

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TIKTOK INC.,

Petitioner,

v.

SHOPSEE, INC.,

Patent Owner.

Case No. IPR2025-01485

U.S. Patent No. 11,134,316

**PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,134,316**

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EXHIBIT LIST

Exhibit	Description
EX1001	U.S. Patent No. 11,134,316 (“’316 patent”)
EX1002	Declaration of Kevin C. Almeroth.
EX1003	Curriculum Vitae of Kevin C. Almeroth
EX1004	Prosecution History for U.S. Pat. No. 11,134,316
EX1005	PO’s District Court Infringement Chart for ’316 Patent
EX1006	U.S. Pat. No. 11,432,046 (“Ohliger”)
EX1007	E.P. 1,425,918 (“Tapissier”)
EX1008	Constance Steinkuehler, <i>Massively Multiplayer Online Gaming as a Constellation of Literacy Practices</i> , 4 E-Learning 3 (2007)
EX1009	U.S. Pat. Appl. Pub. 2016/0232579 (“Fahnestock”)
EX1010	U.S. Pat. No. 9,277,164 (“Lane”)
EX1011	U.S. Pat. No. 11,432,046 – Drawings – Other than Black and White Line Drawings, Fig. 1-12 (June 13, 2016)
EX1012	U.S. Pat. No. 11,432,046 – Drawings – Other than Black and White Line Drawings, Fig. 13-29 (June 13, 2016)
EX1013	U.S. Pat. No. 8,166,500 (“Sakhartov ”)
EX1014	U.S. Pat. No. 8,332,477 (“Kaiserlian”)
EX1015	SCORE Placeholder Sheet for IFW Content, Prosecution History for U.S. Pat. No. 11,432,046 (June 13, 2016)
EX1016	TikTok Opening Claim Construction Brief (Dkt. 66)
EX1017	ShopSee Claim Construction Response Brief (Dkt. 73)

EX1018	Michael Isard et al., <i>CONDENSATION—Conditional Density Propagation for Visual Tracking</i> , 29 Int’l J. of Comput. Vision 1, 5-28 (1998).
EX1019	U.S. Pat. No. 11,368,514 (“Boffa”)
EX1020	U.S. Pat. Appl. Pub. 2008/0294694 (“Maghfourian”)
EX1021	U.S. Pat. Appl. Pub 2015/0172563 (“Jakobson”)

LIST OF CHALLENGED CLAIMS

Claim	Limitation
1[pre]	A method for providing information on items, services, or songs in a video media comprising:
1[a]	a) receiving the video media having a plurality of visual or audio objects in one or more frames of the video media;
1[b]	b) processing the video media to generate a first interactive video layer, wherein the processing includes:
1[b][i]	i. identifying one or more of the plurality of visual or audio objects within the video media,
1[b][ii]	ii. associating product information to the one or more of the plurality of visual or audio objects to correspondingly form one or more items, services, or songs of interest;
1[b][iii]	iii. tracking the one or more items, services, or songs of interest through the one or more frames of the video media; and
1[b][iv]	iv. assigning a selectable visual indicator for each of the one or more items, services, or songs of interest, wherein the first interactive video layer is configured to display the selectable visual indicator;

Claim	Limitation
1[c][i]	c) generating a video data comprising the video media, the first interactive video layer, and a second interactive video layer,
1[c][ii]	wherein the video data is configured to be provided to a user via a first media playback device and to at least one guest via a second media playback device,
1[c][iii]	wherein the second interactive video layer comprises a social media portion controllable by the user via the first media playback device, so as to interact with the at least one guest that is also a viewer of the video media through an interface displayed in the second interactive video layer via the second media playback device,
1[c][iv]	wherein the second interactive video layer displays an interaction between the user and the at least one guest, and past interaction activity between a plurality of users in the social media portion, and
1[c][v]	wherein the user is capable of maintaining and toggling between a plurality of different conversations displayable in the social media portion in the second interactive video layer as an overlay to the video media displayed by the first media playback device,

Claim	Limitation
1[c][vi]	wherein the plurality of users either includes the user or does not include the user; and
1[d]	d) distributing information associated with the one or more items, services, or songs in the video media to the user.
2[pre]	The method of claim 1, further comprising:
2[a][i]	enabling the user to present the video data with or without the first interactive video layer being turned on or off based on selection by the user to view or not view the first interactive video layer, respectively; and
2[a][ii]	enabling the user to present the video data with or without the second interactive video layer being turned on or off based on selection by the user to view or not view the second interactive video layer, respectively.
3[pre]	The method of claim 2, further comprising:
3[a][i]	displaying the video media and the first interactive video layer to the user; and

Claim	Limitation
3[a][ii]	receiving a selection of a given selectable visual indicator of a given item, service, or song of interest from the user to display marketing information of the given item, song, service, or song of interest to the user.
4[pre]	The method of claim 3, further comprising
4[a]	enabling the user to purchase the given item, song, or service of interest from the marketing information.
5[pre]	The method of claim 4,
5[a]	wherein the user is enabled to purchase while the video media is being displayed to the user.
6[pre]	To the extent the preamble is limiting, the method of claim 1, further comprising
6[a]	copying a timed portion of the video data to a clip list based on a selection of an item, service, or song of interest by the user.
7[pre]	The method of claim 1, further comprising
7[a]	collecting data based on actions taken by the user.

Claim	Limitation
8[pre]	The method of claim 1, further comprising:
8[a]	removing the product information from the one or more of the plurality of visual or audio objects; and associating different product information with the one or more of the plurality of visual or audio objects.
9[pre]	The method of claim 1, further comprising
9[a]	providing a third interactive video layer having one or more visual indicators to the server for distribution with the video media to the user.
10[pre]	The method of claim 9,
10[a]	wherein the one or more visual indicators include a link for one or more of a second video media, a side room digital layer, a promotional video, a game, and/or merchandise.
11[pre]	The method of claim 1,
11[a]	wherein the video data includes a third interactive video layer, wherein the third interactive video layer comprises one or more visual indicators.

Claim	Limitation
12[pre]	The method of claim 1,
12[a]	wherein the video media includes one of a television episode or a movie.
13[pre]	The method of claim 1,
13[a]	wherein the identifying one or more of the plurality of visual or audio objects is performed manually through input of spatial and/or temporal data for each of the one or more items, services, or songs of interest within the video media.
14[pre]	The method of claim 1,
14[a]	wherein identifying one or more of the plurality of visual or audio objects is performed automatically by a computer program for visual and/or audio recognition and mapping.
15[pre]	The method of claim 1,
15[a]	wherein the first and second interactive layers are unaffected by ad blocking software.
16[pre]	The method of claim 1,

Claim	Limitation
16[a][i]	wherein the interaction and the past interaction activity comprise a public or private conversation between the user and the at least one guest,
16[a][ii]	wherein the plurality of different conversations comprises at least a public conversation which enables all viewers of the video media to join and a private conversation which enables a permitted subset of all viewers of the video media to join.
17[pre]	A non-transitory computer readable media encoded with instructions that, when executed by a processor, cause the processor to carry out at least the following steps:
17[a]	(a) processing video media to generate a first interactive video layer, wherein the processing includes:
17[a][i]	i. identifying one or more of the plurality of visual or audio objects within the video media;
17[a][ii]	ii. associating product information to the one or more of the plurality of visual or audio objects to correspondingly form one or more items, services, or songs of interest;

Claim	Limitation
17[a][iii]	iii. tracking the one or more items, services, or songs of interest through the one or more frames of the video media; and
17[a][iv]	iv. assigning a selectable visual indicator for each of the one or more items, services, or songs of interest, wherein the first interactive video layer is configured to display the selectable visual indicator; and
17[b][i]	(b) generating a video data comprising the video media, the first interactive video layer, and a second interactive video layer,
17[b][ii]	wherein the video data is configured to be provided to a user via a first media playback device and to at least one guest via a second media playback device,
17[b][iii]	wherein the second interactive video layer comprises a social media portion controllable by the user via the first media playback device, so as to interact with the at least one guest that is also a viewer of the video media through an interface displayed in the second interactive video layer via the second media playback device,
17[b][iv]	wherein the second interactive video layer displays an interaction between the user and the at least one guest, and

Claim	Limitation
17[b][v]	past interaction activity between a plurality of users in the social media portion, and
17[b][vi]	wherein the user is capable of maintaining and toggling between a plurality of different conversations displayable in the social media portion in the second interactive video layer as an overlay to the video media displayed by the first media playback device,
17[b][vii]	wherein the plurality of users either includes the user or does not include the user.
18[pre]	A computer-implemented system comprising: a digital processing device comprising: at least one processor, an operating system configured to perform executable instructions, a memory, and a computer program including instructions executable by the digital processing device to create an application for providing information on items, services, or songs in a video media, the application comprising:

Claim	Limitation
18[a]	a) a software module for receiving a request for the generation of information regarding items, services, or songs presented in a video media from a first processing device of a user;
18[b]	b) a software module for linking the items, services, or songs with marketing and/or purchasing information;
18[c]	c) a software module for the generation of a first interactive layer to display with the video media, wherein said first interactive layer contains the items, services, or songs of interest linked to the marketing and/or purchasing information;
18[d][i]	d) a software module for the generation of a second interactive layer to display with the video media and optionally the first interactive layer,
18[d][ii]	wherein the video media, the first interactive layer, and the second interactive layer are configured to be provided to user via the first processing device and to at least one guest via a second processing device,

Claim	Limitation
18[d][iii]	wherein the second interactive layer contains a social media portion controllable by the user via the first processing device, so as to interact with the at least one guest that is also a viewer of the video media through an interface displayed in the second interactive video layer via the second processing device,
18[d][iv]	wherein an interaction between the user and the at least one guest, and past interaction activity between a plurality of users in the social media portion, are displayed in the interface in the second interactive video layer, and
18[d][vi]	wherein the user is capable of maintaining and toggling between a plurality of different conversations displayable in the social media portion in the second interactive video layer as an overlay to the video media displayed by the first processing device,
18[d][vii]	wherein the plurality of users either includes the user or does not include the user; and
18[e]	e) a software module for transmitting the first and second interactive layers to the first processing device of the user.

Claim	Limitation
19[pre]	The computer-implemented system of claim 18,
19[a][i]	wherein the interaction and the past interaction activity comprise a public or private conversation between the user and the at least one guest,
19[a][ii]	wherein the plurality of different conversations comprises at least a public conversation which enables all viewers of the video media to join and a private conversation which enables a permitted subset of all viewers of the video media to join.

I. INTRODUCTION

The '316 patent is directed to processing video media to generate “interactive video layers.” It does not, however, disclose any non-obvious technology for performing such processing. Indeed, creating and overlaying interactive elements for viewers of video media developed throughout the 2000s and early 2010s as online video content grew in popularity. The technology was mature enough to be the subject of multiple patents from this timeframe, including the prior art Ohliger reference relied upon in this Petition.

II. MANDATORY NOTICES AND FEES

A. Real Party-In-Interest

The real party-in-interest for Petitioner is TikTok Inc.

B. Related Matters

The '316 patent was asserted against Petitioner in *ShopSee, Inc. v. TikTok, Inc.*, Case No. 7:24-cv-00333-DC-DTG (W.D. Tex., filed December 17, 2024).

C. Counsel and Service Information

Electronic service may be made on the email addresses identified below and in the accompanying Power of Attorney.

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D. Payment of Fees

The Office is authorized to charge the fee required for this Petition (any additional fees) to Deposit Account No. 50-5708.

E. Requirements for Inter Partes Review

Petitioner certifies that the '316 patent is available for *inter partes* review, that Petitioner is not barred or estopped, and that 35 U.S.C. §§315(a)-(b) is inapplicable.

III. GROUNDS

Ground	Basis	Reference(s)	Claims
1	§103	Ohliger (U.S. No. 11,432,046)	1-19
2	§103	Ohliger and Sakhartov (U.S. No. 8,166,500)	1-19
3	§103	Ohliger and Kaiserlian (U.S. Pat. No. 8,332,477)	1-19
4	§103	Ohliger and Tapissier (E.P. No. 1,425,918)	1-19
5	§103	Ohliger, Sakhartov, and Kaiserlian or Tapissier	1-19

IV. STATE OF THE ART

The '316 patent does nothing more than combine well-known technologies, according to known uses: interactive video layers, including as overlays; tracking objects in videos; and social media and chat functionalities. Nor does the '316 patent unlock any special benefit from combining those technologies.

Video Layers/Overlays: Superimposing interactive layers on top of a video has been known for decades. Interactive program guides have existed since the 1980s, and by the 1990s it was well known to superimpose such interactive guides as a layer over a television program, even integrating video in the guide itself. For example, U.S. Pat. No. 6,388,714, issued May 14, 2002, describes embedding broadcast television into a program area and displaying parts of the guide over the video. *See, e.g.*, U.S. Pat. No. 6,388,714 at FIG. 12A, 13C. Interactivity further allowed for linking services and products associated with the underlying video, such as ordering a hat associated with an NFL game. *See, e.g.*, U.S. Pat. No. 6,388,714 at FIG. 17C.

Tracking Objects in Video: Tracking objects in a video has also been known for decades. In its simplest implementation, this involves calculating a 2D cross-correlation of an underlying video frame and an image or representation of an object. The mathematical framework for this has been known since the 18th century. More advanced processes like kernel-based tracking, contour tracking, Kalman filtering, and Particle filtering have been known since the 1960s. By the priority date of the '316 patent, sophisticated tracking algorithms were available as free, open-source software, such as the Condensation Algorithm for “[t]racking objects through highly cluttered scenes,” available since 1998. EX1018.

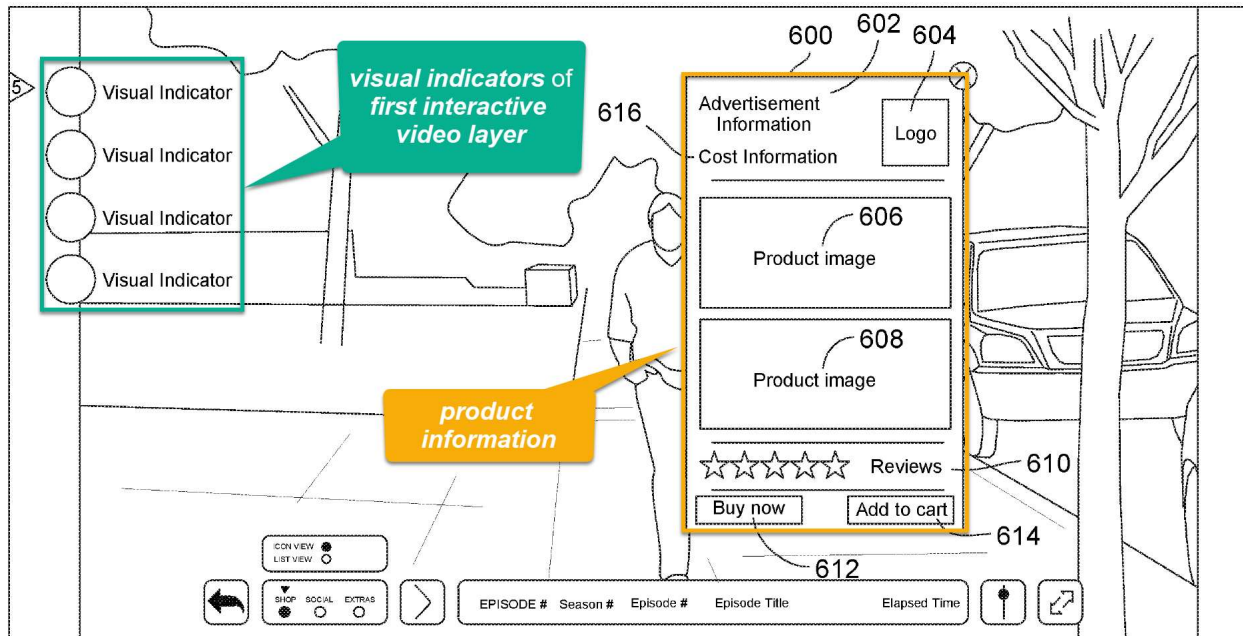
Social Media and Chat: The development of computer-based social media and chat systems evolved through distinct technological phases. In the 1970s and early 1980s, bulletin board systems and email protocols established the foundation for digital communication, allowing users to post messages and receive responses hours or days later. The 1980s and 1990s witnessed the emergence of real-time communication protocols like America Online's instant messaging. Social networking then gained traction with websites like SixDegrees (1997), Myspace (2003), and Facebook (2006). From the start, social media incorporated chat and commenting functionality. Facebook's commenting system, launched in 2006, became a ubiquitous model across the web through its social plugins. U.S. Pat. No. 9,311,678. YouTube's commenting system in 2005 allowed commenting alongside videos. Meerkat (2015) and Periscope (2015) incorporated mobile live streaming with real-time comments, and Twitch (2011) built live chat into gaming streams.

V. '316 PATENT

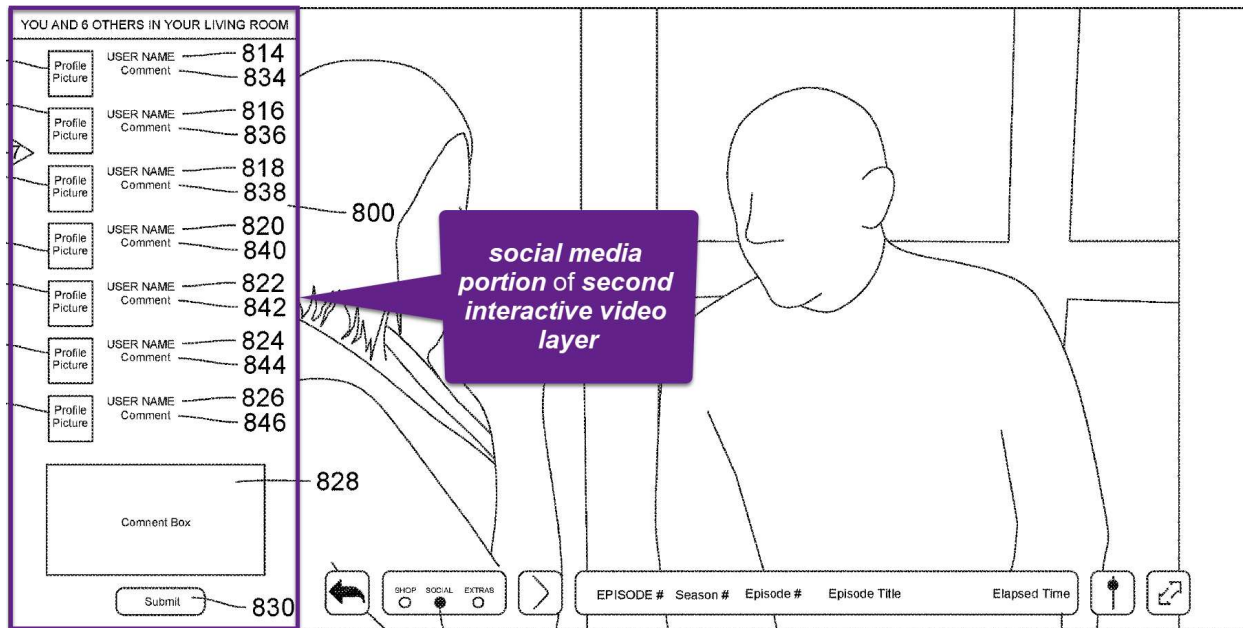
A. '316 Patent Claims

The '316 patent has three independent claims: 1 (method), 17 (processor), and 18 (application). The three independent claims are substantially identical. At a high level, all three require receiving and processing video media to generate a "first interactive video layer" that allows a user to obtain "product information" (also called "marketing and/or purchasing information" in claim 18) on, e.g., "items ... of

interest” visible in the “video media.” Those “visual indicators” are shown, for example, in Figure 6 of the ’316 patent:



The '316 patent claims also require generating a “second interactive video layer” that is displayed as an “overlay” and contains a “social media portion” for “maintaining and toggling between a plurality of different conversations” with other users. One such conversation is shown, for example, in Figure 8 of the ’316 patent:



B. '316 Patent Specification

The specification assumes familiarity with “television and movies as a form of long-form entertainment,” “commercials ... directly advertising between programming segments on television,” and “online entertainment services.” EX1001, 1:19-20, 1:27-29, 1:67-2:2. The specification acknowledges that the “online streaming and advertising service[s]” already existed at the time of alleged invention including “NETFLIX®, HULU®, HBO®, and AMAZON®.” EX1001, 2:10-13, 1:37-42. The specification also acknowledges the existence of “traditional television guide layers, channel navigation layers, TV show or movie information layers, or closed captioning layers.” EX1001, 14:13-17. The '316 then assumes that existing programming languages may be used to create the interactive video layers described therein but lacks any disclosure for implementing the same. EX1001,

11:67-12:5, 13:46-52. The specification does not, for example, disclose or purport to disclose new or improved means of generating layers, recognizing objects in video media, or incorporating social media functionality. EX1002 ¶37.

Rather, the '316 patent purports to use this existing technology to “integrate[] a social media service within the entertainment without interruption of the entertainment,” “include a shopping layer that ... is immune to ad blocking,” and “create a unique model for online advertising within the long-form entertainment.” EX1001, 2:13-21, 2:26-27. But the prior art already provided these benefits. *See, e.g.*, EX1006, 25:47-54 (describing “a software plug-in application for a social networking site”); EX1006, 22:57-61 (describing a system for “the auction of advertising rights to a video,” including movies); *see also* EX1010, 8:55-59 (“In addition, advertisements placed within the video stream as described above may be insulated from ad blocking software.”); EX1002 ¶38.

C. Prosecution History

During prosecution, Applicant made several amendments to the claims in response to examiner rejections. EX1004, 124, 166, 237, 311, 343. The examiner rejected the claims under 35 U.S.C. § 103 as unpatentable in view of U.S. Pat. Pub. No. 2012/0167145 (“Incorvia”), U.S. Pat. Pub. No. 2012/0159327 (“Law”), U.S. Pat. No. 10,440,436 (“Taylor”), and U.S. Pat. Pub. No. 2005/0262542 (“DeWeese”).

EX1004, 104-14, 140-51, 178-90, 215-29, 260-75. None of those references are relied upon in this petition.

The original claims did not recite most of the limitations regarding the social media portion beyond that the user interacts with a guest. *Id.*, 63, 65, 66. Over a series of rejections and amendments, the applicant added the current limitations. *Id.*, 103-13, 130-33, 140-151, 167-72, 178-90, 196-99, 201-2, 215-29, 239-42, 261-75.

On April 27, 2021, the applicant and examiner conducted an interview where they agreed on amendments to overcome the prior art. *Id.*, 308. The amendments recited that the user and guest are each provided with the video and overlays via their respective media playback devices. *Id.*, 312-16. The applicant argued that Law only discloses two users watching a video on the same television, though commenting on it via their own devices. *Id.*, 318. The applicant also argued that DeWeese only allows users to chat about television programs they are watching but fails to disclose that each user views the video and overlays on their respective devices. *Id.*, 318. These claims were allowed after the applicant added clarifying language regarding the user's inclusion in the conversation to overcome a Section 112 rejection. *Id.*, 343-44, 352-56.

Accordingly, as noted by the examiner, the social media interactions recited in the claims were well-known in the art. The examiner only allowed the claims once they were amended to specify that each user views the video and overlays on their

own respective devices. However, as discussed below, this limitation is disclosed in Ohliger and Tapissier, neither of which was considered during prosecution.

VI. PERSON OF ORDINARY SKILL

A person of ordinary skill in the art (“POSITA”) for the ’316 patent at the time of the alleged invention would have had a bachelor’s degree in the area of Electrical Engineering, Computer Engineering, Computer Science, or similar field, and at least two years of relevant experience in the area of multimedia systems including video processing and audio processing. The definition of level of skill in the art is not rigid: more years of relevant experience may substitute for fewer years of education, and vice versa. EX1002 ¶¶45-48.

Petitioner’s expert, Dr. Almeroth, exceeded this level by the priority date. EX1002 ¶¶45-48.

VII. CLAIM CONSTRUCTION

No express constructions are required to find the ’316 patent claims invalid. In parallel district court litigation, the parties are briefing the claim terms listed in the table below along with each parties’ position in the district court litigation. This includes Petitioner’s assertion that independent claims 1 and 18 (but *not* independent claim 17) are indefinite. In addition, claim construction is not yet complete and either side may still adopt the other side’s interpretation for any claim term.

Term	Petitioner's Construction	PO's Construction
“a plurality of ... audio objects in one or more frames of the video media” (claim 1)	Indefinite. Claim term is nonsensical because audio objects cannot be “in” frames. EX1016, 3-6.	Plain meaning. The claim uses “frames as a temporal marker” to signify the “objects in question may persists through only a portion of the video media.” EX1017, 4-5.
Petition addresses the alternative claim language “a plurality of visual ... objects in one or more frames of the video media.” The full limitation requires “a plurality of visual <u>or</u> audio objects in one or more frames of the video media.” There is no dispute that “a plurality of visual ... objects in one or more frames of the video media” is definite and governed by its plain meaning. The prior art discloses such “visual ... objects.” Thus, the prior art discloses the limitations whether or not the outer bounds of the term are definite. <i>Mylan Pharms. Inc. v. Horizon Pharma USA</i>, IPR2017-01995, Paper 72 at 5-6 (Mar. 28, 2019) (“[W]e need not necessarily determine the outer boundaries of a claim in reaching a		

conclusion as to whether the asserted prior art anticipates a claim or renders it obvious.”).		
“correspondingly form[ing] one or more items, services, or songs of interest” and “the one or more items, services, or songs in the video media” (claim 1)	Indefinite. Claim term is contradictory because “items, services, or songs” cannot be both “in” the received “video media” and “form[ed]” while processing the same. EX1016, 6-8.	Plain and ordinary meaning. Claim 1 distinguishes between “items, services, or songs” and “items, services, or songs of interest”; “[E]ven if there were ‘items, services, or songs’ in the video media at the time it was received, not all of them would be ‘of interest.’ ... [I]t is only when product information is associated with objects that ‘one or more items, services, or

		songs <i>of interest</i> ’ are formed.” EX1017 at 7.
Petition addresses this limitation under PO’s claim interpretation. PO has sufficiently described its interpretation of this claim limitation in the parallel district court case to allow application of PO’s interpretation to the prior art in this IPR. While Petitioner contests in district court whether PO’s interpretation is supported by the intrinsic record, Petitioner is permitted to apply PO’s interpretation here. <i>10x Genomics, Inc. v. Bio-Rad Lab’s, Inc.</i>, IPR2020 00086, Paper 8 at 18 (PTAB Apr. 27, 2020).		
“items, services, or songs presented in a video media” and “said first interactive layer contains the items, services, or songs of interest” (claim 18)	Indefinite. Claim term is contradictory because “items, services, or songs” cannot be both “presented in a video media” and “contain[ed]” “in the first interactive layer.” EX1016, 6-8.	Plain and ordinary meaning. Claim 18 “does not require that the items, services or songs are <i>contained</i> in the video media.” Instead, it claims ‘items, services or songs <i>presented</i> in the video media.” In addition, “items” are

		distinguishable from “items ... of interest,” and only the “items ... of interest” are “contain[ed]” in the first interactive video layer. EX1017, 8.
Petition addresses this limitation under PO’s claim interpretation. PO has sufficiently described its interpretation of this claim limitation in the parallel district court case to allow application of PO’s interpretation to the prior art in this IPR. While Petitioner contests in district court whether PO’s interpretation is supported by the intrinsic record, Petitioner is permitted to apply PO’s interpretation here. <i>10x Genomics, Inc.</i>, IPR2020 00086, Paper 8 at 18.		
Certain limitations of independent claims 1, 17, and 18.	Certain limitations must be performed in order. EX1016, 9-12.	Plain and ordinary meaning. “Each of claims 1, 17, and 18 ... should not be construed to require any particular

		order of method steps.” EX1017, 10-11.
Petition addresses this limitation under both Petitioner’s and PO’s claim interpretations.		
“processor” (claim 17)	At least one processor performs all claimed steps.	Plain and ordinary meaning. “[A] POSITA would understand that the claims only require that ‘one or more’ processors collectively perform all claimed steps and that ‘one or more’ applications collectively contain all claimed software modules. EX1017, 16.
“application” (claim 18)	At least one application contains all claimed software modules.	
Petition addresses this limitation under both Petitioner’s and PO’s claim interpretations.		

“software module” terms of claim 18	Means-plus-function terms; indefinite for lack of sufficient corresponding structure.	Plain and ordinary meaning. These “software module” limitations are not subject to 35 U.S.C. § 112(f) because “[t]he structure of the software modules in claim 18 is explicitly described in the preamble of claim 18[.]” EX1017, 16.
Petition addresses this limitation under PO’s claim interpretation. According to PO, these are not MPF terms, and the only structure ever identified by PO is found in claim 18 itself, which is disclosed or rendered obvious by the prior art. PO has not identified any additional corresponding structure in the specification. Petitioner thus addresses PO’s interpretation of the claim language by comparing the prior art to the plain meaning of each claim element (including the preamble cited by PO in its claim construction response). <i>10x Genomics, Inc.</i>, IPR2020 00086, Paper 8 at 18.		

VIII. GROUNDS

A. Ground 1: Ohliger

1. Background

Ohliger is prior art under at least AIA 35 U.S.C. § 102(a), having been filed June 13, 2016 and thus before the earliest effective filing date of the '316 patent. Ohliger discloses all limitations of the '316 patent claims at least under PO's interpretation of the claim language, but Petitioner presents Ohliger as an obviousness reference in the event PO proposes narrower interpretations for certain limitations (e.g., “generating a video data comprising the video media, the first interactive video layer, and a second interactive video layer” and “maintaining and toggling between a plurality of different conversations displayable in the social media portion in the second interactive video layer as an overlay to the video media”).

