IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patentee	:	Constance Nash
Application to		
Reissue Patent No	:	7,974,339 B2
Issued	:	July 5, 2011

ASSENT OF ASSIGNEE

Mail Stop **Reissue**

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

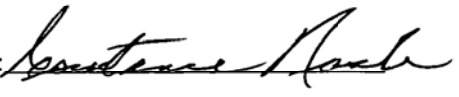
The undersigned, authorized by the assignee, Vedanti Systems Limited states that Vedanti Systems Limited I the assignee of the entire right, title and interest in Letters Patent 7,974,339 B2 by reason of the assignment from the inventors, recorded on May 16, 2012.

The undersigned has reviewed all the documents in the chain of title in the patent application identified above and, to the best of the undersigned's knowledge and belief, title is in the assignee identified above.

Vedanti Systems Limited hereby assents to the filing of the above-identified application to re-issue U.S. Patent 7,974,339 B2.

Vedanti Systems Limited

Date: June 4, 2013

By: 

Constance Nash

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION FOR REISSUE OF LETTERS PATENT NO 7,974,339 B2

Patentee	:	Constance Nash
Title	;	Optimized Data Transmission System and Method
Issued	:	July 5, 2011
No. of Pages (Spec.):		5
No. of Claims		13
No. of Pages (Abstract):		1
No. of Pages (Inventor's Declaration):		3
No. of Pages Drawings:		4

Attorney: Yorck Hernandez

Wittmann-Hernandez Patent Attorneys,

Munich, Germany

Inventor /Assignee:

Constance Nash

P.O. Box 1892

Laguna Beach, CA 92652

Date: June 4, 2013

US007974339B2

(12) **United States Patent**
Krichevsky et al.

(10) **Patent No.: US 7,974,339 B2**
(45) **Date of Patent: Jul. 5, 2011**

(54) **OPTIMIZED DATA TRANSMISSION SYSTEM AND METHOD**

(76) Inventors: **Alex Krichevsky**, Laguna Beach, CA (US); **Constance Nash**, Laguna Beach, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1401 days.

(21) Appl. No.: **10/892,690**

(22) Filed: **Jul. 16, 2004**

(65) **Prior Publication Data**

US 2004/0258150 A1 Dec. 23, 2004

Related U.S. Application Data

(63) Continuation of application No. PCT/US02/00503, filed on Jan. 16, 2002.

(51) **Int. Cl.**
H04N 7/12 (2006.01)

(52) **U.S. Cl.** **375/240.01**

(58) **Field of Classification Search** 375/240.01, 375/240.15, 240.23; 380/54; 382/239, 236; 348/699

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,776,013	A *	10/1988	Kafri et al.	380/54
4,785,349	A *	11/1988	Keith et al.	375/240.23
5,778,092	A	7/1998	MacLeod et al.	
5,784,175	A	7/1998	Lee	
5,838,333	A *	11/1998	Matsuo	345/604
5,878,169	A *	3/1999	Miyamoto	382/236
6,014,181	A *	1/2000	Sun	348/699
6,078,307	A *	6/2000	Daly	345/600
6,198,467	B1 *	3/2001	Chiang	345/698
6,326,981	B1 *	12/2001	Mori et al.	345/695
6,473,062	B1 *	10/2002	Debiez et al.	345/63
6,608,632	B2 *	8/2003	Daly et al.	345/698
7,050,639	B1 *	5/2006	Barnes et al.	382/239
7,551,189	B2 *	6/2009	Hunter	345/698

FOREIGN PATENT DOCUMENTS

EP	0 712 088	A2	5/1996
EP	1 006 715	A2	6/2000
EP	1 006 717	A2	6/2000

OTHER PUBLICATIONS

Supplementary European Search Report, dated Sep. 23, 2005.

Strobach, Tree Structured Scene Adaptive Coder, IEEE Transactions on Communications, Apr. 1990, vol. 38, No. 4, pp. 477-486.

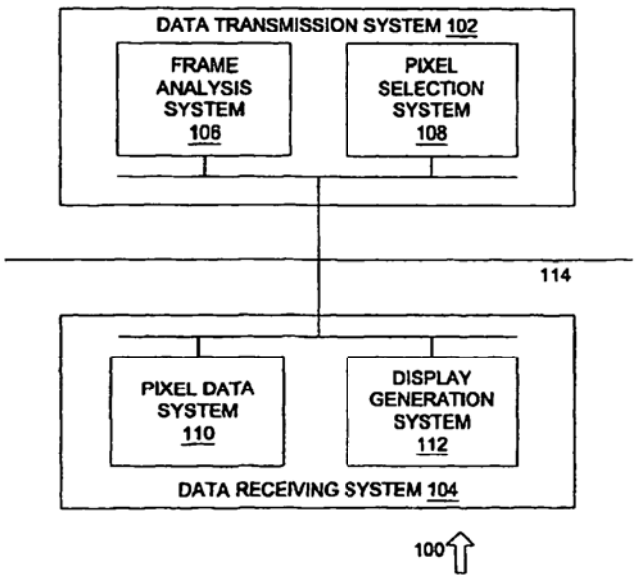
* cited by examiner

Primary Examiner — Tung Vo

(57) **ABSTRACT**

A system for transmitting data is provided. The system includes a frame analysis system receiving frame data, such as a frame of video data, and generating region data, such as a uniform matrix size that is used to divide the frame into a predetermined set of matrices. A pixel selection system receives the region data and generates one set of pixel data for each region, such as by selecting one of the pixels contained within each of the original matrices that comprise the frame.

