

APPLE INC. v. SMITH INTERFACE TECHNOLOGIES, LLC

IPR2024-01085

U.S. Patent No. 10,649,580

Patent Owner's Hearing Demonstratives

November 14, 2025

'580 Patent Overview

Prior Art Overview

Ground 1A (Ramos-Ramos-Ording)

Ground 1B (Ramos-Ramos-Ording-Hayward)

'580 Patent Overview

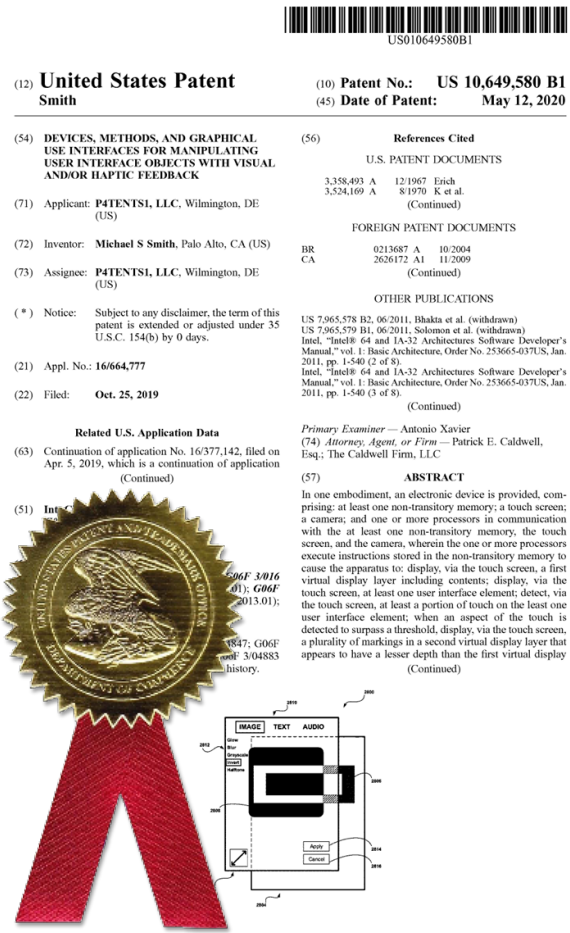
Prior Art Overview

Ground 1A (Ramos-Ramos-Ording)

Ground 1B (Ramos-Ramos-Ording-Hayward)

U.S. Patent No. 10,649,580

U.S. Patent No. 10,649,580



(12) **United States Patent**
Smith

(54) **DEVICES, METHODS, AND GRAPHICAL USE INTERFACES FOR MANIPULATING USER INTERFACE OBJECTS WITH VISUAL AND/OR HAPTIC FEEDBACK**

(45) **Date of Patent:** May 12, 2020

(22) **Filed:** Oct. 25, 2019

Independent Claim 1 (and Claims 22 and 58)

Claim 1

1. An apparatus comprising:

[1.a-1.d] at least one non-transitory memory; ... instructions ... to cause the apparatus to:

[1.e] display, via the touch screen, a first virtual display layer including contents;

[1.f] display, via the touch screen, at least one user interface element;

[1.g] detect, via the touch screen, at least a portion of touch on the least one user interface element;

[1.h] when an **aspect of the touch** is detected to surpass a threshold, display, via the touch screen, **a plurality of markings in a second virtual display layer** that appears to have a lesser depth than the first virtual display layer,

[1.i] where at least a portion of the **second virtual display layer is at least partially translucent** so that at least a portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer;

[1.j] detect, via the touch screen, a touch movement on at least one of the plurality of marking; and

[1.k] during detection of the touch movement on the at least one of the plurality of marking . . . , display, via the touch screen, a movement of the markings in the second virtual display layer as a function of the touch movement; and

[1.l] perform a zoom operation on the at least portion of the contents . . . **without performing the zoom operation on the . . . markings** . . . , where the zoom operation correlates with the movement of the markings in the second virtual display layer, and the at least portion of the second virtual display layer is at least partially translucent so that a result of the zoom operation on the at least portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer.

'580 Patent Overview

Prior Art Overview

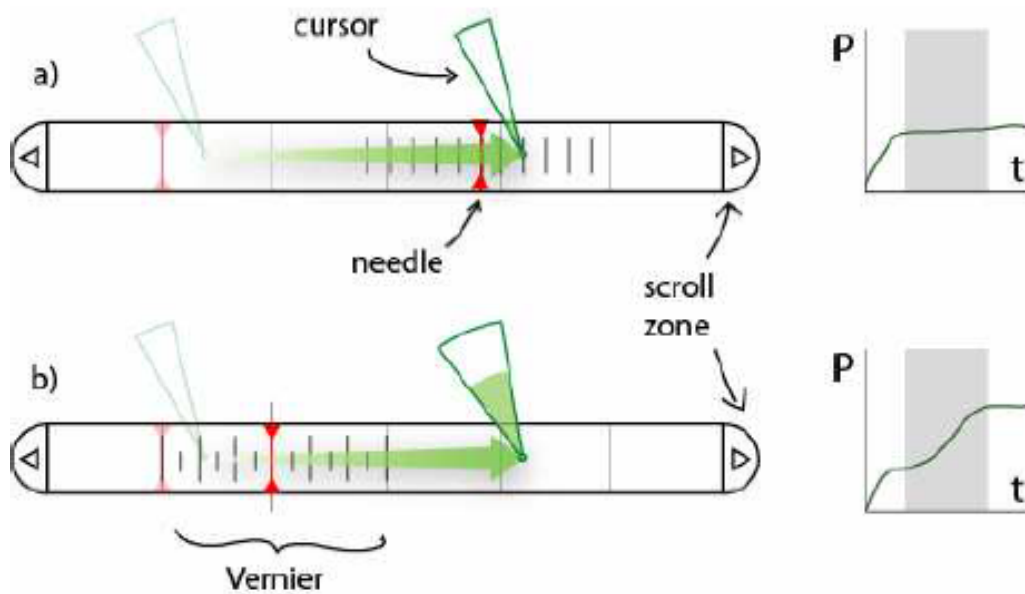
Ground 1A (Ramos-Ramos-Ording)

Ground 1B (Ramos-Ramos-Ording-Hayward)

Ramos Paper



Ramos Paper



EX1004, FIG. 1 (cited in POR, 5)



Zlider widget and pressure cursor

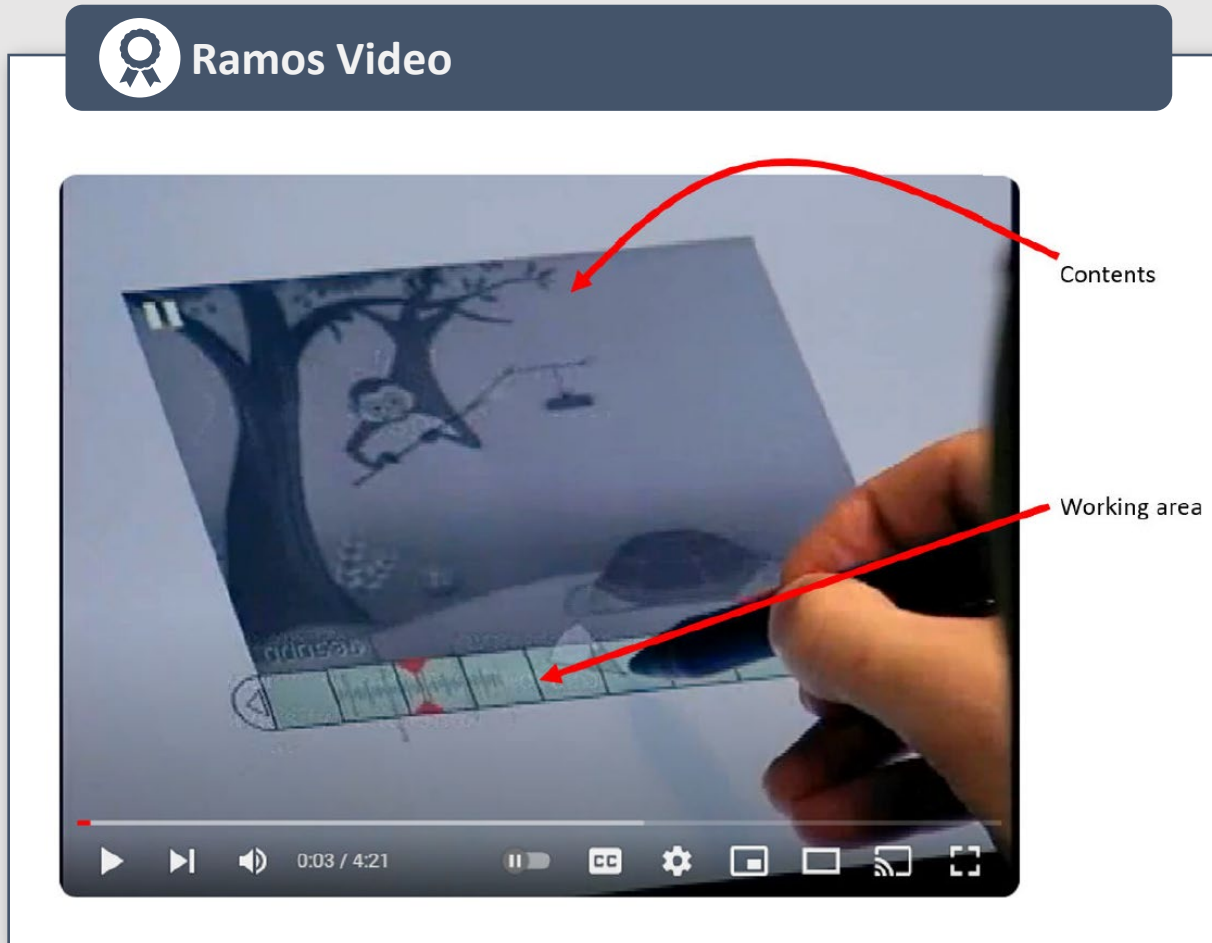
High precision parameter manipulation tasks typically require adjustment of the scale of manipulation in addition to the parameter itself. This paper introduces the notion of **Zoom Sliding**, or *Zliding*, for fluid integrated **manipulation of scale (zooming) via pressure input while parameter manipulation within that scale is achieved via x-y cursor movement (sliding)**. We also present the Zlider (Figure 1), a widget that instantiates the Zliding concept.

