



US00D839294S

(12) **United States Design Patent** (10) **Patent No.:** **US D839,294 S**  
**Mazlish et al.** (45) **Date of Patent:** **\*\* Jan. 29, 2019**

(54) **DISPLAY SCREEN WITH GRAPHICAL USER INTERFACE FOR CLOSED-LOOP MEDICATION DELIVERY**

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(\*\*) Term: **15 Years**

(21) Appl. No.: **29/607,911**

(22) Filed: **Jun. 16, 2017**

(51) **LOC (11) Cl.** ..... **14-04**

(52) **U.S. Cl.**  
USPC ..... **D14/486**

(58) **Field of Classification Search**  
USPC ..... D14/485–495  
CPC . A61B 5/02; A61B 8/46; A61M 5/172; G06F 19/34; G06F 19/3418; G06F 19/3406; G06F 3/048; G06F 3/0482; G06F 3/0485; G06F 3/0488; G06F 3/04847; G06T  
(Continued)

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

2,605,765 A 8/1952 Kollman  
3,886,938 A 6/1975 Szabo et al.  
4,077,405 A 3/1978 Haerten et al.

(Continued)

**FOREIGN PATENT DOCUMENTS**

CA 2543545 A1 5/2005  
DE 19627619 1/1998

(Continued)

**OTHER PUBLICATIONS**

Bhalla, Raveesh, Understanding Material Design Part II, Sep. 28, 2014, Medium.com [online], [site visited Apr. 11, 2018]. Available from Internet: <https://medium.com/@raveeshbhalla/understanding-material-design-cf2d60a16de3> (Year: 2014).\*

(Continued)

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(57) **CLAIM**

The ornamental design for a display screen with graphical user interface for closed-loop medication delivery, as shown and described.

**DESCRIPTION**

This application is a continuation-in-part of U.S. patent application Ser. No. 29/607,911, filed Jun. 16, 2017, pending, the disclosure of which is hereby incorporated herein in its entirety by this reference.

FIG. 1 is a front view of a display screen with graphical user interface for closed-loop medication delivery, showing the new design;

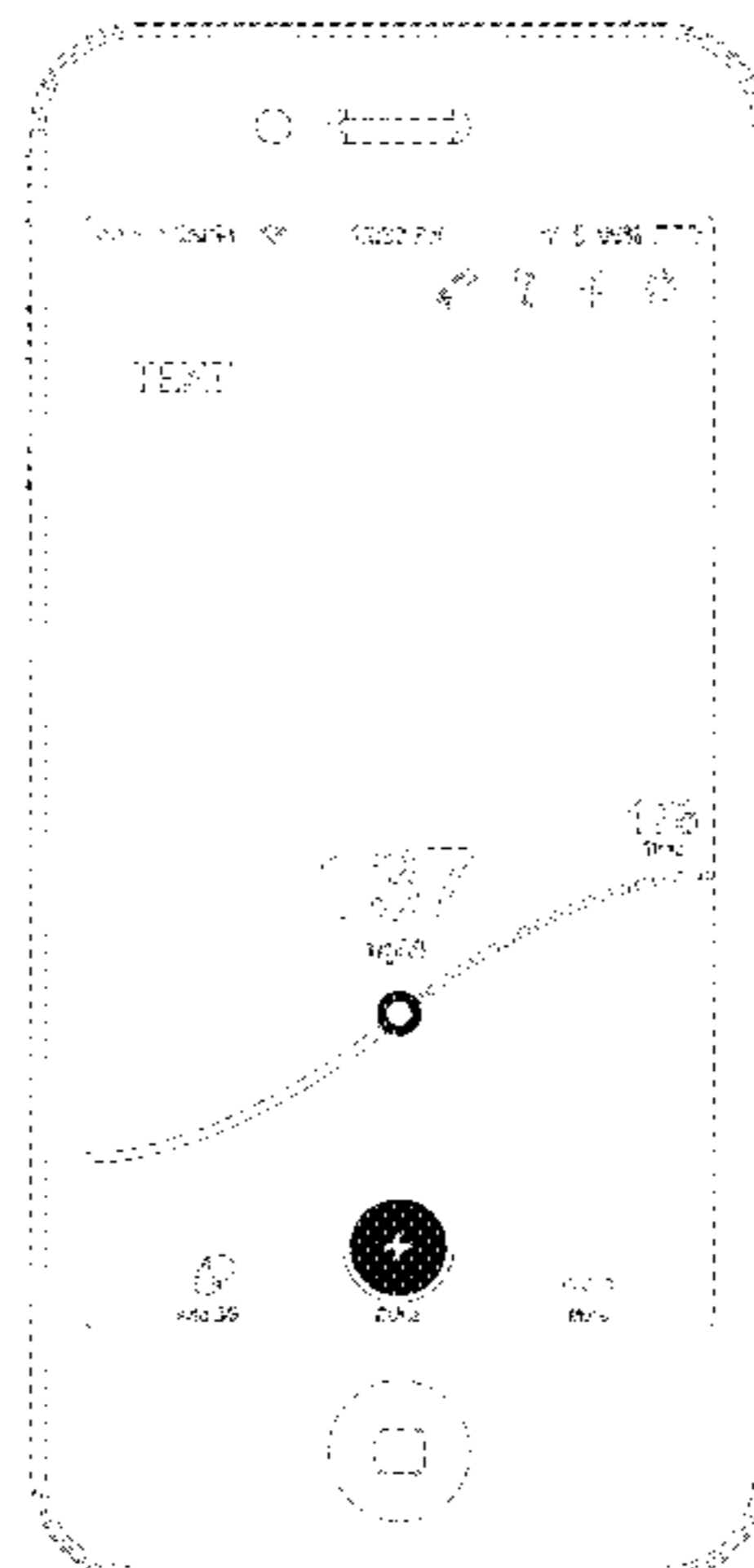
FIG. 2 shows the design in the context of different broken line subject matter;

