

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Michael S. Smith
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Title: GESTURE-EQUIPPED TOUCH SCREEN SYSTEM, METHOD,
AND COMPUTER PROGRAM PRODUCT

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**PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT
NO. 10,656,755 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. § 42**

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LIST OF EXHIBITS

APPLE-1001	U.S. Patent No. 10,656,755 (“the ’755 Patent”)
APPLE-1002	U.S. Patent No. 10,656,755 File History
APPLE-1003	Declaration of Dr. Andrew Cockburn
APPLE-1004	U.S. Patent Publication No. 2011/0119610 to Hackborn et al. (“Hackborn”)
APPLE-1005	U.S. Patent Publication No. 2008/0316183 to Westerman et al. (“Westerman”)
APPLE-1006	U.S. Patent Publication No. 2010/0103118 to Townsend et al. (“Townsend”)
APPLE-1007	U.S. Patent Publication No. 2012/0319959 to Saponas et al. (“Saponas”)
APPLE-1008	U.S. Patent No. 6,920,606 to Jablonski et al. (“Jablonski”)
APPLE-1009	U.S. Patent Publication No. 2008/0122796 to Jobs et al. (“Jobs”)
APPLE-1010	U.S. Patent Publication No. 2007/0150842 to Chaudhri et al. (“Chaudhri”)
APPLE-1011	U.S. Patent No. 6,061,695 to Slivka et al. (“Slivka”)
APPLE-1012	U.S. Patent No. 6,202,083 to Chrabaszc (“Chrabaszc”)
APPLE-1013	U.S. Patent Publication No. 2005/0209923 to Jablonski et al. (“Jablonski II”)
APPLE-1014	“Facebook Completes Rollout Of Haystack To Stem Losses From Massive Photo Uploads,” <i>TechCrunch</i> , April 6, 2009,

<https://techcrunch.com/2009/04/06/facebook-completes-rollout-of-haystack-to-stem-losses-from-massive-photo-uploads/>

APPLE-1015	U.S. Patent Publication No. 2006/0048059A1 to Etkin
APPLE-1016	U.S. Patent Publication No. 2012/0246184A1 to Rothschild
APPLE-1017	U.S. Patent Publication No. 2008/0168404A1 to Ording
APPLE-1018	U.S. Patent Publication No. 2008/0062141A1 to Chandhri
APPLE-1019	U.S. Patent Publication No. 2011/0074699A1 to Marr
APPLE-1020	U.S. Patent Publication No. 2014/0232671A1 to Chandhri
APPLE-1021	U.S. Patent No. 6,323,846 to Westerman et al. (“Westerman2”)
APPLE-1022	Hargrave’s Communications Dictionary, 1 st Edition (2001)
APPLE-1023	Dictionary of Computer and Internet Terms, Tenth Edition (2009)
APPLE-1024	Van Nostrand’s Scientific Encyclopedia, Tenth Edition, Volume 2 (2008)
APPLE-1025	Microsoft Computer Dictionary, 5 th Edition (2002)
APPLE-1026	U.S. Patent No. 6,061,532 to Bell
APPLE-1027	U.S. Patent Publication No. 2008/0122796A1 to Jobs et al.
APPLE-1028	United States District Courts — National Judicial Caseload Profile (Dec. 31, 2023) United States Courts (uscourts.gov), https://www.uscourts.gov/sites/default/files/fcms_na_distprofile1231.2023_0.pdf (last visited June 25, 2024)

- APPLE-1029 Memorandum, Interim Procedure for Discretionary Denials in
AIA Post-Grant Proceedings with Parallel District Court
Litigation (USPTO June 21, 2022) (“Guidance”)
- APPLE-1030 Case Management Order, Smith Interface Technologies, LLC v.
Apple Inc., 3-23-cv-01187, S.D. Cal. (June 20, 2024)

LISTING OF CLAIMS

Claim	Identifier	Claim Language
1	[1.pre]	An electronic device, comprising:
	[1.a]	a display;
	[1.b]	a touch-sensitive surface;
	[1.c]	one or more processors;
	[1.d]	memory; and
	[1.e]	one or more programs, wherein the one or more programs are stored in the memory and configured to be executed by the one or more processors, the one or more programs including instructions for:
	[1.f]	displaying a first user interface on the display, wherein the first user interface includes:
	[1.g]	a background with an appearance, and
	[1.h]	one or more foreground objects;
	[1.i]	while displaying the first user interface on the display, detecting a first input by a first contact on the touch-sensitive surface at a location in the first user interface that corresponds to the background of the first user interface; and
	[1.j]	in response to detecting the first input by the first contact, in accordance with a determination that the first contact has a magnitude that is above a threshold, dynamically changing the appearance of the background of the first user interface without changing an appearance of the one or more foreground objects in the first user interface,
	[1.k]	wherein the dynamic change in the appearance of the background of the first user interface is based at least in part on the magnitude of the first contact and
	[1.l]	wherein the dynamic change in the appearance of the background of the first user interface includes

Claim	Identifier	Claim Language
		displaying in sequence at least some of a plurality of images based at least in part on the magnitude of the first contact.
2	[2]	The electronic device of claim 1, wherein the electronic device is configured such that the threshold is associated with an operating system of the electronic device, and respective operations of respective applications on the electronic device are activated in response to detecting respective inputs that satisfy the threshold.
3	[3]	The electronic device of claim 1, wherein the electronic device is configured such that a respective foreground object of the one or more foreground objects responds to an input by a contact having a magnitude below the threshold.
4	[4]	The electronic device of claim 1, wherein the electronic device is configured such that the dynamic change in the appearance of the background of the first user interface is based in part on a positive rate of change in the magnitude of the first contact.
5	[5]	The electronic device of claim 1, wherein the electronic device is configured such that a magnitude of the dynamic change in the appearance of the background of the first user interface decays following detection of a cessation of the first contact.
6	[6]	The electronic device of claim 1, wherein the electronic device is configured such that the dynamic change in the appearance of the background of the first user interface is independent of a position of a focus selector on the background.
7	[7]	The electronic device of claim 1, wherein the one or more programs include instructions for: in response to detecting the first input by the first contact on the touch-sensitive surface, in accordance with a determination that the first input does not have a magnitude above the threshold, maintaining the appearance of the

Claim	Identifier	Claim Language
		background of the first user interface.
8	[8]	The electronic device of claim 1, wherein the one or more programs includes instructions for: in response to detecting a cessation of the first input, ceasing the dynamically changing of the appearance of the background.
9	[9]	The electronic device of claim 1, wherein the one or more programs includes instructions for: in response to detecting a cessation of the first input, ceasing the dynamically changing of the appearance of the background and reverting to the display of the first user interface, including the background, on the display.
10	[10]	The electronic device of claim 1, wherein the electronic device is configured such that the plurality of images is associated with the background.
11	[11]	The electronic device of claim 1, wherein the electronic device is configured such that the plurality of images includes photographs taken using a camera of the electronic device.
12	[12]	The electronic device of claim 1, wherein the electronic device is configured such that the at least some of the plurality of images is displayed, in sequence, by automatically scrolling through the at least some of the plurality of images.
13	[13]	The electronic device of claim 1, wherein the electronic device is configured such that the background includes a representative image in the plurality of images that is dynamically changed in response to detecting the first input by the first contact, in accordance with the determination that the first contact has the magnitude that is above the threshold.
15	[15]	The electronic device of claim 1, wherein the electronic device is configured such that the plurality of images is associated with the background, and the plurality of

Claim	Identifier	Claim Language
		images includes photographs.
16	[16]	The electronic device of claim 1, wherein the electronic device is configured such that the background is one of a plurality of pre-installed backgrounds stored in the memory and the background is capable of being selected by a user.
17	[17]	The electronic device of claim 1, wherein the electronic device is configured such that the at least some of the plurality of images is displayed, in sequence, by automatically moving, one-by-one, through the at least some of the plurality of images.
18	[18]	The electronic device of claim 1, wherein the electronic device is configured such that the first user interface includes a lock screen.
19	[19]	The electronic device of claim 1, wherein the electronic device is configured such that the first user interface includes a lock screen that is unlocked.
20	[20]	The electronic device of claim 1, wherein the electronic device is configured such that the magnitude includes a duration magnitude.
21	[21]	The electronic device of claim 1, wherein the electronic device is configured to, in response to detecting a cessation of the first input, revert to one of the plurality of images that is different from that which is displayed as the background prior to detecting the first input.
22	[22]	The electronic device of claim 21, wherein the electronic device is configured such that at least one of: the background includes a background image; the background is a background image; a representative image includes a background image; a representative image includes one of the sequence of images; the one or more foreground objects includes one or more application icons;

Claim	Identifier	Claim Language
		the one or more foreground objects of a second user interface includes one or more application icons; the one or more foreground objects include at least one of a date, a time, a network type, a battery level, or status information; the one or more foreground objects of the first user interface include at least one of a date, a time, a network type, a battery level, or status information; the background of the first user interface is the same as the background of a second user interface; the background of the first user interface is different from the background of a second user interface; the first input by the first contact results from a press; the first input by the first contact results from a press gesture; the location in the first user interface that corresponds to the background of the first user interface includes a location that overlaps the background, at least in part; the location in the first user interface that corresponds to the background of the first user interface, includes a bounding box; the magnitude includes a pressure or force magnitude of the first contact; the threshold includes a threshold level of pressure or force of the first contact; the threshold includes a predetermined level of pressure or force of the first contact; the instructions include at least one of: computer code, computer software, software instructions, hardware code, or hardware instructions; the dynamic change in the appearance of the background of the first user interface is based at least in part on the magnitude of the first contact, by the appearance of the background of the first user interface conditionally changing based on the determination that the first contact has the magnitude above the threshold; the dynamic change in the appearance of the

Claim	Identifier	Claim Language
		background of the first user interface is based at least in part on the magnitude of the first contact, by the appearance of the background of the first user interface changing only if it is determined that the first contact has the magnitude above the threshold; the dynamic change in the appearance of the background of the first user interface is based at least in part on the magnitude of the first contact, by the dynamic changing of the appearance of the background of the first user interface altering dynamically based at least in part on the magnitude of the first contact; the dynamic change in the appearance of the background of the first user interface is based at least in part on the magnitude of the first contact, by dynamically changing the appearance of the background in a first manner in response to a first magnitude, and dynamically changing the appearance of the background in a second manner in response to a second magnitude; the dynamically changing the appearance of the background of the first user interface includes displaying in sequence at least some of the sequence of images based at least in part on the magnitude of the first contact; the displaying in sequence the at least some of the sequence of images is based at least in part on the magnitude of the first contact, by starting to scroll through the at least some of the sequence of images as a function of the magnitude of the first contact; the displaying in sequence the at least some of the sequence of images is based at least in part on the magnitude of the first contact, by scrolling through the at least some of the sequence of images as a function of the magnitude of the first contact; the displaying in sequence the at least some of the sequence of images is based at least in part on the magnitude of the first contact, by speeding a scrolling through the at least some of the sequence of images as a

Claim	Identifier	Claim Language
		function of the magnitude of the first contact; the threshold includes a predetermined level of duration of the first contact; the magnitude includes a duration magnitude of the first contact; the displaying in sequence the at least some of the sequence of images includes displaying the sequence of images as a video; the displaying in sequence the at least some of the sequence of images includes displaying the sequence of images to appear as a video; the displaying in sequence the at least some of the sequence of images is based at least in part on the magnitude of the first contact, by adjusting a speed through which the at least some of the sequence of images are displayed in sequence as a function of the magnitude of the first contact; or the displaying in sequence the at least some of the sequence of images is based at least in part on the magnitude of the first contact, by increasing a speed through which the at least some of the sequence of images are displayed in sequence as a function of the magnitude of the first contact.
23	[23.pre]	A method, comprising: at an electronic device including
	[23.a]	a display,
	[23.b]	a touch-sensitive surface,
	[23.c]	one or more processors, and
	[23.d]	memory:
	[23.e]	displaying a first user interface on the display, wherein the first user interface includes:
	[23.f]	a background with an appearance, and
	[23.g]	one or more foreground objects;
	[23.h]	with the first user interface displayed on the display, detecting a first input by a first contact on the touch-

Claim	Identifier	Claim Language
		sensitive surface at a location in the first user interface that corresponds to the background of the first user interface; and
	[23.i]	in response to detecting the first input by the first contact, in accordance with a determination that the first contact has a magnitude that is above a threshold, dynamically changing the appearance of the background of the first user interface without changing an appearance of the one or more foreground objects in the first user interface,
	[23.j]	wherein the dynamic change in the appearance of the background of the first user interface is based at least in part on the magnitude of the first contact and
	[23.k]	wherein the dynamic change in the appearance of the background of the first user interface includes displaying in sequence at least some of a plurality of images based at least in part on the magnitude of the first contact.
24	[24]	The method of claim 23, wherein the threshold is associated with an operating system of the electronic device, and respective operations of respective applications on the electronic device are activated in response to detecting respective inputs that satisfy the threshold.
25	[25]	The method of claim 23, wherein a respective foreground object of the one or more foreground objects responds to an input by a contact having a magnitude below the threshold.
26	[26]	The method of claim 23, wherein the dynamic change in the appearance of the background of the first user interface is based in part on a positive rate of change in the magnitude of the first contact.
27	[27]	The method of claim 23, wherein a magnitude of the dynamic change in the appearance of the background of

Claim	Identifier	Claim Language
		the first user interface decays following detection of a cessation of the first contact.
28	[28]	The method of claim 23, wherein the dynamic change in the appearance of the background of the first user interface is independent of the location that corresponds to the background.
29	[29]	The method of claim 23, and further comprising: in response to detecting the first input by the first contact on the touch-sensitive surface, in accordance with a determination that the first input does not have the magnitude that is above the threshold, maintaining the appearance of the background of the first user interface.
30	[30]	The method of claim 23, and further comprising: in response to detecting a cessation of the first input, ceasing the dynamically changing of the appearance of the background.
31	[31]	The method of claim 23, and further comprising: in response to detecting a cessation of the first input, ceasing the dynamically changing of the appearance of the background and reverting to the display of the first user interface, including the background, on the display.
32	[32]	The method of claim 23, wherein the plurality of images is associated with the background.
33	[33]	The method of claim 23, wherein the plurality of images includes photographs taken using a camera of the electronic device.
34	[34]	The method of claim 23, wherein the at least some of the plurality of images is displayed, in sequence, by automatically scrolling through the at least some of the plurality of images.
35	[35]	The method of claim 23, wherein the background includes a representative image in the plurality of images that is dynamically changed in response to detecting the first input by the first contact, in

Claim	Identifier	Claim Language
		accordance with the determination that the first contact has the magnitude that is above the threshold.
37	[37]	The method of claim 23, wherein the at least some of the plurality of images is displayed, in sequence, by automatically displaying, one-by-one, the at least some of the plurality of images.
38	[38]	The method of claim 23, wherein the at least some of the plurality of images is displayed, in sequence, by automatically moving, one-by-one, through the at least some of the plurality of images.
39	[39]	The method of claim 23, wherein the first user interface includes a lock screen.
40	[40]	The method of claim 23, wherein the first user interface includes a lock screen that is unlocked.
41	[41]	The method of claim 23, wherein the magnitude includes a duration magnitude.
42	[42]	The method of claim 23, wherein the plurality of images is associated with the background, and the plurality of images includes photographs.
43	[43]	The method of claim 23, and further comprising: in response to detecting a cessation of the first input, displaying an image that is different from that which is displayed as the background prior to detecting the first input.

I. INTRODUCTION

Apple Inc. (“Apple” or “Petitioner”) petitions for IPR of claims 1-13, 15-35, and 37-43 (“Challenged Claims”) of U.S. Patent No. 10,656,755 (“the ’755 patent”). As explained in this petition, there exists a reasonable likelihood that Petitioner will prevail with respect to at least one of the Challenged Claims.

The Challenged Claims are generally directed to changing the appearance of a background displayed on a touch screen in response to user input without also changing the appearance of a foreground objects.

The Challenged Claims are unpatentable based on teachings set forth in at least the references presented in this petition. Petitioner respectfully submits that an IPR should be instituted, and that the Challenged Claims should be canceled as unpatentable.

II. REQUIREMENTS FOR IPR UNDER 37 C.F.R. § 42.104

A. Grounds for Standing

Apple Inc. certifies that the ’755 Patent is available for IPR. Petitioner is not barred or estopped from requesting this review. Petitioner was served with a complaint of infringement of the ’755 Patent less than one year ago.

B. Challenge Under 37 C.F.R. § 42.104(b) and Relief Requested

Petitioner requests an IPR of the Challenged Claims on the grounds set forth in the table shown below. Dr. Andrew Cockburn provides supporting testimony in

his Declaration. APPLE-1003, ¶¶25-214.

Ground	'755 Patent Claims	Basis for Rejection
1A	1-3, 7, 10-11, 13, 15, 17, 20, 22-25, 29, 32-33, 35, 37-38, 41-42	Hackborn, Westerman ("HW")
1B	4-5, 8-9, 21, 26-27, 30-31, 43	Hackborn, Westerman, Townsend ("HWT")
1C	16	Hackborn, Westerman, Jablonski ("HW-Jablonski")
1D	18-19, 39-40	Hackborn, Westerman, Jobs ("HWJ")
2	1, 4-8, 10-12, 15, 17-20, 22-23, 26-30, 32, 34, 37-42	Hackborn, Westerman, Jobs ("H2WJ")

The '755 Patent claims priority to several provisional applications as early as August 5, 2011 ("Critical Date"). APPLE-1001, Cover. Petitioner does not concede that the claimed priority date is correct, but applies prior art that predates it. The references are prior art under §§102(a), 102(b), and/or 102(e).

Reference	Filing Date	Publication Date	Basis
Hackborn (APPLE-1004)	11/15/2010	5/19/2011	§§102(a),(e)
Westerman (APPLE-1005)	6/22/2007	12/25/2008	§§102(a),(b),(e)
Townsend (APPLE-1006)	10/26/2008	4/29/2010	§§102(a),(b),(e)
Jablonski (APPLE-1008)	2/22/2000	7/17/2005	§§102(a),(b),(e)
Jobs (APPLE-1009)	9/5/2007	5/29/2008	§§102(a),(b),(e)

C. Claim Construction

All claim terms should be construed according to the *Phillips* standard. *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005); 37 C.F.R. §42.100. Apple submits that no claim terms need be construed to resolve issues of controversy in the present Petition. *Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011); APPLE-1003, ¶28.

III. THE '755 PATENT

A. Brief Discussion

The '755 Patent states that “the present invention generally relate to touch screens. APPLE-1001, 1:37-38.

Claim 1 of the '755 Patent, for example, provides for a user interface having a *background* and *foreground*, where a dynamic change in appearance of only the *background* occurs in response to a touch input on the *background*. APPLE-1003, ¶¶29-32.

B. Summary of the Prosecution History of the '755 Patent

During prosecution of Application Serial No. 16/558,022, which issued as the '755 Patent, the examiner issued no prior art rejections. *See, generally, id.* To overcome written description rejections, Applicant canceled all pending claims and added new claims 66-108, which the examiner then allowed. *Id.*, 164-209, 211-219, 347-351, 121-128; APPLE-1003, ¶¶33-36.

Notably, despite the thousands of references provided to the Office, the examiner issued no prior art rejection before allowing the claims. APPLE-1003, ¶37. This petition addresses claim features in a fresh way using combinations of prior art, none of which were previously considered.

IV. THE CHALLENGED CLAIMS ARE UNPATENTABLE

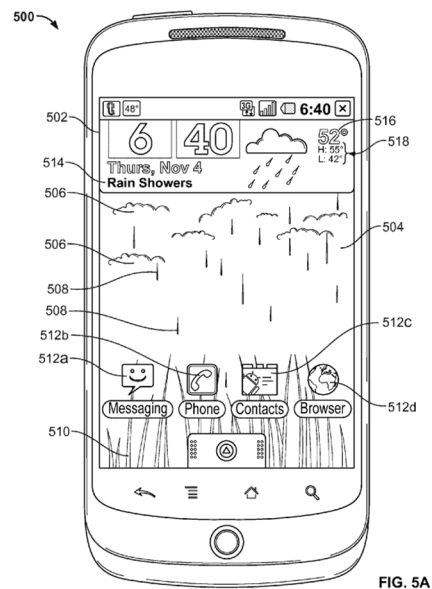
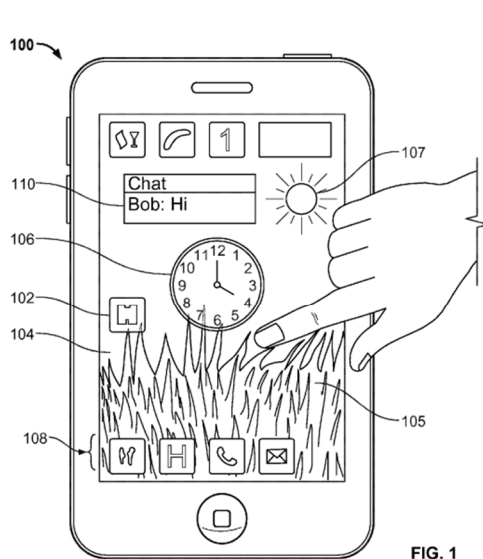
A. [GROUND 1A] – The Hackborn-Westerman combination renders obvious claims 1-3, 7, 10-11, 13, 15, 17, 20, 22-25, 29, 32-33, 35, 37-38, and 41-42

1. Hackborn¹

Hackborn explains that, in a mobile device, a GUI generated by an operating system includes a home screen where widgets (e.g., clock) provide information and selectable controls (e.g., icons) allow users to launch applications associated with the icons. APPLE-1004, [0004]. The home screen “may be segregated into various display layers, with some layers appearing in front of other layers.” *Id.*, [0005]. For example, the window for an active application can be visually in front of other objects and the homescreen can have a back-most layer, called a background or wallpaper, that typically fills the display. *Id.*, [0005].

