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(54) GENERATION, CURATION, AND PRESENTATION OF MEDIA COLLECTIONS

(71) Applicant: **Snap Inc.**, Santa Monica, CA (US)

(72) Inventors: **Nicholas Richard Allen**, Venice, CA (US); **Sheldon Chang**, Venice, CA (US); **Maria Pavlovskaia**, San Francisco, CA (US); **Amer Shahanawaz**, New York, NY (US); **Jianchao Yang**, Los Angeles, CA (US)

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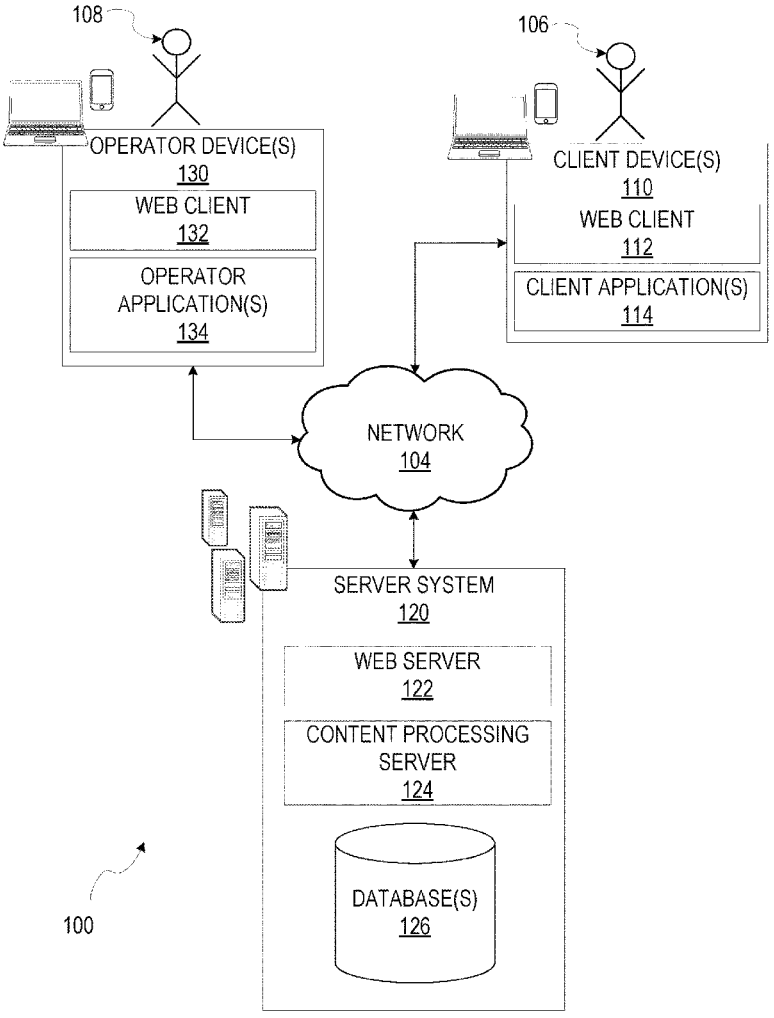
G06Q 50/00 (2006.01)

(52) **U.S. Cl.**

CPC ***G06T 11/60*** (2013.01); ***G06Q 50/00*** (2013.01)

(57) **ABSTRACT**

Systems and methods are provided for receiving, at a server computer, a plurality of content messages from a plurality of content sources, each content message comprising media content, for each of the plurality of content messages received, associating the media content with a predetermined media collection, and storing the content message in a database. The system and methods further providing for causing the plurality of content messages to be displayed on an operator device with other content messages associated with the media collection, determining that a predetermined trigger related to the media collection has been activated, updating an identifier of the media collection from a first indicator to a second indicator indicating an action needs to be taken on the media collection, and causing the updated identifier with the second indicator to be displayed on an operator device.



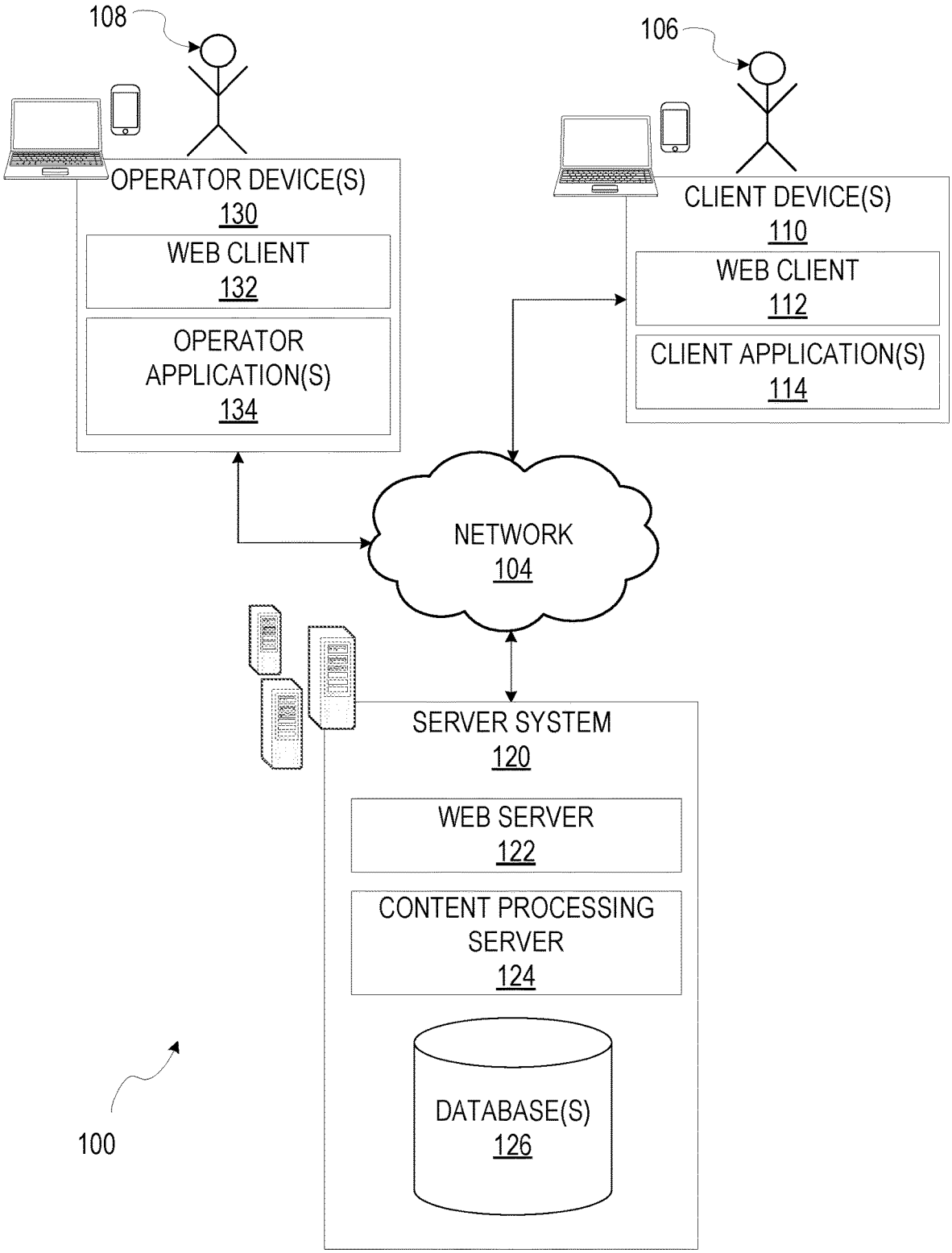

108
106
OPERATOR DEVICE(S)
130
WEB CLIENT
132
OPERATOR
APPLICATION(S)
134
CLIENT DEVICE(S)
110
WEB CLIENT
112
CLIENT APPLICATION(S)
114
NETWORK
104
SERVER SYSTEM
120
WEB SERVER
122
CONTENT PROCESSING
SERVER
124
DATABASE(S)
126
100

FIG. 1

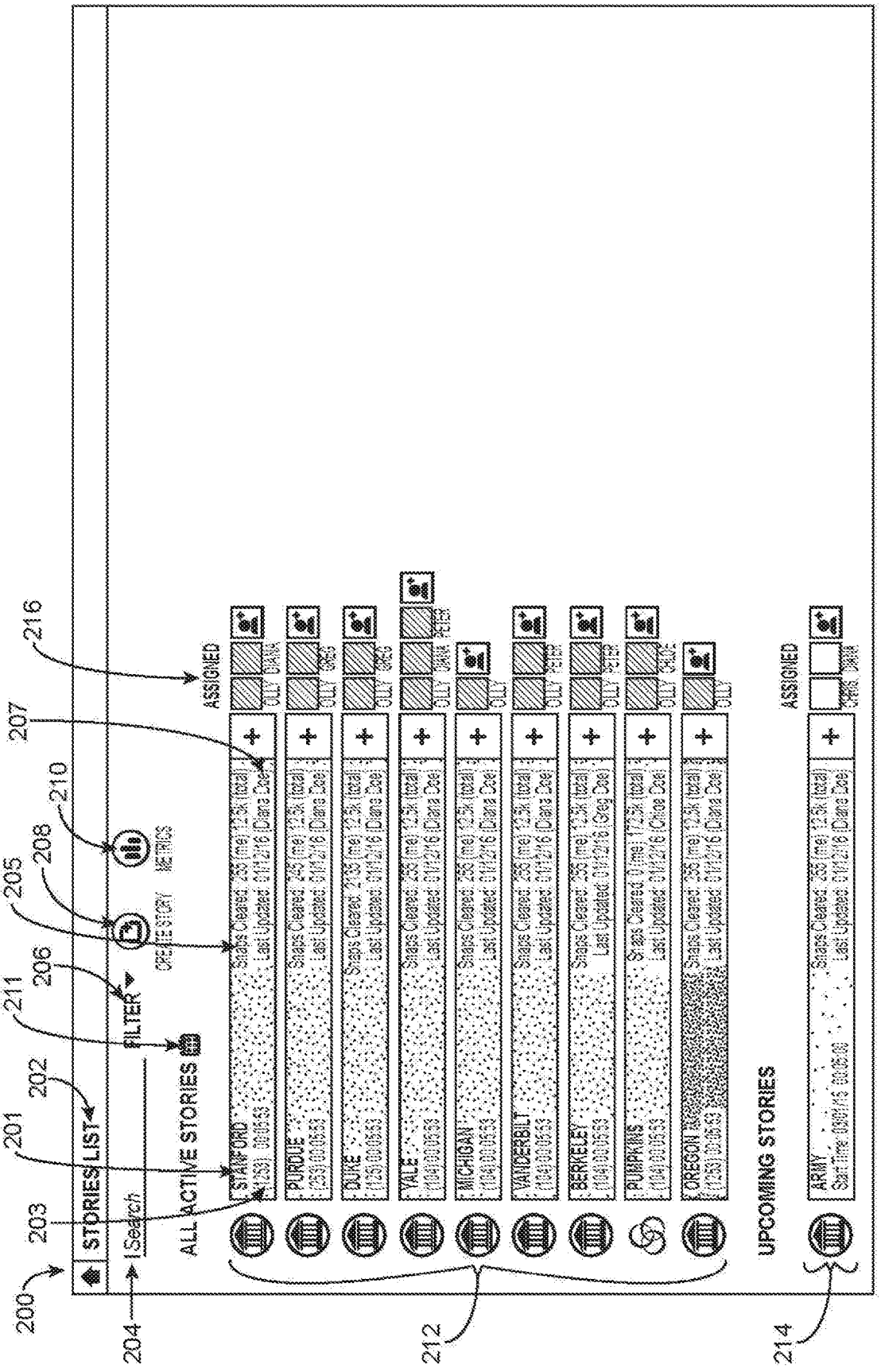

200
204
STORIES LIST
Search
ALL ACTIVE STORIES
FILTER
CREATE STORY
METRICS
ASSIGNED
STANFORD
PURDUE
DUKE
YALE
MICHIGAN
VANDERBILT
BERKELEY
PUMPKINS
OREGON
UPCOMING STORIES
ASSIGNED
ARMY
201
202
203
205
206
207
208
210
211
212
214
216

FIG. 2A

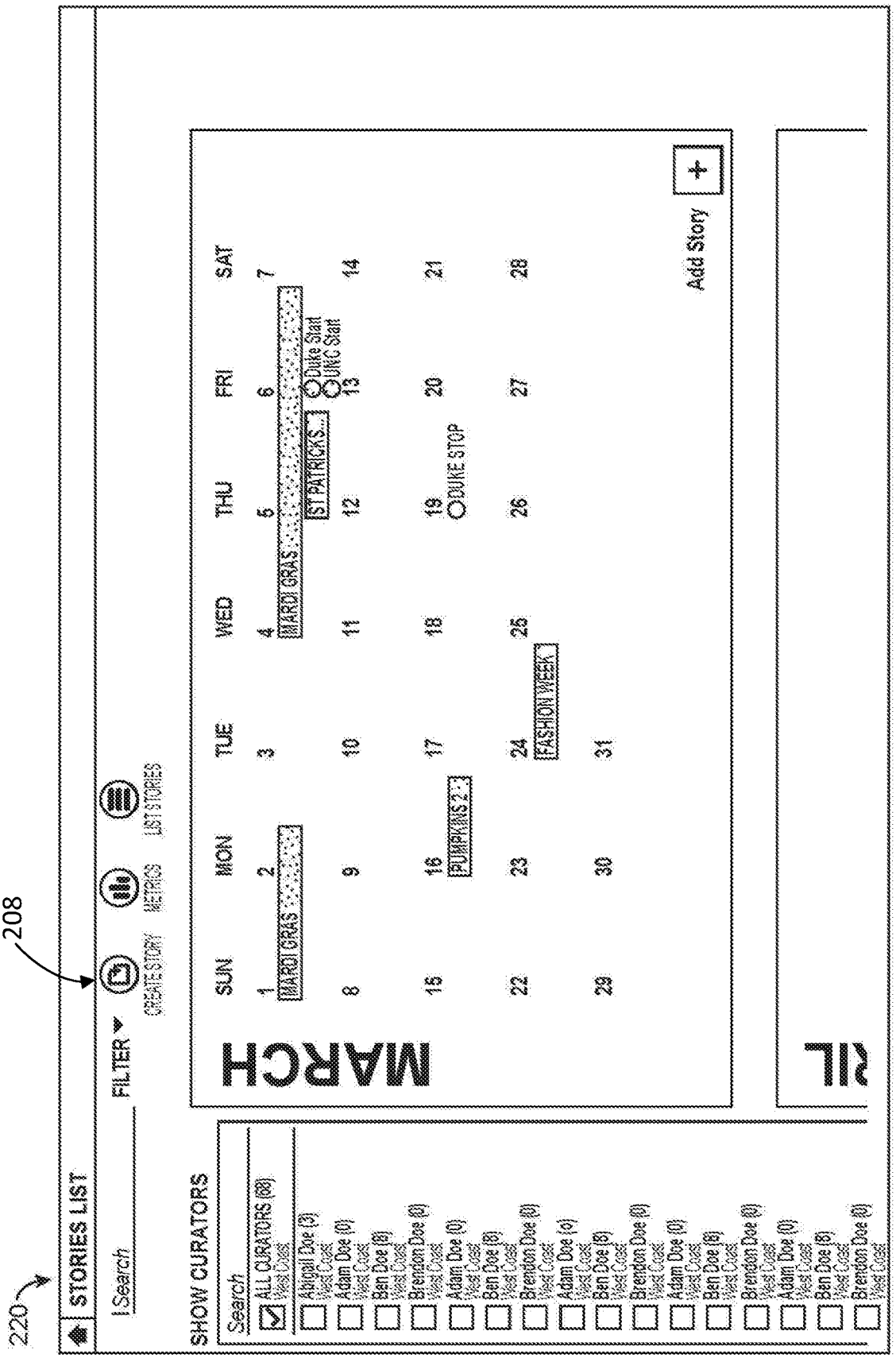

220
208
STORIES LIST
Search
FILTER
CREATE STORY
METRICS
LIST STORIES
SHOW CURATORS
Search
ALL CURATORS (68)
West Coast
Abigail Doe (3)
Adam Doe (1)
Ben Doe (8)
Brendon Doe (0)
MARCH
SUN
MON
TUE
WED
THU
FRI
SAT
MARDI GRAS
PUMPKINS 2
FASHION WEEK
ST PATRICKS...
Duke Start
UNC Start
DUKE STOP
Add Story

FIG. 2B

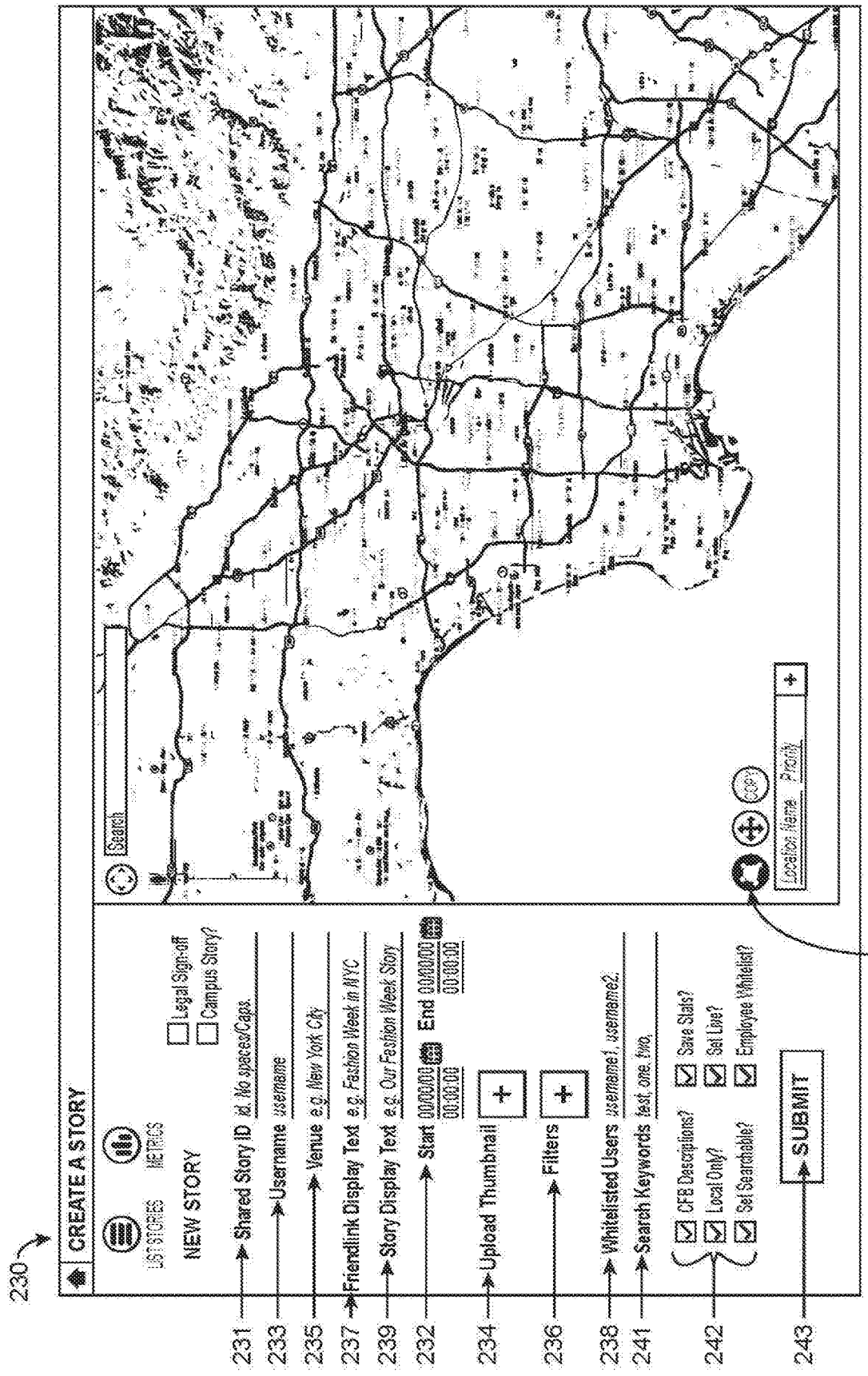

230
CREATE A STORY
LIST STORIES
METRICS
NEW STORY
Legal Sign-off
Campus Story?
Shared Story ID id. No spaces/Caps
Username username
Venue e.g. New York City
Friendlink Display Text e.g. Fashion Week in NYC
Story Display Text e.g. Our Fashion Week Story
Start 00/00/00 00:00:00
End 00/00/00 00:00:00
Upload Thumbnail
Filters
Whitelisted Users username1, username2
Search Keywords test, one, two
CFB Descriptions?
Local Only?
Set Searchable?
Save Stats?
Set Live?
Employee Whitelist?
SUBMIT
Search
Location Name
From
231
233
235
237
239
232
234
236
238
241
242
243
244

FIG. 2C

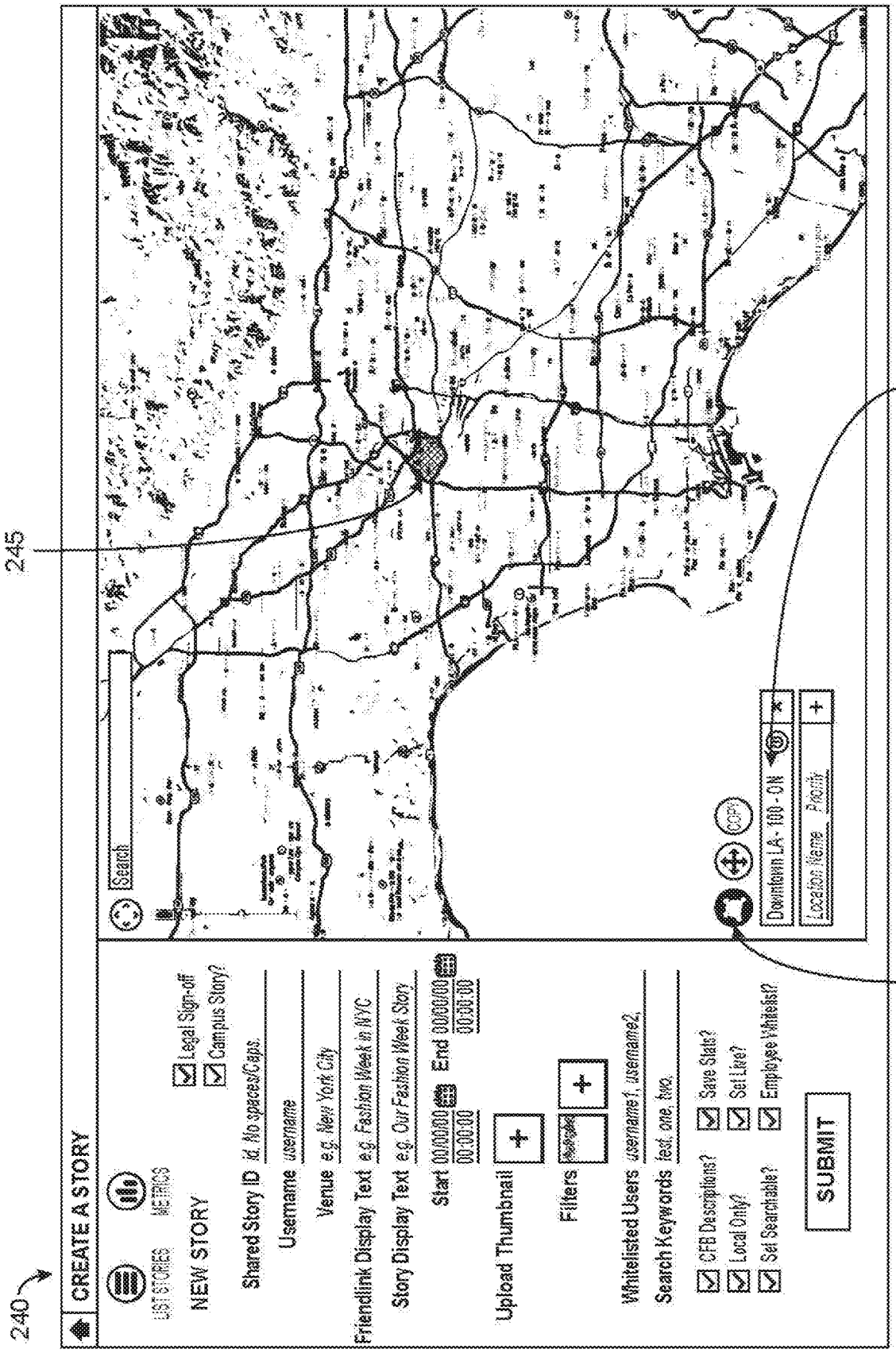

240
CREATE A STORY
LIST STORIES
METRICS
NEW STORY
Shared Story ID id. No spaces/Caps.
Username username
Venue e.g. New York City
Friendlink Display Text e.g. Fashion Week in NYC
Story Display Text e.g. Our Fashion Week Story
Start 00/00/00 00:00:00
End 00/00/00 00:00:00
Upload Thumbnail
Filters
Whitelisted Users username1, username2,
Search Keywords test, one, two,
CFB Descriptions?
Local Only?
Set Searchable?
Save State?
Set Live?
Employee Whitelist?
Legal Sign-off
Campus Story?
SUBMIT
Search
Downtown LA - 100 - ON
Location Name Pacific
245
244
246