FIG. 3 shows the design in the context of different broken line subject matter; and,

FIG. 4 shows the design in the context of different broken line subject matter.

The broken line showing of the device illustrates environmental subject matter, and the display screen, and portions of the graphical user interface are included for the purpose of illustrating portions of the article and form no part of the claimed design.

**1 Claim, 4 Drawing Sheets**









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References Cited

U.S. PATENT DOCUMENTS

2006/0247581 A1 11/2006 Pedersen et al.  
 2007/0073228 A1 3/2007 Mernoet et al.  
 2007/0073235 A1 3/2007 Estes et al.  
 2007/0073236 A1 3/2007 Mernoet et al.  
 2007/0088271 A1 4/2007 Richards  
 2007/0106218 A1 5/2007 Yodfat et al.  
 2007/0124002 A1 5/2007 Estes et al.  
 2007/0156092 A1 7/2007 Estes et al.  
 2007/0167905 A1 7/2007 Estes et al.  
 2007/0167912 A1 7/2007 Causey et al.  
 2007/0179444 A1 8/2007 Causey et al.  
 2007/0239116 A1 10/2007 Follman et al.  
 2008/0051716 A1 2/2008 Stutz  
 2008/0097381 A1 4/2008 Moberg et al.  
 2008/0119705 A1 5/2008 Patel et al.  
 2008/0208627 A1 8/2008 Skyggebjerg  
 2008/0287755 A1 11/2008 Sass et al.  
 2008/0294094 A1 11/2008 Mhatre et al.  
 2008/0294108 A1 11/2008 Briones et al.  
 2008/0294109 A1 11/2008 Estes et al.  
 2008/0294142 A1 11/2008 Patel et al.  
 2008/0319383 A1 12/2008 Byland et al.  
 2009/0067989 A1 3/2009 Estes et al.  
 2009/0069745 A1 3/2009 Estes et al.  
 2009/0069746 A1 3/2009 Miller et al.  
 2009/0069749 A1 3/2009 Miller et al.  
 2009/0069784 A1 3/2009 Estes et al.  
 2009/0069785 A1 3/2009 Miller et al.  
 2009/0069787 A1 3/2009 Estes et al.  
 2009/0099523 A1 4/2009 Grant et al.  
 2009/0156990 A1 6/2009 Wenger et al.  
 2009/0292247 A1 11/2009 Basso et al.  
 2010/0048358 A1 2/2010 Tchao et al.  
 2010/0280329 A1 11/2010 Pedersen et al.  
 2010/0305965 A1 12/2010 Benjamin et al.  
 2011/0009846 A1 1/2011 Istoc et al.  
 2011/0040247 A1 2/2011 Mandro et al.  
 2011/0160555 A1 6/2011 Reifman et al.  
 2012/0022496 A1 1/2012 Causey et al.  
 2012/0053560 A1 3/2012 Kawamura  
 2012/0215201 A1 8/2012 Brauker et al.  
 2012/0238999 A1 9/2012 Estes et al.  
 2012/0330270 A1 12/2012 Colton  
 2013/0172710 A1 7/2013 Mears et al.  
 2013/0324941 A1 12/2013 Mann et al.  
 2013/0331659 A1 12/2013 Koski et al.  
 2013/0338453 A1 12/2013 Duke et al.  
 2014/0025400 A1 1/2014 Galley et al.  
 2014/0039383 A1 2/2014 Dobbles et al.  
 2014/0058749 A1 2/2014 Galley et al.  
 2014/0068487 A1 3/2014 Steiger et al.  
 2014/0073892 A1 3/2014 Randloev et al.  
 2014/0317546 A1\* 10/2014 Jacobson ..... G06F 3/04817  
 715/771  
 2014/0344280 A1 11/2014 Wei et al.  
 2014/0358082 A1 12/2014 Ohzawa  
 2015/0025498 A1 1/2015 Estes  
 2015/0073337 A1 3/2015 Saint et al.  
 2015/0080842 A1 3/2015 Mathys  
 2015/0112264 A1 4/2015 Kamen et al.  
 2015/0141912 A1 5/2015 Estes  
 2015/0173674 A1 6/2015 Hayes et al.  
 2015/0277722 A1 10/2015 Masterson et al.  
 2016/0000998 A1 1/2016 Estes  
 2016/0038675 A1 2/2016 Estes et al.  
 2016/0058939 A1 3/2016 Brewer et al.  
 2016/0072841 A1 3/2016 Caporal et al.  
 2016/0089491 A1 3/2016 Smith  
 2016/0235913 A1 8/2016 Smith et al.  
 2016/0250422 A1 9/2016 Koch et al.  
 2016/0361494 A1 12/2016 Jurg et al.  
 2017/0003848 A1\* 1/2017 Wakayanagi ..... G06F 3/0485  
 2017/0049957 A1 2/2017 Michaud  
 2017/0100538 A1 4/2017 Mhatre et al.  
 2017/0189614 A1 7/2017 Mazlish et al.

