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EXHIBIT 1001

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(54) **EXTERIOR REARVIEW MIRROR ASSEMBLY**

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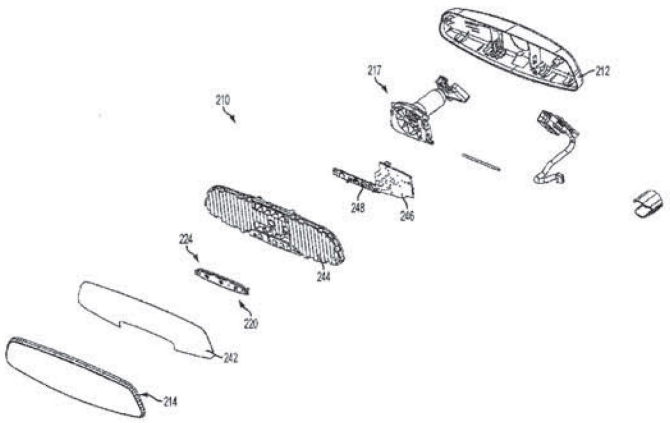
(57) **ABSTRACT**

An exterior rearview mirror assembly for a vehicle includes a mirror head and an exterior mirror reflective element fixedly attached at the mirror head. An attachment portion is configured for attachment at an exterior portion of the vehicle. The mirror assembly includes a multi-axis adjustment mechanism having at least one electrically-operable actuator. The multi-axis adjustment mechanism is operable to move the mirror head, with the exterior mirror reflective element fixedly attached thereto, about multiple axes relative to the attachment portion. The exterior mirror reflective element moves in tandem with movement of the mirror head relative to the exterior portion of the body of the vehicle to adjust the rearward field of view of a driver of the vehicle who views the exterior mirror reflective element when operating the vehicle.

36 Claims, 74 Drawing Sheets



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2012, now Pat. No. 9,346,403, which is a continuation-in-part of application No. 13/879,481, filed as application No. PCT/US2011/056295 on Oct. 14, 2011, now Pat. No. 9,598,016, which is a continuation-in-part of application No. 13/498,597, filed as application No. PCT/US2010/051741 on Oct. 7, 2010, now Pat. No. 8,730,553.

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See application file for complete search history.

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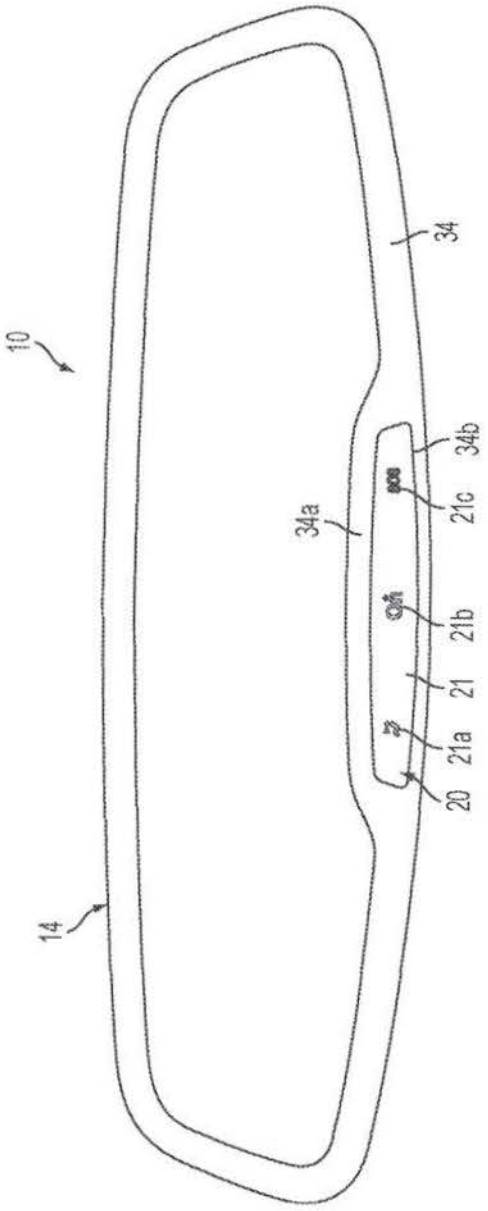
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20

FIG. 1

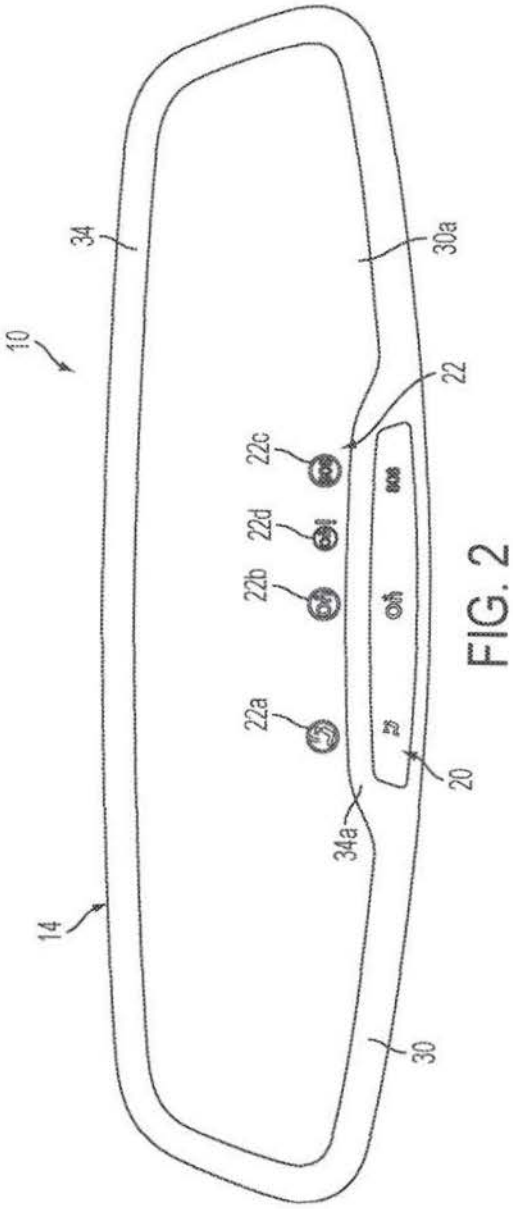
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FIG. 2

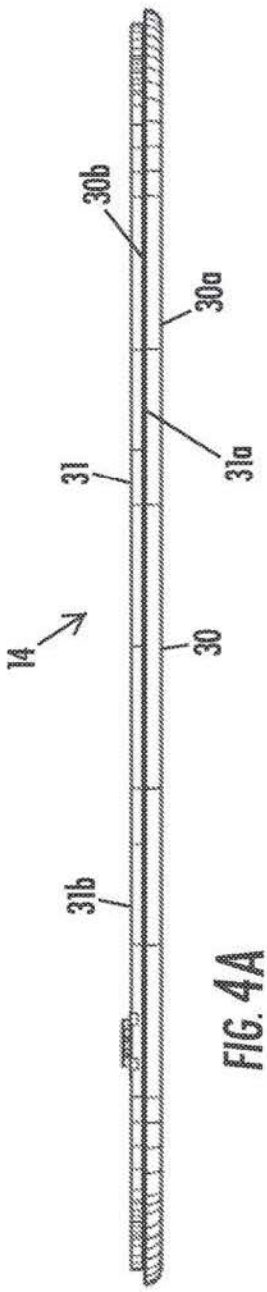


FIG. 4A

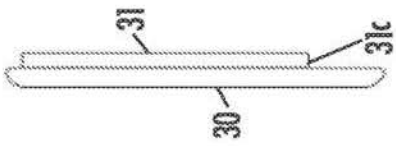
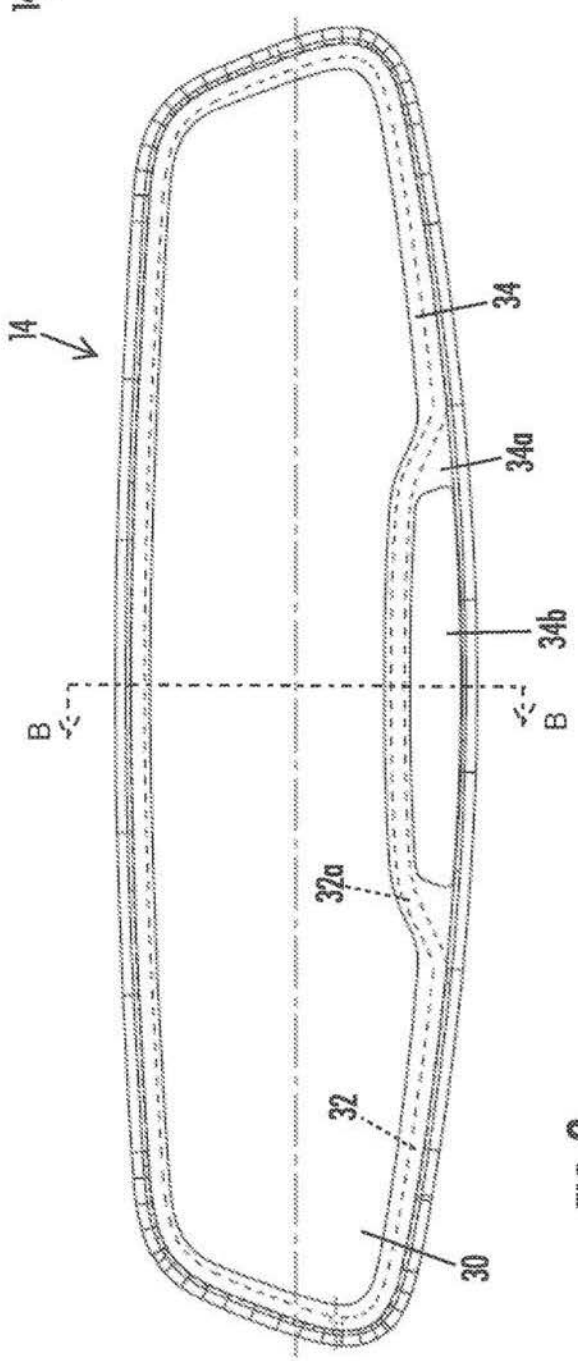