EX1004, 1 (cited in Pet., 6–7; POR, 5–6)

Though **not integral to the Zlider design**, we use a pressure cursor (Figure 2) across our implementations, instead of the default cursor found in most GUIs. Our **pressure cursor provides users with a real-time indicator of the pressure they are applying with the input transducer.**

EX1004, 3 (cited in Sur-Reply, 11)

Ramos Video



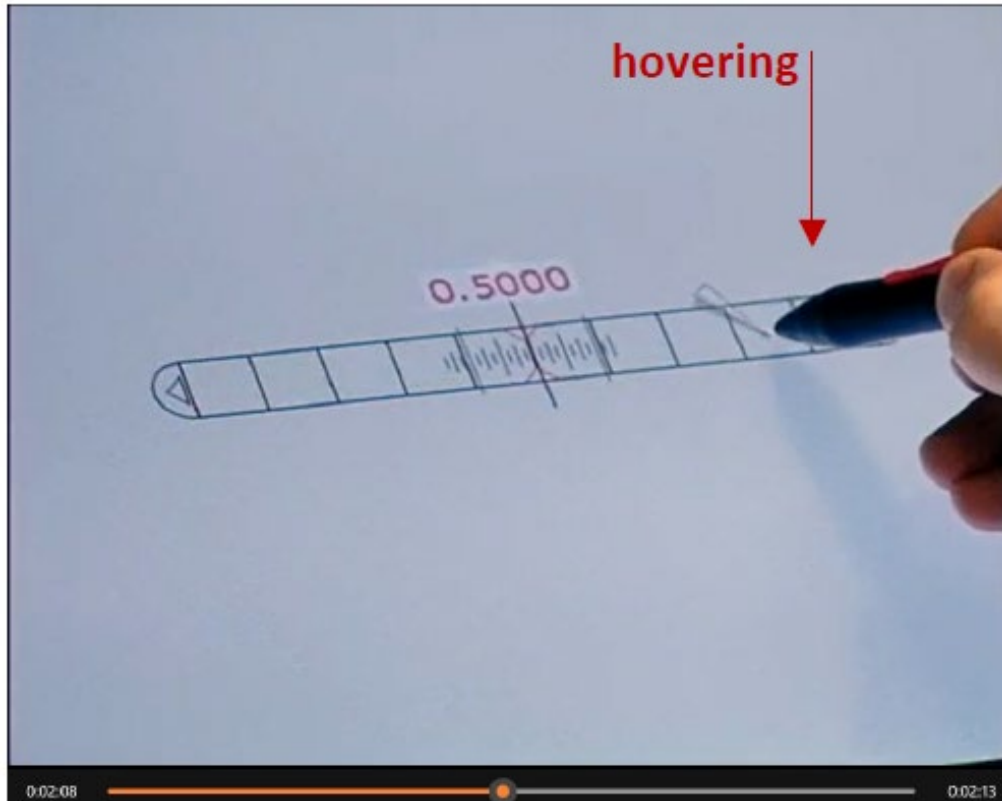
Video shows Zlider's working area and Vernier markings adjacent to the content

EX1005, 0:03 (annotated) (cited by Pet., 14); POR, 22–24; Sur-Reply, 13

Ramos Video



Ramos Video



Video shows stylus can manipulate the pressure cursor and Zlider widget without contacting the screen (i.e., hovering)

EX1005, 2:08 (annotated) (cited by POR, 7–8)

Ording



Ording's hardware and apps

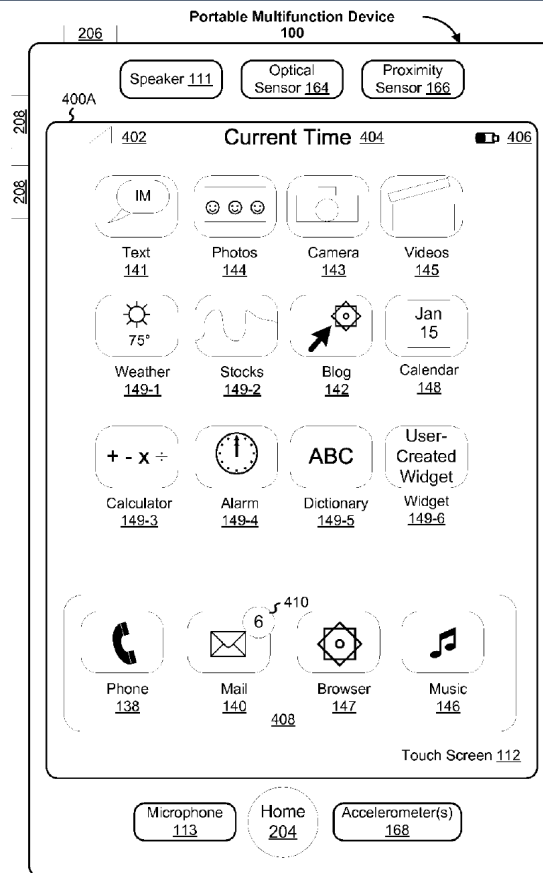


Figure 4A

EX1006, FIG. 4A (cited in POR, 15)



Ording's virtual click wheel

“In some embodiments, the device 100 may include a physical or virtual click wheel as an input control device 116. A user may navigate among and interact with one or more graphical objects (henceforth referred to as icons) displayed in the touch screen 112 by rotating the click wheel or by moving a point of contact with the click wheel (e.g., where the amount of movement of the point of contact is measured by its angular displacement with respect to a center point of the click wheel). The click wheel may also be used to select one or more of the displayed icons.

...

For a virtual click wheel, the click wheel may be either an opaque or semitransparent object that appears and disappears on the touch screen display in response to user interaction with the device. In some embodiments, a virtual click wheel is displayed on the touch screen of a portable multifunction device and operated by user contact with the touch screen.

EX1006, [0045] (cited in POR, 14–15; Sur-Reply, 3–4)

'580 Patent Overview

Prior Art Overview

Ground 1A (Ramos-Ramos-Ording)

- [1.h], [1.i], [22.d], and [58.c]: no semi-transparent second virtual display layer
- [1.h], [22.d], and [58.c]: “no touch” is not an “aspect of touch”
- [1.l], [22.g], and [58f]: zoom operation is performed on the markings
- Claims 29 and 65: no “single continuous gesture with constant contact”
- Claims 9, 32, and 69: no credible theory to add duration magnitude threshold

Ground 1B (Ramos-Ramos-Ording-Hayward)

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

RROD lacks “plurality of markings in a [partially translucent] second virtual display layer”



Claim 1 (and Claims 22 and 58)

- [1.h] when an aspect of the touch is detected to surpass a threshold, display, via the touch screen, a plurality of markings in **a second virtual display layer** that appears to have a lesser depth than the first virtual display layer,
- [1.i] where at least a portion of the second virtual display layer is **at least partially translucent** so that at least a portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

Two theories.