13 Claims, 4 Drawing Sheets



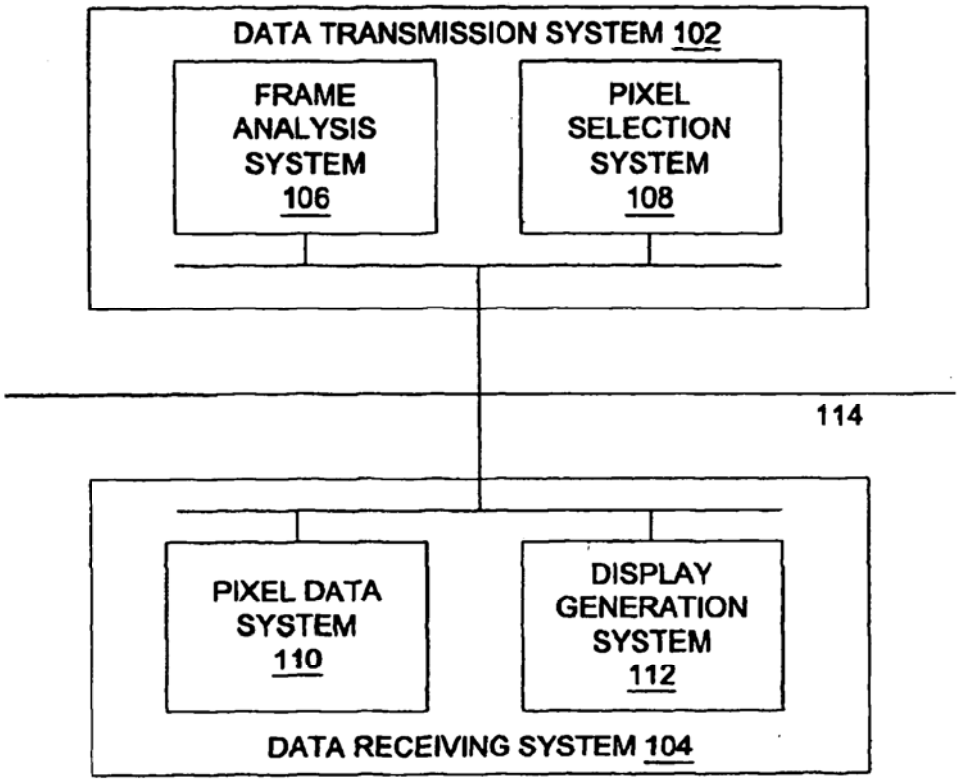


FIGURE 1 100

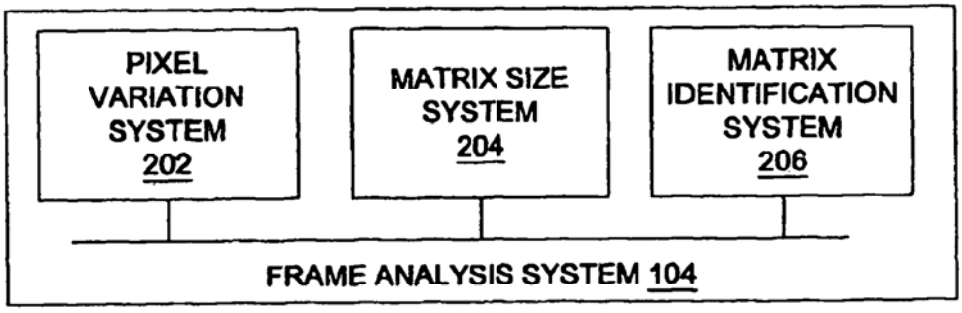


FIGURE 2 200

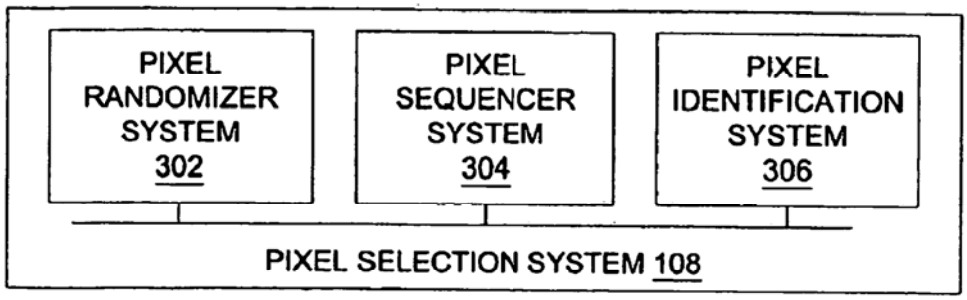


FIGURE 3 300

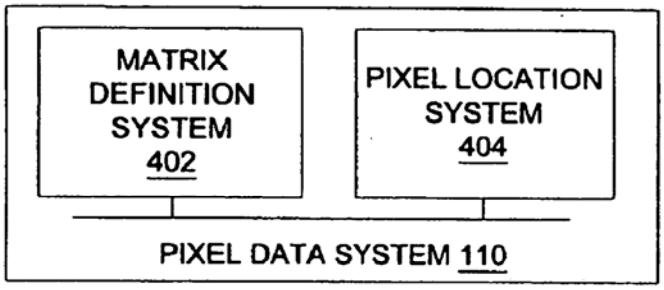


FIGURE 4 400

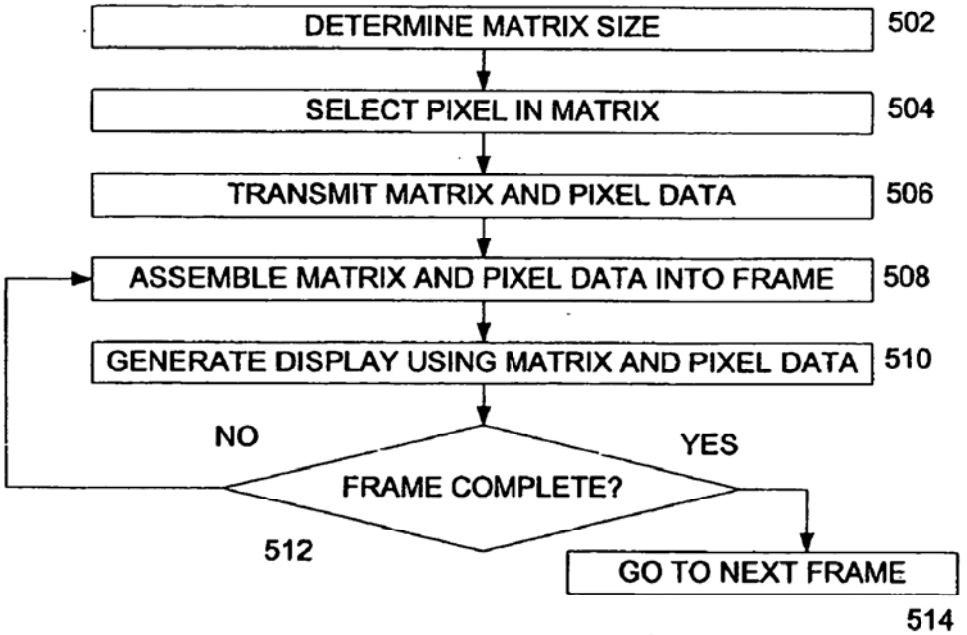


FIGURE 5 500

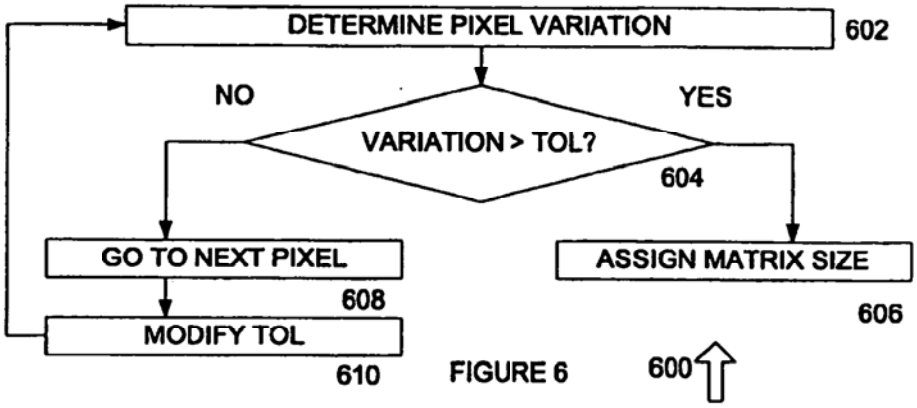


FIGURE 6

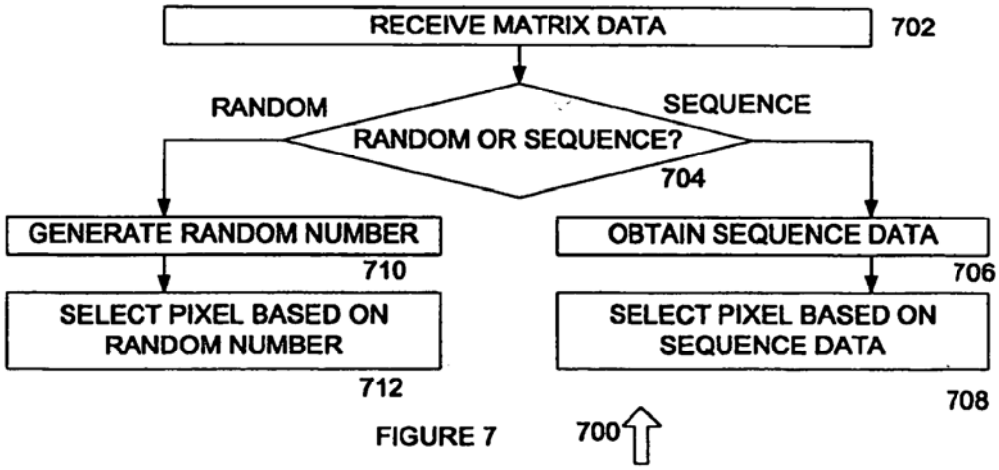


FIGURE 7

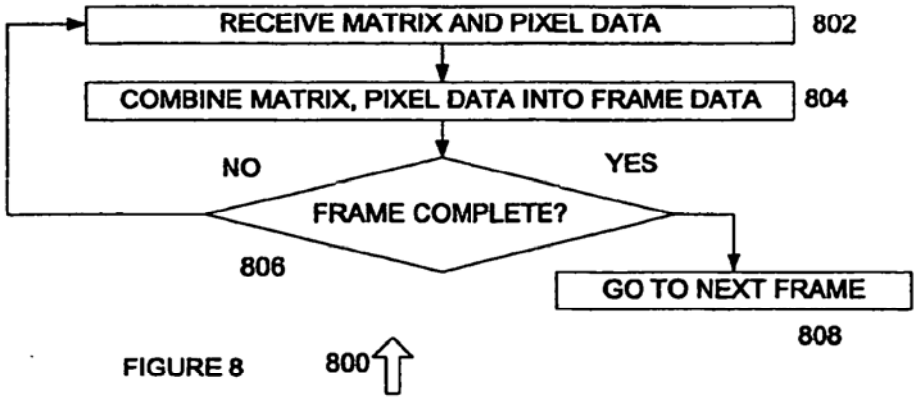


FIGURE 8

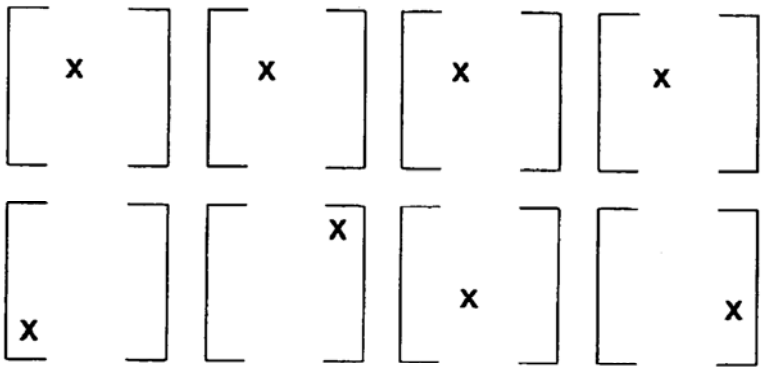


FIGURE 9 900

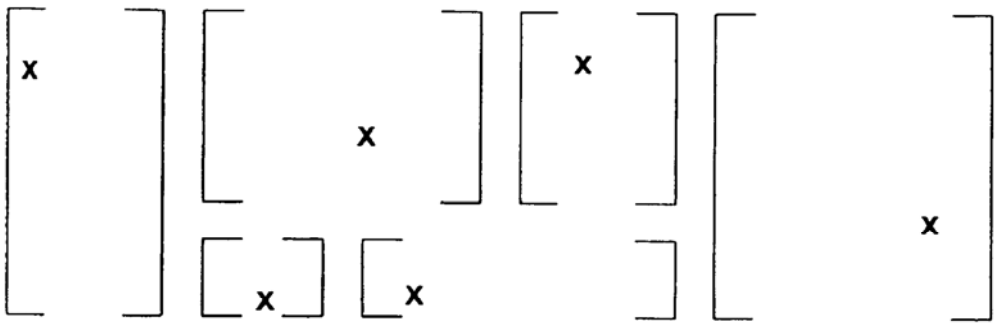


FIGURE 10 1000

OPTIMIZED DATA TRANSMISSION SYSTEM AND METHOD

FIELD OF THE INVENTION

The present invention pertains to the field of data transmission, and more particularly to a system and method for optimizing data transmission that decreases bandwidth requirements for data transmission.

BACKGROUND OF THE INVENTION

Data transmission systems are known in the art. Such data transmission systems often use compression to decrease bandwidth requirements. For example, compression techniques have been characterized as "lossless" when no reduction in data occurs, or "lossy" when a loss of data occurs that does not adversely affect the intended use.

One drawback with such data transmission systems is that the compressed data must be "decompressed" on the receiving end. Thus, for lossless data compression systems, the exact configuration of the data must be achieved when the data is decompressed. Likewise, even for lossy data compression systems, the data is decompressed and the lost data is then approximated. The need for such decompression contributes to the overall difficulty in implementing data transmission in conjunction with compression.

SUMMARY OF THE INVENTION

In accordance with the present invention, a system and method for transmitting data are provided that overcome known problems with data transmission systems and methods.

In particular, a system and method for data transmission are provided that use data optimization instead of compression, so as to provide a mixed lossless and lossy data transmission technique.

In accordance with an exemplary embodiment of the present invention, a system for transmitting data is provided. The system includes a frame analysis system receiving frame data, such as a frame of video data, audio data, graphical data, text data, or other suitable data, and generating region data, such as a uniform matrix size that is used to divide the frame into a predetermined set of matrices. A pixel selection system receives the region data and generates one set of pixel data for each region, such as by selecting one of the pixels contained within each of the original matrices that comprise the frame. For data that is used for purposes other than the generation of a display, the pixel data can instead be audio data, text data, or other suitable data.

The present invention provides many important technical advantages. One important technical advantage of the present invention is a system and method for transmitting data that do not require the data to be compressed at the sending end and decompressed at the receiving end. The present invention uses data optimization to transmit only the data that is necessary for the application, such that decompression of the data on the receiving end is not required. In this manner, the present invention incorporates features of both lossless and lossy compression without requiring the data to be decompressed on the receiving end.

Those skilled in the art will further appreciate the advantages and superior features of the invention together with other important aspects thereof on reading the detailed description that follows in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a diagram of a system for transmitting data in accordance with an exemplary embodiment of the present invention;

FIG. **2** is a diagram of a system for performing frame analysis in accordance with an exemplary embodiment of the present invention;

FIG. **3** is a diagram of a system for selecting optimized pixel data for transmission in accordance with an exemplary embodiment of the present invention;

FIG. **4** is a diagram of a system for generating a frame in accordance with an exemplary embodiment of the present invention;

FIG. **5** is a flow chart of a method for optimizing data transmission in accordance with an exemplary embodiment of the present invention;

FIG. **6** is a flowchart of a method for determining or assigning matrix or region size based on an exemplary embodiment of the present invention;

FIG. **7** is a flowchart of a method for selecting a pixel within a region in accordance with an exemplary embodiment of the present invention;

FIG. **8** is a flowchart for method for generating optimized frame data in accordance with an exemplary embodiment of the present invention;

FIG. **9** is a diagram **900** showing an exemplary uniform matrix segmentation of an array of pixel data; and

FIG. **10** is a diagram **1000** showing an exemplary non-uniform matrix segmentation of an array of pixel data.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

In the description that follows, like parts are marked throughout the specification and drawings with the same reference numerals, respectively. The drawing figures might not be to scale, and certain components can be shown in generalized or schematic form and identified by commercial designations in the interest of clarity and conciseness.

