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(54) **SOCIAL DATA ASSOCIATED WITH BOOKMARKS TO MULTIMEDIA CONTENT**

(71) Applicant: **VMTV, Inc.**, Palo Alto, CA (US)

(72) Inventors: **David D. Lee**, Palo Alto, CA (US); **Jaegeun Lim**, Seoul (KR); **Dongcheol Jeong**, Seoul (KR); **Youngwoon Yoon**, Seoul (KR); **Michael Ken Minakami**, Mountain View, CA (US); **Chien Lim**, San Jose, CA (US)

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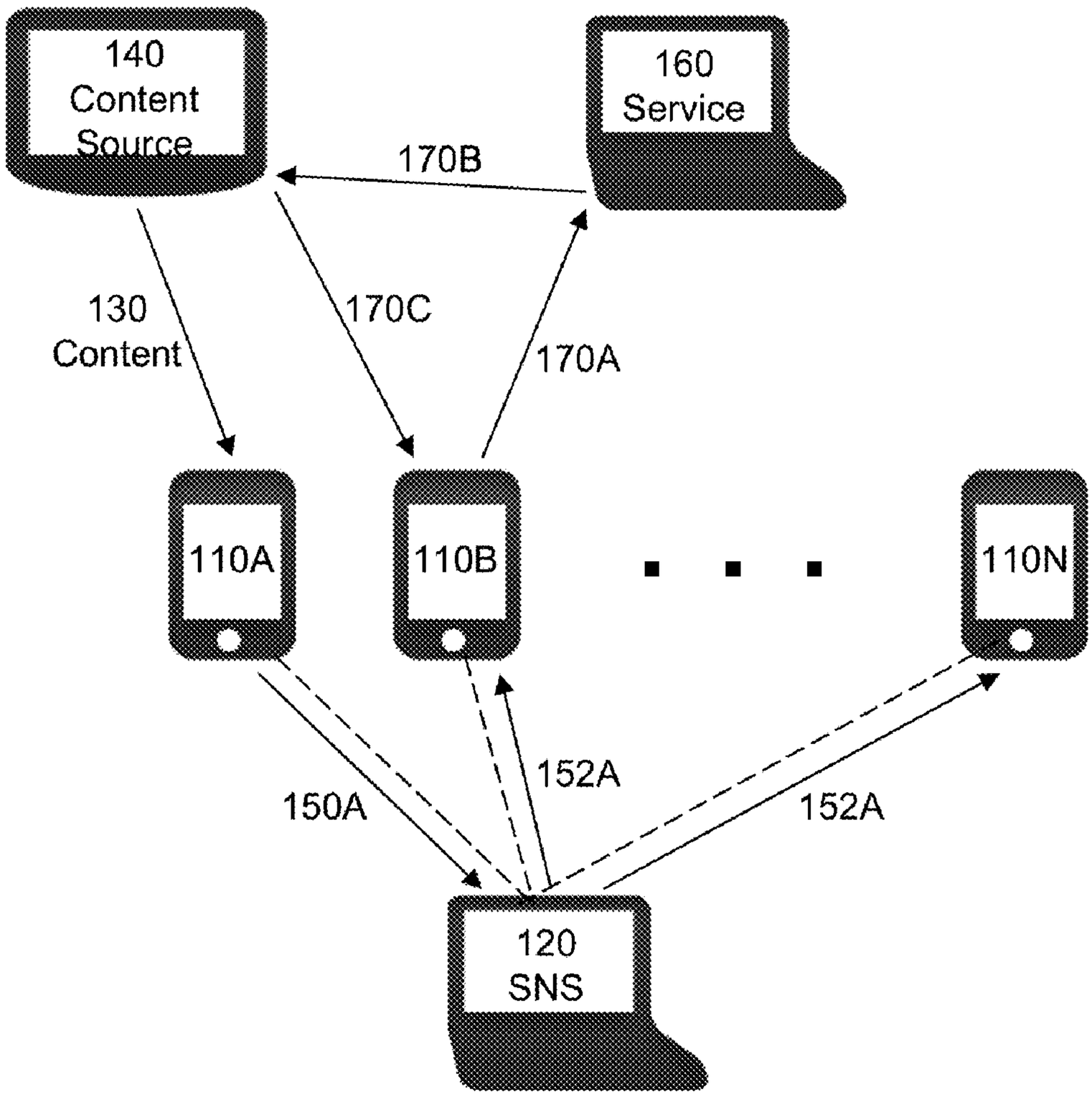
H04L 12/58	(2006.01)
H04L 29/06	(2006.01)
H04L 29/08	(2006.01)

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

CPC ***H04L 51/32*** (2013.01); ***H04L 67/306*** (2013.01); ***H04L 65/60*** (2013.01)

(57) **ABSTRACT**

Members of a social network service may share real-time comments about multimedia content they are viewing. The comments are attached to bookmarks that allow other members to view the video and add to the discussion thread.



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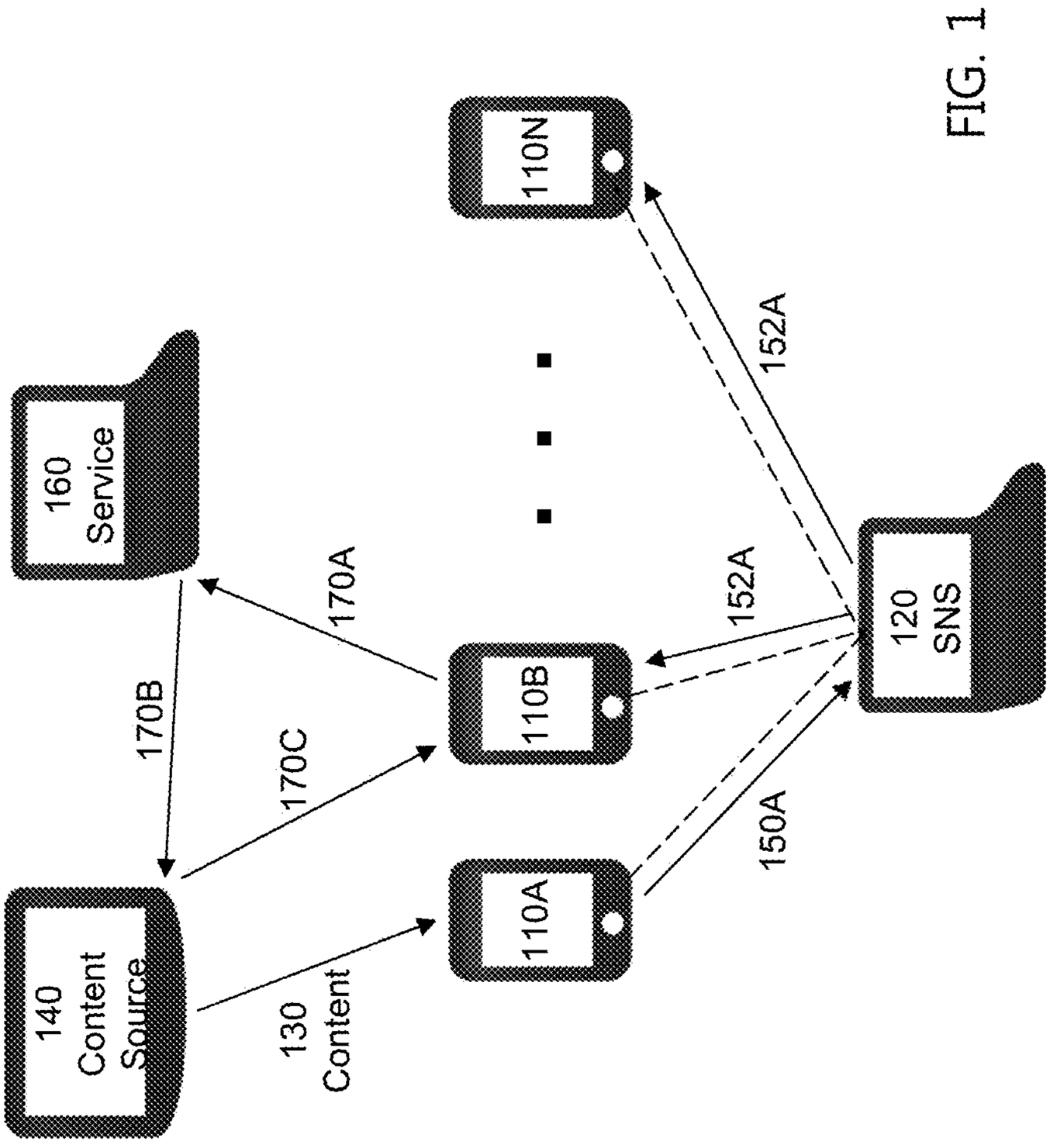

160
Service
170A
170B
170C
110B
110N
152A
152A
120
SNS
150A
110A
140
Content
Source
130
Content

FIG. 1

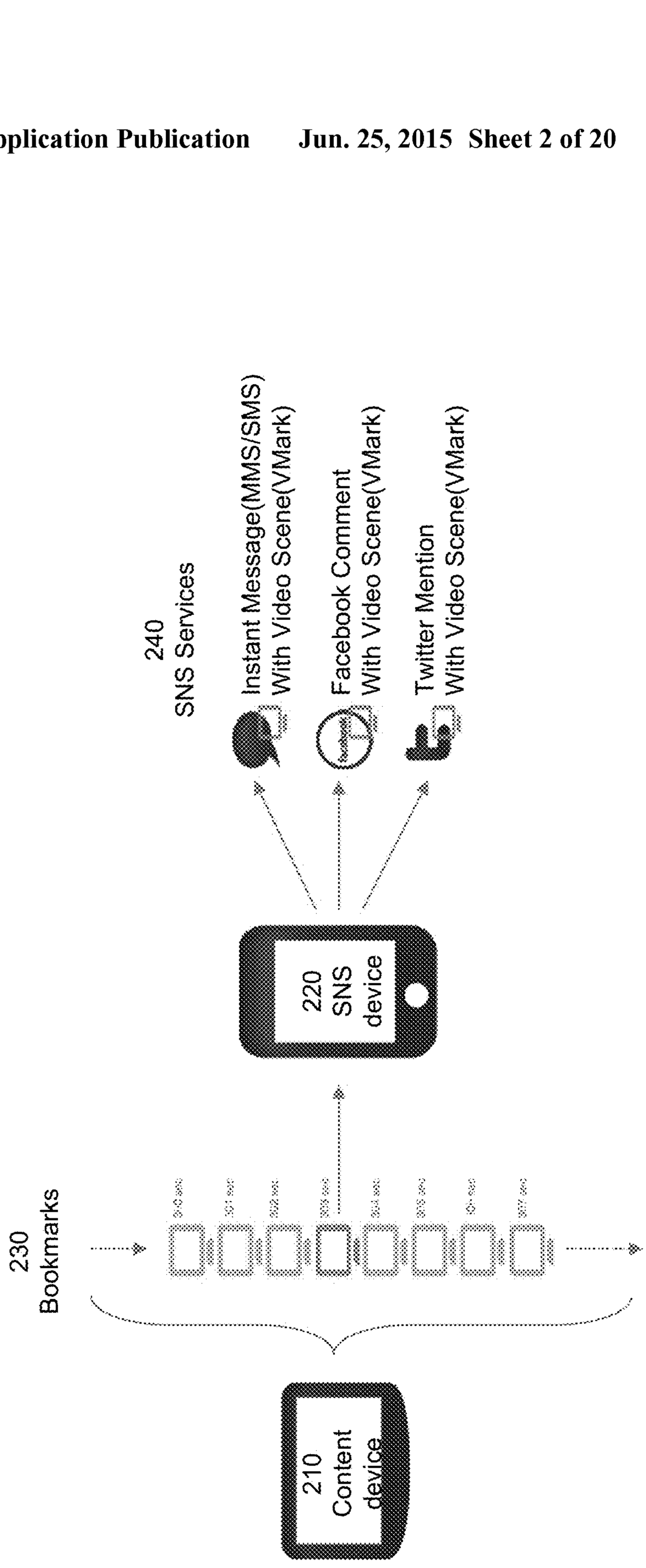

210
Content
device
230
Bookmarks
220
SNS
device
240
SNS Services
Instant Message(MMS/SMS)
With Video Scene(VMark)
Facebook Comment
With Video Scene(VMark)
Twitter Mention
With Video Scene(VMark)

