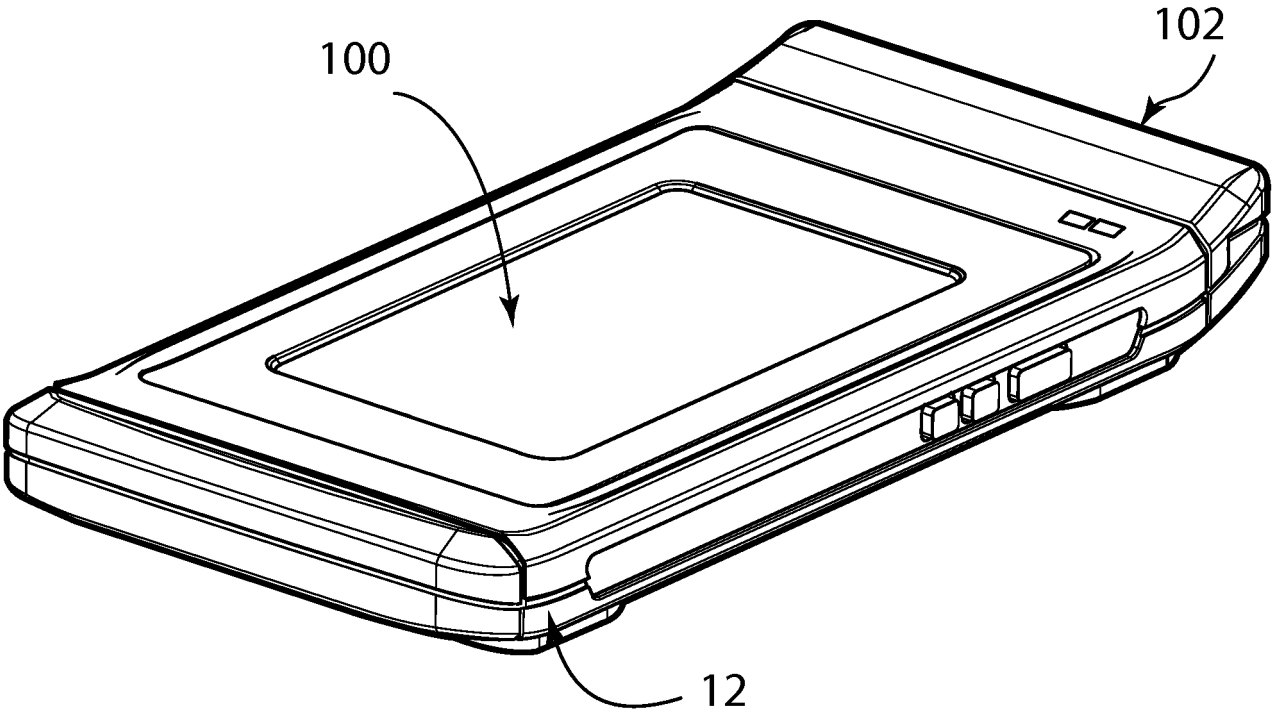
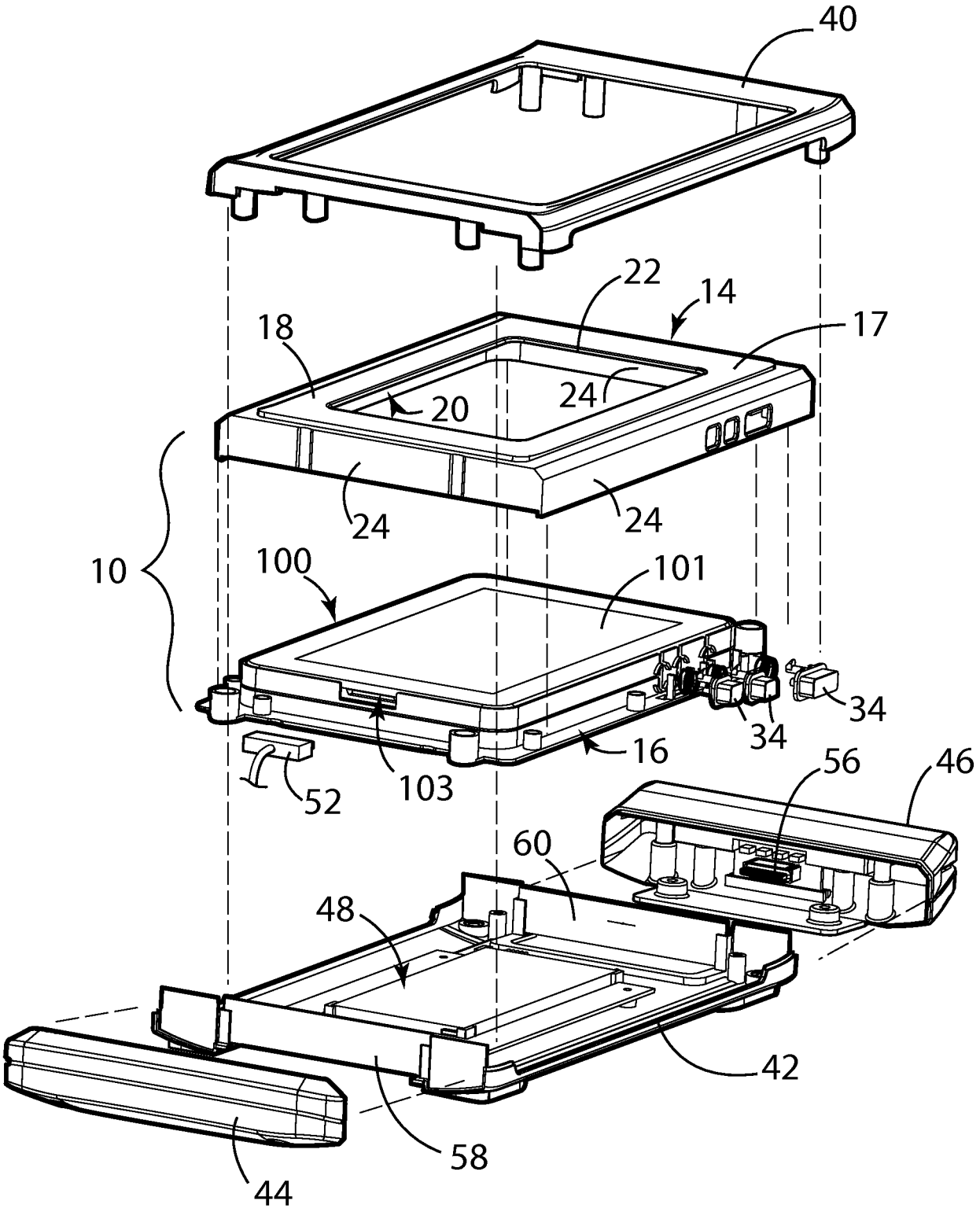


FIG. 1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22
14
17
18
20
24
24
24
10
100
101
34
34
16
52
103
56
46
60
48
42
58
44