FIG. **1** is a diagram of a system **100** for transmitting data in accordance with an exemplary embodiment of the present invention. System **100** allows data such as video data to be transmitted in a manner that does not require the data to be compressed, and which results in significant decreases in bandwidth requirements for data transmission.

System **100** includes data transmission system **102**, which is coupled to data receiving system **104** over a suitable communications medium **114**. As used herein, the term "couple" and its cognate terms, such as "couples" and "coupled," can include a physical connection (such as a copper conductor), a virtual connection (such as through randomly assigned memory locations of a data memory device), a logical connection (such as through logical gates of a semiconducting device), other suitable connections, or a suitable combination of such connections. In one exemplary embodiment, systems and components are coupled to other systems and components through intervening systems and components, such as through an operating system of a general purpose computing platform. Communications medium **114** can be the Internet, the public switched telephone network, a wireless network, a local area network, an optical network, other suitable communications media, or a suitable combination of such communications media.

Data transmission system **102** includes frame analysis system **106** and pixel selection system **108**, each of which can be implemented in hardware, software, or a suitable combina-

tion of hardware and software, and which can be one or more software systems operating on a general purpose processing platform. As used herein, a software system can include one or more objects, agents, threads, lines of code, subroutines, separate software applications, user-readable (source) code, machine-readable (object) code, two or more lines of code in two or more corresponding software applications, databases, or other suitable software architectures. In one exemplary embodiment, a software system can include one or more lines of code in a general purpose software application, such as an operating system, and one or more lines of software in a specific purpose software application.

Data transmission system **102** reduces data transmission requirements by eliminating data that is not required for the application of the data on the receiving end. In one exemplary embodiment, data transmission system **102** can receive frames of video data, and can select pixels of data for transmission that are needed in order to allow the frames of video data to be viewed by the human eye. In this exemplary embodiment, a video display having a quiescent state of pixels in either the "on" or "off" states can be used to generate video data by selecting a subset of pixels within the frame to display image data. In this exemplary embodiment, if a frame of video data has low detail, it may only be necessary to provide a data value for one of every twenty-five pixels or less in order to create the image to be viewed by the human eye. Likewise, if the frame of video data has a large amount of detail, it may be necessary to transmit each pixel in order to generate a suitable image. When a frame of video data includes regions of high detail and low detail, it may likewise be desirable to transmit only the necessary number of pixels in each region that are required to generate the image. In this exemplary embodiment, the number of pixels to transmit can be decided on a region-by-region basis within the frame.

Data receiving system **104** includes pixel data system **110** and display generation system **112**, each of which can be implemented in hardware, software, or a suitable combination of hardware and software, and which can be one or more software systems operating on a general purpose processor platform. Data receiving system **104** receives the data from data transmission system **102**, and generates a display for a user that utilizes the optimized data set transmitted by data transmission system **102**. In one exemplary embodiment, data receiving system **104** can generate a video display, such as by illuminating predetermined pixels within a frame based on the determination of the level of detail required for the frame, and by leaving the remaining pixels in a quiescent state of either "off" or "on." Likewise, data receiving system **104** can generate frames of video data that have variable levels of detail, to accommodate the image data being transmitted.

Frame analysis system **106** receives frame data including pixel data and generates matrix size data based upon the pixel data. In one exemplary embodiment, frame analysis system **106** can analyze adjacent pixel data values in the frame, and can apply one or more predetermined variation tolerances to select a matrix size for a data optimization region. In this exemplary embodiment, the matrix size for each data optimization region of a frame can be uniform, such that each data optimization matrix has the same dimensions. Thus, if a 640×480 pixel frame is being transmitted, then the 640×480 pixel frame can be split up into a 64×48 frame of matrices, where each matrix is a 10×10 matrix. Likewise, frame analysis system **106** can assign a different matrix size on a frame by frame basis, such as where a first frame is transmitted using 10×10 matrices for a 64×48 matrix frame, and a subsequent frame could then be transmitted using 5×5 data matrices, for a 128×96 matrix frame. In another exemplary embodiment, the size of matrices within the frame can be varied, such that a given frame is made up of matrices varying in size, such as from a 1×1 matrix to a 5×5 matrix or greater. In yet another exemplary embodiment, the size of the matrices can be non-symmetrical, such that an N×M matrix can be used where N and M are integer values that are not equivalent. Likewise, other suitable data optimization regions can be selected, such as ones that are not based on a matrix structure, but which may be circular, elliptical, amorphous, or based on other suitable structures.

Pixel selection system **108** selects one or more pixel within a predefined matrix or other region for transmission in an optimized data transmission system. In one exemplary embodiment, pixel selection system **108** can randomly select a pixel from a location within a matrix or other region, can use a sequence selection scheme such that the pixel is selected in accordance with a predetermined sequence, or other suitable selection criteria can be used. Pixel selection system **108** can further generate pixel location data within the matrix, such that the pixel can be regenerated at a predetermined location, at a random location, or in other suitable manners. For example, if a predetermined location is used, the predetermined location can be the same for each matrix or other region, such as by assigning a quadrant or other location (e.g., the first row and column position in the matrix). Likewise, if randomization is used, control data can be generated that will cause data receiving system **104** to randomize the location of each pixel in each matrix or other region without requiring individual control data for each matrix or other region. Likewise, other suitable pixel selection data can be generated.

Pixel data system **110** receives matrix data and pixel data and assembles frame data based on the matrix data and pixel data. In one exemplary embodiment, pixel data system **110** receives a matrix size identifier for an entire frame, such that it can be determined that a uniform matrix size is used for each frame. Likewise, pixel data system **110** can receive matrix map data, such that a sequence of matrices and the size of each matrix can be determined. Likewise, pixel data system **110** can receive pixel data for each matrix, such as pixel data with each matrix identifier, pixel data in a predetermined order based on the order of matrix data transmitted, or other suitable data.

Display generation system **112** receives frames of data from pixel data system **110** and generates video data, audio data, graphical data, textual data, or other suitable data for use by a user. In one exemplary embodiment, display generation system **112** receives an entire frame of data after it has been reconstructed by pixel data system **110**. In another exemplary embodiment, display generation system **112** can receive frame data as it is generated by pixel data system **110** prior to the generation of the entire frame. Other suitable configurations can be used.

In operation, system **100** allows data transmission to be optimized so as to decrease bandwidth requirements. System **100** determines the optimal data for transmission based on the end use of the data. For example, system **100** can reduce the data transmitted for video display generation, such as by determining the level of detail required, and then transmitting data based on the level of detail required. Likewise, similar optimization processes can be used for audio data, graphical data, textual data, or other suitable data. Thus, system **100** is a lossy data transmission system, but can also be a lossless data transmission system depending on the data fields within a set of data for which lossy or lossless data transmission is desired. In this exemplary embodiment, system **100** allows data sets to be processed in a manner that allows data trans-

mission to be both lossless and lossy based on application criteria for the data on the receiving end.

System **100** can also be used in conjunction with a compression system, a frame elimination system, or with other suitable systems or processes to achieve further savings in bandwidth requirements. For example, after data optimization has been achieved, the optimized data can then be compressed using a lossy or lossless compression technique. Likewise, frame elimination can be used where such techniques do not result in an unacceptable decrease in the quality of the data at the receiving end.

FIG. **2** is a diagram of a system **200** for performing frame analysis in accordance with an exemplary embodiment of the present invention. System **200** includes frame analysis system **106** and pixel variation system **202**, matrix size system **204**, and matrix identification system **206**, each of which can be implemented in hardware, software, or a suitable combination of hardware and software, and which can be one or more software systems operating on a general purpose processing platform.

Pixel variation system **202** determines the level of detail required based on variations in pixel data. In one exemplary embodiment, pixel variation system **202** can receive pixel data values, such as (x/y/z) in a suitable pixel color pixel system (e.g., 16-bit values for R/G/B, Y/Cb/Cr, Y/U/V, or other suitable color data formats). Pixel variation system **202** can then compare two adjacent pixels to determine whether the amount of variation between those two adjacent pixels exceeds a predetermined tolerance, such that the amount of pixel data required to transmit image data or other suitable data for perception by a human eye or other suitable applications can be determined. In this exemplary embodiment, pixel variation system **202** can have a number of tolerance settings, so that a matrix size, region, or other data optimization set can be determined. For example, consider the following pixel set:

P1(121/34/187) P2(119/39/198) P3(117/42/202)

In this example, the variation between P1 and P2 may be lower than a first tolerance for the purposes of selecting a first data set, such as a 2×2 matrix, but the variation between P1 and P3 may be greater than a second tolerance for the purpose of selecting a second data set, such as a 3×3 matrix. In this manner, increasing groups of pixels can be analyzed so as to insure that desired levels of detail are not inadvertently omitted. For example, if video data includes an image of an essentially uniform object, such as the ocean or a grassy field, and where that essentially uniform object has details that are nonetheless of interest to the viewer, such as wave whitecaps or wildflowers, pixel variation system **202** can include tolerance settings such that variations between pixels that identify such details would be identified, but where such variations between two adjacent pixels within the field would be ignored. Likewise, other suitable pixel variation detection functionality can be provided.

Matrix size system **204** generates matrix size data based on pixel variation data. In one exemplary embodiment, matrix size system **204** can receive pixel variation data based on an analysis of an entire frame of data, such that a uniform matrix size can be assigned. Likewise, matrix size system **204** can receive pixel variation data from pixel variation system **202**, and can generate nonsymmetrical matrix dimensional data, such as N×M dimensions where "N" and "M" are integers that are not equivalent, circular region data, elliptical region data, amorphous region data, or other suitable region identification data. Matrix size system **204** can also generate matrix size control data, such as where a non-uniform matrix or region size is used within a frame. In this exemplary embodiment, matrix size system **204** can identify a sequence for matrices, coordinate data for matrices, size data for matrices, or other suitable data that can be used to assemble or sequence pixel data within matrices.

Matrix identification system **206** receives matrix size data and generates matrix identification data. In one exemplary embodiment, matrix identification system **206** can receive matrix sequence data, and can assemble the matrix sequence data for use with pixel data generated by pixel selection system **108**. In this exemplary embodiment, matrix identification system **206** can identify whether a uniform matrix size is being generated, the number of matrices within a frame, sequence data for the matrices when a non-uniform matrix or region is being used, or other suitable data. Matrix identification system **206** generates matrix identification data for use by data receiving system **104**, so as to allow data receiving system **104** to generate the optimized data display.