FIG. 2

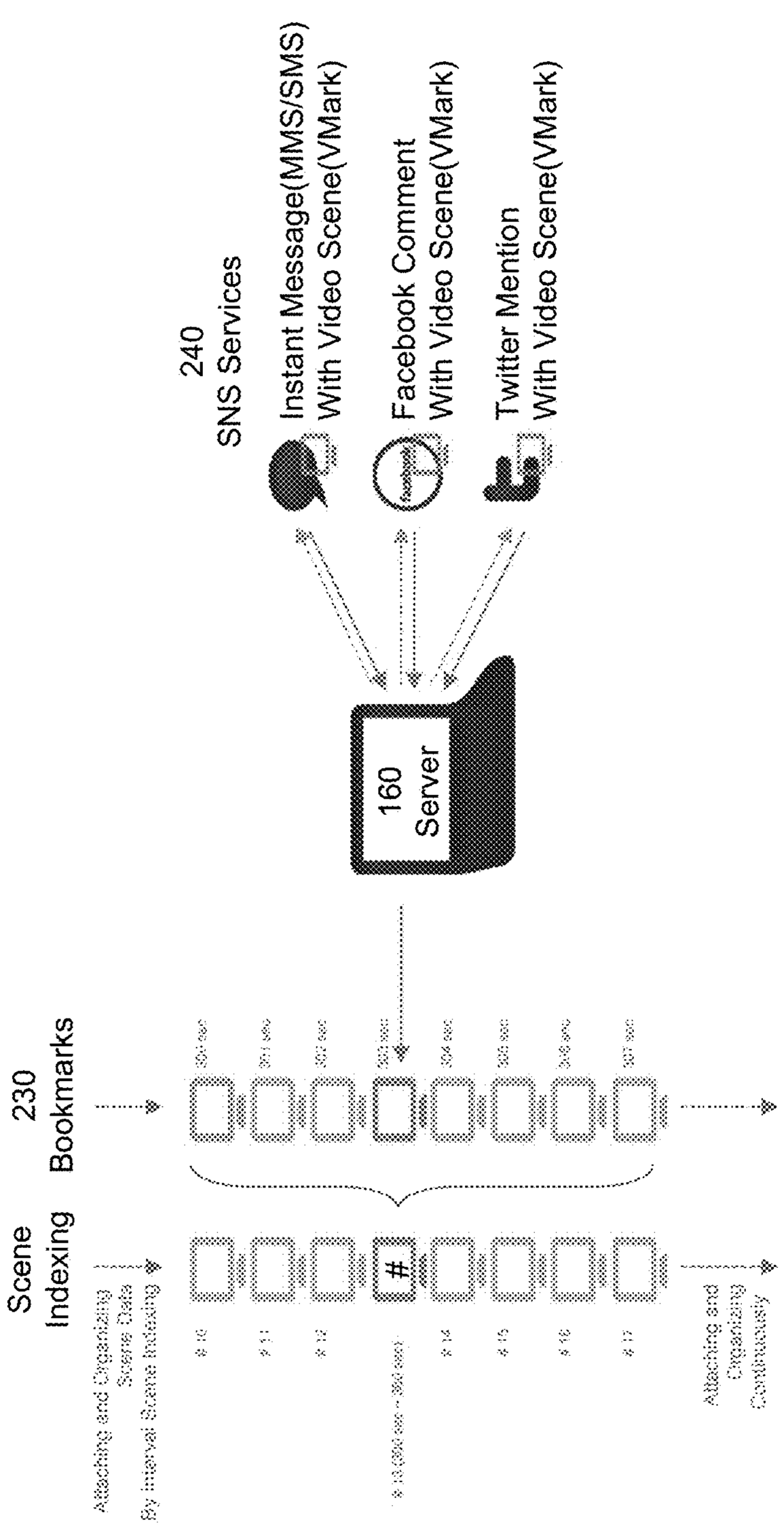

240
SNS Services
Instant Message(MMS/SMS)
With Video Scene(VMark)
Facebook Comment
With Video Scene(VMark)
Twitter Mention
With Video Scene(VMark)
160
Server
230
Bookmarks
330
Scene
Indexing
Attaching and Organizing
Scene Data
By Interval Scene Indexing
Attaching and
Organizing
Continuously

FIG. 3

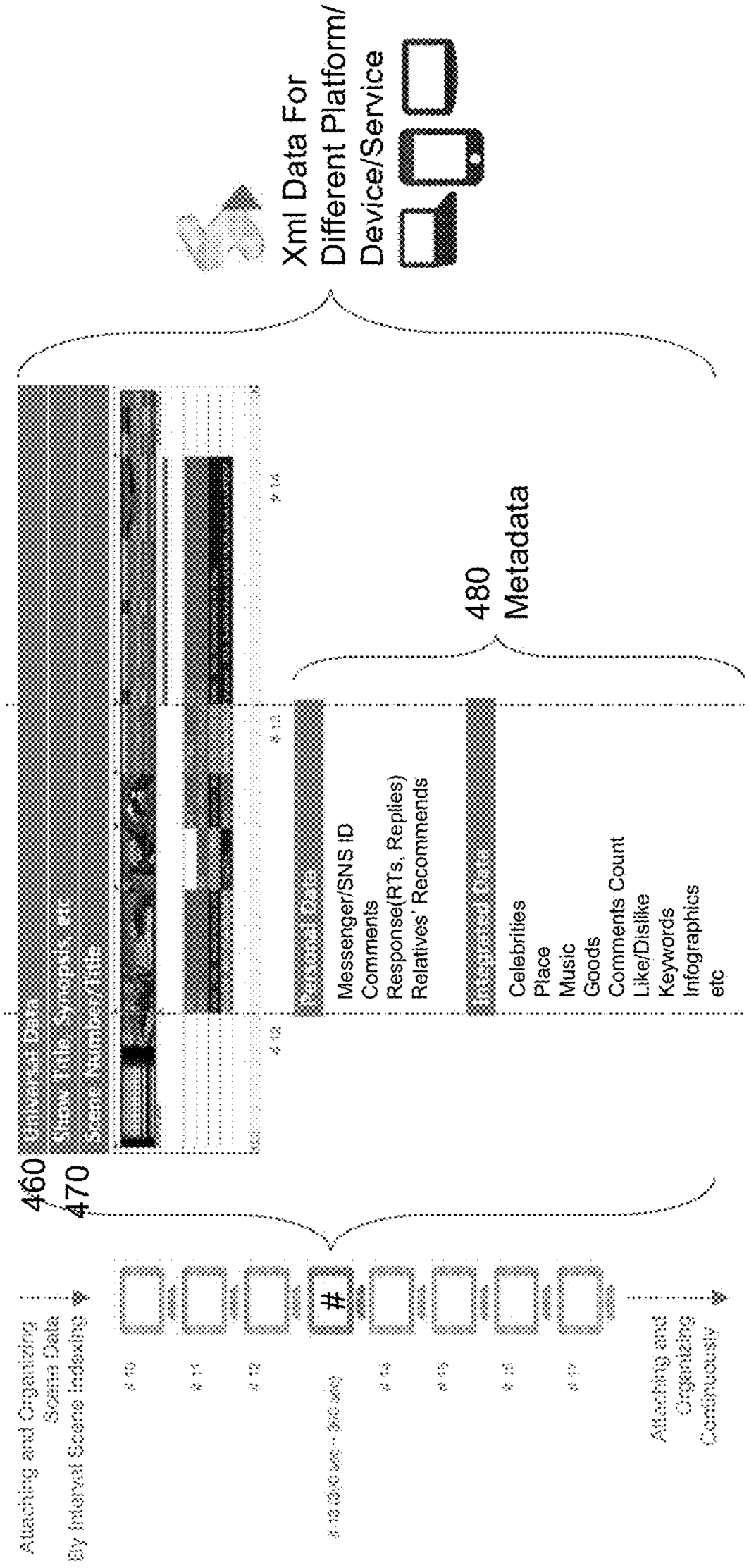

Xml Data For
Different Platform/
Device/Service
480
Metadata
Messenger/SNS ID
Comments
Response(RTs, Replies)
Relatives' Recommends
Celebrities
Place
Music
Goods
Comments Count
Like/Dislike
Keywords
Infographics
etc
460
470
Attaching and Organizing
Scene Data
By Interval Scene Indexing
Attaching and
Organizing
Continuously

FIG. 4

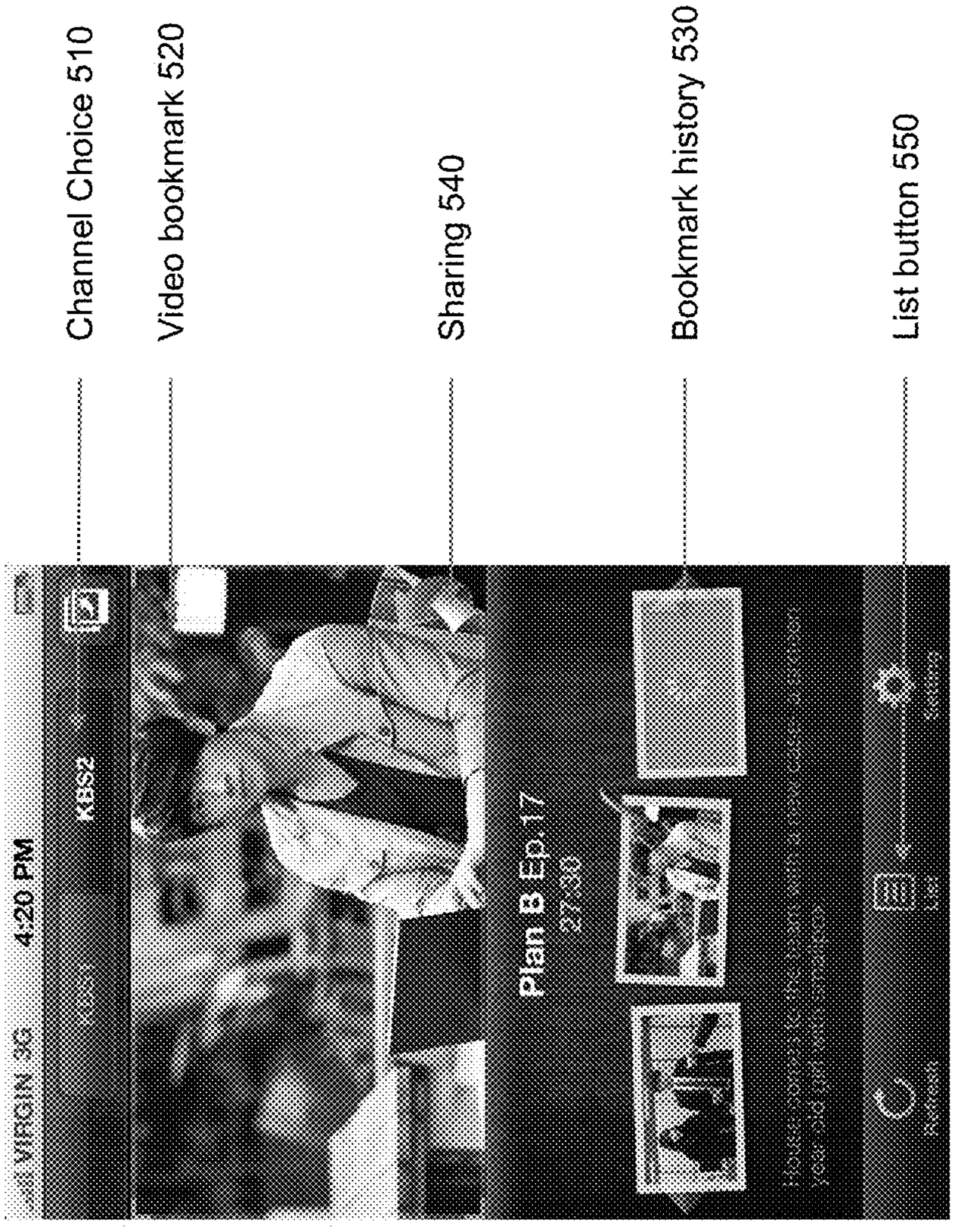

Channel Choice 510
Video bookmark 520
Sharing 540
Bookmark history 530
List button 550
VIRGIN 3G
4:20 PM
KBS2
Plan B Ep.17
27.00

