Doc Code: TRACK1.REQ
Document Description: TrackOne Request

PTO/AIA/424 (04-14)

CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION UNDER 37 CFR 1.102(e) (Page 1 of 1)

First Named Inventor:	Keel et al.	Nonprovisional Application Number (if known):	
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently $0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.

2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.

3. The applicable box is checked below:

I. ☑ Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)

i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.

---OR---

(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.

ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, **or** the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

II. ☐ Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)

i. A request for continued examination has been filed with, or prior to, this form.
ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature /Bruce D. Sunstein, #27,234/	Date August 22, 2016
Name (Print/Typed) Bruce D. Sunstein	Practitioner Registration Number 27,234

Note: *This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.**

☑ *Total of 1 forms are submitted.

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.

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Keel et al.		
Application No.:	Not Yet Assigned	Group No.:	Not Yet Assigned
Filed:	Herewith	Examiner:	Not Yet Assigned

For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

List of Sections Forming Part of This Information Disclosure Statement

The following sections are being submitted for this Information Disclosure Statement:

1. [x] Preliminary Statements
2. [x] Forms PTO/SB/08A and 08B (substitute for Form PTO-1449)
3. [ ] Statement as to Information Not Found in Patents or Publications
4. [ ] Identification of Prior Application in Which Listed Information Was Already Cited and for Which No Copies Are Submitted or Need Be Submitted
5. [ ] Cumulative Patents or Publications
6. [x] Copies of Listed Information Items Accompanying This Statement
7. [ ] Concise Explanation of Non-English Language Listed Information Items
   - 7A. [ ]EPO Search Report
   - 7B. [ ]English Language Version of EPO Search Report
8. [ ] Translation(s) of Non-English Language Documents
9. [ ] Concise Explanation of English Language Listed Information Items (Optional)
10. [x] Identification of Person(s) Making This Information Disclosure Statement

Meta Platforms, Inc. - Ex. 1002
Page 3

Section 1. Preliminary statements

Applicants submit herewith patents, publications or other information, of which they are aware that they believe may be material to the examination of this application, and in respect of which, there may be a duty to disclose.

The filing of this information disclosure statement shall not be construed as a representation that a search has been made (37 C.F.R. § 1.97(g)), an admission that the information cited is, or is considered to be, material to patentability, or that no other material information exists.

The filing of this information disclosure statement shall not be construed as an admission against interest in any manner. Notice of January 9, 1992, 1135 O.G. 13-25, at 25.

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	Not Yet Assigned	Art Group Unit:	Not Yet Assigned
Date Filed:	Herewith	Examiner Name:	Not Yet Assigned
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		

DATE: August 22, 2016

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

U.S. PATENT DOCUMENTS					
Examiner Initials	**Reference Number**	**Document Number**	**Issue Date**	**Inventor**	**Class/Subclass**
	AA	US 5,008,853	Apr. 16, 1991	Bly, et al	364/900
	AB	US 5,220,657	Jun. 15, 1993	Bly, et al	395/425
	AC	US 6,092,067	Jul. 18, 2000	Girling, et al	707/100
	AD	US 6,119,147	Sep. 12, 2000	Toomey, et al	709/204
	AE	US 6,266,649	Jul. 24, 2001	Linden, et al	705/26
	AF	**US 6,289,362**	Sep. 11, 2001	Van Der Meer	707/501
	AG	US 6,327,590	Dec. 4, 2001	Chidlovskii, et al	707/5
	AH	**US 6,415,316**	Jul. 2, 2002	Van Der Meer	709/203
	AI	US 6,597,377	Jul. 22, 2003	MacPhail	345/738
	AJ	US 6,724,403	Apr. 20, 2004	Santoro, et al	345/765
	AK	US 6,768,999	July 27, 2004	Prager, et al	707/102
	AL	US 6,829,619	Dec. 7, 2004	Wakamatsu, et al	707/104.1
	AM	US 6,912,505	Jun. 28, 2005	Linden, et al	705/14
	AN	US 6,931,591	Aug. 16, 2005	Brown, et al	715/517
	AO	US 6,973,456	Dec. 6, 2005	Elgart	707/10
	AP	US 7,028,264	Apr. 11, 2006	Santoro, et al	715/765
	AQ	US 7,062,242	Jun. 13, 2006	Dajer, et al	455/232.1
	AR	US 7,113,917	Sep. 26, 2006	Jacobi, et al	705/14
	AS	US 7,478,054	Jan. 13, 2009	Adams, et al	705/26
	AT	US 7,478,078	Jan. 13, 2009	Lunt, et al	707/1
	AU	US 7,543,237	Jun. 2, 2009	Kontny, et al	715/759
	AV	US 7,681,112	Mar. 16, 2010	Francis	715/201
	AW	US 7,765,490	Jul. 27, 2010	Lai, et al	715/810
	AX	US 7,904,323	Mar. 8, 2011	Wynn, et al	705/8
	AY	US 7,921,368	Apr. 5, 2011	Moody, et al	715/751
	AZ	US 8,078,615	Dec. 13, 2011	Smith, et al	707/732
	BA	US 8,392,834	Mar. 5, 2013	Obrador	715/723
	BB	US 8,743,148	Jun. 3, 2014	Gegner, et al	345/660

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	Not Yet Assigned	Art Group Unit:	Not Yet Assigned
Date Filed:	Herewith	Examiner Name:	Not Yet Assigned
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		

DATE: August 22, 2016

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

U.S. PATENT PUBLICATION DOCUMENTS					
Examiner Initials	**Reference Number**	**Document Number**	**Publication Date**	**Inventor**	**Class/Subclass**
	BC	US2002/0016725	Feb. 7, 2002	Eichstaedt, et al	705/5
	BD	US2002/0080180	Jun. 27, 2002	Mander, et al	345/769
	BE	US2002/0143877	Oct. 3, 2002	Hackbarth, et al	709/205
	BF	US2002/0169737	Nov. 14, 2002	Armstrong, et al	706/59
	BG	US2003/0009493	Jan. 9, 2003	Parker, et al	707/500.1
	BH	US2003/0135565	Jul. 17, 2003	Estrada	709/206
	BI	US2003/0158855	Aug. 21, 2003	Farnham, et al	707/102
	BJ	US2003/0208397	Nov. 6, 2003	VanDusen	705/14
	BK	US2003/0217056	Nov. 20, 2003	Allen, et al	707/7
	BL	US2004/0003097	Jan. 1, 2004	Willis, et al	709/228
	BM	US2004/0049541	Mar. 11, 2004	Swahn	709/203
	BN	US2004/0054428	Mar. 18, 2004	Sheha, et al	700/56
	BO	US2004/0083274	Apr. 29, 2004	Katiyar, et al	709/217
	BP	US2004/0153445	Aug. 5, 2004	Horvitz, et al	707/3
	BQ	US2004/0193673	Sep. 30, 2004	Samji, et al	709/200
	BR	US2004/0201609	Oct. 14, 2004	Obrador	345/723
	BS	US2004/0261013	Dec. 23, 2004	Wynn, et al	715/511
	BT	US2004/0267700	Dec. 30, 2004	Dumais, et al	707/2
	BU	US2005/0080807	Apr. 14, 2005	Beilinson, et al	707/102
	BV	US2005/0154639	Jul. 14, 2005	Zetmeir	705/14
	BW	US2005/0165880	Jul. 28, 2005	Moody, et al	709/200

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	Not Yet Assigned	Art Group Unit:	Not Yet Assigned
Date Filed:	Herewith	Examiner Name:	Not Yet Assigned
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		

DATE: August 22, 2016

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

Examiner Signature: _____

Date Considered: _____

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation *if not* in conformance and not considered. Include copy of this form with next communication to applicant.

Section 6. Copies of Listed Information Items Accompanying This Statement

Legible copies of all items listed in Forms PTO/SB/08A and 08B (substitute for Form PTO-1449) accompany this information statement.

[X] Exception(s) to above:

U.S. patent citations are not included pursuant to the United States Patent and Trademark Office's September 21, 2004 waiver of the copy requirement in 37 CFR 1.98 for cited pending U.S. patent citations when the patent citations are available in the USPTO's IFW system.

[ ] Items in prior application, from which an earlier filing date is claimed for this application, as identified in Section 4.

[ ] Cumulative patents or publications identified in Section 5.

Section 10. Identification of Person Making This Information Disclosure Statement

The person making this certification is the practitioner of record.

/Bruce D. Sunstein, #27,234/
SIGNATURE OF PRACTITIONER

Reg. No.: 27,234

Bruce D. Sunstein
(type or print name of practitioner)

Tel. No.: (617) 443-9292

Sunstein Kann Murphy & Timbers LLP
125 Summer Street, 11th Floor
P.O. Address

Customer No.: 002101

Boston, MA 02110-1618

04123/01002 2571052.1

PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	METHODS AND APPARATUS FOR MANAGING AND EXCHANGING INFORMATION USING INFORMATION OBJECTS

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [x] The attached application, or
- [ ] United States application or PCT international application number _____

  filed on _____.

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

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

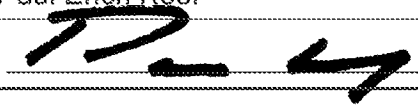
I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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 INVENTOR

Inventor: Paul Erich Keel Date (Optional): June-20-2013

Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute 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/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	

As the below named inventor, I hereby declare that:

This declaration is directed to:

[X] The attached application, or

[ ] United States application or PCT international application number _____

filed on _____.

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

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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.

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 INVENTOR

Inventor: Jeffrey Huang Date (Optional) :_____

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute 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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Keel et al.	Docket No.:	4123/1002
Appl. No:	TBD	Art Unit:	TBD
Filed :	herewith	Examiner:	TBD

Title: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

VIA USPTO ELECTRONIC FILING SYSTEM

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

Preliminary Amendment

Dear Sir:

Request is made to amend the accompanying application as set forth below.

Amendments to the Description begin on page 2 of this paper.

Remarks begin on page 13 of this paper.

Amendments to the Description:

1. Please amend paragraph [00057] to read as follows:

[00057] The IO attribute indicators shown in Figure 2 can indicate an IO state that can include such things as ownership of the IO, a geographic location associated with the IO, a time of creation of information associated with the IO, and other information. Depending upon the configuration, each IO 320 can further include features such as an instant messaging capability allowing to users in a distributed system to share access to an IO in order to exchange comments or messages between themselves concerning information associated with the IO. In one configuration, the system displays, within the IO perimeter, at least one messaging icon operable by a user to send a message to an IO associated with at least one other user, thus enabling collaboration. In one configuration, clicking on the messaging icon allows users to add a time/author stamped message to an IO 320 that all users 108-2 through 108-N can see if they have a copy of this IO 320. For any user 108, the icon lights red if the IO 320 includes new messages that the user has not yet looked at, green if it includes messages that the user previously looked at, and gray if the IO includes no messages. The counter next to the icon displays the number of ~~comments~~ messages. It is to be understood a that reference to an IO 320 refers to an implementation of an information object, and as will be explained shortly, algorithms disclosed herein can analyze information about IOs, such as spatial relationships between IOs, and that such algorithms and processing can be applied to other representations of information objects besides IOs, such as desktop icons, physical locations of physical items such as items on a store shelf, and so forth.

2. Please amend paragraph [00058] to read as follows:

[00058] Returning attention back to the graphical user interface 132 in Figure 1, the Workspace View 300 presents users with an empty canvas for the creation and grouping of IOs 320. In one configuration, the Workspace View 300 can be the desktop of a computer system 110 provided by an operating system, such as the Windows Desktop provided by the Windows family of

operating systems made by Microsoft Corporation of Redmond Washington, USA (Windows is a registered trademark of Microsoft Corporation). The Workspace View 300 is designed to support individual and collaborative sense-making tasks such as information analysis, planning, decision-making, brainstorming, and problem-solving. The Workspace View 300 functionality will provide users 108 with the means to efficiently create, collect, organize, analyze, and discuss information. In one configuration, IOs 320 may be created manually or semi-automatically. The manual creation of IOs 320 requires the user 108 to position an empty IO 320 on the Workspace View 300 and complement it with a picture, a heading, and a reference to an information source by simply dragging and dropping pictures, texts, hyperlinks, files, or file folders onto IOs 320. The semi-automatic creation of IOs 320 allows users to drag and drop pictures, text, hyperlinks, URLs, files, and file folders directly onto the Workspace View 300. This action will cause the workspace server 151 to create a new IO 320 with the content of the dropped item linked or attached to the IO 320 and with a picture and a heading added to an icon area and the heading bar (to be explained) of the IO 320. Furthermore, users will be able to create cards (IOs) from within various computer applications (after installing a plugin) by clicking a bottom. Users 108 may also copy IOs 320 from the News View 305, the database view 310 or the exchange view 315. Furthermore, a user 108 can copy IOs 320 from the Workspace View 300 to the computer desktop or file system (and vice versa) thus converting IOs 320 into regular computer files. This functionality has a variety of applications such as to exchange IOs 320 by email or to convert IOs 320 for use with other software applications. Automated IO creation is provided as well that allows a user for example to specify a file system or path or URL or database identity and the system can traverse records, documents, web pages, files and the like within the specified path, database or domain and can convert each record, file or page into an IO for use in the system.

3. Please insert the following paragraph [00058A] immediately after paragraph [00058]:

[00058A] Below are steps a user 108 can perform to create a card. The relation manager 150 creates and displays a new card in the workspace view. The user 108 may have performed a drag and drop of some content onto the workspace view 300, or may have selected a pull down menu in the workspace view to create a new card 320. In response, the relation manager 150 creates a new card record 160 in the database to correspond to the new card in the workspace

view 300. The relation manager 150 associates an information source identified by the first user to the new card 320 created in the workspace view. In the case of a drag and drop, the information source can be identified via the information dragged into the workspace view 300. If the user created a new card from pull down menu selection, the workspace view 300 can prompt the user to specify a specific information source (that can be hyperlinked or embedded) such as a file system path and filename, a URL or some other indicator. The relation manager 150 stores card attributes and an identity of the information source in the new card record 160 in the card database. The relation manager 150 stores a card creation time in the new card record. The relation manager 150 stores a card position in the new card record 160. The card position indicates positional information such as a corner pixel location (or a hierarchical location such as a specific window, directory, or desktop) as well as a window size of the new card 320 within the workspace view 300 of the first user 108. The relation manager 150 stores an identity of the first user in the new card record 160. The user for a new card becomes the author of that card 320. Once a card 320 is created, pictures and text can be dragged and dropped onto the icon area and text can be dragged and dropped on the heading bar of the card to cause those areas to automatically change. In this manner, a user 108 can create a card by simply dragging a hyperlink or file or other digital material onto the workspace view 300. A new card 320 is created where the hyperlink or file is dropped, a picture is added automatically (by searching the hyperlink destination or the file contents for an appropriate graphic), the heading is added automatically (usually the web site or file name), and a link or embedded attachment is automatically created from the file or the web site reference by the hyperlink.

4. Please amend paragraph [00062] to read as follows:

[00062] The news server 152 produces (i.e. provides information feeds for) the News View 305 to allow users 108 to collect IOs 320 for addition to the Workspace View 300. IOs 320 in the News View 305 represent information from a variety of other information sources. Feed examples includes news, alerts, announcements, motion detections on security cameras, emails, IMs, SMSs, sensors, real time search results, and custom content. An analogy of the News View 305 is a "news stand" in which recent or periodic information is available. In one configuration, the News View 305 displays the contents IOs 320 from news servers 151 that may be distributed

through the network 101 within one of more computer systems 110. IOs 320 in the News View 305 can be organized by time and information sources (e.g., by topic or content area) as well as by geographic locations associated with the information represented by each IO 320, and can be filtered for user specific keywords. Users 108 are able to copy IOs 320 between the Workspace View 300 and the News Views 305. IOs 320 copied from the News View 305 to the Workspace View 300 may be static and not change in content, or such IOs 320 may dynamically adapt to modifications in content so that as the information source associated with an IO 320 produces new information.

5. Please replace paragraph [00064] with the following amended paragraph:

[00064] In this manner, the system disclosed herein provides a novel process for information retrieval and processing based on information collection support. In one example, the News View 305 displays incoming information in IOs 320 from user selected information sources. The users 108 can copy relevant information from the News View 305 to the Workspace View 300 or can create new information directly in the Workspace View 300 by creating new IOs. The user(s) 108 can study, organize, and categorize the information on the Workspace View 300. In one configuration, if the Workspace View is connected to a server then all content and established relations are made accessible to this server. The user can use two Workspace Views if he wishes to separate between information that is public and private. Other users 108 view the information on the news, database or exchange views 395, 310 and 315 and can also copy relevant information from the news, database, and exchange views 305, 310, and 315 to their personal Workspace Views 300. The system can track and analyze this movement of information from source to destination and can use this IO usage and movement data based on user identifiers, locations of IOs, arrangements of IOs, contents of IOs, times of movement and copying, and other such information in processing algorithms to infer or identify relationships between IOs and to suggest other IOs that reference other information that may be of interest to a user.

6. Please replace paragraph [00067] with the following amended paragraph:

[00067] In this manner, the system disclosed herein provides a novel process for exchanging information and for asynchronous, decentralized, remote, and cross-organizational collaboration. In particular, users 108 use their individual Workspace Views 300 to organize and analyze information. The exchange server 153 produces the exchange view 315 to display cards (IOs) 320 that are concurrently displayed in one or more workspace views 300 of at least one other user 108. The exchange view 315 can display cards (IOs) 320 in prioritized order, or alternatively can display cards 320 the way they are arranged on another users Workspace. This allows users 108 to view each other's Workspaces 300 as they appear to those other users 108. The exchange view 315 displays (in prioritized or chronological order in one configuration) the IOs 320 created by all collaborating users 108 (or those with the appropriate access permissions or security levels). The exchange server 153 manages the display and exchange of card (IO) information between exchange views 315 and can include filter features to allow a user 108 to only see cards (IOs) from selected users 108 (as opposed to all cards (IOs) in all workspaces 300 of all users 108). The users 108 can copy relevant IOs 320 from their exchange views 315 to their Workspace Views 300. Users 108 can take "ownership" over IOs 320 copied from their exchange views 315 and these IOs 320 are now modifiable by the user 108. In one configuration, when a user takes ownership of an IO 320, the IO 320 is no longer synchronized with a counterpart IO on the IO author's Workspace View. In another configuration, once an IO 320 is owned exclusively by a user 108, these IOs 320 can no longer be used for collaboration such as by "instant messaging," IO commenting, or "IO voting."

7. Please insert the following paragraphs [00076A] through [00076F] immediately after paragraph [00076]:

[00076A] The relation manager 150 is able to analyze the spatial arrangement of the cards 320 as provided by the user 108 in the workspace view 300 in order to deduce or infer relations between the information sources associated with the cards 320. In response, the database server 154 can provides other cards based on matching card records 160 maintained in the card database 125 that may be of interest to that user based on the analysis of the spatial arrangement of the cards 320 on that user's workspace view 300. The database server 154 is thus capable of inventing or

deriving additional relations 170 based on the analysis of previous relations. For example if card A is related to card B and card B is related to card C, then the database server 154 can decide to relate card A and C because the indirect relation suggests a partial correlation. In this manner, the system disclosed herein provides a novel process for organizational knowledge management based on information merging. Users 108 use their individual workspace views 300 (or operating system desktops and file systems) to organize and analyze information. Additions to the workspace views of all users are collected in the card database 125. The database items including the relations 170 and the card records 160 are combined into one coherent network of cards using the relation processing algorithms 155. The number of relations 170 between individual cards 320 may differ and can indicate the "strength" or "importance" of a relation 170 (or its unimportance or weakness). Relations 170 in the database 125 may be complementary or conflicting, speculative or concrete. The database views 310 of individual users 108 display (in prioritized order) cards 320 available in the database (as records 160) that are related or relevant to the cards 320 on a user's workspace view 300 based on the relations discovered via application of the relation processing algorithms 155.

[00076B] The activities and contents on the individual users Workspace Views are monitored and recorded by the Recognition Functions. The Recognition Functions maintain a record of all active and erased cards including a list of all current and past owners and users of individual cards. The Recognition Functions record and combine all explicit relations among cards established by the users as well as all implicit relations established by the Algorithms. The Recognition Functions keep track of all interactions that take place among users. An interaction is registered if a user copies a card, views the content associated with a card, or adds a comment, vote or notification to a card.

[00076C] The relation manager 150 analyzes card (IO) records 160 and card relations 170 within the card (IO) database 125. The results of this analysis can produce an indication of other card records 160 in the card database 125 that correspond to other cards 320 that are not currently displayed in the workspace view 300 of the user 108, but that might be of interest to that user operating that workspace view 300. A transformation algorithm 155 that can, for example, compare the combination of spatial relationships 170 that identify closely placed cards 320 in the

workspace view 300. For those cards 320 that are close to each other, the transformation algorithm 155 can compare the content of those cards (i.e., can compare the information sources referenced by these cards) to identify a common subject. Alternatively, the transformation algorithm 155 can compare the creation time of closely spaced cards. In another alternative, the transformation algorithm 155 can compare user identities of users 108 who have accessed these cards. Using these metrics (e.g. a common creation time window, or a common subject, common users or use patterns), the transformation algorithm 155 can identify, in order of relevance, a set of resultant cards not already placed in that user's workspace 300. These can be shown to the user in the database view 310. Additionally, the current arrangement of exchange view cards 320 can be reordered to reflect the newly discovered relations of the group of cards so that cards of other users that might be of importance to the user (that are already in the exchange view) are more to the front of the line or list in the exchange view to be more noticeable to that user. In one configuration, cards 320 displayed on views not only hint relevant information but also inform about people (the authors of the cards) with relevant knowledge on a particular topic. This can foster the creation of teams or communities of interest and help to build knowledge-based relationships between people due to information objects those people spatially organize in particular ways.

[00076D] The relation manager 150 applies at least one interpretation algorithm 155 between card (IO) records 160 in the card database 125 to create relations 170 between card records 160 in the card database 125. The relation manager 150 applies a spatial relation algorithm 155 that discovers spatial relations 170 between position information of at least two card records 160 in the card database 125 that are associated with cards 320 displayed on the graphical user interface 132 in the first set of cards. The relation manager 150 identifies implicit relations between cards in the first set of cards displayed on the graphical user interface based on proximity of cards on the graphical user interface. Thus, how close or far apart cards are can determine a strength or week relationship between cards 320. The relation manager 150 identifies implicit relations between cards in the first set of cards displayed on the graphical user interface based on horizontal alignment of cards 320 on the graphical user interface 132. Horizontal alignment can be suggestive of a list of items and transformation algorithms 155 can perform analysis of cards 320 arranged horizontally to suggest other cards that might be successor cards in the list. The

relation manager 150 identifying implicit relations between cards in the first set of cards displayed on the graphical user interface based on vertical alignment of cards on the graphical user interface. Likewise, vertical arrangements of cards 320 might also be suggestive of a card list. The relation manager 150 identifying implicit relations between cards in the first set of cards displayed on the graphical user interface based on at least some overlap of cards on the graphical user interface. Overlapping cards can suggest a grouping relationship. It is to be understood that the spatial relations noted above are not limited to vertical, horizontal and overlap. Other spatial relations can exist and be analyzed as well, such as relative size relations between cards, or exclusive (i.e. alone) or particular placement (e.g. in a certain corner, in center, etc.) of cards 320 in certain regions within the graphical user interface 132. Additionally, spatial processing algorithms can recognize card clusters that define groups of cards in close proximity to one another that create a cluster that is distinct from other clusters of other cards 320. The relation manager can detect and analyze other relations as well besides spatial relations. As an example, context relations concerning use, access (e.g. copying) or other operations on cards can be detected that are based on time of card creation or modification, which users access a card, and relation of content between cards that have similar or relating subject matter. The relation manager 150 applies at least one context relation interpretation algorithm 155 to discover contextual relations between card records 160 in the card database 125. The contextual relations 155 indicate commonality between at least two card records 160 based one or more relationship criteria. In one configuration, the relation manager 150 can detect and analyze chronological context of the at least two card records (e.g., sequence of creation or modification of card information). In another configuration, the relation manager 150 can detect and analyze collaborative context by at least two users 108 of at least two cards 320 respectively associated with the card records 160. An example of collaborative context is when two or more users share two (or more) cards such as by providing comments to those cards, or using instant messaging to discuss information associated with the cards, or via other common access (e.g., copying to workspace) to the cards by those two or more users. In another configuration, the relation manager 150 can detect and analyze similarities of content identified by the at least two card records using keyword or subject or title matching, for example. In this manner, using contextual relations, the relation manager 150 can determine, for example, that if user A and B use the same card then other cards used by user A and B are more likely to become related. Card

content can include content displayed on the card, parameters associated with the card, or information content hyperlinked to the card or metadata about the card (e.g., creation time, time of last access, time of last copy, user access history, etc.) that might not be readily visible from viewing the cards in a view. In one configuration, the database contents are evaluated based on the relations between cards. The relation manager 150 can thus establish relationships among cards 320 based on comparison of content and spatial history of card usage. Content relations are established based on a comparison of card contents such as headings, contents of hyperlinked files, and image descriptions, whereas context relations are established based on the spatial location of cards, the collaborative use of cards, or the virtual organization of cards (e.g. the hierarchical organization of files in computer directories). For example, two relations between two cards can be valued more than one relation between two cards. This is because two relations between two cards means that two different algorithms both established a relation between these two cards, although such relations may have been established for different reasons.

[00076E] Four distinct types of Database Algorithms examine the networked contents of databases by defining a starting point, a search path, an end point, and the order in which the search results are returned: The first type of Database Algorithms defines the Start Point of a database search. The Start Point refers to a node (IO) in a database from where directly and indirectly related information is being retrieved. A Start Point may be defined though a conventional database query that contains text or graphical information. This means that a Start Point might reflect a node that contains similarities with information that a particular user is currently working with, focusing on, or searching for. A Start Point can also be the most recently active node in the database such as the most recently added, retrieved, traversed, or modified node. Furthermore, a Start Point might be defined through so-called "Stimuli" or "Focal Points" that are placed and dynamically displaced by the Database Algorithms. The Start Point continuously changes its location and multiple Start Points may exist simultaneously. In the case of multiple Start Points the search progresses in parallel from multiple locations and in multiple directions. Every search returns the node referenced by the Start Point as well as a selection of directly and indirectly connected nodes. The selection of related nodes is defined by the Search Path. By default, the second node returned is the adjacent node with the most relations. The same procedure applies for all subsequent nodes unless specified differently by the Search Path. The

second type of Database Algorithms defines the Search Path. The search path determines how the network is traversed. Every search initiates at a Start Point and proceeds by examining adjacent nodes. By default, adjacent nodes with many relations are examined first. Previously examined nodes are ignored. The Database Algorithms offer a variety of options for the examination of less heavily connected nodes. For example, the Curiosity Algorithm is used to increase the probability for the examination of weaker branches. In addition, the Persistence Algorithm determines how many nodes associated with weaker branches will be considered. Other Database Algorithms dynamically define and modify the Search Path based on the relevance of currently explored nodes. The relevance of nodes is determined based on the card contents or the card authors. For example, a card may not contain relevant content but its author may be known for having created cards that contain relevant content. Thus, the author is considered a specialist in this particular area and the cards created by the author are given preference. The third type of Database Algorithms defines the End Point of a Search Path. The End Point may be determined through an analysis of the card contents, the distance from the Start Point, or the time passed since the start of an examination. In other words, the End Point represents either a satisfying search result or a state of decreasing patience or tiredness. For example, the Patience Algorithm terminates a search after the examination of certain number of nodes. The fourth type of Database Algorithms orders the search results. By default, the search result is a string of nodes that reflects the sequence in which the nodes were examined. Other criteria of organizing the search results include the distance of nodes from the Start Point, the number of relations associated with individual nodes, or the card properties such as card sizes, modification dates, authors, contents, notifications, comments, votes, accesses, font types, font styles, font sizes, pictures, and locations.

[00076F] The Unity Algorithm sorts cards (IOs) by the number of current and past users of individual cards. A card user is defined as somebody who created, copied, took ownership, reviewed the content, commented, or voted for a particular card. The Unity Algorithm assumes that the activity associated with a card is a meaningful way to determine the importance and popularity of the card. The Weight Algorithm sorts cards by the number of relations associated with individual cards. may be related twice with card B and once with card C. Thus, card A is associated with three relations, card B with two relations, and card C with one relation. The

Weight Algorithm assumes that number of links associated with a card is a meaningful way to determine the importance and popularity of the card. The Relevance Algorithm is the same as the Weight Algorithms yet only considers relations that connect with cards the user is using. For example, a card on a user's Exchange View may be related to four cards only one of which the user is using on his Workspace View. Thus, the number of associated relations for this card is assumed one rather than four. The Relevance Algorithm is particularly useful to spot cards that have some relevance with cards the user is already using. The Group Algorithm fosters the information exchange among users that have had frequent interactions in the past. The Group Algorithm considers an interaction when a user copies a card from another user, takes ownership over another user's card, or adds a comment or a vote to another user's card. The Group Algorithms orders cards based on the number of interactions that a particular user had with the individual card authors.

8. Please amend paragraph [00085] to read as follows:

[00085] A Flag Icon 914 links to a map display in the IO Editor allowing users to view and modify geographic locations associated with an IO. A Person Icon 916 indicates whether a particular IO is used by other users and links to an IO Editor that allows the IO owner to view the list of IO users as well as to assign access restrictions to IO contents. A File Icon 918 allows users to add and access (any number of) attachments and hyperlinks to an IO and allow for contents to be partially or fully encrypted. An Arrow Icon 920 allows users to add, modify and control dynamic information sources (e.g., to control automatic updates to IO contents retrieved from dynamic information sources such as Email accounts, RSS feeds, sensors, motion detectors and security cameras or web sites). Users can activate one or more Reliability / Ratings / Votes / Importance / Priority Bars (collectively referred to as bars 924) for the individual and collaborative evaluation of information. IOs can be evaluated on a scale from 1 to 5 (represented by 5 boxes). Filled boxes represent the average evaluations of all IO users while the arrow symbol indicates the individual rating of the IO viewer.

Remarks

The text of the application filed herewith is identical to the text of the Substitute Application filed with the parent application, serial number 14/664,178, filed March 20, 2015, subject, however, to these exceptions: (1) the Statement Regarding Federally Sponsored Research has been amended, (2) the Related Applications section has been updated to recite that the present application is a continuation of the foregoing parent application, and (3) the claims and abstract have been amended.

For convenience, attached hereto as Appendix A is a Substitute Specification constituting the text of the application filed herewith after giving effect to the foregoing amendments.

Support for Amendments to Description

This preliminary amendment is made to explicitly add to the present application material that is incorporated by reference. By way of background, each of the applications that is a source of priority for the present application is incorporated by reference. Moreover, each predecessor nonprovisional application that is a source of priority for the present application incorporates by reference each earlier application that is a source of priority for the predecessor. In short, there is a chain of incorporations by reference going back to the first filed application in the chain.

In these remarks we show the support for each amendment made to the present application. In the listing below, we use the following terminology to identify predecessor applications:

Application Number 1: Provisional Patent Application Serial Number 60/566,723, filed April 29, 2004, entitled "METHODS AND APPARATUS FOR MANAGING AND INFERRING RELATIONSHIPS FROM INFORMATION".

Application Number 2: Patent Application Serial Number 11/118,301 (now US Patent Number 7,640,511), filed April 29, 2005, entitled "METHODS AND APPARATUS FOR MANAGING AND INFERRING RELATIONSHIPS FROM INFORMATION OBJECTS".

The amendments to the Description have support as indicated below.

Amendment Number 1, paragraph [00057].

This amendment substitutes "comments" with "messages". For this amendment, support is found in Application No.2, page 13, lines 13-17 showing the correspondence of these words.

Amendment Number 2, paragraph [00058].

This amendment adds the following sentence to the paragraph:

Furthermore, users will be able to create cards (IOs) from within various computer applications (after installing a plugin) by clicking a bottom.

Support is found in Application No. 1, page 122, lines 44-45

Amendment Number 3, immediately after paragraph [00058].

For paragraph [00058A], support is found in Application No.2 starting on page 31 line 31 and ending on page 33 line 2.

Amendment Number 4, paragraph [00062].

The amendment adds language to a single sentence in the paragraph to read as follows:

IOs 320 in the News View 305 can be organized by time and information sources (e.g., by topic or content area) as well as by geographic locations associated with the information represented by each IO 320, and can be filtered for user specific keywords.

Support is found in Application No. 1, page 27, lines 47-48.

Amendment Number 5, paragraph [00064].

This amendment adds the word "user" to the second sentence of the paragraph. Support is found in Application No. 1, page 27, lines 42-43

Amendment Number 6, paragraph [00067].

This amendment adds the third and fourth sentences to the paragraph. Support is found in Application No.2, page 18, lines 10-13.

Support for adding "or chronological" is found in Application No. 1, page 42, lines 32-33

Amendment Number 7, immediately after paragraph [00076].

For paragraph [00076A], support is found in Application No.2 starting on page 19, line 25 and ending on page 20, line 17.

For paragraph [00076B], support is found in Application No. 1 starting on page 91, line 54 and ending on page 92, line 10.

For paragraph [00076C], support is found in Application No.2 starting on page 21, line 16 and ending on page 22, line 8.

For paragraph [00076D], support is found in Application No.2 starting on page 26, line 21 and ending on page 28, line 27.

For paragraph [00076E], support is found in Application No. 1 starting on page 88, line 43 and ending on page 89, line 36.

For paragraph [00076F], support is found in Application No. 1 starting on page 93, line 43 and ending on page 94, line 12.

Amendment Number 8, paragraph [00085].

Support for this amendment is found in Application No. 1, page 122, line 28

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In the foregoing amendments, the insertions are taken verbatim from the referenced portions of the above applications (with various references in the copied text being deleted to avoid confusion), except that the parenthetical "(IO)", meaning "Information Object" is occasionally inserted after "card" and after "node" in the referenced portions. Support for "card" as an "Information Object" appears in the application, paragraph [00022]: "As used herein the term "card," "IO" and "information object" are used interchangeably, and a card is one example configuration or representation of an information object." Support for "node" as an "Object" appears in application No. 1 on page 51, line 25: "This section uses the words Objects, Items, Nodes, and Cards for similar concepts."

Date: August 22, 2016

Respectfully submitted,

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APPENDIX A

METHODS AND APPARATUS FOR MANAGING AND EXCHANGING INFORMATION USING INFORMATION OBJECTS

[SUBSTITUTE SPECIFICATION]

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH

[0001] This invention was made with Government support under Grant and/or Contract No. 'N00014-02-1-0132 and/or N00014-04-1-0569 and/or N00014-08-C-0206' awarded by the Office of Naval Research. The Government has certain rights in the invention.

RELATED APPLICATIONS

[0002] This application is a continuation of United States patent application serial number 14/664,178, filed March 20, 2015, which is a continuation of United States patent application serial number 13/925,031, filed June 24, 2013, which is a continuation of United States patent application serial number 12/563,416, filed September 21, 2009 (now United States patent number 8,499,248, issued July 30, 2013), entitled "METHODS AND APPARATUS FOR MANAGING AND EXCHANGING INFORMATON USING INFORMATION OBJECTS," which (i) claims the benefit of United States provisional application serial number 61/116,747, filed November 21, 2008, entitled "Information Objects (IOs) and Information Views (IVs)", and (ii) is a continuation in part of United States patent application serial number 11/118,301, filed April 29, 2005 (now United States patent number 7,640,511, issued December 29, 2009), entitled "METHODS AND APPARATUS FOR MANAGING AND INFERRING RELATIONSHIPS FROM INFORMATION," which claims the benefit of United States provisional application having Serial Number 60/566,723, filed April 29, 2004, entitled "METHODS AND APPARATUS FOR MANAGING AND INFERRING RELATIONSHIPS FROM INFORMATION". All of these related applications are hereby incorporated herein by reference in their entirety.

BACKGROUND

[0003] Modern information processing systems allow users to collect and process large amounts of information. As an example, a typical computer system such as a personal computer includes an operating system that executes within the computer system to provide a graphical user interface to users of that computer system. A conventional graphical user interface typically includes a number of information objects such as graphical icons that represent information of relevance or importance to the user. The user accesses data and controls functionality of the computer system by selecting and operating such icons. By way of example, software applications such as word processors, graphical editing tools, web browsers and many others often provide graphical user interfaces that include a number of icons that have visual meaning to the user of the computer system. Typically, a software application renders icons to allow the user to invoke specific functionality or commands of that application and/or to allow the user to organize and access data. Many software applications use icons to represent data or files that the user can access by selecting (e.g., clicking) the icon representing the data. As an example, if a user selects an icon that represents a software application installed within the computer, the computer will begin execution of that application. Other icons on a graphical user interface can represent folders or files maintained by the operating system within a file system.

[0004] Many conventional software applications allow a user to develop or collect various portions of information or content for storage and future access. As an example, a word processor or other editing tool allows the user to create and edit documents. As another example, a web browser allows a user to navigate web pages provided by servers on remote computer networks such as the Internet to reference information on a variety of subjects. A conventional computer system allows a user to store information referenced or created by such applications as a set of documents or files that can be retrieved by the user at a later time.

[0005] Most conventional operating systems and many software applications also provide a way for a user to arrange a file system of the computer in order to organize documents and files in a manner that makes sense to the user. Computer operating systems typically organize file systems in a hierarchical manner allowing the user to create folders or directories with user-specified names. The user can store files within the folders in a manner that makes sense to that user. A file system is thus one of the most popular ways for users to organize and manage data and information of interest to those users.

[0006] Another mechanism that conventional applications and operating systems provide to allow users to organize and manage information of interest to that user is the ability to allow a user to spatially arrange information objects such as graphical icons in a way that makes intuitive sense to the user. As an example, on a conventional "desktop" work area provided by many operating systems, a user can place or position icons representing files, documents, applications, email messages, appointments or the like in any manner and at any position that the user may choose. In particular, such conventional applications allow the user to graphically maneuver the icons into position in relation to one another in a manner that makes sense to that user. Different users often organize icons on their desktop in different ways.

[0007] Information availability and accessibility is continuously increasing. The problem is that information commonly exists in different formats, resides in different locations, is dynamically changing, and is used and modified by different people. This makes it difficult for users to effectively monitor, analyze and exchange information.

SUMMARY

[0008] Conventional mechanisms and techniques that allow a user to visually organize, collect and manage information objects that represent various portions of information suffer from a variety of deficiencies. In particular, conventional computer-based applications such as operating system desktops and software

application graphical user interfaces allow a user to collect and store numerous portions of content and information that are of interest to the user and allow a user to represent that information graphically (e.g. via icons), but do little to analyze relations that may exist between the icons and/or between the stored portions of content or data.

[0009] In particular, conventional information processing systems such as those noted above allow a user to organize and arrange various portions of data or other information as icons in a graphical user interface in a manner that makes sense to the user, but such systems do not promote conversations and collaboration among users.

[00010] Another deficiency with conventional information processing systems is that information is represented in different formats and, depending on the format, is stored in different locations. For example, conventional browsers store hyperlinks to web sites as bookmarks, whereas emails are located in mailboxes in mail handlers, files are stored in computer directories, and notes may be stored in files, and so forth. The proposed information object mechanism disclosed herein, referred to in some embodiments as IOs, solve this deficiency by introducing a standardized information format that represents a piece of information in an abstract way and links to an original piece of information and that has a standardized look thus allowing users to focus on and compare the information content and context rather than be distracted by the information format and location.

[00011] As an example of problems with conventional data processing systems, a user using a conventional content development application may spend large amounts of time collecting portions of content such as graphics, text, news stories, web pages, email messages, or other such information sources for collaborative production of a large content-based research project. Many users may be involved in this process. As each user collects portions of information using conventional information management systems, the users store and organize their respective portions of information within the computer file system. Each user may create icons on his or her desktop or other work areas that represent the respective portions of collected information. Each user might group icons for related pieces of information together in a list, within close

proximity to each other, or in file directories. In conventional systems however, it is up to the user to identify what other portions of information might be of interest to the user that the user has not already identified and collected.

[00012] As an example, if the collaborative production being developed by the users is a project related to current events, each user may collect articles and stories related to that current event. Using conventional systems, it is up to each user to research and discover stories or other content related to that current event that might be available from a variety of different information sources. While conventional collaboration systems might provide a common repository for such collected information contributed by each user, there is little or no ordering to this information, other than an order specified by the users who place the content into the shared repository such as a file system or database. Each user must frequently communicate with other users in a highly manual manner (e.g. via a telephone call, email or other mechanism) to identify content that other users may have discovered and collected that might be of relevance to the production under development.

[00013] Such conventional information management systems do not automatically and dynamically analyze relations between user placed icons that represent the various pieces of available information in order to assist users in identifying other portions of content that many of interest to those users. More specifically, conventional systems do not analyze specific spatial relations, collaborative context relations, chronological context relations, and the like between information sources associated with icons arranged by a user to determine other portions of information, such as other portions of content collected by other users, that may be of relevance or interest to the user providing a specific spatial arrangement of his or her icons. As a result, conventional information management systems limit a user's knowledge of other available content and information to which that user may have interest. In particular, such systems limit available content to that content that a user can discover on their own.

[00014] As an example, using a conventional information discovery processes such as web searching, a user can quickly become overwhelmed with search results that are

irrelevant to the information they are seeking. While some conventional web sites may attempt to suggest references to web pages that are similar in nature to those discovered when providing a particular search term, such additional references are simply provided based on frequently performed searches of other users and do not take into account current information already collected by the user performing the original search. Thus a conventional browser is not made aware that a user already has collected certain related pieces of information and has organized them in a spatially related manner.

[00015] In contrast, embodiments of the invention are based in part on the observations that conventional information collection management systems provide a significant cognitive burden on users caused by the increasing availability of information, the requirement for users to actively initiate a search for relevant information, the requirement for evaluation of the quality and feasibility of information, the need to collaborate remotely and asynchronously, as well as the necessity to dynamically adapt to changing circumstances. Modern information processing systems do not provide an automated ability to organize and identify information sources that come in many different formats. For example, information may be received in the form of a phone call, an email, an instant message, a computer file, a web site, a database item, a verbal comment, a radio transmission, a newspaper, a television spot, a magazine, or a security camera. The various formats often prevent the easy and efficient collection, organization, and comparison of information by conventional information processing systems.

[00016] Embodiments of the invention incorporate advanced graphical user interfaces and functions to address the shortcomings in conventional systems. These embodiments include Information Objects (IOs) and Information Views (IVs). IOs that are data files that can include other data files (such as documents, hyperlinks, and executables) as well as meta-data (such as ratings, discussion logs, and visualization parameters). IVs are computer windows for the visualization of IOs. IOs are rendered differently on different IVs allowing users to manage information in a customized format and in environments suited to particular tasks and circumstances. In certain

embodiments the IO consolidates data, meta-data and communication features. For example, the IO can be an agenda item, a discussion, a hosted conversation, a topic, etc. Accordingly, the user can efficiently view and organize multiple IOs that represent different topics and that engage different groups of participants.

[00017] Advantageously IOs provide a means for users to package and visualize (static and dynamic) information in a standardized format. IOs can be viewed and modified differently on different IVs. IOs can be copied between the IVs of the same or different users. Copies of IOs remain synchronized if displayed on different IVs. IOs are associated with functions that enhance the collaborative use of information, for example, an object-based communication system that allows users to communicate through IOs and IVs.

[00018] Other benefits of Information Objects and Views include the ability to:
consolidate task relevant information (e.g. from shared IVs to a private IVs);
display information in a custom and familiar format (e.g., in a wide variety of possible custom IVs);
maintain a standardized data format for different data visualization and management tools; and
easily move data between different data visualization and management tools; and
easily exchange information among remotely distributed participants in a hosted conversation.

[00019] Using techniques disclosed herein, it is possible to create IOs transfer IOs between the same or different types of IVs, add additional IVs and additional functions for IOs, as well as a selection of IO components, IO functions on IVs. An electronic wall (EWall) embodiment provides one example for the visualization of IOs on an information view (IV) in which an IO can present itself as a EWall IO on a EWall Workspace View. A graphical user interface is provided for the management of multiple IVs, as well as new functions for the exchange of IOs and the collaborative use of IVs.

[00020] Embodiments of the invention as disclosed herein provide mechanisms and techniques for providing the IO, sharing the IO among a plurality of participants, attaching multi-media data to the IO. The technique further includes displaying the IO in one of a plurality of views and in response to interaction with one of the plurality of views by one of the participants, communicating with at least one different one of the participants sharing the IO.

[00021] The system disclosed herein provides a computational environment for the support of individual and collaborative decision-making and greatly enhances the quality and the speed of individual and collaborative brainstorming, problem-solving, information collecting and decision-making processes. More specifically, the system for providing hosted conversation among a group of participants disclosed herein includes a processor, a memory unit that stores instructions associated with an application executed by the processor, and an interconnect coupling the processor and the memory unit, enabling the computer system to execute the application and perform operations of: storing a link to at least one information object, the at least one information object, the information object includes at least one link to a document, a plurality of links to the group of participants, meta-data related to the conversation, and a communication system linking the at least one information object to the group of participants. The system further provides a user interface on the client system comprising: an icon representing the at least one information object, a contact list, a list of participants linked to the at least one information object and an information view to visualize the at least on information object.

[00022] In one configuration, the IOs are sometimes represented as "cards" on a graphical user interface. IOs reference different types of information formats thus making it easier for users to directly compare and study information in different formats. As used herein the term "card," "IO" and "information object" are used interchangeably, and a card is one example configuration or representation of an information object. AN IO includes a graphic icon area to display text or a picture associated with an information source, as well as other information pertaining to such things as ownership of that IO, creation time of the IO, and attribute indicators that

indicate a current state of the IO, and a hyperlink to its associated information source. In a simplest embodiment, an IO is just an icon that represents some information and information represented by IOs may be stored in different locations and in different formats. In one configuration, an IO is different from an ordinary icon because it comes with hidden functionality such as a built-in instant messaging system and the ability to drag and drop content onto the IO. It is noted that the: instant messaging system includes communication media such as Instant Messaging System , email and SMS messaging, text messaging and other forms of real-time communication between participants.

[00023] In one configuration, the system applies a spatial relation algorithm that discovers spatial relations between positional information of at least two IO records in an IO database that are associated with IOs displayed on the graphical user interface in the first set of IOs. The relations between IOs can be stored in a database and the system can use discovered relations to identify a second set of information objects based on the relation(s) between the first set of information objects/IOs. The second set of information objects in an IO configuration is a second set of IOs that might be of interest to the user based on the analysis of the IOs already on display in a Workspace View associated with that user. The system can output an identity of the second set of information objects by displaying the second set of IOs on the graphical user interface for viewing by the user. The second set may be displayed in a prioritized and relevant manner based on relations discovered concerning the first set of IOs.

[00024] In this manner, the system can use IOs to show the user other sources of information, possibly from other users, or from a database, or from a dynamic source such as a news feed, that might be of interest to that user. News feeds include but are not limited to news, alerts, announcements, motion detection events triggering security cameras, emails, instant messages (IMs), short message services (SMSs), sensors, real time search results, and custom content. The system can thus assist a user in managing information and retrieving relevant information.

[00025] Embodiments of the invention include any type of computerized device, workstation, handheld or laptop computer, or the like configured with software and/or circuitry (e.g., a processor) to process any or all of the method operations disclosed herein. In other words, a computerized device or a processor that is programmed or configured to operate as explained herein is considered an embodiment of the invention.

[00026] Other embodiments of the invention that are disclosed herein include software programs to perform the steps and operations summarized above and disclosed in detail below. One such embodiment comprises a computer program product that has a computer-readable medium including computer program logic encoded thereon that, when performed in a computerized device having a coupling of a memory and a processor and a display, programs the processor to perform the operations disclosed herein. Such arrangements are typically provided as software, code and/or other data (e.g., data structures) arranged or encoded on a computer readable medium such as an optical medium (e.g., CD-ROM), floppy or hard disk or other a medium such as firmware or microcode in one or more ROM or RAM or PROM chips or as an Application Specific Integrated Circuit (ASIC). The software or firmware or other such configurations can be installed onto a computerized device to cause the computerized device to perform the techniques explained herein. Other configurations include various graphical representations of the IOs themselves, for example as displayed on a graphical user interface as will be explained in more detail.

[00027] It is to be understood that the system of the invention can be embodied strictly as a software program, as software and hardware, or as hardware alone such as within a processor, or within an operating system or within a software application.

BRIEF DESCRIPTION OF THE DRAWINGS

[00028] The foregoing and other objects, features and advantages of the invention will be apparent from the following more particular description of embodiments of the

invention, as illustrated in the accompanying drawings and figures in which like reference characters refer to the same parts throughout the different views. The drawings are not necessarily to scale, with emphasis instead being placed upon illustrating the embodiments, principles and concepts of the invention.

[00029] Figure 1 is an example network environment including computer systems configured with a relation manager in accordance with one example embodiment disclosed herein.

[00030] Figure 2 shows an example layout of an IO in accordance with one example embodiment disclosed herein.

[00031] Figure 3 is a diagram of information flow and IOs present themselves differently on different IVs and can be copied between IVs in accordance with one example embodiment disclosed herein.

[00032] Figures 4A and 4B are diagrams of News Views that display news for multiple different news papers postings by different users.

[00033] Figure 5A is a diagram of IOs being exchanged between IVs of different users.

[00034] Figure 5B is a diagram of IOs being exchanged between Private, Visible and Shared Views.

[00035] Figure 6A is a diagram of an exemplary graphical user interface (GUI) Organization in accordance with one example embodiment disclosed herein.

[00036] Figure 6B is a more detailed diagram of the exemplary GUI Organization of Figure 6A.

[00037] Figure 6C is a diagram of an alternate exemplary GUI Organization in accordance with one example embodiment disclosed herein.

[00038] Figure 7 is a diagram of a graphical user interface (GUI) which allows the users to select import/export IOs from/to IM systems, other users views, shared views, e-mail tools, databases, agent systems in accordance with one example embodiment disclosed herein.

[00039] Figure 8 is a diagram of IO File Management An IO can "display" different types of files such as pictures, text, movies, flash applications (left), attach/hyperlink different types of files (middle), and dynamically update IO contents (right). in accordance with one example embodiment disclosed herein.

[00040] Figure 9 is a diagram of IO components in accordance with one example embodiment disclosed herein.

[00041] Figure 10 is a diagram of IO Operations in accordance with one example embodiment disclosed herein.

[00042] Figures 11-13 are flow charts of processing steps performed to the in accordance with embodiments disclosed herein.

DETAILED DESCRIPTION

[00043] Figure 1 illustrates the computer-networking environment 100 suitable for use in explaining example embodiments of invention. The computer-networking environment 100 includes a network 101 such as a local area network (e.g., LAN) that interconnects a plurality of computer systems 110-1 through 110-N that each execute respective relation managers 150 (application 150-1 and process 150-2), view manager managers 178 (application 178-1 and process 178-2), connections managers 180 (application 180-1 and process 180-2) and IO file managers 182 (application 182-1 and process 182-2) under respective control of a plurality of users 108. The computer systems 110 may be any type of computerized device such as a personal computer, laptop, workstation, mainframe terminal, or the like. In this example, each computer system 110 generally includes in interconnection mechanism 111 such as a data bus,

motherboard or other circuitry that interconnects a memory 112, a processor 113, an input output interface 114 and a communications interface 115. A display 130 such as a computer monitor and input output mechanism 116 couple to the computer system 110 via the input output interface 114. The communications interface 115 allows communication with other computer systems 110-2 through 110-N over the network 101. The architecture of the computer system 110-1 is shown in Figure 1 by way of example only. It is to be understood that the details of the example computer systems 110-2 through 110-N can be similar to those of computer system 110-1 but are not shown in Figure 1 due to drawing space limitations.

[00044] The memory 112 within each computer system 110 may be any type of computer readable medium such as random access memory (RAM), read only memory (ROM). The memory 112 may be fixed or removable from the computer system 110, such as a floppy disk, magnetic disk, optical disk media (e.g., CD ROM) or the like.

[00045] In one embodiment, the memory 112 is encoded with computer program logic (e.g., software code) that includes a relation manager application 120-1. When the processor 113 executes the relation manager application 150-1, the processor 113 produces a relation manager process 150-2 that executes as explained herein to produce a graphical user interface 132-1 (the example being produced by the relation manager 150 in computer 110-1) on the display 130 for viewing by the user 108. The relation manager process 150-1 and application 150-2 are collectively referred to herein as simply the relation manager 150. When referring to the relation manager 150, it can thus be a reference to the executing process 150-2, the application code 150-1, or both. Each relation manager 150 in combination with the view manager 178, connections manager 180 and file manager 182 process files and documents and produce a graphical user interface 132 that provides, to the user 108, visual knowledge representation, dynamically updated content, hosted conversations, and interpretation and management based in part on spatial relationships. To do so, the managers 150, 178, 180 and 182 include a workspace server 151, a news server 152, an exchange server 153 and a database server 154 that each produce, respectively, a Workspace

View 300, a News View 305, a database view 310 and an exchange view 315 within the graphical user interface 132. The relation manager 150 adds discovered relations to IO's in a database 125 (the database 125 may already include relations that other people or software products added). The relation manager also provides the algorithms 155 to examine the network of relations to discover potentially relevant information.

[00046] The database 125 maintains a history of updates to the IOs to allow for inclusive reconstruction of a particular IO at given time.

[00047] The workspace server 151 produces the Workspace View 300 that in one configuration is a graphical user work area, such as a desktop, in which a user 108 is able to create and manipulate graphical information objects 310 that graphically represent information objects of interest to user 108. The Workspace View 300 helps users 108 to create, collect, organize and understand information associated with each IO 320 and the relationships among information represented by the IO 320. In one configuration, a generic client application such as a web browser accesses such views from respective servers 151 through 154 that may execute on the same or different computer systems 110. In another alternative configuration, a dedicated client application includes or provides the Workspace View, the News View, the database view, and the exchange view and implements the news server, the database server, and the exchange server. It is to be understood that the system described herein may be distributed or centralized and may operate among many computer systems with many users 108.

[00048] Information Objects (IOs) are flexible data structures and can include data files that can include other data files as well as meta-data (for the display of IO contents and the use of IO functions on different IVs), present themselves differently depending on the IV they are displayed on, include the same data and functionality on any IV they are displayed on. IOs can be copied or transferred between the same or different types of IVs, copied or transferred between the IVs of the same or different users, remain synchronized if copied to multiple IVs, synchronized with dynamic data sources other than source-IOs, moved from an IV to the computer desktop, file

system, or 3rd party applications, thus converting an IO into a regular computer file that can be exchanged through conventional means such as email or file sharing and can be moved from the computer desktop, file system or 3rd party applications to any IV.

