



US00D934223S

(12) **United States Design Patent** (10) **Patent No.:** **US D934,223 S**
Kim (45) **Date of Patent:** **** Oct. 26, 2021**

(54) **CASE FOR ELECTRONIC COMMUNICATIONS DEVICE**
(71) Applicant: **SPIGEN KOREA CO., LTD.**, Seoul (KR)
(72) Inventor: **Ji Hyun Kim**, Seoul (KR)
(73) Assignee: **SPIGEN KOREA CO., LTD.**, Seoul (KR)

D643,029 S 8/2011 Feng
D643,837 S 8/2011 Smith
D651,202 S 12/2011 Fathollahi
D656,495 S 3/2012 Andre
D662,924 S 7/2012 Melanson
D662,929 S 7/2012 Fahrendorff et al.
D663,263 S 7/2012 Gupta
D671,930 S 12/2012 Akana et al.
D673,539 S 1/2013 Magness et al.
D674,789 S 1/2013 Wen
D679,271 S 4/2013 Liu
D679,695 S 4/2013 Fahrendorff et al.

(Continued)

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

(21) Appl. No.: **29/702,954**
(22) Filed: **Aug. 22, 2019**
(51) **LOC (13) Cl.** **14-03**
(52) **U.S. Cl.**
USPC **D14/250**
(58) **Field of Classification Search**
USPC D3/201, 218, 226, 227, 247, 249, 250,
D3/269, 303; D13/103, 107, 108, 119;
D14/137, 138 R, 138 AA, 138 C, 138 G,
D14/172, 192, 203.3–203.7, 217, 238.1,
D14/247, 248, 250–253, 434, 440, 447,
D14/496
CPC H04B 1/3888; H04M 1/0283; H04M
1/0202; A45C 1/06; A45C 2011/002;
A45C 11/00; A45F 2005/028; A45F
2200/0525
See application file for complete search history.

OTHER PUBLICATIONS

Spigen Ultra Hybrid Designed for Samsung Galaxy S9 Plus, publication date Mar. 14, 2018, [online][site visited Jan. 16, 2020] URL: <https://www.amazon.com/Spigen-Hybrid-Designed-Samsung-Galaxy/dp/B078B1H7YR> (Year: 2018).*

(Continued)

Primary Examiner — L. A. Grabenstetter
(74) *Attorney, Agent, or Firm* — Heedong Chae; Lucem, PC

(57) **CLAIM**

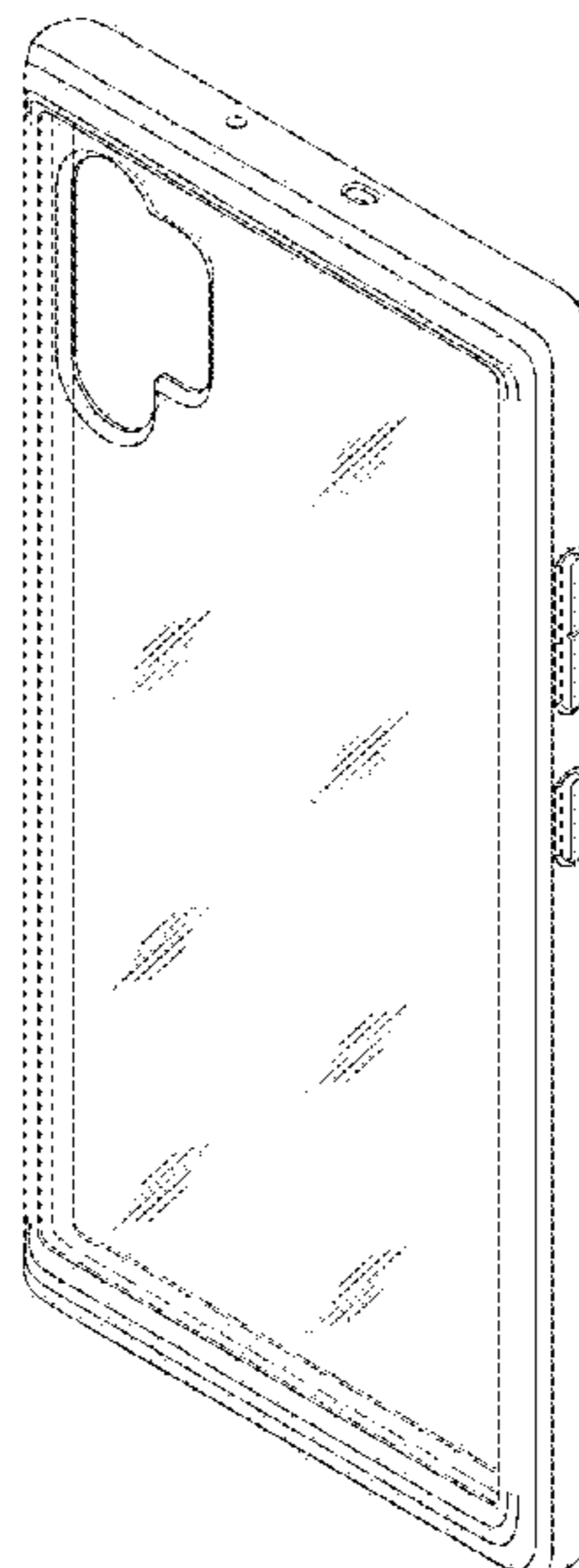
The ornamental design for a case for electronic communications device, as shown and described.

DESCRIPTION

FIG. 1 is a front perspective view of the case for electronic communications device showing my new design; FIG. 2 is a rear perspective view thereof; FIG. 3 is a front elevational view thereof; FIG. 4 is a rear elevational view thereof; FIG. 5 is a left side elevational view thereof; FIG. 6 is a right side elevational view thereof; FIG. 7 is a top plan view thereof; and, FIG. 8 is a bottom plan view thereof.