FIG. 5

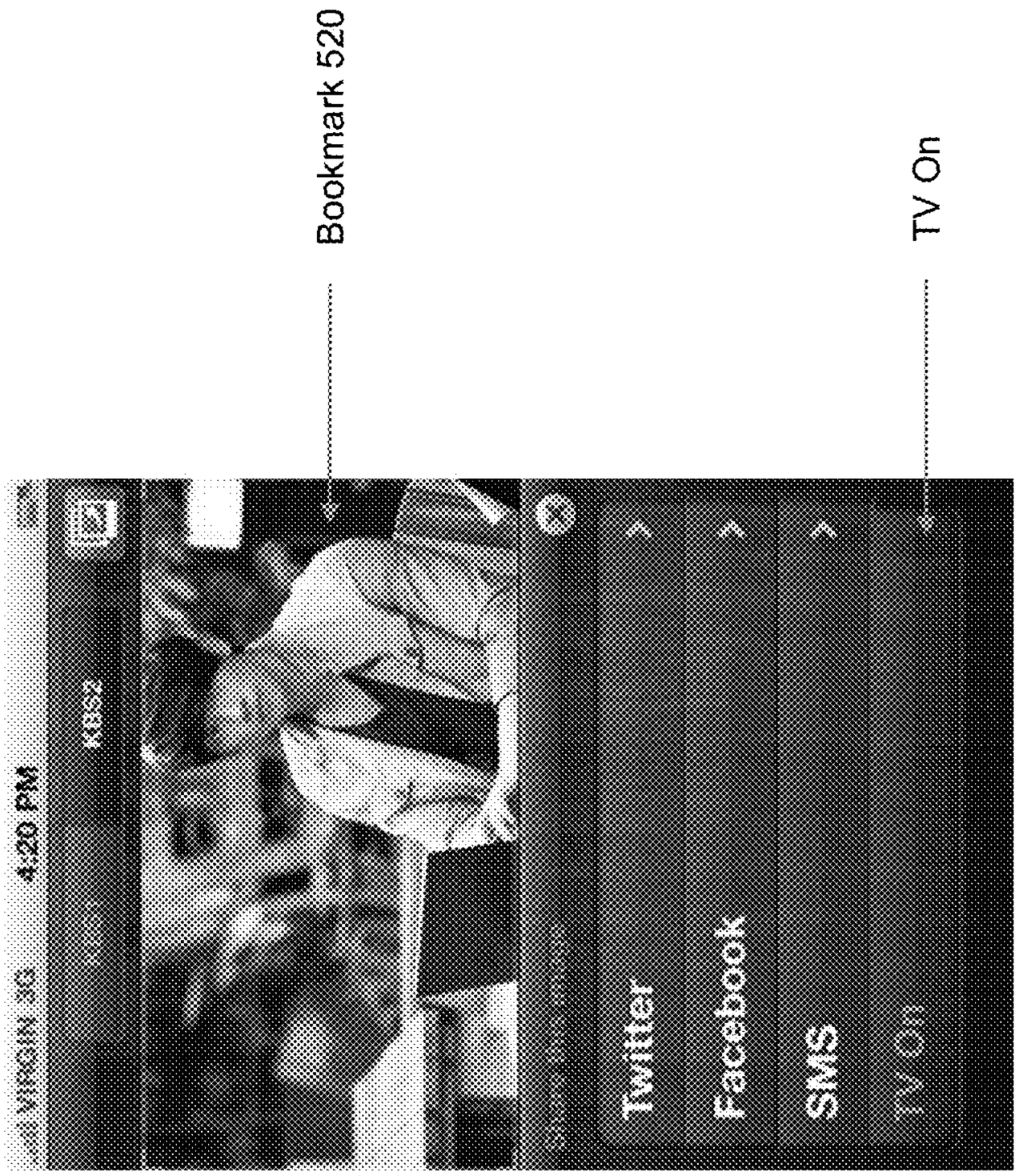

520
Bookmark
TV On
VIRGIN 3G
4:20 PM
KBS2
Twitter
Facebook
SMS
TV On

FIG. 6

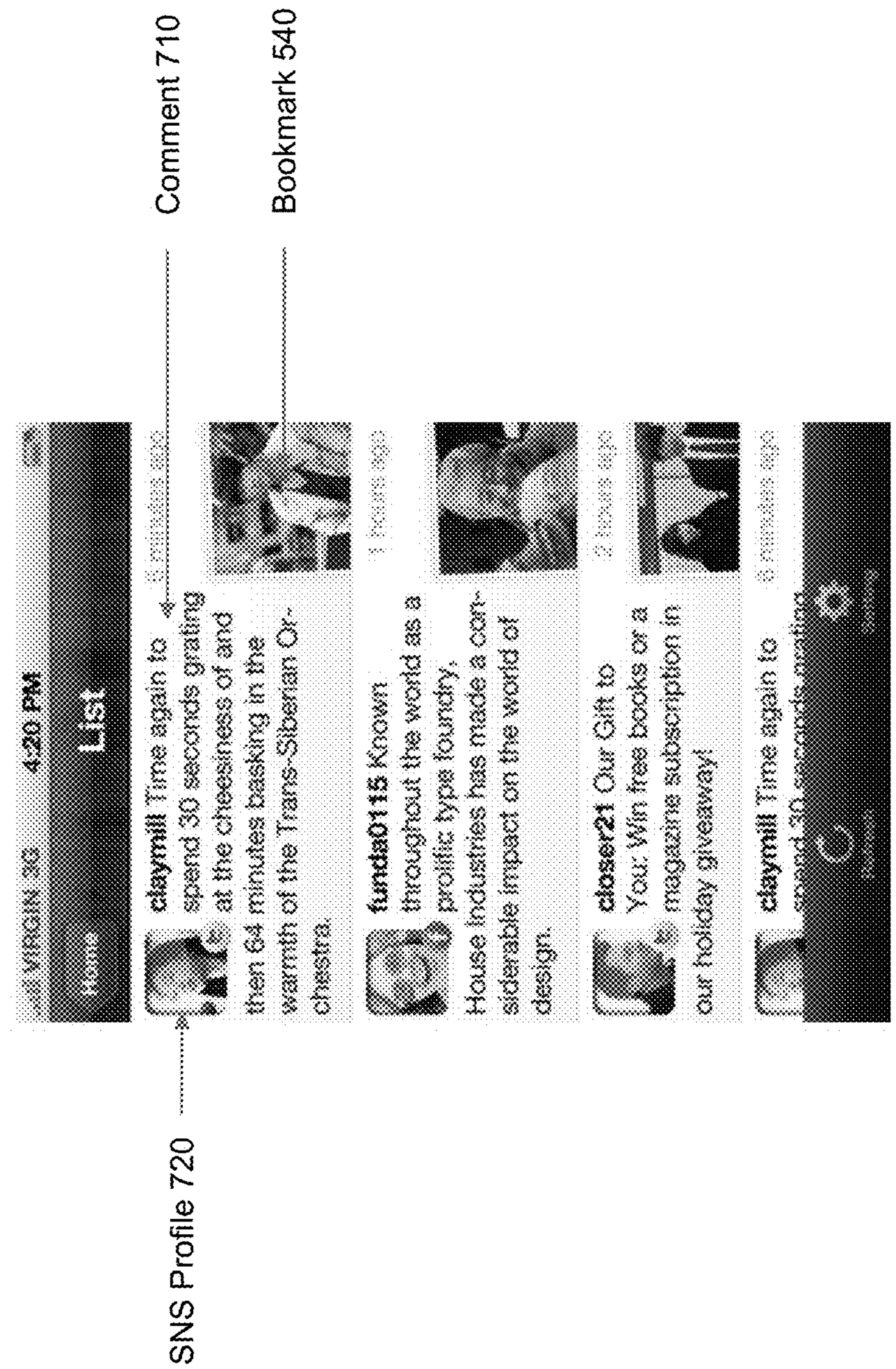

Comment 710
Bookmark 540
SNS Profile 720
VIRGIN 3G
4:20 PM
Home
List
claymill Time again to spend 30 seconds grating at the cheesiness of and then 64 minutes basking in the warmth of the Trans-Siberian Orchestra.
funda0115 Known throughout the world as a prolific typo foundry, House Industries has made a considerable impact on the world of design.
closer21 Our Gift to You: Win free books or a magazine subscription in our holiday giveaway!
claymill Time again to

FIG. 7

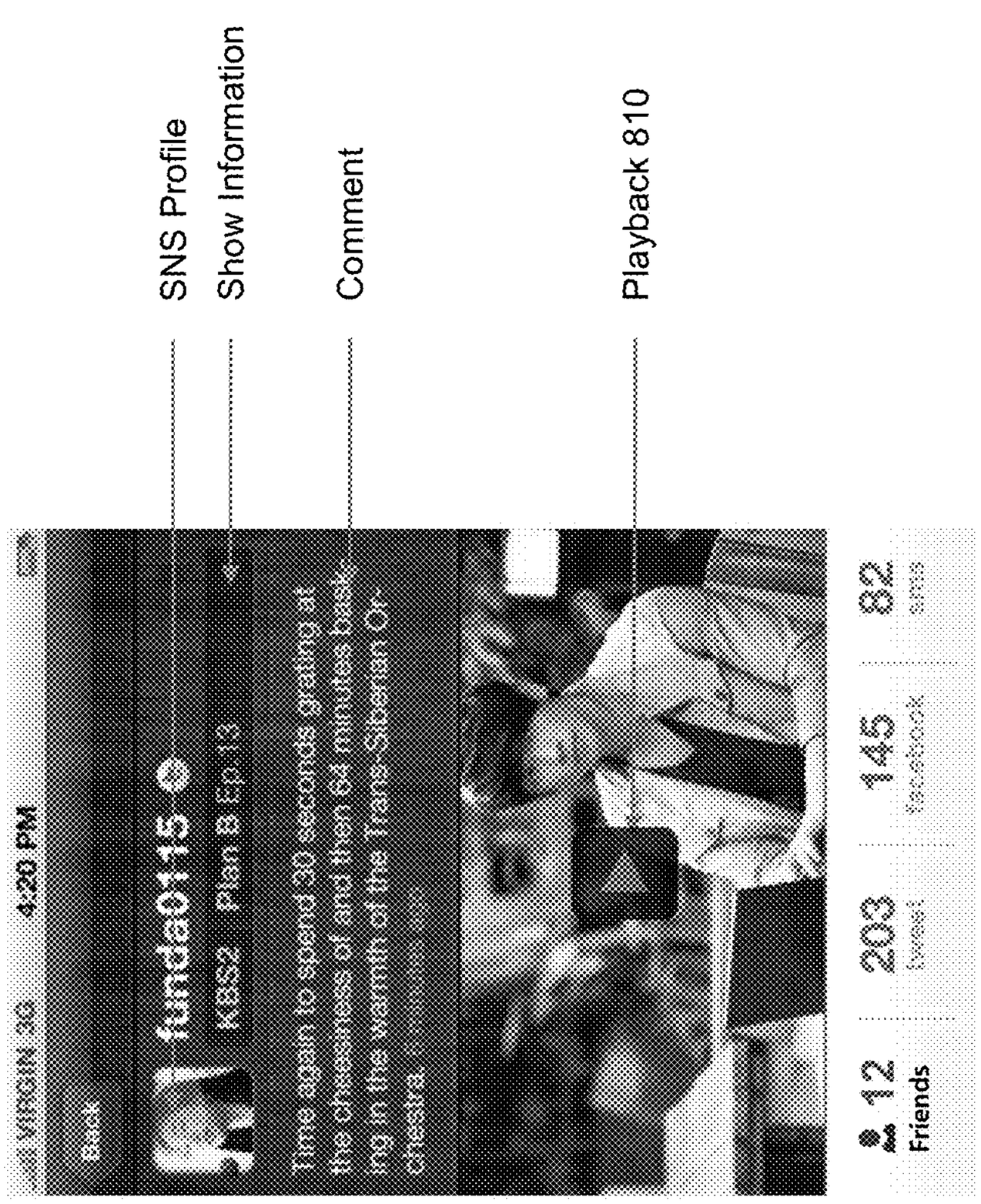

SNS Profile
Show Information
Comment
Playback 810
4:20 PM
VIRGIN 3G
funda0115
KBS2
Friends
145
82
203
20

FIG. 8

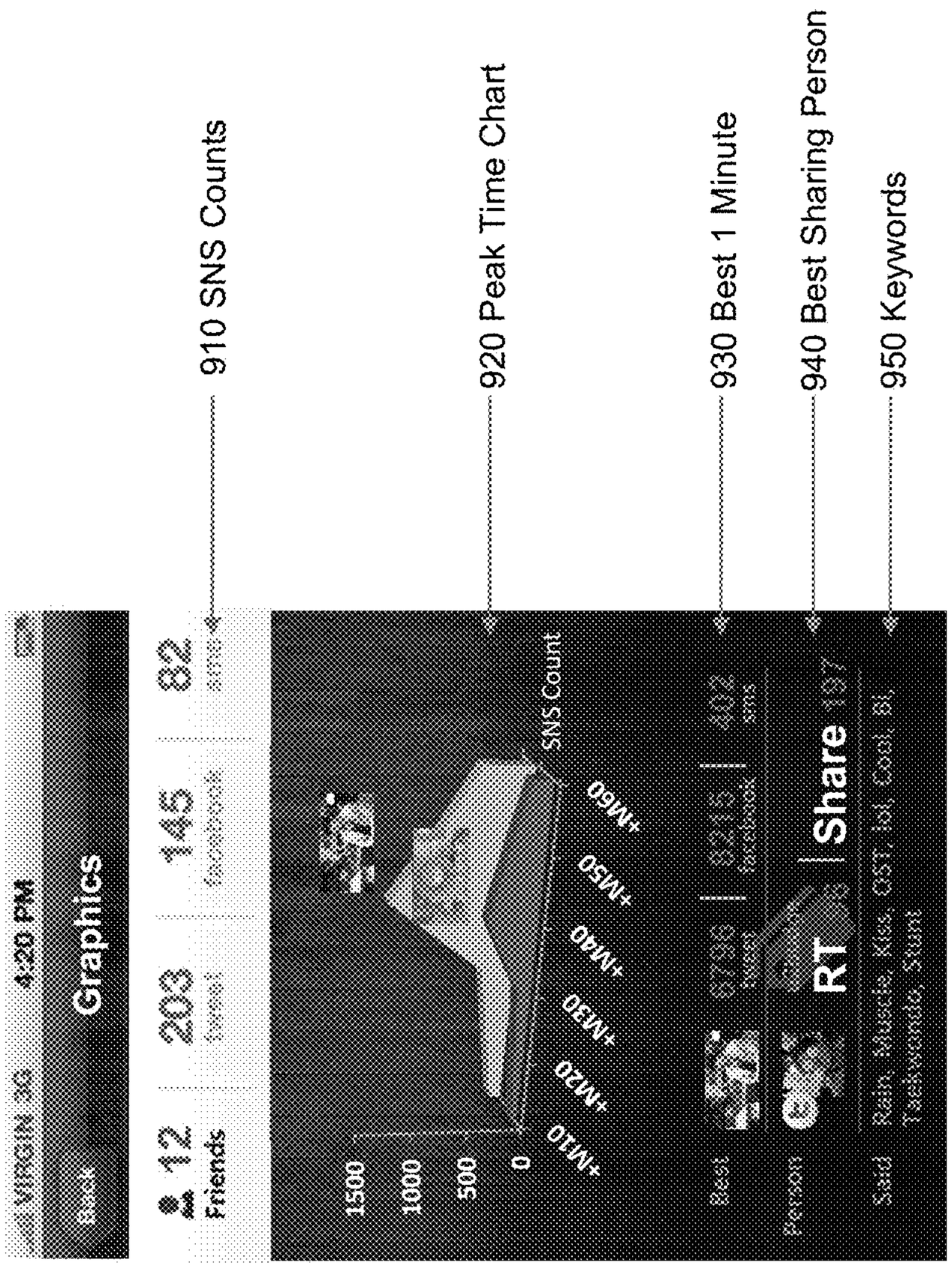
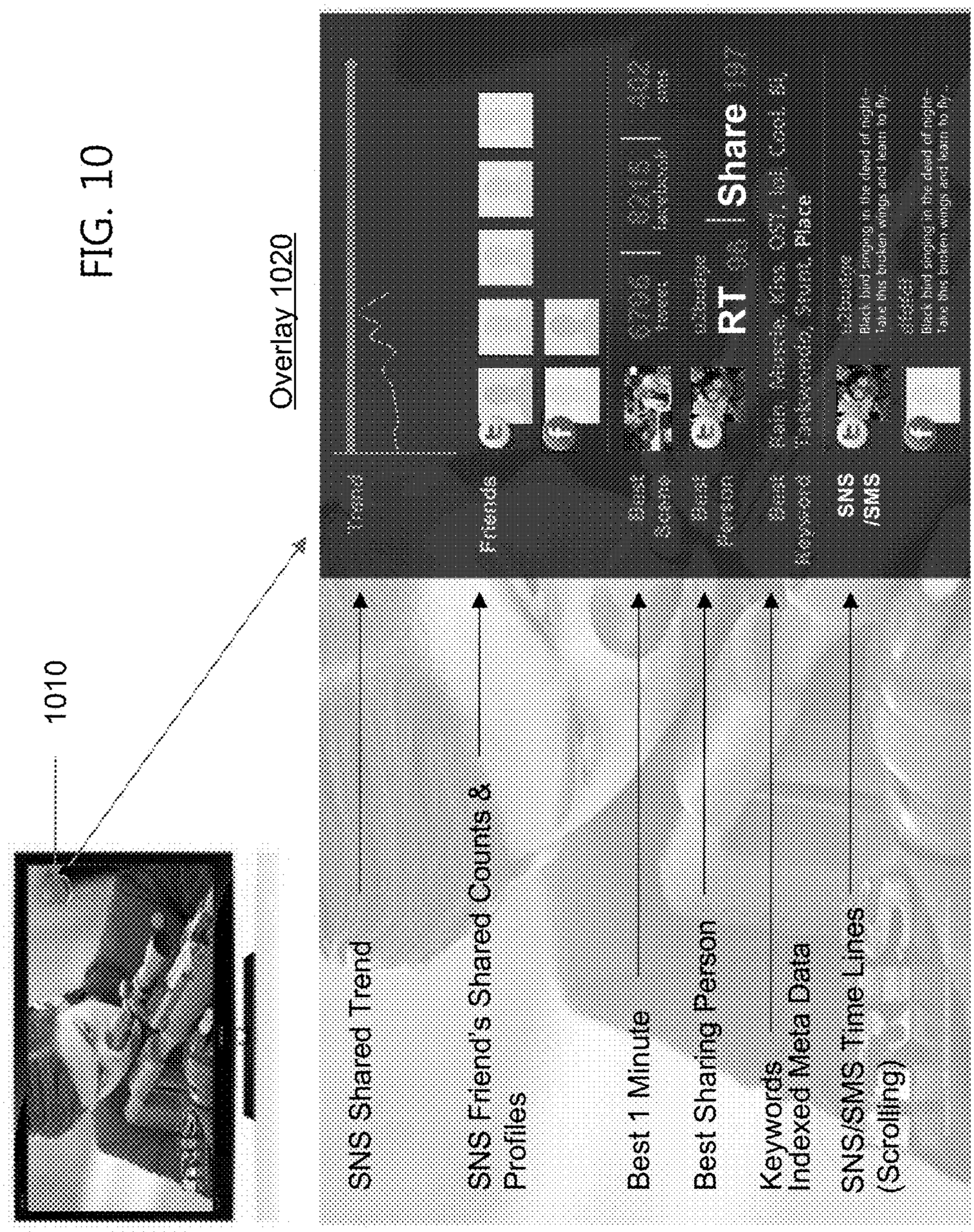