Ohliger describes “identifying objects in still images or in video” and making them “interactive in the image or in every frame of the video that they appear” (via “an interactive layer”) to, for example, to connect the viewer with “e-commerce sites where the object may be purchased.” EX1006, Abstract, 8:58-9:2. Figure 18¹

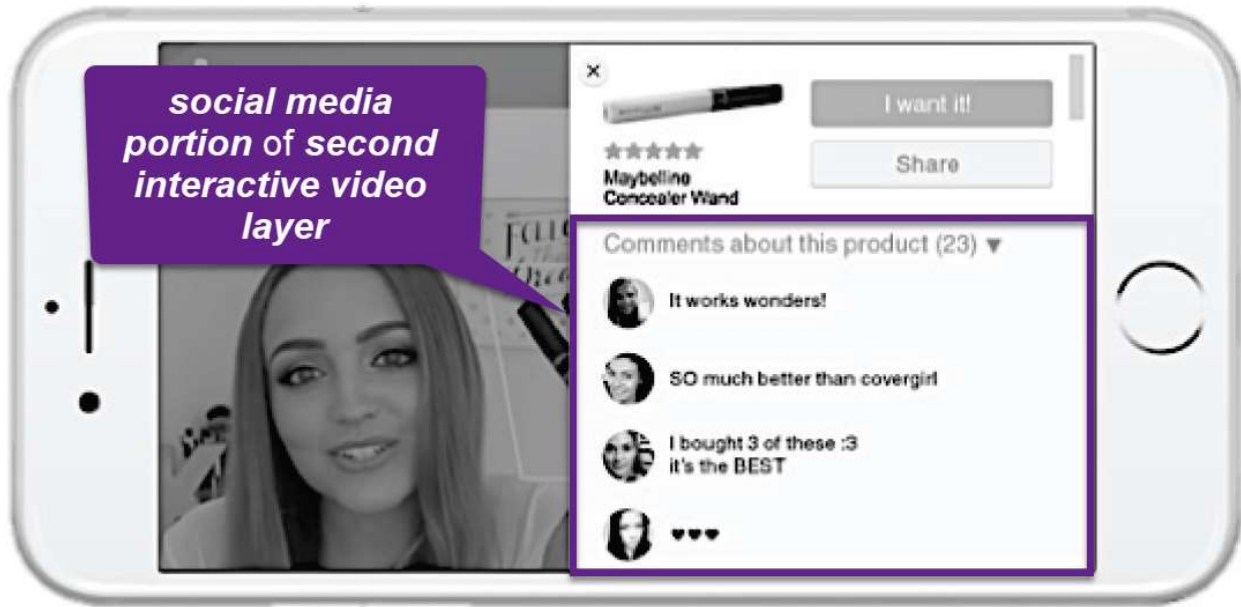
¹ EX1011 and EX1012 contain the figures for the Ohliger patent as provided to the Patent Office as “Supplemental Content” on the same day as the original Ohliger

provides an example of an “interactive layer,” which includes “outline[s] around the interactive video objects” (in this case, parallelograms) and displays additional information about the selected object. EX1006, 16:50-54, 19:30-37, 23:62-24:1, 24:12-20.



Ohliger also discloses social media functions, allowing users to post videos on social media (Fig. 15), leave comments relevant to the video (Fig. 16), or leave comments relevant to specific video objects available for purchase via those video objects (Fig. 26-27). *See, e.g.*, EX1006, Fig. 26:

application and with the exact same disclosure as the application, but with higher resolution. EX1015. For ease of review, the higher resolution versions of Ohliger’s figures are used in this Petition. All figures annotated in color.



Ohliger generates these overlays via its “video object hyperlink exchange” (VOHE) server 300. EX1006, 7:36-38, 15:27-28, 19:13-18, 22:4-7. Within VOHE server 300, video database 108 contains the “raw video content.” EX1006, 16:19-21. The “video content analysis application 106” then processes the “raw video content” to create the video overlays. EX1006, 16:21-24.

2. Analysis

(a) Claim 1

- (i) 1[pre]: A method for providing information on items, services, or songs in a video media comprising:

To the extent the preamble is limiting, Ohliger discloses overlaying price and feature information for “objects” (*i.e., items, services, or songs*) found within a *video media*. EX1002 ¶63. Ohliger describes a method for “identifying objects in a video,” and providing overlaid information about that object when a viewer selects the

object. EX1006, 3:9-21 (“A system is provided for identifying objects in video ..., making the objects interactive in every frame of the video that they appear, allowing the creator to embed **information behind the video objects that appears when a viewer hovers over, clicks or touches the object.**”); *id.*, 2:60-65, 8:58-9:23, 11:32-37. These objects are items such as a “shirt, pants, a hat, shoes, a handbag or a purse.” *Id.*, 10:3-6.

Ohliger further teaches that the overlaid information includes “price, features etc” about the selected object. EX1006, 24:12-16; 24:46-57 (“[T]he viewer displays an abstract of the video object in the form of an overlay ... includ[ing] descriptive information ... about the object (name, brand name, make, model, vendor, price, etc)”), EX1002 ¶64. Figure 5’s step 614B illustrates this:

Flowchart: viewer

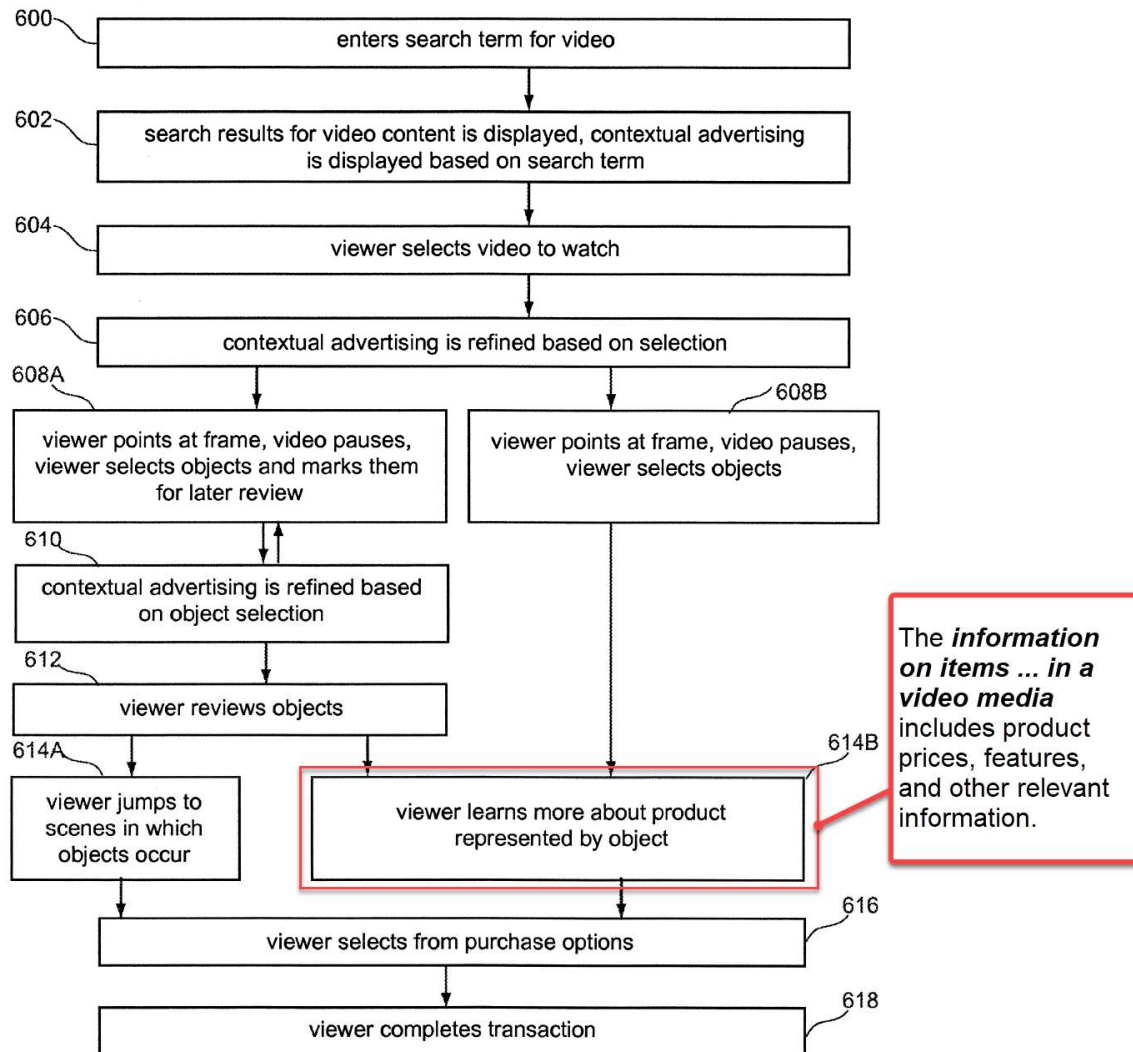
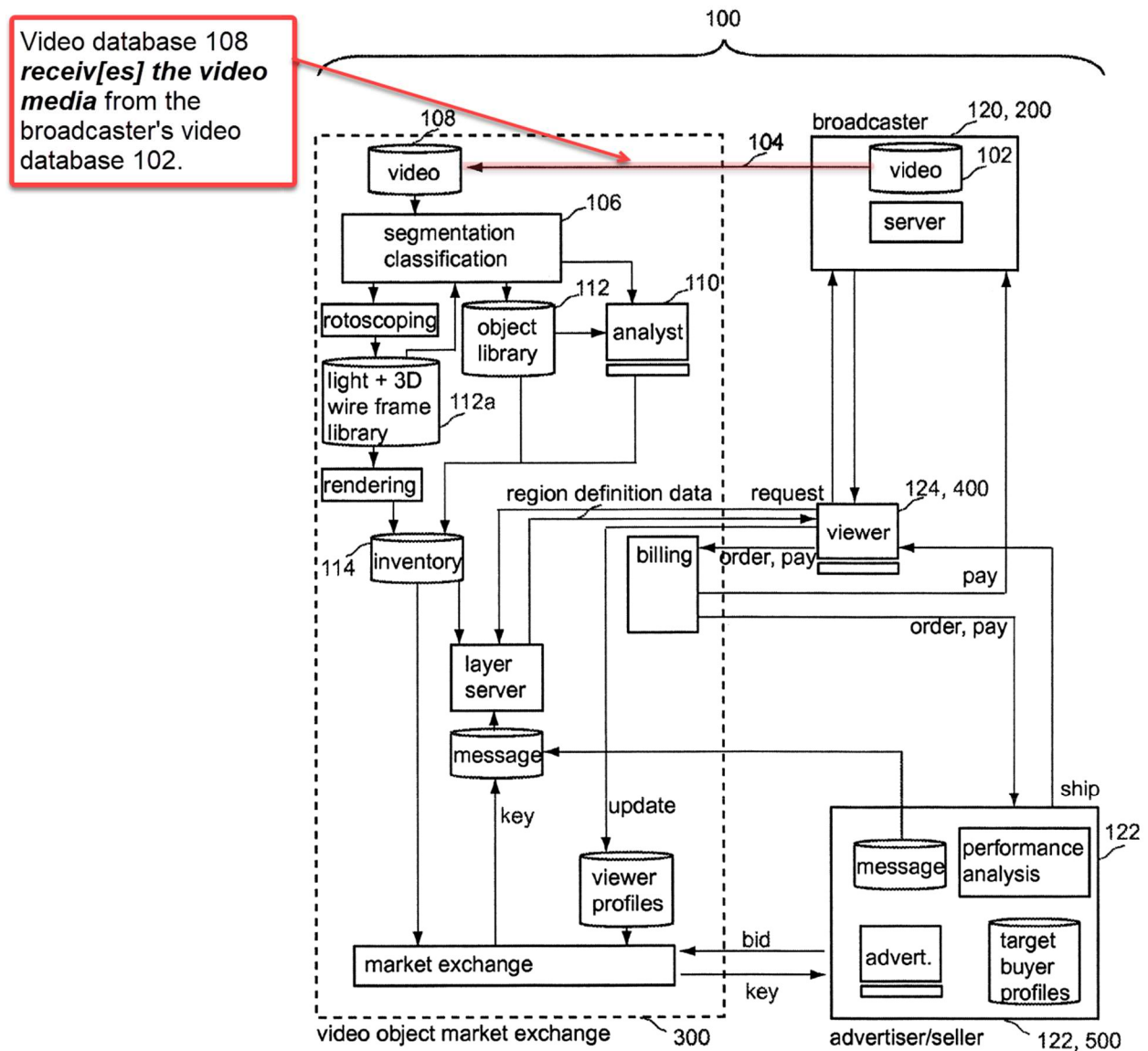


FIG. 5

- (ii) 1[a]: a) receiving the video media having a plurality of visual or audio objects in one or more frames of the video media;

Ohliger discloses a video server that *receives* video content from a broadcaster, identifies a plurality of visual objects within that video, and tracks said objects from frame to frame through the video. The video therefore has *a plurality of visual objects in multiple frames of the video*. EX1002 ¶65.

“receiving the video media”: Ohliger discloses a “VOHE [video object hyperlink exchange] server 300” that receives video content. EX1006, 9:11-15, 16:10-18. In Figure 2, server 300’s video database 108 receives video content from the broadcaster’s video database 102. EX1006, 16:1-3, 15:36-44, 15:59-62, 15:66-67 (“[T]he database 102 is shown as copied to database 108”); EX1002 ¶66.



from the video's creator, *e.g.*, a user of the "VEEPIO app." *Id.*, 26:36-38; *see also id.*, 11:11-14, 29:1-4, 30:55-64, 34:41-44; Fig. 13, 22; EX1002 ¶68.

"video media having a plurality of visual or audio objects": Ohliger teaches that the video content contains multiple "video objects," *i.e.*, ***visual objects***. EX1002 ¶69. Server 300's analysis application 106 locates and classifies each object in the video. EX1006, 3:37-38, 11:54-60, 16:21-28. These "video objects" include a "shirt, pants, a hat, shoes, a handbag or a purse which appears in the video or animation." EX1006, 10:3-6. For example, Figure 27 depicts the server identifying multiple "Maybelline Concealer Wand" objects within the onscreen wireframe. EX1006, 40:52-54.

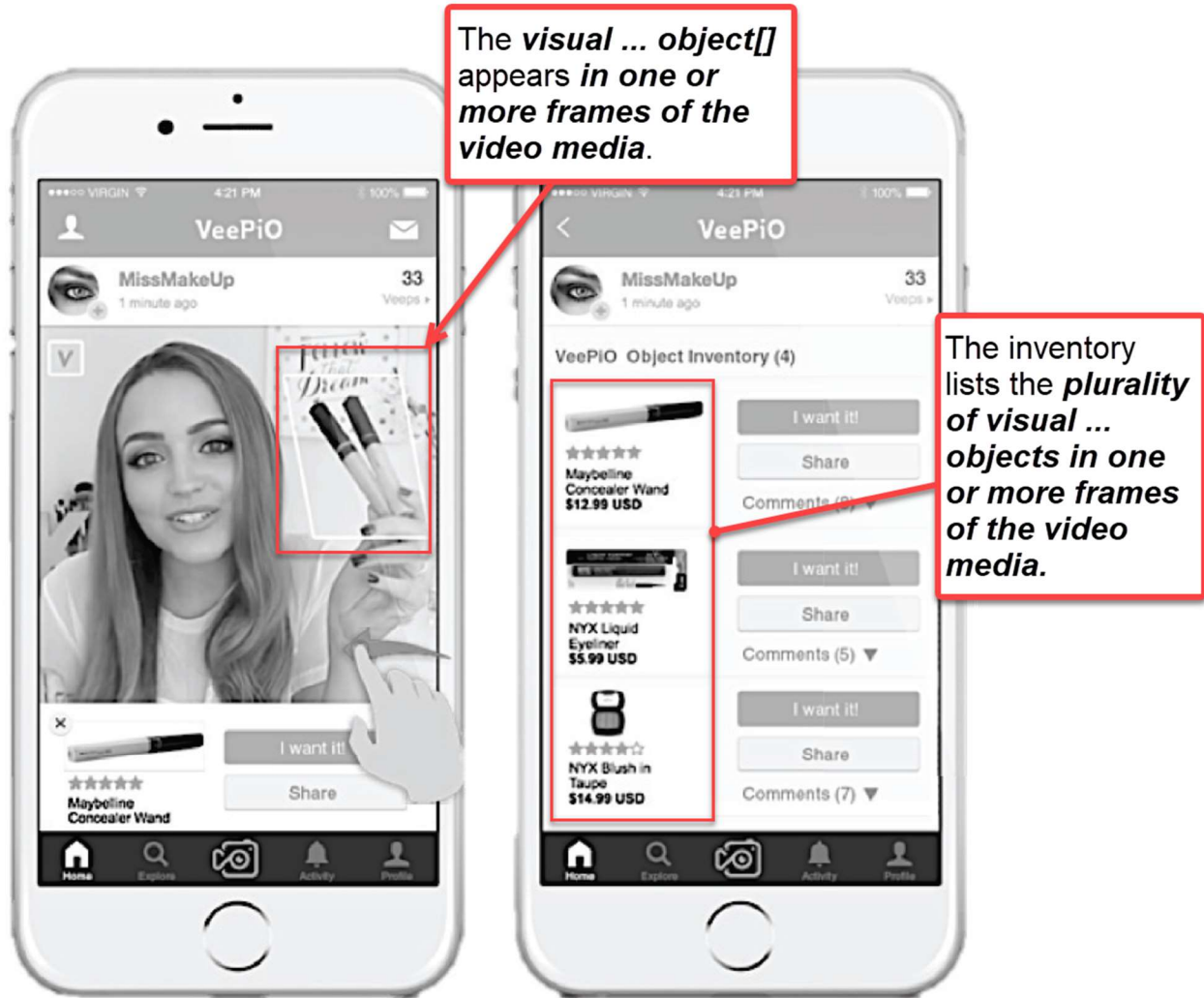
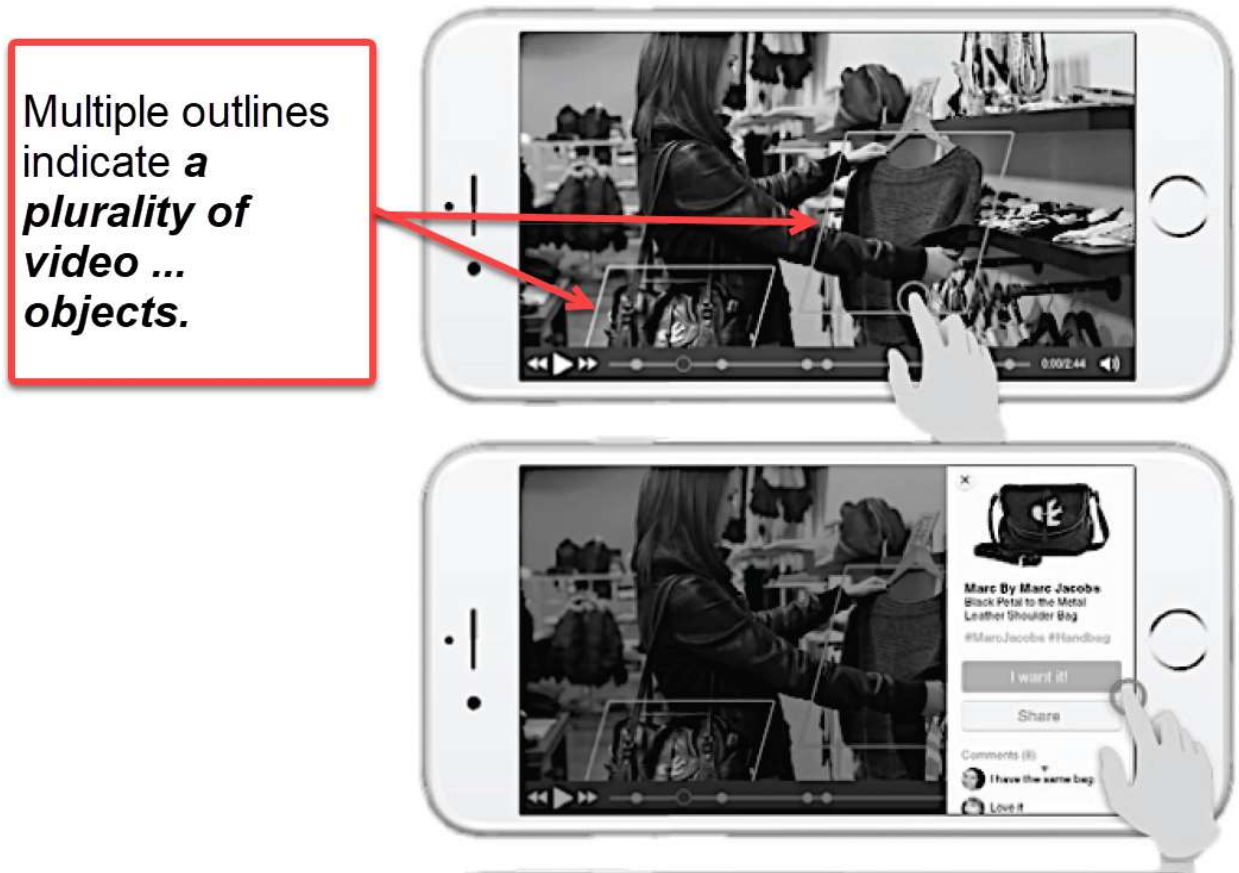


Figure 18 also depicts multiple objects being identified within the wireframe.

EX1006, 16:50-54; EX1002 ¶70.



“in one or more frames of the video media”: Ohliger teaches tracking video objects across multiple frames for the portion of the video where they appear. EX1006, 3:9-20 (“A system is provided for ... making the objects interactive in every frame of the video”), 11:21-26, 10:3-6; *see also infra*, limitation 1[b][iii]; EX1002 ¶71.

(iii) 1[b]: b) processing the video media to generate a first interactive video layer, wherein the processing includes:

Ohliger teaches that the video server *processes the video content* by segmenting the video into frames, identifying objects within a frame, associating those objects with information in the object library, tracking the object from frame-

to-frame, and generating a visual interactive indicator around each object, *i.e.* a ***first interactive video layer***. EX1002 ¶72.

Figure 1 depicts these steps of “a system for creating an interactive overlay for a video,” *i.e.*, an “interactive layer.” EX1006, 5:44-61, 8:58-9:2, 11:50-12:50. Figure 1 teaches that (1) step 700 segments the video into frames and identifies a list of objects, (2) step 710 matches occurrences of each object across multiple frames, (3) at step 715, the video creator can optionally assign information to an object, (4) step 720 associates each object with information from the object library, (5) step 730 creates and tracks an interactive area (“overlay box”) on each object over multiple frames, (6) step 745 links the overlay box with a hyperlink, (7) and at steps 750 through 780, the video is presented to the user with the overlay boxes for viewer interaction. EX1006, 11:52-12:50; EX1002 ¶73.

In parallel district court litigation, PO contends that claim 1 “should not be construed to require any particular order of method steps.” EX1017, 10-11. But even if PO changes positions and contends that certain steps must be performed in order, Ohliger teaches that:

- (1) limitation 1[b][i] is met by step 700’s frame segmentation which yields a list of objects,
- (2) limitation 1[b][ii] is met by step 720’s connecting the object with corresponding object library information,

- (3) limitation 1[b][iii] is met by step 730's object tracking algorithm,
- (4) limitation 1[b][iv] is met by step 730's drawing of an overlay box or step 745's linking of the overlay box with a hyperlink. EX1002 ¶¶74-78.

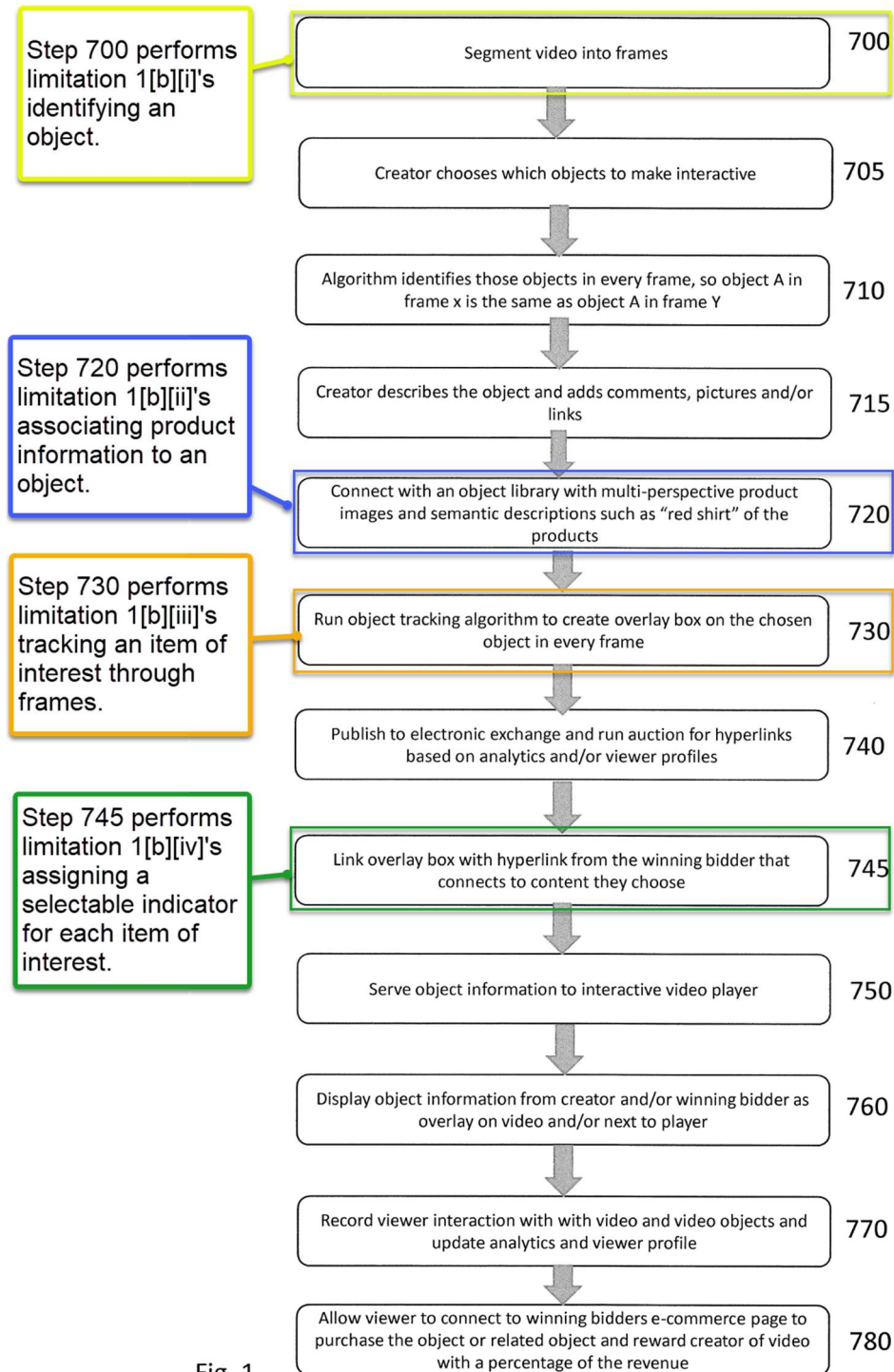


Fig. 1

These and other mappings of Figure 1's steps to the claimed steps are addressed in more detail below. EX1002 ¶¶79-87.

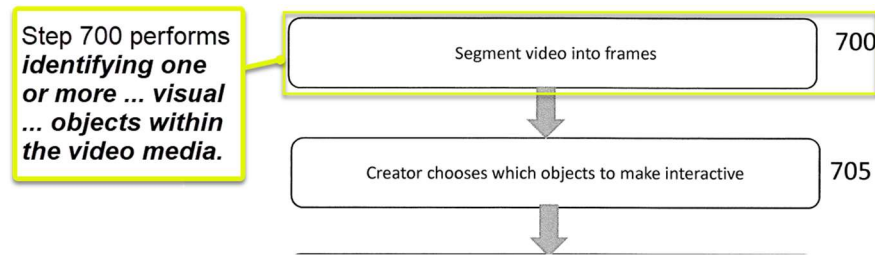
Moreover, Ohliger teaches that “the relative order of steps can frequently be changed without impacting the system” and that Figure 1 “should not be read as a limitation to a specific order unless it is clear from the context that a particular order is required.” EX1006, 13:6-11; EX1002 ¶¶79-83. Based on this disclosure, a POSITA would have found it obvious to implement various alternative orders to those steps. EX1002 ¶¶79-87. For example, a POSITA would have been motivated to associate information with an object in step 715, 720, or 745 prior to tracking that object across multiple frames in step 710 because the associated information would improve said tracking. EX1002 ¶¶80-82. First, in step 715, the video creator can assign pictures to an object, and a POSITA would have been motivated to use these pictures to improve tracking of the object across frames. EX1002 ¶¶79-86. A POSITA would have understood that pictures of an object, especially at alternate angles, would have improved the system's ability to track the object across frames. EX1002 ¶¶82-86. Second, in step 720, “the video objects are compared with ... 3D ... wire frame data” of that object, and Ohliger also teaches that “[t]hese 3D wireframe models may be used to improve the recognition of video objects.” *Id.*, 9:53-56, 12:4-7. Accordingly, a POSITA would have been motivated to use an object's known 3D wireframes to improve the recognition of that object in

subsequent frames. EX1002 ¶¶79-87. Finally, step 745 indicates commercial interest based on an auction's winning bid value. If the "minimum starting bid" is unmet, pre-processing to identify and track objects across frames in step 710 becomes unprofitable and inefficient, justifying performing the auction first. EX1006, 22:51-56; EX1002 ¶82.

