

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

(10) **Patent No.:** **US 9,779,419 B2**
(45) **Date of Patent:** ***Oct. 3, 2017**

(54) **ACTIVATING DISPLAY AND PERFORMING USER AUTHENTICATION IN MOBILE TERMINAL WITH ONE-TIME USER INPUT**

(58) **Field of Classification Search**
CPC H04W 4/02; H04W 12/08; H04W 8/22;
H04W 52/027; H04W 12/06; H04M 1/67;
(Continued)

(71) Applicant: **FIRSTFACE CO., LTD.**, Seoul (KR)

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(73) Assignee: **FIRSTFACE CO., LTD.**, Seoul (KR)

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(Continued)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

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(21) Appl. No.: **14/848,191**

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(Continued)

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Related U.S. Application Data

(63) Continuation of application No. 14/538,880, filed on Nov. 12, 2014, now Pat. No. 9,179,298, which is a
(Continued)

(57) **ABSTRACT**

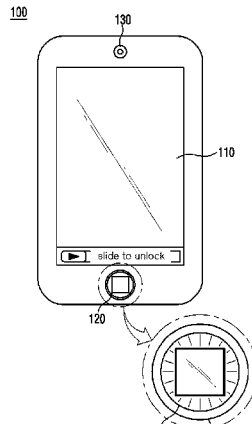
Disclosed is a mobile terminal including a touch screen display, a power button and an activation button for turning on the touch screen display. Upon detection of one-time pressing of the activation button while the touch screen display is turned off, the terminal is configured to turn on the touch screen display and perform a fingerprint authentication function in addition to turning on the touch screen display. The touch screen display displays a lock screen thereon as it is turned on in response to the detection of one-time pressing, and the lock screen is displayed on the touch screen display when the fingerprint authentication function is being performed. A lock state of the terminal continues when the fingerprint authentication function fails to authenticate a user, and the lock state is released for
(Continued)

Foreign Application Priority Data

Oct. 19, 2011 (KR) 10-2011-0106839

(51) **Int. Cl.**
H04M 1/00 (2006.01)
G06Q 30/02 (2012.01)
(Continued)

(52) **U.S. Cl.**
CPC **G06Q 30/0262** (2013.01); **G06F 3/04883** (2013.01); **G06F 21/32** (2013.01);
(Continued)



enabling other functions of the terminal when the fingerprint authentication function authenticates a user.

18 Claims, 5 Drawing Sheets

Related U.S. Application Data

continuation of application No. 14/058,761, filed on Oct. 21, 2013, now Pat. No. 8,918,074, which is a continuation of application No. 13/590,483, filed on Aug. 21, 2012, now Pat. No. 8,831,557.

(51) **Int. Cl.**

H04W 4/02 (2009.01)
H04M 1/67 (2006.01)
H04M 1/725 (2006.01)
H04W 8/22 (2009.01)
G06F 21/32 (2013.01)
H04W 12/06 (2009.01)
H04W 52/02 (2009.01)
G06F 3/0488 (2013.01)
G06K 9/00 (2006.01)
H04L 29/06 (2006.01)
H04W 12/08 (2009.01)
G06F 21/36 (2013.01)
G06F 21/62 (2013.01)
H04W 4/22 (2009.01)
H04W 88/02 (2009.01)

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

CPC *G06F 21/36* (2013.01); *G06F 21/62* (2013.01); *G06K 9/00006* (2013.01); *G06K 9/00087* (2013.01); *G06K 9/00221* (2013.01); *G06K 9/00597* (2013.01); *G06Q 30/0241* (2013.01); *G06Q 30/0261* (2013.01); *G06Q 30/0267* (2013.01); *G06Q 30/0269* (2013.01); *H04L 63/0861* (2013.01); *H04M 1/67* (2013.01); *H04M 1/7258* (2013.01); *H04M 1/72519* (2013.01); *H04W 4/02* (2013.01); *H04W 8/22* (2013.01); *H04W 12/06* (2013.01); *H04W 12/08* (2013.01); *H04W 52/027* (2013.01); *H04M 2250/12* (2013.01); *H04M 2250/52* (2013.01); *H04W 4/22* (2013.01); *H04W 88/02* (2013.01); *Y02B 60/50* (2013.01)

(58) **Field of Classification Search**

CPC H04M 1/7258; H04M 2250/52; H04M 1/72519; G06F 21/32
 USPC 455/411, 414.1, 420, 404.2, 410; 726/1, 726/16
 See application file for complete search history.