910 SNS Counts
920 Peak Time Chart
930 Best 1 Minute
940 Best Sharing Person
950 Keywords
VIRGIN 3G
4:20 PM
Graphics
Back
12
Friends
203
145
82
SNS Count
1500
1000
500
0
+M10
+M20
+M30
+M40
+M50
+M60
Share
RT
Said, Rain, Muscle, Kiss,
Taekwondo, Stunt

FIG. 9

FIG. 10


1010
Overlay 1020
SNS Shared Trend
SNS Friend's Shared Counts &
Profiles
Best 1 Minute
Best Sharing Person
Keywords
Indexed Meta Data
SNS/SMS Time Lines
(Scrolling)
Trend
Friends
SNS
/SMS

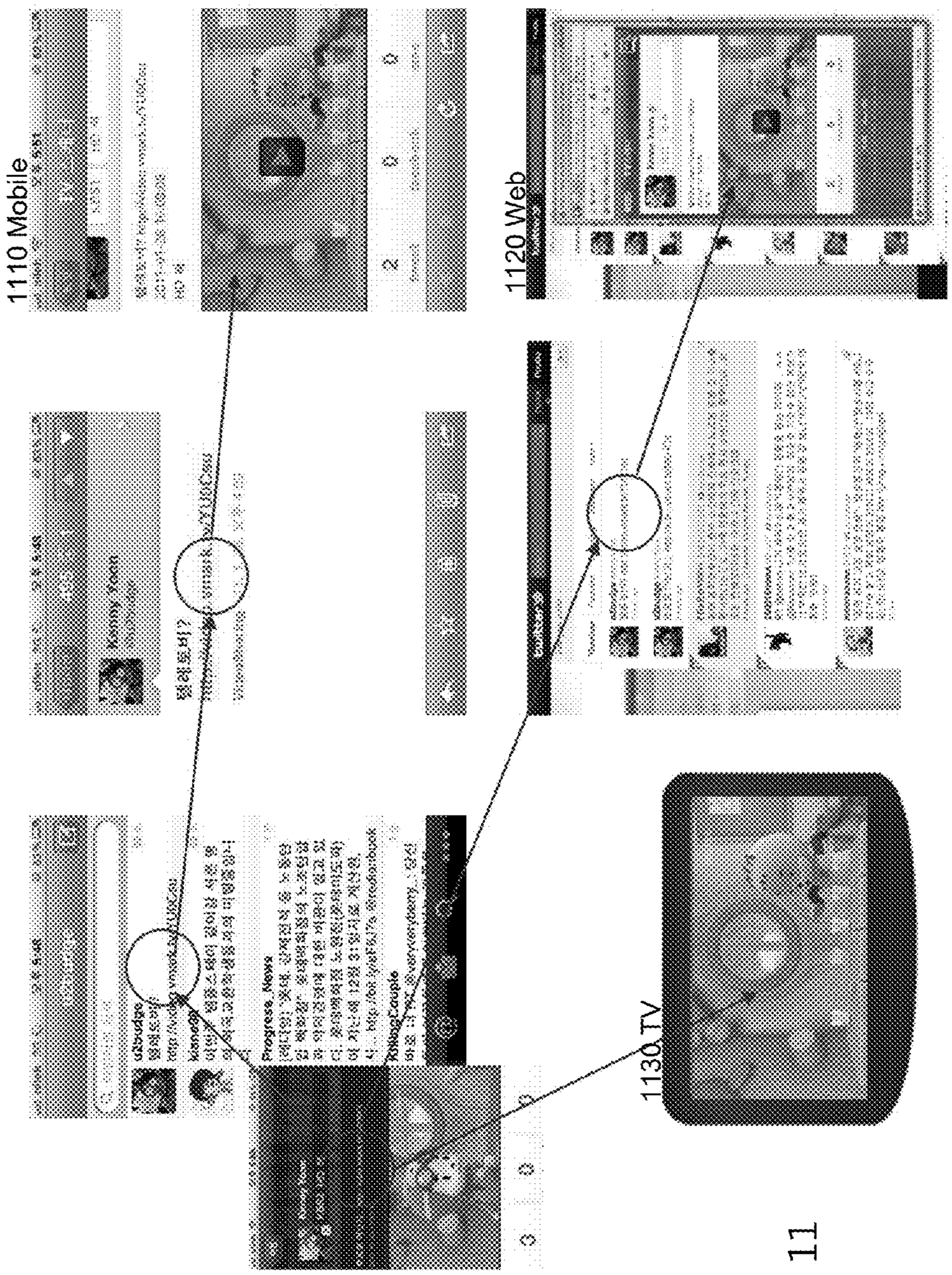


FIG. 11

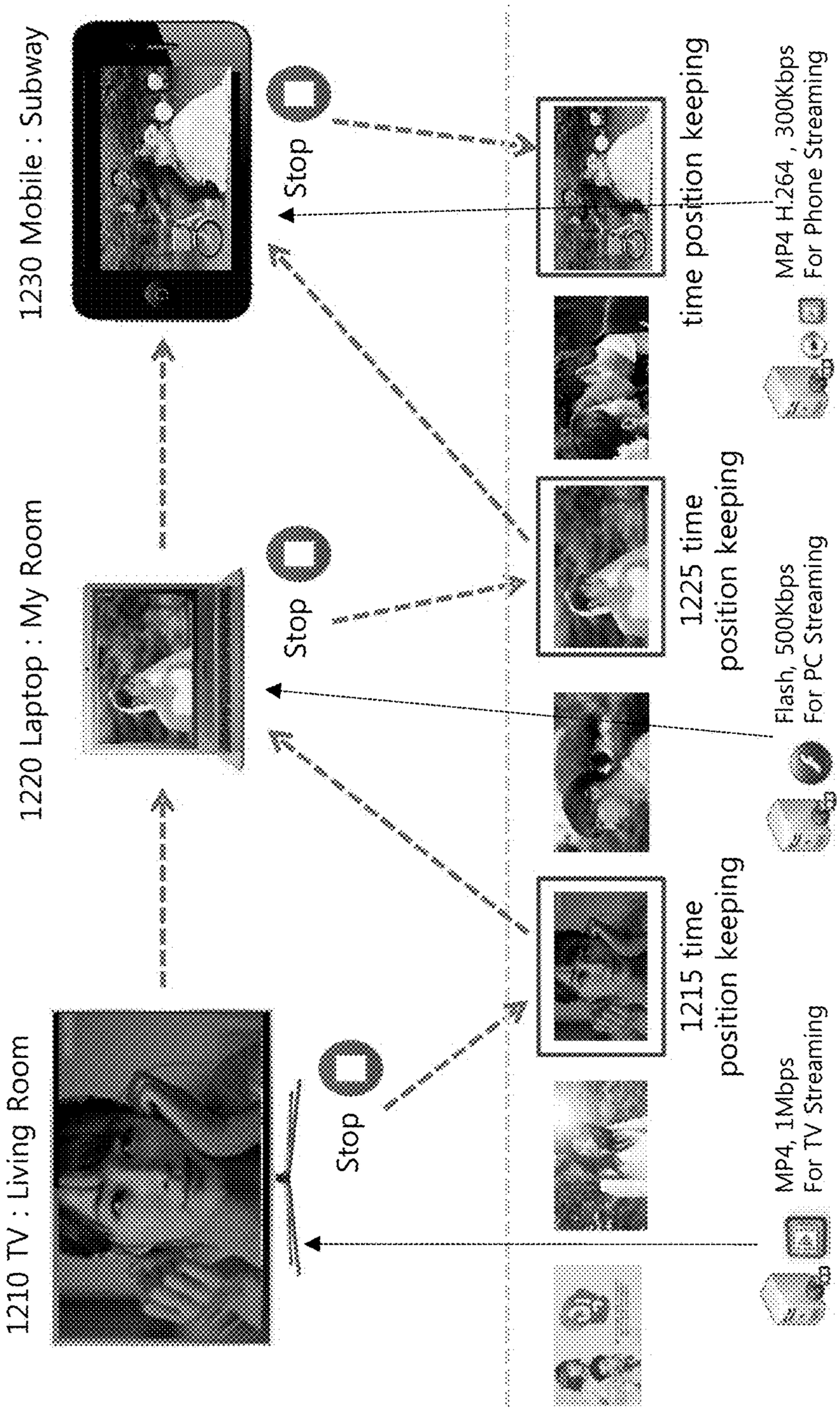

1230 Mobile : Subway
Stop
time position keeping
MP4 H.264 , 300Kbps
For Phone Streaming
1220 Laptop : My Room
Stop
1225 time
position keeping
Flash, 500Kbps
For PC Streaming
1215 time
position keeping
1210 TV : Living Room
Stop
1215 time
position keeping
MP4, 1Mbps
For TV Streaming

FIG. 12

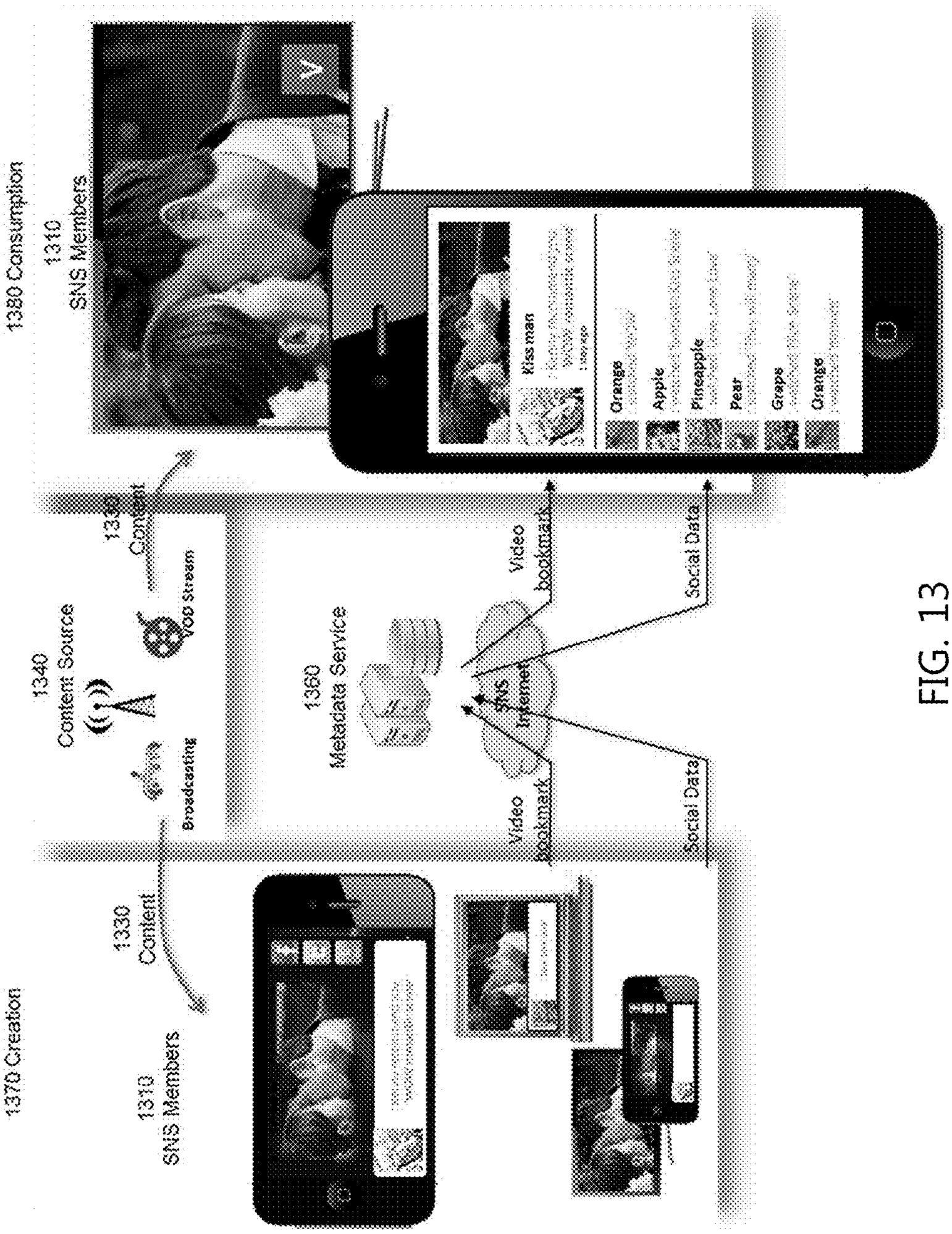

1380 Consumption
1310
SNS Members
1330
Content
Kiss man
Orange
Apple
Pineapple
Pear
Grape
Orange
1340
Content Source
Broadcasting
VOD Stream
1360
Metadata Service
SNS
Internet
Video
bookmark
Social Data
Video
Bookmark
Social Data
1370 Creation
1310
SNS Members
1330
Content