1 Claim, 8 Drawing Sheets

(56) **References Cited**
U.S. PATENT DOCUMENTS
D574,819 S 8/2008 Andre et al.
D615,077 S 5/2010 Richardson et al.
D615,536 S 5/2010 Richardson et al.
D619,361 S 7/2010 Andre
D623,639 S 9/2010 Richardson et al.
D623,640 S 9/2010 Freeman



(56)

References Cited

U.S. PATENT DOCUMENTS

D680,521 S 4/2013 Fathollahi
 D685,779 S * 7/2013 Schriefer D14/250
 D685,780 S 7/2013 Murchison
 D691,992 S 10/2013 Murchison
 D694,224 S 11/2013 Wooseung
 D694,759 S 12/2013 Chang
 D696,238 S 12/2013 Murchison et al.
 D696,240 S 12/2013 Kim et al.
 D697,503 S 1/2014 Melanson
 D706,254 S 6/2014 Chang
 D706,754 S 6/2014 Goradesky
 D709,869 S 7/2014 Witter
 D712,388 S 9/2014 Jia
 D714,276 S 9/2014 Hu
 D719,945 S 12/2014 Chiang
 D721,071 S 1/2015 Nelson et al.
 D721,360 S 1/2015 Laffon de Mazieres
 D721,693 S 1/2015 Lee et al.
 D721,694 S 1/2015 Lee et al.
 D732,543 S 6/2015 Westrup et al.
 9,059,505 B1 6/2015 Asrani
 D739,394 S 9/2015 Rayner et al.
 D741,845 S 10/2015 Kim
 D744,472 S 12/2015 Lerenthal
 D746,805 S 1/2016 Kim
 D747,708 S 1/2016 Roberts
 D749,535 S 2/2016 Joung
 D749,557 S 2/2016 Feng
 D749,594 S 2/2016 Kim
 D750,610 S * 3/2016 Chen D14/250
 9,293,808 B1 3/2016 Roberts
 D754,652 S 4/2016 Roberts
 D756,343 S 5/2016 Wall et al.
 D756,345 S 5/2016 Roberts
 D756,909 S 5/2016 Gupta et al.
 D756,910 S 5/2016 Gupta et al.
 D756,911 S 5/2016 Gupta et al.
 D763,239 S 8/2016 Chan et al.
 D763,241 S 8/2016 Kim
 D765,627 S 9/2016 Watt
 D765,633 S 9/2016 Northrup et al.
 D765,643 S 9/2016 Witter
 D765,645 S 9/2016 Kim
 D771,027 S 11/2016 Prstojevich
 D771,612 S 11/2016 Roberts et al.
 D771,613 S 11/2016 Poon et al.
 D772,854 S 11/2016 Igarashi
 D773,445 S 12/2016 Witter et al.
 D776,104 S 1/2017 Tien
 D776,647 S 1/2017 Kim
 D777,156 S 1/2017 Kim
 D777,157 S 1/2017 Kim
 D777,159 S 1/2017 Lee et al.
 D777,716 S 1/2017 Kim
 D780,164 S * 2/2017 Lee D14/250
 D780,166 S 2/2017 Lin
 D780,167 S 2/2017 Tien
 D781,835 S 3/2017 Kim et al.
 D781,836 S 3/2017 Kim et al.
 D781,837 S 3/2017 Kim et al.
 D781,838 S 3/2017 Kim et al.
 D781,839 S 3/2017 Kim et al.
 D781,840 S 3/2017 Kim et al.
 D782,453 S 3/2017 Kim et al.
 D782,454 S 3/2017 Kim et al.
 D784,309 S 4/2017 Lee et al.
 D786,846 S 5/2017 Kim et al.
 D786,848 S 5/2017 Park et al.
 D786,849 S 5/2017 Park et al.
 D792,394 S 7/2017 Lee et al.
 D795,237 S 8/2017 Jung et al.
 D797,715 S 9/2017 Kim
 D798,853 S 10/2017 Park et al.
 D801,322 S 10/2017 Song et al.
 D807,868 S 1/2018 Wang

D808,376 S * 1/2018 Kim D14/250
 D808,377 S 1/2018 Witter et al.
 D808,955 S 1/2018 Park et al.
 D815,082 S 4/2018 Kim
 D818,466 S 5/2018 Chang
 D823,296 S 7/2018 Kim et al.
 D829,702 S * 10/2018 Jung D14/250
 D834,572 S * 11/2018 Jung D14/250
 D836,097 S * 12/2018 Jung D14/250
 D839,859 S 2/2019 Zhang
 D843,362 S * 3/2019 Kim D14/250
 D847,807 S 5/2019 Wright et al.
 D851,082 S 6/2019 Fitzgerald et al.
 D857,002 S * 8/2019 Kim D14/250
 D857,684 S * 8/2019 Lee D14/250
 D860,187 S * 9/2019 Hyun D14/250
 D865,744 S * 11/2019 Yun D14/250
 2015/0195938 A1 7/2015 Witter
 2015/0245522 A1 8/2015 Kang
 2015/0180526 A1 9/2015 Hidaka
 2016/0058143 A1 3/2016 Tien
 2016/0142522 A1* 5/2016 Kim A45C 11/00
 455/575.8
 2016/0198026 A1 7/2016 Del Toro

OTHER PUBLICATIONS

Olixar Ultra-Thin Samsung Galaxy Note 10 Plus Case—100% Clear, publication date Jun. 20, 2019, [online][site visited Jan. 15, 2020] URL: <https://www.mobilefun.com/olixar-ultra-thin-samsung-galaxy-note-10-plus-case-100-clear-74374> (Year: 2019).*

Olixar cases suggest Galaxy Note 10 could have a headphone jack, web archive confirmed availability date Jun. 21, 2019, [online][site visited Apr. 27, 2020] URL: <https://www.sammobile.com/news/galaxy-note-10-olixar-cases-headphone-jack> (Year: 2019).*

“Spigen Ultra Hybrid iPhone 5S / 5 Case with Air Cushion Technology and Hybrid Drop Protection for iPhone 5S / iPhone 5—Crystal Clear”, <https://www.amazon.com/dp/B00G3JCFNC>, Earliest review date of Sep. 10, 2013, Downloaded on Jan. 4, 2019.