In operation, system **200** allows frames to be analyzed so as to determine the optimal data to be transmitted, based on the intended use of the frame. In one exemplary embodiment, pixel variation system **202** or other suitable systems can be used to identify lossy and lossless regions within the frame. Likewise, uniform lossy regions can be identified, such as matrices having predetermined dimensions of greater than 1×1 or other suitable data.

FIG. **3** is a diagram of a system **300** for selecting optimized pixel data for transmission in accordance with an exemplary embodiment of the present invention. System **300** includes pixel selection system **108** and pixel randomizer system **302**, pixel sequencer system **304**, and pixel identification system **306**, each of which can be implemented in hardware, software, or a suitable combination of hardware and software, and which can be one or more software systems operating on a general purpose processor platform.

Pixel randomizer system **302** selects a random pixel within a matrix or other region. In one exemplary embodiment, pixel randomizer system **302** can generate a random number and can select a pixel based upon a pixel sequence and the relationship of the generated random number to that pixel sequence. In this exemplary embodiment, pixel randomizer system **302** can generate a random number between 0 and 1, and can multiply that random number times the number of pixels within a region, and can then select the pixel based upon a pixel sequence from a predetermined location. Likewise, other suitable random pixel selection processes can be used. Pixel randomizer system **302** generates random pixel location data and random pixel value data.

Pixel sequencer system **304** generates pixel selection data based on pixel sequence data. In one exemplary embodiment, such as when a uniform frame matrix size is being used, pixel sequencer system **304** can select pixels in a predetermined order, such that if a 3×3 matrix is used uniformly across the frame, the pixel at location (1,1) is transmitted in the first frame, the pixel at location (1,2) is transmitted in the second frame, the pixel at location (1,3) is transmitted in the third frame, and so forth, until the pixel at location (3,3) has been transmitted, after which the pixel at location (1,1) will be transmitted. Pixel sequencer system **304** can likewise send other suitable sequences, such as skipping every other pixel, skipping pixels based on predetermined display generation characteristics, or other suitable sequences.

Pixel identification system **306** generates pixel identification data, such as may be required by a data receiving system to illuminate the pixel in a display. In one exemplary embodiment, pixel identification system **306** can identify the coordinates of a pixel where generation of the pixel by the data receiving system at the exact location is desired. Likewise, pixel identification system **306** can identify a uniform pixel

location within each matrix or other region, such as location (1,1) for all matrices, such as randomizer control data that will randomly place a pixel within a matrix or region, or other suitable pixel identification data.

In operation, system **300** allows a pixel within a matrix or other suitable region to be selected based on data optimization. System **300** allows random, sequenced, or other suitable processes to be used to select and locate pixels within optimized regions.

FIG. **4** is a diagram of a system **400** for generating a frame in accordance with an exemplary embodiment of the present invention. System **400** includes pixel data system **110**, matrix definition system **402** and pixel location system **404**, each of which can be implemented in hardware, software, or a suitable combination of hardware and software, and which can be one or more software systems operating on a general purpose processor platform.

Matrix definition system **402** receives matrix definition data for use in generating frame data. In one exemplary embodiment, matrix definition data can include data that identifies a uniform matrix size throughout the frame. In another exemplary embodiment, matrix definition data can include data that identifies matrix dimensions and sequences, so that a sequence of non-similar matrices can be assembled into a frame. Likewise, matrix definition system **402** can include region definition data, such as for ellipses, circles, amorphous shapes, or other suitable definition data.

Pixel location system **404** receives pixel location data for locating a pixel within a matrix or other region. In one exemplary embodiment, pixel location system **404** can receive data that locates pixels for each matrix within a frame on a uniform basis, such that each pixel received will be generated in a predetermined location (e.g. (1,1) in a 3×3 matrix). Likewise, pixel location system **404** can receive randomization data, such that the location of a pixel within a matrix or other region is randomly assigned. In yet another exemplary embodiment, pixel location system **404** can receive exact coordinates for placement of pixels. Other suitable processes can be implemented by pixel location system **404**.

In operation, system **400** is used to locate pixels of data within a matrix or other region in an optimized data transmission system. System **400** thus allows optimized data, such as video data, audio data, or other suitable data, to be used to generate a display, an audio stream, graphic images, textual data, and other suitable data on a frame by frame basis.

FIG. **5** is a flow chart of a method **500** for optimizing data transmission in accordance with an exemplary embodiment of the present invention. Method **500** begins at **502** where a matrix size is determined. In one exemplary embodiment, the matrix size can be uniformly assigned across the frame, a matrix size can assigned based upon regions within the frame, a region other than a matrix can be used, or other suitable matrix sizes or region sizes can be determined. The method then proceeds to **504**.

At **504** a pixel within the matrix is selected. In one exemplary embodiment, the pixel can be selected based on a predetermined location within the matrix, such as when uniform matrix sizes are used within a frame, or in other suitable manners. In another exemplary embodiment, pixel selection can be performed based on random selection, based upon predetermined rules regarding selection of pixels, or in other suitable manners. The method then proceeds to **506**.

At **506** the matrix and pixel data is transmitted. In one exemplary embodiment, the matrix and pixel data can be transmitted in pairs, such that each set of matrix definition data or location data is paired with corresponding pixel brightness data. Likewise, matrix data and pixel data can be transmitted in sequence, such that the sequence of matrix data is received first, and the sequence of pixel data for each corresponding matrix is then received. Other suitable transmission sequences can likewise be used. The method then proceeds to **508**.

At **508** the matrix and pixel data is assembled into a frame. In one exemplary embodiment, the frame assembly can be performed on a line-by-line basis, such that each line of data can be generated as it is created. In another exemplary embodiment, an entire frame of data can be generated prior to utilization of the frame of data. The method then proceeds to **510**.

At **510** a display is generated using the matrix and pixel data. As previously described, the display can be generated from an entire frame data set after it has been completed. Likewise, the display can be generated on a line-by-line basis, audio streams or graphical displays can be generated, or other suitable displays can be generated. The method then proceeds to **512**.

At **512** it is determined whether a frame is completed. If the frame is not completed the method returns to **508**. Otherwise the frame is complete, the method proceeds to **514** and the method proceeds to the next frame.

FIG. **6** is a flowchart of a method **600** for determining or assigning matrix or region size based on an exemplary embodiment of the present invention. Method **600** begins at **602** where a pixel variation is determined. In one exemplary embodiment, the pixel data values for two adjacent pixels can be compared, and it can be determined whether the variations between the two adjacent pixel data values exceed predetermined allowable variations. The suitable variation techniques can be implemented. The method then proceeds to **604**.

At **604** it is determined whether the variation is greater than a predetermined tolerance. If it is determined at **604** that the variation is greater than the tolerance the method proceeds to **606** where the matrix size is assigned based on the number of pixels under consideration. In one exemplary embodiment, if a first and second pixel have been compared and it is determined that the variation between pixels exceeds the tolerance, then a matrix size of 1×1 (i.e., an individual pixel), can be transmitted such that data transmission is lossless. If it is determined that the variation is not greater than the tolerance, the method proceeds to **608**.

At **608**, the next pixel is selected. In one exemplary embodiment, the next pixel can be selected based upon an N×N matrix size, an N×M matrix size, a circular region size, an elliptical region size, an amorphous region size, or other suitable regions. The method then proceeds to **610**.

At **610** the tolerance is modified. In one exemplary embodiment, the tolerance can be modified with each increasing region size, such that smaller tolerances are imposed for larger regions. Likewise, a maximum region size can be imposed such that the tolerance is set to zero. Likewise, if it is determined at **604** that the maximum region size has been reached, the method can proceed directly to **606**. After the tolerance is modified at **610**, the method returns to **602**.

In operation, method **600** allows a matrix or other suitable region size to be determined based upon pixel variations. In one exemplary embodiment, pixel variation can be determined at **602** on a frame basis, such that a first tolerance is set for having uniform matrices of 2×2 size, a second tolerance is set for having uniform matrices of a 3×3 size, and other suitable tolerances can be used. Likewise, tolerances can be set and regions can be determined based on a region-by-region basis, such that in areas having low information consent, the matrix size is increased whereas in areas having high information content the matrix size is decreased. In one

exemplary embodiment, the matrix size can be decreased to 1×1, such that in areas having high information content, the data transmission can be lossless, but in areas having low information content, the data transmission can be lossy.

FIG. **7** is a flowchart of a method **700** for selecting a pixel within a region in accordance with an exemplary embodiment of the present invention. Method **700** begins at **702** where matrix or other region data is received. In one exemplary embodiment, the matrix data can include a matrix size, a region size, a region boundary for amorphous regions, or other suitable data. The method then proceeds to **704**.

At **704**, it is determined whether random or sequencing selection is being used for selecting the pixel data. If it is determined that sequencing data is used, the method proceeds to **706** where the sequence data is obtained. In one exemplary embodiment, such as where a uniform matrix size is used within the frame, a sequence of pixels can be used such that the pixels are "swept" across the matrix. Likewise, other suitable sequence data can be used. After the sequence is obtained at **706** the method proceeds to **708** where a pixel is selected based on the sequence data. The pixel data for the matrix is then stored.

Likewise, if it is determined at **704** that a random pixel selection is being used, the method proceeds to **710** where a random number is generated. The method then proceeds to **712**.

At **712** a pixel is selected based on a random number. In one exemplary embodiment, a random number generated between 0 and 1 can be multiplied by the number of pixels within the matrix or region, and a predetermined sequence can be used to select the pixel. Likewise, the pixel data values can be randomly identified or other suitable random selection processes can be used.

In operation, method **700** allows pixel data within a matrix or other region to be selected, which are based on sequencing, random selection, or in other suitable manners. Method **700** allows pixel data for optimized data applications to be used, such as where video data having low information content and regions of high information content are being transmitted or in other suitable applications.

FIG. **8** is a flowchart of a method **800** for generating optimized frame data in accordance with an exemplary embodiment of the present invention. Method **800** begins at **802** where matrix and pixel data are received. In one exemplary embodiment, the matrix and pixel data can include a standard or uniform matrix size and a sequence of pixels for the frame. In another exemplary embodiment, the matrix and pixel data can include a sequence of matrix sizes that define a frame and a sequence of pixels for generation within each matrix. In yet another exemplary embodiment, the matrix and pixel data can be region and pixel data, such as where the region data defines one or more regions within a frame and the pixel data includes points that go within that region. Other suitable data can also be used, such as audio data, graphical data, text data, or other suitable data. The method then proceeds to **802**.

At **802** the matrix and pixel data are combined into a frame. In one exemplary embodiment, the frame can be generated on a line-by-line basis, such that the matrices are assembled in rows and that the pixel for each matrix are assigned after a row is complete. In this exemplary embodiment, such as where matrix sizes exceed 2×2, then assembling a row of matrices can result in the assembly or two or more lines of data, such as where video data is generated by scanning lines from the top of a display to the bottom of a display. In this exemplary embodiment, the frame can be generated as each line is completed. The method then proceeds to **804**.