FIG. 13

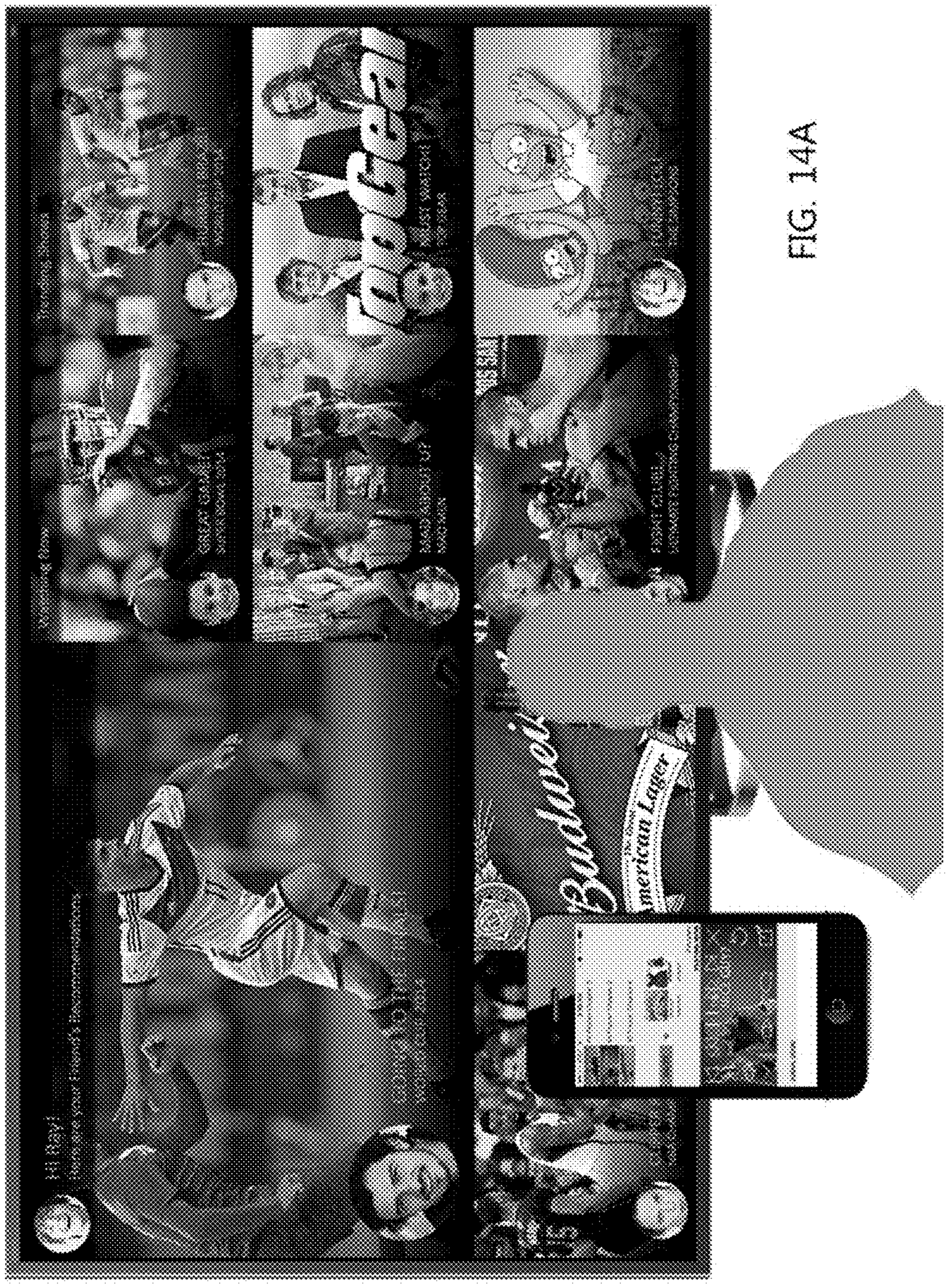


FIG. 14A



FIG. 14B

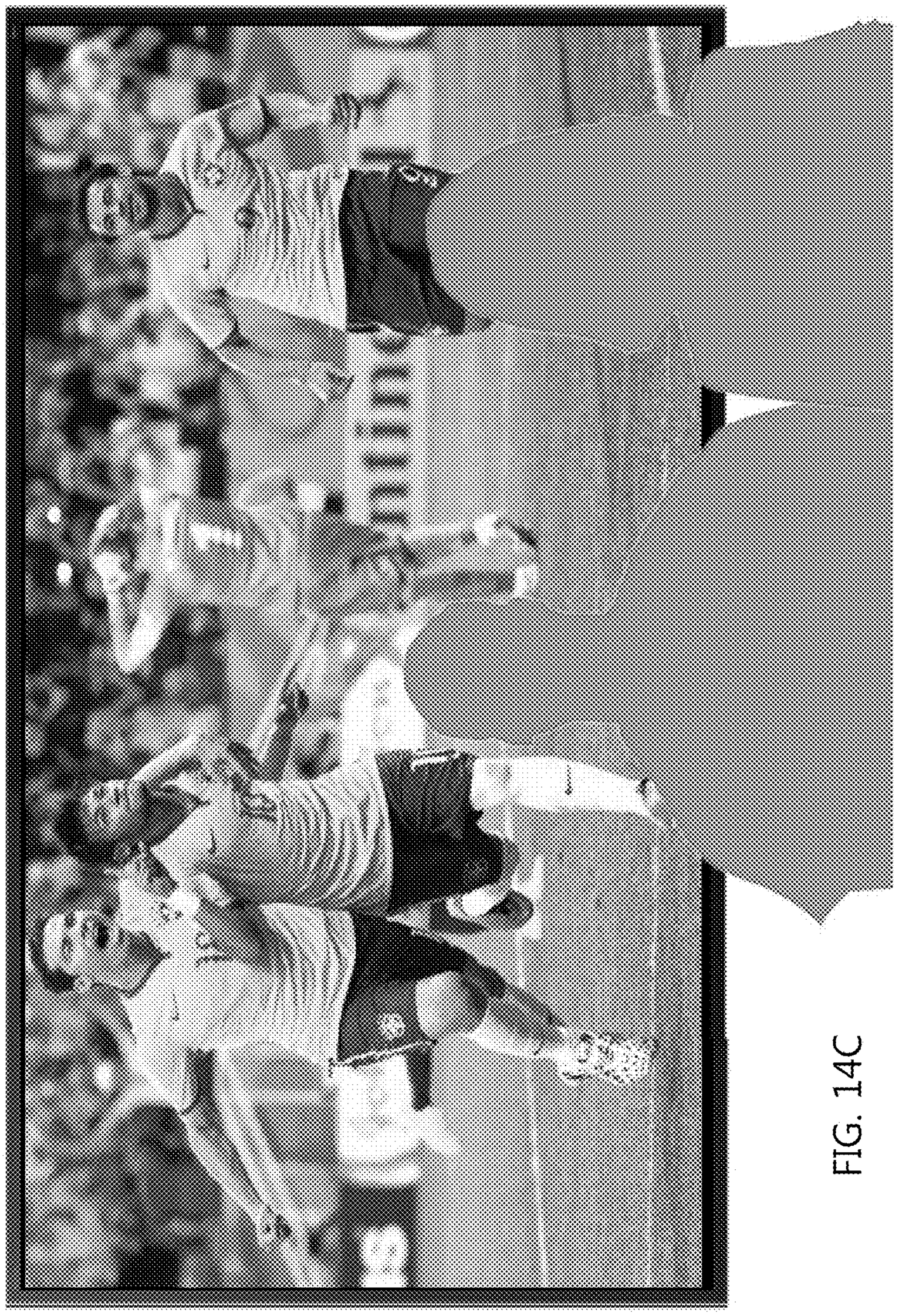


FIG. 14C

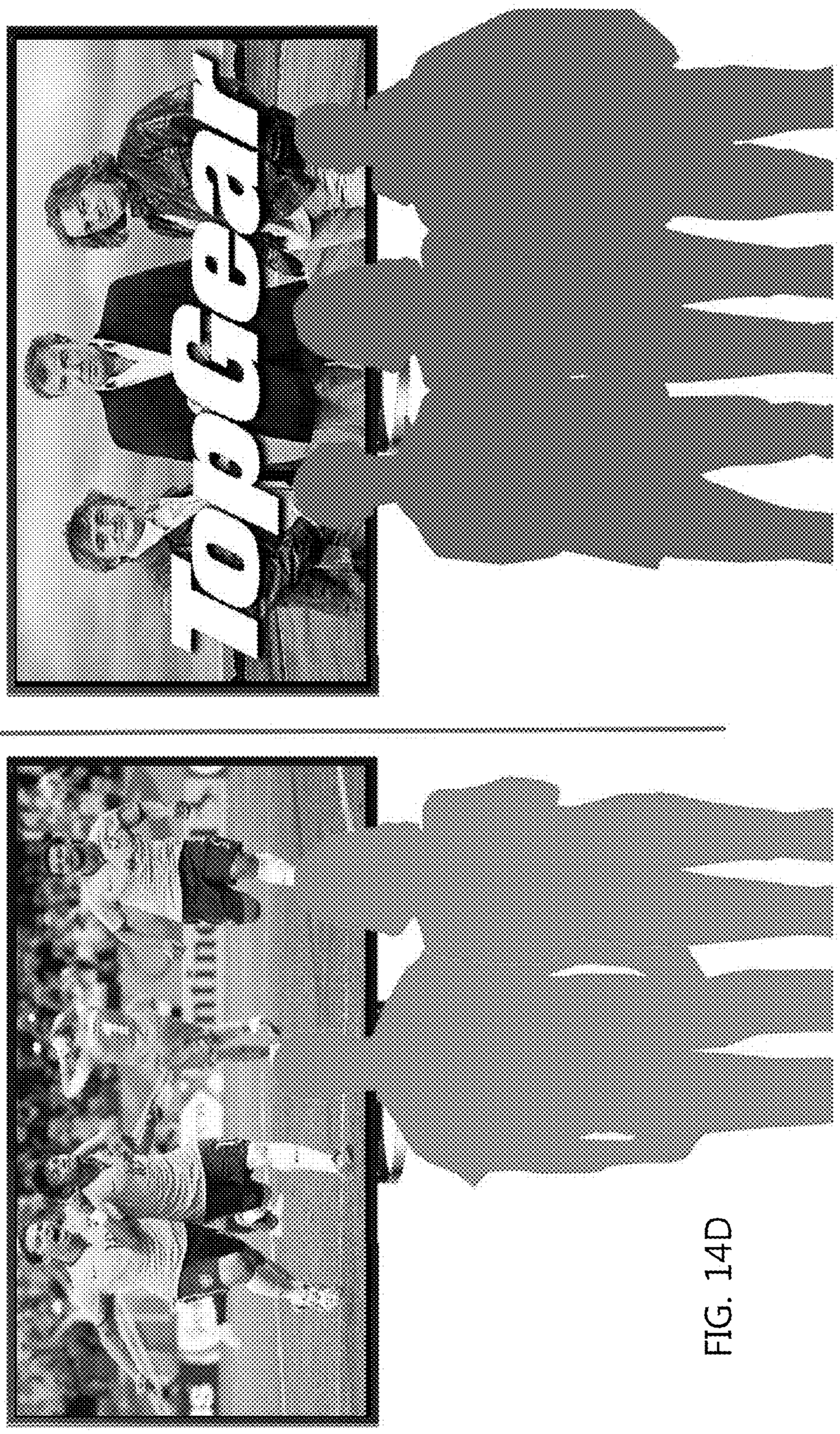


FIG. 14D

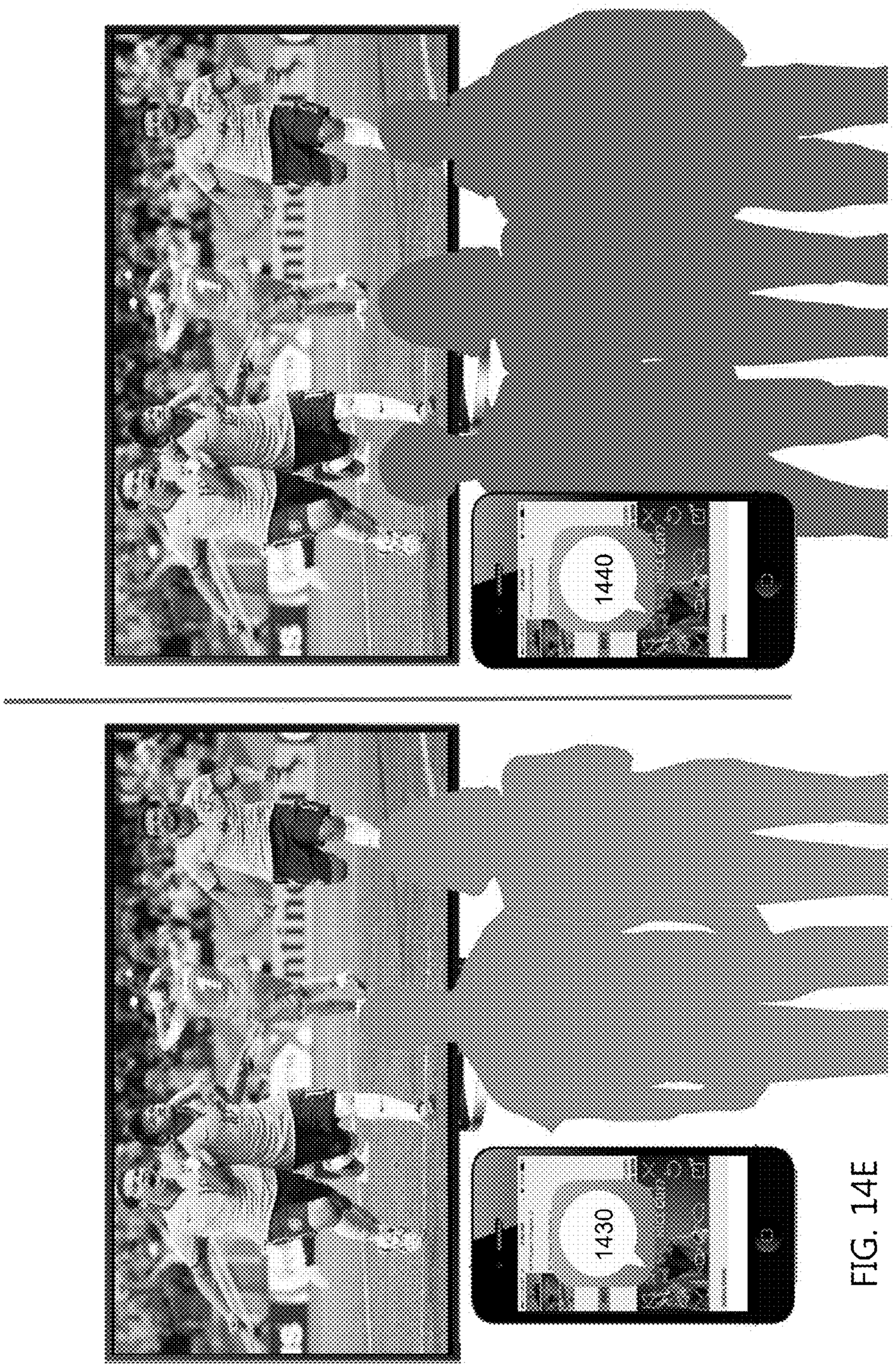


FIG. 14E

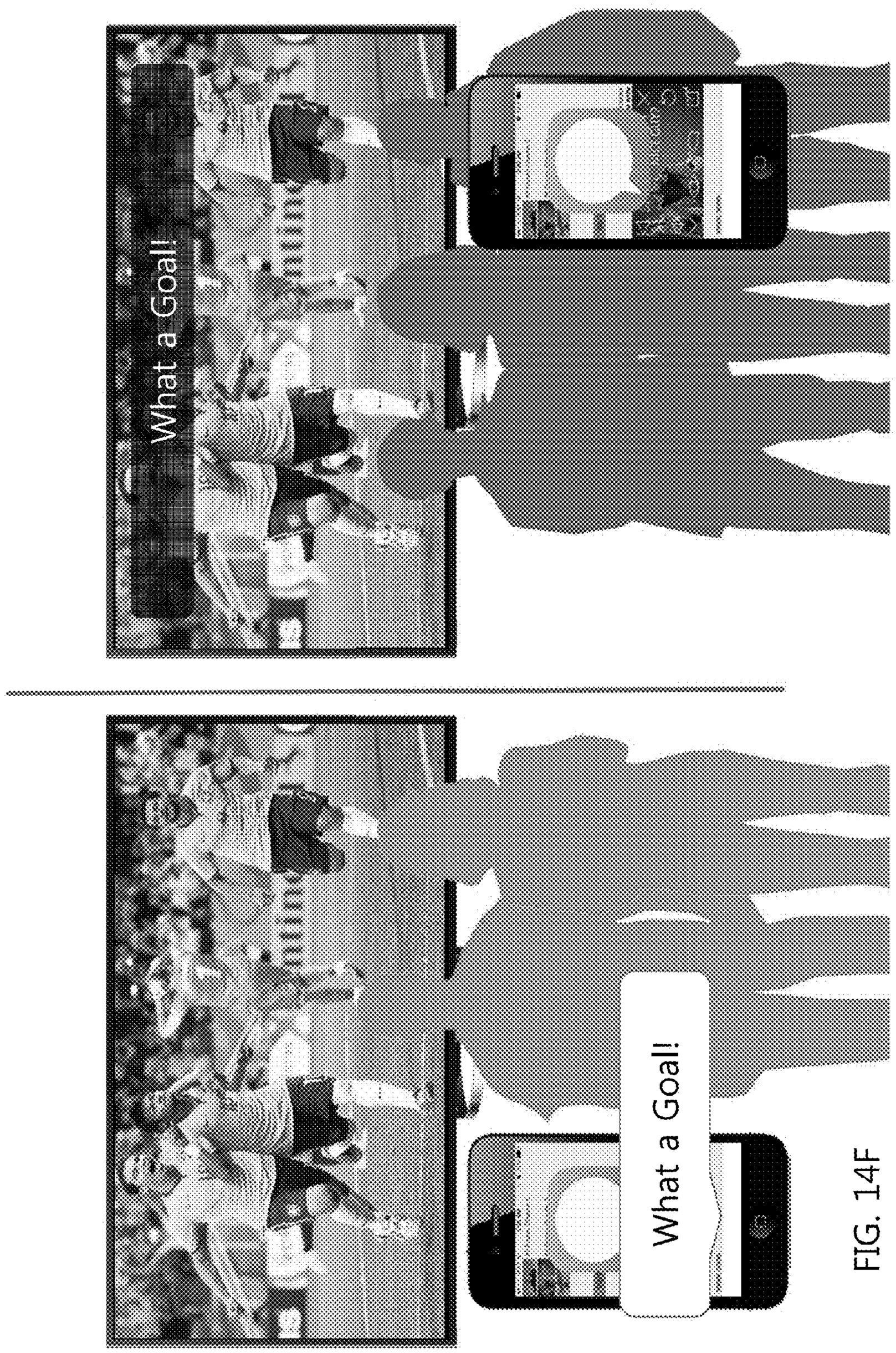


FIG. 14F

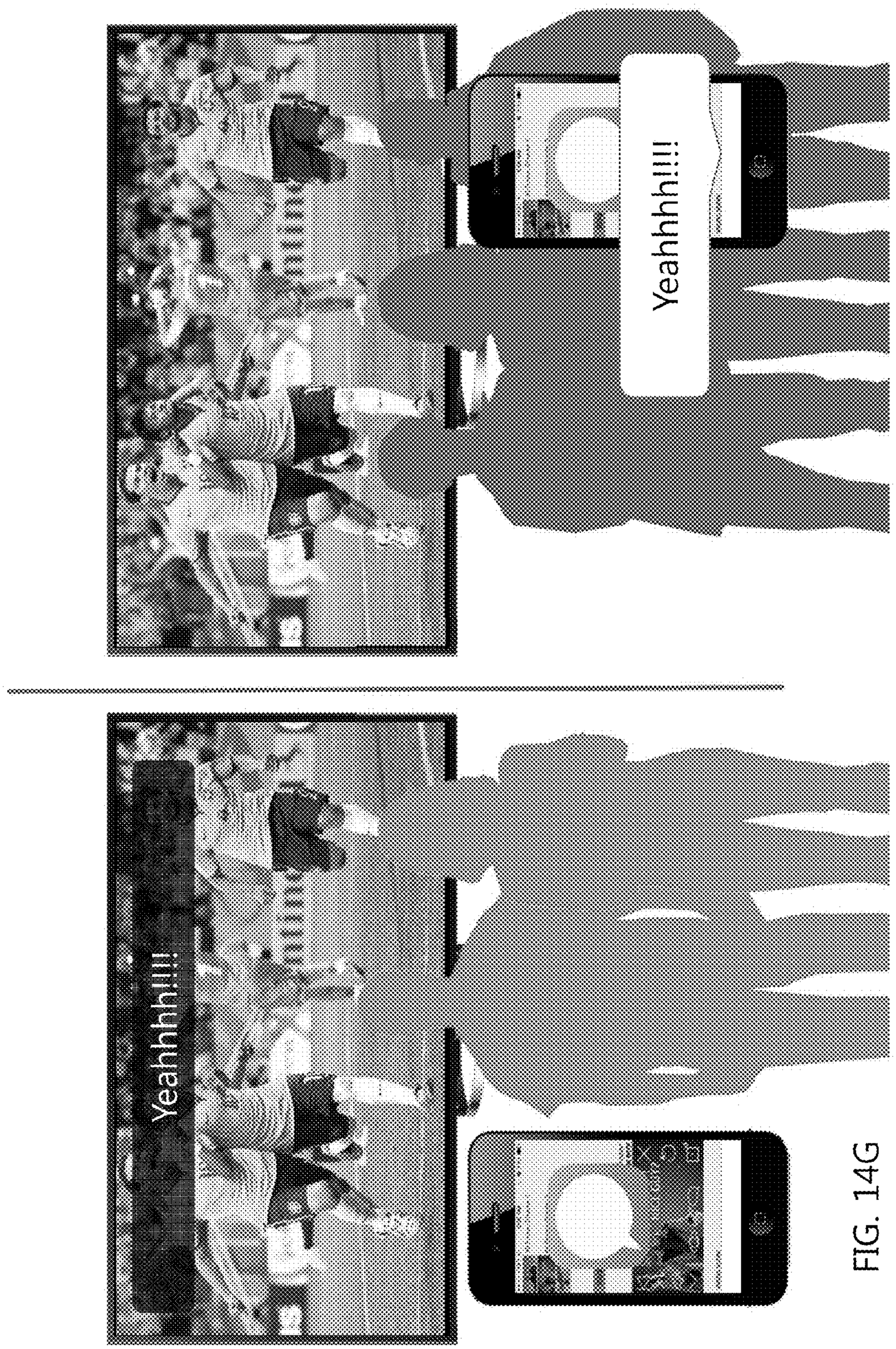


FIG. 14G

SOCIAL DATA ASSOCIATED WITH BOOKMARKS TO MULTIMEDIA CONTENT

CROSS-REFERENCE TO RELATED APPLICATION(S)

[0001] This application is a continuation-in-part of U.S. patent application Ser. No. 13/601,874, "Program Guide Based on Sharing Personal Comments about Multimedia Content," filed Aug. 31, 2012; which is a continuation-in-part of U.S. patent application Ser. No. 13/100,105, "Program Guide Based on Sharing Personal Comments about Multimedia Content," filed May 3, 2011. This application also claims priority under 35 U.S.C. § 119(e) to U.S. Provisional Patent Application Ser. No. 62/105,657, "Social Data Associated With Bookmarks To Multimedia Content," filed Jan. 20, 2015. The subject matter of all of the foregoing is incorporated herein by reference in their entirety.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] This invention relates generally to sharing personal information about multimedia content, including for example using other people's comments about videos as a basis for a personalized program guide to videos.

[0004] 2. Description of the Related Art

[0005] For many years, television was the dominant form of easily accessible multimedia. As such, it often formed the center of social activities. In the early days of television when not every household contained a television, multiple households might meet at a certain time at a certain place (the place with the television) in order for everyone to watch a certain television program. This behavior was driven by technological constraints. There was only one television and the television program could only be viewed at one specific time determined by the broadcaster.

[0006] Advances in technology have essentially removed these constraints. Televisions are now so inexpensive as to be ubiquitous and programming can be viewed on many devices, not just televisions. Furthermore, time-shifting technologies now allow broadcast programming to be recorded and viewed at any later time. Many other types of programming can simply be accessed at any time. Today, it is not uncommon for every person to have personal gadgets for accessing and viewing many different types of multimedia content, not just television, at all times. Thus, it is not uncommon for members of today's household to all be in the same room, but with each member viewing his/her own program on his/her own device. This is in stark contrast to the behavior from long ago. Thus, one might conclude that the behavior of sharing a video-viewing experience is now obsolete, since advances in technology have removed the constraints that in the past forced this behavior.