“Spigen Ultra Hybrid Nexus 5 Case with Air Cushion Technology and Hybrid Drop Protection for Nexus 5—Black”, <https://www.amazon.com/dp/B00FJJ38HY>, Earliest review date of Nov. 1, 2013, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid iPhone 6 Case with Air Cushion Technology and Hybrid Drop Protection for iPhone 6S / iPhone 6—Crystal Clear”, <https://www.amazon.com/dp/B00JH88D1O>, Earliest review date of Jul. 10, 2014, Downloaded on Dec. 28, 2018.

“Spigen Ultra Hybrid Galaxy Note 4 Case with Air Cushion Technology and Hybrid Drop Protection for Samsung Galaxy Note 4 2014—Gunmetal”, <https://www.amazon.com/dp/B00MAWPXVW>, Earliest review date of Oct. 15, 2014, Downloaded on Aug. 8, 2018.

“Spigen Ultra Hybrid Galaxy Note 4 Case with Air Cushion Technology and Hybrid Drop Protection for Samsung Galaxy Note 4 2014—Crystal Clear”, <https://www.amazon.com/dp/B00MAWPVXM>, Earliest review date of Oct. 17, 2014, Downloaded on Aug. 8, 2018.

“Spigen Ultra Hybrid Galaxy S6 Case with Air Cushion Technology and Hybrid Drop Protection for Galaxy S6 2015—Crystal Clear”, <https://www.amazon.com/dp/B00GIU4PN84>, Earliest review date of Feb. 6, 2015, Downloaded on Aug. 8, 2018.

“Spigen Ultra Hybrid Galaxy S6 Edge Case with Air Cushion Technology and Hybrid Drop Protection for Galaxy S6 Edge 2015—Metal Slate”, <https://www.amazon.com/dp/B00SV63NNG>, Earliest review date of Mar. 30, 2015, Downloaded on Aug. 8, 2018.

“Spigen Ultra Hybrid Galaxy S6 Edge Plus Case with Air Cushion Technology and Hybrid Drop Protection for Galaxy S6 Edge Plus 2015—Mint”, <https://www.amazon.com/dp/B010MWFRFI>, Earliest review date of Aug. 18, 2015, Downloaded on Aug. 8, 2018.

“Spigen Ultra Hybrid iPhone 6S Case with Air Cushion Technology and Hybrid Drop Protection for iPhone 6S / iPhone 6—Crystal Clear”, <https://www.amazon.com/dp/B010MVJNTK>, Earliest review date of Aug. 31, 2015, Downloaded on Dec. 28, 2018.

(56)

References Cited

OTHER PUBLICATIONS

“iPhone 6s Plus Case, Spigen [Ultra Hybrid] Air Cushion [Crystal Clear] Clear back panel + TPU bumper for iPhone 6 Plus (2014) / 6s Plus (2015)—Crystal Clear (SGP11644)”, <https://www.amazon.com/dp/B010MVRC20>, Earliest review date of Sep. 15, 2015, Downloaded on Jan. 4, 2019.

“Spigen Ultra Hybrid Nexus 5X Case with Air Cushion Technology and Hybrid Drop Protection for Nexus 5X—Crystal Clear”, <https://www.amazon.com/dp/B0147JXWG8>, Earliest review date of Sep. 24, 2015, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid Tech iPhone 6S Plus Case with Bumper Protection for iPhone 6S Plus 2015—Crystal White”, <https://www.amazon.com/dp/B013TKNIOC>, Earliest review date of Oct. 26, 2015, Downloaded on Jan. 4, 2019.

“Spigen Ultra Hybrid Galaxy S7 Edge Case with Air Cushion Technology and Hybrid Drop Protection for Samsung Galaxy S7 Edge 2016—Rose Crystal”, <https://www.amazon.com/dp/B01AUR0Z1G>, Earliest review date of Feb. 24, 2016, Downloaded on Aug. 8, 2018.

“Spigen Ultra Hybrid Galaxy S7 Case with Air Cushion Technology and Hybrid Drop Protection for Samsung Galaxy S7 2016—Crystal Clear”, <https://www.amazon.com/dp/B01A7ID0AG>, Earliest review date of Feb. 29, 2016, Downloaded on Aug. 8, 2018.

“Spigen Ultra Hybrid iPhone SE Case with Air Cushion Technology and Hybrid Drop Protection for iPhone SE 2016—Crystal Clear”, <https://www.amazon.com/dp/B01BED00OS>, Earliest review date of Apr. 15, 2016, Downloaded on Jan. 4, 2019.

“Spigen Ultra Hybrid Galaxy A5 Case with Air Cushion Technology and Hybrid Drop Protection for Galaxy A5—Crystal Clear”, <https://www.amazon.com/dp/B018J07DOI>, Earliest review date of May 23, 2016, Downloaded on Aug. 8, 2018.