¹ General descriptions provided for this and other references and combinations thereof are incorporated into each subsection and mapping of the claims that includes citations to these references.

In Hackborn, the wallpaper can be dynamic or “live,” where it can be “updated independently of other displayed graphics,” such as when “a user is swiping her finger across a touch-sensitive display screen of the computing device,” the blades of grass presented in the background “are caused to bend or sway as if contacted by the user’s finger during the swipe,” as illustrated in Figure 1. APPLE-1004, [0027]-[0028]. Hackborn describes components that can be included in live wallpaper, such as social network posts and images, a video stream “received from a digital camera on a device” and “real-time web content” such as “sports scores or stock prices.” *Id.*, [0035], [0045]. Multiple such components can be included simultaneously in the live wallpaper, e.g., grass of FIG. 1 and grass and weather of FIG. 5A. *Id.*, FIGS. 1, 5A.



APPLE-1004, FIGS. 1, 5A.

Hackborn further explains that, when “the user touches the screen, the live wallpaper receives a message, such as a vector representing the position, direction, and speed of the user’s dragging motion,” which can be used determine that the user’s finger contacted items on the wallpaper. APPLE-1004, [0033]. The device can use such input “to generate an animation that makes the grass blades look as if the finger is actually contacting them as it drags across the screen of the device.” *Id.*, [0033].

Hackborn includes alternative or additional forms of live wallpaper, such as “a video stream ... received from a digital camera on a device.” APPLE-1004, [0035].

2. Westerman

Westerman is directed to “interpreting manual swipe gestures as inputs in connection with touch-sensitive user interfaces” (e.g., FIG. 13) that can receive both tap and swipe gestures. APPLE-1005, Abstract, [0018], [0040].

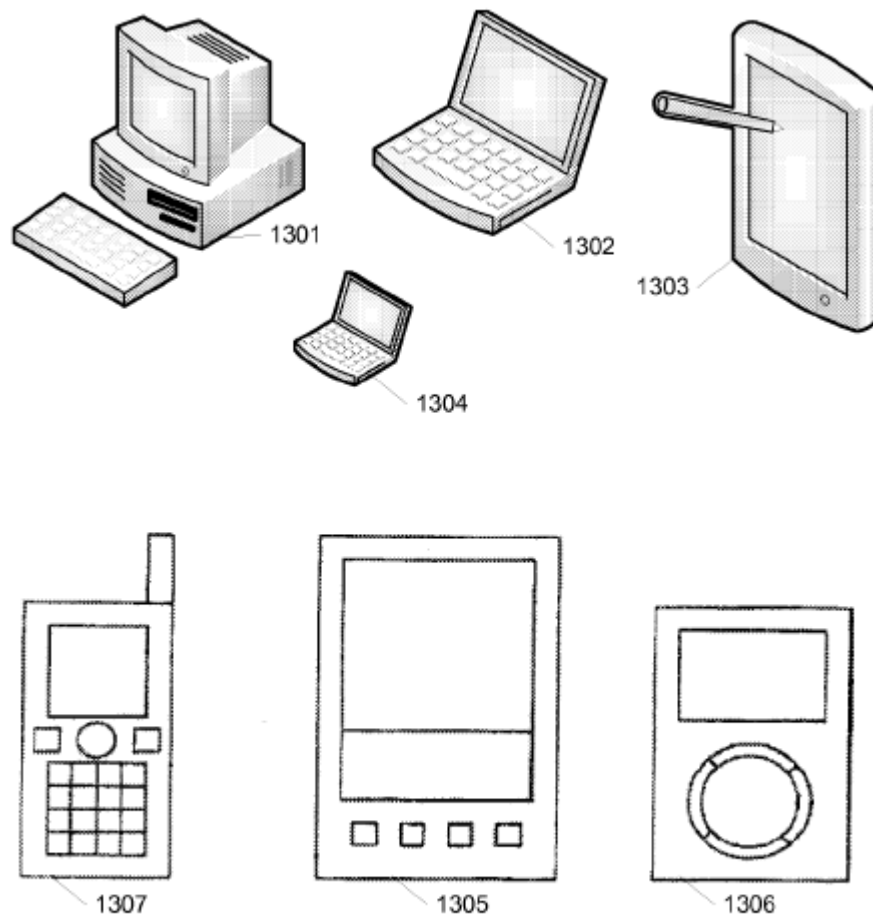


Fig. 13

APPLE-1005, FIG. 13

Westerman explains that a “swipe gesture” can be detected by “acquiring touch image data from the touch-sensitive device, processing the image to generate one or more finger path events, determining a displacement of the one or more finger path events, and detecting a swipe gesture if the displacement exceeds a predetermined threshold.” *Id.*, [0019]. “If the displacement does not exceed the threshold, the input can be interpreted as a conventional tap.” *Id.* However, “If a

swipe is detected, the tap that would have been recognized at the initial contact position of the swipe gesture must be cancelled.” *Id.* [0059]. Specifically, Westerman provides a “tap recognizer 904” and “slide recognizer 905.” *Id.*, [0060]. At 1001, “a finger path event is retrieved,” and at 1002, “it is determined if the new path event corresponds to a new touch, e.g., a finger that has just appeared on the surface.” *Id.* “If so, the touchdown location and time are captured (block 1003), and a path data structure 1004 containing this information is created.” *Id.* The “path data structure” is then “submitted to a displacement measurement process (block 1006),” which determines how much the path has moved in both horizontal and vertical directions. *Id.*, [0061]. The “displacement measurement process” determines “how much the path has moved in both horizontal direction ($D[i],x$), how much the path has moved in the vertical direction ($D[i],y$), and over what time ($T[i]$).” *Id.* “The total distance moved can then be compared to a minimum threshold of movement used to determine whether the touch event is a tap or a swipe (block 1007).” *Id.* “If there is little motion, i.e., less than the threshold, the event is interpreted as a key tap.” *Id.*

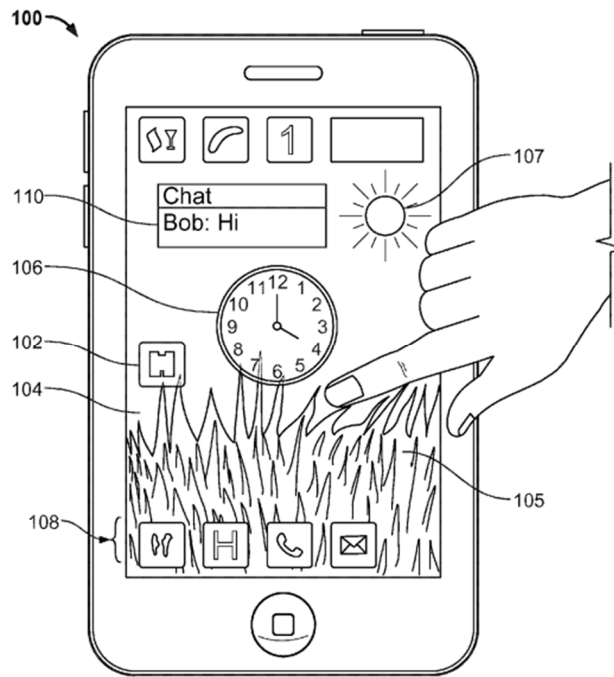
Additionally, Westerman teaches that “the system can [] look for an initial velocity at touchdown to distinguish a swipe from a tap,” thus taking into account both distance and duration in identifying the type of input. APPLE-1005, [0062];

APPLE-1003, ¶46. A person of ordinary skill in the art (“POSITA”)² would have understood from Westerman’s discussion that, in using the “initial velocity,” the system would compare the initial velocity to a threshold velocity. APPLE-1005, [0062]; APPLE-1003, ¶46.

3. The Hackborn-Westerman Combination

Hackborn discloses a mobile device with a touch screen. APPLE-1004, [0025]-[0029], [0051]-[0057], FIGS. 1, 7. The device includes a display that shows content on a home screen, including a wallpaper that “tends to appear to the user as though it were behind all icons, gadgets, [and] images.” *Id.*, [0026]-[0031]. Application 110 runs on a surface that appears on a “top level of the display.” *Id.*, [0031]. An example of such a mobile device is shown below in Figure 1. APPLE-1003, ¶47.

² APPLE-1003, ¶26.



APPLE-1004, FIG. 1

In Figure 1, the wallpaper 104 is “live” in that the wallpaper is “an object that includes executable code so that the wallpaper may be active, and in this example may respond to inputs from a user of the computing device or otherwise change in response to received information from the user.” APPLE-1004, [0026]. Hackborn further teaches that various content can be included in the live wallpaper, including, for example, animation of grass moving, “graphics that indicate current and predicted weather” and “information fetched or received from one or more social services on the Internet.” *Id.*, [0028], [0033], [0043]-[0047]. Regarding the animation of moving grass, Hackborn explains that “executable code of the object may cause the wallpaper 104 to change in appearance, perhaps

at the direction of a display controller, following receipt of information.” *Id.* In operation, as shown in Figure 1, “a user is swiping her finger across a touch-sensitive display screen of the computing device,” and “[i]n response, the blades of grass 105 displayed in the area of the screen swiped by the user are caused to bend or sway as if contacted by the user’s fingers during the swipe.” *Id.*, [0027]; *see also id.*, [0028], [0033]. Hackborn explains that touch input received by its device may be used to provide “a vector representing the position, direction, and speed of the user’s dragging motion,” which “may then be used by the process executing the wallpaper 104 to determine that the user’s finger contacted items on the wallpaper—here, the grass 105.” *Id.*, [0033]. “Such information may be used to generate an animation that makes the grass blades look as if the finger is actually contacting them as it drags across the screen of the device 100.” *Id.*; APPLE-1003, ¶48.

Hackborn explains that, “[i]n the example shown in FIG. 1, a user is swiping her finger across a touch-sensitive display screen,” and in response, “the blades of grass 105 displayed in the area of the screen swiped by the user are caused to bend or sway as if contacted by the user’s finger during the swipe.” APPLE-1004, [0028]; *see also id.*, [0033]-[0034]; APPLE-1003, ¶49.

Hackborn further teaches that its device can receive other “predetermined inputs,” including “tapping on the display screen.” APPLE-1004, [0028]. In

response, Hackborn states that “[t]he touch interface 706 may coordinate with the display controller 704 to identify what item or items on a display a user is selecting by touching at a particular location.” *Id.*, [0054]. To the extent Hackborn lacks details on how to distinguish tap from swipe inputs, a POSITA would have naturally looked to other prior art teachings that discuss “interpreting manual swipe gestures as input in connection with touch-screen keyboards,” such as Westerman. APPLE-1003, ¶50; APPLE-1005, [0011].

Westerman describes an “electronic device” with “a display 110 that also incorporates a touch screen.” APPLE-1005, [0041]. Westerman describes “interpreting swipe gesture input to a device having a touch-sensitive input.” *Id.*, [0018]. Specifically, Westerman teaches detecting a swipe gesture by “acquiring touch image data from the touch-sensitive device, processing the image to generate one or more finger path events, determining a displacement of the one or more finger path events, and detecting a swipe gesture if the displacement exceeds a predetermined threshold.” *Id.*, [0019]. “If the displacement does not exceed the threshold, the input can be interpreted as a conventional tap.” *Id.* Additionally, Westerman teaches using “an initial velocity at touchdown to distinguish a swipe from a tap,” by using the horizontal and vertical displacement and over what time.” *Id.*, [0061]-[0062]; APPLE-1003, ¶51.

A POSITA reviewing Hackborn would have naturally looked to Westerman

to better understand how to implement Hackborn's teachings, for example, how to discern between different user inputs (e.g., tap or swipe). APPLE-1003, ¶52.

Since Hackborn explains that its device can register both swipes and taps (APPLE-1004, [0028]), a POSITA would have found it obvious to implement Hackborn with methods such as those disclosed or rendered obvious by Westerman for distinguishing between tap and swipe gestures (e.g., using "predetermined thresholds"). APPLE-1003, ¶52.

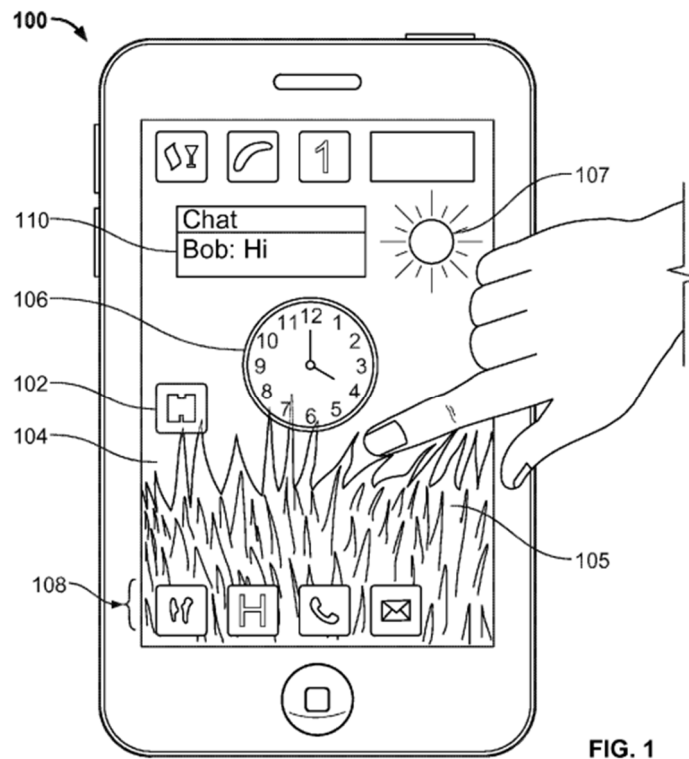
A POSITA would have understood that implementing Hackborn's device to "determin[e] a displacement of one or more finger path events" and "detecting a swipe gesture if the displacement exceeds a predetermined threshold" would provide a clear method for distinguishing between taps and swipes. APPLE-1003, ¶53; APPLE-1005, [0019]. A POSITA would have further understood that implementing Hackborn's device to use the "initial velocity at touchdown [of the input]" to compare with a particular threshold value" would provide Hackborn's device with a method "to distinguish a swipe from a tap." APPLE-1003, ¶53; APPLE-1005, [0019], [0061]-[0062]. A POSITA would have recognized that applying Westerman's teachings and using these thresholds ("predetermined threshold" and a threshold pertaining to velocity) for distinguishing between taps and swipes in Hackborn's device would have led to predictable results without significantly altering or hindering the functions performed by Hackborn's device,

particularly because Hackborn already contemplates receiving both types of inputs (tap and swipe). APPLE-1003, ¶53. A POSITA would have been motivated to implement Hackborn's device with Westerman's teachings in the Hackborn-Westerman device ("HWD") to achieve the predictable results offered by Westerman's description of those thresholds. APPLE-1003, ¶53; APPLE-1005, [0018]-[0019], [0025], [0059], [0061]-[0064]. Because recognizing predetermined touch inputs was known, and Hackborn and Westerman both describe the use of touchscreen devices and predetermined criteria for registering touches on the devices, a POSITA would have reasonably understood the combination of Hackborn with Westerman to be successful with no unexpected results. APPLE-1003, ¶53; APPLE-1004, [0028]; APPLE-1005, Abstract, [0018]-[0019], [0025], [0041], [0059], [0061]-[0064].

4. Claim 1

[1.pre]

To the extent the preamble is limiting, the HWD renders obvious [1.pre]. APPLE-1004, [0026]-[0027], [0051], [0061]-[0062], FIGS. 1, 7-8; APPLE-1003, ¶54.



APPLE-1004, FIG. 1.

[1.a]

The HWD includes a display. APPLE-1004, [0026]-[0027], [0028] (“touch-sensitive display screen”), [0051]-[0054], [0061]-[0062], FIGS. 1, 3A-3B, 4, 5A-5B, 6-8; APPLE-1003, ¶55. For example, Hackborn explains that computing device 100 of Figure 1 includes “a display screen.” APPLE-1004, [0026], FIG. 1.

[1.b]

The HWD includes a touch-sensitive surface in the form of a touch screen. APPLE-1004, [0028] (“touch-sensitive display screen,” “touchscreen”), [0051]-[0052], [0054], FIGS. 1, 7; APPLE-1003, ¶56.

[1.c]

The HWD includes one or more processors. APPLE-1004, [0022], [0060]-[0062], [0064], [0067]-[0069], FIG. 8; APPLE-1003, ¶57. Hackborn describes an example of “a generic mobile computer device 850,” which can be used as the mobile device of Hackborn. APPLE-1004, [0060]-[0061], FIG. 8. “Computing device 850 includes a processor 852, memory 864, [and] an input/output device.” *Id.*, [0067].

[1.d]

The HWD includes memory. APPLE-1004, [0022], [0060]-[0062], [0064], [0067]-[0069], [0070]-[0071], FIG. 8; APPLE-1003, ¶58. Hackborn’s computing device “includes a processor 852, memory 864, [and] an input/output device.” *Id.*, [0067]; *see also id.*, APPLE-1004, [0060]-[0061], [0070]-[0071], FIG. 8.

[1.e]

The HWD includes programs stored in memory and configured to be executed by the processor. APPLE-1004, [0022], [0060]-[0062], [0064], [0067], [0068] (“processor 852 can execute instructions within the computing device 850, including instructions stored in the memory 864”), [0070]-[0071], FIG. 8; APPLE-1003, ¶59. Specifically, “a computer program product contains instructions that, when executed, perform one or more methods, such as those described” in Hackborn. APPLE-1004, [0071].

[1.f]

The programs executed by the processor of the HWD display a first user interface on the display. APPLE-1004, [0009] (“method for generating a graphical user interface on a display of a computing device includes generating a graphical wallpaper representation”), [0023], [0026], [0036] (“execute code so as to produce interesting and compelling user interface examples”), [0051], [0054], [0058], FIGS. 1, 7, 9; APPLE-1003, ¶60. Hackborn shows in Figure 1 and explains that the computing device 100 has a display screen that shows various objects and wallpaper 104. APPLE-1004, [0026]. Figure 9 provides a “flow chart of an example method 900 for generating a graphical user interface on a display of a computing device.” *Id.*, [0058], FIG. 9.

[1.g]

The first user interface displayed on the HWD includes a background with an appearance. APPLE-1004, [0009], [0011]-[0012] (“generating a graphical representation of a background wallpaper”), [0015], [0023], [0025], [0026], [0030], [0031], [0036], [0051], [0054], [0058], FIGS. 1, 2, 7, 9; APPLE-1003, ¶61. Hackborn explains that, “[t]raditionally, a home screen includes a background, which may ... include an image in the form of wallpaper.” APPLE-1004, [0025]. For example, Hackborn shows in Figure 1 and explains that the computing device 100 has a display screen that shows various objects and wallpaper 104. *Id.*, [0026].

In Figure 1, the wallpaper 104 has an appearance of “grass 105 below a sunny sky.” *Id.* Moreover, Hackborn explains that the Figure 9’s method is “for generating a graphical user interface on a display of a computing device.” *Id.*, [0058], FIG. 9.

[1.h]

The first user interface displayed on the HWD includes one or more foreground objects. APPLE-1004, [0009], [0023], [0025], [0026], [0030]-[0031], [0036], [0041], [0043] [0051], [0054], [0058], FIGS. 1-2, 4, 5A-B, 7, 9; APPLE-1003, ¶62. Hackborn explains that “[i]cons may be shown on a visual layer in front of the background/wallpaper, meaning that the icons can be moved independently of the wallpaper, and are displayed by the device visually on top of the wallpaper, so that when there is an overlap, the icons are shown and the wallpaper is obscured.” APPLE-1004, [0025]. For example, Figure 1 of Hackborn shows foreground objects in the form of “icon 102,” “gadget 106,” and “application 110,” each of which exist on a layer in front of the wallpaper 104, as shown in Figure 2 (below). *Id.*, [0031].

