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Please find below and/or attached an Office communication concerning this application or proceeding.

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DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA. This application is a Continuation of U.S. Application No. 16/386,337, now U.S. Patent No. 11,118,220, which is a Continuation of U.S. Application No. 15/969,118, now U.S. Patent No. 10,266,888, which claims benefit of U.S. Provisional Application 62/250,182, filed November 3, 2015. Claims 9-38 will be examined on the merits. Claims 1-8 have been canceled. No claims have been withdrawn from consideration.

Double Patenting

Nonstatutory Obviousness-type Double Patenting Rejections

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

With respect to the non-statutory double patenting rejection(s) made in this Office action, note as follows. The use of the terminology "defined in 35 U.S.C. §154 to §156 and §173" in a terminal disclaimer can result in the terminal disclaimer being found improper. To address this, note that a proper terminal disclaimer need only disclaim the patent's remaining "full statutory term" as defined in 35 U.S.C., without specifying 35

U.S.C. 154 and 173. This is so, because the “full statutory term” inherently is a statutorily defined item.

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit <http://www.uspto.gov/forms/>. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to <http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp>.

3. Claims 9-38 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 11,118,220 in view of Callahan et al. (U.S. Patent Pub. No. 2011/0216953). Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn to a device or system for nucleic acid analysis comprising a stage comprising a sample holder, a heating or cooling apparatus (see claim 8 of the '220 patent), a multi-axis motion control system (see claims 2, 5 and 7 of the '220 patent), a fluidics system comprising a fluidics dispenser, an optical system comprising an objective (see claim 3 of the '220 patent), a Z-axis motion control system and one or more detectors. The claims of the instant application differ from the claims of U.S. Patent No. 11,118,220 in that the claims of U.S. Patent No. 11,118,220 do not expressly teach a fluidics system comprising one or more reservoirs for containing one or more reagents wherein the fluidics dispenser is fluidically connected to the one or more reservoirs, and a pump that facilitates the dispensation of a programmed volume of fluid from at least one reservoir to the sample holder, and also does not teach an optical system comprising a light source configured to deliver light to a biological sample. However, Callahan teaches devices and systems for performing visual servoing optical microscopy for close monitoring of hundreds of individual living cells

over time (see Abstract and paragraphs 12 and 13). In addition, Callahan teaches that the device comprises computer-controlled syringe pumps for applying computer-controlled stimulations, perturbations, and interrogations of the cells, wherein the pumps deliver various probes and solutions of chemical and biological agents to the cells, wherein the agents are stored in inflow fluid or multi-well fluid reservoirs and delivered through fluid channels (see paragraphs 56 and 95, claim 20 and Figure 1). Callahan further teaches that the device comprises an optical reader instrument that comprises a fluorescence microscope comprising a computer-controlled x,y,z-stage, one or more objectives, a white light source with an excitation filter wheel, and a detector (paragraph 109). Therefore, it would have been prima facie obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify the claims of U.S. Patent No. 11,118,220 with the teaching of Callahan to obtain the claimed invention since the skilled artisan would have been motivated with a reasonable expectation of success to combine the device comprising a means for reagent delivery to a biological sample within a microscopy device, and an optical reader system comprising a light source, as taught by Callahan in a system for nucleic acid analysis according to the claims of U.S. Patent No. 11,118,220.

4. Claims 9-38 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 18-30 of U.S. Patent No. 10,266,888 (cited on IDS of 08/06/2021, 26-page document) in view of Callahan et al. (U.S. Patent Pub. No. 2011/0216953). Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are drawn