FIG. 4B



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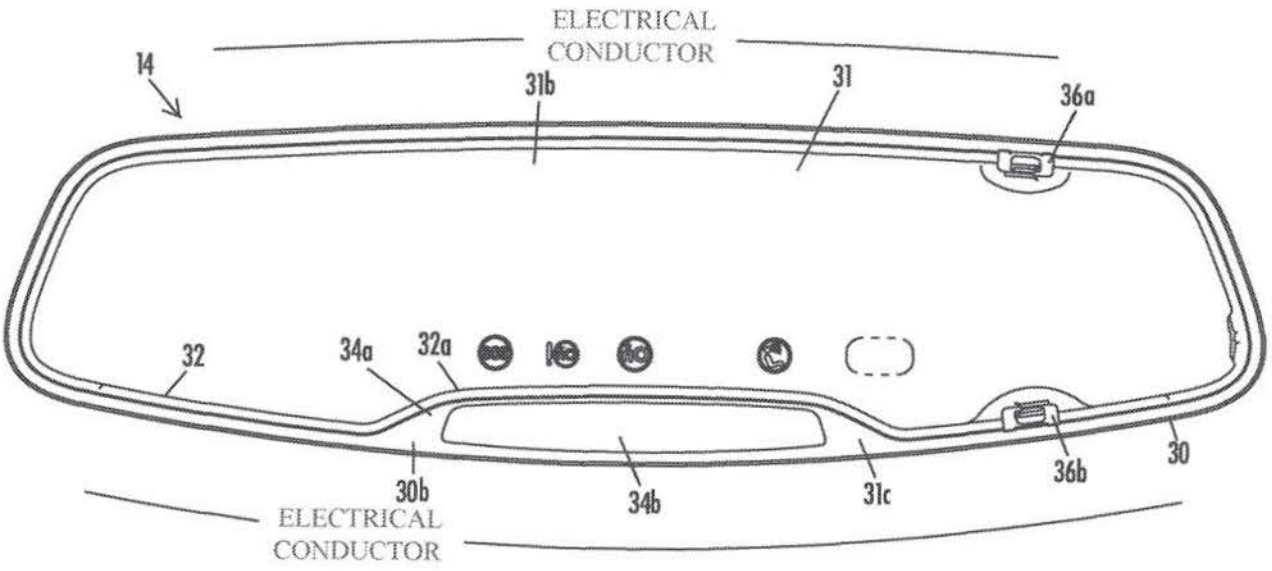
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30b
34b
31c
36b
ELECTRICAL CONDUCTOR