A POSITA would have had a reasonable expectation of success, as the reordering of these steps is expressly contemplated in Ohliger. EX1006, 13:6-11. EX1002 ¶¶79-87. A POSITA would have understood that reordering was within ordinary skill, merely requiring performing steps 715 and 720 when an object is first identified, then using that information to track the object in subsequent frames per step 710. EX1002 ¶¶79-87.

(iv) **1[b][i]: i. identifying one or more of the plurality of visual or audio objects within the video media,**

Ohliger discloses a process that results in a list of objects found within the video, *i.e.*, ***identifying visual objects within the video media***. Specifically, Ohliger's segmentation process 700 produces "a list of video objects throughout the video (including the temporal coordinates and region definition data for each object)." EX1006, 11:53-60, 16:19-24; EX1002 ¶88.



Ohliger discloses that its segmentation application “recognize[s] an object by, for example, tracing the outline of a video object or ... by statistical pattern recognition” or “based on size, shape, color, color density, etc.” using “video content analysis technologies.” EX1006, 13:12-25; 1:56-61; EX1002 ¶89.

Ohliger’s “video objects” are *visual objects* because they include “data and visualizations of data which relate to content objects of videos such as a shirt.” EX1006, 2:53-57, 10:3-6 (“e.g., a shirt, pants, a hat, shoes, a handbag, or a purse which appears in the video or animation.”); EX1002 ¶90.

Alternatively, Ohliger discloses manually identifying visual objects whereby “an analyst may manually identify/configure the object boundaries.” EX1006, 12:9-15; EX1002 ¶91.

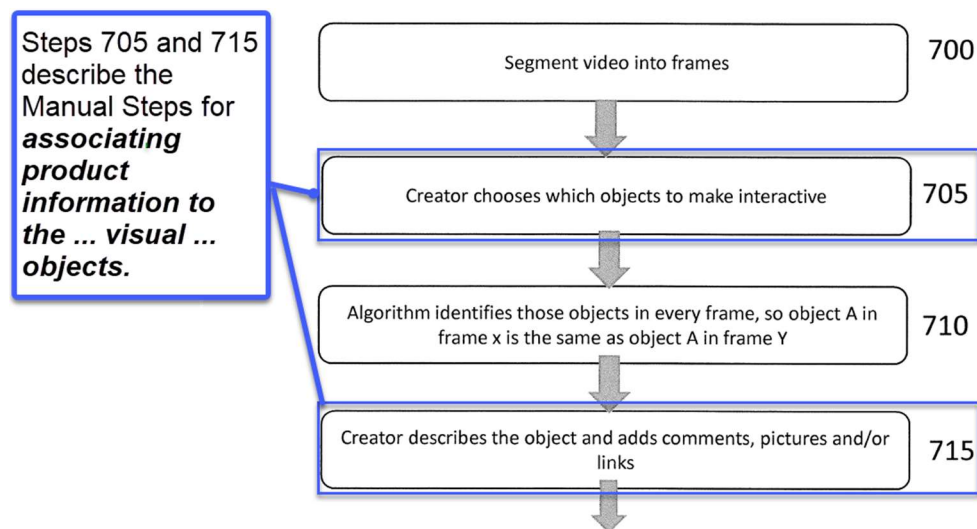
- (v) **1[b][ii]: ii. associating product information to the one or more of the plurality of visual or audio objects to correspondingly form one or more items, services, or songs of interest;**

Ohliger discloses associating *product information* with objects in multiple ways. Ohliger discloses (1) a **Manual Step** where creators associate information to objects; (2) an **Automated Step** comparing objects against databases to associate

matching product information; and (3) an **Auction Step**, present regardless of Manual or Automated Steps, where advertisers bid on hyperlinks to associate their websites with objects. Each of these independent steps individually teach this limitation. The *product information* is associated with the previously identified *visual object* and thereby *forms an item of interest*. EX1002 ¶92.

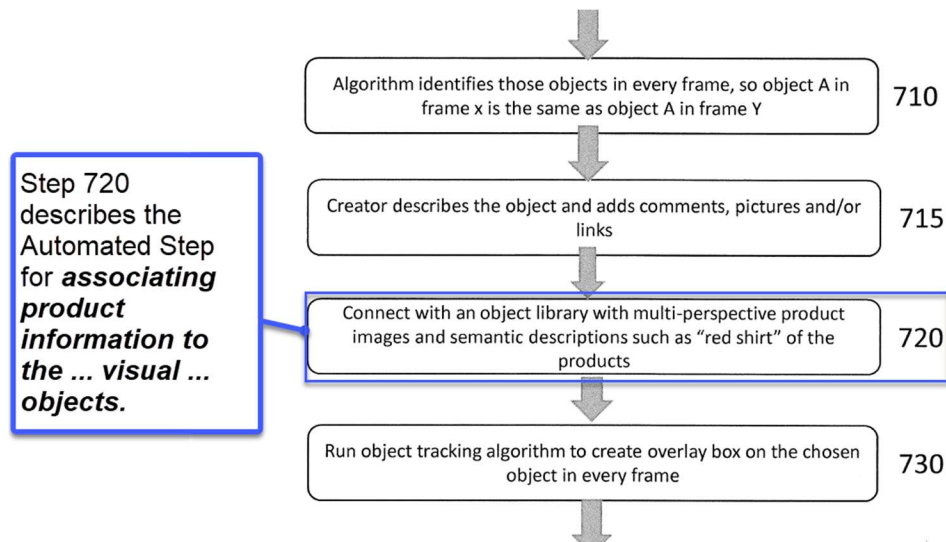
“associating product information to the one or more of the plurality of visual ... objects”:

Manual Step: Ohliger describes manually *associating product information to ... visual ... objects* in steps 705 and 715 of Fig. 1, where a video creator adds information for a particular video object. EX1006, 12:17-24 (“The creator of the video can ... describe, comment and add additional content to an object in the video”); EX1002 ¶¶93-94.

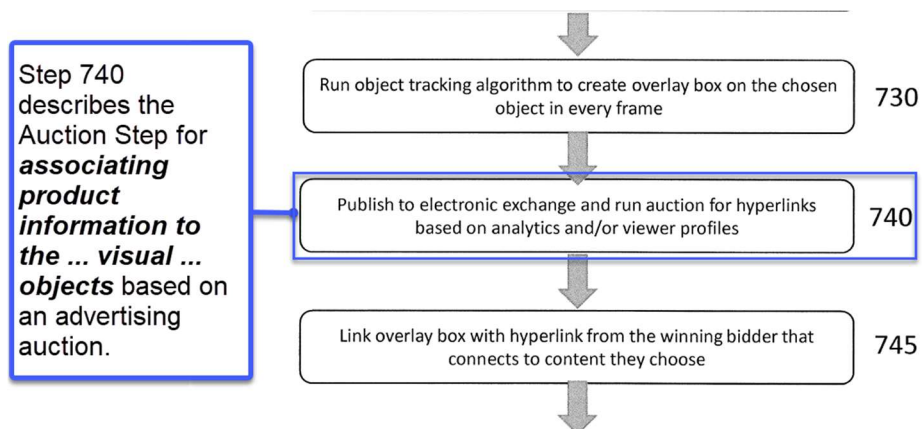


Automated Step: In Figure 1’s step 720, Ohliger discloses a subsequent automatic step that compares video objects to known objects in an “object library,”

and then *associat[es]* the object library’s “product description and/or meta-data,” (*product information*) with that matching video object. EX1006, 12:4-11, 9:13-15, 17:27-36; EX1002 ¶95.



Auction Step: after step 705 (Manual Step) or step 720 (Automated Step), Ohliger performs further *associating* via an auction where retailers or advertisers can associate a website with the visual object. EX1002 ¶96. In step 740 of Figure 1, an “auction allows ... advertisers to bid for the right to assign a hyperlink to a video object.” EX1006, 12:30-37.



“correspondingly form one or more items, services, or songs of interest”:

Through the creator choosing which objects to make interactive in step 705 and then associating those objects with product information, Ohliger transforms generic video objects into ***items of interest*** that viewers can learn about and potentially purchase. EX1006, 12:17-28, 12:30-37, 12:42-50, 24:46-57; EX1002 ¶¶97-100. Ohliger teaches that identified objects are of “little value if not classified.” EX1006, 2:56-61. An unclassified object could be any object, or no object at all and merely a group of stray pixels. EX1002 ¶¶98-99. However, once the object is associated with information, that object has been recognized as an ***item of interest***. EX1006, 11:38-39; EX1002 ¶100. Indeed, Ohliger teaches that “unmatched video object may be discarded,” because objects without associated information are not items of interest. EX1006, 12:11-17. PO advanced the same interpretation during claim construction in the district court case. EX1017, 7 (“[I]t is only when product information is associated with objects that ‘one or more items, services, or songs ***of interest***’ are formed.”).

Ohliger further teaches that the associated product information is displayed upon user interaction, confirming that the objects have been formed as items ***of interest***. EX1006, 12:24-28, 23:63-64, *see also infra* Limitation 1[b][iv]; EX1002 ¶101. Figure 28 displays an overlay of ***purchasing information*** including the

product name, price, customer rating, and shipping information for an item *of interest*. EX1006, 29:19-21, 2:60-65. EX1002 ¶101.

Fig. 28
Buy Via Split Screen



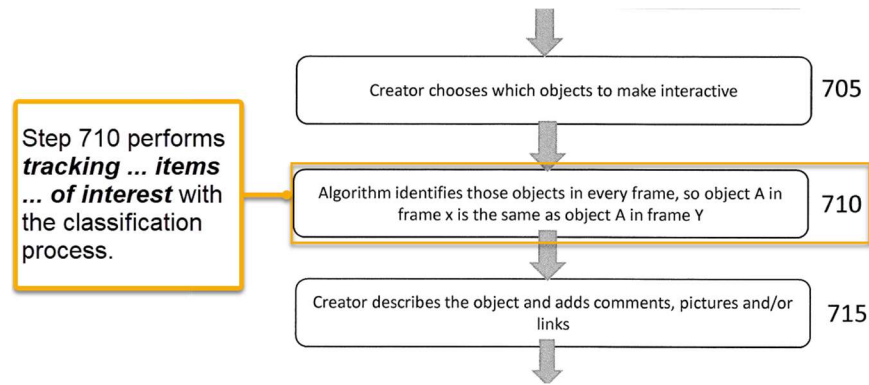
- (vi) **1[b][iii]: iii. tracking the one or more items, services, or songs of interest through the one or more frames of the video media; and**

Ohliger discloses tracking objects across multiple frames in at least two ways:

(1) step 710's classification process matches objects across multiple frames, and (2) step 730's object tracking algorithm creates overlay boxes over identified objects.

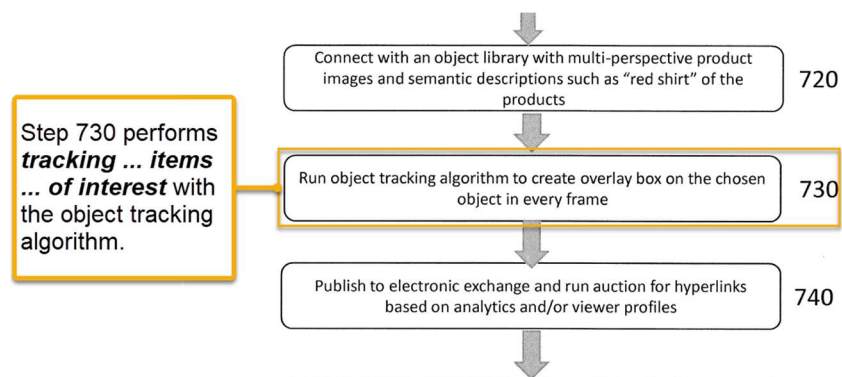
EX1002 ¶102.

Step 710: The classification process analyzes each frame of the video and compares the objects in the frame against objects found in other frames. EX1006, 11:54-60; EX1002 ¶¶103-104. Objects that match across multiple frames are classified as the same object, *e.g.*, “that specific red shirt in one frame is the same as the red shirt in another frame.” EX1006, 1:62-65. Specifically, after an object is first identified in a frame, step 710 “automatically detects additional occurrences of the identified object in the video” and “us[es] regional definition data (location within the frame, *e.g.* x, y, and z coordinates) ... **to dynamically track an object.**” EX1006, 13:22-38, 11:21-31, 16:32-44. Ohliger's object tracking accounts for changes in the size, perspective, and angle of view of video objects across frames. EX1006, 16:45-49; 13:32-38, 18:45-48; EX1002 ¶¶103-104.



As discussed above, to the extent PO argues that this step must be performed after the association of product information, a POSITA would have considered it obvious to perform step 710 after step 715, 720, or 745. EX1002 ¶105.

Step 730: Alternatively, Ohliger discloses an “object tracking algorithm” that tracks the objects in each frame to place a visual overlay box outlining the object in each frame. EX1002 ¶106. Figure 1’s step 730 describes an “object **tracking algorithm** to create overlay box on the chosen object in **every frame**.” EX1006, Fig. 1; 12:17-22, 32:30-37, Claim 1(f); EX1002 ¶106.



- (vii) 1[b][iv]: iv. assigning a selectable visual indicator for each of the one or more items, services, or songs of interest, wherein the first

interactive video layer is configured to display the selectable visual indicator;

Ohliger discloses assigning a visual outline (*selectable visual indicator*) around each tracked object and displaying the visual outline in an interactive overlay layer. The outlines are *selectable* and *interactive* because when the viewer clicks or touches the outlined object, a pop-up appears over the video displaying information associated with the object. EX1002 ¶107.

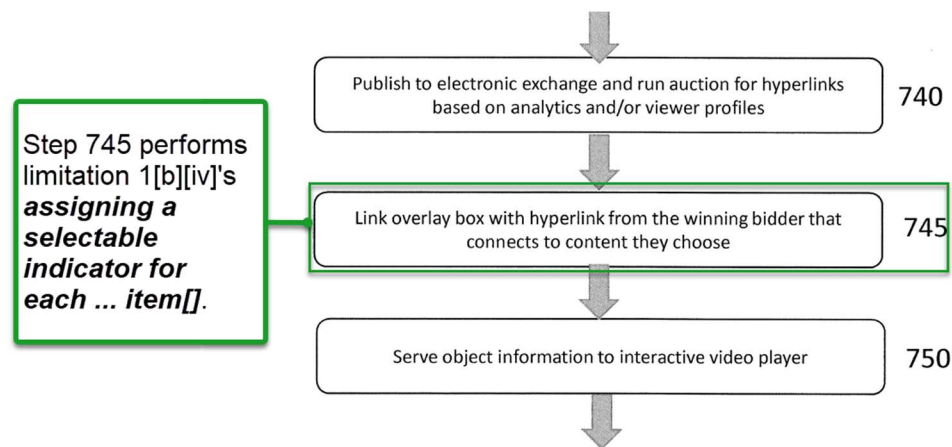
“a selectable visual indicator”: Ohliger discloses assigning box overlays to identified objects, which are *selectable* by the viewer to display additional information. EX1002 ¶108. Ohliger discloses that the VOHE server 300 executes an “overlay generation application” that creates an overlay “whose shape and position (coordinates) track a dynamic location of the video object in the video.” EX1006, 19:26-29. The overlay can be a box outline, halo, animated representation, or other shapes that “replace/obscure the underlying video object.” EX1006, 16:50-54, 19:33-37; EX1002 ¶108.

The overlay is a *selectable* region; specifically, a “clickable space around the object” that causes information to appear “in response to ... user action.” EX1006, 33:13-19; 16:63-67, 18:45-48; EX1002 ¶109.

“assigning ... for each of the ... items”: The server *assigns* an overlay to each object, by defining “region definition data” corresponding to the object. EX1006, 16:39-44. The overlay is then “store[d] ... on the server.” EX1006, 19:29-

30, 44-51; EX1002 ¶110. The overlay is assigned to an item because it “tracks a dynamic location of the video object.” EX1006, 8:58-9:2, 16:39-44, 33:29-31.

The assignment is further described in step 745, where “a video overlay is created which links the video object with the winning bidders provided content.” EX1006, 12:38-39; Fig. 1; EX1002 ¶111.



“the first interactive video layer is configured to display the selectable visual indicator”: Ohliger discloses that the server then displays the overlay (***selectable visual indicator***) via an “interactive layer” (***first interactive video layer***). EX1006, 2:66-3:5 (“[H]yperlinks that are embedded within the interactive layer of video objects”), 8:61-63 (“[D]efining region definition data representing each video object on an interactive layer”), 16:32-33; EX1002 ¶112.

Figure 18 depicts the interactive layer’s selectable overlays over video objects. EX1002 ¶113. The first screen shows outlines overlaid on objects in the video. The spatial placement of the overlays indicates the respective overlaid item (*i.e.*, the purse and the shirt). Tapping the object (in this case, a purse), results in the

second screen's pop-up displaying product information. EX1006, 28:46-50; EX1002

¶113.

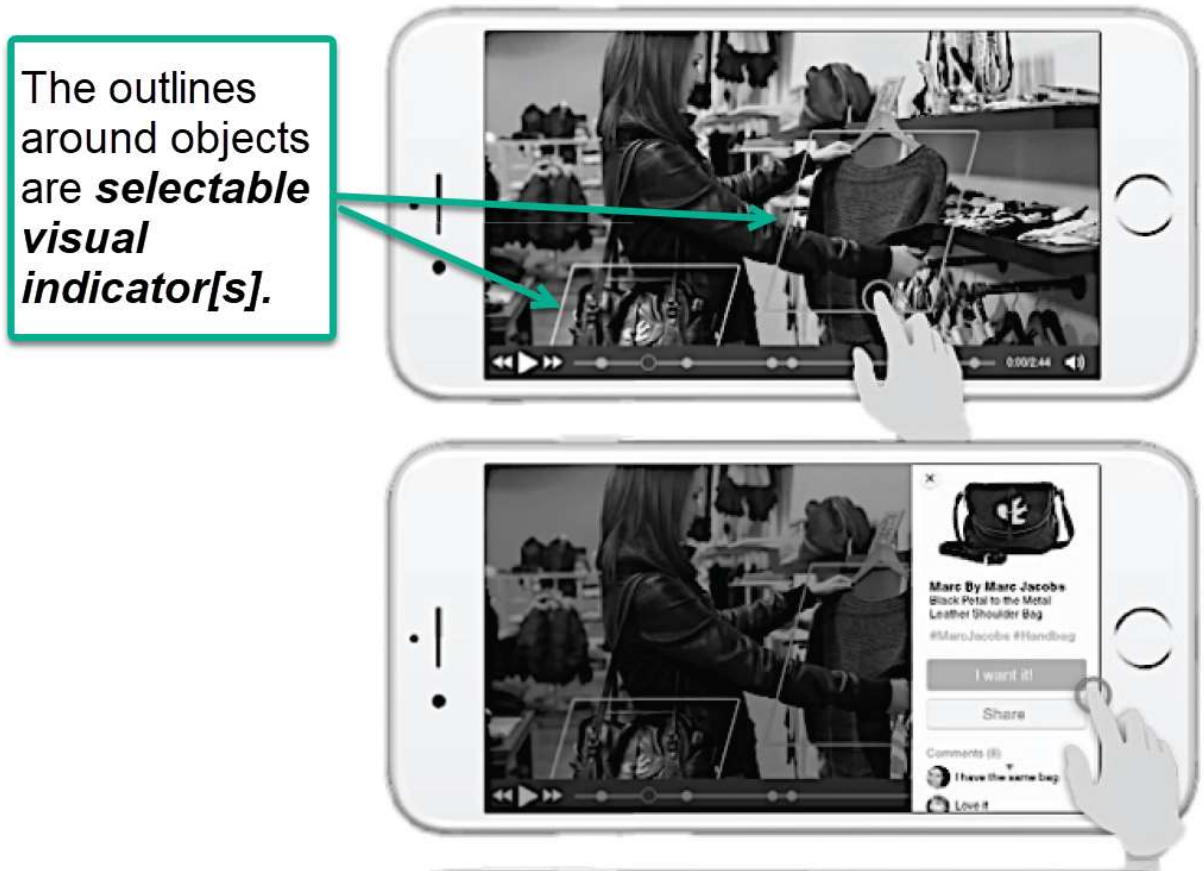
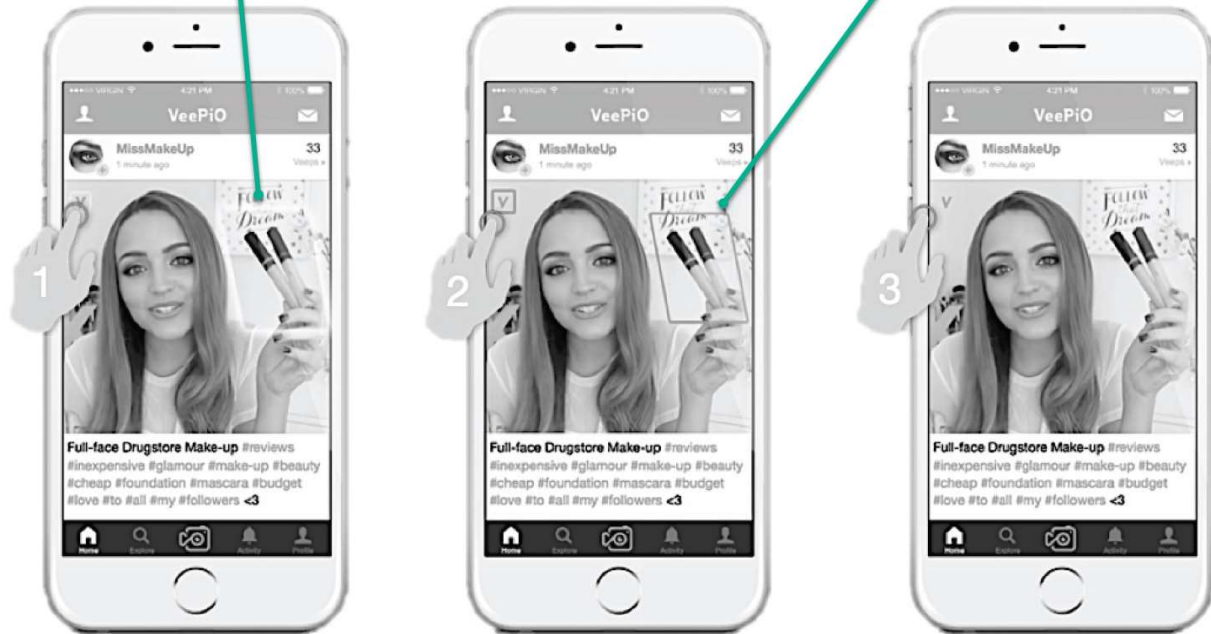


Figure 23 illustrates the selectable overlays, including “a transparent halo” and “colored boxes on each object.” EX1006, 29:5-10; EX1002 ¶114.

Fig. 23
"V"isibility

The transparent halo surrounding the object is a ***selectable visual indicator***.

The colored box surrounding the object is a ***selectable visual indicator***.



(viii) 1[c]: c) generating a video data comprising the video media, the first interactive video layer, and a second interactive video layer,

Ohliger describes generating video data that includes the video itself (*video media*), the video objects' box overlays (*first interactive video layer*), and the social media overlays (*second interactive video layer*). EX1002 ¶115. Ohliger describes this video data as generated by either a consumer server, a broadcaster server, and/or a video server. Ohliger discloses generating the video data after processing because the processing creates the overlays incorporated into the video data. *Infra*, limitation 1[b][i] through 1[b][iv]. EX1002 ¶115.

First, Ohliger discloses a “video consumer server” which generates video data by rendering the overlay onto the video content. EX1006, 19:30-37 (“[T]he overlay is supplied to the video consumer server and is overlaid or superimposed over the video presentation.”), 20:15-20; EX1002 ¶116.

Second, Ohliger describes that the broadcaster server can provide the video content “along with” the overlays. EX1006, 22:7-11; EX1002 ¶117. A POSITA would understand that the broadcaster server combines the video and the overlays (*first interactive video layer* described above and *second interactive video layer* described below) into *video data*. EX1002 ¶¶117-119. In addition, even if the video and the overlays are separately sent as different pieces of data, this teaching would still meet PO’s interpretation of the term. EX1002 ¶120. Specifically, PO contends—but Petitioner does not adopt for purposes of district court litigation—that this limitation is met regardless of how video media and the two layers are provided to a user device (which includes transmitting them separately), as long as they are displayed together. EX1005, 32-35 (alleging limitation is met based on the display of video and overlays at a user device without any analysis or allegation addressing how they are transmitted). Ohliger provides the video and overlays displayed together, and thus discloses the claimed *generating a video data* at least under PO’s interpretation. EX1006, Fig. 18; EX1002 ¶120.

Third, Ohliger describes that the video server provides to viewers the video “along with” the overlays. EX1002 ¶121. Specifically, Ohliger describes an embodiment that includes “video server 200,300” performing the function of both the VOHE server 300 and the broadcaster server 200. EX1006, 26:31-27:26 (“The system includes ... a software application for accessing ***and displaying*** the at least one video file”). In this configuration, the video server generates the ***video data*** that includes the video content “along with” the overlays. EX1006, 22:7-11; EX1002 ¶121.

Alternatively, it would have been obvious for the VOHE server 300 to generate the video data by combining the video and overlays. EX1002 ¶¶122-124. Ohliger discloses that the VOHE server 300 stores both the video and the overlays. EX1006, 26:33-46, 15:59-67, Fig. 2. A POSITA would have been motivated to combine them before transmission to circumvent ad-blocking software that blocks content like overlays based on network origin or separate receipt, which could mistake overlays for advertising. EX1002 ¶123; EX1010, 11:55-59. Given Ohliger’s advertising objective, circumventing any blocking of the overlays would have increased revenue to advertisers and increased auction prices for video creators. Additionally, a POSITA would have been motivated to merge them on the server because it has superior rendering hardware and would efficiently render only once

into a widespread multimedia format rather than on each user device. EX1002 ¶124, EX1020, [0005], [0242]-[0245], EX1021, [0023].

Moreover, a POSITA would have been motivated to provide the video and the interactive video layers from VOHE server 300 to viewer 124. EX1002 ¶¶125-128. Since VOHE server 300 already stored both, providing them directly to viewers would have bypassed broadcaster 120. EX1002 ¶¶125-126. For video creators who merely use the Veepio mobile application, the creator would not have the same uptime as VOHE server 300 (*e.g.*, limited phone power or Internet connectivity). EX1002 ¶128. Thus, VOHE server 300 providing the video and overlays would have improved the availability of the video data. EX1002 ¶125-128. Indeed, social networking sites discussed in Ohliger, *e.g.* Instagram, Vine, Twitter, and Snapchat, already employed this framework. EX1006, 25:47-54, 15:36-44. EX1002 ¶¶125-128.

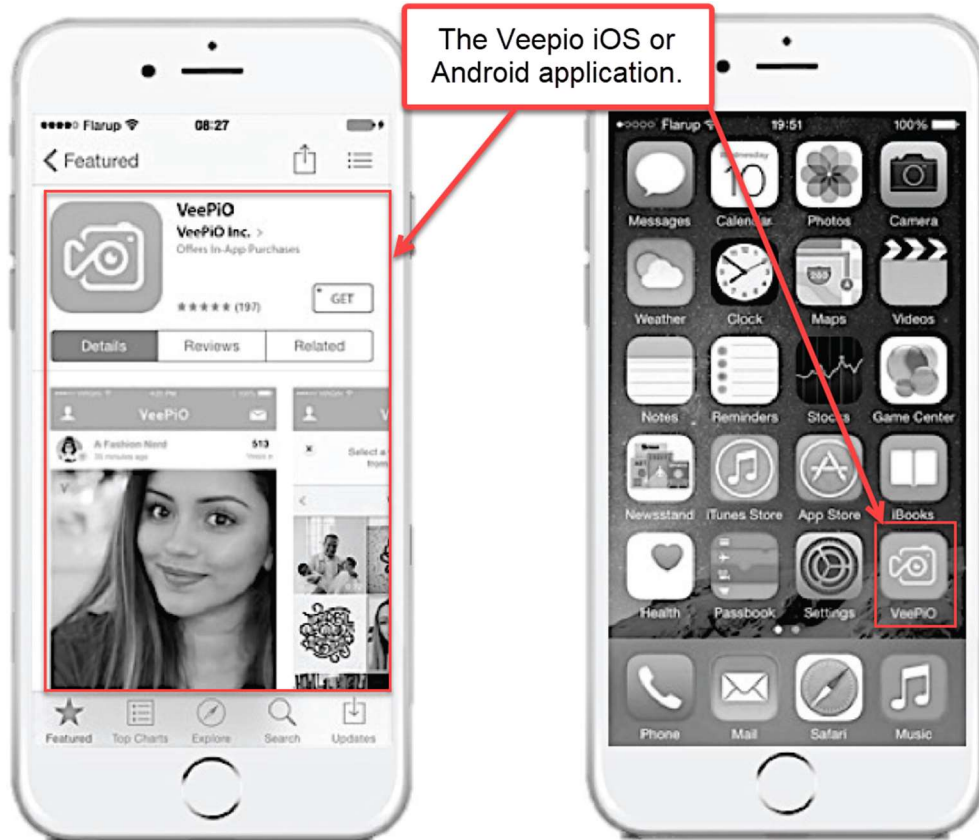
A POSITA would have had a reasonable expectation of success. EX1002 ¶129. Since the video and overlays already reside on the same server, rendering on the server would entail a routine conversion from one format to another, which was within the skill of an ordinary artisan. EX1002 ¶129.