to a device or system for nucleic acid analysis comprising a stage comprising a sample holder, a heating or cooling apparatus (see claim 25 of the '888 patent), a multi-axis motion control system (see claims 19, 21 and 22 of the '888 patent), a fluidics system comprising a fluidics dispenser, an optical system comprising an objective (see claim 20 of the '888 patent), a Z-axis motion control system and one or more detectors. The claims of the instant application differ from the claims of U.S. Patent No. 10,266,888 in that the claims of U.S. Patent No. 10,266,888 do not expressly teach a fluidics system comprising one or more reservoirs for containing one or more reagents wherein the fluidics dispenser is fluidically connected to the one or more reservoirs, and a pump that facilitates the dispensation of a programmed volume of fluid from at least one reservoir to the sample holder, and also does not teach an optical system comprising a light source configured to deliver light to a biological sample. However, Callahan teaches devices and systems for performing visual servoing optical microscopy for close monitoring of hundreds of individual living cells over time (see Abstract and paragraphs 12 and 13). In addition, Callahan teaches that the device comprises computer-controlled syringe pumps for applying computer-controlled stimulations, perturbations, and interrogations of the cells, wherein the pumps deliver various probes and solutions of chemical and biological agents to the cells, wherein the agents are stored in inflow fluid or multi-well fluid reservoirs and delivered through fluid channels (see paragraphs 56 and 95, claim 20 and Figure 1). Callahan further teaches that the device comprises an optical reader instrument that comprises a fluorescence microscope comprising a computer-controlled x,y,z-stage, one or more objectives, a white light source with an excitation filter wheel, and a detector (paragraph 109). Therefore, it would have been

prima facie obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify the claims of U.S. Patent No. 10,266,888 with the teaching of Callahan to obtain the claimed invention since the skilled artisan would have been motivated with a reasonable expectation of success to combine the device comprising a means for reagent delivery to a biological sample within a microscopy device, and an optical reader system comprising a light source, as taught by Callahan in a system for nucleic acid analysis according to the claims of U.S. Patent No. 10,266,888.

Claim Objections

5. Claim 30 is objected to because of the following informalities: Claim 30 recites "The device of claim 9, said light source comprises one or more lasers". The claim lacks a connecting language term such as "wherein" or "further comprising". Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

7. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have

been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims the examiner presumes that the subject matter of the various claims was commonly owned as of the effective filing date of the claimed invention(s) absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and effective filing dates of each claim that was not commonly owned as of the effective filing date of the later invention in order for the examiner to consider the applicability of 35 U.S.C. 102(b)(2)(C) for any potential 35 U.S.C. 102(a)(2) prior art against the later invention.

9. Claim 9 and 14-38 is/are rejected under 35 U.S.C. 103 as being unpatentable over Keller et al. (U.S. Patent Pub. No. 2015/0098126) in view of Callahan et al. (U.S. Patent Pub. No. 2011/0216953).

With regards to claim 9, Keller teaches a device (a microscope system is provided for imaging a live biological specimen, see Abstract and paragraph 26), comprising:

(a) a stage (a specimen chamber, part 168, houses the specimen holder, part 166, and also houses a multi-stage adapter module for connecting the specimen holder to the specimen positioning system, paragraphs 153, 154 and 159 and Figure 5B), comprising:

(i) a sample holder, wherein said sample holder is configured to receive a solid substrate comprising a biological sample (the specimen holder, part 166, may comprise a glass capillary, part 200, containing the specimen, part 101, that is mounted to a solid base, part 201, paragraphs 28, 153 and 154 and Figure 5B)

(ii) a heating or cooling apparatus programmable for a time and temperature parameter, wherein said heating or cooling apparatus is operationally connected to said sample holder (the specimen holder and specimen chamber may be connected to a thermoelectric cooling device, paragraph 155), and

(iii) a multi-axis motion control system programmable for XY motion control of said stage (the stage connected to a positioning system may be set up to translate the holder along three orthogonal directions, such as the x, y and z axes, paragraph 154);

(b) a fluidics system configured to dispense one or more reagents to said sample holder, wherein said fluidics system comprises:

(iii) a pump that facilitates the dispensation of a programmed volume of fluid from at least one reservoir of said one or more reservoirs to said sample holder (the chamber has inlet and outlet valves connected to a perfusion system operated by dual-channel 12-roller pump that is connected to the specimen chamber by a clear, flexible tubing for providing temperature control, pH control, and maintaining oxygen concentration and levels of sugars and amino acids in the surrounding medium of the specimen, paragraphs 159 and 161), and

(c) an optical system configured for volumetric imaging of said biological sample (the microscope system may be configured for performing volumetric imaging of a biological specimen, see paragraphs 139 and 386), wherein said optical system comprises:

(i) an objective (the microscope system comprises one or more microscope objectives placed between a light source unit and the detection unit, including

illumination objectives, part 143, and detection objectives, part 150 and 152, paragraphs 10, 11, 29, 142 and 146, and Figures, 3, 4 and 5A),

(ii) a Z-axis motion control system operatively connected to one or more components of said optical system, wherein said Z-axis motion control system is configured for Z motion of an objective focal plane through said biological sample (the optical scanner device may deflect a light beam along the x-axis or another axis, and when performing volumetric imaging without moving the specimen, the light beam may be deflected along the z axis, paragraphs 106, 139 and 386),

(iii) a light source configured to deliver light to said biological sample (light sources may include a single light source, or two separate light sources, including lasers, paragraphs 128 and 129 and Figures 3 and 5A, part 122), and

(iv) one or more detectors positioned in light receiving communication with said sample holder, wherein said one or more detectors receives light intensity signals which are processed into a three-dimensional volumetric image of said biological sample (cameras are positioned to receive light after it is emitted from the specimen, collected by a detection objective, parts 150 and 152, passes through filter, parts 154 and 156, and onto the sensor of the camera, part 106 and 108, paragraph 146 and Figure 3; the system is capable of performing volumetric imaging in the x, y and z dimensions, paragraphs 106, 139 and 386).

With regards to claims 14 and 15, Keller teaches a device wherein said objective is a water immersion objective or a water dipping objective (the detection objectives may be high numerical aperture water-dipping objectives, paragraphs 148 and 159).

With regards to claim 16, Keller teaches a device wherein said heating or said cooling apparatus comprises a heat sink or a Peltier element (the specimen holder and specimen chamber may be connected to a thermoelectric cooling device such as in integrated Peltier cooler, heater, or thermoelectric heat pump to maintain the specimen at a particular temperature, paragraphs 155 and 161).

With regards to claim 17, Keller teaches a device wherein said heating or said cooling apparatus comprises a temperature sensor for providing temperature feedback to a thermal control system (a temperature control system is thermally connected to the specimen chamber, part 168, to permit temperature regulation of the chamber and the environment around the specimen, paragraph 161).

With regards to claim 18, Keller teaches a device wherein said multi-axis motion control system is programmable for XYZ motion control of said stage (the stage connected to a positioning system may be set up to translate the holder along three orthogonal directions, such as the x, y and z axes, wherein the positioning system may be a high performance stepper and servo motion controller connected to an interface within the electronics controller, paragraphs 154 and 157).

With regards to claims 20 and 21, Keller teaches a device wherein said fluidics system further comprises one or more valves downstream of said one or more reservoirs and upstream of said fluidics dispenser, wherein, upon actuation, said one or more valves facilitate dispensation of said programmed volume of fluid to said sample holder, wherein said one or more valves comprise a rotary valve (the specimen chamber, part 168, has inlet and outlet valves connected to the perfusion system to control the environment around the specimen, paragraphs 159 and 161).

With regards to claims 26 and 27, Keller teaches a device wherein said Z-axis motion control system comprises a Z-axis linear motor configured for Z motion of said objective focal plane through said biological sample, and further comprising a linear encoder configured to provide Z motion feedback to said Z-axis linear motor (the relative placement of the specimen and light sheets may be modified by moving the specimen along the z axis in steps while maintaining the light sheet and detection systems stationary, or moving the light sheets and the detection systems in synchrony along the z axis, while maintaining the specimen stationary, wherein linear motors are used to move the specimen, and actuators are used to control the light sheets and the detection systems, paragraphs 199 and 120).