FIG. 5

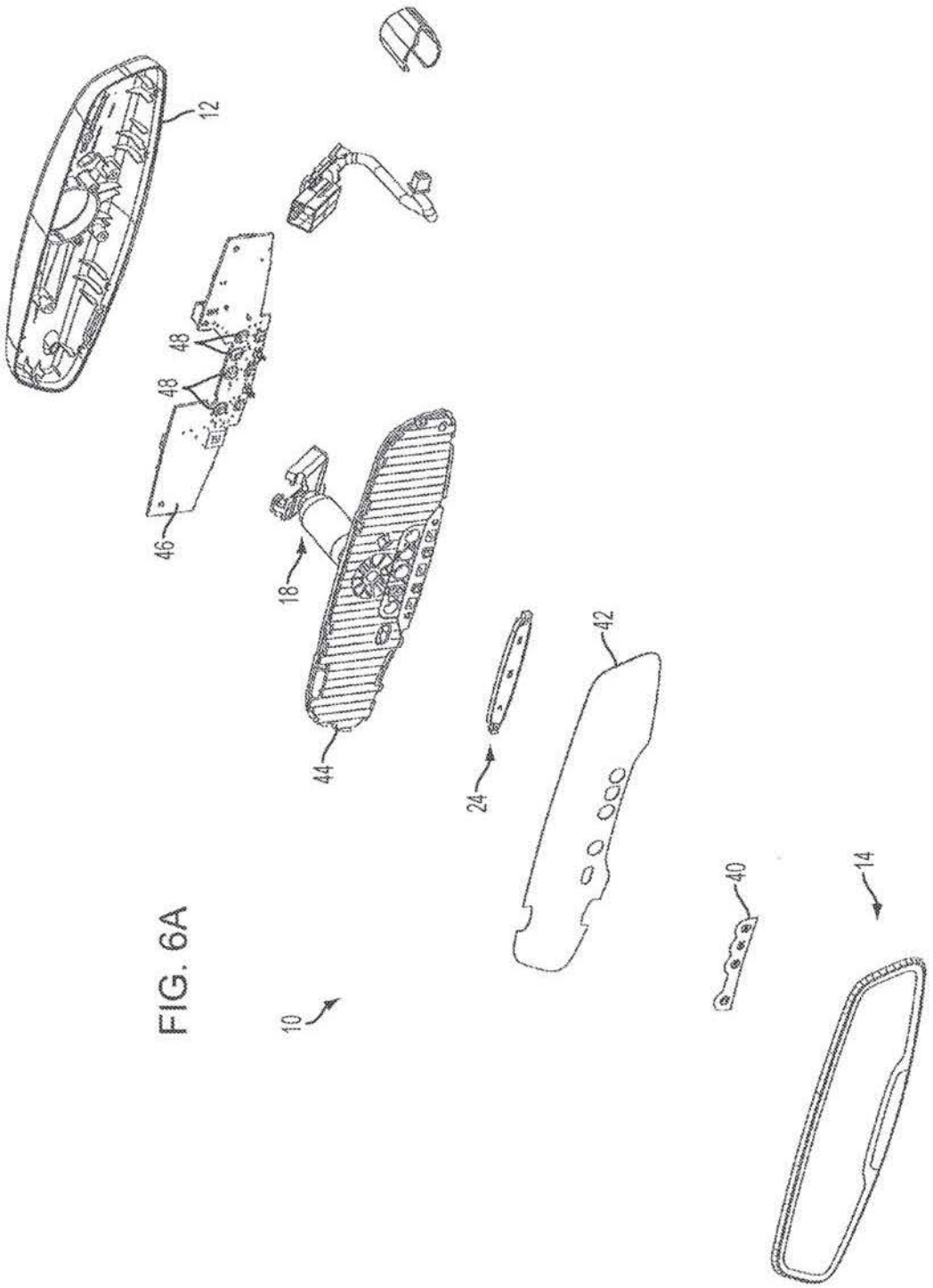


FIG. 6A

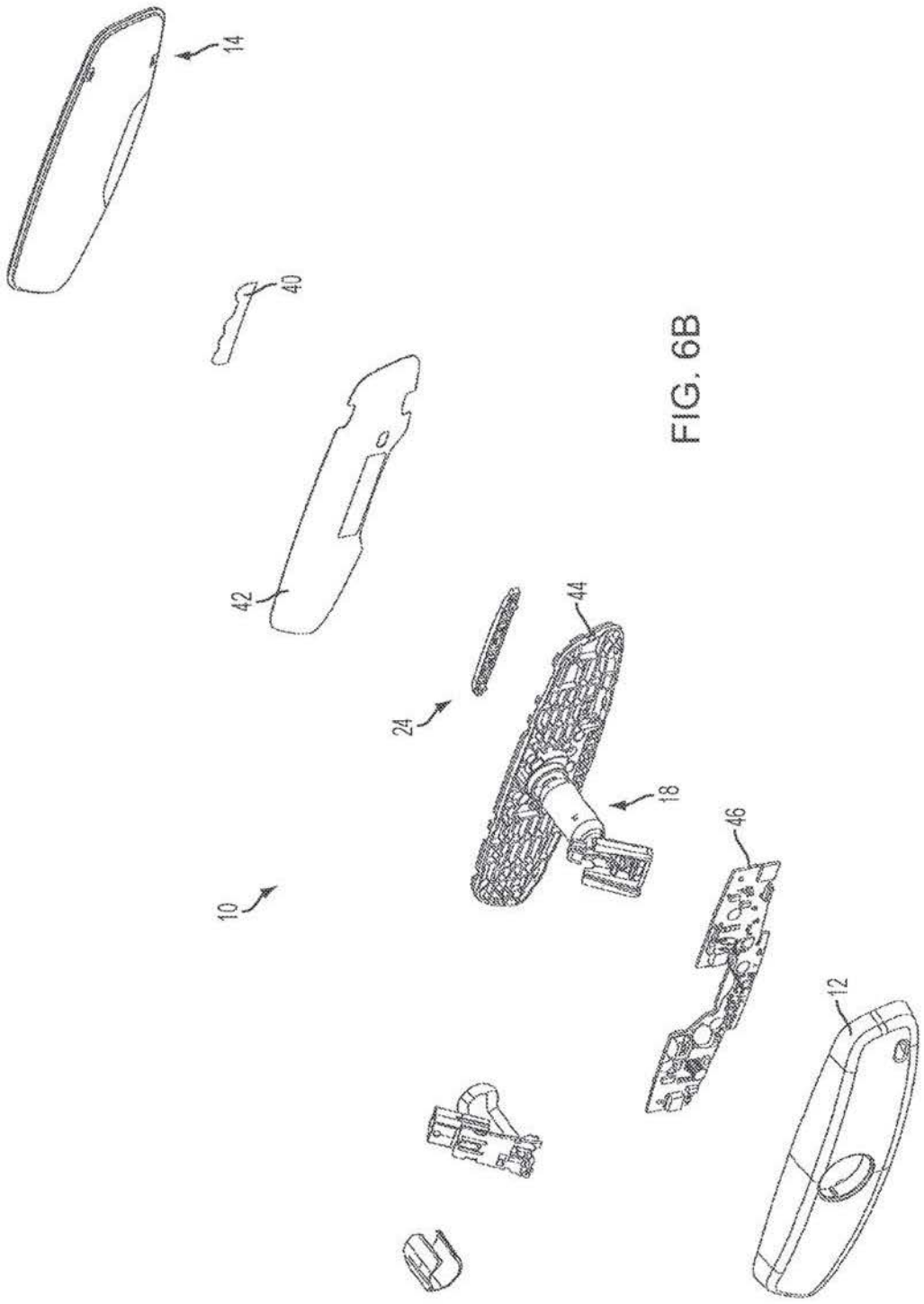


FIG. 6B

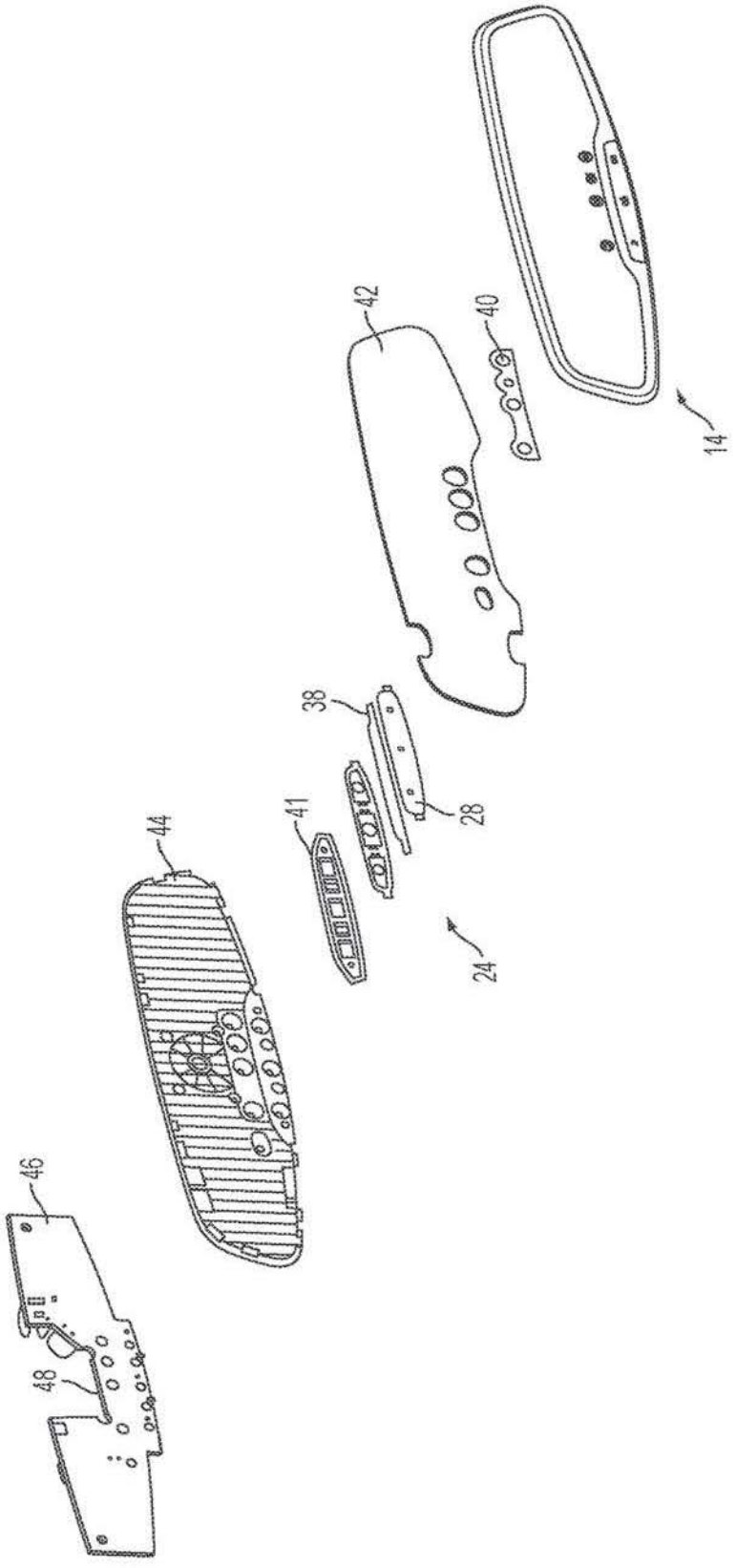


FIG. 6C

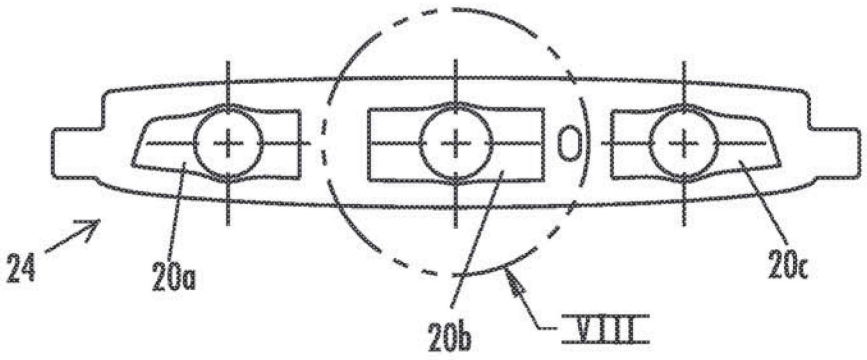


FIG. 7

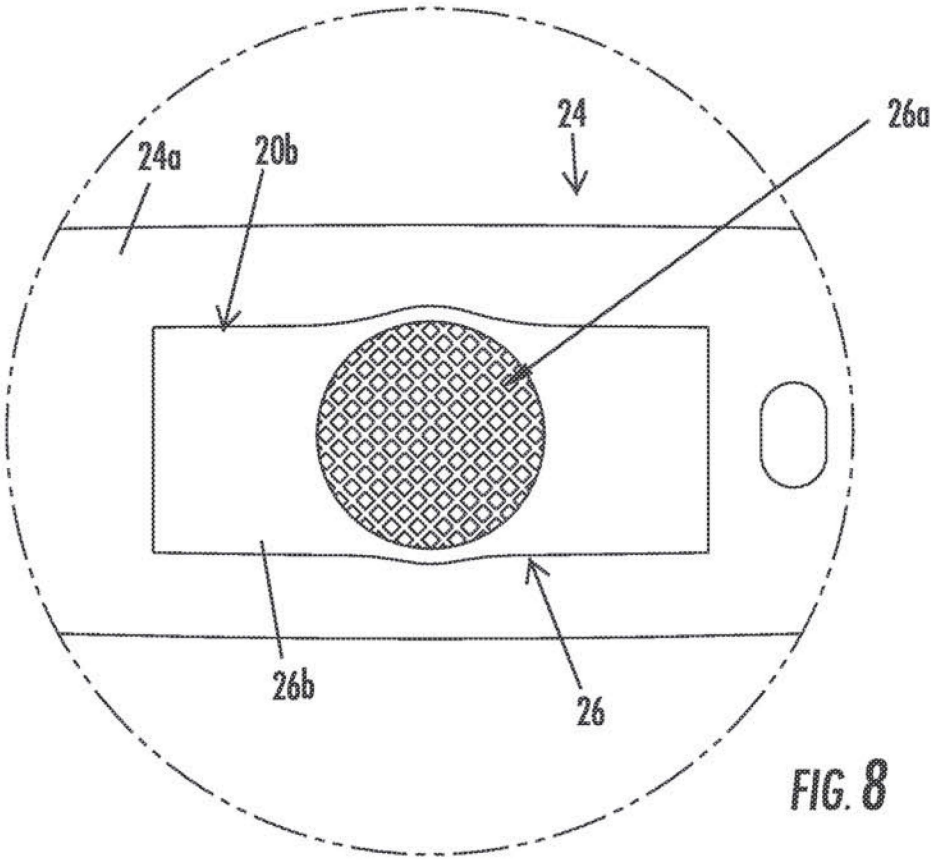


FIG. 8

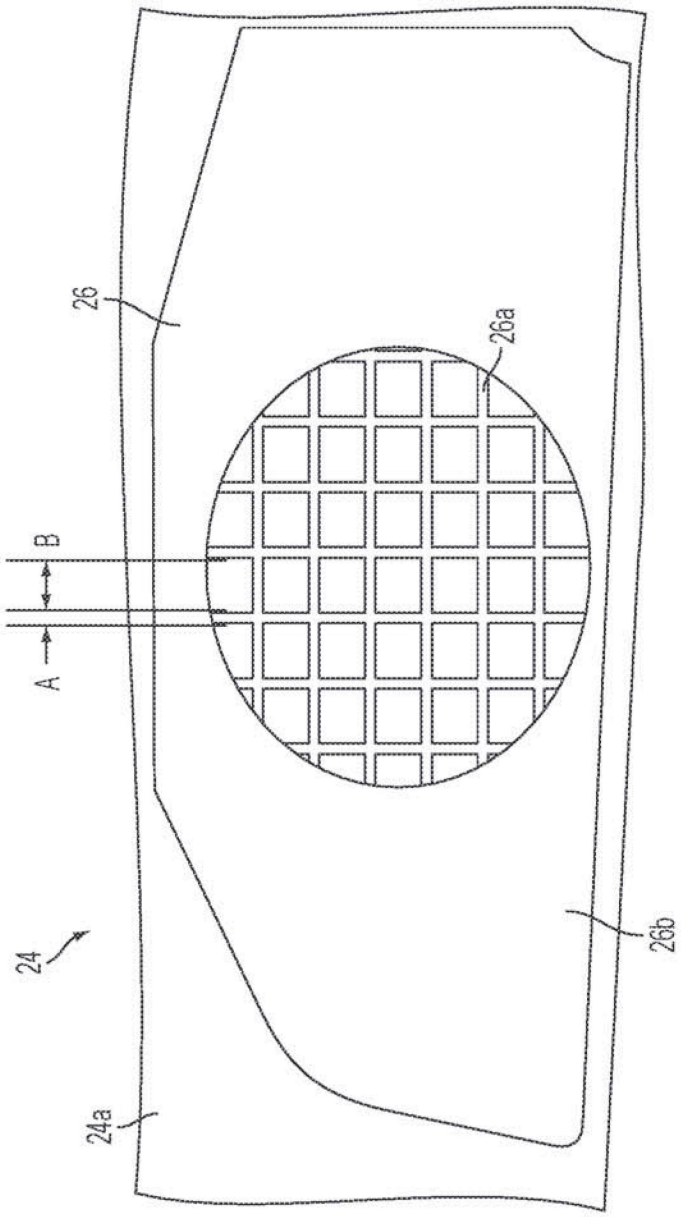


FIG. 9

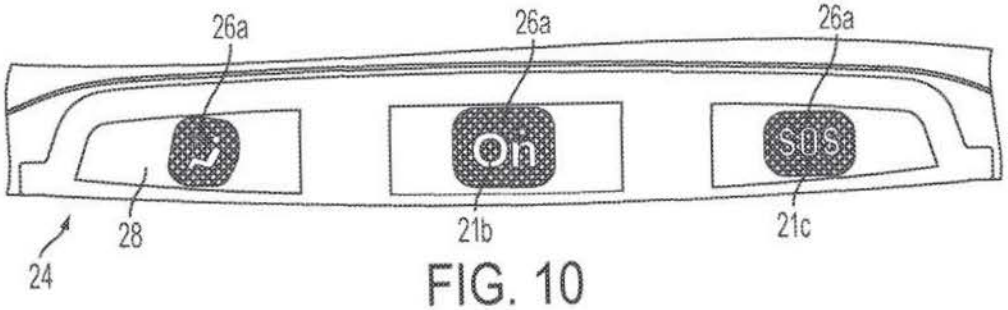


FIG. 10

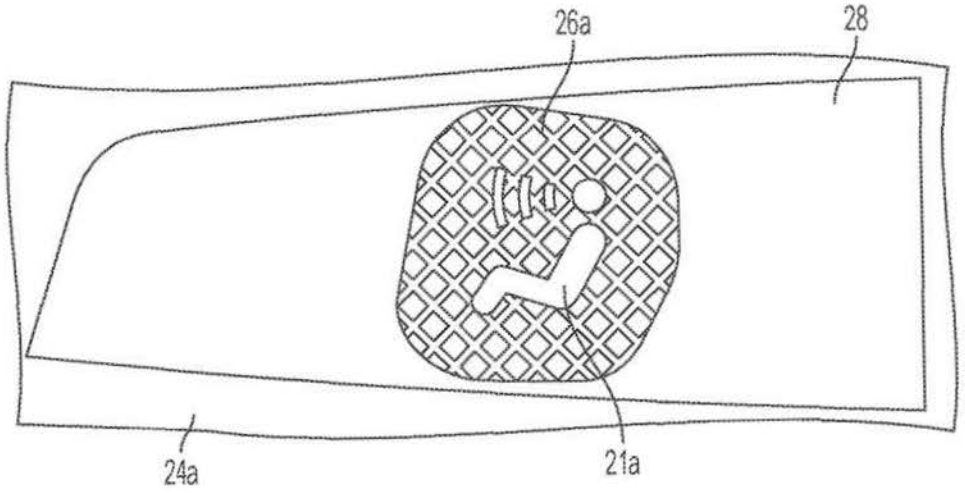


FIG. 11

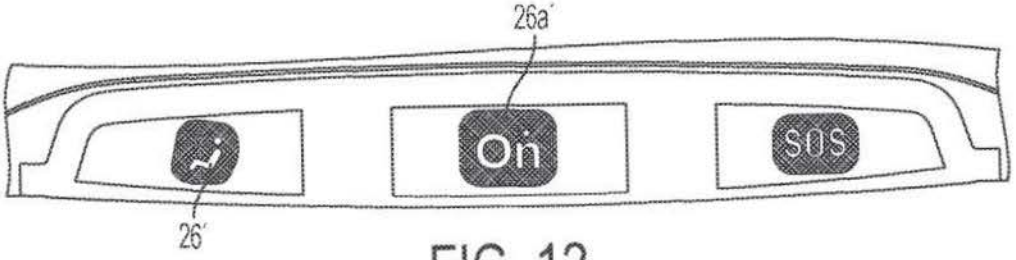


FIG. 12

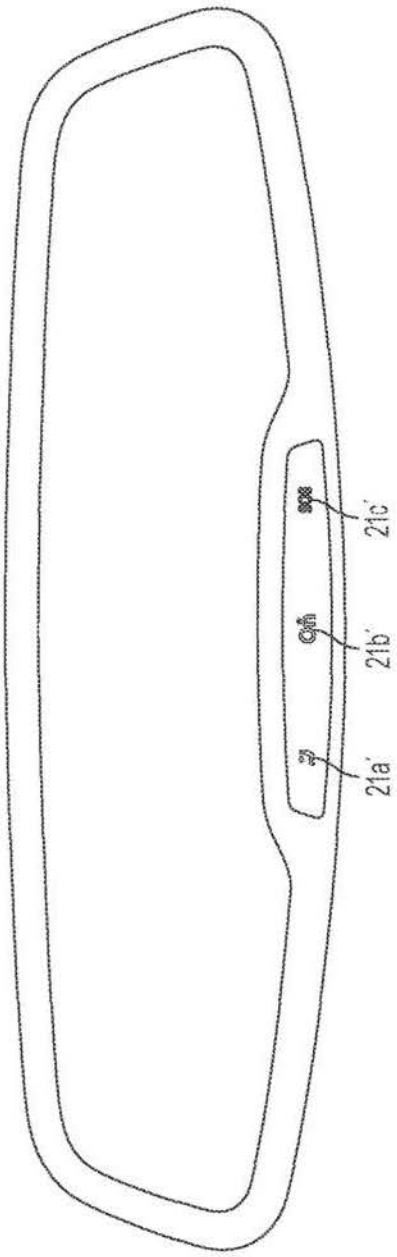