[00049] Information Views (IVs) can include graphical user interfaces that render IOs in different ways (can be described as a optical lenses that allows users to view information in different ways) and can enable access to all IO parameters and functions.

[00050] Using system 110 a user can interact with an information object, the system 110 facilitates sharing the IO among a plurality of participants; provides controls for attaching multi-media data to the IO, displays the IO in one of a plurality of views ; and in response to interaction with one of the plurality of views by one of the participants, provide a communications path between at least two of the participants sharing the IO.

[00051] Directing attention briefly to Figure 2, an example layout of an information object (IO) 310 is shown. An IO 320 in this example provides a visually compact, standardized, and abstract representation of information that displays, reminds of, and/or links to the original piece of information associated with that IO 320. Generally, an IO 320 is any graphical representation of an information object and may be considered the information object itself. The term "IO" as used herein can thus include anything from a simple icon that represents something such as a web page, a document, or a live information source, or an IO can be a more complex representation of such things. Both, the layout and the functionality of IOs 320 are highly modular in one configuration. This means that visual components and computational features can be individually turned on and off, and that additional visual components and computational features can easily be integrated. Furthermore, the colors and fonts of all IO components are customizable. In one embodiment, IOs 320 are visually subdivided into six segments in one configuration that can expand and contract depending on their contents.

[00052] The icon area 321 allows for the placement of graphical and/or textual material that can help users 108 to quickly visually locate IOs among many other IOs as well as to memorize and recall the data, information or knowledge associated with that IO 320. Users 108 can copy and paste pictures and text from various computer applications into the icon area. Users can also drag and drop pictures and text from web browsers and file managers into the icon area 321. Furthermore, users can directly draw and write into the icon area 321. The background color of the icon area 321 is also customizable allowing users to visually group and highlight IOs. Typically, the icon area 321 includes an IO graphic such as an icon, picture or other graphical information that represents information associated with that IO. As an example, if an HTML document such as a web page is of interest to a user, that user can create an IO to represent that web page. The IO can include a picture from the web page or a reduced sized version of the web page as its graphic.

[00053] The IOs 320 include an information bar 322 that accommodates an interface and visual indicators for complementary IO functions. A small rectangular box that includes an icon or in some cases a numerical counter represents each available IO function. Three distinct colors visually indicate the status of each function. In one configuration, the color gray is used for inactive functions, the color green is used for active functions and the color red is used for functions that require user attention. Every function can be individually turned on and off. The information bar 322 also allows for the customization and addition of functions specific to particular situations and work tasks. The following is a list of example functions and is not intended to limit the invention to information objects (e.g., IOs 320) including such functions. A reference function allows users to hyperlink or to attach related information. A location function is used to associate IOs 320 with a geographic location. The location Algorithm indicates geographic locations for which cards (IOs) are available. In other words, if a card (IO) is associated with a geographic location then the Location Algorithm will represent this card with an icon on a map. Multiple cards in similar geographic locations do not produce multiple icons but a single icon of enlarged size. A typical application is a newspaper that marks on a world map all locations for which news is available. A control function enables automatic IO updates. A comment

function allows for the addition of comments and annotations. A vote function allows collaborating users to exchange their opinions about the relevance of IOs. Every user is given one supporting vote for each card (IO). The icon color indicates the addition of recent and the presence of past votes. The numerical counter next to the icon displays the total number of supporting votes. An access log function provides users with a detailed record about the IO history. The Log Function provides users with a detailed record indicating the dates, times and names of all users that previously viewed, copied or modified the card (IO). The icon color indicates recent and past log entries. The counter next to the icon displays the number of log entries. This functionality allows users to review the evolution, collaborative use, and authorship history of cards (IOs). A personal note function is used to announce and send IOs 320 to specific users. A priority function allows users to categorize and highlight IOs.

[00054] The date / time bar 324 displays the date and time of the most recent IO modification. The relation manager 150 can use the date / time bar indication to reconstruct the chronology of contributions from different users and sources. The author bar 325 displays the name of the user who last modified the IO 320 or the information source the IO 320 has been copied from. The author bar 325 provides an indication of the IO editor and is used to compare contributions from different users and sources. The heading bar 326 allows users 108 to complement IOs 320 with a brief description or some keywords such as a title. The heading bar 326 effectively complements the icon area 321 by introducing language as an additional means for the abstract representation of data, information and knowledge. While the icon area 321 is particularly useful for the visual navigation of large IO arrangements, the heading bar 326 is focused on supporting the quick and easy recollection of IO meanings and contents.

[00055] The creation and use of IOs 320 can fundamentally shift the way analysts and decision-makers comprehend and think about information during sense-making activities. The creation of IOs 320 engages users 108 into a process of converting, standardizing, abstracting, and associating information while the use of IOs 320 fosters a strong focus on relating information uninfluenced by the format and location

of information. Humans like to think of data, information and knowledge as objects that they collect, compare, and organize. The conversion of data and information (as well as the externalization of knowledge) into virtual and physical objects accommodates this way of thinking. Dealing with virtual and physical objects such as files on a computer desktop or documents on a table effectively increases a human's ability to deal with complex sense-making tasks. A standardized IO size and layout is convenient to collect, compare, and organize IOs 320. Configurations disclosed herein are based in part on the observation that the benefits of standardized information objects are present in various everyday objects. For example, index cards, credit cards, business cards, slides, photographs and postcards are usually of equal size and layout so they can conveniently be stored, accessed, and processed. The abstract representation of data, information and knowledge with IOs 320 engages a human's visual recognition in ways that decreases information access time and allows for the processing of large amounts of information. Furthermore, the process of creating IOs 320 requires users to circumscribe the contents associated with IOs 320 in a visually and mentally fast accessible and easily comprehensible format thus encouraging a more careful analysis and understanding of the contents associated with IOs. The concept and use of abstract visual and textual reminders is also present in various everyday objects. For example, desktop icons and thumbnail views allow users to easily locate and organize computer files. Military ribbons use abstract visual representations to provide service, mission and award specific information on a small clothing area. Traffic signs depend on abstract visual representations that are easy to spot and understand by pedestrians and car drivers.

[00056] In one configuration, an IO 320 does not include information per se but only serves as a reminder for the presence of a particular piece of data, information or knowledge. The separation between IOs 320 and content associated with IOs 320 allows for the compact visualization and organization of large amounts of information. AN IO 320 may be viewed as a meaningfully labeled hyperlink to a piece of content available in a remote location. Users 108 can easily arrange and rearrange IOs 320 in the workspace 300. Users 108 benefit from this process by developing a good understanding of the IO contents and the relations among IOs 320 (e.g., context). The

use of IO arrangements also benefits collaborative sense-making tasks. People of different backgrounds, interests and foci have their unique ways of relating information. The collaborative development of IO arrangements can help people to determine intersecting views as well as to develop a shared understanding of a particular information space. Information objects are thus each represented as respective IOs 320 in this configuration.

[00057] The IO attribute indicators shown in Figure 2 can indicate an IO state that can include such things as ownership of the IO, a geographic location associated with the IO, a time of creation of information associated with the IO, and other information. Depending upon the configuration, each IO 320 can further include features such as an instant messaging capability allowing to users in a distributed system to share access to an IO in order to exchange comments or messages between themselves concerning information associated with the IO. In one configuration, the system displays, within the IO perimeter, at least one messaging icon operable by a user to send a message to an IO associated with at least one other user, thus enabling collaboration. In one configuration, clicking on the messaging icon allows users to add a time/author stamped message to an IO 320 that all users 108-2 through 108-N can see if they have a copy of this IO 320. For any user 108, the icon lights red if the IO 320 includes new messages that the user has not yet looked at, green if it includes messages that the user previously looked at, and gray if the IO includes no messages. The counter next to the icon displays the number of messages. It is to be understood a that reference to an IO 320 refers to an implementation of an information object, and as will be explained shortly, algorithms disclosed herein can analyze information about IOs, such as spatial relationships between IOs, and that such algorithms and processing can be applied to other representations of information objects besides IOs, such as desktop icons, physical locations of physical items such as items on a store shelf, and so forth.

[00058] Returning attention back to the graphical user interface 132 in Figure 1, the Workspace View 300 presents users with an empty canvas for the creation and grouping of IOs 320. In one configuration, the Workspace View 300 can be the desktop of a computer system 110 provided by an operating system, such as the

Windows Desktop provided by the Windows family of operating systems made by Microsoft Corporation of Redmond Washington, USA (Windows is a registered trademark of Microsoft Corporation). The Workspace View 300 is designed to support individual and collaborative sense-making tasks such as information analysis, planning, decision-making, brainstorming, and problem-solving. The Workspace View 300 functionality will provide users 108 with the means to efficiently create, collect, organize, analyze, and discuss information. In one configuration, IOs 320 may be created manually or semi-automatically. The manual creation of IOs 320 requires the user 108 to position an empty IO 320 on the Workspace View 300 and complement it with a picture, a heading, and a reference to an information source by simply dragging and dropping pictures, texts, hyperlinks, files, or file folders onto IOs 320. The semi-automatic creation of IOs 320 allows users to drag and drop pictures, text, hyperlinks, URLs, files, and file folders directly onto the Workspace View 300. This action will cause the workspace server 151 to create a new IO 320 with the content of the dropped item linked or attached to the IO 320 and with a picture and a heading added to an icon area and the heading bar (to be explained) of the IO 320. Furthermore, users will be able to create cards (IOs) from within various computer applications (after installing a plugin) by clicking a bottom. Users 108 may also copy IOs 320 from the News View 305, the database view 310 or the exchange view 315. Furthermore, a user 108 can copy IOs 320 from the Workspace View 300 to the computer desktop or file system (and vice versa) thus converting IOs 320 into regular computer files. This functionality has a variety of applications such as to exchange IOs 320 by email or to convert IOs 320 for use with other software applications. Automated IO creation is provided as well that allows a user for example to specify a file system or path or URL or database identity and the system can traverse records, documents, web pages, files and the like within the specified path, database or domain and can convert each record, file or page into an IO for use in the system.

[00058A] Below are steps a user 108 can perform to create a card. The relation manager 150 creates and displays a new card in the workspace view. The user 108 may have performed a drag and drop of some content onto the workspace view 300, or may have selected a pull down menu in the workspace view to create a new card 320.

In response, the relation manager 150 creates a new card record 160 in the database to correspond to the new card in the workspace view 300. The relation manager 150 associates an information source identified by the first user to the new card 320 created in the workspace view. In the case of a drag and drop, the information source can be identified via the information dragged into the workspace view 300. If the user created a new card from pull down menu selection, the workspace view 300 can prompt the user to specify a specific information source (that can be hyperlinked or embedded) such as a file system path and filename, a URL or some other indicator. The relation manager 150 stores card attributes and an identity of the information source in the new card record 160 in the card database. The relation manager 150 stores a card creation time in the new card record. The relation manager 150 stores a card position in the new card record 160. The card position indicates positional information such as a corner pixel location (or a hierarchical location such as a specific window, directory, or desktop) as well as a window size of the new card 320 within the workspace view 300 of the first user 108. The relation manager 150 stores an identity of the first user in the new card record 160. The user for a new card becomes the author of that card 320. Once a card 320 is created, pictures and text can be dragged and dropped onto the icon area and text can be dragged and dropped on the heading bar of the card to cause those areas to automatically change. In this manner, a user 108 can create a card by simply dragging a hyperlink or file or other digital material onto the workspace view 300. A new card 320 is created where the hyperlink or file is dropped, a picture is added automatically (by searching the hyperlink destination or the file contents for an appropriate graphic), the heading is added automatically (usually the web site or file name), and a link or embedded attachment is automatically created from the file or the web site reference by the hyperlink.

[00059] In one embodiment the relation manager 150 allows a user to easily arrange, compare, and evaluate IOs 320 thus ensuring that users 108 will not be distracted by different information formats but focus on information contents. Each individual user 108 can determine the particular arrangement or spatial (vertical, horizontal, overlapping, proximal) layout of the graphical IOs 108 on his or her Workspace View that might indicate meaning to that user 108. For example, a user 108 may group IOs

that represent related information sources in a relatively close proximity to one another thus defining tight spatial relationships between those IOs.

[00060] The system is able to analyze spatial relationships that exist between IOs 320 in each users Workspace View 300 in order to identify other information objects (e.g., other IOs 320) that may be of interest to that user 108. Based on this analysis, the relation manager 150 can identify other information sources by showing other IOs 320 that might be of interest to that user. Embodiments disclosed herein are based in part on the observation that the spatial arrangement of a first set of objects such as IOs 320 in the Workspace View 300 can be used to identify relationships between those objects and can be further used to identify other objects (such as other IOs) that may be of importance to a user who created the initial spatial relation between the first set of objects in the Workspace View 300.

[00061] The Workspace View 300 introduces several options for the grouping of IOs 320. One option is to increase the size of one IO 320 so as to accommodate several other IOs 320 inside its boundaries. Moving an IO 320 will drag along all IOs 320 within its boundaries. A second option is to overlap IOs 320. Moving an IO 320 inside a cluster of overlapping IOs 320 will drag along the entire cluster of IOs 320. A third option is to use multiple workspaces for the grouping of IOs 320. A fourth option is to link IOs 320 to an entire IO arrangement. A mouse-click onto such an IO 320 will then open another Workspace View 300 and display the IO arrangement. Further details on contents and layout of IOs 320 will be explained shortly.

[00062] The news server 152 produces (i.e. provides information feeds for) the News View 305 to allow users 108 to collect IOs 320 for addition to the Workspace View 300. IOs 320 in the News View 305 represent information from a variety of other information sources. Feed examples includes news, alerts, announcements, motion detections on security cameras, emails, IMs, SMSs, sensors, real time search results, and custom content. An analogy of the News View 305 is a "news stand" in which recent or periodic information is available. In one configuration, the News View 305 displays the contents IOs 320 from news servers 151 that may be distributed through

the network 101 within one of more computer systems 110. IOs 320 in the News View 305 can be organized by time and information sources (e.g., by topic or content area) as well as by geographic locations associated with the information represented by each IO 320, and can be filtered for user specific keywords. Users 108 are able to copy IOs 320 between the Workspace View 300 and the News Views 305. IOs 320 copied from the News View 305 to the Workspace View 300 may be static and not change in content, or such IOs 320 may dynamically adapt to modifications in content so that as the information source associated with an IO 320 produces new information.

[00063] In one configuration, the system can display IOs in various arrangements within the News View 305. In particular, the News View 305 can display a timeline arrangement of IOs 320. The timeline arrangement provides a visualization that represents and organizes knowledge using a grid comprising of a timeline categorization for IOs on the horizontal axis and subject categorization on the vertical axis. In an alternative configuration, the new server 152 can display a map arrangement that provides a visualization that represents and organizes knowledge using a world-map or a floor plan comprising of geographical categorization for IOs. As an example, a News View can organize and arrange IOs in an ordered list or as a table with rows and columns of IOs organized horizontally by time and vertically by information sources. In such a configuration, new IOs for newly discovered information can be inserted on the left pushing existing IOs to the right. The time scale can be irregular and optimized to display the largest number of IOs possible. The rows of IOs in the News View can automatically expand and contract depending on the number of IOs to be shown in each row.

[00064] In this manner, the system disclosed herein provides a novel process for information retrieval and processing based on information collection support. In one example, the News View 305 displays incoming information in IOs 320 from user selected information sources. The users 108 can copy relevant information from the News View 305 to the Workspace View 300 or can create new information directly in the Workspace View 300 by creating new IOs. The user(s) 108 can study, organize, and categorize the information on the Workspace View 300. In one configuration, if

the Workspace View is connected to a server then all content and established relations are made accessible to this server. The user can use two Workspace Views if he wishes to separate between information that is public and private. Other users 108 view the information on the news, database or exchange views 395, 310 and 315 and can also copy relevant information from the news, database, and exchange views 305, 310, and 315 to their personal Workspace Views 300. The system can track and analyze this movement of information from source to destination and can use this IO usage and movement data based on user identifiers, locations of IOs, arrangements of IOs, contents of IOs, times of movement and copying, and other such information in processing algorithms to infer or identify relationships between IOs and to suggest other IOs that reference other information that may be of interest to a user.

[00065] The News View 305 provides users 108 with the technology to effectively monitor and visualize additions and modifications from information sources such as web sites, databases, security cameras, alarm systems, sensors, news feeds and so forth. Every information item is displayed as an IO 320. In one configuration, the News View 305 can organize and arrange IOs 320 in an ordered list or as a table with rows and columns of IOs 320 organized horizontally by time and vertically by information sources, such as by geographic origination or relation of the new story associated with the IO 320.In another configuration, the News View has several visualization options such as displaying the IO arrangement in a table or displaying the IO arrangement on a geographic map. In one configuration, new IOs 320 for newly discovered information can be inserted on the left in an appropriate row pushing existing IOs 320 to the right. The time scale can be irregular and optimized to display the largest number of IOs 320 possible. The rows of IOs 320 in the News View 305 can automatically expand and contract depending on the number of IOs 320 to be shown. The News View 305 can include an adaptor for receiving news feeds and the user interface chronologically organizes information chronologically in a subject-time matrix. The News View 305 row can combine multiple data streams so that a row includes a group of data streams. A News View row can also display other data formats as well (email, search results, sensor data gathered though a file transfer protocol (FTP) in addition to displaying RSS streams.

[00066] The News View 305 offers a variety of tools for the exploration and collaborative use of information. As an example, a user 108 can copy IOs 320 from the News View 305 to the Workspace View 300 thus allowing users to easily collect, compare and organize new information. IOs 320 copied from the News View 305 to the Workspace View 300 may be static or dynamic as noted above. A static IO 320 is an exact copy of the IO on the News View 305. In one configuration, a dynamic IO 320 continuously updates itself to reflect the most recent (left-most) IO on the News View row it was copied from. Figure 9 below shows another example layout and additional IO features.

[00067] In this manner, the system disclosed herein provides a novel process for exchanging information and for asynchronous, decentralized, remote, and cross-organizational collaboration. In particular, users 108 use their individual Workspace Views 300 to organize and analyze information. The exchange server 153 produces the exchange view 315 to display cards (IOs) 320 that are concurrently displayed in one or more workspace views 300 of at least one other user 108. The exchange view 315 can display cards (IOs) 320 in prioritized order, or alternatively can display cards 320 the way they are arranged on another users Workspace. This allows users 108 to view each other's Workspaces 300 as they appear to those other users 108. The exchange view 315 displays (in prioritized or chronological order in one configuration) the IOs 320 created by all collaborating users 108 (or those with the appropriate access permissions or security levels). The exchange server 153 manages the display and exchange of card (IO) information between exchange views 315 and can include filter features to allow a user 108 to only see cards (IOs) from selected users 108 (as opposed to all cards (IOs) in all workspaces 300 of all users 108). The users 108 can copy relevant IOs 320 from their exchange views 315 to their Workspace Views 300. Users 108 can take "ownership" over IOs 320 copied from their exchange views 315 and these IOs 320 are now modifiable by the user 108. In one configuration, when a user takes ownership of an IO 320, the IO 320 is no longer synchronized with a counterpart IO on the IO author's Workspace View. In another configuration, once an IO 320 is owned exclusively by a user 108, these IOs 320 can

no longer be used for collaboration such as by "instant messaging," IO commenting, or "IO voting."

[00068] Figures 3 show a diagram 360 of an IO 320 as viewed in several IVs. The diagram 360 also shows how IOs present themselves differently on different IVs and can be copied between IVs. The following are examples of the various IVs (not intended to be limiting). The News View 362 displays the contents of RSS streams (and other dynamic information sources) as IOs arranged in a table, organized by time in horizontal and by information sources, subject or category in vertical direction. New IOs are inserted on the left pushing existing IOs to the right. The time scale is irregular and optimized to display the largest number of IOs possible (meaning time segments without IOs are automatically removed). The rows automatically expand and contract depending on the number of news items (makes all rows display similar numbers of IOs). Users can add RSS files by simply dropping an IO or an RSS URL onto a row in News View. A News View row can include multiple RSS streams (multiple streams are automatically combined). The News View can be used to display a wide variety of information such as newspaper news, emails instant messages, motion activity on web cameras, eBay and Craigslist postings, company internal announcements and alerts. The News View can also be used as a RSS feed generator. For example, a user could create an empty News View that all users can view and add IOs to. Users can copy News View rows or individual IOs to other IVs. A copy of a News View row onto a Workspace View would result in a single IO that dynamically updates itself and that displays the most recent item in the associated RSS feeds. The primary purpose of the News View is to help users monitor large numbers of RSS feeds in a quick and easy comprehensible format.

[00069] The Workspace View 364 displays IOs in a game IO like format. The visual components of the IOs are customizable and expandable. Users can modify IO parameters in a so-called IO editor (see Illustration 3 and 4). For example, users can add files to IOs, view and modify ratings, or discuss the IO contents with other users through the built-in instant messaging system or shared white board. If a user moves a regular file or a URL from a computer file system or a web browser onto the

Workspace View then an IO is automatically created with the file attached or the URL hyperlinked. The Workspace View is designed to allow users to easily collect, organize and compare information in different formats and locations. For example, a Workspace View may be used for web shopping allowing users to quickly drag and drop items of interest from different web sites (such as Amazon, eBay, and Craigslist) onto the Workspace View for the subsequent comparison of options and prices. Since IO components can be dynamic (meaning that they can automatically retrieve content updates from dynamic information sources) the user can also use a collection of IOs to monitor changes to prices and bids.

[00070] The Map View 366 is a geographic map display that represents IOs as location items. A location item presents itself as (one or more) symbols (of choice) on the map. The location item allows access to all IO functionality available in other IVs. If the geographic location associated with a location item is dynamic then the symbol would automatically update its location on the map. If a location item is copied to a Workspace View then it will present itself as an IO with the geographic location accessible and modifiable through the IO Editor. The Map View is primarily designed for military use but has a wide range of commercial applications as well. For example, a user could create a public Map View with hiking paths. Other users could copy hiking paths of interest from this public Map View to their personal Map View s or other IVs, discuss hiking paths through the IO instant messaging feature, or rate the quality of hiking paths through the IO rating system.

[00071] The Project View 368 is a time planning and calendar display (similar to MS Project) that allows users to represent IOs as time bars. IOs in this IV also maintain all the contents and functionalities of IOs displayed on other IVs. Moving an IO from the Project View to the Workspace View would create an IO that displays the time frame with a time bar on the IO or a time frame in the calendar tool of the IO Editor. The Project View is primarily designed for people that need to compare and modify time related IO parameters. For example, the Project View may be used to review and modify IOs that represent tasks scheduled for execution during particular time frames,

resources that are only available during particular time frames or people that are only available during particular time frames.

[00072] The Graph View 370 displays IOs as line or bar graphs. This particular IV is primarily designed for comparing statistical data associated with IOs such as stock quotes, bids and sensor data.

[00073] The List View 372 is a spread sheet like display (similar to the Microsoft ® Office Excel spreadsheet program) that allows users to represent IO parameters in a table format. The List View is primarily designed for people that need to compare and modify particular IO parameters such as, for example, the cost of sales items or the specifications of resources referenced by individual IOs.

[00074] Now referring to Figures 4A and 4B, screen shots show News Views that display news for multiple different news papers (Figure 4A) and postings by different users (Figure 4B).

[00075] Figure 5A shows a diagram of IOs being exchanged between IVs of different users. Figure 5B shows a diagram of IOs being exchanged between Private, Visible and Shared Views. There are various ways in which IOs can be exchanged between the IVs of the same and of different users such as:

by copying IOs from the personal IV of another user (Users can make their personal IVs accessible to other users. An IV can be Shared 510 (read / write), Visible 512 (read) or Private 514;

by sending IOs to a particular user or group of users through the integrated instant messaging system or a commercial instant messaging system;

by sending IOs to a particular user or group of users through email;

by making IOs available through shared file systems; and

by retrieving IOs from our database (The database automatically collects and organizes IOs from the IVs of different users.

[00076] A variety of data visualization and access tools allow for the easy retrieval of IOs from the database, for example, in conjunction with an EWall Agent System; and

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by retrieving IOs from a Discovery View. The Discovery View presents individual users with a custom selection of potentially relevant IOs, and in one embodiment consolidates the Exchange View (315) and Database View (310). In this embodiment, the Discovery View not only displays related information in the IO database 125 but can also display related information found by other web services (e.g., related products for one selected product provided by online sellers or search engines). The Database Views (Discovery Views) 310 of individual users 108 display (in prioritized order) cards (IOs) 320 available in the database (as records 160) that are related or relevant to the cards (IOs) 320 on a user's workspace view 300 based on the relations discovered via application of the relation processing algorithms 155.

[00076A] The relation manager 150 is able to analyze the spatial arrangement of the cards 320 as provided by the user 108 in the workspace view 300 in order to deduce or infer relations between the information sources associated with the cards 320. In response, the database server 154 can provides other cards based on matching card records 160 maintained in the card database 125 that may be of interest to that user based on the analysis of the spatial arrangement of the cards 320 on that user's workspace view 300. The database server 154 is thus capable of inventing or deriving additional relations 170 based on the analysis of previous relations. For example if card A is related to card B and card B is related to card C, then the database server 154 can decide to relate card A and C because the indirect relation suggests a partial correlation. In this manner, the system disclosed herein provides a novel process for organizational knowledge management based on information merging. Users 108 use their individual workspace views 300 (or operating system desktops and file systems) to organize and analyze information. Additions to the workspace views of all users are collected in the card database 125. The database items including the relations 170 and the card records 160 are combined into one coherent network of cards using the relation processing algorithms 155. The number of relations 170 between individual cards 320 may differ and can indicate the "strength" or "importance" of a relation 170 (or its unimportance or weakness). Relations 170 in the database 125 may be complementary or conflicting, speculative or concrete. The database views 310 of individual users 108 display (in prioritized order) cards 320 available in the database

(as records 160) that are related or relevant to the cards 320 on a user's workspace view 300 based on the relations discovered via application of the relation processing algorithms 155.

[00076B] The activities and contents on the individual users Workspace Views are monitored and recorded by the Recognition Functions. The Recognition Functions maintain a record of all active and erased cards including a list of all current and past owners and users of individual cards. The Recognition Functions record and combine all explicit relations among cards established by the users as well as all implicit relations established by the Algorithms. The Recognition Functions keep track of all interactions that take place among users. An interaction is registered if a user copies a card, views the content associated with a card, or adds a comment, vote or notification to a card.

[00076C] The relation manager 150 analyzes card (IO) records 160 and card relations 170 within the card (IO) database 125. The results of this analysis can produce an indication of other card records 160 in the card database 125 that correspond to other cards 320 that are not currently displayed in the workspace view 300 of the user 108, but that might be of interest to that user operating that workspace view 300. A transformation algorithm 155 that can, for example, compare the combination of spatial relationships 170 that identify closely placed cards 320 in the workspace view 300. For those cards 320 that are close to each other, the transformation algorithm 155 can compare the content of those cards (i.e., can compare the information sources referenced by these cards) to identify a common subject. Alternatively, the transformation algorithm 155 can compare the creation time of closely spaced cards. In another alternative, the transformation algorithm 155 can compare user identities of users 108 who have accessed these cards. Using these metrics (e.g. a common creation time window, or a common subject, common users or use patterns), the transformation algorithm 155 can identify, in order of relevance, a set of resultant cards not already placed in that user's workspace 300. These can be shown to the user in the database view 310. Additionally, the current arrangement of exchange view cards 320 can be reordered to reflect the newly discovered relations of the group of

cards so that cards of other users that might be of importance to the user (that are already in the exchange view) are more to the front of the line or list in the exchange view to be more noticeable to that user. In one configuration, cards 320 displayed on views not only hint relevant information but also inform about people (the authors of the cards) with relevant knowledge on a particular topic. This can foster the creation of teams or communities of interest and help to build knowledge-based relationships between people due to information objects those people spatially organize in particular ways.

[00076D] The relation manager 150 applies at least one interpretation algorithm 155 between card (IO) records 160 in the card database 125 to create relations 170 between card records 160 in the card database 125. The relation manager 150 applies a spatial relation algorithm 155 that discovers spatial relations 170 between position information of at least two card records 160 in the card database 125 that are associated with cards 320 displayed on the graphical user interface 132 in the first set of cards. The relation manager 150 identifies implicit relations between cards in the first set of cards displayed on the graphical user interface based on proximity of cards on the graphical user interface. Thus, how close or far apart cards are can determine a strength or week relationship between cards 320. The relation manager 150 identifies implicit relations between cards in the first set of cards displayed on the graphical user interface based on horizontal alignment of cards 320 on the graphical user interface 132. Horizontal alignment can be suggestive of a list of items and transformation algorithms 155 can perform analysis of cards 320 arranged horizontally to suggest other cards that might be successor cards in the list. The relation manager 150 identifying implicit relations between cards in the first set of cards displayed on the graphical user interface based on vertical alignment of cards on the graphical user interface. Likewise, vertical arrangements of cards 320 might also be suggestive of a card list. The relation manager 150 identifying implicit relations between cards in the first set of cards displayed on the graphical user interface based on at least some overlap of cards on the graphical user interface. Overlapping cards can suggest a grouping relationship. It is to be understood that the spatial relations noted above are not limited to vertical, horizontal and overlap. Other spatial relations can exist and be

analyzed as well, such as relative size relations between cards, or exclusive (i.e. alone) or particular placement (e.g. in a certain corner, in center, etc.) of cards 320 in certain regions within the graphical user interface 132. Additionally, spatial processing algorithms can recognize card clusters that define groups of cards in close proximity to one another that create a cluster that is distinct from other clusters of other cards 320. The relation manager can detect and analyze other relations as well besides spatial relations. As an example, context relations concerning use, access (e.g. copying) or other operations on cards can be detected that are based on time of card creation or modification, which users access a card, and relation of content between cards that have similar or relating subject matter. The relation manager 150 applies at least one context relation interpretation algorithm 155 to discover contextual relations between card records 160 in the card database 125. The contextual relations 155 indicate commonality between at least two card records 160 based one or more relationship criteria. In one configuration, the relation manager 150 can detect and analyze chronological context of the at least two card records (e.g., sequence of creation or modification of card information). In another configuration, the relation manager 150 can detect and analyze collaborative context by at least two users 108 of at least two cards 320 respectively associated with the card records 160. An example of collaborative context is when two or more users share two (or more) cards such as by providing comments to those cards, or using instant messaging to discuss information associated with the cards, or via other common access (e.g., copying to workspace) to the cards by those two or more users. In another configuration, the relation manager 150 can detect and analyze similarities of content identified by the at least two card records using keyword or subject or title matching, for example. In this manner, using contextual relations, the relation manager 150 can determine, for example, that if user A and B use the same card then other cards used by user A and B are more likely to become related. Card content can include content displayed on the card, parameters associated with the card, or information content hyperlinked to the card or metadata about the card (e.g., creation time, time of last access, time of last copy, user access history, etc.) that might not be readily visible from viewing the cards in a view. In one configuration, the database contents are evaluated based on the relations between

cards. The relation manager 150 can thus establish relationships among cards 320 based on comparison of content and spatial history of card usage. Content relations are established based on a comparison of card contents such as headings, contents of hyperlinked files, and image descriptions, whereas context relations are established based on the spatial location of cards, the collaborative use of cards, or the virtual organization of cards (e.g. the hierarchical organization of files in computer directories). For example, two relations between two cards can be valued more than one relation between two cards. This is because two relations between two cards means that two different algorithms both established a relation between these two cards, although such relations may have been established for different reasons.

[00076E] Four distinct types of Database Algorithms examine the networked contents of databases by defining a starting point, a search path, an end point, and the order in which the search results are returned: The first type of Database Algorithms defines the Start Point of a database search. The Start Point refers to a node (IO) in a database from where directly and indirectly related information is being retrieved. A Start Point may be defined though a conventional database query that contains text or graphical information. This means that a Start Point might reflect a node that contains similarities with information that a particular user is currently working with, focusing on, or searching for. A Start Point can also be the most recently active node in the database such as the most recently added, retrieved, traversed, or modified node. Furthermore, a Start Point might be defined through so-called "Stimuli" or "Focal Points" that are placed and dynamically displaced by the Database Algorithms. The Start Point continuously changes its location and multiple Start Points may exist simultaneously. In the case of multiple Start Points the search progresses in parallel from multiple locations and in multiple directions. Every search returns the node referenced by the Start Point as well as a selection of directly and indirectly connected nodes. The selection of related nodes is defined by the Search Path. By default, the second node returned is the adjacent node with the most relations. The same procedure applies for all subsequent nodes unless specified differently by the Search Path. The second type of Database Algorithms defines the Search Path. The search path determines how the network is traversed. Every search initiates at a Start Point and

proceeds by examining adjacent nodes. By default, adjacent nodes with many relations are examined first. Previously examined nodes are ignored. The Database Algorithms offer a variety of options for the examination of less heavily connected nodes. For example, the Curiosity Algorithm is used to increase the probability for the examination of weaker branches. In addition, the Persistence Algorithm determines how many nodes associated with weaker branches will be considered. Other Database Algorithms dynamically define and modify the Search Path based on the relevance of currently explored nodes. The relevance of nodes is determined based on the card contents or the card authors. For example, a card may not contain relevant content but its author may be known for having created cards that contain relevant content. Thus, the author is considered a specialist in this particular area and the cards created by the author are given preference. The third type of Database Algorithms defines the End Point of a Search Path. The End Point may be determined through an analysis of the card contents, the distance from the Start Point, or the time passed since the start of an examination. In other words, the End Point represents either a satisfying search result or a state of decreasing patience or tiredness. For example, the Patience Algorithm terminates a search after the examination of certain number of nodes. The fourth type of Database Algorithms orders the search results. By default, the search result is a string of nodes that reflects the sequence in which the nodes were examined. Other criteria of organizing the search results include the distance of nodes from the Start Point, the number of relations associated with individual nodes, or the card properties such as card sizes, modification dates, authors, contents, notifications, comments, votes, accesses, font types, font styles, font sizes, pictures, and locations.

[00076F] The Unity Algorithm sorts cards (IOs) by the number of current and past users of individual cards. A card user is defined as somebody who created, copied, took ownership, reviewed the content, commented, or voted for a particular card. The Unity Algorithm assumes that the activity associated with a card is a meaningful way to determine the importance and popularity of the card. The Weight Algorithm sorts cards by the number of relations associated with individual cards. may be related twice with card B and once with card C. Thus, card A is associated with three relations, card B with two relations, and card C with one relation. The Weight Algorithm assumes

that number of links associated with a card is a meaningful way to determine the importance and popularity of the card. The Relevance Algorithm is the same as the Weight Algorithms yet only considers relations that connect with cards the user is using. For example, a card on a user's Exchange View may be related to four cards only one of which the user is using on his Workspace View. Thus, the number of associated relations for this card is assumed one rather than four. The Relevance Algorithm is particularly useful to spot cards that have some relevance with cards the user is already using. The Group Algorithm fosters the information exchange among users that have had frequent interactions in the past. The Group Algorithm considers an interaction when a user copies a card from another user, takes ownership over another user's card, or adds a comment or a vote to another user's card. The Group Algorithms orders cards based on the number of interactions that a particular user had with the individual card authors.

[00077] Figure 6A is a diagram of an exemplary GUI Organization including graphical user interface 610 for the management of IVs in accordance with one example embodiment disclosed herein. Figure 6B is a more detailed diagram of the exemplary GUI Organization of Figure 6A. In one embodiment, the GUI Organization includes three columns. The left column 620 includes displays 622 and 624 provided by the View Manager 178 and the Communication Manager 180, respectively. The View Manager 178 displays all available IVs, allows users to open individual IVs, and enables users to modify the access rights of individual IVs. The View Manager 178 also displays representations of servers, databases, agent systems (e.g., EWall Agent System) and users in the collaborative environment. The Connection Manger 180 allows users to communicate with other users, exchange IOs with other users, access the IVs of other users, import IOs from databases and agent systems, as well as to control the export of IOs to databases and agent systems. The middle column 630 is used to display one or more IVs 632a – 632n. The right column 640 includes the IO Editors 642a – 642n. IO Editors 642a – 642n are tools that allow users to view and modify IO parameters and operate IO functions. The information displayed in IO Editors always refers to the currently selected IO or group of IOs.

[00078] Figure 6C is a diagram of an alternate exemplary GUI 660 in accordance with one example embodiment disclosed herein. Graphical user interface 660 for displaying an information objects includes a discussion subject 602, a message indicator 603, threaded discussion window 607, a list of participants linked to the information object 608, a collaborative rating 605 including a ranking of importance, a buddy list 601, a discussion heading 604, a list of attachments 606 and meta-data and shared applications 609. In other embodiments the graphical user interface for displaying information objects includes a geographic map, category keywords and auction information. In other embodiments the attachments include thumbnails of multimedia data.

[00079] Figure 7 is a diagram of a GUI 700 showing several features of the system 110 available to the user including control 710 which when clicked sends or receives an IM message about a view. This is a means for enhancing a hosted conversation, for example in a chat room. The GUI 700 further includes control 712 click to send/receive an IM message about an IO, for example in a chat room. The following controls can also be used: control 714 allows a database to collect information from the corresponding window; control; 716 disallows a database to collect information from the corresponding window; control 720 sends an IO to a user or a group of users; control 724 disallows a user to view details of the corresponding view; control 726 allows a user to view/modify the corresponding view; control 728 sends or receives an IM message or IO to or from the user, for example in a chat room; and control 730 sends an IM message or IO to a group of users, for example in a chat room. Indicator 718 indicates available resources in a database (cards, visualizations, statistics, etc.) and indicator 722 indicates a view of another user that is open for viewing or modification. GUI 700 allows the users to import and export IOs from and to IM systems, other users views, shared views, e-mail tools, databases, agent systems.

[00080] Figure 8 is a diagram of IO File Management 800 which allows an IO to display the content of different types of files 802 including such as content from: a web site 810, flash applications 812, movies 814, pictures, text from office documents 816, PDF documents 818 and other documents 820. In operation, the IO file manager

182 processes attachments, hyperlinked web content from the different file types 802 and remote sources 806 including remote RSS files 822, remote objects 824 and remote files 826 to create and dynamically update IO contents.

[00081] A user 108 can create an IO by simply dragging a hyperlink or file or other digital material onto the Workspace View 300. A new IO is created where the hyperlink or file is dropped, a picture is added automatically (by searching the hyperlink destination or the file contents for an appropriate graphic), the heading is added automatically (typically the web site or file name), and a link or embedded attachment is automatically created from the file or the web site reference by the hyperlink

[00082] Figure 9 is a diagram of IO components expanding on the basic IO components described above in Figure 2. IOs include default and custom parameters and functions. IO parameters and functions are best explained with IOs rendered on Workspace Views. IOs can display a large number of IO parameters and function without the need for the user to access the IO Editor. The IO layout can be customized to only display the IO parameters and function the user wants to see. The following list provides a few examples of IO parameters and functions as they would appear in different sections (Bars) of an IO on a Workspace View.

[00083] Picture/Text bar 902 allows the insertion and display of text, pictures, PDF files, active Flash applications (can run inside the Picture/Text Bar), Office documents, and additional applications, file types and multi-media data. Function Bar 910 displays icons that serve as status indicators and that link to particular IO Editors.

[00084] A Bubble Icon 912 opens an IO Editor window that allows users to exchange comments, share a white board, contribute to a forum, or insert notes. The "bubble" icon 912 is rendered white if no user added any information, gray if one or more user added information and red if one or more users added information that the viewer has not yet looked at. An optional calendar tool allows users to compare their availabilities and schedule a "chat" session ahead of time.

[00085] A Flag Icon 914 links to a map display in the IO Editor allowing users to view and modify geographic locations associated with an IO. A Person Icon 916 indicates whether a particular IO is used by other users and links to an IO Editor that allows the IO owner to view the list of IO users as well as to assign access restrictions to IO contents. A File Icon 918 allows users to add and access (any number of) attachments and hyperlinks to an IO and allow for contents to be partially or fully encrypted. An Arrow Icon 920 allows users to add, modify and control dynamic information sources (e.g., to control automatic updates to IO contents retrieved from dynamic information sources such as Email accounts, RSS feeds, sensors, motion detectors and security cameras or web sites). Users can activate one or more Reliability / Ratings / Votes / Importance / Priority Bars (collectively referred to as bars 924) for the individual and collaborative evaluation of information. IOs can be evaluated on a scale from 1 to 5 (represented by 5 boxes). Filled boxes represent the average evaluations of all IO users while the arrow symbol indicates the individual rating of the IO viewer.

[00086] Trade bar 930 and Value / Value Change bar 928 comprise a trading feature that allows users to trade IO contents or items referenced by IOs. For example, an IO could represent a stock (market item) and allow users to monitor, buy and sell stocks; an item on eBay or Craigslist and allow users to monitor and manage bids; or an item on Amazon and display its current purchase price. Users associate IOs with one or more categories using a Category bar 932 that allows for faster IO searches on IVs and databases. Users associate IOs with a time or time frame using Time Frame / Schedule bar 934, for example, displayed on IOs as a point or as a bar on a time scale. The time scale is the same for all IOs and can be set in the preference menu, e.g. left side of the bar = -12 hours, middle = now, right = +12 hours. The point or bar on the time scale will move from left to right in accordance to the real time. Graphic display 940 shows various display options for icons on the various function bars.

[00087] In one embodiment the system 110 provides hosted conversation among a group of participants using the integrated instant messaging system facilities which provide a communication system linking an IO to a group of participants. Each

system component (IO, IV, Database, Agent System) and participant is linked to the instant messaging system (also known as a chat room). The IO can include a link to a document, links to the group of participants, meta-data related to the conversation and communication system which links the IO to the group of participants. The process of initiating a hosted conversation begins when a user starts a discussion or a collaborative project by first creating a new IO and then adding data, meta-data and linking participants to the IO.

[00088] For example, to communicate about the contents of an IO the user would click the bubble icon 912 on this IO in the user interface on the client system to "chat" (about this IO) with other participant who maintains a copy of this IO. Clicking on the "bubble" icon 912 associated with a participants (or group of participants) listed in a contact list and linked by the connection manger 180 would initiate a "chat" session with those participants. The hosted conversation includes a list of participants linked to the at least one information object and an IV to visualize the at least on information object. Clicking on the "bubble" icon 912 associated with the IV in the View Manager would initiate a "chat" session (about this IV) with every other participant who has access to this IV. The integrated instant messaging system is also used to exchange IOs between users. An IO can simply be dragged and dropped onto a user icon which subsequently sends a copy of this IO to the intended recipient. The instant messaging functionality can be complemented with any other IO parameter and function such as, for example, a function that allows users to assign ratings to databases, agent systems, users or IVs. One important benefit of this system is that it allows users to stay engaged in a large number of discussions about particular subjects represented by different users, IOs or IVs. Advantageously the user can organize and monitor a large number of IOs where every IO represents a different issue that may be discussed with a different groups of participants.

[00089] Thus system 110 provides a graphical interface for displaying an information object which includes displaying a threaded discussion window, a list of participants linked to the information object, a collaborative rating including a ranking of importance, a buddy list, a discussion heading; and a list of attachments.

[00090] Figure 10 is a diagram of IO operations including IO creation. IOs can be created manually or automatically. The automatic creation converts a non-IO object or file into an IO if a user imports a non-IO file from any application into an IV. For example, if a user drags a URL of an item for sale on the Amazon web site onto the Workspace View, the resulting IO would display an image of the item in the Picture Bar, the name of the item in the Heading Bar, the cost of the item in the Value Bar, and hyperlinks to the Amazon web site where the item is advertised. Filters include the rules and manage the conversion from non-IO files to IOs.

[00091] Generally, IOs can be manually created such as by creating a blank IO and then specifying an information source to which that IO refers. The IO look can be complemented with a picture, explanatory text, a heading and other visual attributes by simply dragging and dropping pictures and text fragments onto the IO. Alternatively, in another mode, IOs can be semi-automatically created in a Workspace View or on a desktop by dragging an information object such as hyperlink, document, file or URL onto the Workspace View in which case a new IO is automatically formed and associated with the hyperlinked data, file or document. The IO picture and the IO heading are added automatically if an appropriate picture and heading can be extracted from the dragged information object or if an appropriate picture can be found in a database that matches the file name or within some of the content of the dragged information object. In yet another mode, an automated IO creation process can traverses a set of records or files, such as a database or file system or all web pages within a certain URL and can perform automatic creation of IOs from each database record, web page, or file. As an example, entire databases or file systems or all documents below or within a certain URL or domain on the Internet can automatically be converted into IOs using the semi-automatic creation of IOs but in a non-manual way that does not require a user dragging and dropping of each file, document or URL onto a view.

[00092] The following Workspace View examples detail several exemplary user interactions with IOs and IVs. A user can drag a URL from a web browser onto a Workspace View which will create an IO that hyperlinks to that URL and

automatically extracts (from the URL destination) a picture and a heading that is displayed in the IO's picture and heading bar. The user can drag an RSS URL onto a Workspace View which will create an IO that visualizes the most recent item in the RSS file/s and that continuously updates itself. The user can drag a regular document (file) onto a Workspace View which will create an IO with the document attached. Dragging a document onto an IO also attaches the document. The user can import an IO from another user into the Workspace View which will create an IO copy that is synchronized with the original IO. The user can drag an IO from the Workspace View to the computer desktop which will create an IO file. The user can drag an IO from a News View row to the Workspace View which will create an IO copy that is synchronized with the original IO. The user can drag a News View Row to the Workspace View which will create an IO that visualizes the most recent item in the RSS file/s and that continuously updates itself. In another embodiment, a user can drag a buddy icon from an instant messaging system onto the IO or drag an IO the buddy icon to initiate a conversation or to link the "buddy" to the IO. In this manner, links are formed between the information object and one of the plurality of participants by selecting the information object and selecting the participant from a displayed list of participants and the system 110 associates participants and information objects by indicating a connection between an icon from an instant messaging system and the information object.

[00093] The following News View examples detail several exemplary user interactions with IOs and IVs. The user can drag one or more RSS URLs onto a News View row which will add and displays the content of RSS URLs on the News View row as a sequence of IOs. The user can drag and drop a Workspace View ID onto a News View row which will display IO additions and modification on that Workspace. The user can drag and drop an IO onto a News View row which will add that IO to the IO sequence. The user can drag an IO from a News View row to the computer desktop which will create an IO. The user can drag a News View row to the computer desktop which will create an IO.

[00094] Figure 11 diagrams the overall process of interacting with an information object. In step 1110, the system provides the information object (I/O), for example on a GUI display as described above. A new IO can be created from scratch or by using a filter, or an existing IO can be shared, copied, transferred, etc. as described above. Next, in step 1120, the IO is shared among a plurality of participants. In step 1130, multi-media data can be optionally attached to the information object. In step 1140, the information object is displayed in one of a plurality of views. Finally in step 1150, in response to interaction with one of the plurality of views by one of the participants, a communications path between at least two of the participants sharing the information object is provided by the connection manager 180.

[00095] Figure 12 is a flow chart of processing steps showing additional details in conjunction with flow char 1100 Figure 11, that system 110 performs to allow interactions with an information object in accordance with embodiments disclosed herein. In one embodiment, step 1210 provides the information object by filtering a web page associated with a URL to create the information object by automatically extracting meta-data including at least one of a heading, a picture, and link to the URL. In step 1220, the information object is shared among a plurality of participants by transferring the information object between different information views. In step 1230, the multi-media data is linked to the information object

[00096] In step 1240, an automated participant is provided. The automated participant interacts with the information object. In some embodiments, there is no distinction between a user and an automated participant (e.g., a participant based on a computational system). In step 1250, information is retrieved based on user interaction with the information object including spatially arranging the information object relative to other information objects. In step 1252, interaction with the information object includes attaching at least one document to the information object.

[00097] Figure 13 is a flow chart of processing steps that system 110 performs to support a hosted conversation among a group of participants including interactions with an information object in accordance with embodiments disclosed herein. In step

1310, a link to at least one information object is stored to host a conversation among a group of participants. The information object includes at least one link to a document; a plurality of links to the group of participants; meta-data related to the conversation; and a communication system linking the at least one information object to the group of participants provided by connection manager 180.

[00098] In step 1320, a user interface on the client system is provided. The user interface includes an icon representing the at least one information object a contact list; a list of participants linked to the at least one information object; and an information view to visualize the at least on information object. In step 1330, an Information View is displayed that includes a News View having an adaptor for receiving news feeds and the user interface chronologically organizes information chronologically in a subject-time matrix. The user interface further includes a zoomable, graphical timeline including automatic compression of the subject-time matrix and in one embodiment the news feed is a syndication feed.

[00099] While configurations of the system and method have been particularly shown and described with references to configurations thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the scope of the invention. As an example, the order of processing steps in the flow charts is not limited to the order shown herein. Accordingly, the present invention is not limited by the example configurations provided above.

What is claimed is:

1. A computer-implemented method of interacting with at least one data item, in which at least one computer initiates execution of software instructions to perform computer processes, the computer processes comprising:

configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink;

using the extracted data to make available for display, a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, the heading, the source, a set of indicators, and a mechanism giving graphical access to a set of functions, including an instant messaging function, by which a plurality of users having access to the card can exchange author- and time-stamped messages relating to the information object, such messages being associated with the information object and accessible to users who view the information object; and

storing data corresponding to each of the cards in a database, configured so that each card in the database, with any associated messages, is accessible and sharable among users.

2. A method according to claim 1, the computer processes further comprising:
providing a user interface having a graphical button, which, when invoked while content is being displayed, causes the displayed content to be handled as one of the data items, namely, by configuring the displayed content as a new information object and making a representation of the new information object available for display in the uniform format.

3. A method according to claim 1, wherein one of the indicators displays the total number of messages, associated with the information object, that have been associated with the information object.

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4. A method according to claim 3, wherein the one of the indicators changes its appearance to indicate the presence of a message, associated with the information object, that has not yet been read by the user.

5. A method according to claim 1, wherein (i) one of the set of functions is a vote function by which a user can provide a vote associated with the information object and (ii) one of the indicators displays the total number of votes, associated with the information object, that have been received.

6. A method according to claim 1, wherein the format includes a user-accessible report relating to users who replicated the information object.

7. A method according to claim 1, wherein the information object is configurable to include a user-accessible file attachment.

8. A method according to claim 1, wherein the one of the indicators indicates the presence of a geographic location, associated with the information object.

9. A method according to claim 1, further comprising:

further causing to be displayed, at the same time as the representation, a map including a location, marked on the map, associated with at least one of the information objects.

10. A method according to claim 9, further comprising:

responsive to a graphical input applied to the displayed location, causing the location on the map to be edited in accordance with the graphical input.

11. A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, that constitute a second collection of the first user;

responsive to (i) a graphical selection, by the first user, of an information object in the first view and (ii) a copy command that has been graphically entered by the first user, causing the selected information object to be copied from the first view to the second view.

12. A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, that constitute a collection of a second user.

13. A method according to claim 12, further comprising:

responsive to (i) a graphical selection, by the first user, of an information object in the second view and (ii) a copy command that has been graphically entered by the first user, causing the selected information object to be copied from the second view to the first view, so that the selected information object in the collection of the second user has been copied to the first collection of the first user.

14. A method according to claim 12, further comprising:

responsive to (i) a graphical selection, by the first user, of an information object in the first view and (ii) a send command that has been graphically entered by the first user, causing the selected information object to be sent to the second user, so that the selected information object in the collection of the first user is made available to the second user to be included in the collection of the second user.

15. A method according to claim 1, further comprising:

on a user-entered command, causing an information object to be shared with another user when the information object and the other user have been graphically selected.

16. A method according to claim 1, further comprising:

on a user-entered command, causing an information object to be shared with another user via an instant message sent through an integrated instant messaging system as a result of graphical selection by a first user.

17. A method according to claim 1, further comprising causing shared information objects to be synchronized with one another.

18. A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, outside of the first collection, wherein any given member of the second set of information objects is both included in a collection of another user and the other user has been selected by the first user; and wherein each of the information objects in the second view can, on a user-entered command, be caused to be copied to the first view.

19. A method according to claim 18, wherein each of the information objects in the second view is displayed in an order determined by a criterion selected from the group consisting of the information object's creation time, its access time, and combinations thereof.

20. A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, outside of the first collection, that are related to one or more information objects in the first collection as a result of being in one or more collections, of other users, that also include at least one of the information objects in the first collection; wherein each of the information objects in the second view can , on a user-entered command, be caused to be copied to the first view.

21. A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a view of a first set of information objects that constitute a collection of the first user;

serving, to a client computing device of a second user, a view of a first set of information objects that constitute a collection of the second user;

storing the information objects in a database, each of the information objects being stored in association with data pertinent thereto including

any users thereof,

spatial location thereof in the workspace view,

content and metadata thereof, such metadata including comments and votes,

times of storage, viewing and copying thereof,

relationship thereof to any other information objects; and

processing information object data in the database to make a recommendation to the first user, wherein the recommendation is based on at least one of the criteria in the group consisting of:

number of direct and indirect relations of information objects in the collection of the first user with another information object in the database;

addition of a first pair of information objects to a collection of another user in short interval of time, of which one of the first pair of information objects is already in the collection of the first user;

presence of a second pair of information objects in the collection of the other user in close spatial proximity to one another, of which one of the second pair of information objects is already in the collection of the first user;

presence of a given information object in a row or column of information objects in the collection of the other user, wherein one of the information objects in the row or column is already in the collection of the first user;

popularity of an information object in the database, based on a popularity measure selected from the group consisting of number of users, number of views, number of copies made, number of comments made, number of votes, and combinations thereof;

presence of an information object from a second user with whom the first user previously exchanged information objects, comments or votes;

and combinations thereof.

22. A method according to claim 21, wherein the processing to make the recommendation includes processing to recommend an information object that is not in the collection of the first user.

23. A method according to claim 21, wherein the processing to make the recommendation includes processing to recommend another user who created an information object that is selected based on at least one of the criteria.

24. A computer-implemented method of interacting with a plurality of data items retrieved from a plurality of dynamic information sources, in which at least one computer initiates execution of software instructions to perform computer processes, the computer processes comprising:

receiving a user selection of dynamic information sources;

automatically obtaining additions and modifications to the information sources and automatically converting the additions and modifications into data items;

automatically configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink; and

using the extracted data to cause display of a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, and a heading;

wherein the information objects are automatically organized for display in a plurality of rows, each row having a heading;

wherein each row is automatically collected and corresponds to a distinct set of at least one of the dynamic information sources and the data items therein are arranged chronologically and the information object provides graphical access to content via the hyperlink.

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25. A computer-implemented method according to claim 24, wherein at least one of the dynamic information sources includes an item selected from the group consisting of news feeds, alerts, announcements, e-mails, instant messages and sensor data.

26. A method according to claim 24, wherein any given row is configurable to receive at least one RSS URL that has been deposited therein manually by the user using a graphical user interface, so as to cause display in the given row of a sequence of information objects extracted from a corresponding data stream associated with the at least one RSS URL.