2017/0199985 A1 7/2017 Mazlish et al.  
 2017/0203030 A1 7/2017 Brewer et al.  
 2017/0203036 A1 7/2017 Mazlish et al.  
 2017/0203037 A1 7/2017 Desborough et al.  
 2017/0203038 A1 7/2017 Desborough et al.  
 2017/0203039 A1 7/2017 Desborough et al.  
 2017/0224910 A1 8/2017 Yodfat et al.  
 2017/0232195 A1 8/2017 Desborough et al.  
 2017/0242975 A1 8/2017 Kahlbaugh  
 2017/0316592 A1 11/2017 Kamath et al.  
 2017/0332952 A1 11/2017 Desborough et al.  
 2018/0001006 A1 1/2018 Schade et al.  
 2018/0133397 A1 5/2018 Estes  
 2018/0150614 A1 5/2018 Sokolovskyy et al.  
 2018/0161499 A1 6/2018 Al-Ali et al.  
 2018/0200435 A1 7/2018 Mazlish et al.  
 2018/0200436 A1 7/2018 Mazlish et al.  
 2018/0200437 A1 7/2018 Mazlish et al.  
 2018/0200438 A1 7/2018 Mazlish et al.  
 2018/0200439 A1 7/2018 Mazlish et al.  
 2018/0200441 A1 7/2018 Desborough et al.  
 2018/0207380 A1 7/2018 Lantz et al.

