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Bond**

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(54) **SYSTEM AND PROCESS FOR
TRANSFORMING TWO-DIMENSIONAL
IMAGES INTO THREE-DIMENSIONAL
IMAGES**

(75) Inventor: **Chris Bond**, Los Angeles, CA (US)

(73) Assignee: **Prime Focus VFX Services II Inc.**,
Hollywood, CA (US)

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patent is extended or adjusted under 35
U.S.C. 154(b) by 836 days.

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1, 2009.

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H04N 13/04 (2006.01)
H04N 13/02 (2006.01)
G06T 7/00 (2006.01)

(52) **U.S. Cl.**
CPC **H04N 13/026** (2013.01); **H04N 13/0404**
(2013.01); **H04N 13/0495** (2013.01); **G06T**
7/0071 (2013.01); **G06T 7/0075** (2013.01)
USPC **348/51**; 348/46; 345/6; 345/419;
345/506; 345/680; 382/154; 382/164

(58) **Field of Classification Search**
CPC H04N 13/026
USPC 348/51
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,691,843 A * 11/1997 O'Neill 359/464
5,850,352 A 12/1998 Moezzi et al.
5,929,859 A 7/1999 Meijers
6,208,348 B1 * 3/2001 Kaye 345/419
6,400,831 B2 6/2002 Lee et al.
6,515,659 B1 2/2003 Kaye et al.
6,686,926 B1 * 2/2004 Kaye 345/680
7,102,633 B2 * 9/2006 Kaye et al. 345/419
7,116,323 B2 10/2006 Kaye et al.
7,116,324 B2 10/2006 Kaye et al.

(Continued)

FOREIGN PATENT DOCUMENTS

EP 1353518 A1 10/2003

OTHER PUBLICATIONS

NPL—Creating full view panoramic image mosaics and environ-
ment maps (Microsoft Research, 1997).*
NPL—How to make-3D-Photos (wikihow—using Photoshop).*

(Continued)

Primary Examiner — William C. Vaughn, Jr.

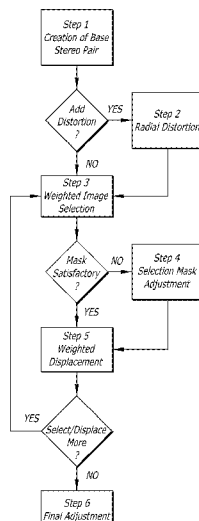
Assistant Examiner — Luis M Perez

(74) *Attorney, Agent, or Firm* — Fulwider Patton LLP

(57) **ABSTRACT**

A system and process is provided for the conversion of a
stream of two-dimensional images into a pair of streams of
images for providing the perception of a stream of three-
dimensional images. Each complimentary image in the image
stream undergoes the application of a selection and remap-
ping process to independently alter portions of the image, so
that the remappings shift the image elements in a manner
which produces a stereo depth effect when the images are
viewed through the appropriate viewing device.

18 Claims, 14 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

7,932,874	B2 *	4/2011	Kurahashi et al.	345/6
7,944,464	B2 *	5/2011	Fukushima et al.	348/51
8,427,488	B2 *	4/2013	Hirai et al.	345/506
8,705,847	B2 *	4/2014	Kuo et al.	382/154
8,761,501	B2 *	6/2014	Lee et al.	382/164
2003/0091225	A1 *	5/2003	Chen	382/145
2007/0159476	A1 *	7/2007	Grasnick	345/419
2011/0050864	A1 *	3/2011	Bond	348/51

2012/0086775 A1 * 4/2012 Bae et al. 348/46

OTHER PUBLICATIONS

Lewis Wallace, "Video: How IMAX Wizards Convert Harry Potter to 3-D, wired.com," Aug. 6, 2009 (last visited Aug. 26, 2010), <https://www.wired.com/underwire/2009/08/video-how-imax-wizards-convert-harry-potter-to-3-d>.
International Search Report, ISA/US, dated Oct. 20, 2010, p. 1-2.