FIG. 13

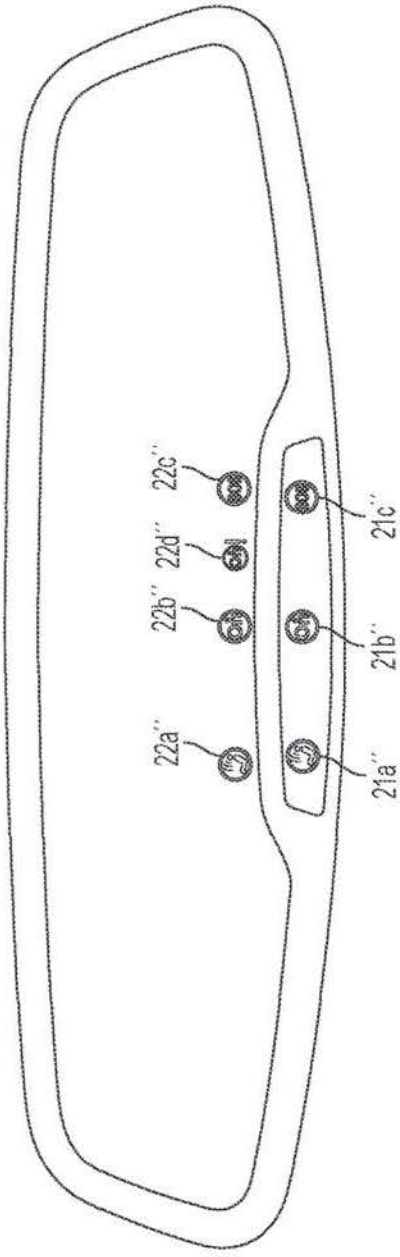


FIG. 14

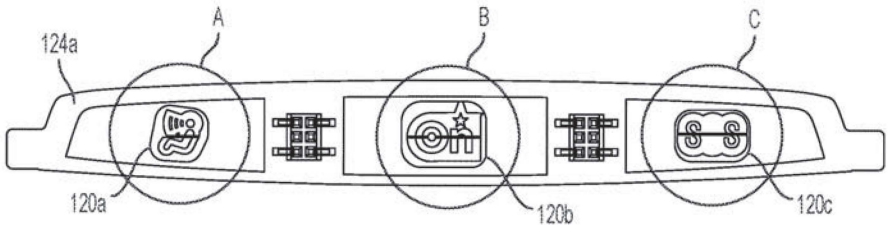
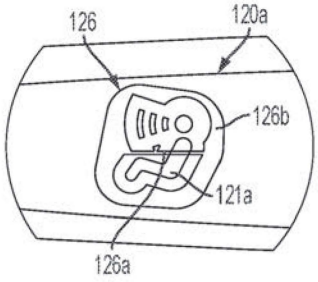


FIG. 15



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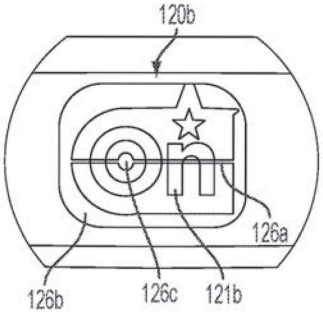


FIG. 15B

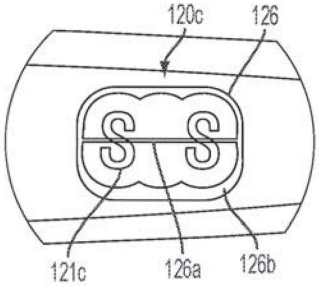


FIG. 15C

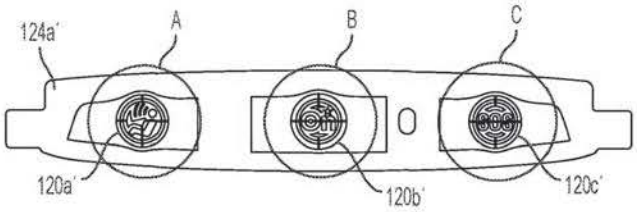
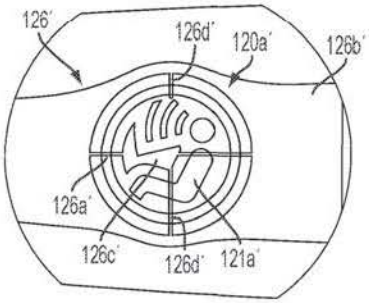


FIG. 16



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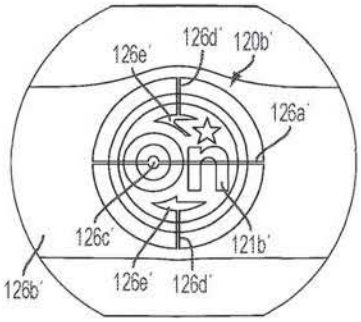