FOREIGN PATENT DOCUMENTS

DE 10236669 A1 2/2004  
 EM 0006276170001 1/2007  
 EM 0006276170002 1/2007  
 EM 0006276170003 1/2007  
 EM 0007326490001 6/2007  
 EM 0007326490002 6/2007  
 EM 0031267050001 7/2016  
 EM 0031267050002 7/2016  
 EM 0031267050003 7/2016  
 EM 0031267050004 7/2016  
 EP 0062974 A1 10/1982  
 EP 0275213 A2 7/1988  
 EP 0496141 A1 7/1992  
 EP 0580723 A1 2/1994  
 EP 0612004 A1 8/1994  
 EP 0721358 A1 7/1996  
 EP 1045146 A2 10/2000  
 EP 1136698 A1 9/2001  
 EP 1177802 A1 2/2002  
 EP 1495775 A1 1/2005  
 EP 1527792 A1 5/2005  
 EP 1754498 A1 2/2007  
 EP 1818664 A1 8/2007  
 EP 2585252 A1 5/2013  
 FR 2585252 A1 1/1987  
 GB 0747701 4/1956  
 GB 2218831 A 11/1989  
 WO 90/15928 A1 12/1990  
 WO 97/21457 A1 6/1997  
 WO 98/04301 A1 2/1998  
 WO 98/11927 A1 3/1998  
 WO 98/57683 A1 12/1998  
 WO 99/21596 A1 5/1999  
 WO 99/39118 A1 8/1999  
 WO 99/48546 A1 9/1999  
 WO 01/72360 A1 10/2001  
 WO 01/91822 A1 12/2001  
 WO 01/91833 A1 12/2001  
 WO 02/40083 A2 5/2002  
 WO 02/57627 A1 7/2002  
 WO 02/68015 A2 9/2002  
 WO 02/84336 A2 10/2002  
 WO 2002/100469 A2 12/2002  
 WO 03/26726 A1 4/2003  
 WO 2003/103763 A1 12/2003  
 WO 2004/056412 A2 7/2004  
 WO 2004/110526 A1 12/2004  
 WO 2005/002652 A2 1/2005  
 WO 2005/039673 A2 5/2005  
 WO 2005/072794 A2 8/2005  
 WO 2005/072795 A2 8/2005  
 WO 2006/067217 A2 6/2006  
 WO 2006/097453 A1 9/2006  
 WO 2006/105792 A1 10/2006

(56)

**References Cited**

## FOREIGN PATENT DOCUMENTS

WO 2006/105793 A1 10/2006  
 WO 2006/105794 A1 10/2006  
 WO 2007/141786 A1 12/2007

## OTHER PUBLICATIONS

“Omnipod Horizon: Automated Glucose Control” Jun. 2017, 2 pages.

Xilas Temp Touch, “The latest in high-tech and convenient devices,” DOCNews, vol. 2, No. 7, Jul. 1, 2005, <http://docnews.diabetesjournals.org/legi/content/full/2/7i13>, 3 pages.

Written Opinion of the International Searching Authority for PCT Application No. PCT/US2017/053814, dated Jan. 4, 2018, 8 pages.

Written Opinion of the International Searching Authority for PCT Application No. PCT/US2017/053811, dated Dec. 26, 2017, 6 pages.

The Medtronic Diabetes Connection, 2006, 6 pages.

T:slimx2 Insulin Pump User Guide, Tandem Diabetes Care, Jul. 22, 2016.

Sara Krugman, Bionic Pancreas User Interface (3/4): Interface Details, Tidepool.org, Jul. 20, 2015.

Samuel Vozech and Jean-Louis Steimer, Feedback Control Methods for Drug Dosage Optimisation, Concepts, Classification and Clinical Application, *Clinical Pharmacokinetics*, 10(6), pp. 457-476, Nov.-Dec. 1985.

Patent Abstracts of Japan, vol. 1999, No. 04, and JP 11 010036, Apr. 30, 1999 and Jan. 19, 1999, Toray Ind. Inc.

OmniPod Quick Start Guide, 2007, 2 pages.

OmniPod Insulin Management System—Investor Relations—Press Release, Feb. 1, 2005, <http://investors.insulet.com/phoenix.zhtml?c=209336&p=irol-newsArticle&ID=988708&highlight=1> page.

Michele Schiavon, Chiara Dalla Man, Yogish C. Kudva, Ananda Basu, and Claudio Cobelli, Quantitative Estimation of Insulin Sensitivity in Type 1 Diabetic Subjects Wearing a Sensor-Augmented Insulin Pump, *Diabetes Care*, vol. 37, pp. 1216-1223, May 2014.

Medtronic News Release, “Medtronic Receives FDA Approval for World’s First Insulin Pump with Real-time Continuous Glucose Monitoring,” Apr. 13, 2006, 3 pages.

JDRF, Statistics: JDRF and Diabetes, <http://jdrf.org/about-jdrf/factsheets/jdrf-anddiabetes-statistics/>, 2014.

International Search Report for PCT Application No. PCT/US2017/53811, dated Dec. 26, 2017, 4 pages.

International Search Report for PCT Application No. PCT/US2017/053814, dated Jan. 4, 2018, 4 pages.

Hurley, Dan. Artificial Pancreas Makers Race to Market. *Discover*. Date published: Apr. 12, 2016. <<http://discovermagazine.com/2016/may/13-priming-the-pump>>.

Guy A. Dumont, *Feedback Control for Clinicians*, Springer Science+Media, Apr. 12, 2013, New York.