FIG. 2

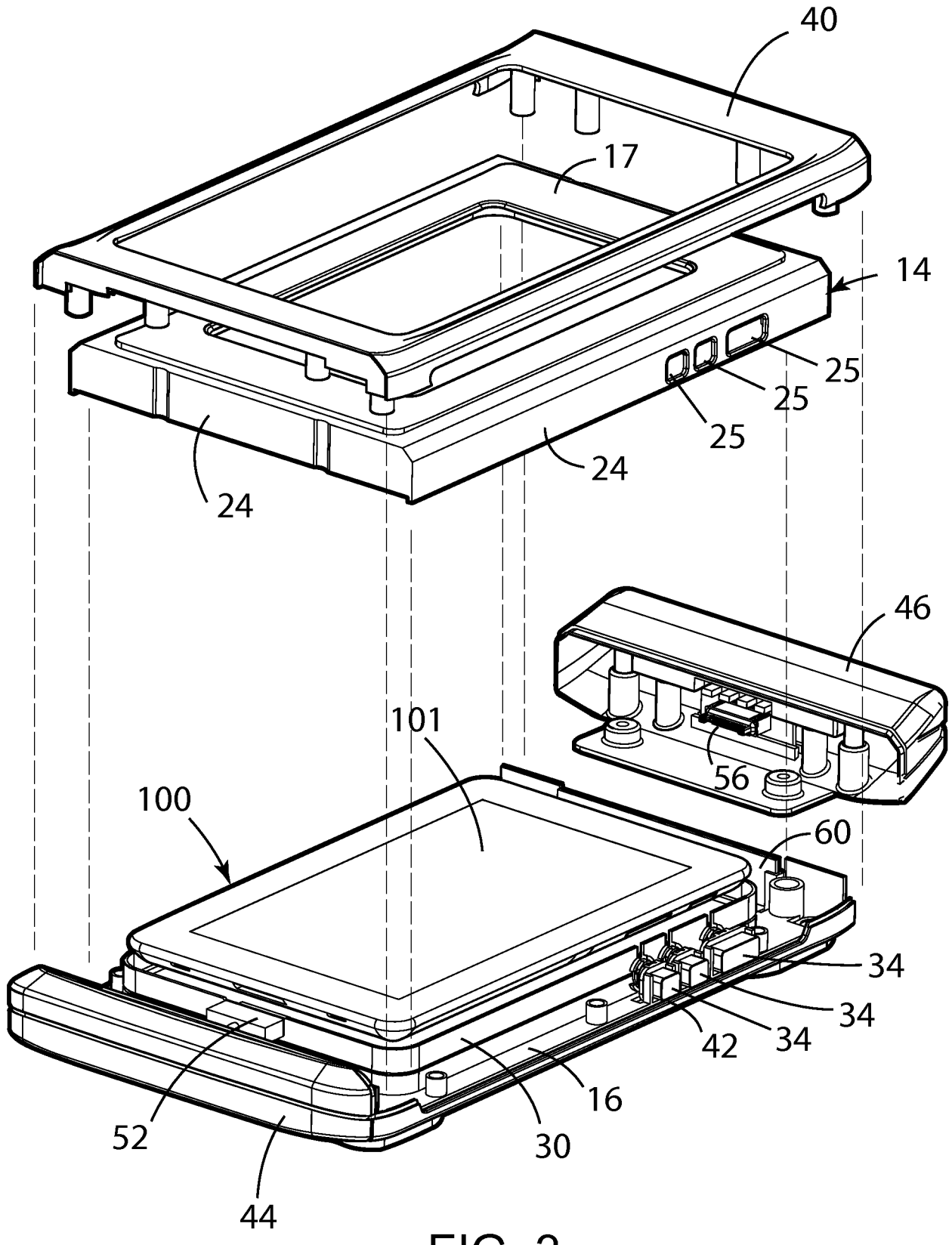

FIG. 3

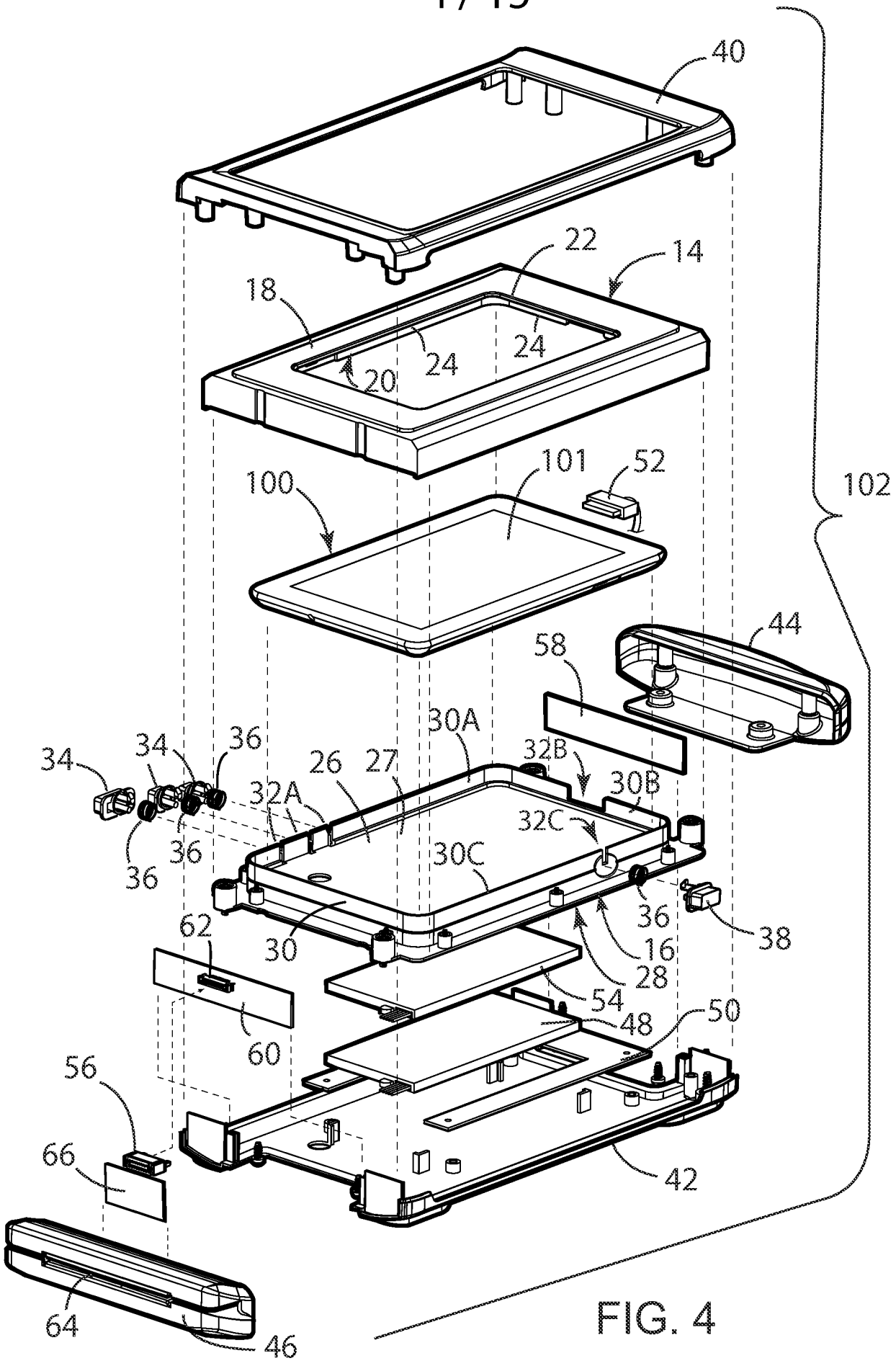
40
22
14
18
24
24
20
101
52
100
102
44
58
30A
34
34
36
26
27
32B
32A
30B
32C
36
36
30C
36
38
62
30
16
28
54
48
50
60
56
66
42
64
46