With regards to claim 28, Keller teaches a device further comprising an objective wetting apparatus (see paragraphs 148 and 159 regarding water-dipping objectives).

With regards to claims 29 and 30, Keller teaches a device wherein said light source comprises one or more light emitting diodes (LEDs), or wherein said light source comprises one or more lasers (the light sources may include a laser, such as a single-pulsed Ti:Sapphire laser that is split into two beams for a two-photon excitation arrangement, or wherein the light source may comprise up to six laser diodes and diode pumped solid state lasers, paragraphs 128-130).

With regards to claim 31, Keller teaches a device wherein said optical system further comprises one or more emission filters and one or more excitation filters for directing certain wavelengths of light within said optical system (light beams that are output from light sources may be directed through optical (excitation) filters, and may be mounted on a filter wheel, paragraph 143; fluorescence light emitted from a specimen

and collected by objectives, then passes through a filter (emission) which rejects light of wavelengths outside a wavelength band centered around the wavelength to be detected by the detector, paragraph 146 and Figure 3).

With regards to claims 32 and 33, Keller teaches a device wherein said one or more excitation filters are configured to provide light having a wavelength of about 480 nm, about 530 nm, about 590 nm, or about 640 nm to said biological sample, wherein said one or more emission filters are configured to provide light having a wavelength of about 510 nm, about 570 nm, about 620 nm, or about 680 nm to said one or more detectors (light from a light source such as a laser may be output at wavelengths from 405 to 685 nm, paragraph 132; after passing through an optical filter, paragraph 143, the excitation light sheets excite fluorophores within the specimen to higher energy levels, and the emitted light is collected by objectives, then passes through a filter (emission) which rejects light of wavelengths outside a wavelength band centered around the wavelength to be detected by the detector, paragraphs 109, 146, 270 and 271 and Figure 3).

With regards to claim 34, Keller teaches a device wherein said optical system is mechanically, electrically, or electromechanically coupled with a controller system configured to synchronize one or more imaging events within said device (the microscope system may be operated through an electronics controller computational controller, paragraphs 57 and 123 and Figures 6 and 20).

With regards to claim 38, Keller teaches a device further comprising, one or more microprocessors with software for automating or controlling image detection and acquisition of said optical system (data acquisition for the microscope system occurs at

speeds that match the time-scales of the fastest processes of interest and with minimal time shifts between complementary views, wherein the system comprise an electronics controller and computational system to provide synchronized control of all mechanical components within the microscope with millisecond precision over long periods of time, and provides a robust pipeline for simultaneous high-speed image acquisition with a plurality of detectors, paragraphs 44 and 123).

However, with regards to claim 1, Keller does not teach (i) one or more reservoirs for containing said one or more reagents and (ii) a fluidics dispenser configured to dispense said one or more reagents into said sample holder, wherein said fluidics dispenser is fluidically connected to said one or more reservoirs. In addition, Keller does not teach a device wherein said pump is a syringe pump (claim 19), device wherein said one or more valves comprise a solenoid valve or a microfluidic valve (claim 22), or wherein said fluidics system further comprises an aspiration system configured to remove liquid from said open flow cell, wherein said aspiration system comprises an aspiration tube that removes liquid from said open flow cell and a pump or vacuum source operatively coupled to said aspiration tube, wherein said aspiration tube is operatively coupled to a motor, wherein said motor is configured to adjust a motion axis of said aspiration tube to control an interface between said aspiration tube and said flow cell (claims 23 and 24). In addition, Keller fails to teach a device wherein said motor is a stepper motor (claim 25), or comprises a vibration control rigid foundation (claim 35), and lastly, does not teach a device further comprising, one or more microprocessors with software for automating or controlling for automating or controlling said dispensation of said one or more reagents into said sample holder

(claim 36), or said time and temperature parameter of said heating or cooling apparatus (claim 37).