FIG. 2D

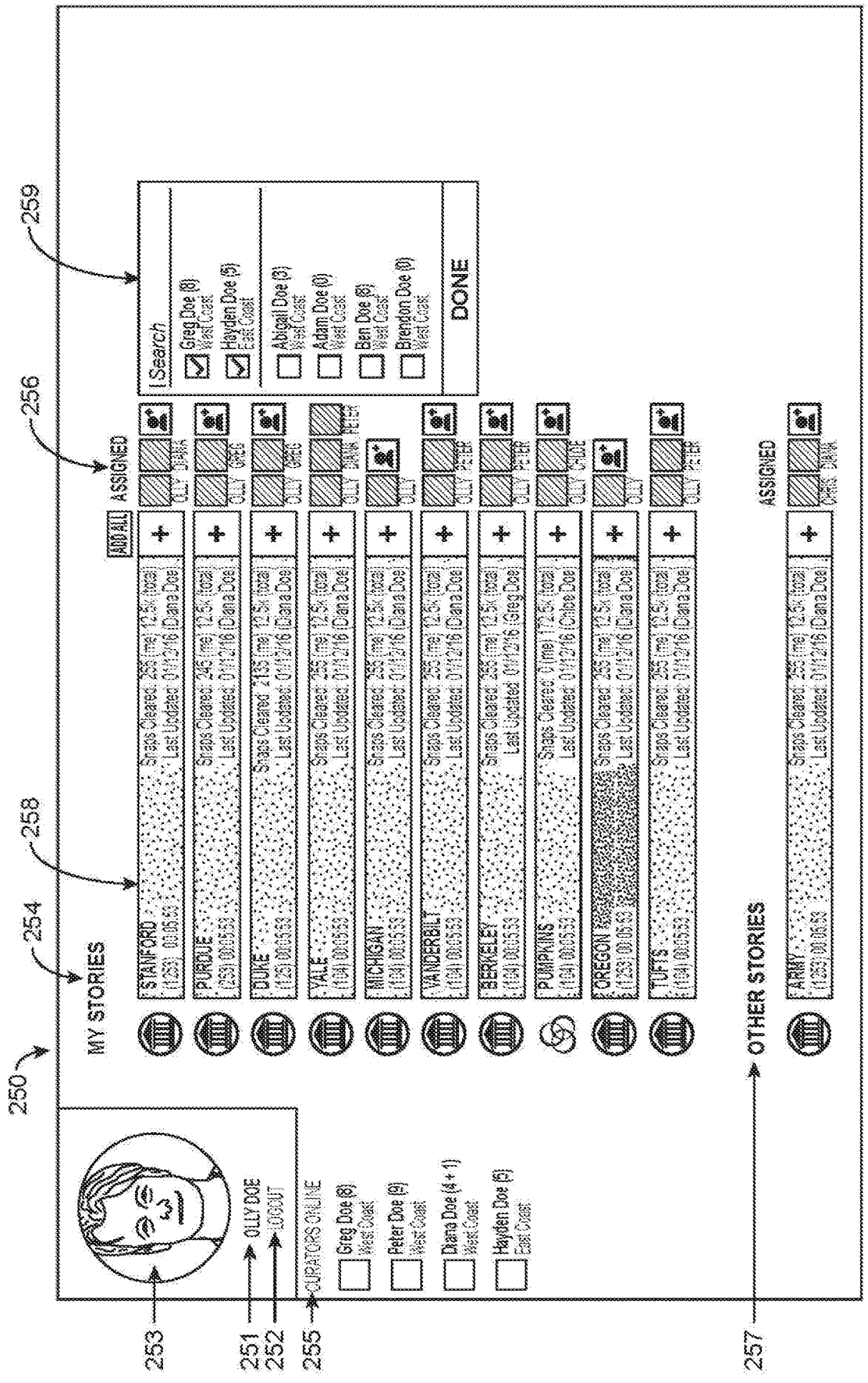

250
MY STORIES
254
258
ADD ALL
ASSIGNED
256
259
Search
Greg Doe (8)
West Coast
Hayden Doe (5)
East Coast
Abigail Doe (3)
West Coast
Adam Doe (0)
West Coast
Ben Doe (8)
West Coast
Brendon Doe (0)
West Coast
DONE
STANFORD
PURDUE
DUKE
YALE
MICHIGAN
VANDERBILT
BERKELEY
PUMPKINS
OREGON
TUFTS
OTHER STORIES
ASSIGNED
ARMY
OLLY DOE
LOGOUT
CURATORS ONLINE
Greg Doe (8)
West Coast
Peter Doe (9)
West Coast
Diana Doe (4 + 1)
West Coast
Hayden Doe (5)
East Coast
253
251
252
255
257

FIG. 2E

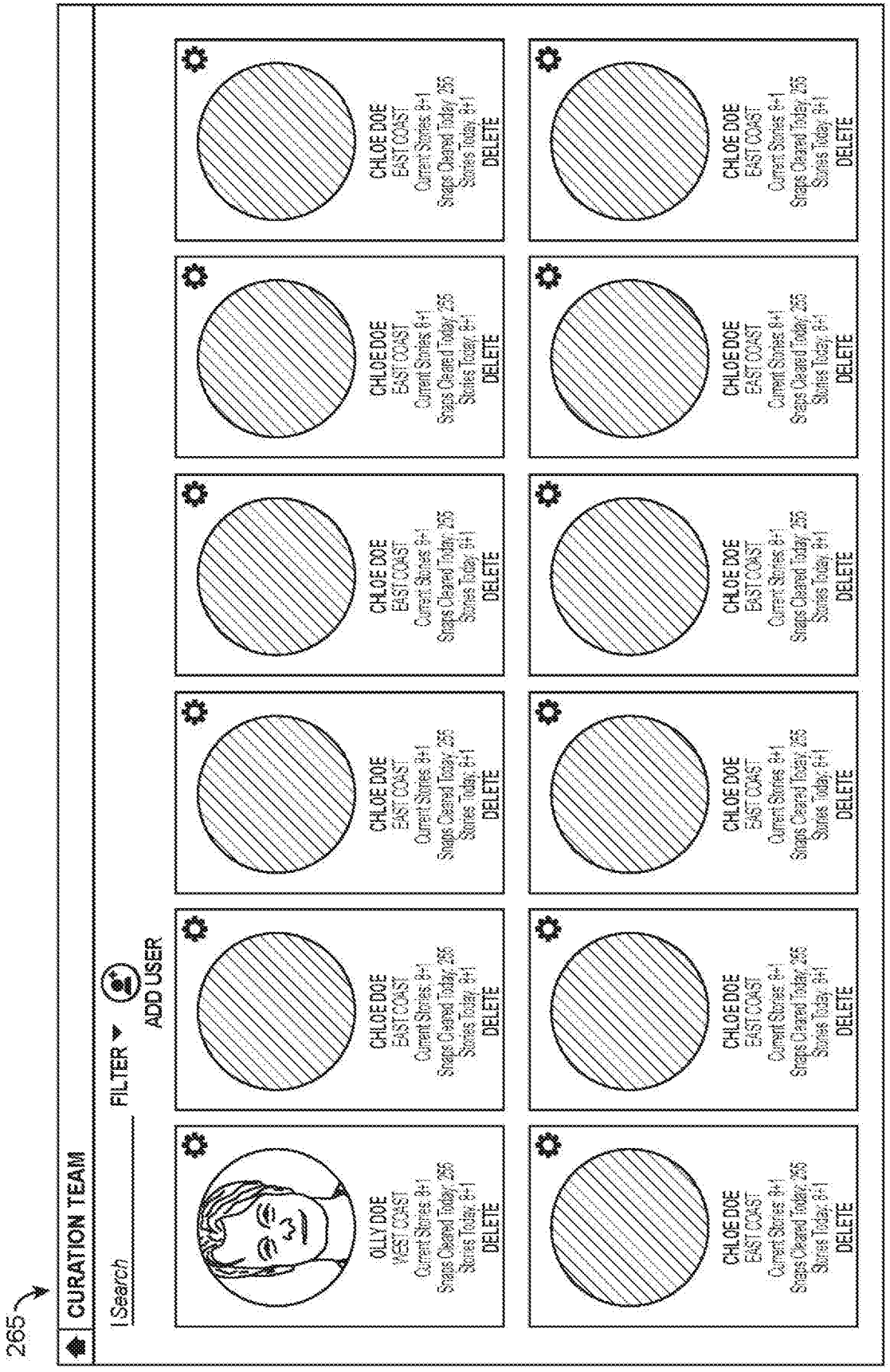

265
CURATION TEAM
Search
FILTER
ADD USER
OLLY DOE
WEST COAST
Current Stories: 8+1
Snaps Cleared Today: 255
Stories Today: 8+1
DELETE
CHLOE DOE
EAST COAST
Current Stories: 8+1
Snaps Cleared Today: 255
Stories Today: 8+1
DELETE

FIG. 2F

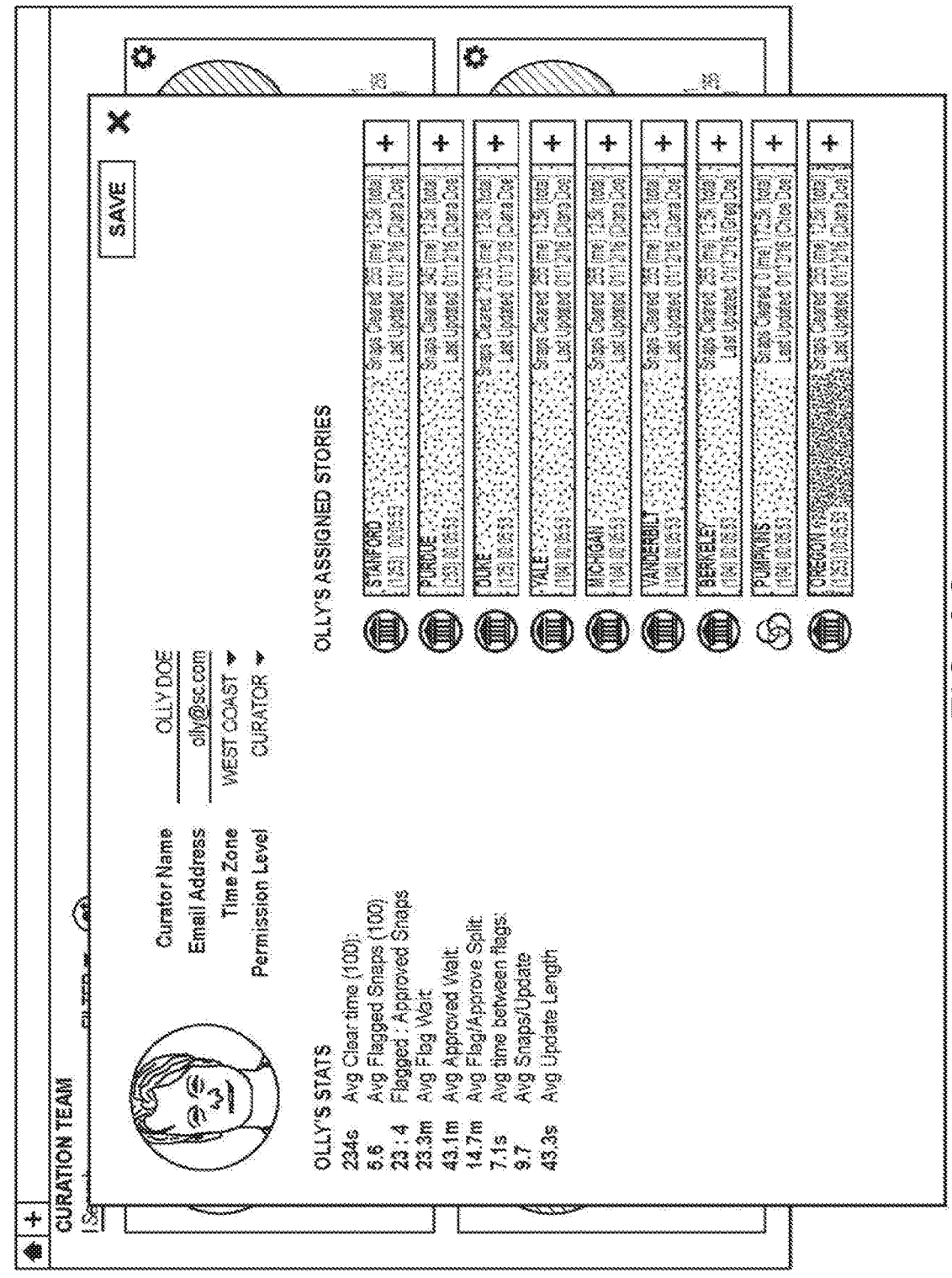

275
CURATION TEAM
SAVE
Curator Name
OLLY DOE
Email Address
olly@sc.com
Time Zone
WEST COAST
Permission Level
CURATOR
OLLY'S STATS
234s Avg Clear time (100):
5.6 Avg Flagged Snaps (100)
23 : 4 Flagged : Approved Snaps
23.3m Avg Flag Wait
43.1m Avg Approved Wait
14.7m Avg Flag/Approve Split
7.1s Avg time between flags:
9.7 Avg Snaps/Update
43.3s Avg Update Length
OLLY'S ASSIGNED STORIES
STANFORD
PURDUE
DUKE
YALE
MICHIGAN
VANDERBILT
BERKELEY
PUMPKINS
OREGON

FIG. 2G

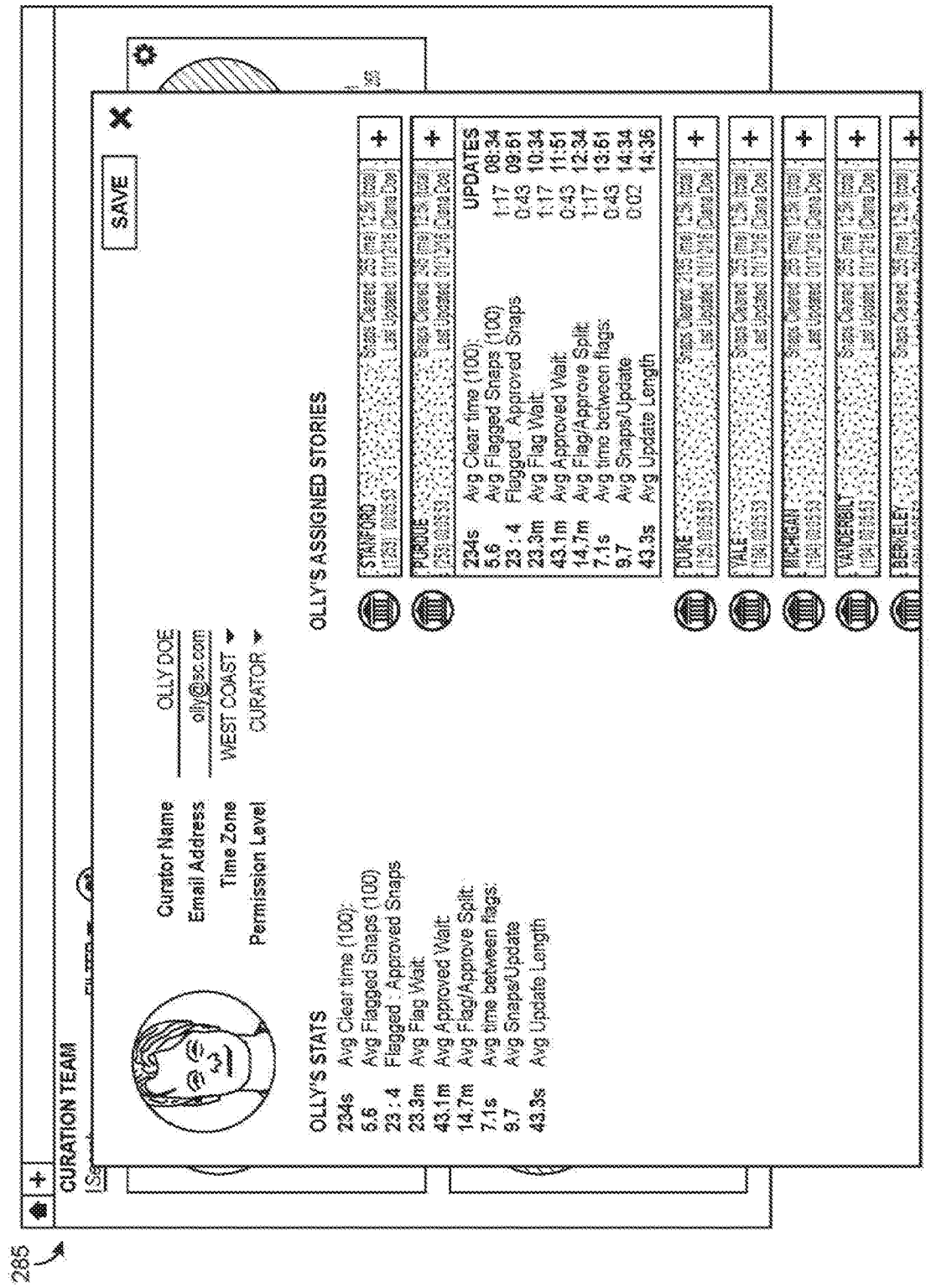

285
CURATION TEAM
SAVE
Curator Name
OLLY DOE
Email Address
olly@sc.com
Time Zone
WEST COAST
Permission Level
CURATOR
OLLY'S STATS
234s Avg Clear time (100):
5.6 Avg Flagged Snaps (100)
23 : 4 Flagged : Approved Snaps
23.3m Avg Flag Wait:
43.1m Avg Approved Wait:
14.7m Avg Flag/Approve Split:
7.1s Avg time between flags:
9.7 Avg Snaps/Update
43.3s Avg Update Length
OLLY'S ASSIGNED STORIES
STANFORD
PURDUE
DUKE
YALE
MICHIGAN
PRINCETON
BERKELEY
UPDATES
1:17 08:34
0:43 09:61
1:17 10:34
1:17 11:51
0:43 12:34
1:17 13:61
0:43 14:34
0:02 14:36

FIG. 2H

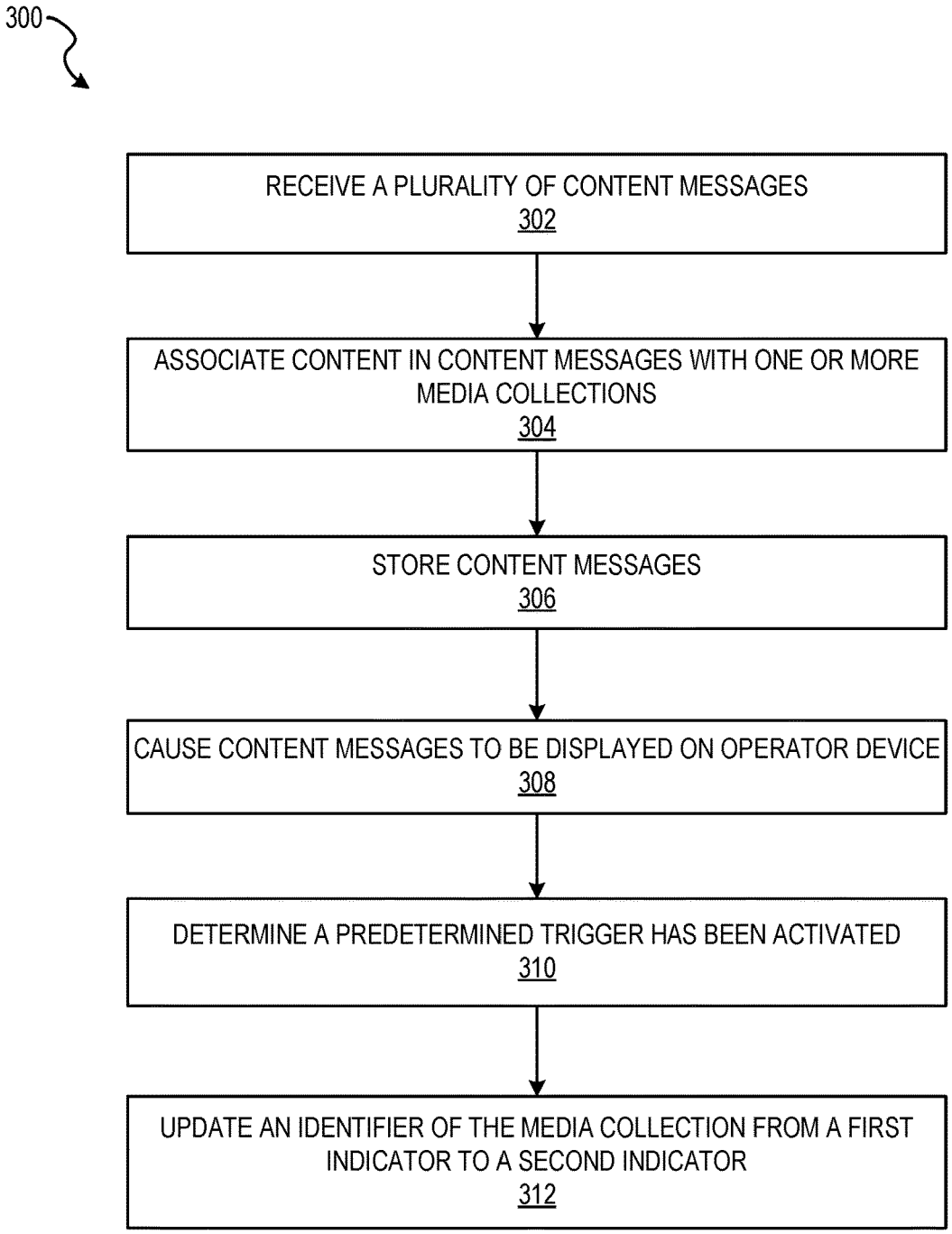

300
RECEIVE A PLURALITY OF CONTENT MESSAGES
302
ASSOCIATE CONTENT IN CONTENT MESSAGES WITH ONE OR MORE MEDIA COLLECTIONS
304
STORE CONTENT MESSAGES
306
CAUSE CONTENT MESSAGES TO BE DISPLAYED ON OPERATOR DEVICE
308
DETERMINE A PREDETERMINED TRIGGER HAS BEEN ACTIVATED
310
UPDATE AN IDENTIFIER OF THE MEDIA COLLECTION FROM A FIRST INDICATOR TO A SECOND INDICATOR
312