FIG. 4

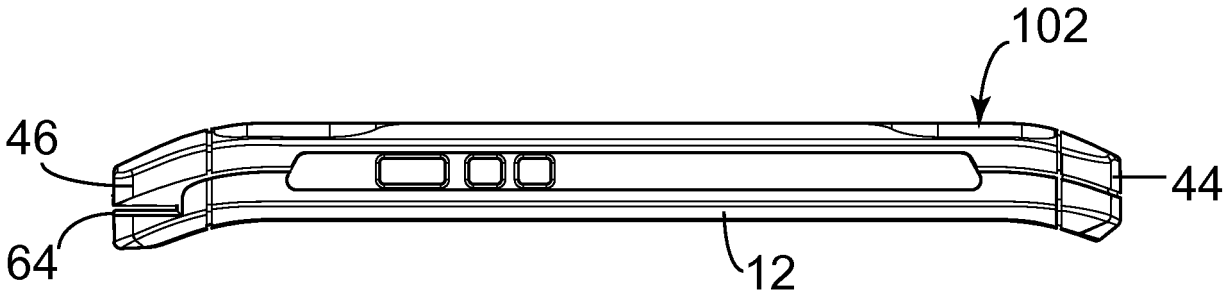

FIG. 5

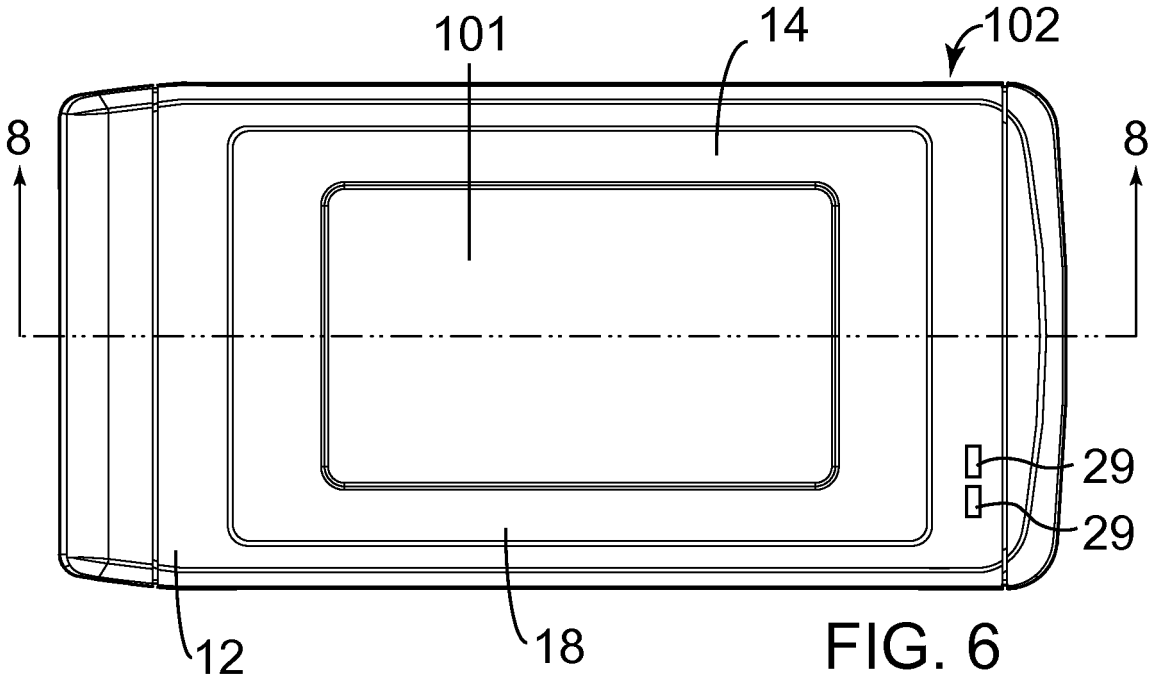

FIG. 6

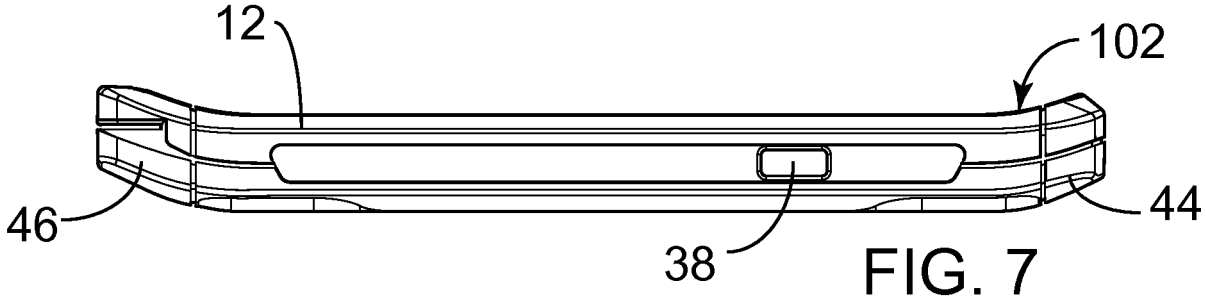

FIG. 7

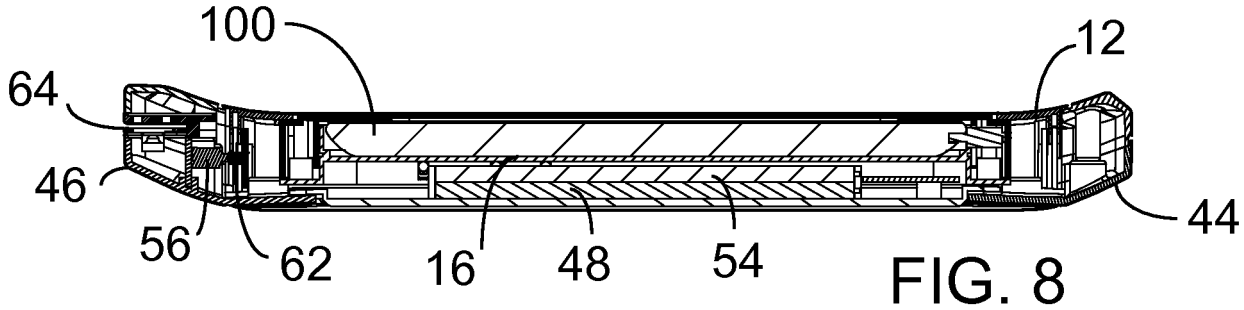

FIG. 8

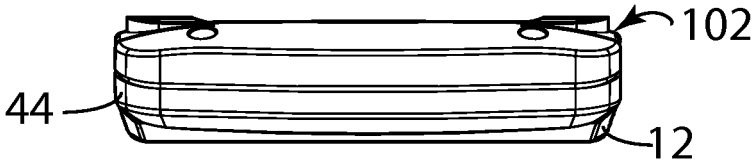

FIG. 9

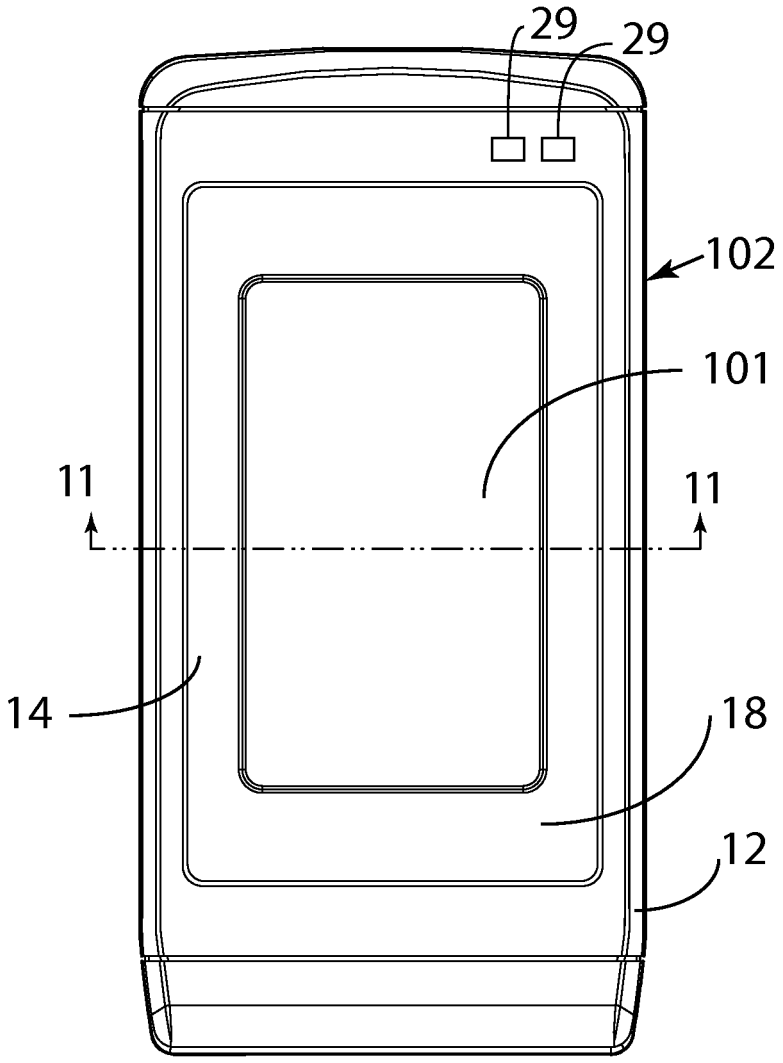

FIG. 10

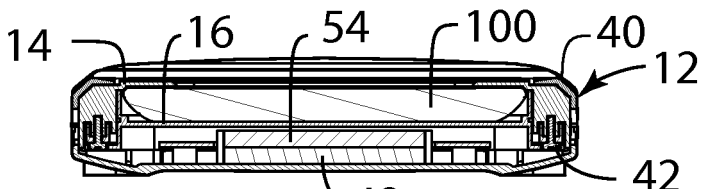

FIG. 11

FIG. 12

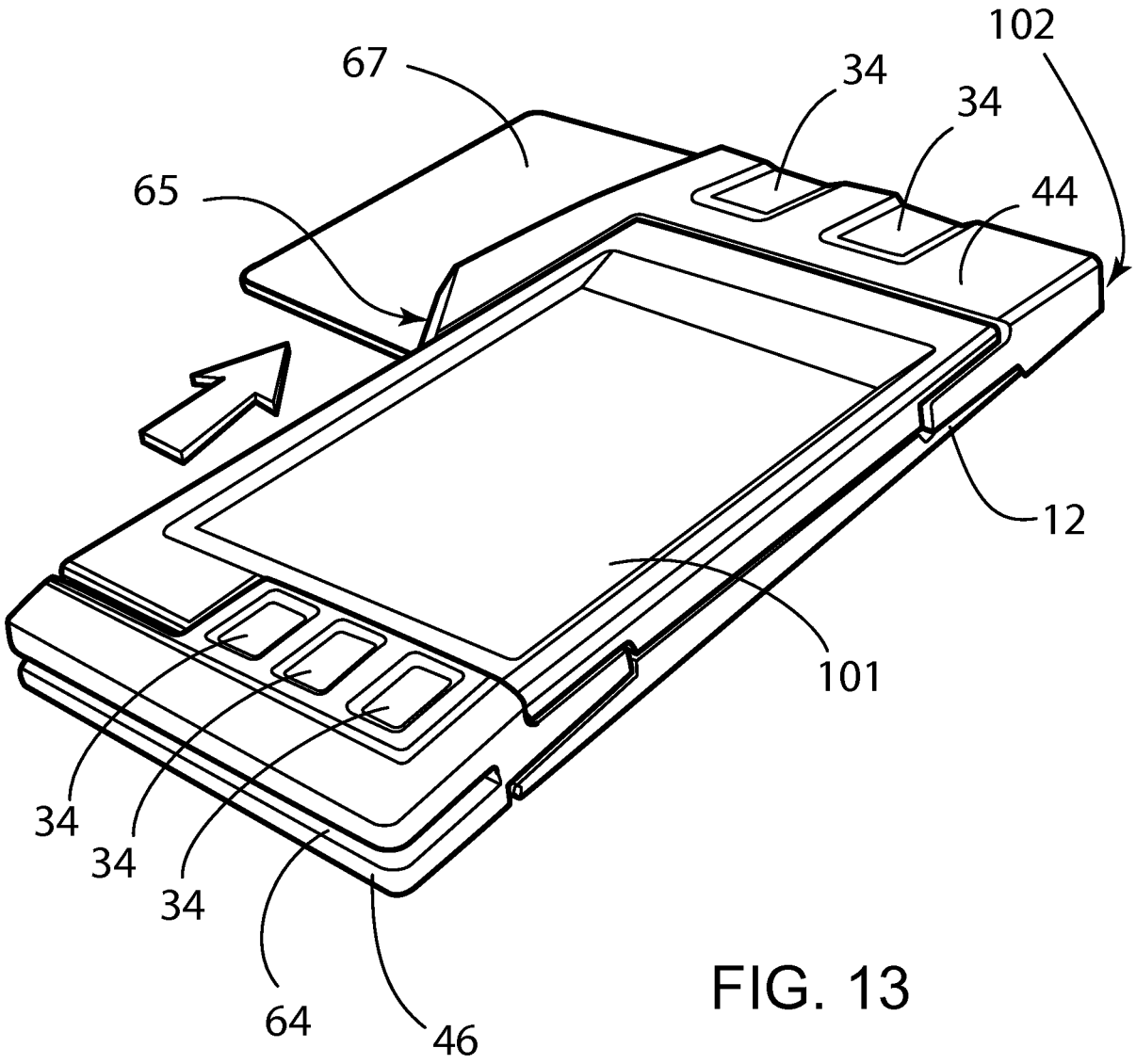

FIG. 13

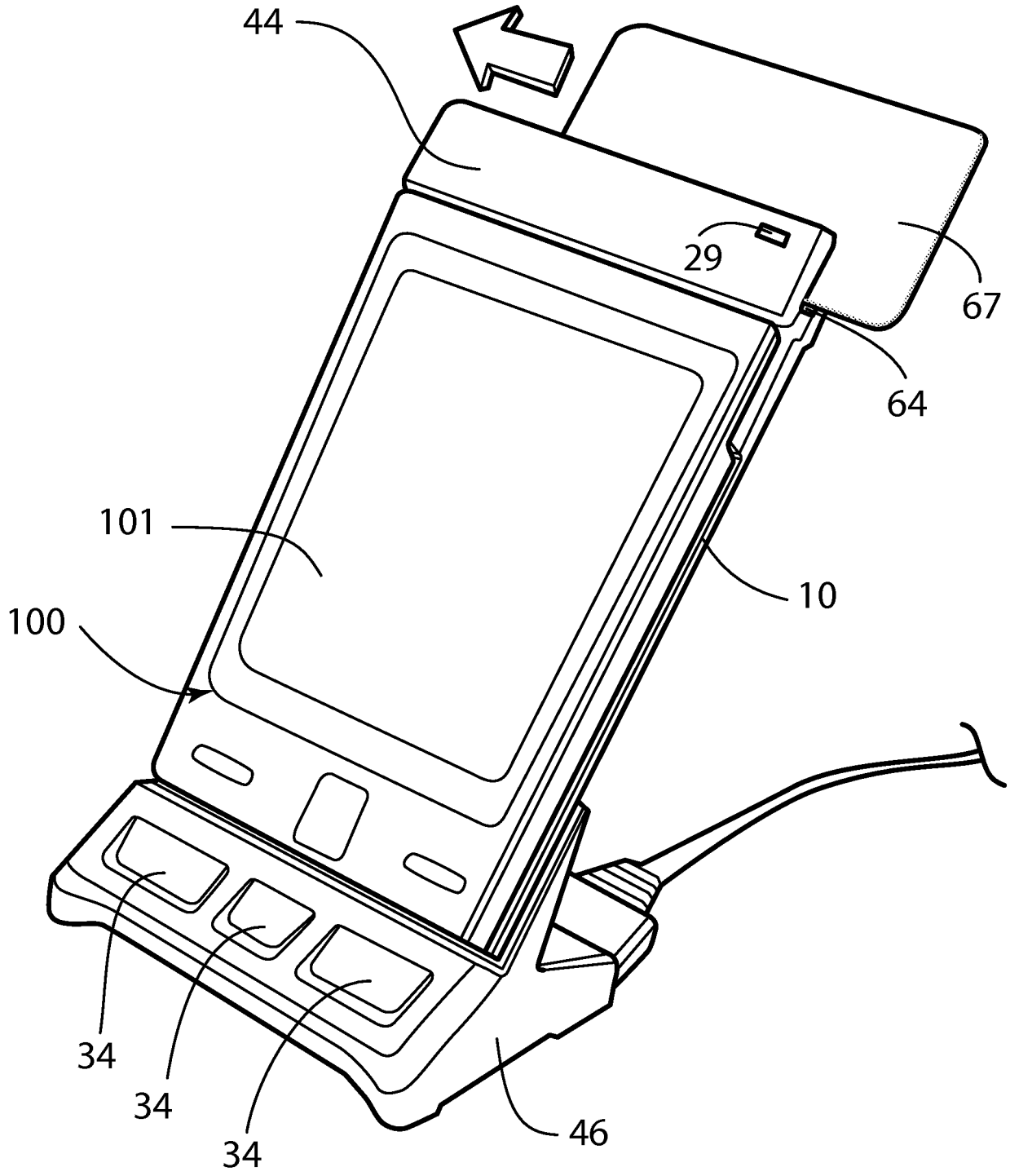

FIG. 14

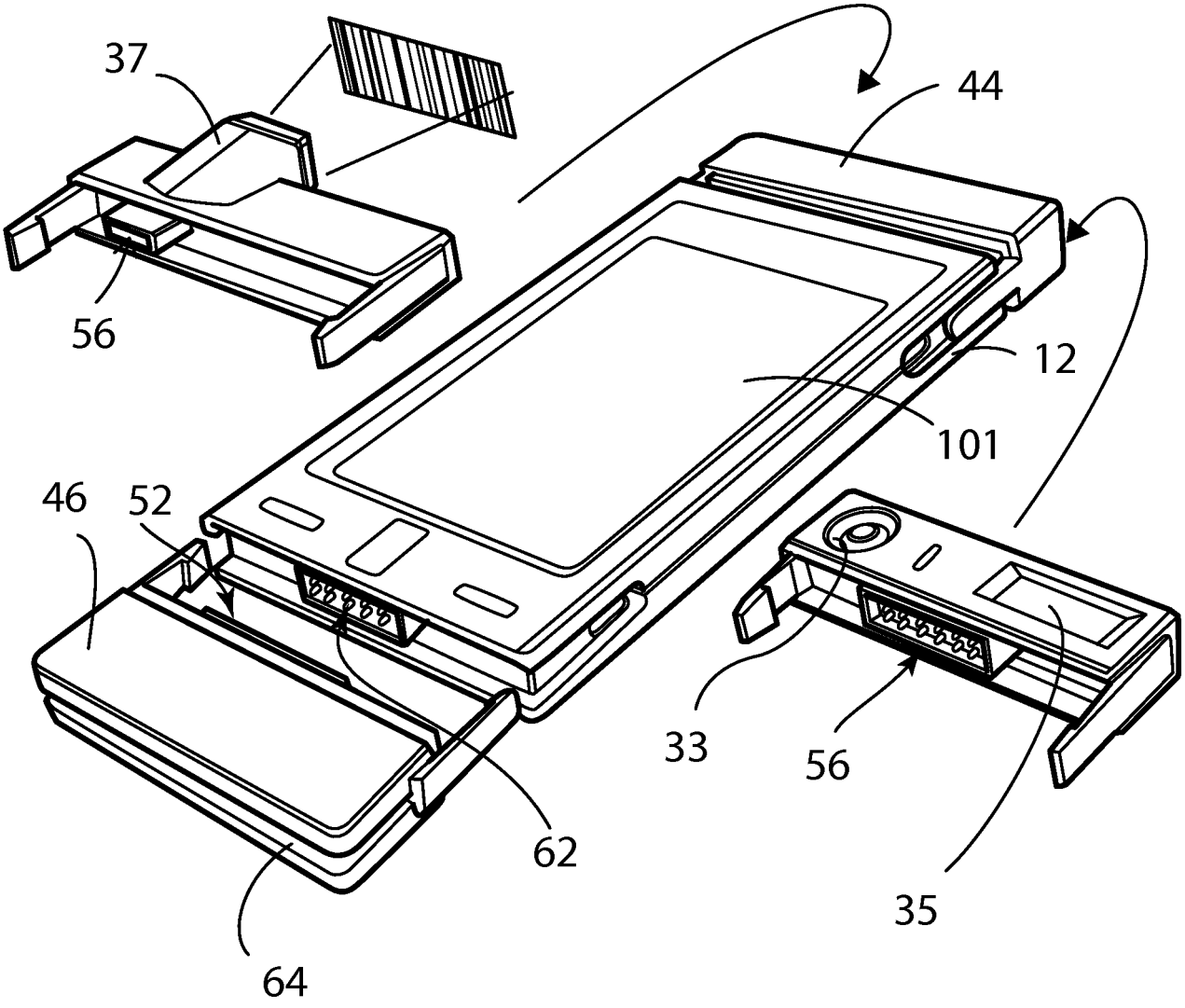

FIG. 15

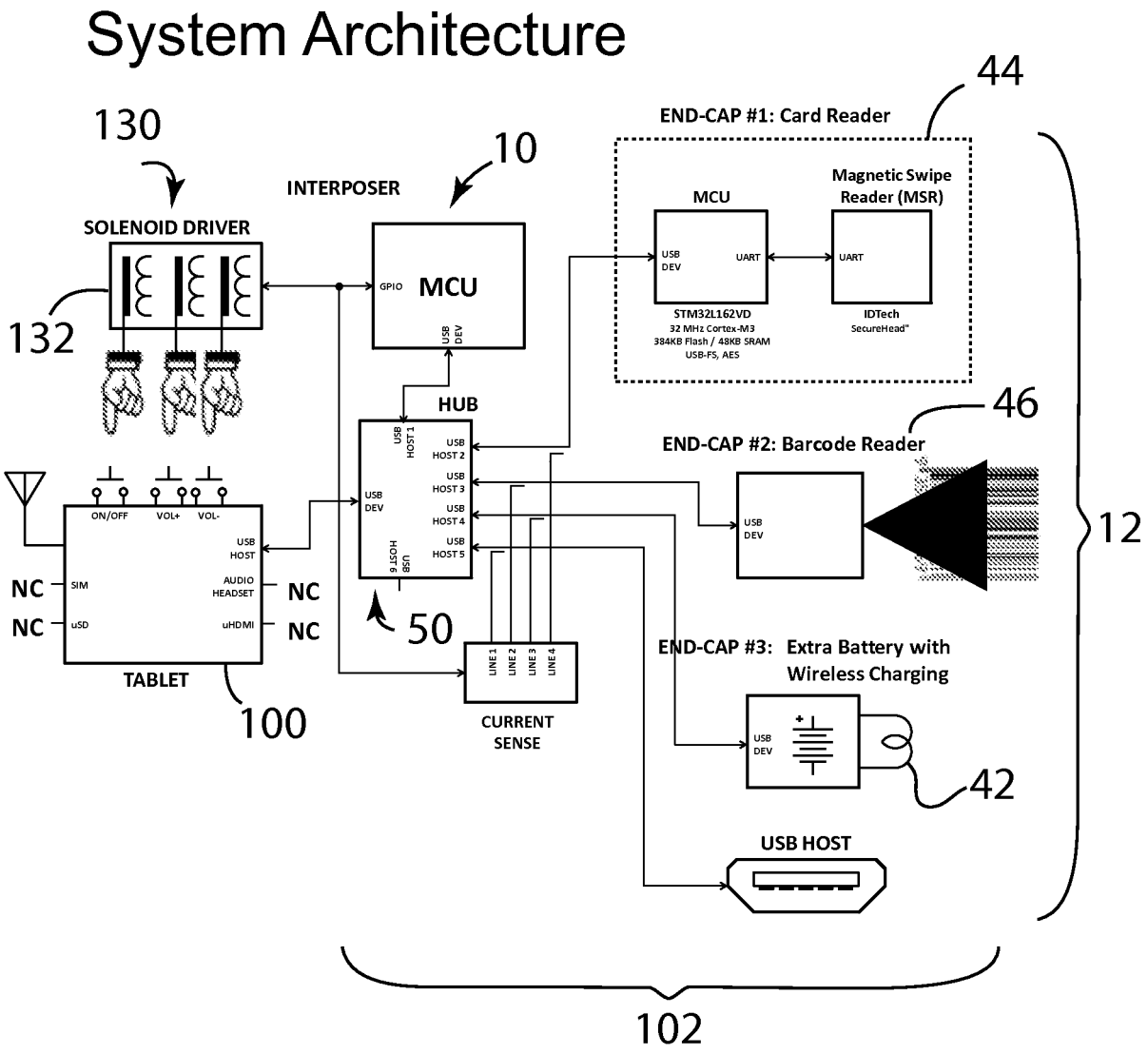
System Architecture
130
SOLENOID DRIVER
132
INTERPOSER
10
GPIO
MCU
USB DEV
HUB
USB HOST 1
USB HOST 2
USB HOST 3
USB HOST 4
USB HOST 5
USB HOST 6
USB DEV
50
END-CAP #1: Card Reader
44
MCU
Magnetic Swipe Reader (MSR)
USB DEV
UART
UART
STM32L162VD
32 MHz Cortex-M3
384KB Flash / 48KB SRAM
USB-FS, AES
IDTech
SecureHead"
END-CAP #2: Barcode Reader
46
USB DEV
12
ON/OFF
VOL+
VOL-
USB HOST
AUDIO HEADSET
uHDMI
SIM
uSD
NC
NC
NC
NC
TABLET
100
LINE 1
LINE 2
LINE 3
LINE 4
CURRENT SENSE
END-CAP #3: Extra Battery with Wireless Charging
USB DEV
42
USB HOST
102

FIG. 16

Specification

	MV7L, 7" LTE tablet
Target Dimension	198mm x 123mm x 9.6mm
Estimated Weight	Estimated 370g
CPU	Media Tek,MT8389E, 1.2G~1.4G Quad core
System Memory	DDR3 1G
LCD	7"W TFT, IPS, 1280 x 800
Touch screen	Projected capacitive type
Touch controller	5 points touch
Storage	eMMC 8G
G Sensors	YES
Ambient Light Sensor	YES
Gyro	YES
Digital compass	YES
I/O	3.5mm Headphone-out & Mic-in combo jack x 1
	Micro USB x 1 (support PC connection and DC-in charge)
	Micro SD card (up to 32GB)
	Micro-SIM card for LTE
	Micro HDMI
	DC Jack
Switch	One Power switch for Power on off / Suspend / Resume ; 2 Volume key for Volume + _
LED Indicator	One LED for charging status
WLAN/Bluetooth	802.11b/g/n + Bluetooth + FM
GPS	YES
LTE	LI170, Band13
Antenna	wifi/BT, GPS ,LTE x 2
Front Camera	1.2MP F/F
Rear Camera	5MP A/F
Camera Flash	YES
Speakers	Stereo speakers x 2 with front vent
Microphone	Internal MIC x 1, digital type
Adapter	Input: 100~240V
	Output: USB 5V, Current rating:1.8A
Operating System	Jelly Bean
Main Battery	4000mAh

FIG. 17

BLANK SLATE TABLET ENGINE SPECIFICATIONS

Table Features for Blank Slate Engine	
1	Android 4.x, at/or upgradable to Jelly Bean or 4.2 O/S
2	1GHz, Dual-Core Processor, Minimum
3	1GB LPDDR on Board
4	Storage via microSD card slot (Default: 8GB)
5	7" Color Display, 1280 x 800, LED BL, IPS or equivalent
