



- (51) **International Patent Classification:**
G01N 15/14 (2006.01) *G06T 7/00* (2006.01)
- (21) **International Application Number:**
PCT/US2012/042972
- (22) **International Filing Date:**
18 June 2012 (18.06.2012)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
- | | | |
|------------|---------------------------|----|
| 61/498,456 | 17 June 2011 (17.06.2011) | US |
| 61/510,614 | 22 July 2011 (22.07.2011) | US |
| 61/510,696 | 22 July 2011 (22.07.2011) | US |
| 61/510,710 | 22 July 2011 (22.07.2011) | US |
- (71) **Applicant (for all designated States except US):** **CONSTITUTION MEDICAL, INC.** [US/US]; 186 Lincoln St., 3rd Floor, Boston, Massachusetts 02111 (US).
- (72) **Inventors; and**
- (75) **Inventors/Applicants (for US only):** **ZAHNISER, David** [US/US]; 33 Sheridan Road, Wellesley, Massachusetts 02481 (US). **ZAHNISER, Michael** [US/US]; 77 Wachusett Street, Jamaica Plain, Massachusetts 02130 (US). **YIE, Adam** [US/US]; 65 White Oak Road, Wellesley, Massachusetts 02481 (US).
- (74) **Agents:** **GARCIA, PH.D., Todd E.** et al.; Fish & Richardson P.C., P.O. Box 1022, Minneapolis, Minnesota 55440-1022 (US).

- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

- (88) **Date of publication of the international search report:**
4 April 2013

(15) Information about Correction:**Previous Correction:**

see Notice of 14 February 2013

- (54) **Title:** SYSTEMS AND METHODS FOR SAMPLE DISPLAY AND REVIEW

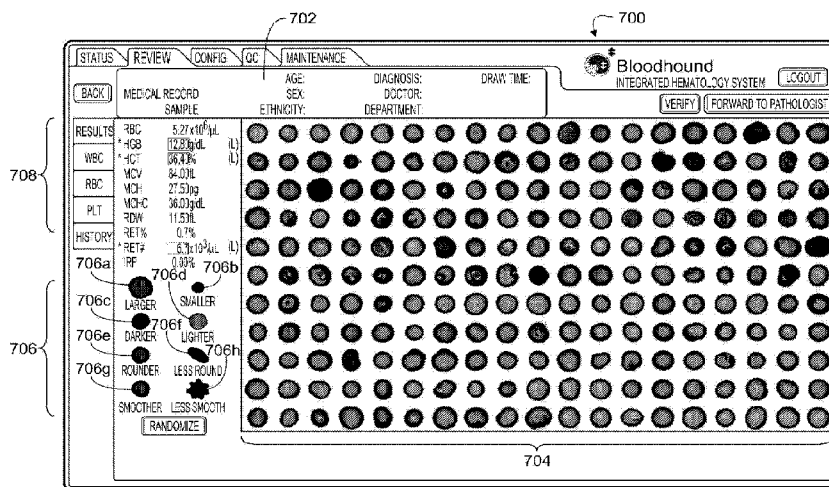


FIG. 7

- (57) **Abstract:** Methods and systems for displaying images of cells in a sample include obtaining a plurality of images of cells in the sample, where each image corresponds to one of the cells in the sample, determining values of at least one property for each of the cells based on the plurality of images, arranging the plurality of images to form a first image array, where the images are ordered in the first image array based on the values of the at least one property, displaying the first image array, sorting the plurality of images to form a second image array in which an ordering of the images is different from the first image array, and displaying the second image array, where the sample includes blood and the cells include red blood cells.

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/042972

A. CLASSIFICATION OF SUBJECT MATTER

INV. G01N15/14 G06T7/00
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G01N G06T G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2010/169811 A1 (YAMADA KAZUHIRO [JP]) 1 July 2010 (2010-07-01)	1,2, 4-18, 21-23, 25-30,33
Y	paragraphs [0038], [0041], [0045], [0046], [0051], [6980], [0113], [0121], [0122], [0145], [0146]; figures 1, 3, 5, 13, 15	3,19,20, 24,31,32
X	EP 0 693 679 A1 (HITACHI LTD [JP]) 24 January 1996 (1996-01-24)	1,22,33
A	column 4, line 17 - column 7, line 53; figures 1-4	2-21, 23-32
Y	US 2009/191585 A1 (YAMADA KAZUHIRO [JP] ET AL) 30 July 2009 (2009-07-30) paragraph [0073] - paragraph [0077]; figure 13	3,24
	----- -/-	



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

3 October 2012

Date of mailing of the international search report

03/01/2013

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Eidmann, Gunnar

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2012/042972

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	EP 0 549 905 A1 (CELL ANALYSIS SYSTEMS INC [US]) 7 July 1993 (1993-07-07) column 7, line 2 - line 17 column 11, line 6 - line 22	19,31 4,5,7,8, 10,11, 13,14, 25-27
Y	----- US 2010/232675 A1 (ORTYN WILLIAM [US] ET AL) 16 September 2010 (2010-09-16) paragraph [0124]; figures 6, 7 -----	20,32

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/042972

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

see annex

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-33

Providing means/steps to obtain further information on cells

2. claims: 34-52

Providing means/steps to obtain an unbalanced representation of cells

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2012/042972

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010169811 A1	01-07-2010	CN 101762584 A	30-06-2010
		EP 2202506 A2	30-06-2010
		JP 2010151647 A	08-07-2010
		US 2010169811 A1	01-07-2010
EP 0693679 A1	24-01-1996	EP 0693679 A1	24-01-1996
		JP 3050046 B2	05-06-2000
		JP 8029317 A	02-02-1996
US 2009191585 A1	30-07-2009	EP 2083375 A1	29-07-2009
		JP 2009174966 A	06-08-2009
		US 2009191585 A1	30-07-2009
EP 0549905 A1	07-07-1993	CA 2084099 A1	07-06-1993
		DE 69229036 D1	02-06-1999
		DE 69229036 T2	16-12-1999
		EP 0549905 A1	07-07-1993
		JP 2620834 B2	18-06-1997
		JP 5249102 A	28-09-1993
US 2010232675 A1	16-09-2010	NONE	