FIG. 3

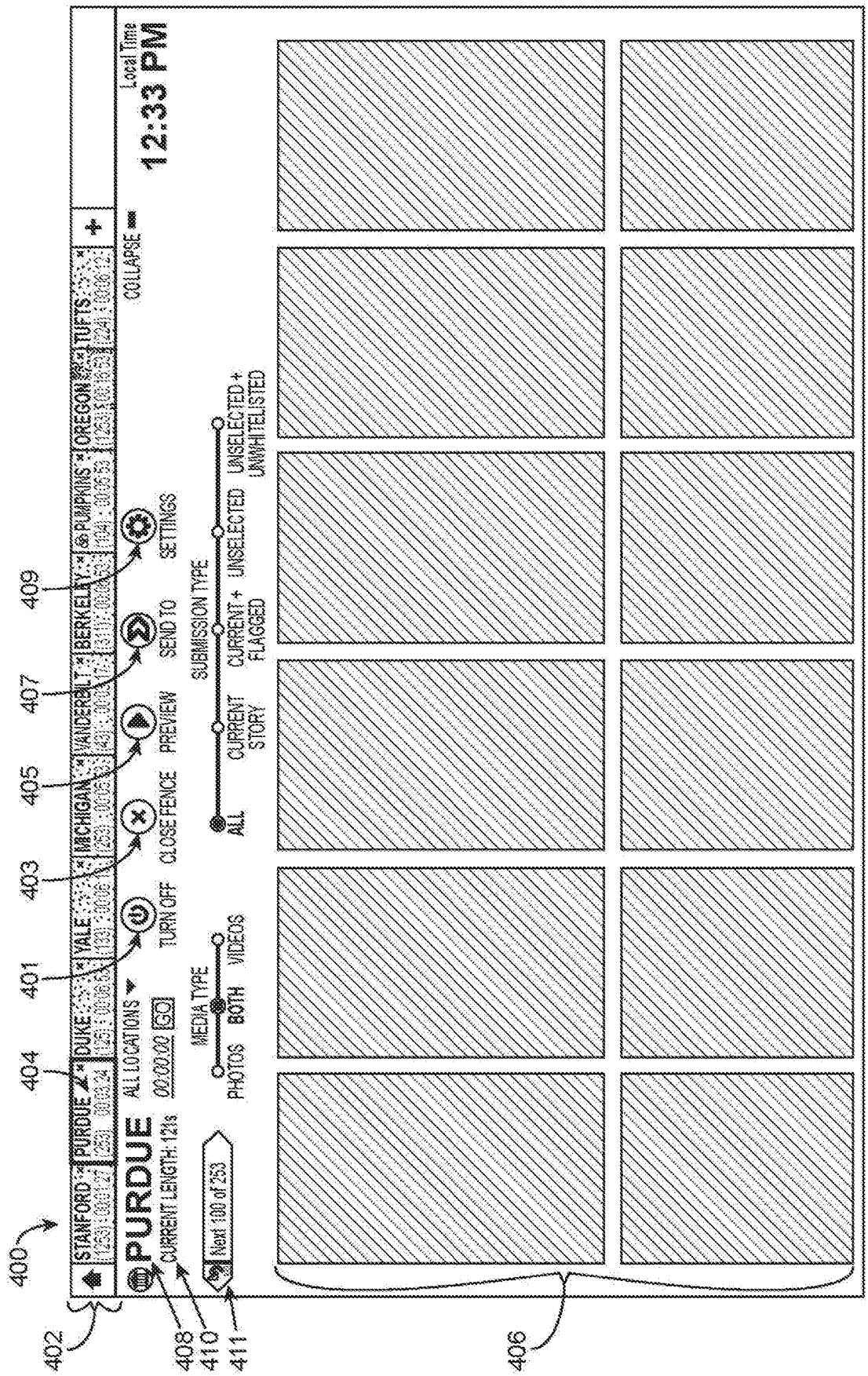

400
402
404
401
403
405
407
409
408
410
411
406
STANFORD
PURDUE
DUKE
YALE
MICHIGAN
VANDERBILT
BERKELEY
PUMPKINS
OREGON
TUFTS
PURDUE
ALL LOCATIONS
GO
CURRENT LENGTH: 12s
Next 100 of 253
MEDIA TYPE
PHOTOS
BOTH
VIDEOS
TURN OFF
CLOSE FENCE
PREVIEW
SEND TO
SETTINGS
SUBMISSION TYPE
ALL
CURRENT STORY
CURRENT + FLAGGED
UNSELECTED
UNSELECTED + UNWHITELISTED
COLLAPSE
Local Time
12:33 PM

FIG. 4A

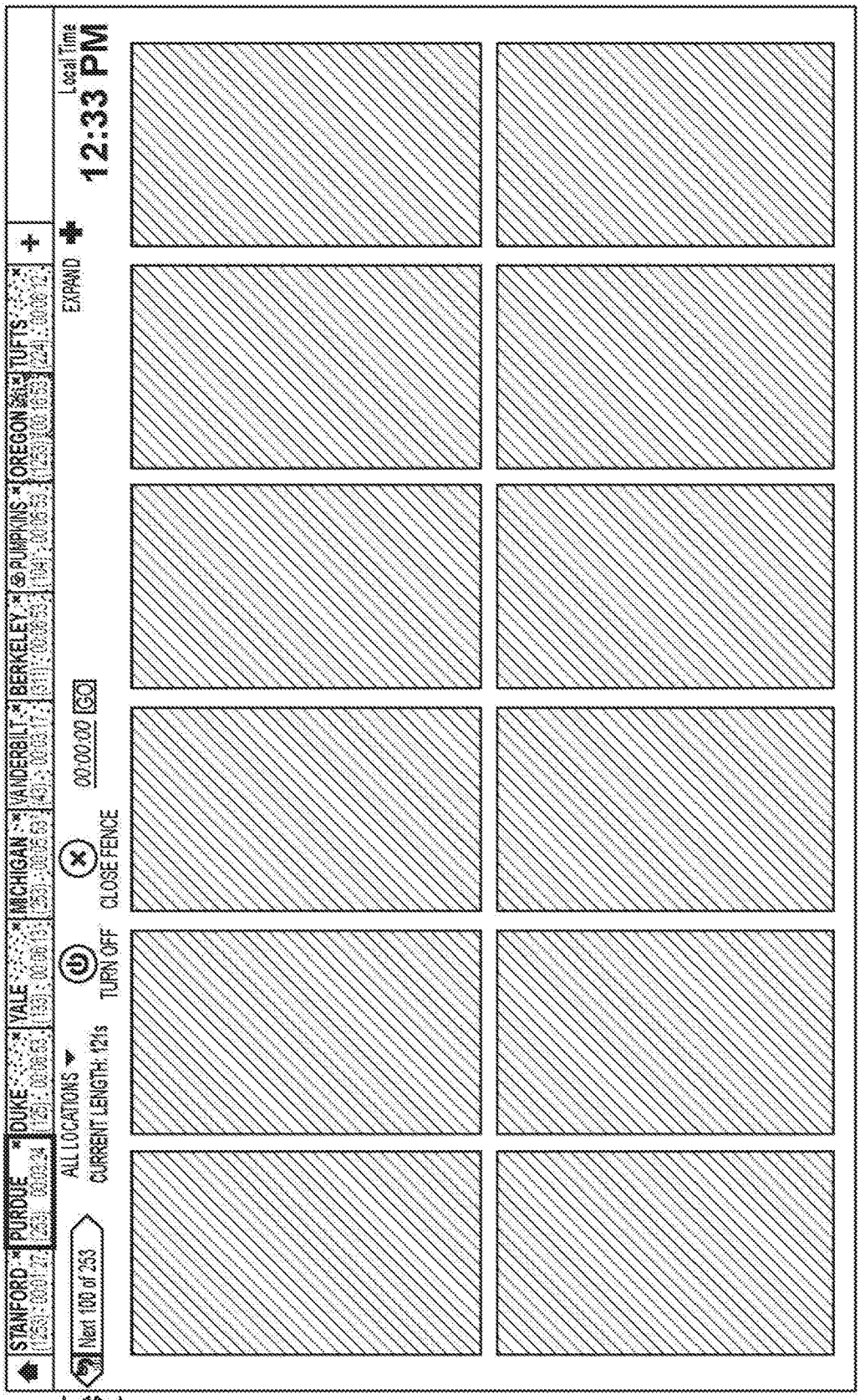

412
STANFORD
PURDUE
DUKE
YALE
MICHIGAN
VANDERBILT
BERKELEY
PUMPKINS
OREGON
TUFTS
Next 100 of 253
ALL LOCATIONS
CURRENT LENGTH: 121s
TURN OFF
CLOSE FENCE
00:00:00
GO
EXPAND
Local Time
12:33 PM

FIG. 4B

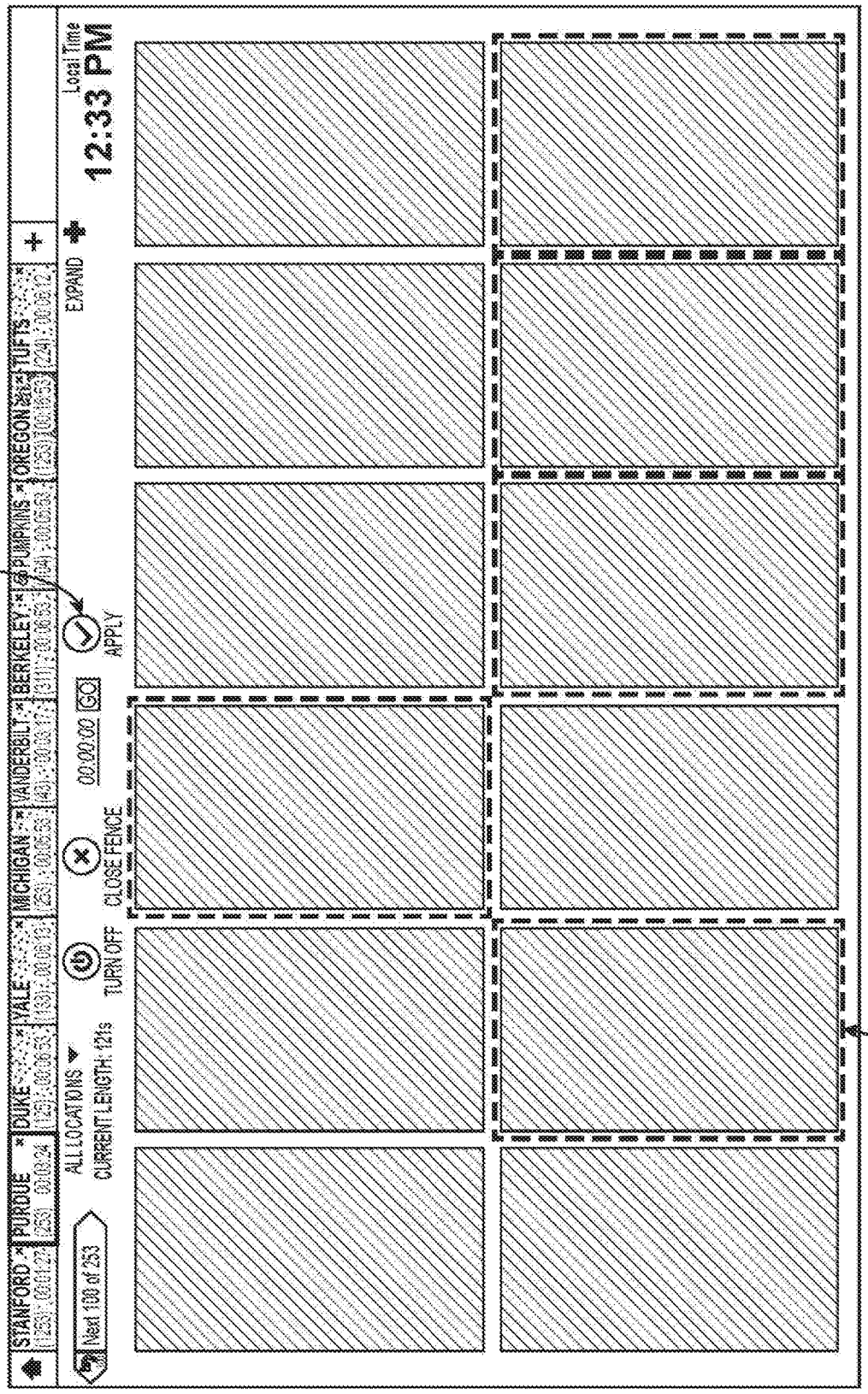

414
413
STANFORD
PURDUE
DUKE
YALE
MICHIGAN
VANDERBILT
BERKELEY
PUMPKINS
OREGON
TUFTS
Next 100 of 253
ALL LOCATIONS
CURRENT LENGTH: 121s
TURN OFF
CLOSE FENCE
00:00:00
GO
APPLY
EXPAND
Local Time
12:33 PM

FIG. 4C

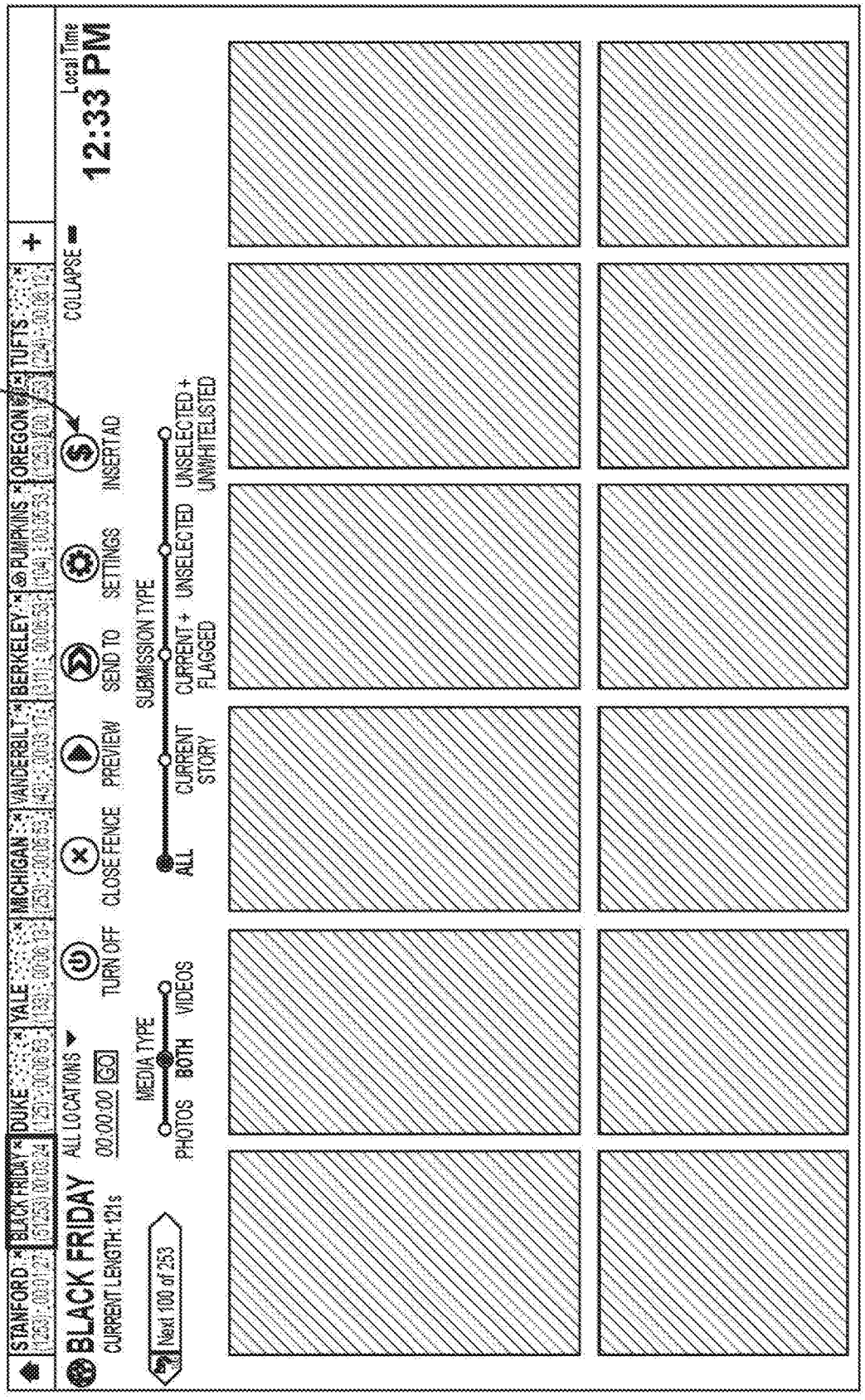

415
STANFORD
BLACK FRIDAY
DUKE
YALE
MICHIGAN
VANDERBILT
BERKELEY
PUMPKINS
OREGON
TUFTS
BLACK FRIDAY
CURRENT LENGTH: 121s
ALL LOCATIONS
00:00:00
GO
TURN OFF
CLOSE FENCE
PREVIEW
SEND TO
SETTINGS
INSERT AD
COLLAPSE
Local Time
12:33 PM
MEDIA TYPE
PHOTOS
BOTH
VIDEOS
SUBMISSION TYPE
ALL
CURRENT STORY
CURRENT + FLAGGED
UNSELECTED
UNSELECTED + UNWHITELISTED
Next 100 of 253

FIG. 4D

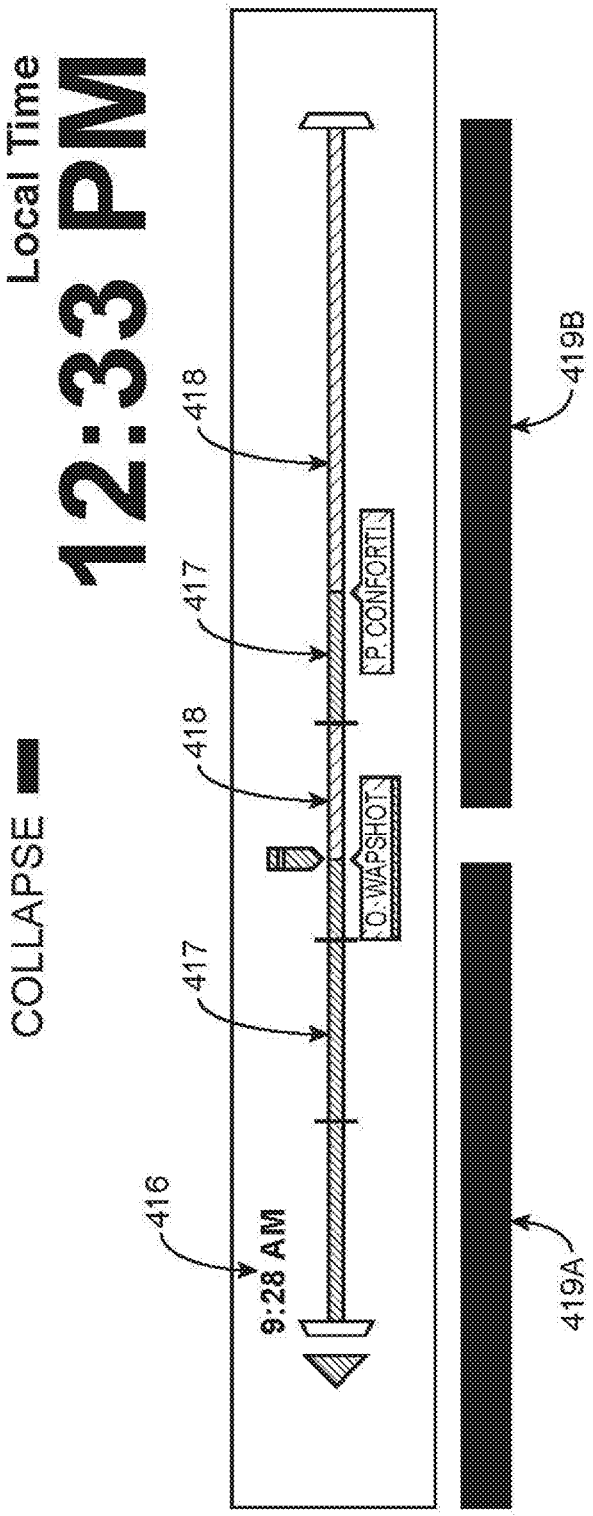

Local Time
12:33 PM
COLLAPSE
416
9:28 AM
417
418
417
418
P. CONFORTIN
O. WAPSHOT
419A
419B

FIG. 4E

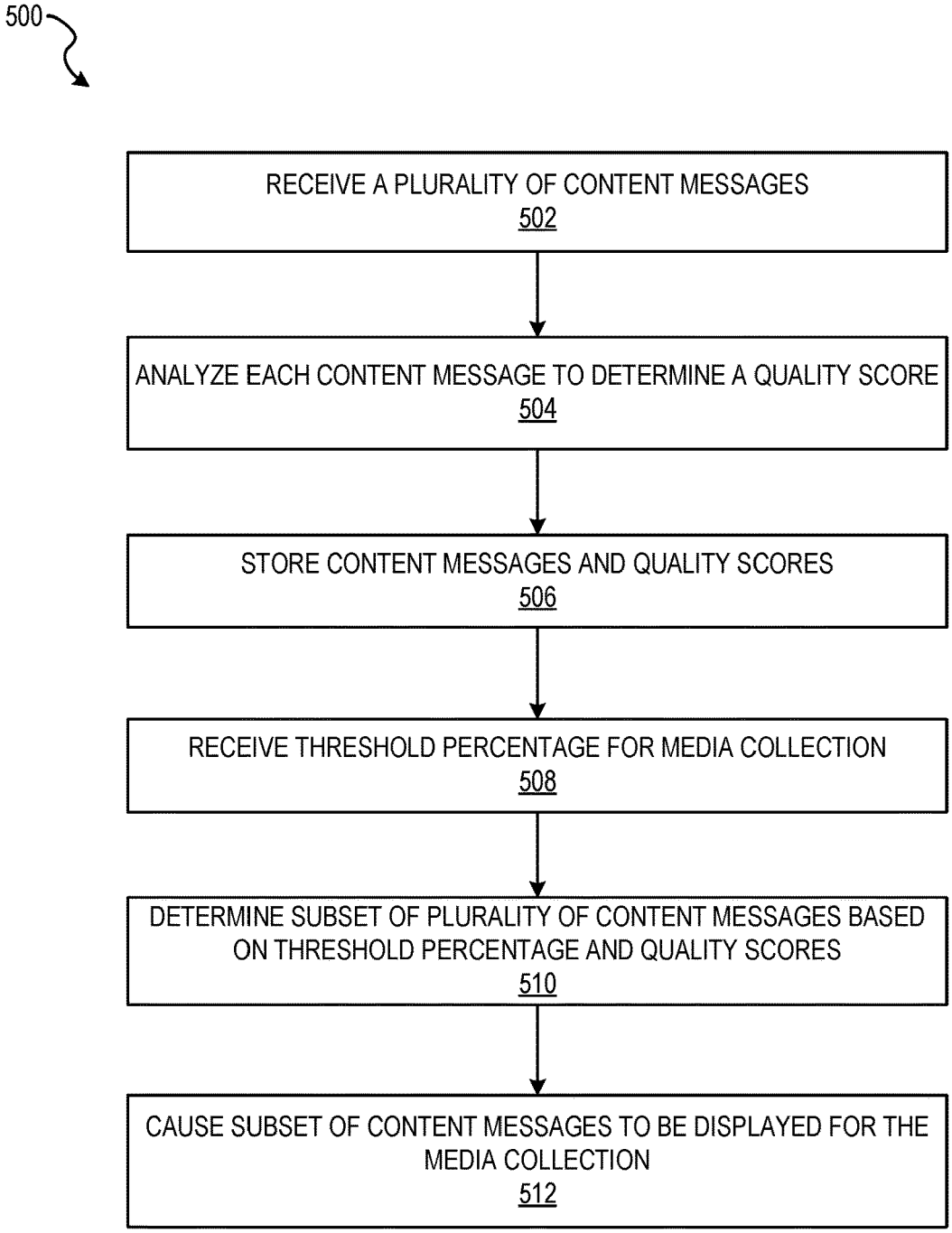

500
RECEIVE A PLURALITY OF CONTENT MESSAGES
502
ANALYZE EACH CONTENT MESSAGE TO DETERMINE A QUALITY SCORE
504
STORE CONTENT MESSAGES AND QUALITY SCORES
506
RECEIVE THRESHOLD PERCENTAGE FOR MEDIA COLLECTION
508
DETERMINE SUBSET OF PLURALITY OF CONTENT MESSAGES BASED ON THRESHOLD PERCENTAGE AND QUALITY SCORES
510
CAUSE SUBSET OF CONTENT MESSAGES TO BE DISPLAYED FOR THE MEDIA COLLECTION
512