(ix) 1[c][i]: wherein the video data is configured to be provided to a user via a first media playback

device and to at least one guest via a second media playback device,

Ohliger discloses that video content with overlays (*video data*) is provided to multiple users via their respective *media playback devices*. EX1002 ¶130-131. Ohliger discloses that videos have multiple “viewers” which can interact with the overlays and communicate with each other. EX1006, 9:5-11, 11:11-14, 30:55-60. Ohliger also discloses that a first viewer (*user*) has “the ability to share the video” with a second viewer, who may be a “friend” on social media (*guest*). EX1006, 24:50-57, 28:35-37; EX1002 ¶¶130-131. Each user views the video via their own “computer, mobile phone or another electronic device.” EX1006, 22:28-33.

Alternatively, Ohliger discloses that a video creator or broadcaster (*the user*) can provide the video with overlays to a viewer, such as a “friend” on social media (*guest*). EX1006, 15:36-44, 22:7-11, 34:16-21, EX1002 ¶132.



As a part of uploading a video, the creator (***user***) accesses the video through the same user interface and leave comments like any other viewer (***guest***). EX1006, 11:11-14, 30:55-64; Fig. 22, 29:1-4. Thus, the creator (***user***) receives the video and interactive layers (***video data***) like any other viewer and through the same “VEEPIO app.” EX1006, 34:41-44; Fig. 13; EX1002 ¶¶132-133.

These disclosures in Ohliger are consistent with PO’s infringement contentions, which allege that “users of TikTok iOS and Android apps” are both “***the user***” and “***at least one guest.***” EX1005, 35-40; EX1002 ¶134.

- (x) 1[c][ii]: wherein the second interactive video layer comprises a social media portion controllable by the user via the first media

playback device, so as to interact with the at least one guest that is also a viewer of the video media through an interface displayed in the second interactive video layer via the second media playback device,

Ohliger discloses an *interactive layer* where users (*the user and guest*) interact with one another by using social media to comment about objects found during playback of the same video with the same overlays via their respective media playback devices. EX1002 ¶135.

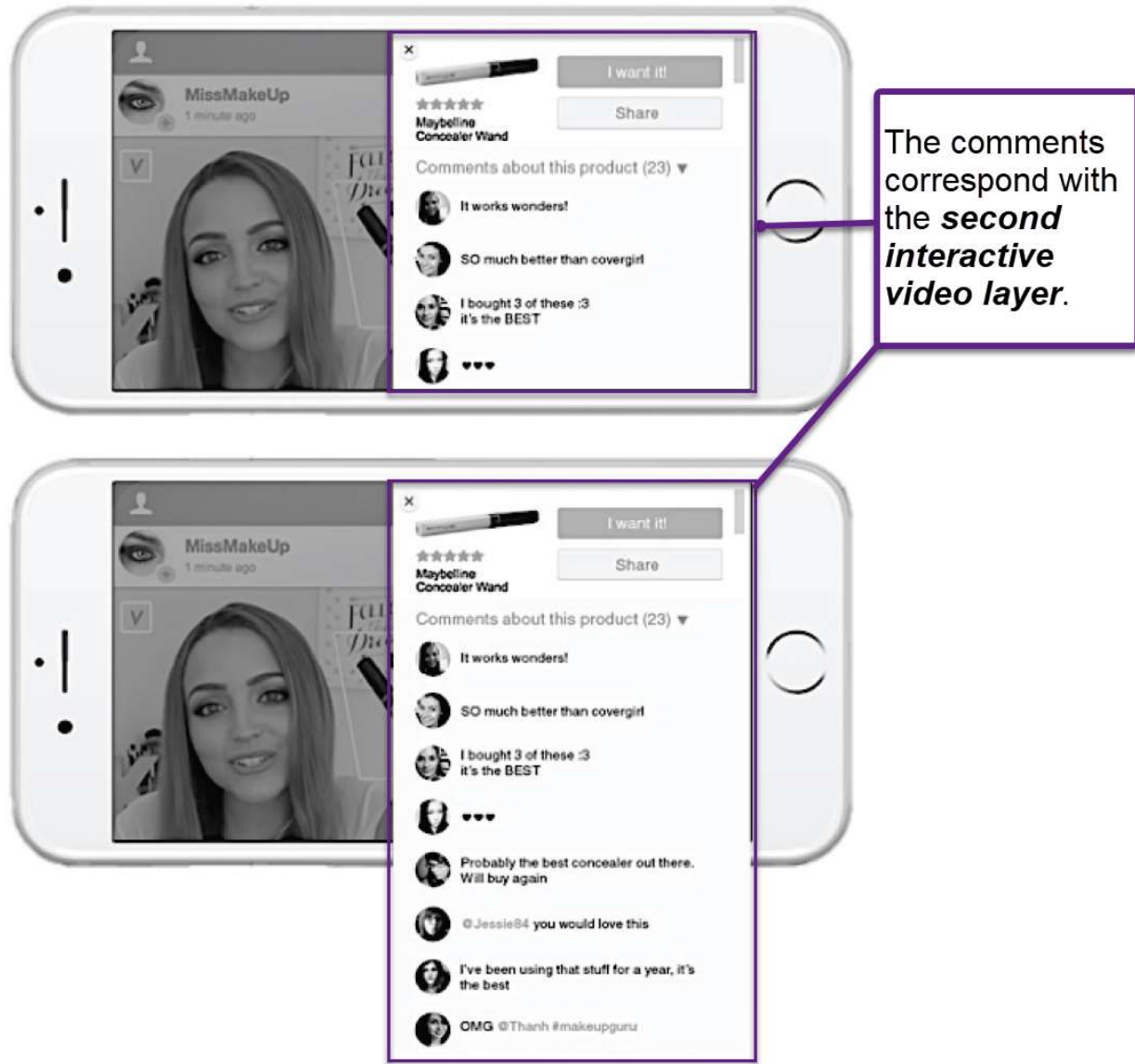
“social media portion”: Ohliger discloses a comments overlay (*second interactive video layer*) where users can communicate with one another about objects that were selected within a video via the object’s box overlay. EX1006, 11:11-19 (“The invention also includes giving video viewers the ability to comment and communicate with each other”); EX1002 ¶¶136-137.

Ohliger describes these interactions as a “community,” thereby making them a *social media portion*. EX1006, 28:42-45 (“VeePiO thrives on community. Commenting is easy and encouraged via standard pathways like the feed, and through product sub-comments”). Indeed, Ohliger’s system integrated with well-known social media platforms. EX1006, 25:47-53 (describing integration with Facebook, Twitter, Instagram, Vine, and Snapchat); EX1002 ¶¶138-139.

Consistent with these disclosures, both the ’316 patent’s specification and PO’s Infringement Contentions describe user comments as conversations within a

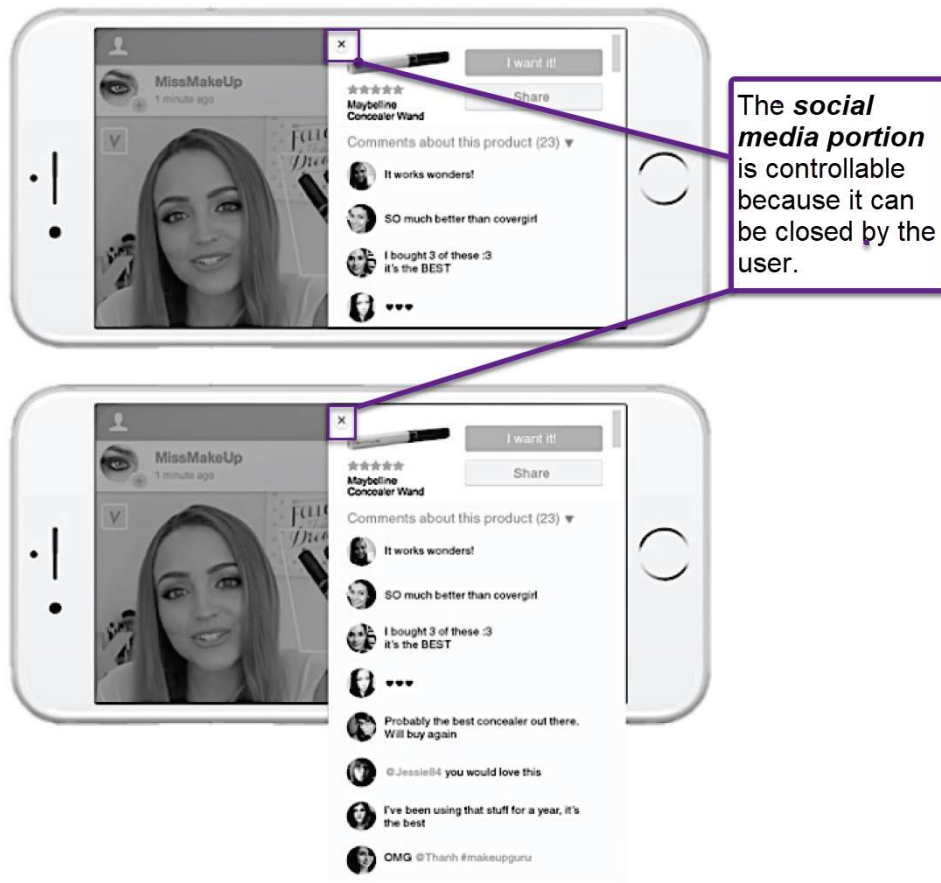
social media portion. EX1001, 3:43-46 (“The second of the interactive video layers will provide a public area for users to see a public feed of viewers’ comments and reactions to the video media.”); EX1005, 40-46 (“a second interactive video layer consisting of a comment section.”); EX1002 ¶140.

Ohliger teaches that comments are displayed on an interactive overlay on the video, as in Figure 26. EX1006, 29:15-16; 24:46-57 (“Once the object has been selected ..., the viewer displays an abstract of the video object in the form of an overlay on top of the current viewing window [which] include[s] ... comments by other viewers”); EX1002 ¶141. Comments are grouped into sub-comments associated with particular objects in video. EX1006, 9:2-11, 11:11-19. EX1002 ¶142.



“controllable by the user via the first media playback device”: Ohliger discloses that the social media portion is *controllable by the user* because it is activated when the user interacts with the object’s box overlay. EX1006, 11:14-19, 22:42-48 (“Interaction by the video viewer 124 triggers display of ... comments by other viewers”); EX1002 ¶143. The social media portion is further controllable because it allows the user to post comments. EX1006, 30:55-60, 14:51-58, 28:44-

50; EX1002 ¶143. Furthermore, Figure 26 shows the social media portion is controllable by enabling the user to close it. EX1002 ¶144.



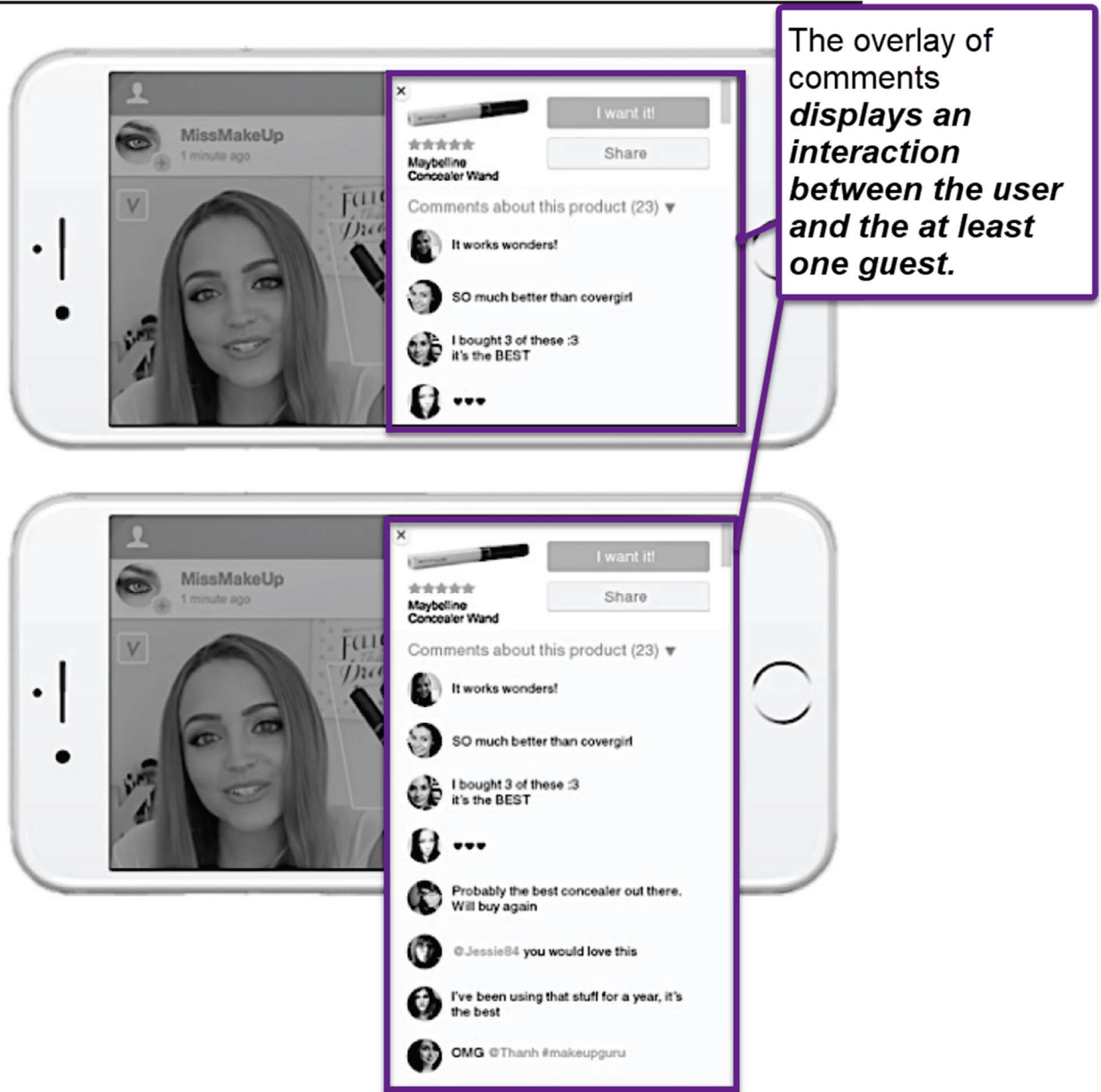
“interact with the ... guest”: Ohliger discloses that comments between viewers or viewers and creator (*the user and guest*) are a form of interaction. EX1006, 11:11-14 (“[G]iving video viewers the ability to comment and communicate *with each other* and with the creator of the video”). Because the other commenters are also described as “viewers,” a POSITA would understand that the other viewers interact with the first viewer via a similar interactive layer on their respective device. EX1006, 22:28-33; EX1002 ¶¶145-47.

- (xi) **1[c][iii]: wherein the second interactive video layer displays an interaction between the user and the at least one guest, and past interaction activity between a plurality of users in the social media portion, and**

Ohliger's overlay of comments on the video displays current and past interactions between multiple viewers or viewers and creator (*the user and guest*).

EX1006, 11:11-14; EX1002 ¶148. In Figure 26, the overlay displays interactions between viewers. EX1002 ¶149.

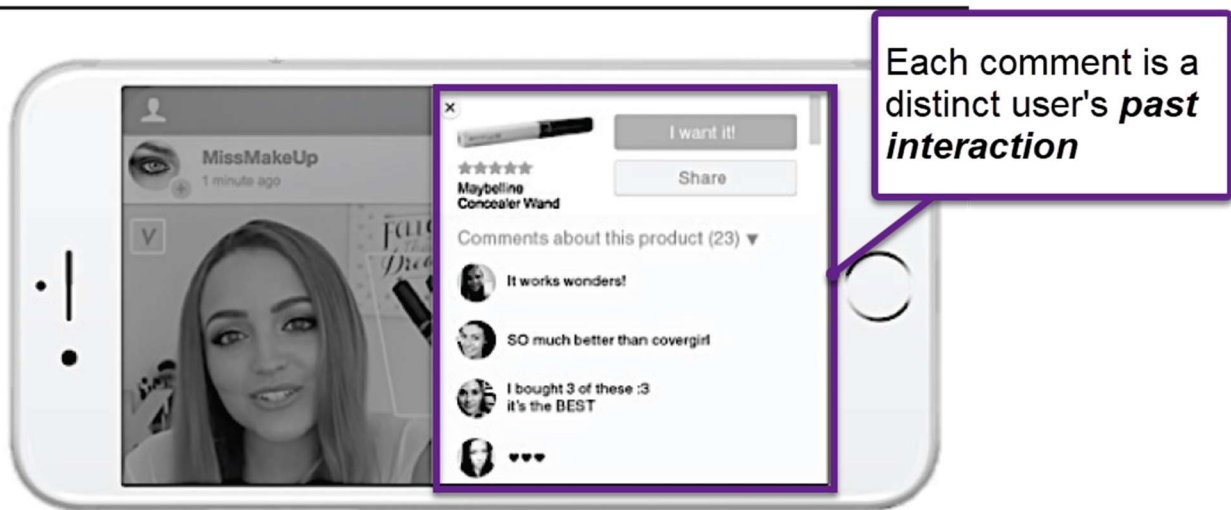
Fig. 26
Share & Comment



The displayed comments include past interactions between users. EX1006, 22:42-45, 14:51-59, 24:46-57; EX1002 ¶¶150-51. Figure 26 displays comments with a viewer's unique profile picture alongside each comment. These comments were

added by several distinct viewers of the video (*a plurality of users*) and include past comments already posted by the time the overlay is shown (*past interaction activity*).

Fig. 26
Share & Comment



- (xii) 1[c][iv]: wherein the user is capable of maintaining and toggling between a plurality of different conversations displayable in the social media portion in the second interactive video layer as an overlay to the video media displayed by the first media playback device,

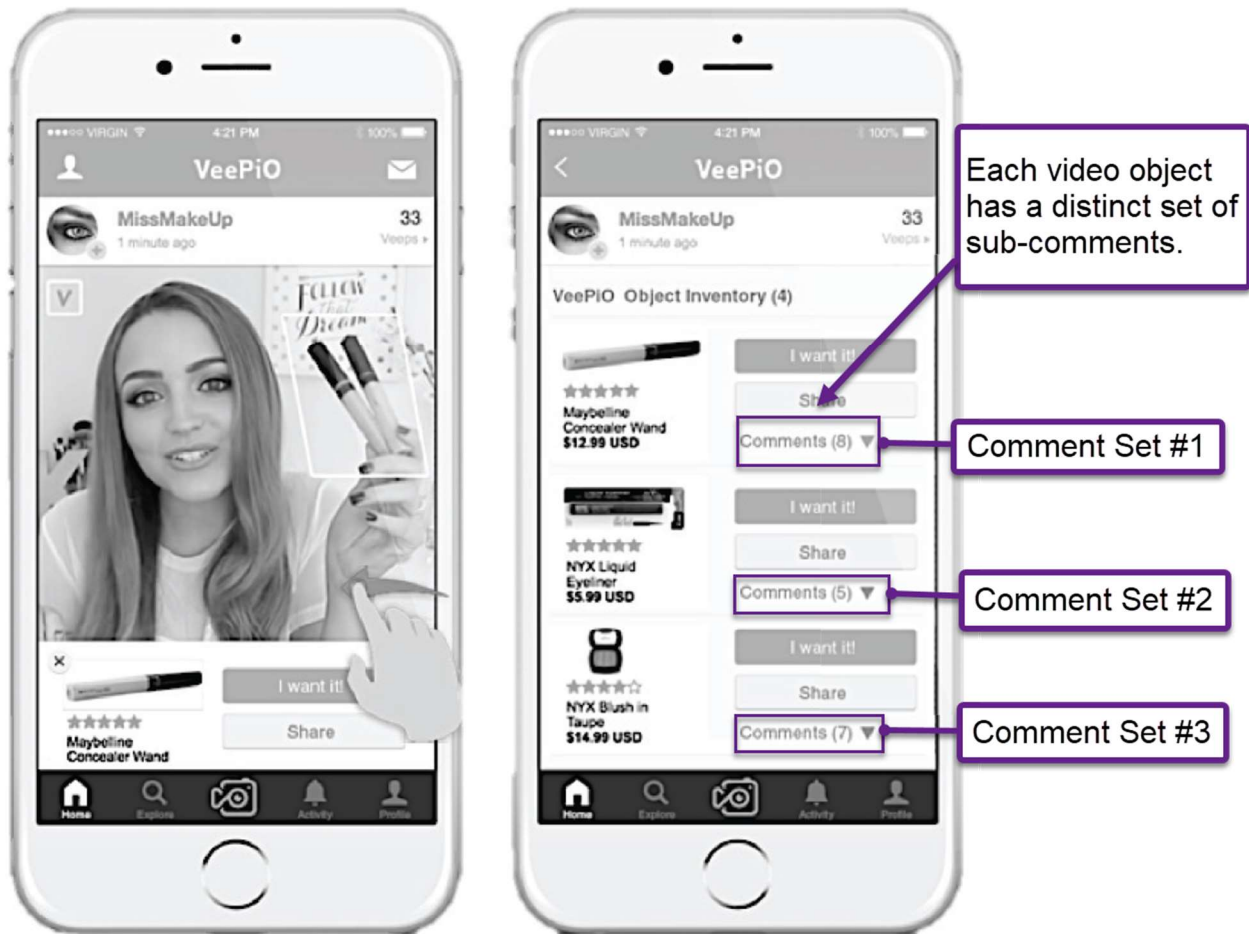
Ohliger discloses an overlay of a distinct set of comments for each interactive video object. EX1006, Fig. 26. Since each video may contain multiple objects, the viewer or creator may *maintain and toggle between different conversations* for each object by selecting one object and then selecting another object. EX1006, Fig. 18 (showing UI where user can select either of two video objects and thereby toggle

between two different sets of sub-comments, *i.e.*, **conversations**); *see also* Fig. 27; EX1002 ¶152.

As discussed regarding limitations 1[c][i]-[iii], a viewer or creator (***the user***) may “share and view sub-comments related to individual products.” EX1006, 29:15-16. The comments are superimposed and cover a portion of the video (***displayable ... as an overlay***). *See* EX1006, Fig. 26; *see also* EX1006, 24:46-57 (“Once the object has been selected ... the viewer displays an abstract of the video object in **the form of an overlay** ... includ[ing] ... a comment about the object ... [or] comments by other viewers.”); EX1002 ¶153.

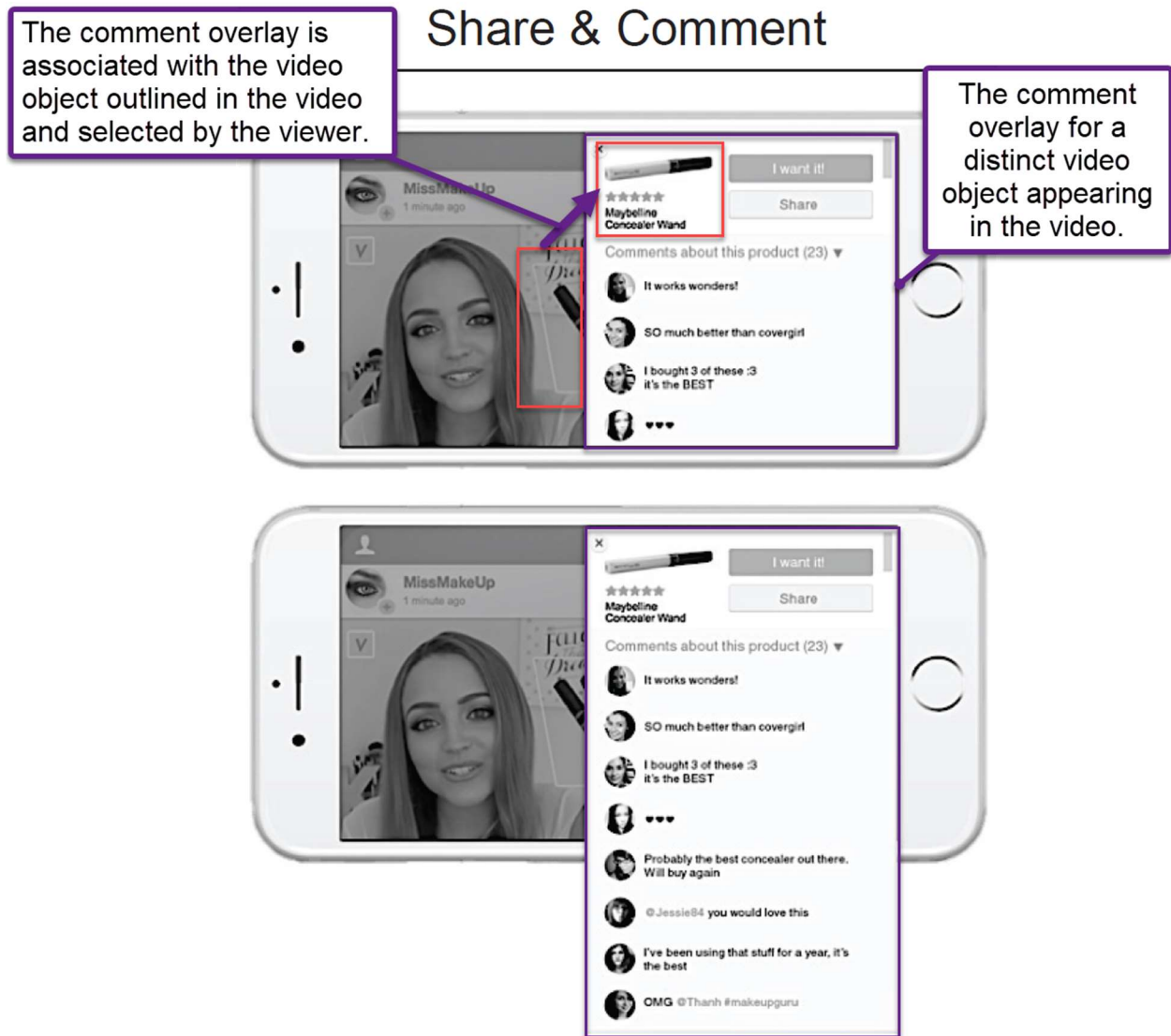
Ohliger further distinguishes between multiple objects appearing in a single video. EX1006, 19:18-22, 28:46-50, 29:5-10, 29:17-18. The viewer or creator (***the user***) can then view and add comments to each object in a particular video, *i.e.*, “sub-comments.” EX1006, 29:15-16; EX1002 ¶154. Figure 26 shows an object’s sub-comments, and Figure 27 shows that each object has a distinct set of sub-comments (***a plurality of different conversations***) as indicated by the number of comments for each. EX1002 ¶155.

Fig. 27
Veep Inventory



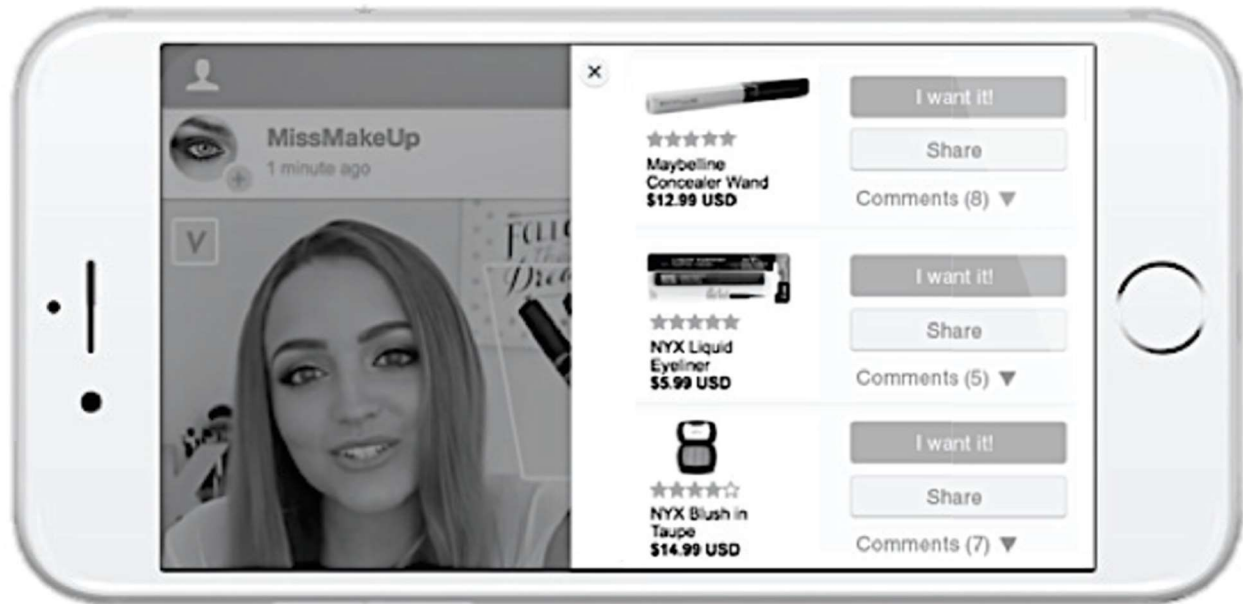
Therefore, the viewer may click on different objects to *maintain and toggle between different conversations* associated with their respective objects. EX1002 ¶¶156-57. Each conversation is an overlay of the interactive layer, *i.e.*, *the social media portion*. For example, upon selecting the “Maybelline Concealer Wand” in Figure 27, the conversation for that object is displayed, *e.g.* Figure 26 (also annotated as Comment Set #1 in Figure 27 above).