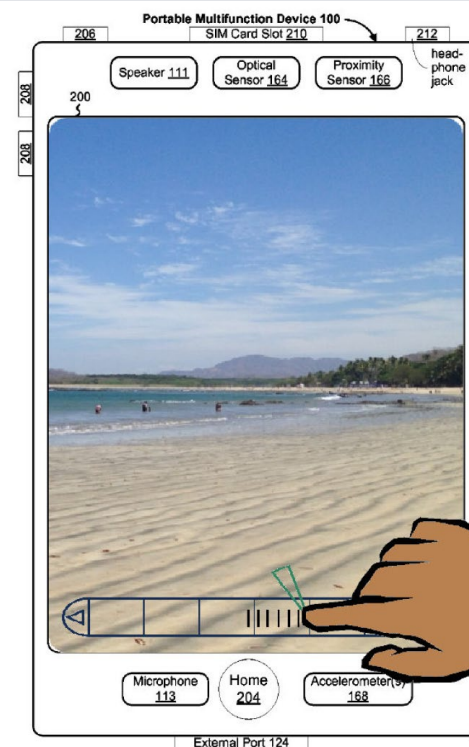
Petitioner's Theory 1 (Zlider Adjacent)



Pet., 39 (citing EX1005, 3:22 (annotated))



Petitioner's Theory 2 (Zlider Overlay)



Pet., 59 (citing EX1006, FIG. 2 (modified) with Ramos Zlider)

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

First Theory: Ramos discloses Zlider widget adjacent to content



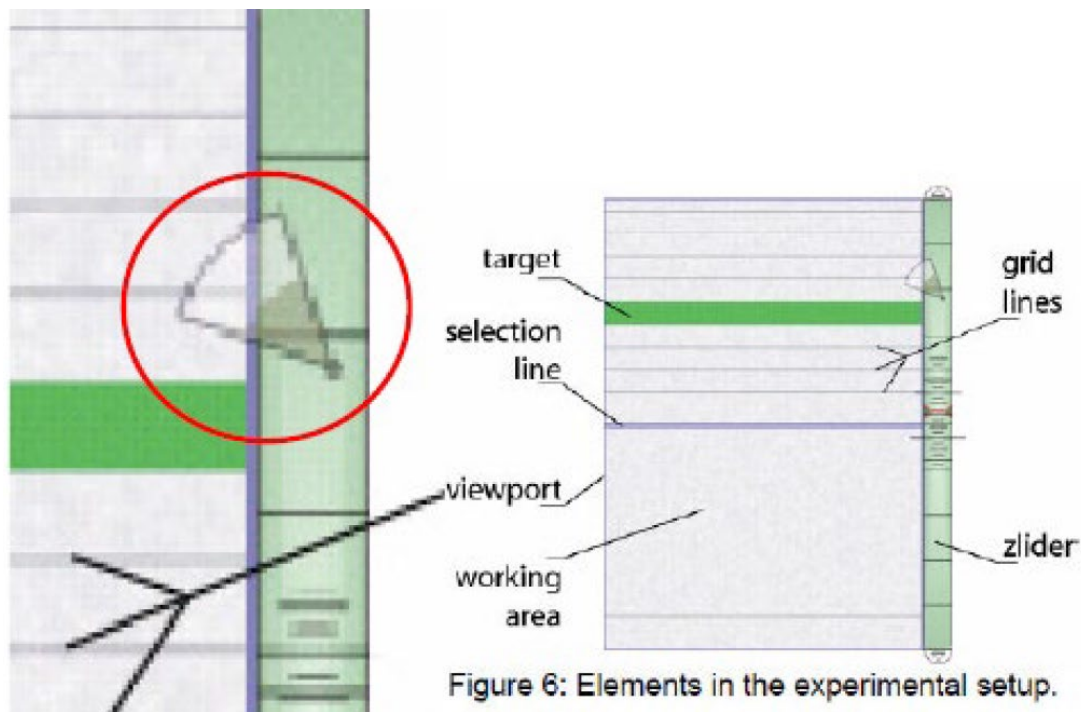
Pet., 39 (citing EX1005, 3:22 (annotated)); POR, 22–24; Sur-Reply, 13

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

First Theory relies on pressure cursor to satisfy “partially translucent” requirement



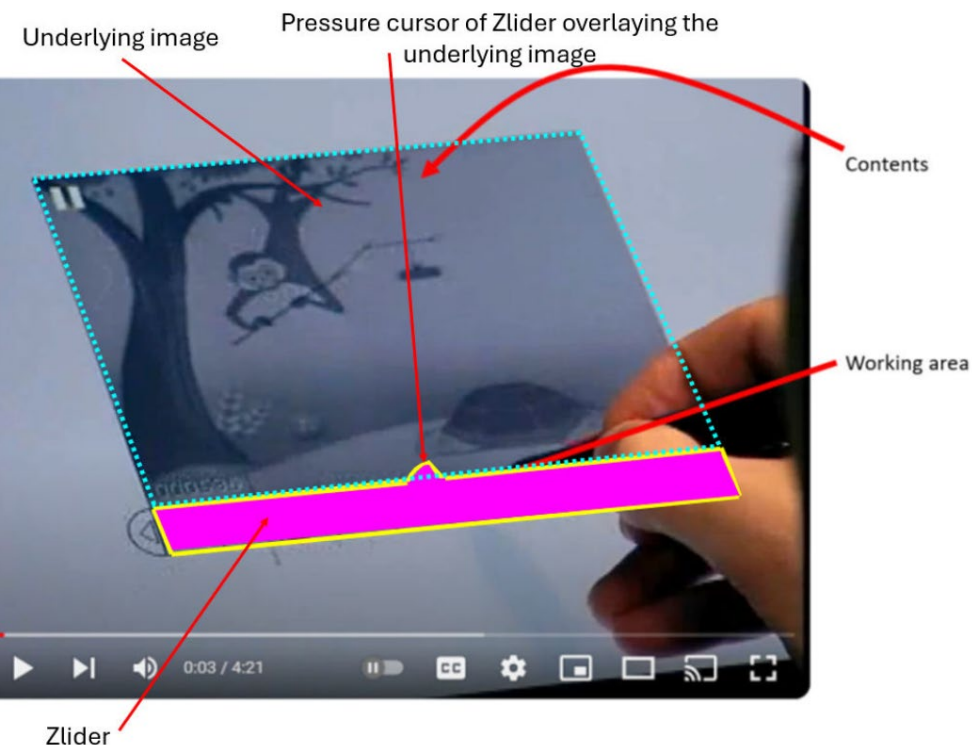
Ramos Paper



Pet., 56 (citing EX1004, Figure 6 (annotated))



Ramos Video



Reply, 16–17 (citing EX1005, 0:03 (annotated))

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

“virtual display layer” includes elements assigned the *same* apparent depth



'580 Patent – “virtual display layer”

“In various embodiments, a 3D layered user interface may be implemented in a device having single layer displays through the use of virtual display layers. In the context of the present description, a virtual display layer refers to a collection of display elements which have all been assigned the same apparent depth within the 3D layered user interface. In various embodiments, a 3D layered user interface may make use of multiple virtual display layers. For example, in one embodiment, a 3D layered user interface may have a virtual foreground display layer and a virtual background display layer.”

EX1001, 68:7–11 (cited at POR, 2, 31; Sur-Reply, 11)



'580 Patent – “3D depth cues”

In various embodiments, virtual display layers may be given the appearance of depth through the use of 3D depth cues. In the context of the present description, a 3D depth cue refers to an effect, manipulation, transformation, animation, or operation which gives a visual indication of simulated depth. For example, in one embodiment, a 3D depth cue may be a blur operation, such that layers located at successively greater depths may appear blurrier than those closer to the user.

EX1001, 68:25–33 (cited at POR, 2, 22; Sur-Reply, 11)

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

Pressure cursor is not in the alleged second virtual display layer *with the markings* (instead appears above the Zlider working area and Vernier)