FIG. 5

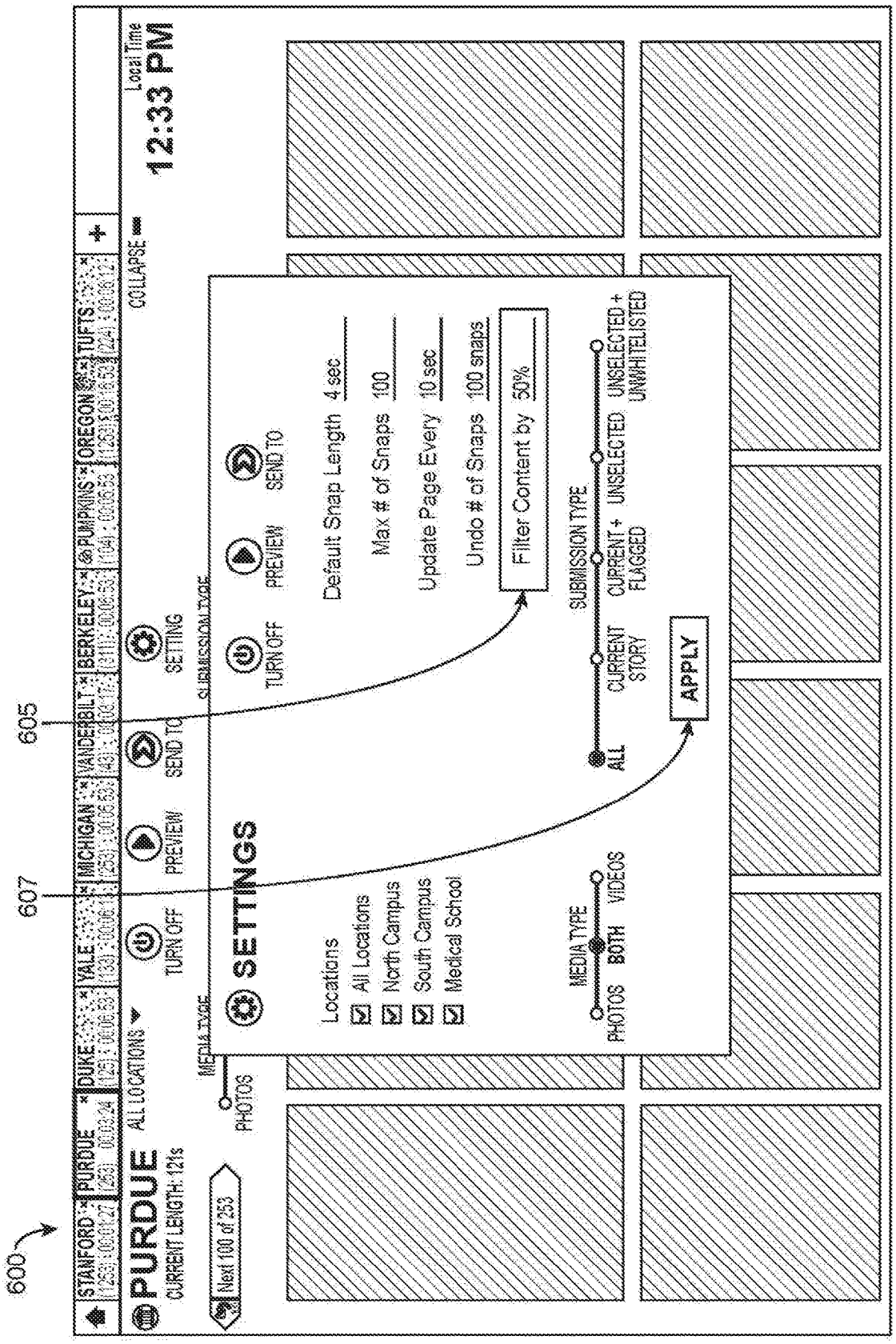

600
605
607
STANFORD
PURDUE
DUKE
YALE
MICHIGAN
VANDERBILT
BERKELEY
@PUMPKINS
OREGON
TUFTS
PURDUE
CURRENT LENGTH: 121s
ALL LOCATIONS
TURN OFF
PREVIEW
SEND TO
SETTING
COLLAPSE
Local Time
12:33 PM
Next 100 of 253
PHOTOS
MEDIA TYPE
SETTINGS
Locations
All Locations
North Campus
South Campus
Medical School
MEDIA TYPE
PHOTOS
BOTH
VIDEOS
SUBMISSION TYPE
ALL
CURRENT STORY
CURRENT + FLAGGED
UNSELECTED
UNSELECTED + UNWHITELISTED
Default Snap Length 4 sec
Max # of Snaps 100
Update Page Every 10 sec
Undo # of Snaps 100 snaps
Filter Content by 50%
APPLY

FIG. 6

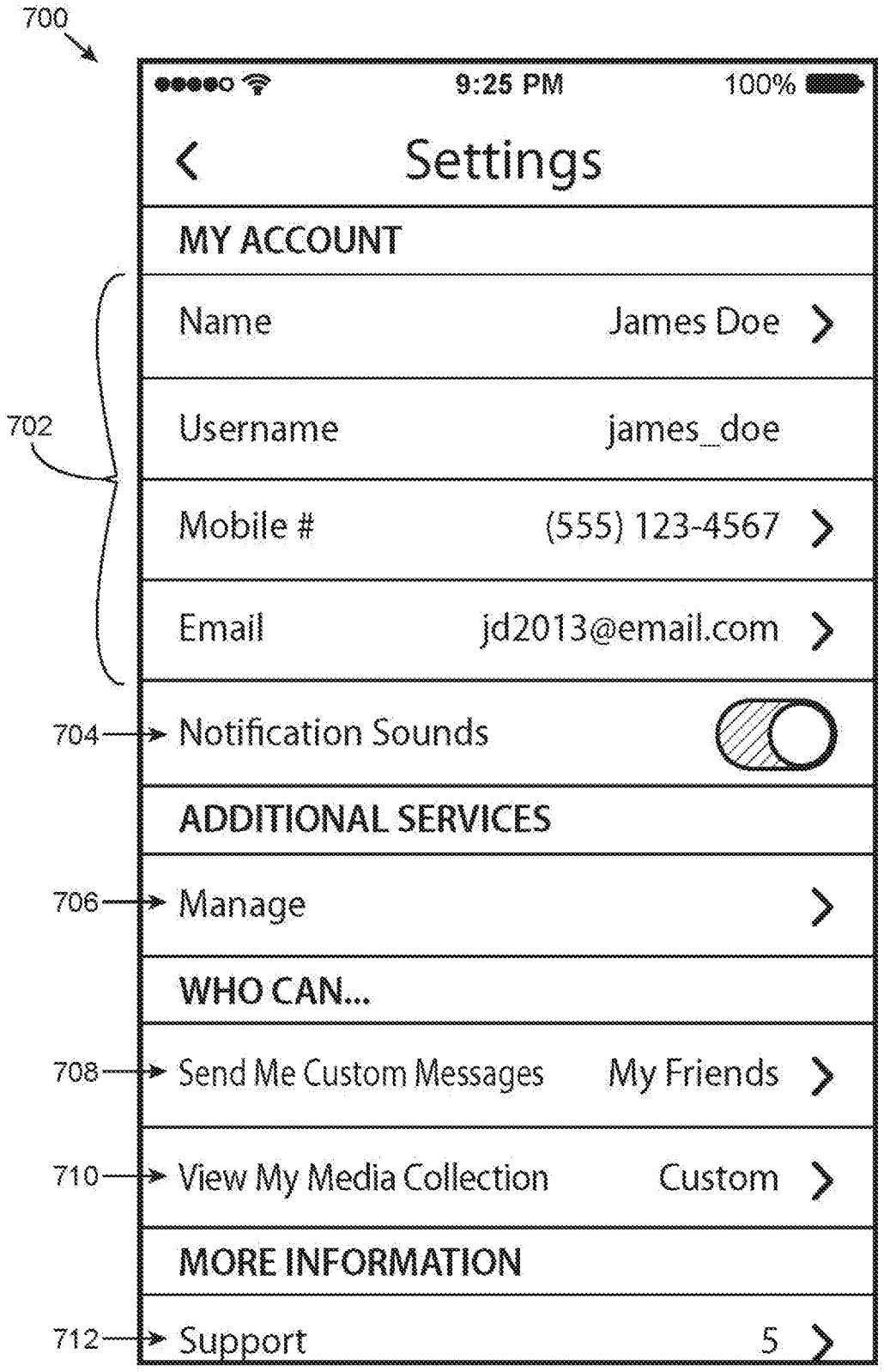

700
9:25 PM
100%
Settings
MY ACCOUNT
Name
James Doe
Username
james_doe
Mobile #
(555) 123-4567
Email
jd2013@email.com
702
704
Notification Sounds
ADDITIONAL SERVICES
706
Manage
WHO CAN...
708
Send Me Custom Messages
My Friends
710
View My Media Collection
Custom
MORE INFORMATION
712
Support
5

FIG. 7A

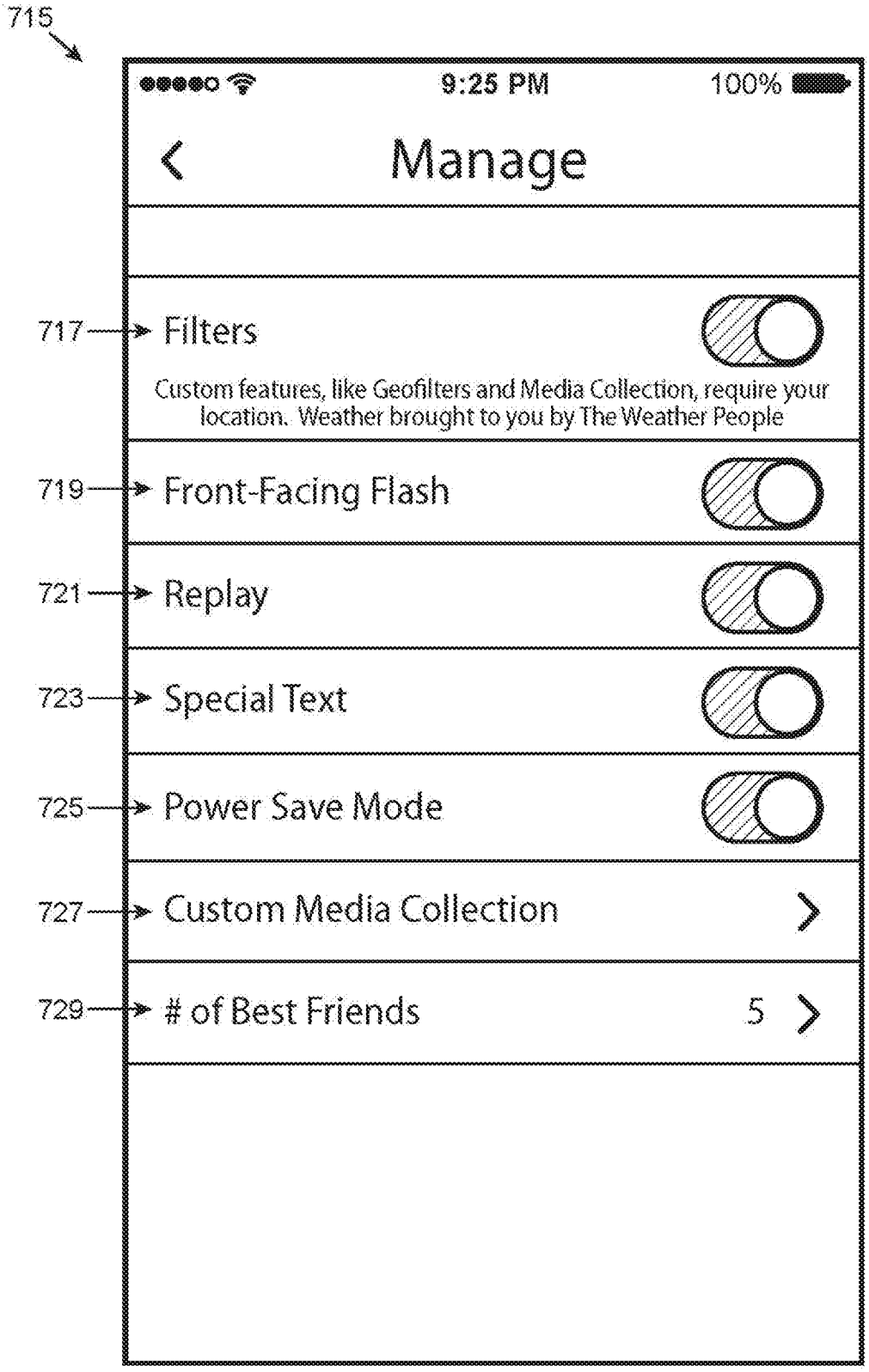

715
9:25 PM
100%
Manage
717
Filters
Custom features, like Geofilters and Media Collection, require your location. Weather brought to you by The Weather People
719
Front-Facing Flash
721
Replay
723
Special Text
725
Power Save Mode
727
Custom Media Collection
729
# of Best Friends
5

FIG. 7B

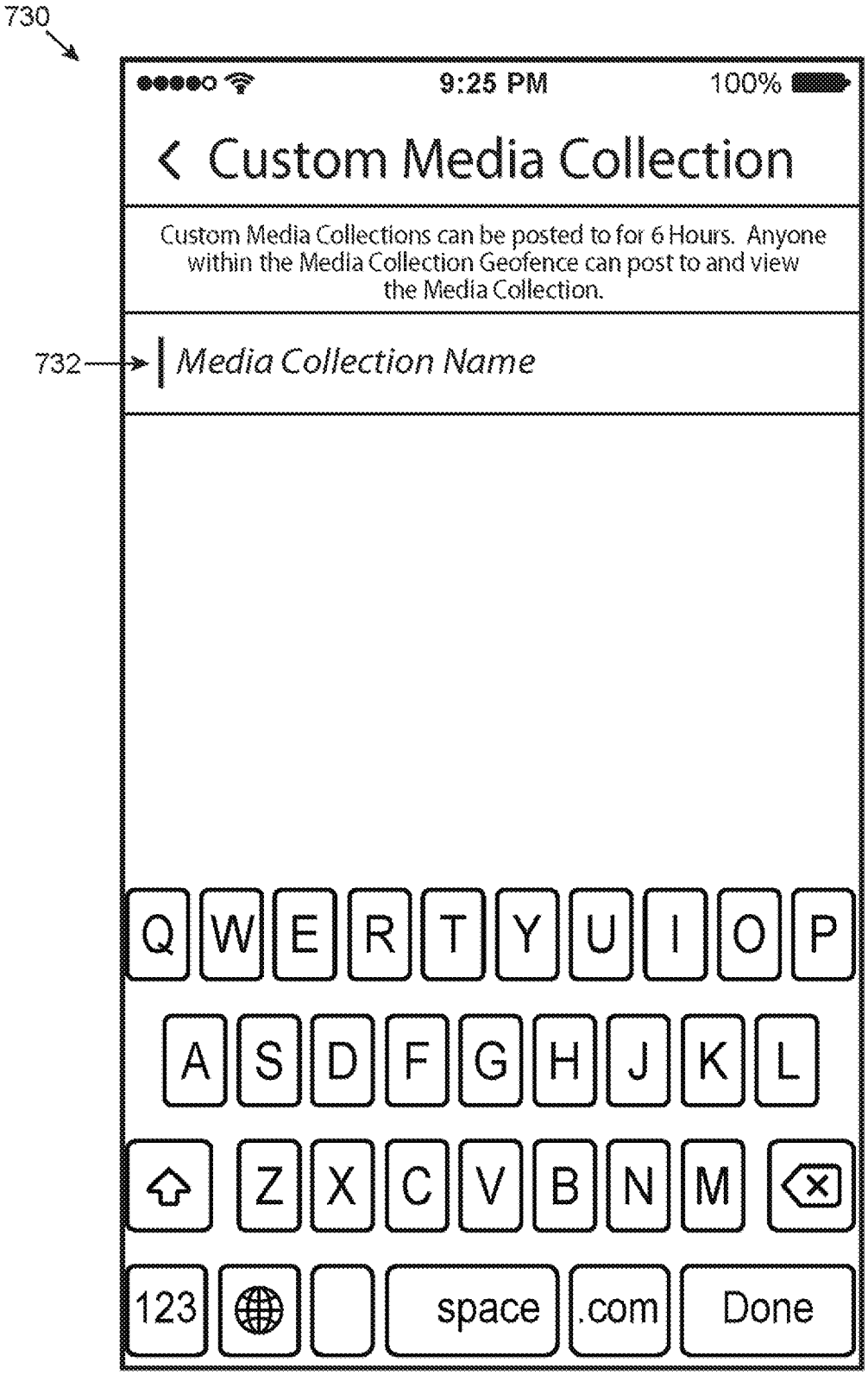

730
9:25 PM
100%
Custom Media Collection
Custom Media Collections can be posted to for 6 Hours. Anyone within the Media Collection Geofence can post to and view the Media Collection.
732
Media Collection Name
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
123
space
.com
Done

FIG. 7C

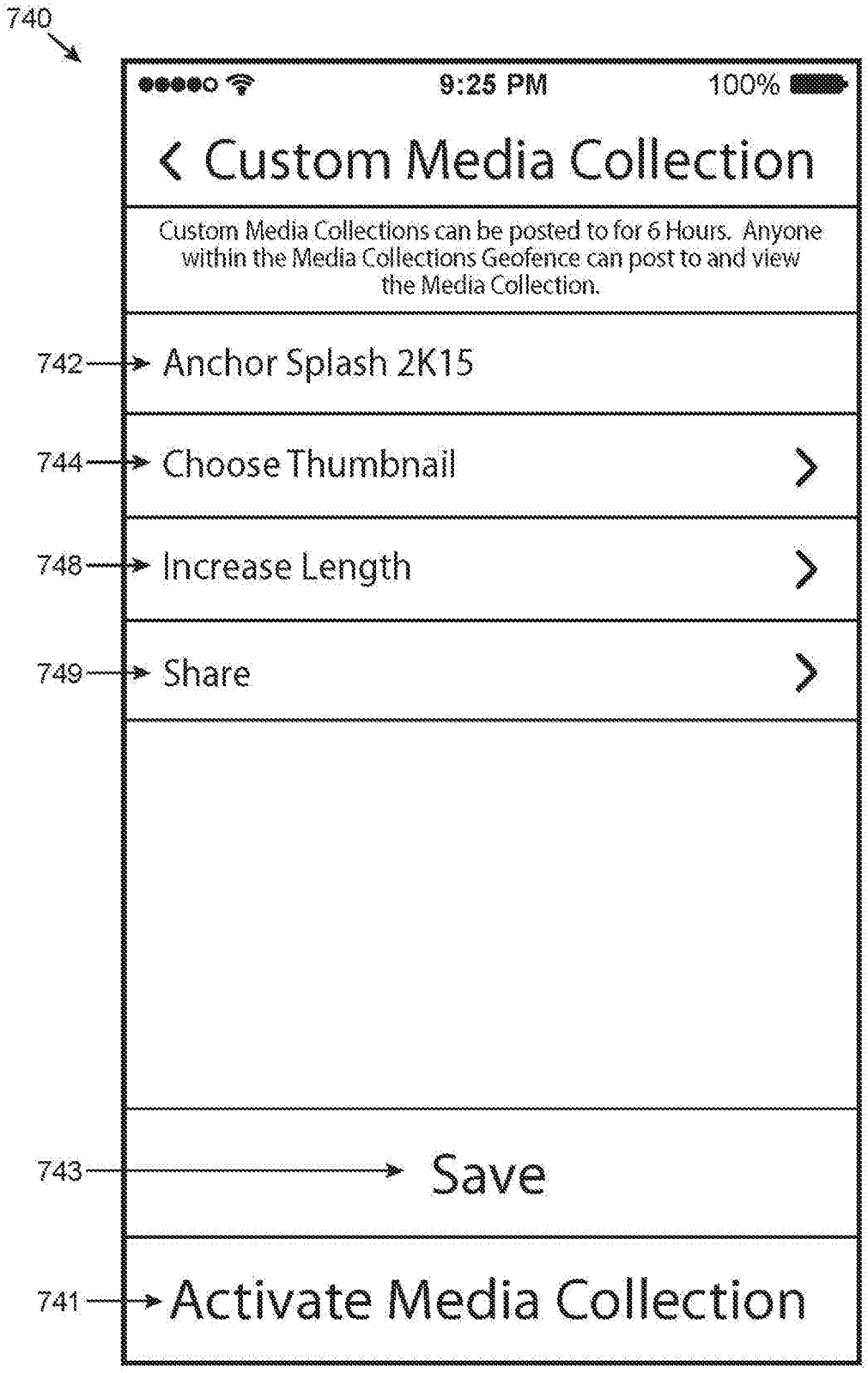

740
9:25 PM
100%
Custom Media Collection
Custom Media Collections can be posted to for 6 Hours. Anyone within the Media Collections Geofence can post to and view the Media Collection.
742
Anchor Splash 2K15
744
Choose Thumbnail
748
Increase Length
749
Share
743
Save
741
Activate Media Collection

FIG. 7D

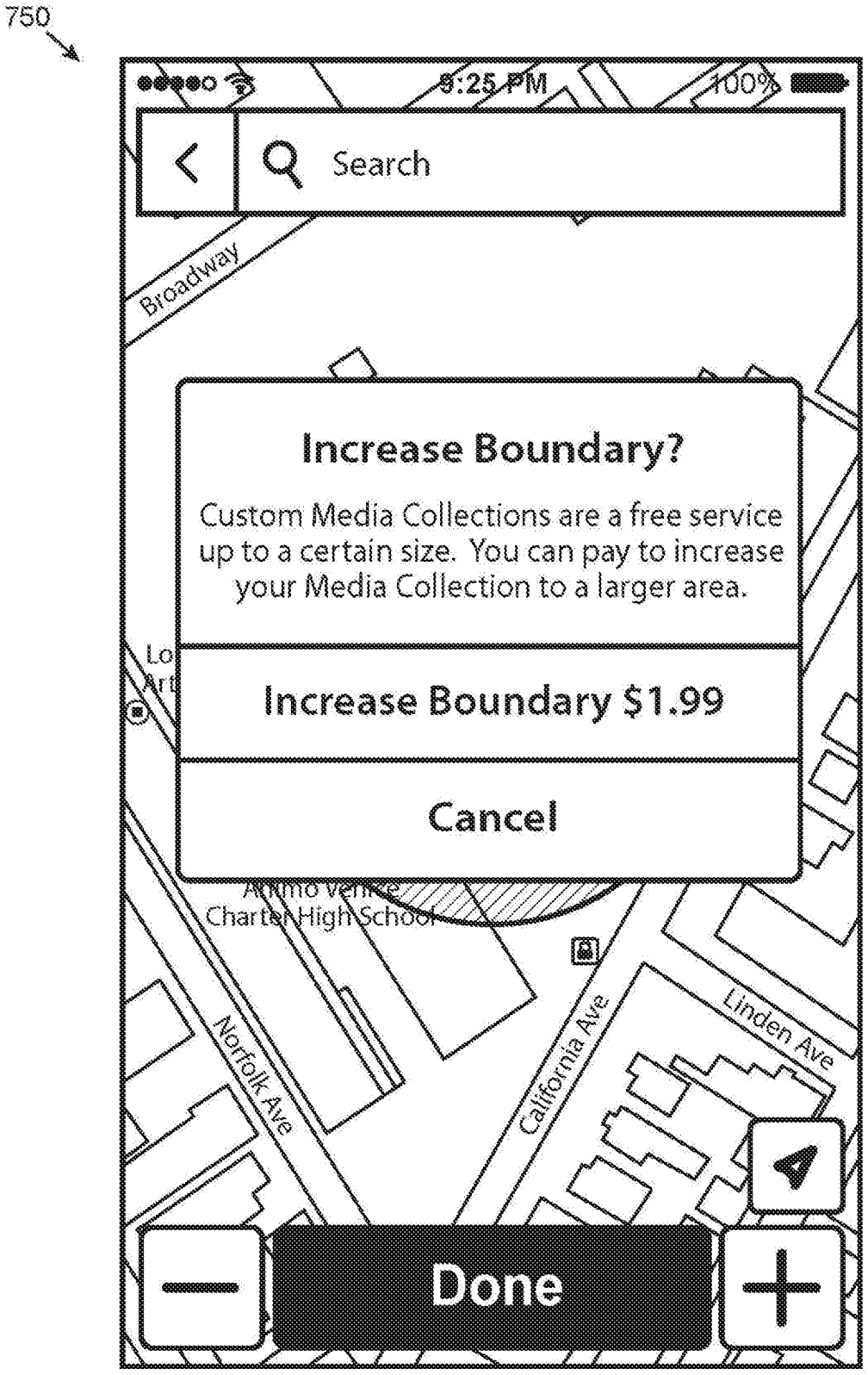

750
9:25 PM
100%
Search
Broadway
Increase Boundary?
Custom Media Collections are a free service up to a certain size. You can pay to increase your Media Collection to a larger area.
Increase Boundary $1.99
Cancel
Charter High School
Norfolk Ave
California Ave
Linden Ave
Done