27. A method according to claim 24, wherein the information objects in any given row are filtered to match a user-specified set of keywords for the given row.

28. A method according to claim 24, wherein any given row is configurable to receive an information object deposited therein manually by the user using a graphical user interface, and wherein the information object deposited therein is automatically caused to be placed in a left-most position.

29. A method according to claim 24, wherein at least one of the information sources provides real-time search results.

30. A computer-implemented method of interacting with at least one data item, in which at least one computer initiates execution of software instructions to perform computer processes, the computer processes comprising:

configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink;

using the extracted data to make available for display, a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, the heading, the source, a set of indicators, and a mechanism giving graphical access to a set of functions, including a vote function, by which a plurality of users having access to the card can provide a vote, such votes

being associated with the information object and accessible to users who view the information object, and one of the indicators displays the total number of votes that have been received from all users; and

storing data corresponding to each of the cards in a database, configured so that each card in the database, with any associated votes, is accessible and sharable among users.

ABSTRACT OF THE DISCLOSURE

METHODS AND APPARATUS FOR MANAGING AND EXCHANGING INFORMATION USING INFORMATION OBJECTS

A computer-implemented method of interacting with at least one data item includes configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink. The method additionally uses the extracted data to make available for display a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, the heading, the source, a set of indicators, and a mechanism giving graphical access to a set of functions.

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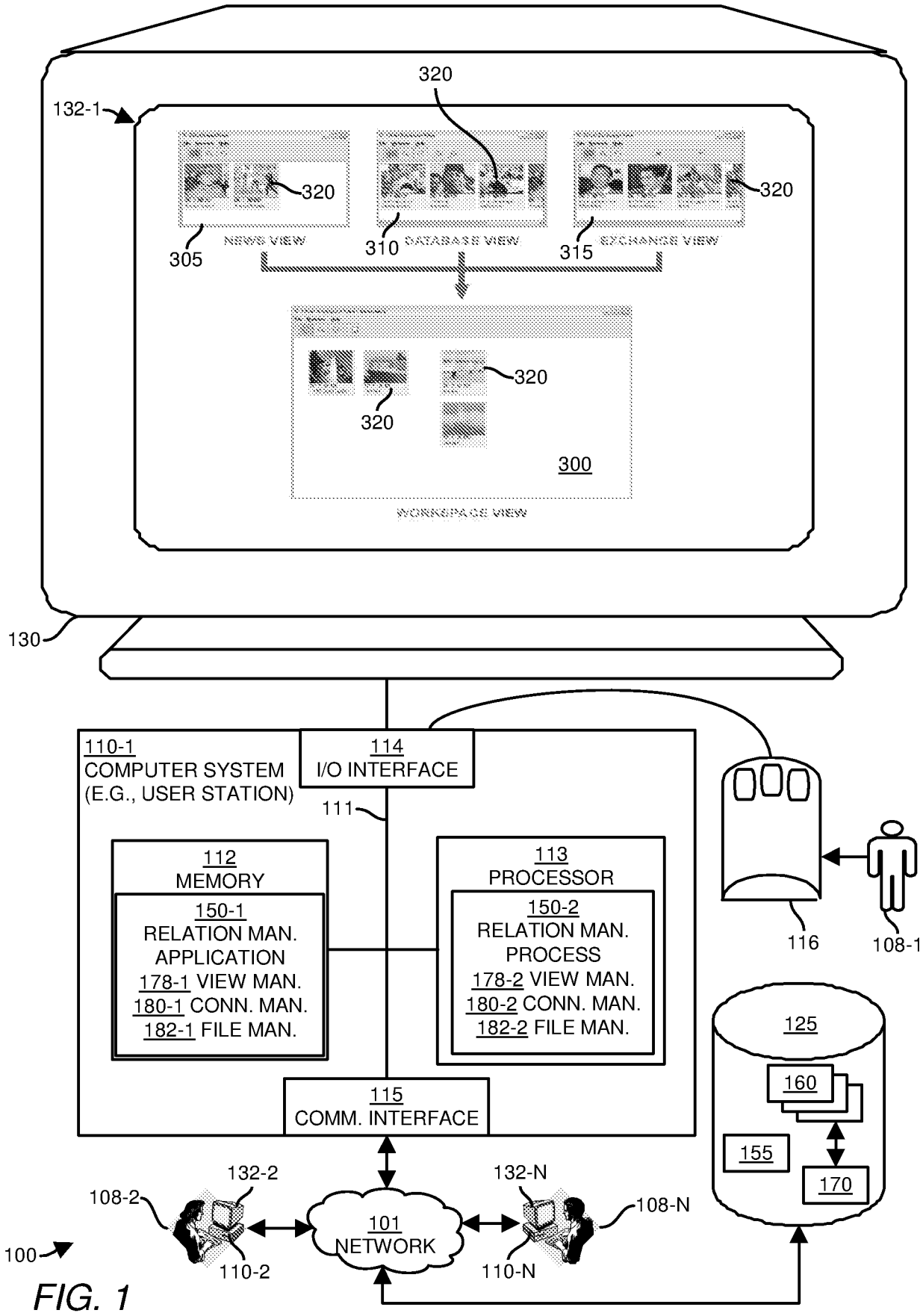

132-1
320
320
320
320
NEWS VIEW
DATABASE VIEW
EXCHANGE VIEW
305
310
315
320
320
300
WORKSPACE VIEW
130
110-1
COMPUTER SYSTEM
(E.G., USER STATION)
114
I/O INTERFACE
111
112
MEMORY
150-1
RELATION MAN.
APPLICATION
178-1 VIEW MAN.
180-1 CONN. MAN.
182-1 FILE MAN.
113
PROCESSOR
150-2
RELATION MAN.
PROCESS
178-2 VIEW MAN.
180-2 CONN. MAN.
182-2 FILE MAN.
115
COMM. INTERFACE
116
108-1
125
160
155
170
132-2
132-N
108-2
108-N
101
NETWORK
110-2
110-N
100

FIG. 1

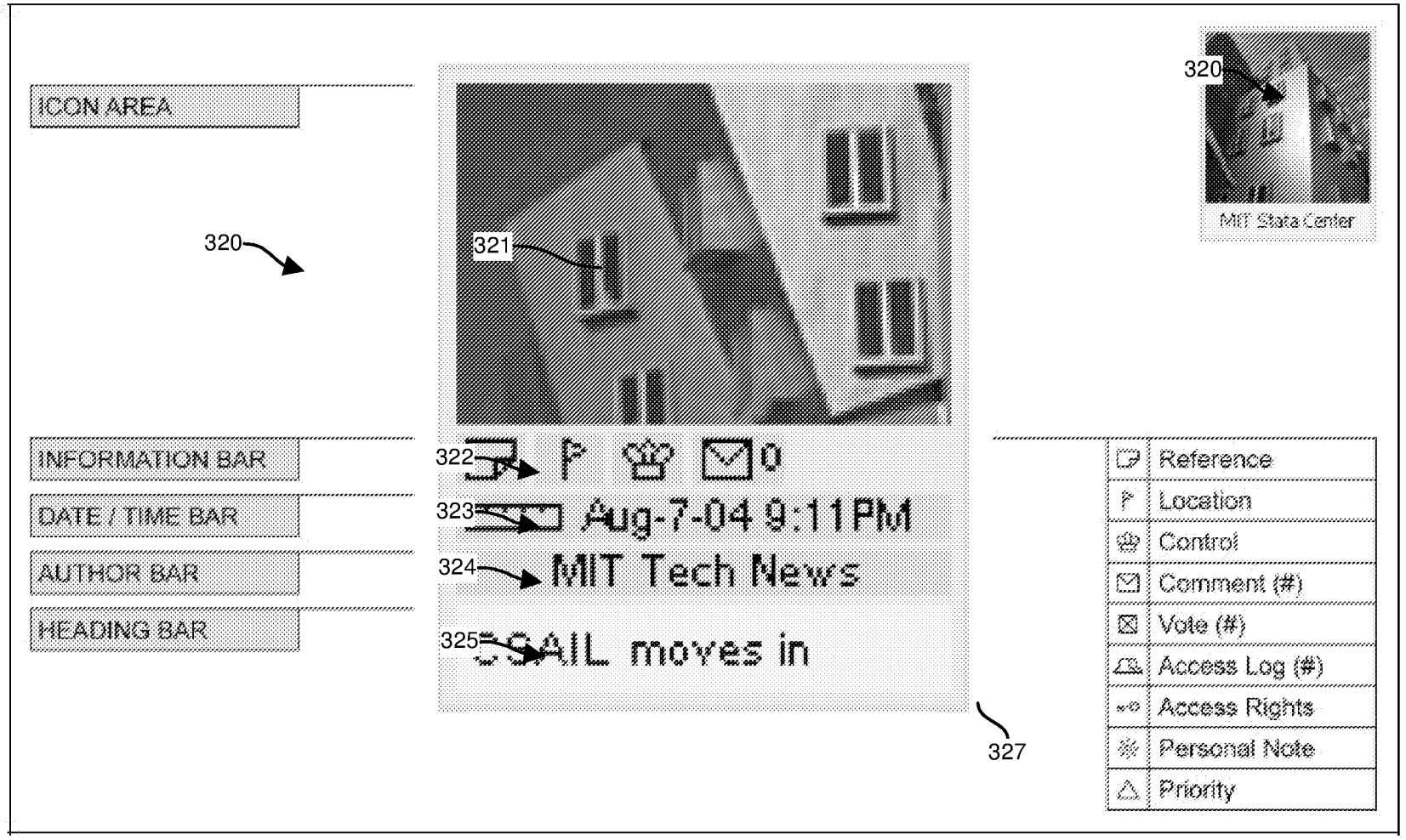


FIG. 2

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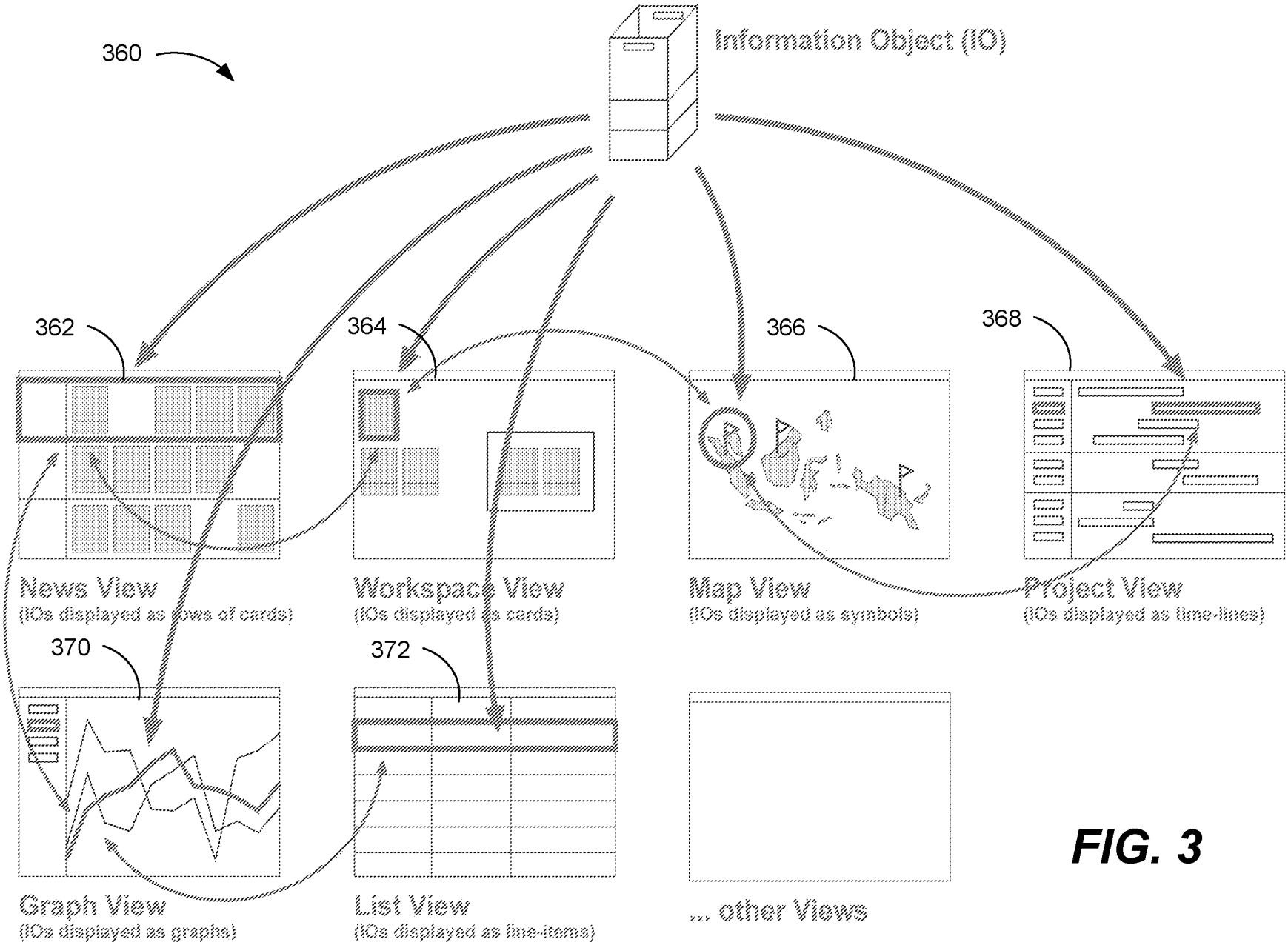


FIG. 3

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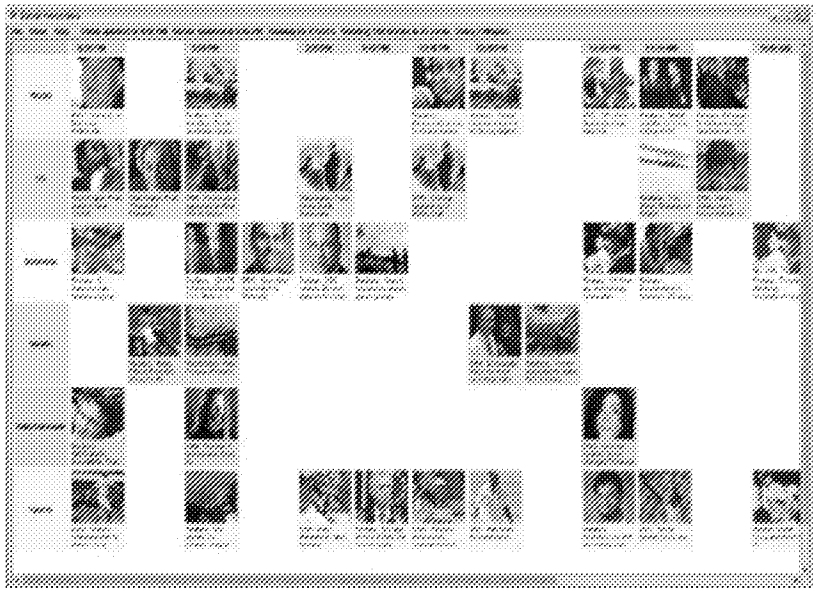


FIG. 4A

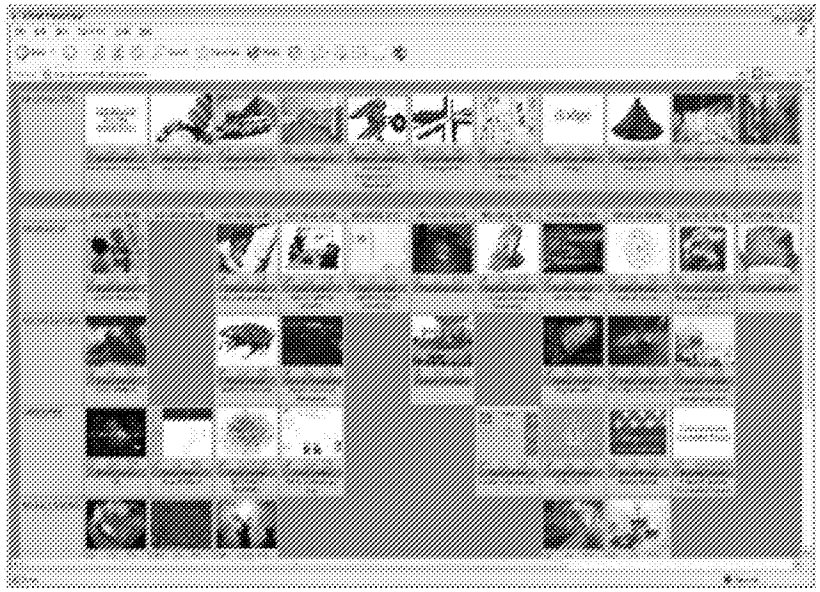


FIG. 4B

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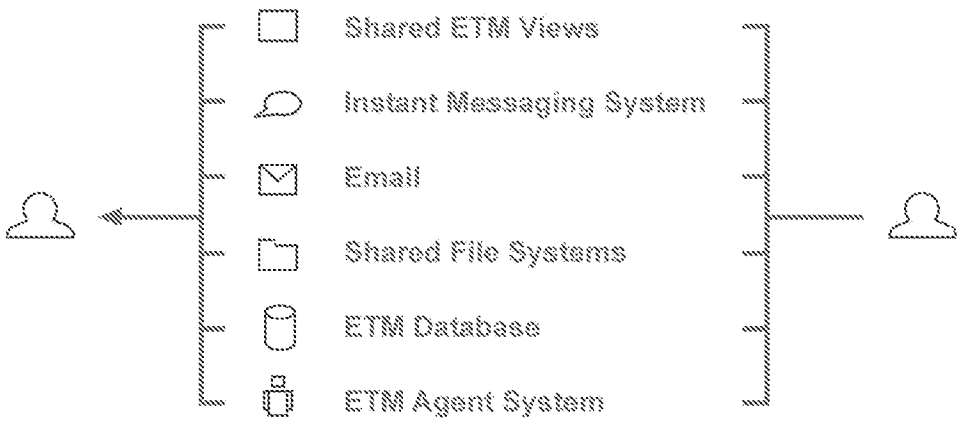

Shared ETM Views
Instant Messaging System
Email
Shared File Systems
ETM Database
ETM Agent System

FIG. 5A

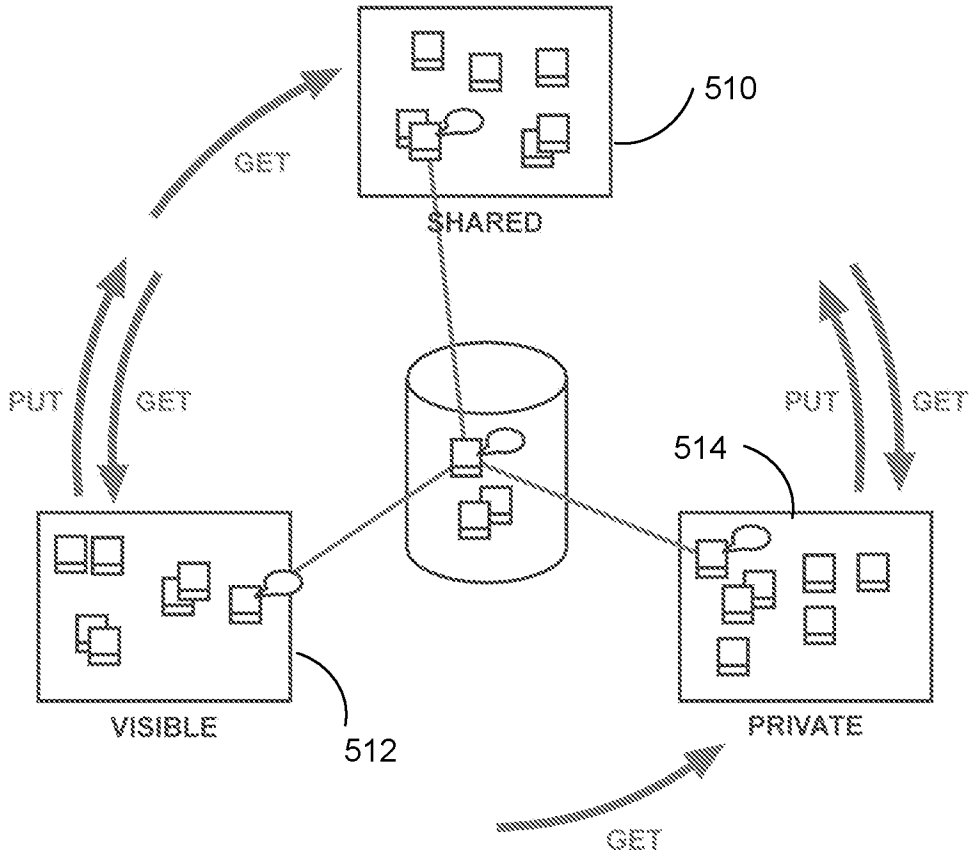

510
GET
SHARED
PUT
GET
PUT
GET
514
VISIBLE
512
PRIVATE
GET

FIG. 5B

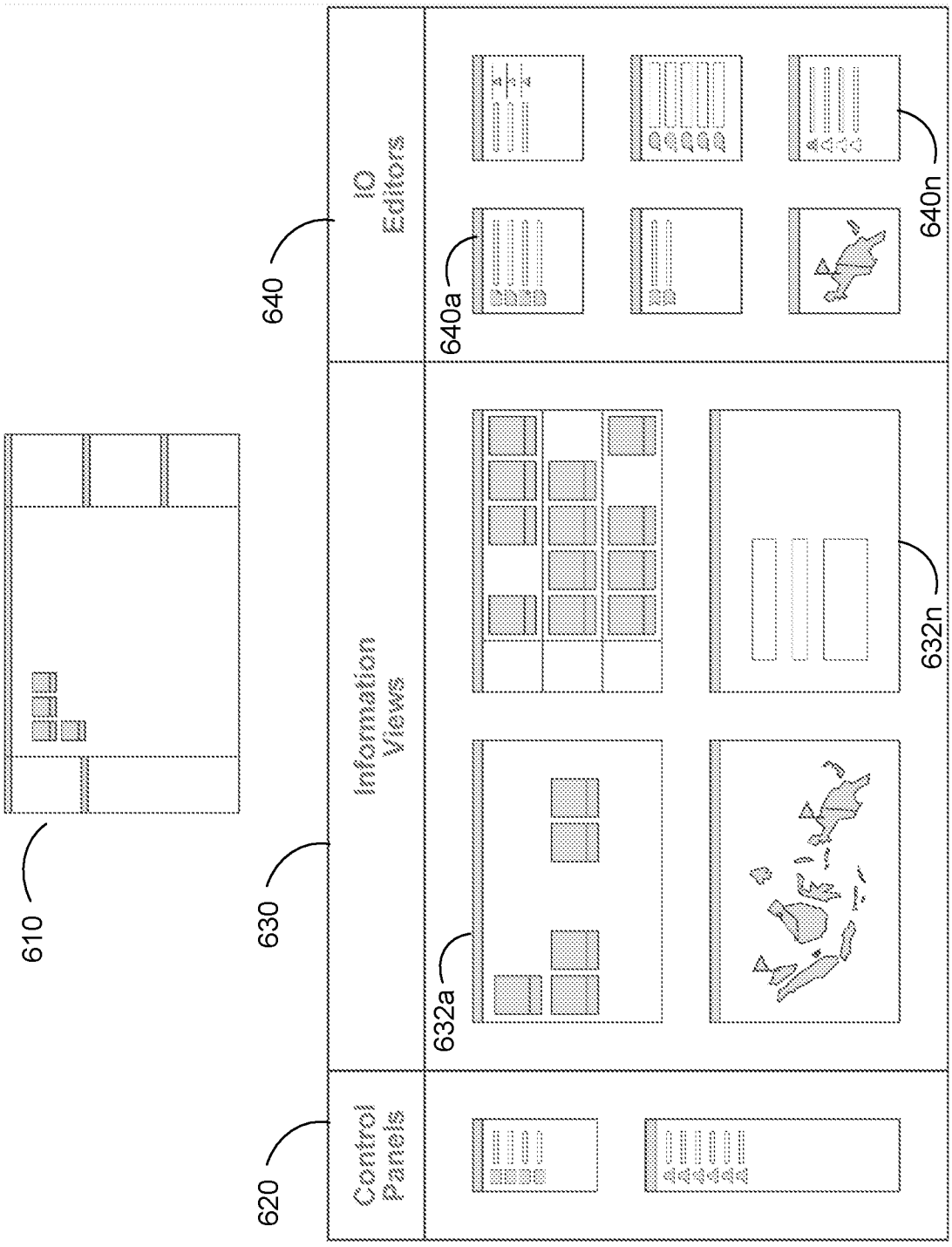
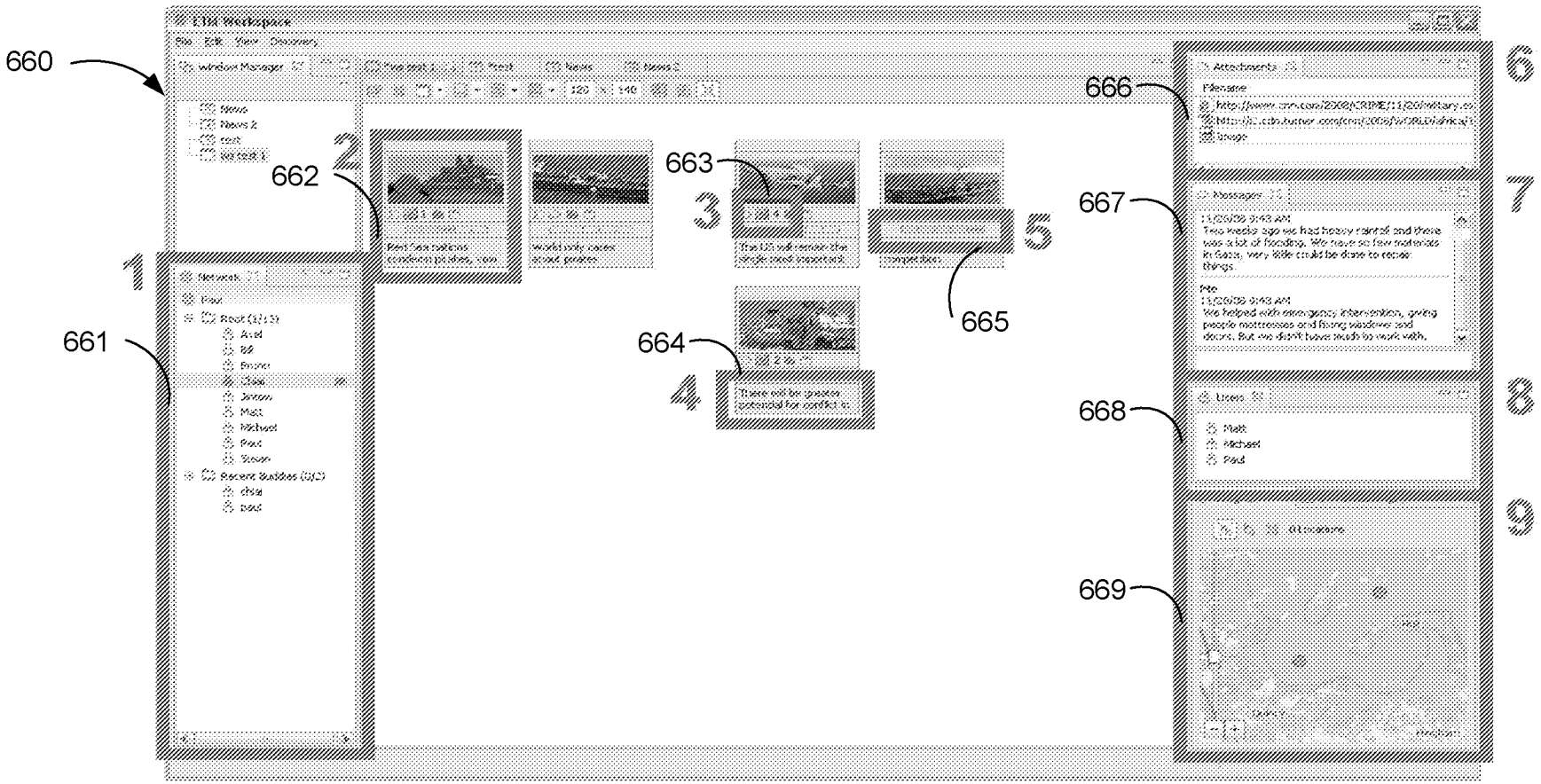

610
620
Control Panels
630
Information Views
640
IO Editors
632a
632n
640a
640n

FIG. 6A



1. Buddy List
2. Object (Discussion Subject)
3. Message Indicator (Counter)
4. Object / Discussion Heading
5. Collaborative Ratings
6. Shared Files (List or Thumbnails)
7. Threaded Discussion
8. Participants
9. Meta-data and shared applications

FIG. 6B

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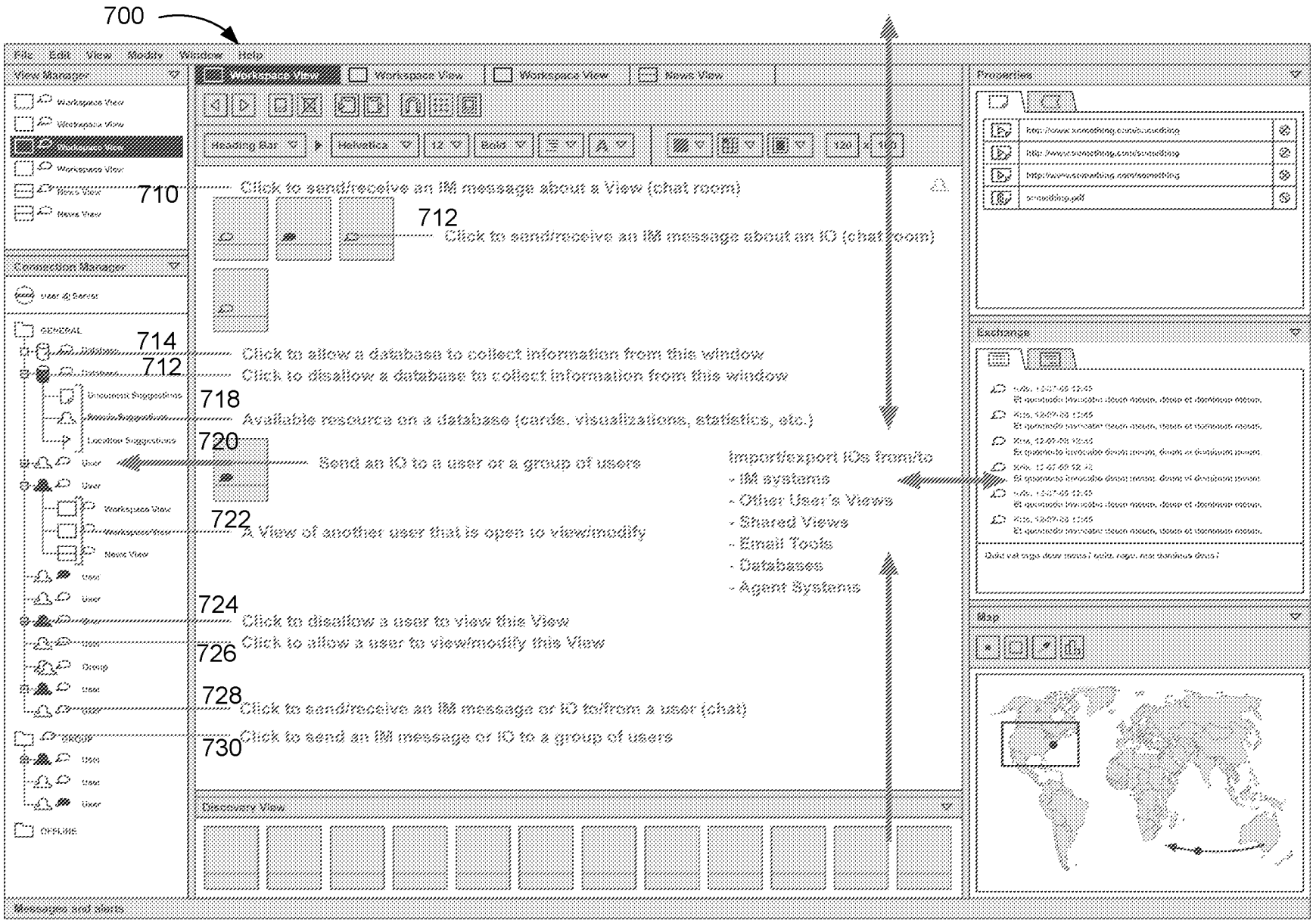

700
710
Click to send/receive an IM message about a View (chat room)
712
Click to send/receive an IM message about an IO (chat room)
714
Click to allow a database to collect information from this window
712
Click to disallow a database to collect information from this window
718
Available resource on a database (cards, visualizations, statistics, etc.)
720
Send an IO to a user or a group of users
722
A View of another user that is open to view/modify
724
Click to disallow a user to view this View
726
Click to allow a user to view/modify this View
728
Click to send/receive an IM message or IO to/from a user (chat)
730
Click to send an IM message or IO to a group of users
Import/export IOs from/to
- IM systems
- Other User's Views
- Shared Views
- Email Tools
- Databases
- Agent Systems

FIG. 7

800
Display
URL to a web site
Flash Executables
Movie Documents
Office Document
PDF Documents
Other Documents
Attachments
Updates
Remote RSS Files
Remote Objects
Remote Files

FIG. 8

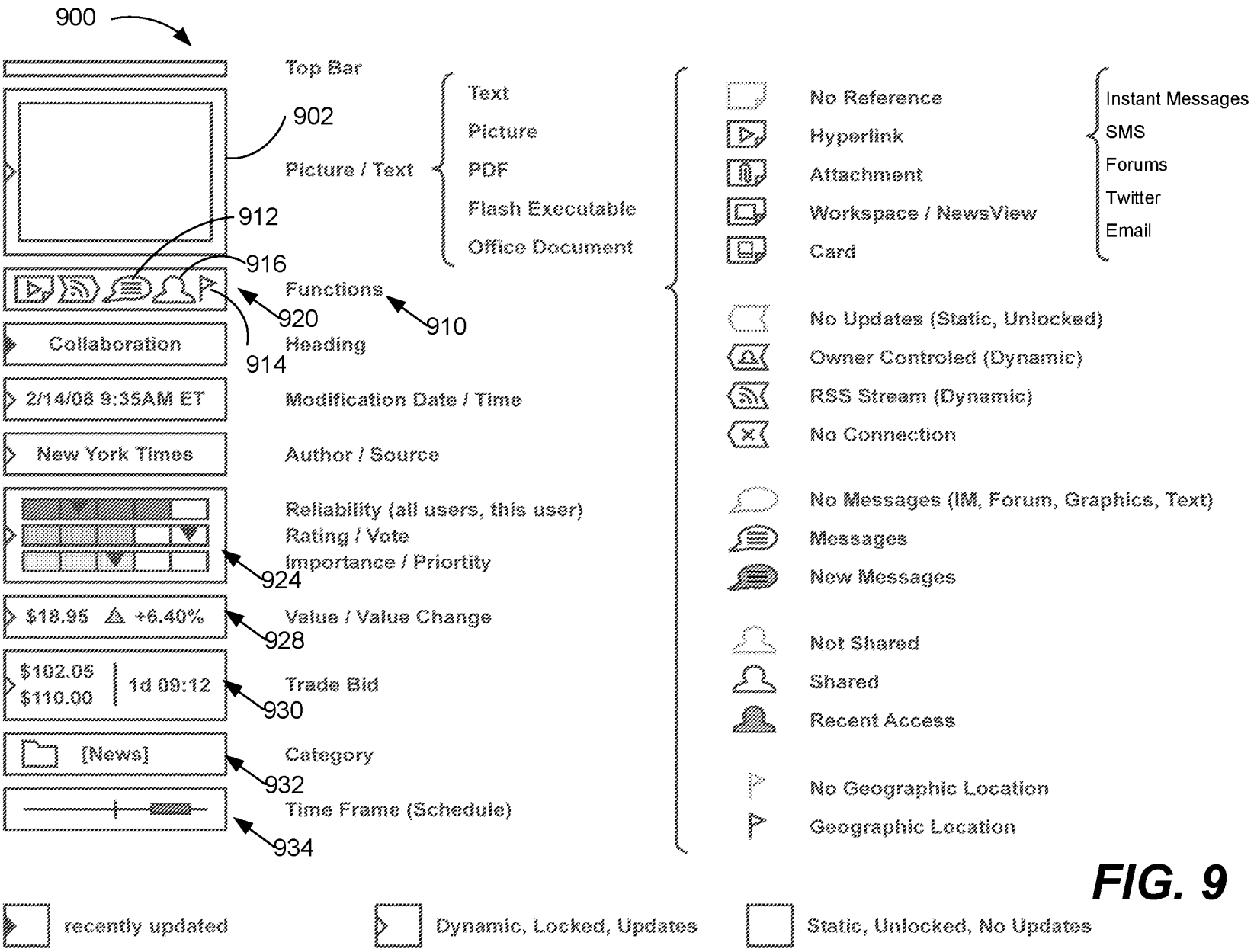


FIG. 9

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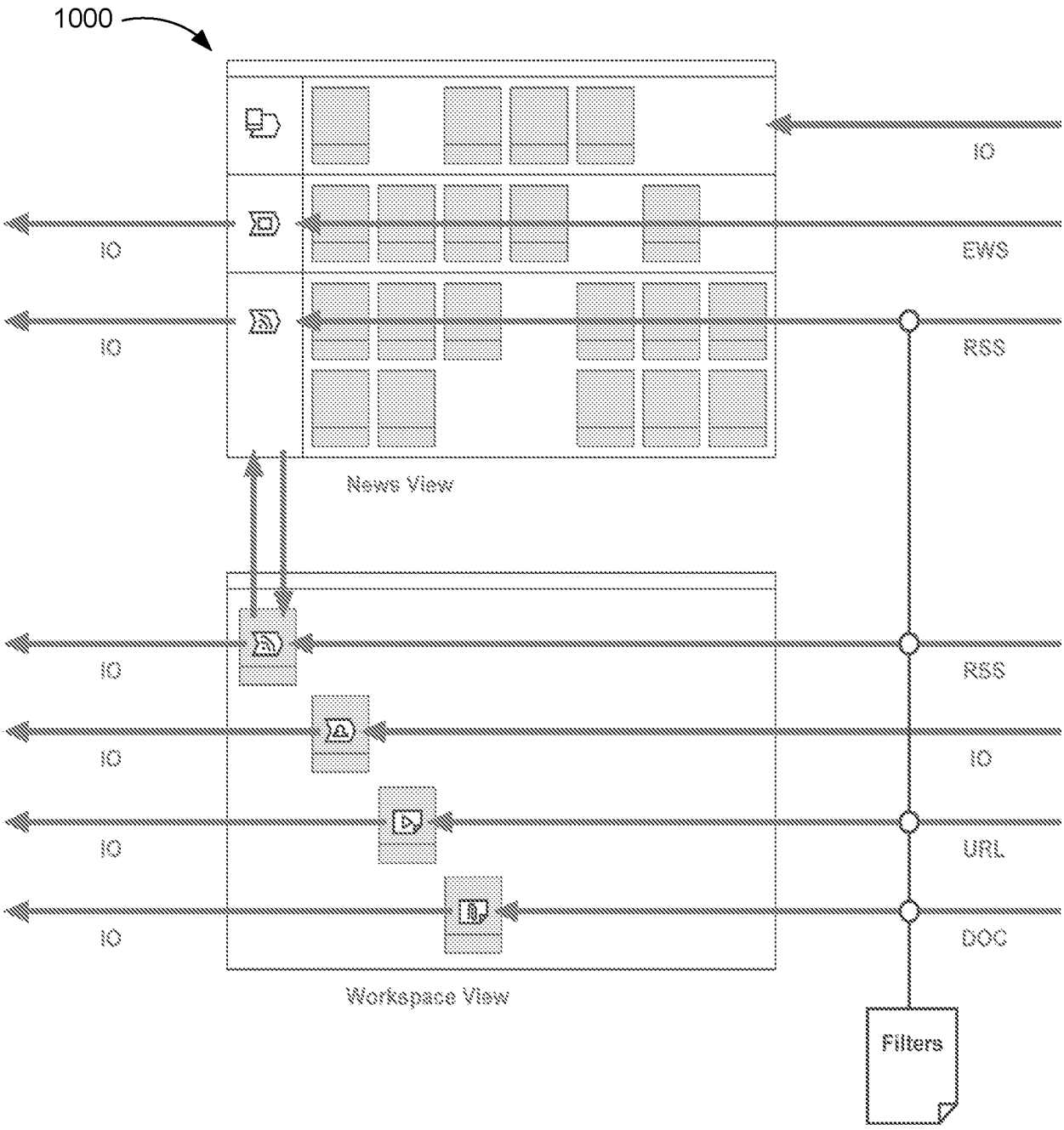

1000
IO
IO
EWS
IO
RSS
News View
IO
RSS
IO
IO
IO
URL
IO
DOC
Workspace View
Filters

FIG. 10

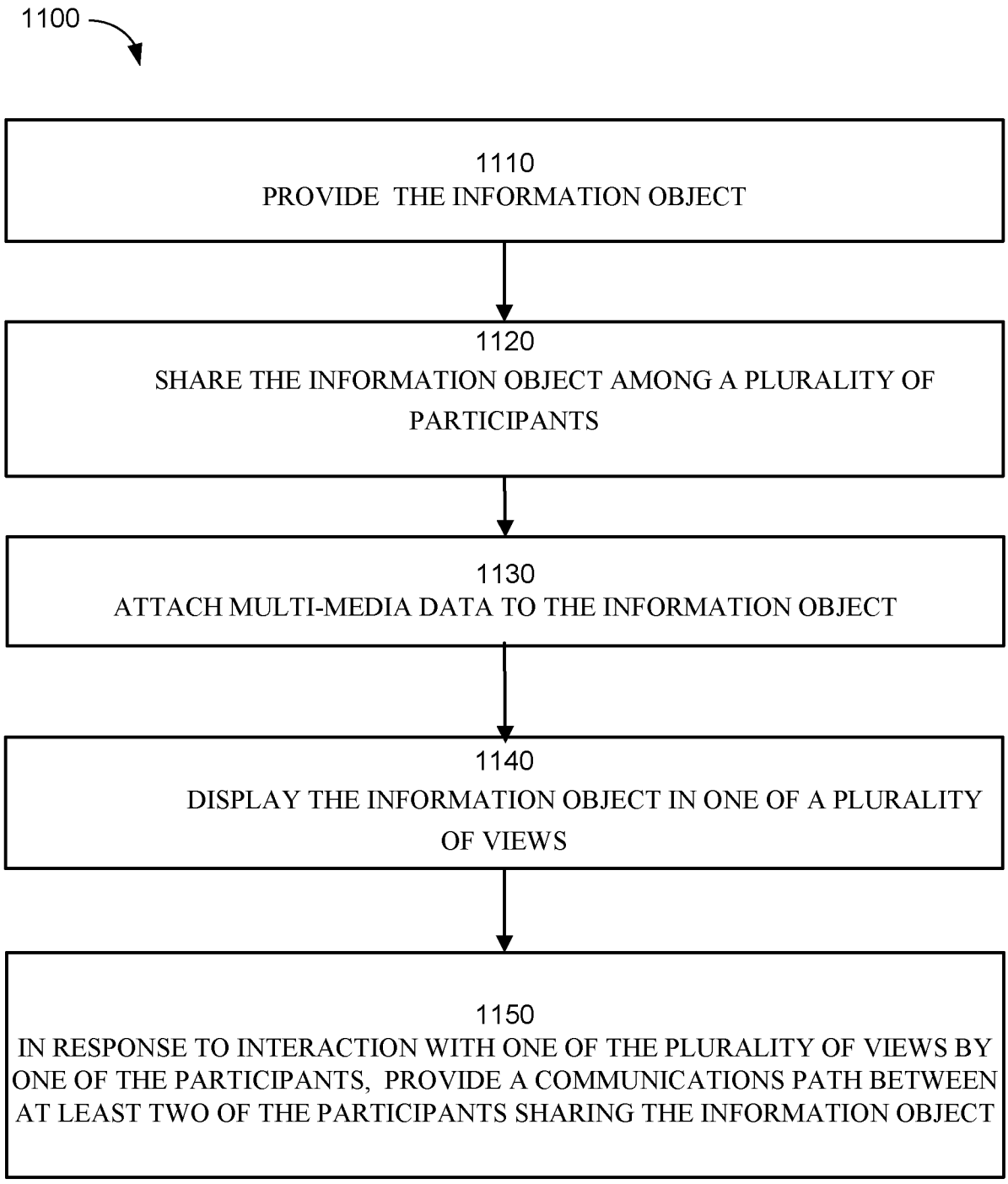

1100
1110
PROVIDE THE INFORMATION OBJECT
1120
SHARE THE INFORMATION OBJECT AMONG A PLURALITY OF PARTICIPANTS
1130
ATTACH MULTI-MEDIA DATA TO THE INFORMATION OBJECT
1140
DISPLAY THE INFORMATION OBJECT IN ONE OF A PLURALITY OF VIEWS
1150
IN RESPONSE TO INTERACTION WITH ONE OF THE PLURALITY OF VIEWS BY ONE OF THE PARTICIPANTS, PROVIDE A COMMUNICATIONS PATH BETWEEN AT LEAST TWO OF THE PARTICIPANTS SHARING THE INFORMATION OBJECT

FIG. 11

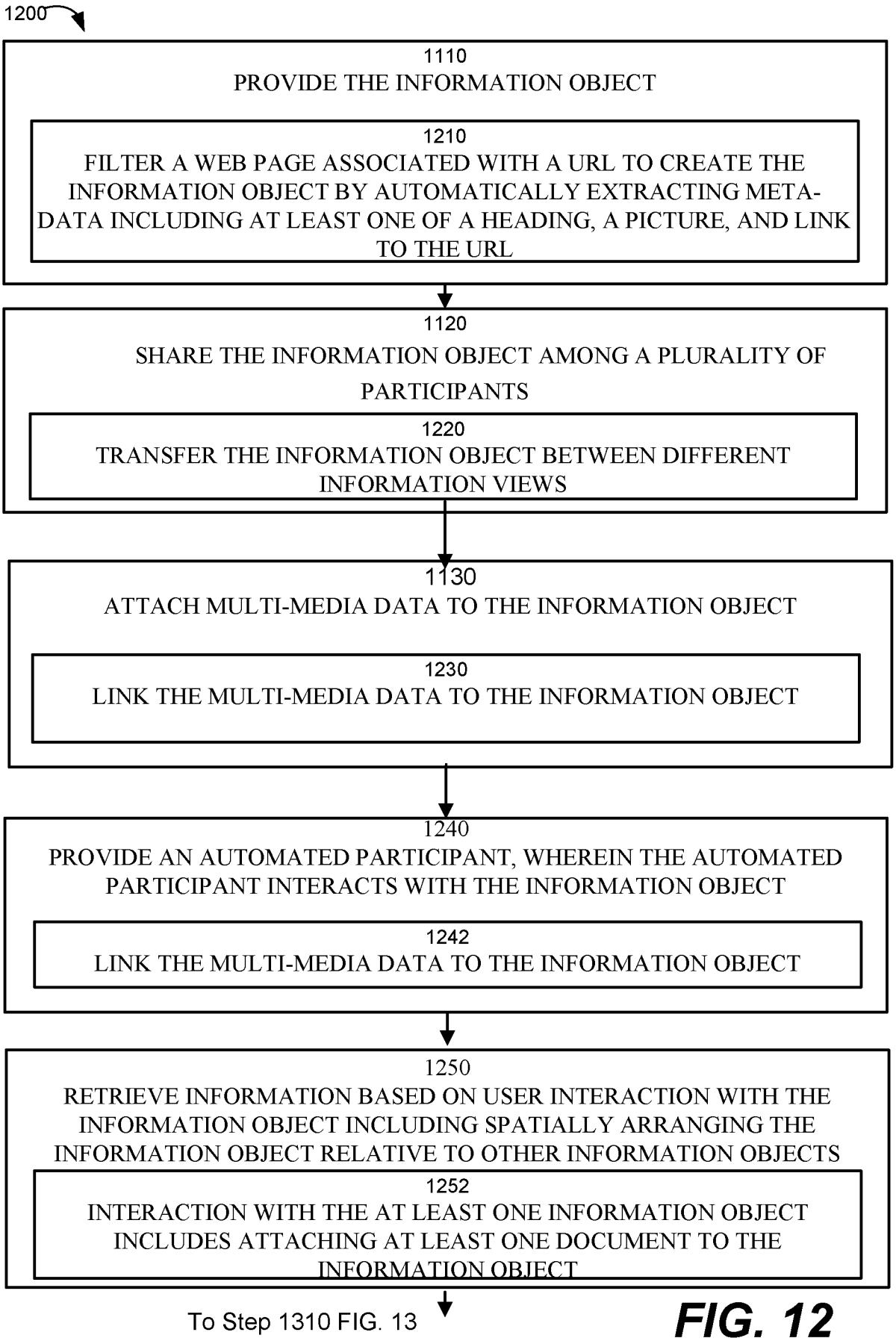

1200
1110
PROVIDE THE INFORMATION OBJECT
1210
FILTER A WEB PAGE ASSOCIATED WITH A URL TO CREATE THE INFORMATION OBJECT BY AUTOMATICALLY EXTRACTING META-DATA INCLUDING AT LEAST ONE OF A HEADING, A PICTURE, AND LINK TO THE URL
1120
SHARE THE INFORMATION OBJECT AMONG A PLURALITY OF PARTICIPANTS
1220
TRANSFER THE INFORMATION OBJECT BETWEEN DIFFERENT INFORMATION VIEWS
1130
ATTACH MULTI-MEDIA DATA TO THE INFORMATION OBJECT
1230
LINK THE MULTI-MEDIA DATA TO THE INFORMATION OBJECT
1240
PROVIDE AN AUTOMATED PARTICIPANT, WHEREIN THE AUTOMATED PARTICIPANT INTERACTS WITH THE INFORMATION OBJECT
1242
LINK THE MULTI-MEDIA DATA TO THE INFORMATION OBJECT
1250
RETRIEVE INFORMATION BASED ON USER INTERACTION WITH THE INFORMATION OBJECT INCLUDING SPATIALLY ARRANGING THE INFORMATION OBJECT RELATIVE TO OTHER INFORMATION OBJECTS
1252
INTERACTION WITH THE AT LEAST ONE INFORMATION OBJECT INCLUDES ATTACHING AT LEAST ONE DOCUMENT TO THE INFORMATION OBJECT
To Step 1310 FIG. 13

FIG. 12

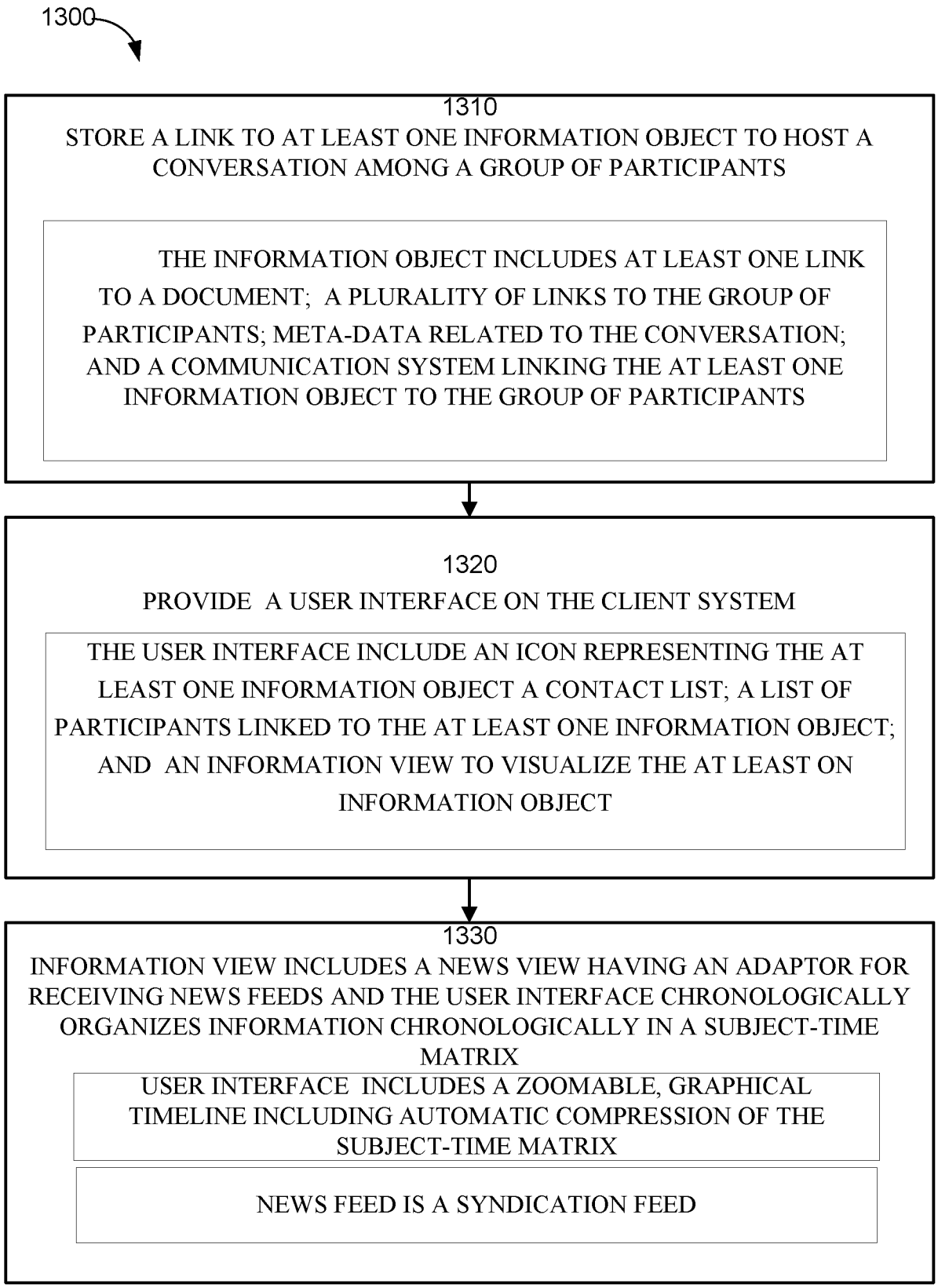

1300
1310
STORE A LINK TO AT LEAST ONE INFORMATION OBJECT TO HOST A CONVERSATION AMONG A GROUP OF PARTICIPANTS
THE INFORMATION OBJECT INCLUDES AT LEAST ONE LINK TO A DOCUMENT; A PLURALITY OF LINKS TO THE GROUP OF PARTICIPANTS; META-DATA RELATED TO THE CONVERSATION; AND A COMMUNICATION SYSTEM LINKING THE AT LEAST ONE INFORMATION OBJECT TO THE GROUP OF PARTICIPANTS
1320
PROVIDE A USER INTERFACE ON THE CLIENT SYSTEM
THE USER INTERFACE INCLUDE AN ICON REPRESENTING THE AT LEAST ONE INFORMATION OBJECT A CONTACT LIST; A LIST OF PARTICIPANTS LINKED TO THE AT LEAST ONE INFORMATION OBJECT; AND AN INFORMATION VIEW TO VISUALIZE THE AT LEAST ON INFORMATION OBJECT
1330
INFORMATION VIEW INCLUDES A NEWS VIEW HAVING AN ADAPTOR FOR RECEIVING NEWS FEEDS AND THE USER INTERFACE CHRONOLOGICALLY ORGANIZES INFORMATION CHRONOLOGICALLY IN A SUBJECT-TIME MATRIX
USER INTERFACE INCLUDES A ZOOMABLE, GRAPHICAL TIMELINE INCLUDING AUTOMATIC COMPRESSION OF THE SUBJECT-TIME MATRIX
NEWS FEED IS A SYNDICATION FEED

FIG. 13

GENERAL POWER OF ATTORNEY

I/we hereby appoint the practitioners associated with the Customer Number: **02101**

with the firm: SUNSTEIN KANN MURPHY & TIMBERS LLP
125 Summer Street
Boston, MA 02110-1618
United States

As attorneys to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications where the assignee is named as an applicant or where the applications are assigned to the undersigned according to the USPTO assignment records or assignment documents, in which case the details will be listed on an attached form in accordance with 37 CFR 3.73(c).