At **804** it is determined whether the frame has been completed. In one exemplary embodiment, an entire frame of data can be constituted prior to generation of the frame. Likewise, in another exemplary embodiment, the data can be generated on a line-by-line basis, so that the data does not need to be buffered until a complete frame is generated. Other suitable processes can also be used. If it is determined at **804** that the frame is not complete, the method returns to **800**. Otherwise, the method proceeds to **804** and advances to the next frame.

In operation, method **800** allows frames of data, such as video data, audio data, graphical data, textual data, or other suitable data, to be generated in an optimized manner, such that lossy, lossless, or a combination of lossy and lossless data transmission is used based upon the end use of the data. In this exemplary embodiment, uniform or non-uniform matrices or regions can be used, such that only one of two or more points of data within a data set for each region needs to be transmitted.

FIG. **9** is a diagram **900** showing an exemplary uniform matrix segmentation of an array of pixel data. Each matrix of the array is of uniform size, such as 4×4. Thus, the matrix size data for the entire frame can be represented by a single data set.

In the first row of matrices, the location "X" of a single pixel of data is identical (e.g. (2,2)), such as where the location of the pixel in each matrix is based on sequential data. In the second row, the location of the pixel in each matrix is different, such as where the location of the pixel in each matrix is random. In this exemplary embodiment, the matrix data can include the single uniform size (e.g. 4×4), the pixel location data can include the location of the pixel in each matrix (e.g. (2,2), "random," or the coordinates of each pixel starting with the first matrix and sweeping across from left to right until the last matrix in the last row is reached (e.g. (4,1) (1,4), (3,2), (3,4)) and the pixel data for each matrix can include the (X/Y/Z) data, such as where the pixel is a color pixel. Likewise, other suitable data can be used.

FIG. **10** is a diagram **1000** showing an exemplary non-uniform matrix segmentation of an array of pixel data. Each matrix of the array can be of different size, but the matrices must form the array when combined. In each matrix, the location of the pixel in each matrix is different, such as where the location of the pixel in each matrix is random. In this exemplary embodiment, the matrix data can include the size of each matrix in series, starting from the first matrix and sweeping across from left to right until the last matrix is reached (e.g. (7×3), (5×6), (5×4), (7×7), (2×3), (2×7)), the pixel location data can include the location of the pixel in each matrix (e.g. (2,2), "random," or the coordinates of each pixel starting with the first matrix and sweeping across from left to right until the last matrix in the last row is reached (e.g. (2,1), (4,4), (2,2), (5,6), (2,2), (2,2)), and the pixel data for each matrix can include the (X/Y/Z) data, such as where the pixel is a color pixel. Likewise, other suitable data can be used.

Although exemplary embodiments of a system and method of the present invention have been described in detail herein, those skilled in the art will also recognize that various substitutions and modifications can be made to the systems and methods without departing from the scope and spirit of the appended claims.

What is claimed is:

1. A system for transmitting data transmission comprising:

a analysis system receiving frame data and generating region data comprised of high detail and or low detail;

a pixel selection system receiving the region data and generating one set of pixel data for each region forming a new set of data for transmission;

a data receiving system receiving the region data and the pixel data for each region and generating a display;

wherein the data receiving system comprises a pixel data system receiving matrix definition data and pixel data and generating pixel location data;

wherein the data receiving system comprises a display generation system receiving pixel location data and generating display data that includes the pixel data placed according to the location data.

2. The system of claim **1** wherein the frame analysis system comprises a matrix size system receiving pixel variation data and generating matrix size data.

3. The system of claim **1** wherein the frame analysis system comprises a matrix identification system receiving matrix size data and generating matrix identification data.

4. The system of claim **1** wherein the pixel selection system comprises a pixel Randomizer system receiving two or more sets of pixel data for each region and randomly selecting one of the two or more sets of pixel data.

5. The system of claim **1** wherein the pixel selection system comprises a pixel sequencer system receiving two or more sets of pixel data for each region and selecting one of the two or more sets of pixel data based on sequence data.

6. The system of claim **1** wherein the pixel selection system comprises a pixel identification system generating pixel location data based on a location of the set of pixel data associated with each of the regions.

7. A method for transmitting data comprising:

receiving frame data;

generating optimized matrix data from the frame data;

selecting one of two or more sets of pixel data based on the optimized matrix data;

wherein receiving frame data comprises receiving an array of pixel data;

wherein generating the optimized matrix data from the frame data comprises setting a matrix size based on pixel selection data;

and transmitting the selection pixel data and the optimized matrix data by assembling the optimized matrix data and the selection pixel data into a generated display frame.

8. The method of claim **7** wherein selecting one of two or more sets of pixel data comprises selecting the pixel from a matrix of sets of pixel data.

9. The method of claim **7** wherein transmitting the pixel data and the matrix data comprises transmitting an array of pixel data and uniform matrix size data.

10. A method for transmitting data comprising:

dividing an array of pixel data into two or more regions;

selecting a set of pixel data from each region;

wherein dividing the array of pixel data comprises dividing the array of pixel data into two or more matrices having a uniform size;

wherein dividing the array of pixel data comprises dividing the array of pixel data into two or more matrices having two or more different sizes;

and transmitting the region data and the selection pixel data for each region by assembling the region data and the selection pixel data into a generated display frame.

11. The method of claim **10** wherein selecting the set of pixel data from each region comprises selecting a random set of pixel data.

12. The method of claim **10** wherein transmitting the region data and the pixel data for each region comprises transmitting matrix data and the pixel data for each matrix.

13. The system of claim **1** wherein the frame analysis system comprises a pixel variation system receiving two or more sets of pixel data and generating the region data based on pixel variation data from the two or more sets of pixel data.

* * * * *

PATENT APPLICATION SERIAL NO._____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

06/05/2013 CCHAU1 00000032 13986767

01 FC:2014 140.00 OP
02 FC:2114 300.00 OP
03 FC:2314 1080.00 OP

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002- 489-267/69033

Doc Code: REIS.DECL
Document Description: Reissue Declaration Filed In Accordance With MPEP 1414

PTO/AIA/05 (06-12)
Approved for use through 08/31/2013. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

REISSUE APPLICATION DECLARATION BY THE INVENTOR

Docket Number (Optional)

I hereby declare that:
Each inventor's residence and mailing address are stated below next to their name.
I believe I am the original inventor or an original joint inventor of the subject matter which is described and claimed in patent number US 7,974,339 B2, granted 5 July 2011 and for which a reissue patent is sought on the invention titled Optimized Data Transmission system and method,

the specification of which

☑ is attached hereto.

☐ was filed on _____ as reissue application number _____.

The above-identified application was made or authorized to be made by me.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

I believe the original patent to be wholly or partly inoperative or invalid, for the reasons described below. (Check all boxes that apply.)

☐ by reason of a defective specification or drawing.

☑ by reason of the patentee claiming more or less than he had the right to claim in the patent.

☑ by reason of other errors.

At least one error upon which reissue is based is described below. If the reissue is a broadening reissue, a claim that the application seeks to broaden must be identified:

Original independent claims are encoder claims. The issued independent claims were limited by features of decoder claims, even if there is no prior art known showing the features of the original independent encoder claims. Thus, patentee is claiming less than he had the rigth to claim in the patent. In addition, the incorporation of decoder features results in a subject-matter which cannot be realized or enforced. Even if it is possible to manufacture a device including encoder and decoder, such device would not process both encoder and decoder steps of the invention. These steps are to be processed in different devices so that a system results including encoder, bitstream and decoder.

PTO/AIA/05 (06-12)
Approved for use through 08/31/2013. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

(REISSUE APPLICATION DECLARATION BY THE INVENTOR, page 2)

Docket Number (Optional)

Note: To appoint a power of attorney, use form PTO/AIA/81.

Correspondence Address: Direct all communications about the application to:

☐ The address associated with Customer Number:

OR

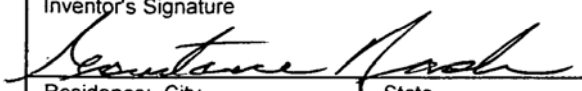
☑ Firm or Individual Name	Wittmann Hernandez Patent Attorneys, Yorck Hernandez				
Address	Boschetsrieder Str. 67				
City	Munich	State		Zip	81379
Country	Germany				
Telephone	+498955052180	Email	yhernandez@wh-ip.de		

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

Legal name of sole or first inventor (*E.g.*, Given Name (first and middle (if any) and Family Name or Surname)

Constance Nash

Inventor's Signature 		Date (Optional)	
Residence: City LAGUNA BEACH	State CA	Country U.S.A.	
Mailing Address P.O. Box 1892			
City LAGUNA BEACH	State CA	Zip 92652	Country U.S.A.

	Additional joint inventors are named on the _____ supplemental sheet(s) PTO/AIA/10 attached hereto.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 13/986,767

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	140		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	1080		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	13 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 210 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	1520		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/986,767	06/04/2013	2827	1520		13	3

CONFIRMATION NO. 2868

Constance Nash
P.O.Box 1892
Laguna Beach, CA 92652

FILING RECEIPT

OC000000062750197

Date Mailed: 07/23/2013

Receipt is acknowledged of this reissue patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Constance Nash, Laguna Beach, CA;

Applicant(s)

Constance Nash, Laguna Beach, CA;

Assignment For Published Patent Application

Vedanti Systems Limited, Laguna Beach, CA

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a REI of 10/892,690 07/16/2004 PAT 7974339
which is a CON of PCT/US02/00503 01/16/2002

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 07/22/2013

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/986,767**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****