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FIG. 1

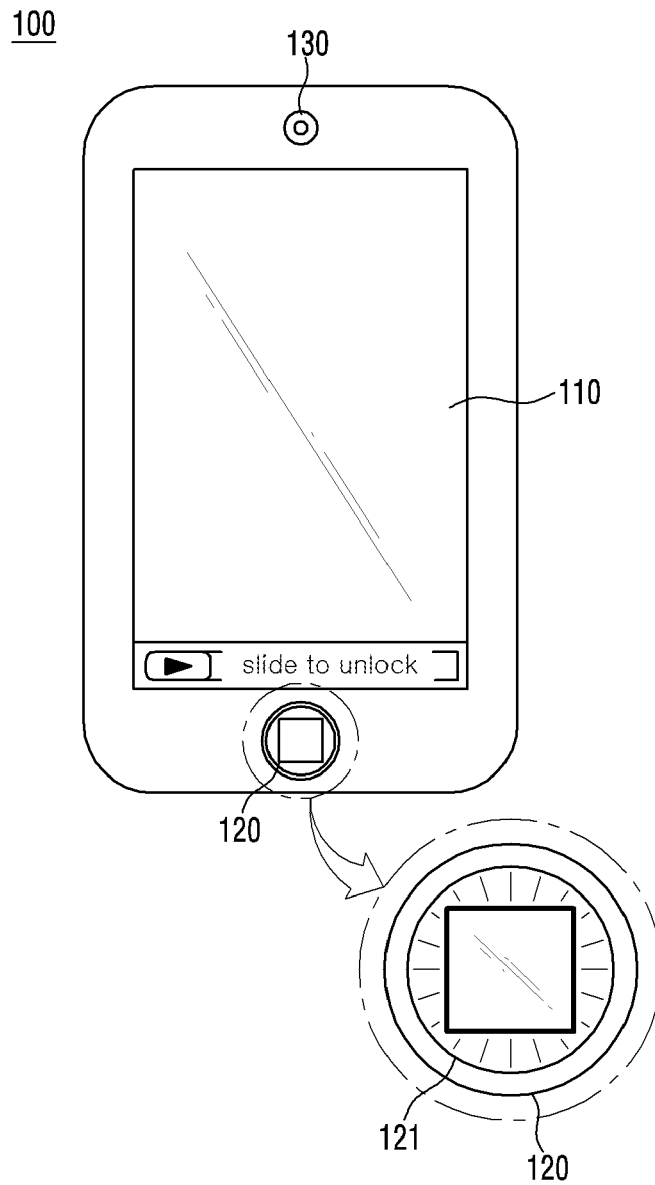
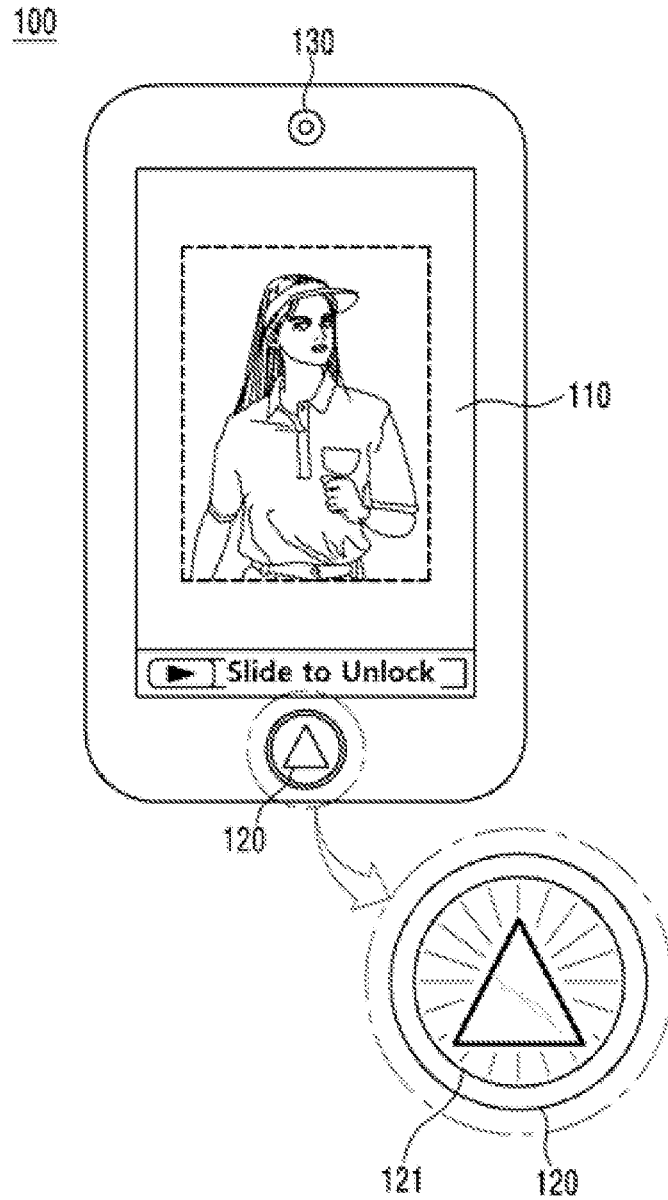


FIG. 2



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