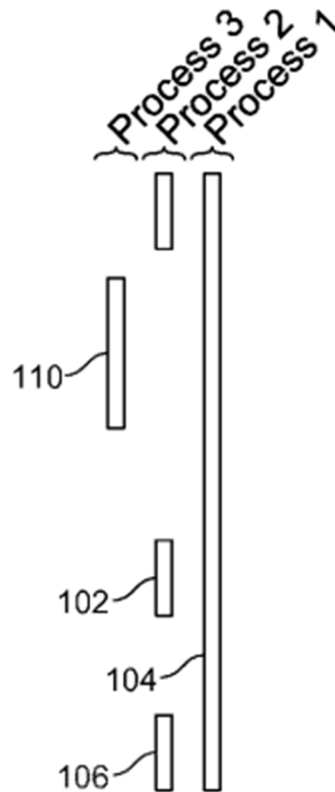


FIG. 2

APPLE-1004, FIG. 2.

[1.i]

The programs executed by the processor of the HWD³ detect a first input by a first contact on the touch-sensitive surface at a location in the first user interface

³ Where the Petition states that the device can perform particular tasks, a POSITA would have understood or considered it obvious that the device performs the

that corresponds to the background of the first user interface while displaying the first user interface on the display. APPLE-1004, [0028], FIG. 1; APPLE-1003, ¶64. Regarding Figure 1, Hackborn explains that “a user is swiping her finger across a touch-sensitive display screen of the computing device”—providing a first input by a first contact on the touch-sensitive surface at a location in the first user interface that corresponds to the background of the first user interface while displaying the first user interface on the display—and, “[i]n response, the blades of grass 105 displayed in the area of the screen swiped by the user are caused to bend or sway as if contacted by the user’s finger during the swipe”—showing the detecting of the first input by the first contact by the HWD. APPLE-1004, [0028].

[1.j]

The programs executed by the processor of the HWD, in response to detecting the first input by the first contact, in accordance with a determination that the first contact has a magnitude above a threshold, dynamically change the appearance of the background of the first user interface without changing an appearance of the one or more foreground objects in the first user interface.

APPLE-1004, [0025], [0028], [0033], [0043], [0054], FIGS. 1, 5A-5B, claim 18,

particular tasks using programs executed by the processor of the device. APPLE-1003, ¶63 n.2.

19; APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶65. Hackborn explains that, in response to a user “swiping her finger across a touch-sensitive display screen” shown in Figure 1, “the blades of grass 105 displayed in the area of the screen swiped by the user are caused to bend or sway as if contacted by the user’s finger during the swipe.” APPLE-1004, [0028]. In response to the user input, the HWD dynamically changes the appearance of the wallpaper without changing the appearance, for example, of the icons and other objects displayed in the foreground layer(s). APPLE-1004, [0028], [0033], [0043], FIGS. 1, 5A-5B; APPLE-1003, ¶65.

Hackborn further teaches or renders obvious that, while the live wallpaper changes (e.g., grass appears to sway) responsive to the user touch, the icons do not move. APPLE-1004, [0028], [0033], [0040]-[0043], [0046]-[0048], FIGS. 1, 4, 5A-5B, 6; APPLE-1003, ¶66. For instance, Hackborn states that “the application area would be displayed above the wallpaper layer and the icon layer” such that the “live wallpaper 604 may continue to update in the background, whether the user is working on applications or not.” APPLE-1004, [0047]. Hackborn also explains that display updates to the background may occur independently of updates to other displayed items – “the wallpaper object may execute in its own separate environment, and the wallpaper 104 may be updated independently of other displayed graphics that are associated with the other objects, constructs, or

applications.” *Id.*, [0027]. Hackborn also discloses that “[i]cons 608*a-d* are shown on a display layer above the wallpaper 604.” *Id.*; *see also id.*, [0025]. Based at least on these teachings of independence of background/foreground display updates, and on Hackborn’s discussion of different “layers” of appearance of the interface, a POSITA would have understood that a user swipe on the grass would affect only the appearance of the wallpaper and not the appearance of any of the objects on layers above the wallpaper layer or, at the least, they would have considered this obvious from the cited disclosures of Hackborn. APPLE-1003, ¶66; *see* APPLE-1004, [0029]-[0036], FIG. 2.

As discussed above in §IV.A.3, a POSITA would have further found obvious that the HWD would be implemented such that, if the user input “exceeds the minimum swipe length threshold” and/or if the “initial velocity at touchdown” is greater than a velocity threshold, the input is “interpreted as a swipe event.” APPLE-1005, [0018]-[0019], [0060]-[0061] (describing using distance and time magnitudes associated with the input), [0062] (explaining that “an initial velocity at touchdown” can be used “to distinguish a swipe from a tap”), [0063]-[0064]; APPLE-1003, ¶67. Thus, the detection of the user input would be in accordance with a determination that the input has a magnitude (e.g., path length) that is above a threshold, or predetermined minimum. *Id.* For example, if the magnitude of the touch is large enough to be registered as a swipe because its “path has been

determined to exceed the minimum length threshold for a swipe gesture,” then the grass is displayed as swaying in response. APPLE-1003, ¶67; APPLE-1005, [0064].

[1.k]

The programs executed by the processor of the HWD dynamically change appearance based on the magnitude of the contact. APPLE-1004, [0026], [0028], [0033], [0043], [0054], FIGS. 1, 5A-5B; APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶68. For example, Hackborn explains that, as shown in Figure 1, when a user swipes on the grass in the “live” wallpaper, “the grass blades look as if the finger is actually contacting them as it drags across the screen of the device.” APPLE-1004, [0033]. Thus, the farther the swipe, the more extreme the grass movement expected from Hackborn. *Id.* The dynamic change in appearance of the background (e.g., grass moving) is based at least in part on the magnitude of the gesture because the grass movement effect only occurs in the HWD if the input is determined to be a swipe, in accordance with the magnitude (e.g., path length) of the input, per Westerman. APPLE-1003, ¶68; APPLE-1004, [0028]; APPLE-1005, [0018]-[0019], [0060]-[0064].

[1.l]

The dynamic change in appearance of the background of the first user interface of the HWD includes displaying in sequence a plurality of images based

in part on the magnitude of the first contact. APPLE-1004, [0008], [0028], [0033], [0040], [0046], [0050], FIGS. 1, 4, 6, claims 32-33; APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶69. Hackborn explains that the blades of grass in the “live” wallpaper are “displayed in the area of the screen swiped by the user are caused to bend or sway as if contacted by the user’s finger during the swipe.”

APPLE-1004, [0028]. As discussed above, in response to a determination that a magnitude (e.g., path length) of the user input indicates the input to be a swipe, the device “generate[s] an animation that makes the grass blades look as if the finger is actually contacting them as it drags across the screen.” *Id.*, [0033]; APPLE-1005, [0018]-[0019], [0060]-[0064]. While the ’755 Patent appears to be silent regarding a dynamic change in appearance of the background, a POSITA would have understood or found obvious that such an “animation” showing the movement of grass would comprise a plurality of images shown in succession that cause the user to see what appears to be the movement of grass, where each of the images are slightly different from one another but displayed in sequence to suggest movement as the images change. APPLE-1003, ¶69 (citing APPLE-1026; APPLE-1027).

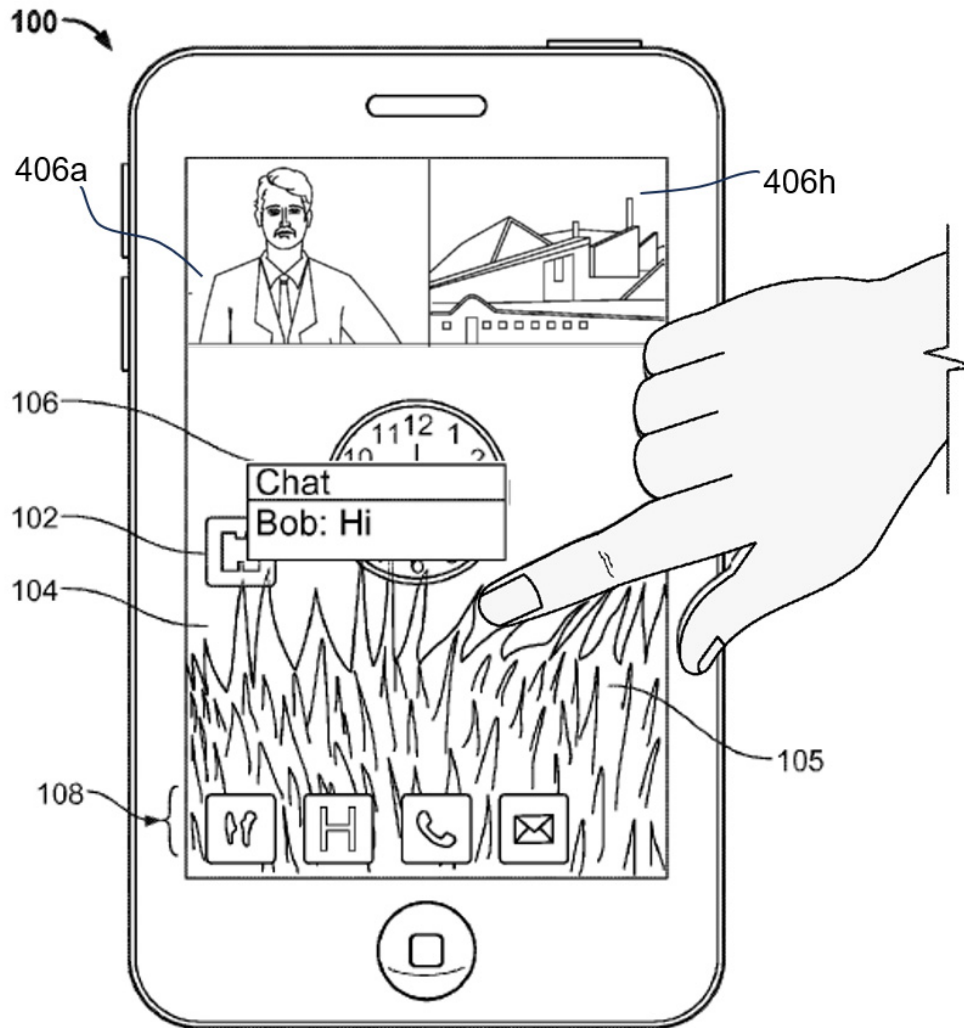
Indeed, Hackborn describes “produc[ing] an animated *sequence* coordinated with [a] user selection, at or near” a “location on the display at which the user interacts.” APPLE-1004, claims 32-33 (emphasis added). In this way, Hackborn teaches displaying in sequence *at least some* of a plurality of images. *Id.*

Hackborn further teaches other images (in addition to the “at least some”) of the plurality of images that are displayed in the live wallpaper. APPLE-1003, ¶70. In addition to the live grass animation in the live wallpaper, Hackborn describes other “active content” that can be included in the live wallpaper. APPLE-1004, [0008]. Indeed, Hackborn states that “live wallpaper can include a *combination* of the described wallpaper examples.” *Id.*, [0050] (emphasis added).

For example, Hackborn explains that “active content being produced as wallpaper 404 for a display 402” can include “images 406*a-h* fetched or received from one or more social services on the internet,” including “pictures posted to a social networking site (e.g., Google Buzz, Facebook, MySpace, Flickr, Twitter, and the like).” APPLE-1004, [0040], FIG. 4; *see id.*, [0046], FIG. 6. “The images 406*a-h* may be arranged in any appropriate pattern, and more or fewer images may be displayed at a given time,” including “new images [that] may be added to the wallpaper or replace one or more images that had been displayed on the wallpaper 404.” *Id.*, [0040]. Sometimes, “video, rather than still images, may be shown as part of the live wallpaper.” *Id.* In another example, Hackborn explains that “a live image being captured in real-time by a digital camera in the computing device” can be displayed “in the graphical wallpaper representation.” *Id.*, [0008]. A POSITA would have found obvious that “a live image” includes one or more photographs captured with the camera. APPLE-1003, ¶71. Moreover, *In re Harza* held that

“mere duplication of parts has no patentable significance unless a new and unexpected result is produced.” 274 F.2d 669, 271 (CCPA 1960). Indeed, capturing more than one photograph for display in the live wallpaper produces no new and unexpected result. APPLE-1003, ¶71.

In this way, the dynamic change in the appearance of the background of the first user interface in the HWD includes displaying in sequence the images that produce the appearance of the grass swaying in an animation (i.e., *at least some of a plurality of images*), while the plurality of images includes the grass swaying sequence of images and any number of other images (e.g., photographs from the camera; social media images). APPLE-1003, ¶72; APPLE-1004, [0008], [0040], [0046], [0050], FIGS. 1, 4, 6. The composite image provided below illustrates the “at least some of a plurality of images” as the swaying grass and other images of the plurality of images (406a, 406h). APPLE-1003, ¶72; *see infra* discussion of Claim 11.



Composite image based on APPLE-1004, FIGS. 1 and 4; APPLE-1003, ¶72

Thus, a POSITA would have understood that the live wallpaper can include any combination, for example, of the moving grass images, photographs, and images from social network websites. APPLE-1003, ¶73; APPLE-1004, [0050].

5. Claim 2

[2]

The HWD renders [2] obvious. APPLE-1004, [0002]-[0004], [0006],

[0028], [0031], [0042]-[0043], [0048], [0052], [0057]; APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶74. Hackborn explains that “[m]odern computer operating systems also provide basic graphical user interfaces (GUIs) by which users can interact with components of the operating system in more intuitive manners.” APPLE-1004, [0003]. Operating systems can generate a GUI such as a desktop or homescreen with “various selectable controls,” such as icons, gadgets, and widgets “displayed over [the] home screen.” *Id.*, [0004]; *see also id.*, [0031]. Additionally, an “objects/wallpapers 712 data store” stores “information about various entities needed to provide the functionality” described in Hackborn. *Id.*, [0057]; *see also id.*, [0052]. A POSITA would have understood that Hackborn’s operating system provides the GUI, and a determination of tap versus swipe is a GUI function. APPLE-1003, ¶74. Additionally, a POSITA would have understood that the threshold (e.g., path length) is associated with an operating system of the device, as the threshold (and other thresholds relating to “selectable controls” and functionality described in Hackborn are stored in a data store and run on a particular operating system. APPLE-1004, [0002]-[0004], [0031], [0052], [0057]; APPLE-1003, ¶74.

Additionally, as discussed in §IV.A.3, the HWD changes the appearance of its live wallpaper in response to detecting a swiping motion—that is, determining that a magnitude relating to a touch input is greater than a predetermined threshold

(e.g., path length). APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶75. Westerman teaches if the “displacement measurement” of a gesture is less than a minimum threshold, that gesture is identified as a tap, and if it is greater than the minimum threshold, the gesture is identified as a swipe. *Id.* Hackborn teaches that “predetermined user inputs” can “cause the live wallpaper to become responsive to user input,” including selecting an icon, “making a particular movement on or across the display screen, or tapping on the display screen a predetermined number of times within a predetermined time period,” which may, in a first mode, be directed to icons displayed on the wallpaper. APPLE-1004, [0028]. A POSITA would have understood that the predetermined touches of Hackborn would be defined by threshold values that characterize the predetermined touches (e.g., predetermined threshold or minimum swipe length threshold of Westerman), and the threshold values would be associated with the operating system of the HWD. APPLE-1003, ¶75. A POSITA would have further understood that these values are stored such that when an input is received, the operating system can compare the magnitude of the input to the stored threshold value and perform a corresponding operation of respective applications. *Id.*; APPLE-1004, [0031], [0042]-[0043], [0048], [0052], [0057]. Moreover, Townsend corroborates, confirming, for example, that “the operating system may provide a common driver model for multi-touch hardware manufacturers to

provide touch information for their particular hardware,” such that the “operating system” can “translate touch information” into “window messages” (e.g., comparing touch information with threshold values) and “pass these messages to the application.” APPLE-1006, [0018]; *see id.*, [0031], [0046]; APPLE-1003, ¶75.

6. Claim 3

[3]

The HWD renders [3] obvious. APPLE-1004, [0004], [0025], [0043], FIGS. 5A-5B; APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶76. As discussed in §IV.A.3, the HWD uses values associated with a user gesture as compared to predetermined thresholds to identify the type of input (e.g., tap or swipe). APPLE-1005, [0018]-[0019], [0060]-[0064]. A POSITA would have understood that, in the HWD, if the magnitude of the touch is too small to be registered as a swipe because “there is little motion, i.e., less than the threshold,” the HWD interprets “the event ... as a key tap.” APPLE-1005, [0061]; APPLE-1003, ¶76. A POSITA would have understood that a tap on a foreground object (e.g., icon) displayed on the HWD would cause the “user to select one of the icons 512,” and “an application may be launched or activated,” as Hackborn teaches. APPLE-1004, [0043], FIGS. 5A-5B; APPLE-1003, ¶76.

7. Claim 7

[7]

The HWD renders [7] obvious. APPLE-1004, [0028]; APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶77. As discussed in §IV.A.3, the HWD changes the display of the live wallpaper background when a swipe is detected, as Hackborn teaches. APPLE-1004, [0028]; APPLE-1003, ¶77. Specifically, Hackborn teaches that the live wallpaper is responsive to the particular input, for example, such that the “blades of grass 105 displayed in the area of the screen swiped by the user are caused to bend or sway as if contacted by the user’s finger during the swipe.” APPLE-1004, [0028]. In the discussion of the “blades of grass” live wallpaper, Hackborn describes the wallpaper as being responsive only to movement (e.g., swiping, dragging). *Id.*, [0008], [0028]; APPLE-1003, ¶77.

Moreover, given Hackborn’s disclosures that “the blades of grass ... are caused to bend or sway as if contacted by the user’s finger *during the swipe*,” a POSITA would have understood or found obvious that, in Hackborn, any movement by the grass is not displayed until the finger begins moving across the display. APPLE-1004, [0028]; APPLE-1003, ¶78. If the magnitude (e.g., path length) is below a threshold, the HWD identifies the user input as a tap, rather than a swipe, as Westerman teaches. APPLE-1005, [0061]; APPLE-1003, ¶78. Thus, a POSITA would have understood that if the magnitude (e.g., path length) is not

above the threshold, the HWD identifies the gesture as a tap, and not a swipe, so the background remains unchanged. APPLE-1003, ¶78.

8. Claim 10

[10]

The HWD renders [10] obvious. APPLE-1004, [0005] (“wallpaper when the background is formed from a graphical image”), [0025], [0028], [0047], claims 2 and 33 (“animated sequence”), FIG. 1; APPLE-1003, ¶79. In particular, the plurality of images—the images shown in sequence that show the movement of grass—is associated with the grass “live” wallpaper background. APPLE-1004, [0025] (“background wallpaper”), [0028], FIG. 1; APPLE-1003, ¶79.

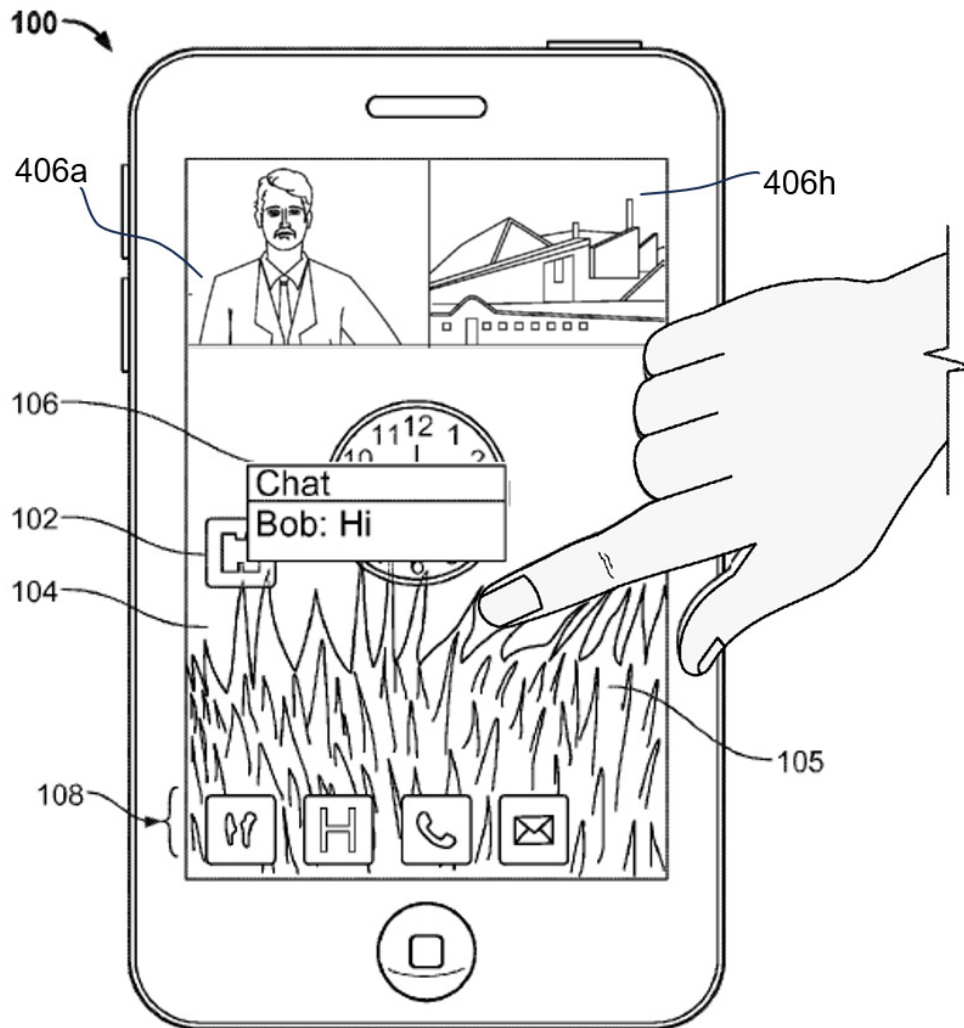
9. Claim 11

[11]

The HWD renders [11] obvious. APPLE-1004, [0008], [0035], [0050], claims 9 and 24; APPLE-1003, ¶80; *see* discussion of [1.1]. As discussed for [1.1], Hackborn teaches that “live wallpaper can include a *combination of the described wallpaper examples*,” including swaying grass and images from other sources, such as social networking sites or camera photographs. APPLE-1004, [0008], [0035], [0050] (emphasis added). An example of such a “combination of the described wallpaper examples” is shown below where the wallpaper includes both

the swaying grass 105 from Figure 1 and images 406a and 406h from Figure 4.