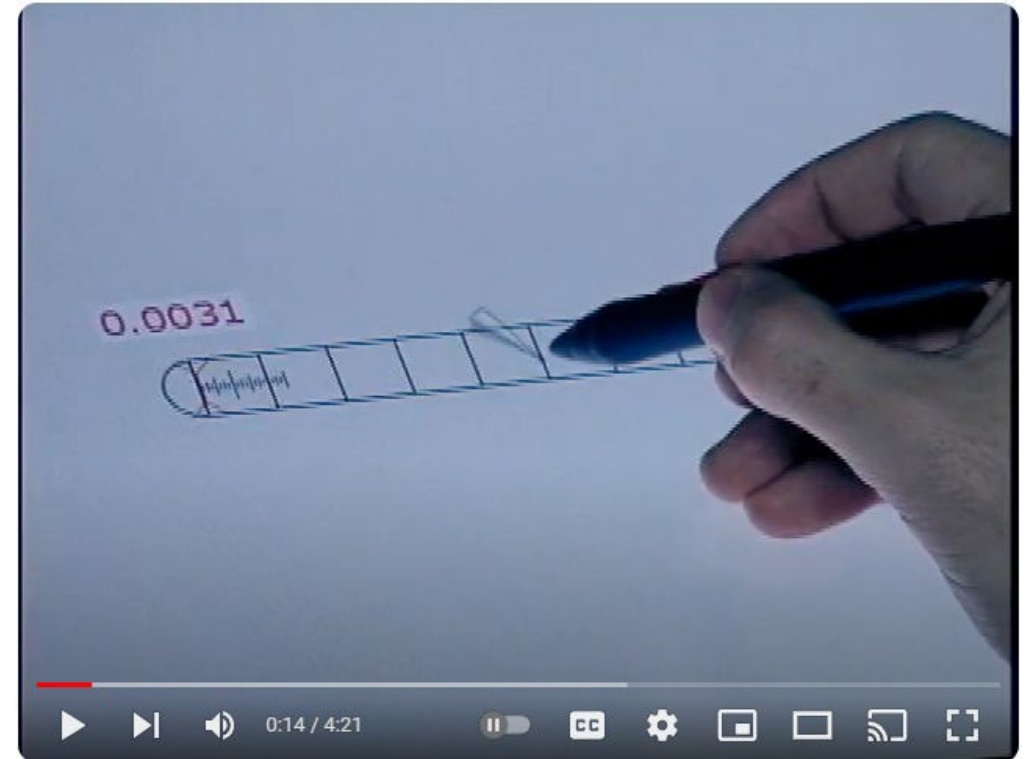
Ramos Paper

“Though not integral to the Zlider design, we use a pressure cursor (Figure 2) across our implementations, instead of the default cursor found in most GUIs.”

EX1004, 3 (cited in Sur-Reply, 11)



Ramos Video – Pressure cursor with shadow



EX1005, 0:14 (cited in POR, 29); POR, 28–32; Sur-Reply, 11–12

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

Petitioner sub-component theory contradicts the '580 Patent and Ramos.



Petitioner's Theory 1

"[A] POSITA would have understood that the Zlider—including its components—are in the same virtual display layer."

[Reply, 14](#)

"To separate these components of the Zlider or consider them otherwise located on different "planes" would be counter to the overall idea that these are simply parts of a whole widget."

[Reply, 15–16](#)



Dr. Cockburn's Supplemental Declaration

"A POSITA would have understood that when user interface widgets, such as the Zlider, are placed within a graphical user interface, they exist within a single layer of that interface. This is the case even when a widget consists of multiple sub-components that are drawn using a particular placement order such that some subcomponents appear on top of others."

[EX1032, ¶29 \(cited in Reply, 15\)](#)



Ramos Paper

"Though not integral to the Zlider design, we use a pressure cursor (Figure 2) across our implementations, instead of the default cursor found in most GUIs."

[EX1004, 3 \(cited in Sur-Reply, 11\)](#)

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

Dependent claim 21's open language does not require or permit multiple layers; cannot expand meaning beyond the '580 Patent's clear single layer requirement



Petitioner's Theory 1

“Notably, the '580 Patent's claim 21 (dependent on claim 1) explicitly describes scenarios where the second virtual display layer comprises more than one layer. For instance, claim 21 recites “the second virtual display layer includes **at least one of**: an operation layer, an emphasis layer, or a clipboard layer,” thus contemplating the second virtual display layer including multiple layers.

[Reply, 18](#)



Phillips v. AWH

“Claim language must always be read in view of the specification, of which they are a part.”

Phillips v. AWH, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc)
(cited in Sur-Reply, 11 n.1)



Retractable Techs. v. Becton Dickinson

“In addition, the asserted claims lack language that limits the needle holder or the retainer member to elements that are “made of” one piece. Ultimately, the inventor's statement, on its own, lacks the clarity required to exclude from the scope of the claims a needle holder and a retainer member that form distinct portions of a single structure..”

Retractable Techs. v. Becton Dickinson,
653 F.3d 1296, 1304–05 (Fed. Cir. 2011)
(cited in Sur-Reply, 11 n.1)

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

First Theory fails because the cursor is not in the same display layer as the markings.

Claim 1 (and Claims 22 and 58)

1. An electronic device comprising:

...

[1.h] when an aspect of the touch is detected to surpass a threshold, display, via the touch screen, a plurality of markings in a second virtual display layer that appears to have a lesser depth than the first virtual display layer,

[1.i] where at least a portion of the second virtual display layer is at least partially translucent so that at least a portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer

...



Petitioner's Theory 1 (Zlider Adjacent)

Underlying image

Pressure cursor of Zlider overlaying the underlying image

Contents

Working area

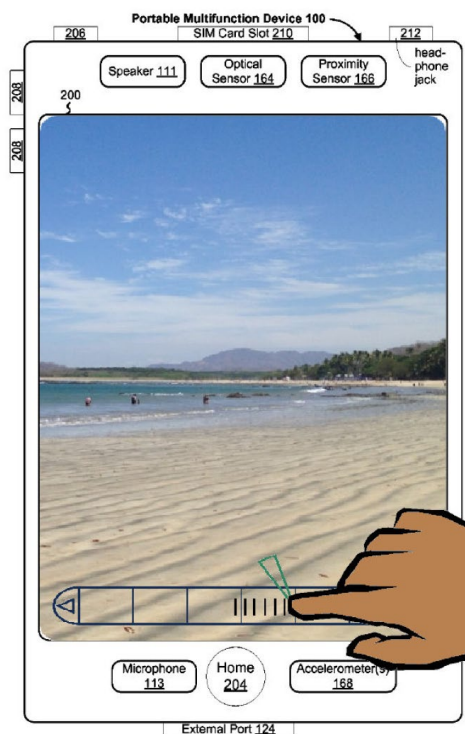
Zlider

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

Second Theory fails to identify any credible motivation to combine in the alleged way.



Petitioner's Theory 2 (Zlider Overlay)



1. Petition identifies no reason to move Zlider working area from being adjacent to content to being on top of content

2. Petition invokes semitransparency on Zlider to reduce “intrusive” “obstruction” caused by moving Zlider on top of content

Pet., 59 (citing EX1006, FIG. 2 (modified) with Ramos Zlider)

POR, 17–21; Sur-Reply, 5–10

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

Petition does not provide any credible motivation to combine Ording to (1) move the Zlider on top of content and (2) then make the Zlider semitransparent



“First, Ording offers foundational hardware (including processor and memory) for implementing a widget,”

Pet., 31–32 (citing EX1006, [0030], [0047]); *POR*, 12; *Sur-Reply*, 3–4



“Second, Ording teaches the use of various applications configured to use a widget in the RROD, including “an e-mail application,” “a photo management application, a digital camera application, a digital video camera application, a web browsing application,” and “a digital video player application.”

Pet., 32 (citing EX1006, [0027]); *POR*, 12; *Sur-Reply*, 3–4



“Third, Ording further explicitly teaches providing “user interfaces that are intuitive and transparent,” such as a “virtual click wheel” that can be a “semitransparent object.””

Pet., 32 (citing EX1006, [0028], [0045]); *POR* 12–14; *Sur-Reply*, 4–5

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

Ording does not generally teach user interfaces that are *optically* transparent



“Third, Ording further explicitly teaches providing “user interfaces that are intuitive and transparent,” such as a “virtual click wheel” that can be a “semitransparent object.””

Pet., 32 (citing EX1006, [0028], [0045]); POR 12–14; Sur-Reply, 4–5



Ording

“The various applications that may be executed on the device may use at least one common physical user-interface device, such as the touch screen. One or more functions of the touch screen as well as corresponding information displayed on the device may be adjusted and/or varied from one application to the next and/or within a respective application. In this way, a common physical architecture (such as the touch screen) of the device may support the variety of applications with user interfaces that are intuitive and transparent.”

EX1006, [0028] (cited in POR, 12–14; Sur-Reply, 4–5)

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

Ording's single mention of a transient virtual click wheel that may be semitransparent is not a credible motivation to move the Zlider over the content and make it translucent



“In some embodiments, the device 100 may include a physical or virtual click wheel as an input control device 116. A user may navigate among and interact with one or more graphical objects (henceforth referred to as icons) displayed in the touch screen 112 by rotating the click wheel or by moving a point of contact with the click wheel (e.g., where the amount of movement of the point of contact is measured by its angular displacement with respect to a center point of the click wheel). The click wheel may also be used to select one or more of the displayed icons.