“Spigen Ultra Hybrid iPhone 7 Case with Air Cushion Technology and Hybrid Drop Protection for iPhone 7 2016—Black”, <https://www.amazon.com/dp/B01GIVXBVY>, Earliest review date of Sep. 1, 2016, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid iPhone 7 Plus Case with Air Cushion Technology and Hybrid Drop Protection for Apple iPhone 7 Plus 2016—Crystal Clear”, <https://www.amazon.com/dp/B01GIWGFMU>, Earliest review date of Sep. 6, 2016, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid S iPhone Seven Plus Case with Air Cushion Technology and Magnetic Metal Kickstand for Apple iPhone Seven Plus Two Thousand and Sixteen Clear Black”, <https://www.amazon.com/dp/B01LRSF986>, Earliest review date of Sep. 7, 2016, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid S iPhone 7 Case with Air Cushion Technology and Magnetic Metal Kickstand for iPhone 7 2016—Crystal Clear”, <https://www.amazon.com/dp/B01J9DVBWE>, Earliest review date of Sep. 13, 2016, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid Google Pixel XL Case with Air Cushion Technology and Hybrid Drop Protection for Google Pixel XL 2016—Crystal Clear”, <https://www.amazon.com/dp/B01M12Z4VQ>, Earliest review date of Oct. 21, 2016, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid [2nd Generation] iPhone 8 Plus Case/iPhone 7 Plus Case with Clear Protection and Air Cushion Technology for iPhone 8 Plus (2017) / iPhone 7 Plus (2016)—Crystal Clear”, <https://www.amazon.com/dp/B01MXKNPQ5>, Earliest review date of Jan. 9, 2017, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid [2nd Generation] iPhone 7 Case/iPhone 8 Case with Air Cushion Technology for Apple iPhone 7 (2016) / iPhone 8 (2017)—Crystal Clear”, <https://www.amazon.com/dp/B01M0USRWG>, Earliest review date of Jan. 17, 2017, Downloaded on Jan. 8, 2019.

Spigen Ultra Hybrid Galaxy A5 2017 Case with Air Cushion Technology and Hybrid Drop Protection for Samsung Galaxy A5 (2017)—Crystal Clear, <https://www.amazon.com/dp/B01NCJOZ1C>, Earliest review date of Mar. 2, 2017, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid Galaxy S8 Plus Case with Air Cushion Technology and Hybrid Drop Protection for Galaxy S8 Plus (2017)—Crystal Clear”, <https://www.amazon.com/dp/B06XP7S564> Earliest review date of Apr. 4, 2017, Downloaded on Aug. 8, 2018.

“Spigen Ultra Hybrid Galaxy S8 Case with Air Cushion Technology and Hybrid Drop Protection for Samsung Galaxy S8 (2017)—Crystal Clear”, <https://www.amazon.com/dp/B06XP5YQNQ>, Earliest review date of Apr. 7, 2017, Downloaded on Jul. 30, 2018.

“Spigen Ultra Hybrid S Galaxy S8 Plus Case with Air Cushion Technology and Magnetic Metal Kickstand for Galaxy S8 Plus (2017)—Crystal Clear”, <https://www.amazon.com/dp/B06XNSZJ31>, Earliest review date of Apr. 9, 2017, Downloaded on Aug. 8, 2018.

“Spigen Ultra Hybrid Galaxy A7 2017 Case with Air Cushion Technology and Hybrid Drop Protection for Samsung Galaxy A7 (2017)—Crystal Clear”, <https://www.amazon.com/dp/B01N9JD0MH>, Earliest review date of May 6, 2017, Downloaded on Aug. 8, 2018.

“Spigen Ultra Hybrid Sony Xperia XZ Premium Case with Air Cushion Technology and Hybrid Drop Protection for Sony Xperia XZ Premium (2017)—Crystal Clear”, <https://www.amazon.com/dp/B071VZ1176>, Earliest review date of Jul. 15, 2017, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid OnePlus 5 Case with Air Cushion Technology and Hybrid Drop Protection for OnePlus 5 (2017)—Crystal Clear”, <https://www.amazon.com/dp/B06XFSQFMW>, Earliest review date of Aug. 20, 2017, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid Galaxy Note 8 Case with Air Cushion Technology and Hybrid Drop Protection for Galaxy Note 8 (2017)—Midnight Black”, <https://www.amazon.com/dp/B073RWN5QP>, Earliest review date of Sep. 3, 2017, Downloaded on Aug. 8, 2018.

“Spigen Ultra Hybrid S Galaxy Note 8 Case with Air Cushion Technology and Magnetic Metal Kickstand for Galaxy Note 8 (2017)—Crystal Clear”, <https://www.amazon.com/dp/B073RWFZQH>, Earliest review date of Sep. 8, 2017, Downloaded on Jul. 30, 2018.

“Spigen Ultra Hybrid Designed for Apple iPhone Xs Case (2018) / Designed for Apple iPhone X Case (2017)—Crystal Clear”, <https://www.amazon.com/dp/B074CMMCZM>, Earliest review date of Sep. 13, 2017, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid S [2nd Generation] iPhone 8 Case/iPhone 7 Case with Air Cushion Technology and Magnetic Metal Kickstand for Apple iPhone 8 (2017) / iPhone 7 (2016)—Crystal Clear”, <https://www.amazon.com/dp/B07482GSK2>, Earliest review date of Sep. 13, 2017, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid S [2nd Generation] iPhone 8 Plus Case/iPhone 7 Plus Case with Air Cushion Technology and Kickstand for Apple iPhone 8 Plus (2017) / iPhone 7 Plus (2016)—Crystal Clear”, <https://www.amazon.com/dp/B074833H3M>, Earliest review date of Sep. 30, 2017, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid S Designed for Apple iPhone Xs Case (2018) / Designed for Apple iPhone X Case (2017)—Crystal Clear”, <https://www.amazon.com/dp/B074CMHVKY>, Earliest review date of Oct. 19, 2017, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid Sony Xperia XZ1 Case with Air Cushion Technology and Hybrid Drop Protection for Sony Xperia XZ1 (2017)—Crystal Clear”, <https://www.amazon.com/dp/B075DWY35G>, Earliest review date of Dec. 11, 2017, Downloaded on Jan. 8, 2019.

“Review: Griffin Reveal Case for iPhone 5”, <http://www.ilounge.com/index.php/reviews/entry/griffin-reveal-case-for-iphone-5/>, Earliest review date of Oct. 16, 2012, Downloaded on Feb. 6, 2019.