Address all correspondence to: **Customer Number: 02101**

Direct all telephone calls to: 617-443-9292
Facsimiles to: 617-443-0004

(a) Full name and registered address of Applicant/ Inventor

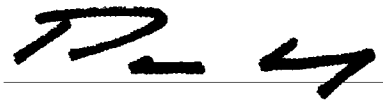
I/We, (a) Paul Erich Keel
Inventor/Applicant

872 Massachusetts Avenue
Apartment 1004
Cambridge, MA 02139
Address

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Dated this 28th day of March 2015

(b) Signature of Applicant/ Inventor

(b) 

(c) Signatory's name

By (c) Paul Keel

GENERAL POWER OF ATTORNEY

I/we hereby appoint the practitioners associated with the Customer Number: **02101**

with the firm: SUNSTEIN KANN MURPHY & TIMBERS LLP
125 Summer Street
Boston, MA 02110-1618
United States

As attorneys to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications where the assignee is named as an applicant or where the applications are assigned to the undersigned according to the USPTO assignment records or assignment documents, in which case the details will be listed on an attached form in accordance with 37 CFR 3.73(c).

Address all correspondence to: **Customer Number: 02101**

Direct all telephone calls to: 617-443-9292
Facsimiles to: 617-443-0004

(a) Full name and registered address of Applicant/ Inventor

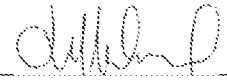
I/We, (a) Jeffrey Huang
Inventor/Applicant

Avenue des Tilleuls 6
1006 Lausanne
Switzerland
Address

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Dated this 24th day of March 2015

(b) Signature of Applicant/ Inventor

(b) 

(c) Signatory's name

By (c) Jeffrey Huang

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects
First Named Inventor/Applicant Name:	Paul Erich Keel
Filer:	Bruce D. Sunstein
Attorney Docket Number:	4123/1002

Filed as Small Entity

Filing Fees for Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	70	70
Utility Search Fee	2111	1	300	300
Utility Examination Fee	2311	1	360	360
Request for Prioritized Examination	2817	1	2000	2000
Pages:				
Claims:				
Claims in excess of 20	2202	10	40	400
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Publ. Fee- Early, Voluntary, or Normal	1504	1	0	0
PROCESSING FEE, EXCEPT PROV. APPLS.	2830	1	70	70

Petition:	
Patent-Appeals-and-Interference:	
Post-Allowance-and-Post-Issuance:	
Extension-of-Time:	
Miscellaneous:	
Total in USD ($)	**3200**

Electronic Acknowledgement Receipt

EFS ID:	26703530
Application Number:	15243497
International Application Number:	
Confirmation Number:	3305
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects
First Named Inventor/Applicant Name:	Paul Erich Keel
Customer Number:	2101
Filer:	Bruce D. Sunstein
Filer Authorized By:	
Attorney Docket Number:	4123/1002
Receipt Date:	22-AUG-2016
Filing Date:	
Time Stamp:	17:30:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$3200
RAM confirmation Number	082316INTEFSW00004628194972
Deposit Account	194972
Authorized User	Bruce Sunstein

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	kem4123_1002_ADS.pdf	1793411 3db18a375db5060c3aad439d5dfc761f4fdbb7e7	no	9
Warnings:					
Information:					
2		kem4123_1002_Application_PrelimAmdt_SubstituteSpec.pdf	497821 9cdf1c85ea854b0b3e4ad850feb8180b06f0c292	yes	113

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	35
Claims	36	43
Abstract	44	44
Preliminary Amendment	45	60
Specification	61	113

Warnings:					
Information:					
3	Drawings-only black and white line drawings	kem4123_1002_Figs.pdf	2913240 78786f0954ada7e528a12bfdc805a970bc704cdb	no	14
Warnings:					
Information:					
4	TrackOne Request	kem4123_1002_PrioritizedExamReq.pdf	114268 0b7a0fbf2a8d28b3143824f92521db13d1eb22c7	no	2
Warnings:					
Information:					

5	Information Disclosure Statement (IDS) Form (SB08)	kem4123_1002_IDS.pdf	106517 fd5bf091fe615be88c0e30746d655ff8269148f6	no	7
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
6	Oath or Declaration filed	kem4123_1002_Decs.pdf	180162 f8b9860a2f7a6c1895406c450a252ed1a9301978	no	2
Warnings:					
Information:					
7	Power of Attorney	4123_GenPOA_Keel_Huang.pdf	633384 ad5ba2e2b62da11853deb5c7b39475fa8807cee6	no	2
Warnings:					
Information:					
8	Fee Worksheet (SB06)	fee-info.pdf	42003 b430adf14cc01cbf178b8ad5a4e3090227dbe1e3	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	6280806		

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.

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Paul	Erich	Keel	

Residence Information (Select One) ● US Residency ○ Non US Residency ○ Active US Military Service

City	State/Province	Country of Residence
Cambridge	MA	US

Mailing Address of Inventor:

Address 1	872 Massachusetts Avenue
Address 2	Apartment 1004
City	Cambridge
State/Province	MA
Postal Code	02139
Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jeffrey		Huang	

Residence Information (Select One) ○ US Residency ● Non US Residency ○ Active US Military Service

City	Country of Residence
Lausanne	CH

Mailing Address of Inventor:

Address 1	Avenue des Tilleuls 6
Address 2	
City	Lausanne
State/Province	
Postal Code	1006
Country	CH

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	2101		
Email Address	usptomail@sunsteinlaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		
Attorney Docket Number	4123/1002	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	14	**Suggested Figure for Publication (if any)**	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	2101		

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	14/644178	2015-03-20
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
14/644178	Continuation of	13/925031	2013-06-24
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/925031	Continuation of	12/563416	2009-09-21	8499248	2013-07-30

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
12/563416	Claims benefit of provisional	61/116747	2008-11-21
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12/563416	Continuation in part of	11/118301	2005-04-29	7640511	2009-12-29

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11/118301	Claims benefit of provisional	60/566723	2004-04-29

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Applicant:

Address 1			
Address 2			
City		**State/Province**	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Bruce D. Sunstein, #27,234/			Date (YYYY-MM-DD)	2016-08-22
First Name	Bruce D.	Last Name	Sunstein	Registration Number	27234

Additional Signature may be generated within this form by selecting the Add button. Add

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

This collection of information is required by 37 CFR 1.76. 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 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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.**

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METHODS AND APPARATUS FOR MANAGING AND EXCHANGING INFORMATION USING INFORMATION OBJECTS

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH

[0001] This invention was made with Government support under Grant and/or Contract No. 'N00014-02-1-0132 and/or N00014-04-1-0569 and/or N00014-08-C-0206' awarded by the Office of Naval Research. The Government has certain rights in the invention.

RELATED APPLICATIONS

[0002] This application is a continuation of United States patent application serial number 14/664,178, filed March 20, 2015, which is a continuation of United States patent application serial number 13/925,031, filed June 24, 2013, which is a continuation of United States patent application serial number 12/563,416, filed September 21, 2009 (now United States patent number 8,499,248, issued July 30, 2013), entitled "METHODS AND APPARATUS FOR MANAGING AND EXCHANGING INFORMATON USING INFORMATION OBJECTS," which (i) claims the benefit of United States provisional application serial number 61/116,747, filed November 21, 2008, entitled "Information Objects (IOs) and Information Views (IVs)", and (ii) is a continuation in part of United States patent application serial number 11/118,301, filed April 29, 2005 (now United States patent number 7,640,511, issued December 29, 2009), entitled "METHODS AND APPARATUS FOR MANAGING AND INFERRING RELATIONSHIPS FROM INFORMATION," which claims the benefit of United States provisional application having Serial Number 60/566,723, filed April 29, 2004, entitled "METHODS AND APPARATUS FOR MANAGING AND INFERRING RELATIONSHIPS FROM INFORMATION". All of these related applications are hereby incorporated herein by reference in their entirety.

BACKGROUND

[0003] Modern information processing systems allow users to collect and process large amounts of information. As an example, a typical computer system such as a personal computer includes an operating system that executes within the computer system to provide a graphical user interface to users of that computer system. A conventional graphical user interface typically includes a number of information objects such as graphical icons that represent information of relevance or importance to the user. The user accesses data and controls functionality of the computer system by selecting and operating such icons. By way of example, software applications such as word processors, graphical editing tools, web browsers and many others often provide graphical user interfaces that include a number of icons that have visual meaning to the user of the computer system. Typically, a software application renders icons to allow the user to invoke specific functionality or commands of that application and/or to allow the user to organize and access data. Many software applications use icons to represent data or files that the user can access by selecting (e.g., clicking) the icon representing the data. As an example, if a user selects an icon that represents a software application installed within the computer, the computer will begin execution of that application. Other icons on a graphical user interface can represent folders or files maintained by the operating system within a file system.

[0004] Many conventional software applications allow a user to develop or collect various portions of information or content for storage and future access. As an example, a word processor or other editing tool allows the user to create and edit documents. As another example, a web browser allows a user to navigate web pages provided by servers on remote computer networks such as the Internet to reference information on a variety of subjects. A conventional computer system allows a user to store information referenced or created by such applications as a set of documents or files that can be retrieved by the user at a later time.

[0005] Most conventional operating systems and many software applications also provide a way for a user to arrange a file system of the computer in order to organize

documents and files in a manner that makes sense to the user. Computer operating systems typically organize file systems in a hierarchical manner allowing the user to create folders or directories with user-specified names. The user can store files within the folders in a manner that makes sense to that user. A file system is thus one of the most popular ways for users to organize and manage data and information of interest to those users.

[0006] Another mechanism that conventional applications and operating systems provide to allow users to organize and manage information of interest to that user is the ability to allow a user to spatially arrange information objects such as graphical icons in a way that makes intuitive sense to the user. As an example, on a conventional "desktop" work area provided by many operating systems, a user can place or position icons representing files, documents, applications, email messages, appointments or the like in any manner and at any position that the user may choose. In particular, such conventional applications allow the user to graphically maneuver the icons into position in relation to one another in a manner that makes sense to that user. Different users often organize icons on their desktop in different ways.

[0007] Information availability and accessibility is continuously increasing. The problem is that information commonly exists in different formats, resides in different locations, is dynamically changing, and is used and modified by different people. This makes it difficult for users to effectively monitor, analyze and exchange information.

SUMMARY

[0008] Conventional mechanisms and techniques that allow a user to visually organize, collect and manage information objects that represent various portions of information suffer from a variety of deficiencies. In particular, conventional computer-based applications such as operating system desktops and software application graphical user interfaces allow a user to collect and store numerous portions of content and information that are of interest to the user and allow a user to represent that information graphically (e.g. via icons), but do little to analyze relations that may exist between the icons and/or between the stored portions of content or data.

[0009] In particular, conventional information processing systems such as those noted above allow a user to organize and arrange various portions of data or other information as icons in a graphical user interface in a manner that makes sense to the user, but such systems do not promote conversations and collaboration among users.

[00010] Another deficiency with conventional information processing systems is that information is represented in different formats and, depending on the format, is stored in different locations. For example, conventional browsers store hyperlinks to web sites as bookmarks, whereas emails are located in mailboxes in mail handlers, files are stored in computer directories, and notes may be stored in files, and so forth. The proposed information object mechanism disclosed herein, referred to in some embodiments as IOs, solve this deficiency by introducing a standardized information format that represents a piece of information in an abstract way and links to an original piece of information and that has a standardized look thus allowing users to focus on and compare the information content and context rather that be distracted by the information format and location.

[00011] As an example of problems with conventional data processing systems, a user using a conventional content development application may spend large amounts of time collecting portions of content such as graphics, text, news stories, web pages, email messages, or other such information sources for collaborative production of a large content-based research project. Many users may be involved in this process. As each user collects portions of information using conventional information management systems, the users store and organize their respective portions of information within the computer file system. Each user may create icons on his or her desktop or other work areas that represent the respective portions of collected information. Each user might group icons for related pieces of information together in a list, within close proximity to each other, or in file directories. In conventional systems however, it is up to the user to identify what other portions of information might be of interest to the user that the user has not already identified and collected.

[00012] As an example, if the collaborative production being developed by the users is a project related to current events, each user may collect articles and stories related

to that current event. Using conventional systems, it is up to each user to research and discover stories or other content related to that current event that might be available from a variety of different information sources. While conventional collaboration systems might provide a common repository for such collected information contributed by each user, there is little or no ordering to this information, other than an order specified by the users who place the content into the shared repository such as a file system or database. Each user must frequently communicate with other users in a highly manual manner (e.g. via a telephone call, email or other mechanism) to identify content that other users may have discovered and collected that might be of relevance to the production under development.

[00013] Such conventional information management systems do not automatically and dynamically analyze relations between user placed icons that represent the various pieces of available information in order to assist users in identifying other portions of content that many of interest to those users. More specifically, conventional systems do not analyze specific spatial relations, collaborative context relations, chronological context relations, and the like between information sources associated with icons arranged by a user to determine other portions of information, such as other portions of content collected by other users, that may be of relevance or interest to the user providing a specific spatial arrangement of his or her icons. As a result, conventional information management systems limit a user's knowledge of other available content and information to which that user may have interest. In particular, such systems limit available content to that content that a user can discover on their own.

[00014] As an example, using a conventional information discovery processes such as web searching, a user can quickly become overwhelmed with search results that are irrelevant to the information they are seeking. While some conventional web sites may attempt to suggest references to web pages that are similar in nature to those discovered when providing a particular search term, such additional references are simply provided based on frequently performed searches of other users and do not take into account current information already collected by the user performing the original search. Thus a conventional browser is not made aware that a user already has

collected certain related pieces of information and has organized them in a spatially related manner.

[00015] In contrast, embodiments of the invention are based in part on the observations that conventional information collection management systems provide a significant cognitive burden on users caused by the increasing availability of information, the requirement for users to actively initiate a search for relevant information, the requirement for evaluation of the quality and feasibility of information, the need to collaborate remotely and asynchronously, as well as the necessity to dynamically adapt to changing circumstances. Modern information processing systems do not provide an automated ability to organize and identify information sources that come in many different formats. For example, information may be received in the form of a phone call, an email, an instant message, a computer file, a web site, a database item, a verbal comment, a radio transmission, a newspaper, a television spot, a magazine, or a security camera. The various formats often prevent the easy and efficient collection, organization, and comparison of information by conventional information processing systems.

[00016] Embodiments of the invention incorporate advanced graphical user interfaces and functions to address the shortcomings in conventional systems. These embodiments include Information Objects (IOs) and Information Views (IVs). IOs that are data files that can include other data files (such as documents, hyperlinks, and executables) as well as meta-data (such as ratings, discussion logs, and visualization parameters). IVs are computer windows for the visualization of IOs. IOs are rendered differently on different IVs allowing users to manage information in a customized format and in environments suited to particular tasks and circumstances. In certain embodiments the IO consolidates data, meta-data and communication features. For example, the IO can be an agenda item, a discussion, a hosted conversation, a topic, etc. Accordingly, the user can efficiently view and organize multiple IOs that represent different topics and that engage different groups of participants.

[00017] Advantageously IOs provide a means for users to package and visualize (static and dynamic) information in a standardized format. IOs can be viewed and

modified differently on different IVs. IOs can be copied between the IVs of the same or different users. Copies of IOs remain synchronized if displayed on different IVs. IOs are associated with functions that enhance the collaborative use of information, for example, an object-based communication system that allows users to communicate through IOs and IVs.

[00018] Other benefits of Information Objects and Views include the ability to: consolidate task relevant information (e.g. from shared IVs to a private IVs);

display information in a custom and familiar format (e.g., in a wide variety of possible custom IVs);

maintain a standardized data format for different data visualization and management tools; and

easily move data between different data visualization and management tools; and

easily exchange information among remotely distributed participants in a hosted conversation.

[00019] Using techniques disclosed herein, it is possible to create IOs transfer IOs between the same or different types of IVs, add additional IVs and additional functions for IOs, as well as a selection of IO components, IO functions on IVs. An electronic wall (EWall) embodiment provides one example for the visualization of IOs on an information view (IV) in which an IO can present itself as a EWall IO on a EWall Workspace View. A graphical user interface is provided for the management of multiple IVs, as well as new functions for the exchange of IOs and the collaborative use of IVs.

[00020] Embodiments of the invention as disclosed herein provide mechanisms and techniques for providing the IO, sharing the IO among a plurality of participants, attaching multi-media data to the IO. The technique further includes displaying the IO in one of a plurality of views and in response to interaction with one of the plurality of views by one of the participants, communicating with at least one different one of the participants sharing the IO.

[00021] The system disclosed herein provides a computational environment for the support of individual and collaborative decision-making and greatly enhances the quality and the speed of individual and collaborative brainstorming, problem-solving, information collecting and decision-making processes. More specifically, the system for providing hosted conversation among a group of participants disclosed herein includes a processor, a memory unit that stores instructions associated with an application executed by the processor, and an interconnect coupling the processor and the memory unit, enabling the computer system to execute the application and perform operations of: storing a link to at least one information object, the at least one information object, the information object includes at least one link to a document, a plurality of links to the group of participants, meta-data related to the conversation, and a communication system linking the at least one information object to the group of participants. The system further provides a user interface on the client system comprising: an icon representing the at least one information object, a contact list, a list of participants linked to the at least one information object and an information view to visualize the at least on information object.

[00022] In one configuration, the IOs are sometimes represented as "cards" on a graphical user interface. IOs reference different types of information formats thus making it easier for users to directly compare and study information in different formats. As used herein the term "card," "IO"and "information object" are used interchangeably, and a card is one example configuration or representation of an information object. AN IO includes a graphic icon area to display text or a picture associated with an information source, as well as other information pertaining to such things as ownership of that IO, creation time of the IO, and attribute indicators that indicate a current state of the IO, and a hyperlink to its associated information source. In a simplest embodiment, an IO is just an icon that represents some information and information represented by IOs may be stored in different locations and in different formats. In one configuration, an IO is different from an ordinary icon because it comes with hidden functionality such as a built-in instant messaging system and the ability to drag and drop content onto the IO. It is noted that the: instant messaging system includes communication media such as Instant Messaging System , email and

SMS messaging, text messaging and other forms of real-time communication between participants.

[00023] In one configuration, the system applies a spatial relation algorithm that discovers spatial relations between positional information of at least two IO records in an IO database that are associated with IOs displayed on the graphical user interface in the first set of IOs. The relations between IOs can be stored in a database and the system can use discovered relations to identify a second set of information objects based on the relation(s) between the first set of information objects/IOs. The second set of information objects in an IO configuration is a second set of IOs that might be of interest to the user based on the analysis of the IOs already on display in a Workspace View associated with that user. The system can output an identity of the second set of information objects by displaying the second set of IOs on the graphical user interface for viewing by the user. The second set may be displayed in a prioritized and relevant manner based on relations discovered concerning the first set of IOs.

[00024] In this manner, the system can use IOs to show the user other sources of information, possibly from other users, or from a database, or from a dynamic source such as a news feed, that might be of interest to that user. News feeds include but are not limited to news, alerts, announcements, motion detection events triggering security cameras, emails, instant messages (IMs), short message services (SMSs), sensors, real time search results, and custom content. The system can thus assist a user in managing information and retrieving relevant information.

[00025] Embodiments of the invention include any type of computerized device, workstation, handheld or laptop computer, or the like configured with software and/or circuitry (e.g., a processor) to process any or all of the method operations disclosed herein. In other words, a computerized device or a processor that is programmed or configured to operate as explained herein is considered an embodiment of the invention.

[00026] Other embodiments of the invention that are disclosed herein include software programs to perform the steps and operations summarized above and

disclosed in detail below. One such embodiment comprises a computer program product that has a computer-readable medium including computer program logic encoded thereon that, when performed in a computerized device having a coupling of a memory and a processor and a display, programs the processor to perform the operations disclosed herein. Such arrangements are typically provided as software, code and/or other data (e.g., data structures) arranged or encoded on a computer readable medium such as an optical medium (e.g., CD-ROM), floppy or hard disk or other a medium such as firmware or microcode in one or more ROM or RAM or PROM chips or as an Application Specific Integrated Circuit (ASIC). The software or firmware or other such configurations can be installed onto a computerized device to cause the computerized device to perform the techniques explained herein. Other configurations include various graphical representations of the IOs themselves, for example as displayed on a graphical user interface as will be explained in more detail.

[00027] It is to be understood that the system of the invention can be embodied strictly as a software program, as software and hardware, or as hardware alone such as within a processor, or within an operating system or within a software application.

BRIEF DESCRIPTION OF THE DRAWINGS

[00028] The foregoing and other objects, features and advantages of the invention will be apparent from the following more particular description of embodiments of the invention, as illustrated in the accompanying drawings and figures in which like reference characters refer to the same parts throughout the different views. The drawings are not necessarily to scale, with emphasis instead being placed upon illustrating the embodiments, principles and concepts of the invention.

[00029] Figure 1 is an example network environment including computer systems configured with a relation manager in accordance with one example embodiment disclosed herein.

[00030] Figure 2 shows an example layout of an IO in accordance with one example embodiment disclosed herein.

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[00031] Figure 3 is a diagram of information flow and IOs present themselves differently on different IVs and can be copied between IVs in accordance with one example embodiment disclosed herein.

[00032] Figures 4A and 4B are diagrams of News Views that display news for multiple different news papers postings by different users.

[00033] Figure 5A is a diagram of IOs being exchanged between IVs of different users.

[00034] Figure 5B is a diagram of IOs being exchanged between Private, Visible and Shared Views.

[00035] Figure 6A is a diagram of an exemplary graphical user interface (GUI) Organization in accordance with one example embodiment disclosed herein.

[00036] Figure 6B is a more detailed diagram of the exemplary GUI Organization of Figure 6A.

[00037] Figure 6C is a diagram of an alternate exemplary GUI Organization in accordance with one example embodiment disclosed herein.

[00038] Figure 7 is a diagram of a graphical user interface (GUI) which allows the users to select import/export IOs from/to IM systems, other users views, shared views, e-mail tools, databases, agent systems in accordance with one example embodiment disclosed herein.

[00039] Figure 8 is a diagram of IO File Management An IO can "display" different types of files such as pictures, text, movies, flash applications (left), attach/hyperlink different types of files (middle), and dynamically update IO contents (right). in accordance with one example embodiment disclosed herein.

[00040] Figure 9 is a diagram of IO components in accordance with one example embodiment disclosed herein.

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[00041] Figure 10 is a diagram of IO Operations in accordance with one example embodiment disclosed herein.

[00042] Figures 11-13 are flow charts of processing steps performed to the in accordance with embodiments disclosed herein.

DETAILED DESCRIPTION

[00043] Figure 1 illustrates the computer-networking environment 100 suitable for use in explaining example embodiments of invention. The computer-networking environment 100 includes a network 101 such as a local area network (e.g., LAN) that interconnects a plurality of computer systems 110-1 through 110-N that each execute respective relation managers 150 (application 150-1 and process 150-2), view manager managers 178 (application 178-1 and process 178-2), connections managers 180 (application 180-1 and process 180-2) and IO file managers 182 (application 182-1 and process 182-2) under respective control of a plurality of users 108. The computer systems 110 may be any type of computerized device such as a personal computer, laptop, workstation, mainframe terminal, or the like. In this example, each computer system 110 generally includes in interconnection mechanism 111 such as a data bus, motherboard or other circuitry that interconnects a memory 112, a processor 113, an input output interface 114 and a communications interface 115. A display 130 such as a computer monitor and input output mechanism 116 couple to the computer system 110 via the input output interface 114. The communications interface 115 allows communication with other computer systems 110-2 through 110-N over the network 101. The architecture of the computer system 110-1 is shown in Figure 1 by way of example only. It is to be understood that the details of the example computer systems 110-2 through 110-N can be similar to those of computer system 110-1 but are not shown in Figure 1 due to drawing space limitations.

[00044] The memory 112 within each computer system 110 may be any type of computer readable medium such as random access memory (RAM), read only memory (ROM). The memory 112 may be fixed or removable from the computer

system 110, such as a floppy disk, magnetic disk, optical disk media (e.g., CD ROM) or the like.

[00045] In one embodiment, the memory 112 is encoded with computer program logic (e.g., software code) that includes a relation manager application 120-1. When the processor 113 executes the relation manager application 150-1, the processor 113 produces a relation manager process 150-2 that executes as explained herein to produce a graphical user interface 132-1 (the example being produced by the relation manager 150 in computer 110-1) on the display 130 for viewing by the user 108. The relation manager process 150-1 and application 150-2 are collectively referred to herein as simply the relation manager 150. When referring to the relation manager 150, it can thus be a reference to the executing process 150-2, the application code 150-1, or both. Each relation manager 150 in combination with the view manager 178, connections manager 180 and file manager 182 process files and documents and produce a graphical user interface 132 that provides, to the user 108, visual knowledge representation, dynamically updated content, hosted conversations, and interpretation and management based in part on spatial relationships. To do so, the managers 150, 178, 180 and 182 include a workspace server 151, a news server 152, an exchange server 153 and a database server 154 that each produce, respectively, a Workspace View 300, a News View 305, a database view 310 and an exchange view 315 within the graphical user interface 132. The relation manager 150 adds discovered relations to IO's in a database 125 (the database 125 may already include relations that other people or software products added). The relation manager also provides the algorithms 155 to examine the network of relations to discover potentially relevant information.

[00046] The database 125 maintains a history of updates to the IOs to allow for inclusive reconstruction of a particular IO at given time.

[00047] The workspace server 151 produces the Workspace View 300 that in one configuration is a graphical user work area, such as a desktop, in which a user 108 is able to create and manipulate graphical information objects 310 that graphically represent information objects of interest to user 108. The Workspace View 300 helps users 108 to create, collect, organize and understand information associated with each

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IO 320 and the relationships among information represented by the IO 320. In one configuration, a generic client application such as a web browser accesses such views from respective servers 151 through 154 that may execute on the same or different computer systems 110. In another alternative configuration, a dedicated client application includes or provides the Workspace View, the News View, the database view, and the exchange view and implements the news server, the database server, and the exchange server. It is to be understood that the system described herein may be distributed or centralized and may operate among many computer systems with many users 108.

[00048] Information Objects (IOs) are flexible data structures and can include data files that can include other data files as well as meta-data (for the display of IO contents and the use of IO functions on different IVs), present themselves differently depending on the IV they are displayed on, include the same data and functionality on any IV they are displayed on. IOs can be copied or transferred between the same or different types of IVs, copied or transferred between the IVs of the same or different users, remain synchronized if copied to multiple IVs, synchronized with dynamic data sources other than source-IOs, moved from an IV to the computer desktop, file system, or 3rd party applications, thus converting an IO into a regular computer file that can be exchanged through conventional means such as email or file sharing and can be moved from the computer desktop, file system or 3rd party applications to any IV.

[00049] Information Views (IVs) can include graphical user interfaces that render IOs in different ways (can be described as a optical lenses that allows users to view information in different ways) and can enable access to all IO parameters and functions.

[00050] Using system 110 a user can interact with an information object, the system 110 facilitates sharing the IO among a plurality of participants; provides controls for attaching multi-media data to the IO, displays the IO in one of a plurality of views ; and in response to interaction with one of the plurality of views by one of the

participants, provide a communications path between at least two of the participants sharing the IO.

[00051] Directing attention briefly to Figure 2, an example layout of an information object (IO) 310 is shown. An IO 320 in this example provides a visually compact, standardized, and abstract representation of information that displays, reminds of, and/or links to the original piece of information associated with that IO 320. Generally, an IO 320 is any graphical representation of an information object and may be considered the information object itself. The term "IO" as used herein can thus include anything from a simple icon that represents something such as a web page, a document, or a live information source, or an IO can be a more complex representation of such things. Both, the layout and the functionality of IOs 320 are highly modular in one configuration. This means that visual components and computational features can be individually turned on and off, and that additional visual components and computational features can easily be integrated. Furthermore, the colors and fonts of all IO components are customizable. In one embodiment, IOs 320 are visually subdivided into six segments in one configuration that can expand and contract depending on their contents.

[00052] The icon area 321 allows for the placement of graphical and/or textual material that can help users 108 to quickly visually locate IOs among many other IOs as well as to memorize and recall the data, information or knowledge associated with that IO 320. Users 108 can copy and paste pictures and text from various computer applications into the icon area. Users can also drag and drop pictures and text from web browsers and file managers into the icon area 321. Furthermore, users can directly draw and write into the icon area 321. The background color of the icon area 321 is also customizable allowing users to visually group and highlight IOs. Typically, the icon area 321 includes an IO graphic such as an icon, picture or other graphical information that represents information associated with that IO. As an example, if an HTML document such as a web page is of interest to a user, that user can create an IO to represent that web page. The IO can include a picture from the web page or a reduced sized version of the web page as its graphic.

[00053] The IOs 320 include an information bar 322 that accommodates an interface and visual indicators for complementary IO functions. A small rectangular box that includes an icon or in some cases a numerical counter represents each available IO function. Three distinct colors visually indicate the status of each function. In one configuration, the color gray is used for inactive functions, the color green is used for active functions and the color red is used for functions that require user attention. Every function can be individually turned on and off. The information bar 322 also allows for the customization and addition of functions specific to particular situations and work tasks. The following is a list of example functions and is not intended to limit the invention to information objects (e.g., IOs 320) including such functions. A reference function allows users to hyperlink or to attach related information. A location function is used to associate IOs 320 with a geographic location. The location Algorithm indicates geographic locations for which cards (IOs) are available. In other words, if a card (IO) is associated with a geographic location then the Location Algorithm will represent this card with an icon on a map. Multiple cards in similar geographic locations do not produce multiple icons but a single icon of enlarged size. A typical application is a newspaper that marks on a world map all locations for which news is available. A control function enables automatic IO updates. A comment function allows for the addition of comments and annotations. A vote function allows collaborating users to exchange their opinions about the relevance of IOs. Every user is given one supporting vote for each card (IO). The icon color indicates the addition of recent and the presence of past votes. The numerical counter next to the icon displays the total number of supporting votes. An access log function provides users with a detailed record about the IO history. The Log Function provides users with a detailed record indicating the dates, times and names of all users that previously viewed, copied or modified the card (IO). The icon color indicates recent and past log entries. The counter next to the icon displays the number of log entries. This functionality allows users to review the evolution, collaborative use, and authorship history of cards (IOs). A personal note function is used to announce and send IOs 320 to specific users. A priority function allows users to categorize and highlight IOs.

[00054] The date / time bar 324 displays the date and time of the most recent IO modification. The relation manager 150 can use the date / time bar indication to reconstruct the chronology of contributions from different users and sources. The author bar 325 displays the name of the user who last modified the IO 320 or the information source the IO 320 has been copied from. The author bar 325 provides an indication of the IO editor and is used to compare contributions from different users and sources. The heading bar 326 allows users 108 to complement IOs 320 with a brief description or some keywords such as a title. The heading bar 326 effectively complements the icon area 321 by introducing language as an additional means for the abstract representation of data, information and knowledge. While the icon area 321 is particularly useful for the visual navigation of large IO arrangements, the heading bar 326 is focused on supporting the quick and easy recollection of IO meanings and contents.

[00055] The creation and use of IOs 320 can fundamentally shift the way analysts and decision-makers comprehend and think about information during sense-making activities. The creation of IOs 320 engages users 108 into a process of converting, standardizing, abstracting, and associating information while the use of IOs 320 fosters a strong focus on relating information uninfluenced by the format and location of information. Humans like to think of data, information and knowledge as objects that they collect, compare, and organize. The conversion of data and information (as well as the externalization of knowledge) into virtual and physical objects accommodates this way of thinking. Dealing with virtual and physical objects such as files on a computer desktop or documents on a table effectively increases a human's ability to deal with complex sense-making tasks. A standardized IO size and layout is convenient to collect, compare, and organize IOs 320. Configurations disclosed herein are based in part on the observation that the benefits of standardized information objects are present in various everyday objects. For example, index cards, credit cards, business cards, slides, photographs and postcards are usually of equal size and layout so they can conveniently be stored, accessed, and processed. The abstract representation of data, information and knowledge with IOs 320 engages a human's visual recognition in ways that decreases information access time and allows for the

processing of large amounts of information. Furthermore, the process of creating IOs 320 requires users to circumscribe the contents associated with IOs 320 in a visually and mentally fast accessible and easily comprehensible format thus encouraging a more careful analysis and understanding of the contents associated with IOs. The concept and use of abstract visual and textual reminders is also present in various everyday objects. For example, desktop icons and thumbnail views allow users to easily locate and organize computer files. Military ribbons use abstract visual representations to provide service, mission and award specific information on a small clothing area. Traffic signs depend on abstract visual representations that are easy to spot and understand by pedestrians and car drivers.

[00056] In one configuration, an IO 320 does not include information per se but only serves as a reminder for the presence of a particular piece of data, information or knowledge. The separation between IOs 320 and content associated with IOs 320 allows for the compact visualization and organization of large amounts of information. AN IO 320 may be viewed as a meaningfully labeled hyperlink to a piece of content available in a remote location. Users 108 can easily arrange and rearrange IOs 320 in the workspace 300. Users 108 benefit from this process by developing a good understanding of the IO contents and the relations among IOs 320 (e.g., context). The use of IO arrangements also benefits collaborative sense-making tasks. People of different backgrounds, interests and foci have their unique ways of relating information. The collaborative development of IO arrangements can help people to determine intersecting views as well as to develop a shared understanding of a particular information space. Information objects are thus each represented as respective IOs 320 in this configuration.

[00057] The IO attribute indicators shown in Figure 2 can indicate an IO state that can include such things as ownership of the IO, a geographic location associated with the IO, a time of creation of information associated with the IO, and other information. Depending upon the configuration, each IO 320 can further include features such as an instant messaging capability allowing to users in a distributed system to share access to an IO in order to exchange comments or messages between themselves concerning

information associated with the IO. In one configuration, the system displays, within the IO perimeter, at least one messaging icon operable by a user to send a message to an IO associated with at least one other user, thus enabling collaboration. In one configuration, clicking on the messaging icon allows users to add a time/author stamped message to an IO 320 that all users 108-2 through 108-N can see if they have a copy of this IO 320. For any user 108, the icon lights red if the IO 320 includes new messages that the user has not yet looked at, green if it includes messages that the user previously looked at, and gray if the IO includes no messages. The counter next to the icon displays the number of comments. It is to be understood a that reference to an IO 320 refers to an implementation of an information object, and as will be explained shortly, algorithms disclosed herein can analyze information about IOs, such as spatial relationships between IOs, and that such algorithms and processing can be applied to other representations of information objects besides IOs, such as desktop icons, physical locations of physical items such as items on a store shelf, and so forth.

[00058] Returning attention back to the graphical user interface 132 in Figure 1, the Workspace View 300 presents users with an empty canvas for the creation and grouping of IOs 320. In one configuration, the Workspace View 300 can be the desktop of a computer system 110 provided by an operating system, such as the Windows Desktop provided by the Windows family of operating systems made by Microsoft Corporation of Redmond Washington ,USA (Windows is a registered trademark of Microsoft Corporation). The Workspace View 300 is designed to support individual and collaborative sense-making tasks such as information analysis, planning, decision-making, brainstorming, and problem-solving. The Workspace View 300 functionality will provide users 108 with the means to efficiently create, collect, organize, analyze, and discuss information. In one configuration, IOs 320 may be created manually or semi-automatically. The manual creation of IOs 320 requires the user 108 to position an empty IO 320 on the Workspace View 300 and complement it with a picture, a heading, and a reference to an information source by simply dragging and dropping pictures, texts, hyperlinks, files, or file folders onto IOs 320. The semi-automatic creation of IOs 320 allows users to drag and drop pictures, text, hyperlinks, URLs, files, and file folders directly onto the Workspace View 300.

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This action will cause the workspace server 151 to create a new IO 320 with the content of the dropped item linked or attached to the IO 320 and with a picture and a heading added to an icon area and the heading bar (to be explained) of the IO 320. Users 108 may also copy IOs 320 from the News View 305, the database view 310 or the exchange view 315. Furthermore, a user 108 can copy IOs 320 from the Workspace View 300 to the computer desktop or file system (and vice versa) thus converting IOs 320 into regular computer files. This functionality has a variety of applications such as to exchange IOs 320 by email or to convert IOs 320 for use with other software applications. Automated IO creation is provided as well that allows a user for example to specify a file system or path or URL or database identity and the system can traverse records, documents, web pages, files and the like within the specified path, database or domain and can convert each record, file or page into an IO for use in the system.

[00059] In one embodiment the relation manager 150 allows a user to easily arrange, compare, and evaluate IOs 320 thus ensuring that users 108 will not be distracted by different information formats but focus on information contents. Each individual user 108 can determine the particular arrangement or spatial (vertical, horizontal, overlapping, proximal) layout of the graphical IOs 108 on his or her Workspace View that might indicate meaning to that user 108. For example, a user 108 may group IOs that represent related information sources in a relatively close proximity to one another thus defining tight spatial relationships between those IOs.

[00060] The system is able to analyze spatial relationships that exist between IOs 320 in each users Workspace View 300 in order to identify other information objects (e.g., other IOs 320) that may be of interest to that user 108. Based on this analysis, the relation manager 150 can identify other information sources by showing other IOs 320 that might be of interest to that user. Embodiments disclosed herein are based in part on the observation that the spatial arrangement of a first set of objects such as IOs 320 in the Workspace View 300 can be used to identify relationships between those objects and can be further used to identify other objects (such as other IOs) that may

be of importance to a user who created the initial spatial relation between the first set of objects in the Workspace View 300.

[00061] The Workspace View 300 introduces several options for the grouping of IOs 320. One option is to increase the size of one IO 320 so as to accommodate several other IOs 320 inside its boundaries. Moving an IO 320 will drag along all IOs 320 within its boundaries. A second option is to overlap IOs 320. Moving an IO 320 inside a cluster of overlapping IOs 320 will drag along the entire cluster of IOs 320. A third option is to use multiple workspaces for the grouping of IOs 320. A fourth option is to link IOs 320 to an entire IO arrangement. A mouse-click onto such an IO 320 will then open another Workspace View 300 and display the IO arrangement. Further details on contents and layout of IOs 320 will be explained shortly.

[00062] The news server 152 produces (i.e. provides information feeds for) the News View 305 to allow users 108 to collect IOs 320 for addition to the Workspace View 300. IOs 320 in the News View 305 represent information from a variety of other information sources. Feed examples includes news, alerts, announcements, motion detections on security cameras, emails, IMs, SMSs, sensors, real time search results, and custom content. An analogy of the News View 305 is a "news stand" in which recent or periodic information is available. In one configuration, the News View 305 displays the contents IOs 320 from news servers 151 that may be distributed through the network 101 within one of more computer systems 110. IOs 320 in the News View 305 can be organized by time and information sources (e.g., by topic or content area) as well as by geographic locations associated with the information represented by each IO 320. Users 108 are able to copy IOs 320 between the Workspace View 300 and the News Views 305. IOs 320 copied from the News View 305 to the Workspace View 300 may be static and not change in content, or such IOs 320 may dynamically adapt to modifications in content so that as the information source associated with an IO 320 produces new information.

[00063] In one configuration, the system can display IOs in various arrangements within the News View 305. In particular, the News View 305 can display a timeline arrangement of IOs 320. The timeline arrangement provides a visualization that

represents and organizes knowledge using a grid comprising of a timeline categorization for IOs on the horizontal axis and subject categorization on the vertical axis. In an alternative configuration, the new server 152 can display a map arrangement that provides a visualization that represents and organizes knowledge using a world-map or a floor plan comprising of geographical categorization for IOs. As an example, a News View can organize and arrange IOs in an ordered list or as a table with rows and columns of IOs organized horizontally by time and vertically by information sources. In such a configuration, new IOs for newly discovered information can be inserted on the left pushing existing IOs to the right. The time scale can be irregular and optimized to display the largest number of IOs possible. The rows of IOs in the News View can automatically expand and contract depending on the number of IOs to be shown in each row.

[00064] In this manner, the system disclosed herein provides a novel process for information retrieval and processing based on information collection support. In one example, the News View 305 displays incoming information in IOs 320 from selected information sources. The users 108 can copy relevant information from the News View 305 to the Workspace View 300 or can create new information directly in the Workspace View 300 by creating new IOs. The user(s) 108 can study, organize, and categorize the information on the Workspace View 300. In one configuration, if the Workspace View is connected to a server then all content and established relations are made accessible to this server. The user can use two Workspace Views if he wishes to separate between information that is public and private. Other users 108 view the information on the news, database or exchange views 395, 310 and 315 and can also copy relevant information from the news, database, and exchange views 305, 310, and 315 to their personal Workspace Views 300. The system can track and analyze this movement of information from source to destination and can use this IO usage and movement data based on user identifiers, locations of IOs, arrangements of IOs, contents of IOs, times of movement and copying, and other such information in processing algorithms to infer or identify relationships between IOs and to suggest other IOs that reference other information that may be of interest to a user.

[00065] The News View 305 provides users 108 with the technology to effectively monitor and visualize additions and modifications from information sources such as web sites, databases, security cameras, alarm systems, sensors, news feeds and so forth. Every information item is displayed as an IO 320. In one configuration, the News View 305 can organize and arrange IOs 320 in an ordered list or as a table with rows and columns of IOs 320 organized horizontally by time and vertically by information sources, such as by geographic origination or relation of the new story associated with the IO 320.In another configuration, the News View has several visualization options such as displaying the IO arrangement in a table or displaying the IO arrangement on a geographic map. In one configuration, new IOs 320 for newly discovered information can be inserted on the left in an appropriate row pushing existing IOs 320 to the right. The time scale can be irregular and optimized to display the largest number of IOs 320 possible. The rows of IOs 320 in the News View 305 can automatically expand and contract depending on the number of IOs 320 to be shown. The News View 305 can include an adaptor for receiving news feeds and the user interface chronologically organizes information chronologically in a subject-time matrix. The News View 305 row can combine multiple data streams so that a row includes a group of data streams. A News View row can also display other data formats as well (email, search results, sensor data gathered though a file transfer protocol (FTP) in addition to displaying RSS streams.

[00066] The News View 305 offers a variety of tools for the exploration and collaborative use of information. As an example, a user 108 can copy IOs 320 from the News View 305 to the Workspace View 300 thus allowing users to easily collect, compare and organize new information. IOs 320 copied from the News View 305 to the Workspace View 300 may be static or dynamic as noted above. A static IO 320 is an exact copy of the IO on the News View 305. In one configuration, a dynamic IO 320 continuously updates itself to reflect the most recent (left-most) IO on the News View row it was copied from. Figure 9 below shows another example layout and additional IO features.

[00067] In this manner, the system disclosed herein provides a novel process for exchanging information and for asynchronous, decentralized, remote, and cross-organizational collaboration. In particular, users 108 use their individual Workspace Views 300 to organize and analyze information. The exchange server 153 produces the exchange view 315 to display cards (IOs) 320 that are concurrently displayed in one or more workspace views 300 of at least one other user 108. The exchange view 315 displays (in prioritized order in one configuration) the IOs 320 created by all collaborating users 108 (or those with the appropriate access permissions or security levels). The exchange server 153 manages the display and exchange of card (IO) information between exchange views 315 and can include filter features to allow a user 108 to only see cards (IOs) from selected users 108 (as opposed to all cards (IOs) in all workspaces 300 of all users 108). The users 108 can copy relevant IOs 320 from their exchange views 315 to their Workspace Views 300. Users 108 can take "ownership" over IOs 320 copied from their exchange views 315 and these IOs 320 are now modifiable by the user 108. In one configuration, when a user takes ownership of an IO 320, the IO 320 is no longer synchronized with a counterpart IO on the IO author's Workspace View. In another configuration, once an IO 320 is owned exclusively by a user 108, these IOs 320 can no longer be used for collaboration such as by "instant messaging," IO commenting, or "IO voting."

[00068] Figures 3 show a diagram 360 of an IO 320 as viewed in several IVs. The diagram 360 also shows how IOs present themselves differently on different IVs and can be copied between IVs. The following are examples of the various IVs (not intended to be limiting). The News View 362 displays the contents of RSS streams (and other dynamic information sources) as IOs arranged in a table, organized by time in horizontal and by information sources, subject or category in vertical direction. New IOs are inserted on the left pushing existing IOs to the right. The time scale is irregular and optimized to display the largest number of IOs possible (meaning time segments without IOs are automatically removed). The rows automatically expand and contract depending on the number of news items (makes all rows display similar numbers of IOs). Users can add RSS files by simply dropping an IO or an RSS URL onto a row in News View. A News View row can include multiple RSS streams

(multiple streams are automatically combined). The News View can be used to display a wide variety of information such as newspaper news, emails instant messages, motion activity on web cameras, eBay and Craigslist postings, company internal announcements and alerts. The News View can also be used as a RSS feed generator. For example, a user could create an empty News View that all users can view and add IOs to. Users can copy News View rows or individual IOs to other IVs. A copy of a News View row onto a Workspace View would result in a single IO that dynamically updates itself and that displays the most recent item in the associated RSS feeds. The primary purpose of the News View is to help users monitor large numbers of RSS feeds in a quick and easy comprehensible format.

[00069] The Workspace View 364 displays IOs in a game IO like format. The visual components of the IOs are customizable and expandable. Users can modify IO parameters in a so-called IO editor (see Illustration 3 and 4). For example, users can add files to IOs, view and modify ratings, or discuss the IO contents with other users through the built-in instant messaging system or shared white board. If a user moves a regular file or a URL from a computer file system or a web browser onto the Workspace View then an IO is automatically created with the file attached or the URL hyperlinked. The Workspace View is designed to allow users to easily collect, organize and compare information in different formats and locations. For example, a Workspace View may be used for web shopping allowing users to quickly drag and drop items of interest from different web sites (such as Amazon, eBay, and Craigslist) onto the Workspace View for the subsequent comparison of options and prices. Since IO components can be dynamic (meaning that they can automatically retrieve content updates from dynamic information sources) the user can also use a collection of IOs to monitor changes to prices and bids.

[00070] The Map View 366 is a geographic map display that represents IOs as location items. A location item presents itself as (one or more) symbols (of choice) on the map. The location item allows access to all IO functionality available in other IVs. If the geographic location associated with a location item is dynamic then the symbol would automatically update its location on the map. If a location item is copied to a

Workspace View then it will present itself as an IO with the geographic location accessible and modifiable through the IO Editor. The Map View is primarily designed for military use but has a wide range of commercial applications as well. For example, a user could create a public Map View with hiking paths. Other users could copy hiking paths of interest from this public Map View to their personal Map View s or other IVs, discuss hiking paths through the IO instant messaging feature, or rate the quality of hiking paths through the IO rating system.

[00071] The Project View 368 is a time planning and calendar display (similar to MS Project) that allows users to represent IOs as time bars. IOs in this IV also maintain all the contents and functionalities of IOs displayed on other IVs. Moving an IO from the Project View to the Workspace View would create an IO that displays the time frame with a time bar on the IO or a time frame in the calendar tool of the IO Editor. The Project View is primarily designed for people that need to compare and modify time related IO parameters. For example, the Project View may be used to review and modify IOs that represent tasks scheduled for execution during particular time frames, resources that are only available during particular time frames or people that are only available during particular time frames.

[00072] The Graph View 370 displays IOs as line or bar graphs. This particular IV is primarily designed for comparing statistical data associated with IOs such as stock quotes, bids and sensor data.

[00073] The List View 372 is a spread sheet like display (similar to the Microsoft ® Office Excel spreadsheet program) that allows users to represent IO parameters in a table format. The List View is primarily designed for people that need to compare and modify particular IO parameters such as, for example, the cost of sales items or the specifications of resources referenced by individual IOs.

[00074] Now referring to Figures 4A and 4B, screen shots show News Views that display news for multiple different news papers (Figure 4A) and postings by different users (Figure 4B).

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[00075] Figure 5A shows a diagram of IOs being exchanged between IVs of different users. Figure 5B shows a diagram of IOs being exchanged between Private, Visible and Shared Views. There are various ways in which IOs can be exchanged between the IVs of the same and of different users such as:

by copying IOs from the personal IV of another user (Users can make their personal IVs accessible to other users. An IV can be Shared 510 (read / write), Visible 512 (read) or Private 514;

by sending IOs to a particular user or group of users through the integrated instant messaging system or a commercial instant messaging system;

by sending IOs to a particular user or group of users through email;

by making IOs available through shared file systems; and

by retrieving IOs from our database (The database automatically collects and organizes IOs from the IVs of different users.

[00076] A variety of data visualization and access tools allow for the easy retrieval of IOs from the database, for example, in conjunction with an EWall Agent System; and by retrieving IOs from a Discovery View. The Discovery View presents individual users with a custom selection of potentially relevant IOs, and in one embodiment consolidates the Exchange View (315) and Database View (310). In this embodiment, the Discovery View not only displays related information in the IO database 125 but can also display related information found by other web services (e.g., related products for one selected product provided by online sellers or search engines). The Database Views (Discovery Views) 310 of individual users 108 display (in prioritized order) cards (IOs) 320 available in the database (as records 160) that are related or relevant to the cards (IOs) 320 on a user's workspace view 300 based on the relations discovered via application of the relation processing algorithms 155.

[00077] Figure 6A is a diagram of an exemplary GUI Organization including graphical user interface 610 for the management of IVs in accordance with one example embodiment disclosed herein. Figure 6B is a more detailed diagram of the exemplary GUI Organization of Figure 6A. In one embodiment, the GUI Organization includes three columns. The left column 620 includes displays 622 and 624 provided

by the View Manager 178 and the Communication Manager 180, respectively. The View Manager 178 displays all available IVs, allows users to open individual IVs, and enables users to modify the access rights of individual IVs. The View Manager 178 also displays representations of servers, databases, agent systems (e.g., EWall Agent System) and users in the collaborative environment. The Connection Manger 180 allows users to communicate with other users, exchange IOs with other users, access the IVs of other users, import IOs from databases and agent systems, as well as to control the export of IOs to databases and agent systems. The middle column 630 is used to display one or more IVs 632a – 632n. The right column 640 includes the IO Editors 642a – 642n. IO Editors 642a – 642n are tools that allow users to view and modify IO parameters and operate IO functions. The information displayed in IO Editors always refers to the currently selected IO or group of IOs.

[00078] Figure 6C is a diagram of an alternate exemplary GUI 660 in accordance with one example embodiment disclosed herein. Graphical user interface 660 for displaying an information objects includes a discussion subject 602, a message indicator 603, threaded discussion window 607, a list of participants linked to the information object 608, a collaborative rating 605 including a ranking of importance, a buddy list 601, a discussion heading 604, a list of attachments 606 and meta-data and shared applications 609. In other embodiments the graphical user interface for displaying information objects includes a geographic map, category keywords and auction information. In other embodiments the attachments include thumbnails of multimedia data.

[00079] Figure 7 is a diagram of a GUI 700 showing several features of the system 110 available to the user including control 710 which when clicked sends or receives an IM message about a view. This is a means for enhancing a hosted conversation, for example in a chat room. The GUI 700 further includes control 712 click to send/receive an IM message about an IO, for example in a chat room. The following controls can also be used: control 714 allows a database to collect information from the corresponding window; control; 716 disallows a database to collect information from the corresponding window; control 720 sends an IO to a user or a group of users;

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control 724 disallows a user to view details of the corresponding view; control 726 allows a user to view/modify the corresponding view; control 728 sends or receives an IM message or IO to or from the user, for example in a chat room; and control 730 sends an IM message or IO to a group of users, for example in a chat room. Indicator 718 indicates available resources in a database (cards, visualizations, statistics, etc.) and indicator 722 indicates a view of another user that is open for viewing or modification. GUI 700 allows the users to import and export IOs from and to IM systems, other users views, shared views, e-mail tools, databases, agent systems.

[00080] Figure 8 is a diagram of IO File Management 800 which allows an IO to display the content of different types of files 802 including such as content from: a web site 810, flash applications 812, movies 814, pictures, text from office documents 816, PDF documents 818 and other documents 820. In operation, the IO file manager 182 processes attachments, hyperlinked web content from the different file types 802 and remote sources 806 including remote RSS files 822, remote objects 824 and remote files 826 to create and dynamically update IO contents.

[00081] A user 108 can create an IO by simply dragging a hyperlink or file or other digital material onto the Workspace View 300. A new IO is created where the hyperlink or file is dropped, a picture is added automatically (by searching the hyperlink destination or the file contents for an appropriate graphic), the heading is added automatically (typically the web site or file name), and a link or embedded attachment is automatically created from the file or the web site reference by the hyperlink

[00082] Figure 9 is a diagram of IO components expanding on the basic IO components described above in Figure 2. IOs include default and custom parameters and functions. IO parameters and functions are best explained with IOs rendered on Workspace Views. IOs can display a large number of IO parameters and function without the need for the user to access the IO Editor. The IO layout can be customized to only display the IO parameters and function the user wants to see. The following list provides a few examples of IO parameters and functions as they would appear in different sections (Bars) of an IO on a Workspace View.

[00083] Picture/Text bar 902 allows the insertion and display of text, pictures, PDF files, active Flash applications (can run inside the Picture/Text Bar), Office documents, and additional applications, file types and multi-media data. Function Bar 910 displays icons that serve as status indicators and that link to particular IO Editors.