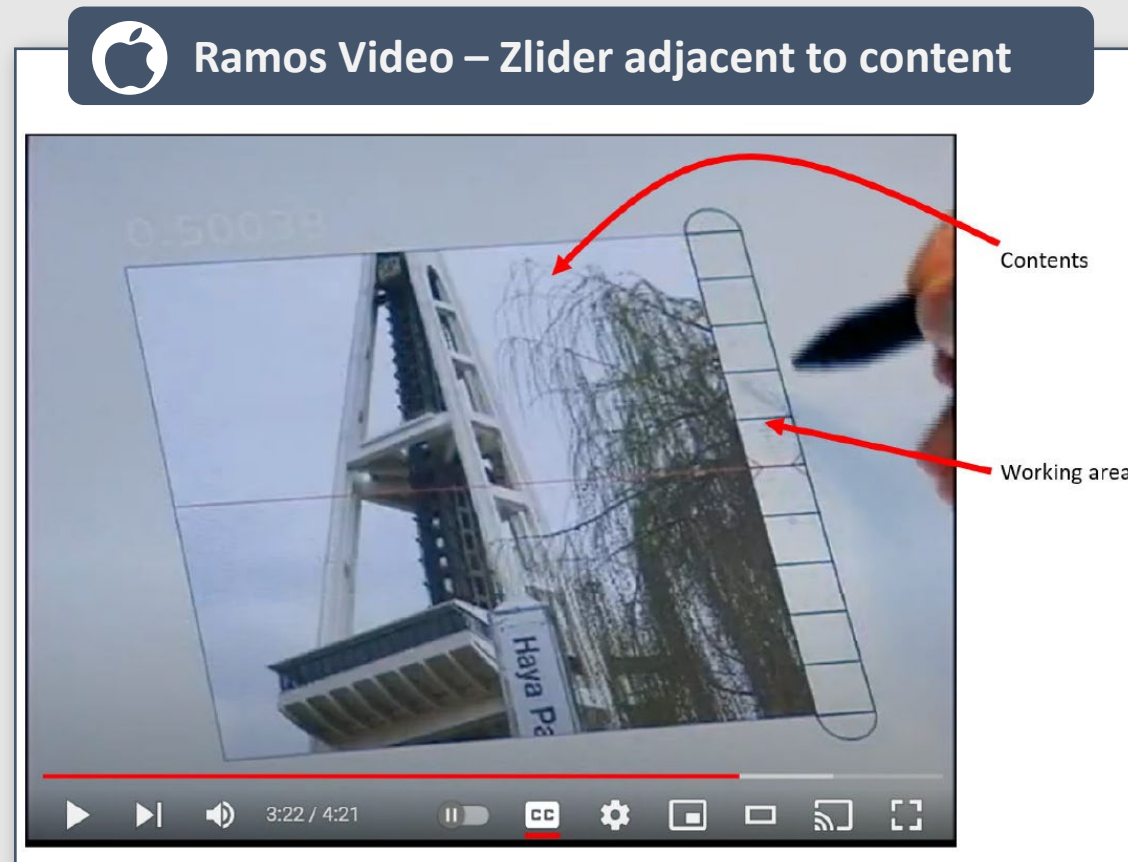
...

For a virtual click wheel, the click wheel may be either an opaque or semitransparent object that appears and disappears on the touch screen display in response to user interaction with the device. In some embodiments, a virtual click wheel is displayed on the touch screen of a portable multifunction device and operated by user contact with the touch screen.”

EX1006, [0045] (cited in POR, 14–15)

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

Ramos Paper and Ramos Video do not allow the Zlider working area with Vernier to obstruct the content



POR, 22–23 (citing EX1005, 3:22 (annotated)); Sur-Reply, 5, 13

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

Despite implicitly conceding that it would be **intrusive** and **obstruct** the content, Petitioner identifies no reason or benefit for moving the Zlider *on top of* the content



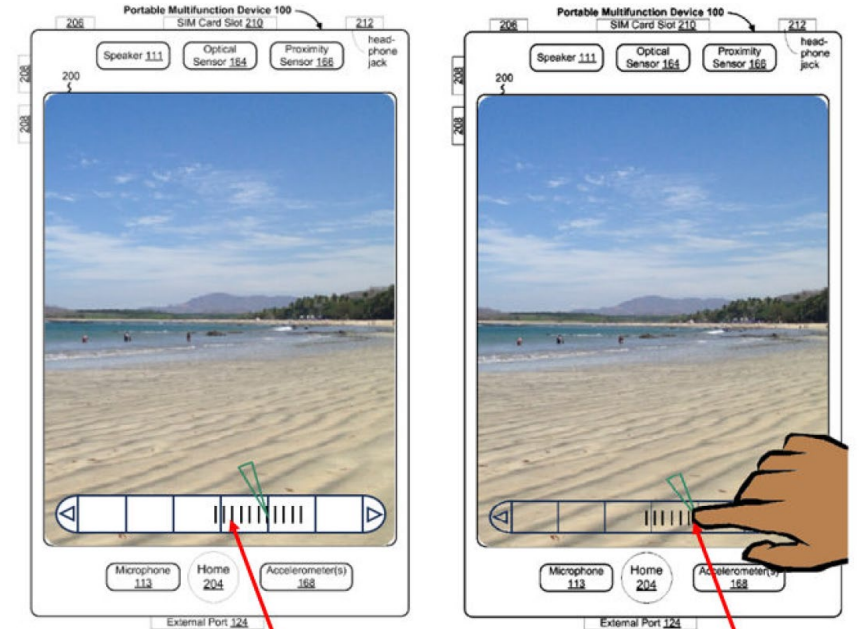
Petitioner's Theory 2

“Moreover, a POSITA would have found it obvious to modify the Zlider (if/as needed) to **make it semitransparent and thus a “less intrusive,”** because increased transparency would minimize obstruction on image content. *Id.* For instance, a POSITA would have understood that, if only part of the Zlider is translucent (e.g., pressure cursor), **the working area of the Zlider would obstruct the underlying content** that is otherwise visible through the modified Zlider (Pet., 59), as illustrated below.”

Reply, 11–12



Petitioner's Theory 2



Reply, 11–12; Sur-Reply, 5–7

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

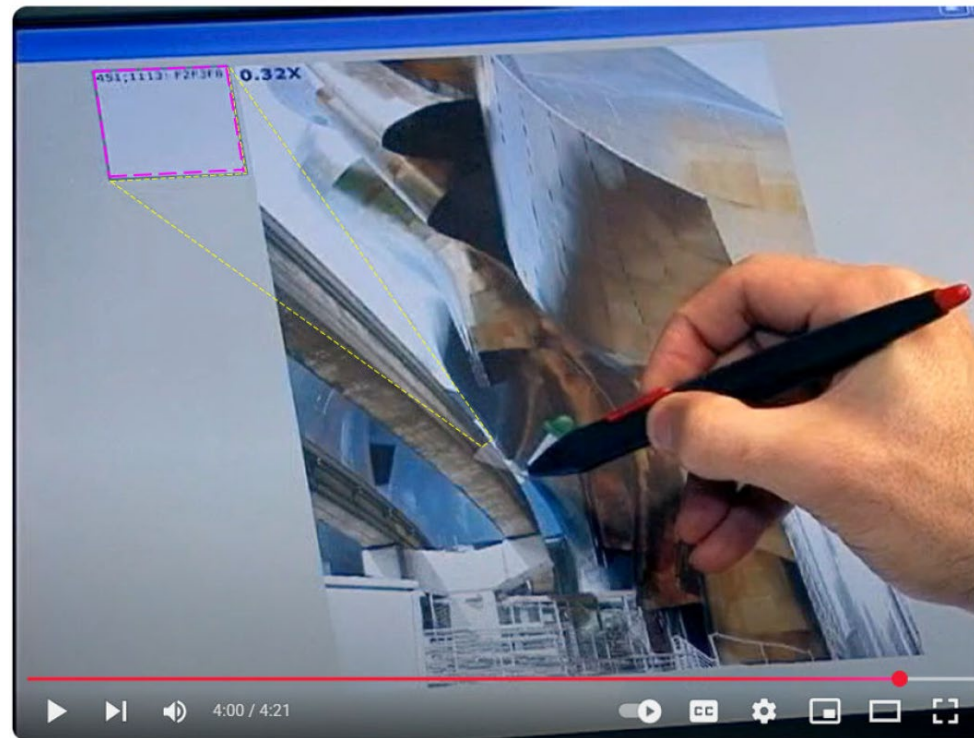
Petitioner's unmapped "alternative Zlider" eyedropper tool is not a disclosure of the mapped Zlider widget being displayed on top of content

No identified working area

No Vernier markings



Unmapped "Alternative Zlider"



Reply, 7–10 (citing EX1005, 4:00 (annotated)); Sur-Reply, 8

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

A translucent widget degrades core function of Zlider



Opaque, clearly visible, contrasting



EX1005, 3:16 (cited in POR, 16, 18; Sur-Reply, 7–8)



On content, translucent, variable visibility



EX1005, 3:16 (modified) (cited in POR, 18–20; Sur-Reply 7–8)

Ground 1A: Limitations [1.h], [1.i], [22.d], and [58.c]

Second Theory fails to identify any credible motivation to combine in the alleged way.