Fischer et al., In Vivo Comparison of Different Algorithms for the Artificial Beta-Cell, *Artificial Organs*, 9(2), International Society for Artificial Organs, May 1985, New York.

E. Salzsieder, G. Albrecht, E. Jutzi, and U. Fischer, Estimation of Individually Adapted Control Parameters for an Artificial Beta Cell, *Biomedica Biochimica Acta*. 43(5) pp. 585-596, May 1984.

Debiotech News Release, “Debiotech reveals its new miniaturized Disposable Insulin Nanopump™ for Diabetes therapy,” available at <http://www.debiotech.com/news/nw159.html> Apr. 24, 2006, 3 pages.

David A. Copp, Ravi Gondhalekar, and Joao P. Hespanha, Simultaneous Model Predictive Control and Moving Horizon Estimation for Blood Glucose Regulation in Type 1 Diabetes, *Optimal Control Applications and Methods*, Wiley InterScience, DOI: 10.1002/oca, pp. 1-15, Oct. 2016.

Dassau and Associates, 12-Week 24/7 Ambulatory Artificial Pancreas With Weekly Adaptation of Insulin Delivery Settings: Effect on Hemoglobin A1C and Hypoglycemia, *Diabetes Care*, Oct. 13, 2017.

Collins and Lee, “Microfluidic flow transducer based on the measurement of electrical admittance,” *Lab Chip*, 2004,4:7-10.

Centers for Disease Control and Prevention, Number (in Millions) of Adults with Diabetes by Diabetes Medication Status, United States, 1997-2011, <http://www.cdc.gov/diabetes/statistics/meduse/fig1.htm>, 2013.

Bigfoot Biomedical Reveals its Automated Insulin Delivery System. diaTribe. Date published: Jan. 25, 2016 <<https://diatribe.org/bigfoot-biomedical-reveals-its-automated-insulin-delivery-system>>.

Accu-Chek Spirit, “Pump Therapy Made for You,” Roche, 2006, 6 pages.

Delaney, Chelsey, “4 apps for tracking your fertility” Jun. 6, 2016, Bedsider, site visited Oct. 19, 2018: <https://www.bedsider.org/features/647-4-apps-for-tracking-your-fertility>.

“Clean Toggle Button Navigation Menu PSD” Jan. 24, 2014, WeLoveSoLo, site visited Oct. 19, 2018: <https://www.welovesolo.com/clean-toggle-button-navigation-menu-psd/>.