Fig. 26



Alternatively, Ohliger renders obvious *maintaining and toggling between a plurality of different conversations* through overlaying the “Object Inventory” screen of Figure 27 on the video. EX1002 ¶¶158-159. Overlaying Figure 27 on the video content would overlay *different conversations* simultaneously. Ohliger already discloses the “V” button to highlight all video objects, and a POSITA would have been motivated to display the additional information shown in Figure 27

(including the different sub-comments) in the same manner. A mock-up of the resultant combination is shown below:



A POSITA would have recognized the benefits of comparison shopping through overlaying information on various products simultaneously. EX1002 ¶¶160-63. A user could select the relevant sub-comments, thereby *maintain[ing] and toggl[ing] between ... different conversations* as in Figure 27. Indeed, this would require overlaying a user interface already disclosed in Ohliger (Fig. 27) in a manner already disclosed in Ohliger (Fig. 26) in response to an action already disclosed in Ohliger (Fig. 23). EX1006, 29:5-10. A POSITA would have had a reasonable expectation of success because it would have combined two existing user interfaces from Figure 27, in an overlay patterned after other overlays in Ohliger, *e.g.*, Figure 18, 26, 28. EX1002 ¶164.

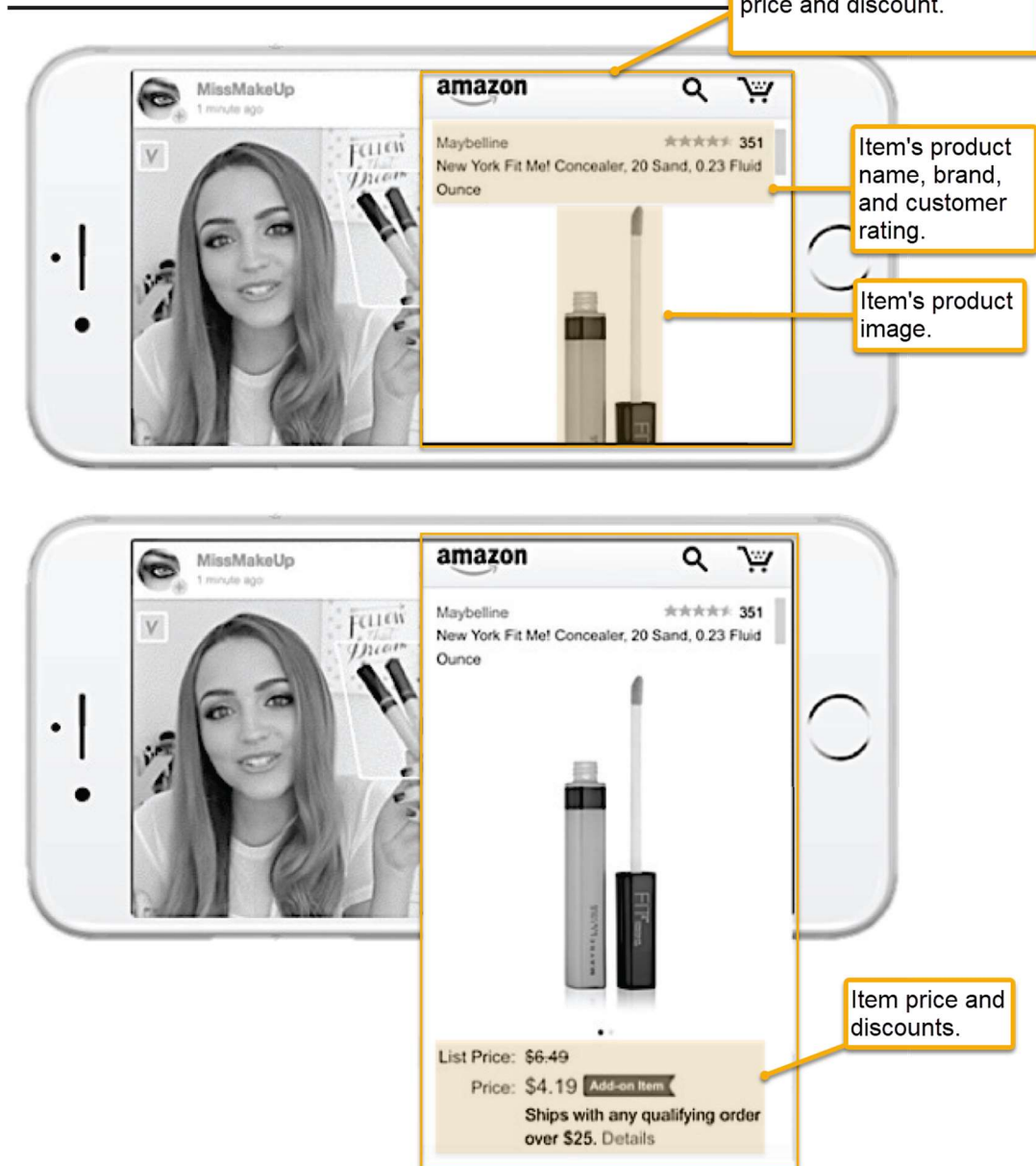
- (xiii) **1[c][v]: wherein the plurality of users either includes the user or does not include the user; and**

Ohliger discloses that a viewer or creator (*the user*) may add comments to a video object. Therefore, *the plurality of users ... includes the user*. And if the user has not left a comment, then *the plurality of users ... does not include the user*. Either way, this limitation is met. EX1002 ¶165.

- (xiv) **1[d]: d) distributing information associated with the one or more items, services, or songs in the video media to the user.**

As discussed for limitation 1[c]–1[c][iv], Ohliger discloses overlaying hyperlinks, the product name, brand, image, customer rating, price, discount, and comments (*information associated with the ... items*) on the video during playback on the user’s device (i.e. *to the user*), e.g. EX1006, Fig. 28; *see also* EX1006, 22:7-11; limitations 1[pre], 1[b][ii] (additional analysis of claimed *information*); EX1002 ¶166.

Fig. 28
Buy Via Split Screen



Moreover, Ohliger discloses that the *distributing* of limitation 1[d] is performed after the *generating* of limitation 1[c]. Figure 1's process 750 describes “[s]erv[ing] object information to interactive video player.” EX1006, Fig. 1.

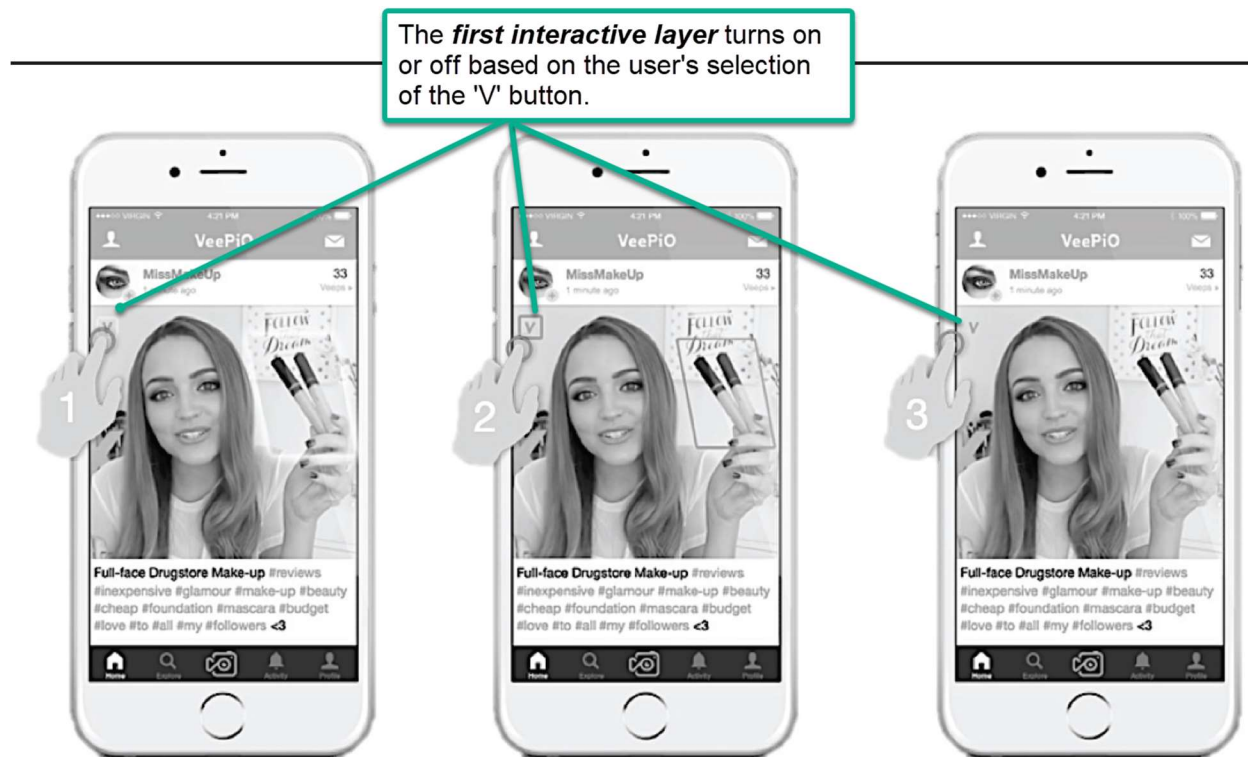
Therefore, after the ***generating*** steps of limitation 1[c], the ***distributing*** is performed with the “serv[ing]” of the ***video data***. EX1002 ¶¶167-68.

Finally, PO distinguishes “items” and “items ... of interest,” contending that only the “items” have to be “in” the video media, while the “items ... of interest” are part of the “first interactive video layer” in the form of “link[s] to the marketing and/or purchasing information.” EX1017 at 6-9. Even if such separate “items” and “items ... of interest” are required, they are disclosed by Ohliger, where the video objects identified at step 700 (***items***) are within the video itself and visual outlines created and linked to winning bidders at step 745 (***items ... of interest***) are part of the video overlays. *See, e.g.*, EX1006, 11:54-57, 12:38-41; *see also supra* limitations 1[a], 1[b][i], 1[b][iv]; EX1002 ¶169.

(b) Claim 2

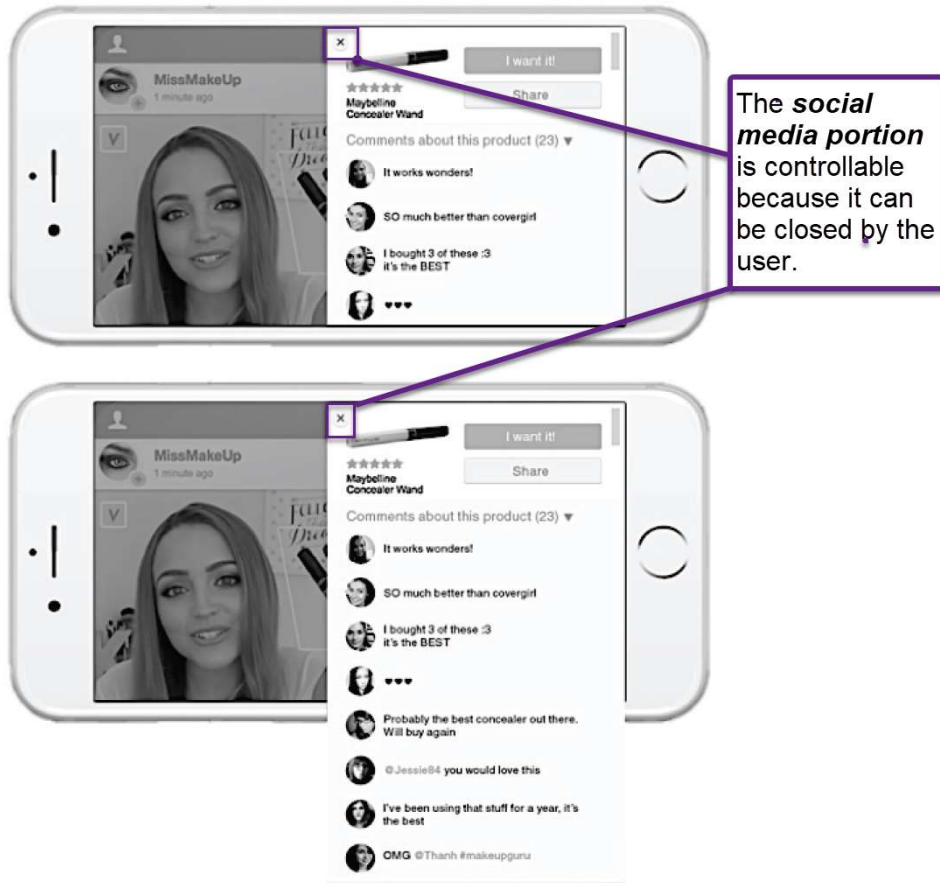
(i) 2[a][i]

Ohliger discloses the ability of a viewer or creator (***the user***) ***to turn on or off*** the video object box overlays (***first interactive video layer***) by toggling a “V” button in the user interface. EX1006, 29:5-10 (“Tapping the ‘V’ once reveals a transparent halo around each Veep’d object ... [t]apping twice places colored boxes on each object ... turn objects off by tapping the ‘V’ watermark a third time.”), 29:11-12; EX1002 ¶¶170-74. Thus, the “V” button enables a user ***to select whether to view or not view the first interactive video layer***.



(ii) 2[a][iii]

Ohliger discloses that the comments overlay (*second interactive video overlay*) is displayed by interacting with the box overlay of the video object. EX1002 ¶175. Accordingly, toggling on or off the box overlay via the “V” button also enables the user to **turn on or off** the comments overlay based on selection of the “V” button. See limitation 2[a][i], EX1006, 29:5-12. In addition, the user or creator can **turn on** the comments overlay by interacting with a box overlay and can **turn off** the comments overlay by selecting the “x” button in the corner of the overlay. See Fig. 26; EX1002 ¶¶175-76.



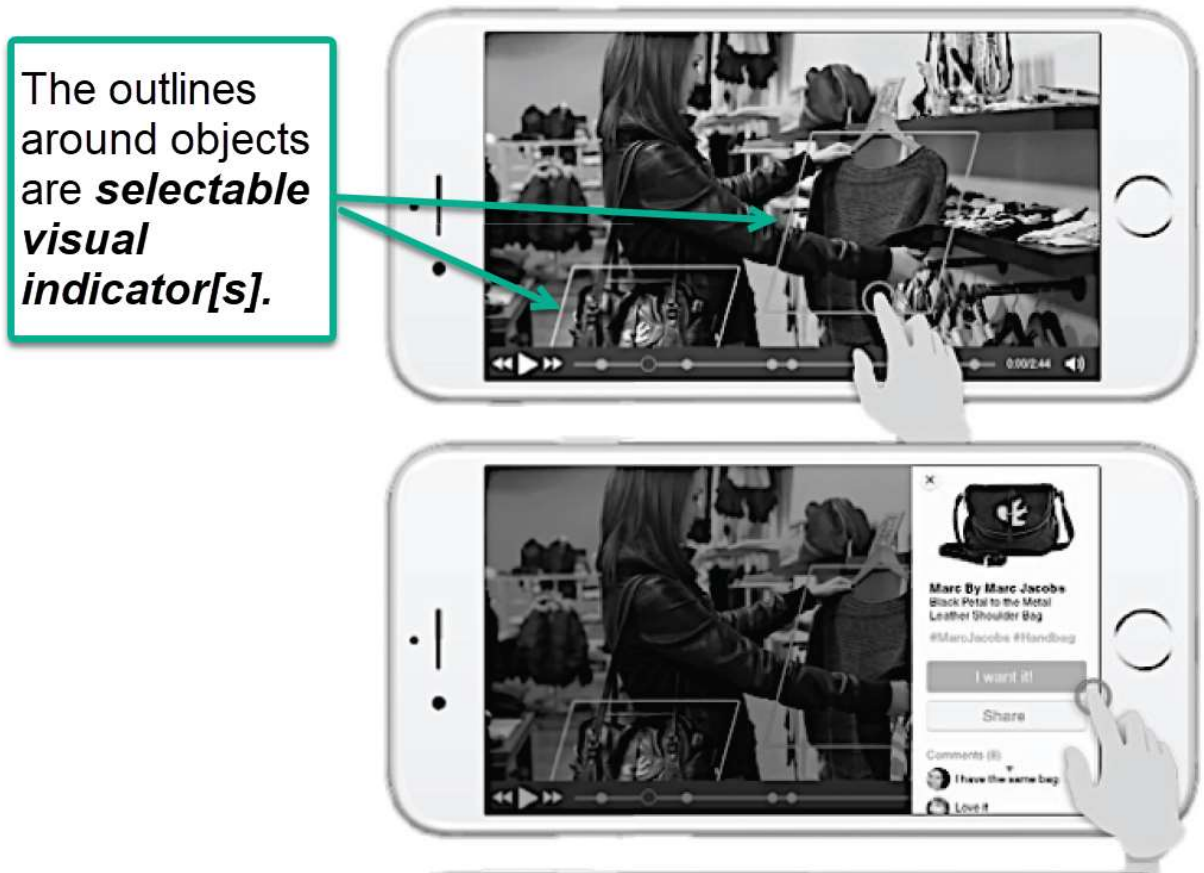
(c) Claim 3

(i) 3[a][i]

This limitation is identical in scope to limitation 1[b][iv]’s *displaying the video media and the first interactive video layer* and therefore Ohliger discloses it for the same reasons. EX1002 ¶177.

(ii) 3[a][ii]

Ohliger describes overlaying a “selectable hyperlink whose position tracks a dynamic location of the video object in the video.” EX1006, 3:48-53, 8:61-9:2. EX1002 ¶¶178-79. The viewer (*user*) *select[s]* through “clicking or touching area around objects in the video” as shown in Figure 18. EX1006, 9:5-11.



Ohliger discloses *receiving a selection ... to display marketing information* because “[o]nce the object has been selected ... the viewer displays an abstract of the video object in the form of an overlay ... includ[ing] descriptive information ... about the object (name, brand name, make, model, vendor, price, etc).” EX1006, 24:46-57; EX1002 ¶¶180-81.

(d) Claim 4

Ohliger integrates e-commerce functionality with “an online store where a product or products associated with the object in the video can be purchased” (*enabling the user to purchase the given item ... of interest*). EX1006, 3:58-62, 5:13-16. EX1002 ¶182. Figure 1’s step 780 describes “[a]llow[ing] viewer to

connect to winning bidders e-commerce page to purchase the object.” EX1006,

Fig. 1, EX1002 ¶183.

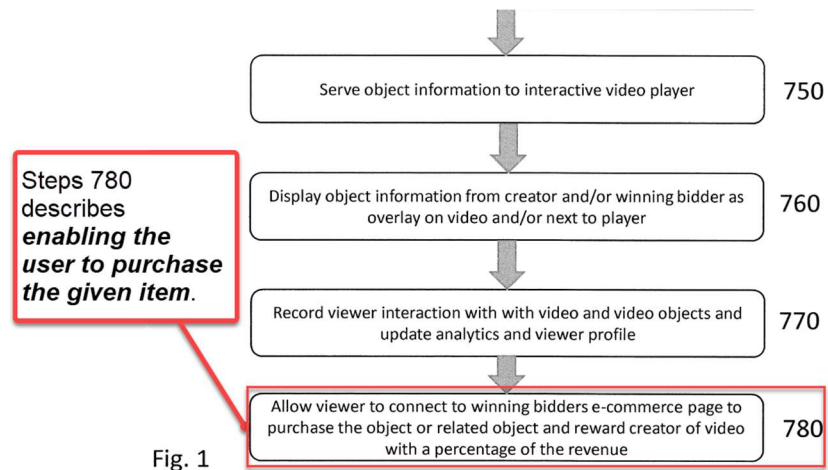


Figure 25 shows the viewer purchasing the item by interacting with the product information overlaid on the video. EX1006, 29:13-15; EX1002 ¶184.

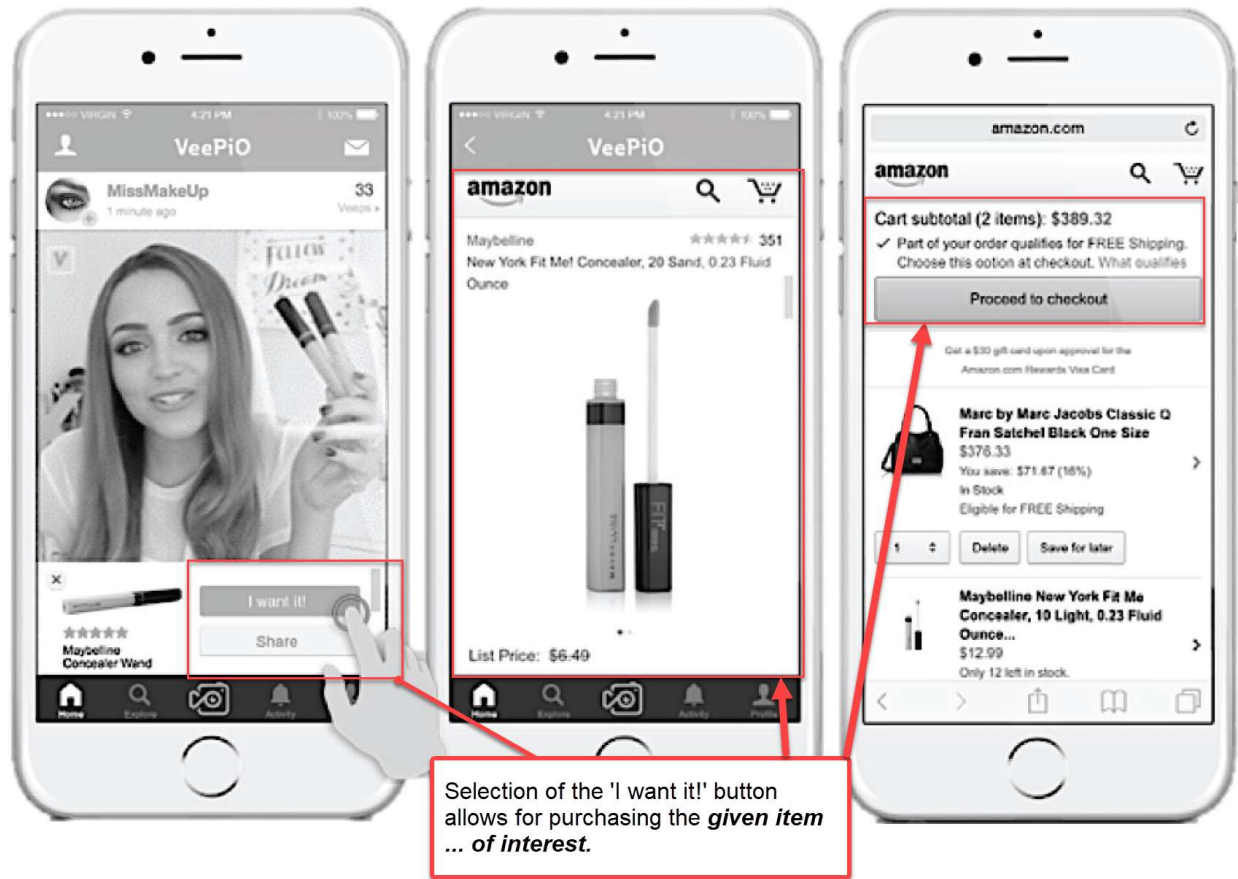
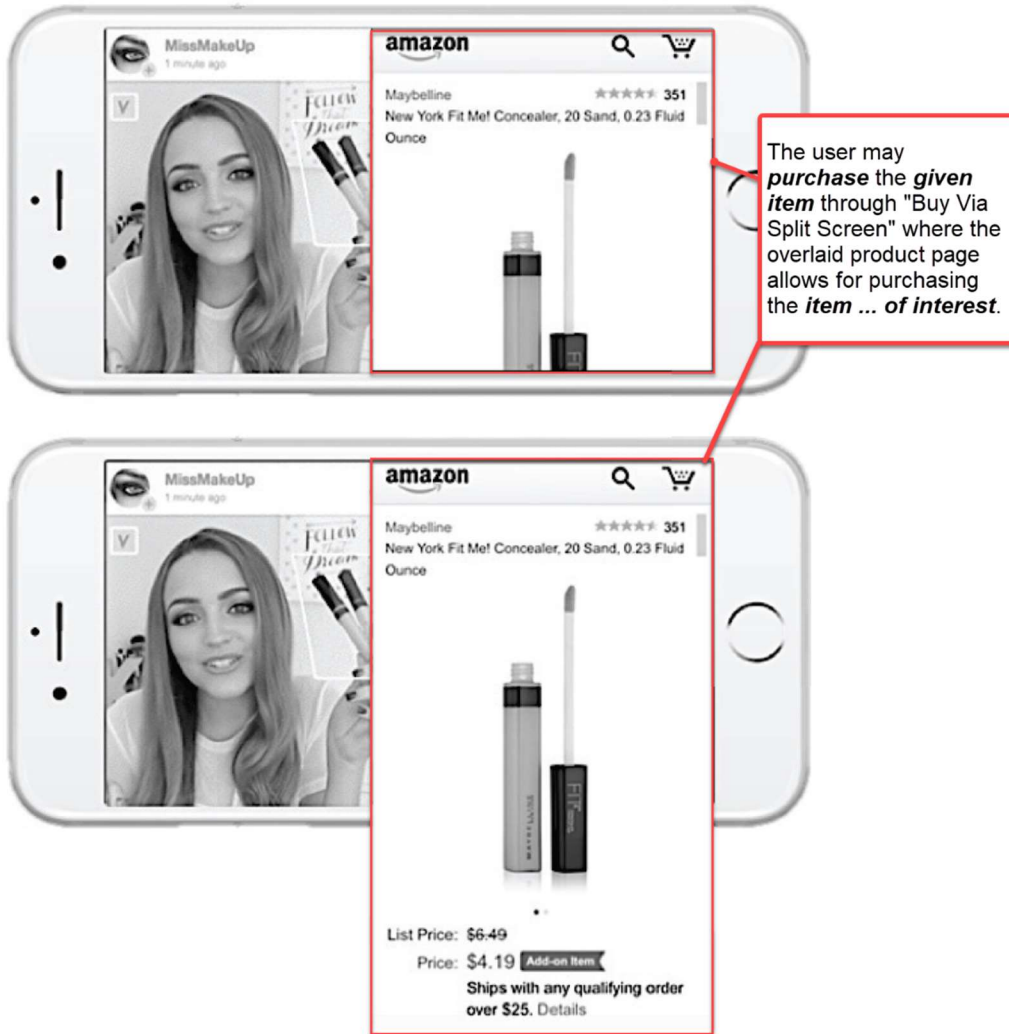


Figure 28 shows a viewer's ability to purchase through the product overlay, "giving them a way to browse that product while they watch it in action." EX1006, 29:19-21; EX1002 ¶185.

Fig. 28
Buy Via Split Screen

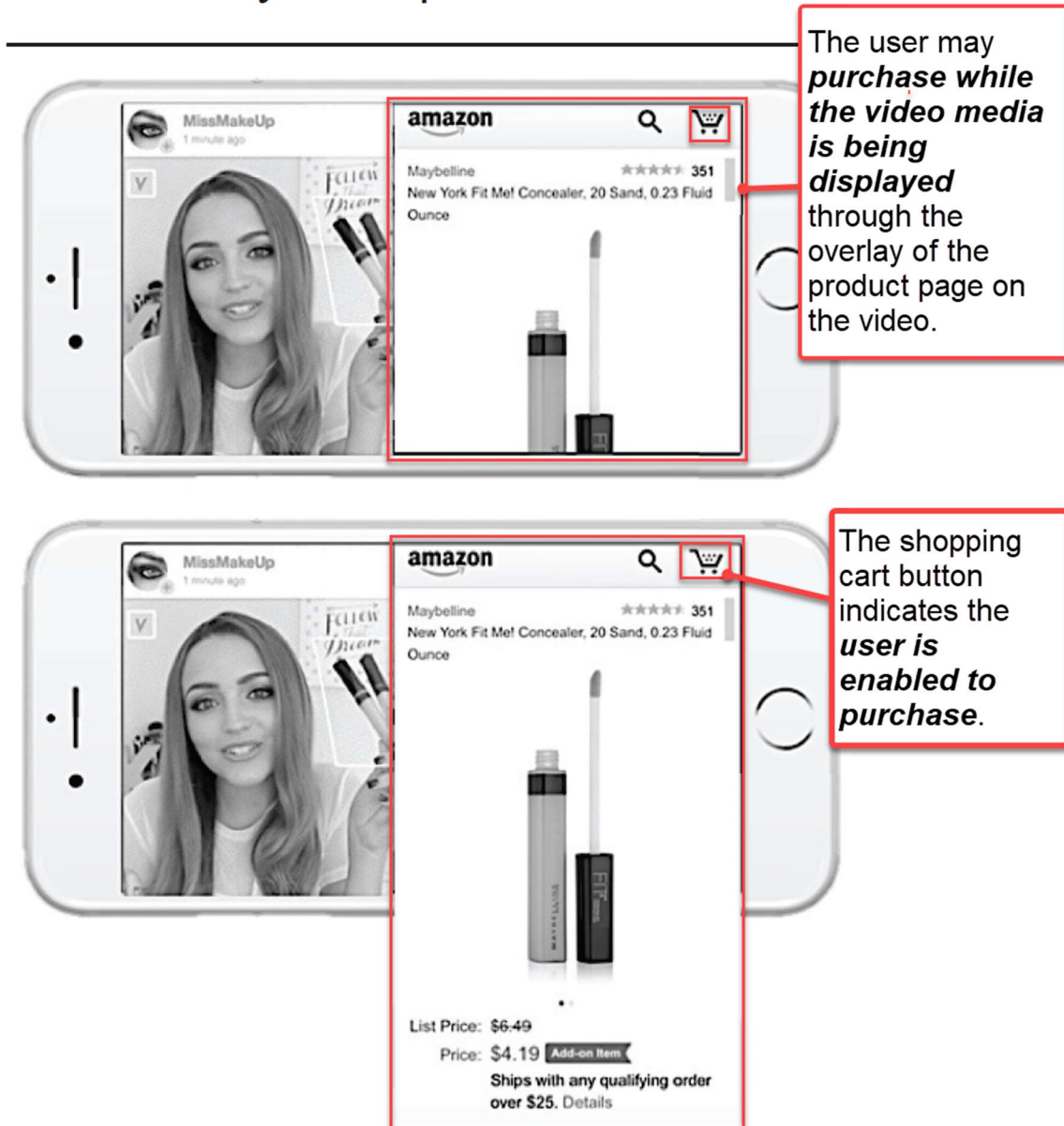


(e) Claim 5

Ohliger's overlays enable a user to purchase the identified object from the video. EX1006, 3:58-62; EX1002 ¶¶186-88. Figure 28 depicts that a user can "Buy Via Split Screen" the item without being redirected away from the video. Ohliger,

29:13-14, 29:19-21. Additionally, Figure 28's shopping cart button indicates purchasing functionality:

Fig. 28
Buy Via Split Screen



In addition, it would have been obvious to a POSITA to combine purchasing (e.g., Figure 25) into Figure 28's "product page[]" to streamline the purchasing

process for viewers of the video. EX1002 ¶189-91. Ohliger recognizes the benefit of streamlining the purchasing process: “[u]sers can then purchase Veep’d objects straight from the video with no hurdles to checkout,” and “[n]o redirect is required.” EX1006, 29:13-14, 29:19-21. A POSITA would have had a reasonable expectation of success because implementing purchasing into the product page was well within the skill of an ordinary artisan especially where both were already disclosed in Ohliger. EX1002 ¶192.