Claim 1 (and Claims 22 and 58)

[1.h] when an aspect of the touch is detected to surpass a threshold, display, via the touch screen, a **plurality of markings in a second virtual display layer** that appears to have a lesser depth than the first virtual display layer,

[1.i] where at least a portion of the second virtual display layer is **at least partially translucent** so that at least a portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer



Petitioner's Theory 2 (Zlizer Overlay)



'580 Patent Overview

Prior Art Overview

Ground 1A (Ramos-Ramos-Ording)

- [1.h], [1.i], [22.d], and [58.c]: no semi-transparent second virtual display layer
- [1.h], [22.d], and [58.c]: “no touch” is not an “aspect of touch”
- [1.l], [22.g], and [58f]: zoom operation is performed on the markings
- Claims 29 and 65: no “single continuous gesture with constant contact”
- Claims 9, 32, and 69: no credible theory to add duration magnitude threshold

Ground 1B (Ramos-Ramos-Ording-Hayward)

Ground 1A: Limitations [1.h], [22.d], and [58.c]

RROD's stylus hover is not an “aspect of a touch” “detected to surpass a threshold”



Claim 1 (and Claim 22 and 58)

[1.g] **detect**, via the touch screen, ***at least a portion of touch*** on the least one user interface element;

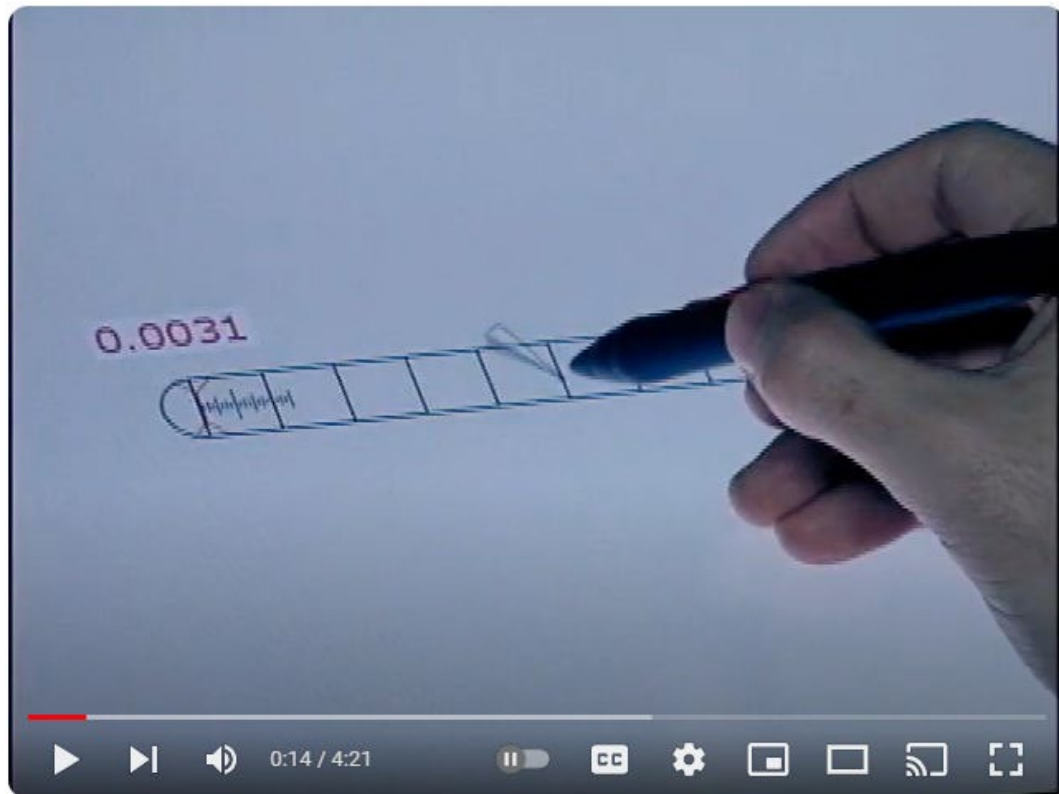
[1.h] when an ***aspect of the touch*** is detected to surpass a threshold, display, via the touch screen, a plurality of markings in a second virtual display layer that appears to have a lesser depth than the first virtual display layer,

Ground 1A: Limitations [1.h], [22.d], and [58.c]

Petition relies on Ramos' display of the Vernier when the stylus hovers—not on contact.



Ramos Video – Vernier appears on hover



EX1005, 0:14 (cited in Pet., 52)



Petitioner's Theory

“As discussed above for [1.g], Ramos Paper and Ramos Video similarly teach or suggest the use of a threshold associated with a detected aspect of a touch: when an aspect of the touch is detected to surpass a threshold (i.e., the signals associated with the hover threshold described further below) when using the Zlider, the Vernier is displayed on the touchscreen.”

Pet., 50 (citing EX1003, ¶185)

“A POSITA would have understood or found obvious that the tracking state is activated when signals from the stylus exceed a threshold (i.e., the stylus is close enough to the touch surface to be registered as movement near the surface).”

EX1003, ¶185

Ground 1A: Limitations [1.h], [22.d], and [58.c]

A “touch event” requires “contact with an interaction surface”—hovering is not contact



'580 Patent — “touch event”

“In the context of the present description, a touch event refers to an event in which an implement of interaction comes into contact with an interaction surface. For example, in one embodiment, pressing on a pressure-sensitive backtouch interface with a finger may be a touch event. Another example may be making contact with a touch-sensitive display with a stylus.”

EX1001, 52:48–50 (cited at POR, 41; Sur-Reply, 17)

Ground 1A: Limitations [1.h], [22.d], and [58.c]

“No touch” is the absence of a detected touch.



'580 Patent

“For example, in one embodiment, contact pressure levels may be represented as one of four predefined touch states: no touch, light touch, medium touch, and heavy touch. As an option, the lowest touch state may require some form of proximity.”

EX1001, 17:25–29 (cited in Reply, 25); POR, 40–41



'580 Patent

“For example, in one embodiment, the lower boundary 1306 of the lowest touch state (e.g., the touch state associated with the lowest contact pressures) may be displayed.”

EX1001, 47:36–38 (cited in Sur-Reply, 17)

“In the context of the present description, contact pressure is the pressure associated with one or more contact points or contact areas, the pressure being exerted on an interaction surface.”

EX1001, 16:14–17 (cited in Sur-Reply, 17)

'580 Patent Overview

Prior Art Overview

Ground 1A (Ramos-Ramos-Ording)

- [1.h], [1.i], [22.d], and [58.c]: no semi-transparent second virtual display layer
- [1.h], [22.d], and [58.c]: “no touch” is not an “aspect of touch”
- [1.l], [22.g], and [58f]: **zoom operation is performed on the markings**
- Claims 29 and 65: no “single continuous gesture with constant contact”
- Claims 9, 32, and 69: no credible theory to add duration magnitude threshold

Ground 1B (Ramos-Ramos-Ording-Hayward)

Ground 1A: Limitations [1.l], [22.g], and [58f]

RROD's "zoom operation" is performed on the Zlider markings.



Claim 1 (and Claims 22 and 58)

[1.l] perform a zoom operation on the at least portion of the contents of the first virtual display layer **without performing the zoom operation on the plurality of markings** in the second virtual display layer, where the zoom operation correlates with the movement of the markings in the second virtual display layer, and the at least portion of the second virtual display layer is at least partially translucent so that a result of the zoom operation on the at least portion of the contents of the first virtual display layer is visible through the at least portion of the second virtual display layer.

Ground 1A: Limitations [1.l], [22.g], and [58f]

Petitioner's implied construction of “zoom operation” is overly narrow



Petitioner's Theory

“The two-dimensional image magnification function applied to the image in the Ramos Video is not applied to the Vernier.”

Pet., 69



Petitioner's Theory

“Thus, any change in scale of the Vernier is not the “zooming” function applied to the content.”