* cited by examiner

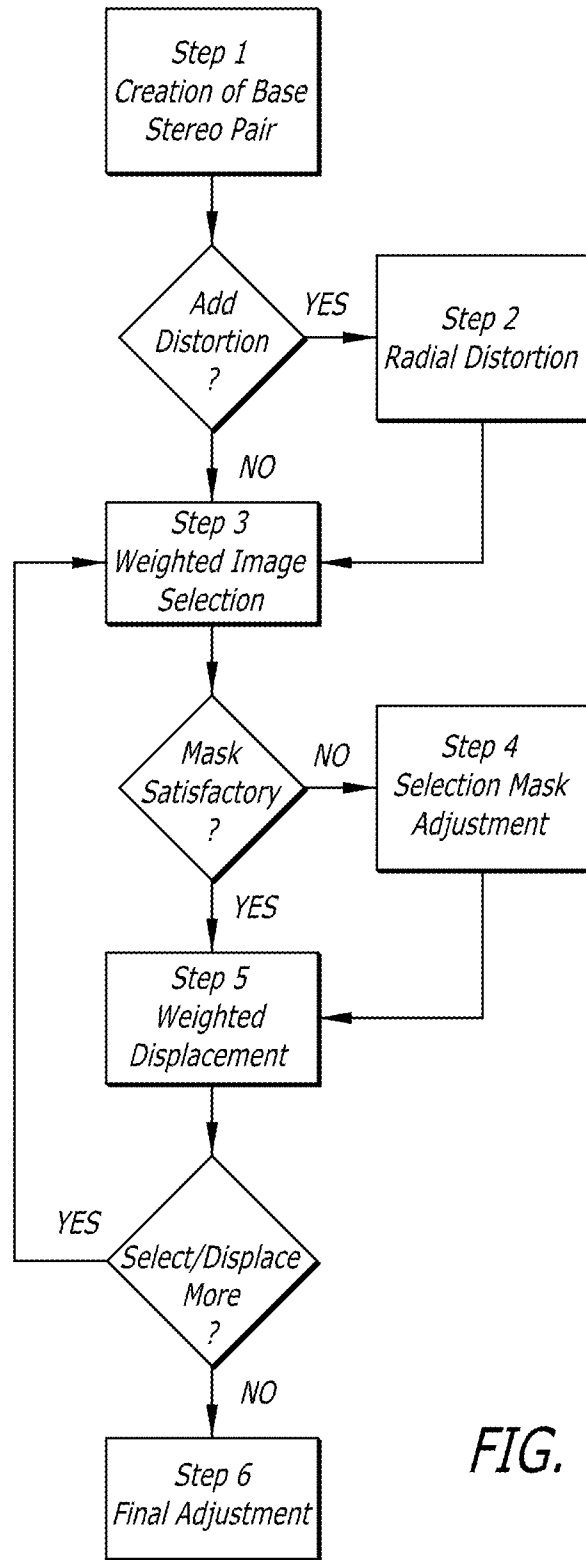


FIG. 1

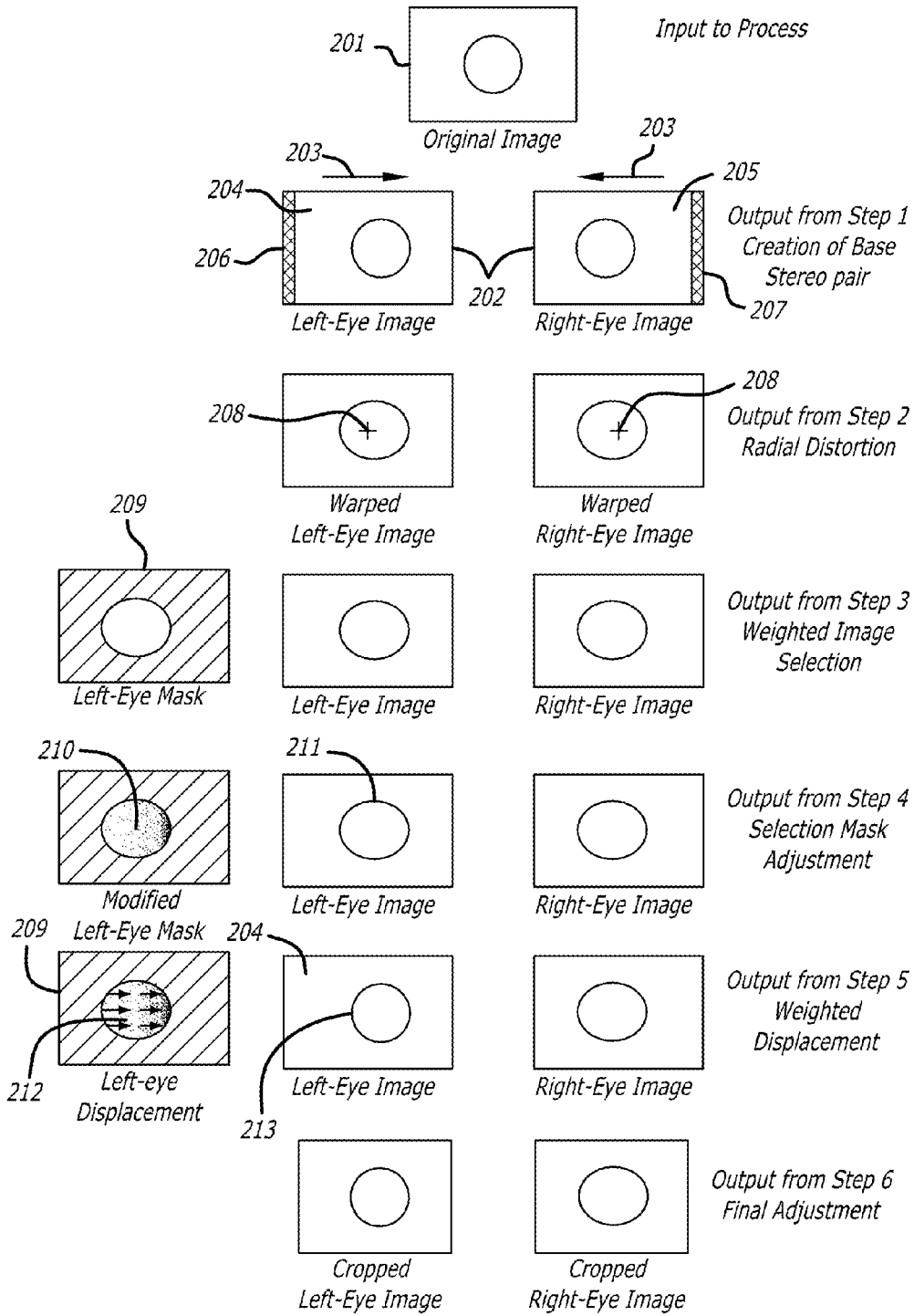