FIG. 16B

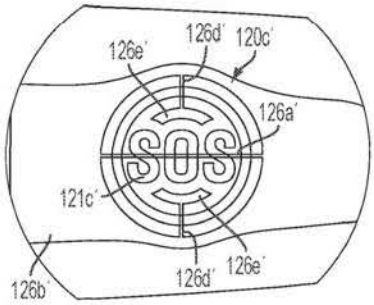


FIG. 16C

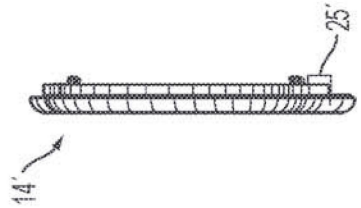


FIG. 18

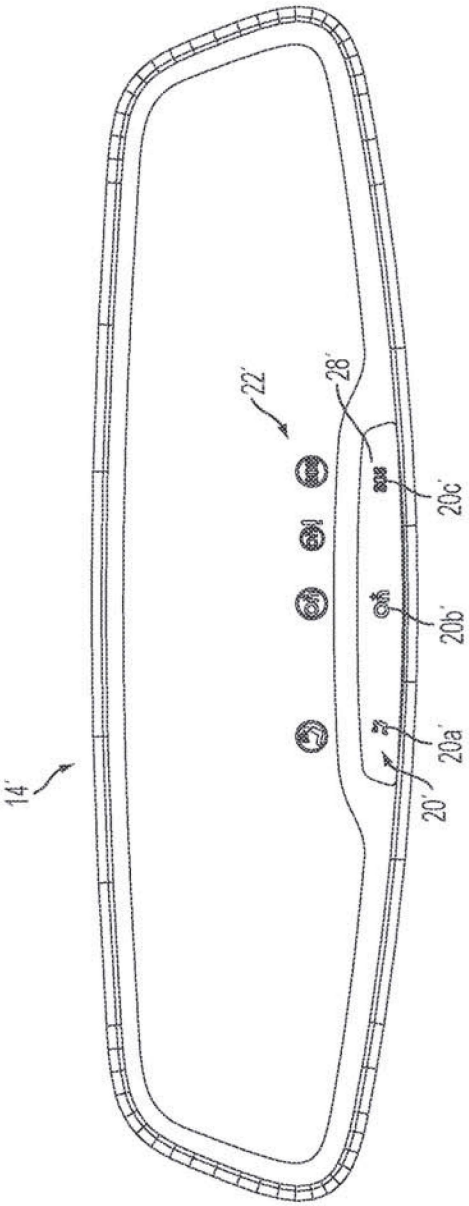


FIG. 17

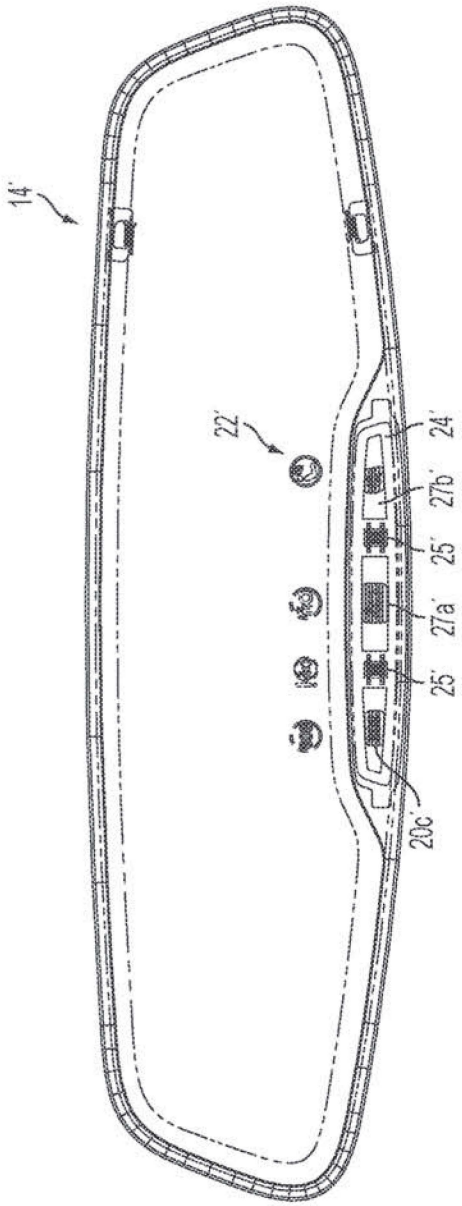


FIG. 19

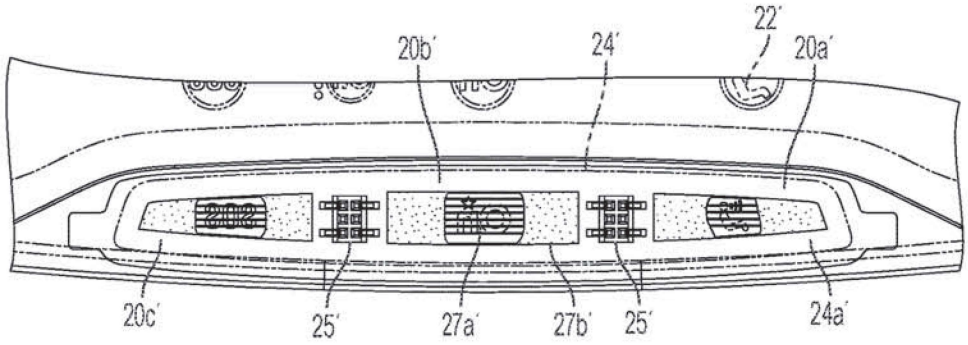


FIG. 20

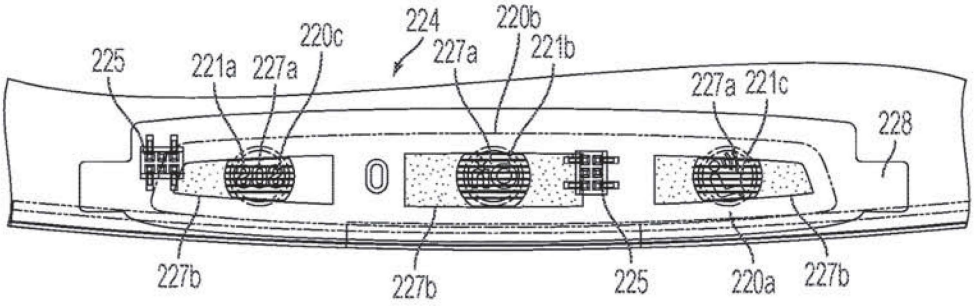


FIG. 24

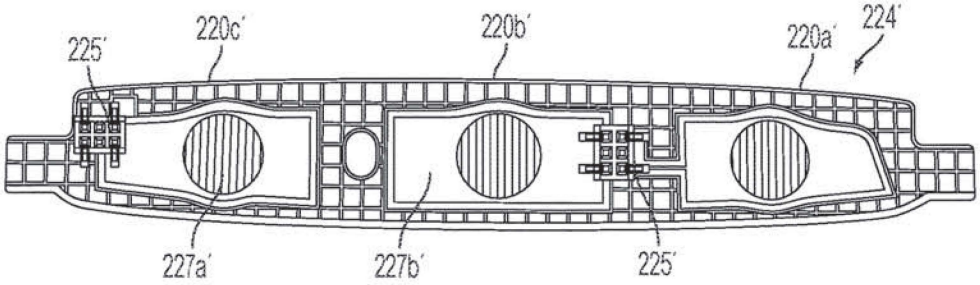


FIG. 24A

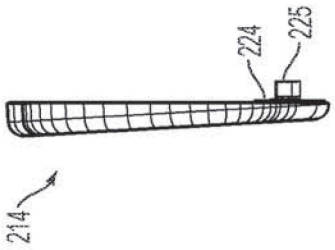
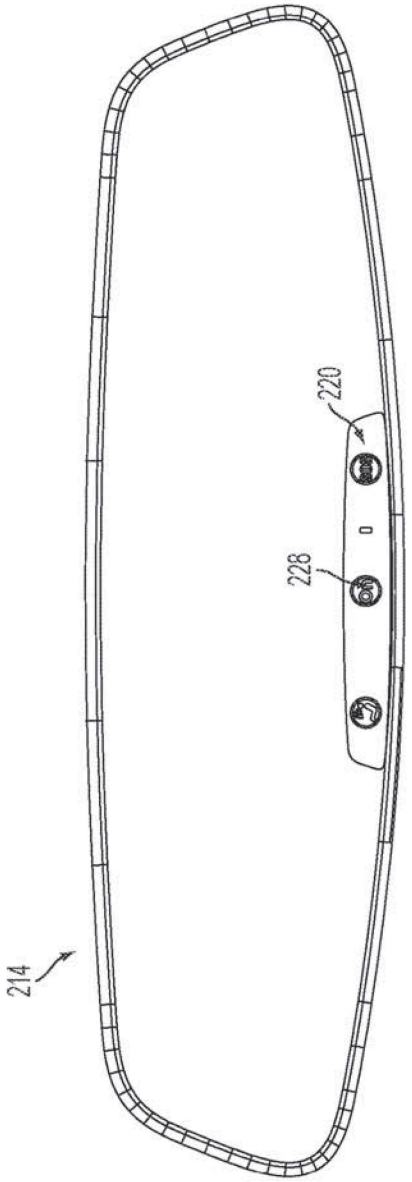


FIG. 22



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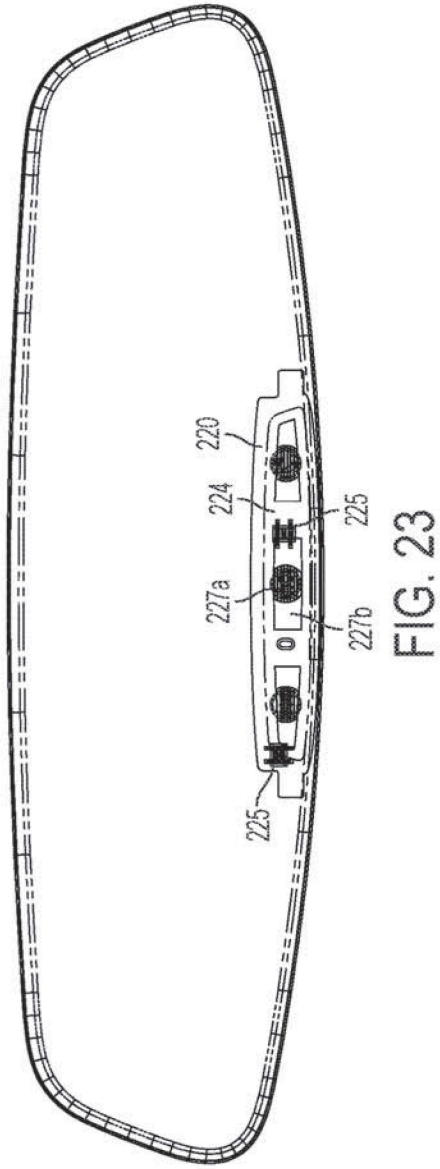