FIG. 7E

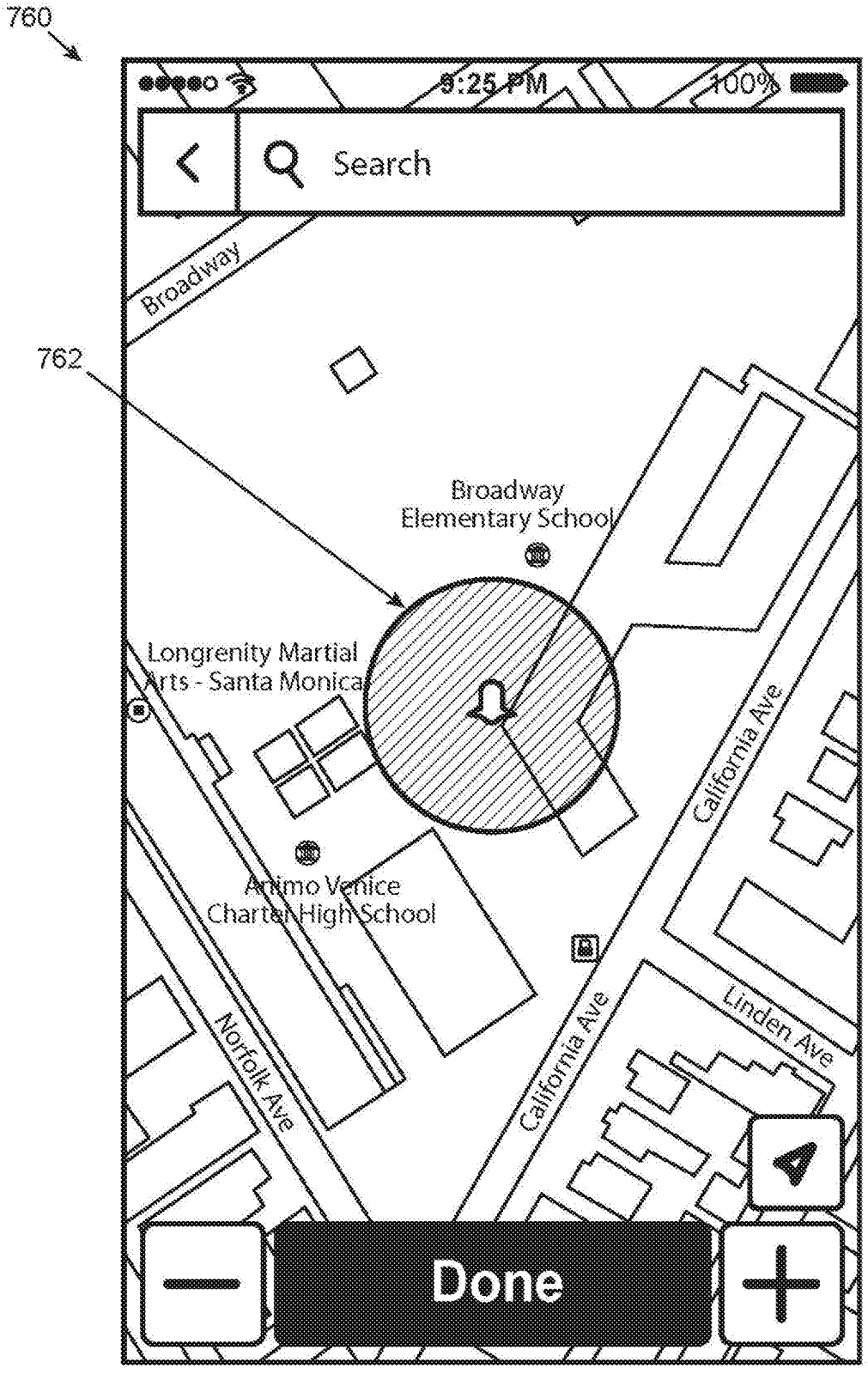

760
9:25 PM
100%
Search
Broadway
762
Broadway
Elementary School
Longrenity Martial
Arts - Santa Monica
Animo Venice
Charter High School
California Ave
Linden Ave
Norfolk Ave
California Ave
Done

FIG. 7F

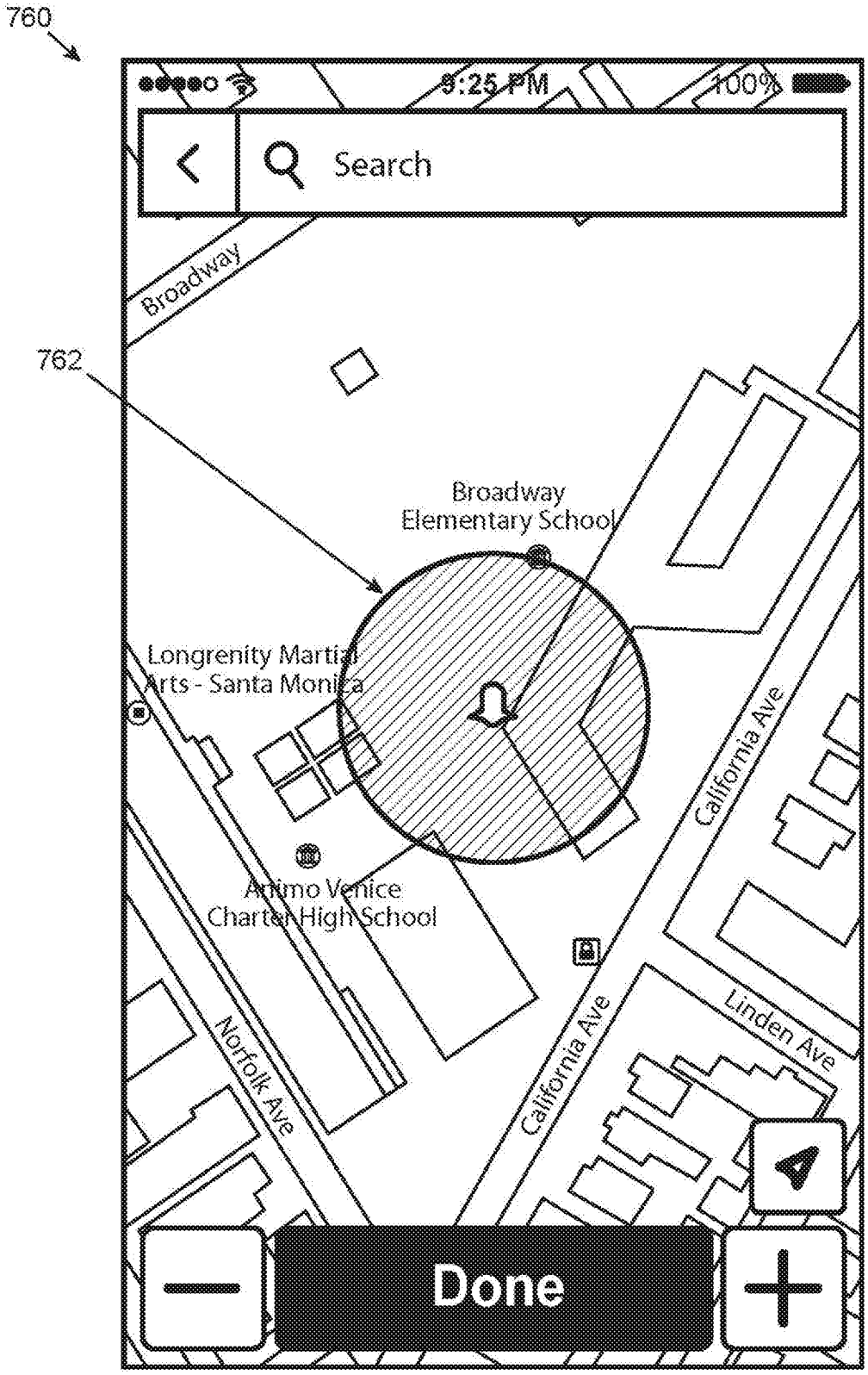

760
9:25 PM
100%
Search
Broadway
762
Broadway
Elementary School
Longrenity Martial
Arts - Santa Monica
Artimo Venice
Charter High School
California Ave
California Ave
Linden Ave
Norfolk Ave
Done

FIG. 7G

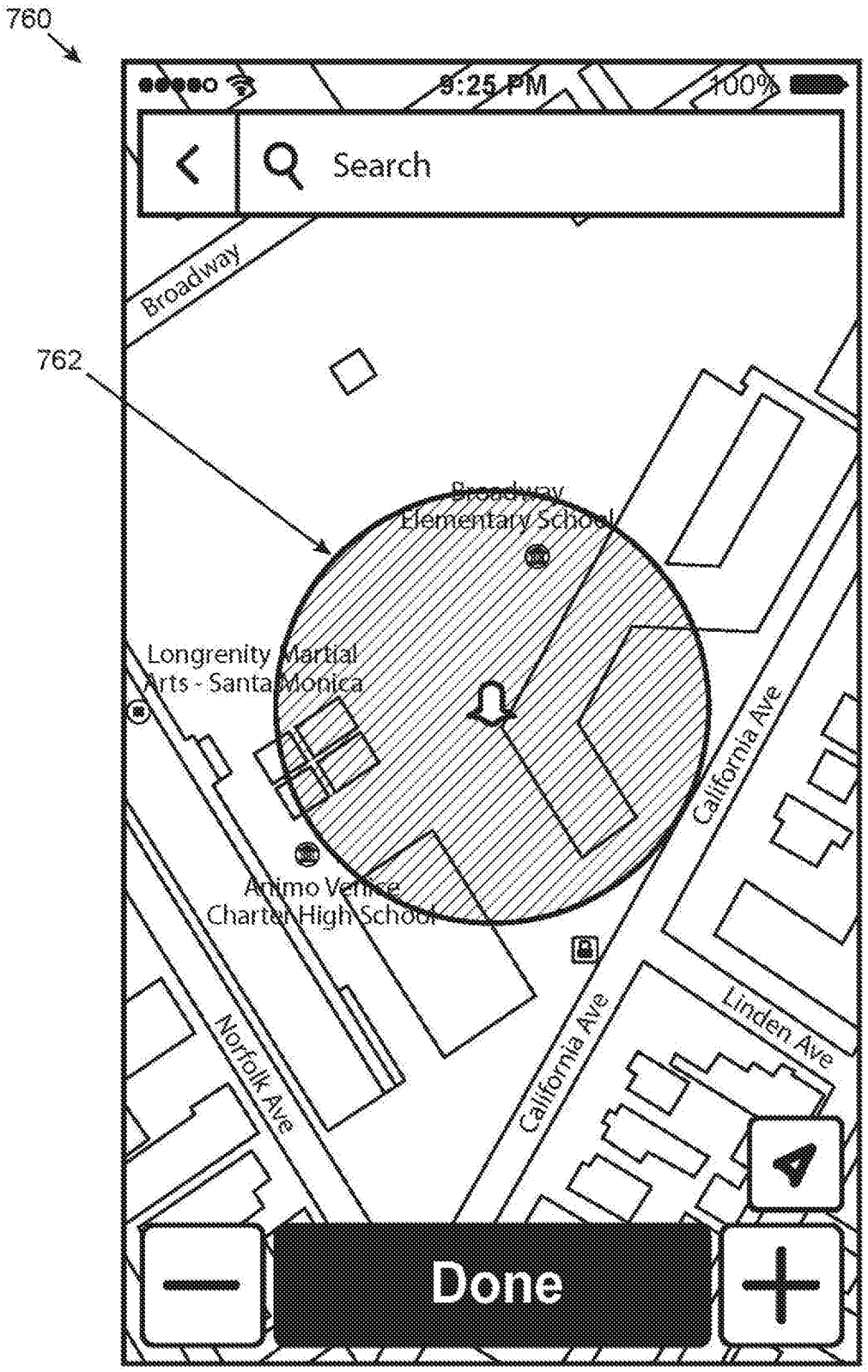

760
9:25 PM
100%
Search
Broadway
762
Broadway
Elementary School
Longrenity Martial
Arts - Santa Monica
Animo Venice
Charter High School
California Ave
Linden Ave
Norfolk Ave
California Ave
Done

FIG. 7H

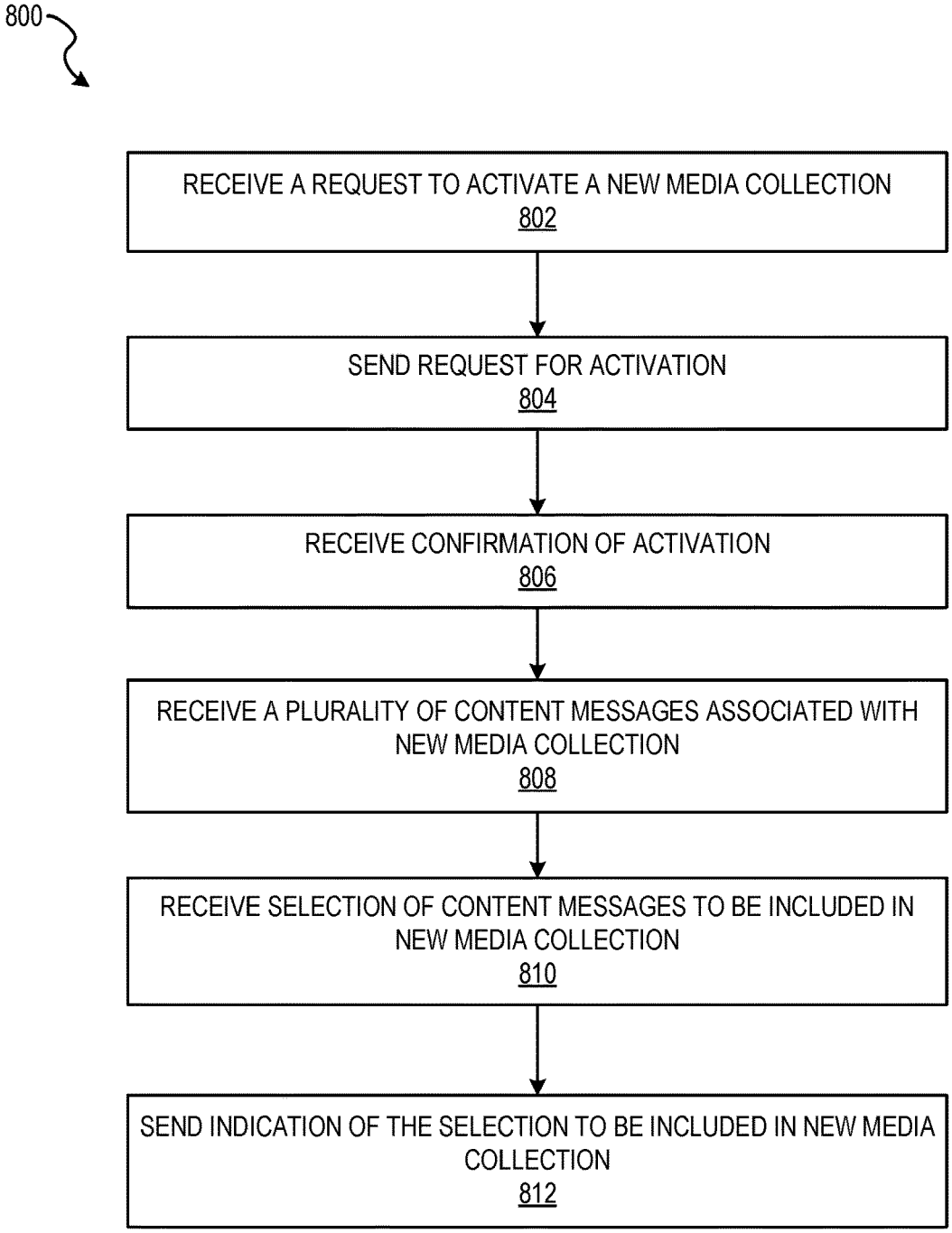

800
RECEIVE A REQUEST TO ACTIVATE A NEW MEDIA COLLECTION
802
SEND REQUEST FOR ACTIVATION
804
RECEIVE CONFIRMATION OF ACTIVATION
806
RECEIVE A PLURALITY OF CONTENT MESSAGES ASSOCIATED WITH NEW MEDIA COLLECTION
808
RECEIVE SELECTION OF CONTENT MESSAGES TO BE INCLUDED IN NEW MEDIA COLLECTION
810
SEND INDICATION OF THE SELECTION TO BE INCLUDED IN NEW MEDIA COLLECTION
812

FIG. 8

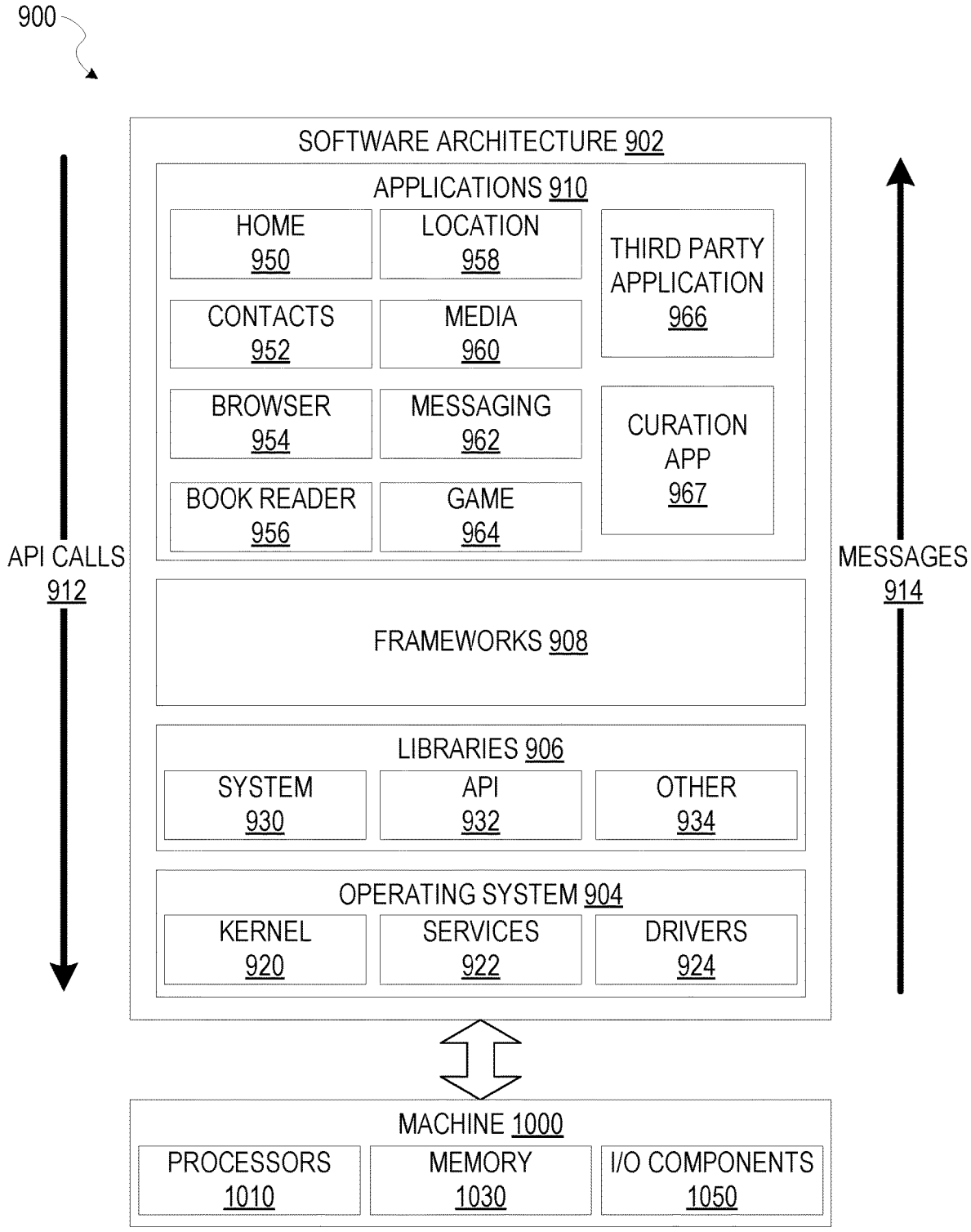

900
SOFTWARE ARCHITECTURE 902
APPLICATIONS 910
HOME 950
LOCATION 958
THIRD PARTY APPLICATION 966
CONTACTS 952
MEDIA 960
BROWSER 954
MESSAGING 962
CURATION APP 967
BOOK READER 956
GAME 964
API CALLS 912
MESSAGES 914
FRAMEWORKS 908
LIBRARIES 906
SYSTEM 930
API 932
OTHER 934
OPERATING SYSTEM 904
KERNEL 920
SERVICES 922
DRIVERS 924
MACHINE 1000
PROCESSORS 1010
MEMORY 1030
I/O COMPONENTS 1050

FIG. 9

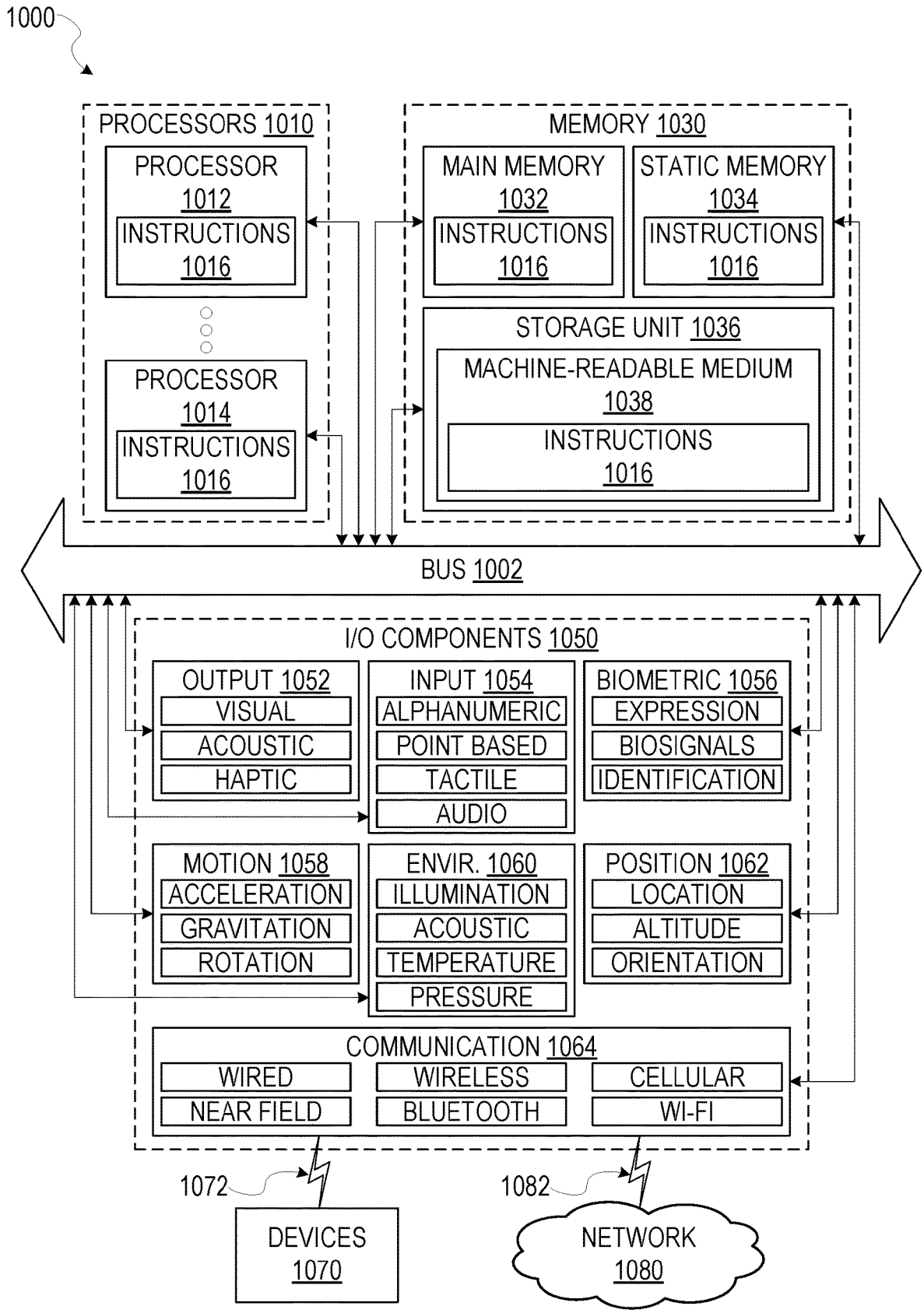

1000
PROCESSORS 1010
PROCESSOR 1012
INSTRUCTIONS 1016
PROCESSOR 1014
INSTRUCTIONS 1016
MEMORY 1030
MAIN MEMORY 1032
INSTRUCTIONS 1016
STATIC MEMORY 1034
INSTRUCTIONS 1016
STORAGE UNIT 1036
MACHINE-READABLE MEDIUM 1038
INSTRUCTIONS 1016
BUS 1002
I/O COMPONENTS 1050
OUTPUT 1052
VISUAL
ACOUSTIC
HAPTIC
INPUT 1054
ALPHANUMERIC
POINT BASED
TACTILE
AUDIO
BIOMETRIC 1056
EXPRESSION
BIOSIGNALS
IDENTIFICATION
MOTION 1058
ACCELERATION
GRAVITATION
ROTATION
ENVIR. 1060
ILLUMINATION
ACOUSTIC
TEMPERATURE
PRESSURE
POSITION 1062
LOCATION
ALTITUDE
ORIENTATION
COMMUNICATION 1064
WIRED
NEAR FIELD
WIRELESS
BLUETOOTH
CELLULAR
WI-FI
1072
DEVICES 1070
1082
NETWORK 1080

FIG. 10

GENERATION, CURATION, AND PRESENTATION OF MEDIA COLLECTIONS

CLAIM OF PRIORITY

[0001] This application is a continuation of U.S. patent application Ser. No. 15/054,776, filed on Feb. 26, 2016, which is incorporated herein by reference in its entirety.

BACKGROUND

[0002] In the modern Internet era, many news sources have fragmented, but core aspects of news gathering and presentation often remain associated with professional journalists gathering and sharing information in a way that is tied to an individual identity. While such practices have been able to support some news structures with valuable analysis, the process for generating stories where select professionals filter information and generate stories is time consuming and introduces significant delay between an event occurring and presentation of information to a news consumer.

BRIEF DESCRIPTION OF THE DRAWINGS

[0003] Various ones of the appended drawings merely illustrate example embodiments of the present disclosure and should not be considered as limiting its scope.

[0004] FIG. **1** is a block diagram illustrating a networked system, according to some example embodiments.

[0005] FIG. **2**A is an example user interface for viewing a list of media collections, according to some example embodiments.

[0006] FIG. **2**B is an example user interface for viewing a calendar view of media collections, according to some example embodiments.