6	Capacitive touch screen
7	two finger input, simple pen input
8	matte finish, fingerprint resistant
9	Speakers, two internal, 1W / CH
10	Microphone, front facing, omnidirectional
11	Headset jack, stereo out, mono input, 3.5mm
12	USB 2.0 port, device mode only
13	USB 2.0 port, dedicated host mode
14	Wireless PAN, Bluetooth 3.0
15	Wireless LAN, 802.11b/g/n, 2.4GHz ISM Band
16	Wireless WAN, 4G LTE CDMA-based data only
17	Assisted GPS (aGPS)
18	Rear facing camera
	8MP, dual-mode with autofocus & flash
19	Front facing camera
	1.3MP, optimized for low-ambient light environments
20	Accelerometer
21	Gyroscope
22	Ambient light sensor
23	Compass
24	Vibrator
25	Power Button
26	Volume Control Buttons
27	Power / Charge Indicator LED
28	8+ Hours of Battery Life

FIG. 18

Case Features (tablet within case)	
1	**Handstrap**
	Adjustable rear- side hand strap
2	**Second Battery**
	Embedded in case, no smaller in capacity than tablet
3	**Pen Garage**
	Opening that securely holds a pen with both the
	pen and case supporting a tether
4	**Audio**
	Case ports audio output from tablet and allows
	input into embedded microphone
5	**Ports**
	1xMicro -USB device port for charge / data synch
	1xMini - USB host port
	Sliding door type covers
	USB port placement to not interfere with MSR
6	**Controls**
	Power Button
	Volume Up / Down Buttons
7	**Indicators**
	Power / Charge LED
8	**Durability**
	Ingress Protection Level 54 Compliance
	Compliance with MIL -STD - 810G Specification,
	Procedure 516.6, Method II, Operating Drop, 1.5M
9	**Magnetic Strip Reader**
	Bi-directional swiping supported
	Data is encrypted before leaving the read heads
	Easy for replacement / rework OR support for RKI
	Water resistant slot cover
10	**NFC with EMV**
	(13.56MHz, ISO/IEC 18092,14443A/B & FeliCa Std.)
	Supporting NFC Forum Type 1~3 Tag Operation and
	Type 4 Tag Operation based on Spec 2.0
	LED indicator of read complete
11	**Secure Keypad (Factory / Service Option)**
	Required for ATM PIN input, encrypted
	Enabling debit transactions
12	**Chip & Pin Interface (Factory / Service Option)**
	Secure keypad for PIN input, encrypted
	Close range NFC for secure reading of Chip
13	**Fingerprint Reader (Factory Option)**
	Area fingerprint reader
	SW development to enable credential based access
14	**Mounting Bracket (Option)**
	Securing to rear mounted bracket to secure device
	to stationary stand & ensures good power connection
	allows for fixed or removable configurations