[0007] However, the technological constraints were only one aspect driving the behavior. People often enjoy gathering together to share a video experience. For example, shared viewing experiences happen today, even though they are not forced by technological limitations. A group of friends or floormates within a college dormitory might meet regularly to watch a weekly television series. As another example, sports fans might gather at a local sports bar in order to cheer on their favorite team. This happens not because there is only one television that must be shared; it happens because people enjoy sharing the experience.

[0008] However, it is difficult to reproduce a similar experience for people who are connected virtually. Returning to the household example, the daughter might be watching a different program than her parents and siblings, but she might be watching the same program as her friends across town (who are also watching on their devices from their homes) and she might enjoy sharing that experience even though she cannot physically meet with her friends. Thus, there is a need for technology to allow people to do so.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the Office upon request and payment of the necessary fee.

[0010] The invention has other advantages and features which will be more readily apparent from the following detailed description of the invention and the appended claims, when taken in conjunction with the accompanying drawings, in which:

[0011] FIG. **1** is a block diagram of a system according to the present invention.

[0012] FIG. **2** is a diagram illustrating a member commenting on a video he is viewing.

[0013] FIG. **3** is a diagram illustrating organizing member comments by scene.

[0014] FIG. **4** shows an example discussion thread.

[0015] FIG. **5** is a screen shot of a main user interface page according to the present invention.

[0016] FIG. **6** is a screen shot of a page for sharing comments.

[0017] FIG. **7** is a screen shot of a listing of shared comments.

[0018] FIG. **8** is a screen shot of a page for activating a video.

[0019] FIG. **9** is a screen shot for a sharing dashboard.

[0020] FIG. **10** illustrates another example embodiment according to the present invention.

[0021] FIG. **11** illustrates distribution of a video bookmark to different devices.

[0022] FIG. **12** illustrates use of video bookmarks to synchronize playback on different devices.

[0023] FIG. **13** is a block diagram of a system according to the present invention.

[0024] FIGS. **14**A-G show example use cases of the metadata service.

[0025] The figures depict embodiments of the present invention for purposes of illustration only. One skilled in the art will readily recognize from the following discussion that alternative embodiments of the structures and methods illustrated herein may be employed without departing from the principles of the invention described herein.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0026] The figures and the following description relate to preferred embodiments by way of illustration only. It should be noted that from the following discussion, alternative embodiments of the structures and methods disclosed herein will be readily recognized as viable alternatives that may be employed without departing from the principles of what is claimed.