[0007] FIG. **2**C-**2**D are example user interfaces for creating a media collection, according to some example embodiments.

[0008] FIG. **2**E is an example user interface for viewing a list of media collections, according to some example embodiments.

[0009] FIG. **2**F-**2**H are example user interfaces to view operators working on media collections, according to some example embodiments.

[0010] FIG. **3** is a flow chart illustrating aspects of a method, according to some example embodiments.

[0011] FIG. **4**A-**4**E are example user interfaces to review and curate content for media collections.

[0012] FIG. **5** is a flowchart illustrating aspects of a method, according to some example embodiments.

[0013] FIG. **6** is an example user interface for filtering content, according to some example embodiments.

[0014] FIG. **7**A is an example interface for account settings, according to some example embodiments.

[0015] FIG. **7**B is an example interface for managing an account, according to some example embodiments.

[0016] FIG. **7**C-**7**H are example interfaces for creating a new media collection, according to some example embodiments.

[0017] FIG. **8** is a flowchart illustrating aspects of a method, according to some example embodiments.

[0018] FIG. **9** is a block diagram illustrating an example of a software architecture that may be installed on a machine, according to some example embodiments.

[0019] FIG. **10** illustrates a diagrammatic representation of a machine in the form of a computer system within which a set of instructions may be executed for causing the machine to perform any one or more of the methodologies discussed herein, according to an example embodiment.

DETAILED DESCRIPTION

[0020] Systems and methods described herein relate to computer assisted story generation, curation, and presentation from received content. Curators or operators may gather together content, such as, photos, video, audio, text, metadata, and other media content from content messages to put together one or more media collections or stories. These media collections may be based on a certain geolocation, event, topic, common user interest, product, etc. The content messages may be sent by users (e.g., users in a particular geolocation, users attending a particular event, users sharing a particular interest, etc.) using client devices. A server system may receive tens of thousands of content messages (if not more) for each media collection that need to be reviewed by the system or a curator to choose what content to include in one or more media collections. These media collections may be referred to as "stories." Moreover, many media collections may be time sensitive or "live" stories (e.g., only available for a certain window of time such as a 24 hour period, during a particular event, etc.). Accordingly, methods and systems are described that provide tools to assist a system and curator to be able to quickly curate such a high volume of content messages into media collections for immediate, ongoing, or periodic posting.

[0021] In one example embodiment, systems and methods are provided for receiving, at a server computer, content messages from various content sources (e.g. smartphone users), each content message comprising media content and associated with a predetermined media collection. For each of the content messages received, the media content is associated with the predetermined media collection, and the content message is stored in a database. in some embodiments, the plurality of content messages are displayed on an operator device with other content messages associated with the media collection. In some embodiments, a predetermined trigger related to the media collection may be activated, and in response, an identifier of the media collection is updated from a first indicator to a second indicator. This update notifies a user of the change (e.g. with a display alert or update) and indicates that an action needs to be taken on the media collection.

[0022] For example, one media collection may be directed to recent basketball games, and may include content related to a basketball game that is in progress. When particular events of interest occur during the basketball game, a server may receive content messages that include new information not currently in the media collection. This may include content for particularly interesting play, or an ending play with a final score. These content messages are stored in a database, and a trigger (e.g. a spike in content messages or a time since the last review of related content messages) may create an alert indicating that the media collection should be reviewed for an update based on the content messages received. Such an alert may be placed on the display of a curator that is associated with the media collection.

[0023] Some embodiments use automated media filtering to limit the media content reviewed by a curator. For example, in some embodiments, blurry, dark, or otherwise low quality images and video clips may be sent to a system for inclusion in a media collection. A system may automati-

cally filter out these low quality images, and present only the higher quality images to a curator. In some such embodiments, systems and methods include receiving, at a server computer, content messages from various content sources, each content message comprising media content and associated with a predetermined media collection. For each of the plurality of content messages or individual pieces of media content (e.g. a single image or video clip) received, a system may determine a quality score and store the content messages in a database along with the quality score. Various systems and methods also include receiving, from an operator device, a threshold percentage for the media collection. This threshold is used to filter out lower quality pieces of content to reduce the amount of content to be reviewed by a curator. The server computer uses the threshold in determining a subset of the plurality of content messages associated with the media collection to be made available to the operator device based on the threshold percentage received from the operator device and the quality score for each of the plurality of content messages. The subset of the plurality of content messages associated with media collection are then be displayed on the operator device for the media collection.

[0024] Some embodiments include computer implemented tools for activating new stories (e.g. media collection), selecting media content for the new stories, and making these stories available to the public as part of a communication system. In some such embodiments, systems and methods include receiving, at a device, a request from a user to activate a new media collection. The computer then sends the request to a server computer for activation of the new media collection. When the new media collection is activated, the device receives a confirmation message. The device may then receive content messages associated with the new media collection. A user operating the device can then select some of the content messages to be included in the new media collection, and communicate this curated selection to the server computer. The server computer causes the selection of content messages to be included in the new media collection. When the media collection is requested by other devices in the communication system, the curated selection is sent to the devices.

[0025] FIG. **1** is a block diagram illustrating a networked system **100**, according to some example embodiments. System **100** includes one or more client devices **110**. System **100** further includes one or more operator devices **130**, a server system **120**, and a network **104** that is used to convey communications between client devices **110**, operator device (s) **130**, and the server system **120**. For example, the networked system **100** may be a messaging system where clients may communicate and exchange data within the networked system **100**.

[0026] The client device(s) **110** may comprise, but is not limited to, a mobile phone, desktop computer, laptop computer, portable digital assistants (PDAs), smart phones, tablet, phablet ultra-books, network-enabled camera, netbooks, multi-processor systems, microprocessor-based or programmable consumer electronics, game consoles, set-top boxes, computers in vehicles, or any other communication device that a user may utilize to access the networked system **100**.

[0027] The client device **110** may include a camera device for capturing content, or may be coupled to a separate camera device that is used to capture the content (e.g., video, photographs, audio, etc.) prior to sending to server system **120** or other client devices **110**. Some embodiments may include wearable devices such as a pendant with an integrated camera that is coupled to a client device **110**. Other embodiments may include other associated devices with an integrated camera that may be wearable, such as a watch, eyeglasses, clothing, such as a hat or jacket with integrated electronics, a clip-on electronic device, or any other such devices that may communicate or be integrated with a client device **110**.

[0028] The client device **110** may access the various data and applications provided by other entities in the system **100** via web client **112** (e.g., a browser, such as the Internet Explorer® browser developed by Microsoft® Corporation of Redmond, Washington State) or one or more client applications **114**. The client device **110** may include one or more applications **114** (also referred to as "apps") such as, but not limited to, a web browser, messaging application, electronic mail (email) application, an e-commerce site application, a mapping or location application, a news or media application, and the like. In some embodiments, one or more applications **114** may be included in a given one of the client device **110**, and configured to locally provide the user interface and at least some of the functionalities with the application **114** configured to communicate with other entities in the system **100** (e.g., operator device(s) **130**, server system **120**, etc.). on an as needed basis, for data and/or processing capabilities not locally available (e.g., access to various information, to authenticate a user **106**, to verify a method of payment, to retrieve/synchronize footprints, etc.). Conversely, one or more applications **114** may not be included in the client device **110**, and then the client device **110** may use its web browser to access the one or more applications hosted on other entities in the system **100** (e.g., operator device(s) **130**, server system **120**, etc.).

[0029] One or more users **106** may be a person, a machine, or other means of interacting with the client device **110**. In example embodiments, the user **106** may not be part of the system **100**, but may interact with the system **100** via the client device **110** or other means. For instance, the user **106** may provide input (e.g., touch screen input or alphanumeric input) to the client device **110** and the input may be communicated to other entities in the system **100** (e.g., operator device(s) **130**, server system **120**, other client device(s) **110**, etc.) via the network **104**. In this instance, the other entities in the system **100**, in response to receiving the input from the user **106**, may communicate information to the client device **110** via the network **104** to be presented to the user **106**. In this way, the user **106** may interact with the various entities in the system **100** using the client device **110**.

[0030] An operator device(s) **130** may include, but is not limited to, a mobile phone, desktop computer, laptop computer, portable digital assistants (PDAs s phones, tablet, phablet ultra-books, network-enabled camera, netbooks, multi-processor systems, microprocessor-based or programmable consumer electronics, game consoles, set-top boxes, computers in vehicles, or any other communication device that a user or operator **108** may utilize to access the networked system **100**.

[0031] The operator device(s) **130** may access the various data and applications provided by other entities in the system **100** via a web client **132** (e.g., a browser, such as the Internet Explorer® browser developed by Microsoft® Corporation of Redmond, Washington State) or one or more

operator applications **134**. The operator device(s) **130** may include one or more operator application(s) **134** (also referred to as "apps") such as, but not limited to, a web browser, messaging application, media curation tool, electronic mail (email) application, an e-commerce site application, a mapping or location application, a news or media application, and the like, In some embodiments, one or more applications **134** may be included in a given one of the operator device(s) **130**, and configured to locally provide the user interface and at least some of the functionalities with the application **134** configured to communicate with other entities in the system **100** (e.g., client devices **110**, server system **120**, etc.), on an as needed basis, for data and/or processing capabilities not locally available (e.g., access to various information, to authenticate a user **106** or operator **108**, to verify a method of payment, to retrieve/synchronize footprints, etc.). Conversely, one or more applications **134** may not be included in the operator device(s) **130**, and then the operator device **134** may use its web browser to access the one or more applications hosted on other entities in the system **100** (e.g., server system **120**, etc.

[0032] One or more operators **108** may be a person, a machine, or other means of interacting with the operator device **130** (e.g., a user such as a curator or operator). In example embodiments, the operator **108** may not be part of the system **100**, but may interact with the system **100** via the operator device **130** or other means. For instance, the operator **108** may provide input (e.g., touch screen input or alphanumeric input) to the operator device **130** and the input may be communicated to other entities in the system **100** (e.g., client device(s) **110**, server system **120**, etc.) via the network **104**. In this instance, the other entities in the system **100**, in response to receiving the input from the operator **108**, may communicate information to the operator device **130** via the network **104** to be presented to the operator **108**. In this way, the operator **108** may interact with the various entities in the system **100** using the operator device **130**.

[0033] The client device(s) **110** and the operator device(s) **130** are connected to the server system **120** via a network **104**. The network **104** may include any combination of wired and wireless connections. This may include cellular access networks, access point interfaces to the internet, or any other such networks **104** or network elements. For example, a client device **110** may interface with network **104** using a Long Term Evolution (LTE) cellular network to communicate with server system **120**. Or a client device **110** may use a Wi-Fi access point to interface with network **104** and communicate with server system **120**.

[0034] Server system **120** may be one or more computing devices as part of a service or network computing system. In certain embodiments, particularly embodiments with large numbers of client devices **110** interfacing with a server system **120** from widely different locations all over the globe, server system **120** may be a distributed network of server computers that are similarly widely distributed, and which communicate with each other via network **104**. The server system **120** may include a web server **122**, and a content processing server **124**, that may be communicatively coupled with one or more databases **126**. Databases **126** may be storage devices that store information such as data related to content messages, media collections, etc.

[0035] The content processing server **124** may provide functionality to perform various computer assisted media collection generation, curation, and presentation from received content (as examples). The content processing server **124** may access one or more databases **126** to retrieve stored data to use in computer assisted media collection generation, curation, and presentation from received content.

[0036] In some embodiments, client devices **110**, operator device(s) **130**, and any elements of server system **120** and network **104**, may be implemented using elements of software architecture **902** or machine **1000** described in FIGS. **9** and **10**.

[0037] Networked system **100** may be used in communication of content messages from client devices **110** to a server system **120**, and communication of media collections from the server system **120** to the client devices **110**. A client device **110** may communicate content messages to server system **120**, and a client device **110** may receive media collections from server system **120**. In addition to this functionality of the embodiments described herein, client device **110** may additionally receive private pieces of content and communications from other users **106**, and may convey a personal story or media collection to server system **120**, with the personal story or media collection including images and or video from content messages generated by client device **110**, another device coupled to client device **110**, or other users **106**. Similarly, client device **110** sends content messages and receives stories or media collections, and may additionally perform other actions.

[0038] In one example embodiment, an operator application **134** may include a media curation tool. The media curation tool may allow an operator **108** to create new media collections, view a list of media collections, view a plurality of content items or content messages associated with a predetermined media collection, curate content into media collections for immediate, ongoing, or periodic posting, etc. The plurality of media content may be received by server system **120** in a plurality of content messages from a plurality of users **106** (e.g., via client devices **110**).

[0039] Using the curation tool, an operator **108** may be able to view a list of all of the media collections that are active, planned, or archived. For example, using the curation tool, the operator **108** may provide an indication to view a list of media collections (e.g., press a button, select an option, click on an icon, etc.). An example user interface **200** is shown in FIG. **2**A. The example user interface **200** may display a list of media collections (e.g., stories list **202**). The user interface **200** may allow an operator **108** to search for a particular media collection, by providing an area **204** for an operator **108** to enter search criteria. For example, the operator **108** may enter a media collection identifier, a media collection name, keywords, etc. The user interface **200** also provides a mechanism **206** to filter the results/list of media collections by various criteria. For example, an operator **108** may filter the media collections by location, campus, event, time zone, live event, etc.

[0040] The list of media collections may include a list of all active media collections **212** and a list of upcoming media collections **214**. Each list may include an indication of what operators or curators **216** are assigned to each media collection. There may be one or more operators **108** assigned to each media collection. The user interface **200** also allows the operator **108** to add or remove operators **108** for each media collection. Each media collection may have a title **201**, a number of content items or content messages **203** that are in the queue for that media collection, a number of

content items that have been cleared **205** (viewed, reviewed, etc.), and the last time the media collection was updated **207**. Upcoming media collections **214** may also include information about when they are scheduled to go "live."

[0041] The media collections may also indicate a status by an indicator such as color or other method, For example, media collections that do not need immediate attention may have a first indicator (e.g., a green color), media collections that need attention may have a second indicator (e.g., a red color), and media collections that are incomplete (e.g., do not have a geofence, need approval, do not have a thumbnail, etc.) may have a third indicator (e.g., a yellow color). The server system **120** may set or update a status indicator based on a predetermined trigger, as explained below. An operator **108** may select any of the media collections to go to a detailed view for a particular media collection.

[0042] The user interface **200** may also provide a mechanism **210** for the operator **108** to view metrics associated with one or more media collections, one or more operators **108**, etc. And the user interface **200** may also provide a mechanism **211** for accessing a calendar view of the media collections. A calendar view of the media collections is shown in FIG. **2**B. In the calendar view **220**, an operator **108** may see live media collections laid out in a monthly view.

[0043] An operator **108** may also view a list of just the media collections assigned to the operator **108**, as shown displayed in example interface **250** in FIG. **2**E. The interface **250** may display the name **251** of the operator **108**, a logout button **152**, a picture **253** of the operator **108**, a list of the media collections **254** that the operator **108** is currently working on, a list **255** of other operators **108** that are currently online (e.g., working on media collections), what operators **108** are working on each media collection **256**, and other media collections **257**.

[0044] Each media collection list item (e.g., media collection list item **258**) may include information about the media collection. For example, the media collection list item may include a name of the media collection (e.g., Stanford, Purdue, etc.), a number of content items or content messages in the queue for that media collection (e.g., **1253**, **253**, **104**, etc.), a time since the last update was pushed live or content items or content messages were added to the queue (e.g., 00:05:53), the amount of content items or content messages cleared or reviewed/curated (e.g., an amount for the operator **108** (e.g., **255**, **245**, **2135** etc.), and a total amount (e.g., 12.5k, 172.5k, etc.), and a last updated time stamp and by whom it was updated (e.g., Jan. 12, 2016 (D. Boone)). The operator **108** may also be able to add an operator **108** to a media collection, for example, using a drop down box **259** as shown in example interface **250**.

[0045] The operator **108** may be further provided with a mechanism to view all operators **108** currently working on media collections, as shown in interface **265** of FIG. **2**F. The interface **265** may provide a photograph of the operator **108**, a location of the operator **108** (e.g., west coast, east coast, etc.), a number of media collections the operator **108** is working on, the number of content items or content messages cleared or reviewed/curated for the day, media collections worked on for the day, etc. The operator **108** may view further details for each operator **108** as shown in interface **275** in FIG. **2**G. For example, interface **275** may include various metrics for the operator **108**, such as, average time it takes to clear **100** content items or content messages, average number of flagged (e.g., selected) content items or content messages per **100** content items or content messages, ratio of flagged to approved content items or content messages, average time a flagged content item or content message has been in the queue before it is flagged, average time an approved content item or content message has been in the queue before it is activated, average time it takes for an approved content item or content message to go from flagged to approved, average time between flagging two separate content items or content messages, average length of each updated number of content items or content messages per update, number of media collection seconds per update, etc. The operator **108** may also be able to view metrics specific to a media collection (with similar metrics as described above), as shown in interface **285** of FIG. **2**H.

[0046] The operator **108** may further be provided with a mechanism to create a new media collection (e.g., via a selectable "create story" icon **208** as shown in FIGS. **2**A and **2**B). A user interface **230** such as the one shown in FIG. **2**C may be provided to the operator **108** to create a new media collection. The user interface **230** may allow the operator **108** to input various information related to the new story or media collection. For example, the operator **108** may input a media collection identifier (ID) **231**, username **233**, location or venue **235** (e.g., city, state/country, various locations, etc.), friendlink display text **237** (e.g., "Fashion Week in NYC"), media collection display text **239** (e.g., "Our Fashion Week Story"), a start time and end time **232** (e.g., when the collection fence will open and close). The operator **108** may also be able to input a type of media collection (not shown). Some examples of types of media collections may be worldwide (e.g., appears to every user **106**), public local (e.g., appears to local users **106** and other outputs), private local (e.g., only appears to local users **106**), employee whitelist (e.g., only appears to employees such as an operator **108** or curator for a particular media collection).

[0047] The operator **108** may also be able to upload a thumbnail **234** that may be associated with the media collection and displayed in various media output displays (e.g., apps, websites, etc.). The operator **108** may be able to choose from a selection of predetermined thumbnails or create a new thumbnail. The operator **108** may also select or add filters **236** and/or intro animations to be associated with the media collection. The operator **108** may also include whitelisted users **238** and search for keywords **241** to be associated with the media collection. There may be additional information **242** that may be selected by the operator **108**. For example, if the operator **108** has selected public local or private local for the media collection type, a check box may appear that can be selected to indicate that a collection fence is different from a broadcast fence. If the operator **108** selects this option (e.g., checks this box) then the operator **108** may be prompted to draw more than one geofence. Other additional information **242** may include an option to show the media collection on a website, show the media collection in a search or media forum (e.g., Google Now, Google search, etc.), and show media collections in a browser. If the operator **108** selects to show the media collection in one of these options, the operator **108** may be prompted to input additional information such as a description of the media collection (e.g., text box to input a description of the media collection), color for the media collection, etc.

[0048] The operator **108** may also be able to draw a geofence (e.g., a virtual fence over a geographic area) on a

map to associate a particular location with the media collection. For example, the operator **108** may select a geofence drawing button **244** and then create a polygon **245** to indicate the location to associate with the media collection, as shown in FIG. **2**D. After drawing the polygon **245**, the operator **108** may be able to name and prioritize the geofence and then finalize it. An indication of the geofence **246** may be displayed to the operator **108**. Additional geofences may be created by the operator **108**, if desired. A media collection may have more than one geofence associated with the media collection. A geofence may be deleted by selecting the geofence and indicated it should be deleted (e.g., pressing a particular button). The operator **108** may also move the geofence around on the map to another location, or copy and paste the geofence to another location. A geofence may be used, for example, to determine eligibility of a user **106** to submit a content item or content message for a particular media collection. For example, if a user **106** is determined to be within the geofence for the media collection, the user **106** may be eligible to submit content items or content messages for that media collection.

[0049] After the operator **108** finishes entering information to create the new media collection, the operator **108** may submit the information. For example, the operator **108** may select a submit option **243** and the operator device **130** may send a request to create a new media collection with the information to server system **120**. Server system **120** may receive and evaluate the request and information and create a new media collection and store the associated information in one or more databases **126**. The server system **120** may generate a message indicating a new media collection has been created and send it to one or more operator devices **130**.

[0050] FIG. **3** is a flowchart illustrating aspects of a method **300**, according to some example embodiments. For illustrative purposes, method **300** is described with respect to networked system **100** of FIG. **1**. It is to be understood that method **300** may be practiced with other system configurations in other embodiments.

[0051] At operation **302**, a server system **120** (e.g., at content processing server **124**) may receive a plurality of content messages from a plurality of content sources. The content messages may comprise media content (e.g., photos, video, audio, text, etc.) and may be associated with one or more media collections.

[0052] For example, a plurality of users **106** may send a plurality of content messages related to a particular event (e.g., music concert, sports event, street fair, expo, etc.), a geolocation (e.g., concert venue, sports arena, city, neighborhood, state, etc.), a subject or topic (e.g., popular song, product, weather, etc.), a common user interest (e.g., shared interest in sports, music, clothing, celebrities, products, activities, etc.), etc. The content messages may be created and sent by a plurality of client devices **110**. For example, a user **106** may take a picture, record a video, incorporate text or a media overlay (e.g., filter) with a picture, video, etc., and send the content message to another user **106** or to server system **120** to be associated with one or more predetermined media collections (or to create a new media collection). Content messages may include additional information such as a timestamp indicating the time the content was created or sent, a username, etc. The timestamp may be used to sort the content chronologically or determine any expiration day/time of a content message. The username may be used to identify the users **106**, identify users **106** contributing good content to be flagged as a good contributor, identify users **106** who may be spammers so they can be muted, etc.

[0053] For each of the plurality of content messages received by the server system **120** (e.g., by content processing server **124**), the content processing server **124** may associate the content in the content message with one or more predetermined media collections, as shown in operation **304**. For example, an indication of one or more media collections may be included in the content message, and the content processing server **124** may utilize the indication to associate the content with the one or more media collections. In another example, the content processing server **124** may determine an associated media collection based on the content in the content message (e.g., via text recognition, object recognition, audio foot print, etc.). The content processing server **124** may store the content message associated with the one or more media collections, as shown in operation **306**.

[0054] In operation **308**, the server system **120** may cause the content or content messages to be displayed on an operator device **130**. For example, an operator **108** may use an interface in a web browser or in an application **134**, such as the user interface **400** shown in FIG. **4**A, to review and curate content for one or more media collections. In the example interface **400**, the operator **108** is viewing/curating ten different media collections, as shown in the tool bar **402**. The media collections in example interface **400** are associated with college campuses (e.g., Stanford, Purdue, Duke, Yale, Michigan, Vanderbilt, Berkeley, Oregon, Tufts). At any time, an operator **108** may be viewing or curating one or more media collections. Media collections may be ongoing stories (e.g., ongoing stories associated with a college campus, celebrity, music band, product, activity, etc.) or may be live stories associated with a live event (e.g., concert in progress, game in progress, black Friday, social event, etc.).

[0055] Each media collection may have an identifier associated with the media collection. The identifier (e.g., identifier **404**) may include the name of the media collection, a number of content items or content messages in the queue (e.g., to be reviewed/curated), a local time of the specific story, a time which may indicate a time since the media collection was last updated by an operator **108** or a time of the most recent approved content item or content message, and a status indicator. Media collections may be removed or added to the interface **400** by the operator **108** or server system **120**.

[0056] A status indicator in the identifier of the media collection may include a color, a flashing tab, etc. For example, the identifier of the media collection (e.g., tab **404**) may appear green (e.g., a first indicator) when the media collection does not require immediate attention, red (e.g., a second indicator) when the media collection does require immediate attention, or yellow (e.g., a third indicator) when a media collection is incomplete.

[0057] The server system **120** may set or update an identifier of a media collection based on a trigger. For example, returning to FIG. **3**, the server system **120** (e.g., content processing server **124**) may determine a predetermined trigger has been activated, as shown in operation **310**. The predetermined trigger may be a. predetermined amount of time (e.g., 30 seconds, 1 minute, 15 minutes, 1 hour, 1 day, etc.) that has passed since the content items or content messages associated with the media collection have been viewed on the operator device **130**, a predetermined number

of content items or content messages that have not been viewed on the operator device **130**, a predetermined amount of time that has passed since any content associated with the media collection has been pushed live to be viewed by users **106**, etc. If the content processing server **124** determines that a predetermine trigger has been activated, it will then update an identifier of the media collection from a first indicator to a second indicator, as shown in operation **312**.

[0058] For example, the content processing server **124** may determine that a predetermined amount of time (e.g., 5 minutes, 15 minutes, 1 hour, 1 day) has passed since the content items or content messages associated with the media collection have been viewed on the operator device **130**. The content processing server **124** may change the indicator from green (e.g., a first indicator) to red (e.g., a second indicator) to alert the operator **108** to the fact that the media collection needs immediate attention. This may be particularly important when an operator **108** is curating multiple media collections and for live media collections (e.g., events in progress) where timeliness may be important. For example, a concert may be only two hours long and so an operator **108** may not want to let more than a few minutes pass before updating content in a media collection related to the concert.