FIG. 19

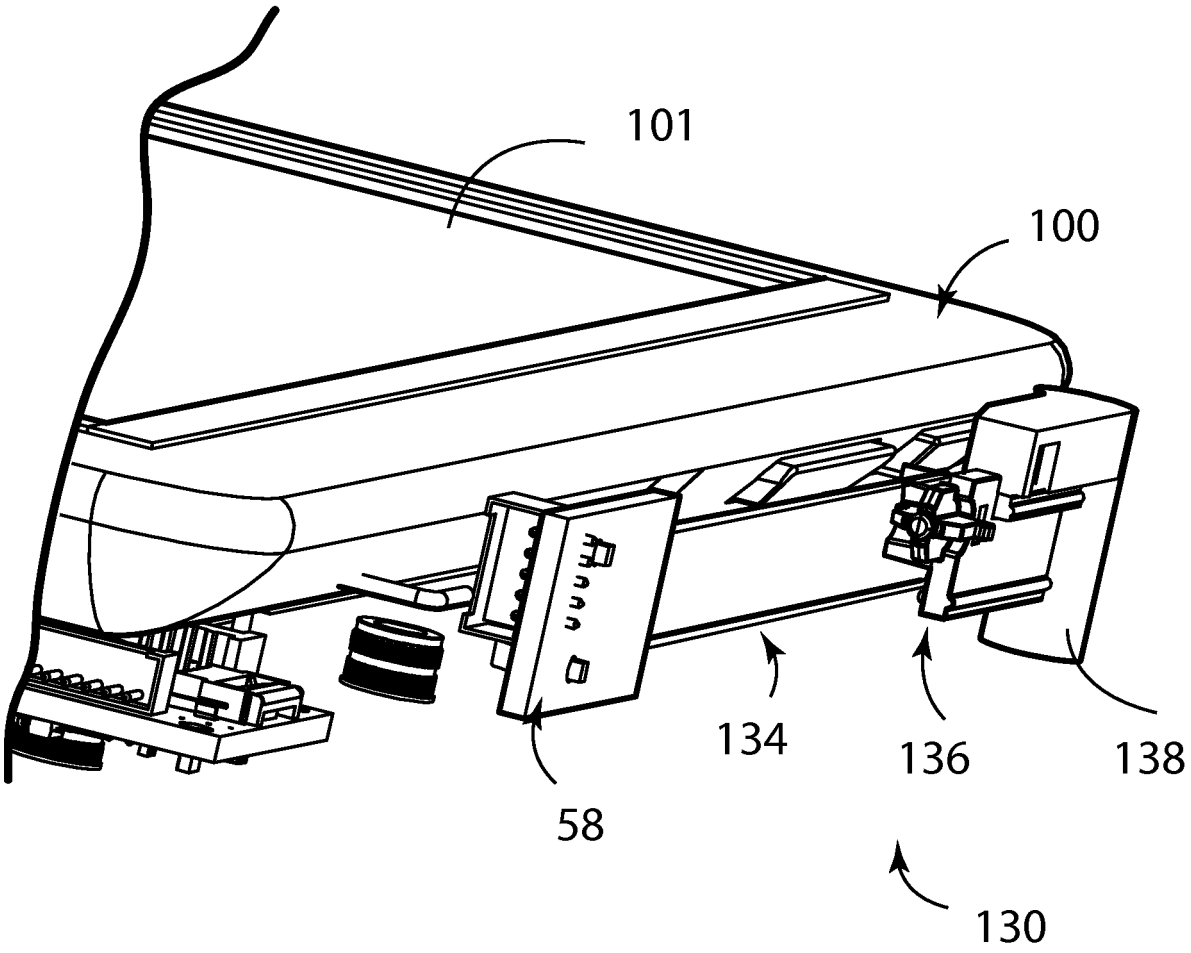

FIG. 20

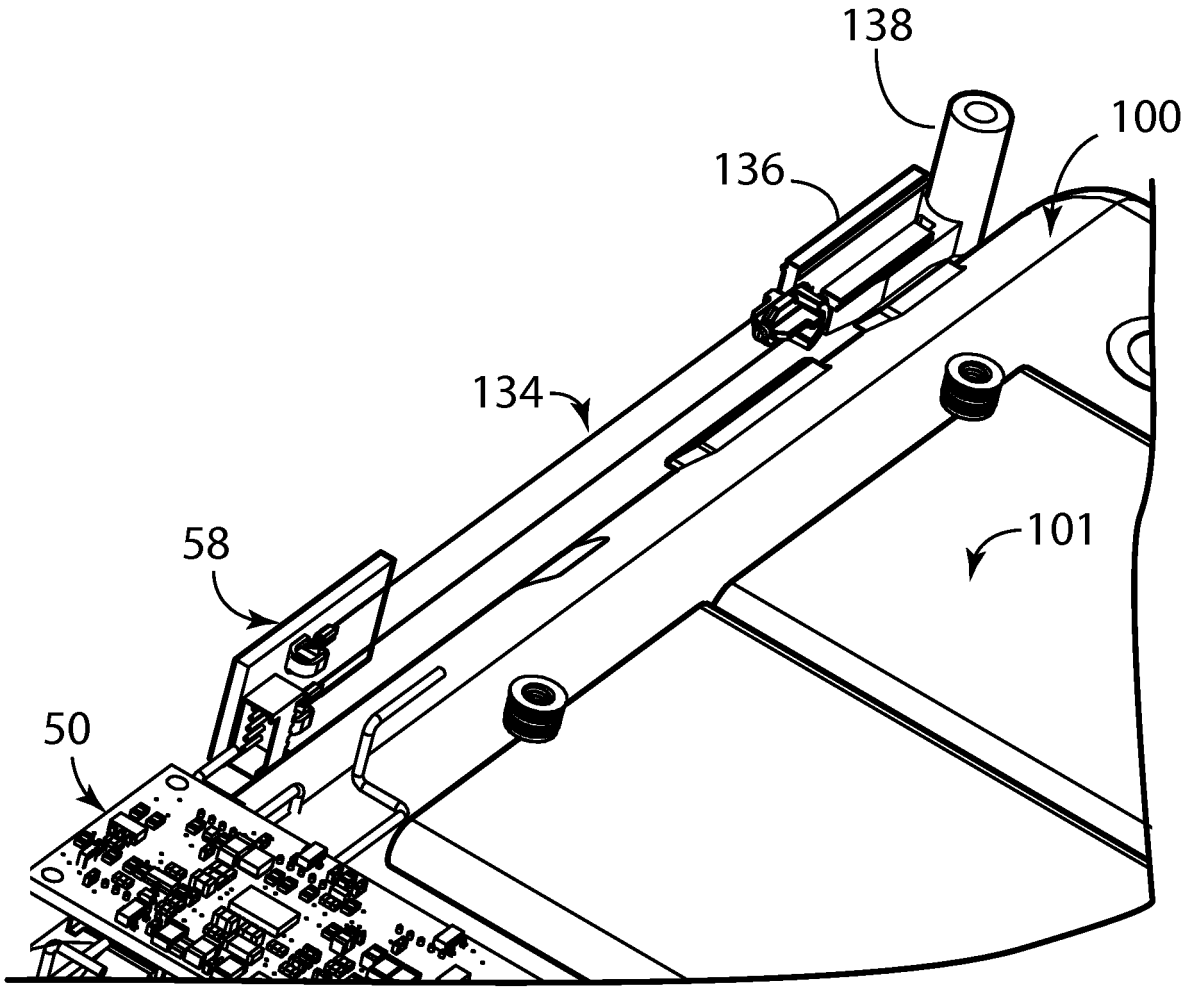

FIG. 21

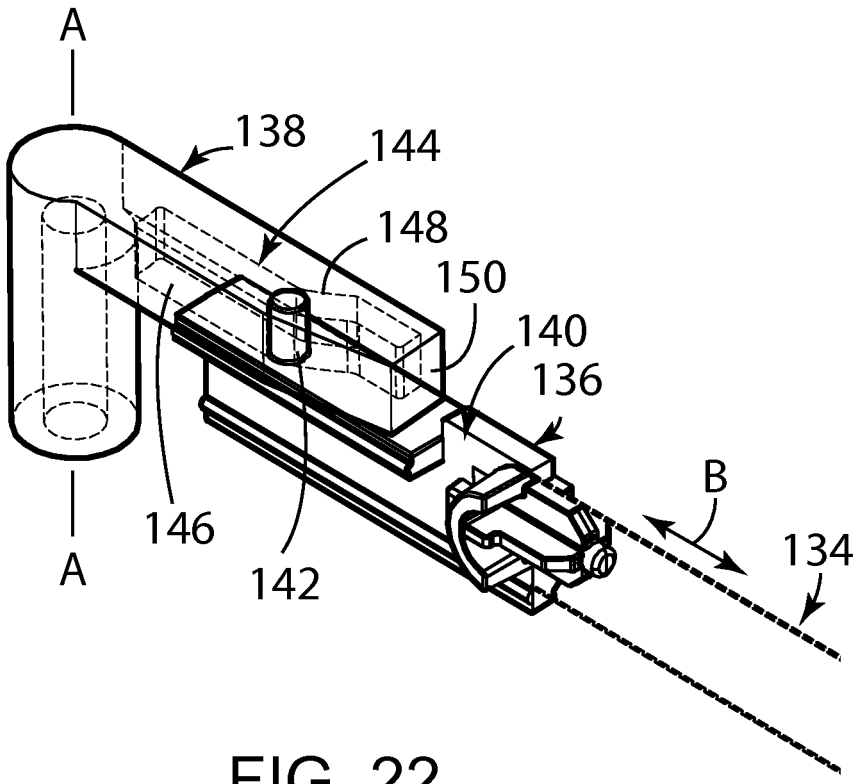
A
138
144
148
150
140
136
B
134
146
142
A

