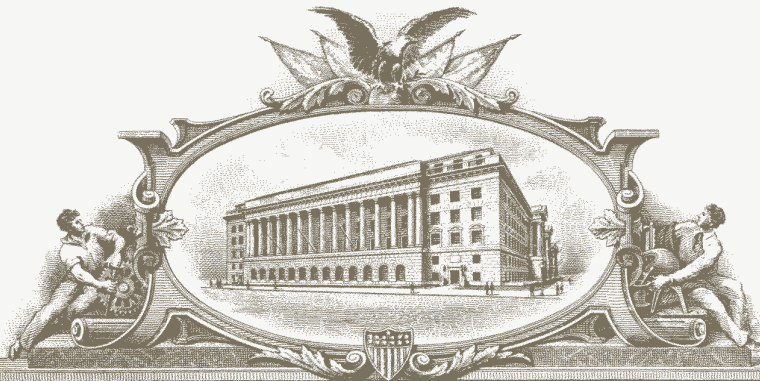


# Exhibit U

U 7293220



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**U.S. PATENT: 7,844,915  
ISSUE DATE: November 30, 2010**

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Under Secretary of Commerce for Intellectual Property  
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**P. SWAIN  
Certifying Officer**



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(12) **United States Patent**  
**Platzer et al.**

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(45) **Date of Patent:** **Nov. 30, 2010**

- (54) **APPLICATION PROGRAMMING INTERFACES FOR SCROLLING OPERATIONS**

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- (75) **Inventors:** **Andrew Platzer**, Santa Clara, CA (US);  
**Scott Herz**, Santa Clara, CA (US)
- (73) **Assignee:** **Apple Inc.**, Cupertino, CA (US)
- (\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 583 days.

(Continued)

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- (21) **Appl. No.:** **11/620,717** EP 1517228 3/2005
- (22) **Filed:** **Jan. 7, 2007**

- (65) **Prior Publication Data**  
US 2008/0168384 A1 Jul. 10, 2008

(Continued)

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- (51) **Int. Cl.**

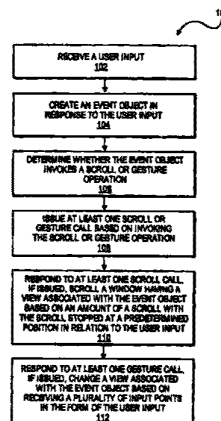
<b>G06F 3/00</b>	(2006.01)	Toshiyuki Masui et al; "Elastic Graphical Interfaces for Precise Data Manipulation", 1995; ACM; pp. 143-144.*
<b>G06F 3/033</b>	(2006.01)	
<b>G06F 3/041</b>	(2006.01)	
<b>G06F 3/048</b>	(2006.01)	
- (52) **U.S. Cl.** ..... **715/781; 715/784; 715/800; 345/173**  
*Primary Examiner*—Xiomara L. Bautista
- (58) **Field of Classification Search** ..... **715/764, 715/765, 784, 786, 788, 800, 864, 866, 973, 715/974; 345/156, 157, 169, 173**  
*(74) Attorney, Agent, or Firm*—Blakely, Sokoloff, Taylor & Zafman LLP
- (57) **ABSTRACT**

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At least certain embodiments of the present disclosure include an environment with user interface software interacting with a software application. A method for operating through an application programming interface (API) in this environment includes transferring a set bounce call. The method further includes setting at least one of maximum and minimum bounce values. The set bounce call causes a bounce of a scrolled region in an opposite direction of a scroll based on a region past an edge of the scrolled region being visible in a display region at the end of the scroll.

**21 Claims, 37 Drawing Sheets**



Pages Intentionally Omitted

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embodiment, the library of the framework provides an API for specifying a scroll indicator operation to determine whether at least one scroll indicator attaches to a content edge or a display edge of a display region.

In the foregoing specification, the disclosure has been described with reference to specific exemplary embodiments thereof. It will be evident that various modifications may be made thereto without departing from the broader spirit and scope of the disclosure as set forth in the following claims. The specification and drawings are, accordingly, to be regarded in an illustrative sense rather than a restrictive sense.