[0059] The operator **108** may select the identifier to view content to be reviewed and curated for a particular media collection. For example, the currently selected media collection in example interface **400** is "Purdue" **404**, Once a media collection is selected, information specific to the selected media collection may be displayed. For example, for the selected "Purdue" media collection, information displayed may include the name of the media collection **408**, the current length **410** of the media collection (e.g., the number of content messages or content items in the live or published version of the media collection), the location within the media collection (e.g., a particular geofence within the media collection, or all locations within the media collection), etc. There may be other mechanisms for performing additional functionality, such as a button **401** to turn the media collection on or off (e.g., turning a media collection on may push the selected media collection or story live). Other functionality may include a button **403** to open or close a geofence, a button **405** to preview the media collection in a video player, a button **407** to send the current media collection to a user **106** or list of users, and advanced settings **409** with additional options.

[0060] Example advanced settings may include filters to filter out content items or content messages of certain types by selecting various filters. For example, types that can be filtered out may include videos, photos, approved content items or content messages, flagged content items or content messages, whitelisted content items or content messages, unselected content items or content messages (e.g., not approved, flagged, or whitelisted), etc. Filtering may only effect the current queue.

[0061] The operator **108** may also filter a media col lection by location, if there is more than one location within the media collection, default content item or content message length, how many content items or content messages that will be displayed on a page, how often the number of content items or content messages in the queue are updated, how may content items or content messages the operator **108** can go back when selecting an undo button, all submissions, current media collection only, current plus flagged, unselected, unselected plus whitelisted, etc.

[0062] The interface **400** may further include a mechanism for loading the next content items or content messages in the queue. For example, there may be a button **411** that may be selected by the operator **108** to get the next 100 content items or content messages. FIG. **4**B shows a collapsed view **412** of the information provided for the selected media collection.

[0063] The operator **108** may be able to view a timeline, such as the example timeline **416** shown in FIG. **4**E. The timeline **416** may show the progress of operator **108**, relative to the rest of the media collection. For example, content items or content messages that have been viewed by the operator **108** may be shown in a first color (e.g., blue) **417** or other indication, and content items or content messages that have not yet been viewed may be represented by a second color (e.g., grey) **418** or other indication. Published content items or content messages (or chapters) may also be represented (e.g., by a bar **419**A or **419**B).

[0064] An operator **108** may also have the option of adding an advertisement to the media collection. For example, an operator **108** may be able to select to add an ad via a button **415** as shown in FIG. **4**D). A list of ads may be displayed to the operator **108** (e.g., in a separate window) and the operator **108** may select and drag and drop one or more ads to be included in the media collection. Ads may also appear automatically after chapters are published, when appropriate (e.g., based on an amount of time that has passed in the media collection or since the last ad was displayed in the media collection).

[0065] While viewing the content items or content messages for a media collection, the operator **108** may select individual content items or content messages to show that the individual content items or content messages have been approved for pushing live (e.g., "published" to be viewed by users **106** as part of the media collection), as shown in FIG. **4**C. A visual indication may be displayed when the individual content item or content message is selected or approved (e.g., it may be highlighted, flash on and off, greyed out, etc.). Once the operator **108** selects the content items or content messages to be approved, the operator **108** may indicate that the selected content items or content messages should be applied, for example, by selecting a "apply" button **414**. There may be a number (not shown) that appears next to the apply button **414** that indicates how many approved content items or content messages will be applied. Selecting the apply button **414** will cause the current chapter (e.g., the approved content items or content messages) to be pushed live. For example, the selection of content items or content messages is sent to the server system **120** and it may be received by server system **120** (e.g., content processing server **124**) and included in the selection of content in the media collection and made available to users **106** to view as part of the media collection. Once the approved content items or content messages are applied, the visual indication may change to indicate they have gone live (e.g., the color may change, etc.).

[0066] An operator **108** may view and edit individual content items or content messages. For example, a tool may be provided to stabilize shaky video, strip a media overlay or filter off of a content item or content message (e.g., a media overlay that has inappropriate content, covers a key feature or object in the content item or message, etc.), block

a particular user **106**, report a content item or content message, trip a photograph or video length, etc.

[0067] As mentioned above, server system **120** may receive tens of thousands (or more) of content messages from a plurality of client devices **110** containing media content from a plurality of users **106**. It may be very difficult, if not impossible, for an operator **108** to review and curate so many messages for one or more media collections. Moreover, may media collections may relate to a live event where reviewing, curating, and pushing content items or content messages live for a media collection may need to be done in a very timely manner. Accordingly, the curation tool described above provides a number of mechanisms and filters to allow an operator **108** to quickly and easily view and curate content items or content messages related to one or more media collections.

[0068] The curation tool may further provide a mechanism for an operator **108** to filter out a certain percentage of content items or content messages to automate sonic of the review and curation process so that an operator **108** may be able to efficiently review and curate content items or content messages in a timely manner. FIG. **5** is a flowchart illustrating aspects of a method **500**, according to some example embodiments. For illustrative purposes, method **500** is described with respect to networked system **100** of FIG. **1**. It is to be understood that method **500** may be practiced with other system configurations in other embodiments.

[0069] At operation **502**, the server system **120** (e.g., at content processing server **124**) may receive a plurality of content messages from a plurality of content sources. The content messages may comprise media content (e.g., photos, video, audio, text, etc.) and may be associated with one or more media collections.

[0070] For example, a plurality of users **106** may send a plurality of content messages related to a particular event (e.g., music concert, sports event, street fair, expo, etc.), a geolocation (e.g., concert venue, sports arena, city, neighborhood, state, etc.), a subject or topic (e.g., popular song, product, weather, etc.), a common user interest (e.g., shared interest in sports, music, clothing, celebrities, products, activities, etc.), etc. The content messages may be created and sent by a plurality of client devices **110**. For example, a user **106** may take a picture, record a video, incorporate text or a media overlay (e.g., filter) with a picture, video, etc., and send the content message to another user **106** or to server system **120** to be associated with one or more predetermined media collections (or to create a new media collection). Content messages may include additional information such as a timestamp indicating the time the content was created or sent, a username, etc. The timestamp may be used to sort the content chronologically or determine any expiration day/time of a content message. The username may be used to identify the users **106**, identify users **106** contributing good content to be flagged as a good contributor, identify users **106** who may be spammers so they can be muted, etc.

[0071] For each of the plurality of content messages received by the server system **120** (e.g., by content processing server **124**), the content processing server **124** may analyze each of the plurality of content messages to determine a quality score for each of the plurality of content messages, as shown in operation **504**. The quality score may be determined based on a number of different factors. For example, the content processing server **124** can analyze the media content in the content message to determine the quality of the audio, photographs, videos, text, or other content. If the quality of the media content is low (e.g., lower resolution, shaky video, blurry text, unclear audio, etc.), the content message is given a lower score than for media content with a higher quality.

[0072] Some example factors that may be used to determine a quality score include an explicit content likelihood (e.g., probability that images or videos contain explicit content such as nudity, drug use, profanity, etc.), underexposure (e.g., very dark or completely black images or videos), overexposure (e.g., too bright images or videos), noise level (e.g., images or videos that look to grainy as a result of being taken in low light conditions with a low-end camera), shaky camera (e.g., when camera is too shaky when taking a video), blurry media content (e.g., images and video that look too blurry), low quality compression (e.g., removes content messages with excessive compression artifacts), audio quality, areas within an event (e.g., if too many content messages showing a particular area in an sports arena or a particular play in a game, may be scored lower), content messages that are all black and white, etc.

[0073] A combination of different factors may result into a single quality score. For example, quality score may range from 0 to 1, with 0 being the lowest quality and 1 being the highest quality. A content message of lower quality may be scored with a 0 or 0.1. A content message of higher quality may be scored a 0.9 or 1. The factors may be combined into a single quality score using heuristics and/or using machine language based on operator **108** behavior. The content processing server **124** may optionally sort all of the content messages for a media collection by quality score.

[0074] A quality score, in some embodiments, is based on a detailed exposure analysis of an image or a sample of frames in a video clip. For example, a histogram of luminance may be calculated, and a quality may be assigned to the image or video based on a correlation of the histogram with a quality score. Such a correlation may be based on a table or function associating certain histogram patterns with selected quality scores, or may be generated in any other such manner. For video where multiple sample frames are analyzed, an average of scores for each frame may be used to select a score, a worst score for an individual frame of all the analyzed frames may be used, or any such combination or function of multiple scores or selections of scores may be used.

[0075] In some embodiments, a motion-blur estimation of an image or of selected video clips is used as a part of the quality score. Such motion blur estimation may, for example, be based on a calculation of energy gradients on detected edges, or other such motion estimations. For video clips, identifying video frames with motion blur above a threshold amount may trigger analysis of additional sample frames to determine how much of the video is impacted by motion blur, or to identify when a shakiness of a camera sensor impacts an entire video. In certain embodiments, a system may use a threshold for video motion or "shakiness" to filter out videos with camera motion or shake above the threshold. In other embodiments, a shakiness or motion score may simply modify an overall quality score. In other embodiments, both a hard threshold as well as an input to an overall quality score may be used.

[0076] In some embodiments, images or sample video frames may be analyzed for compression artifacts or other image processing artifacts that indicate a lower image qual-

ity or errors introduced into an image due to various compression or communication problems. Such artifacts may include image ringing, image contouring, staircase noise along curving edges, posterizing artifacts, or block boundary artifacts. Videos may be analyzed for additional video based compression artifacts such as block boundary artifacts associated with motion compensation or mosquito noise that may be identified by analysis of selected frames of a video. The presence of such compression artifacts and the intensity of any identified compression artifacts may be used to modify or select a quality score for an image or video clip. In addition to such information loss associated with compression or lossy transmission, images and video frames may also be analyzed for other types of noise. For example, variance in smooth or uniform regions of an image may be analyzed for noise artifacts, such as noise associated with a low quality or malfunctioning camera sensor, low quality or dirty optics of a camera, or any other such source of noise that may lower, corrupt, or modify the data in the image.

[0077] Audio data is also used for quality scoring of video clips in some embodiments. In such embodiments, various audio metrics such as dynamic range, noise levels, language clarity or language recognition data, or any other such audio based information may be used to select an audio quality score or to impact an overall quality score. Different audio data metrics, in some embodiments, are used based on a determined audio environment. For example, a video clip with speech may be assessed differently than a clip with music, or video clips with different types of music may be assessed differently. Additionally, audio spotting to identify objectionable audio content (e.g. taboo spoken language or explicit music lyrics) can be used for a quality score or a quality threshold flag in some embodiments.

[0078] In addition to quality scores based on image quality, some scores may be based on image content. For example, as mentioned above, image processing may be used to identify objectionable content such as nudity or taboo language within an image or video clip. In some embodiments, a preferred orientation (e.g. landscape or portrait) may be used for quality scoring. Some systems may additionally use image recognition to identify desirable content. For example, in some systems, images of animals or images of objects associated with a party environment are identified as desirable. The presence of such images within video frames or pictures may be used to increase an overall quality score, or to generate a content score.

[0079] Feedback or machine learning is used in certain embodiments to select or set a quality score. Such systems may use neural networks to extract features identified as preferred or interesting to system users. For example, in some embodiments, images selected by system users for inclusion in one or more stories may be selected for a learning set. Some or all images and video frames from the learning set may have features extracted and analyzed using a feed-forward artificial neural network such as a convolutional neural network to identify desirable elements of the images, and to automatically assign an interestingness score to future images received based on the neural network generated with the learning set. Feature maps used within such neural networks may be based on any analysis metric described herein, including image quality features and image content features. In some embodiments, learnable filters may be selected and automatically updated based in a database of images from image processing services used for content analysis of images or video frames. In other embodiments, any other such sources may be used for learnable filters. Such analysis may be applied to both image elements of content as well as to audio elements of videos.

[0080] Other feedback mechanisms may be used in various embodiments. For example, in some embodiments, a content source, user, or account associated with generating an image or video clip may have associated history data. In some embodiments, association of a content source with a history of content selected by system users or associated with high quality ratings may be used as an input to a quality score, or may be used as a quality flag. Various content source metrics such as the quality history, number of images sent, number of system followers or interconnections, or other such metrics may be used.

[0081] In some embodiments, multiple different quality scores may be associated with each individual piece of media content, so that an image may have an exposure quality score, a noise quality score, a motion quality score, a compression quality score, a resolution quality scores, an audio quality score, a content score, or any other such separate quality scores. In such embodiments, an overall quality score based on any combination of such individual quality scores may also be provided. Further, as mentioned above, some or all of such quality scores may individually be used to reject certain pieces of media content automatically, with only the images or videos that exceed all thresholds being presented to a system user. Such a system may have any number of thresholds based on separate quality scores or multiple different combinations of different quality scores. In some embodiments, such thresholds may be variable to present a target number of images and/or videos to a system user. Similarly, different types of images or video clips may be assessed differently, such that weights may be applied to different images differently based on content, location, time, proximity in location or time to a holiday or news event, overall environment, or other such information. The metrics and weights for any of the above, in some embodiments, are applied differently to a selfie taken inside than to concert footage taken outdoors at night.

[0082] In operation **506**, the content processing server **124** may store the plurality of content messages, along with the quality score for each of the plurality of content messages, in one or more databases **126**. The quality score may be stored as metadata associated with the content message. The content processing server **124** may optionally sort all of the content messages by quality score.

[0083] In operation **508**, the content processing server **124** may receive, from an operator device **130**, a threshold percentage for a media collection. For example, the operator **108** may be provided with an interface, such as the interface **600** shown in FIG. **6**, to provide a threshold percentage **605** by which to filter the content in the media collection. For example, the operator **108** may only want to receive the top quality content messages (e.g., due to a large volume of content messages in the queue/media collection). The operator **108** may enter a percent (e.g., 50%) and submit the threshold percentage to the content processing server **124** (e.g., via the "APPLY" button **607**).

[0084] In operation **510**, the content processing server **124** may determine a subset of the plurality of content messages associated with the media collection to be made available to the operator **108** (e.g., via an operator device **130**) based on the threshold percent received by the operator device **130**

and the quality score for each of the plurality of messages. For example, the content processing server **124** may determine the top 50% of the content messages in the media collection based on the quality score for each of the plurality of messages (e.g., the top 50% of highest scoring content messages).

[0085] In operation **512**, the content processing server **124** may cause only the subset of the plurality of content messages associated with the media collection to be displayed on the operator device **130** for the media collection. For example, if the content processing system **124** has received 10,000 content messages, and the threshold was set to 30%, the content processing system **124** may only cause 3000 content messages to be displayed on the operator device **130**.

[0086] Since the content processing server **124** may be continuously receiving a plurality of content messages, the content processing server **124** may re-compute the subset of plurality of content messages for a media collection periodically. For example, after causing the initial subset of content messages to be displayed on the operator device **130**, the content processing server **124** may determine a subset of newly received content processing messages (e.g., since the last subset was determined) after a predetermined number of content messages have been received (e.g., 100, 1000, etc.) or after a predetermined amount of time (e.g., 30 seconds, 10 minutes, 30 minutes, 1 hour, etc.). Moreover, the operator **108** may change the threshold value from first value (e.g., 50%) to a second value (e.g., 30%). The content processing server **124** may receive the new threshold value and use the new threshold value to determine the subset of the plurality of content messages received going forward. In addition, or in the alternative, the content processing server **124** may also adjust the value of a subset that was already made available to the operator device **130** (e.g., may cause more content messages to be displayed on the operator device **130** if the operator **108** increased the threshold percentage value).

[0087] Input from an operator **108** may be used to improve the quality score algorithm. For example, an operator **108** may be able to mark or otherwise indicate when a content message is low-quality. The server system **120** may also track each time an operator **108** flags or accepts a content message, or indicates a content message is related to a particular breaking news story, etc. For example, the content processing server **124** may analyze content messages that were accepted by operators **108** and content messages that were not accepted by operators **108**, and use this data to create a model to determine a probability that an operator **108** would accept a particular content message. This factor (e.g., probability of operator acceptance) may be used as a factor in computing the quality score for the content message.

[0088] In another example embodiment, a client application **114** may be provided that includes a media collection creation and creation tool for an end user **106**. The tool may allow the user **106** to create new media collections, view a list of media collections, view a plurality of content items or content messages associated with a predetermined media collection, select and/or curate content into media collections for immediate, ongoing, or periodic posting, etc. The plurality of media content may have been received by server system **120** in a plurality of content messages from a plurality of users **106** (e.g., via client devices **110**). For example, a user **106** may wish to create a new media collection associated with a personal event, such as a wedding reception, child's birthday party, family vacation, etc. The user **106** may use a client device **110** to establish an account, create new media collections (e.g., one for his wedding reception, one for his niece's birthday party, one for an upcoming family vacation, etc.), view existing media collections, to view content messages (e.g., from friends and family) associated with media collections, and to select and/or curate content messages to be included in one or more media collections.

[0089] A user **106** may first provide identifying information to establish an account to create new media collections, view existing media collections, to view content messages associated with media collections, and to select and/or curate content messages to be included in one or more media collections. For example, the client device **110** may cause an interface to be displayed on the client device **110**, such as the interface **700** shown in in FIG. **7**A. Some examples of identifying information **702** may include the user **106**'s name, a username, a mobile phone number, email. Other identifying information **702** may include a home address, a work address, an alternate email address, an alternate phone number, etc. In some example embodiments, the interface **700** may also allow the user **106** to set notification sounds on or off **704**, manage additional services **706**, specify who can send the user **106** content messages **708**, view his own one or more media collections **710**, and get help or support **712**.

[0090] The user **106** may then submit the identifying information **702** (and any other information) to establish his account. The client device **110** may receive the identifying information **702** from the user **106** and send the identifying information **702** to server system **120** to establish an account. The server system **120** may receive the identifying information **702** and authenticate the identifying information **702** (e.g., confirm that there are no existing accounts with the same information, make sure the information is legitimate, etc.). Once the server system **120** has confirmed that the account may be established, the server system **120** may create a new account and store the identifying information **702** associated with the account in one or more databases **126**. The server system **120** may send a notification to the client device **110** that the account has been established. The client device **110** may display a message to the user **106** that the account was established.

[0091] The application **114** on the client device **110** may provide a mechanism for the user **106** to manage various aspects of his account. For example, the client device **110** may display an interface **715** as shown in FIG. **7**B. The user **106** may he able to manage filters **717** (e.g., media overlays), manage camera settings for capturing images such as front-facing flash **719**, and other features, such as, replay **721**, special text **723**, power save mode **725**, number of best friends **729**, etc.

[0092] The interface **715** may further allow the user **106** to create a new personal media collection **727**. The user **106** may select an option to create a new personal media collection (e.g., press or swipe menu item **727**). The client device **110** may detect that the user **106** has selected to create a new personal media collection and request or allow a user **106** to enter various parameters associated with the media collection.

[0093] One parameter may be a name for the personal media collection. For example, the client device **110** may

display an interface such as interface **730** as shown in FIG. **7**C, to request a name for the media collection **732**.

[0094] The user **106** may be able to enter additional parameters for the media collection, as shown in FIG. **7**D. For example, the client device **110** may display an interface such as interface **740** to request additional parameters from the user **106** and allow the user **106** to enter the additional information associated with the example media collection **742** titled "Anchor Splash 2K15." An additional parameter may include choosing a thumbnail **744** to associate with the media collection (e.g., a custom thumbnail created by the user **106**, or a default composite of images in the media collection, etc.).

[0095] Another parameter may include setting a boundary or geofence to indicate the area in which users must be located to submit content messages for a media collection or where users must be located to view a media collection. The application **114** may include a predetermined maximum geofence or boundary size. If the user **106** would like to increase the maximum boundary size, the user **106** may need to pay an additional fee to do so, as shown in interface **750** in FIG. **7**E. In one example embodiment, the user **106** may set the geofence and expand or decrease the size of the geofence radius via an interface such as the one shown in the interface **760** in FIGS. **7**F, **7**G, and **7**H. For example, the user **106** may resize the area **762** from smaller (e.g., **7**F) to larger (e.g., **7**G, **7**H) and vice versa.

[0096] Returning to FIG. **7**D, another parameter may be the length of the life of the media collection (e.g., the duration of the event, 6 hours, 24 hours, 1 day, 1 week, etc.). There may be an option presented to the user **106** to increase the length **748** of the life of the media collection from a predetermined amount of time (e.g., 6 hours, duration of the event, etc.). In one example embodiment, the user **106** may need to pay an additional fee if he wishes to increase the length of the story to a length longer than the predetermined amount of time.

[0097] The user **106** may also be able to specify one or more audience members for the media collection. An audience member may be a user **106** who has permission to view the media collection. The user **106** may also be able to specify a max audience size **749** for which to share the media collection. In one example embodiment, there may be a predetermined maximum size, and the user **106** may need to pay an additional fee to increase the audience size to greater than the predetermined maximum size. The audience may be either a user **106** located in a geofence associated with the media collection, or a user **106** in the public who follows the media collection. For example, the user **106** may specify whether the media collection is public or private, If the user **106** specifies that the media collection is public, then anyone may view the media collection. If the user **106** specified that the media collection is private, then the audience is limited to a group or to users **106** within a specific geofence.

[0098] The user **106** may also be able to specify one or more contributors. A contributor may be a user **106** who has permission to post or submit content items or content messages to be included in the media collection. In one example embodiment, a contributor may need to be within the geofence associate with the media collection to post or submit content items or content messages to be included in the media collection. For example, a user **106** may only be given an option to send content messages to be included in the media collection if the user **106** is within the geofence for the media collection.

[0099] Once the user **106** enters the parameters of the media collection, he may submit the information to activate the media collection (e.g., via "Activate Media Collection" button **741**) or may save the information (e.g., via "Save" button **743**).

[0100] FIG. **8** is a flowchart illustrating aspects of a method **800**, according to some example embodiments. For illustrative purposes, method **800** is described with respect to networked system **100** of FIG. **1**. It is to be understood that method **800** may be practiced with other system configurations in other embodiments.

[0101] In operation **802** the client device **110** (e.g., a first computing device) may receive a request from a user **106** to activate a new media collection. The request may include one or more parameters, as described above. For example, the request may include a name for the media collection, a geofence associated with the media collection, one or more contributors, one or more audience members, a max audience size, a thumbnail, a length of the life of the media collection, etc.

[0102] In operation **804** the client device **110** may send the request to a server computer (e.g., at server system **120**) for activation of the new media collection. The server computer may receive and evaluate the request and information and create a new media collection and store the associated information in one or more databases **126**. The server computer may generate a message (e.g., confirmation) indicating that a new media collection has been created and send it to the client device **110**. The client device **110** may receive, from the server computer, the confirmation that the new media collection was activated, as shown in operation **806**.

[0103] The server computer may receive a plurality of content messages from a plurality of content sources (e.g., users **106** via client devices **110**). The content messages may comprise media content (e.g., images, video, audio, etc.) and may be associated with one or more media collections, as explained above. For each of the plurality of content messages received by the server system **120** (e.g., by content processing server **124**), the content processing server **124** may associate the content in the content message with one or more predetermined media collections, as also explained above. The content processing server **124** may store the content message associated with the one or more media collections, and/or may forward the content message associated to the appropriate client device **110**.

[0104] The client device **110** may receive a plurality of content messages associated with the new media collection, as shown in operation **808**. The plurality of content messages may be received from a plurality of users **106**, as explained above. The client device **110** may display the plurality of content messages to the user **106** and the user **106** may be able to select one or more of the content messages to be included in the media collection. For example, the user **106** may select a subset or all of the content messages. In operation **810**, the client device **110** may receive, from the user **106**, a selection of the plurality of content messages to be included in the new media collection.

[0105] In operation **812**, the client device **110** may send, to the server computer, and indication of the selection of the content messages to be included in the new media collection.

The server computer may store the selection for the media collection and cause the selection of content messages to be included in the new media collection and displayed in response to a request from at least a second client device **110** (e.g., a second computing device) to view the media collection. For example, an audience member (e.g., the user **106** or another user **106**) may view the media collection (e.g., the selection of plurality of content messages) on his client device **110**. For example, the audience member may be within the geofence for the media collection or may enter a unique identifier (e.g., a username) or scan a code (e.g., QR code, barcode, etc.) to follow/view the media collection. In another example, the server computer may cause the new media collection to be displayed in response to the request from at least a second computing device after the server determines that a second user associated with the second computing device is part of a predefined audience.