FIG. 22

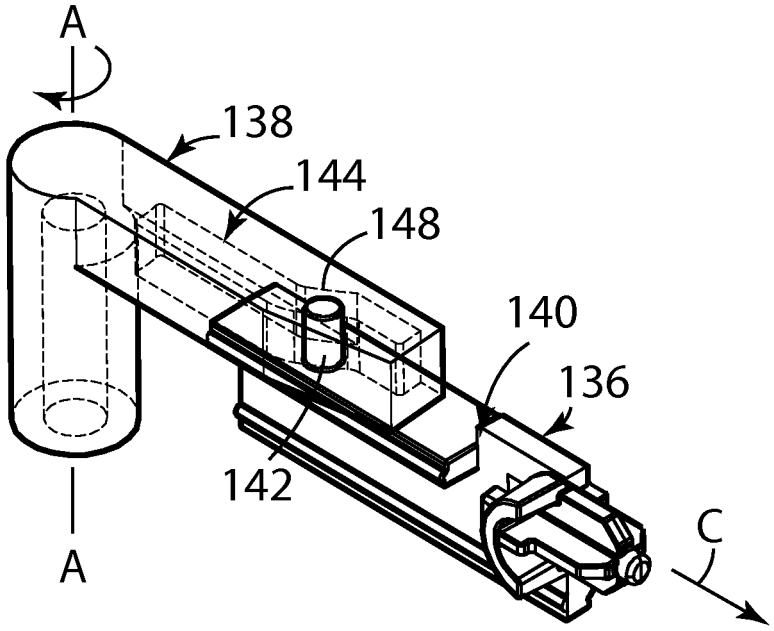
A
138
144
148
140
136
142
C
A

FIG. 23

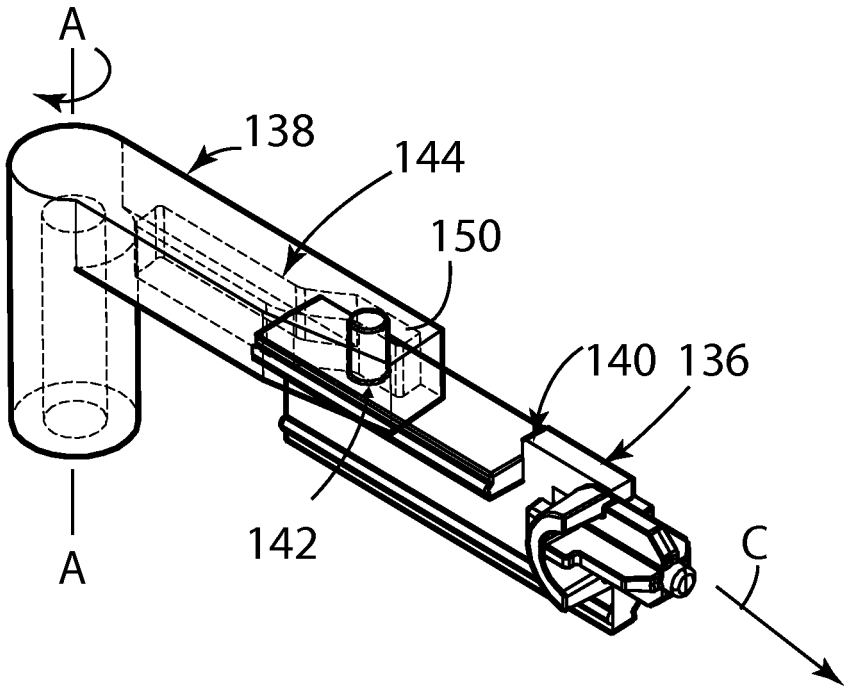

FIG. 24

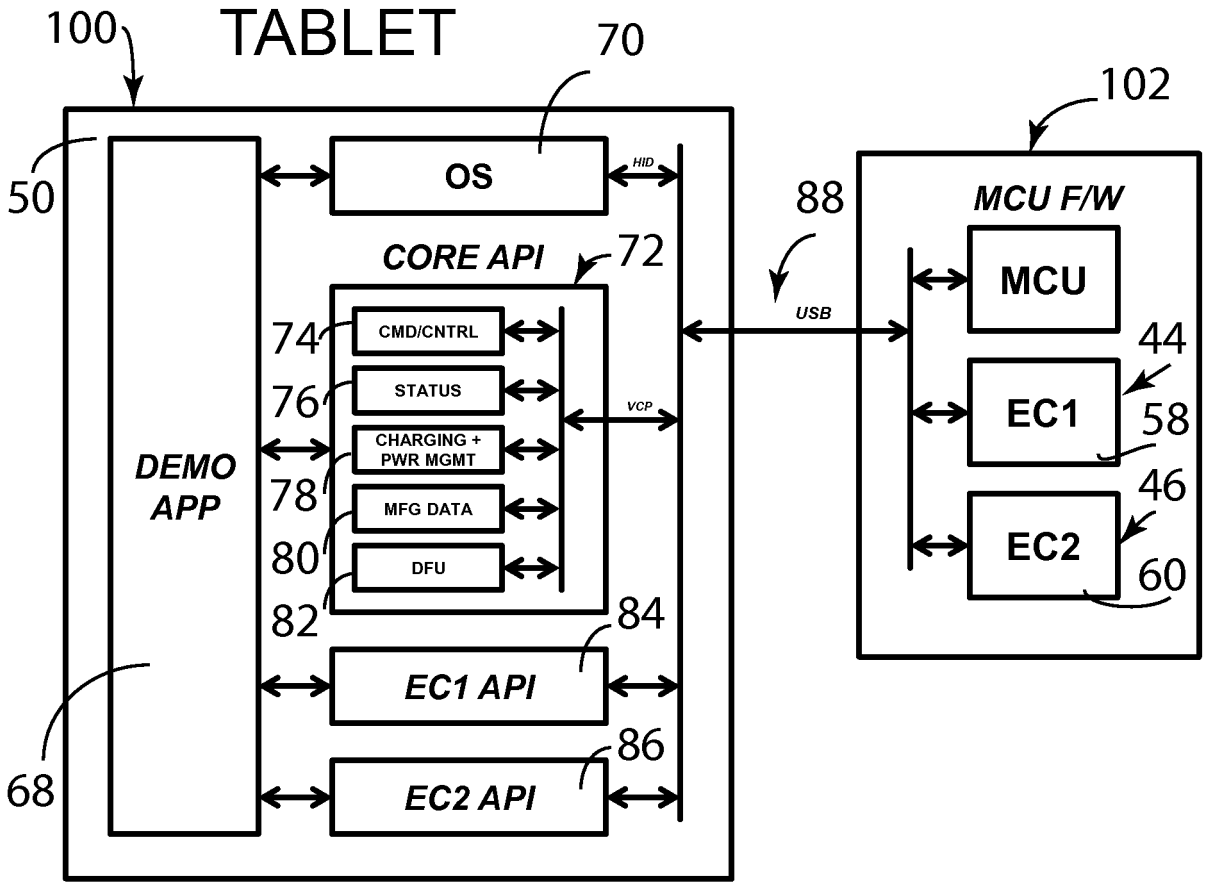
100
TABLET
70
102
50
OS
HID
88
MCU F/W
CORE API
72
MCU
USB
74
CMD/CNTRL
44
76
STATUS
VCP
EC1
58
DEMO
APP
CHARGING +
PWR MGMT
78
46
MFG DATA
EC2
80
DFU
60
82
84
EC1 API
86
68
EC2 API

FIG. 25

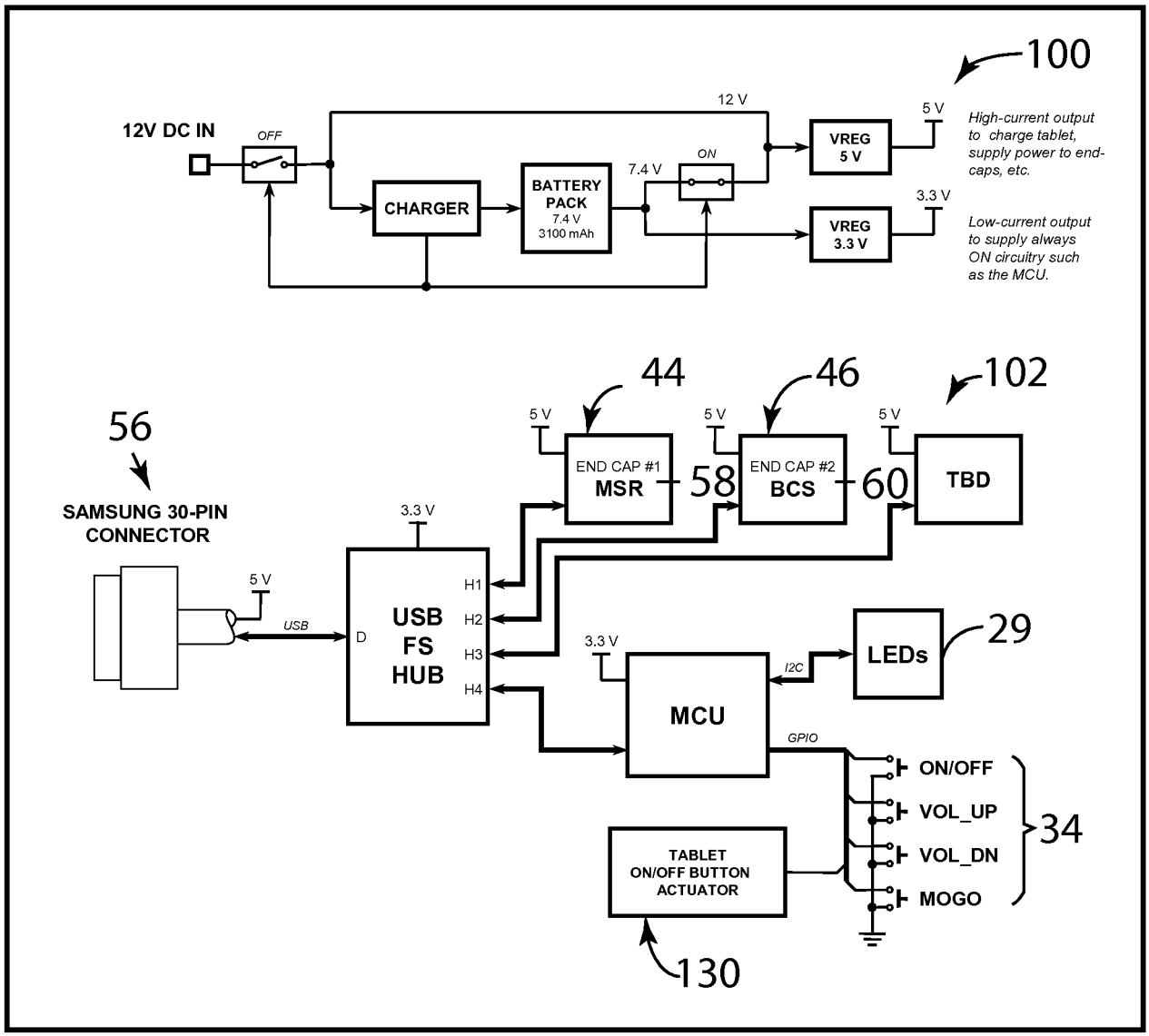
100
12V DC IN
OFF
12 V
CHARGER
BATTERY PACK
7.4 V
3100 mAh
7.4 V
ON
VREG
5 V
5 V
High-current output to charge tablet, supply power to end-caps, etc.
VREG
3.3 V
3.3 V
Low-current output to supply always ON circuitry such as the MCU.
44
46
102
56
SAMSUNG 30-PIN CONNECTOR
5 V
END CAP #1
MSR
58
END CAP #2
BCS
60
TBD
3.3 V
5 V
USB
D
USB
FS
HUB
H1
H2
H3
H4
3.3 V
MCU
I2C
LEDs
29
GPIO
ON/OFF
VOL_UP
VOL_DN
MOGO
34
TABLET
ON/OFF BUTTON
ACTUATOR
130