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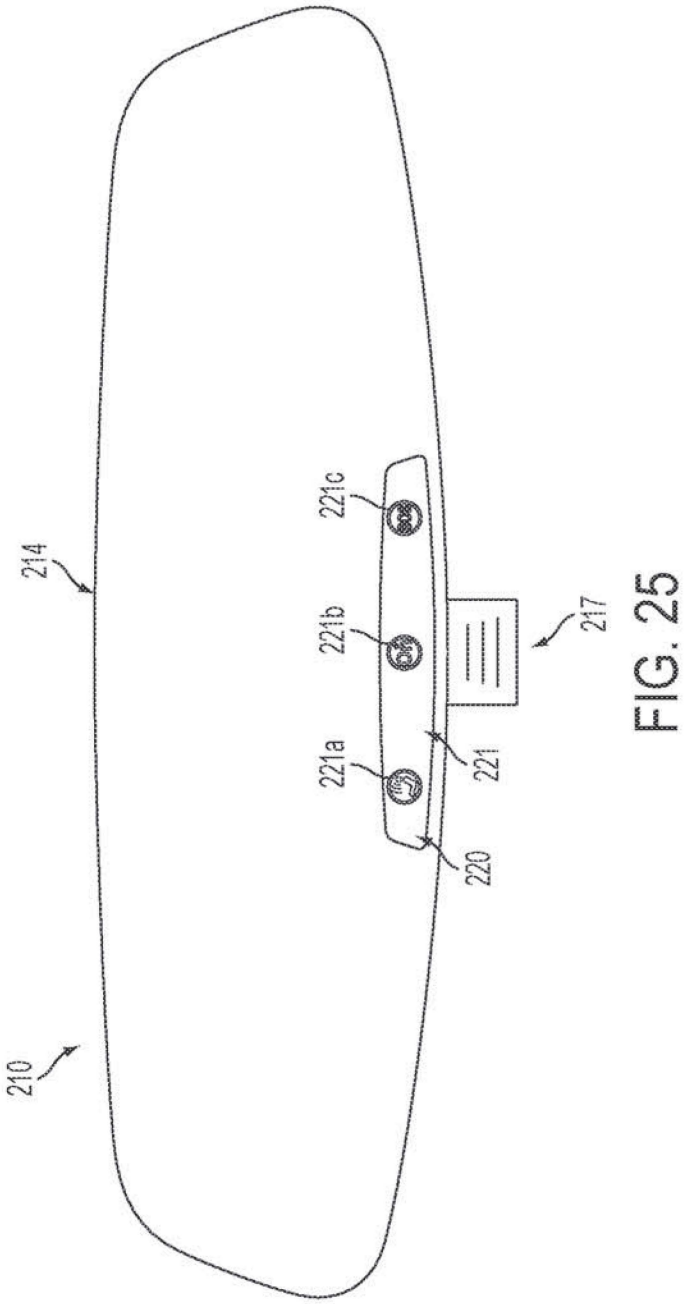

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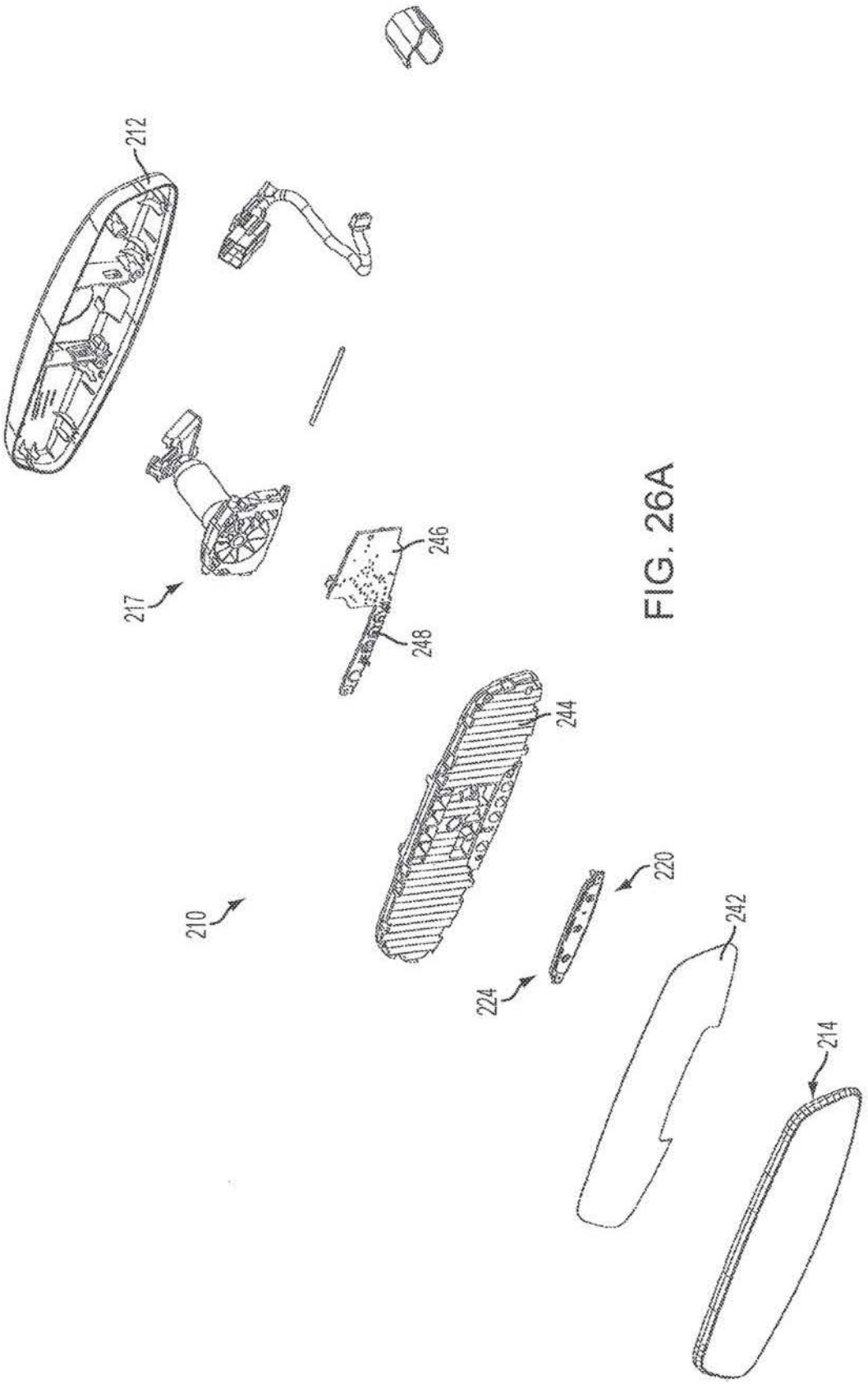

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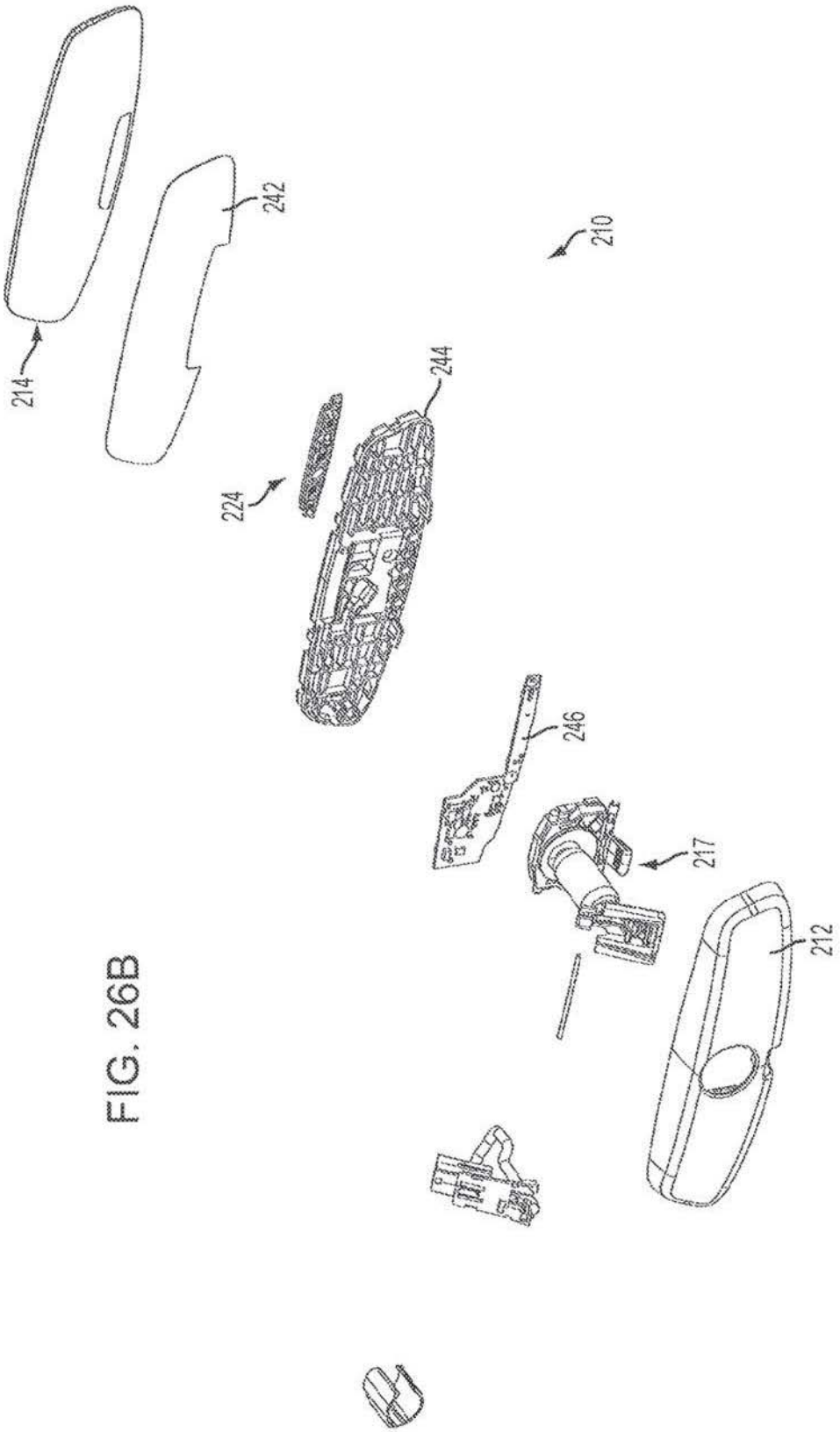