(f) Claim 6

Ohliger discloses allowing a user to bookmark a selected object for sharing. EX1006, 3:62-63 (“The viewer also has the ability to add the selected object to a collection of objects.”); EX1002 ¶193. The user “collection” allows the user to “share the entire collection instead of sharing individual objects.” EX1006, 26:7-12. Effectively, collections “allow users to create a ‘wardrobe collection.’” EX1006, 26:13-14.

Figure 10C shows the overlay with an option for the viewer (*user*) to select an item to add to their “collection” (*clip list*). EX1002 ¶194.

The viewer's ***selection of an item*** allows for adding the item to a "collection" of saved items for the viewer.

1704

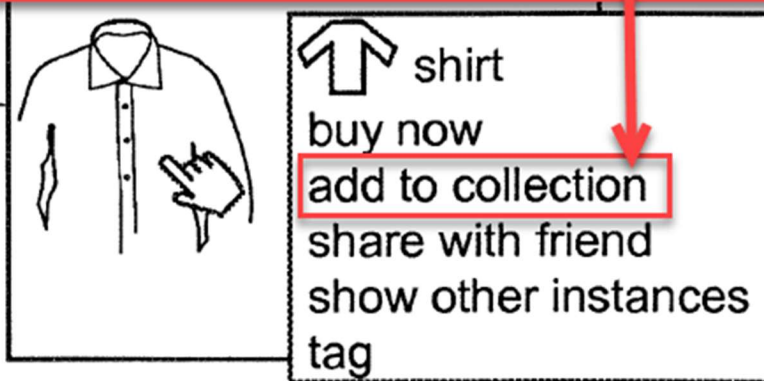


FIG. 10C

Figure 10D shows a viewer's "collection" of selected objects from videos.

EX1002 ¶195.

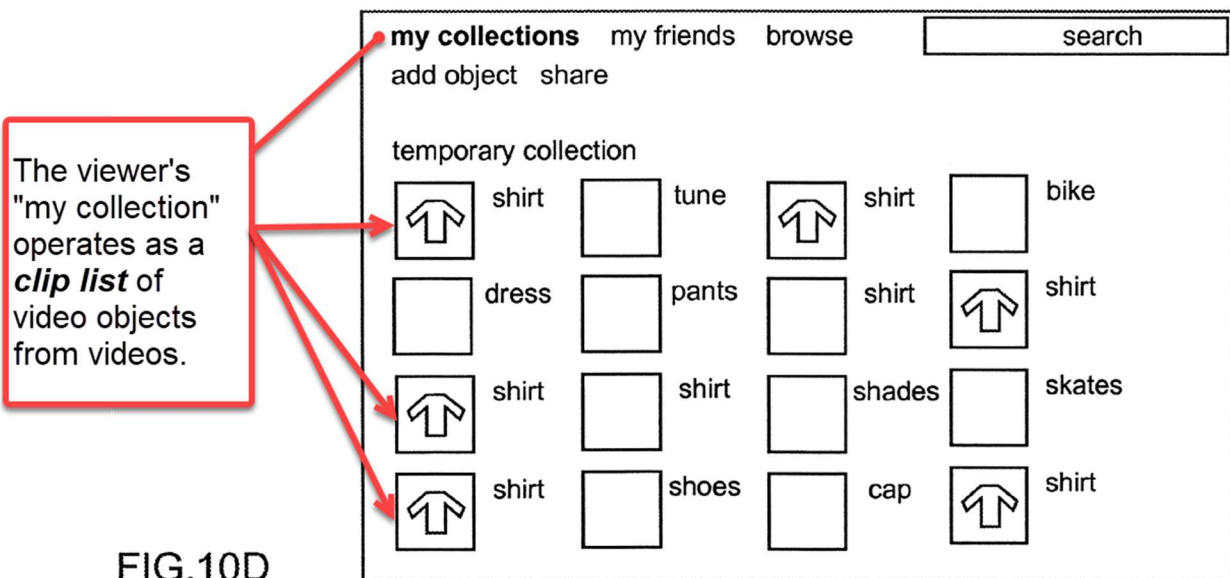


FIG. 10D

Ohliger's "collection" identifies objects with tracked "temporal coordinates" (*timed portion*) within the video (*video data*). EX1006, 11:21-26, 29:66-30:6; EX1002 ¶196.

PO's Infringement Contentions contend this limitation is met by "allow[ing] you to bookmark videos containing an item, service, or song of interest by clicking on a ribbon indicator." EX1005, 77. Thus, Ohliger discloses this limitation under PO's interpretation. EX1002 ¶197. And even if this limitation is interpreted to require "*copying*," Ohliger at least renders this obvious because copying the "video objects" to local memory would give users access to their "collection of video objects" even when their devices are not connected to the Internet. EX1002 ¶198.

(g) Claim 7

Ohliger discloses *collecting data based on actions taken by the user* through the "creation of user profiles, which entail the history of interaction and sharing of video objects." EX1006, 11:6-10; 5:44-48; EX1002 ¶199. Ohliger discloses applying the "viewer profile" as part of targeted advertising for the hyperlinked content for objects. *Id.*, 14:4-21. EX1002 ¶200.

(h) Claim 8

Ohliger discloses auctioning "the right to assign a hyperlink to a video object" in Figure 1's step 740. EX1006, Fig. 1, 12:29-37, EX1002 ¶¶201-02. Because the auction is performed more than once and allows a different retailer to change the

assigned hyperlink, the *product information* for a video object is *removed* and replaced with *different product information*. EX1006, 13:44-50 (“[A]uction may be triggered by expiration of a retailers/brands/affiliates/advertisers right to associate advertising with a given video object with a hyperlink.”); EX1002 ¶¶201-02.

(i) Claim 9

Ohliger discloses overlaying “product pages via a split screen” (*third interactive video layer*). Figure 28 shows an exemplary “product page[]” (*visual indicator[]*): “Users can view product pages via a split screen, giving them a way to browse that product while they watch it in action.” EX1006, 29:19-21; EX1002 ¶¶203-04.

Fig. 28

Buy Via Split Screen

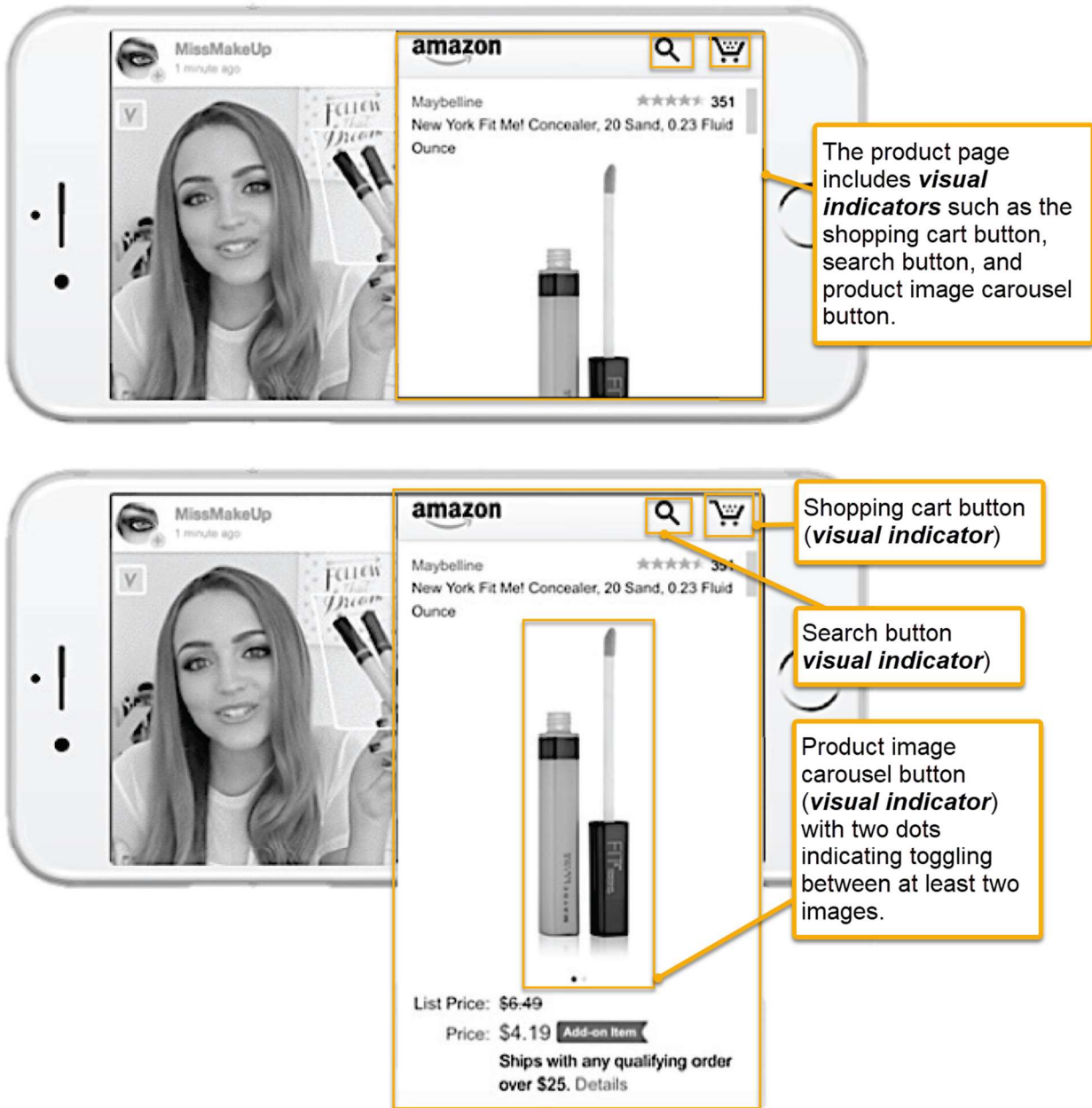


Figure 28 shows an Amazon.com page for a video object. Figure 2 displays *distribution* of the product page to the viewer through the “layer server” as discussed regarding limitation 1[c][i] above. EX1006, 22:7-11; EX1002 ¶205.

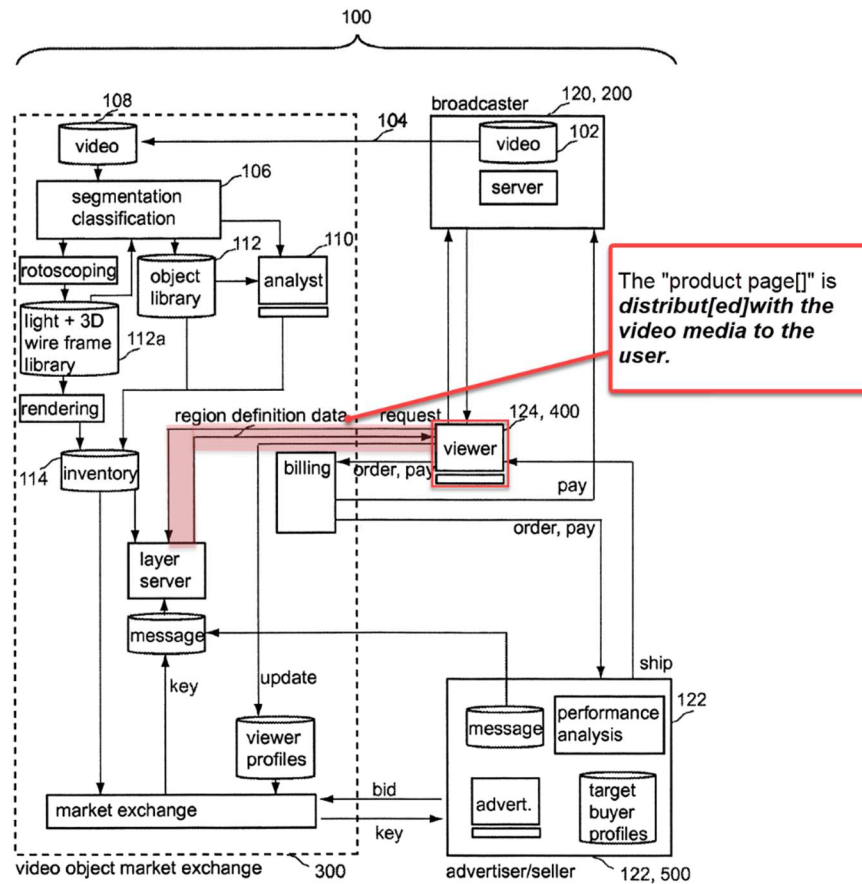


FIG. 2

Since Amazon.com product information was provided to the user without any “redirect,” that same product information was first provided to VOHE server for *distribution* to the viewer. EX1006, 29:13-14, 29:19-21; EX1002 ¶205.

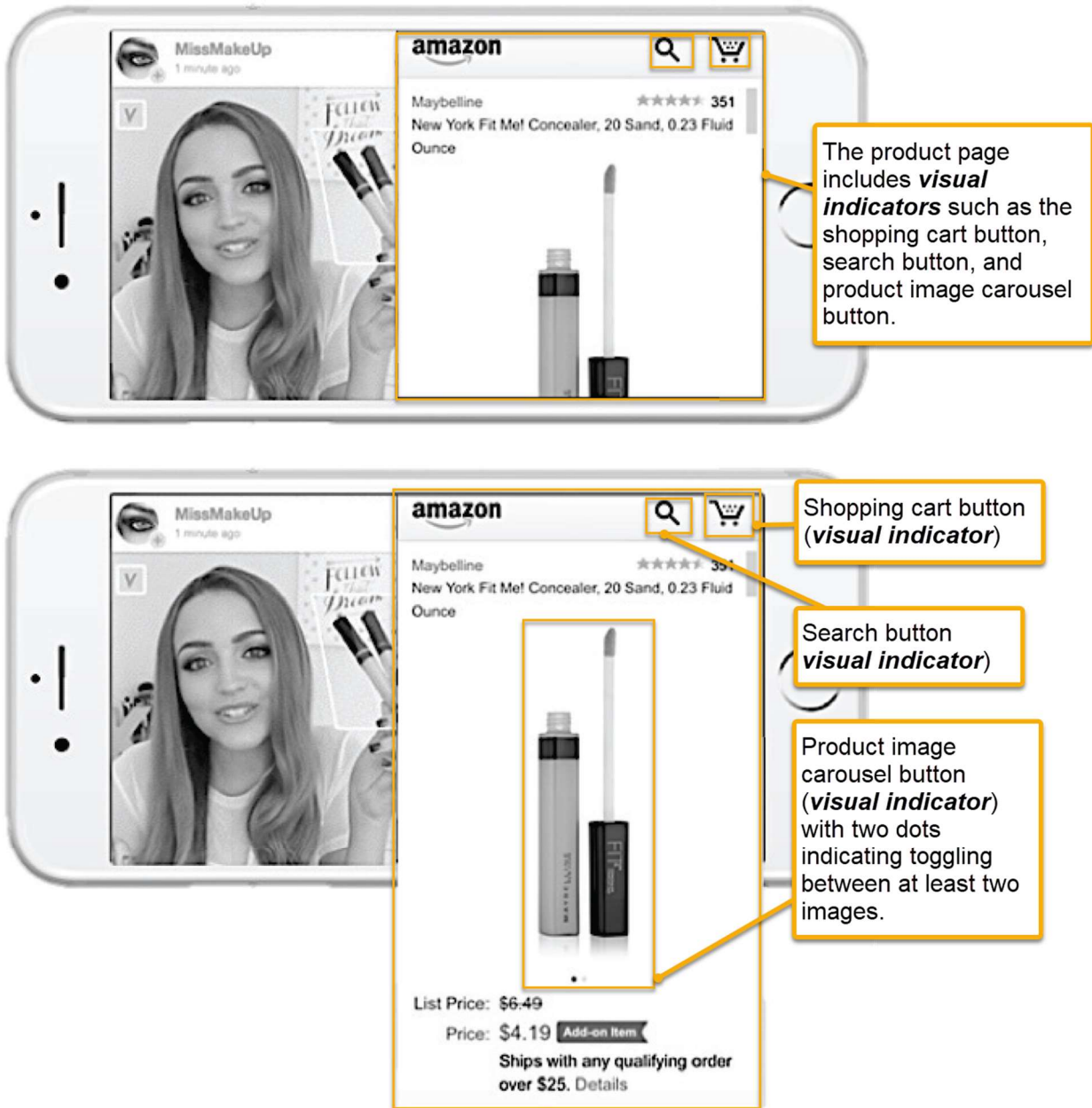
(j) Claim 10

Ohliger discloses a “product pages via a split screen” with *visual indicators includ[ing] a link for ... merchandise*. EX1006, 29:19-21; EX1002 ¶¶206-07.

Figure 28’s “product pages” (*visual indicators*) contain interactive buttons for: search, a shopping cart, and a product image carousel; each *link[s] to merchandise* through user selection. EX1002 ¶181. Additionally, Figure 28’s title “Buy Via Split Screen” indicates the “product page” overlay’s purchasing functionality. EX1002 ¶208.

Fig. 28

Buy Via Split Screen



(k) Claim 11

Claims 9 and 10, *supra*. EX1002 ¶209.

(l) Claim 12

Ohliger contemplates video from “television systems” and “[m]otion pictures on film,” *i.e.*, **a television episode or movie**. EX1006, 1:37-47, 13:51-54; 41:46-47; EX1002 ¶¶210-11. Ohliger also expressly references video objects from the television series “sex and the city” as part of the “object inventory database” in Figure 7. EX1006, Fig. 7 (“HBO comedy-drama, **sex and the city**, cable **television** series”), 7:47; EX1002 ¶212.

(m) Claim 13

As discussed regarding limitation 1[b][ii], Ohliger discloses that the video creator can **manually identify specific visual objects** for overlays. EX1006, 3:9-21 (“identifying objects in video ... manually by using information provided by the creator”). EX1002 ¶¶213-214. This includes identifying the boundary of the object, *i.e.*, **spatial data of the item**. *Id.*, 12:11-17 (“[A]n analyst may manually identify/configure the object boundaries”), 15:62-65, 18:25-31, 18:31-35, 18:36-38. Additionally, Ohliger describes a manual process for “train[ing] the segmentation application.” *Id.*, 13:17-21. *See also, supra*, limitation 1[b][i], 1[b][ii].

(n) Claim 14

As discussed above for limitation 1[b][ii], the video segmentation process is a **computer program** that **automatically identifies video objects**. EX1006, 15:6-8 (“[A]ctions which take place without human intervention”), 15:11-12, 15:20-22; EX1002 ¶¶215-16. As further discussed, this automated process recognizes visual

objects and maps them to product information. *See also, supra*, limitation 1[b][i]-[iii].

(o) **Claim 15**

Ohliger discloses that the *first and second interactive layers* include “original, organic” content integrated into the video. EX1006, 22:42-48; 14:51-59. “[O]riginal, organic” content is *unaffected by ad blocking software* because such software is known to block advertising content, *e.g.*, web browser pop-ups to third-party websites, not organic content. EX1002 ¶217.

Additionally, it would have been obvious to a POSITA that the “original, organic content” of the *first and second interactive layers* would be *unaffected by ad blocking software* because that was a well-known benefit to organic content at the time. EX1002 ¶218-220, EX1009, ¶0019. Further, Ohliger’s system includes a non-web browser mobile application that was known to be *unaffected by ad blocking software*. EX1006, 4:1-3, Fig. 13; EX1002 ¶221, EX1019, 1:38-49. As discussed in limitation 1[c], it would have been obvious to integrate the overlays into the video, which has the benefit of being *unaffected by ad blocking software*.

(p) **Claim 16**

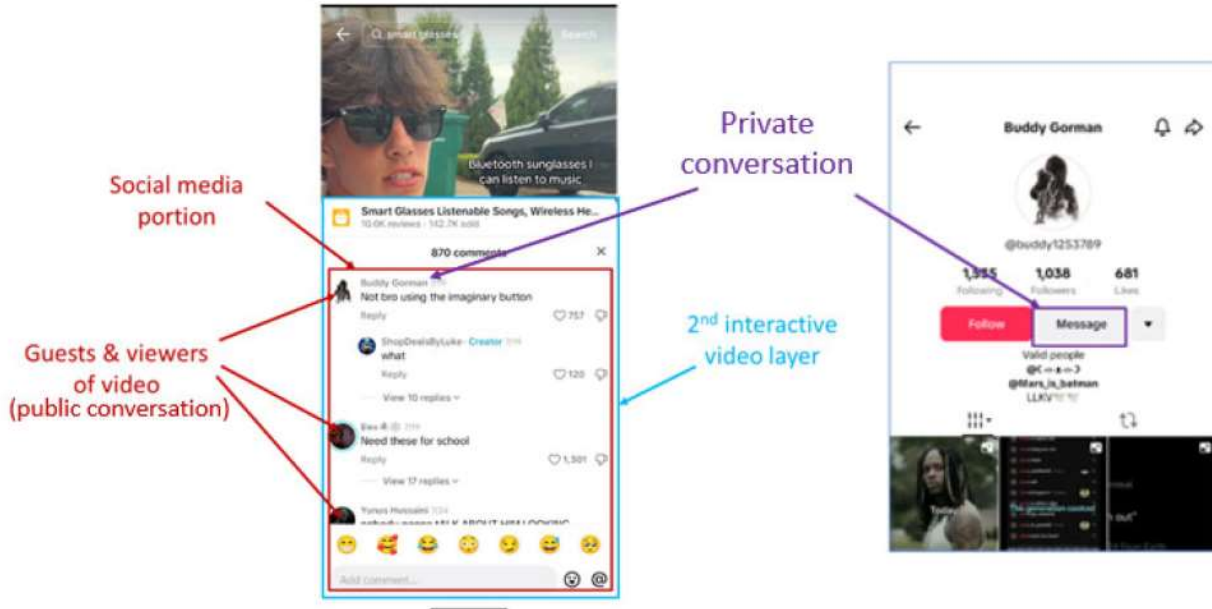
(i) **16[a][i]**

As discussed regarding limitations 1[c][iii] and 1[c][iv], Ohliger discloses an interactive comments layer with *present and past interactions* that are *public*. EX1002 ¶221.

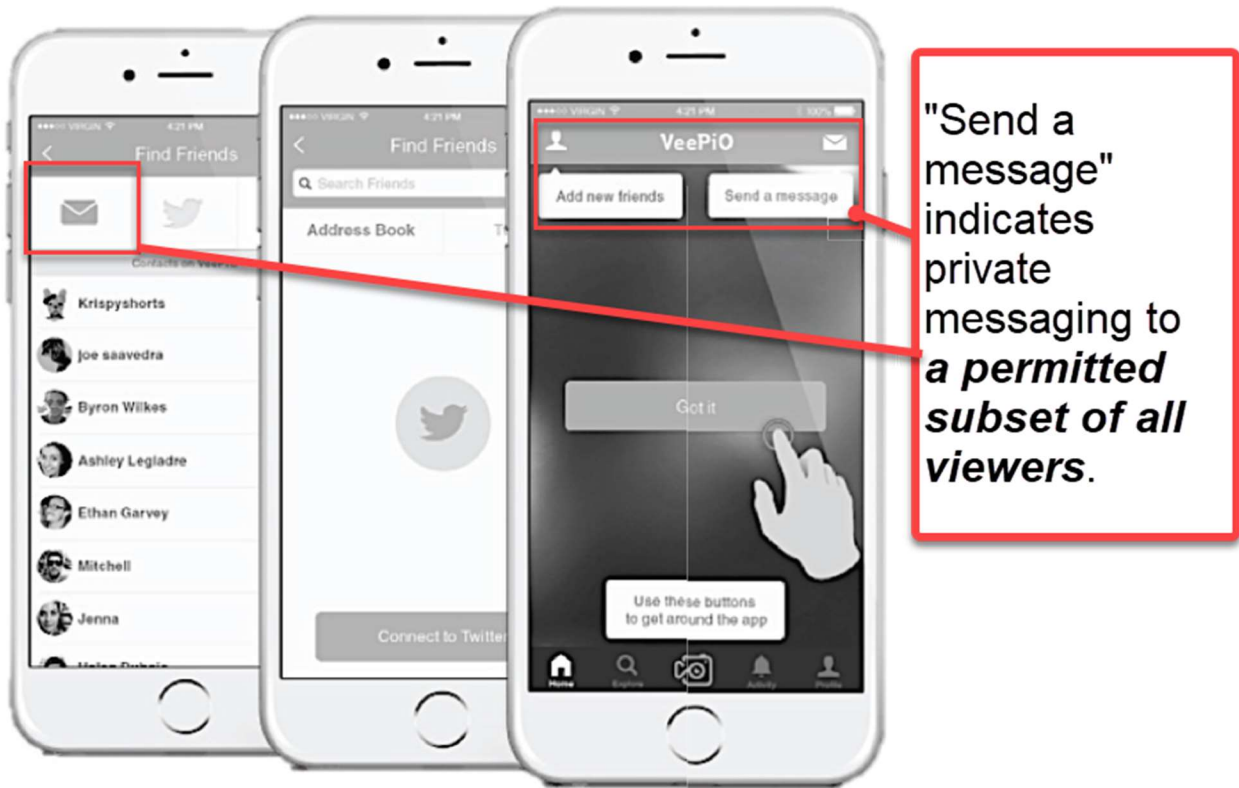
(ii) 16[a][ii]

As discussed above in limitation 1[c][iii] and 1[c][iv], Ohliger discloses that comments include public conversations from *all viewers*. EX1002 ¶189.

Ohliger also discloses *a private conversation between a permitted subset of viewers* under PO's interpretation. PO's Infringement Contentions accuse private messaging functionality that is not overlaid onto the video. EX1005, 111-112; EX1002 ¶¶222-23.



Under PO's view, Ohliger discloses in Figure 15 a "Send a message" button which enables a private message between a subset of viewers. EX1002 ¶¶224-25.

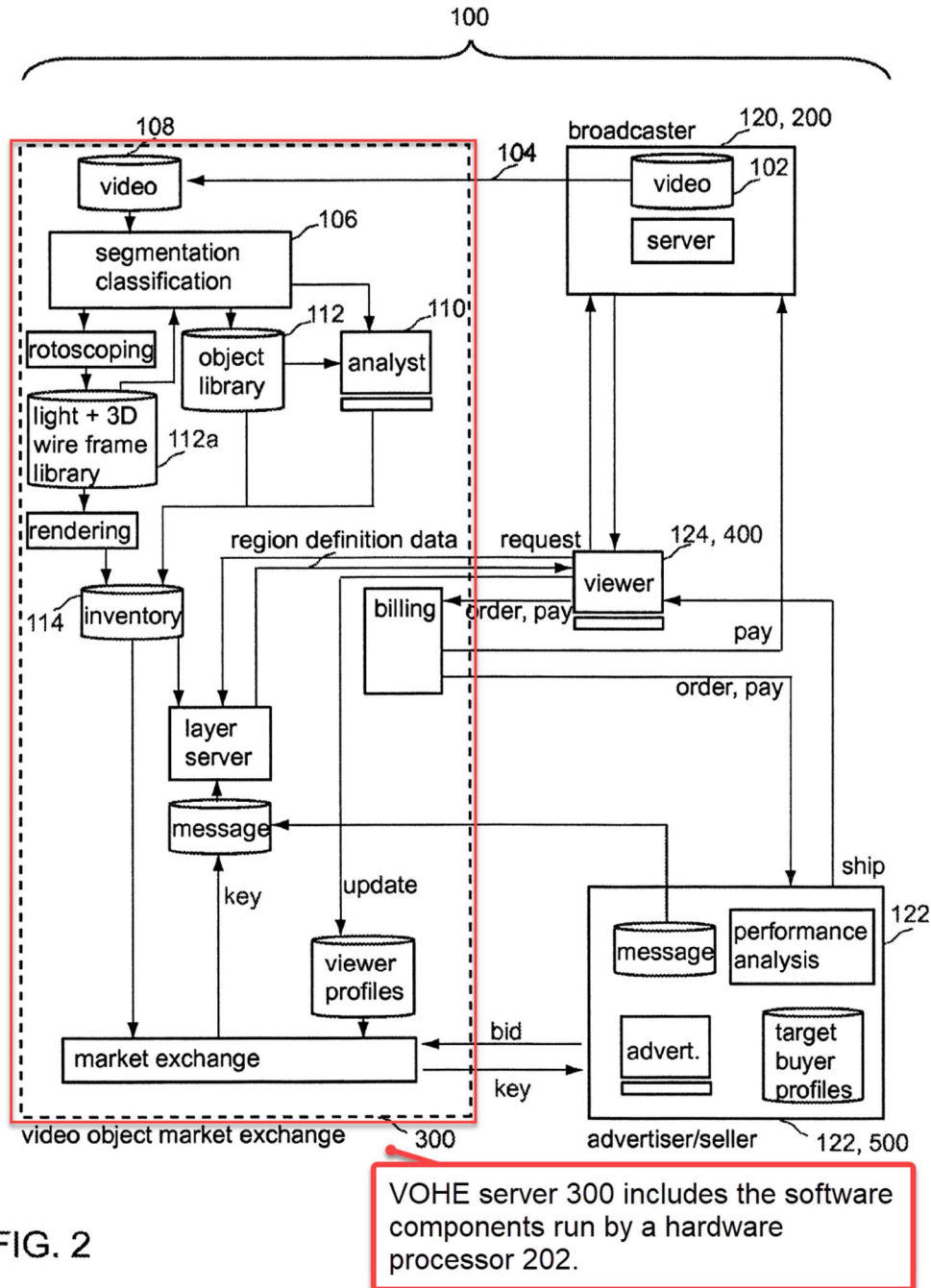


(q) **Claim 17**

- (i) 17[pre]: A non-transitory computer readable media encoded with instructions that, when executed by a processor, cause the processor to carry out at least the following steps:

Ohliger discloses “VOHE server 300” which “includes a processor 202.” EX1006, 16:10-13. This server performs the corresponding “steps” of claim 17. EX1006, 19:13-18, 22:4-7, 26:32-46; EX1002 ¶226.