FIG. 26

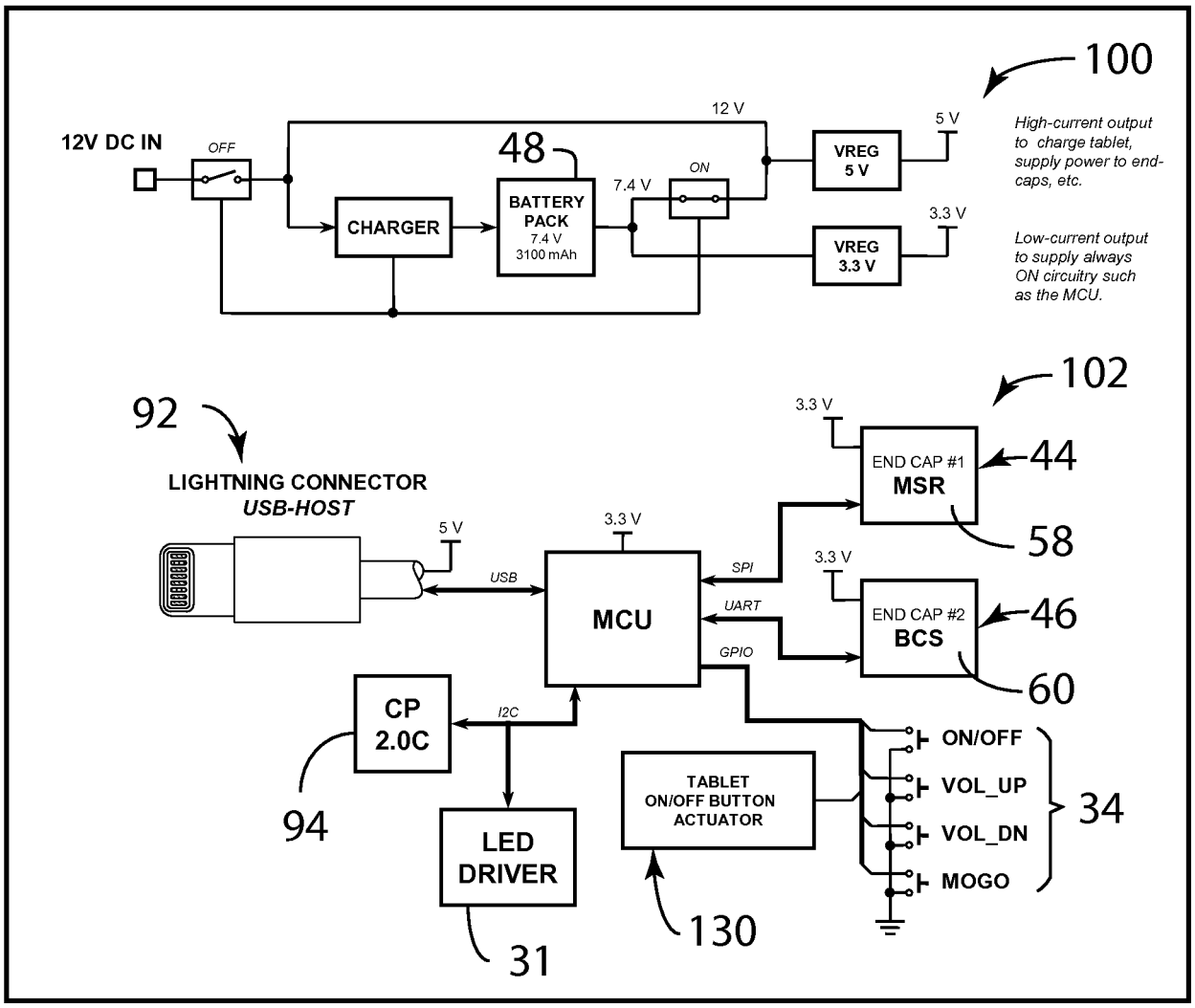
100
12V DC IN
OFF
12 V
48
CHARGER
BATTERY PACK
7.4 V
3100 mAh
7.4 V
ON
VREG 5 V
5 V
VREG 3.3 V
3.3 V
High-current output to charge tablet, supply power to end-caps, etc.
Low-current output to supply always ON circuitry such as the MCU.
102
92
LIGHTNING CONNECTOR
USB-HOST
5 V
USB
3.3 V
MCU
SPI
UART
GPIO
3.3 V
END CAP #1
MSR
44
58
3.3 V
END CAP #2
BCS
46
60
CP
2.0C
I2C
94
LED DRIVER
31
TABLET ON/OFF BUTTON ACTUATOR
130
ON/OFF
VOL_UP
VOL_DN
MOGO
34

FIG. 27

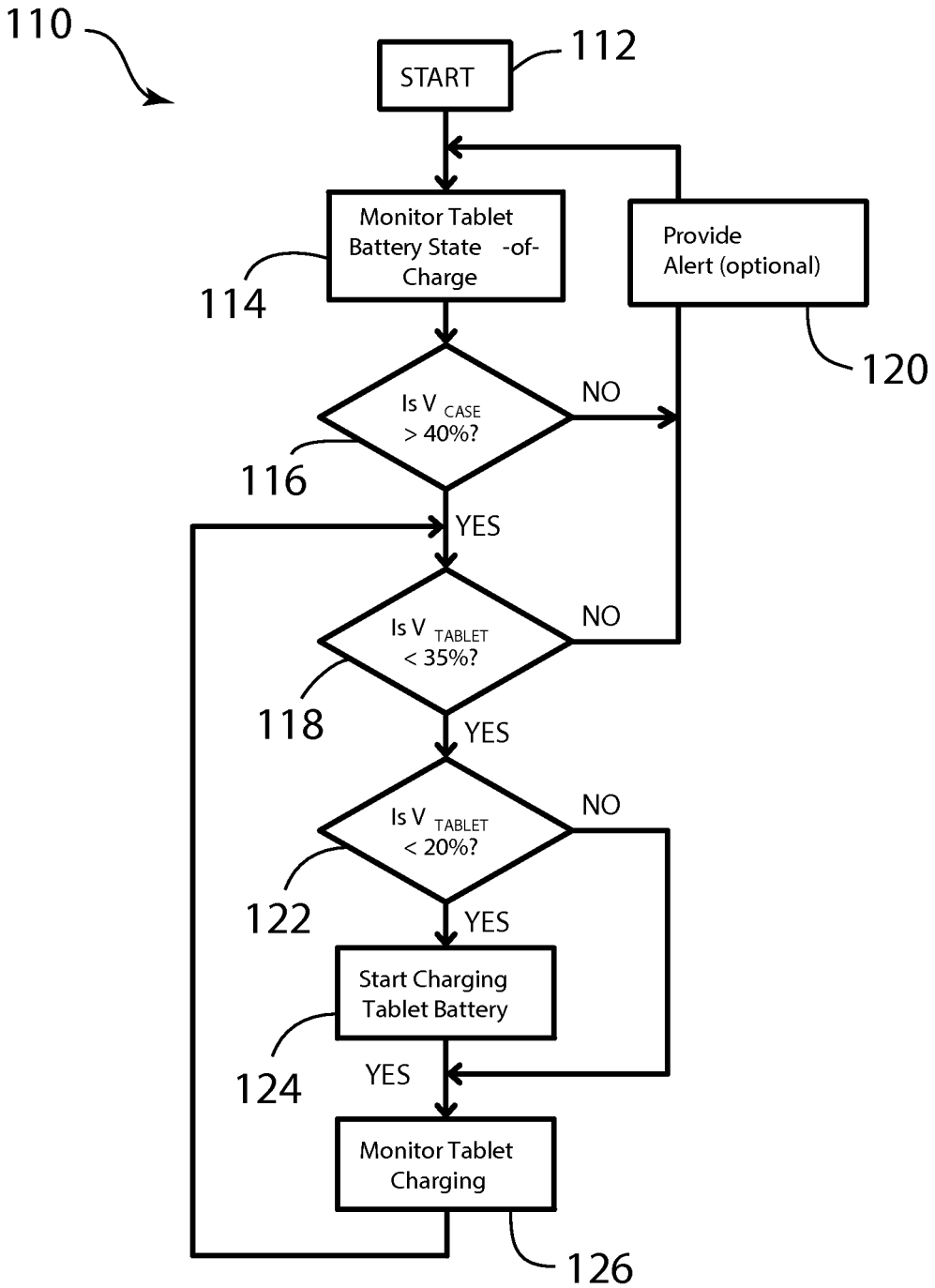
110
START
112
Monitor Tablet Battery State -of- Charge
114
Provide Alert (optional)
120
Is V CASE > 40%?
NO
116
YES
Is V TABLET < 35%?
NO
118
YES
Is V TABLET < 20%?
NO
122
YES
Start Charging Tablet Battery
124
YES
Monitor Tablet Charging
126

FIG. 28

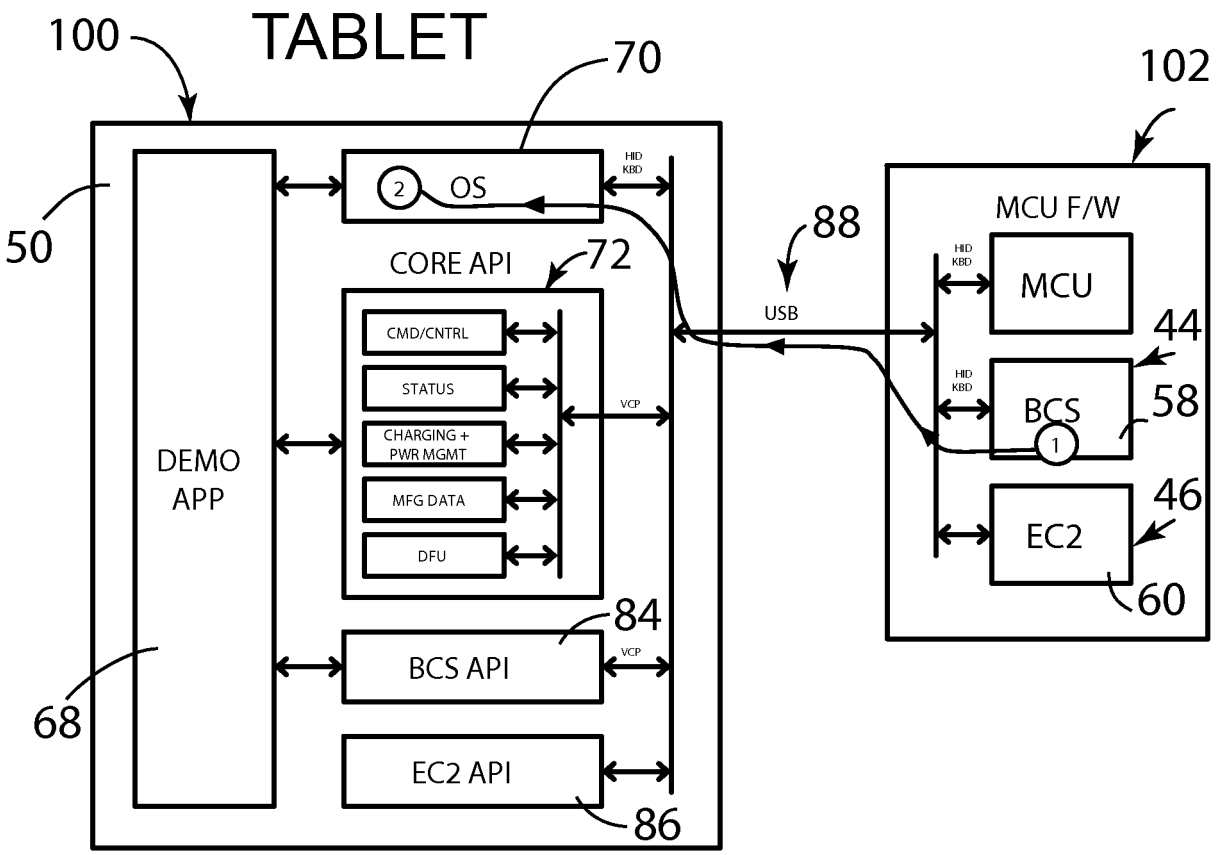
100
TABLET
70
102
50
2
OS
HID
KBD
88
MCU F/W
CORE API
72
USB
MCU
CMD/CNTRL
STATUS
CHARGING +
PWR MGMT
MFG DATA
DFU
VCP
44
BCS
58
1
DEMO
APP
46
EC2
60
84
BCS API
68
EC2 API
86