“Review: Griffin Reveal for iPhone 5c”, <http://www.ilounge.com/index.php/reviews/entry/griffin-reveal-for-iphone-5c/>, Earliest review date of Oct. 10, 2013, Downloaded on Feb. 5, 2019.

“Spigen Ultra Hybrid Galaxy S8 Case with Air Cushion Technology and Hybrid Drop Protection for Galaxy S8 2015—Midnight Black”, <https://www.amazon.com/DP/B06XP7JTRC>, Earliest review date of Apr. 10, 2017, Downloaded on Jul. 30, 2018.

“Spigen Ultra Hybrid Galaxy S9 Plus Case with Air Cushion Technology and Hybrid Drop Protection for Galaxy S9 Plus (2018)—Matte Black”, <https://www.amazon.com/DP/B078B8PM95>, Earliest review date of Mar. 4, 2018, Downloaded on Jul. 30, 2018.

“Spigen Ultra Hybrid Galaxy S9 Case with Air Cushion Technology and Clear Hybrid Drop Protection for Samsung Galaxy S9 (2018)—Coral Blue”, <https://www.amazon.com/DP/B078FGB7TT>, Earliest review date of Mar. 9, 2018, Downloaded on Jan. 8, 2019.

(56)

References Cited

OTHER PUBLICATIONS

“Spigen Ultra Hybrid Galaxy S9 Plus Case with Air Cushion Technology and Clear Hybrid Drop Protection for Samsung Galaxy S9 Plus (2018)—Crystal Clear”, <https://www.amazon.com/DP/B078B1HB7Z/>, Earliest review date of Mar. 15, 2018, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid S Galaxy S9 Case with Slim Clear Protection Air Cushion Technology and Magnetic Metal Kickstand for Samsung Galaxy S9 (2018)—Midnight Black”, <https://www.amazon.com/Spigen-Protection-Technology-Magnetic-Kickstand/dp/B078KPFMCC>, Earliest review date of Mar. 16, 2018, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid Huawei P20 Pro Case with Air Cushion Technology and Clear Hybrid Drop Protection for Huawei P20 Pro (2018)—Crystal Clear”, <https://www.amazon.com/Spigen-Hybrid-Cushion-Technology-Protection/dp/B07BS765MR>, Earliest review date of May 16, 2018, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid Designed for Apple iPhone X Case (2017)—Crystal Clear (Certified Refurbished)”, <https://www.amazon.com/Spigen-Ultra-Hybrid-Designed-iPhone/dp/B07FR1TQML>, Earliest review date of May 31, 2018, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid Huawei P20 lite Case with Air Cushion Technology and Clear Hybrid Drop Protection for Huawei P20 lite (2018)—Black”, <https://www.amazon.com/Spigen-Hybrid-Cushion-Technology-Protection/dp/B078YJ2FNG>, Earliest review date of Jun. 7, 2018, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid Galaxy A8 Case with Air Cushion Technology and Hybrid Drop Protection for Galaxy A8 (2018)—Matte Black”, <https://www.amazon.com/Spigen-Hybrid-Cushion-Technology-Protection/dp/B077MW2MS9>, review date of Jun. 19, 2018, Downloaded on Jan. 8, 2019.

“Spigen Ultra Hybrid Galaxy Note 9 Case with Air Cushion Technology and Hybrid Drop Protection for Galaxy Note 9 (2018)—Ocean Blue”, <https://www.amazon.com/Spigen-Hybrid-Cushion-Technology-Protection/dp/B07GDTMKP7>, Earliest review date of Aug. 17, 2018, Downloaded on Jan. 8, 2019.