[0106] FIG. **9** is a block diagram **900** illustrating architecture of software **902**, which can be installed on any one or more of the devices described above. For example, in various embodiments, client device(s) **110**, operator device (s) **130**, server system **120**, and web server **122**, and content processing server **124**, may be implemented using some or all of the elements of software architecture **902**. FIG. **9** is merely a non-limiting example of a software architecture, and it will be appreciated that many other architectures can be implemented to facilitate the functionality described herein. In various embodiments, the software architecture **902** is implemented by hardware such as machine **1000** of FIG. **10** that includes processors **1010**, memory **1030**, and I/O components **1050**. In this example architecture, the software architecture **902** can be conceptualized as a stack of layers where each layer may provide a particular functionality. For example, the software architecture **902** includes layers such as an operating system **904**, libraries **906**, frameworks **908**, and applications **910**. Operationally, the applications **910** invoke application programming interface (API) calls **912** through the software stack and receive messages **914** in response to the API calls **912**, consistent with some embodiments.

[0107] In various implementations, the operating system **904** manages hardware resources and provides common services. The operating system **904** includes, for example, a kernel **920**, services **922**, and drivers **924**. The kernel **920** acts as an abstraction layer between the hardware and the other software layers, consistent with some embodiments. For example, the kernel **920** provides memory management, processor management (e.g., scheduling), component management, networking, and security settings, among other functionality. The services **922** can provide other common services for the other software layers. The drivers **924** are responsible for controlling or interfacing with the underlying hardware, according to some embodiments. For instance, the drivers **924** can include display drivers, camera drivers, BLUETOOTH® or BLUETOOTH® Low Energy drivers, flash memory drivers, serial communication drivers (e.g., Universal Serial Bus (USB) drivers), WI-FI® drivers, audio drivers, power management drivers, and so forth.

[0108] In some embodiments, the libraries **906** provide a low-level common infrastructure utilized by the applications **910**. The libraries **906** can include system libraries **930** (e.g., C standard library) that can provide functions such as memory allocation functions, string manipulation functions, mathematic functions, and the like. In addition, the libraries **906** can include API libraries **932** such as media libraries (e.g., libraries to support presentation and manipulation of various media formats such as Moving Picture Experts Group-4 (MPEG4), Advanced Video Coding (H.264 or AVC), Moving Picture Experts Group Layer-3 (MP3), Advanced Audio Coding (AAC), Adaptive Multi-Rate (AMR) audio codec, Joint Photographic Experts Group (JPEG or JPG), or Portable Network Graphics (PNG)), graphics libraries (e.g., an OpenGL framework used to render in two dimensions (2D) and three dimensions (3D) in a graphic content on a display), database libraries (e.g., SQLite to provide various relational database functions), web libraries (e.g., WebKit to provide web browsing functionality), and the like. The libraries **906** can also include a wide variety of other libraries **934** to provide many other APIs to the applications **910**.

[0109] The frameworks **908** provide a high-level common infrastructure that can be utilized by the applications **910**, according to some embodiments. For example, the frameworks **908** provide various graphic user interface (GUI) functions, high-level resource management, high-level location services, and so forth. The frameworks **908** can provide a broad spectrum of other APIs that can be utilized by the applications **910**, some of which may be specific to a particular operating system **904** or platform.

[0110] In an example embodiment, the applications **910** include a home application **950**, a contacts application **952**, a browser application **954**, a book reader application **956**, a location application **958**, a media application **960**, a messaging application **962**, a game application **964**, and a broad assortment of other applications such as a third party application **966**. According to some embodiments, the applications **910** are programs that execute functions defined in the programs. Various programming languages can be employed to create one or more of the applications **910**, structured in a variety of manners, such as object-oriented programming languages (e.g., Objective-C, Java, or C++) or procedural programming languages (e.g., C or assembly language). In a specific example, the third party application **966** (e.g., an application **910** developed using the ANDROID™ or IOS™ software development kit (SDK) by an entity other than the vendor of the particular platform) may be mobile software running on a mobile operating system such as IOS™, ANDROID™, WINDOWS® Phone, or another mobile operating system. In this example, the third party application **966** can invoke the API calls **912** provided by the operating system **904** to facilitate functionality described herein.

[0111] Some embodiments may particularly include a curation application **967**. In certain embodiments, this may be a stand-alone application that operates to manage communications with a server system such as server system **120**. In other embodiments, this functionality may he integrated with another application such as a media application **960** or another such application. Curation application **967** may manage collection of content using a camera device of machine **1000**, communication with a server system via I/O components **1050**, and receipt and storage of received media collections in memory **1030**. Presentation of content and user inputs associated with content may be managed by curation application **967** using different frameworks **908**, library **906** elements, or operating system **904** elements operating on a machine **1000**.

[0112] FIG. **10** is a block diagram illustrating components of a machine **1000**, according to some embodiments, able to

read instructions from a machine-readable medium (e.g., a machine-readable storage medium) and perform any one or more of the methodologies discussed herein, Specifically, FIG. **10** shows a diagrammatic representation of the machine **1000** in the example form of a computer system, within which instructions **1016** (e.g., software, a program, an application **910**, an applet, an app, or other executable code) for causing the machine **1000** to perform any one or more of the methodologies discussed herein can be executed. In alternative embodiments, the machine **1000** operates as a standalone device or can be coupled (e.g., networked) to other machines. In a networked deployment, the machine **1000** may operate in the capacity of a server machine **122**, **124** or a client **110**, **130** in a server-client network environment, or as a peer machine in a peer-to-peer or distributed) network environment. The machine **1000** can comprise, but not be limited to, a server computer, a client computer, a personal computer (PC), a tablet computer, a laptop computer, a netbook, a set-top box (STB), a personal digital assistant (PDA), an entertainment media system, a cellular telephone, a smart phone, a mobile device, a wearable device (e.g., a smart watch), a smart home device (e.g., a smart appliance), other smart devices, a web appliance, a network router, a network switch, a network bridge, or any machine capable of executing the instructions **1016**, sequentially or otherwise, that specify actions to be taken by the machine **1000**. Further, while only a single machine **1000** is illustrated, the term "machine" shall also be taken to include a collection of machines **1000** that individually or jointly execute the instructions **1016** to perform any one or more of the methodologies discussed herein.

[0113] In various embodiments, the machine **1000** comprises processors **1010**, memory **1030**, and I/O components **1050**, which can be configured to communicate with each other via a bus **1002**. In an example embodiment, the processors **1010** (e.g., a central processing unit (CPU), a reduced instruction set computing (RISC) processor, a complex instruction set computing (CISC) processor, a graphics processing unit (GPU), a digital signal processor (DSP), an application specific integrated circuit (ASIC), a radio-frequency integrated circuit (MC), another processor, or any suitable combination thereof) include, for example, a processor **1012** and a processor **1014** that may execute the instructions **1016**. The term "processor" is intended to include multi-core processors **1010** that may comprise two or more independent processors **1012**, **1014** (also referred to as "cores") that can execute instructions **1016** contemporaneously. Although FIG. **10** shows multiple processors **1010**, the machine **1000** may include a single processor **1010** with a single core, a single processor **1010** with multiple cores (e.g., a multi-core processor **1010**), multiple processors **1012**, **1014** with a single core, multiple processors **1010**, **1012** with multiples cores, or any combination thereof.

[0114] The memory **1030** comprises a main memory **1032**, a static memory **1034**, and a storage unit **1036** accessible to the processors **1010** via the bus **1002**, according to some embodiments. The storage unit **1036** can include a machine-readable medium **1038** on which are stored the instructions **1016** embodying any one or more of the methodologies or functions described herein. The instructions **1016** can also reside, completely or at least partially, within the main memory **1032**, within the static memory **1034**. within at least one of the processors **1010** (e.g., within the processor's cache memory), or any suitable combination thereof, during execution thereof by the machine **1000**. Accordingly, in various embodiments, the main memory **1032**, the static memory **1034**, and the processors **1010** are considered machine-readable media **1038**.

[0115] As used herein, the term "memory" refers to a machine-readable medium **1038** able to store data temporarily or permanently and may be taken to include, but not be limited to, random-access memory (RAM), read-only memory (ROM), buffer memory, flash memory, and cache memory. While the machine-readable medium **1038** is shown, in an example embodiment, to be a single medium, the term "machine-readable medium" should be taken to include a single medium or multiple media (e.g., a centralized or distributed database, or associated caches and servers) able to store the instructions **1016**. The term "machine-readable medium" shall also be taken to include any medium, or combination of multiple media, that is capable of storing instructions (e.g., instructions **1016**) for execution by a machine (e.g., machine **1000**), such that the instructions **1016**, when executed by one or more processors of the machine **1000** (e.g., processors **1010**), cause the machine **1000** to perform any one or more of the methodologies described herein. Accordingly, a "machine-readable medium" refers to a single storage apparatus or device, as well as "cloud-based" storage systems or storage networks that include multiple storage apparatus or devices. The term "machine-readable medium" shall accordingly be taken to include, but not be limited to, one or more data repositories in the form of a solid-state memory (e.g., flash memory), an optical medium, a magnetic medium, other non-volatile memory (e.g., erasable programmable read-only memory (EPROM)), or any suitable combination thereof. The term "machine-readable medium" specifically excludes non-statutory signals per se.

[0116] The I/O components **1050** include a wide variety of components to receive input, provide output, produce output, transmit information, exchange information, capture measurements, and so on. In general, it will be appreciated that the I/O components **1050** can include many other components that are not shown in FIG. **10**. The I/O components **1050** are grouped according to functionality merely for simplifying the following discussion, and the grouping is in no way limiting. In various example embodiments, the I/O components **1050** include output components **1052** and input components **1054**. The output components **1052** include visual components (e.g., a display such as a plasma display panel (PDP), a light emitting diode (LED) display, a liquid crystal display (LCD), a projector, or a cathode ray tube (CRT)), acoustic components (e.g., speakers), haptic components (e.g., a vibratory motor), other signal generators, and so forth. The input components **1054** include alphanumeric input components (e.g., a keyboard, a touch screen configured to receive alphanumeric input, a photo-optical keyboard, or other alphanumeric input components), point-based input components (e.g., a mouse, a touchpad, a trackball, a joystick, a motion sensor, or other pointing instruments), tactile input components (e.g., a physical button, a touch screen that provides location and force of touches or touch gestures, or other tactile input components), audio input components (e.g., a microphone), and the like.

[0117] In some further example embodiments, the I/O components **1050** include biometric components **1056**, motion components **1058**, environmental components **1060**,

or position components **1062**, among a wide array of other components. For example, the biometric components **1056** include components to detect expressions (e.g., hand expressions, facial expressions, vocal expressions, body gestures, or eye tracking), measure biosignals (e.g., blood pressure, heart rate, body temperature, perspiration, or brain waves), identify a person (e.g., voice identification, retinal identification, facial identification, fingerprint identification, or electroencephalogram based identification), and the like. The motion components **1058** include acceleration sensor components (e.g., accelerometer), gravitation sensor components, rotation sensor components (e.g., gyroscope), and so forth. The environmental components **1060** include, for example, illumination sensor components (e.g., photometer), temperature sensor components (e.g., one or more thermometers that detect ambient temperature), humidity sensor components, pressure sensor components (e.g., barometer), acoustic sensor components (e.g., one or more microphones that detect background noise), proximity sensor components infrared sensors that detect nearby objects), gas sensor components (e.g., machine olfaction detection sensors, gas detection sensors to detect concentrations of hazardous gases for safety or to measure pollutants in the atmosphere), or other components that may provide indications, measurements, or signals corresponding to a surrounding physical environment. The position components **1062** include location sensor components (e.g., a Global Positioning System (GPS) receiver component), altitude sensor components (e.g., altimeters or barometers that detect air pressure from which altitude may be derived), orientation sensor components (e.g., magnetometers), and the like.

[0118] Communication can be implemented using a wide variety of technologies. The I/O components **1050** may include communication components **1064** operable to couple the machine **1000** to a network **1080** or devices **1070** via a coupling **1082** and a coupling **1072**, respectively. For example, the communication components **1064** include a network interface component or another suitable device to interface with the network **1080**. In further examples, communication components **1064** include wired communication components, wireless communication components, cellular communication components, near field communication (NFC) components, BLUETOOTH® components (e.g., BLUETOOTH® Energy), WI-FI® components, and other communication components to provide communication via other modalities. The devices **1070** may be another machine **1000** or any of a wide variety of peripheral devices (e.g., a peripheral device coupled via a Universal Serial Bus (USB)).

[0119] Moreover, in some embodiments, the communication components **1064** detect identifiers or include components operable to detect identifiers. For example, the communication components **1064** include radio frequency identification (RFID) tag reader components, NFC smart tag detection components, optical reader components (e.g., an optical sensor to detect a one-dimensional bar codes such as a Universal Product Code (UPC) bar code, multi-dimensional bar codes such as a Quick Response (QR) code, Aztec Code, Data Matrix, Dataglyph, MaxiCode, PDF417, Ultra Code, Uniform Commercial Code Reduced Space Symbology (UCC RSS)-2D bar codes, and other optical codes), acoustic detection components (e.g., microphones to identify tagged audio signals), or any suitable combination thereof. In addition, a variety of information can be derived via the communication components **1064**, such as location via Internet Protocol (IP) geo-location, location via WI-FIR signal triangulation, location via detecting a BLUETOOTH® or NFC beacon signal that may indicate a particular location, and so forth.

[0120] In various example embodiments, one or more portions of the network **1080** can be an ad hoc network, an intranet, an extranet, a virtual private network (VPN), a local area network (LAN), a wireless LAN (WLAN), a wide area network (WAN), a wireless WAN (WWAN), a metropolitan area network (MAN), the Internet, a portion of the Internet, a portion of the public switched telephone network (PSTN), a plain old telephone service (POTS) network, a cellular telephone network, a wireless network, a WI-FI® network, another type of network, or a combination of two or more such networks. For example, the network **1080** or a portion of the network **1080** may include a wireless or cellular network, and the coupling **1080** may be a Code Division Multiple Access (CDMA) connection, a Global System for Mobile communications (GSM) connection, or another type of cellular or wireless coupling. In this example, the coupling **1082** can implement any of a variety of types of data transfer technology, such as Single Carrier Radio Transmission Technology (1xRTT), Evolution-Data Optimized (EVDO) technology, General Packet Radio Service (GPRS) technology, Enhanced Data rates for GSM Evolution (EDGE) technology, third Generation Partnership Project (3GPP) including 3G, fourth generation wireless (4G) networks, Universal Mobile Telecommunications System (UMTS), High Speed Packet Access (HSPA), Worldwide Interoperability for Microwave Access (WiMAX), Long Term Evolution (LTE) standard, others defined by various standard-setting organizations, other long range protocols, or other data transfer technology.

[0121] In example embodiments, the instructions **1016** are transmitted or received over the network **1080** using a transmission medium via a network interface device (e.g., a network interface component included in the communication components **1064**) and utilizing any one of a number of well-known transfer protocols (e.g., Hypertext Transfer Protocol (HTTP)). Similarly, in other example embodiments, the instructions **1016** are transmitted or received using a transmission medium via the coupling **1072** (e.g., a peer-to-peer coupling) to the devices **1070**. The term "transmission medium" shall be taken to include any intangible medium that is capable of storing, encoding, or carrying the instructions **1016** for execution by the machine **1000**, and includes digital or analog communications signals or other intangible media to facilitate communication of such software.

[0122] Furthermore, the machine-readable medium **1038** is non-transitory (in other words, not having any transitory signals) in that it does not embody a propagating signal. However, labeling the machine-readable medium **1038** "non-transitory" should not be construed to mean that the medium is incapable of movement; the medium **1038** should be considered as being transportable from one physical location to another. Additionally, since the machine-readable medium **1038** is tangible, the medium **1038** may be considered to be a machine-readable device.

[0123] Throughout this specification, plural instances may implement components, operations, or structures described as a single instance. Although individual operations of one or more methods are illustrated and described as separate

operations, one or more of the individual operations may be performed concurrently, and nothing requires that the operations be performed in the order illustrated. Structures and functionality presented as separate components in example configurations may be implemented as a combined structure or component. Similarly, structures and functionality presented as a single component may be implemented as separate components. These and other variations, modifications, additions, and improvements fall within the scope of the subject matter herein.

[0124] Although an overview of the inventive subject matter has been described with reference to specific example embodiments, various modifications and changes may be made to these embodiments without departing from the broader scope of embodiments of the present disclosure. Such embodiments of the inventive subject matter may be referred to herein, individually or collectively, by the term "invention" merely for convenience and without intending to voluntarily limit the scope of this application to any single disclosure or inventive concept if more than one is, in fact, disclosed.

[0125] The embodiments illustrated herein are described in sufficient detail to enable those skilled in the art to practice the teachings disclosed. Other embodiments may be used and derived therefrom, such that structural and logical substitutions and changes may be made without departing from the scope of this disclosure. The Detailed Description, therefore, is not to be taken in a limiting sense, and the scope of various embodiments is defined only by the appended claims, along with the full range of equivalents to which such claims are entitled.

[0126] As used herein, the term "or" may be construed in either an inclusive or exclusive sense. Moreover, plural instances may be provided for resources, operations, or structures described herein as a single instance. Additionally, boundaries between various resources, operations, modules, engines, and data stores are somewhat arbitrary, and particular operations are illustrated in a context of specific illustrative configurations. Other allocations of functionality are envisioned and may fall within a scope of various embodiments of the present disclosure. In general, structures and functionality presented as separate resources in the example configurations may be implemented as a combined structure or resource. Similarly, structures and functionality presented as a single resource may be implemented as separate resources. These and other variations, modifications, additions, and improvements fall within a scope of embodiments of the present disclosure as represented by the appended claims. The specification and drawings are, accordingly, to be regarded in an illustrative rather than a restrictive sense.

What is claimed is:

1. A method comprising:

determining, by a server computer, that a predetermined amount of time has passed since any content messages received from a plurality of content sources and associated with a predetermined media collection have been pushed live to be viewed by one or more users;

updating, by the server computer, an identifier of the predetermined media collection from a first indicator to a second indicator indicating an action to be taken on the predetermined media collection to curate the media collection before presentation to one or more users;

providing, by the server computer, a media collection list assigned to a first curator to be displayed on a curator device, the media collection list comprising a plurality of media collections that includes the predetermined media collection, the media collection further comprising, for each media collection in the media collection list, a corresponding curator list indicating one or more curators assigned to each media collection; and

causing a timeline to be displayed on the curator device showing a curation progress of each of a plurality of curators that are curating the content messages in the predetermined media collection before presentation to one or more users, the curation progress indicating an assigned portion of content messages that are assigned to each curator, how many content messages of the assigned portion have been viewed by each curator, how many content messages of the assigned portion of content messages have not been viewed by each curator, and an indication, corresponding to each curator, of published content messages in the predetermined media col lection that have been pushed live to be viewed by one or more users.

2. The method of claim **1**, wherein the predetermined media collection is associated with a geolocation, event, topic, or common user interest.

3. The method of claim **1**, wherein the predetermined media collection comprises media content from a plurality of individual users.

4. The method of claim **1**, wherein the identifier of the first media collection includes at least one of a group comprising: a subject for the media collection, a number of content messages pending review for the media collection, a time the media collection was last viewed by a curator, a color associated with the first indication, and a color associated with the second indication.

5. The method of claim **1**, further comprising:

receiving, from the curator device, a selection of a subset of the content messages for the predetermined media collection to be included in the predetermined media collection that will he available to he viewed by one or more users; and

including the selection of the subset of the content messages in the predetermined media collection, wherein the content messages not in the selection of the subset of the content messages are not available to be viewed by one or more users; and

updating the identifier of the predetermined media collection from the second indicator to the first indicator indicating that the predetermined media collection does not require immediate attention, based on the selection of the subset of the content messages for the predetermined media collection received from the curator device.

6. The method of claim **5**, further comprising:

receiving a request from a client device for the predetermined media collection; and

providing the predetermined media collection in response to the request, wherein the predetermined media collection is displayed on the client device.

7. The method of claim **1**, further comprising:

determining that a predetermined number of content messages that have not been viewed on the operator device and a predetermined amount of time that has passed

since the content messages associated with the media collection have been viewed on the curator device; and

updating the identifier of the predetermined media collection from a first indicator to a second indicator indicating an action to be taken on the predetermined media collection to curate the media collection before presentation to one or more users.

8. The method of claim **1**, further comprising:

determining that new content messages received from a plurality of content sources are associated with the predetermined media collection based on media content of each of the new content messages using at least one of text recognition, object recognition, and an audio footprint.

9. The method of claim **1**, wherein the predetermined media collection is a first predetermined media collection, and further comprising:

receiving a selection of an identifier of a second predetermined media collection to be curated before presentation to one or more users;

causing display on a graphical user interface of media content associated with the second predetermined media collection to allow curation of the second media collection before presentation to the one or more users.

10. The method of claim **1**, further comprising:

receiving a selection to turn off the predetermined media collection; and

turning off the predetermined media collection causing the predetermined media collection to not be available to be viewed by the one or more users.

11. The method of claim **1**, further comprising:

receiving a selection of an ad to add to the predetermined media collection; and

adding the ad to the first predetermined media collection.

12. A server computer comprising:

a processor; and

a computer readable medium coupled with the processor, the computer readable medium comprising instructions stored thereon that are executable by the processor to cause a computing device to perform operations comprising:

determining that a predetermined amount of time has passed since any content messages received from a plurality of content sources and associated with a predetermined media collection have been pushed live to be viewed by one or more users;

updating an identifier of the predetermined media collection from a first indicator to a second indicator indicating an action to be taken on the predetermined media collection to curate the media collection before presentation to one or more users;

providing a media collection list assigned to a first curator to be displayed on a curator device, the media collection list comprising a plurality of media collections that includes the predetermined media collection, the media collection further comprising, for each media collection in the media collection list, a corresponding curator list indicating one or more curators assigned to each media collection; and

causing a timeline to be displayed on the curator device showing a curation progress of each of a plurality of curators that are curating the content messages in the predetermined media collection before presentation to one or more users, the curation progress indicating an assigned portion of content messages that are assigned to each curator, how many content messages of the assigned portion have been viewed by each curator, how many content messages of the assigned portion of content messages have not been viewed by each curator, and an indication, corresponding to each curator, of published content messages in the predetermined media collection that have been pushed live to be viewed by one or more users.

13. The server computer of claim **12**, wherein the predetermined media collection is associated with a geolocation, event, topic, or common user interest.

14. The server computer of claim **12**, wherein the predetermined media collection comprises media content from a plurality of individual users.

15. The server computer of claim **12**, wherein the identifier of the first media collection includes at least one of a group comprising: a subject for the media collection, a number of content messages pending review for the media collection, a time the media collection was last viewed by a curator, a color associated with the first indication, and a color associated with the second indication.

16. The server computer of claim **12**, the operations further comprising:

receiving, from the curator device, a selection of a subset of the content messages for the predetermined media collection to be included in the predetermined media collection that will be available to be viewed by one or more users; and

including the selection of the subset of the content messages in the predetermined media collection, wherein the content messages not in the selection of the subset of the content messages are not available to be viewed by one or more users; and

updating the identifier of the predetermined media collection from the second indicator to the first indicator indicating that the predetermined media collection does not require immediate attention, based on the selection of the subset of the content messages for the predetermined media collection received from the curator device.

17. The server computer of claim **16**, the operations further comprising:

receiving a request from a client device for the predetermined media collection; and

providing the predetermined media collection in response to the request, wherein the predetermined media collection is displayed on the client device.

18. The server computer of claim **12**, the operations further comprising:

determining that a predetermined number of content messages that have not been viewed on the operator device and a predetermined amount of time that has passed since the content messages associated with the media collection have been viewed on the curator device; and

updating the identifier of the predetermined media collection from a first indicator to a second indicator indicating an action to be taken on the predetermined media collection to curate the media collection before presentation to one or more users.

19. The server computer of claim **12**, the operations further comprising:

determining that new content messages received from a plurality of content sources are associated with the

predetermined media collection based on media content of each of the new content messages using at least one of text recognition, object recognition, and an audio footprint.

20. A non-transitory computer readable medium comprising instructions stored thereon that are executable by at least one processor to cause a computing device to perform operations comprising:

determining that a predetermined amount of time has passed since any content messages received from a plurality of content sources and associated with a predetermined media collection have been pushed live to be viewed by one or more users;

updating an identifier of the predetermined media collection from a first indicator to a second indicator indicating an action to be taken on the predetermined media collection to curate the media collection before presentation to one or more users;

providing a media collection list assigned to a first curator to be displayed on a curator device, the media collection list comprising a plurality of media collections that includes the predetermined media collection, the media collection further comprising, for each media collection in the media collection list, a corresponding curator list indicating one or more curators assigned to each media collection; and

causing a timeline to be displayed on the curator device showing a curation progress of each of a plurality of curators that are curating the content messages in the predetermined media collection before presentation to one or more users, the curation progress indicating an assigned portion of content messages that are assigned to each curator, how many content messages of the assigned portion have been viewed by each curator, how many content messages of the assigned portion of content messages have not been viewed by each curator, and an indication, corresponding to each curator, of published content messages in the predetermined media collection that have been pushed live to be viewed by one or more users.

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