Figure 2 provides a diagram that includes VOHE server 300’s **software** components (*non-transitory computer readable media encoded with instructions*). Ohliger, 15:27-28, 16:28-31, 17:27-29, 19:24-26, 26:52-55; EX1002 ¶227.



While VOHE server 300 may include multiple software components, as in Figure 2, they are all executed by the same hardware processor 202. EX1006, 16:10, 19:14-18. Accordingly, the same processor performs all steps of claim 17 addressed herein. EX1002 ¶228.

Moreover, PO contends that claim 17 is met by any number of processors “collectively perform[ing] all claimed steps.” EX1005, 16. Under this broader interpretation, a larger number of system architectures and implementations would be within scope of the claims. EX1002 ¶229. To the extent more than one processor is allowed to perform the steps of claim 17, there should be no dispute that Ohliger’s software-implemented system is performed by one or more processors. EX1006, 46:12-20; EX1002 ¶229.

(ii) 17[a]-17[b]

See limitation 1[b]-1[b][iv] and 1[c]-1[c][vi], *supra*. EX1002 ¶230.

(r) Claim 18

- (i) 18[pre]: A computer-implemented system comprising: a digital processing device comprising: at least one processor, an operating system configured to perform executable instructions, a memory, and a computer program including instructions executable by the digital processing device to create an application for providing information on items, services, or songs in a video media, the application comprising:**

Claim 18’s preamble is oddly written to require a *digital processing device* that does not actually include the *software module[s]* recited in the body of the claim. Rather, the *digital processing device* must *create an application*, and this *application ... provid[es] information on items ... in a video media* and contains

the *software module[s]* recited throughout the claim. EX1002 ¶197. Nonetheless, Ohliger discloses or renders obvious the preamble of claim 18. EX1002 ¶231.

Ohliger's system 100 is *[a] computer implemented system*. EX1006, 8:58-9:23, 15:27-44, 19:13-37. System 100 includes VOHE server 300 (*a digital processing device*). EX1006, Fig. 2, 16:10-18, 19:13-37. Ohliger discloses VOHE server 300 *comprising: at least one processor, an operating system configured to perform executable instructions, [and] a memory*. EX1006, Fig. 2 (showing embodiment of VOHE server 300), 16:10-13, 19:14-18, 46:3-11; EX1002 ¶232. Ohliger discloses *creat[ing] an application* through compilation or intermediate code. EX1006, 46:6-11. As discussed above for claim 1, Ohliger discloses *application[s] for providing information on items ... in a video media*. EX1006, 13:22-40, 19:24-37, 26:31-27:22. These *application[s]* perform the steps of claim 1, addressed above, and contain the *software module[s]* of claim 18, addressed below. EX1006, 8:58-9:15; EX1002 ¶233

According to PO, the *digital processing device* in the preamble “provides definite structure for the software modules” and those “software modules” thus are not MPF terms and their plain meaning applies. EX1017, 18. Petitioner applies PO's interpretation here. Moreover, even if PO contends the claimed *digital processing device* must execute the claimed *application*, it would be at most obvious for VOHE server 300 to compile the application(s) executed thereon. EX1002 ¶234. VOHE

server 300 (alone or with integrated broadcast server 200 functionality) is the only hardware disclosed in Ohliger for hosting VeePIO, and a POSITA would understand that compiling and running the application occurs on VOHE server 300. EX1002 ¶235. Additionally, using the same server would be obvious since VOHE server 300 has compilation hardware and would avoid post-compilation transfers to different servers, eliminating incompatibility risks. EX1002 ¶236. Thus, Ohliger discloses or renders obvious all structure PO attributes to the claimed *software module[s]*.

Next, PO contends that claim 18 is met by any number of applications “collectively contain[ing] all claimed software modules.” EX1017, 16. To the extent more than one application contains the software modules of claim 18, there should be no dispute that Ohliger’s software-implemented system is performed by one or more applications. EX1002 ¶237.

Even if claim 18 requires all *software module[s]* to be part of the same *application*, Ohliger renders this obvious. EX1002 ¶238. All applications at issue reside on the same VOHE server 300. Thus, dividing or combining functionality into one or more applications is a simple design choice. EX1002 ¶238. Since these functionalities are intended for concurrent use, combining them into one application simplifies design by eliminating inter-application coordination for timing and memory access. EX1006, 16:28-31, 46:21-28; EX1002 ¶238.

Finally, PO contends that claim 18 “should not be construed to require any particular order of method steps.” EX1017, 10-11. But even if PO changes positions and contends that certain steps must be performed in order, Ohliger teaches that. For example:

(1) limitation 18[a]’s ***receiving a request*** with creator’s upload to trigger step 700’s “[s]egment[ing] video into frames,”

(2) limitation 18[b]’s ***linking the items*** with step 715’s “[c]reator ... add[ing] comments, pictures and/or links,”

(3) limitation 18[c]’s ***generation of a first interactive layer*** and then 18[d]’s ***generation of a second interactive layer*** with step 745’s “[l]ink overlay box,” and

(4) limitation 18[e]’s ***transmitting*** with step 750’s “[s]erving object information.” Ohliger at Figure 1. EX1002 ¶¶239-243.

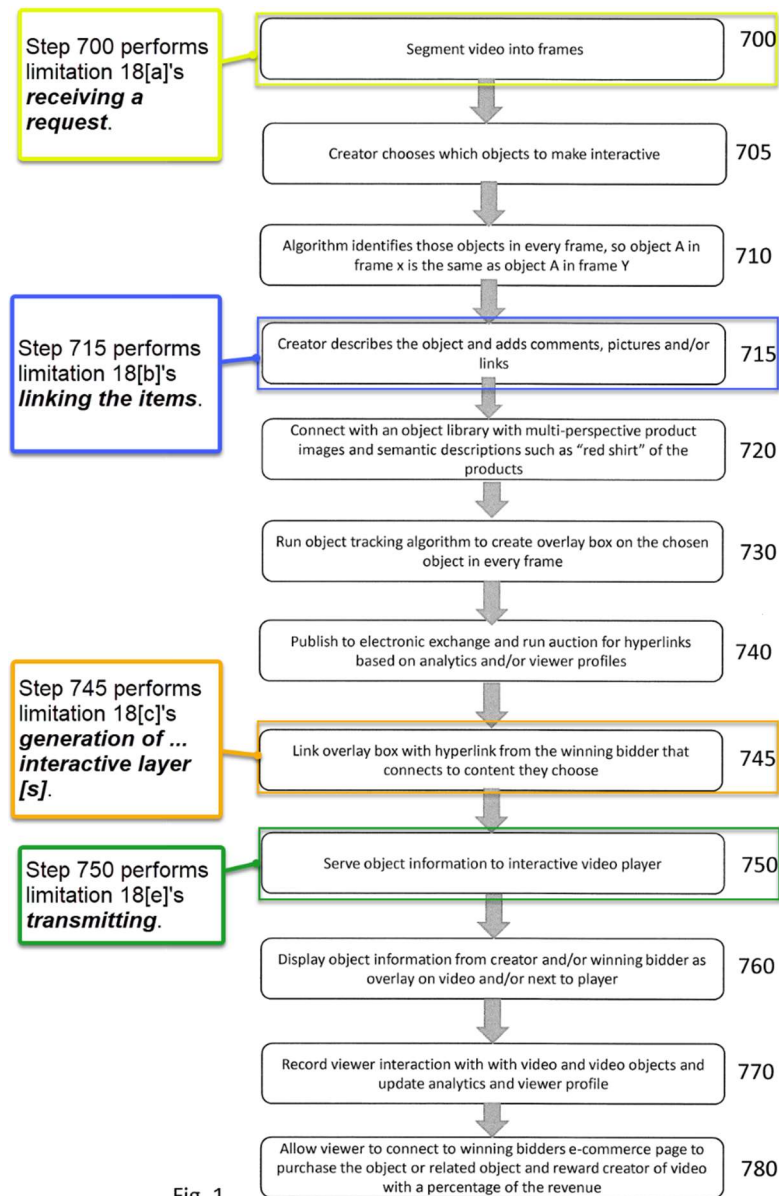


Fig. 1

In addition, Ohliger discloses or at least renders obvious that the steps identified for limitations 18[a]-[e] being performed in the order recited in the claims. EX1006, 13:6-11; EX1002 ¶244. For example, sub-comments overlaid for a particular object are specific to that object. EX1006, 11:11-19. A POSITA would understand that the software module generates sub-comment overlays for specific objects (*second interactive video layer*) after creating and linking visual outline

overlays (*first interactive video layer*). At a minimum, it would be obvious to implement this order because it is more efficient to first link the items to allow for the linked information to populate the subsequently generated interactive video layers. EX1002 ¶245.

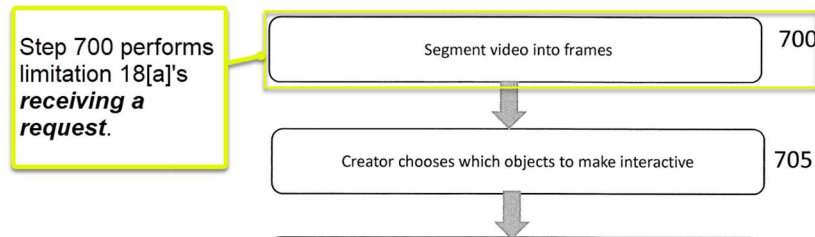
- (ii) 18[a]: a) a software module for receiving a request for the generation of information regarding items, services, or songs presented in a video media from a first processing device of a user;

When a creator chooses a video to make interactive, the creator *request[s] for the generation of information regarding items ... in a video*. EX1002 ¶246.²

Ohliger discloses a video creator initially selecting a video from their device. EX1006, 28:57-60, Fig. 20. After selecting the video, Ohliger discloses the video creator “adding interactivity” through the application on their device. EX1006, 28:61-67, 29:1-4, Fig. 21; EX1002 ¶247. This triggers (*requests*) step 700’s video processing on the VOHE server 300 to “yield[] a list of video objects ... including the temporal coordinates and region definition data.” EX1006, Fig. 2, 11:54-57, 28:57-67, 34:36-44. Therefore, when a creator selects a video for interactivity, it

² According to PO, “items ... presented in a video media” need not be contained in that video media. EX1017, 8. But having those “items” in the video itself, as disclosed in Ohliger, is a way to present them in that video.

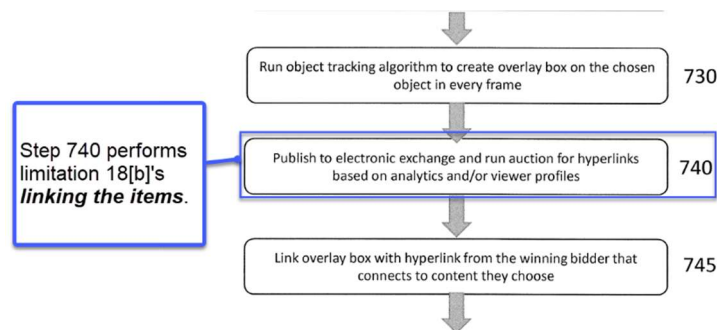
requests that step 700 generate the list with region definition data to enable the “[c]reator [to] choose[] which objects to make interactive” in step 705. EX1006, Fig. 1; EX1002 ¶¶248-49.



(iii) **18[b]: b) a software module for linking the items, services, or songs with marketing and/or purchasing information;**

See limitation 1[b][i] and 1[b][ii], *supra*.

To the extent *linking* is different from the *associating* in limitations 1[b][ii], Ohliger discloses *linking* through the hyperlink auction. Figure 1’s step 740 describes an “an automated auction process” where advertisers “bid for the right to assign a hyperlink to a video object.” EX1006, 12:29-37; EX1002 ¶¶250-52 Ohliger *link[s] the items* through hyperlinks to the winning bidder’s website (*marketing and/or purchasing information*). Ohliger discloses that the VOHE 300 performs step 740 through an “automated bidding application” (*software module*). EX1006, 22:19-27, 22:42-51; EX1002 ¶¶253-54.



- (iv) **18[c]: c) a software module for the generation of a first interactive layer to display with the video media, wherein said first interactive layer contains the items, services, or songs of interest linked to the marketing and/or purchasing information;**

See limitation 1[b][iv], *supra*; see also limitation 1[d] (addressing PO's interpretation of "items" in the "video media" versus "items ... of interest" in the "first interactive layer" and how Ohliger discloses both). EX1002 ¶255.

- (v) **18[d][i]: d) a software module for the generation of a second interactive layer to display with the video media and optionally the first interactive layer,**

See limitation 1[c]-1[c][vi], *supra*.

Ohliger discloses the video and comments are *optionally* displayed with the object outlines (*first interactive layer*). EX1002 ¶¶256-60. Specifically, Ohliger discloses that those outlines can be turned "off by tapping the 'V' watermark a third time." EX1006, 29:5-10. There is no indication that the "V" button functionality is disabled when viewing the comments overlay (*second interactive layer*) as in Figure 26. EX1002 ¶258. Indeed, the "V" button is still visible in Figure 26 even while

displaying the comments overlay. Nor is there any suggestion that the “V” button would affect the comments overlay. Therefore, the “V” button’s toggling of the outlines around objects allows the viewer to *display ... optionally the first interactive layer* with the comments overlay. EX1002 ¶258.

In addition, it would have been obvious to a POSITA to enable the viewer to *optionally* display the outline around objects while displaying the comments overlay. EX1002 ¶259. The comments overlay enables the viewer to post comments, and would benefit from providing the viewer with simultaneous view of the object. Therefore, a POSITA would be motivated to enable the “V button” to grant the viewer control to view or hide (*display ... optionally*) the outline around objects (*first interactive layer*) while displaying the comments overlay (*second interactive layer*). EX1002 ¶260.

See also limitation 2[a].

(vi) 18[d][ii]-18[d][vi], 18[e]

See limitation 1[c]-1[c][vi] and 1[d], *supra*.

(s) Claim 19

See claim 16, *supra*.

B. Ground 2: Ohliger and Sakhartov

1. Background

U.S. Pat. No. 8,166,500 (“Sakhartov”) was filed May 22, 2008, published June 18, 2009, and granted April 24, 2012. Sakhartov is prior art under 35 U.S.C.

102(a). Sakhartov discloses “generating interactive content from video content” where “at least one interactive element is integrated onto the video.” EX1013, Abstract.

2. Proposed Combination

Ohliger’s system would be modified, according to the teachings of Sakhartov, to use the “merging process” of Sakhartov to “aggregate[] and combine[] to form the final video.” EX1013, 7:56-62. As part of this modification, Ohliger’s “overlay” and “video content” would be merged into Sakhartov’s “final video” for sending to Ohliger’s viewer 124.

3. Motivation to Combine & Reasonable Expectation of Success

A POSITA would have been motivated to apply Sakhartov’s teachings to Ohliger’s video overlay system and would have had a reasonable expectation of success. EX1002 ¶¶266-90.

As a threshold matter, Ohliger, Sakhartov, and the ’316 Patent are analogous art because they are in the same field of endeavor, *i.e.*, overlaying interactive elements on video content. EX1002 ¶267. For example, the ’316 Patent relates to “interactive video layers” for “associating product information to one or more ... objects” within the video which are distributed with and displayed with streaming video content. [[EX1001]], Abstract, 2:22-50. Ohliger and Sakhartov similarly relate

to generating interactive content for video content that are displayed as overlays on the video. EX1006, Abstract; EX1013, Abstract; EX1002 ¶268.

A POSITA would have looked to Ohliger and Sakhartov when considering how to implement known systems for interactive video content related to items that appear within the video. EX1002 ¶224. A POSITA would have further been motivated to combine Ohliger and Sakhartov for the following reasons. EX1002 ¶269.

Circumvent ad-blocking software: In Ohliger, it was understood that the goal of Ohliger was to present a unique form of advertising to viewers of video content. EX1006, 14:31-45. Thus, a POSITA would have been motivated to incorporate known ways of further improving those advertising capabilities. EX1002 ¶¶270-71. At the time, it was well established that ad-blocking software prevented ads from being received by end user devices by blocking network communications known to include advertising content. EX1009, [0018-0019]; EX1002 ¶272. A known technique for circumventing this was merging the organic content and advertising content so that it was indistinguishable at the network layer. EX1009, [0019], EX1010, 11:55-59; EX1002 ¶273-74. For this reason, a POSITA would have been motivated to integrate Sakhartov's merging process. EX1002 ¶¶274-75.

A POSITA would have known of the secondary benefits to merging including simplifying the storage, management, and tracking of the merged video data as opposed to maintaining each separately. EX1002 ¶¶276-78.

Design choice: Merging video content with the interactive layers into a single file would have been one of a limited number of design choices. A POSITA would have recognized that the video and overlays could be merged or kept separate. EX1002 ¶279-82; EX1020, [0005], [0242]-[0245], EX1021, [0004], [0020]. Therefore, a POSITA would have reasonably expected to succeed in following the teachings of Sakhartov for merging the video and the overlays into a single file. EX1002 ¶283.

Ohliger’s system is suitable because Ohliger describes sending the video content and overlays to the viewer together: A POSITA would have reasonably expected to succeed in integrating Sakhartov’s “merging process” because Ohliger’s system already stores and serves the video and overlays with a single server, suitable for incorporating Sakhartov. EX1006, 22:7-11; EX1002 ¶¶284-86.

Software modification would be predictable: Changes would have been predictable and minimally impactful given the modular design, limited changes to components for storing and serving video content and overlays, and availability of well-known video file formats. EX1002 ¶¶287-90.

4. Analysis

The analysis for Ground 2 incorporates by reference the analysis for Ground 1. Petitioner provides additional analysis for individual claim limitations rendered obvious by the proposed combination of Ohliger and Sakhartov (in addition to being rendered obvious by Ohliger alone). EX1002 ¶291.

(a) Claim 1

(i) 1[c]: generating a video data comprising the video media, the first interactive video layer, and a second interactive video layer

Ohliger describes the video (*video media*) and overlays (*first* and *second interactive video layer*) being distributed to viewers by the broadcaster. EX1006, 22:7-11; EX1002 ¶292. Sakhartov discloses merging interactive layers with the “original video data” into a “final interactive video data file” (*video data*). EX1013, 4:44-50, 7:56-62, 10:5-19, EX1002 ¶¶293-94.

(b) Claim 17

Sakhartov further renders limitation 17[b] obvious for the reasons set forth above for limitation 1[c]. EX1002 ¶295.

C. Ground 3: Ohliger and Kaiserlian

1. Background

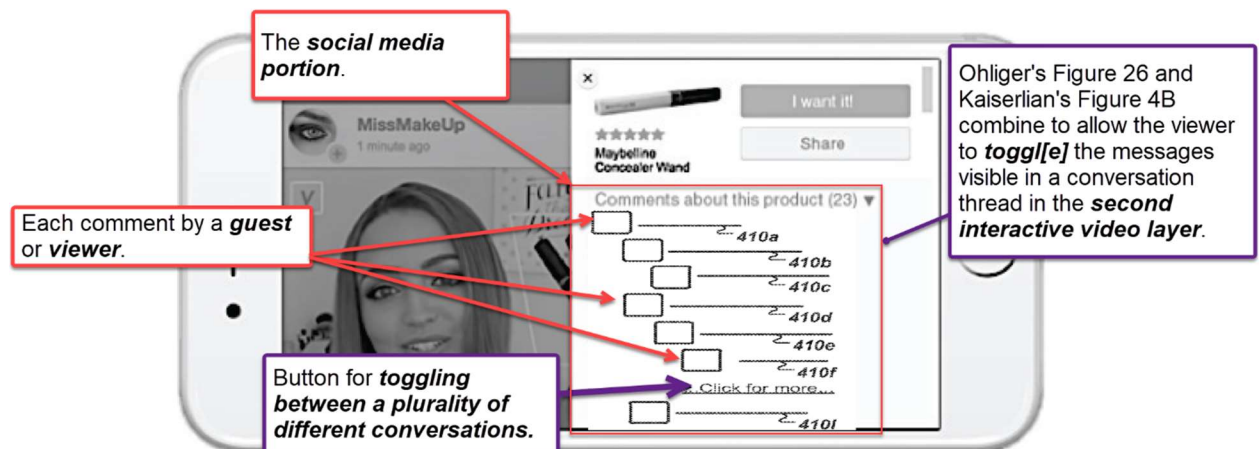
U.S. Patent No. 8,332,477 (“Kaiserlian”) was filed May 24, 2012, and issued December 11, 2012. Kaiserlian is prior art under 35 U.S.C. 102(a). Kaiserlian describes a method “for presenting related conversation[s]” including “a

conversation view ... [with] a flattened representation of the portion of the conversation.” EX1014, Abstract.

2. Proposed Combination

Ohliger’s system would be enhanced to use Kaiserlian’s “conversation thread[ing]” in Ohliger’s comments overlay. EX1014, 14:42-47. Ohliger’s comments would display reply messages with “indent levels that indicate the reply depth of each message.” EX1014, 14:48-55. The overlay would omit messages with a reply depth exceeding a predetermined threshold. EX1014, 15:19-30. However, a button “permits a user to expand the portion ... so that the messages ... are visible.” EX1014, 15:38-41.

The combined system would have collapsed and hidden reply comments unless the viewer expands them, rendering all challenged claims obvious. A mockup combining Ohliger Figure 26 and Kaiserlian Figure 4B discloses the same functionality accused in PO’s Infringement Contentions.



3. Motivation to Combine & Reasonable Expectation of Success

A POSITA would have been motivated to apply Kaiserlian's teachings to Ohliger's video overlay system and would have had a reasonable expectation of success in combining the references. EX1002 ¶¶300-319.

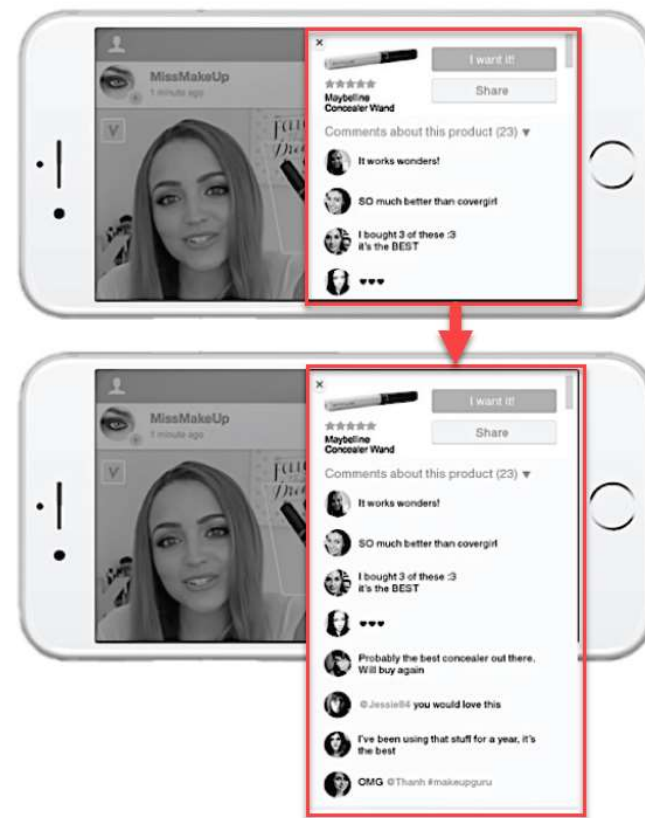
As a threshold matter, Ohliger, Kaiserlian, and the '316 Patent are analogous art because they incorporate electronic communications between individuals through written conversations. EX1002 ¶301. For example, the '316 Patent enables "the user to join a conversation with anyone watching the video media". EX1001, 20:33-39. Ohliger and Kaiserlian similarly include messaging systems for users to communicate over written conversations. EX1006, 11:11-19; EX1014, 1:14-30; EX1002 ¶302.

A POSITA would have looked to Ohliger and Kaiserlian when implementing known systems for viewer communications with interactive videos. A POSITA would have further been motivated to combine Ohliger and Kaiserlian for the following reasons. EX1002 ¶303.

Improved viewer experience: In Ohliger, it was understood that the goal of the system was to present a user interface that provides a compelling experience for interactive video. Accordingly, a POSITA would have incorporated known methods to improve overlaid user interfaces, especially for small-screen devices with limited real estate like smartphones. EX1002 ¶304.

A POSITA would have recognized that instead of scrolling through numerous comments, viewers could navigate between reply threads for comments of interest. EX1002 ¶¶305-306. Ohliger's Figure 26 recognized the challenge with extensive comments with the comments expanding beyond the smartphone:

Fig. 26
Share & Comment



Kaiserlian improves the viewer experience by organizing the comments into collapsible threads that hide comments until the viewer expands it. EX1002 ¶307. Combined with Ohliger, this would have allowed viewer to navigate through many comments despite the limited screen space on smartphones, allowing viewers to

contribute to the community which Ohliger recognized as a desirable feature.

EX1006, 28:42-45; EX1002 ¶¶308-15.

Ohliger contemplates separating comments by topic: Ohliger's discloses each object has a distinct set of comments, independent of any other object's comments. EX1006, 11:14-19, Fig. 27. Despite this organization, Ohliger's Figure 26 still shows comments extending beyond the screen boundaries. EX1002 ¶316. A POSITA would have been motivated to further organize comments by implementing Kaiserlian's comment threading with collapsible sub-threads. EX1002 ¶316.

Software modification would be predictable: Changes to Ohliger's comments would be predictable and minimally impactful on the system given the modularity of the design and the ability to limit the changes to specific components of the user interface. EX1002 ¶¶317-19.

4. Analysis

The analysis for Ground 3 incorporates by reference the analysis for Ground 1. Petitioner provides additional analysis for individual claim limitations rendered obvious by the proposed combination of Ohliger and Kaiserlian (in addition to being rendered obvious by Ohliger alone). EX1002 ¶320.