\* cited by examiner

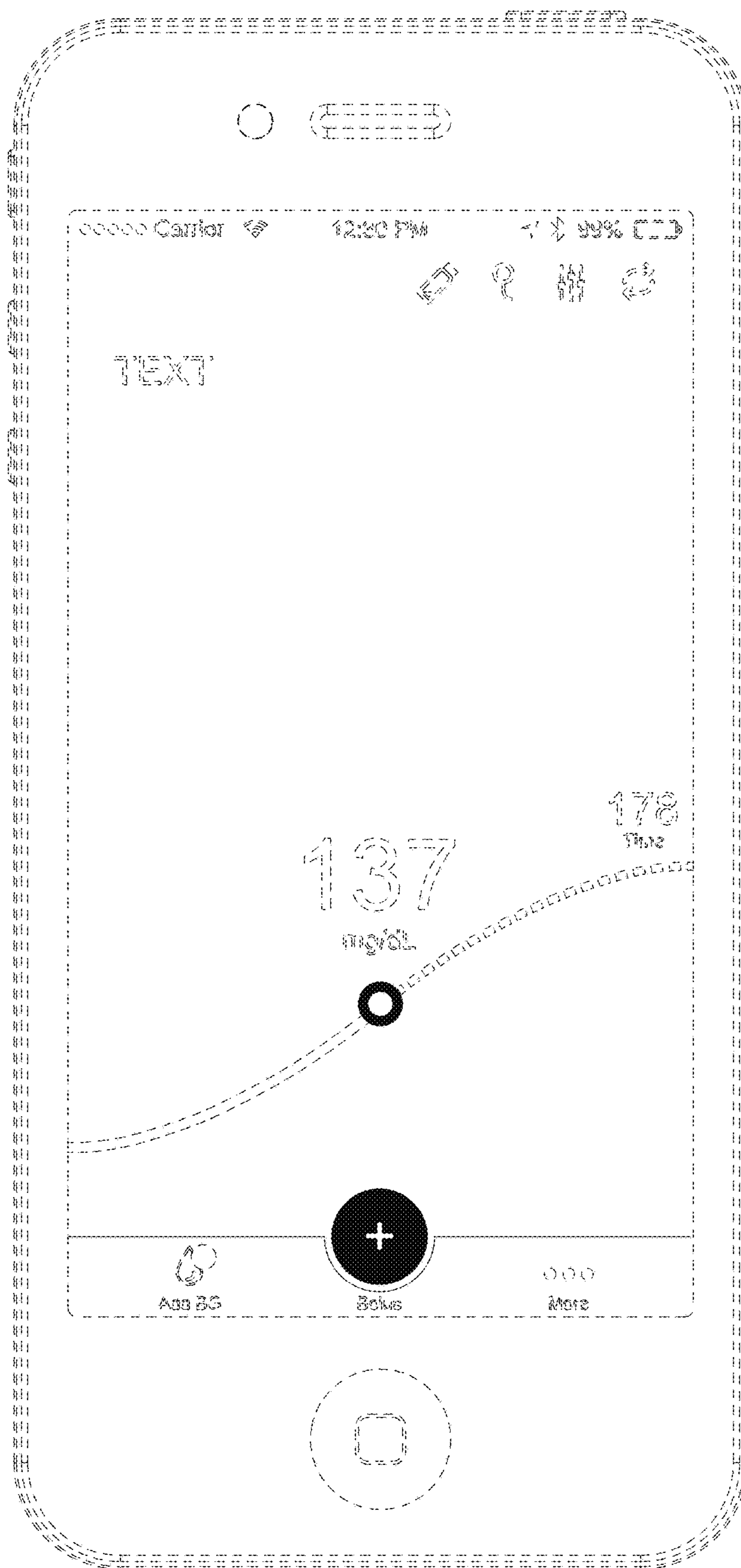


FIG. 1