Title

Optimized Data Transmission System and Method

Preliminary Class

365

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

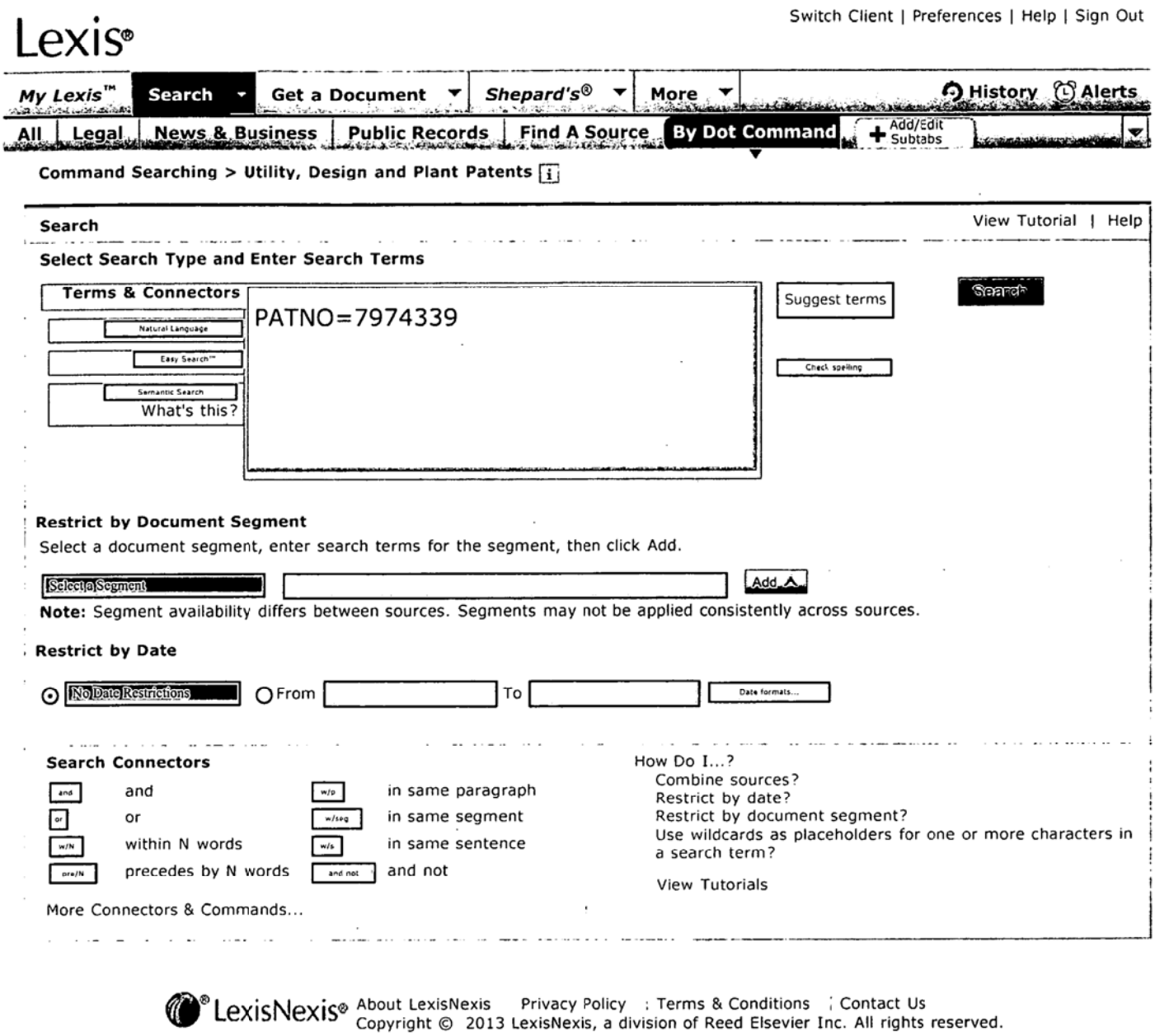
EIC 2600
SEARCH REPORT

STIC Database Tracking Number: 437039

To:	From:
JUSTIN RIDER Location: KNX-8A19 Art Unit: 2400 Thursday, October 17, 2013 Case Serial Number: 13/986767	KIMBERLY JOHNSON Location: EIC2600 KNX-8B59B Phone: (571)272-3493 kimberly.johnson@uspto.gov

Search Notes

NO LITIGATION FOUND ON US 7,974,339
3 NEW ARTICLES FOUND


Lexis®
Switch Client | Preferences | Help | Sign Out
My Lexis™
Search
Get a Document
Shepard's®
More
History
Alerts
All
Legal
News & Business
Public Records
Find A Source
By Dot Command
Add/Edit Subtabs
Command Searching > Utility, Design and Plant Patents
Search
View Tutorial | Help
Select Search Type and Enter Search Terms
Terms & Connectors
Natural Language
Easy Search™
Semantic Search
What's this?
PATNO=7974339
Suggest terms
Check spelling
Search
Restrict by Document Segment
Select a document segment, enter search terms for the segment, then click Add.
Select a Segment
Add
Note: Segment availability differs between sources. Segments may not be applied consistently across sources.
Restrict by Date
No Date Restrictions
From
To
Date formats...
Search Connectors
and and
or or
w/N within N words
pre/N precedes by N words
w/p in same paragraph
w/seg in same segment
w/s in same sentence
and not and not
More Connectors & Commands...
How Do I...?
Combine sources?
Restrict by date?
Restrict by document segment?
Use wildcards as placeholders for one or more characters in a search term?
View Tutorials
LexisNexis®
About LexisNexis
Privacy Policy
Terms & Conditions
Contact Us
Copyright © 2013 LexisNexis, a division of Reed Elsevier Inc. All rights reserved.

892690 (10) 7974339 July 5, 2011

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT

7974339

Get Drawing Sheet 1 of 4
Access PDF of Official Patent *
Order Patent File History / Wrapper from REEDFAX®
Link to Claims Section

July 5, 2011

Optimized data transmission system and method

REISSUE:
June 4, 2013 - Reissue Application filed, Ex. Gp.: 2827; Re. S.N.: 13/986,767 , (O.G. August 13, 2013)

APPL-NO: 892690 (10)

FILED-DATE: July 16, 2004

GRANTED-DATE: July 5, 2011

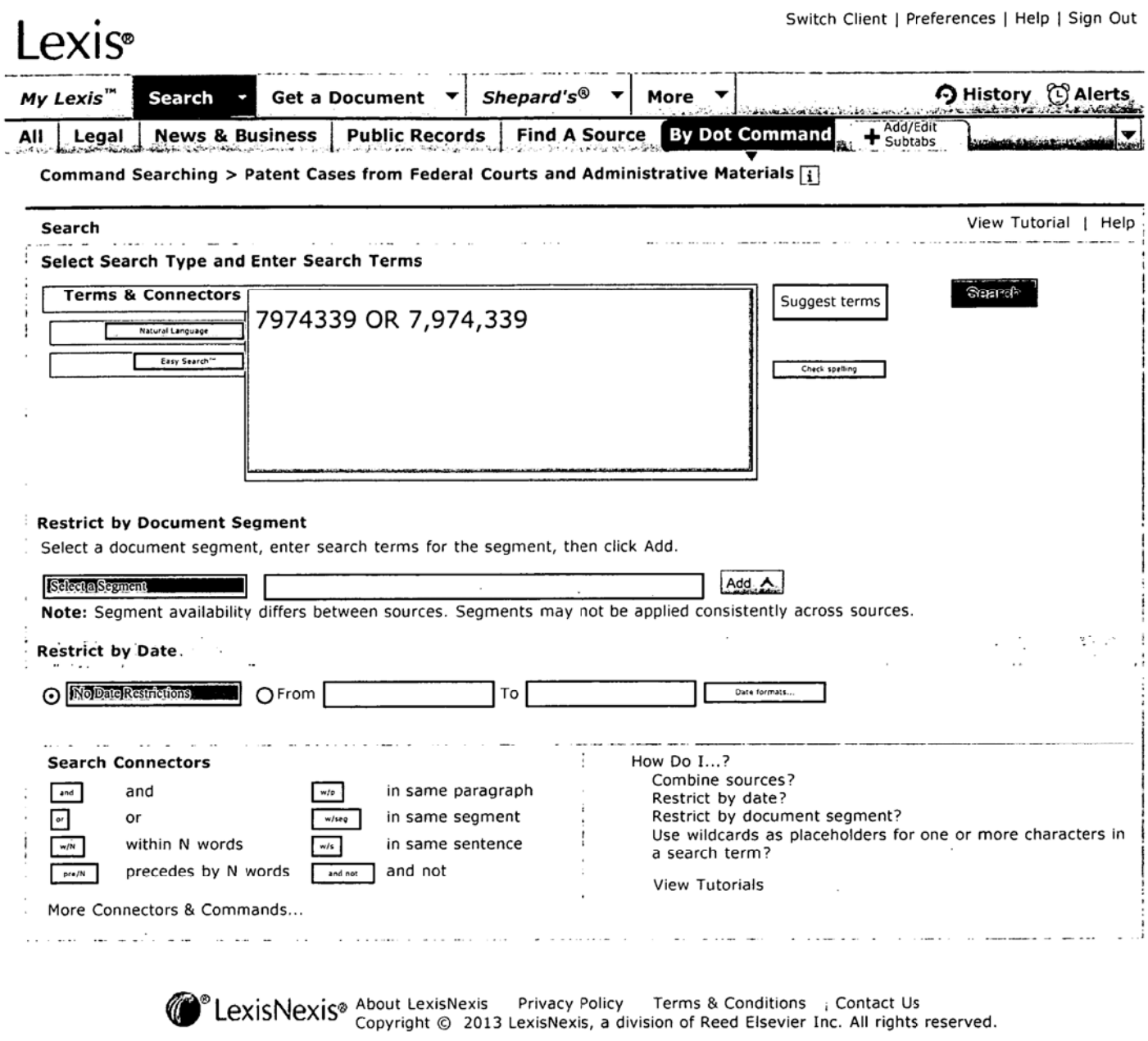
ASSIGNEE-PRE-ISSUE:
November 29, 2006 - ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., CORNERSTONE GROUP, LTD., PO BOX 1892, LAGUNA BEACH, CALIFORNIA, UNITED STATES OF AMERICA (US), 92652, Reel and Frame Number: 018561/0737
May 25, 2007 - ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., CORNERSTONE GROUP, LTD., P.O. BOX 1892, LAGUNA BEACH, CALIFORNIA, UNITED STATES OF AMERICA (US), 92652, Reel and Frame Number: 019345/0534

ASSIGNEE-AT-ISSUE:
KRICHEVSKY ALEX
NASH CONSTANCE

ASSIGNEE-AFTER-ISSUE:
May 16, 2012 - ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS)., VEDANTI SYSTEMS LIMITED, 6 NEW STREET SQUARE, LONDON, UNITED KINGDOM ( ), EC4A 3LX, Reel and Frame Number: 028219/0873

CORE TERMS: pixel, matrix, exemplary, region, sequence, data transmission, software, random, display, transmitted, tolerance, video, identification, optimized, lossless, lossy, generation, data system, optimization, hardware, select, compression, audio, selection system, transmission, selecting, row, general purpose, implemented, assigned

Source: **Command Searching > Utility, Design and Plant Patents**
Terms: **PATNO=7974339** (Suggest Terms for My Search)
View: Custom
Segments: Assignee, Cert-correction, Reexam-litigate, Reissue, Reissue-comment
Date/Time: Thursday, October 17, 2013 - 9:46 AM EDT



No Documents Found

No documents were found for your search terms
"7974339 OR 7,974,339"

Click "Save this search as an Alert" to schedule your search to run in the future.

- OR -

Click "Search Using Natural Language" to run your search as Natural Language search.