[0027] FIG. **1** is a block diagram a system according to the present invention. In FIG. **1**, a member **110**A of a social network service (SNS **120**) is viewing multimedia content **130** from source **140**. For example, the member **110**A might be watching a broadcast television program. While the member **110**A is viewing the content **130**, he makes comments **150**A about the content **130**. He might like or dislike certain parts; he might notice things about the scenery, plot or characters; he could make any types of comments. These comments **150**A are shared with other members **110**B-N according to the privacy rules for the SNS. The dashed lines in FIG. **1** indicate members of the SNS **120**.

[0028] However, the comments **150**A are not simply forwarded to other members. Rather, the comments **150**A are attached to bookmarks that mark corresponding time points in the content **130**. For example, the bookmarks might be thumbnails of the corresponding frames in the television program. The bookmarks can come from different sources. For example, they might be provided by the source **140** along with the content **130**. Alternately, they might be generated by the member's viewing device as he is viewing the content **130**. In another approach, the bookmarks might be provided by a separate service **160**. This bookmarking service may also be referred to as a dynamic metadata service, because it can provide and/or organize metadata beyond just bookmarks. The comments and bookmarks (collectively, referred to as a discussion thread **152**A) are forwarded to other members **110**B-N.

[0029] Upon viewing the comments, other members **110**B-N may want to also view the content **130**. If they are already viewing the content, they may want to skip to the sequence that was commented on. In either case, they can do so by activating the bookmark. In FIG. **1**, member **110**B activates the bookmark. This triggers a sequence of events **170**A-C. The metadata service **160** translates the bookmark to a corresponding time point for the content **130**. It instructs **170**B the source **140** to provide **170**C the content **130** to member **110**B beginning at that time point. Members **110**B-N can also provide their own comments and share them with the other members. In this way, members **110** can have a shared viewing experience, even if each member is viewing the content **130** on his/her own device at separate physical locations.

[0030] In another aspect, the comments and corresponding bookmarks can be organized into discussion threads for the video. Metadata service **160** stores these discussion threads for subsequent searching by members of the SNS. For example, member **110**B might later want to view member **110**A's comments about the video, or might want to search for related videos based on member **110**A's comments. Public parts of the discussion thread (including aggregate statistics over many members) may also be published more broadly and/or used for searching by a broader public. In this way, a program guide to content can be constructed based on personal comments.

[0031] It should be understood that FIG. **1** is just an example and many variations will be apparent. For example, there are many types of multimedia content **130** and many ways to distribute that content. Video is probably the most common form of multimedia content, but other forms can also be accommodated. Video can include live action (sporting events, musical performances, etc.), movies and television programming. It can include live broadcast, broadcast premieres, video on demand and playback of prerecorded video. Distribution channels can include television broadcast, cable and satellite networks, Internet and mobile networks. Accordingly, the source **140** can include television stations, cable and satellite head-ends, Internet sites and a member's local device (e.g., for content that is downloaded onto a member's device and then played back later).

[0032] The actual devices used can also vary, even from member to member. First, the device used to view content, activate video bookmarks and share comments could be the same device, but they do not have to be. For example, a member might be watching a television program on his high definition TV but might be social networking via his mobile device (e.g., phone, tablet, pad), with the two activities synchronized. On the other hand, another member might be watching the television program and social networking from a single integrated window running on his laptop computer. Viewing devices include devices supported by the content source **140**, including televisions, computers and phones and other mobile devices. Similarly, social networking devices include devices supported by the SNS **120**, including wearable devices for example. Common social networking services include Facebook, Twitter, and other forms of instant messaging.

[0033] As a final example, the functions provided by the member devices **110**, source **140**, SNS **120** and metadata service **160** can be allocated in different ways. As described above, the bookmarks can be provided by any of these devices. As another example, rather than notifying **170**B the source **140** to start playback of content for a member **110**B, the metadata service **160** might initiate playback by sending a message to the member **110**B which then gets the appropriate content from the source **140**. With respect to SNS **120**, the SNS **120** is the source of privacy rules for the members **110**, so communications between the members **110** and source **140** or service **160** could run through the SNS **120** rather than occurring directly. Conversely, SNS functions such as privacy controls could be implemented at least in part by the source **140** or service **160**.

[0034] FIGS. **2-4** provide a more detailed example of one implementation. In FIG. **2**, a member is commenting on a video he is viewing. In this example, the member is viewing a video on one device **210** and is social networking on another device **220**. The video is a live broadcast of an event that is being streamed to the device **210**. There is one video bookmark **230** for each second of content. The video bookmarks **230** are provided to the SNS device **220**. The bookmarks **230** and video are synchronized. That is, the video bookmark for second **303** is provided to the SNS device **220** at the same time that second **303** is playing on the content device **210**. The member can share comments **240** via various SNS. The comments are attached to the video bookmarks (annotated as VMark in FIG. **2**). The comments (with VMarks) are shared with other members, who can then also view the video by activating the bookmarks.

[0035] FIG. **3** illustrates the organization of comments. Comments **240** are received by the metadata service **160**. The service **160** associates the comments **240** with the corresponding time point in the video. In this example, comments are further aggregated by scene **330**. For example, seconds **300** to **360** in the video might all correspond to scene **13**.

[0036] FIG. **4** shows an example organization of this information for scene **13**. Sections **460** and **470** contain non-personal metadata about the show. These items could include title, summary, year of release, actors, sex/language/violence

rating, video source and other bibliographic information. This can be provided for the entire video or might vary from scene to scene. Actor information could list just the actors appearing in that scene. Other scene information could include setting and background music.

[0037] Section **480** includes comments organized for this scene. This data includes personal data such as the actual comments and responses and SNS profile for the commenters. It can also include data that has been anonymized or aggregated so that it can be published to a broader audience. In this example, metadata service **160** organizes, stores and makes this data **480** available to others. Thus, SNS **120** might access the metadata service **160** in order to share comments within groups of members, and more public search engines might catalog the public parts of this data to provide more general searching. In this way, the data collected by metadata service **160** can provide a guide to different types of programming—a personalized program guide of sorts. As shown in FIG. **4**, the data preferably is provided in different forms matched to the member's device.

[0038] By searching, sorting and reviewing the metadata attached to a scene or a video, a member can learn more about the scene or video and decide whether to view it. For example, a member might search for comments from certain members or a group of members (e.g., his friends) and review these comments to learn about the video. The metadata can be searched or organized in different ways: according to which member is making the comment, according to which members are receiving the comments, according to which members are/have viewed the video, according to content of the comments, by video bookmark, or by level of recommendation (e.g., like/dislike), to name a few. If a member selects a video, he can then add his own comments to the discussion thread. In this way, a rich data set can be built up over time.

[0039] Various architectures can be used to implement a metadata service on a computer system. For example see U.S. Pat. No. 7,624,337 "System and Method for Indexing, Searching, Identifying and Editing Portions of Electronic Multimedia Files" and U.S. Pat. No. 7,548,565 "Method and Apparatus for Fast Metadata Generation, Delivery and Access for Live Broadcast Program," both of which are incorporated herein by reference. In one implementation, specialized software applications run on the various devices to implement the video bookmarking and integrated social networking services. In one approach, these applications are provided by a central source. Alternately, APIs may be defined, thus allowing third parties to develop many different versions of these applications. Preferably, the user experience is somewhat standardized so that users can easily use these applications, regardless of which device and which version of the application. In one approach, the metadata service controls and distributes the APIs.

[0040] Aggregate data or time-based data can also be presented. For example, trending information might indicate that certain groups of members feel a television show is getting better/worse with each passing episode, or that certain sections within a movie are exciting/boring. Trend setters can use the service to establish followings for new programs.

[0041] FIGS. **5-9** show screen shots of another implementation. In this example, a member is watching a television program on his television, from broadcast TV station KBS2. At the same time, the member is social networking on a separate mobile device. FIG. **5** is a screen shot of the member's SNS device. The channel choice **510** shows which channel the member is tuned to on his television. In this example, there are two possible channels, KBS1 and KBS2, and the user is watching KBS2. The video bookmark **520** is the bookmark that corresponds to what is currently airing on KBS2. It changes as the television program proceeds. Section **530** shows a history of video bookmarks, showing the current bookmark as well as past bookmarks. In this way, the member can make comments on prior scenes by scrolling back to past bookmarks.

[0042] The member can share comments by clicking the sharing arrow **540**. FIG. **6** shows the screen after the sharing arrow **540** has been activated. This version of software brings up possible SNS services (Twitter, Facebook and SMS), to make it easy for the member to share the video bookmark **520**. The member can also make comments before sharing the bookmark. The "TV on" button can be used to turn on the TV, for example tuning it to the broadcasting channel or start playing recorded/stored video according to the current video bookmark.

[0043] The List button **550** in FIG. **5** displays a list of past comments. FIG. **7** shows the screen after the List button is clicked. In this particular display, each entry in the list includes a comment **710**, the corresponding bookmark **540**, and the SNS profile **720** of the member making the comment. By activating the bookmark **540**, the member can bring up more information and eventually start playback of the corresponding video. FIG. **8** shows the screen after a member has activated bookmark **540**. In this example, the comment **710** and SNS profile **720** are displayed. Some additional information is provided about the program, as well as about the social networking aspects as shown at the bottom of this screen. In this example, there have been 203 tweets or retweets of this comment, 145 facebook comments or like/dislike actions, and 82 sms (short message service) messages using this video bookmark. These are generally showing quick social media statistics about the video bookmarks. Video playback can be started by clicking the Play triangle **810**. The playback preferably is matched to the member's playback device. For example, different screen formats and resolutions might be used for playback on a high definition TV versus a small screen mobile phone. In fact, the playback does not have to be video. For example, it could be teletext. If the video is a newscast, the member might prefer teletext rather than full video.

[0044] FIG. **9** shows a sharing dashboard. The SNS counts **910** show the number of messages or mentions shared about the video or video bookmark within the same video by Twitter friends (tweets), Facebook friends (facebook), or by friends' SMS or MMS (sms). The Friend's count (Friends) shows the count of the unique users' or friends' IDs in the SNS shared count. The Peak Time Chart **920** has two graphs that show the SNS shared counts (top) and SNS Friend's count (bottom) vs. time lapsed from the beginning of the video. The Best row **930** indicates which time point is considered the best by the community (e.g., the most shared scene within the video). The thumbnail is the video bookmark for the best time point, and the numbers indicate the total messages or mentions by each SNS (tweet, facebook, and sms). The Person row **940** indicates the SNS ID whose video bookmarks or messages are used most by other friends by retweets (RT) or video playback counts (Share). This could be used for rewarding for those who actively send video bookmarks for example. The Said row **950** indicates which words are occurring most frequently

in the members' comments. These keywords are saved as metadata and can be used for search and linking dynamic advertising.

[0045] FIG. **10** shows another example implemented on an Internet-ready TV. In this example, a television program is playing on the TV. However, the TV has a user interface button **1010**. When activated, the button overlays a sharing dashboard **1020**. The listing of member comments is located at the bottom of the dashboard. The other information is similar to information shown in FIGS. **5-9**. In an alternate implementation, the user interface button is not shown on the TV screen, but might be a button on a remote control for example.

[0046] FIG. **11** illustrates distribution of a video bookmark, with playback on different devices. In this example, a user creates a video bookmark, which can be activated for playback on a mobile device **1110**, on a web browser on a personal computer **1120**, or on a television **1130**. In response to clicking the video bookmark, the video bookmark service leads the user to the corresponding source that has the right format for the user's desired device of video playback. For example, mobile servers may have multimedia files optimized for mobile screens, and TV or PC servers may have a multimedia files for high resolution HDTVs.

[0047] FIG. **12** illustrates use of video bookmarks to synchronize playback on different devices. In this example, a user activates a video bookmark to start playback on a television **1210**. Since his device is a television **1210**, the bookmarking service uses an appropriate format for the content, which in this example is MP4, 1 Mbps streaming. The user stops the playback at some point, which is marked by the video bookmark **1215**. The user then resumes playback, but from the laptop **1220** in his room. The bookmarking service knows where to resume playback, based on video bookmark **1215**, and uses a different format (flash, 500 Kbps streaming) more suited for the laptop **1220**. The user again stops the playback, at a position marked by video bookmark **1225**. Playback is resumed on a mobile device **1230** using an appropriate format (MP4 H.264, 300 Kbps). In this manner, video bookmarks can be used to place-shift, time-shift and/or device-shift the playback of content.

[0048] FIG. **13** is a block diagram of another system according to the present invention. In this figure, the left-hand column **1370** represents the creation/generation of bookmarks and data from SNS (e.g., comments, recommendations, preferences, like/dislikes, sharing/collaborations). This data is accumulated by the metadata service **1360**. The right-hand column **1380** represents different use/consumption of this data. FIG. **13** shows just a simple example. In the left-hand column, SNS members **1310** are viewing multimedia content **1330** from source **1340**. They generate comments or other social data about the content **1330**. This social data is associated with certain time points in the video, which are marked by video bookmarks. The video bookmarks and social data are collected by the metadata service **1360**.

[0049] The metadata service **1360** organizes the bookmarks and social data in a manner that is useful for later consumption. For example, the metadata service may create metadata, make data available for searching, analyze data collected from multiple sources, or organize data according to members, member groups, SNS, content, comment, etc. The data collected by the metadata service also presents data mining opportunities. Note that the metadata service **1360** stores bookmarks rather than full video clips. This has many advantages in terms of reducing storage requirements and increasing processing throughput since the actual video need not be processed by metadata service **1360**. Rather, the bookmark is a pointer to the actual video, which is provided by the content source **1340**.

[0050] In the right-hand column, the video bookmarks are being used. For example, members of a certain SNS group may be viewing content **1330** which has relevant social data. The V in the lower right of the screen indicates that comments from other SNS group members are available for this scene. In FIG. **13**, these comments are a discussion thread which is delivered to a different device.