* cited by examiner

FIG. 1

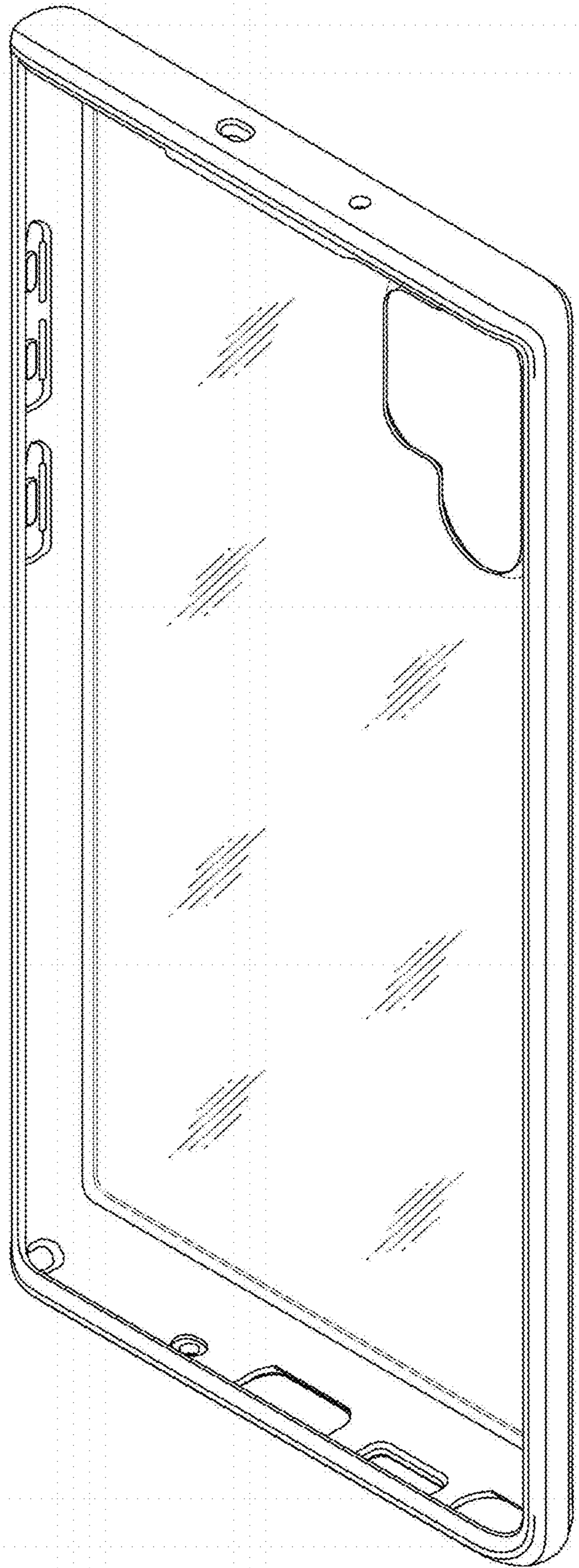


FIG. 2

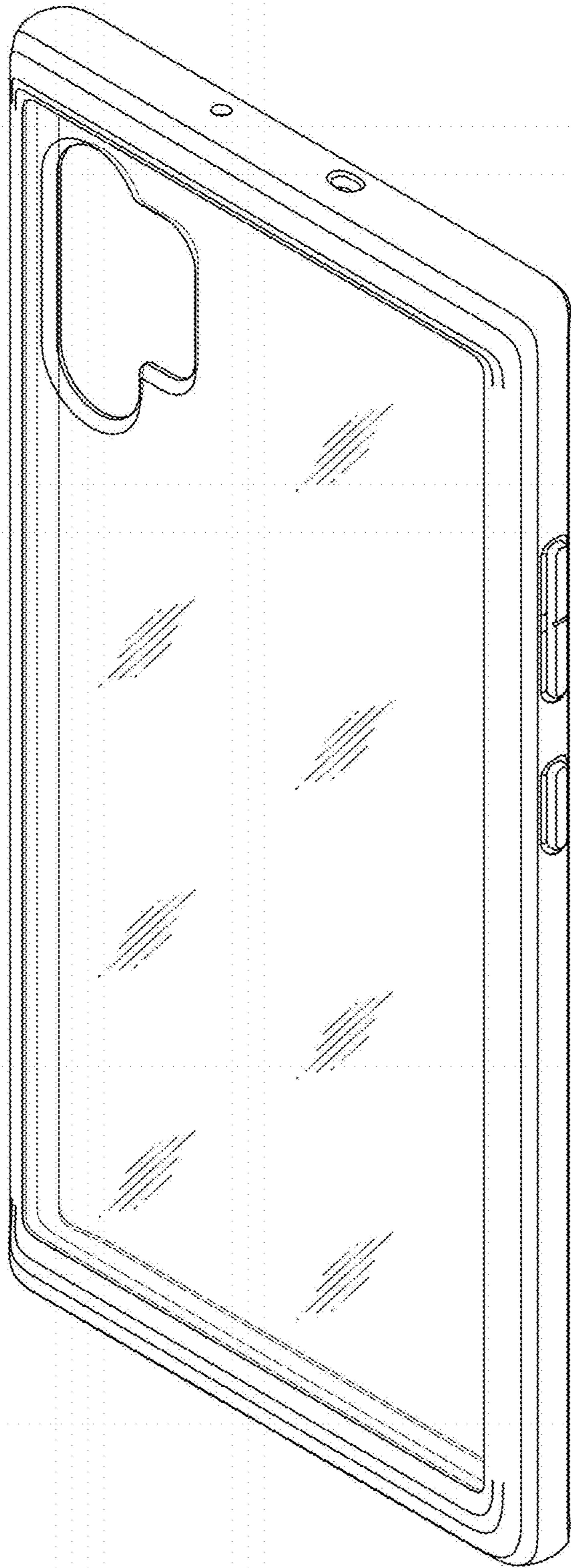


FIG. 3