[00084] A Bubble Icon 912 opens an IO Editor window that allows users to exchange comments, share a white board, contribute to a forum, or insert notes. The "bubble" icon 912 is rendered white if no user added any information, gray if one or more user added information and red if one or more users added information that the viewer has not yet looked at. An optional calendar tool allows users to compare their availabilities and schedule a "chat" session ahead of time.

[00085] A Flag Icon 914 links to a map display in the IO Editor allowing users to view and modify geographic locations associated with an IO. A Person Icon 916 indicates whether a particular IO is used by other users and links to an IO Editor that allows the IO owner to view the list of IO users as well as to assign access restrictions to IO contents. A File Icon 918 allows users to add and access (any number of) attachments and hyperlinks to an IO. An Arrow Icon 920 allows users to add, modify and control dynamic information sources (e.g., to control automatic updates to IO contents retrieved from dynamic information sources such as Email accounts, RSS feeds, sensors, motion detectors and security cameras or web sites). Users can activate one or more Reliability / Ratings / Votes / Importance / Priority Bars (collectively referred to as bars 924) for the individual and collaborative evaluation of information. IOs can be evaluated on a scale from 1 to 5 (represented by 5 boxes). Filled boxes represent the average evaluations of all IO users while the arrow symbol indicates the individual rating of the IO viewer.

[00086] Trade bar 930 and Value / Value Change bar 928 comprise a trading feature that allows users to trade IO contents or items referenced by IOs. For example, an IO could represent a stock (market item) and allow users to monitor, buy and sell stocks; an item on eBay or Craigslist and allow users to monitor and manage bids; or an item on Amazon and display its current purchase price. Users associate IOs with one or more categories using a Category bar 932 that allows for faster IO searches on IVs and

databases. Users associate IOs with a time or time frame using Time Frame / Schedule bar 934, for example, displayed on IOs as a point or as a bar on a time scale. The time scale is the same for all IOs and can be set in the preference menu, e.g. left side of the bar = -12 hours, middle = now, right = +12 hours. The point or bar on the time scale will move from left to right in accordance to the real time. Graphic display 940 shows various display options for icons on the various function bars.

[00087] In one embodiment the system 110 provides hosted conversation among a group of participants using the integrated instant messaging system facilities which provide a communication system linking an IO to a group of participants. Each system component (IO, IV, Database, Agent System) and participant is linked to the instant messaging system (also known as a chat room). The IO can include a link to a document, links to the group of participants, meta-data related to the conversation and communication system which links the IO to the group of participants. The process of initiating a hosted conversation begins when a user starts a discussion or a collaborative project by first creating a new IO and then adding data, meta-data and linking participants to the IO.

[00088] For example, to communicate about the contents of an IO the user would click the bubble icon 912 on this IO in the user interface on the client system to "chat" (about this IO) with other participant who maintains a copy of this IO. Clicking on the "bubble" icon 912 associated with a participants (or group of participants) listed in a contact list and linked by the connection manger 180 would initiate a "chat" session with those participants. The hosted conversation includes a list of participants linked to the at least one information object and an IV to visualize the at least on information object. Clicking on the "bubble" icon 912 associated with the IV in the View Manager would initiate a "chat" session (about this IV) with every other participant who has access to this IV. The integrated instant messaging system is also used to exchange IOs between users. An IO can simply be dragged and dropped onto a user icon which subsequently sends a copy of this IO to the intended recipient. The instant messaging functionality can be complemented with any other IO parameter and function such as, for example, a function that allows users to assign ratings to databases, agent systems, users or IVs. One important benefit of this system is that it

allows users to stay engaged in a large number of discussions about particular subjects represented by different users, IOs or IVs. Advantageously the user can organize and monitor a large number of IOs where every IO represents a different issue that may be discussed with a different groups of participants.

[00089] Thus system 110 provides a graphical interface for displaying an information object which includes displaying a threaded discussion window, a list of participants linked to the information object, a collaborative rating including a ranking of importance, a buddy list, a discussion heading; and a list of attachments.

[00090] Figure 10 is a diagram of IO operations including IO creation. IOs can be created manually or automatically. The automatic creation converts a non-IO object or file into an IO if a user imports a non-IO file from any application into an IV. For example, if a user drags a URL of an item for sale on the Amazon web site onto the Workspace View, the resulting IO would display an image of the item in the Picture Bar, the name of the item in the Heading Bar, the cost of the item in the Value Bar, and hyperlinks to the Amazon web site where the item is advertised. Filters include the rules and manage the conversion from non-IO files to IOs.

[00091] Generally, IOs can be manually created such as by creating a blank IO and then specifying an information source to which that IO refers. The IO look can be complemented with a picture, explanatory text, a heading and other visual attributes by simply dragging and dropping pictures and text fragments onto the IO. Alternatively, in another mode, IOs can be semi-automatically created in a Workspace View or on a desktop by dragging an information object such as hyperlink, document, file or URL onto the Workspace View in which case a new IO is automatically formed and associated with the hyperlinked data, file or document. The IO picture and the IO heading are added automatically if an appropriate picture and heading can be extracted from the dragged information object or if an appropriate picture can be found in a database that matches the file name or within some of the content of the dragged information object. In yet another mode, an automated IO creation process can traverses a set of records or files, such as a database or file system or all web pages within a certain URL and can perform automatic creation of IOs from each database

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record, web page, or file. As an example, entire databases or file systems or all documents below or within a certain URL or domain on the Internet can automatically be converted into IOs using the semi-automatic creation of IOs but in a non-manual way that does not require a user dragging and dropping of each file, document or URL onto a view.

[00092] The following Workspace View examples detail several exemplary user interactions with IOs and IVs. A user can drag a URL from a web browser onto a Workspace View which will create an IO that hyperlinks to that URL and automatically extracts (from the URL destination) a picture and a heading that is displayed in the IO's picture and heading bar. The user can drag an RSS URL onto a Workspace View which will create an IO that visualizes the most recent item in the RSS file/s and that continuously updates itself. The user can drag a regular document (file) onto a Workspace View which will create an IO with the document attached. Dragging a document onto an IO also attaches the document. The user can import an IO from another user into the Workspace View which will create an IO copy that is synchronized with the original IO. The user can drag an IO from the Workspace View to the computer desktop which will create an IO file. The user can drag an IO from a News View row to the Workspace View which will create an IO copy that is synchronized with the original IO. The user can drag a News View Row to the Workspace View which will create an IO that visualizes the most recent item in the RSS file/s and that continuously updates itself. In another embodiment, a user can drag a buddy icon from an instant messaging system onto the IO or drag an IO the buddy icon to initiate a conversation or to link the "buddy" to the IO. In this manner, links are formed between the information object and one of the plurality of participants by selecting the information object and selecting the participant from a displayed list of participants and the system 110 associates participants and information objects by indicating a connection between an icon from an instant messaging system and the information object.

[00093] The following News View examples detail several exemplary user interactions with IOs and IVs. The user can drag one or more RSS URLs onto a News

View row which will add and displays the content of RSS URLs on the News View row as a sequence of IOs. The user can drag and drop a Workspace View ID onto a News View row which will display IO additions and modification on that Workspace. The user can drag and drop an IO onto a News View row which will add that IO to the IO sequence. The user can drag an IO from a News View row to the computer desktop which will create an IO. The user can drag a News View row to the computer desktop which will create an IO.

[00094] Figure 11 diagrams the overall process of interacting with an information object. In step 1110, the system provides the information object (I/O), for example on a GUI display as described above. A new IO can be created from scratch or by using a filter, or an existing IO can be shared, copied, transferred, etc. as described above. Next, in step 1120, the IO is shared among a plurality of participants. In step 1130, multi-media data can be optionally attached to the information object. In step 1140, the information object is displayed in one of a plurality of views. Finally in step 1150, in response to interaction with one of the plurality of views by one of the participants, a communications path between at least two of the participants sharing the information object is provided by the connection manager 180.

[00095] Figure 12 is a flow chart of processing steps showing additional details in conjunction with flow char 1100 Figure 11, that system 110 performs to allow interactions with an information object in accordance with embodiments disclosed herein. In one embodiment, step 1210 provides the information object by filtering a web page associated with a URL to create the information object by automatically extracting meta-data including at least one of a heading, a picture, and link to the URL. In step 1220, the information object is shared among a plurality of participants by transferring the information object between different information views. In step 1230, the multi-media data is linked to the information object

[00096] In step 1240, an automated participant is provided. The automated participant interacts with the information object. In some embodiments, there is no distinction between a user and an automated participant (e.g., a participant based on a computational system). In step 1250, information is retrieved based on user

interaction with the information object including spatially arranging the information object relative to other information objects. In step 1252, interaction with the information object includes attaching at least one document to the information object.

[00097] Figure 13 is a flow chart of processing steps that system 110 performs to support a hosted conversation among a group of participants including interactions with an information object in accordance with embodiments disclosed herein. In step 1310, a link to at least one information object is stored to host a conversation among a group of participants. The information object includes at least one link to a document; a plurality of links to the group of participants; meta-data related to the conversation; and a communication system linking the at least one information object to the group of participants provided by connection manager 180.

[00098] In step 1320, a user interface on the client system is provided. The user interface includes an icon representing the at least one information object a contact list; a list of participants linked to the at least one information object; and an information view to visualize the at least on information object. In step 1330, an Information View is displayed that includes a News View having an adaptor for receiving news feeds and the user interface chronologically organizes information chronologically in a subject-time matrix. The user interface further includes a zoomable, graphical timeline including automatic compression of the subject-time matrix and in one embodiment the news feed is a syndication feed.

[00099] While configurations of the system and method have been particularly shown and described with references to configurations thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the scope of the invention. As an example, the order of processing steps in the flow charts is not limited to the order shown herein. Accordingly, the present invention is not limited by the example configurations provided above.

What is claimed is:

1. A computer-implemented method of interacting with at least one data item, in which at least one computer initiates execution of software instructions to perform computer processes, the computer processes comprising:

configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink;

using the extracted data to make available for display, a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, the heading, the source, a set of indicators, and a mechanism giving graphical access to a set of functions, including an instant messaging function, by which a plurality of users having access to the card can exchange author- and time-stamped messages relating to the information object, such messages being associated with the information object and accessible to users who view the information object; and

storing data corresponding to each of the cards in a database, configured so that each card in the database, with any associated messages, is accessible and sharable among users.

2. A method according to claim 1, the computer processes further comprising:
providing a user interface having a graphical button, which, when invoked while content is being displayed, causes the displayed content to be handled as one of the data items, namely, by configuring the displayed content as a new information object and making a representation of the new information object available for display in the uniform format.

3. A method according to claim 1, wherein one of the indicators displays the total number of messages, associated with the information object, that have been associated with the information object.

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4. A method according to claim 3, wherein the one of the indicators changes its appearance to indicate the presence of a message, associated with the information object, that has not yet been read by the user.

5. A method according to claim 1, wherein (i) one of the set of functions is a vote function by which a user can provide a vote associated with the information object and (ii) one of the indicators displays the total number of votes, associated with the information object, that have been received.

6. A method according to claim 1, wherein the format includes a user-accessible report relating to users who replicated the information object.

7. A method according to claim 1, wherein the information object is configurable to include a user-accessible file attachment.

8. A method according to claim 1, wherein the one of the indicators indicates the presence of a geographic location, associated with the information object.

9. A method according to claim 1, further comprising:

further causing to be displayed, at the same time as the representation, a map including a location, marked on the map, associated with at least one of the information objects.

10. A method according to claim 9, further comprising:

responsive to a graphical input applied to the displayed location, causing the location on the map to be edited in accordance with the graphical input.

11. A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, that constitute a second collection of the first user;

responsive to (i) a graphical selection, by the first user, of an information object in the first view and (ii) a copy command that has been graphically entered by the first user, causing the selected information object to be copied from the first view to the second view.

12. A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, that constitute a collection of a second user.

13. A method according to claim 12, further comprising:

responsive to (i) a graphical selection, by the first user, of an information object in the second view and (ii) a copy command that has been graphically entered by the first user, causing the selected information object to be copied from the second view to the first view, so that the selected information object in the collection of the second user has been copied to the first collection of the first user.

14. A method according to claim 12, further comprising:

responsive to (i) a graphical selection, by the first user, of an information object in the first view and (ii) a send command that has been graphically entered by the first user, causing the selected information object to be sent to the second user, so that the selected information object in the collection of the first user is made available to the second user to be included in the collection of the second user.

15. A method according to claim 1, further comprising:

on a user-entered command, causing an information object to be shared with another user when the information object and the other user have been graphically selected.

16. A method according to claim 1, further comprising:

on a user-entered command, causing an information object to be shared with another user via an instant message sent through an integrated instant messaging system as a result of graphical selection by a first user.

17. A method according to claim 1, further comprising causing shared information objects to be synchronized with one another.

18. A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, outside of the first collection, wherein any given member of the second set of information objects is both included in a collection of another user and the other user has been selected by the first user; and wherein each of the information objects in the second view can, on a user-entered command, be caused to be copied to the first view.

19. A method according to claim 18, wherein each of the information objects in the second view is displayed in an order determined by a criterion selected from the group consisting of the information object's creation time, its access time, and combinations thereof.

20. A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, outside of the first collection, that are related to one or more information objects in the first collection as a result of being in one or more collections, of other users, that also include at least one of the information objects in the first collection; wherein each of the information objects in the second view can , on a user-entered command, be caused to be copied to the first view.

21. A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a view of a first set of information objects that constitute a collection of the first user;

serving, to a client computing device of a second user, a view of a first set of information objects that constitute a collection of the second user;

storing the information objects in a database, each of the information objects being stored in association with data pertinent thereto including

any users thereof,

spatial location thereof in the workspace view,

content and metadata thereof, such metadata including comments and votes,

times of storage, viewing and copying thereof,

relationship thereof to any other information objects; and

processing information object data in the database to make a recommendation to the first user, wherein the recommendation is based on at least one of the criteria in the group consisting of:

number of direct and indirect relations of information objects in the collection of the first user with another information object in the database;

addition of a first pair of information objects to a collection of another user in short interval of time, of which one of the first pair of information objects is already in the collection of the first user;

presence of a second pair of information objects in the collection of the other user in close spatial proximity to one another, of which one of the second pair of information objects is already in the collection of the first user;

presence of a given information object in a row or column of information objects in the collection of the other user, wherein one of the information objects in the row or column is already in the collection of the first user;

popularity of an information object in the database, based on a popularity measure selected from the group consisting of number of users, number of views, number of copies made, number of comments made, number of votes, and combinations thereof;

presence of an information object from a second user with whom the first user previously exchanged information objects, comments or votes;

and combinations thereof.

22. A method according to claim 21, wherein the processing to make the recommendation includes processing to recommend an information object that is not in the collection of the first user.

23. A method according to claim 21, wherein the processing to make the recommendation includes processing to recommend another user who created an information object that is selected based on at least one of the criteria.

24. A computer-implemented method of interacting with a plurality of data items retrieved from a plurality of dynamic information sources, in which at least one computer initiates execution of software instructions to perform computer processes, the computer processes comprising:

receiving a user selection of dynamic information sources;

automatically obtaining additions and modifications to the information sources and automatically converting the additions and modifications into data items;

automatically configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink; and

using the extracted data to cause display of a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, and a heading;

wherein the information objects are automatically organized for display in a plurality of rows, each row having a heading;

wherein each row is automatically collected and corresponds to a distinct set of at least one of the dynamic information sources and the data items therein are arranged chronologically and the information object provides graphical access to content via the hyperlink.

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25. A computer-implemented method according to claim 24, wherein at least one of the dynamic information sources includes an item selected from the group consisting of news feeds, alerts, announcements, e-mails, instant messages and sensor data.

26. A method according to claim 24, wherein any given row is configurable to receive at least one RSS URL that has been deposited therein manually by the user using a graphical user interface, so as to cause display in the given row of a sequence of information objects extracted from a corresponding data stream associated with the at least one RSS URL.

27. A method according to claim 24, wherein the information objects in any given row are filtered to match a user-specified set of keywords for the given row.

28. A method according to claim 24, wherein any given row is configurable to receive an information object deposited therein manually by the user using a graphical user interface, and wherein the information object deposited therein is automatically caused to be placed in a left-most position.

29. A method according to claim 24, wherein at least one of the information sources provides real-time search results.

30. A computer-implemented method of interacting with at least one data item, in which at least one computer initiates execution of software instructions to perform computer processes, the computer processes comprising:

configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink;

using the extracted data to make available for display, a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, the heading, the source, a set of indicators, and a mechanism giving graphical access to a set of functions, including a vote function, by which a plurality of users having access to the card can provide a vote, such votes

being associated with the information object and accessible to users who view the information object, and one of the indicators displays the total number of votes that have been received from all users; and

storing data corresponding to each of the cards in a database, configured so that each card in the database, with any associated votes, is accessible and sharable among users.

ABSTRACT OF THE DISCLOSURE

METHODS AND APPARATUS FOR MANAGING AND EXCHANGING INFORMATION USING INFORMATION OBJECTS

A computer-implemented method of interacting with at least one data item includes configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink. The method additionally uses the extracted data to make available for display a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, the heading, the source, a set of indicators, and a mechanism giving graphical access to a set of functions.

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SCORE Placeholder Sheet for IFW Content

Application Number: 15243497 Document Date: 08/22/2016

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
15/243,497	08/22/2016		1130	4123/1002	30	3

CONFIRMATION NO. 3305

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

FILING RECEIPT

OC000000085534206

Date Mailed: 09/02/2016

Receipt is acknowledged of this non-provisional 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**

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Power of Attorney: The patent practitioners associated with Customer Number 02101

Domestic Priority data as claimed by applicant

This application is a CON of 14/644,178 03/10/2015
which is a CON of 13/925,031 06/24/2013 ABN
which is a CON of 12/563,416 09/21/2009 PAT 8499248
which is a CIP of 61/116,747 11/21/2008
and is a CIP of 11/118,301 04/29/2005 PAT 7640511
which claims benefit of 60/566,723 04/29/2004

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.

Permission to Access Application via Priority Document Exchange: Yes

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If Required, Foreign Filing License Granted: 08/31/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/243,497**

Projected Publication Date: 12/08/2016

Non-Publication Request: No

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

Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Preliminary Class

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

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 15/243,497

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	70		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	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	30 minus 20 =	* 10	x 40 =	400	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	1130		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	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
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

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
ewww.uspto.gov

SUNSTEIN KANN MURPHY & TIMBERS LLP
125 SUMMER STREET
BOSTON MA 02110-1618

MAILED
SEP 21 2016
OFFICE OF PETITIONS

Doc Code: TRACK1.GRANT

Decision Granting Request for Prioritized Examination (Track I or After RCE)	Application No.: 15/243,497

1. THE REQUEST FILED August 22, 2016 IS **GRANTED.**

The above-identified application has met the requirements for prioritized examination

A. ☒ for an original nonprovisional application (Track I).
B. ☐ for an application undergoing continued examination (RCE).

2. **The above-identified application will undergo prioritized examination.** The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:

A. filing a **petition for extension of time** to extend the time period for filing a reply;
B. filing an **amendment to amend the application to contain more than four independent claims, more than thirty total claims**, or a multiple dependent claim;
C. filing a **request for continued examination**;
D. filing a notice of appeal;
E. filing a request for suspension of action;
F. mailing of a notice of allowance;
G. mailing of a final Office action;
H. completion of examination as defined in 37 CFR 41.102; or
I. abandonment of the application.

Telephone inquiries with regard to this decision should be directed to **Michelle R. Eason** at (571) 272-4231.

In his/her absence, calls may be directed to Brian W. Brown at (571) 272-5338.

/Michelle R. Eason/
(*Signature*)

Paralegal Specialist, Office of Petitions
(Title)

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Keel et al.

Application No.: 15/243,497 Group No.: 2143
Filed: 08/22/2016 Examiner: Not yet assigned
For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

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

REQUEST FOR CORRECTED FILING RECEIPT

1. Attached is a marked up copy of the official filing receipt received from the PTO in the above application for which issuance of a corrected filing receipt is respectfully requested. Also attached is a New Application Data Sheet, indicating the correction we are requesting.

2. There is an error with respect to the following, which is incorrectly entered.

Error in	*Correct data*
Domestic Priority Data as claimed by applicant	This application is a CON of 14/664,178 03/20/2015

3. Please make the requested correction and issue a Corrected Filing Receipt at your earliest convenience.

4. Applicant believes no fees are due for this filing. If, however, fees are due, authorization is hereby made to charge Deposit Account No. 19-4972.

Date: October 5, 2016

/Bruce D. Sunstein, #27,234/
Bruce D. Sunstein
Registration No. 27,234
SUNSTEIN KANN MURPHY & TIMBERS LLP
125 Summer Street
Boston, MA 02110-1618
617-443-9292
Customer No. 02101

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
15/243,497	08/22/2016		1130	4123/1002	30	3

CONFIRMATION NO. 3305

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

FILING RECEIPT

OC000000085534208

Date Mailed: 09/02/2016

Receipt is acknowledged of this non-provisional 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)

Paul Erich Keel, Cambridge, MA;
Jeffrey Huang, Lausanne, SWITZERLAND;

Applicant(s)

Paul Erich Keel, Cambridge, MA;
Jeffrey Huang, Lausanne, SWITZERLAND;

Power of Attorney: The patent practitioners associated with Customer Number 02101

Domestic Priority data as claimed by applicant

This application is a CON of ~~14/644,178 09/10/2015~~ 14/664,178 03/20/2015
which is a CON of 13/925,031 06/24/2013 ABN
which is a CON of 12/563,416 09/21/2009 PAT 8499248
which is a CIP of 61/116,747 11/21/2008
and is a CIP of 11/118,301 04/29/2005 PAT 7640511
which claims benefit of 60/566,723 04/29/2004

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.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 08/31/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/243,497**

Projected Publication Date: 12/08/2016

Non-Publication Request: No

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

Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Preliminary Class

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).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or **all** of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 — Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Paul	Erich	Keel	

Residence Information (Select One) ● US Residency ○ Non US Residency ○ Active US Military Service

City	State/Province	Country of Residence
Cambridge	MA	US

Mailing Address of Inventor:

Address 1	372 Massachusetts Avenue
Address 2	Apartment 1004

City	State/Province	Postal Code	Country
Cambridge	MA	02139	US

Inventor 2 — Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jeffrey		Huang	

Residence Information (Select One) ○ US Residency ● Non US Residency ○ Active US Military Service

City	Country of Residence	
Lausanne		CH

Mailing Address of Inventor:

Address 1	Avenue des Tilleuls 6
Address 2	

City	State/Province	Postal Code	Country
Lausanne		1006	CH

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. — Add

Correspondence Information:

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	2101		
Email Address	usptomail@sunsteinlaw.com	Add Email	Remove Email

Application Information:

Title of the Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		
Attorney Docket Number	4123/1002	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	14	**Suggested Figure for Publication (if any)**	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	2101		

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	~~14/644178~~ 14/664178	2015-03-20
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
14/644178	Continuation of	13/925031	2013-06-24
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13/925031	Continuation of	12/563416	2009-09-21	8499248	2013-07-30

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
12/563416	Claims benefit of provisional	61/116747	2008-11-21
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12/563416	Continuation in part of	11/118301	2005-04-29	7640511	2009-12-29

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
11/118301	Claims benefit of provisional	60/566723	2004-04-29

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Applicant:

Address 1			
Address 2			
City		**State/Province**	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

PTO/AIA/14 (11-15)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Bruce D. Sunstein, #27,234/			Date (YYYY-MM-DD)	2016-10-05
First Name	Bruce D.	Last Name	Sunstein	Registration Number	27234

Additional Signature may be generated within this form by selecting the Add button. Add

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	4123/1002
	Application Number	
Title of Invention	Methods and Apparatus for Managing and Exchanging Information Using Information Objects	

This collection of information is required by 37 CFR 1.76. 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 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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.**

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 the Freedom of Information Act requires disclosure of these records.

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 CooperationTreaty.

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 inspections 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:	27126409
Application Number:	15243497
International Application Number:	
Confirmation Number:	3305
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects
First Named Inventor/Applicant Name:	Paul Erich Keel
Customer Number:	2101
Filer:	Bruce D. Sunstein
Filer Authorized By:	
Attorney Docket Number:	4123/1002
Receipt Date:	05-OCT-2016
Filing Date:	22-AUG-2016
Time Stamp:	19:14:00
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	Request for Corrected Filing Receipt	4123_1002_ReqCorrectedFR.pdf	334786 9f47300f20e4da0779bb765f34ddbcb3f517f806	no	5

Warnings:

Information:					
2	Application Data Sheet	4123_1002_newADS.pdf	430239 79d1d95e6082302814addfb3933bf9d08f487568	no	9
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
			Total Files Size (in bytes):	765025	

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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.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
15/243,497	08/22/2016	2143	1130	4123/1002	30	3

CONFIRMATION NO. 3305

CORRECTED FILING RECEIPT

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

OC000000086336927

Date Mailed: 10/11/2016

Receipt is acknowledged of this non-provisional 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)

Paul Erich Keel, Cambridge, MA;
Jeffrey Huang, Lausanne, SWITZERLAND;

Applicant(s)

Paul Erich Keel, Cambridge, MA;
Jeffrey Huang, Lausanne, SWITZERLAND;

Power of Attorney: The patent practitioners associated with Customer Number 02101

Domestic Priority data as claimed by applicant

This application is a CON of 14/664,178 03/20/2015
which is a CON of 13/925,031 06/24/2013 ABN
which is a CON of 12/563,416 09/21/2009 PAT 8499248
which claims benefit of 61/116,747 11/21/2008
and is a CIP of 11/118,301 04/29/2005 PAT 7640511
which claims benefit of 60/566,723 04/29/2004

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.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 08/31/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/243,497**

Projected Publication Date: 12/08/2016

Non-Publication Request: No

Early Publication Request: No

** **SMALL ENTITY** **

Title

Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Preliminary Class

715

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

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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).

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Page 181

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/243,497	08/22/2016	Paul Erich Keel	4123/1002	3305

2101 7590 12/06/2016

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

EXAMINER	
HAILU, TADESSE	

ART UNIT	PAPER NUMBER
2173	

NOTIFICATION DATE	DELIVERY MODE
12/06/2016	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 References Cited	Application/Control No. 15/243,497	Applicant(s)/Patent Under Reexamination KEEL ET AL.	
	Examiner TADEESE HAILU	Art Unit 2173	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2004/0177319 A1	09-2004	Horn, Bruce L.	G06F17/3002	715/205
*	B	US-8,249,885 B2	08-2012	Berkowitz; Gary Charles	G06F17/30873	705/1.1
*	C	US-7,941,444 B2	05-2011	Cragun; Brian J.	G06F17/30997	707/784
*	D	US-6,049,806 A	04-2000	Crecine; John Patrick	G09B5/14	1/1
	E	US-				
	F	US-				
	G	US-				
	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	CPC 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.

First Action Interview Pilot Program Pre-Interview Communication	Application No. 15/243,497	Applicant(s) KEEL ET AL.	
	Examiner TADEESE HAILU	Art Unit 2173	AIA (First Inventor to File) Status No

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

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

This time period for reply is extendable under 37 CFR 1.136(a) for only ONE additional MONTH.

This communication constitutes notice under 37 CFR 1.136(a)(1)(i).

Applicant must, within the time period for reply, file: (1) A letter requesting not to have a first action interview; (2) A reply under 37 CFR 1.111 waiving the first action interview and First Action Interview Office Action; or (3) An Applicant Initiated Interview Request Form (PTOL-413A) electronically via EFS-Web, accompanied by a proposed amendment or arguments, and schedule the interview within 2 months from the filing of the request. A failure to respond to this communication will be treated as a request not to have an interview. If applicant waives the First Action Interview Office Action, the instant Pre-Interview Communication is deemed the first Office Action on the Merits. The next subsequent Office action may be made final if appropriate. See MPEP 706.07(a).

Status

1)☒ Responsive to communication(s) filed on *8/22/2016*.

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

Disposition of Claims

2)☒ Claim(s) *1-30* is/are pending in the application.

2a) Of the above claim(s) _____ is/are withdrawn from consideration.

3)☐ Claim(s) _____ is/are allowed.

4)☒ Claim(s) *1-30* is/are rejected.

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

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

Application Papers

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

8)☒ The drawing(s) filed on *8/22/2016* 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

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

a)☐ All b)☐ Some * c)☐ None of:

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.

Contact Information

Examiner's Telephone Number: (571)272-4051

Examiner's Typical Work Schedule: 10:00-6:30

Supervisor's Name: Kieu Vu

Supervisor's Telephone Number:

Attachment(s)

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

2) ☒Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/9/2016*.

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

4) ☐ Other: _____.

First Action Interview Pilot Program Pre-Interview Communication	**Application No.** 15/243,497	**Applicant(s)** KEEL ET AL.	
	Examiner TADEESE HAILU	**Art Unit** 2173	**AIA (First Inventor to File) Status** No

Notification of Rejection(s) and/or Objection(s)

#	Claim(s)	Reference(s) (if applicable)	Rejection Statutory Basis	Brief Explanation of Rejection
1	1-23	14/664,178 (9,524,090)	Double Patenting	it is a statutary Double Patenning rejection, the same invention. Claims 1-7, 9-16, and 21-25 of 14/664,178 are mapped to calims 1-23 of the current application.
2				these claims are objected as being dependent on rejected claim 1.

Expanded Discussion/Commentary

		claims 1-23 iof the current application is identical to claims 1-7, 9-16, and 21-25 of 14/664,178
		a prior art serch was made on December 1, 2016 but no relevant prior art was found

DATE: 01 December, 2016	/TADEESE HAILU/ Primary Examiner, Art Unit 2173	

Notice of References Cited	Application/Control No. 15/243,497	Applicant(s)/Patent Under Reexamination KEEL ET AL.	
	Examiner TADEESE HAILU	Art Unit 2173	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2004/0177319 A1	09-2004	Horn, Bruce L.	G06F17/3002	715/205
*	B	US-8,249,885 B2	08-2012	Berkowitz; Gary Charles	G06F17/30873	705/1.1
*	C	US-7,941,444 B2	05-2011	Cragun; Brian J.	G06F17/30997	707/784
*	D	US-6,049,806 A	04-2000	Crecine; John Patrick	G09B5/14	1/1
	E	US-				
	F	US-				
	G	US-				
	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	CPC 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.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	175715	extract$4 same (metadata data information) same (webpage page web url address link)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 11:46
L2	1863	extract$4 same (metadata data information) same (webpage page web url address link) same (image picture) same (link address name identifier URl) same (topics header heading title)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 11:48
L3	3781	extract$4 same (metadata data information) same (webpage page web url address link) same (image picture) same (link address name identifier URl) same (topics object header heading title)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 11:51
L4	79	3 and (compact card) same information with object	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 11:52
L5	88	3 and (compact thumbnails card) same information with object	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 11:53
L6	104	3 and (compact thumbnails summary card) same information with object	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 11:53
L7	39	6 and graphical near3 interface	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 11:55
L8	4	"9524090".pn.	US-PGPUB;	OR	OFF	2016/12/01

			USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			12:18
L9	4	"9524090".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:18
L10	4	"9524090".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:19
L11	624	information adj object same card	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:23
L12	84	information adj object same card and URL	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:24
L13	61	information adj object same card and URL and (picture image)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:24
L14	36	information adj object same card and URL and (picture image) and extract$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:25
L15	19	information adj object same card and URL and (picture image) and extract$3 and messages	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:26
L16	6851	(package summmar$4 compact$3) with (folder card metadata information thumbnails object) and information near5 object and (hyperlink$3 URL link$4) same (picture object image) and extract$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2016/12/01 12:37

		and messages	IBM_TDB			
L17	6350	16 and (URl link$3 hyperlink$3) same (picture image messages information id identifiers descriptions)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:39
L18	6373	16 and (URl link$3 hyperlink$3) same (picture card image messages information id identifiers descriptions)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:40
L19	877	1 AND G06F17/3087.CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:47
L20	977	1 AND G06F3/0482.CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:47
L21	0	1 AND G06F3/30867.CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:48
L22	3354	1 AND G06F17/30867.CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:48
L23	479	1 AND H04L65/403.CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:48
L24	298	(19 20 22 23) AND (extract$3 card gather$3) with metadata same (URL address id identification summary compact presentations messages)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:50
L25	80	24 and (card compact thumbnails summary) with information	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	2016/12/01 12:51

			JPO; DERWENT; IBM_TDB			
L26	160	24 and (card compact profile thumbnails summary) with (object information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:52
L27	6	26 and @py < "2007"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/01 12:52

EAST Search History (Interference)

<This search history is empty>

12/ 1/ 2016 12:57:05 PM
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15243497	KEEL ET AL.
	Examiner	Art Unit
	TADEESE HAILU	2173

✓	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	12/01/2016								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
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	23	✓								
	24	=								
	25	=								
	26	=								
	27	=								
	28	=								
	29	=								
	30	=								

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Keel et al.		
Application No.:	Not Yet Assigned	Group No.:	Not Yet Assigned
Filed:	Herewith	Examiner:	Not Yet Assigned

For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

List of Sections Forming Part of This Information Disclosure Statement

The following sections are being submitted for this Information Disclosure Statement:

1. [x] Preliminary Statements
2. [x] Forms PTO/SB/08A and 08B (substitute for Form PTO-1449)
3. [ ] Statement as to Information Not Found in Patents or Publications
4. [ ] Identification of Prior Application in Which Listed Information Was Already Cited and for Which No Copies Are Submitted or Need Be Submitted
5. [ ] Cumulative Patents or Publications
6. [x] Copies of Listed Information Items Accompanying This Statement
7. [ ] Concise Explanation of Non-English Language Listed Information Items
   - 7A. [ ]EPO Search Report
   - 7B. [ ]English Language Version of EPO Search Report
8. [ ] Translation(s) of Non-English Language Documents
9. [ ] Concise Explanation of English Language Listed Information Items (Optional)
10. [x] Identification of Person(s) Making This Information Disclosure Statement

Meta Platforms, Inc. - Ex. 1002
Page 192

Section 1. Preliminary statements

Applicants submit herewith patents, publications or other information, of which they are aware that they believe may be material to the examination of this application, and in respect of which, there may be a duty to disclose.

The filing of this information disclosure statement shall not be construed as a representation that a search has been made (37 C.F.R. § 1.97(g)), an admission that the information cited is, or is considered to be, material to patentability, or that no other material information exists.

The filing of this information disclosure statement shall not be construed as an admission against interest in any manner. Notice of January 9, 1992, 1135 O.G. 13-25, at 25.

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	Not Yet Assigned	Art Group Unit:	Not Yet Assigned
Date Filed:	Herewith	Examiner Name:	Not Yet Assigned
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		

DATE: August 22, 2016

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

U.S. PATENT DOCUMENTS					
Examiner Initials	**Reference Number**	**Document Number**	**Issue Date**	**Inventor**	**Class/Subclass**
	AA	US 5,008,853	Apr. 16, 1991	Bly, et al	364/900
	AB	US 5,220,657	Jun. 15, 1993	Bly, et al	395/425
	AC	US 6,092,067	Jul. 18, 2000	Girling, et al	707/100
	AD	US 6,119,147	Sep. 12, 2000	Toomey, et al	709/204
	AE	US 6,266,649	Jul. 24, 2001	Linden, et al	705/26
	AF	**US 6,289,362**	Sep. 11, 2001	Van Der Meer	707/501
	AG	US 6,327,590	Dec. 4, 2001	Chidlovskii, et al	707/5
	AH	**US 6,415,316**	Jul. 2, 2002	Van Der Meer	709/203
	AI	US 6,597,377	Jul. 22, 2003	MacPhail	345/738
	AJ	US 6,724,403	Apr. 20, 2004	Santoro, et al	345/765
	AK	US 6,768,999	July 27, 2004	Prager, et al	707/102
	AL	US 6,829,619	Dec. 7, 2004	Wakamatsu, et al	707/104.1
	AM	US 6,912,505	Jun. 28, 2005	Linden, et al	705/14
	AN	US 6,931,591	Aug. 16, 2005	Brown, et al	715/517
	AO	US 6,973,456	Dec. 6, 2005	Elgart	707/10
	AP	US 7,028,264	Apr. 11, 2006	Santoro, et al	715/765
	AQ	US 7,062,242	Jun. 13, 2006	Dajer, et al	455/232.1
	AR	US 7,113,917	Sep. 26, 2006	Jacobi, et al	705/14
	AS	US 7,478,054	Jan. 13, 2009	Adams, et al	705/26
	AT	US 7,478,078	Jan. 13, 2009	Lunt, et al	707/1
	AU	US 7,543,237	Jun. 2, 2009	Kontny, et al	715/759
	AV	US 7,681,112	Mar. 16, 2010	Francis	715/201
	AW	US 7,765,490	Jul. 27, 2010	Lai, et al	715/810
	AX	US 7,904,323	Mar. 8, 2011	Wynn, et al	705/8
	AY	US 7,921,368	Apr. 5, 2011	Moody, et al	715/751
	AZ	US 8,078,615	Dec. 13, 2011	Smith, et al	707/732
	BA	US 8,392,834	Mar. 5, 2013	Obrador	715/723
	BB	US 8,743,148	Jun. 3, 2014	Gegner, et al	345/660

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.H/

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	Not Yet Assigned	Art Group Unit:	Not Yet Assigned
Date Filed:	Herewith	Examiner Name:	Not Yet Assigned
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		

DATE: August 22, 2016

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

U.S. PATENT PUBLICATION DOCUMENTS					
Examiner Initials	**Reference Number**	**Document Number**	**Publication Date**	**Inventor**	**Class/Subclass**
	BC	US2002/0016725	Feb. 7, 2002	Eichstaedt, et al	705/5
	BD	US2002/0080180	Jun. 27, 2002	Mander, et al	345/769
	BE	US2002/0143877	Oct. 3, 2002	Hackbarth, et al	709/205
	BF	US2002/0169737	Nov. 14, 2002	Armstrong, et al	706/59
	BG	US2003/0009493	Jan. 9, 2003	Parker, et al	707/500.1
	BH	US2003/0135565	Jul. 17, 2003	Estrada	709/206
	BI	US2003/0158855	Aug. 21, 2003	Farnham, et al	707/102
	BJ	US2003/0208397	Nov. 6, 2003	VanDusen	705/14
	BK	US2003/0217056	Nov. 20, 2003	Allen, et al	707/7
	BL	US2004/0003097	Jan. 1, 2004	Willis, et al	709/228
	BM	US2004/0049541	Mar. 11, 2004	Swahn	709/203
	BN	US2004/0054428	Mar. 18, 2004	Sheha, et al	700/56
	BO	US2004/0083274	Apr. 29, 2004	Katiyar, et al	709/217
	BP	US2004/0153445	Aug. 5, 2004	Horvitz, et al	707/3
	BQ	US2004/0193673	Sep. 30, 2004	Samji, et al	709/200
	BR	US2004/0201609	Oct. 14, 2004	Obrador	345/723
	BS	US2004/0261013	Dec. 23, 2004	Wynn, et al	715/511
	BT	US2004/0267700	Dec. 30, 2004	Dumais, et al	707/2
	BU	US2005/0080807	Apr. 14, 2005	Beilinson, et al	707/102
	BV	US2005/0154639	Jul. 14, 2005	Zetmeir	705/14
	BW	US2005/0165880	Jul. 28, 2005	Moody, et al	709/200

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.H/

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	Not Yet Assigned	Art Group Unit:	Not Yet Assigned
Date Filed:	Herewith	Examiner Name:	Not Yet Assigned
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		

DATE: August 22, 2016

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

Examiner Signature: /TADESSE HAILU/

Date Considered: 12/01/2016

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation *if not* in conformance and not considered. Include copy of this form with next communication to applicant.

Section 6. Copies of Listed Information Items Accompanying This Statement

Legible copies of all items listed in Forms PTO/SB/08A and 08B (substitute for Form PTO-1449) accompany this information statement.

[X] Exception(s) to above:

U.S. patent citations are not included pursuant to the United States Patent and Trademark Office's September 21, 2004 waiver of the copy requirement in 37 CFR 1.98 for cited pending U.S. patent citations when the patent citations are available in the USPTO's IFW system.

[ ] Items in prior application, from which an earlier filing date is claimed for this application, as identified in Section 4.

[ ] Cumulative patents or publications identified in Section 5.

Section 10. Identification of Person Making This Information Disclosure Statement

The person making this certification is the practitioner of record.

/Bruce D. Sunstein, #27,234/
SIGNATURE OF PRACTITIONER

Reg. No.: 27,234

Bruce D. Sunstein
(type or print name of practitioner)

Tel. No.: (617) 443-9292

Sunstein Kann Murphy & Timbers LLP
125 Summer Street, 11th Floor
P.O. Address

Customer No.: 002101

Boston, MA 02110-1618

04123/01002 2571052.1

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	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/243,497	08/22/2016	Paul Erich Keel	4123/1002

CONFIRMATION NO. 3305

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

PUBLICATION NOTICE

OC000000087751356

Title: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Publication No.US-2016-0357874-A1
Publication Date:12/08/2016

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/243,497	08/22/2016	Paul Erich Keel	4123/1002	3305

2101 7590 12/16/2016
Sunstein Kann Murphy & Timbers LLP
125 SUMMER STREET
BOSTON, MA 02110-1618

EXAMINER	
HAILU, TADESSE	

ART UNIT	PAPER NUMBER
2173	

NOTIFICATION DATE	DELIVERY MODE
12/16/2016	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

Office Action Summary	Application No. 15/243,497	Applicant(s) KEEL ET AL.	
	Examiner TADEESE HAILU	Art Unit 2173	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 *3* MONTHS 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 *August 22, 2016*.

☐ 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) *1-30* is/are pending in the application.

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

6)☐ Claim(s) *24-29* is/are allowed.

7)☒ Claim(s) *1 and 30* is/are rejected.

8)☒ Claim(s) *2-23* 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 *8/22/2016* 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/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *8/22/16*.

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

4) ☐ Other: _____.

DETAILED ACTION

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

2. Please disregard the Office Action mailed on December 6, 2016.

3. This Office Action is in response to the patent application filed August 22, 2016.

4. Claims 1-30 are presented for examination.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process... may obtain a patent therefor..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the claims that are directed to the same invention so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

5. Claims 1 and 30 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 1 of copending Application No. 14/664,178 (reference application). This is a provisional statutory double patenting rejection since the claims directed to the same invention have not in fact been patented.

Current application	14/664,178	Current application
1. A computer-implemented method of interacting with at least one data item, in which at least one computer initiates execution of software instructions to perform computer processes, the computer processes comprising:	1. A computer-implemented method of interacting with a plurality of arbitrary data items, in which at least one computer initiates execution of software instructions to perform computer processes, the method comprising:	30. A computer-implemented method of interacting with at least one data item, in which at least one computer initiates execution of software instructions to perform computer processes, the computer processes comprising:
configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink;	configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink;	configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink;
using the extracted data to make available for display, a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, the heading, the source, a set of indicators, and a mechanism	using the extracted data to cause display, simultaneously, of a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, the heading, the source, a set of indicators, and a set of icons	using the extracted data to make available for display, a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, the heading, the source, a set of indicators, and a

giving graphical access to a set of functions, including an instant messaging function, by which a plurality of users having access to the card can exchange author- and time-stamped messages relating to the information object, such messages being associated with the information object and accessible to users who view the information object; and	giving graphical access to functions, wherein one of the icons in the set gives graphical access to a message function by which a user can create a message relating to the information object, and cause the message to be associated with the information object and shared among users who view the information object; and	mechanism giving graphical access to a set of functions, including a vote function, by which a plurality of users having access to the card can provide a vote, such votes being associated with the information object and accessible to users who view the information object, and one of the indicators displays the total number of votes that have been received from all users; and
storing data corresponding to each of the cards in a database, configured so that each card in the database, with any associated messages, is accessible and sharable among users.	storing data corresponding to each of the cards in a database, configured so that each card in the database is sharable.	storing data corresponding to each of the cards in a database, configured so that each 5 card in the database, with any associated votes, is accessible and sharable among users.

Allowable Subject Matter

6. Claims 24-29 are allowed.

7. Claims 1 and 30 would be allowable if rewritten or amended to overcome the Double Patenting rejection, set forth in this Office action.

8. Claims 2-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

CONCLUSION

9. Information regarding the status of an application may be obtained from the patent application information retrieval (PAIR) system. Status information for published application 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, please see pair-direct.uspto.gov web site. Should you have questions regarding access to the PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

10. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Tadesse Hailu, whose telephone number is (571) 272-4051, e-mail address tadesse.hailu@uspto.gov, and the Fax number is (571) 273-4051. The Examiner can normally be reached on M-F from 10:30 – 7:00 ET. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kieu Vu, can be reached at (571) 272-4057 Art Unit 2173.

/Tadesse Hailu/
Primary Examiner, Art Unit 2173

Notice of References Cited	Application/Control No. 15/243,497	Applicant(s)/Patent Under Reexamination KEEL ET AL.	
	Examiner TADEESE HAILU	Art Unit 2173	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2004/0177319 A1	09-2004	Horn, Bruce L.	G06F17/3002	715/205
*	B	US-2004/0205514 A1	10-2004	Sommerer, Ralph	G06F17/212	715/205
*	C	US-2003/0164856 A1	09-2003	Prager, Randy	A63F7/0676	715/764
*	D	US-2003/0030678 A1	02-2003	Rosenholtz, Ruth E.	G06F17/30855	715/838
*	E	US-2002/0186257 A1	12-2002	Cadiz, Jonathan J.	G06F17/30867	715/838
*	F	US-2001/0003214 A1	06-2001	Shastri, Vijnan	G06F17/30796	725/109
*	G	US-2002/0147661 A1	10-2002	Hatakama, Hiroshi	G06Q30/06	705/26.8
*	H	US-8,249,885 B2	08-2012	Berkowitz; Gary Charles	G06F17/30873	705/1.1
*	I	US-8,042,063 B1	10-2011	Lin-Hendel; Catherine	G06F3/0482	715/805
*	J	US-7,941,444 B2	05-2011	Cragun; Brian J.	G06F17/30873	707/784
*	K	US-6,781,920 B2	08-2004	Bates; Cary Lee	G06Q10/109	368/10
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC 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.

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Keel et al.		
Application No.:	Not Yet Assigned	Group No.:	Not Yet Assigned
Filed:	Herewith	Examiner:	Not Yet Assigned

For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

List of Sections Forming Part of This Information Disclosure Statement

The following sections are being submitted for this Information Disclosure Statement:

1. [x] Preliminary Statements
2. [x] Forms PTO/SB/08A and 08B (substitute for Form PTO-1449)
3. [ ] Statement as to Information Not Found in Patents or Publications
4. [ ] Identification of Prior Application in Which Listed Information Was Already Cited and for Which No Copies Are Submitted or Need Be Submitted
5. [ ] Cumulative Patents or Publications
6. [x] Copies of Listed Information Items Accompanying This Statement
7. [ ] Concise Explanation of Non-English Language Listed Information Items
   - 7A. [ ]EPO Search Report
   - 7B. [ ]English Language Version of EPO Search Report
8. [ ] Translation(s) of Non-English Language Documents
9. [ ] Concise Explanation of English Language Listed Information Items (Optional)
10. [x] Identification of Person(s) Making This Information Disclosure Statement

Meta Platforms, Inc. - Ex. 1002
Page 207

Section 1. Preliminary statements

Applicants submit herewith patents, publications or other information, of which they are aware that they believe may be material to the examination of this application, and in respect of which, there may be a duty to disclose.

The filing of this information disclosure statement shall not be construed as a representation that a search has been made (37 C.F.R. § 1.97(g)), an admission that the information cited is, or is considered to be, material to patentability, or that no other material information exists.

The filing of this information disclosure statement shall not be construed as an admission against interest in any manner. Notice of January 9, 1992, 1135 O.G. 13-25, at 25.

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	Not Yet Assigned	Art Group Unit:	Not Yet Assigned
Date Filed:	Herewith	Examiner Name:	Not Yet Assigned Tadesse Hailu
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		

DATE: August 22, 2016

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

U.S. PATENT DOCUMENTS					
Examiner Initials	**Reference Number**	**Document Number**	**Issue Date**	**Inventor**	**Class/Subclass**
	AA	US 5,008,853	Apr. 16, 1991	Bly, et al	364/900
	AB	US 5,220,657	Jun. 15, 1993	Bly, et al	395/425
	AC	US 6,092,067	Jul. 18, 2000	Girling, et al	707/100
	AD	US 6,119,147	Sep. 12, 2000	Toomey, et al	709/204
	AE	US 6,266,649	Jul. 24, 2001	Linden, et al	705/26
	AF	**US 6,289,362**	Sep. 11, 2001	Van Der Meer	707/501
	AG	US 6,327,590	Dec. 4, 2001	Chidlovskii, et al	707/5
	AH	**US 6,415,316**	Jul. 2, 2002	Van Der Meer	709/203
	AI	US 6,597,377	Jul. 22, 2003	MacPhail	345/738
	AJ	US 6,724,403	Apr. 20, 2004	Santoro, et al	345/765
	AK	US 6,768,999	July 27, 2004	Prager, et al	707/102
	AL	US 6,829,619	Dec. 7, 2004	Wakamatsu, et al	707/104.1
	AM	US 6,912,505	Jun. 28, 2005	Linden, et al	705/14
	AN	US 6,931,591	Aug. 16, 2005	Brown, et al	715/517
	AO	US 6,973,456	Dec. 6, 2005	Elgart	707/10
	AP	US 7,028,264	Apr. 11, 2006	Santoro, et al	715/765
	AQ	US 7,062,242	Jun. 13, 2006	Dajer, et al	455/232.1
	AR	US 7,113,917	Sep. 26, 2006	Jacobi, et al	705/14
	AS	US 7,478,054	Jan. 13, 2009	Adams, et al	705/26
	AT	US 7,478,078	Jan. 13, 2009	Lunt, et al	707/1
	AU	US 7,543,237	Jun. 2, 2009	Kontny, et al	715/759
	AV	US 7,681,112	Mar. 16, 2010	Francis	715/201
	AW	US 7,765,490	Jul. 27, 2010	Lai, et al	715/810
	AX	US 7,904,323	Mar. 8, 2011	Wynn, et al	705/8
	AY	US 7,921,368	Apr. 5, 2011	Moody, et al	715/751
	AZ	US 8,078,615	Dec. 13, 2011	Smith, et al	707/732
	BA	US 8,392,834	Mar. 5, 2013	Obrador	715/723
	BB	US 8,743,148	Jun. 3, 2014	Gegner, et al	345/660

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.H/

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	Not Yet Assigned	Art Group Unit:	Not Yet Assigned
Date Filed:	Herewith	Examiner Name:	Not Yet Assigned
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		

DATE: August 22, 2016

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

U.S. PATENT PUBLICATION DOCUMENTS					
Examiner Initials	**Reference Number**	**Document Number**	**Publication Date**	**Inventor**	**Class/Subclass**
	BC	US2002/0016725	Feb. 7, 2002	Eichstaedt, et al	705/5
	BD	US2002/0080180	Jun. 27, 2002	Mander, et al	345/769
	BE	US2002/0143877	Oct. 3, 2002	Hackbarth, et al	709/205
	BF	US2002/0169737	Nov. 14, 2002	Armstrong, et al	706/59
	BG	US2003/0009493	Jan. 9, 2003	Parker, et al	707/500.1
	BH	US2003/0135565	Jul. 17, 2003	Estrada	709/206
	BI	US2003/0158855	Aug. 21, 2003	Farnham, et al	707/102
	BJ	US2003/0208397	Nov. 6, 2003	VanDusen	705/14
	BK	US2003/0217056	Nov. 20, 2003	Allen, et al	707/7
	BL	US2004/0003097	Jan. 1, 2004	Willis, et al	709/228
	BM	US2004/0049541	Mar. 11, 2004	Swahn	709/203
	BN	US2004/0054428	Mar. 18, 2004	Sheha, et al	700/56
	BO	US2004/0083274	Apr. 29, 2004	Katiyar, et al	709/217
	BP	US2004/0153445	Aug. 5, 2004	Horvitz, et al	707/3
	BQ	US2004/0193673	Sep. 30, 2004	Samji, et al	709/200
	BR	US2004/0201609	Oct. 14, 2004	Obrador	345/723
	BS	US2004/0261013	Dec. 23, 2004	Wynn, et al	715/511
	BT	US2004/0267700	Dec. 30, 2004	Dumais, et al	707/2
	BU	US2005/0080807	Apr. 14, 2005	Beilinson, et al	707/102
	BV	US2005/0154639	Jul. 14, 2005	Zetmeir	705/14
	BW	US2005/0165880	Jul. 28, 2005	Moody, et al	709/200

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.H/

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	Not Yet Assigned	Art Group Unit:	Not Yet Assigned
Date Filed:	Herewith	Examiner Name:	Not Yet Assigned
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		

DATE: August 22, 2016

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT

Examiner Signature: /TADESSE HAILU/

Date Considered: 12/08/2016

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation *if not* in conformance and not considered. Include copy of this form with next communication to applicant.

Section 6. Copies of Listed Information Items Accompanying This Statement

Legible copies of all items listed in Forms PTO/SB/08A and 08B (substitute for Form PTO-1449) accompany this information statement.

[X] Exception(s) to above:

U.S. patent citations are not included pursuant to the United States Patent and Trademark Office's September 21, 2004 waiver of the copy requirement in 37 CFR 1.98 for cited pending U.S. patent citations when the patent citations are available in the USPTO's IFW system.

[ ] Items in prior application, from which an earlier filing date is claimed for this application, as identified in Section 4.

[ ] Cumulative patents or publications identified in Section 5.

Section 10. Identification of Person Making This Information Disclosure Statement

The person making this certification is the practitioner of record.