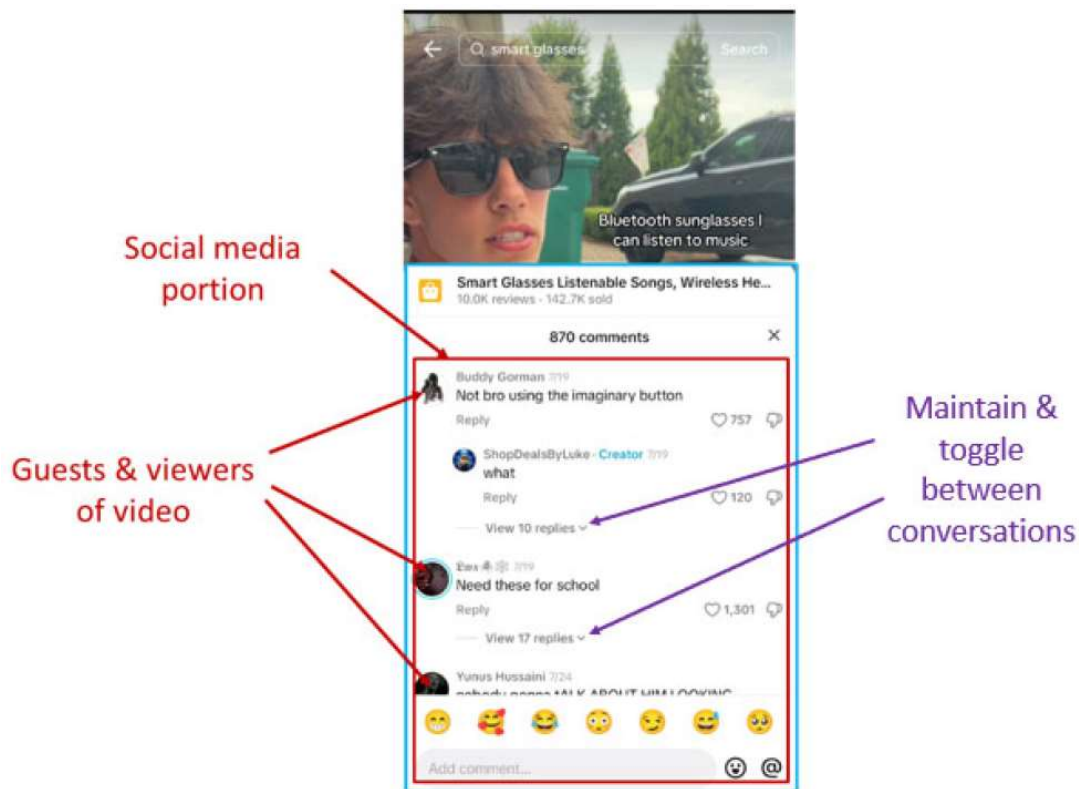
(a) Claim 1

- (i) 1[c][vi]: wherein the user is capable of maintaining and toggling between a plurality of different conversations displayable in the social media portion in the second interactive video

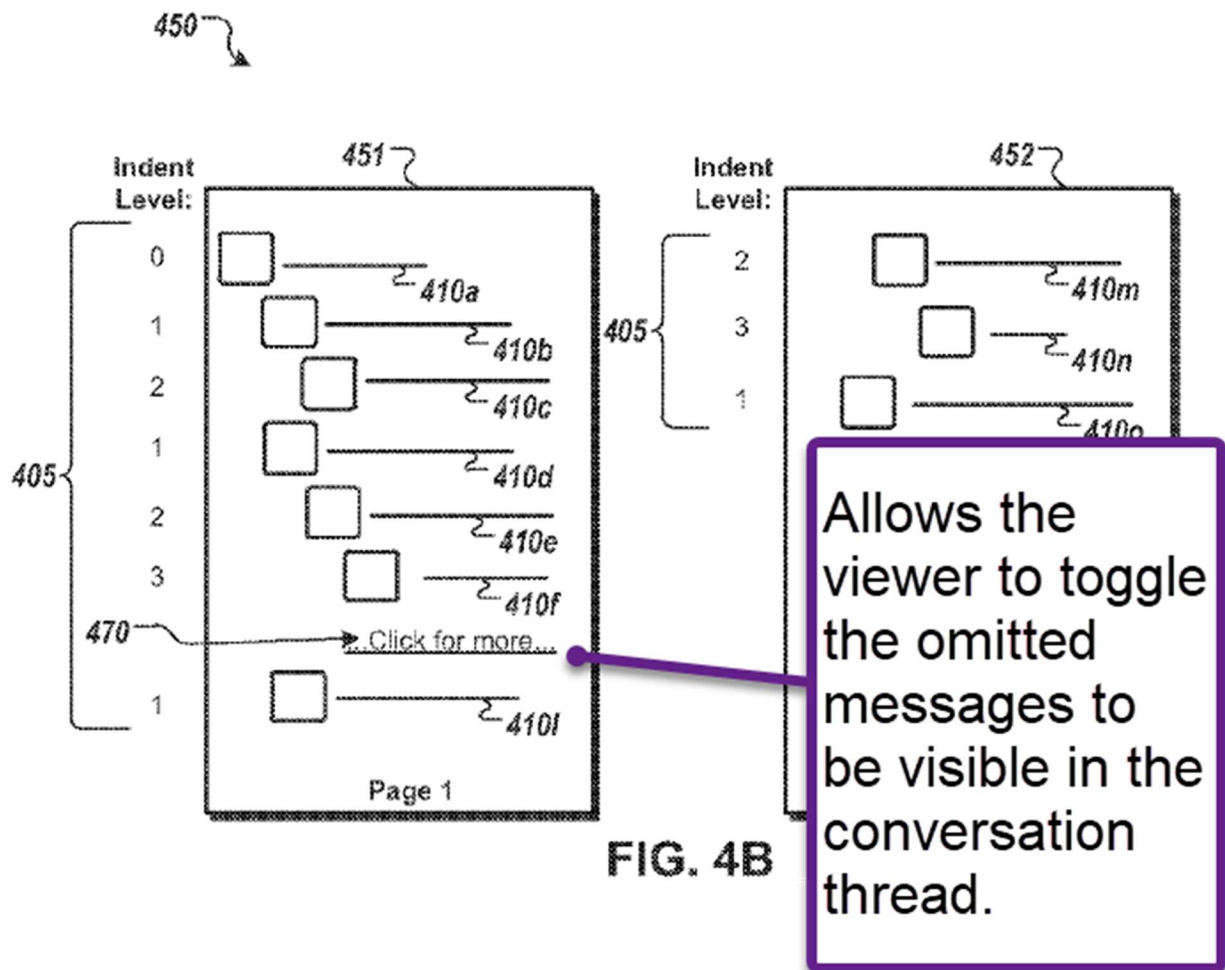
layer as an overlay to the video media displayed by the first media playback device,

Ohliger discloses overlaying comments for objects in a video (*conversations displayable in the social media portion*). See section VII(A)(2)(x)–(xiii), *supra*; EX1006, Fig. 26; EX1002 ¶321.

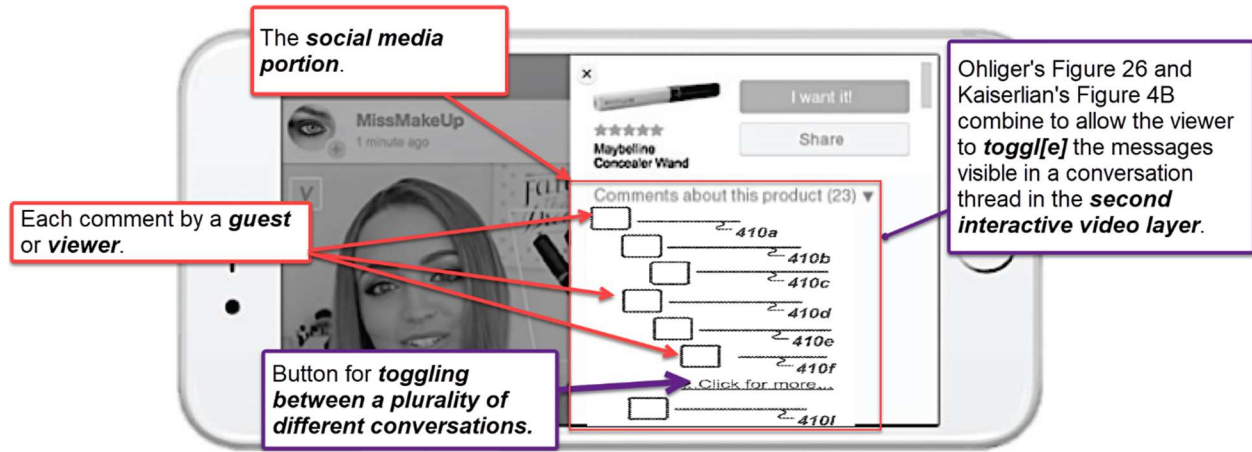
Further, PO's Infringement Contentions in the district court litigation for claim 1's *maintaining and toggling between a plurality of different conversations* accuse the expansion of a conversation thread's replies as seen below. EX1005, 48. The proposed modification of Ohliger with Kaiserlian discloses the same functionality accused in PO's Infringement Contentions. EX1002 ¶322.



Kaiserlian discloses the same expansion of conversation threads that PO accuses of infringement. EX1002 ¶¶323-26. First, Kaiserlian discloses “omit[ting]” or hiding “messages in a conversation thread ... based on ... indent levels” where the indent is indicative a reply thread. EX1014, 1:25-41. Kaiserlian’s Figure 4B includes a “[c]lick for more...” button that “permits a user to expand ... the messages” that were previously omitted. EX1014, 15:31-41. Therefore, under PO’s interpretation, the viewer can use the “click for more” button for *maintaining and toggling between a plurality of different conversations*. EX1002 ¶326.



When applied to Ohliger's sub-comments, the combination renders obvious the claimed ***toggle***, as shown in the following mock-up. EX1002 ¶327.



(b) Claims 17 & 18

Kaiserlian further renders limitations 17[b][vi] and 18[d][vi] obvious for the reasons set forth above for limitation 1[c][vi]. EX1002 ¶328.

D. Ground 4: Ohliger and Tapissier

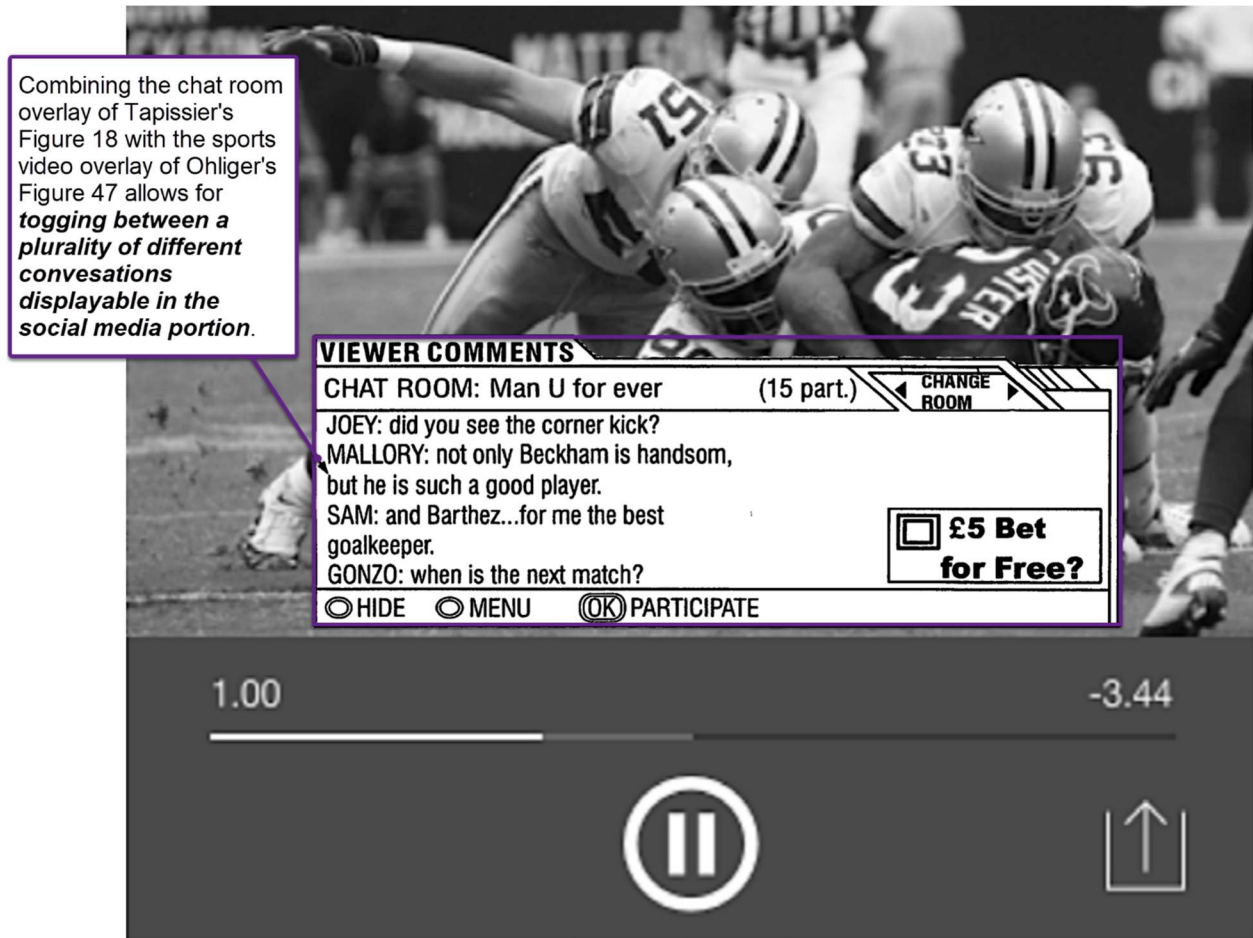
1. Background

E.P. No. 1,425,918 (“Tapissier”) was filed September 12, 2002, and published June 9, 2004. Tapissier is prior art under 35 U.S.C. 102(a). Tapissier describes “a method for broadcasting a chat room in an interactive television environment.” EX1007, [0007].

2. Proposed Combination

Ohliger's system would be modified, according to the teachings of Tapissier, to combine Tapissier's overlaid chatroom with Ohliger's interactive videos. EX1007, [0064]. As part of this modification, Ohliger's interactive videos would

include the chatroom overlay, as in Tapissier's Figure 18, to allow for chat room functionality including toggling between different chat rooms associated with a video. EX1007, Fig. 18. The combination renders all challenged claims obvious. Consider the mockup below based on Ohliger's Figure 47 and Tapissier's Figure 18.



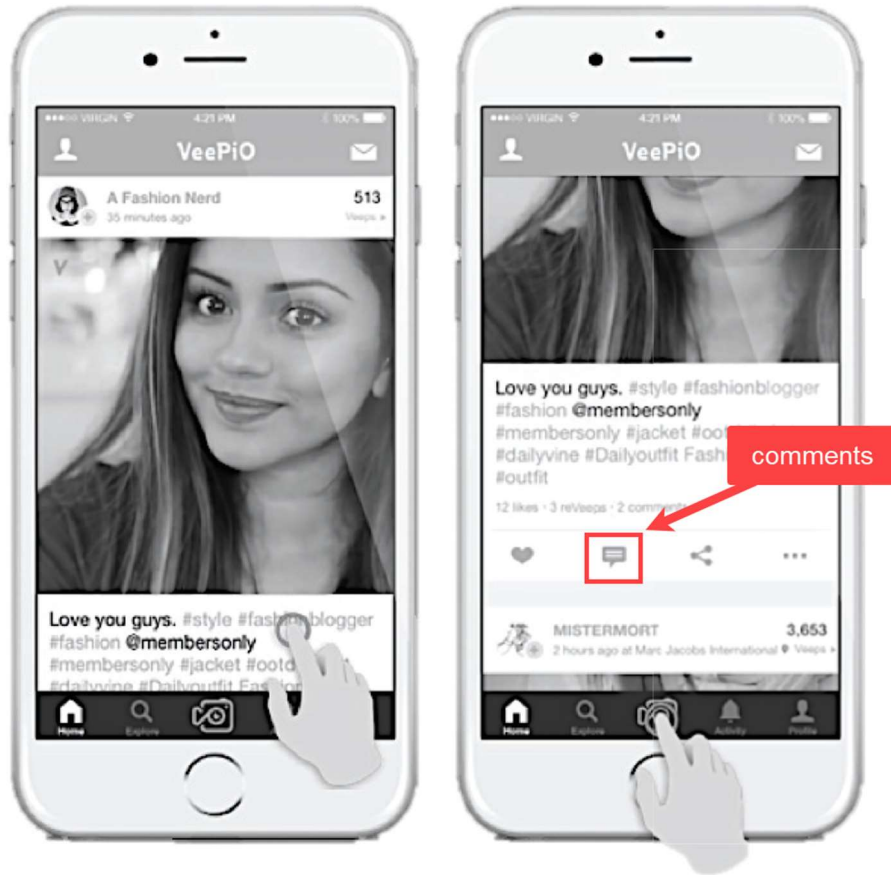
3. Motivation to Combine & Reasonable Expectation of Success

A POSITA would have been motivated to apply Tapissier's teachings to Ohliger's video overlay system and would have had a reasonable expectation of success in combining the references. EX1002 ¶¶331-354.

As a threshold matter, Ohliger, Tapissier, and the '316 Patent are analogous art because they all incorporate electronic communications between individuals in written conversations as overlays on video content. EX1002 ¶332. The '316 Patent enables “the user to join a conversation with anyone watching the video media.” EX1001, 20:33-39. Ohliger and Tapissier similarly include messaging systems for users to communicate in written conversations overlaid on videos. EX1006, 11:11-19, Fig. 15; EX1007, [0001], Fig. 18, EX1002 ¶¶332-33.

A POSITA would have looked to Ohliger and Tapissier when considering how to implement known systems for integrating viewer communications into interactive video content. A POSITA would have further been motivated to combine Ohliger and Tapissier for the following reasons. EX1002 ¶334.

Improved viewer experience: Within Ohliger, social interactions amongst the community of viewers is desirable. EX1006, 28:42-45. Ohliger discloses not just object-specific “sub-comments,” but also “comments that relate to the video as a whole.” Ohliger, 11:11-19; *see also* Figure 16. EX1002 ¶335.



A POSITA would have been motivated to incorporate known ways of improving the social interactions for the “video as a whole” through the overlay of user interfaces on the video. EX1002 ¶¶336-39. A POSITA would have known of extensive social interactions enabled by Tapissier’s overlay of chat rooms on video content. EX1002 ¶336. Integrating Tapissier’s multiple chat room overlay would have created an improved social media experience for viewers, allowing viewers to engage with the community in chatrooms in real-time while viewing a video. EX1007, [0051]; EX1002 ¶¶336-39.

Commercial benefit from increased interactivity: A POSITA would have had an economic motivation to integrate Tapissier’s chat room overlays because the additional interactions would increase the time viewers spent with the video, increasing the likelihood they purchases a product. EX1006, 11:32-37, 10:53-60; EX1002 ¶¶340-41. Additionally, chat messages—being user data—would have been valuable for targeted advertising, increasing the probability a user clicks on an advertisement. EX1007, [0026]; EX1002 ¶¶342-45. A POSITA would have understood that providing additional data to advertisers would increase the value of each auctioned hyperlink, an integral part of Ohliger. EX1006, 1:27-33, 14:12-21; EX1002 ¶343.

Ohliger already contemplates messaging between viewers and overlaying viewer comments on videos: Ohliger discloses direct messaging between viewers and overlaying comments on video content. EX1006, Fig. 15, Fig. 26, EX1002 ¶¶347-48. A POSITA would have reasonably expected to succeed in adding Tapissier’s overlaid chat rooms due to its commonality with Ohliger’s existing features. EX1002 ¶¶348-50.

User interface modification would be predictable: Integrating Tapissier’s chat room overlays would have been predictable and minimally impactful on the system given the modularity of the design, existing messaging and overlay

functionalities, and the ability to limit the changes to specific components of the user interface. EX1002 ¶¶351-54.

4. Analysis

The analysis for Ground 4 incorporates by reference the analysis for Ground 1. Thus, the discussion above regarding generating, providing, and controlling Ohliger's sub-comments (e.g., that they are provided as part of the video data to and controllable by multiple viewers using different devices) apply equally to Tapissier's chat rooms. Petitioner provides additional analysis for individual claim limitations rendered obvious by the proposed combination of Ohliger and Tapissier (in addition to being rendered obvious by Ohliger alone). EX1002 ¶355.

(a) Claim 1

- (i) **1[c][vi]: wherein the user is capable of maintaining and toggling between a plurality of different conversations displayable in the social media portion in the second interactive video layer as an overlay to the video media displayed by the first media playback device**

Ohliger discloses comments for each object appearing in a video *See* section VII(A)(2)(x)–(xiii), *supra*; EX1006, Fig. 26. Tapissier describes a chat room overlay on video broadcasts such as for interactive television. EX1007, [0001]. Tapissier further discloses that the viewer selects whether and which chat room to join, such as Figure 18's "change room" button **toggling** between chat rooms. EX1007, [0011], [0064], Fig. 18; EX1002 ¶¶356-59.

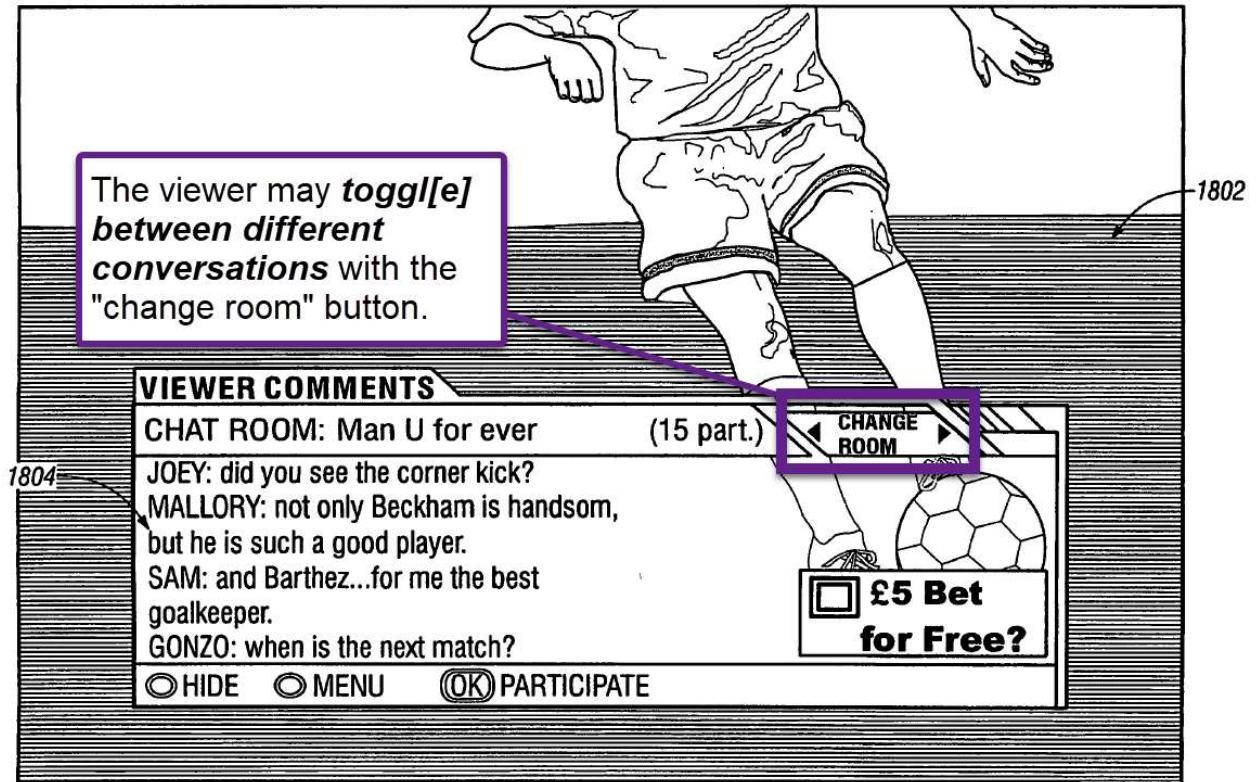
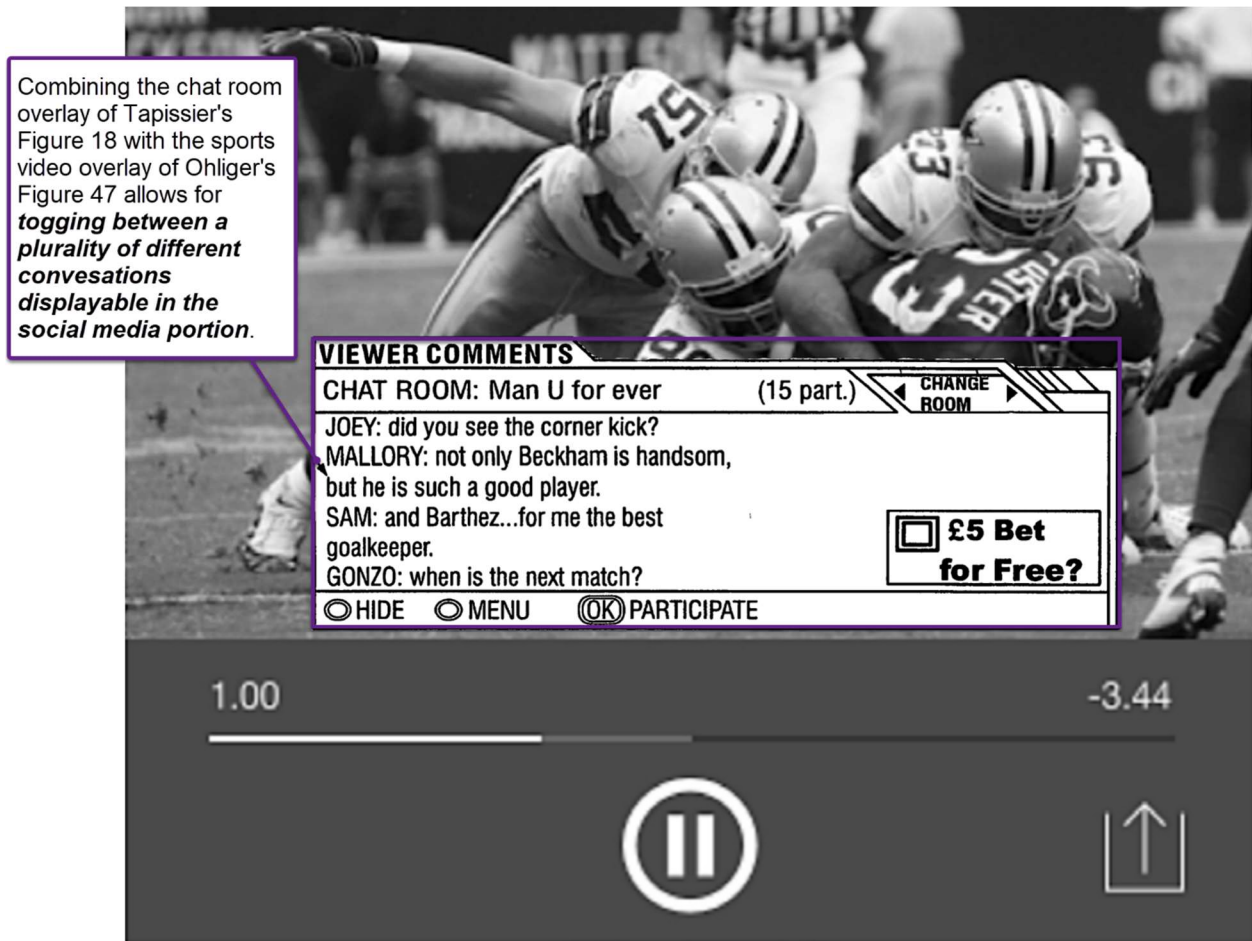


FIG. 18

That same overlay could overlay Ohliger's videos, including Ohliger's Figure 47, which (like Tapissier's Figure 18) relates to a sporting event. EX1002 ¶359.



(b) Claim 2

Tapissier discloses that its chat room overlay can be turned on or off. EX1007, [0064], [0066], Fig. 17 (“Exit” button), Fig. 18 (“Hide” button); EX1002 ¶360.

(c) Claim 16

- (i) 16[a][ii]: wherein the plurality of different conversations comprises at least a public conversation which enables all viewers of the video media to join and a private conversation which enables a permitted subset of all viewers of the video media to join.**

Ohliger discloses overlaying comments for each object appearing in a video (**public conversation**). See section VII(A)(2)(x)–(xiii), *supra*; EX1006, Fig. 26;

EX1002 ¶361. Tapissier further describes a chat room overlay on video broadcasts including both public chat rooms and “private room[s]” where “users ... may exchange private messages.” EX1007, [0050], [0064]; [0001]; EX1002 ¶¶362-63.

(d) Claim 17

Tapissier further renders limitation 17[b][vi] obvious for the reasons set forth above for limitation 1[c][vi]. EX1002 ¶364.

(e) Claim 18

- (i) 18[d][i]: d) a software module for the generation of a second interactive layer to display with the video media and optionally the first interactive layer,**

Tapissier describes a chat room overlay (*second interactive layer*) on video broadcasts. In the proposed combination with Ohliger, Ohliger’s “V” button would remain, thereby allowing the user to *optionally* display Ohliger’s animations, outlines, and halos shown as clickable overlays on top of video objects (*first interactive layer*) alongside the underlying video (*video media*) and Tapissier’s chat room overlay. EX1002 ¶¶365-67. *See also* Ground 1, limitation 18[d][i] for discussion of other aspects of this claim limitation.

- (ii) 18[d][vi]**

Tapissier further renders limitation 18[d][vi] obvious for the reasons set forth above for limitation 1[c][vi]. EX1002 ¶368.

(f) Claims 19

Tapissier further renders claim 19 obvious for the reasons set forth above for claim 16. EX1002 ¶369.

E. Ground 5: Ohliger, Sakhartov, and Kaiserlian or Tapissier

For the reasons set forth in Grounds 3-4, it would further be obvious to combine Ohliger and Sakhartov (Ground 2) with either Kaiserlian (Ground 3) or Tapissier (Ground 4) to arrive at the challenged claims of the '316 patent. EX1002 ¶370.

F. Secondary Considerations

Any secondary considerations further weigh in favor of obviousness, and certainly do not overcome the strong showing of obviousness. First, there was no long felt, unresolved need met by the '316 patent: to the extent wide-scale deployment of interactive video systems was delayed in the United States, it was because of industry and market barriers, not technical barriers. EX1002 ¶¶371-72. Further, the interactive video systems and other art discussed in the State of the Art section, which predate the '316 patent's priority date, indicate that many within the market observed the desirability of such systems and were concurrently implementing them. EX1002 ¶372.

IX. CONCLUSION

For the reasons above, *inter partes* review is requested.

Date: September 3, 2025

Respectfully submitted,

By: /s/ James Glass
James M. Glass

Counsel for Petitioner

CERTIFICATION UNDER 37 C.F.R. § 42.24

Under the provisions of 37 C.F.R. § 42.24, the undersigned hereby certifies that the word count for the foregoing Petition for *inter partes* review (excluding the table of contents, table of authorities, mandatory notices, certificate of service or word count, and appendix of exhibits or claim listing) totals 13,950 words, which is within the word limit allowed under 37 C.F.R. § 42.24(a)(i).

Date: September 3, 2025

/s/ James Glass

James Glass (Reg. No. 46729)

CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. §§ 42.6(e), 42.105(a), the undersigned hereby certifies service on the PO of a copy of this Petition and its respective exhibits at the official correspondence address for the attorneys of record for the '316 patent as shown in USPTO PAIR via FedEx:

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