APPLE-1003, ¶80.



Composite image based on APPLE-1004, FIGS. 1 and 4

A POSITA would have found it obvious that the images (406a, 406h) shown in the composite image above could instead comprise an image captured by a camera in the computing device. APPLE-1003, ¶81; APPLE-1004, [0008], claims 9 and 24. In particular, as discussed for [1.1], Hackborn teaches “displaying in the

graphical wallpaper representation, a live image being captured in real-time by a digital camera in the computing device.” APPLE-1004, [0008], claims 9 and 24; *see also id.*, [0035]. Thus, a POSITA would have found obvious that the “live wallpaper can include a combination” of the swaying grass and, as discussed for [1.1], images captured by a digital camera in the computing device. APPLE-1003, ¶81; APPLE-1004, [0050]. Moreover, to the extent this discussion in Hackborn states displaying only “*a* live image being captured in real-time by a digital camera in the computing device,” it would have been obvious to include more than one photograph; doing so would yield no new and unexpected result. APPLE-1003, ¶81; *Harza*, 274 F.2d at 671.

Additionally, or alternatively, a POSITA would have found it obvious to use images (or series of images captured by the camera) as live wallpaper responsive to a user touch. APPLE-1003, ¶81. Hackborn explains that “predetermined user inputs” may be “received by the device to cause the live wallpaper to become responsive,” such as “making a particular movement on or across the display screen.” APPLE-1004, [0028]. A POSITA would have found it obvious to provide an image (among a series of images captured by the device’s camera), and responsive to a predetermined user input, cause the series of images to be displayed in sequence, much like animating grass. APPLE-1003, ¶81. Indeed, a POSITA would have recognized that such a “live” wallpaper would provide a

more realistic live wallpaper, benefiting from the quality of images captured by the camera. *Id.*; APPLE-1004, [0026].

10. Claim 13

[13]

The HWD renders [13] obvious. APPLE-1004, [0028], [0033], FIG. 1; APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶82. Specifically, in the HWD, the background includes an image of grass as a representative image of a plurality of images (e.g., moving grass described in §IV.A.3), which dynamically changes when a user provides an input that is determined to be a swipe because it has a magnitude above a threshold (e.g., gesture with a path length greater than a minimum length threshold), as Westerman teaches and Hackborn teaches or suggests. APPLE-1004, [0028], [0033], FIG. 1; APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶82; *see* discussion of [1.j]; §IV.A.3.

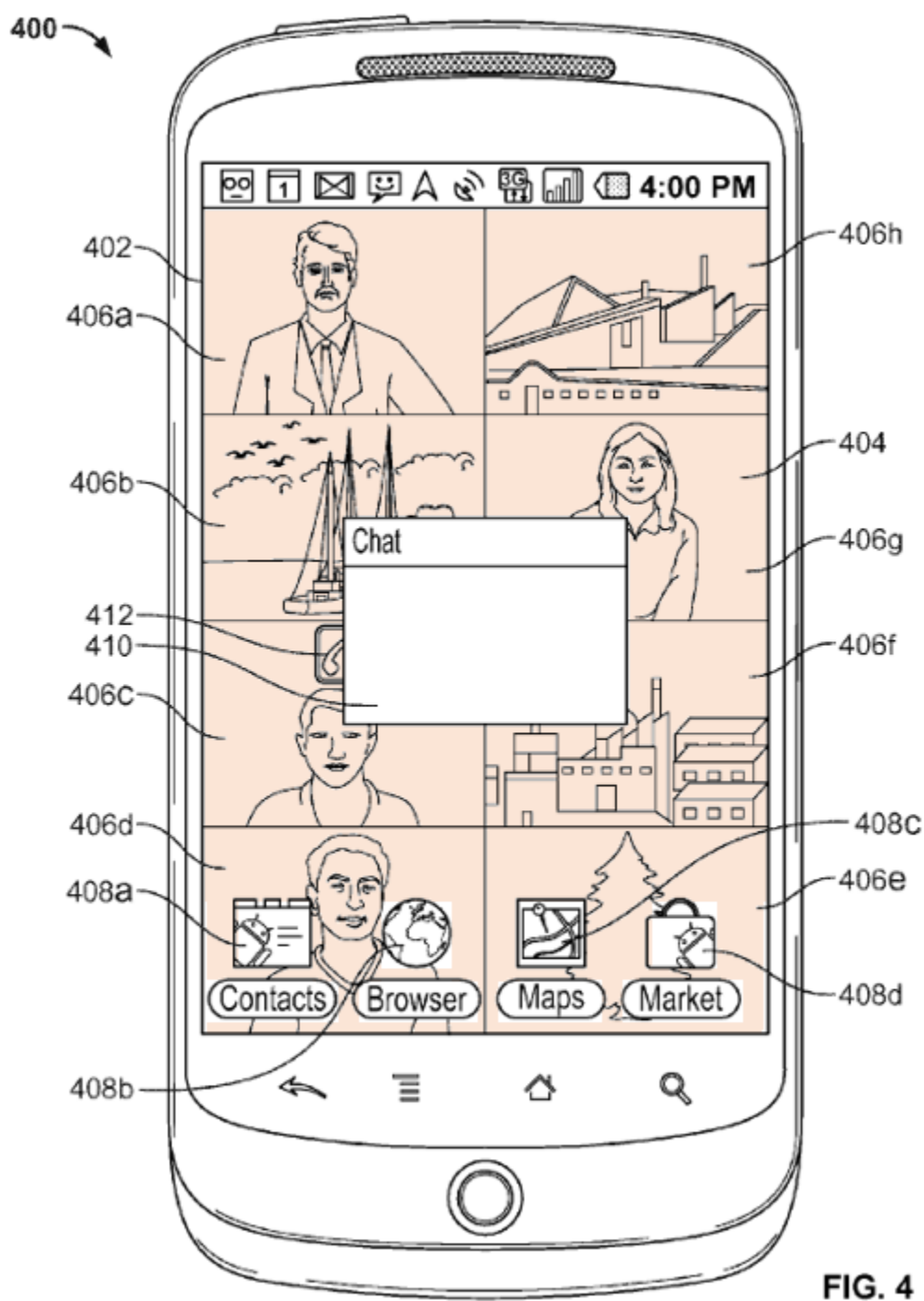
11. Claim 15

[15]

The HWD renders [15] obvious. APPLE-1004, [0008], [0040], FIGS. 4, 6; APPLE-1003, ¶83. As discussed in §IV.A.3, the HWD displays live wallpaper that “can include a combination of” various wallpapers, including, the moving grass wallpaper, social media images, and photographs captured with the device’s

camera. APPLE-1003, ¶83; APPLE-1004, [0050]. That is, the live wallpaper can include images from various example wallpapers that Hackborn describes. *Id.*

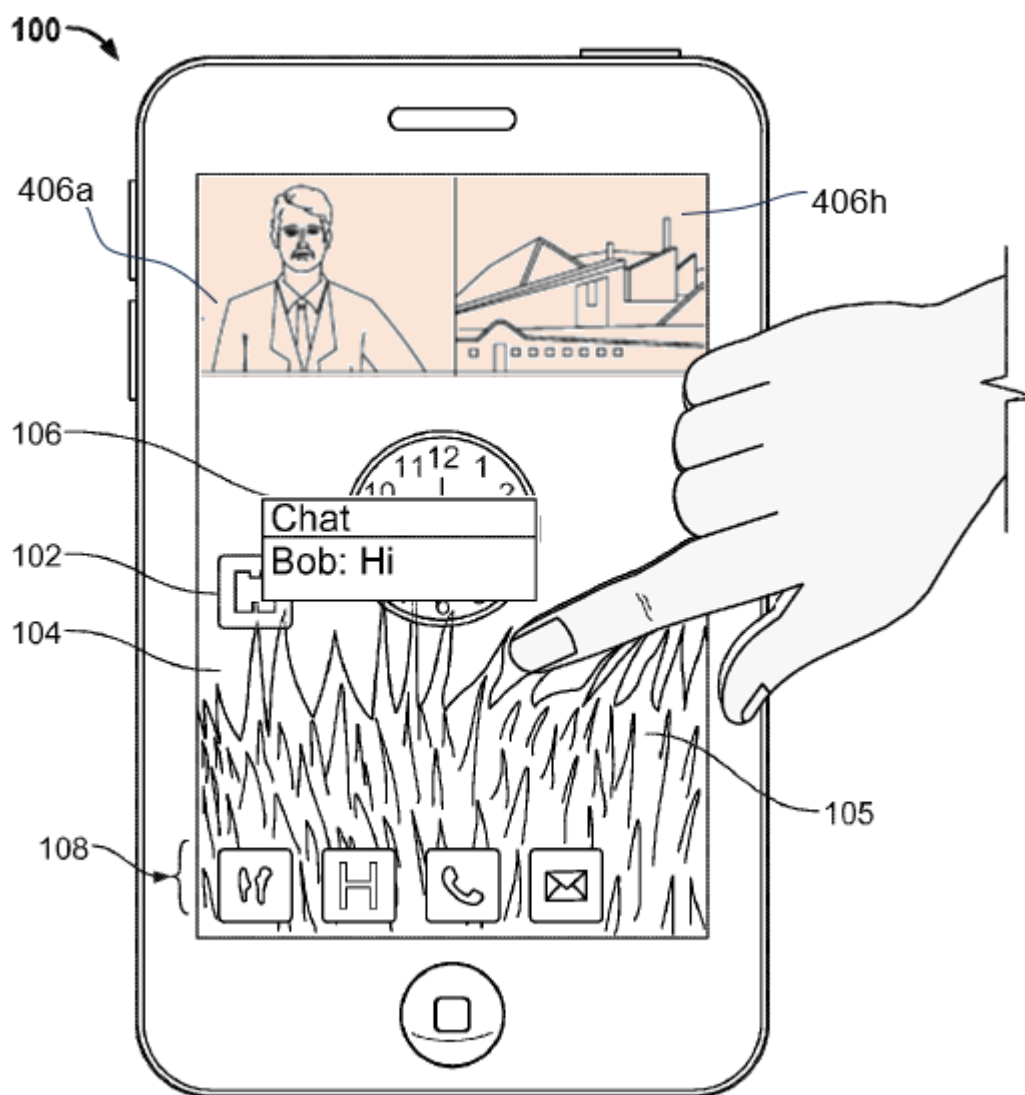
Where the plurality of images includes images captured using the device's camera (*see* §IV.A.3 and discussion of claim 11), the plurality of images includes photographs, and because the photographs are “display[ed] in the graphical wallpaper representation,” a POSITA would have understood them to be associated with the background (e.g., as part of wallpaper). APPLE-1004, [0008]; APPLE-1003, ¶84. Where the plurality of images includes images for a social media site (*see* §IV.A.3), a POSITA would have understood that the images from the social media site includes photographs, and because the social media images are “produced as wallpaper 404,” a POSITA would have understood them to be associated with the background (e.g., as part of wallpaper). APPLE-1004, [0040]; APPLE-1003, ¶84 (citing APPLE-1014; APPLE-1015; APPLE-1016). Figure 4 (below) of Hackborn shows an “example of active content being produced as wallpaper” where the wallpaper includes “images 406*a-h* fetched or received from one or more social services on the Internet,” including photographs (highlighted below). APPLE-1004, [0040]-[0042], [0046], FIGS. 4, 6.



APPLE-1004, FIG. 4 (highlighted)

An example of a “combination of the described wallpaper examples” is shown below where the wallpaper includes both the swaying grass 105 from

Figure 1 and photographs from a social media site (highlighted). APPLE-1003,
¶85; *see* §IV.A.4 (discussion of [1.1]).



Composite image based on APPLE-1004, FIGS. 1, 4

12. Claim 17

[17]

The HWD renders [17] obvious. APPLE-1004, [0046]-[0047], FIG. 6; APPLE-1003, ¶86.

For example, where the plurality of images includes images from a social networking website, Hackborn teaches that, “as new information is received” (including information with images), “already displayed posts may be scrolled (e.g., downward).” APPLE-1004, [0046]. With reference to Figure 6 (below), Hackborn explains that, “[w]hen post 606a is received, the previously displayed posts (e.g., posts 606b, 606c, 606d, 606e) may be shifted downward.” *Id.*, [0047]. Thus, the images in the posts are displayed in sequence by automatically moving one-by-one through them as new posts are received. *Id.*; APPLE-1003, ¶86.

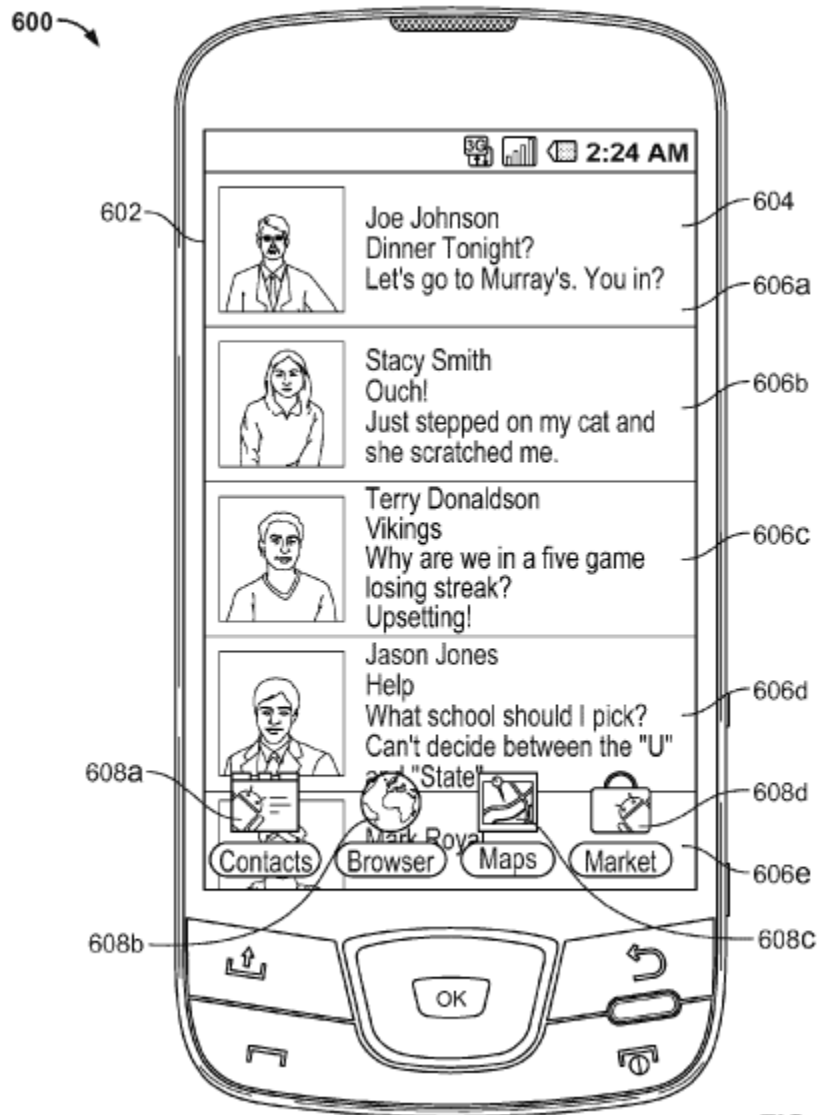


FIG. 6

APPLE-1004, FIG. 6

Additionally, per §IV.A.3, the HWD can display wallpaper with a combination of different types of wallpaper, so a POSITA would have understood that the automatically scrolled social media posts could form only part of the background wallpaper display, where the wallpaper includes both the swaying

grass from Hackborn's Figure 1 and images from a social networking website.

APPLE-1003, ¶87.

13. Claim 20

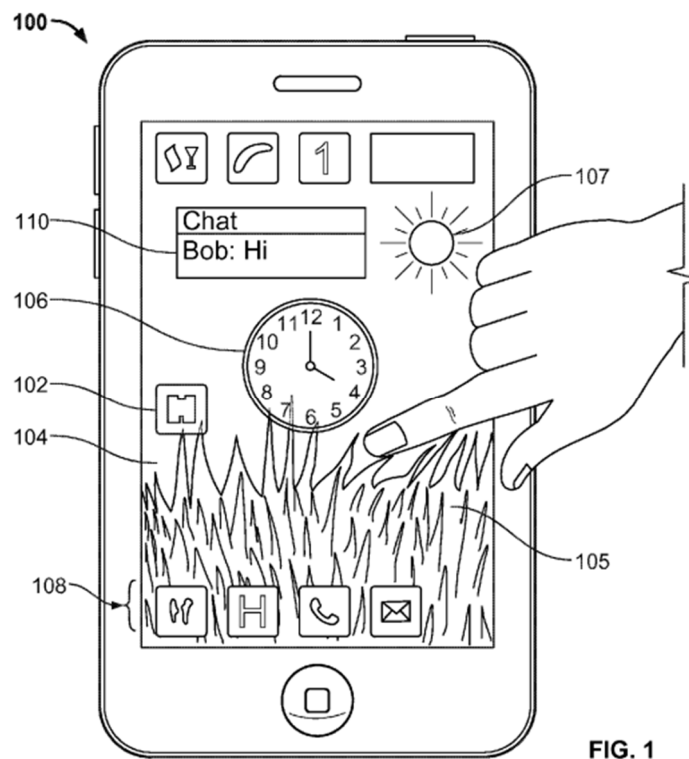
[20]

The HWD renders [20] obvious. APPLE-1004, [0028]; APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶88. As discussed above in § IV.A.3, Westerman teaches analyzing both a length magnitude and a duration magnitude (e.g., to determine initial velocity) associated with a gesture to determine whether it is a swipe. APPLE-1005, [0018]-[0019], [0060]-[0064]. Specifically, Westerman explains that the “displacement measurement process can determine how much the path has moved ... and over what time (T[i]),” and that “the system can look for an initial velocity at touchdown to distinguish a swipe from a tap.” *Id.*, [0061]-[0062]. At least in view of this disclosure, a POSITA would have recognized that the magnitude includes both a distance and a duration magnitude. APPLE-1005, [0061]-[0062]; APPLE-1003, ¶¶88-89 (citing APPLE-1021, 13:14-25; APPLE-1005, [0057]). Thus, a POSITA would have understood that the HWD analyzes a magnitude with two components, including a duration magnitude to distinguish between a tap and a swipe. APPLE-1003, ¶¶90-91.

14. Claim 22

[22]

The HWD renders [22] obvious (e.g., “the background includes [or is] a background image,” “the one or more foreground objects includes one or more application icons”). APPLE-1004, [0026] (“wallpaper shows grass 105 below a sunny sky 107”), [0028], [0030], FIG. 1 (showing, e.g., a phone application icon and a mail application icon); APPLE-1003, ¶92.



APPLE-1004, FIG. 1

15. Claim 23

[23pre]

See [1.pre]. Additionally, the HWD performs various methods. APPLE-1004, [0007] (“a computer-implemented method for coordinating a display of on-screen elements”), [0008]-[0009], [0013], [0023]-[0024], [0058]-[0059], FIGS. 9-10; APPLE-1003, ¶93; §IV.A.4.

[23.a]-[23.d]

See [1.a]-[1.d] (Ground 1A).

[23.e]-[23.k]

See [1.f]-[1.l] (Ground 1A).

16. Claim 24

[24]

See [2] (Ground 1A).

17. Claim 25

[25]

See [3] (Ground 1A).

18. Claim 29

[29]

See [7] (Ground 1A).

19. Claim 32

[32]

See [10] (Ground 1A).