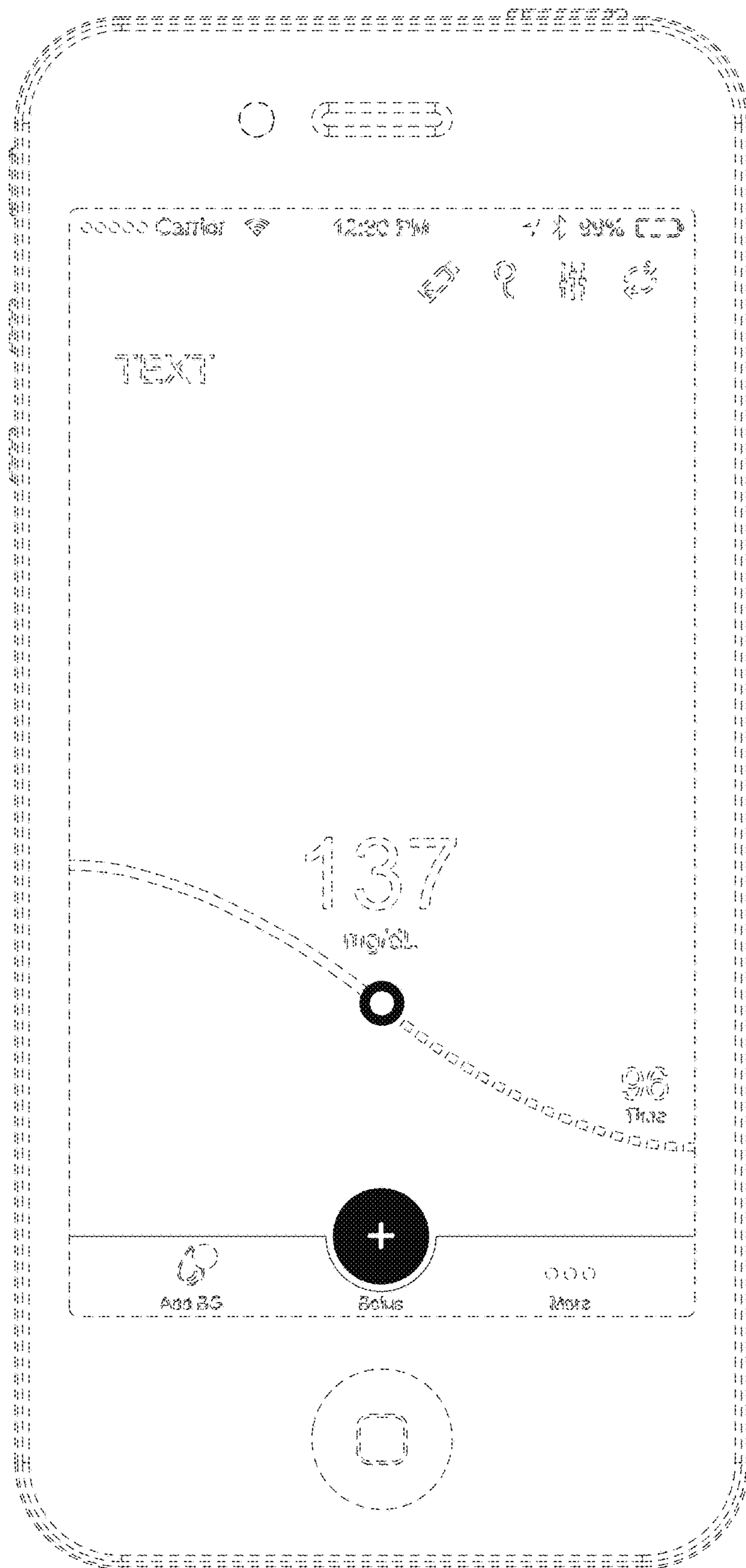


FIG. 2



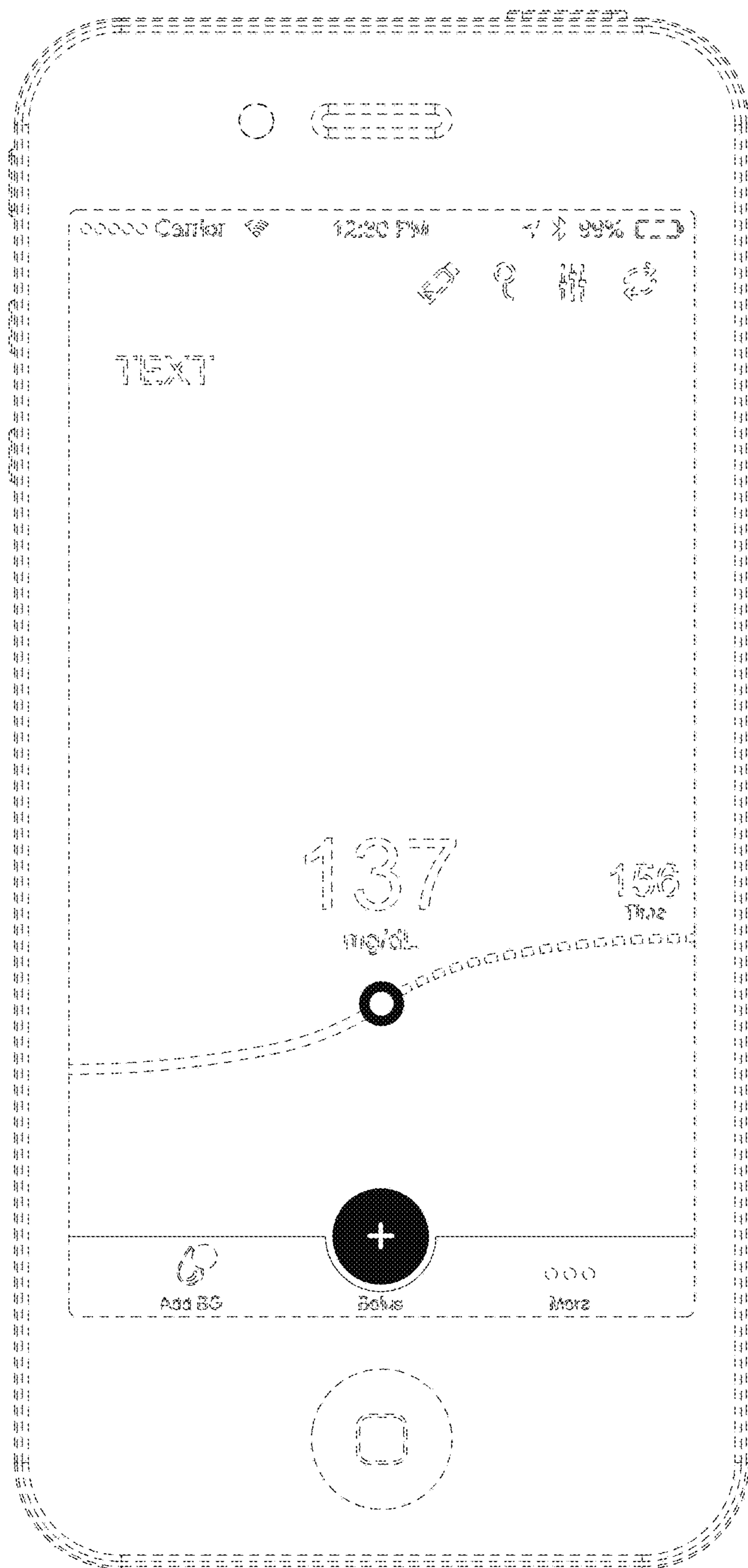