Callahan teaches devices and systems for performing visual servoing optical microscopy for close monitoring of hundreds of individual living cells over time (see Abstract and paragraphs 12 and 13).

Specifically with regards to claims 1 and 19, Callahan teaches that the device comprises computer-controlled syringe pumps for applying computer-controlled stimulations, perturbations, and interrogations of the cells, wherein the pumps deliver various probes and solutions of chemical and biological agents to the cells, wherein the agents are stored in inflow fluid or multi-well fluid reservoirs and delivered through fluid channels (see paragraphs 56 and 95, claim 20 and Figure 1).

With regards to claim 22, Callahan teaches a device wherein said one or more valves comprise a solenoid valve or a microfluidic valve (the device may comprise a control system for fluid delivery using a combination of micro-valves and micropumps, or using microfluidic valves, paragraph 97 and claim 20).

With regards to claims 23 and 24, Callahan teaches a device wherein said fluidics system further comprises an aspiration system configured to remove liquid from said open flow cell, wherein said aspiration system comprises an aspiration tube that removes liquid from said open flow cell and a pump or vacuum source operatively coupled to said aspiration tube, wherein said aspiration tube is operatively coupled to a motor, wherein said motor is configured to adjust a motion axis of said aspiration tube to control an interface between said aspiration tube and said flow cell (the device may

comprise a vacuum-powered aspirator to remove excess liquid from a microincubation chamber, paragraphs 205 and 206 and claim 20).

With regards to claim 25, Callahan teaches a device wherein said motor is a stepper motor (motors such as stepping motors may be provided for functions such as z-axis positioning, and a computer controlled XYZ microcapillary positioner or robotic arm, paragraphs 81 and 251).

With regards to claim 35, Callahan teaches a device where said device comprises a vibration control rigid foundation (the device comprises an optical platform comprising a fluorescence microscope, wherein the microscope has sufficient weight to be stable once the camera and microscope peripherals are mounted on the microscope, wherein the optical platform is relatively stable and vibration-free, paragraphs 233 and 242).

With regards to claims 36 and 37, Callahan teaches a device further comprising, one or more microprocessors with software for automating or controlling said dispensation of said one or more reagents into said sample holder, and further comprising, one or more microprocessors with software for automating or controlling said time and temperature parameter of said heating or cooling apparatus (the device is a computer-controlled system for controlling delivery of fluorescent probes and solutions of chemical and biological agents to the cells, and also for controlling the temperature of the cell vessel, paragraph 56).

It would have been prima facie obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to combine the devices and systems of Keller and Callahan since both references teach microscopy-based devices

for analyzing biological specimens such as cells, wherein the devices each comprise an optical instrument that comprises a fluorescence microscope comprising a sample holder to receiving a biological sample, a computer-controlled x,y,z-stage to allow for volumetric imaging of the specimen, a heating/cooling system to maintain the environmental conditions around the specimen, a fluidics system, and an optical system comprising one or more objectives, one or more light sources with an excitation filter wheel and one or more emission filters, and a detector. In addition, Callahan teaches that the device may comprise a fluidics system for delivery of reagents such as probes or chemical agents to the cell specimen sample, wherein the reagents are stored in reservoirs and delivered to the specimen by a syringe pump, wherein the fluidics system is controlled by a computer system (see paragraph 56). Thus, an ordinary practitioner would have been motivated to combine the devices and systems of Keller and Callahan since Callahan provides a fluidics control system that may be readily accommodated in the device of Keller for maintaining a live specimen over a period of time during optical analysis. While Keller also teaches the use of a pump perfusion system for maintaining oxygen, pH and temperature levels around the specimen, the computer-controlled system of Callahan enables a user to perform additional analytical operations on a specimen, including stimulations, perturbations and interrogations using the computer-controlled syringe pumps for delivery of a wide variety of reagents to the specimen (see paragraph 56, lines 1-7). The user can take advantage of the computer's ability to keep track of vast numbers of previous combinations of such stimuli and how they were applied and what the responses were, for both the current experiment as well as to refer to a database of previous cell stimulations and responses (paragraph 56, lines 14-24).