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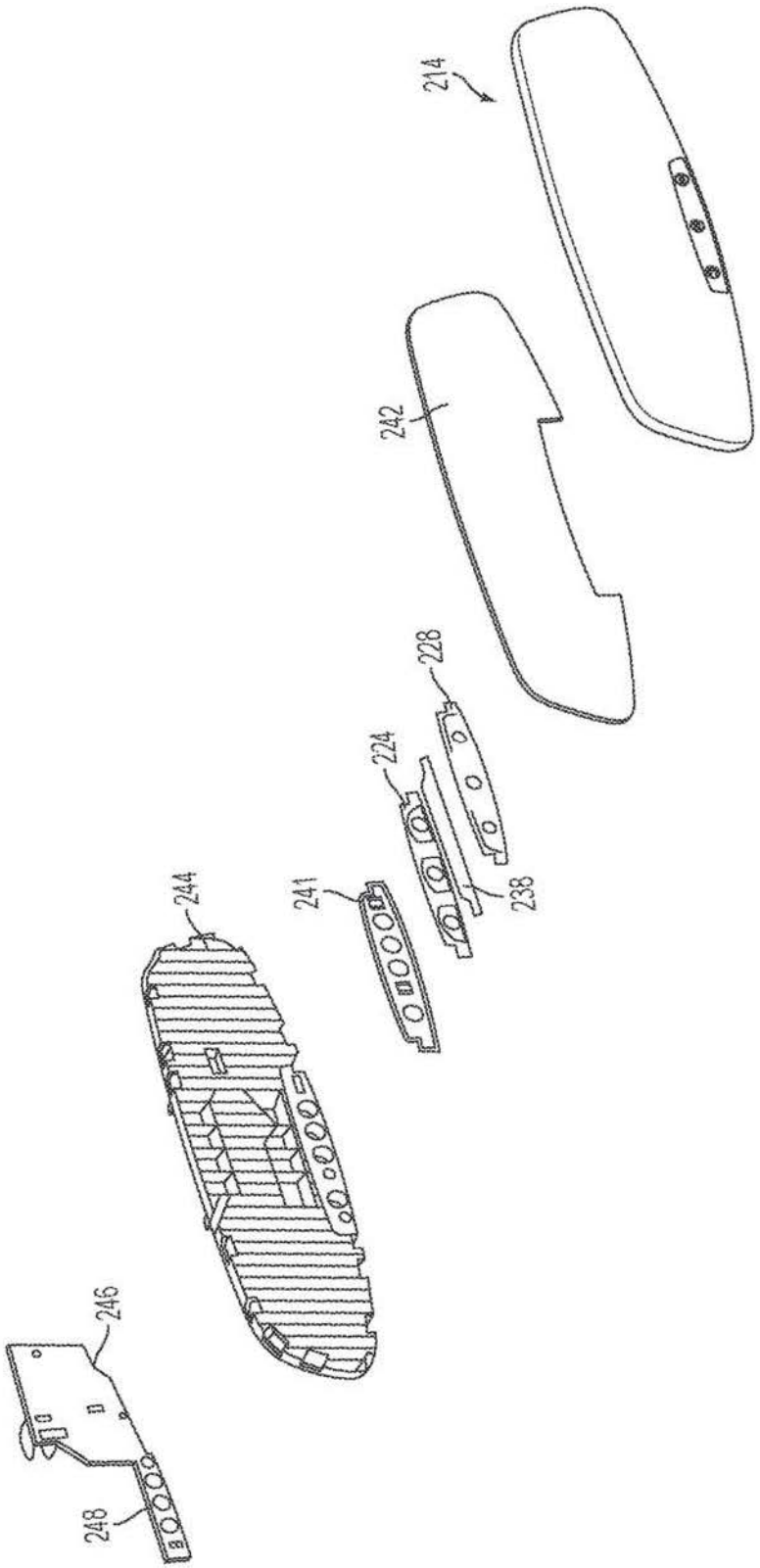
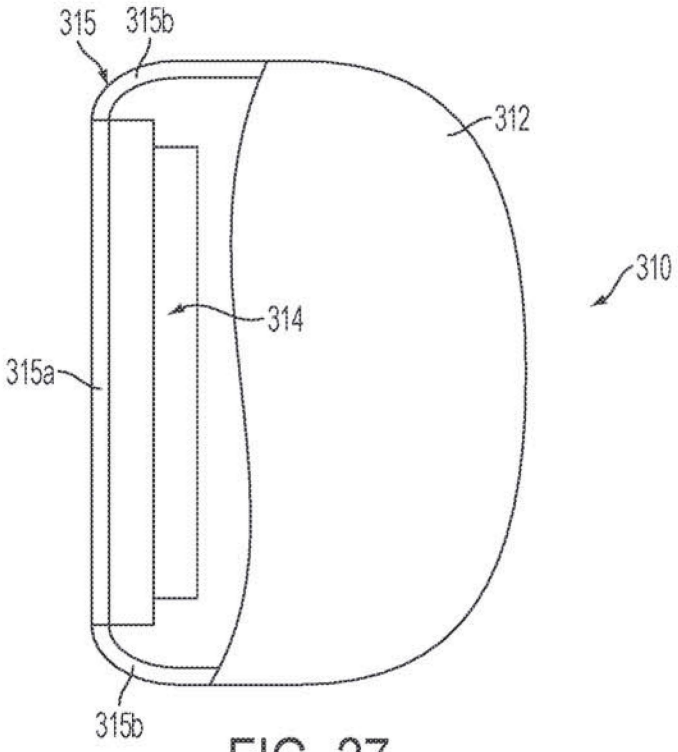


FIG. 26C



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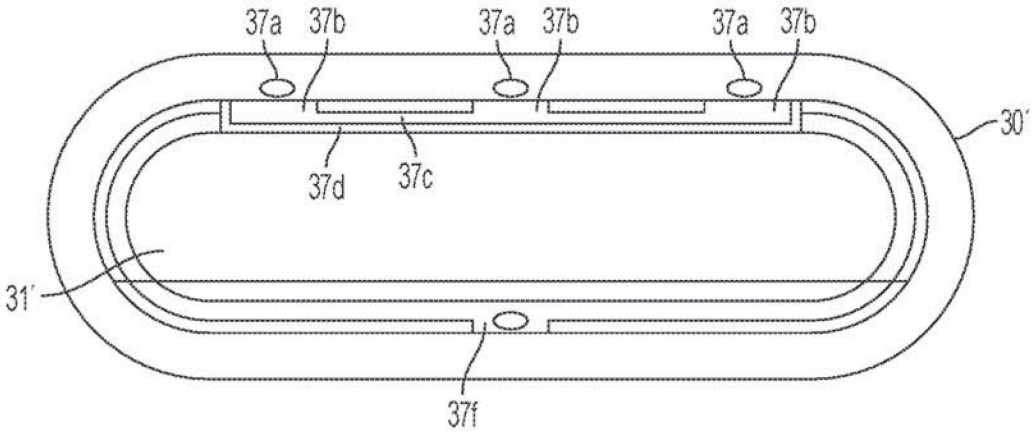
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37b
37a
37b
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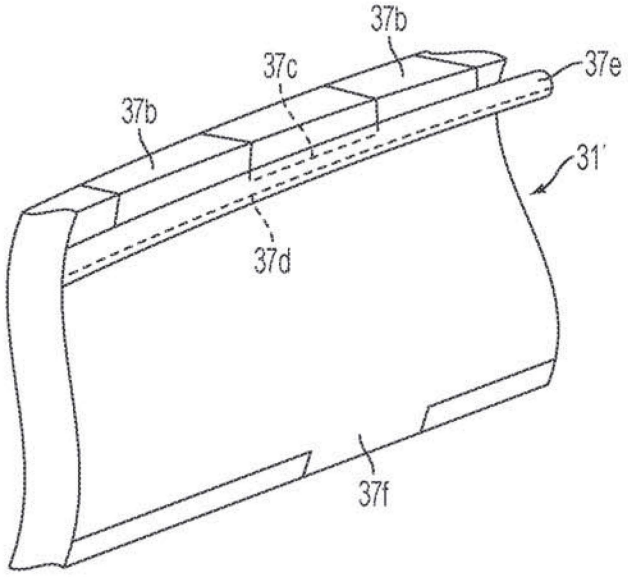
37d
37c
31'
37f

FIG. 28


37b
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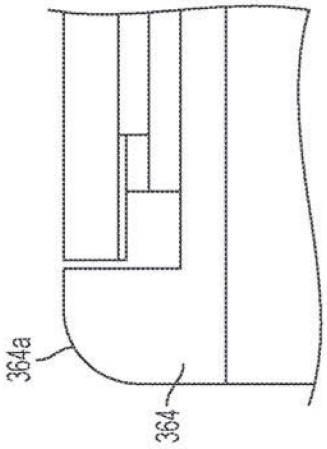
37e
37b
31'
37d
37f

FIG. 29



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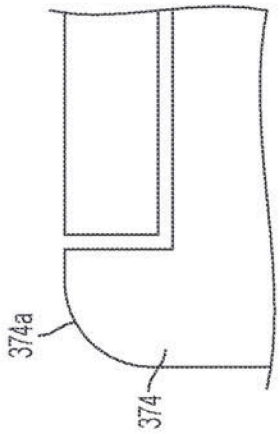

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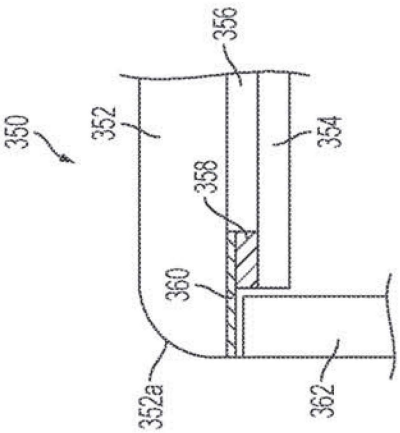

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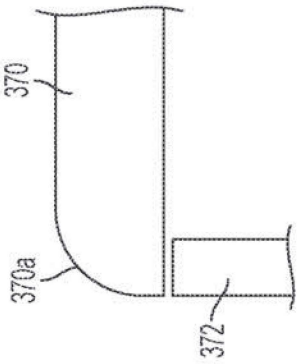

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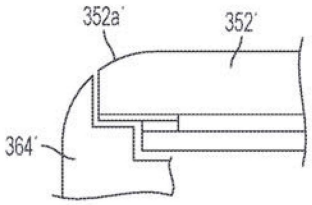

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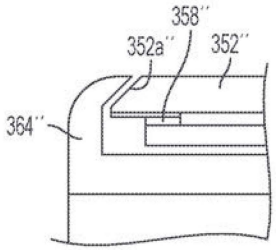