FIG. 3

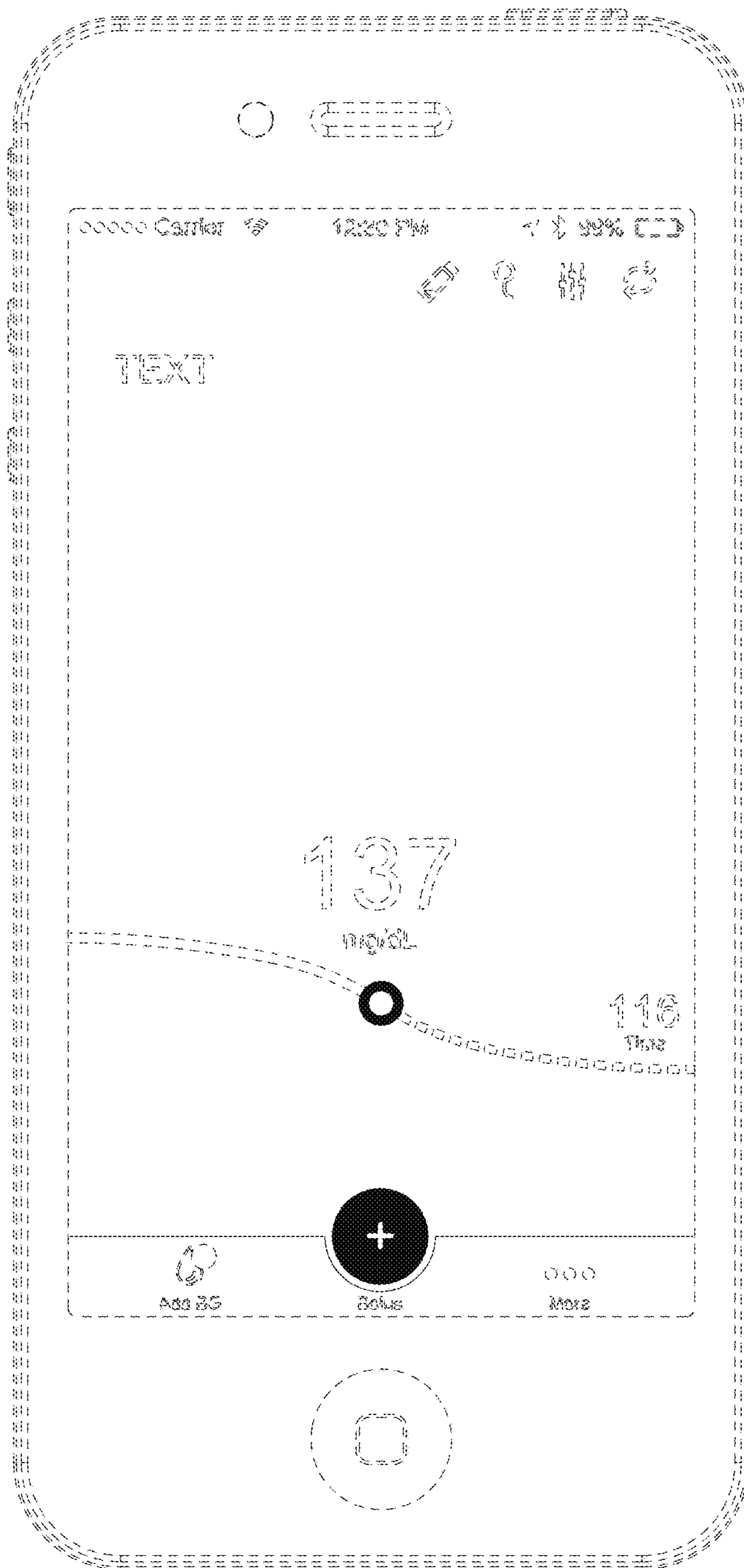


FIG. 4