20. Claim 33

[33]

See [11] (Ground 1A).

21. Claim 35

[35]

See [13] (Ground 1A).

22. Claim 37

[37]

See [17] (Ground 1A).

23. Claim 38

[38]

See [17] (Ground 1A).

24. Claim 41

[41]

See [20] (Ground 1A).

25. Claim 42

[42]

See [15] (Ground 1A).

B. [GROUND 1B] – The Hackborn-Westerman-Townsend combination renders obvious claim 4-5, 8-9, 21, 26-27, 30-31, and 43

1. Townsend

Townsend explains that a tablet PC (mobile computer) equipped with a

touch screen “offer[s] a more natural form of input, as sketching and handwriting are a much more familiar form of input than a keyboard and mouse.” APPLE-1006, [0001]. However, applications must “determine a user’s intentions based on touch input received from multi-touch hardware” so each “application has to include software to interpret the coordinates and determine the user’s intention,” which includes virtual objects behaving “how they do in the physical world.” *Id.*, [0004]; APPLE-1003, ¶115.

Townsend describes a system “that provides more realistic movement for application objects that a user manipulates using multi-touch hardware” and an application programming interface (API) that “provides a consistent feel to manipulations across applications.” APPLE-1006, [0005]. The API enables applications “to simulate real-world behavior of objects” in response to touch gestures. *Id.*, [0014]. For example, “real world objects do not typically stop moving when a user stops pushing them, but rather exhibit some inertia and keep moving until friction slows them finally to a stop.” *Id.*, [0014]. Townsend describes a “a simulation engine that performs calculations based on physics to determine the behavior of an object based on the parameters,” e.g., “realistic deceleration or elasticity behavior for application objects set in motion by user touch input.” *Id.*, [0039]; APPLE-1003, ¶116.

2. The Hackborn-Westerman-Townsend Combination

To the extent that Hackborn does not describe specific techniques and implementation details for animating the grass, a POSITA would have naturally looked to related prior art, such as Townsend, which teaches an API and simulation engine that enable applications “to simulate real-world behavior of objects” using “techniques based on physics to simulate the behavior of the object” in response to touch gestures (e.g., animating the movement of blades of grass). APPLE-1004, [0028]; APPLE-1006, [0014], [0021], [0039]; APPLE-1003, ¶117. A POSITA would have understood that the Hackborn-Westerman-Townsend device (“HWTD”) includes “a simulation engine that performs calculations based on physics to determine the behavior of an object based on [] parameters,” per Townsend, for example, to “provide realistic deceleration or elasticity behavior for application objects set in motion by user touch input.” APPLE-1003, ¶117; APPLE-1006, [0039]. For instance, Townsend describes the use of “initial simulation parameters,” such as “the final state of an application object when a user stopped touching the object.” APPLE-1006, [0039]. In this way, the HWTD would display the “live” wallpaper in a manner that is responsive to the particular user input, such that the changes in the display are dynamically responsive to changes in the user input, including changing the speed or direction of the touch. APPLE-1003, ¶117.

A POSITA would have been motivated to employ an API and simulation

engine that enable simulation of real-world behavior of objects based on physics using various parameters, per Townsend, to implement the “live” wallpaper of Hackborn. APPLE-1003, ¶118. In the combination, a POSITA would have understood that the device’s simulation engine would “perform[] calculations based on physics to determine the behavior of an object [grass] based on” parameters such as characteristics of the user input, per Townsend, including the physical length (e.g., displacement) of the touch (per Westerman), the duration of the touch (per Westerman), direction of the touch (per Hackborn and Townsend), and/or the speed of the touch (per Hackborn), such that the wallpaper (grass blades) “look as if the finger is actually contacting them as it drags across the screen of the device,” per Hackborn. APPLE-1003, ¶118; APPLE-1004, [0033]; APPLE-1005, [0018]-[0019], [0060]-[0063]; APPLE-1006, [0016], [0020], [0037], [0039].

A POSITA would have understood that including an API and simulation engine, such as the one described in Townsend, in Hackborn’s device would have served the purpose of providing a mechanism for displaying “live” wallpaper and doing so in a manner that would show the “live” wallpaper responding as if the displayed objects had actually been contacted by the user’s finger. APPLE-1003, ¶119 It would have been obvious to a POSITA to use an API and simulation engine to implement the “live” wallpaper because these elements were well-known

for providing graphical displays. *Id.*; APPLE-1006, [0031], [0039], [0050].

Because APIs and simulation engines are well-known, and Hackborn and Townsend both describe the use of touchscreen devices that simulate real-world behavior, a POSITA would have reasonably expected the combination of Hackborn with Townsend to be successful with no unexpected results. APPLE-1003, ¶119.

3. Claim 4

[4]

The HWTD is configured such that the dynamic change in the appearance of the background of the first user interface is based in part on a positive rate of change in the magnitude of the first contact as indicated by “the blades of grass 105 displayed in the area of the screen swiped by the user are caused to bend or sway as if contacted by the user’s finger during the swipe.” APPLE-1004, [0028], [0033]; APPLE-1006, [0039]; APPLE-1003, ¶120. Hackborn explains that “a vector representing the position, direction, and speed of the user’s dragging motion” is used “to determine that the user’s finger contacted items on the wallpaper—here, the grass 105” and can be “used to generate an animation that makes the grass blades look as if the finger is actually contacting them as it drags across the screen of the device.” APPLE-1004, [0033]. Further, Townsend teaches a “simulation engine that performs calculations based on physics to

determine the behavior of an object.” APPLE-1006, [0039]. From this, a POSITA would have understood that an increased amount of movement in the finger across the device screen will yield an increased amount of movement in the grass blades, and thus, an increase amount of dynamic change in the appearance of the background. APPLE-1003, XX. More, a POSITA would have recognized that Hackborn’s “vector representing the position, direction, and speed of the user’s dragging motion” indicates to Townsend’s physics the rate of change in the magnitude of contact, including a positive rate of change. APPLE-1003, ¶120.

4. Claim 5

[5]

The HWTD renders [5] obvious. APPLE-1004, [0008], [0028], claims 4, 19; APPLE-1006, [0016], [0039]; APPLE-1003, ¶121. Hackborn teaches that “the blades of grass 105 displayed in the area of the screen swiped by the user are caused to bend or sway as if contacted by the user’s finger during the swipe” and doing so “in a manner that simulates frictional dragging of elements.” APPLE-1004, [0008], [0028]. A POSITA would have understood or found obvious that Hackborn’s “simulate[d] frictional dragging” of grass movement results in the ceasing of grass movement (e.g., due to friction) after cessation of the user input. APPLE-1003, ¶121. Additionally, Townsend teaches that “the simulation engine may provide realistic deceleration or elasticity behavior for application objects set

in motion by user touch input,” e.g., “if the user lifted the contacts while the object had a velocity in a particular direction, then inertia system continues sending events that indicate that the object is moving in that direction, slowing down over time as the object decelerates,” or decays. APPLE-1006, [0016], [0039]. A POSITA would have recognized that the motion of grass decays (decelerates) once the swipe ceases, per Townsend. APPLE-1003, ¶121. Moreover, Hackborn describes “changing the manner in which the graphical wallpaper representation is displayed” by “animating motion in the graphical wallpaper representation in a manner that simulates frictional dragging of elements of the graphical wallpaper representation.” APPLE-1004, [0008], claims 4-9. A POSITA would have understood that, by simulating “frictional dragging,” the animating motion of the wallpaper representation (e.g., blades of grass) would appear to slow down, or decay, over time due to a force (e.g., simulated friction) that opposes the “force” provided by the user input (e.g., simulated touching of grass). APPLE-1003, ¶121.

5. Claim 8

/8/

See [5] (Ground 1B). §IV.B.4; APPLE-1004, [0028], FIG. 1; APPLE-1006, [0016], [0034], [0039]; APPLE-1003, ¶122. A POSITA would have understood, based on a basic level of Newtonian physics, that the decay in dynamic change to the background ultimately yields cessation of that dynamic change in time.

APPLE-1003, ¶122. Additionally, Townsend provides implementation details for such activity and a simulation engine/API to enable it for any GUI element (e.g., not limited to the grass in Hackborn). APPLE-1003, ¶¶122-123; *see* APPLE-1006, [0016], [0034], [0039].

6. Claim 9

[9]

See [8] (Ground 1B). §IV.B.5; APPLE-1004, [0028], FIG. 1; APPLE-1006, [0016], [0021], [0033], [0034], [0039]; APPLE-1003, ¶124. Additionally, Townsend teaches that the simulation component “uses techniques based on physics to simulate the behavior of the object for a period after the user releases the object.” APPLE-1006, [0021]. A POSITA would have understood that, according to physics, the blades of grass, at least in some instances, would return to their initial positions upon cessation of contact, and therefore the background reverts to its original state. APPLE-1003, ¶124.

7. Claim 21

[21]

The HWTD renders [21] obvious. APPLE-1004, [0028]; APPLE-1006, [0039]; APPLE-1003, ¶125. Specifically, Hackborn teaches that the displayed grass moves as if contacted by a finger, and Townsend teaches that a “simulation engine performs calculations based on physics to determine the behavior of an

object” so that the simulation object can provide “realistic deceleration or elasticity behavior for application objections set in motion by user touch input.” *Id.* A POSITA would have understood and/or found obvious that, in some scenarios (e.g., when objects interact according to “elasticity behavior”), after the gesture ceases, the scene will not revert to the original image (e.g., because the user touch caused the grass to move in one direction and not move back). APPLE-1003, ¶125. Indeed, a decision among two choices, ceasing with the grass returned to its original position and ceasing with the grass in a position other than the returned position, is a design choice well within the grasp of a POSITA. *Id.*

8. Claim 26

[26]

See [4] (Ground 1B).

9. Claim 27

[27]

See [5] (Ground 1B).

10. Claim 30

[30]

See [8] (Ground 1B).

11. Claim 31

[31]

See [9] (Ground 1B).

12. Claim 43

[43]

See [21] (Ground 1B).

C. [GROUND 1C] – The Hackborn-Westerman-Jablonski combination renders obvious claim 16

1. Jablonski

Jablonski describes “providing wallpaper or screen saver images for display on the background of a personal computer visual display.” APPLE-1008, Abstract. Jablonski states that “[w]allpaper images are usually included as part of the computer’s operation system.” *Id.*, 1:34-40; APPLE-1003, ¶131.

2. The Hackborn-Westerman-Jablonski Combination

Hackborn teaches that an “objects/wallpapers 712 data store may store information about various entities needed to provide the functionality described.” APPLE-1004, [0057]. Additionally, “custom operating system theme elements can be obtained and stored in the data store 712,” and are capable of being selected by a user. *Id.* Hackborn does not specifically address pre-installing wallpapers or theme elements. APPLE-1003, ¶132. However, a POSITA would have understood and/or found obvious that the background can be pre-installed in memory, as was well-known by the Critical Date. *Id.* (citing APPLE-1011; APPLE-1012; APPLE-1013).

For instance, Jablonski explains that “[w]allpaper images are usually included as part of the computer’s operation system.” APPLE-1008, 1:34-40. In view of this well known teaching, a POSITA would have found it obvious for the background (e.g., grass wallpaper) to be one of a plurality of pre-installed wallpapers stored in memory of the HW-Jablonski device. APPLE-1003, ¶133. Because the use of background wallpaper and computer operating systems was known, and Hackborn and Jablonski both describe the use of them, a POSITA would have reasonably understood the combination of Hackborn with Jablonski to be successful with no unexpected results. *Id.* Moreover, storing wallpaper images in the operating system of a device, such as Hackborn’s, per Jablonski would have required nothing more than routine programming knowledge well within the skill of a POSITA prior to the Critical Date. *Id.*

3. Claim 16

[16]

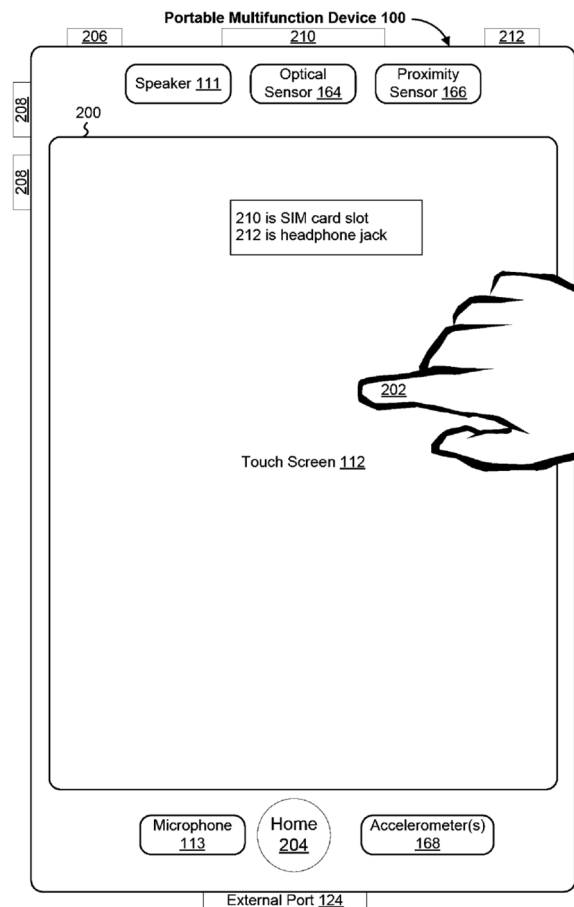
The HW-Jablonski device is configured such that the background is one of a plurality of pre-installed backgrounds stored in the memory and the background is capable of being selected by a user. APPLE-1004, [0025], [0057]; APPLE-1003, ¶134. Hackborn explains that wallpapers are stored in memory and can be obtained by a user, while Jablonski explains that “[w]allpaper images are usually included as part of the computer’s operation system.” APPLE-1004, [0057];

APPLE-1008, 1:34-40; *see* §IV.B.2; APPLE-1011, 2:35-52, APPLE-1012, 1:33-35, APPLE-1013, [0005].

D. [GROUND 1D] – The Hackborn-Westerman-Jobs combination renders obvious claims 18-19 and 39-40

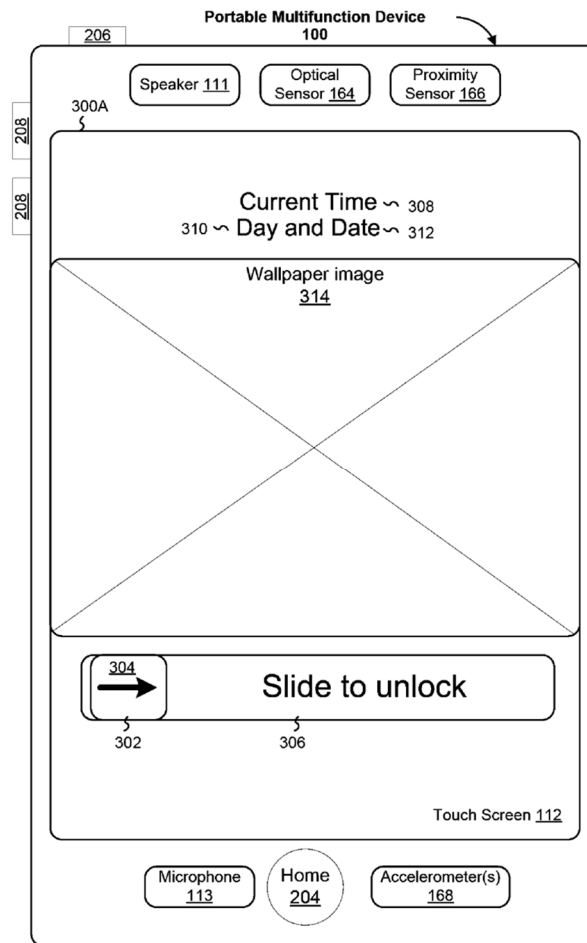
1. Jobs

Jobs describes touch screen devices where the user interacts with a graphical user interface primarily through finger contacts/gestures on the touch-sensitive display. APPLE-1009, [0008]. An exemplary device is shown in Figure 2 (below).



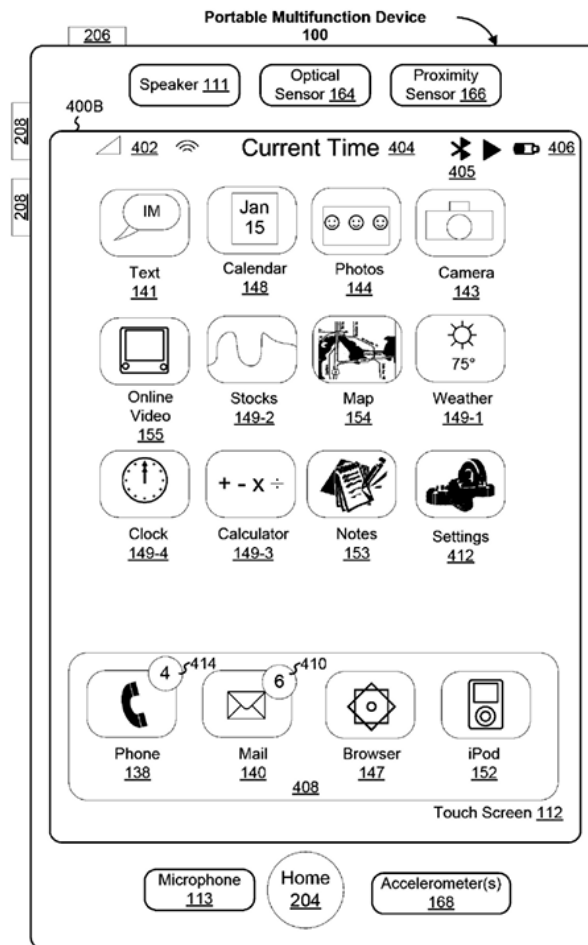
APPLE-1009, FIG. 2

When the device is locked, the user interface includes a wallpaper (background) image, an unlock slider, date/time, etc., as shown in Figure 3A (below). APPLE-1002, [0167]-[0178], FIG. 3A.



APPLE-1009, FIG. 3A

Once unlocked, the user interface includes icons representing applications (e.g., camera, text) residing on a device, shown in Figure 4B (below). APPLE-1009, [0180]-[0214], FIG. 4B; APPLE-1003, ¶¶135-137.



APPLE-1009, FIG. 4B

2. The Hackborn-Westerman-Jobs Combination

As discussed above, the HWD includes a touch screen that displays “live” wallpapers, as taught by Hackborn, and uses threshold values to distinguish between taps and swipes, as taught by Westerman. §IV.A.3; APPLE-1003, ¶138. Jobs teaches a device that similarly includes wallpapers and additionally teaches the ability to lock and unlock the touch screen, as was well known by the Critical Date. APPLE-1009, [0102]; APPLE-1003, ¶138. Jobs teaches that the lock

screen, like the unlocked screen, includes a wallpaper image, as shown below. *Id.*, [0167]-[0175], FIG. 3A.