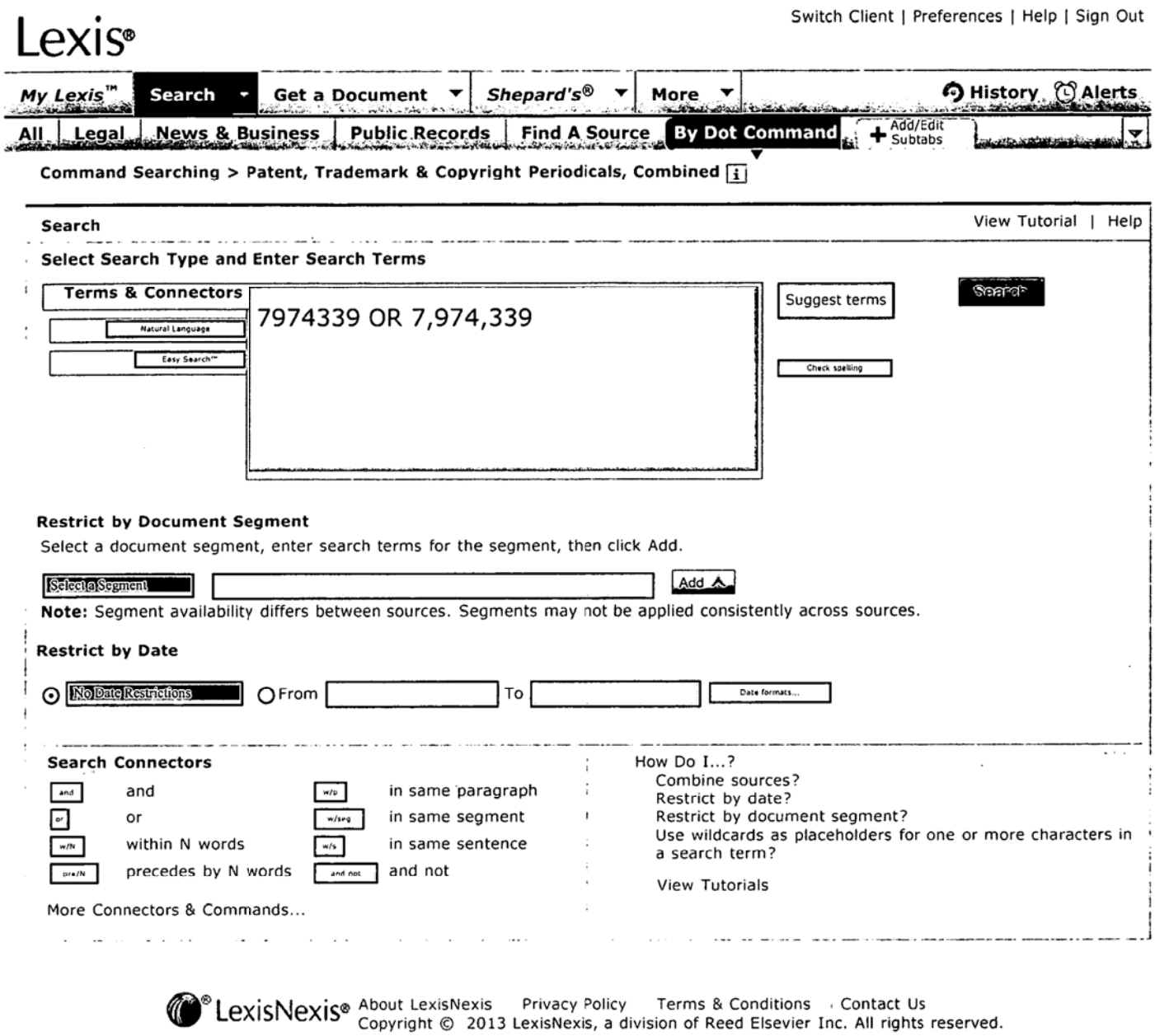
- OR -

Click "Edit Search" to return to the search form and modify your search.

Suggestions:

- Check for spelling errors.
- Remove some search terms.
- Use more common search terms, such as those listed in "Suggested Words and Concepts."
- Use a less restrictive date range.
- Use "OR" in between terms to search for one term or the other.

Save this Search as an Alert | **Search Using Natural Language** | **Edit Search**



No Documents Found

No documents were found for your search terms
"7974339 OR 7,974,339"

Click "Save this search as an Alert" to schedule your search to run in the future.

- OR -

Click "Search Using Natural Language" to run your search as Natural Language search.

- OR -

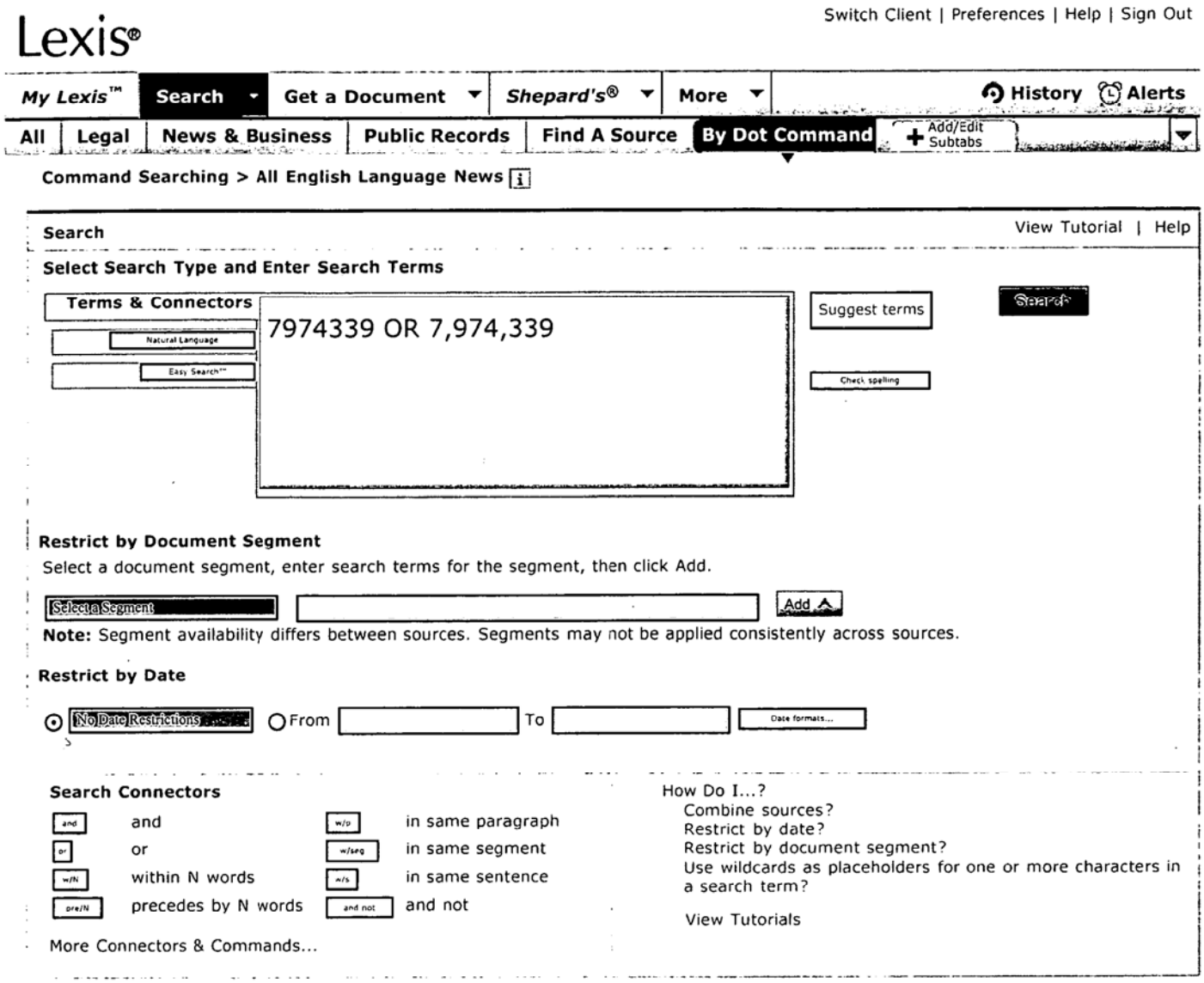
Click "Edit Search" to return to the search form and modify your search.

Suggestions:

- Check for spelling errors.
- Remove some search terms.
- Use more common search terms, such as those listed in "Suggested Words and Concepts."
- Use a less restrictive date range.
- Use "OR" in between terms to search for one term or the other.

Save this Search as an Alert | Search Using Natural Language | Edit Search

Search by Source



1. US Fed News, July 9, 2011 Saturday 9:42 AM EST, , 199 words, US Patent Issued on July 5 for "Optimized Data Transmission System and Method" (California Inventors), ALEXANDRIA, Va.

   CORE TERMS: frame, patent, pixel, Laguna Beach, matrices, please

   ALEXANDRIA, Va., July 9 -- United States Patent no. **7,974,339,** issued on July 5. "Optimized Data Transmission System and Method" was invented ...
   ... r=1&f=G&l=50&co1=AND&d=PTXT&s1=**7974339**&OS=**7974339**&RS=**7974339** For any query with respect to this article or any other content requirement, please ...

2. Targeted News Service, July 7, 2011 Thursday 3:05 AM EST, , 214 words, California Inventors Develop Patent for Optimized Data Transmission System and Method, Targeted News Service, Alexandria, Va.

   CORE TERMS: patent, frame, pixel, Laguna Beach, Myron, matrices

   ... Beach, Calif., and Constance Nash, Laguna Beach, Calif., have developed a patent (**7,974,339**) for an "optimized data transmission system and method."
   ... u=%2Fnetahtml%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=**7,974,339**.PN.&OS=PN/**7,974,339**&RS=PN/**7,974,339** Written by Shabnam Sheikh; edited by Jaya Anand. For more ...

Source: **Command Searching > All English Language News**
Terms: **7974339 OR 7,974,339** (Suggest Terms for My Search)
View: Cite
Date/Time: Thursday, October 17, 2013 - 9:49 AM EDT

US Patent Issued on July 5 for "Optimized Data Transmission System and Method" (California Inventors) US Fed News July 9, 2011 Saturday 9:42 AM EST

July 9, 2011 Saturday 9:42 AM EST

LENGTH: 199 words

HEADLINE: US Patent Issued on July 5 for "Optimized Data Transmission System and Method" (California Inventors)

DATELINE: ALEXANDRIA, Va.

BODY:

ALEXANDRIA, Va., July 9 -- United States Patent no. **7,974,339,** issued on July 5.

"Optimized Data Transmission System and Method" was invented by Alex Krichevsky (Laguna Beach, Calif.) and Constance Nash (Laguna Beach, Calif.).

According to the abstract released by the U.S. Patent & Trademark Office: "A system for transmitting data is provided. The system includes a frame analysis system receiving frame data, such as a frame of video data, and generating region data, such as a uniform matrix size that is used to divide the frame into a predetermined set of matrices. A pixel selection system receives the region data and generates one set of pixel data for each region, such as by selecting one of the pixels contained within each of the original matrices that comprise the frame."

The patent was filed on July 16, 2004, under Application No. 10/892,690.