Pet., 70

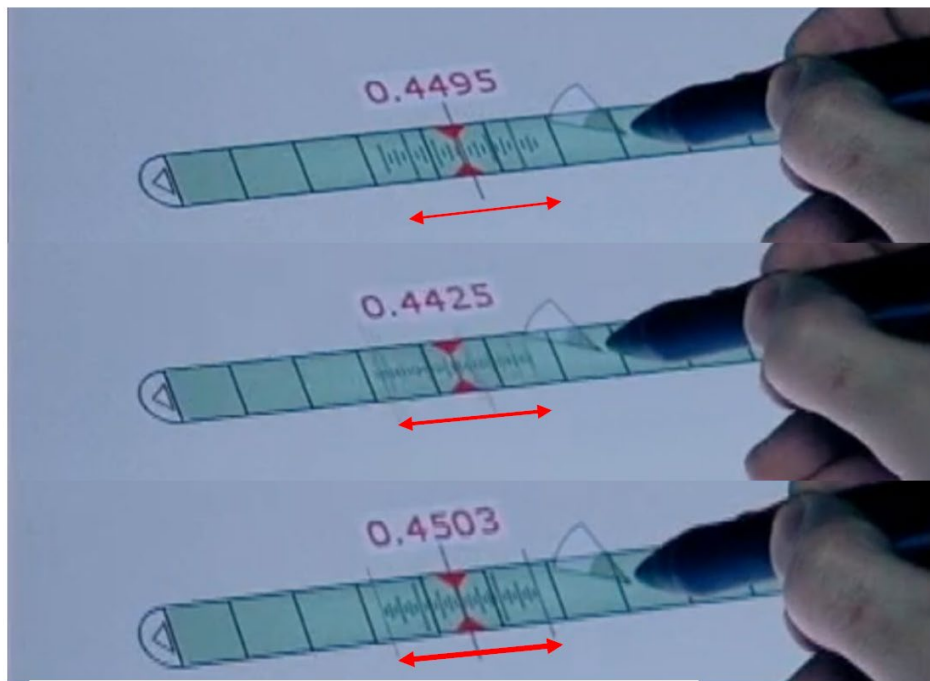
Ground 1A: Limitations [1.l], [22.g], and [58f]

Vernier scales or zooms in lockstep with the content—it is the same “zoom operation”



Vernier scaling during the zoom operation

The markings progressive expand as the user zooms in.



EX1005, 0:20-0:23 (Ramos Video) (annotated)



Dr. Mahon Declaration

“As shown above, as the user performs a zoom operation on the working area the zoom operation also occurs on the plurality of markings as seen in the video by the plurality of markings expanding—i.e., appearing to get closer to the user—as can be seen when viewing the video.”

EX2012, ¶112 (cited in POR, 37; Sur-Reply, 15)

POR, 37 (citing EX1005, 0:20–0:23 (annotated)); Sur-Reply, 14–15

Ground 1A: Limitations [1.l], [22.g], and [58f]

Zooming is a change in the apparent distance from the observer



Webster's Dictionary ("zoom")

"3a: to focus a camera or microscope on an object using a zoom lens so that **the object's apparent distance from the observer changes**—often used with *in* or *out*

b: FOCUS, ZERO—used with *in* <trying to zoom in on the cause of these problems>"

EX1009 (cited in POR, 38; Sur-Reply, 15)



Dr. Mahon Declaration

"As shown above, as the user performs a zoom operation on the working area the zoom operation also occurs on the plurality of markings as seen in the video by **the plurality of markings expanding—i.e., appearing to get closer to the user**—as can be seen when viewing the video."

EX2012, ¶112 (cited in POR, 37; Sur-Reply, 15)

Ground 1A: Limitations [1.l], [22.g], and [58f]

Ramos uses “zoom” to refer to the manipulation of scale or adjusting the granularity of the parameter space



Ramos Paper

“This paper introduces the notion of Zoom Sliding, or *Zliding*, for fluid integrated **manipulation of scale (zooming)** via pressure input while parameter manipulation within that scale is achieved via x-y cursor movement (sliding).”

EX1004, 1 (cited in POR, 5; Sur-Reply, 15)



Ramos Paper

“In this paper, we propose and study a mechanism for use with pressure sensitive input devices, called Zoom Sliding, or *Zliding* for short, in which users use the pressure modality to fluidly and **explicitly zoom or adjust the granularity of the parameter space**, while *sliding* or dragging the input device to perform high precision parameter manipulation within that zoomed parameter space.”

EX1004, 1 (cited in POR, 54–55, Sur-Reply, 15)

'580 Patent Overview

Prior Art Overview

Ground 1A (Ramos-Ramos-Ording)

- [1.h], [1.i], [22.d], and [58.c]: no semi-transparent second virtual display layer
- [1.h], [22.d], and [58.c]: “no touch” is not an “aspect of touch”
- [1.l], [22.g], and [58f]: zoom operation is performed on the markings
- **Claims 29 and 65: no “single continuous gesture with constant contact”**
- Claims 9, 32, and 69: no credible theory to add duration magnitude threshold

Ground 1B (Ramos-Ramos-Ording-Hayward)

Ground 1A: Claims 29 and 65

RROD does not disclose a “single continuous gesture with constant contact”



Claim 29 (and Claim 65)

- 29.** The method of claim 23, wherein the touch and the another touch are detected to be part of **a single continuous gesture with constant contact** with the electronic device.
- 65.** The non-transitory computer readable storage medium of claim 58, wherein the one or more programs include instructions which, when executed by the electronic device, cause the electronic device to operate such that: the touch and the another touch are detected to be part of **a single continuous gesture with constant contact** with the electronic device.

Ground 1A: Claims 29 and 65

**The Petition identified two separate inputs:
(1) the stylus hovering and (2) the stylus moving on touch screen**



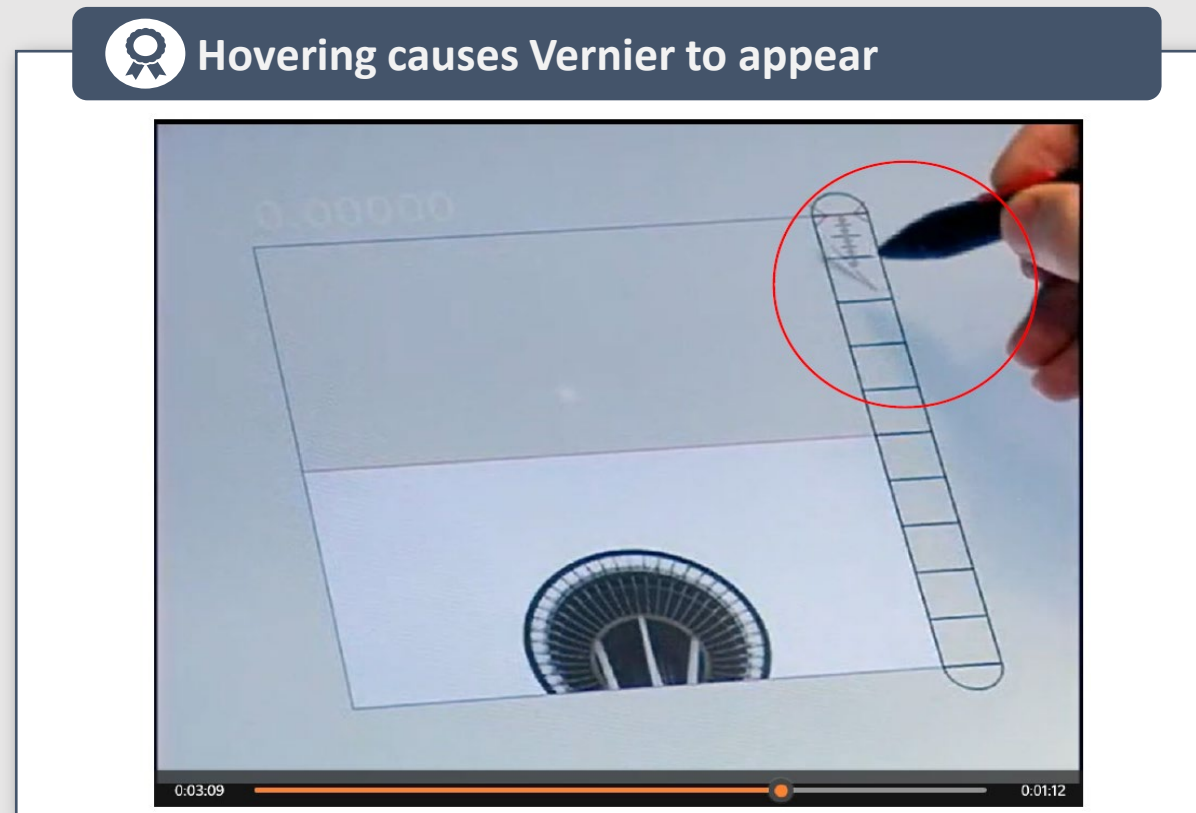
Petition

“The RROD renders obvious [7]. APPLE-1003, ¶112. The Ramos Video shows the user making a single continuous touch movement that includes the user moving a stylus within proximity of the touch screen (causing display of the Vernier on the working area), and continue moving on the touchscreen along the Zlider and during the continuous touch movement, both the markings are displayed and the zoom operation is performed, as discussed with respect to [1.h] and [1.j]- [1.k]. APPLE-1003, ¶112; APPLE-1005, 3:07-3:22.”