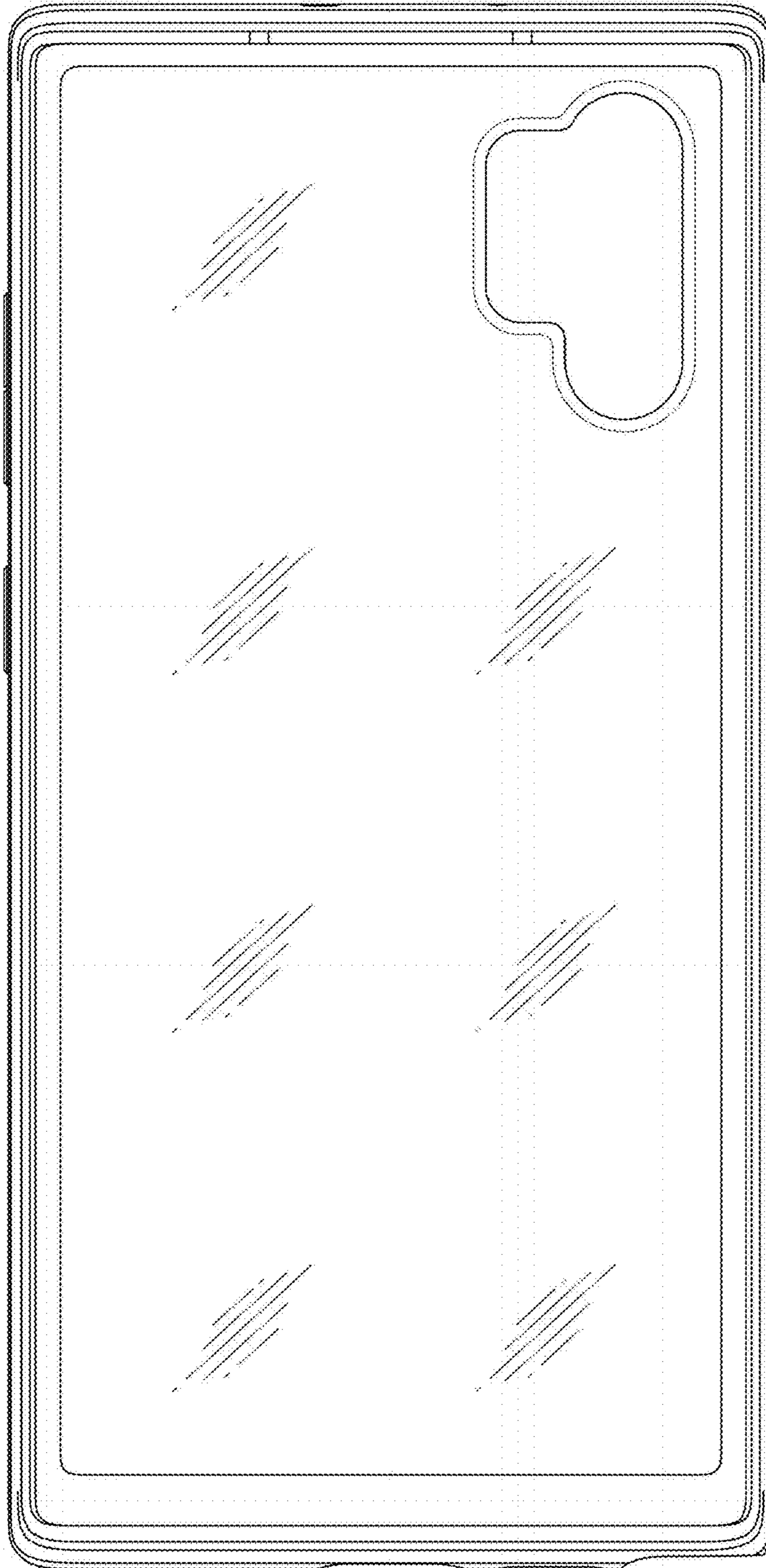


FIG. 4

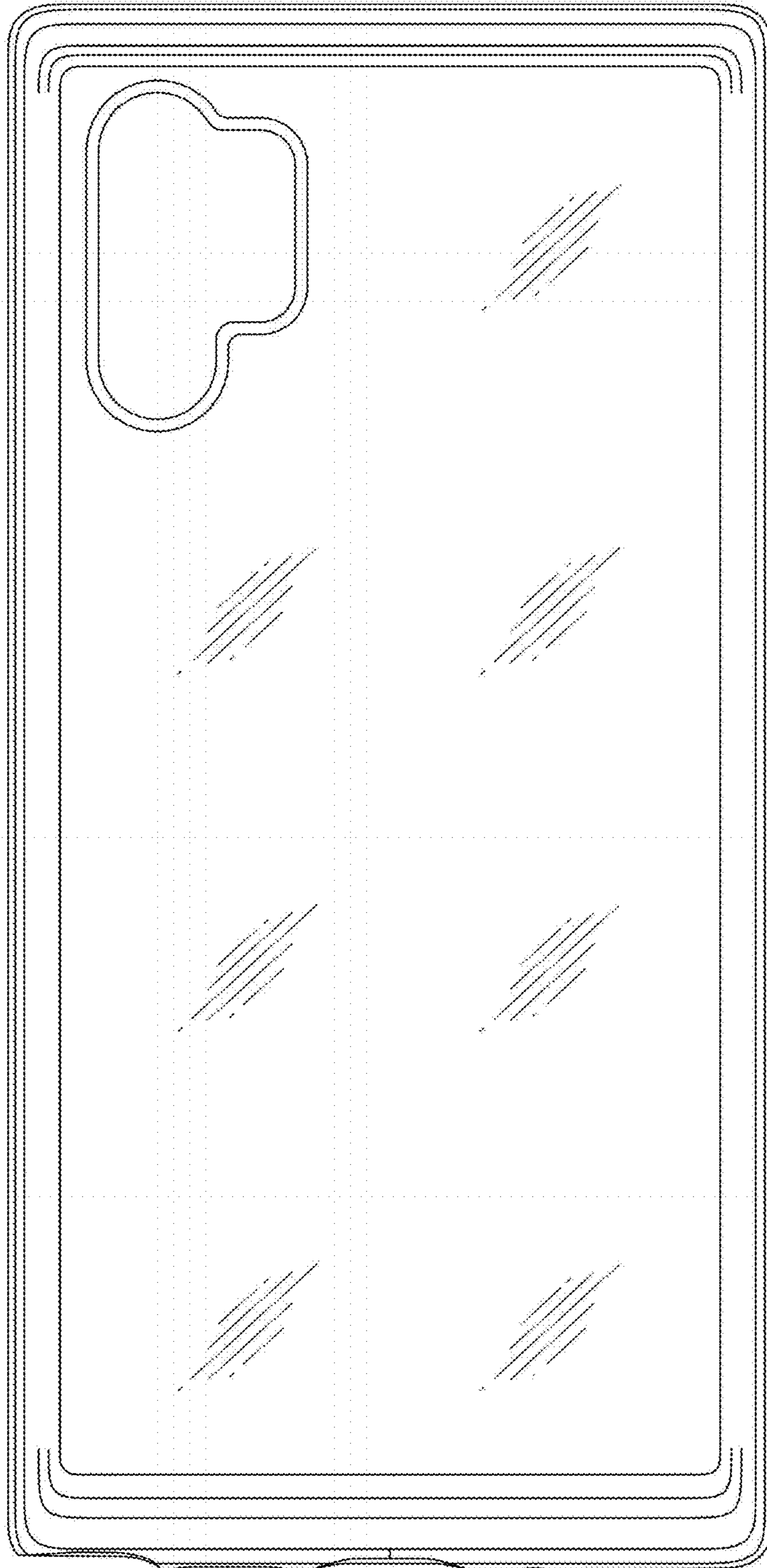


FIG. 5

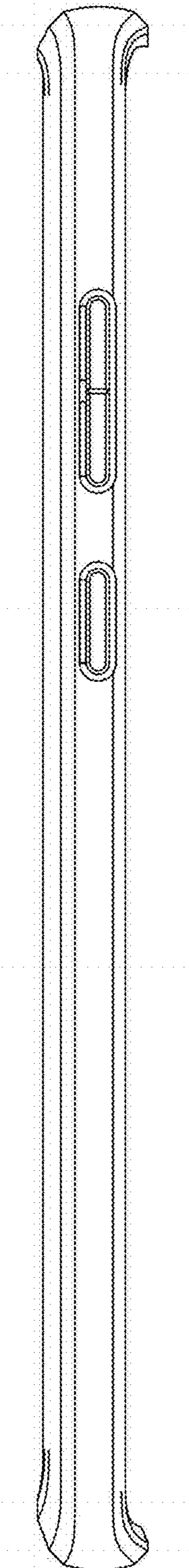