/Bruce D. Sunstein, #27,234/
SIGNATURE OF PRACTITIONER

Reg. No.: 27,234

Bruce D. Sunstein
(type or print name of practitioner)

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125 Summer Street, 11th Floor
P.O. Address

Customer No.: 002101

Boston, MA 02110-1618

04123/01002 2571052.1

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15243497	KEEL ET AL.
	Examiner	Art Unit
	TADEESE HAILU	2173

✓	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	12/01/2016								
	1	✓								
	2	O								
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	24	=								
	25	=								
	26	=								
	27	=								
	28	=								
	29	=								
	30	✓								

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L13	103352	(compact$3 conden$4 reduced thumbnails) with (represent$4 incorporat$3 attach$4 access$4) with (multimedia information profile media content link$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 12:38
L14	13696	(compact$3 conden$4 reduced thumbnails) with ((information near object) object card) same (represent$4 incorporat$3 attach$4 access$4) with (multimedia information profile media content link$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 12:39
L15	1	12 and extract$4 same (heading source hyperlink)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 12:41
L16	118	14 and (filter$4 drag$4 extract$4) with (document item hyperlink url link$4) same (heading source hyperlink)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 12:45
L17	449	14 and (filter$4 drag$4 extract$4) with (document item hyperlink url link$4) same (heading source hyperlink image picure summary information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 12:48
L18	449	14 and (filter$4 drag$4 extract$4) with (document item hyperlink url link$4) same (heading source hyperlink image picture summary information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 12:49
L19	150	18 and @py < "2009"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 12:50
L20	141	19 and ((multi near media)	US-PGPUB;	OR	OFF	2016/12/08

		multimedia picture text heading title topics link)	USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			12:54
L21	73	19 and (compact thumbnail summary card represent$4) with ((multi near media) multimedia picture text heading title topics link)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 12:54
L22	10	("20060095976" "20060095397")	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 13:11
L23	47	("2006/0095976").URPN.	USPAT	OR	OFF	2016/12/08 13:13
L24	3	"20090150373"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 13:15
L25	12500	13 and (hyperlink$3 link$3 URL) same (summary card compact)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 13:24
L26	4956	13 and (hyperlink$3 link$3 URL) with (summary card compact)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 13:25
L27	555	26 and sharing with (information object)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 13:26
L28	80	27 and (filter$4 drag$4 extract$4) with (document item hyperlink url link$4) same (heading source hyperlink image picure summary information)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 13:26
L29	20	28 and @py < "2009"	US-PGPUB; USPAT; USOCR; FPRS; EPO;	OR	OFF	2016/12/08 13:27

			JPO; DERWENT; IBM_TDB			
L30	79	19 and ((multi near media) multimedia picture text heading title topics link) same (card summary compact condens$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 13:30
L31	3	"20050273510"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 13:42
L32	2	"6781920".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 13:43
L33	2	"7269590".pn.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 13:52
L34	21	information near3 object same (compact thumbnails summary conden$4) with presentation same (heading link picture url multimedia media)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 13:54
L35	9	34 AND ((G06F17/30864 OR G06F17/3089 OR G06F3/0482 OR G06F17/30867 OR G06F3/04817).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 13:58
L36	11923	13 and (container thumbnail windows card summary compact) with (hyperlink$3 link$3 image picture descriptions link$3 URL)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 15:01
L37	11477	36 and (media multimedia text image video information object)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 15:02
L38	8204	36 and (viewer view$3 window workspace) same (media multimedia	US-PGPUB; USPAT;	OR	OFF	2016/12/08 15:03

		text image video information object)	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
L39	7165	37 and (viewer view$3 window workspace) with (media multimedia text image video information object)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 15:03
L40	293	39 and (filter$3 extract$3) with (document page web) same (url heading title topics summary)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 15:06
L41	382	39 and (filter$3 extract$3) with (document page web) same (url heading link hyperlink title topics summary)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 15:06
L42	185	41 and @py < "2009"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 15:06
L43	155	41 and @py < "2008"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 15:07
L44	110	41 and @py < "2008" and graphical and navigat$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 15:07
L45	110	44 and (viewer view$3 window workspace) same (media multimedia text image video information object)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 15:07
L46	57	45 and information near5 object and card	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/12/08 15:08

EAST Search History (Interference)

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12/ 8/ 2016 3:31:31 PM
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15243497	KEEL ET AL.
	Examiner	Art Unit
	TADEESE HAILU	2173

CPC- SEARCHED		
Symbol	Date	Examiner
((G06F17/30864 OR G06F17/3089 OR G06F3/0482 OR G06F17/30867 OR G06F3/04817).CPC.)	12/8/2016	TH

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
EAST - USPAT, PGPUB, EPO, JPO(abstract)	12/8/2016	TH

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Keel et al.

Application No.: 15/243,497 Group No.: 2173
Filed: 08/22/2016 Examiner: Hailu, Tadesse
For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TRANSMITTAL

1. Transmitted herewith is a Response for this application.

STATUS

2. Applicant is a small entity. Small entity status was asserted at the time of filing.

EXTENSION OF TERM

3. The proceedings herein are for a patent application and the provisions of 37 C.F.R. 1.136 apply. Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

FEE FOR CLAIMS

4. The fee for claims (37 C.F.R. 1.16(b)-(d)) has been calculated as shown below:

	(Col. 1)		(Col. 2)		(Col. 3)		SMALL ENTITY			
	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NO. PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE		ADDIT. FEE	
TOTAL	28	–	30	=	0	x	$ 40.00	=	$	0.00
INDEP.	2	–	3	=	0	x	$ 210.00	=	$	0.00
FIRST PRESENTATION OF MULTIPLE DEP. CLAIM						+	$ 0.00	=	$	0.00
							TOTAL ADDIT. FEE		$	0.00

No additional fee for claims is required.

FEE DEFICIENCY

5. If an extension and/or fee is required, charge Account No. 194972.

If a fee for claims is required, charge Account No. 194972.

Date: March 16, 2017

/Bruce D. Sunstein, #27,234/
Bruce D. Sunstein
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617-443-9292
Customer No. 02101

04123/01002 2691294.1

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Page 222

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Keel et al.	Docket No.:	4123/1001
Appl. No:	15/243,497	Art Unit:	2173
Filed :	August 22, 2016	Examiner:	Hailu
		Conf. No:	3305

Title: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

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VIA USPTO ELECTRONIC FILING SYSTEM

Mail Stop AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE A

Dear Sir:

This communication is in response to the Office Action of December 16, 2016 (the "Office Action").

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 10 of this paper.

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Page 223

Listing of Claims:

1. (Currently amended) A computer-implemented method, ~~of interacting with at least one data item,~~ in which at least one computer initiates execution of software instructions to perform computer processes, the method being for interacting with at least one data item obtained from at least one third-party source, the computer processes comprising:

configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a picture, a heading, ~~a source, graphical and textual material,~~ and a hyperlink to the data item;

storing data corresponding to each of the information objects in a database system;

using the extracted data to make available for display, a representation of each of at least two of the information objects in the database system, the at least two information objects being selected for display, the representation being in a uniform format, wherein the format includes a card, and, within the card, in uniform locations thereof, ~~an icon area for graphical and textual material~~ the picture, the heading, the source for the data item, a set of indicators, and a function mechanism giving graphical access to a set of functions,

wherein the functions include:

~~including~~ an instant messaging function, by which ~~a plurality of~~ users having access to the card can exchange author- and time-stamped messages relating to the information object, such messages being associated with the information object and accessible to users who view the information object;

a vote function, by which each user having access to the card can provide one vote for the information object;

a replicate function, by which each user having access to the card in a first collection of cards can cause the card to be replicated in a second collection of cards; and

a link function, by which each user having access to the card can invoke the hyperlink to the data item; and

wherein the indicators include:

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a message indicator that displays a total number of instant messages associated with the information object; and

a vote indicator that displays a total number of votes associated with the information object; and

wherein ~~storing data corresponding to each of the cards in a~~the database system[[,]] is configured so that (i) each user has at least one user-selected collection of cards in the database system and (ii) each card in the database system, with any associated picture and heading, and other associated data, regardless of the collection in which it may have first appeared, is accessible and replicable across card collections of users ~~each card in the database, with any associated messages, is accessible and sharable among users~~.

2. (Original) A method according to claim 1, the computer processes further comprising:

providing a user interface having a graphical button, which, when invoked while content is being displayed, causes the displayed content to be handled as one of the data items, namely, by configuring the displayed content as a new information object and making a representation of the new information object available for display in the uniform format.

3. (Currently Amended) A method according to claim 1, wherein the format includes within the card an indication of a date of creation of the card ~~one of the indicators displays the total number of messages, associated with the information object, that have been associated with the information object~~.

4. (Original) A method according to claim 3, wherein the one of the indicators changes its appearance to indicate the presence of a message, associated with the information object, that has not yet been read by the user.

5. (Canceled)

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6. (Original) A method according to claim 1, wherein the format includes a user-accessible report relating to users who replicated the information object.

7. (Original) A method according to claim 1, wherein the information object is configurable to include a user-accessible file attachment.

8. (Original) A method according to claim 1, wherein the one of the indicators indicates the presence of a geographic location, associated with the information object.

9. (Original) A method according to claim 1, further comprising:

further causing to be displayed, at the same time as the representation, a map including a location, marked on the map, associated with at least one of the information objects.

10. (Original) A method according to claim 9, further comprising:

responsive to a graphical input applied to the displayed location, causing the location on the map to be edited in accordance with the graphical input.

11. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, that constitute a second collection of the first user;

responsive to (i) a graphical selection, by the first user, of an information object in the first view and (ii) a copy command that has been graphically entered by the first user, causing the selected information object to be copied from the first view to the second view.

12. (Original) A method according to claim 1, further comprising:

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serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, that constitute a collection of a second user.

13. (Original) A method according to claim 12, further comprising:

responsive to (i) a graphical selection, by the first user, of an information object in the second view and (ii) a copy command that has been graphically entered by the first user, causing the selected information object to be copied from the second view to the first view, so that the selected information object in the collection of the second user has been copied to the first collection of the first user.

14. (Original) A method according to claim 12, further comprising:

responsive to (i) a graphical selection, by the first user, of an information object in the first view and (ii) a send command that has been graphically entered by the first user, causing the selected information object to be sent to the second user, so that the selected information object in the collection of the first user is made available to the second user to be included in the collection of the second user.

15. (Original) A method according to claim 1, further comprising:

on a user-entered command, causing an information object to be shared with another user when the information object and the other user have been graphically selected.

16. (Original) A method according to claim 1, further comprising:

on a user-entered command, causing an information object to be shared with another user via an instant message sent through an integrated instant messaging system as a result of graphical selection by a first user.

17. (Original) A method according to claim 1, further comprising causing shared information objects to be synchronized with one another.

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18. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, outside of the first collection, wherein any given member of the second set of information objects is both included in a collection of another user and the other user has been selected by the first user; and wherein each of the information objects in the second view can, on a user-entered command, be caused to be copied to the first view.

19. (Original) A method according to claim 18, wherein each of the information objects in the second view is displayed in an order determined by a criterion selected from the group consisting of the information object's creation time, its access time, and combinations thereof.

20. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, outside of the first collection, that are related to one or more information objects in the first collection as a result of being in one or more collections, of other users, that also include at least one of the information objects in the first collection; wherein each of the information objects in the second view can , on a user-entered command, be caused to be copied to the first view.

21. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a view of a first set of information objects that constitute a collection of the first user;

serving, to a client computing device of a second user, a view of a first set of information objects that constitute a collection of the second user;

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storing the information objects in a database, each of the information objects being stored in association with data pertinent thereto including

any users thereof,

spatial location thereof in the workspace view,

content and metadata thereof, such metadata including comments and votes,

times of storage, viewing and copying thereof,

relationship thereof to any other information objects; and

processing information object data in the database to make a recommendation to the first user, wherein the recommendation is based on at least one of the criteria in the group consisting of:

number of direct and indirect relations of information objects in the collection of the first user with another information object in the database;

addition of a first pair of information objects to a collection of another user in short interval of time, of which one of the first pair of information objects is already in the collection of the first user;

presence of a second pair of information objects in the collection of the other user in close spatial proximity to one another, of which one of the second pair of information objects is already in the collection of the first user;

presence of a given information object in a row or column of information objects in the collection of the other user, wherein one of the information objects in the row or column is already in the collection of the first user;

popularity of an information object in the database, based on a popularity measure selected from the group consisting of number of users, number of views, number of copies made, number of comments made, number of votes, and combinations thereof;

presence of an information object from a second user with whom the first user previously exchanged information objects, comments or votes;

and combinations thereof.

22. (Original) A method according to claim 21, wherein the processing to make the recommendation includes processing to recommend an information object that is not in

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the collection of the first user.

23. (Original) A method according to claim 21, wherein the processing to make the recommendation includes processing to recommend another user who created an information object that is selected based on at least one of the criteria.

24. (Original) A computer-implemented method of interacting with a plurality of data items retrieved from a plurality of dynamic information sources, in which at least one computer initiates execution of software instructions to perform computer processes, the computer processes comprising:

receiving a user selection of dynamic information sources;

automatically obtaining additions and modifications to the information sources and

automatically converting the additions and modifications into data items;

automatically configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink; and

using the extracted data to cause display of a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, and a heading;

wherein the information objects are automatically organized for display in a plurality of rows, each row having a heading;

wherein each row is automatically collected and corresponds to a distinct set of at least one of the dynamic information sources and the data items therein are arranged chronologically and the information object provides graphical access to content via the hyperlink.

25. (Original) A computer-implemented method according to claim 24, wherein at least one of the dynamic information sources includes an item selected from the group consisting of news feeds, alerts, announcements, e-mails, instant messages and sensor data.

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26. (Original) A method according to claim 24, wherein any given row is configurable to receive at least one RSS URL that has been deposited therein manually by the user using a graphical user interface, so as to cause display in the given row of a sequence of information objects extracted from a corresponding data stream associated with the at least one RSS URL.

27. (Original) A method according to claim 24, wherein the information objects in any given row are filtered to match a user-specified set of keywords for the given row.

28. (Original) A method according to claim 24, wherein any given row is configurable to receive an information object deposited therein manually by the user using a graphical user interface, and wherein the information object deposited therein is automatically caused to be placed in a left-most position.

29. (Original) A method according to claim 24, wherein at least one of the information sources provides real-time search results.

30. (Canceled)

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REMARKS

Applicants note with appreciation the notation of allowability of claims 2-23 if not dependent on a rejected base claim, and the allowance of claims 24-29.

Claims 1 and 30 are subject to a double patenting rejection under 35 U.S.C. § 101, as drawn to the same invention as claim 1 in Application No. 14/664,178, now U.S. patent 9,524,090 (the "parent"). Claim 1 has been amended to include the limitations of original claims 3 (message indicator) and 5 (voting function, voting indicator) and to add further limitations as described in the next paragraph. Claim 30 has been canceled.

The further limitations added to claim 1 include reciting a "at least one data item obtained from at least one third-party source," substituting "picture" for "graphical and textual material", adding a "replicate function", adding a link function, and adding the requirement that the database system is configured so that (i) each user has at least one user-selected collection of cards in the database system and (ii) each card in the database system, with any associated picture and heading, and other associated data, regardless of the collection in which it may have first appeared, is accessible and replicable across card collections of users. Support for these amendments is as follows:

a. "third-party source" and "picture", paragraph [00058]. ("The semi-automatic creation of IOs 320 allows users to drag and drop pictures, text, hyperlinks, URLs, files, and file folders directly onto the Workspace View 300. This action will cause the workspace server 151 to create a new IO 320 with the content of the dropped item linked or attached to the IO 320 and with a picture and a heading added to an icon area and the heading bar (to be explained) of the IO 320. Furthermore, users will be able to create cards (IOs) from within various computer applications (after installing a plugin) by clicking a bottom.")

b. replicate function, paragraph [00067], [Figure 5A] and [Figure 5B]. ("Figure 5A shows a diagram of IOs being exchanged between IVs of different users. Figure 5B shows a diagram of IOs being exchanged between Private, Visible and Shared Views. There are various ways in which IOs can be exchanged between the IVs of the same and of different users such as: by copying IOs from the personal IV of another user (Users

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can make their personal IVs accessible to other users. An IV can be Shared 510 (read / write), Visible 512 (read) or Private 514;")

c. link function, paragraph [00090]. ("For example, if a user drags a URL of an item for sale on the Amazon web site onto the Workspace View, the resulting IO would display an image of the item in the Picture Bar, the name of the item in the Heading Bar, the cost of the item in the Value Bar, and hyperlinks to the Amazon web site where the item is advertised.")

d. database configuration, paragraph [00058A]. ("Below are steps a user 108 can perform to create a card. The relation manager 150 creates and displays a new card in the workspace view. The user 108 may have performed a drag and drop of some content onto the workspace view 300, or may have selected a pull down menu in the workspace view to create a new card 320. In response, the relation manager 150 creates a new card record 160 in the database to correspond to the new card in the workspace view 300."). Also, paragraph [00067], [Figure 5A] and [Figure 5B]. ("Figure 5A shows a diagram of IOs being exchanged between IVs of different users. Figure 5B shows a diagram of IOs being exchanged between Private, Visible and Shared Views. There are various ways in which IOs can be exchanged between the IVs of the same and of different users such as: by copying IOs from the personal IV of another user (Users can make their personal IVs accessible to other users. An IV can be Shared 510 (read / write), Visible 512 (read) or Private 514;")

Claim 3 has been amended to require that the format includes within the card an indication of a date of creation of the card. Support for this amendment is found in paragraph [00022] ("An IO includes a graphic icon area to display text or a picture associated with an information source, as well as other information pertaining to such things as ownership of that IO, creation time of the IO, and attribute indicators that indicate a current state of the IO, and a hyperlink to its associated information source.")

Owing to the much more focused nature of claim 1 after this amendment, there cannot be statutory double patenting relative to the parent, and so the rejection should be withdrawn.

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For the reasons discussed above, the applicants submit that all pending claims are in condition for allowance. The applicants respectfully request early allowance of the application.

Date: March 16, 2017

Respectfully submitted,

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Electronic Acknowledgement Receipt

EFS ID:	28650586
Application Number:	15243497
International Application Number:	
Confirmation Number:	3305
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects
First Named Inventor/Applicant Name:	Paul Erich Keel
Customer Number:	2101
Filer:	Jeffrey T. Klayman
Filer Authorized By:	
Attorney Docket Number:	4123/1002
Receipt Date:	16-MAR-2017
Filing Date:	22-AUG-2016
Time Stamp:	15:19:08
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	Amendment/Req. Reconsideration-After Non-Final Reject	kem4123_1002_Response.pdf	189081 92c1c3259a2fd6fe442dd0f89ea0520451e8ebcd	no	14
Warnings:					

Information:	
Total Files Size (in bytes):	189081

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.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
15/243,497	08/22/2016	

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ 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).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **03/16/2017**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 28	Minus	** 30	= 0	X $40 =	0
Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					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 number found in the appropriate box in column 1.

LIE
SANDRA TUCKER SMITH

This collection of information is required by 37 CFR 1.16. 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 1.14. This collection is estimated to take 12 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.

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Keel et al.		
Application No.:	15/243,497	Group No.:	2173
Filed:	August 22, 2016	Examiner:	Hailu, Tadesse

For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

List of Sections Forming Part of This Information Supplemental Disclosure Statement

The following sections are being submitted for this Supplemental Information Disclosure Statement:

1. [x] Preliminary Statements
2. [x] Forms PTO/SB/08A and 08B (substitute for Form PTO-1449)
3. [ ] Statement as to Information Not Found in Patents or Publications
4. [ ] Identification of Prior Application in Which Listed Information Was Already Cited and for Which No Copies Are Submitted or Need Be Submitted
5. [ ] Cumulative Patents or Publications
6. [x] Copies of Listed Information Items Accompanying This Statement
7. [ ] Concise Explanation of Non-English Language Listed Information Items
   - 7A. [ ]EPO Search Report
   - 7B. [ ]English Language Version of EPO Search Report
8. [ ] Translation(s) of Non-English Language Documents
9. [ ] Concise Explanation of English Language Listed Information Items (Optional)
10. [x] Identification of Person(s) Making This Information Disclosure Statement

Section 1. Preliminary statements

Applicants submit herewith patents, publications or other information, of which they are aware that they believe may be material to the examination of this application, and in respect of which, there may be a duty to disclose.

The filing of this information disclosure statement shall not be construed as a representation that a search has been made (37 C.F.R. § 1.97(g)), an admission that the information cited is, or is considered to be, material to patentability, or that no other material information exists.

The filing of this information disclosure statement shall not be construed as an admission against interest in any manner. Notice of January 9, 1992, 1135 O.G. 13-25, at 25.

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	15/243,497	Art Group Unit:	2173
Date Filed:	August 22, 2016	Examiner Name:	Hailu, Tadesse
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		
DATE:	March 24, 2017		

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION SUPPLEMENTAL DISCLOSURE STATEMENT

U.S. PATENT PUBLICATION DOCUMENTS					
Examiner Initials	**Reference Number**	**Document Number**	**Publication Date**	**Inventor**	**Class/Subclass**
	BX	US 2013/0073425	Mar. 21, 2013	Hellal et al.	705/26.8

ACADEMIC PUBLICATIONS			
Examiner Initials	**Reference Number**	**Author, Title, Publication Date**	**Screen Capture Page #**
	BZ	Keller R. et al. A bookmarking service for organizing and sharing URLs. Computer Networks and ISDN Systems 29 (1997) 1103-1114.	1
	CA	Rounding M. Informal Awareness and Causal Interaction with the Notification Colleague. Master Thesis. Dept. of Computer Science, University of Calgary, Alberta, Canada. Apr. 19, 2004	2
	CB	Greenberg S. et al. The Notification Collage: Posting Information to Public and Personal Displays. Yellow Series Report 2000-667-19, Dept. of Computer Science, University of Calgary, Alberta, Canada. September 14, 2000	2

WEB SERVICE COMPANIES					
Examiner Initials	**Reference Number**	**Company**	**Established**	**Screen Capture Date**	**Screen Capture Page #**
	CC	itList.com	Apr, 1996	May 29, 2004	3
	CD	Backflip.com	1999	Jun 23, 2004	4
	CE	Clickmarks.com	1999	Oct. 12, 1999	5
	CF	HotLinks.com	2000	Feb. 11, 2002	6
	CG	del.icio.us	2003	Dec. 20, 2005	7
	CH	SPURL.net	2004	Oct. 21, 2004	8
	CI	StumbleUpon.com	2001 (estimated)	Jun. 16, 2004	9

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	15/243,497	Art Group Unit:	2173
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WEB SERVICE COMPANIES					
Examiner Initials	**Reference Number**	**Company**	**Established**	**Screen Capture Date**	**Screen Capture Page #**
	CJ	Flickr.com	Feb, 2004	Jun 7, 2004	10
	CK	TheFacebook.com	Feb, 2004	2005 (estimated)	11
	CL	LiveJournal.com	1999	Dec. 15, 2003	12
	CM	Multiply.com	Mar, 2004 (estimated)	Jun. 19, 2004	13
	CN	Friendster.com	2002	Sep. 2003 (estimated)	14
	CO	MySpace.com	Aug, 2003	Apr. 4 2005 (estimated)	15
	CP	LinkedIn.com	May, 2003	2004 (estimated)	16
	CQ	Blogger.com	1999	Mar 31, 2004	17
	CR	Eastgate Tinderbox	2002	Jun. 6, 2004	18
	CS	Hi5.com	2003	(unknown)	19
	CT	Xanga.com	1998	Jan. 21, 2006 (estimated)	20
	CU	AsianAve.com	1997	2007 (estimated)	21
	CV	MiGente.com	2000	Jun. 3, 2004	22
	CW	vBulletin	2000	Jun. 10, 2004	23
	CX	phpBB	2000	Feb. 24, 2004 (estimated)	24
	CY	Orkut.com	Jan, 2004	Nov. 2004 (estimated)	25
	CZ	Photobucket.com	May 3, 2003	Aug. 13, 2004	26
	DA	ImageShack.us	Nov. 12, 2003	Aug. 3, 2004	27
	DB	SixDegrees.com	1997	Dec. 6, 2000	28
	DC	Reblog.org	2003	Mar 27, 2004	29
	DD	WebShotes.com	1995	Jul. 3, 2004	30
	DE	Fotopic.com	1999	Jun. 6, 2004	31
	DF	SanpFish.com	2000	Jun. 3, 2004	32
	DG	SmugMug.com	2002	Jul. 12, 2004	33
	DH	Amazon.com	1994	Jul. 2, 2004	34
	DI	DeviantArt.com	2002	Jun. 14, 2004	35
	DJ	Fotki.com	1998	Jun 9, 2004	36
	DK	ShutterFly.com	1999	Jun. 16, 2004	37

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	15/243,497	Art Group Unit:	2173
Date Filed:	August 22, 2016	Examiner Name:	Hailu, Tadesse
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		
DATE:	March 24, 2017		

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION SUPPLEMENTAL DISCLOSURE STATEMENT

Examiner Signature: _____

Date Considered: _____

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation *if not* in conformance and not considered. Include copy of this form with next communication to applicant.

Section 6. Copies of Listed Information Items Accompanying This Statement

Legible copies of all items listed in Forms PTO/SB/08A and 08B (substitute for Form PTO-1449) accompany this information statement.

[x] Exception(s) to above:

U.S. patent citations are not included pursuant to the United States Patent and Trademark Office's September 21, 2004 waiver of the copy requirement in 37 CFR 1.98 for cited pending U.S. patent citations when the patent citations are available in the USPTO's IFW system.

[ ] Items in prior application, from which an earlier filing date is claimed for this application, as identified in Section 4.

[ ] Cumulative patents or publications identified in Section 5.

Section 10. Identification of Person Making This Information Disclosure Statement

The person making this certification is the practitioner of record.

/Bruce D. Sunstein, #27,234/
SIGNATURE OF PRACTITIONER

Reg. No.: 27,234

Bruce D. Sunstein
(type or print name of practitioner)

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Customer No.: 002101

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04123/01002 2695819.1

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Electronic Acknowledgement Receipt

EFS ID:	28731977
Application Number:	15243497
International Application Number:	
Confirmation Number:	3305
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects
First Named Inventor/Applicant Name:	Paul Erich Keel
Customer Number:	2101
Filer:	Bruce D. Sunstein
Filer Authorized By:	
Attorney Docket Number:	4123/1002
Receipt Date:	24-MAR-2017
Filing Date:	22-AUG-2016
Time Stamp:	15:28:38
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		IDS.pdf	265167 27f78a4c1af2770e0f3ac835aa88b49d7ef852f1	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Transmittal Letter	1	3
	Information Disclosure Statement (IDS) Form (SB08)	4	10

Warnings:					
Information:					
2	Non Patent Literature	BZ.pdf	395110 577a4cc2d5b330dfab8c4eb299d04c112befb0f9	no	1
Warnings:					
Information:					
3	Non Patent Literature	CA.pdf	1176706 d8b27b1d50345da517d1c3af899803917 45ef248	no	1
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Information:					
4	Non Patent Literature	CB.pdf	1177308 9a6b631b012d01a0a285e73210a535bb7b86dad6	no	1
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Information:					
5	Non Patent Literature	CC.pdf	513670 8685f07f2160854e017270e310b1f907f7902e71	no	1
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Information:					
6	Non Patent Literature	CD.pdf	400462 6f73b0a9944feb95efbbfa79c93f86d50f06d1cd	no	1
Warnings:					
Information:					
7	Non Patent Literature	CE.pdf	308548 d7b03ff3c117864d0964bf6eb8e984bcc0407f3f	no	1
Warnings:					

Information:					
8	Non Patent Literature	CF.pdf	510778 03bc972d1be2839e562c24140b64ba233ce52ced	no	1
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Information:					
9	Non Patent Literature	CG.pdf	131737 fba309332aeb333062cfac27754a6e2e9c4a49b1	no	1
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Information:					
10	Non Patent Literature	CH.pdf	421084 88e317453a6a3e04b2586e02085a9337c03f3360	no	1
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Information:					
11	Non Patent Literature	CI.pdf	477690 9c8863166828faff73040ebf194251c2da149343	no	1
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Information:					
12	Non Patent Literature	CJ.pdf	526699 46fd9aac6658a3b29d4e39d82297e2da9973e243	no	1
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13	Non Patent Literature	CK.pdf	515440 6ea772a70954c0e23fa5da97b5339188eb7216d6	no	1
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14	Non Patent Literature	CL.pdf	637996 88a5f1bf8fdca89c3c147bb9844d732d6d3825a4	no	1
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15	Non Patent Literature	CM.pdf	117285 d7afbf25e71d9812e4dde37ecda227a9fb0fa9d7	no	1
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16	Non Patent Literature	CN.pdf	321884 b7733232dcfdc9e912cf3d9809dfab59d20ba240	no	1
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Information:					
17	Non Patent Literature	CO.pdf	95434 08a9702ded322325848856d24147f57fabb62cd1	no	1
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Information:					
18	Non Patent Literature	CP.pdf	157640 33d6b9f5d0c0269fe77d2bd66329d240f6c4d6d3	no	1
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19	Non Patent Literature	CQ.pdf	611892 b2b4484733a35a51b09746f0630858777267 3c20	no	1
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Information:					

22	Non Patent Literature	CT.pdf	258144 39baef5a6310a4c5c0bd521f32355be878710163	no	1
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Information:					
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24	Non Patent Literature	CV.pdf	490619 f9b8f9df0574df0e78ff7a97c38a348d10d8f5f7	no	1
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Information:					
31	Non Patent Literature	DC.pdf	520996 9aa40b24d9a85a2010a233fe9539158b044b13d7	no	1
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34	Non Patent Literature	DF.pdf	526761 2acd46bb838009e9ccd28da829fd550b87ff52bb	no	1
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35	Non Patent Literature	DG.pdf	526392 e3b81e1a4ea8f3769060bd82bb330700da90fb19	no	1
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Information:					

36	Non Patent Literature	DH.pdf	542055 3716a12fef70793b7bae79ce4a4eef3349a2e727	no	1
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37	Non Patent Literature	DI.pdf	597179 cfd953ba3050fdf02bf434822b98ee4938b24a09	no	1
Warnings:					
Information:					
38	Non Patent Literature	DJ.pdf	770258 003154d7353a438d23f9b09927be32d612463312	no	1
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39	Non Patent Literature	DK.pdf	489057 42edaba33f6992f15d92c38a6c9a86709e821d54	no	1
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Information:					
		Total Files Size (in bytes):	16606131		

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.

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Keel et al.		
Application No.:	15/243,497	Group No.:	2173
Filed:	August 22, 2016	Examiner:	Hailu, Tadesse

For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BEFORE MAILING DATE OF EITHER A FINAL ACTION OR NOTICE OF ALLOWANCE (37 C.F.R. § 1.97(c))

TIME OF TRANSMITTAL OF ACCOMPANYING SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

1. The information disclosure statement transmitted herewith is being filed ***after*** three months of the filing date of this national application or the date of entry of the national stage as set forth in Section 1.491 in an international application or after the mailing date of the first Office action on the merits, whichever event occurred last but ***before*** the mailing date of either

   (1) a final action under § 1.113 or
   (2) a notice of allowance under § 1.311

   whichever occurs first.

STATEMENT

2. Accompanying this transmittal is a statement as specified in 37 C.F.R. section 1.97(e).

DATE: March 24, 2017

/Bruce D. Sunstein, #27,234/

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00002/00100 267289.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Keel et al.		
Application No.:	15/243,497	Group No.:	2173
Filed:	August 22, 2016	Examiner:	Hailu, Tadesse

For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

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

STATEMENT FOR SUPPLEMENTAL INFORMATION DISCLOSURE UNDER 37 C.F.R. SECTION 1.97(e)

IDENTIFICATION OF SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT FOR WHICH THIS STATEMENT IS BEING MADE

1. This statement is being made for the Information Disclosure Statement
[x]accompanying this statement.
[ ] filed _____.
Date

STATEMENT

2. I, the person(s) signing below state:

[ ] that each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. 37 C.F.R. Section 1.97(e)(1).

OR

[x] that no item of information contained in the information disclosure statement was cited in any communication from a foreign patent office in a counterpart foreign application and to the knowledge of the person signing the statement after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in Section 1.56(c) more than three months prior to the filing of the information disclosure statement. 37 C.F.R. Section 1.97(e)(2).

IDENTIFICATION OF PERSON(S) MAKING THIS STATEMENT

3. The person making this statement is

(check each applicable item)

(a) [ ] the inventor(s) who signs below

SIGNATURE OF INVENTOR

(type name of inventor who is signing)

(b) [ ] a person who is substantively involved in the preparation or prosecution of the application, and who is associated with the inventor, with the assignee, or with anyone to whom there is an obligation to assign the application (37 C.F.R. Section 1.56(c)) and who signs below.

SIGNATURE OF PERSON MAKING STATEMENT

(type name of person who is signing)

Address of person who is signing

(c) [x] the practitioner who signs below on the basis of the information:

(check each applicable item)

[x] supplied by the inventor(s).
[ ] supplied by an individual designated in Section 1.56(c).
[ ] in the practitioner's file.

/Bruce D. Sunstein, #27,234/
SIGNATURE OF PRACTITIONER

Reg. No. 27,234

Bruce D. Sunstein
(type or print name of practitioner)

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Boston, MA 02110-1618

04123/01002 2696071.1

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Keel et al.

Application No.: 15/243,497 Group No.: 2173
Filed: August 22, 2016 Examiner: Hailu, Tadesse
For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF SUPPLEMENT TO RESPONSE A

1. Transmitted herewith is a Supplement to Response A, including Figure 2, for this application. A response was originally filed on March 16, 2017.

STATUS

2. Applicant is a small entity.

EXTENSION OF TERM

3. The proceedings herein are for a patent application and the provisions of 37 C.F.R. 1.136 apply. Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

FEE FOR CLAIMS

4. The fee for claims (37 C.F.R. 1.16(b)-(d)) has been calculated as shown below:

	(Col. 1)		(Col. 2)		(Col. 3)		SMALL ENTITY			
	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NO. PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE		ADDIT. FEE	
TOTAL	28	–	30	=	0	x	$ 40.00	=	$	0.00
INDEP.	2	–	3	=	0	x	$ 210.00	=	$	0.00
FIRST PRESENTATION OF MULTIPLE DEP. CLAIM						+	$ 0.00	=	$	0.00
							TOTAL ADDIT. FEE		$	0.00

No additional fee for claims is required.

FEES

5. We do not believe an extension of time is due or fees are due with this Supplement Response A. If a fee is required, charge Account No. 19-4972.

Date: March 24, 2017

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Keel et al.	Docket No.:	4123/1002
Appl. No:	15/243,497	Art Unit:	2173
Filed :	August 22, 2016	Examiner:	Hailu
		Conf. No:	3305

Title: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

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VIA USPTO ELECTRONIC FILING SYSTEM

Mail Stop AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENT TO RESPONSE A

Dear Sir:

This communication is in supplement to Response A to the Office Action of December 16, 2016 (the "Office Action"). The claim amendments below were presented in Response A and are present here for purposes of consistency. The drawing amendment below is new.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Amendments to the Drawings begin on page 10.

Remarks begin on page 11 of this paper.

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Listing of Claims:

1. (Currently amended) A computer-implemented method, ~~of interacting with at least one data item,~~ in which at least one computer initiates execution of software instructions to perform computer processes, the method being for interacting with at least one data item obtained from at least one third-party source, the computer processes comprising:

configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a picture, a heading, ~~a source, graphical and textual material,~~ and a hyperlink to the data item;

storing data corresponding to each of the information objects in a database system;

using the extracted data to make available for display, a representation of each of at least two of the information objects in the database system, the at least two information objects being selected for display, the representation being in a uniform format, wherein the format includes a card, and, within the card, in uniform locations thereof, ~~an icon area for graphical and textual material~~ the picture, the heading, the source for the data item, a set of indicators, and a function mechanism giving graphical access to a set of functions,

wherein the functions include:

~~including~~ an instant messaging function, by which ~~a plurality of~~ users having access to the card can exchange author- and time-stamped messages relating to the information object, such messages being associated with the information object and accessible to users who view the information object;

a vote function, by which each user having access to the card can provide one vote for the information object;

a replicate function, by which each user having access to the card in a first collection of cards can cause the card to be replicated in a second collection of cards; and

a link function, by which each user having access to the card can invoke the hyperlink to the data item; and

wherein the indicators include:

a message indicator that displays a total number of instant messages associated with the information object; and

a vote indicator that displays a total number of votes associated with the information object; and

wherein ~~storing data corresponding to each of the cards in a~~the database system[[,]] is configured so that (i) each user has at least one user-selected collection of cards in the database system and (ii) each card in the database system, with any associated picture and heading, and other associated data, regardless of the collection in which it may have first appeared, is accessible and replicable across card collections of users ~~each card in the database, with any associated messages, is accessible and sharable among users~~.

2. (Original) A method according to claim 1, the computer processes further comprising:

providing a user interface having a graphical button, which, when invoked while content is being displayed, causes the displayed content to be handled as one of the data items, namely, by configuring the displayed content as a new information object and making a representation of the new information object available for display in the uniform format.

3. (Currently Amended) A method according to claim 1, wherein the format includes within the card an indication of a date of creation of the card ~~one of the indicators displays the total number of messages, associated with the information object, that have been associated with the information object~~.

4. (Original) A method according to claim 3, wherein the one of the indicators changes its appearance to indicate the presence of a message, associated with the information object, that has not yet been read by the user.

5. (Canceled)

6. (Original) A method according to claim 1, wherein the format includes a user-accessible report relating to users who replicated the information object.

7. (Original) A method according to claim 1, wherein the information object is configurable to include a user-accessible file attachment.

8. (Original) A method according to claim 1, wherein the one of the indicators indicates the presence of a geographic location, associated with the information object.

9. (Original) A method according to claim 1, further comprising:

further causing to be displayed, at the same time as the representation, a map including a location, marked on the map, associated with at least one of the information objects.

10. (Original) A method according to claim 9, further comprising:

responsive to a graphical input applied to the displayed location, causing the location on the map to be edited in accordance with the graphical input.

11. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, that constitute a second collection of the first user;

responsive to (i) a graphical selection, by the first user, of an information object in the first view and (ii) a copy command that has been graphically entered by the first user, causing the selected information object to be copied from the first view to the second view.

12. (Original) A method according to claim 1, further comprising:

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serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, that constitute a collection of a second user.

13. (Original) A method according to claim 12, further comprising:

responsive to (i) a graphical selection, by the first user, of an information object in the second view and (ii) a copy command that has been graphically entered by the first user, causing the selected information object to be copied from the second view to the first view, so that the selected information object in the collection of the second user has been copied to the first collection of the first user.

14. (Original) A method according to claim 12, further comprising:

responsive to (i) a graphical selection, by the first user, of an information object in the first view and (ii) a send command that has been graphically entered by the first user, causing the selected information object to be sent to the second user, so that the selected information object in the collection of the first user is made available to the second user to be included in the collection of the second user.

15. (Original) A method according to claim 1, further comprising:

on a user-entered command, causing an information object to be shared with another user when the information object and the other user have been graphically selected.

16. (Original) A method according to claim 1, further comprising:

on a user-entered command, causing an information object to be shared with another user via an instant message sent through an integrated instant messaging system as a result of graphical selection by a first user.

17. (Original) A method according to claim 1, further comprising causing shared information objects to be synchronized with one another.

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18. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, outside of the first collection, wherein any given member of the second set of information objects is both included in a collection of another user and the other user has been selected by the first user; and wherein each of the information objects in the second view can, on a user-entered command, be caused to be copied to the first view.

19. (Original) A method according to claim 18, wherein each of the information objects in the second view is displayed in an order determined by a criterion selected from the group consisting of the information object's creation time, its access time, and combinations thereof.

20. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, outside of the first collection, that are related to one or more information objects in the first collection as a result of being in one or more collections, of other users, that also include at least one of the information objects in the first collection; wherein each of the information objects in the second view can , on a user-entered command, be caused to be copied to the first view.

21. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a view of a first set of information objects that constitute a collection of the first user;

serving, to a client computing device of a second user, a view of a first set of information objects that constitute a collection of the second user;

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storing the information objects in a database, each of the information objects being stored in association with data pertinent thereto including

any users thereof,

spatial location thereof in the workspace view,

content and metadata thereof, such metadata including comments and votes,

times of storage, viewing and copying thereof,

relationship thereof to any other information objects; and

processing information object data in the database to make a recommendation to the first user, wherein the recommendation is based on at least one of the criteria in the group consisting of:

number of direct and indirect relations of information objects in the collection of the first user with another information object in the database;

addition of a first pair of information objects to a collection of another user in short interval of time, of which one of the first pair of information objects is already in the collection of the first user;

presence of a second pair of information objects in the collection of the other user in close spatial proximity to one another, of which one of the second pair of information objects is already in the collection of the first user;

presence of a given information object in a row or column of information objects in the collection of the other user, wherein one of the information objects in the row or column is already in the collection of the first user;

popularity of an information object in the database, based on a popularity measure selected from the group consisting of number of users, number of views, number of copies made, number of comments made, number of votes, and combinations thereof;

presence of an information object from a second user with whom the first user previously exchanged information objects, comments or votes;

and combinations thereof.

22. (Original) A method according to claim 21, wherein the processing to make the recommendation includes processing to recommend an information object that is not in

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the collection of the first user.

23. (Original) A method according to claim 21, wherein the processing to make the recommendation includes processing to recommend another user who created an information object that is selected based on at least one of the criteria.

24. (Original) A computer-implemented method of interacting with a plurality of data items retrieved from a plurality of dynamic information sources, in which at least one computer initiates execution of software instructions to perform computer processes, the computer processes comprising:

receiving a user selection of dynamic information sources;

automatically obtaining additions and modifications to the information sources and

automatically converting the additions and modifications into data items;

automatically configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink; and

using the extracted data to cause display of a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, and a heading;

wherein the information objects are automatically organized for display in a plurality of rows, each row having a heading;

wherein each row is automatically collected and corresponds to a distinct set of at least one of the dynamic information sources and the data items therein are arranged chronologically and the information object provides graphical access to content via the hyperlink.

25. (Original) A computer-implemented method according to claim 24, wherein at least one of the dynamic information sources includes an item selected from the group consisting of news feeds, alerts, announcements, e-mails, instant messages and sensor data.

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26. (Original) A method according to claim 24, wherein any given row is configurable to receive at least one RSS URL that has been deposited therein manually by the user using a graphical user interface, so as to cause display in the given row of a sequence of information objects extracted from a corresponding data stream associated with the at least one RSS URL.

27. (Original) A method according to claim 24, wherein the information objects in any given row are filtered to match a user-specified set of keywords for the given row.

28. (Original) A method according to claim 24, wherein any given row is configurable to receive an information object deposited therein manually by the user using a graphical user interface, and wherein the information object deposited therein is automatically caused to be placed in a left-most position.

29. (Original) A method according to claim 24, wherein at least one of the information sources provides real-time search results.

30. (Canceled)

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Amendments to the Drawings:

Please delete the existing Fig. 2, and substitute for the existing Fig. 2 the attached drawing marked Fig. 2.

The attached drawing marked Fig. 2 is taken from application serial number 60/566,723, filed April 29, 2004, entitled "METHODS AND APPARATUS FOR MANAGING AND INFERRING RELATIONSHIPS FROM INFORMATION" and appears on page 9 thereof as Fig. 1c. The foregoing provisional application is incorporated by reference in the present application, and was also incorporated by reference in all applications in the chain of priority for the present application. Subject to the drawing number change, the attached drawing marked Fig. 2 is identical to the drawing marked as Fig. 1c in the provisional application. Callout numbers have been added to this new Fig. 2 to correspond to the numbers referenced in the description in the application. The description in the application identifies items 324, 325, and 326 as corresponding respectively to the “date/time bar”, the name of the user who last modified the card or the information source for the card, and the “heading bar”. In the prior Fig. 2, these callouts plainly are in the wrong locations, and, in the attached drawing marked Fig. 2, these callouts are correctly placed. Accordingly, the application well supports the drawing amendment herewith.

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REMARKS

[***The following remarks appeared verbatim in Response A.***] Applicants note with appreciation the notation of allowability of claims 2-23 if not dependent on a rejected base claim, and the allowance of claims 24-29.

Claims 1 and 30 are subject to a double patenting rejection under 35 U.S.C. § 101, as drawn to the same invention as claim 1 in Application No. 14/664,178, now U.S. patent 9,524,090 (the "parent"). Claim 1 has been amended to include the limitations of original claims 3 (message indicator) and 5 (voting function, voting indicator) and to add further limitations as described in the next paragraph. Claim 30 has been canceled.

The further limitations added to claim 1 include reciting a "at least one data item obtained from at least one third-party source," substituting "picture" for "graphical and textual material", adding a "replicate function", adding a link function, and adding the requirement that the database system is configured so that (i) each user has at least one user-selected collection of cards in the database system and (ii) each card in the database system, with any associated picture and heading, and other associated data, regardless of the collection in which it may have first appeared, is accessible and replicable across card collections of users. Support for these amendments is as follows:

a. "third-party source" and "picture", paragraph [00058]. ("The semi-automatic creation of IOs 320 allows users to drag and drop pictures, text, hyperlinks, URLs, files, and file folders directly onto the Workspace View 300. This action will cause the workspace server 151 to create a new IO 320 with the content of the dropped item linked or attached to the IO 320 and with a picture and a heading added to an icon area and the heading bar (to be explained) of the IO 320. Furthermore, users will be able to create cards (IOs) from within various computer applications (after installing a plugin) by clicking a bottom.")

b. replicate function, paragraph [00067], [Figure 5A] and [Figure 5B]. ("Figure 5A shows a diagram of IOs being exchanged between IVs of different users. Figure 5B shows a diagram of IOs being exchanged between Private, Visible and Shared Views. There are various ways in which IOs can be exchanged between the IVs of the same and of different users such as: by copying IOs from the personal IV of another user (Users

can make their personal IVs accessible to other users. An IV can be Shared 510 (read / write), Visible 512 (read) or Private 514;")

c. link function, paragraph [00090]. ("For example, if a user drags a URL of an item for sale on the Amazon web site onto the Workspace View, the resulting IO would display an image of the item in the Picture Bar, the name of the item in the Heading Bar, the cost of the item in the Value Bar, and hyperlinks to the Amazon web site where the item is advertised.")

d. database configuration, paragraph [00058A]. ("Below are steps a user 108 can perform to create a card. The relation manager 150 creates and displays a new card in the workspace view. The user 108 may have performed a drag and drop of some content onto the workspace view 300, or may have selected a pull down menu in the workspace view to create a new card 320. In response, the relation manager 150 creates a new card record 160 in the database to correspond to the new card in the workspace view 300."). Also, paragraph [00067], [Figure 5A] and [Figure 5B]. ("Figure 5A shows a diagram of IOs being exchanged between IVs of different users. Figure 5B shows a diagram of IOs being exchanged between Private, Visible and Shared Views. There are various ways in which IOs can be exchanged between the IVs of the same and of different users such as: by copying IOs from the personal IV of another user (Users can make their personal IVs accessible to other users. An IV can be Shared 510 (read / write), Visible 512 (read) or Private 514;")

Claim 3 has been amended to require that the format includes within the card an indication of a date of creation of the card. Support for this amendment is found in paragraph [00022] ("An IO includes a graphic icon area to display text or a picture associated with an information source, as well as other information pertaining to such things as ownership of that IO, creation time of the IO, and attribute indicators that indicate a current state of the IO, and a hyperlink to its associated information source.")

Owing to the much more focused nature of claim 1 after this amendment, there cannot be statutory double patenting relative to the parent, and so the rejection should be withdrawn.

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For the reasons discussed above, the applicants submit that all pending claims are in condition for allowance. The applicants respectfully request early allowance of the application.

Date: March 24, 2017

Respectfully submitted,

/Bruce D. Sunstein, Reg. #27,234/

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Attachment: Replacement Fig. 2

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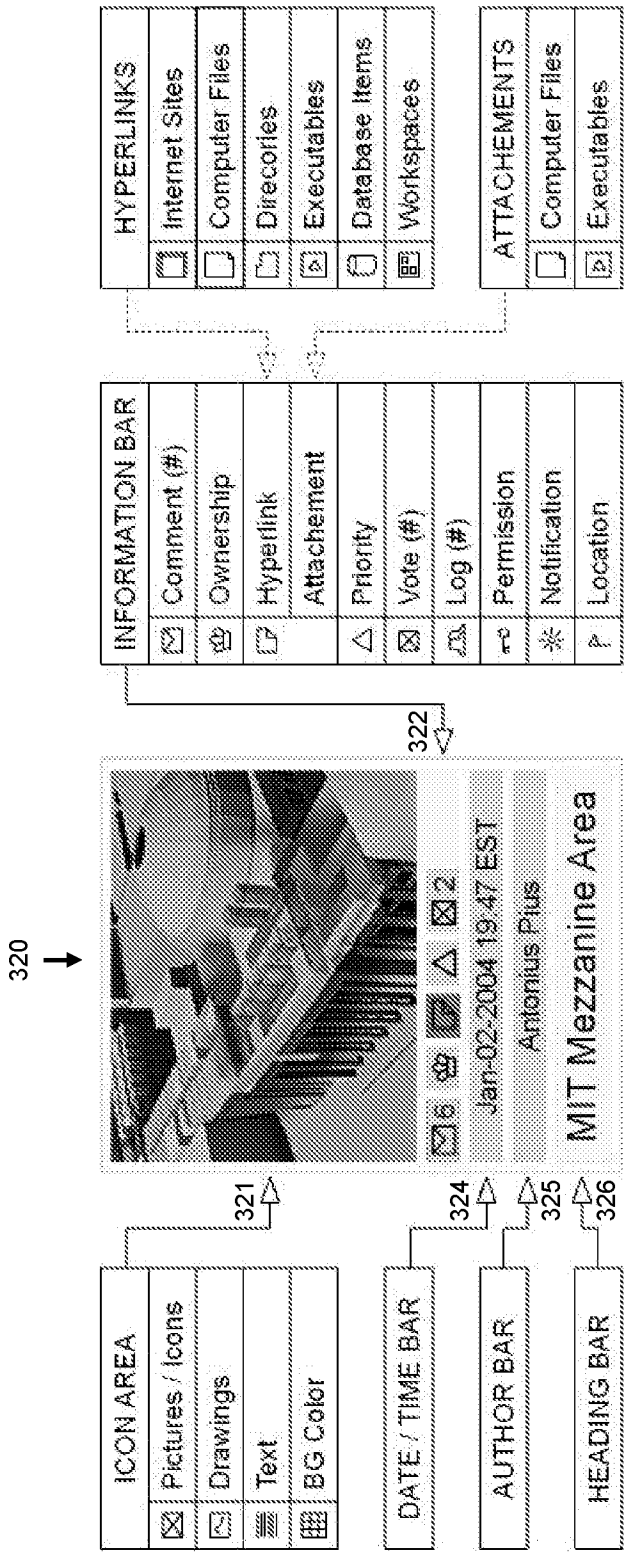

320
ICON AREA
Pictures / Icons
Drawings
Text
BG Color
321
DATE / TIME BAR
324
AUTHOR BAR
325
HEADING BAR
326
6
2
Jan-02-2004 19:47 EST
Antonius Pius
MIT Mezzanine Area
322
INFORMATION BAR
Comment (#)
Ownership
Hyperlink
Attachement
Priority
Vote (#)
Log (#)
Permission
Notification
Location
HYPERLINKS
Internet Sites
Computer Files
Direcories
Executables
Database Items
Workspaces
ATTACHEMENTS
Computer Files
Executables

FIG. 2

Electronic Acknowledgement Receipt

EFS ID:	28734450
Application Number:	15243497
International Application Number:	
Confirmation Number:	3305
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects
First Named Inventor/Applicant Name:	Paul Erich Keel
Customer Number:	2101
Filer:	Bruce D. Sunstein
Filer Authorized By:	
Attorney Docket Number:	4123/1002
Receipt Date:	24-MAR-2017
Filing Date:	22-AUG-2016
Time Stamp:	16:52:39
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	Supplemental Response or Supplemental Amendment	4123_1002_SuppResponseA.pdf	159488 aa4058ceff8a7d8be975c04fb046b721acc8a3b0	no	15

Warnings:

Information:					
2	Drawings-only black and white line drawings	4123_1002_Fig2.pdf	700974 c182d952da9a9e7bbdff3330b193b2e4b53e780d	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	860462	

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.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/243,497	Filing Date 08/22/2016	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ 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).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **03/24/2017**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 28	Minus	** 30	= 0	X $40 =	0
Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					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 number found in the appropriate box in column 1.

LIE
ANNETTE COWAN

This collection of information is required by 37 CFR 1.16. 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 1.14. This collection is estimated to take 12 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.

SCORE Placeholder Sheet for IFW Content

Application Number: 15243497 Document Date: 03/24/2017

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Drawings – Other than Black and White Line Drawings

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

To access the documents in the SCORE database, refer to instructions below.

At the time of document entry (noted above):

- Examiners may access SCORE content via the eDAN interface.
- Other USPTO employees can bookmark the current SCORE URL (http://Score.uspto.gov/ScoreAccessWeb/).
- External customers may access SCORE content via the Public and Private PAIR interfaces.

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Keel et al.

Application No.: 15/243,497 Group No.: 2173
Filed: August 22, 2016 Examiner: Hailu, Tadesse
For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF SECOND SUPPLEMENT TO RESPONSE A

1. Transmitted herewith is a Second Supplement to Response A, together with a replacement sheet for Figure 2 and Declaration of Dr. Paul Erich Keel. A response was originally filed on March 16, 2017 and March 24, 2017.

STATUS

2. Applicant is a small entity.

EXTENSION OF TERM

3. The proceedings herein are for a patent application and the provisions of 37 C.F.R. 1.136 apply. Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

FEE FOR CLAIMS

4. The fee for claims (37 C.F.R. 1.16(b)-(d)) has been calculated as shown below:

	(Col. 1)		(Col. 2)		(Col. 3)		SMALL ENTITY			
	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NO. PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE		ADDIT. FEE	
TOTAL	22	–	30	=	0	x	$ 40.00	=	$	0.00
INDEP.	1	–	3	=	0	x	$ 210.00	=	$	0.00
FIRST PRESENTATION OF MULTIPLE DEP. CLAIM						+	$ 0.00	=	$	0.00
							TOTAL ADDIT. FEE		$	0.00

No additional fee for claims is required.

FEES

5. We do not believe an extension of time is due or fees are due with this Supplement Response A. If a fee is required, charge Account No. 19-4972.

Date: May 1, 2017

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Keel et al.	Docket No.:	4123/1002
Appl. No:	15/243,497	Art Unit:	2173
Filed :	August 22, 2016	Examiner:	Hailu
		Conf. No:	3305

Title: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

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VIA USPTO ELECTRONIC FILING SYSTEM

Mail Stop AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SECOND SUPPLEMENT TO RESPONSE A

Dear Sir:

This communication is a further supplement to Response A to the Office Action of December 16, 2016 (the "Office Action"). In this communication, claims 24-29 are hereby canceled. Otherwise, the claim amendments below were presented in Response A and are present here for purposes of consistency. The drawing amendment below was presented in the original Supplement to Response A.

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Amendments to the Drawings begin on page 10.

Remarks begin on page 9 of this paper.