[0051] On the creation side **1370**, the video bookmarks may be created in a variety of ways by a variety of entities. For example, video bookmarks may be created during the content production process. Producers, directors, editors and others may generate video bookmarks during production and editing. This may occur in the editing studio or on-site. For example, many producers/directors use portable video editing studios on-site. They may also add supplemental content, such as directors' comments or extra scenes and clips.

[0052] Video bookmarks may also be created post-production. For example, the content may be completed and then the producing studio may go back through the video to insert video bookmarks. This may happen either pre-release or post-release. Third parties, for example content delivery network (CDN) operators, may also create or add to video bookmarks. For example, CDN operators might add information about the content: title, genre, directors, producers and other information related to the content. They might also add promotional scenes. CDN operators, producers, directors and others may select certain scenes or video bookmarks as promotional scenes, possibly for viral promotion. CDN operators might also add playback duration to video bookmarks. If a user clicks a video bookmark, the CDN operator may play it for free for a certain period, say 30 seconds or several minutes, possibly as a teaser to purchase the full video. These tasks could be done manually or with software. Automated scene finders may be used to create video bookmarks for the beginning of each scene. Metadata, such as keywords or tags or local time of a live event, can also be added.

[0053] Video bookmarks could also be created by SNS members. In the example of FIG. **13**, SNS members are commenting on the content, and these comments and corresponding bookmarks are collected by the metadata service **1360**. The video bookmarks could be pre-existing bookmarks and the comments are then just attached to the existing bookmarks. Alternately, the video bookmarks could be created as the SNS members are making comments.

[0054] In addition to the bookmarks, the metadata service **1360** also collects additional information about the content from the SNS members. In FIG. **13**, this is labelled social data. This could include SNS members' comments about the content; graphical, audio, text or hypertext annotations on the content added by SNS members; and discussion threads. Other examples of social data are SNS interactive data, such as likes/dislikes, sharing, tweeting/retweeting, etc. The SNS members' interactions on particular video bookmarks or scenes can be chosen to promote the content virally among other users. Interactions could also include the directors', producers', actors', etc. remarks or reactions. Interaction could also occur at the video bookmark-level or at the scene-level, rather than for the entire video.

[0055] The metadata service **1360** can also collect information about the SNS member or SNS group, which shall be referred to as SNS metadata. Examples are member or group profile, face, name, hashtag, personal ID, group ID and group host.

[0056] Another category is information about the social interaction itself, which shall be referred to as interaction metadata. Examples include time of SNS member's comment; location of SNS member when he makes the comment, or of other SNS members when they playback the content or comment; device type used by the SNS member; and viewing or other preferences of the SNS members. Some of the interaction metadata may be about the content itself. Playback duration of the relevant video clip; or text, audio/voice, faces or other identifiable objects from the content are some examples.

[0057] On the consumption side **1380**, consumption begins with identifying relevant interactions. This could happen in different ways. In the example of FIG. **13**, the "V" in the screen indicates there is a discussion thread on this scene, and the discussion thread appears in the SNS member's separate device. Other implementations will be apparent. For example, the discussion thread could appear within the playback screen. Or it could be toggled on and off, or retrieved only upon request.

[0058] In an alternate approach, the metadata service **1360** is searchable. For example, it may be searchable by keywords, tags, content, scenes, audio, voice, SNS member/group, or metadata for any of those. It may also do analysis on the data, such as trending keywords, popular content or discussion threads, or trends by SNS member or group. Upon finding an interesting record, the SNS member can replay the relevant content by using the attached video bookmark. The metadata service **1360** itself does not store or serve the video or video clip. Rather, the metadata service **1360** stores the bookmark, which points to the content and its source **1340**.

[0059] Returning to the example of FIG. **13**, the metadata service **1360** includes a video bookmark for the wedding kiss scene. It also includes social data about this scene, which in this example is a thread of comments about the scene. It may also include supplemental content, such as director's comments or information about the actors. It may also include content metadata, such as Actor=Chris, Karen, Keyword=Kiss, Location=New York Central Park and Promotional=Wedding. It may also include SNS metadata or interaction metadata, such as additional information about the SNS members making the comments, or the time or location of the comments.

[0060] Preferably, the metadata service **1360** is operated independently from the content sources **1340** and the SNS services. In this way, the metadata service **1360** can aggregate over many content sources **1340** and SNS services. Large amounts of content and corresponding social data can be cataloged, tracked and analyzed. This metadata can then be made available through many types of SNS services. Note that although the metadata service **1360** may catalog and analyze large amounts of data, that data may not be owned by the metadata service. For example, the underlying content typically will be owned by the content source rather than the metadata service, as will be any supplemental content or content metadata provided by the content source. Similarly, social data, SNS member data and metadata typically will be owned by the SNS service provider and/or individual member. Redistribution of any of this data may be subject to restrictions placed by the owner, including privacy rules.

[0061] The metadata service **1360** can coordinate with content providers (or other providers of video bookmarks and metadata) in a number of ways. For example, the metadata service might provide an API or a standard format for video bookmarks. Content providers may also use specialized software, add-on or plug-ins to coordinate backend data creation and provision. SNS members may also gain access via a number of different ways. Their underlying SNS may integrate this service so that it appears to be native to the SNS offering. Alternately, it may be provided as a separate app, add-on or plug-in—either to the SNS service or to the video playback device, or available through a web site.

[0062] FIGS. **14**A-G show additional example use cases of the metadata service **1360**. In FIG. **14**A, Ray is interested to view content and the metadata service **1360** provides recommendations from Ray's friends. One friend recommends a World Cup 2014 match. Others recommend Mad Men, Top Gear, the Simpsons, etc. One friend is currently watching Super Bowl 2014, so Ray could join if he wanted to. The World Cup 2014 Brazil game is a top trending show. Ray may access related SNS services or view content via his mobile phone. The metadata service **1360** also serves a targeted ad for Budweiser beer, based on Ray's and his friend's viewing habits and recommendations.

[0063] In FIG. **14**B, Ray decides he does not want to view content by himself, so he invites **1410** his girlfriend to join him, virtually. She accepts **1420**. They are a group (LoveNest) and the metadata service **1360** now provides personalized recommendations and targeted ads based on the group, rather than based on Ray alone. Ray and his girlfriend decide to watch the World Cup 2014 Brazil match, as shown in FIG. **14**C.

[0064] At the same time, another group of Ray's friends is watching TopGear, as shown in FIG. **14**D. In FIG. **14**E, the LoveNest group invites **1430** the other group to join watching the World Cup 2014 Brazil match. The other group accepts **1440** and their content stream is changed to match the content that LoveNest is watching. In FIG. **14**F, Ray types "What a Goal!" In FIG. **14**G, someone from the other group responds "Yeahhhh!" The discussion thread can be recorded by the metadata service **1360**, and then accessed by another of Ray's friends at a later time. In this way, friends can have a shared viewing experience even though they are not physically together. In a further enhancement, members' or groups' schedules can be attached to video bookmarks to coordinate group viewing, particularly if members are in different time zones or traveling.

[0065] Although the detailed description contains many specifics, these should not be construed as limiting the scope of the invention but merely as illustrating different examples and aspects of the invention. It should be appreciated that the scope of the invention includes other embodiments not discussed in detail above. For example, the video bookmark may take different forms and contain different amounts of information. In one example, video bookmark itself may contain the actual text from the video. This is especially useful for news segments. When users cannot access the SNS or video source, they can read the text contained in the video bookmark. TV stations sends out such text information during broadcasting via teletext format and the metadata service can capture the text and attach it to the video bookmarks automatically. This view of text can also generate rapid viral

spread of the message/bookmarks, which in turn can generate more video playbacks—i.e. enhance rating of the video.

[0066] In another aspect, the video bookmark or the metadata service may be used to change the programming channel. As an example, in a situation where a user is watching video on a TV and social networking on a mobile device, activating a video bookmark on the mobile device may automatically change the channel on the TV to the selected program. The video bookmark may also be used to locate the multimedia file within locally connected home consumer electronics devices such as a DVR (Digital Video Recorder) or NAS (Network Attached Storage), to retransmit or broadcast certain comments to a broader audience (e.g., a producer, actor/actress, or reporter of certain video may want to let a broad audience know about their content prior to broadcasting or afterwards to increase both real-time and time-shifted ratings), or to use certain thread/comments in related advertising commercials. In alternate embodiments, the pointer to the multimedia content could be solely the web address or location of the video (i.e., without thumbnail and additional other information). The pointer or video bookmark could also point to a short video clip or other intermediate content, which in turn leads to the full multimedia content.

[0067] In another aspect, most of the examples above discuss the use of individual video bookmarks. However, the same examples can also be applied to a series or set of bookmarks. For example, a set of bookmarks presented in sequence may be a good summary or highlights of the underlying content. SNS members may comment on individual video bookmarks or on sets of subsets of bookmarks.

[0068] In addition, content may have different versions or renditions. For example, video can have different versions optimized for playback on different devices, in different languages, or through different networks. In one approach, a single bookmark refers to all of the versions and the correct version is determined by other means. In another approach, different bookmarks refer to the different versions. As another example, multiple angles or views may be available or multiple audio tracks may be available. In one approach, a single bookmark refers to all of the versions and the correct version is determined by other means. In another approach, different bookmarks refer to the different versions.

[0069] Various other modifications, changes and variations which will be apparent to those skilled in the art may be made in the arrangement, operation and details of the method and apparatus of the present invention disclosed herein without departing from the spirit and scope of the invention as defined in the appended claims. Therefore, the scope of the invention should be determined by the appended claims and their legal equivalents.

[0070] In alternate embodiments, the invention is implemented in computer hardware, firmware, software, and/or combinations thereof. Apparatus of the invention can be implemented in a computer program product tangibly embodied in a machine-readable storage device for execution by a programmable processor; and method steps of the invention can be performed by a programmable processor executing a program of instructions to perform functions of the invention by operating on input data and generating output. The invention can be implemented advantageously in one or more computer programs that are executable on a programmable system including at least one programmable processor coupled to receive data and instructions from, and to transmit data and instructions to, a data storage system, at least one input device, and at least one output device. Each computer program can be implemented in a high-level procedural or object-oriented programming language, or in assembly or machine language if desired; and in any case, the language can be a compiled or interpreted language. Suitable processors include, by way of example, both general and special purpose microprocessors. Generally, a processor will receive instructions and data from a read-only memory and/or a random access memory. Generally, a computer will include one or more mass storage devices for storing data files; such devices include magnetic disks, such as internal hard disks and removable disks; magneto-optical disks; and optical disks. Storage devices suitable for tangibly embodying computer program instructions and data include all forms of non-volatile memory, including by way of example semiconductor memory devices, such as EPROM, EEPROM, and flash memory devices; magnetic disks such as internal hard disks and removable disks; magneto-optical disks; and CD-ROM disks. Any of the foregoing can be supplemented by, or incorporated in, ASICs (application-specific integrated circuits) and other forms of hardware.

What is claimed is:

1. A computer-implemented method for a metadata service to accumulate and organize data relating to videos, the method comprising:

receiving social data relating to videos from members of at least two Internet-based social network services (SNS), the social data associated with specific time points in the videos; and

storing the social data indexed to video bookmarks, the video bookmarks marking the time points associated with the social data, wherein activating the video bookmark causes playback of the video from the marked time point.

2. The method of claim **1** wherein the social data includes SNS members' comments about the video.

3. The method of claim **1** wherein the social data includes annotations on the video added by SNS members.

4. The method of claim **1** wherein the social data includes SNS members' recommendations, SNS members' preferences and/or SNS members' likes/dislikes.

5. The method of claim **1** wherein the social data includes sharing/collaborations between SNS members.

6. The method of claim **1** wherein the metadata service is operated independently of the social network services.

7. The method of claim **1** wherein one of the social network services is Facebook.

8. The method of claim **1** wherein one of the social network services is Twitter.

9. The method of claim **1** wherein one of the social network services is an instant messaging service, a chat service or other messaging service.

10. The method of claim **1** wherein the metadata service is operated independently of sources of the videos.

11. The method of claim **1** wherein the metadata service stores video bookmarks for the videos, but does not store clips of the video or playback the videos themselves.

12. The method of claim **11** wherein the video bookmark is a thumbnail of a frame of the video from the marked time point.

13. The method of claim **1** wherein the video bookmarks support activating the video bookmark from one device and playing back the video on a different device.

14. The method of claim **1** wherein a format of the video changes depending on the device used to playback the video.

15. The method of claim **1** wherein the video bookmark is created during production of the video.

16. The method of claim **15** wherein the video bookmark also allows access to different renditions from other unused pre-production videos.

17. The method of claim **1** wherein the video bookmark is created post-production of the video.

18. The method of claim **1** wherein the video bookmark is created by SNS members.

19. The method of claim **1** wherein the video bookmark is created by using instant messages.

20. The method of claim **1** wherein the video bookmark is created by the metadata service.

21. The method of claim **1** wherein the video bookmark is created from an app on a wearable device.

22. The method of claim **1** further comprising:

receiving SNS metadata and storing the SNS metadata indexed to video bookmarks.

23. The method of claim **1** wherein the SNS metadata includes at least one of: SNS member profiles, SNS group profiles, SNS member pictures, SNS member names, SNS member hashtags, SNS member IDs, and SNS group IDs.

24. The method of claim **1** further comprising:

receiving interaction metadata and storing the interaction metadata indexed to video bookmarks.

25. The method of claim **1** wherein the interaction metadata includes at least one of: local time of the day, SNS member locations, SNS member device types, SNS member preferences for video playback.

26. The method of claim **1** wherein the interaction metadata includes at least one of:

playback duration of the videos, text for the videos, audio/voice for the videos, and faces or other identifiable objects from the videos.

27. A computer program product for use with a computer, the computer program product comprising a non-transitory computer usable medium having a computer program code embodied therein for enabling a metadata service to accumulate and organize data relating to videos, the computer program code performing the steps of:

receiving social data relating to videos from members of at least two Internet-based social network services (SNS), the social data associated with specific time points in the videos; and

storing the social data indexed to video bookmarks, the video bookmarks marking the time points associated with the social data, wherein activating the video bookmark causes playback of the video from the marked time point.

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