FIG. 6

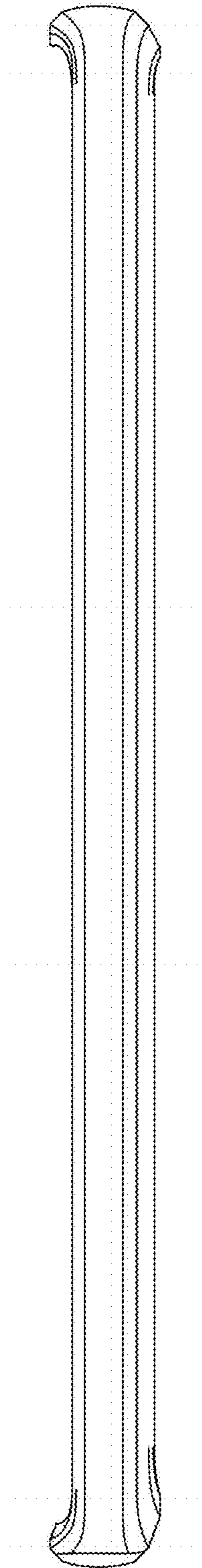


FIG. 7

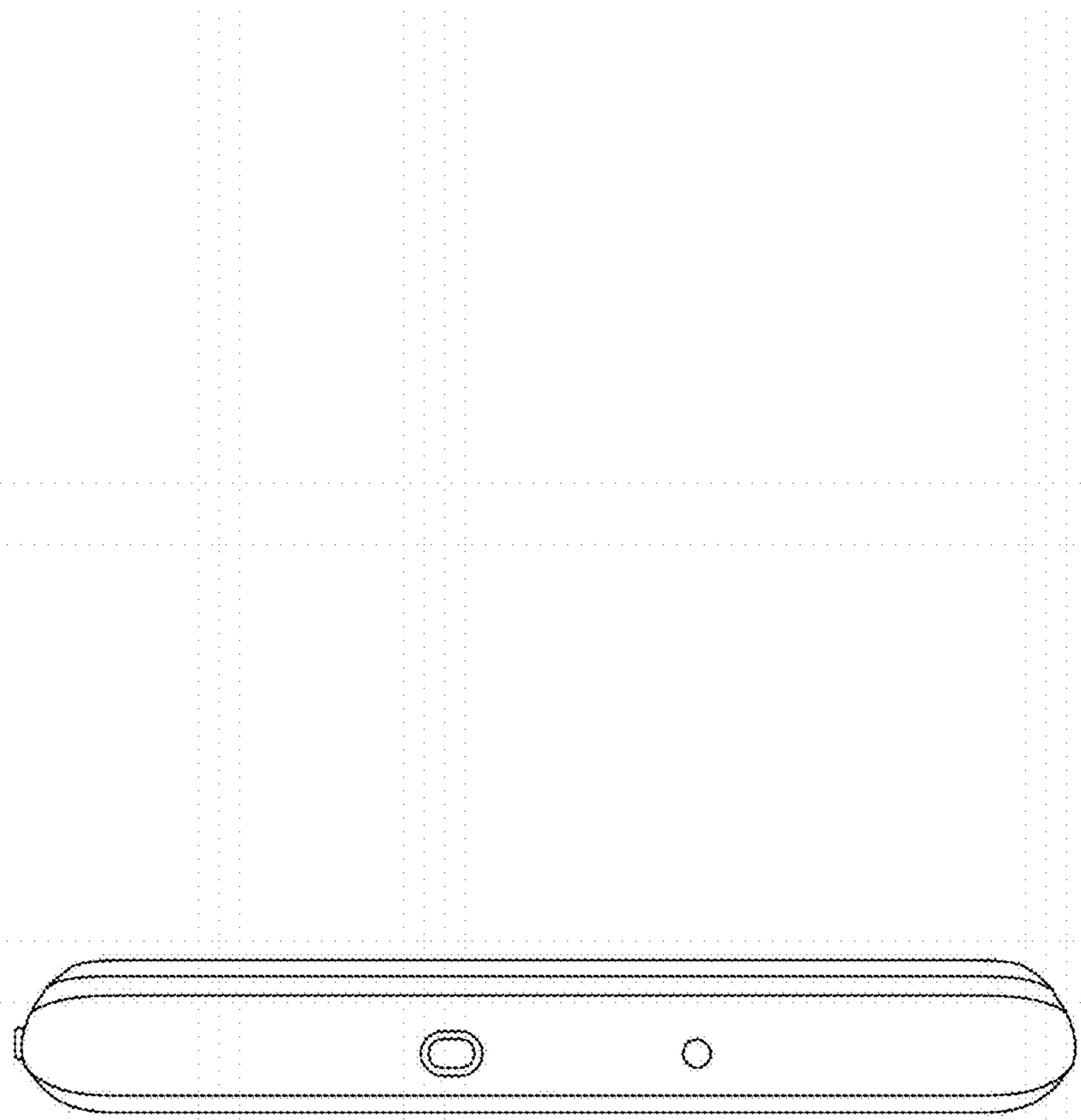


FIG. 8