FIG. 29

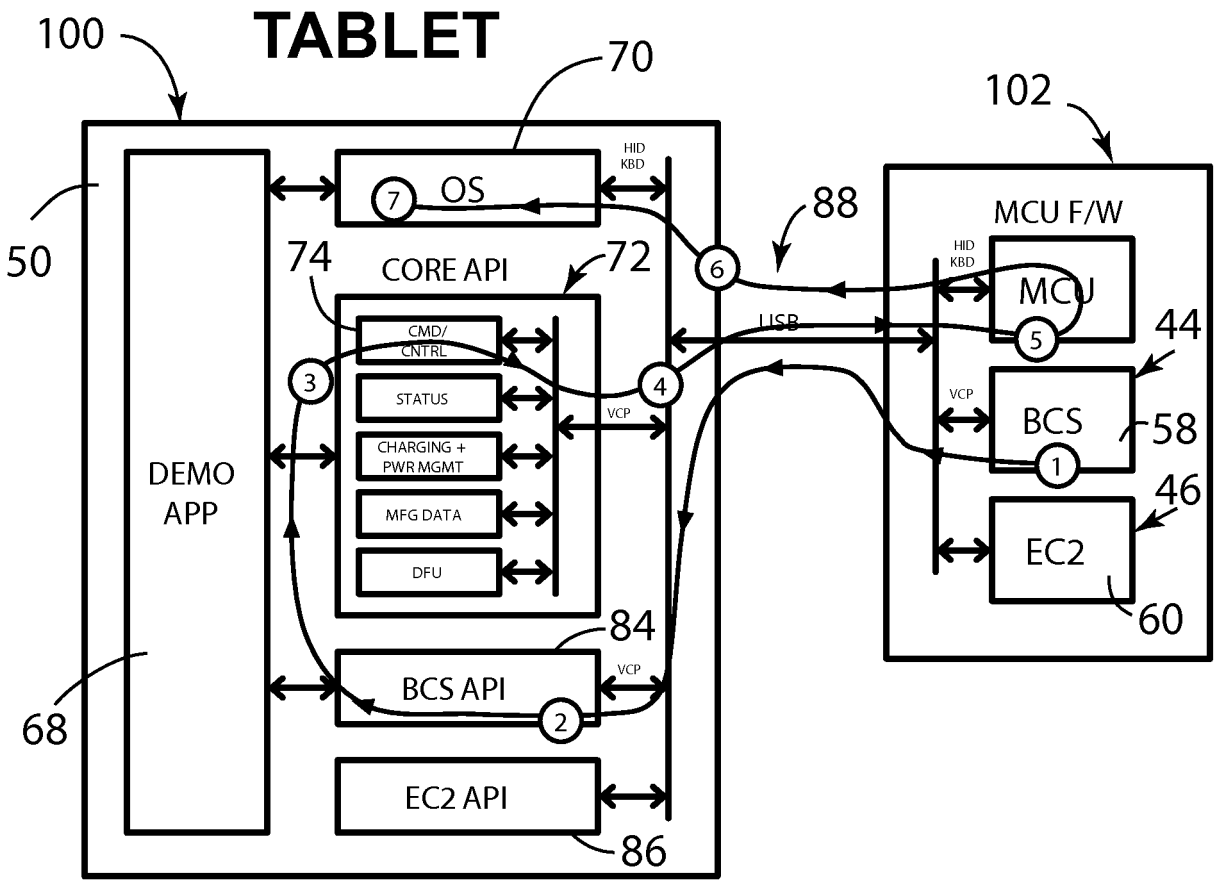
100
TABLET
70
102
50
HID KBD
7
OS
88
MCU F/W
74
CORE API
72
6
HID KBD
MCU
USB
5
44
CMD/ CNTRL
3
4
STATUS
VCP
VCP
BCS
58
DEMO APP
CHARGING + PWR MGMT
1
46
MFG DATA
EC2
DFU
60
84
VCP
BCS API
68
2
EC2 API
86

FIG. 30

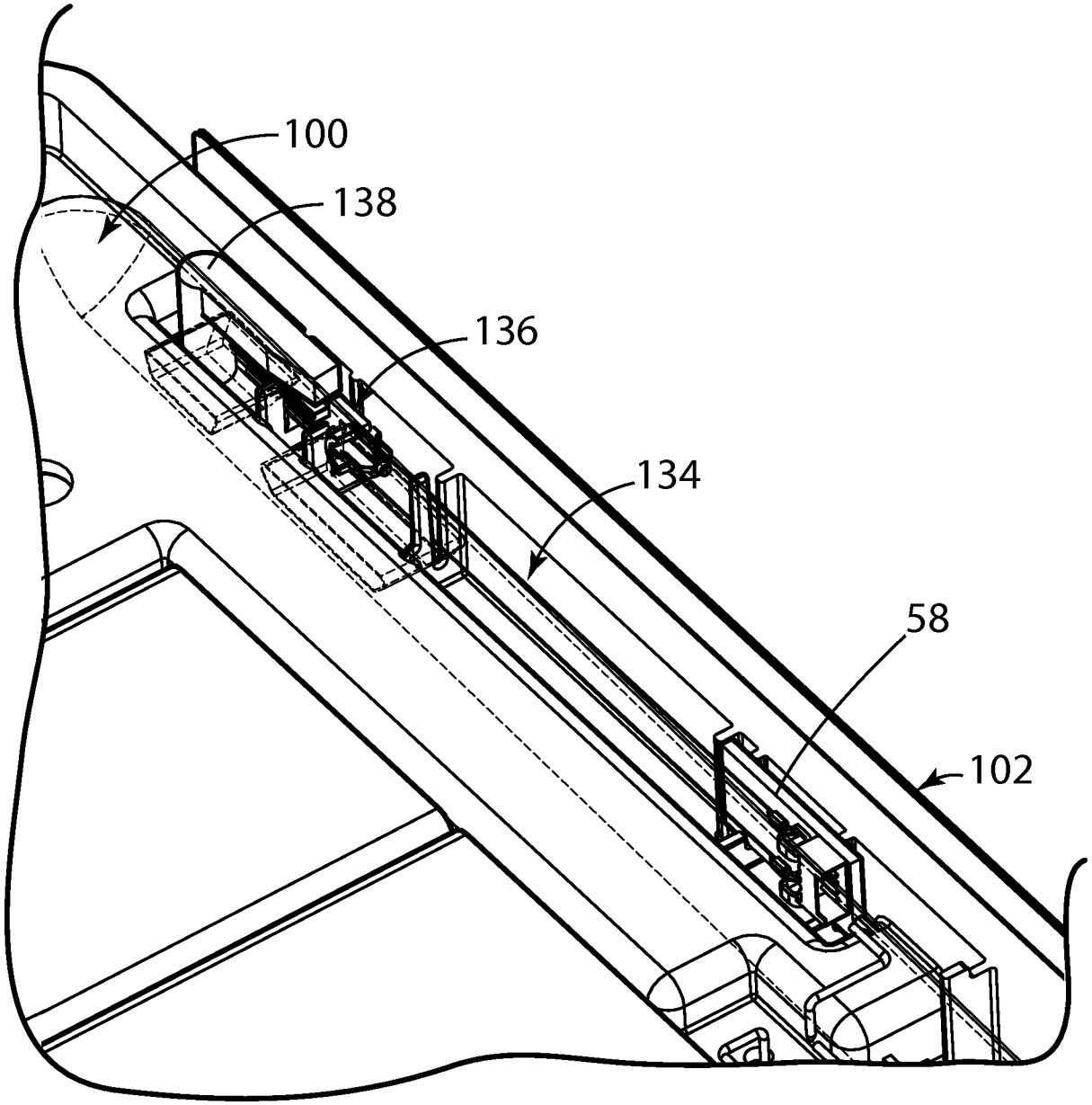

FIG. 31

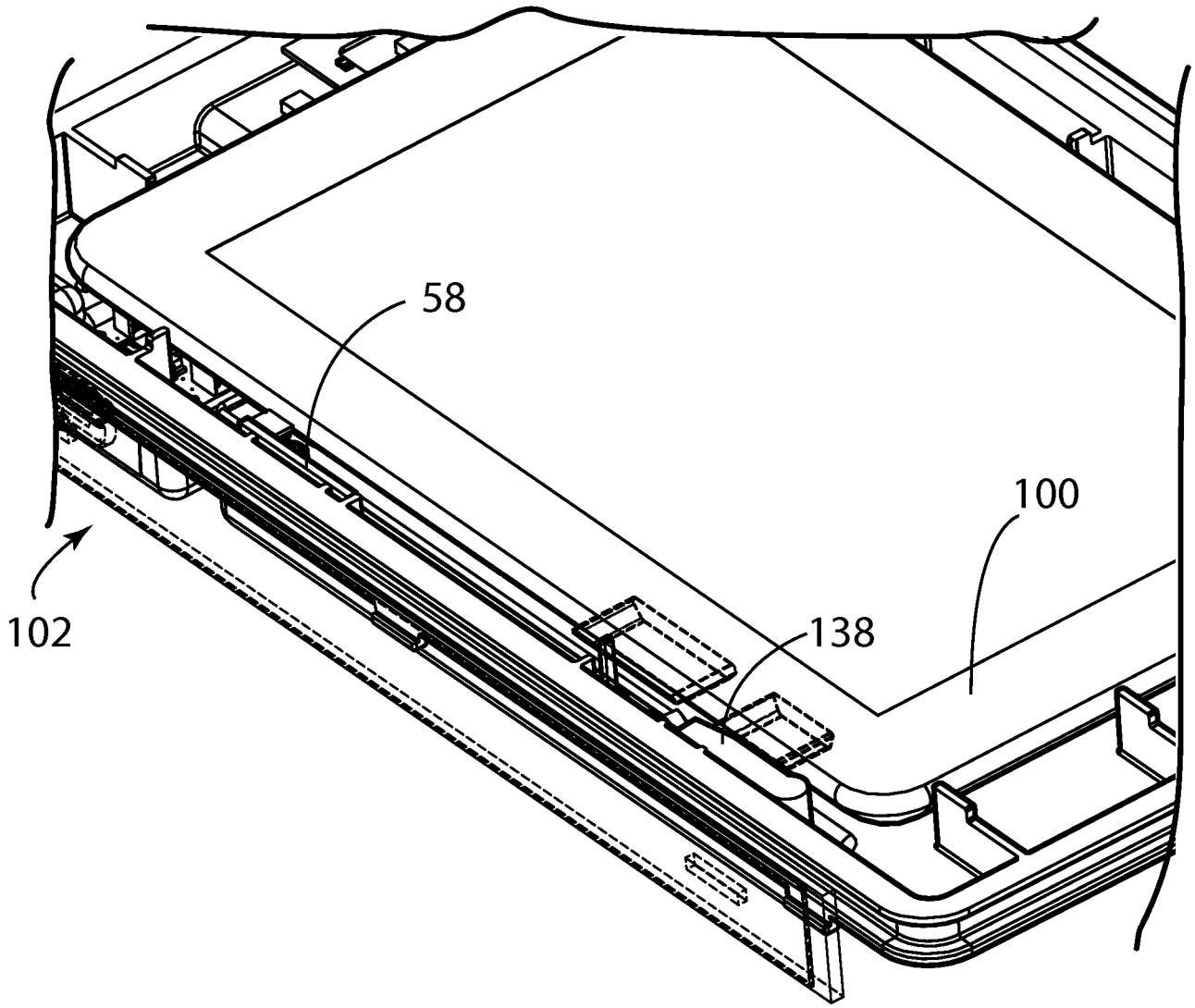

FIG. 32