FIG. 2

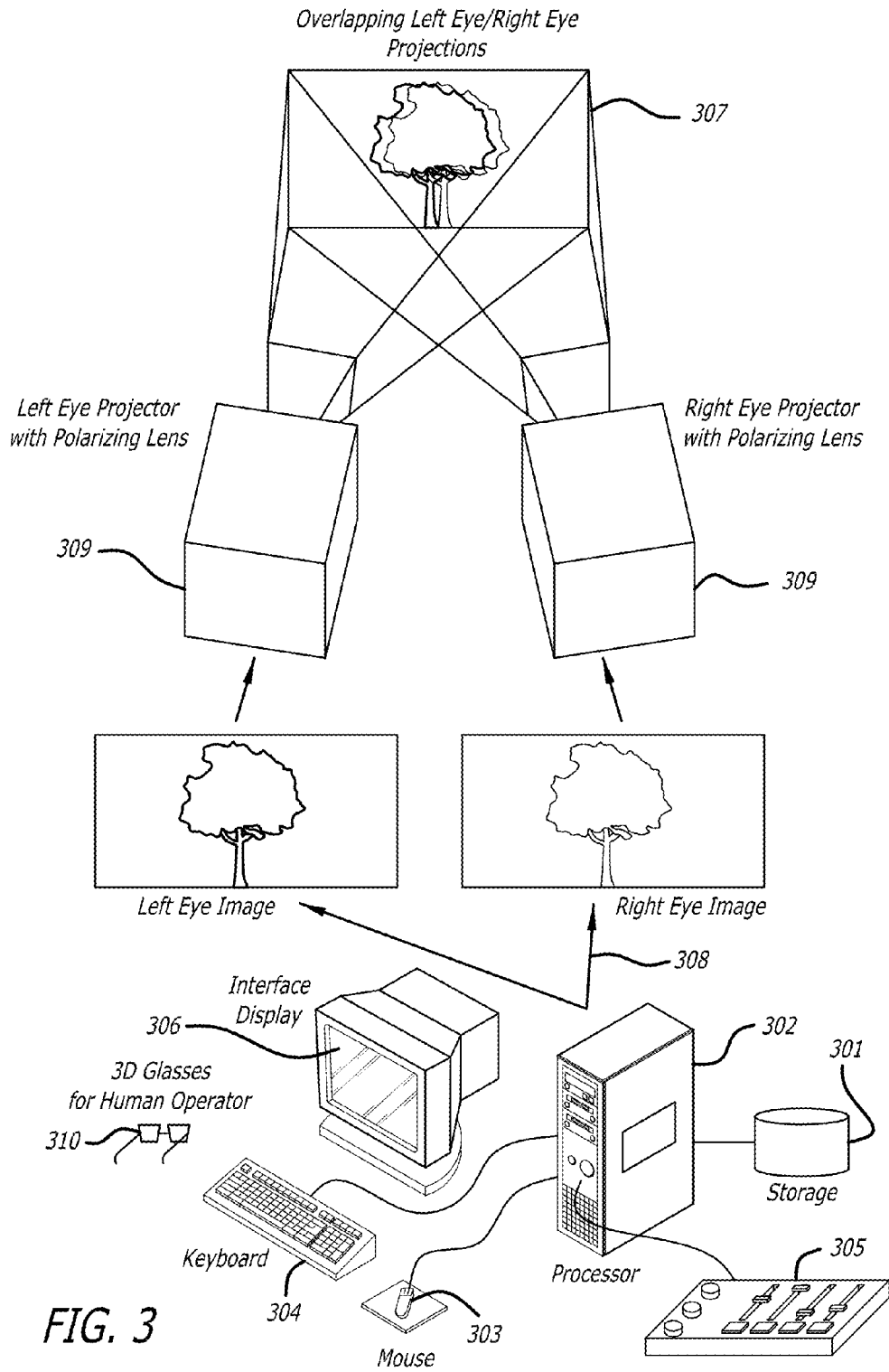


FIG. 3

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