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Listing of Claims:

1. (Currently amended) A computer-implemented method, ~~of interacting with at least one data item,~~ in which at least one computer initiates execution of software instructions to perform computer processes, the method being for interacting with at least one data item obtained from at least one third-party source, the computer processes comprising:

configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a picture, a heading, ~~a source, graphical and textual material,~~ and a hyperlink to the data item;

storing data corresponding to each of the information objects in a database system;

using the extracted data to make available for display, a representation of each of at least two of the information objects in the database system, the at least two information objects being selected for display, the representation being in a uniform format, wherein the format includes a card, and, within the card, in uniform locations thereof, ~~an icon area for graphical and textual material~~ the picture, the heading, the source for the data item, a set of indicators, and a function mechanism giving graphical access to a set of functions,

wherein the functions include:

~~including~~ an instant messaging function, by which ~~a plurality of~~ users having access to the card can exchange author- and time-stamped messages relating to the information object, such messages being associated with the information object and accessible to users who view the information object;

a vote function, by which each user having access to the card can provide one vote for the information object;

a replicate function, by which each user having access to the card in a first collection of cards can cause the card to be replicated in a second collection of cards; and

a link function, by which each user having access to the card can invoke the hyperlink to the data item; and

wherein the indicators include:

a message indicator that displays a total number of instant messages associated with the information object; and

a vote indicator that displays a total number of votes associated with the information object; and

wherein ~~storing data corresponding to each of the cards in a~~the database system[[,]] is configured so that (i) each user has at least one user-selected collection of cards in the database system and (ii) each card in the database system, with any associated picture and heading, and other associated data, regardless of the collection in which it may have first appeared, is accessible and replicable across card collections of users ~~each card in the database, with any associated messages, is accessible and sharable among users~~.

2. (Original) A method according to claim 1, the computer processes further comprising:

providing a user interface having a graphical button, which, when invoked while content is being displayed, causes the displayed content to be handled as one of the data items, namely, by configuring the displayed content as a new information object and making a representation of the new information object available for display in the uniform format.

3. (Currently Amended) A method according to claim 1, wherein the format includes within the card an indication of a date of creation of the card ~~one of the indicators displays the total number of messages, associated with the information object, that have been associated with the information object~~.

4. (Original) A method according to claim 3, wherein the one of the indicators changes its appearance to indicate the presence of a message, associated with the information object, that has not yet been read by the user.

5. (Canceled)

6. (Original) A method according to claim 1, wherein the format includes a user-accessible report relating to users who replicated the information object.

7. (Original) A method according to claim 1, wherein the information object is configurable to include a user-accessible file attachment.

8. (Original) A method according to claim 1, wherein the one of the indicators indicates the presence of a geographic location, associated with the information object.

9. (Original) A method according to claim 1, further comprising:

further causing to be displayed, at the same time as the representation, a map including a location, marked on the map, associated with at least one of the information objects.

10. (Original) A method according to claim 9, further comprising:

responsive to a graphical input applied to the displayed location, causing the location on the map to be edited in accordance with the graphical input.

11. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, that constitute a second collection of the first user;

responsive to (i) a graphical selection, by the first user, of an information object in the first view and (ii) a copy command that has been graphically entered by the first user, causing the selected information object to be copied from the first view to the second view.

12. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, that constitute a collection of a second user.

13. (Original) A method according to claim 12, further comprising:

responsive to (i) a graphical selection, by the first user, of an information object in the second view and (ii) a copy command that has been graphically entered by the first user, causing the selected information object to be copied from the second view to the first view, so that the selected information object in the collection of the second user has been copied to the first collection of the first user.

14. (Original) A method according to claim 12, further comprising:

responsive to (i) a graphical selection, by the first user, of an information object in the first view and (ii) a send command that has been graphically entered by the first user, causing the selected information object to be sent to the second user, so that the selected information object in the collection of the first user is made available to the second user to be included in the collection of the second user.

15. (Original) A method according to claim 1, further comprising:

on a user-entered command, causing an information object to be shared with another user when the information object and the other user have been graphically selected.

16. (Original) A method according to claim 1, further comprising:

on a user-entered command, causing an information object to be shared with another user via an instant message sent through an integrated instant messaging system as a result of graphical selection by a first user.

17. (Original) A method according to claim 1, further comprising causing shared information objects to be synchronized with one another.

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18. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, outside of the first collection, wherein any given member of the second set of information objects is both included in a collection of another user and the other user has been selected by the first user; and wherein each of the information objects in the second view can, on a user-entered command, be caused to be copied to the first view.

19. (Original) A method according to claim 18, wherein each of the information objects in the second view is displayed in an order determined by a criterion selected from the group consisting of the information object's creation time, its access time, and combinations thereof.

20. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, outside of the first collection, that are related to one or more information objects in the first collection as a result of being in one or more collections, of other users, that also include at least one of the information objects in the first collection; wherein each of the information objects in the second view can , on a user-entered command, be caused to be copied to the first view.

21. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a view of a first set of information objects that constitute a collection of the first user;

serving, to a client computing device of a second user, a view of a first set of information objects that constitute a collection of the second user;

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storing the information objects in a database, each of the information objects being stored in association with data pertinent thereto including

any users thereof,

spatial location thereof in the workspace view,

content and metadata thereof, such metadata including comments and votes,

times of storage, viewing and copying thereof,

relationship thereof to any other information objects; and

processing information object data in the database to make a recommendation to the first user, wherein the recommendation is based on at least one of the criteria in the group consisting of:

number of direct and indirect relations of information objects in the collection of the first user with another information object in the database;

addition of a first pair of information objects to a collection of another user in short interval of time, of which one of the first pair of information objects is already in the collection of the first user;

presence of a second pair of information objects in the collection of the other user in close spatial proximity to one another, of which one of the second pair of information objects is already in the collection of the first user;

presence of a given information object in a row or column of information objects in the collection of the other user, wherein one of the information objects in the row or column is already in the collection of the first user;

popularity of an information object in the database, based on a popularity measure selected from the group consisting of number of users, number of views, number of copies made, number of comments made, number of votes, and combinations thereof;

presence of an information object from a second user with whom the first user previously exchanged information objects, comments or votes;

and combinations thereof.

22. (Original) A method according to claim 21, wherein the processing to make the recommendation includes processing to recommend an information object that is not in

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the collection of the first user.

23. (Original) A method according to claim 21, wherein the processing to make the recommendation includes processing to recommend another user who created an information object that is selected based on at least one of the criteria.

24. (Canceled)
25. (Canceled)
26. (Canceled)
27. (Canceled)
28. (Canceled)
29. (Canceled)

30. (Canceled)

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Amendments to the Drawings:

Please delete the existing Fig. 2, and substitute for the existing Fig. 2 the attached drawing marked Fig. 2.

The attached drawing marked Fig. 2 is taken from application serial number 60/566,723, filed April 29, 2004, entitled "METHODS AND APPARATUS FOR MANAGING AND INFERRING RELATIONSHIPS FROM INFORMATION" and appears on page 9 thereof as Fig. 1c. The foregoing provisional application is incorporated by reference in the present application, and was also incorporated by reference in all applications in the chain of priority for the present application. Subject to the drawing number change, the attached drawing marked Fig. 2 is identical to the drawing marked as Fig. 1c in the provisional application. Callout numbers have been added to this new Fig. 2 to correspond to the numbers referenced in the description in the application. The description in the application identifies items 324, 325, and 326 as corresponding respectively to the “date/time bar”, the name of the user who last modified the card or the information source for the card, and the “heading bar”. In the prior Fig. 2, these callouts plainly are in the wrong locations, and, in the attached drawing marked Fig. 2, these callouts are correctly placed. Accordingly, the application well supports the drawing amendment herewith.

REMARKS

Examiner interview. Applicant acknowledges with appreciation the courtesy of a telephone interview on Tuesday, April 25, 2016, with Examiner Hailu, in which the undersigned, with applicant Paul Keel, participated. In the interview, it was mentioned that applicant would submit documents (two slide decks, which are believed not to constitute prior art) that were previously considered in the prosecution of parent application serial number 11/118,301, now patent number 7,640,511. (Those slide decks, as well as a number of related slide decks, are being submitted via an accompanying Supplemental Information Disclosure, along with a Declaration ("Keel Declaration") by Dr. Keel providing context for these documents.) In the interview, Mr. Hailu raised the question of patent eligibility under section 101 following the *Alice* decision, since a computer-related invention is claimed in this application; the undersigned undertook to address this question in a this Second Supplemental Response.

Cancelation of claims 24-29. Dr. Keel's investigation, conducted on web.archive.org, into publication of EWall materials, produced some material, submitted as Document DX with the accompanying Information Disclosure Statement, which relates to the subject matter of claim 24. See Keel Declaration, paragraph 11. In consequence of Dr. Keel's uncovering the material in Document DX, claim 24, and dependent claims 25-29, are canceled per the above amendment.

Eligibility of claimed subject matter under section 101. The subject matter defined by claim 1 is patent eligible, because (i) it is not directed to an abstract idea, and (ii) when taken as a whole, it defines "significantly more" than any abstract idea that could be ascribed to claim 1. Specifically claim 1 defines not only (i) configuring data items as "information objects" by extracting information from them and representing the extracted information "in a uniform format" as a card having defined components [subparagraphs 1 and 3], but also (ii) providing a set of functions and indicators that are built into the card format [subparagraph 3 and following], along with (iii) storing the created information objects in a database system [subapragraph 2], and (iv) configuring the database system in a manner wherein "each card in the database system, with any

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associated picture and heading, and other associated data, regardless of the collection in which it may have first appeared, is accessible and replicable across card collections of users" [last subparagraph].

To a person who might argue that claim 1 is patent ineligible because directed to the abstract idea of "putting data items into a card format," one can reply immediately that claim 1 defines "significantly more" than merely "putting data items into a card format." The claimed subject matter, with the remarkable collection of attributes recited in the previous paragraph, establishes an entire *environment* in which arbitrary third party data items can be shared as information objects and users can interact with the information objects based on the functions and indicators provided in the information objects themselves. Providing the ability to share and interact with data items in this new environment amounts to an improvement in the operation of computers, and is manifestly patent eligible.

The *Alice* decision articulated a two-step test for determining patent eligibility in the face of a judicially created exception such as an abstract idea. Specifically, the first step is to determine if the claims are "directed to" the judicially created exception: "First, we determine whether the claims at issue are directed to one of [the] patent-ineligible concepts." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355 (2014). If the claims are not "directed to" a judicially created exception, then the inquiry ends and the claims are deemed to be directed to patent-eligible subject matter without having to consider the second step of whether the claims include "significantly more" than the abstract idea itself.

Since *Alice* was decided, the Federal Circuit has refined and elaborated upon this test. On May 12, 2016, in *Enfish v. Microsoft*, the Federal Circuit recognized that computer-related technology, and particularly software, can qualify as non-abstract ideas:

We do not read Alice to broadly hold that all improvements in computer-related technology are inherently abstract and, therefore, must be considered at step two. … Nor do we think that claims directed to software, as opposed to hardware, are inherently abstract and therefore only properly analyzed at the second step of the Alice analysis. … We thus see no reason to conclude that all claims directed to improvements in computer-related technology, including those directed to software, are abstract and necessarily

analyzed at the second step of Alice, nor do we believe that Alice so directs. *Enfish v. Microsoft Corp*, 822 F.3d 1327, 1335 (2016) (Fed. Cir. 2016).

In this ruling, the Court cautioned against characterizing claims at a high-level and divorcing any analysis regarding statutory subject matter from the claim language, itself:

> However, describing the claims at such a high level of abstraction and untethered from the language of the claims all but ensures that the exceptions to § 101 swallow the rule. See Alice, 134 S. Ct. at 2354 (noting that "we tread carefully in construing this exclusionary principle [of laws of nature, natural phenomena, and abstract ideas] lest it swallow all of patent law"); cf. Diamond v. Diehr, 450 U.S. 175, 189 n.12 (1981) (cautioning that overgeneralizing claims, "if carried to its extreme, make[s] all inventions unpatentable because all inventions can be reduced to underlying principles of nature which, once known, make their implementation obvious").

Id., 822 F.3d at 1337. Instead, patent eligibility must be based not only on the language of the claims, but also on the disclosures of the specification that inform the claim language: "the 'directed to' inquiry, applies to a stage-one filter to claims, considered in light of the specification, based on whether 'their character as a whole is directed to excluded subject matter.'" 822 F.3d at 1335, citing *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015); and *Genetic Techs. Ltd. v. Merial L.L.C.*, 2016 WL 1393573, at *5 (Fed. Cir. 2016).

As discussed in detail further below, recent, precedential Federal Circuit decisions have shed additional light on what constitutes patent eligible subject matter: *McRO, Inc. dba Planet Blue v. Bandai Namco Games America Inc.*, 837 F.3d 1299 1 (Fed. Cir. 2016); *BASCOM Global Internet Services v. AT&T Mobility LLC*, 827 F .3d 1341 (Fed. Cir. 2016); and *Amdocs (Israel) Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288 (Fed. Cir. Nov. 1, 2016). These cases were noted in the Memorandum of Robert W. Bahr, Deputy Commissioner for Patent Examination Policy, to the Patent Examining Corps of November 2, 2016. That Memorandum instructs the Examining Corps to "avoid relying upon or citing non-precedential decisions (*e.g.*, *SmartGene*, *Cyberfone*) unless the facts of the application under examination uniquely match the facts at issue in the non-precedential decision."

A fair characterization of the subject defined by the pending claims is that, like the technology in *Enfish* and in *McRO*, the subject matter herein provides a technological improvement in the operation of computers in a network environment to establish an entire environment in which arbitrary third party data items can be shared as information objects and users can interact with the information objects based on the functions and indicators provided in the information objects themselves.

This conclusion is reinforced by consideration of rationale for the *Alice* decision, the prevention of enforcing claims that would effect a preemption of basic research. An abstract idea is a judicial exception in the first case because upholding a patent directed to such an idea "would preempt use of this approach in all fields, and would effectively grant a monopoly over an abstract idea." *Alice Corporation Pty. Ltd. v. CLS Bank International*, 134 S.Ct. 2347, 2354 (2014), quoting *Bilski v. Kappos*, 561 U.S. 593 (2010). "Laws of nature, natural phenomena, and abstract ideas are the basic tools of scientific and technological work. Monopolization of those tools through the grant of a patent might tend to impede innovation more than it would tend to promote it, thereby thwarting the primary object of the patent laws." *Id.*

The *Alice* decision places a great deal of emphasis on preemption, and the November 2 Memorandum notes that "recent decisions discuss the absence of preemption as confirming the analysis that the claimed invention is not directed to a judicial exception (*CellzDirect*) or includes an inventive step (*BASCOM*)." The November 2 Memorandum also cites the recent case *McRO, Inc. v. Bandai Namco Games America Inc.*, 837 F.3d 1299 (Fed. Cir., Sep. 13, 2016) as using the absence of preemption in determining that the claimed invention is patent eligible. *McRO* makes clear that preemption is a key aspect of patent eligibility analysis and is arguably the most important aspect of patent eligibility analysis, as virtually every 35 U.S.C. §101 decision by the Courts and by USPTO examiners and PTAB is, at its heart, a gauge of the level of preemption by a given claim. Furthermore, *McRO* makes clear that the preemption analysis should occur at step one of the *Alice* test: "We therefore look to whether the claims … focus on a specific means or method that improves the relevant technology or are instead directed to a result or effect that itself is the abstract idea and merely invoke generic processes and machinery." *McRO*, 837 F.3d 1299 at 1314 (emphasis added, citing

Enfish). The preemption concern arises when the claims are not directed to a specific invention and instead improperly monopolize "the basic tools of scientific and technological work" (quoting *Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 133, S.Ct. 2107 at 2116). *Id.* The abstract idea exception has been applied to prevent patenting of claims that abstractly cover results where "it matters not by what process or machinery the result is accomplished" (quoting *O'Reilly v. Morse*, 56 U.S. (15 How.) 62, 113 (1854)). *Id.*

See also Amdocs (Israel) Limited v. Openet Telecom, Inc., 841 F.3d 1288, 1301 (Fed. Cir. Nov. 1, 2016), using a similar analysis including a consideration of preemption:

> Claim 1 is therefore distinct from the ineligible claims in *Digitech*, *Content Extraction*, and *In re TLI Commc'ns*. The claim in *Digitech* was not tied to any particularized structure, broadly preempted related technologies, and merely involved combining data in an ordinary manner without any inventive concept. *See* 758 F.3d at 1350–51. In contrast, claim 1 of the '065 patent is tied to a specific structure of various components (network devices, gatherers, ISMs, a central event manager, a central database, a user interface server, and terminals or clients). It is narrowly drawn to not preempt any and all generic enhancement of data in a similar system, and does not merely combine the components in a generic manner, but instead purposefully arranges the components in a distributed architecture to achieve a technological solution to a technological problem specific to computer networks. [Citations to patent omitted]

Similarly, the claimed subject matter in no way preempts the postulated abstract idea of "putting data items into a card format"—and therefore under *McRO* the claimed subject matter is not directed to an abstract idea. Specifically, in the environment defined by claim 1, each card must have not only has a uniform format but also, among other things, a specific set of functions and indicators, and certainly, others are free to use a uniform format as long as the format omits these functions and indicators, for example.

In light of the above discussion, showing, among other things, that the claimed technology does not preempt the alleged abstract idea of "putting data items into a card format,", and that the claimed subject matter provides a significant improvement to a computer system, Applicants' claims are not directed to an abstract idea, and for this reason the subject matter is patent eligible.

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Even if it were determined that the claims are directed to an abstract idea – and above we explain why the claims are not so directed – the *Alice* decision and the subsequent Federal Circuit case law hold that if the claims include "significantly more" than the abstract idea, they are patent eligible. The rejection for patent ineligibility should be withdrawn because the present claims also satisfy this "step-two" test.

As stated above, the subject matter eligibility test requires one to "first determine whether the claims at issue are directed to a patent-ineligible concept." If the claims are "unambiguously directed to an improvement in computer capabilities", they are patentable. *Bascom Global Internet v. AT&T Mobility LLC*, 827 F.3d 1341, 1349 (Fed. Cir. 2016) (citing *Enfish*). However, if the claims "do not readily lend themselves to a step-one finding that they are directed to a nonabstract idea," the analysis proceeds to step two to determine an "inventive concept." *Id.* An inventive concept may arise in "the ordered combination of the limitations" of the claim, must be significantly more than the abstract idea itself, and cannot simply be an instruction to implement or apply the abstract idea on a computer. *Id.* Even if "the limitations of the claims, taken individually, recite generic computer, network and Internet components, none of which is inventive by itself," *id.*, the inventive concept "can be found in the non-conventional and non-generic arrangement of known, conventional pieces." *Id.* at 1350. In *Bascom*, the court found that the inventive concept was "installation of a filtering tool at a specific location, remote from the end-users, with customizable filtering features specific to each end user." *Id.* Applying the above test to the claims, the court held that they "do not merely recite [this] abstract idea," but instead "they recite a specific, discrete implementation of the abstract idea of filtering content." *Id.*

The present claims define significantly more than putative "abstract idea of "putting data items into a card format." As explained above, the claimed subject matter, with the remarkable collection of attributes recited in the previous paragraph, establishes for the first time a complete environment in which arbitrary third party data items can be shared as information objects and users can interact with the information objects based on the functions and indicators provided in the information objects themselves. For this additional reason, the claimed subject matter is patent eligible.

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[***The remaining portion of the Remarks appeared verbatim in Response A.***] Applicants note with appreciation the notation of allowability of claims 2-23 if not dependent on a rejected base claim, and the allowance of claims 24-29.

Claims 1 and 30 are subject to a double patenting rejection under 35 U.S.C. § 101, as drawn to the same invention as claim 1 in Application No. 14/664,178, now U.S. patent 9,524,090 (the "parent"). Claim 1 has been amended to include the limitations of original claims 3 (message indicator) and 5 (voting function, voting indicator) and to add further limitations as described in the next paragraph. Claim 30 has been canceled.

The further limitations added to claim 1 include reciting a "at least one data item obtained from at least one third-party source," substituting "picture" for "graphical and textual material", adding a "replicate function", adding a link function, and adding the requirement that the database system is configured so that (i) each user has at least one user-selected collection of cards in the database system and (ii) each card in the database system, with any associated picture and heading, and other associated data, regardless of the collection in which it may have first appeared, is accessible and replicable across card collections of users. Support for these amendments is as follows:

a. "third-party source" and "picture", paragraph [00058]. ("The semi-automatic creation of IOs 320 allows users to drag and drop pictures, text, hyperlinks, URLs, files, and file folders directly onto the Workspace View 300. This action will cause the workspace server 151 to create a new IO 320 with the content of the dropped item linked or attached to the IO 320 and with a picture and a heading added to an icon area and the heading bar (to be explained) of the IO 320. Furthermore, users will be able to create cards (IOs) from within various computer applications (after installing a plugin) by clicking a bottom.")

b. replicate function, paragraph [00067], [Figure 5A] and [Figure 5B]. ("Figure 5A shows a diagram of IOs being exchanged between IVs of different users. Figure 5B shows a diagram of IOs being exchanged between Private, Visible and Shared Views. There are various ways in which IOs can be exchanged between the IVs of the same and of different users such as: by copying IOs from the personal IV of another user (Users can make their personal IVs accessible to other users. An IV can be Shared 510 (read / write), Visible 512 (read) or Private 514;")

c. link function, paragraph [00090]. ("For example, if a user drags a URL of an item for sale on the Amazon web site onto the Workspace View, the resulting IO would display an image of the item in the Picture Bar, the name of the item in the Heading Bar, the cost of the item in the Value Bar, and hyperlinks to the Amazon web site where the item is advertised.")

d. database configuration, paragraph [00058A]. ("Below are steps a user 108 can perform to create a card. The relation manager 150 creates and displays a new card in the workspace view. The user 108 may have performed a drag and drop of some content onto the workspace view 300, or may have selected a pull down menu in the workspace view to create a new card 320. In response, the relation manager 150 creates a new card record 160 in the database to correspond to the new card in the workspace view 300."). Also, paragraph [00067], [Figure 5A] and [Figure 5B]. ("Figure 5A shows a diagram of IOs being exchanged between IVs of different users. Figure 5B shows a diagram of IOs being exchanged between Private, Visible and Shared Views. There are various ways in which IOs can be exchanged between the IVs of the same and of different users such as: by copying IOs from the personal IV of another user (Users can make their personal IVs accessible to other users. An IV can be Shared 510 (read / write), Visible 512 (read) or Private 514;")

Claim 3 has been amended to require that the format includes within the card an indication of a date of creation of the card. Support for this amendment is found in paragraph [00022] ("An IO includes a graphic icon area to display text or a picture associated with an information source, as well as other information pertaining to such things as ownership of that IO, creation time of the IO, and attribute indicators that indicate a current state of the IO, and a hyperlink to its associated information source.")

Owing to the much more focused nature of claim 1 after this amendment, there cannot be statutory double patenting relative to the parent, and so the rejection should be withdrawn.

For the reasons discussed above, the applicants submit that all pending claims are in condition for allowance. The applicants respectfully request early allowance of the application.

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Date: May 1, 2017

Respectfully submitted,

/Bruce D. Sunstein, Reg. #27,234/

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Attachment: Replacement Fig. 2

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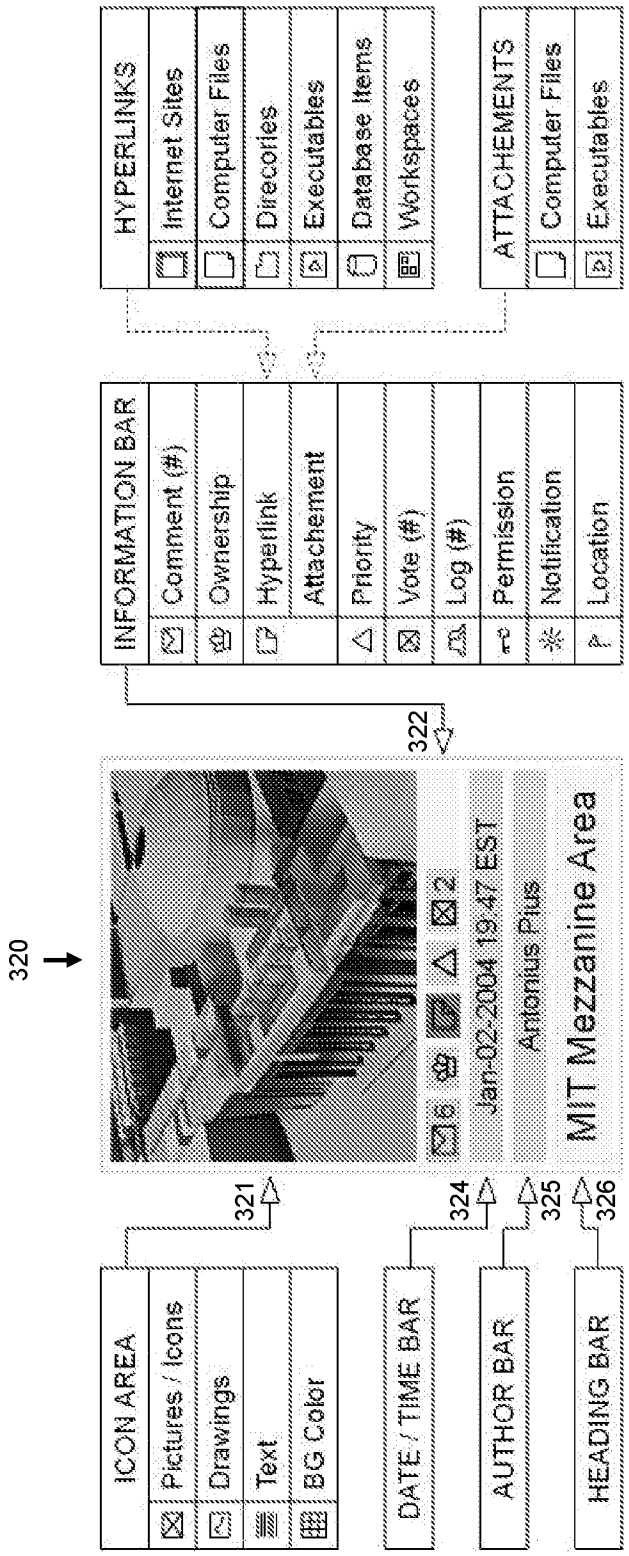

320
ICON AREA
Pictures / Icons
Drawings
Text
BG Color
321
DATE / TIME BAR
324
AUTHOR BAR
325
HEADING BAR
326
6
2
Jan-02-2004 19:47 EST
Antonius Plus
MIT Mezzanine Area
322
INFORMATION BAR
Comment (#)
Ownership
Hyperlink
Attachement
Priority
Vote (#)
Log (#)
Permission
Notification
Location
HYPERLINKS
Internet Sites
Computer Files
Direcories
Executables
Database Items
Workspaces
ATTACHEMENTS
Computer Files
Executables

FIG. 2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Keel et al.	Docket No.:	4123/1002
Appl. No:	15/243,497	Art Unit:	2173
Filed :	August 22, 2016	Examiner:	Hailu
		Conf. No:	3305

Title: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

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VIA USPTO ELECTRONIC FILING SYSTEM

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

DECLARATION OF PAUL ERICH KEEL, Ph.D.

I, the undersigned Paul Erich Keel, Ph.D. hereby declare as follows:

1. The purpose of this declaration is to bring to the attention of the Patent and Trademark Office slide decks that had been previously considered in prosecution of parent application serial number 11/118,301, now patent number 7,640,511. A few additional related slide decks are also discussed. These documents are provided in the accompanying Second Supplemental Information Disclosure Statement (IDS).

2. I am a coinventor of the subject matter of the present application. I am a Research Scientist at the MIT's Computer Science and Artificial Intelligence Laboratory (CSAIL), where I conduct theoretical and applied research on the development of new models for knowledge construction, computer supported collaborative sense-making and visual analytics in defense and education environments. I am also founder and manager of Eversitas LLC, a DoD (Department of Defense) contractor, where I have served as Project Investigator for the EVTM (Electronic Virtual Transactive Memory) project (a

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computational collaboration environment that estimates the expertise of individuals), concept developer for the T-Soldier project (technology solutions focused on improving the decentralized intelligence exchange at lower levels of command), and lead concept designer for various enterprise and consumer applications focused on new solutions for knowledge sharing. I have performed postdoctoral study and research at MIT's Artificial Intelligence Laboratory (AI Lab) and I hold a Ph.D. in Design and Computation from MIT.

3. The technology (denoted "EWall") that is the basis of the present application was developed in part under a program with funding by the Office of Naval Research (ONR).

4. The ONR program managers scheduled, on a periodic basis, internal progress reviews of the research project. Once a year, the progress reviews were consolidated, so, in the period from 2002-2004, each progress review would involve participation by a group of about two dozen invited sponsored researchers and program managers. In years prior to 2002, the consolidated progress reviews involved a smaller group of invited sponsored researchers and program managers.

5. Eventually slide decks from some of the 2002 and 2003 progress reviews were made available on the ONR website, www.onr.navy.mil. However, the earliest record I have found of the publication of the slide decks (using www.archive.org) is October 31, 2004, although the purported date on the web site is May 13, 2003 (which may have corresponded to an internal date used by the ONR). A second military website is at www.dtic.mil, but documents on this website (1) have generally not been published until at least a half a year after being created and (2) the earliest dated document referencing EWall technology is January 2003, meaning that such document would not have been available to the public before June 2003. Finally, an older and less detailed slide deck, item (d) in paragraph 8 below, used in November 2000 has not been made available to the public.

6. Researchers participating in the internal progress reviews were encouraged to reference each other's work and point out opportunities for collaboration. Thus, in some instances, a reference to EWall and/or to a graphic of EWall can be found in the presentation slides of other sponsored program participants.

7. Starting in April 2003, researchers and program managers participating in the internal progress reviews were given digital copies of slides presented during the internal progress reviews so they could better evaluate opportunities to collaborate.

8. Submitted with an information disclosure statement of even date herewith are slide decks, presented in progress reviews spanning the period 2000-2004, that reference EWall technology. The exact publication dates of these slide decks are not known, but, as explained above, they are believed not to be prior art. The dates given below are dates of presentation and not of publication. Specifically, these slide decks, which are not a complete presentation of the technology claimed herein, are as follows:

a. Slide Deck 1: EWall: Electronic Card Wall, Patrick Winston et al., Jan. 2004 (IDS Document DL).
b. Slide Deck 2: EWall: Electronic Card Wall, Patrick Winston et al., Jan. 2003 (IDS Document DM).
c. Slide Deck 3: EWall: Electronic Card Wall, Patrick Winston et al., Jan. 2002 (IDS Document DN).
d. Slide Deck 4: EWall: Electronic Card Wall, Patrick Winston et al., Nov. 2000 (IDS Document DO).
e. Slide Deck 5: DCODE: Decision Making Constructs in a Distributed Environment, Robert Fleming, Jan. 2003 (IDS Document DP).
f. Slide Deck 6: DCODE: Decision Making Constructs in a Distributed Environment, Robert Fleming, Jan. 2004 (IDS Document DQ).
g. Slide Deck 7: Information Exchange and Display in Asynchronous C2 Group Decision Making. Robert Fleming, Jun. 2003 (IDS Document DR).
h. Slide Deck 8: Collaborative Critical Thinking, Jared Freeman et al., Jan. 2003 (IDS Document DS).

i. Slide Deck 9: The Process of Achieving Collaborative Knowledge in Asynchronous Collaboration (CASC), Norman Warner et al., Jan. 2004 (IDS Document DT).

j. Slide Deck 10: NPS GIGA Lab Testbed for CKM Projects, Alex Bordetsky, Jan 2004 (IDS Document DU).

9. Although the names of fellow researchers appear on the above listed EWall slide decks (a-d), the inventors of the subject matter claimed herein are the undersigned Paul Erich Keel and Jeffrey Huang.

10. A related investigation, conducted by me on web.archive.org, into publication of EWall materials revealed two EWall research project abstracts (presented in the accompanying IDS as Documents DV and DW). Both abstracts introduce EWall at a high level but fail to provide detail necessary for one of ordinary skill in the art to implement the subject matter of claim 1 pending herein. The publication dates of the abstracts are unknown, but the first abstract was recorded on web.archive.org on June 2001 (IDS Document DV) and the second on August 2003 (IDS Document DW).

11. This investigation also revealed three software prototypes of the news view that is the subject of claim 24. Screen captures of these prototypes are included in IDS Document DX. These prototypes appear to have been publicly accessible prior to May 2003. In face of this discovery, in an accompanying amendment, I am canceling claim 24 and all its dependent claims. The material in IDS Document DX fails to disclose the multi-functional card format that is the subject of claim 1.

12. I hereby declare that all statements made herein are of my own knowledge and that all statements made on information and belief are true; and further that these statements are being made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity

of the application or any patent issued thereon.



May 1, 2017 Paul Erich Keel, Ph.D.

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Keel et al.		
Application No.:	15/243,497	Group No.:	2173
Filed:	August 22, 2016	Examiner:	Hailu, Tadesse

For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT BEFORE MAILING DATE OF EITHER A FINAL ACTION OR NOTICE OF ALLOWANCE (37 C.F.R. § 1.97(c))

TIME OF TRANSMITTAL OF ACCOMPANYING SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

1. The supplemental information disclosure statement transmitted herewith is being filed ***after*** three months of the filing date of this national application or the date of entry of the national stage as set forth in Section 1.491 in an international application or after the mailing date of the first Office action on the merits, whichever event occurred last but ***before*** the mailing date of either

   (1) a final action under § 1.113 or
   (2) a notice of allowance under § 1.311

   whichever occurs first.

FEE

2. Accompanying this transmittal is the fee for submission of an information disclosure statement under section 1.97(c). ($90.00)

FEE PAYMENT

3. Applicant elects the option to pay the fee set forth in 37 C.F.R. § 1.17(p) for submission of an information disclosure statement under § 1.97(c) ($90.00).

Fee due $90.00

METHOD OF PAYMENT OF FEE

4. Authorization is hereby made to charge the amount of $90.00 to Deposit Account No. 19-4972.

Charge any additional fees required by this paper or credit any overpayment to Deposit Account No. 19-4972.

DATE: May 1, 2017

/Bruce D. Sunstein, #27,234/

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04123/01002 2715194.1

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Keel et al.		
Application No.:	15/243,497	Group No.:	2173
Filed:	August 22, 2016	Examiner:	Hailu, Tadesse

For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

List of Sections Forming Part of This Supplemental Information Disclosure Statement

The following sections are being submitted for this Supplemental Information Disclosure Statement:

1. [x] Preliminary Statements
2. [x] Forms PTO/SB/08A and 08B (substitute for Form PTO-1449)
3. [ ] Statement as to Information Not Found in Patents or Publications
4. [ ] Identification of Prior Application in Which Listed Information Was Already Cited and for Which No Copies Are Submitted or Need Be Submitted
5. [ ] Cumulative Patents or Publications
6. [x] Copies of Listed Information Items Accompanying This Statement
7. [ ] Concise Explanation of Non-English Language Listed Information Items
   - 7A. [ ]EPO Search Report
   - 7B. [ ]English Language Version of EPO Search Report
8. [ ] Translation(s) of Non-English Language Documents
9. [ ] Concise Explanation of English Language Listed Information Items (Optional)
10. [x] Identification of Person(s) Making This Information Disclosure Statement

Section 1. Preliminary statements

Applicants submit herewith patents, publications or other information, of which they are aware that they believe may be material to the examination of this application, and in respect of which, there may be a duty to disclose.

The filing of this information disclosure statement shall not be construed as a representation that a search has been made (37 C.F.R. § 1.97(g)), an admission that the information cited is, or is considered to be, material to patentability, or that no other material information exists.

The filing of this information disclosure statement shall not be construed as an admission against interest in any manner. Notice of January 9, 1992, 1135 O.G. 13-25, at 25.

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Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	15/243,497	Art Group Unit:	2173
Date Filed:	August 22, 2016	Examiner Name:	Hailu, Tadesse
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		

DATE: May 1, 2017

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

OTHER DOCUMENTS			
Examiner Initials	**Reference Number**	**Author**	**Title of Article, Title of Journal, Volume Number, Page Numbers, Date**
	DL	**Winston et al.**	***EWall: Electronic Card Wall*, ONR CKM Workshop, January 2004, 20 pages, Publication date unknown**
	DM	**Winston et al.**	***EWall: Electronic Card Wall*, ONR CKM Workshop, Maryland, January 2003, 25 pages, Publication date unknown**
	DN	**Winston et al.**	***EWall: Electronic Card Wall*, ONR TC3 Workshop, San Diego, January 2002, 26 pages, Publication date unknown**
	DO	**Winston et al.**	***EWall: Electronic Card Wall*, ONR TC3 Workshop, San Diego, November 2000, 8 pages, Not publicly released**
	DP	**Fleming**	***DCODE: Decision Making Constructs in a Distributed Environment*, ONR CKM Workshop, Maryland, January 2003, 60 pages, Publication date unknown**
	DQ	**Fleming**	***DCODE: Decision Making Constructs in a Distributed Environment*, ONR CKM Workshop, San Diego, January 2004, 71 pages, Publication date unknown**
	DR	**Fleming**	***Information Exchange and Display in Asynchronous C2 Group Decision Making*, June 2003, 38 pages, Publication date unknown**
	DS	**Freeman et al.**	***Collaborative Critical Thinking*, ONR CKM Workshop, Maryland, January 2003, 39 pages, Publication date unknown**
	DT	**Warner et al.**	***CASC: The Process of Achieving Collaborative Knowledge in Asynchronous Collaboration*, ONR CKM Workshop, San Diego, January 2004, 53 pages, Publication date unknown**
	DU	**Bordetsky**	***NPS GIGA Lab Testbed for CKM Projects*, ONR CKM Workshop, San Diego, January 2004, 47 pages, Publication date unknown**

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Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Serial No:	15/243,497	Art Group Unit:	2173
Date Filed:	August 22, 2016	Examiner Name:	Hailu, Tadesse
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OTHER DOCUMENTS			
Examiner Initials	**Reference Number**	**Author**	**Title of Article, Title of Journal, Volume Number, Page Numbers, Date**
	DV	**Anon.**	***EWall: Electronic Card Wall, Abstract*, in a screen capture taken from www.archive.org for date June 6, 2001 of web page at ewall.mit.edu/abstract/index.html, Publication date unknown**
	DW	**Winston, et al.**	***EWall: Computational Support for Decision Making in Collaborative Environments*, in a screen capture taken from www.archive.org for date Aug 2, 2003 of web page at www.ai.m it.edu/research/ abstracts/ abstracts2002/user-interfaces/32winston.pdf, Publication date unknown**
	DX	**Anon.**	***News View Examples*, in screen captures taken from www.archive.org for (a) date April 19, 2001 of web page at destech.mit.edu/keel/test/news/share.pl and (b) date April 7, 2003 of web page at ia.eversitas.com and (c) date June 17, 2002 of web page at destech.mit.edu:80/phw/news/news.html**

Examiner Signature: _____

Date Considered: _____

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation *if not* in conformance and not considered. Include copy of this form with next communication to applicant.

Meta Platforms, Inc. - Ex. 1002
Page 306

Section 6. Copies of Listed Information Items Accompanying This Statement

Legible copies of all items listed in Forms PTO/SB/08A and 08B (substitute for Form PTO-1449) accompany this information statement.

[x] Exception(s) to above:

U.S. patent citations are not included pursuant to the United States Patent and Trademark Office's September 21, 2004 waiver of the copy requirement in 37 CFR 1.98 for cited pending U.S. patent citations when the patent citations are available in the USPTO's IFW system.

[ ] Items in prior application, from which an earlier filing date is claimed for this application, as identified in Section 4.

[ ] Cumulative patents or publications identified in Section 5.

Meta Platforms, Inc. - Ex. 1002
Page 307

Section 10. Identification of Person Making This Supplemental Information Disclosure Statement

The person making this certification is the practitioner of record.

/Bruce D. Sunstein, #27,234/
SIGNATURE OF PRACTITIONER

Reg. No.: 27,234

Bruce D. Sunstein
(type or print name of practitioner)

Tel. No.: (617) 443-9292

Sunstein Kann Murphy & Timbers LLP
125 Summer Street, 11th Floor
P.O. Address

Customer No.: 002101

Boston, MA 02110-1618

04123/01002 2715193.1

Meta Platforms, Inc. - Ex. 1002
Page 308

Electronic Patent Application Fee Transmittal

Application Number:	15243497
Filing Date:	22-Aug-2016
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects
First Named Inventor/Applicant Name:	Paul Erich Keel
Filer:	Bruce D. Sunstein
Attorney Docket Number:	4123/1002

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	90	90
		Total in USD ($)		**90**

Electronic Acknowledgement Receipt

EFS ID:	29080418
Application Number:	15243497
International Application Number:	
Confirmation Number:	3305
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects
First Named Inventor/Applicant Name:	Paul Erich Keel
Customer Number:	2101
Filer:	Bruce D. Sunstein
Filer Authorized By:	
Attorney Docket Number:	4123/1002
Receipt Date:	01-MAY-2017
Filing Date:	22-AUG-2016
Time Stamp:	16:09:31
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$90
RAM confirmation Number	050217INTEFSW00003078194972
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Supplemental Response or Supplemental Amendment	kem4123_1002_SecondSuppResponse.pdf	201805 c273e9a4d87d1362cb84db372c22b41b9e5f8e8b	no	20
Warnings:					
Information:					
2	Drawings-only black and white line drawings	kem4123_1002_Fig2.pdf	700974 c182d952da9a9e7bbdff3330b193b2e4b53e780d	no	1
Warnings:					
Information:					
3	Affidavit-traversing rejectns or objectns rule 132	kem4123_1002_Declaration.pdf	69182 8692a87c264394684a366560a95f93847b4cc6d4	no	5
Warnings:					
Information:					
4		SuppIDS.pdf	125603 38b4366b8c07e855a7374ede7453cc3b29e182ec	yes	8

Multipart Description/PDF files in .zip description

Document Description	Start	End
Transmittal Letter	1	2
Information Disclosure Statement (IDS) Form (SB08)	3	8

Warnings:					
Information:					
5	Non Patent Literature	DL.pdf	4379254 c394e3164caf3672b2b1df46627c186909a73148	no	20
Warnings:					
Information:					

6	Non Patent Literature	DM.pdf	5569879 7f2a796a7a5c419b1e566c1f6d2c23279647e180	no	25
Warnings:					
Information:					
7	Non Patent Literature	DN.pdf	7069957 db0cc4c29a998e2a050d9d455bf72be1672b8741	no	26
Warnings:					
Information:					
8	Non Patent Literature	DO.pdf	1028244 458d98ca8df7c20e6d585ad84adfc707fa9806fc	no	8
Warnings:					
Information:					
9	Non Patent Literature	DP.pdf	3082012 56c3409c3ba90a28cb6c82950a2a1da06ff20ead	no	60
Warnings:					
Information:					
10	Non Patent Literature	DQ.pdf	5116049 a9c94ff384d88dbd151f9c0e2eda286d26a76f1b	no	71
Warnings:					
Information:					
11	Non Patent Literature	DR.pdf	2956666 aef598805cb827c69959b5751a6634e037f03f51	no	38
Warnings:					
Information:					
12	Non Patent Literature	DS.pdf	1186187 59f69dbc898907da5faf6ba5d191cfc71a382e8b	no	39
Warnings:					
Information:					

13	Non Patent Literature	DT.pdf	2566360 fefa0d652d7e97011ac826e5c6aeb55730b739d5	no	53
Warnings:					
Information:					
14	Non Patent Literature	DU.pdf	7304866 883b76af56d09b2191097bf516182fd2801e3cd2	no	47
Warnings:					
Information:					
15	Non Patent Literature	DV.pdf	1649392 cb1221b47e05e32397a20316551c4664d128228c	no	4
Warnings:					
Information:					
16	Non Patent Literature	DW.pdf	1367634 41928a8793f9e471bdf17678ee34c57a80bebbba	no	2
Warnings:					
Information:					
17	Non Patent Literature	DX.pdf	738380 a3dac53d8abb4ec378dc7e21ba4fad941efadd87	no	2
Warnings:					
Information:					
18	Fee Worksheet (SB06)	fee-info.pdf	30800 662896c949c1e984cbb5667d05048710da4b28b8	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	45143244	

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.

SCORE Placeholder Sheet for IFW Content

Application Number: 15243497 Document Date: 05/01/2017

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Drawings – Other than Black and White Line Drawings

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

To access the documents in the SCORE database, refer to instructions below.

At the time of document entry (noted above):

- Examiners may access SCORE content via the eDAN interface.
- Other USPTO employees can bookmark the current SCORE URL (http://Score.uspto.gov/ScoreAccessWeb/).
- External customers may access SCORE content via the Public and Private PAIR interfaces.

Form Revision Date: September 30, 2013

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.
15/243,497	08/22/2016	Paul Erich Keel	4123/1002	3305

2101 7590 05/05/2017

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

EXAMINER	
HAILU, TADESSE	

ART UNIT	PAPER NUMBER
2173	

NOTIFICATION DATE	DELIVERY MODE
05/05/2017	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

Applicant-Initiated Interview Summary	Application No.	Applicant(s)	
	15/243,497	KEEL ET AL.	
	Examiner	Art Unit	
	TADEESE HAILU	2173	

All participants (applicant, applicant's representative, PTO personnel):

(1) *TADEESE HAILU*. (3)_____.

(2) *Bruce D. Sunstein*. (4)_____.

Date of Interview: *25 April 2017*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☒ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *1*.

Identification of prior art discussed: _____.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

The representative discussed claim 1 (attachement of claim 1 enclosed). The examiner also mentioned the claims are going to be examined on the newly court dicisions- eligibility subject matter under USC 101..

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☒ Attachment

/TADEESE HAILU/ Primary Examiner, Art Unit 2173	

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

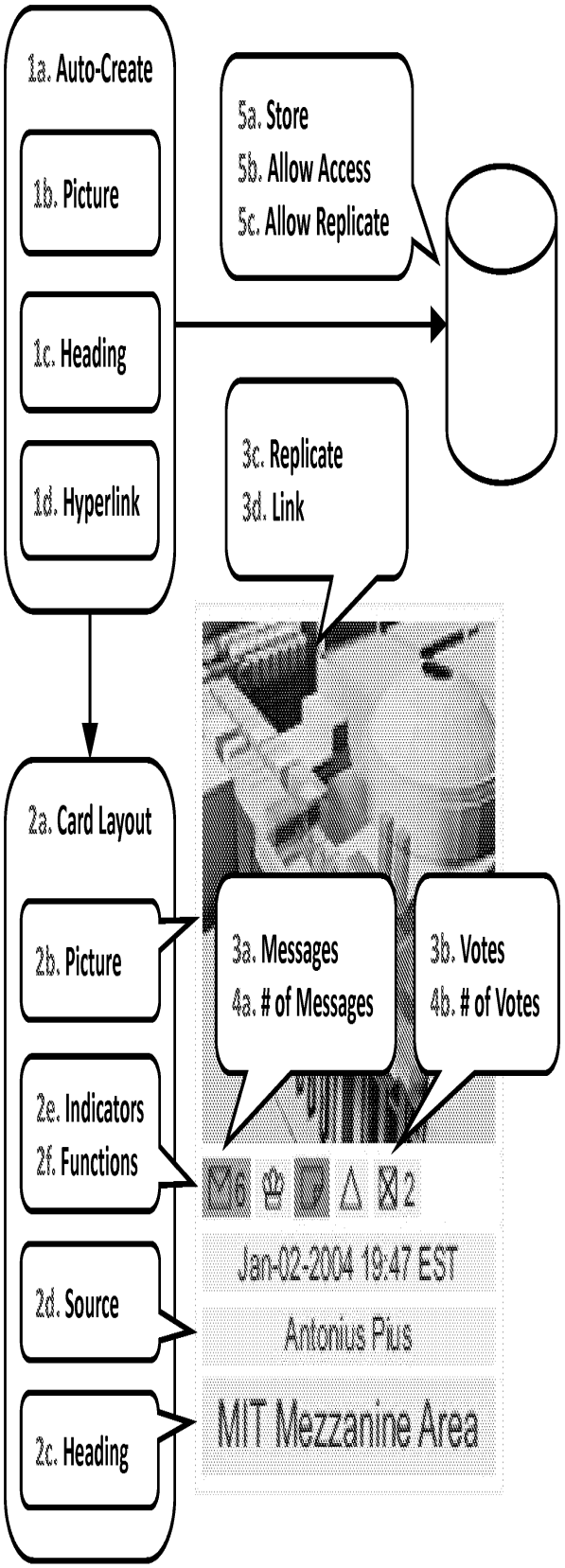
It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.



1. A computer-implemented method, in which at least one computer initiates execution of software instructions to perform computer processes, the method being for [1a] interacting with at least one data item obtained from at least one third-party source, the computer processes comprising:

[1] configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including [1b] a picture, a [1c] heading, and [1d] a hyperlink to the data item;

[5a] storing data corresponding to each of the information objects in a database system;

[2] using the extracted data to make available for display, a representation of each of at least two of the information objects in the database system, the at least two information objects being selected for display, [2a] the representation being in a uniform format, wherein the format includes [2a] a card, and, within the card, in uniform locations thereof, [2b] the picture, [2c] the heading, [2d] the source for the data item, [2e] a set of indicators, and [2f] a function mechanism giving graphical access to a set of functions,

[3] wherein the functions include:

[3a] an instant messaging function, by which users having access to the card can exchange author- and time-stamped messages relating to the information object, such messages being associated with the information object and accessible to users who view the information object;

[3b] a vote function, by which each user having access to the card can provide one vote for the information object;

[3c] a replicate function, by which each user having access to the card in a first collection of cards can cause the card to be replicated in a second collection of cards; and

[3d] a link function, by which each user having access to the card can invoke the hyperlink to the data item; and

[4] wherein the indicators include:

[4a] a message indicator that displays a total number of instant messages associated with the information object; and

[4b] a vote indicator that displays a total number of votes associated with the information object; and

[5] wherein the database system, is configured so that (i) [5a] each user has at least one user-selected collection of cards in the database system and (ii) each card in the database system, with any associated picture and heading, and other associated data, regardless of the collection in which it may have first appeared, is [5b] accessible and [5c] replicable across card collections of users.

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

2101 7590 07/10/2017
Sunstein Kann Murphy & Timbers LLP
125 SUMMER STREET
BOSTON, MA 02110-1618

EXAMINER
HAILU, TADESSE

ART UNIT	PAPER NUMBER
2173	

DATE MAILED: 07/10/2017

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/243,497	08/22/2016	Paul Erich Keel	4123/1002	3305

TITLE OF INVENTION: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	10/10/2017

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

2101 7590 07/10/2017
Sunstein Kann Murphy & Timbers LLP
125 SUMMER STREET
BOSTON, MA 02110-1618

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/243,497	08/22/2016	Paul Erich Keel	4123/1002	3305

TITLE OF INVENTION: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	10/10/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
HAILU, TADESSE	2173	715-739000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/243,497	08/22/2016	Paul Erich Keel	4123/1002	3305

2101 7590 07/10/2017

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

EXAMINER	
HAILU, TADESSE	

ART UNIT	PAPER NUMBER
2173	

DATE MAILED: 07/10/2017

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. 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 1.14. This collection is estimated to take 12 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, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control 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.

Notice of Allowability	Application No. 15/243,497	Applicant(s) KEEL ET AL.	
	Examiner TADEESE HAILU	Art Unit 2173	AIA (First Inventor to File) Status No

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the amendment filed May 1, 2017*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ 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.
3. ☒ The allowed claim(s) is/are *1-4, 6-23*. As a result of the allowed claim(s), 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.
4. ☐ 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)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 3/24/17, 5/1/17,
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/TADEESE HAILU/
Primary Examiner, Art Unit 2173

Notice of References Cited	Application/Control No. 15/243,497	Applicant(s)/Patent Under Reexamination KEEL ET AL.	
	Examiner TADEESE HAILU	Art Unit 2173	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2003/0158893 A1	08-2003	Komatsu, Masashige	G06Q30/02	709/203
*	B	US-2002/0105541 A1	08-2002	Endou, Susumu	G06F17/3005	715/738
*	C	US-5,732,229 A	03-1998	Dickinson; Robert David	G06Q10/10	715/764
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	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	CPC 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.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	105	(extract$3 colect$3) with (metadata attributes parameters properties) with (article document page media image) same (organizing collecting populat$3) same (template structured layout compact representations)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/26 09:12
L2	82	1 and (extract$3 colect$3) with (headings source URL title hyperlink link image picture)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/26 09:15
L3	76	2 and (message sms phone number address comment view$3 vote voting)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/26 09:17
L4	183	(extract$3 colect$3) with (metadata attributes parameters properties) with (article document page media image) same (organizing collecting populat$3) same (template structured layout compact representations)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/26 09:17
L5	145	4 and (extract$3 colect$3) with (headings source URL title hyperlink link image picture)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/26 09:17
L6	133	5 and (message sms phone number address comment view$3 vote voting)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/26 09:18
L7	21	6 and (cart (information near object))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/26 09:18
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L9	161	8 and (extract$3 colect$3) with (headings source URL title hyperlink link	US-PGPUB; USPAT;	OR	ON	2017/06/26 09:20

		image picture)	USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
L10	148	9 and (message sms phone number address comment view$3 vote voting)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/26 09:20
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L14	47	12 AND ((G06F17/30867 OR G06F17/30247 OR G06F8/10 OR G06F17/248 OR G06F17/3089 OR G06F17/30911).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/26 09:23
L15	39	14 and (card (information near object) template)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/26 09:26
L16	11	14 and (organiz$4 arrang$3 populat$4) with (card (information near object) template)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/26 09:27
L17	2	"20160357874"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/26 09:42
L18	1	17 and (webpage page)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/26 09:42

EAST Search History (Interference)

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6/26/2017 9:48:01 AM
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EAST Search History

EAST Search History (Prior Art)

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L7	1033	6 and (link vote message) same shar$3 with (view$3 favorite unfavorite total)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/21 14:36
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			USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB			
L10	503	7 AND ((G06Q50/01 OR G06Q30/0269 OR G06Q10/1095 OR G06Q30/0643 OR H04L51/32 OR H04L51/10 OR H04L63/10 OR G06F3/0482 OR G06F17/30265 OR G06F3/048 OR G06F17/30598 OR G06F17/241).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/21 14:41
L11	76	10 and (number total) near5 (link vote view$3 message) same shar$3 with (view$3 favorite unfavorite total)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/21 14:42
L12	43	11 and (interactive personal interface) with (preview$3 compact card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2017/06/21 14:43
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L14	0	11 and (interactive aggregat$4 plurality personal interface) with information with (name address link) same (preview$3 compact card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/21 14:44
L15	28310	(interactive aggregat$4 plurality personal interface) with information with (name address link number email) with (pane preview$3 compact card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/21 14:45
L16	218	(interactive aggregat$4 plurality personal interface) with information with (name address link number email) with (pane preview$3 compact) with card	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/21 14:46
L17	129	16 and @py < "2008"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/21 14:46
L18	13	16 and @py < "2008" and card same (extract$3 retriev$4 sources) with (address (picture image) heading hyperlink link)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/06/21 14:48

EAST Search History (Interference)

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6/21/2017 2:49:13 PM
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15243497	KEEL ET AL.
	Examiner	Art Unit
	TADEESE HAILU	2173

CPC- SEARCHED		
Symbol	Date	Examiner
((G06F17/30864 OR G06F17/3089 OR G06F3/0482 OR G06F17/30867 OR G06F3/04817).CPC.)	12/8/2016	TH
(G06F17/30867 OR G06F17/30247 OR G06F8/10 OR G06F17/248 OR G06F17/3089 OR G06F17/30911)	6/26/2017	TH
(G06Q50/01 OR G06Q30/0269OR G06Q10/1095 OR G06Q30/0643OR H04L51/32 OR H04L51/10 ORH04L63/10 OR G06F3/0482 ORG06F17/30265 OR G06F3/048 ORG06F17/30598 OR G06F17/241).	6/21/2017	TH

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
EAST - USPAT, PGPUB, EPO, JPO(abstract)	12/8/2016	TH
EAST - USPAT, PGPUB, EPO, JPO(abstract)	6/21/2017	TH
EAST - USPAT, PGPUB, EPO, JPO(abstract)	6/26/2017	TH

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
G06F	(17/30867 OR 17/30247 OR 8/10 OR 17/248 OR 17/3089 OR17/30911)	6/26/2017	TH

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Keel et al.
Application No.: 15/243,497 Group No.: 2173
Filed: August 22, 2016 Examiner: Hailu, Tadesse

For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

List of Sections Forming Part of This Supplemental Information Disclosure Statement

The following sections are being submitted for this Supplemental Information Disclosure Statement:

1. [x] Preliminary Statements
2. [x] Forms PTO/SB/08A and 08B (substitute for Form PTO-1449)
3. [ ] Statement as to Information Not Found in Patents or Publications
4. [ ] Identification of Prior Application in Which Listed Information Was Already Cited and for Which No Copies Are Submitted or Need Be Submitted
5. [ ] Cumulative Patents or Publications
6. [x] Copies of Listed Information Items Accompanying This Statement
7. [ ] Concise Explanation of Non-English Language Listed Information Items
   - 7A. [ ]EPO Search Report
   - 7B. [ ]English Language Version of EPO Search Report
8. [ ] Translation(s) of Non-English Language Documents
9. [ ] Concise Explanation of English Language Listed Information Items (Optional)
10. [x] Identification of Person(s) Making This Information Disclosure Statement

Section 1. Preliminary statements

Applicants submit herewith patents, publications or other information, of which they are aware that they believe may be material to the examination of this application, and in respect of which, there may be a duty to disclose.