For further information please visit: http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=**7974339**&OS=**7974339**&RS=**7974339**

For any query with respect to this article or any other content requirement, please contact Editor at htsyndication@hindustantimes.com

LOAD-DATE: July 9, 2011

California Inventors Develop Patent for Optimized Data Transmission System and Method Targeted News Service July 7, 2011 Thursday 3:05 AM EST

Targeted News Service

July 7, 2011 Thursday 3:05 AM EST

LENGTH: 214 words

HEADLINE: California Inventors Develop Patent for Optimized Data Transmission System and Method

BYLINE: Targeted News Service

DATELINE: Alexandria, Va.

BODY:

ALEXANDRIA, Va., July 7 -- Alex Krichevsky, Laguna Beach, Calif., and Constance Nash, Laguna Beach, Calif., have developed a patent (**7,974,339**) for an "optimized data transmission system and method."

The abstract of the patent published by the U.S. Patent and Trademark Office states: "A system for transmitting data is provided. The system includes a frame analysis system receiving frame data, such as a frame of video data, and generating region data, such as a uniform matrix size that is used to divide the frame into a predetermined set of matrices. A pixel selection system receives the region data and generates one set of pixel data for each region, such as by selecting one of the pixels contained within each of the original matrices that comprise the frame."

The patent application was filed on July 16, 2004 (10/892,690). The full-text of the patent can be found at http://patft.uspto.gov/netacgi/nph-Parser?
Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=%2Fnetahtml%2FPTO%2Fsrchnum.htm&r=1&f=G&l=50&s1=**7,974,339**.PN.&OS=PN/**7,974,339**&RS=PN/**7,974,339**

Written by Shabnam Sheikh; edited by Jaya Anand.

For more information about Targeted News Service federal patent awards please contact: Myron Struck, Editor, Direct: 703/866-4708, Cell: 703/304-1897, Myron@targetednews.com

SH0707JA0707-582749

LOAD-DATE: September 22, 2011

File 670:LitAlert 1973-2013/UD=201335
(c) 2013 Thomson Reuters

Set	Items	Description

? **S PN=US 7974339**

S1	0	PN=US 7974339

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/986,767	06/04/2013	Constance Nash		2868

7590 11/06/2013

Constance Nash
P.O.Box 1892
Laguna Beach, CA 92652

EXAMINER	
VO, TUNG T	
ART UNIT	PAPER NUMBER
2486	
MAIL DATE	DELIVERY MODE
11/06/2013	PAPER

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

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 13/986,767	Applicant(s) NASH, CONSTANCE	
	Examiner TUNG VO	Art Unit 2486	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06/04/13*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-13* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-13* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *06/04/13* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some * c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

1. The present application is being examined under the pre-AIA first to invent provisions.

2. There are no issues with litigation.

3. The reissue oath/declaration filed with this application is defective because it fails to identify at least one error which is relied upon to support the reissue application. See 37 CFR 1.175 and MPEP § 1414.

4. The reissue oath/declaration filed with this application is defective because the error which is relied upon to support the reissue application is not an error upon which a reissue can be based. See 37 CFR 1.175and MPEP § 1414.

5. Claims 1-13 are rejected as being based upon a defective reissue oath/declaration under 35 U.S.C. 251 as set forth above. See 37 CFR 1.175.

The nature of the defect(s) in the oath/declaration is set forth in the discussion above in this Office action.

6. Claims 1-13 appear to contain allowable subject matter, and the claims would be allowed if the Oath/Declaration is to be corrected to overcome pending rejection and update search would not uncover any applicable prior art.

7. There are no new claims in the reissue application 13/986,767.

8. Note applicant cannot claim subject matter surrendered during prosecution of the patent- MPEP 1412.02.

9.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TUNG VO whose telephone number is (571)272-7340. The examiner can normally be reached on Monday- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. 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). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tung Vo/
Primary Examiner, Art Unit 2486

Notice of References Cited	Application/Control No. 13/986,767	Applicant(s)/Patent Under Reexamination NASH, CONSTANCE	
	Examiner TUNG VO	Art Unit 2486	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,883,823 A	03-1999	Ding, Wei	708/402
*	B	US-6,064,808 A	05-2000	Kapur et al.	703/2
*	C	US-6,249,614 B1	06-2001	Kolesnik et al.	382/251
*	D	US-6,956,891 B2	10-2005	Tan, Alfred Keng Tiong	375/140
*	E	US-6,961,891 B2	11-2005	Murillo, Laurent	714/763
*	F	US-7,034,963 B2	04-2006	Klatchko et al.	358/3.01
*	G	US-7,236,529 B2	06-2007	Lin et al.	375/240.2
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13986767	NASH, CONSTANCE
	Examiner	Art Unit
	TUNG VO	2486

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
375	240.01	10/31/2013	TV

SEARCH NOTES		
Search Notes	Date	Examiner
EAST/WEST	10/31/2013	TV

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
375	240.01	10/31/2013	TV

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13986767	NASH, CONSTANCE
	Examiner	**Art Unit**
	TUNG VO	2486

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	10/31/2013								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								
	13	✓								

PTO/AIA/80 (07-12)
Approved for use through 11/30/2014. OMB 0651-0035
U.S. Patent and Trademark Office; U.S DEPARTMENT OF COMMERCE

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

■ Practitioners associated with Customer Number: 02101

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

■ The address associated with Customer Number: 02101

OR

☐	Firm or Individual Name			
	Address			
	City		State	Zip
	Country			
	Telephone		Email	

Assignee Name and Address: CONSTANCE NASH, P.O. BOX 1892, LAGUNA BEACH, CA 92652
OF VEDANTI SYSTEMS LIMITED
6 NEW STREET SQUARE
LONDON, UNITED KINGDOM EC4A 3LX

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be Filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	Constance Nash	Date	11/27/2013
Name	Constance Nash	Telephone	949 228 7070
Title	President		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Constance Nash

Application No./Patent No.: 13/986,767 Filed/Issue Date: June 4, 2013

Titled: Optimized Data Transmission System and Method

Vedanti Systems Limited, a corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Alex Krichevsky To: Cornerstone Group LTD.

   The document was recorded in the United States Patent and Trademark Office at

   Reel 018561, Frame 0737, or for which a copy thereof is attached.

2. From: Constance Nash To: Cornerstone Group LTD.

   The document was recorded in the United States Patent and Trademark Office at

   Reel 019345, Frame 0534, or for which a copy thereof is attached.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(c)

3. From: Cornerstone Group LTD. To: Vedanti Systems Limited

The document was recorded in the United States Patent and Trademark Office at
Reel 028219, Frame 0873, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Robert M. Asher, #30,445/	December 3, 2013
Signature	Date
Robert M. Asher	30,445
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	17554032
Application Number:	13986767
International Application Number:	
Confirmation Number:	2868
Title of Invention:	Optimized Data Transmission System and Method
First Named Inventor/Applicant Name:	Constance Nash
Correspondence Address:	Constance Nash - P.O.Box 1892 - Laguna Beach CA 92652 US - -
Filer:	Robert Asher
Filer Authorized By:	
Attorney Docket Number:	
Receipt Date:	03-DEC-2013
Filing Date:	04-JUN-2013
Time Stamp:	16:32:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	DD40281002POA.pdf	266297 568f4375669ddca07ebac26924b0f9b536a5a059	no	4
Warnings:					
Information:					
		Total Files Size (in bytes):	266297		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/986,767	06/04/2013	Constance Nash	

CONFIRMATION NO. 2868

2101
Sunstein Kann Murphy & Timbers LLP
125 SUMMER STREET
BOSTON, MA 02110-1618

POA ACCEPTANCE LETTER

OC000000065356400

Date Mailed: 12/06/2013

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/03/2013.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/hchristian/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Nash	Docket No.:	4028/1002
Appl. No:	13/986,767	Art Unit:	2486
Filed :	June 4, 2013	Examiner:	Vo, T.
		Conf. No:	2868

Title: Optimized Data Transmission System and Method

VIA USPTO ELECTRONIC FILING SYSTEM and FAX to 571 273 7340

Examiner Tung Vo
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

WITHDRAWAL OF REISSUE APPLICATION UNDER 37 CFR 1.138

Dear Examiner Vo:

I request that the above-identified application be expressly withdrawn per Rule 37 CFR 1.138 as of the filing date of this paper.

British assignee, after consultation with US patent counsel, has concluded that the claims of U.S. Patent No. 7,974,339 are correct.

Date: January 10, 2014

Respectfully submitted,

/Robert M. Asher, #30,445/

Robert M. Asher
Registration No. 30,445
Attorney for Applicant

Sunstein Kann Murphy & Timbers LLP
125 Summer Street
Boston, Massachusetts 02110-1618
Tel: (617) 443-9292
Fax: (617) 443-0004

04028/01002 2027290.1

Electronic Acknowledgement Receipt	
EFS ID:	17882276
Application Number:	13986767
International Application Number:	
Confirmation Number:	2868
Title of Invention:	Optimized Data Transmission System and Method
First Named Inventor/Applicant Name:	Constance Nash
Customer Number:	2101
Filer:	Robert Asher
Filer Authorized By:	
Attorney Docket Number:	4028/1002
Receipt Date:	10-JAN-2014
Filing Date:	04-JUN-2013
Time Stamp:	16:02:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Letter Express Abandonment of the application	DD40281002Withdrawal.pdf	62382 7f0c56b9240396c7bcd363aeda1012249f883bb3	no	1

Warnings:
Information:

Total Files Size (in bytes):	62382

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/986,767	06/04/2013	Constance Nash	4028/1002	2868

2101 7590 01/15/2014
Sunstein Kann Murphy & Timbers LLP
125 SUMMER STREET
BOSTON, MA 02110-1618

EXAMINER	
VO, TUNG T	

ART UNIT	PAPER NUMBER
2486	

NOTIFICATION DATE	DELIVERY MODE
01/15/2014	ELECTRONIC

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

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptomail@sunsteinlaw.com

Notice of Abandonment	Application No.	Applicant(s)	
	13/986,767	Nash	
	Examiner	Art Unit	
	Tung Vo	2486	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. ☐ Applicant's failure to timely file a proper reply to the Office letter mailed on _____.
   (a) ☐ A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
   (b) ☐ A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection.
   (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
   (c) ☐ A reply was received on _____ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
   (d) ☐ No reply has been received.

2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
   (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
   (b) ☐ The submitted fee of $_____ is insufficient. A balance of $_____ is due.
   The issue fee required by 37 CFR 1.18 is $_____. The publication fee, if required by 37 CFR 1.18(d), is $_____.
   (c) ☐ The issue fee and publication fee, if applicable, has not been received.

3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
   (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
   (b) ☐ No corrected drawings have been received.

4. ☒ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.

5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.

6. ☐ The decision by the Board of Patent Appeals and Interference rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.

7. ☐ The reason(s) below:

Betty J. Powell
Office of Data Management
703-756-5981

Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.