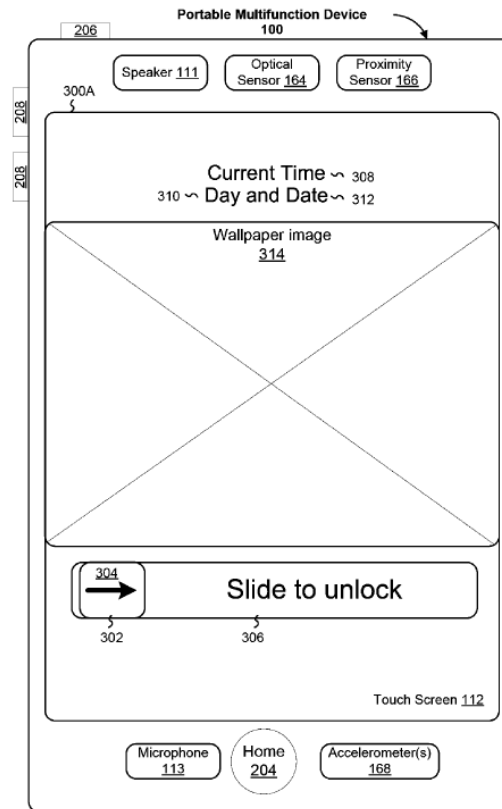


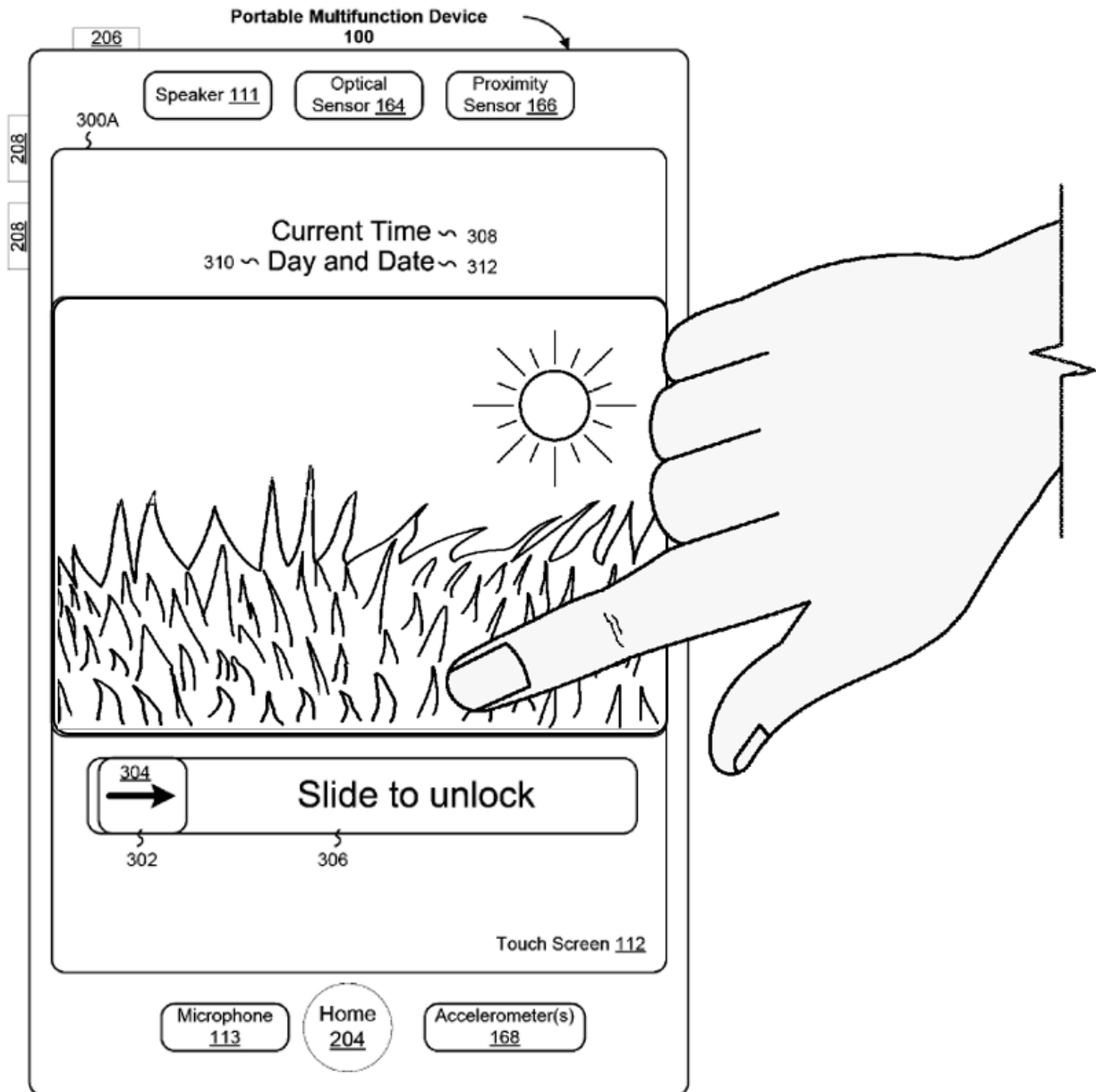
Figure 3A

APPLE-1009, FIG. 3A.

It would have been obvious to a POSITA for the HWD to further include a lock screen with a wallpaper image, per Jobs, and as was well-known and desirable by the Critical Date. APPLE-1003, ¶139 (citing APPLE-1010, [0004], FIGS. 4A-4B, 5A-5B). Moreover, it would have been further obvious and desirable to a POSITA to provide means by which “unintentional activation or deactivation of functions” can be avoided, such Jobs’ lock screen with a wallpaper image. *Id.*

Additionally, given Hackborn's teaching of using live wallpaper, it would have been obvious to a POSITA to implement the Hackborn-Westerman-Jobs device ("HWJD") to include a lock screen with a wallpaper, per Jobs, such that the lock screen wallpaper is "live" like the unlocked screen, per Hackborn. APPLE-1003, ¶140. Such a modification would "provide updated information, altered aesthetics, a change of theme, environment or pace, or a diversion from the status quo," as taught by Hackborn. *Id.*; APPLE-1004, [0026]. In this way, "the [lock screen] wallpaper need not be a static image, but can be active and may execute code so as to produce interesting and compelling user interface examples," per Hackborn. APPLE-1003, ¶140; APPLE-1004, [0036]. This would have motivated a POSITA to implement the HWJD to include a lock screen with live wallpaper, thereby improving the device by preventing "unintentional activation or deactivation of functions" while still producing an "interesting and compelling user interface" in the lock screen. APPLE-1003, ¶140. In the HWJD (as shown below), a user could lock the device with a lock screen having a wallpaper, per Jobs, and the wallpaper is a "live" wallpaper, per Hackborn, such that user touch on the background (grass) causes the grass to move but does not cause foreground objects, such as the "unlock image 302" to change appearance. *Id.*; APPLE-1004, [0028], FIG. 1; APPLE-1009, FIG. 3A. Moreover, because swiping inputs were known (per Hackborn, Westerman, and Jobs), lock screens were known (per Jobs),

and interacting with live backgrounds was known, a POSITA would have reasonably understood the combination of Hackborn, Westerman, and Jobs to be successful with no unexpected results. APPLE-1003, ¶140.



APPLE-1009, FIG. 3A (modified with APPLE-1004, FIG. 1); APPLE-1003, ¶140

3. Claim 18

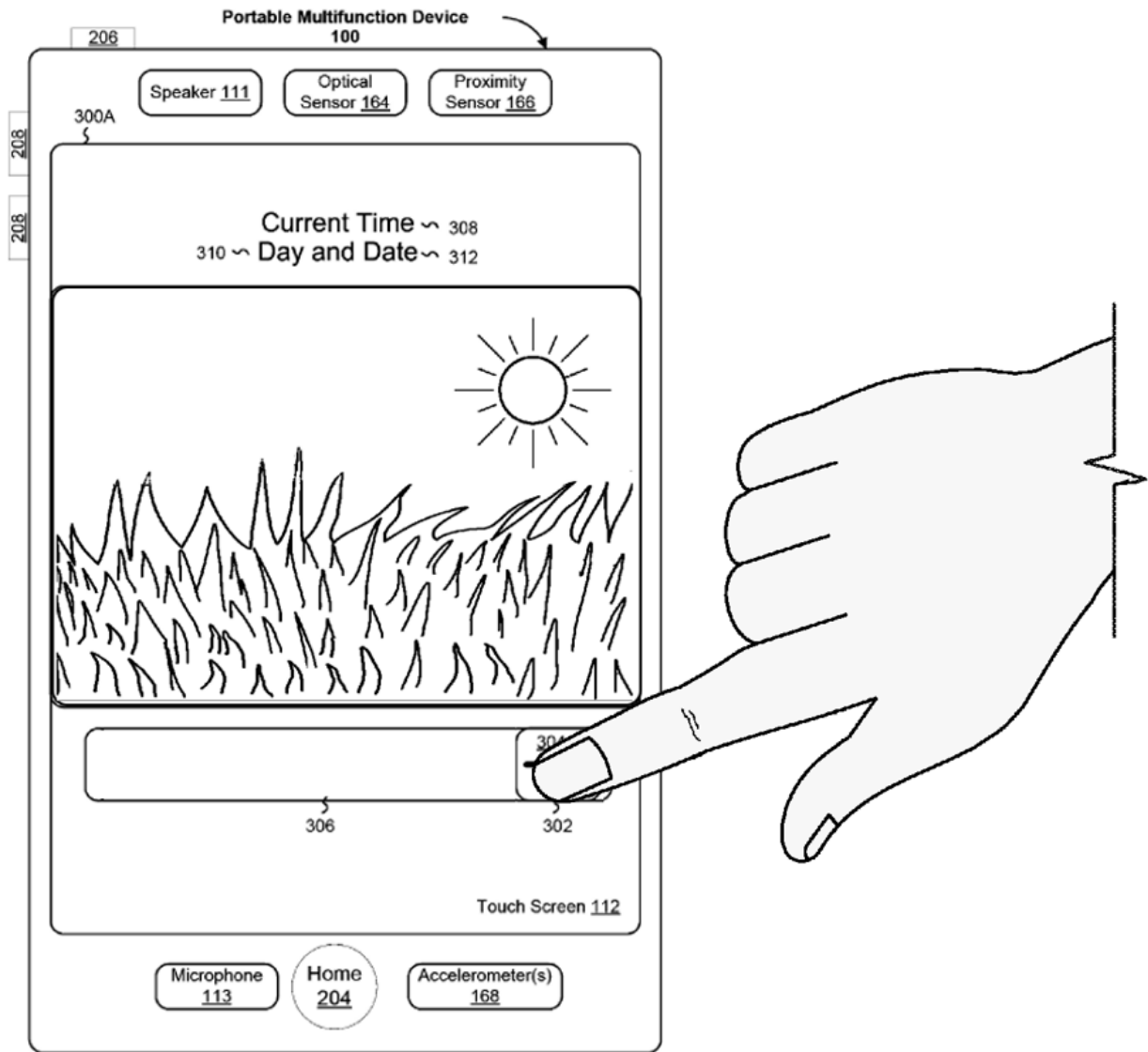
[18]

The HWJD renders [18] obvious. APPLE-1004, [0028], FIG. 1; APPLE-1009, FIG. 3A; APPLE-1003, ¶141; §IV.D.2. Specifically, the HWJD has a lock screen as a first interface and the lock screen includes a wallpaper, per Jobs, which is “live,” per Hackborn. APPLE-1003, ¶141; APPLE-1004, [0028], FIG. 1; APPLE-1009, FIG. 3A; §IV.D.2.

4. Claim 19

[19]

The HWJD renders [19] obvious. APPLE-1004, [0028], FIG. 1; APPLE-1009, [0177], FIG. 3A; APPLE-1003, ¶142; §IV.D.2. Specifically, Jobs explains that the lock screen can be unlocked where the “device detects contact with the touch sensitive display ... while the device is in a user-interface lock state,” and the “device moves the unlock image 302 in accordance with the contact.” APPLE-1009, [0168]-[0177]. Jobs explains that “[t]he device transitions to a user-interface unlock state” by “moving the unlock image across channel 306.” *Id.*, [0177]. This is illustrated in the HWJD below. APPLE-1003, ¶142.



APPLE-1009, FIG. 3A (modified with APPLE-1004, FIG. 1); APPLE-1003, ¶142

5. Claim 39

[39]

See [18] (Ground 1D).

6. Claim 40

[40]

See [19] (Ground 1D).

E. [GROUND 2] – The Hackborn2-Westerman-Jobs combination renders obvious claims 1, 4-8, 10-12, 15, 17-20, 22-23, 26-30, 32, 34, and 37-42

1. The Hackborn2-Westerman-Jobs⁴ Combination

For at least the same reasons as discussed in Ground 1A, a POSITA reviewing Hackborn would have looked to Westerman for implementation details for how to discern between different types of user inputs (e.g., tap or swipe). APPLE-1003, ¶145. Specifically, since Hackborn explains that its device can register both swipes and taps (APPLE-1004, [0028]), a POSITA would have found it obvious to implement Hackborn with Westerman’s methods of distinguishing between tap and swipe gestures (e.g., using “predetermined thresholds”). APPLE-1003, ¶145. Thus, a POSITA would have found obvious that the HWD would be implemented such that, if the user input “exceeds the minimum swipe length threshold” and/or if the “initial velocity at touchdown” is greater than a velocity threshold, the input is “interpreted as a swipe event.” APPLE-1005, [0018]-

⁴ This alternative combination of Hackborn, Westerman, and Jobs, which focuses on a specific embodiment of live wallpaper in Hackborn is referred to herein as Hackborn2-Westerman-Jobs, H2WJ, or the H2WJ device (“H2WJD”), to avoid confusion with Ground 1D.

[0019], [0060]-[0064]; APPLE-1003, ¶145.

Regarding Figure 6 (below), Hackborn additionally describes live wallpapers that can include “information fetched or received from one or more social services on the Internet.” APPLE-1004, [0046], FIG. 6. Regarding Figure 1, Hackborn explains that “a user is swiping her finger across a touch-sensitive display screen of the computing device” can cause the displayed background to change. APPLE-1004, [0028]. A POSITA would have found obvious that Hackborn’s device can similarly detect the first input with the live wallpaper shown in Hackborn’s Figure 6. *Id.*; *see also id.*, [0040]-[0042]; APPLE-1003, ¶146.

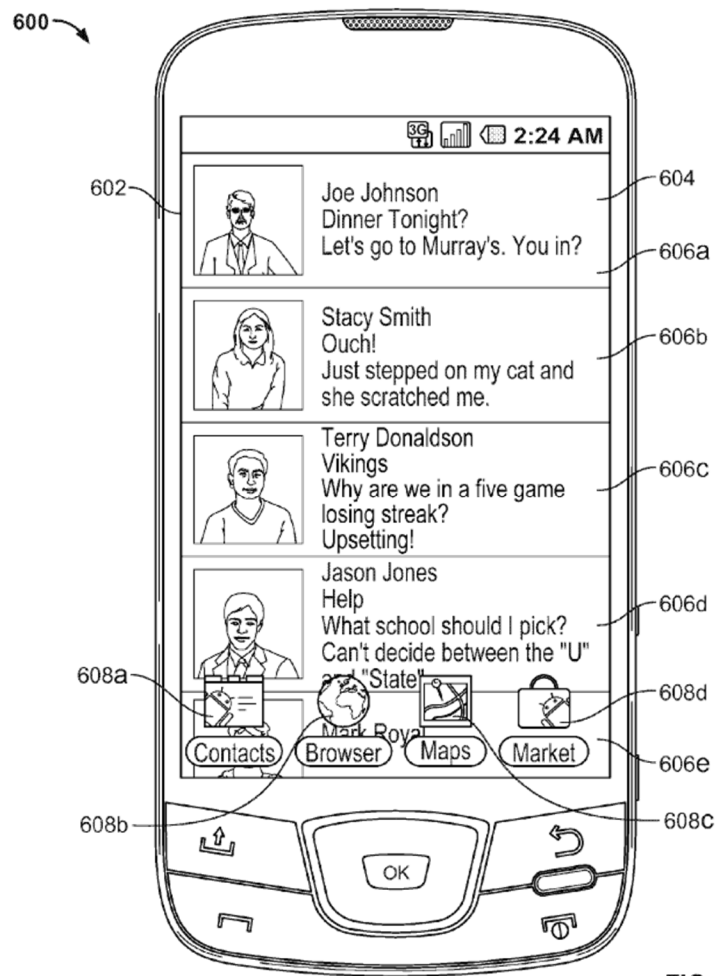


FIG. 6

APPLE-1004, FIG. 6

Regarding Figure 6, Hackborn explains that social media “posts 606a-e may be displayed” such that “as new information is received, already displayed posts may be scrolled (e.g., downward) and the new post may be displayed in a predetermined position.” *Id.*, [0047]. “[T]he wallpaper or a portion of the wallpaper [can] be selected, or a particular input may be provided,” to cause a change an appearance of the wallpaper, including causing the wallpaper to

“assume a more prominent display position or status.” *Id.*, [0048]; APPLE-1003,

¶147

Given that Hackborn teaches (1) receiving user input on the background (live wallpaper), (2) causing the background to change appearance responsive to user input, (3) causing a portion of the background wallpaper to assume a more prominent display position, and (4) scrolling in new images or posts, a POSITA would have found it obvious for the device to receive a user input on the live wallpaper 604 of Figure 4, determine that input to be a swipe (per Westerman), and in response, cause the live wallpaper 604 to change its appearance by scrolling through the social media posts—or more particularly, scrolling to older posts (e.g., permit a user to view posts that were automatically scrolled out of view). APPLE-1003, ¶148. Indeed, a POSITA reviewing Hackborn’s teaching of scrolling social media posts in relation to Figure 6 would have found it obvious to provide a way to view older posts (e.g., partially-displayed post 606e) that s/he may not have already read before the posts were moved downward and less (or not) visible. *Id.* Specifically, a POSITA would have found it obvious to allow for manual scrolling through the posts by the user. *Id.*

The use of swiping motions to scroll through lists (including posts/messages/photos) was well-known at least by the Critical Date, as evidenced Jobs. APPLE-1003, ¶149 (citing APPLE-1009; APPLE-1017; APPLE-1018;

APPLE-1019; APPLE-1020). Regarding Figure 6A, Jobs describes precisely the same manual scrolling of messages as discussed above, describing that “a user can scroll through the message conversation ... by applying a vertical swipe gesture 610 to the area displaying the conversation.” APPLE-1009, [0243], FIG. 6A; *see id.*, [0245]. With scrolling disclosures (e.g., Figure 6A), Jobs describes friction-based scrolling inertia, such that, “scrolling the list has an associated speed of translation that corresponds to a speed of movement of the object,” and “scrolling the list is in accordance with a simulation of an equation of motion having friction.” *Id.*, [1138]; APPLE-1003, ¶¶150-152.

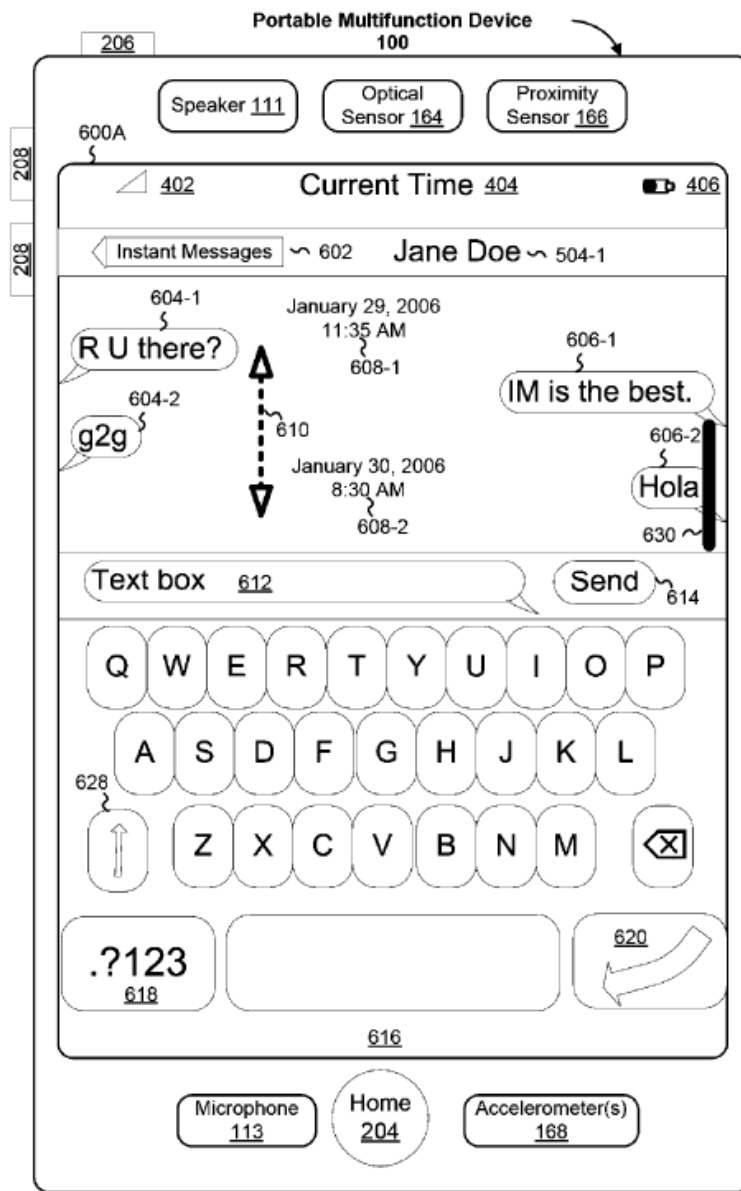


Figure 6A

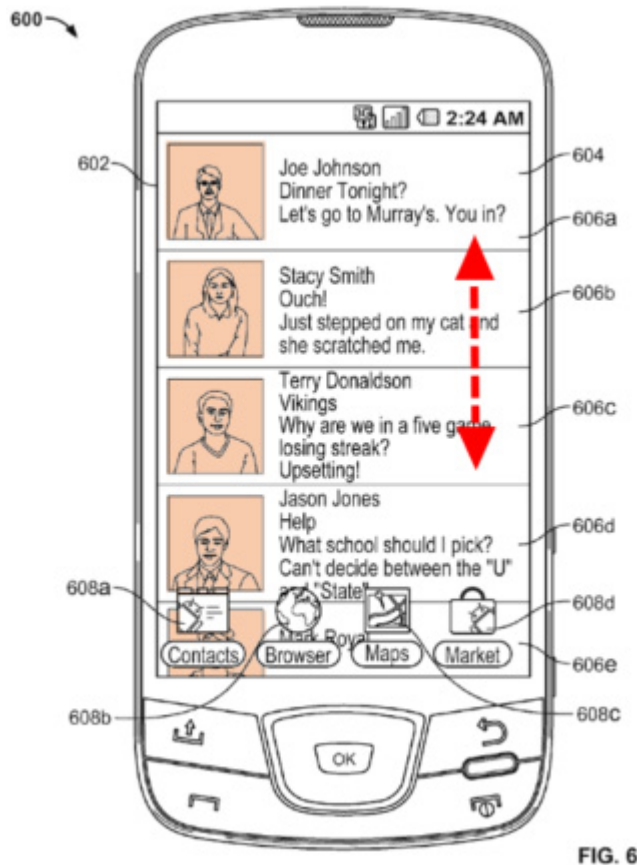
APPLE-1009, FIG. 6A

A POSITA would have found it obvious to modify live wallpaper 604 such that a user could scroll through the images/posts of the wallpaper “using vertically upward and/or vertically downward gestures” (i.e., swipes, detected per Westerman) “on the touch screen,” per Jobs, instead of or in addition to new

images/posts being scrolled in, per Hackborn. APPLE-1003, ¶153; APPLE-1004, [0041], [0046]-[0048], FIGS. 4, 6; APPLE-1009, [0243], [0245], [0401], FIGS.