The filing of this information disclosure statement shall not be construed as a representation that a search has been made (37 C.F.R. § 1.97(g)), an admission that the information cited is, or is considered to be, material to patentability, or that no other material information exists.

The filing of this information disclosure statement shall not be construed as an admission against interest in any manner. Notice of January 9, 1992, 1135 O.G. 13-25, at 25.

Meta Platforms, Inc. - Ex. 1002
Page 335

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	15/243,497	Art Group Unit:	2173
Date Filed:	August 22, 2016	Examiner Name:	Hailu, Tadesse
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		

DATE: May 1, 2017

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

OTHER DOCUMENTS			
Examiner Initials	**Reference Number**	**Author**	**Title of Article, Title of Journal, Volume Number, Page Numbers, Date**
/T.H/	**DL**	**Winston et al.**	***EWall: Electronic Card Wall*, ONR CKM Workshop, January 2004, 20 pages, Publication date unknown**
/T.H/	**DM**	**Winston et al.**	***EWall: Electronic Card Wall*, ONR CKM Workshop, Maryland, January 2003, 25 pages, Publication date unknown**
/T.H/	**DN**	**Winston et al.**	***EWall: Electronic Card Wall*, ONR TC3 Workshop, San Diego, January 2002, 26 pages, Publication date unknown**
/T.H/	**DO**	**Winston et al.**	***EWall: Electronic Card Wall*, ONR TC3 Workshop, San Diego, November 2000, 8 pages, Not publicly released**
/T.H/	**DP**	**Fleming**	***DCODE: Decision Making Constructs in a Distributed Environment*, ONR CKM Workshop, Maryland, January 2003, 60 pages, Publication date unknown**
/T.H/	**DQ**	**Fleming**	***DCODE: Decision Making Constructs in a Distributed Environment*, ONR CKM Workshop, San Diego, January 2004, 71 pages, Publication date unknown**
/T.H/	**DR**	**Fleming**	***Information Exchange and Display in Asynchronous C2 Group Decision Making*, June 2003, 38 pages, Publication date unknown**
/T.H/	**DS**	**Freeman et al.**	***Collaborative Critical Thinking*, ONR CKM Workshop, Maryland, January 2003, 39 pages, Publication date unknown**
/T.H/	**DT**	**Warner et al.**	***CASC: The Process of Achieving Collaborative Knowledge in Asynchronous Collaboration*, ONR CKM Workshop, San Diego, January 2004, 53 pages, Publication date unknown**
/T.H/	**DU**	**Bordetsky**	***NPS GIGA Lab Testbed for CKM Projects*, ONR CKM Workshop, San Diego, January 2004, 47 pages, Publication date unknown**

Meta Platforms, Inc. - Ex. 1002
Page 336

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	15/243,497	Art Group Unit:	2173
Date Filed:	August 22, 2016	Examiner Name:	Hailu, Tadesse
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		

DATE: May 1, 2017

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

OTHER DOCUMENTS			
Examiner Initials	**Reference Number**	**Author**	**Title of Article, Title of Journal, Volume Number, Page Numbers, Date**
/T.H/	**DV**	**Anon.**	***EWall: Electronic Card Wall, Abstract*, in a screen capture taken from www.archive.org for date June 6, 2001 of web page at ewall.mit.edu/abstract/index.html, Publication date unknown**
/T.H/	**DW**	**Winston, et al.**	***EWall: Computational Support for Decision Making in Collaborative Environments*, in a screen capture taken from www.archive.org for date Aug 2, 2003 of web page at www.ai.m it.edu/research/ abstracts/ abstracts2002/user-interfaces/32winston.pdf, Publication date unknown**
/T.H/	**DX**	**Anon.**	***News View Examples*, in screen captures taken from www.archive.org for (a) date April 19, 2001 of web page at destech.mit.edu/keel/test/news/share.pl and (b) date April 7, 2003 of web page at ia.eversitas.com and (c) date June 17, 2002 of web page at destech.mit.edu:80/phw/news/news.html**

Examiner Signature: /TADESSE HAILU/

Date Considered: 06/26/2017

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation *if not* in conformance and not considered. Include copy of this form with next communication to applicant.

Meta Platforms, Inc. - Ex. 1002
Page 337

Section 6. Copies of Listed Information Items Accompanying This Statement

Legible copies of all items listed in Forms PTO/SB/08A and 08B (substitute for Form PTO-1449) accompany this information statement.

[x] Exception(s) to above:

U.S. patent citations are not included pursuant to the United States Patent and Trademark Office's September 21, 2004 waiver of the copy requirement in 37 CFR 1.98 for cited pending U.S. patent citations when the patent citations are available in the USPTO's IFW system.

[ ] Items in prior application, from which an earlier filing date is claimed for this application, as identified in Section 4.

[ ] Cumulative patents or publications identified in Section 5.

Meta Platforms, Inc. - Ex. 1002
Page 338

Section 10. Identification of Person Making This Supplemental Information Disclosure Statement

The person making this certification is the practitioner of record.

/Bruce D. Sunstein, #27,234/
SIGNATURE OF PRACTITIONER

Reg. No.: 27,234

Bruce D. Sunstein
(type or print name of practitioner)

Tel. No.: (617) 443-9292

Sunstein Kann Murphy & Timbers LLP
125 Summer Street, 11th Floor
P.O. Address

Customer No.: 002101

Boston, MA 02110-1618

04123/01002 2715193.1

Meta Platforms, Inc. - Ex. 1002
Page 339

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15243497	KEEL ET AL.
	Examiner	**Art Unit**
	TADEESE HAILU	2173

CPC						
Symbol					**Type**	**Version**
G06F		3	/	04842	F	2013-01-01
G06F		17	/	3087	I	2013-01-01
G06Q		10	/	10	I	2013-01-01
Y10S		707	/	99943	A	2013-01-01
Y10S		707	/	99933	A	2013-01-01
G06F		3	/	04817	I	2013-01-01
G06F		3	/	0482	I	2013-01-01
G06F		17	/	30241	I	2013-01-01
G06F		17	/	30312	I	2013-01-01
G06F		17	/	30569	I	2013-01-01
G06F		17	/	30867	I	2013-01-01
H04L		51	/	046	I	2013-01-01
H04L		67	/	10	I	2013-01-01
			/			
			/			

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
			/					
			/					

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 22	
/TADEESE HAILU/ Primary Examiner.Art Unit 2173 (Primary Examiner) (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 11

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15243497	KEEL ET AL.
	Examiner	**Art Unit**
	TADEESE HAILU	2173

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION	
CLASS	SUBCLASS	CLAIMED	NON-CLAIMED
		G 0 6 F 3 / 048 (2013.01.01)	

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 22	
/TADEESE HAILU/ Primary Examiner.Art Unit 2173 (Primary Examiner) (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 11

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15243497	KEEL ET AL.
	Examiner	**Art Unit**
	TADEESE HAILU	2173

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

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	16	17												
2	2	17	18												
3	3	18	19												
4	4	19	20												
	5	20	21												
5	6	21	22												
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7	8														
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10	11														
11	12														
12	13														
13	14														
14	15														
15	16														

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 22	
/TADEESE HAILU/ Primary Examiner.Art Unit 2173 (Primary Examiner) (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 11

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

BIB DATA SHEET

CONFIRMATION NO. 3305

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
15/243,497	08/22/2016 RULE	715	2173	4123/1002

APPLICANTS

INVENTORS

Paul Erich Keel, Cambridge, MA;
Jeffrey Huang, Lausanne, SWITZERLAND;

**** CONTINUING DATA ***************************

This application is a CON of 14/664,178 03/20/2015 PAT 9524090
which is a CON of 13/925,031 06/24/2013 ABN
which is a CON of 12/563,416 09/21/2009 PAT 8499248
which claims benefit of 61/116,747 11/21/2008
and is a CIP of 11/118,301 04/29/2005 PAT 7640511
which claims benefit of 60/566,723 04/29/2004

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
08/31/2016

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☐ No Verified and Acknowledged /TADEESE HAILU/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		MA	14	22	1

ADDRESS

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

TITLE

Methods and Apparatus for Managing and Exchanging Information Using Information Objects

FILING FEE RECEIVED		
1130	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Keel et al.		
Application No.:	15/243,497	Group No.:	2173
Filed:	August 22, 2016	Examiner:	Hailu, Tadesse

For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

List of Sections Forming Part of This Information Supplemental Disclosure Statement

The following sections are being submitted for this Supplemental Information Disclosure Statement:

1. [x] Preliminary Statements
2. [x] Forms PTO/SB/08A and 08B (substitute for Form PTO-1449)
3. [ ] Statement as to Information Not Found in Patents or Publications
4. [ ] Identification of Prior Application in Which Listed Information Was Already Cited and for Which No Copies Are Submitted or Need Be Submitted
5. [ ] Cumulative Patents or Publications
6. [x] Copies of Listed Information Items Accompanying This Statement
7. [ ] Concise Explanation of Non-English Language Listed Information Items
   - 7A. [ ]EPO Search Report
   - 7B. [ ]English Language Version of EPO Search Report
8. [ ] Translation(s) of Non-English Language Documents
9. [ ] Concise Explanation of English Language Listed Information Items (Optional)
10. [x] Identification of Person(s) Making This Information Disclosure Statement

Meta Platforms, Inc. - Ex. 1002
Page 344

Section 1. Preliminary statements

Applicants submit herewith patents, publications or other information, of which they are aware that they believe may be material to the examination of this application, and in respect of which, there may be a duty to disclose.

The filing of this information disclosure statement shall not be construed as a representation that a search has been made (37 C.F.R. § 1.97(g)), an admission that the information cited is, or is considered to be, material to patentability, or that no other material information exists.

The filing of this information disclosure statement shall not be construed as an admission against interest in any manner. Notice of January 9, 1992, 1135 O.G. 13-25, at 25.

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	15/243,497	Art Group Unit:	2173
Date Filed:	August 22, 2016	Examiner Name:	Hailu, Tadesse
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		
DATE:	March 24, 2017		

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION SUPPLEMENTAL DISCLOSURE STATEMENT

U.S. PATENT PUBLICATION DOCUMENTS					
Examiner Initials	**Reference Number**	**Document Number**	**Publication Date**	**Inventor**	**Class/Subclass**
/T.H/	BX	US 2013/0073425	Mar. 21, 2013	Hellal et al.	705/26.8

ACADEMIC PUBLICATIONS			
Examiner Initials	**Reference Number**	**Author, Title, Publication Date**	**Screen Capture Page #**
/T.H/	BZ	Keller R. et al. A bookmarking service for organizing and sharing URLs. Computer Networks and ISDN Systems 29 (1997) 1103-1114.	1
/T.H/	CA	Rounding M. Informal Awareness and Causal Interaction with the Notification Colleague. Master Thesis. Dept. of Computer Science, University of Calgary, Alberta, Canada. Apr. 19, 2004	2
/T.H/	CB	Greenberg S. et al. The Notification Collage: Posting Information to Public and Personal Displays. Yellow Series Report 2000-667-19, Dept. of Computer Science, University of Calgary, Alberta, Canada. September 14, 2000	2

WEB SERVICE COMPANIES					
Examiner Initials	**Reference Number**	**Company**	**Established**	**Screen Capture Date**	**Screen Capture Page #**
/T.H/	CC	itList.com	Apr, 1996	May 29, 2004	3
/T.H/	CD	Backflip.com	1999	Jun 23, 2004	4
/T.H/	CE	Clickmarks.com	1999	Oct. 12, 1999	5
/T.H/	CF	HotLinks.com	2000	Feb. 11, 2002	6
/T.H/	CG	del.icio.us	2003	Dec. 20, 2005	7
/T.H/	CH	SPURL.net	2004	Oct. 21, 2004	8
/T.H/	CI	StumbleUpon.com	2001 (estimated)	Jun. 16, 2004	9

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	15/243,497	Art Group Unit:	2173
Date Filed:	August 22, 2016	Examiner Name:	Hailu, Tadesse
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		
DATE:	March 24, 2017		

LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION SUPPLEMENTAL DISCLOSURE STATEMENT

WEB SERVICE COMPANIES					
Examiner Initials	**Reference Number**	**Company**	**Established**	**Screen Capture Date**	**Screen Capture Page #**
	CJ	Flickr.com	Feb, 2004	Jun 7, 2004	10
	CK	TheFacebook.com	Feb, 2004	2005 (estimated)	11
	CL	LiveJournal.com	1999	Dec. 15, 2003	12
	CM	Multiply.com	Mar, 2004 (estimated)	Jun. 19, 2004	13
	CN	Friendster.com	2002	Sep. 2003 (estimated)	14
	CO	MySpace.com	Aug, 2003	Apr. 4 2005 (estimated)	15
	CP	LinkedIn.com	May, 2003	2004 (estimated)	16
	CQ	Blogger.com	1999	Mar 31, 2004	17
	CR	Eastgate Tinderbox	2002	Jun. 6, 2004	18
	CS	Hi5.com	2003	(unknown)	19
	CT	Xanga.com	1998	Jan. 21, 2006 (estimated)	20
	CU	AsianAve.com	1997	2007 (estimated)	21
	CV	MiGente.com	2000	Jun. 3, 2004	22
	CW	vBulletin	2000	Jun. 10, 2004	23
	CX	phpBB	2000	Feb. 24, 2004 (estimated)	24
	CY	Orkut.com	Jan, 2004	Nov. 2004 (estimated)	25
	CZ	Photobucket.com	May 3, 2003	Aug. 13, 2004	26
	DA	ImageShack.us	Nov. 12, 2003	Aug. 3, 2004	27
	DB	SixDegrees.com	1997	Dec. 6, 2000	28
	DC	Reblog.org	2003	Mar 27, 2004	29
	DD	WebShotes.com	1995	Jul. 3, 2004	30
	DE	Fotopic.com	1999	Jun. 6, 2004	31
	DF	SanpFish.com	2000	Jun. 3, 2004	32
	DG	SmugMug.com	2002	Jul. 12, 2004	33
	DH	Amazon.com	1994	Jul. 2, 2004	34
	DI	DeviantArt.com	2002	Jun. 14, 2004	35
	DJ	Fotki.com	1998	Jun 9, 2004	36
	DK	ShutterFly.com	1999	Jun. 16, 2004	37

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.H/

Section 2. Forms PTO/SB/08A and 08B (formerly Form PTO-1449)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Keel et al.	Attorney Docket:	4123/1002
Serial No:	15/243,497	Art Group Unit:	2173
Date Filed:	August 22, 2016	Examiner Name:	Hailu, Tadesse
Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects		
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LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION SUPPLEMENTAL DISCLOSURE STATEMENT

Examiner Signature: /TADESSE HAILU/

Date Considered: 06/26/2017

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation *if not* in conformance and not considered. Include copy of this form with next communication to applicant.

Section 6. Copies of Listed Information Items Accompanying This Statement

Legible copies of all items listed in Forms PTO/SB/08A and 08B (substitute for Form PTO-1449) accompany this information statement.

[x] Exception(s) to above:

U.S. patent citations are not included pursuant to the United States Patent and Trademark Office's September 21, 2004 waiver of the copy requirement in 37 CFR 1.98 for cited pending U.S. patent citations when the patent citations are available in the USPTO's IFW system.

[ ] Items in prior application, from which an earlier filing date is claimed for this application, as identified in Section 4.

[ ] Cumulative patents or publications identified in Section 5.

Meta Platforms, Inc. - Ex. 1002
Page 349

Section 10. Identification of Person Making This Information Disclosure Statement

The person making this certification is the practitioner of record.

/Bruce D. Sunstein, #27,234/
SIGNATURE OF PRACTITIONER

Reg. No.: 27,234

Bruce D. Sunstein
(type or print name of practitioner)

Tel. No.: (617) 443-9292

Sunstein Kann Murphy & Timbers LLP
125 Summer Street, 11th Floor
P.O. Address

Customer No.: 002101

Boston, MA 02110-1618

04123/01002 2695819.1

Meta Platforms, Inc. - Ex. 1002
Page 350

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/243,497	08/22/2016	Paul Erich Keel	4123/1002	3305

2101 7590 07/25/2017

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

EXAMINER	
HAILU, TADESSE	

ART UNIT	PAPER NUMBER
2173	

NOTIFICATION DATE	DELIVERY MODE
07/25/2017	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

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 15243497
Applicant : Keel
Filing Date : 08/22/2016
Date Mailed : 07/25/2017

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given two (2) months from the mail date of this Notice within which to respond. This time period for reply is extendable under 37 CFR 1.136(a) for only TWO additional MONTHS.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED.

See attachment(s).

A copy of this notice MUST be returned with the reply. Please address response to "Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".

/Shirley Winslow/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 15243497

IDENTIFICATION OF SPECIFICATION/DRAWING INCONSISTENCIES

[X] On Page 11 (paragraph 00037) of the specification there is a brief description of FIG. 6C, but the drawings filed 08/22/2016 do not include a drawing with that designation. Applicant must respond either by supplying the omitted drawing or by amending the specification to remove all references to that drawing.

[ ] The drawings filed include FIG. , but the specification's brief description of the drawings does not describe a drawing with that designation. Applicant must respond either by amending the specification to add a brief description of that drawing or by correcting the drawings to remove the drawing in question.

[ ] In the utility application, drawings are present in the application and are referred to in the detailed description of the invention, but the specification does not contain a brief description of the several views as required by 37 CFR 1.74 and 37 CFR 1.77(b)(9).

[ ] The design application does not contain a description of the figure or figures of the drawing as required by 37 CFR 1.153(a) and 37 CFR 1.154(b)(4).

[ ] In the plant application, the specification does not contain a brief description of the drawing as required by 37 CFR 1.163(c)(8).

[ ] Page of the specification refers to FIG. , but no drawing with that designation is described in the brief description of the drawings and no drawing with that designation is present in the application. Applicant must respond either by amending the specification to remove all references to that drawing, or by supplying that drawing and amending the specification to add a brief description of it.

[ ] In the reissue application, FIG. , is labeled as "New" but is not described in the reissue specification's brief description of the drawings. Applicant must respond by amending the reissue specification's brief description of the drawings to add a brief description of the new drawing.

[ ] OTHER:

[ ] COMMENTS:

SCORE Placeholder Sheet for IFW Content

Application Number: 15243497 Document Date: 08/07/2017

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Drawings – Other than Black and White Line Drawings

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

To access the documents in the SCORE database, refer to instructions below.

At the time of document entry (noted above):

- Examiners may access SCORE content via the eDAN interface.
- Other USPTO employees can bookmark the current SCORE URL (http://Score.uspto.gov/ScoreAccessWeb/).
- External customers may access SCORE content via the Public and Private PAIR interfaces.

Form Revision Date: September 30, 2013

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Keel et al.

Application No.: 15/243,497 Group No.: 2173
Filed: August 22, 2016 Examiner: Hailu, Tadesse
For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

RESPONSE TO "NOTICE TO FILE CORRECTED APPLICATION PAPERS" ALLOWED

1. A copy of the "NOTICE TO FILE CORRECTED APPLICATION PAPERS" mailed for this application on July 25, 2017 is attached.

2. In response to the requirements of the NOTICE applicant submits herewith:

Figure 6C
Amendment under 37 C.F.R. § 1.312

3. Applicant believes that no extension of time is required; however, this conditional petition is being made to provide for the possibility that the applicant has inadvertently overlooked the need for a further additional extension of time. If any additional fees are required for the timely consideration of the application, please charge deposit account number 19-4972.

4. Applicant is a small entity.

.

Date: August 7, 2017

/Bruce D. Sunstein, #27,234/
Bruce D. Sunstein
Registration No. 27,234
SUNSTEIN KANN MURPHY & TIMBERS LLP
125 Summer Street
Boston, MA 02110-1618
617-443-9292
Customer No. 02101

04123/01002 2772097.1

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/243,497	08/22/2016	Paul Erich Keel	4123/1002	3305

2101 7590 07/25/2017

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

EXAMINER	
HAILU, TADESSE	

ART UNIT	PAPER NUMBER
2173	

NOTIFICATION DATE	DELIVERY MODE
07/25/2017	ELECTRONIC

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

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

usptomail@sunsteinlaw.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 15243497
Applicant : Keel
Filing Date : 08/22/2016
Date Mailed : 07/25/2017

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See attachment(s).

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/Shirley Winslow/
Publication Branch
Office of Data Management
(571) 272-4200

Application No. 15243497

IDENTIFICATION OF SPECIFICATION/DRAWING INCONSISTENCIES

[X] On Page 11 (paragraph 00037) of the specification there is a brief description of FIG. 6C, but the drawings filed 08/22/2016 do not include a drawing with that designation. Applicant must respond either by supplying the omitted drawing or by amending the specification to remove all references to that drawing.

[ ] The drawings filed include FIG. , but the specification's brief description of the drawings does not describe a drawing with that designation. Applicant must respond either by amending the specification to add a brief description of that drawing or by correcting the drawings to remove the drawing in question.

[ ] In the utility application, drawings are present in the application and are referred to in the detailed description of the invention, but the specification does not contain a brief description of the several views as required by 37 CFR 1.74 and 37 CFR 1.77(b)(9).

[ ] The design application does not contain a description of the figure or figures of the drawing as required by 37 CFR 1.153(a) and 37 CFR 1.154(b)(4).

[ ] In the plant application, the specification does not contain a brief description of the drawing as required by 37 CFR 1.163(c)(8).

[ ] Page of the specification refers to FIG. , but no drawing with that designation is described in the brief description of the drawings and no drawing with that designation is present in the application. Applicant must respond either by amending the specification to remove all references to that drawing, or by supplying that drawing and amending the specification to add a brief description of it.

[ ] In the reissue application, FIG. , is labeled as "New" but is not described in the reissue specification's brief description of the drawings. Applicant must respond by amending the reissue specification's brief description of the drawings to add a brief description of the new drawing.

[ ] OTHER:

[ ] COMMENTS:

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Keel et al.	Docket No.:	4123/1002
Appl. No:	15/243,497	Art Unit:	2173
Filed :	August 22, 2016	Examiner:	Hailu
		Conf. No:	3305

Title: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

---

VIA USPTO ELECTRONIC FILING SYSTEM

Mail Stop AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE B
[Amendment under 37 C.F.R. § 1.312]

Dear Sir:

This communication is responsive to the Notice to File Corrected Application Papers dated July 25, 2017, after issuance of the Notice of Allowance, and is also to make minor amendments for clarity in the allowed claims and to correct a minor informality in the specification.

Amendments to the Description appear on page 2.

Amendments to the Drawings appear on page 3.

Amendments to the Claims are reflected in the listing of claims which begins on page 4 of this paper.

Remarks begin on page 10 of this paper.

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Amendments to the Description:

Please interchange the order of paragraphs [0001] and [0002]. To achieve this result, please delete paragraph [0001] and the heading above it, renumber paragraph [0002] as paragraph [0001], and place, after renumbered paragraph [0001], the following heading and the following content:

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH

[0002] This invention was made with Government support under Grant and/or Contract No. 'N00014-02-1-0132 and/or N00014-04-1-0569 and/or N00014-08-C-0206' awarded by the Office of Naval Research. The Government has certain rights in the invention.

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Amendments to the Drawings:

Please add Fig. 6C to the Drawings for the Application. Because in current paragraph [0002] the Application incorporates by reference its immediate parent application, United States patent application serial number 14/664,178, filed March 20, 2015, and, because this parent application includes Fig. 6C, the addition of Fig. 6C does not constitute new matter. A copy of Fig. 6C is attached at the end of the present Response.

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Listing of Claims:

1. (Currently amended) A computer-implemented method, in which at least one computer initiates execution of software instructions to perform computer processes, the method being for interacting with at least one data item obtained from at least one ~~third-party~~ source and rendering the at least one data item accessible from a database system, wherein the at least one source is external to the database system, the computer processes comprising:

configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a picture, a heading, and a ~~hyper~~link to the data item;

storing data corresponding to each of the information objects in [[a]] the database system;

using the extracted data from a plurality of the data items to make available for display[[,]] a representation of each of at least two of the information objects in the database system, the at least two information objects being selected for display, the representation being in a uniform format, wherein the format includes a card, and, within the card, in uniform locations thereof, the picture, the heading, ~~the source for the data item,~~ a set of indicators, and a function mechanism giving graphical access to a set of functions,

wherein the functions include:

an instant messaging function, by which users having access to the card can exchange author- and time-stamped messages relating to the information object, such messages being associated with the information object and accessible to users who view the information object;

a vote function, by which each user having access to the card can provide one vote for the information object;

a replicate function, by which each user having access to the card in a first collection of cards can cause the card to be replicated in a second collection of cards; and

a link function, by which each user having access to the card can invoke the ~~hyper~~link to the data item; and

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wherein the indicators include:

a message indicator that displays a ~~total~~ number of instant messages associated with the information object; and

a vote indicator that displays a ~~total~~ number of votes associated with the information object; and

wherein the database system is configured ~~so that~~ to allow (i) each user ~~has~~ to have at least one user-selected collection of cards in the database system and (ii) each card in the database system, with any associated picture and heading, and other associated data, regardless of the collection in which it may have first appeared, ~~is~~ to be accessible and replicable across card collections of users.

2. (Original) A method according to claim 1, the computer processes further comprising:

providing a user interface having a graphical button, which, when invoked while content is being displayed, causes the displayed content to be handled as one of the data items, namely, by configuring the displayed content as a new information object and making a representation of the new information object available for display in the uniform format.

3. (Previously presented) A method according to claim 1, wherein the format includes within the card an indication of a date of creation of the card.

4. (Original) A method according to claim 3, wherein the one of the indicators changes its appearance to indicate the presence of a message, associated with the information object, that has not yet been read by the user.

5. (Canceled)

6. (Original) A method according to claim 1, wherein the format includes a user-accessible report relating to users who replicated the information object.

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7. (Original) A method according to claim 1, wherein the information object is configurable to include a user-accessible file attachment.

8. (Original) A method according to claim 1, wherein the one of the indicators indicates the presence of a geographic location, associated with the information object.

9. (Original) A method according to claim 1, further comprising:

further causing to be displayed, at the same time as the representation, a map including a location, marked on the map, associated with at least one of the information objects.

10. (Original) A method according to claim 9, further comprising:

responsive to a graphical input applied to the displayed location, causing the location on the map to be edited in accordance with the graphical input.

11. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, that constitute a second collection of the first user;

responsive to (i) a graphical selection, by the first user, of an information object in the first view and (ii) a copy command that has been graphically entered by the first user, causing the selected information object to be copied from the first view to the second view.

12. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, that constitute a collection of a second user.

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13. (Original) A method according to claim 12, further comprising:

responsive to (i) a graphical selection, by the first user, of an information object in the second view and (ii) a copy command that has been graphically entered by the first user, causing the selected information object to be copied from the second view to the first view, so that the selected information object in the collection of the second user has been copied to the first collection of the first user.

14. (Original) A method according to claim 12, further comprising:

responsive to (i) a graphical selection, by the first user, of an information object in the first view and (ii) a send command that has been graphically entered by the first user, causing the selected information object to be sent to the second user, so that the selected information object in the collection of the first user is made available to the second user to be included in the collection of the second user.

15. (Original) A method according to claim 1, further comprising:

on a user-entered command, causing an information object to be shared with another user when the information object and the other user have been graphically selected.

16. (Original) A method according to claim 1, further comprising:

on a user-entered command, causing an information object to be shared with another user via an instant message sent through an integrated instant messaging system as a result of graphical selection by a first user.

17. (Original) A method according to claim 1, further comprising causing shared information objects to be synchronized with one another.

18. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

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also serving, to the client computing device of the first user, a second view of a second set of information objects, outside of the first collection, wherein any given member of the second set of information objects is both included in a collection of another user and the other user has been selected by the first user; and wherein each of the information objects in the second view can, on a user-entered command, be caused to be copied to the first view.

19. (Original) A method according to claim 18, wherein each of the information objects in the second view is displayed in an order determined by a criterion selected from the group consisting of the information object's creation time, its access time, and combinations thereof.

20. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a first view of a first set of information objects that constitute a first collection of the first user;

also serving, to the client computing device of the first user, a second view of a second set of information objects, outside of the first collection, that are related to one or more information objects in the first collection as a result of being in one or more collections, of other users, that also include at least one of the information objects in the first collection; wherein each of the information objects in the second view can , on a user-entered command, be caused to be copied to the first view.

21. (Original) A method according to claim 1, further comprising:

serving, to a client computing device of a first user, a view of a first set of information objects that constitute a collection of the first user;

serving, to a client computing device of a second user, a view of a first set of information objects that constitute a collection of the second user;

storing the information objects in a database, each of the information objects being stored in association with data pertinent thereto including

any users thereof,

spatial location thereof in the workspace view,

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content and metadata thereof, such metadata including comments and votes,

times of storage, viewing and copying thereof,

relationship thereof to any other information objects; and

processing information object data in the database to make a recommendation to the first user, wherein the recommendation is based on at least one of the criteria in the group consisting of:

number of direct and indirect relations of information objects in the collection of the first user with another information object in the database;

addition of a first pair of information objects to a collection of another user in short interval of time, of which one of the first pair of information objects is already in the collection of the first user;

presence of a second pair of information objects in the collection of the other user in close spatial proximity to one another, of which one of the second pair of information objects is already in the collection of the first user;

presence of a given information object in a row or column of information objects in the collection of the other user, wherein one of the information objects in the row or column is already in the collection of the first user;

popularity of an information object in the database, based on a popularity measure selected from the group consisting of number of users, number of views, number of copies made, number of comments made, number of votes, and combinations thereof;

presence of an information object from a second user with whom the first user previously exchanged information objects, comments or votes;

and combinations thereof.

22. (Original) A method according to claim 21, wherein the processing to make the recommendation includes processing to recommend an information object that is not in the collection of the first user.

23. (Original) A method according to claim 21, wherein the processing to make the recommendation includes processing to recommend another user who created an

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information object that is selected based on at least one of the criteria.

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Canceled)

28. (Canceled)

29. (Canceled)

30. (Canceled)

REMARKS

Applicants are grateful to the Examiner for careful examination of the application and issuance of the Notice of Allowance.

Responsive to the Notice to File Corrected Application Papers dated July 25, 2017, the present Response B supplies missing Fig. 6C. Because in current paragraph [0002] the Application incorporates by reference its immediate parent application, United States patent application serial number 14/664,178, filed March 20, 2015, and, because this parent application includes Fig. 6C, the addition of Fig. 6C does not constitute new matter.

The present Response also corrects a minor informality in the Description by interchanging the order of the Statement Regarding Federally Sponsored Research and the identification of Related Applications, so that the Related Applications section now comes first. 37 C.F.R. § 1.77(b)(1)-(3); MPEP § 310.

The present Response is also provided to improve clarity of claim 1. There are several changes:

a. The reference in the preamble to the data items being obtained from "at least one third party source" is clarified by removing the reference to "third party" and modifying the preamble to recite that "the at least one source is external to the database system." Support for this requirement exists throughout the application; see, for example, paragraph [00051] (data items represented by information objects can be "something such as a web page, a document, or a live information source").

b. The subparagraph about "using the extracted data" now makes clear that this data is from a plurality of the data items, since there are "at least two" information objects referenced. Support is in claim 1 before this amendment.

c. The references in the claim to "hyperlink" are changed to "link". Since a hyperlink is a link, this change is supported by claim 1 as previously worded.

d. Because claim 1 requires "a link function, by which each user having access to the card can invoke the link to the data item", claim 1 has been amended to eliminate the reference to "the source for the data item".

e. With respect to the message indicator and the vote indicator, the term "total" is removed as redundant.

f. The last subparagraph of the claim is amended to clarify that the database is configured to allow the user to have at least one user-selected collection of cards and to allow each card to be accessible and replicable.

Date: August 7, 2017

Respectfully submitted,

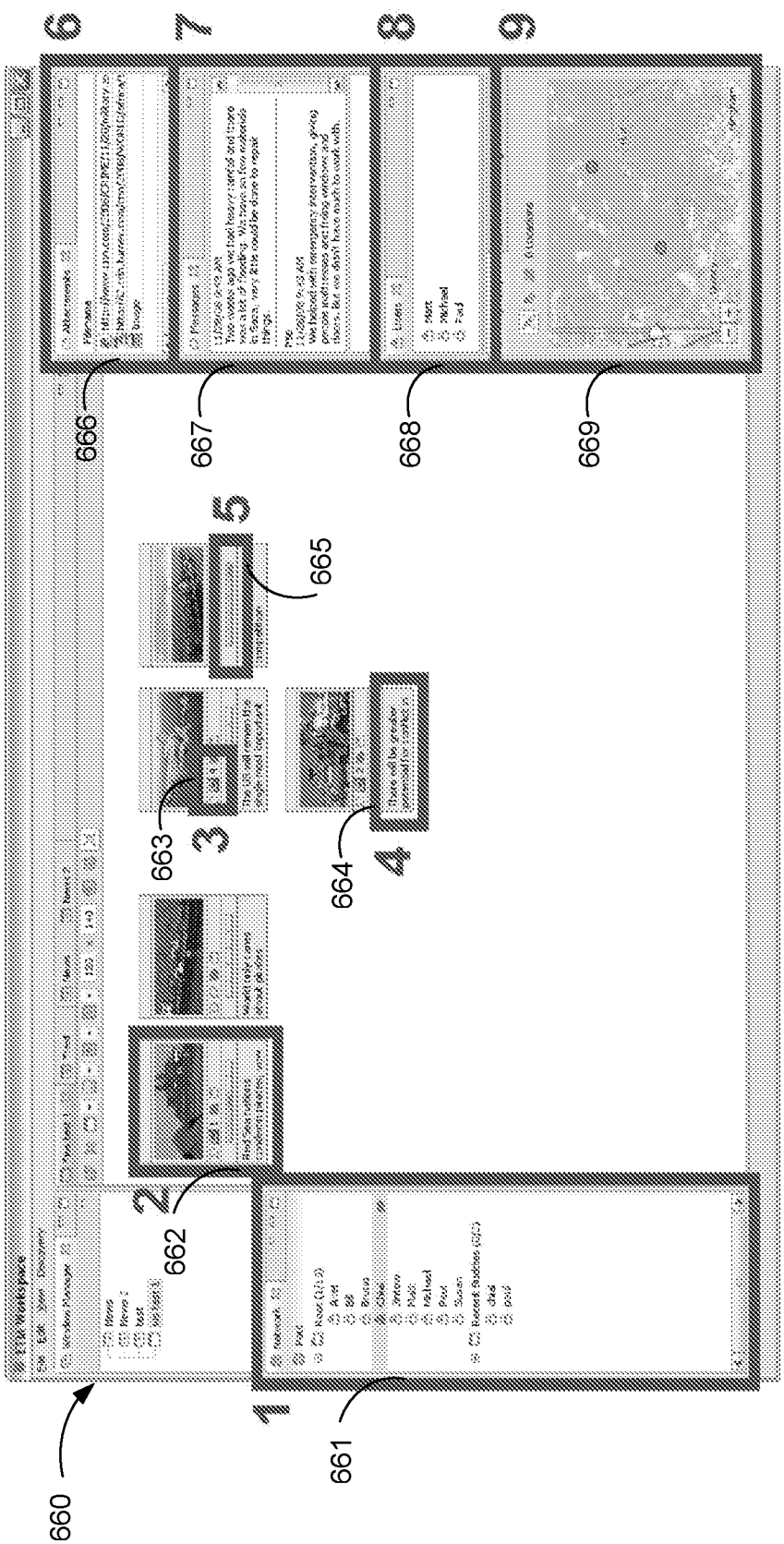
/Bruce D. Sunstein, Reg. #27,234/

Bruce D. Sunstein
Registration No. 27,234
Attorney for Applicants

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Attachment: Fig. 6C

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1. Buddy List
2. Object (Discussion Subject)
3. Message Indicator (Counter)
4. Object / Discussion Heading
5. Collaborative Ratings
6. Shared Files (List or Thumbnails)
7. Threaded Discussion
8. Participants
9. Meta-data and shared applications

FIG. 6C

Electronic Acknowledgement Receipt

EFS ID:	29999890
Application Number:	15243497
International Application Number:	
Confirmation Number:	3305
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects
First Named Inventor/Applicant Name:	Paul Erich Keel
Customer Number:	2101
Filer:	Bruce D. Sunstein
Filer Authorized By:	
Attorney Docket Number:	4123/1002
Receipt Date:	07-AUG-2017
Filing Date:	22-AUG-2016
Time Stamp:	13:16:29
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	Post Allowance Communication - Incoming	kem4123_1002_ResponsetoNotice.pdf	289666 6c42d652bc2ee45039b1942a382fc3e9156b4cb8	no	16

Warnings:

Information:					
2	Drawings-only black and white line drawings	kem4123_1002_Fig6C.pdf	624675 5da578ca8f76d3a055225c0237ce5ecd1fd9cd7f	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	914341	

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
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/243,497	08/22/2016	Paul Erich Keel	4123/1002	3305

2101 7590 09/15/2017

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

EXAMINER	
HAILU, TADESSE	

ART UNIT	PAPER NUMBER
2173	

NOTIFICATION DATE	DELIVERY MODE
09/15/2017	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

Response to Rule 312 Communication	Application No.	Applicant(s)
	15/243,497	KEEL ET AL.
	Examiner	Art Unit
	TADEESE HAILU	2173

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

1. ☒ The amendment filed on *07 August 2017* under 37 CFR 1.312 has been considered, and has been:

a) ☒ entered.

b) ☐ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

/TADEESE HAILU/
Primary Examiner, Art Unit 2173

Practitioner's Docket No. 4123/1002 *PATENT*

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Keel et al.

Application No.: 15/243,497 Group No.: 2173
Filed: August 22, 2016 Examiner: Hailu, Tadesse
For: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF PAYMENT OF ISSUE FEE (37 C.F.R. § 1.311)

1. Applicant hereby pays the issue fee for the attached Issue Fee Transmittal PTOL-85.

2. Applicant

Asserted small entity status in this application on August 22, 2016 by payment of the basic filing fee as a small entity. (37 C.F.R. § 1.27(c)(3))

It is confirmed that small entity status for this application has been checked and it is still in effect and is being asserted.

3. Fee (Issue):

Application status is a small entity with a utility fee of $480.00.

4. Fees (Publication)

The publication fee is no longer applicable.

5. Total Fees Due

The total amount of fee due is:

Issue Fee	$480.00
TOTAL FEE(S) DUE	$480.00

6. Assignee's Name and Address To Be Printed On Patent is as follows (37 C.F.R. § 3.81):

Name of Assignee:	Paul Erich Keel
Address:	872 Massachusetts Avenue, Apartment 1004
Residence (City and State or Country):	Cambridge, MA 02139

Assignee category or categories (not printed on patent): Individual

Meta Platforms, Inc. - Ex. 1002
Page 376

7. Payment of total fee due:

Authorization is hereby made to charge the amount of $480.00 to Deposit Account No. 194972.

Charge any additional fees required by this paper or credit any overpayment in the manner authorized above.

Date: September 26, 2017

/Bruce D. Sunstein, #27,234/
Bruce D. Sunstein
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125 Summer Street
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617-443-9292
Customer No. 02101

04123/01002 2796960.1

Meta Platforms, Inc. - Ex. 1002
Page 377

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

2101 7590 07/10/2017
Sunstein Kann Murphy & Timbers LLP
125 SUMMER STREET
BOSTON, MA 02110-1618

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/243,497	08/22/2016	Paul Erich Keel	4123/1002	3305

TITLE OF INVENTION: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	10/10/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
HAILU, TADESSE	2173	715-739000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 Sunstein Kann Murphy & Timbers LLP
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Paul Erich Keel

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Cambridge, MA

Please check the appropriate assignee category or categories (will not be printed on the patent): ☑ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☒ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 194972 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ Applicant certifying micro entity status. See 37 CFR 1.29
NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
☐ Applicant asserting small entity status. See 37 CFR 1.27
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
☐ Applicant changing to regular undiscounted fee status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Bruce D. Sunstein, #27,234/ Date September 26, 2017

Typed or printed name Bruce D. Sunstein Registration No. 27,234

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Electronic Patent Application Fee Transmittal

Application Number:	15243497
Filing Date:	22-Aug-2016
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects
First Named Inventor/Applicant Name:	Paul Erich Keel
Filer:	Bruce D. Sunstein
Attorney Docket Number:	4123/1002

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	480	480

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**480**

Electronic Acknowledgement Receipt

EFS ID:	30470941
Application Number:	15243497
International Application Number:	
Confirmation Number:	3305
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects
First Named Inventor/Applicant Name:	Paul Erich Keel
Customer Number:	2101
Filer:	Bruce D. Sunstein
Filer Authorized By:	
Attorney Docket Number:	4123/1002
Receipt Date:	26-SEP-2017
Filing Date:	22-AUG-2016
Time Stamp:	13:32:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$480
RAM confirmation Number	092617INTEFSW00016142194972
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	kem4123_1002_IssueFeePayment.pdf	191525 49dc00c77636d909bc7f0cee440bed9690c6aa91	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30694 414dcac2ba098e3cc8682e38443fa1e33db05911	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	222219		

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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.

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/243,497	11/14/2017	9817562	4123/1002	3305

2101 7590 10/25/2017

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

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Paul Erich Keel, Cambridge, MA;
Jeffrey Huang, Lausanne, SWITZERLAND;

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PTO/SB/44 (09-07)
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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 9,817,562

APPLICATION NO.: 15/243.497

ISSUE DATE : November 14, 2017

INVENTOR(S) : Paul Erich Keel, et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the drawings, Sheet 7 of 15, delete Figure 6B since it is duplicative of Figure 6C.

In the drawings, Sheet 6 of 15, drawing label "FIG. 6A" should appear beside the top figure and drawing label "FIG. 6B" should appear below the bottom figure.



FIG. 6A

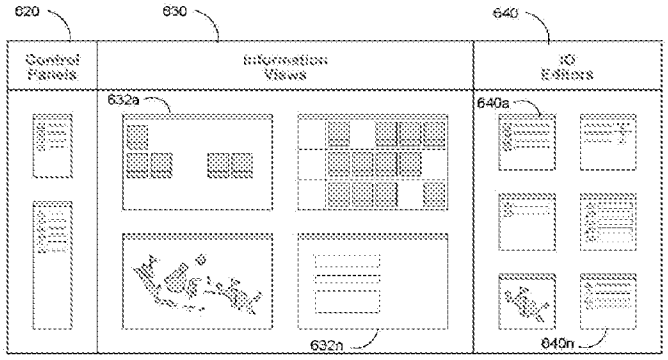


FIG. 6B

In Col. 22, lines 32 and 33, replace "642a-642n" with "640a-640n."

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

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Boston, MA 02110-1618

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. 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 1.14. This collection is estimated to take 1.0 hour 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: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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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 Patent Application Fee Transmittal

Application Number:	15243497
Filing Date:	22-Aug-2016
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects
First Named Inventor/Applicant Name:	Paul Erich Keel
Filer:	Bruce D. Sunstein
Attorney Docket Number:	4123/1002

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
CERTIFICATE OF CORRECTION	2811	1	100	100

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**100**

Electronic Acknowledgement Receipt

EFS ID:	30950986
Application Number:	15243497
International Application Number:	
Confirmation Number:	3305
Title of Invention:	Methods and Apparatus for Managing and Exchanging Information Using Information Objects
First Named Inventor/Applicant Name:	Paul Erich Keel
Customer Number:	2101
Filer:	Bruce D. Sunstein
Filer Authorized By:	
Attorney Docket Number:	4123/1002
Receipt Date:	14-NOV-2017
Filing Date:	22-AUG-2016
Time Stamp:	19:33:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$100
RAM confirmation Number	111517INTEFSW00006411194972
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	4123_1002_RequestCertificate Correction.pdf	69711 f606310b7fbc39192c427d004819fad65a5c6378	no	1
Warnings:					
Information:					
2	Request for Certificate of Correction	4123_1002_sb0044.pdf	194292 e3c82e0cc3b390a00659153d5b135067cead6cb2	no	2
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30660 3bc1f35566a5033b5bc6939139dfc045e4a0c36b	no	2
Warnings:					
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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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Number: 9,817,562
Issued: November 14, 2017
Name of Patentee: Paul Erich Keel

Title of Invention: Methods and Apparatus for Managing and Exchanging Information Using Information Objects

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

REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT FOR APPLICANT'S MISTAKE (37 C.F.R. section 1.323)

1. It is noted that errors appear in this patent of a minor nature or character, as more fully described below. It occurred in good faith. Correction thereof does not involve such changes in the patent as would constitute new matter or would require re-examination. A certificate of correction is requested.

2. Attached hereto is PTO/SB/44 in a form suitable for printing.

3. The exact page and line number where the errors occur in the application file are:

   Pages 6 and 7 of the Drawings; and
   Page 28, line 10 of the Specification

4. Please send the Certificate to:

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   Sunstein Kann Murphy & Timbers LLP
   125 Summer Street
   Boston, MA 02110-1618
   US

5. Please pay the fee required by (37 C.F.R. § 1.20(a), Fee Code 1811) as follows:

   Authorization is hereby made to charge the amount of $100.00 to Deposit Account No. 194972.

Date: November 14, 2017

/Bruce D. Sunstein, #27,234/
Bruce D. Sunstein
Registration No. 27,234
Sunstein Kann Murphy & Timbers LLP
125 Summer Street
Boston, MA 02110-1618
US

04123/01002 2823934.1

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 9,817,562 B2
APPLICATION NO. : 15/243497
DATED : November 14, 2017
INVENTOR(S) : Paul Erich Keel et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Title Page

Please replace the Title Page with the attached Title Page showing corrected number of drawing sheets.

In the Drawings

Sheet 6 of 15, drawing label "FIG. 6A" should appear beside the top figure and drawing label "FIG. 6B" should appear below the bottom figure as shown on the attached drawing sheet.

Sheet 7 of 15, delete Figure 6B since it is duplicative of Figure 6C.

In the Specification

In Column 22, Lines 32 and 33, replace "642a-642n" with --640a-640n--.

Signed and Sealed this
Thirteenth Day of March, 2018

Andrei Iancu
Director of the United States Patent and Trademark Office

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

(10) **Patent No.: US 9,817,562 B2**
(45) **Date of Patent: Nov. 14, 2017**

(54) **METHODS AND APPARATUS FOR MANAGING AND EXCHANGING INFORMATION USING INFORMATION OBJECTS**

(71) Applicants: **Paul Erich Keel**, Cambridge, MA (US); **Jeffrey Huang**, Lausanne (CH)

(72) Inventors: **Paul Erich Keel**, Cambridge, MA (US); **Jeffrey Huang**, Lausanne (CH)

(73) Assignee: **Paul Erich Keel**, Cambridge, MA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **15/243,497**

(22) Filed: **Aug. 22, 2016**

(65) **Prior Publication Data**

US 2016/0357874 A1 Dec. 8, 2016

Related U.S. Application Data

(63) Continuation of application No. 14/664,178, filed on Mar. 20, 2015, now Pat. No. 9,524,090, which is a (Continued)

(51) **Int. Cl.**
G06F 3/048 (2013.01)
G06F 3/0484 (2013.01)
(Continued)

(52) **U.S. Cl.**
CPC ***G06F 3/04842*** (2013.01); ***G06F 3/0482*** (2013.01); ***G06F 3/04817*** (2013.01);
(Continued)

(58) **Field of Classification Search**
CPC G06F 17/30864; G06F 17/3089; G06F 3/0482; G06F 17/30867; G06F 3/04817; G06F 17/30247; G06F 8/10; G06F 17/248; G06F 17/30911; G06F 17/30265; G06F 3/048; G06F 17/30598; G06F 17/241;
(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,008,853 A 4/1991 Bly et al. 364/900
5,220,657 A 6/1993 Bly et al. 395/425
(Continued)

OTHER PUBLICATIONS

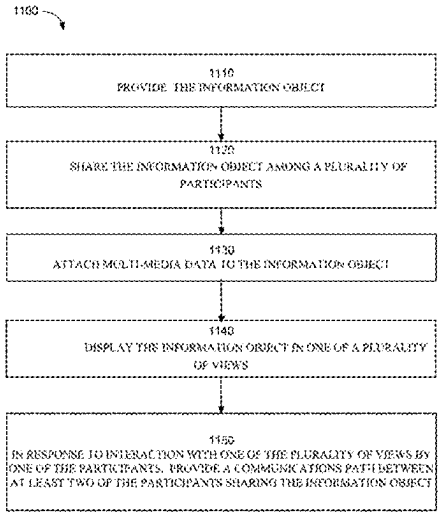
Winston et al., *EWall: Electronic Card Wall*, ONR CKM Workshop, Jan. 2004, 20 pages. Publication date unknown.
(Continued)

Primary Examiner — Tadeese Hailu
(74) *Attorney, Agent, or Firm* — Sunstein Kann Murphy & Timbers LLP

(57) **ABSTRACT**

A computer-implemented method of interacting with at least one data item includes configuring each of the data items into a distinct information object by extracting, from each data item, extracted data including a heading, a source, graphical and textual material, and a hyperlink. The method additionally uses the extracted data to make available for display a representation of each of the information objects in a uniform format, wherein the format includes a card, and, within the card, an icon area for graphical and textual material, the heading, the source, a set of indicators, and a mechanism giving graphical access to a set of functions.

22 Claims, 14 Drawing Sheets



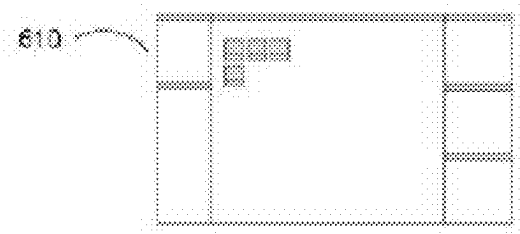

610

FIG. 6A

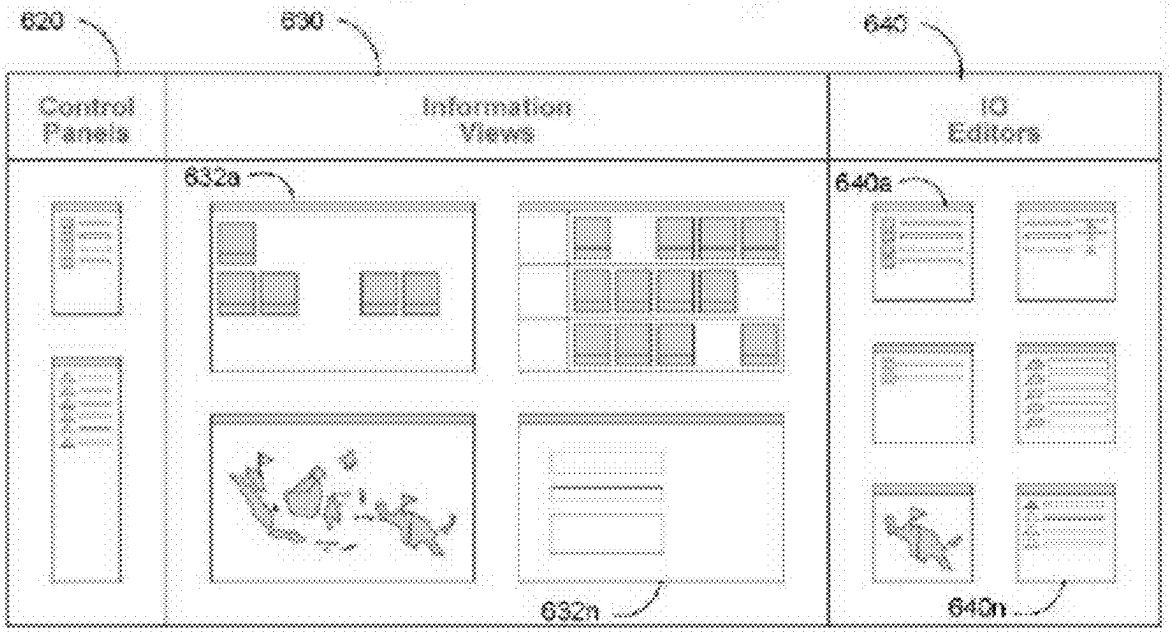

620
630
640
Control Panels
Information Views
IO Editors
632a
640a
632n
640n

FIG. 6B