent is reproduced below.

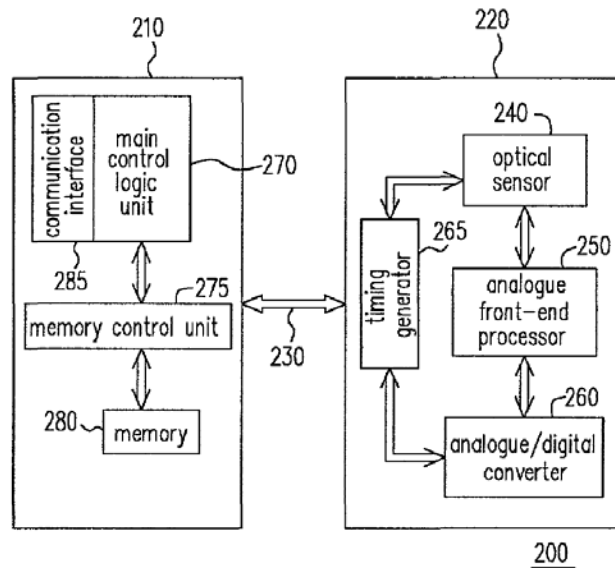


Figure 2 illustrates a circuit structure for a scanner, including main circuit module 210 and optical sensor circuit module 220 linked together with flat cable 230. *Id.* at col. 3, ll. 36–40. Communication interface 285 of the main circuit module allows interfacing with a human being, such as over a universal serial bus (“USB”) interface. *Id.* at col. 3, ll. 48–57. The communication interface receives scanning instructions regarding image resolution, brightness level, and scanning range, and converts such scanning instructions into scanning control signals that are conveyed to the optical sensor circuit module over the flat cable. *Id.* Timing generator 265 produces timing control signals for extracting an analog signal image from optical sensor 240, which may be a charge-coupled device (“CCD”) or complementary metal-oxide-semiconductor (“CMOS”) image sensor. *Id.* at

col. 3, ll. 58–64. After preprocessing of a collected image by analog front-end preprocessor 250, analog/digital converter 260 (“A/D converter”) converts the preprocessed image to digital data, which are transmitted to the main circuit module over the flat cable.

The ’406 patent identifies two specific advantages of this arrangement. First, a clearer image can be obtained at higher scanning speeds because the flat cable transmits digital data instead of easily distorted analog image signals. *Id.* at col. 4, ll. 23–25. Second, electromagnetic-interference effects are mitigated because the flat cable transmits scanning control signals rather than timing control signals. *Id.* at col. 4, ll. 26–29.

D. Illustrative Claims

Claims 1 and 11 of the ’406 patent are illustrative of the claims at issue:

1. A scanning circuit for a document scanner, comprising:
 - a main circuit module capable of receiving a scanning instruction from a communication interface, converting the scanning instruction into scan control signals, passing the scan control signals to a connection cable as well as receiving a digital image data captured in a document scanning operation through the connection cable; and
 - an optical sensor circuit module connected to the main circuit module through the connection cable capable of receiving the scan control signals and converting the scan control signals to timing control signals that control document scanning, extraction of an analog image signal from the document and conversion of the analog image signal into the digital image data.

11. A scanning method, comprising:
receiving scan control signals at an optical sensor circuit module via a connection cable; and
converting the scan control signals to timing control signals to control document scanning.

E. Grounds of Unpatentability

Petitioner relies on the following references.

Ochiai	US 5,457,544	Oct. 10, 1995	Ex. 1009
Koshimizu	US 2001/0030278 A1	Oct. 18, 2001	Ex. 1012
Kono	US 6,958,830 B2	Oct. 25, 2005	Ex. 1006
Takagawa	JP H10-215353	Aug 11, 1998	Ex. 1017
Tsuboi	JP H11-046302	Feb. 16, 1999	Ex. 1015
Nakamura	JP H11-353471	Dec. 24, 1999	Ex. 1018

We instituted this proceeding based on the following grounds.

Reference(s)	Basis	Claim(s) Challenged
Tsuboi	§ 102(b)	1–3, 5, 6, and 10–31
Tsuboi	§ 103(a)	1–3, 5, 6, and 10–31
Tsuboi and Takegawa	§ 103(a)	4
Tsuboi and Koshimizu	§ 103(a)	7
Tsuboi and Nakamura	§ 103(a)	9
Tsuboi and Kono	§ 103(a)	5, 6, 8, 16–25, 29, and 31
Tsuboi, Kono, and Koshimizu	§ 103(a)	7
Tsuboi and Ochiai	§ 103(a)	2, 3, 14, 15, 18, 19, 23, 27, and 28
Tsuboi, Ochiai, and Takegawa	§ 103(a)	4
Tsuboi, Ochiai, and Kono	§ 103(a)	18, 19, and 23

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