10. Claim 10-13 is/are rejected under 35 U.S.C. 103 as being unpatentable over Keller et al. (U.S. Patent Pub. No. 2015/0098126) in view of Callahan et al. (U.S. Patent Pub. No. 2011/0216953) as applied to claims 9 and 14-38 above, and further in view of Frisen et al. (U.S. Patent Pub. No. 2019/0203275).

Keller and Callahan together teach the limitations of claims 9 and 14-38, as discussed above. However, neither Keller nor Callahan teach a device wherein said solid substrate is a flow cell, including an open or closed flow cell, or wherein said closed flow cell comprises a fluid inlet and a fluid outlet, and wherein said fluid inlet comprises said fluidics dispenser.

Frisen teaches compositions, apparatus and methods for preserving spatial information when performing multiplex nucleic acid analyses of biological specimens, including attaching oligonucleotides such as primers to a solid support, binding probes comprising barcode and target capture sequences to the primers and amplifying the probes to generate clusters having copies of the barcodes and target capture sequences on the support, contacting a biological specimen to the support and capturing nucleic acid sequences of the specimen and tagging nucleic acids of the specimen with the barcode sequences (see Abstract and paragraph 8). Frisen further teaches that captured biological specimens containing fluorescent labels may be imaged using a fluorescence microscope (see paragraphs 104-108 and Figure 5).

Specifically with regards to claims 10-13, Frisen teaches that solid supports for capturing and analyzing a biological specimen may be comprised within a flow cell, wherein the flow cell comprises a chamber where a reaction may be carried out, an inlet

for delivering reagents to the chamber, and an outlet for removing reagents from the chamber, and may also include one or more transparent surfaces allowing optical detection of biological specimens (paragraphs 36 and 42 and Figures 3 and 5). Frisen further teaches that flow cells may be in an open configuration to expose a solid support inside or to remove the solid support from the flow, such as to allow convenient delivery of a biological specimen to the solid support, and the flow cell may be subsequently closed to proceed with further analysis (see paragraph 91).

It would have been *prima facie* obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to combine the devices and systems of Keller and Callahan with the compositions, apparatus and methods of Frisen since Frisen, like Keller and Callahan, teaches imaging of biological specimens using an optical system such as a fluorescence microscope, wherein reagents may be delivered to the specimen for maintaining optimal conditions around the specimen or for performing further analysis of the specimen. In addition, Frisen teaches that specimens may be captured on a solid support within a flow cell to allow both performing analysis of the captured specimen as well as imaging the specimen (see Figures 3 and 5). Thus, an ordinary practitioner would have been motivated to combine the devices and systems of Keller and Callahan with the compositions, apparatus and methods of Frisen since Frisen provides an additional means for capturing or containing a biological sample or specimen within an optical system or device that is readily adaptable to the devices of Keller and Callahan. A flow cell provides a convenient apparatus for use in methods of analyzing a biological specimen, as it is convenient for housing a support that may be treated with multiple fluidic reagents such as the repeated fluidic deliveries

used for some nucleic acid sequencing or nucleic acid hybridization protocols (Frisen, paragraph 91, lines 1-11), and furthermore, may comprise one or more transparent surfaces allowing optical detection and imaging of the biological specimen (paragraphs 36, lines 6-9).

Conclusion

11. Claims 9-38 are rejected on the grounds of nonstatutory obviousness-type double patenting. In addition, claims 9-38 are rejected over the prior art. No claims are free of the prior art.

Correspondence

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David C. Thomas whose telephone number is 571-272-3320 and whose fax number is 571-273-3320. The examiner can normally be reached on 5 days, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached on 571-272-0782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/David C Thomas/
Primary Examiner, Art Unit 1637