6A, 15. The modification of the live wallpaper (which includes social media posts with photographs of the poster, highlighted) with manual scrolling (shown in Jobs' Figures 6A and 15) is illustrated below in modified Figure 6 of Hackborn.

APPLE-1003, ¶153. A POSITA would have understood that Jobs' disclosure of scrolling offers two alternatives on cessation of contact: decay velocity with friction or stopping immediately such that, in Ground 2's combination of Hackborn2-Westerman-Jobs, cessation of the swiping motion would cause the resulting scrolling to either slow down or stop immediately. *Id.*



APPLE-1004, FIG. 6 (highlighted, modified in red); APPLE-1003, ¶153

A POSITA reviewing Hackborn would have naturally looked to Jobs' disclosure of manual scrolling, especially given Hackborn's emphasis on live wallpapers with which a user can interact and teaching of live wallpapers that include images/posts from sources that are constantly receiving new images/posts. APPLE-1003, ¶154.

A POSITA would have understood that implementing Hackborn's device to associate a user swipe on its live wallpaper background with the resulting action of "scroll[ing] through the [images of the wallpaper] using vertical upward and/or

vertically downward gestures [] on the touch screen” with friction-based scrolling inertia would serve the purpose of providing an intuitive method for allowing a user to interact with the live wallpaper and view new images when the user wishes to see them, or view older posts that may have been automatically scrolled out of view. APPLE-1003, ¶155; APPLE-1009, [0253], [0401], FIG. 6A, 15. A POSITA would have recognized that applying Jobs’ disclosure of associating swipes with manual scrolling through images in Hackborn’s device would have led to predictable results without significantly altering or hindering the functions performed by Hackborn’s device, particularly because Hackborn already contemplates receiving swipes, displaying images/posts in a live background, allowing a user to interact with a live background to change its appearance, and scrolling through images/posts in the live background. APPLE-1003, ¶155. A POSITA would have been motivated to implement the device, per Hackborn, with Jobs’ teachings to achieve the predictable results offered by Jobs’ description allowing a user to *manually* scroll through the images/posts, viewing the images/posts at his/her leisure. *Id.*; APPLE-1005, [0395]-[0401], FIG. 15. Moreover, because swiping inputs were known (per Hackborn, Westerman, and Jobs), scrolling through images/posts was known (per Hackborn and Jobs), scrolling through content with a resulting friction-based simulation was known (per Jobs), and interacting with live backgrounds was known, a POSITA would

have reasonably understood the combination of Hackborn, Westerman, and Jobs to be successful with no unexpected results. APPLE-1003, ¶155.

2. Claim 1

*[1.pre]-[1.f]*⁵

See [1.pre]-[1.f] (Ground 1A).

[1.g]

The H2WJD renders [1.g] obvious. APPLE-1004, [0009], [0011]-[0012], [0015], [0023], [0025]-[0026], [0030]-[0031], [0035]-[0036], [0040]-[0042], [0046]-[0051], [0054], [0058], FIGS. 4, 6, 9; APPLE-1003, ¶¶163-164. Hackborn explains that, “[t]raditionally, a home screen includes a background, which may ... include an image in the form of wallpaper.” APPLE-1004, [0025]. Regarding Figure 6 (below), Hackborn explains that “active content ... produced as live wallpaper on a computing device” can include “information fetched or received from one or more social services on the internet,” such as “posts or tweets 606*a-e* from a social networking site,” including images. *Id.*, [0046]. The live wallpaper 604 is in the background, as evidenced at least by the “[i]cons 608*a-d* [] shown on a display layer above the wallpaper 604.” *Id.*, [0046].

⁵ For each element of claim 1 in Ground 2, *see also* discussion of claim 1 in Ground 1A as they relate to Hackborn and Westerman. §§IV.A.3-4.

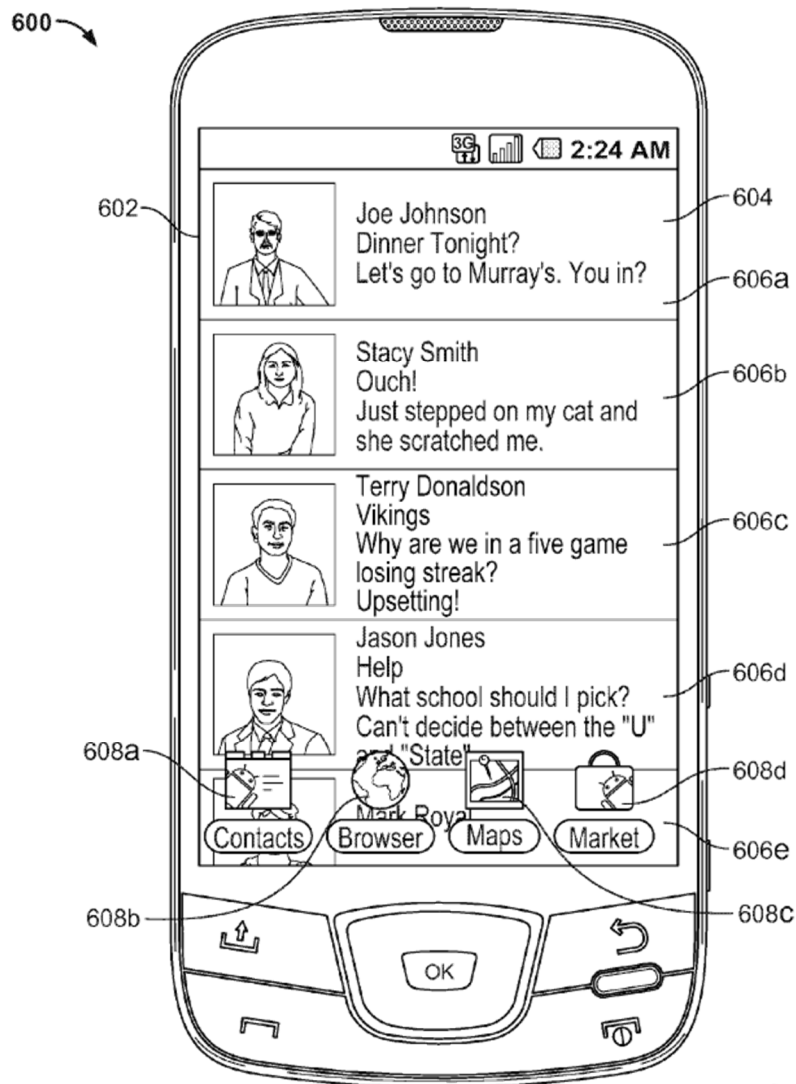


FIG. 6

APPLE-1004, FIG. 6

[1.h]

See [1.h] (Ground 1A).

[1.i]

The H2WJD renders [1.i] obvious. APPLE-1004, [0028], FIG. 1; APPLE-1003, ¶167. Regarding Figure 1, Hackborn explains that “a user is swiping her

finger across a touch-sensitive display screen of the computing device” can cause the displayed background to change—showing the detecting of the first input by the first contact by the H2WJD. APPLE-1004, [0028]. A POSITA would have found obvious that the H2WJD can similarly detect the first input with the live wallpaper 604 shown in Hackborn’s Figure 6. *Id.*, [0028], [0040]-[0042], [0048]; APPLE-1003, ¶67.

[1.j]

The H2WJD renders [1.j] obvious. APPLE-1004, [0025], [0028], [0033], [0040]-[0043], [0048], [0054], FIGS. 4, 5A-5B, claims 18-19; APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶168. As discussed in §IV.E.1, a POSITA would have found it obvious to implement the H2WJD such that a swiping gesture, as determined using the methods of Westerman, on the wallpaper 604 of Hackborn would cause the images/posts of the wallpaper 604 to scroll, per Jobs. APPLE-1003, ¶168; APPLE-1004, [0040]-[0041], [0046]-[0048], FIGS. 4, 6; APPLE-1005, [0059]-[0064]; APPLE-1009, [0243], [0401], FIGS. 6A, 15. The modification of Hackborn’s live wallpaper with manual scrolling (shown in Jobs’ Figures 6A and 15) is illustrated below in modified Figure 6 of Hackborn. APPLE-1003, ¶168.

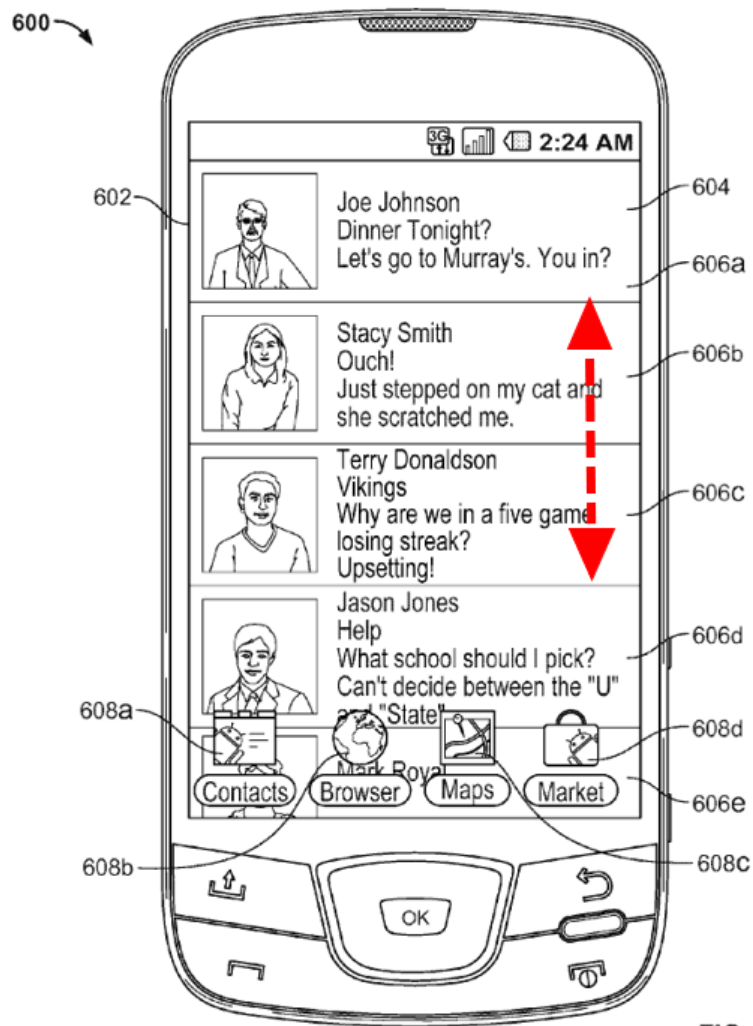


FIG. 6

APPLE-1004, FIG. 6 (modified in red)

Additionally, in response to the user input, the H2WJD dynamically changes the appearance of the wallpaper without changing the appearance of the icons displayed in the foreground, for at least the same reasons as discussed for [1.j] in Ground 1A. APPLE-1003, ¶169; §IV.A.4. Specifically, based at least on these teachings of independence of background/foreground display updates and Hackborn's discussion of "layers" of appearance of the interface, a POSITA would

have understood that a user swipe on the background would affect only the appearance of the wallpaper and not objects on other layers. APPLE-1003, ¶169; APPLE-1004, [0029]-[0036], FIG. 2.

As discussed in §IV.E.1, a POSITA would have further found obvious that the H2WJD would be implemented such that if the user input “exceeds the minimum swipe length threshold” and/or if the “initial velocity at touchdown” is greater than a velocity threshold, the input is “interpreted as a swipe event.” APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶170. Thus, the detection of the user input would be in accordance with a determination that the input has a magnitude (e.g., path length) that is above a threshold, or predetermined minimum. *Id.* For example, if the magnitude of the touch is large enough to be registered as a swipe because its “path has been determined to exceed the minimum length threshold for a swipe gesture,” then images that are part of the live wallpaper 404 are caused to scroll and show new images. APPLE-1003, ¶170; APPLE-1005, [0040]-[0041], [0064].

[1.k]

The programs executed by the processor of the H2WJD dynamically change appearance based on the magnitude of the contact. APPLE-1004, [0026], [0028], [0033], [0040]-[0043], [0054], FIGS. 1, 5A-5B; APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶171. For example, as discussed above, when the

magnitude of a user touch is such that the touch is determined to be a swipe, the live wallpaper 404 changes its appearance (e.g., by scrolling through images). *See* [1.j]. However, if the magnitude is such that the input is determined to be a tap, for example, Hackborn provides other actions unrelated to changing the background appearance. APPLE-1004, [0042].

[1.i]

The H2WJD renders [1.i] obvious. APPLE-1004, [0008], [0028], [0033], [0040]-[0042], [0046], [0050], FIGS. 1, 4, 6, claims 32-33; APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶172. As discussed above, in response to a determination that a magnitude (e.g., path length, initial velocity) of the user input indicates the input to be a swipe, the H2WJD causes the display to scroll and show other images/posts of the live wallpaper (e.g., in the direction of the swipe), thus providing a “sequence of at least some of a plurality of images” based on the input determined to be a swipe. APPLE-1004, [0041], APPLE-1003, ¶172.

3. Claim 4

[4]

The H2WJD renders [4] obvious. APPLE-1009, [1135], [1138]; APPLE-1003, ¶173. Regarding its scrolling list, Jobs states that “scrolling the list has an associated speed of translation that corresponds to a speed of movement of [a finger].” APPLE-1009, [1135], [1138]. A positive speed or velocity is a positive

rate of change of displacement on the touch screen, or “positive rate of change in the magnitude of the first contact.” APPLE-1003, ¶173. In other words, in the H2WJD, the dynamic change in the appearance of the background (e.g., the scrolling velocity of the items in the wallpaper) is based on a rate of change in the magnitude, or displacement, of the contact. *Id.*

4. Claim 5

[5]

The H2WJD renders [5] obvious. APPLE-1009, [1134]-[1140], FIG. 6A; APPLE-1003, ¶174. As discussed above, the H2WJD includes Jobs’ friction-based scrolling inertia. §IV.D.1; APPLE-1009, [1138]. The alternative to a decaying approach would be to stop immediately. APPLE-1003, ¶174. While Jobs is not explicit that scrolling speed decays after cessation of the contact, a POSITA would have understood that one way to satisfy a “speed of translation that corresponds to a speed of movement of [a finger]” or “a simulation of an equation of motion having friction” would be to initiate the decay of the scrolling velocity when the finger is lifted from the touch screen. APPLE-1003, ¶174. Indeed, this approach was well-known by the Critical Date. *Id.* (discussing 2007 iPhone launch video).

5. Claim 6

[6]

The H2WJD renders [6] obvious. APPLE-1009, [1137]-[1138]; APPLE-1003, ¶175. Jobs states that “movement of [a finger] is detected on or near the displayed portion of the list” of Figure 6A or simply “on the touch screen display.” APPLE-1009, [1137], FIG. 6A. “In response to detecting the movement, the list of items displayed on the touch screen display is scrolled.” *Id.*, [1138]. Thus, a POSITA would have understood that the scrolling gesture 610 in Figure 6A of Jobs can occur at *any* location within the message list, and similarly that the scrolling gesture (or a “focus selector,” to the extent one exists in the H2WJD) in the H2WJD can occur at any location on the live wallpaper. APPLE-1009, [1137]-[1138]; APPLE-1003, ¶175.

6. Claim 7

[7]

The H2WJD renders [7] obvious. APPLE-1004, [0046]-[0048], FIG. 6; APPLE-1005, [0018]-[0019], [0060]-[0064]; APPLE-1003, ¶176. As discussed in §IV.E.1, in the H2WJD, when a user input received on the wallpaper 604 is determined to be a swipe, in response the wallpaper 604 is caused to change its appearance by scrolling images/posts from the social media services (e.g., older social media posts that had been automatically scrolled out of view). *See* §IV.E.1; *see also* §IV.E.2 ([1.j]). A POSITA would have found obvious that the responsive

scrolling of images in the H2WJD is only in response to a swipe and not a tap, for example, which does not suggest the same scrolling output. APPLE-1003, ¶176. Thus, if the user input does not have a magnitude above the swipe threshold, the background remains unchanged. *Id.*

7. Claim 8

[8]

See [5] (Ground 2). §IV.E.4; APPLE-1009, [1134]-[1140], FIG. 6A; APPLE-1003, ¶177. Per claim [5], a POSITA would have understood that Jobs' disclosure of scrolling offers two alternatives on cessation of contact: decay velocity with friction or stopping immediately. §IV.E.4. Thus, it would have been obvious for the H2WJD to employ either one of these approaches. APPLE-1003, ¶177.

Alternatively, Jobs' disclosure of its friction scrolling also satisfies claim [8], which does not require *immediate* cessation of the dynamic change. APPLE-1003, ¶178. Thus, Jobs' friction scrolling, included in the H2WJD, which initiates a friction decay function in response to cessation of contact, satisfies this claim. APPLE-1003, ¶178.

8. Claim 10

[10]

The H2WJD renders [10] obvious. APPLE-1004, [0005] (“wallpaper when the background is formed from a graphical image”), [0025], [0043], [0047], claims 2, 33, FIG. 6; APPLE-1003, ¶179. In particular, the plurality of images are provided in “live wallpaper 604” that “continue[s] to update in the background.” APPLE-1004, [0047], FIG. 6.

9. Claim 11

[11]

The H2WJD renders [11] obvious. APPLE-1004, [0008], [0035], [0050], claims 9, 24; APPLE-1003, ¶180; *see* [1.1]. As discussed for [1.1], Hackborn teaches that “live wallpaper can include a *combination of the described wallpaper examples*,” including images from social networking sites or photographs captured by the device’s camera. APPLE-1004, [0008], [0035], [0050] (emphasis added), claims 9, 24. An example of such a “combination of the described wallpaper examples” is shown below where the wallpaper includes *a live image* from the device’s camera (top) and images from posts 606c, 606d, and 606e (bottom) from Figure 6. APPLE-1003, ¶180.

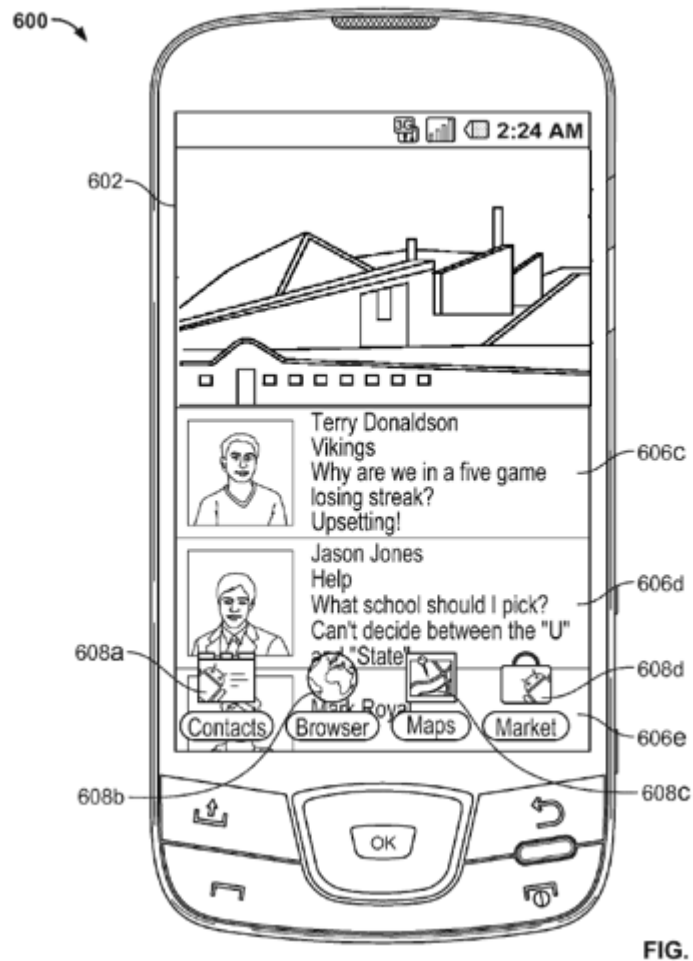


FIG. 6

Composite image based on APPLE-1004, FIG. 6; APPLE-1003, ¶180

Moreover, it would have been obvious to include more than one photograph; doing so would yield no new and unexpected result. APPLE-1004, [0008]; APPLE-1003, ¶181; *Harza*, 274 F.2d at 671.