What is claimed is:

1. A machine implemented method for scrolling on a touch-sensitive display of a device comprising:
  - receiving a user input, the user input is one or more input points applied to the touch-sensitive display that is integrated with the device;
  - creating an event object in response to the user input;
  - determining whether the event object invokes a scroll or gesture operation by distinguishing between a single input point applied to the touch-sensitive display that is interpreted as the scroll operation and two or more input points applied to the touch-sensitive display that are interpreted as the gesture operation;
  - issuing at least one scroll or gesture call based on invoking the scroll or gesture operation;
  - responding to at least one scroll call, if issued, by scrolling a window having a view associated with the event object based on an amount of a scroll with the scroll stopped at a predetermined position in relation to the user input; and
  - responding to at least one gesture call, if issued, by scaling the view associated with the event object based on receiving the two or more input points in the form of the user input.
2. The method as in claim 1, further comprising:
  - rubberbanding a scrolling region displayed within the window by a predetermined maximum displacement when the scrolling region exceeds a window edge based on the scroll.
3. The method as in claim 1, further comprising:
  - attaching scroll indicators to a content edge of the window.
4. The method as in claim 1, further comprising:
  - attaching scroll indicators to the window edge.
5. The method as in claim 1, wherein determining whether the event object invokes a scroll or gesture operation is based on receiving a drag user input for a certain time period.
6. The method as in claim 1, further comprising:
  - responding to at least one gesture call, if issued, by rotating a view associated with the event object based on receiving a plurality of input points in the form of the user input.
7. The method as in claim 1, wherein the device is one of: a data processing device, a portable device, a portable data processing device, a multi touch device, a multi touch portable device, a wireless device, and a cell phone.
8. A machine readable storage medium storing executable program instructions which when executed cause a data processing system to perform a method comprising:

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- receiving a user input, the user input is one or more input points applied to a touch-sensitive display that is integrated with the data processing system;
  - creating an event object in response to the user input;
  - determining whether the event object invokes a scroll or gesture operation by distinguishing between a single input point applied to the touch-sensitive display that is interpreted as the scroll operation and two or more input points applied to the touch-sensitive display that are interpreted as the gesture operation;
  - issuing at least one scroll or gesture call based on invoking the scroll or gesture operation;
  - responding to at least one scroll call, if issued, by scrolling a window having a view associated with the event object; and
  - responding to at least one gesture call, if issued, by scaling the view associated with the event object based on receiving the two or more input points in the form of the user input.
9. The medium as in claim 8, further comprising:
    - rubberbanding a scrolling region displayed within the window by a predetermined maximum displacement when the scrolled region exceeds a window edge based on the scroll.
  10. The medium as in claim 8, further comprising:
    - attaching scroll indicators to a content edge of the view.
  11. The medium as in claim 8, further comprising:
    - attaching scroll indicators to a window edge of the view.
  12. The medium as in claim 8, wherein determining whether the event object invokes a scroll or gesture operation is based on receiving a drag user input for a certain time period.
  13. The medium as in claim 8, further comprising:
    - responding to at least one gesture call, if issued, by rotating a view associated with the event object based on receiving a plurality of input points in the form of the user input.
  14. The medium as in claim 8, wherein the data processing system is one of: a data processing device, a portable device, a portable data processing device, a multi touch device, a multi touch portable device, a wireless device, and a cell phone.
  15. An apparatus, comprising:
    - means for receiving, through a hardware device, a user input on a touch-sensitive display of the apparatus, the user input is one or more input points applied to the touch-sensitive display that is integrated with the apparatus;
    - means for creating an event object in response to the user input;
    - means for determining whether the event object invokes a scroll or gesture operation by distinguishing between a single input point applied to the touch-sensitive display that is interpreted as the scroll operation and two or more input points applied to the touch-sensitive display that are interpreted as the gesture operation;
    - means for issuing at least one scroll or gesture call based on invoking the scroll or gesture operation;
    - means for responding to at least one scroll call, if issued, by scrolling a window having a view associated with the event object; and

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