[Pet., 80 \(cited by reference at Pet., 90\)](#)

Ground 1A: Claims 29 and 65

**If hovering is “an aspect of the touch,”
Petition presents no evidence that hovering is contact, let alone “constant contact”**



POR, 50–51 (citing EX1005 (annotated)); Sur-Reply, 20–22

'580 Patent Overview

Prior Art Overview

Ground 1A (Ramos-Ramos-Ording)

- [1.h], [1.i], [22.d], and [58.c]: no semi-transparent second virtual display layer
- [1.h], [22.d], and [58.c]: “no touch” is not an “aspect of touch”
- [1.l], [22.g], and [58f]: zoom operation is performed on the markings
- Claims 29 and 65: no “single continuous gesture with constant contact”
- **Claims 9, 32, and 69: no credible theory to add duration magnitude threshold**

Ground 1B (Ramos-Ramos-Ording-Hayward)

Ground 1A: Claims 9, 32, and 69

RROD does not disclose a “duration aspect” or “duration magnitude threshold”



Claim 9 (and Claims 32 and 69)

9. The apparatus of claim 1, wherein the apparatus is configured such that the aspect of the touch includes a ***duration aspect*** and the threshold includes a ***duration magnitude threshold***.

Ground 1A: Claims 9, 32, and 69

The Ramos Paper and Ramos Video do not disclose or mention use of duration for touches



Dr. Cockburn Testimony

· · · Q. · There is no express disclosure in the Ramos paper that describes the Zlider using duration to determine whether the touch from the user is intentional or not; correct?

· · · A. · If by express disclosure you mean explicit disclosure, there's no explicit mention of the use of time thresholds to ignore inadvertent contacts.

EX2008, 17:16–23 (cited in POR, 53)

Ground 1A: Claims 9, 32, and 69

Petition relies on Ording for a motivation to use duration to determine whether the touch is intentional and identify the type of gesture



Petition

“[A] POSITA would have found recognized or at least found obvious, based on Ording, that a touch has at least a duration and a length that are used to determine whether the touch is intentional and identify the type of gesture. APPLE-1003, ¶114; §IV.A.5. Indeed, Ording recognizes a “time period” associated with a finger’s contact with a touch screen, and using such information to identify a touch was well known by the Critical Date. APPLE-1003, ¶114; APPLE-1004, [0141]; see APPLE-1020, [0033] (“ignore or reject any touches that have a duration that is less than a predetermined minimum amount of time”).”

Pet., 81–82



Ording

“In some embodiments, for a stationary finger contact with the display, its finger contact area is defined as the maximum contact area of the finger with the touch screen display during a time period corresponding to the stationary contact.”

EX1006, [0141] (cited by Pet., 81)

Ground 1A: Claims 9, 32, and 69

Hovering proximity (alleged “aspect of the touch”) already indicates if touch is intentional.



Dr. Mahon Declaration

“Instead, the Zlider uses proximity to sense whether the stylus is approaching the working area (i.e., moving the stylus past a threshold and closer to the working area “activates” the Zlider, thus signaling that the user has an intention to interact with the Zlider). Nor does the Zlider look at any “time period” associated with the touch to identify a touch.”

EX2012, ¶145 (cited in POR, 53; Sur-Reply, 22–23)



Dr. Mahon Declaration

“Thus, as the Zlider is not concerned with the touch surpassing a time threshold to determine whether the touch is intentional, a POSITA would not look to Ording (or any other reference) that discusses a “time period” associated with a gesture to incorporate functionality not contemplated by the Zlider in the Ramos Paper and the Ramos Video.”

EX2012, ¶146 (cited in POR, 53; Sur-Reply, 22–23)

'580 Patent Overview

Prior Art Overview

Ground 1A (Ramos-Ramos-Ording)

Ground 1B (Ramos-Ramos-Ording-Hayward)

Ground 1B: Hayward



Hayward's Gesture Mapping

Figure 10A

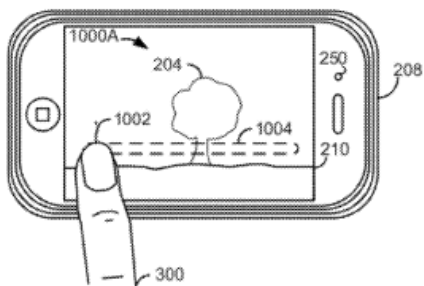


Figure 10B

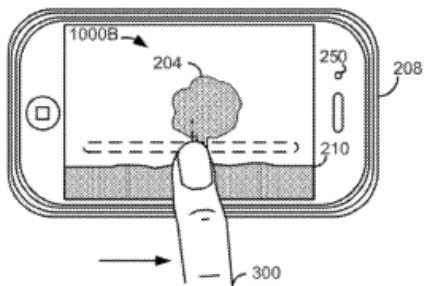
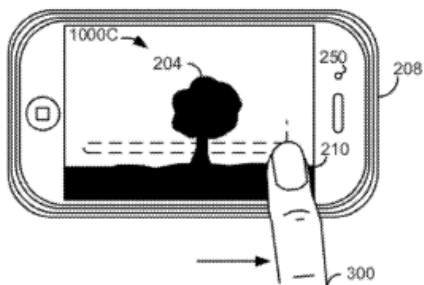


Figure 10C



EX1016, FIGS. 10A–10C (cited in Pet., 95)



Hayward's Gesture Mapping

“Accordingly, there is a need for techniques to implement a programmatic interface to map particular user interactions, e.g., gestures, to the input parameters of various image processing routines, e.g., image filters, in a way that provides a seamless, dynamic, and intuitive experience for both the user and the client application software developer.”

EX1016, [0067] (cited in POR, 55–56; Sur-Reply, 24)



Ground 1B: No Credible Motivation to Combine

Petition's motivation ignores Hayward's focus on mapping location-agnostic touch gestures



"A POSITA would have found it obvious to improve RROD by using its slider to modify parameters, such as the contrast in an image."

Pet., 96; POR, 54



"A POSITA would have found it obvious to modify the RROD with Hayward's teachings to include a separate widget (as taught by Ramos Paper and Ramos Video) for use in adjusting exposure levels (as taught by Hayward) when using a camera applications/camera module, as described in Ording."

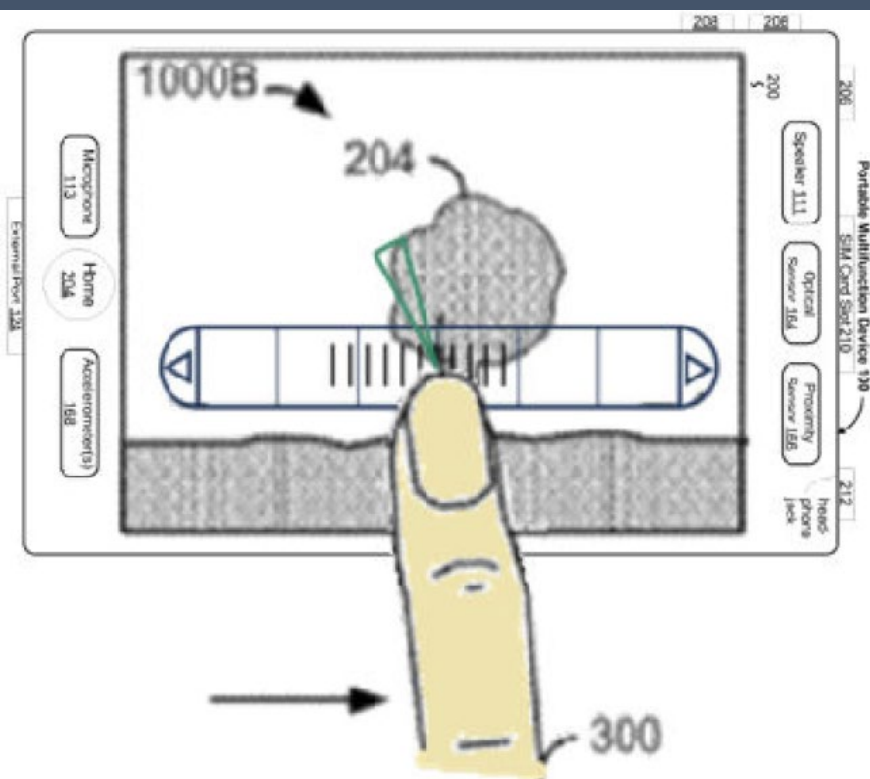
Pet., 97; POR, 54

Ground 1B: No Credible Motivation to Combine

Hayward's location-independent gesture input is *incompatible* with the Zlider's high-precision, location-specific, pointer-driven widget



Petition's RROHD Composite



Pet., 97–99; POR, 55–56; Sur-Reply, 23–25



Hayward's Location-Agnostic Gestures

“In FIG. 10A, the finger of user 300 initiates a touch gesture with the left hand side of touch screen 210. As FIGS. 10A-10C are meant to illustrate a relative gesture, the location that the user 300 selects for his or her initial contact with the touch screen is not important to the determination of the value that will ultimately be sent to the input parameter of the selected image contrast image filer.”

EX1016, [0067] (cited in Sur-Reply, 24)