Additionally or alternatively, a POSITA would have found obvious for the images from the social media web site to be captured using the camera of the electronic device, as was well-known and common by the Critical Date. APPLE-1003, ¶182. Indeed, it was well-known at least by the Critical Date for a user to

use his/her device to capture a photograph of a friend and associate that photo with the friend/contact on his/her device. *Id.* Thus, it would have been obvious that, for example, the photographs of Terry Donaldson and Jason Jones, shown in Figure 6 would have been taken using a camera of the H2WJD. *Id.*

10. Claim 12

[12]

The H2WJD renders [12] obvious. APPLE-1004, [0040]-[0042], [0046]-[0048], FIGS. 4, 6; APPLE-1005, [0059]-[0064]; APPLE-1009, [0243], [0401], FIGS. 6A, 15; §IV.E.1; APPLE-1003, ¶183; *see* discussion of [1.j]. As discussed for [1.j], POSITA would have found it obvious to implement the H2WJD such that a swiping gesture, as determined using the methods of Westerman, on the wallpaper 604 of Hackborn would cause the images/posts of the wallpaper 604 to scroll, per Jobs. APPLE-1003, ¶183; APPLE-1004, [0040]-[0041], FIG. 4; APPLE-1005, [0059]-[0064]; APPLE-1009, [0401], FIG. 15.

11. Claim 15

[15]

The H2WJD renders [15] obvious. APPLE-1004, [0008], [0040]-[0042], FIG. 4; APPLE-1003, ¶184. As discussed for [1.g], the plurality of images includes images for a social media site (*see* §IV.E.1). APPLE-1004, [0040], [0046]-[0048], FIGS. 4, 6. A POSITA would have understood that images from

the social media site includes photographs, and because the social media images are “produced as wallpaper,” a POSITA would have understood them to be associated with the background (e.g., as part of wallpaper). APPLE-1003, ¶184 (citing APPLE-1014; APPLE-1015; APPLE-1016).

12. Claim 17

[17]

The H2WJD renders [17] obvious. APPLE-1009, [1135], [1138]; APPLE-1003, ¶185. As discussed above, Hackborn discloses images displayed within its automatically scrolling list of social media posts. APPLE-1004, [0046]-[0048], FIG. 6; §IV.E.1. As discussed regarding [5], Jobs teaches scrolling at the velocity of the finger movement. APPLE-1009, [1134]-[1140]; §IV.E.4. Thus, a POSITA would have understood that, in the H2WJD, the images in Hackborn’s list of social media posts are displayed *in sequence by automatically moving, one-by-one* through the images, with new images entering the displayed portion of the scrolled list one-by-one. APPLE-1003, ¶185.

13. Claim 18

[18]

The H2WJD renders [18] obvious. APPLE-1004, FIG. 6; APPLE-1009, FIG. 3A; APPLE-1003, ¶186. Specifically, for at least the same reasons discussed

in Ground 1D, it would have been obvious to a POSITA to configure the H2WJD with a lock screen, as shown in the composite image below. §IV.D.2-3.

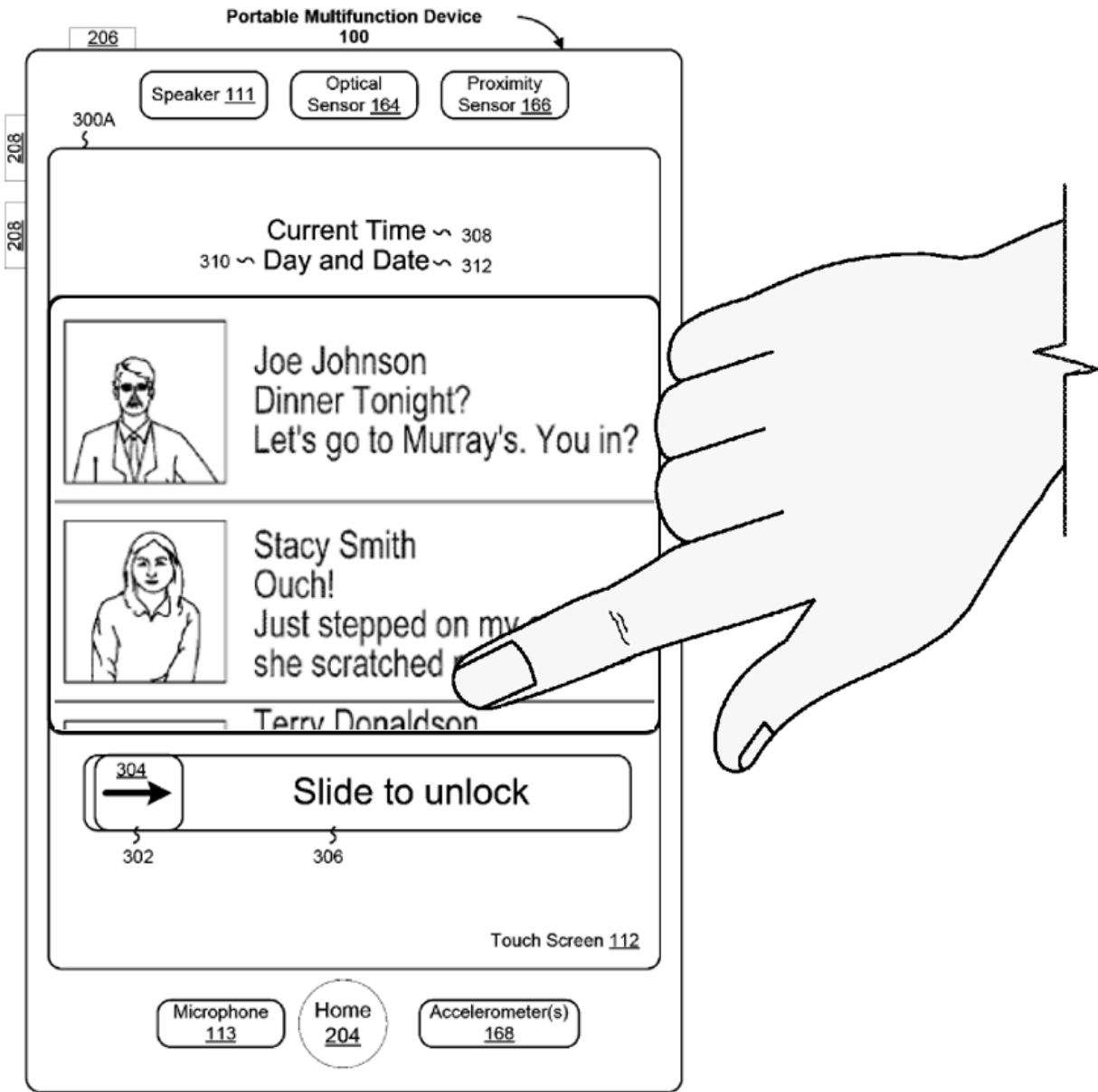


Figure 3A

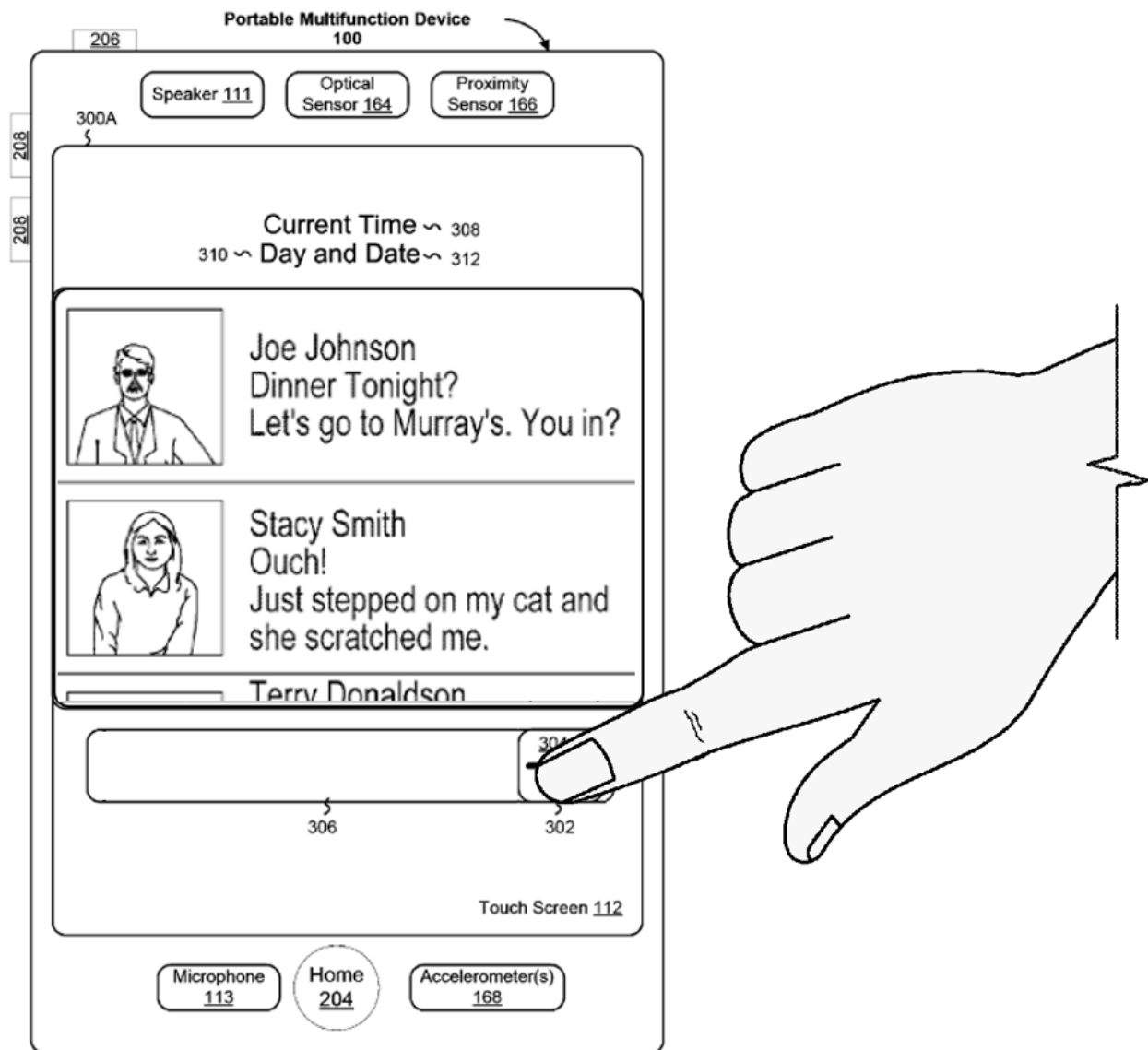
Composite image based on Job's FIG. 3A and Hackborn's FIG. 6

14. Claim 19

[19]

The H2WJD renders [19] obvious. APPLE-1004, FIG. 6; APPLE-1009, [0177], FIG. 3A; APPLE-1003, ¶187. Specifically, for at least the same reasons discussed in Ground 1D, it would have been obvious for a POSITA to configure the H2WJD with an unlocked lock screen, as shown in the composite image below.

§§IV.D.2-4.



Composite image based on Job's FIG. 3A and Hackborn's FIG. 6

15. Claim 20

[20]

The H2WJD renders [20] obvious for at least the same reasons as for claim [20] (Ground 1A) as it relates to Westerman. §IV.A.13; APPLE-1003, ¶188.

16. Claim 22

[22]

The H2WJD renders [22] obvious (e.g., “the one or more foreground objects includes one or more application icons”). APPLE-1004, [0047], FIGS. 4, 6; APPLE-1003, ¶189. Specifically, Figure 6 shows foreground objects including application icons for contacts 608a, browser 608b, and maps 608c. *Id.*

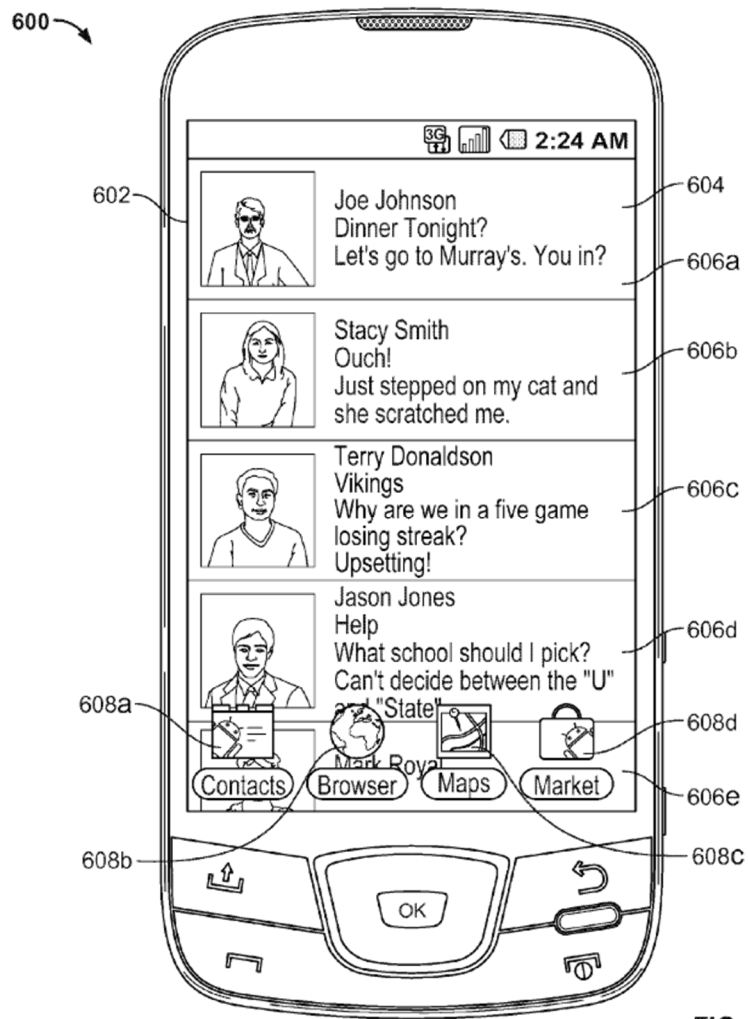


FIG. 6

APPLE-1004, FIG. 6

17. Claim 23

[23.pre]-[23.d]⁶

See [1.pre]-[1.d] (Ground 2).

[23.e]-[23.k]

See [1.f]-[1.l] (Ground 2).

18. Claim 26

[26]

See [4] (Ground 2).

19. Claim 27

[27]

See [5] (Ground 2).

20. Claim 28

[28]

See [6] (Ground 2).

21. Claim 29

[29]

See [7] (Ground 2).

22. Claim 30

⁶ For each element of claim [23] in Ground 2, *see also* discussion of claims [1] and [23] in Ground 1A as they relate to Hackborn and Westerman. §§IV.A.3-4 and IV.A.14.

[30]

See [8] (Ground 2).

23. Claim 32

[32]

See [10] (Ground 2).

24. Claim 34

[34]

See [12] (Ground 2).

25. Claim 37

[37]

See [17] (Ground 2).

26. Claim 38

[38]

See [17] (Ground 2).

27. Claim 39

[39]

See [18] (Ground 2).

28. Claim 40

[40]

See [19] (Ground 2).

29. Claim 41

[41]

See [20] (Ground 2).

30. Claim 42

[42]

See [15] (Ground 2).

V. ANALYSIS ON DISCRETION

A. 35 U.S.C. §325(d)—*Advanced Bionics*

The *Advanced Bionics* framework strongly favors institution. None of the prior art relied upon for Grounds 1A-1D and 2 were cited among the thousands of references disclosed by Applicant and/or cited by the Examiner. Nor did either the Applicant or Examiner explicitly discuss or consider the combinations presented herein. Thus, neither condition of Part One in the *Advanced Bionics* two-part framework is met.

Further, while there is no need to reach Part Two of the *Advanced Bionics* framework, the record shows that the Challenged Claims were allowed based on a material error by the Examiner at least as illustrated by the Grounds presented herein. Had the Examiner properly assessed the references relied upon for Grounds 1A-1D and 2 and appreciated their teachings in view of the prior art as a whole, the Challenged Claims would not have issued. See §IV, *supra*.

B. 35 U.S.C. §314(a) - *Fintiv*

Institution should not be discretionarily denied under §314(a) because no

Fintiv factors favor denial. Rather, five of the six factors enumerated in *Apple Inc. v. Fintiv, Inc.* weigh against discretionary denial, and the other factor is neutral on the issue. IPR2020-00019, Paper 11 at 2-3 (PTAB “precedential” Mar. 20, 2020) (“*Fintiv*”).

Factor 1 weighs against a discretionary denial. Apple intends to file a motion to stay the parallel litigation. Thus, factor 1 does not favor discretionary denial and, at worst, is neutral.

Factor 2 weighs against a discretionary denial. Director Vidal’s Guidance instructed the Board that “when considering the proximity of the district court’s trial date to the date when the PTAB final written decision will be due, the PTAB will consider the median time from filing to disposition of the civil trial for the district in which the parallel litigation resides.” APPLE-1029, 3, 8. According to the latest published district court statistics, the median time to trial in the Southern District of California (SDCal) is 40.2 months, predicting a trial in November 2027—significantly later than a Final Written Decision would be issued in this case. APPLE-1028, 69; APPLE-1029, 8 (“A court’s scheduled trial date, therefore, is not by itself a good indicator of whether the district court trial will occur before the statutory deadline for a final written decision.”). For this reason alone, Factor 2 weighs against discretionary denial. Though a pre-trial conference of October 23, 2025 has been scheduled in co-pending litigation, no trial date has

been set, and it is uncertain whether the schedule will stick, particularly if Apple's motion to stay is granted. APPLE-1030, 6.

Factor 3 also weighs against discretionary denial because Petitioner has diligently filed this Petition while the co-pending litigation is still in its early stages. Petitioner filed as soon as practicable following Smith's election of 200 asserted claims of the over 1000 claims in the asserted patents just weeks before filing. Beyond the service of preliminary infringement contentions, the parties and the District Court have yet to expend significant resources. No invalidity contentions have been served, and discovery is in its infancy.

Factor 4 weighs against discretionary denial. As noted above, no trial date has been scheduled. And even if a pre-trial conference date of October 2025 is used as a reference point, if Apple's to-be-filed motion to stay is granted, the case schedule is going to change and the trial date will be further delayed. Accordingly, it is likely that a final written decision will be issued before trial. Indeed, no stipulation has been offered given the lack of a trial date, and it otherwise remains too early to assess the suitability of a stipulation with invalidity contentions still not exchanged.

Factor 5 The parties in the parallel co-pending litigation are the same.

Factor 6 favors institution because the merits of this Petition are compelling, as described in this Petition.

Indeed, the grounds presented herein apply, in a straightforward manner, to demonstrate the obviousness of the claims. While the Office issued no prior art rejections during prosecution, Hackborn—which was not considered during prosecution—discloses nearly all limitations of the Challenged Claims, including dynamically changing the appearance of the background without changing an appearance of foreground objects. And, with one or more other prior art references, Hackborn clearly render obvious those claims. *See* §IV, *supra*.

VI. CONCLUSION AND FEES

The Challenged Claims are unpatentable. Please charge fees to Deposit Account 06-1050.

VII. MANDATORY NOTICES UNDER 37 C.F.R. § 42.8(a)(1)

A. Real Party-In-Interest Under 37 C.F.R. § 42.8(b)(1)

Apple Inc. is the petitioner and the real party-in-interest.

B. Related Matters Under 37 C.F.R. § 42.8(b)(2)

Petitioner is not aware of any disclaimers, reexamination certificates or petitions for inter partes review for the '755 Patent. The '755 Patent is the subject of civil action: *Smith Interface Technologies, LLC v. Apple Inc.*, Case No. 3-23-cv-01187 (SDCA), filed June 27, 2023.

C. Lead And Back-Up Counsel Under 37 C.F.R. § 42.8(b)(3)

Petitioner provides the following designation of counsel.

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D. Service Information

Please address all correspondence and service to the address listed above.

Petitioner consents to electronic service by email at IPR50095-0167IP1@fr.com.

Respectfully submitted,

Dated: June 27, 2024

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CERTIFICATION UNDER 37 CFR § 42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *Inter Partes* Review totals 13,987 words, which is less than the 14,000 allowed under 37 CFR § 42.24.

Dated: June 27, 2024

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) *et seq.* and 42.105(b), the undersigned certifies that on June 27, 2024, a complete and entire copy of this Petition for *Inter Partes* Review and all supporting exhibits were provided via USPS Priority Express Mail, to the Patent Owner by serving the correspondence address of record as follows:

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