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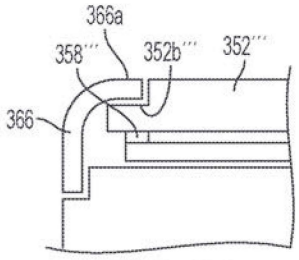

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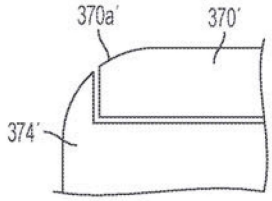

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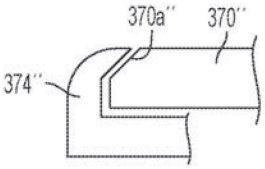


FIG. 38

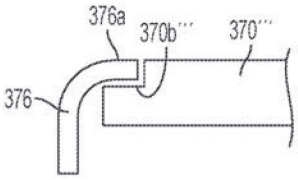


FIG. 39

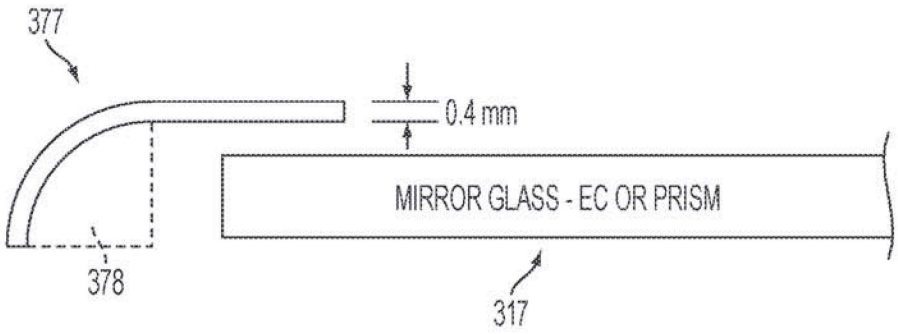


FIG. 40

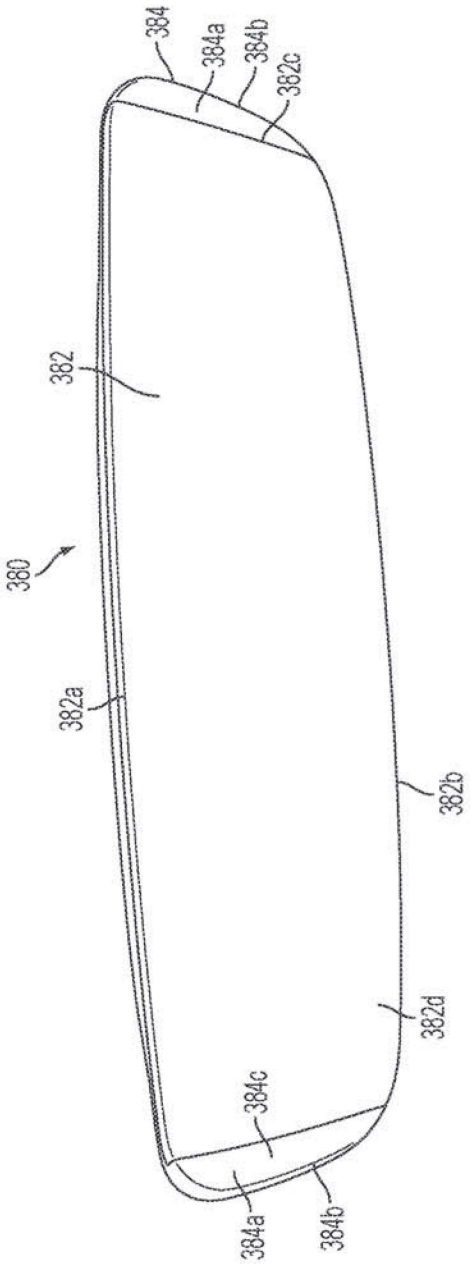


FIG. 41A

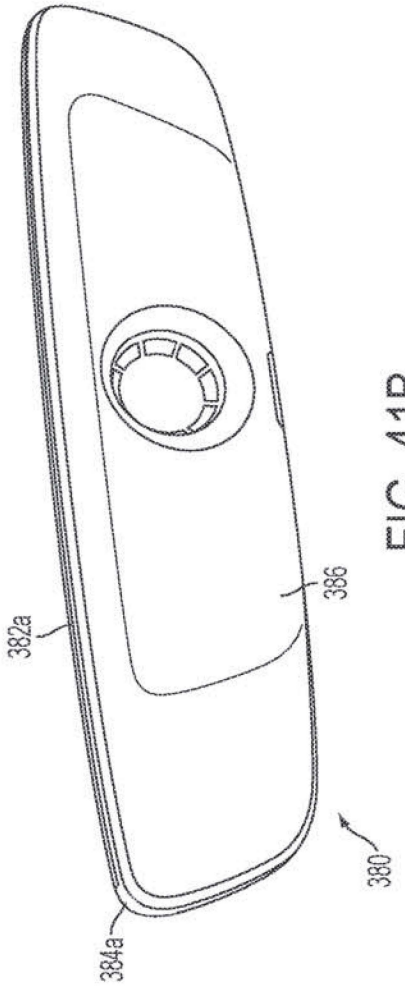


FIG. 41B

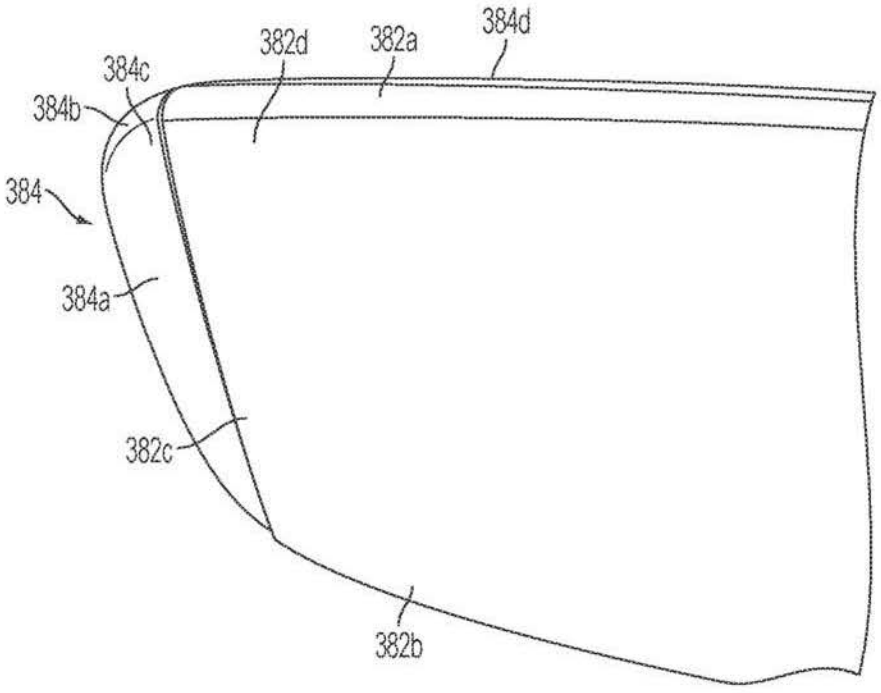


FIG. 42

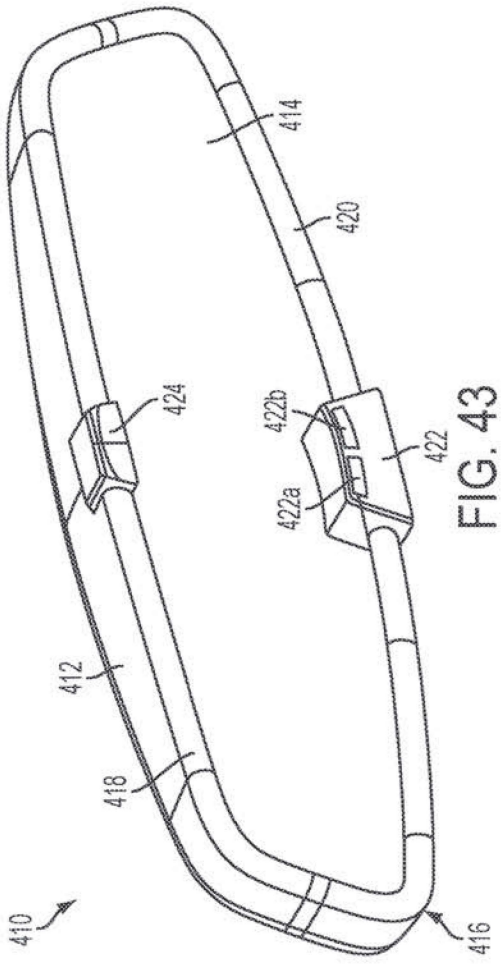


FIG. 43

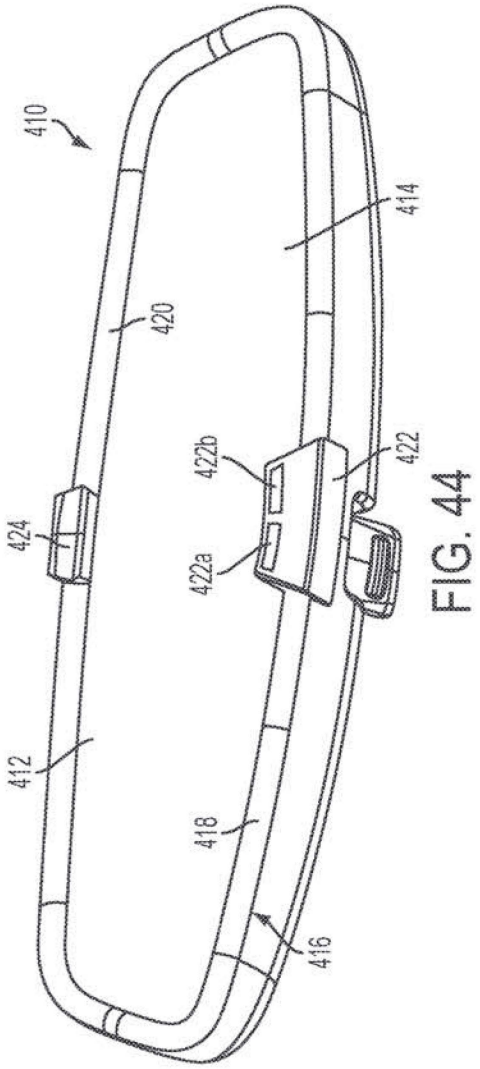


FIG. 44

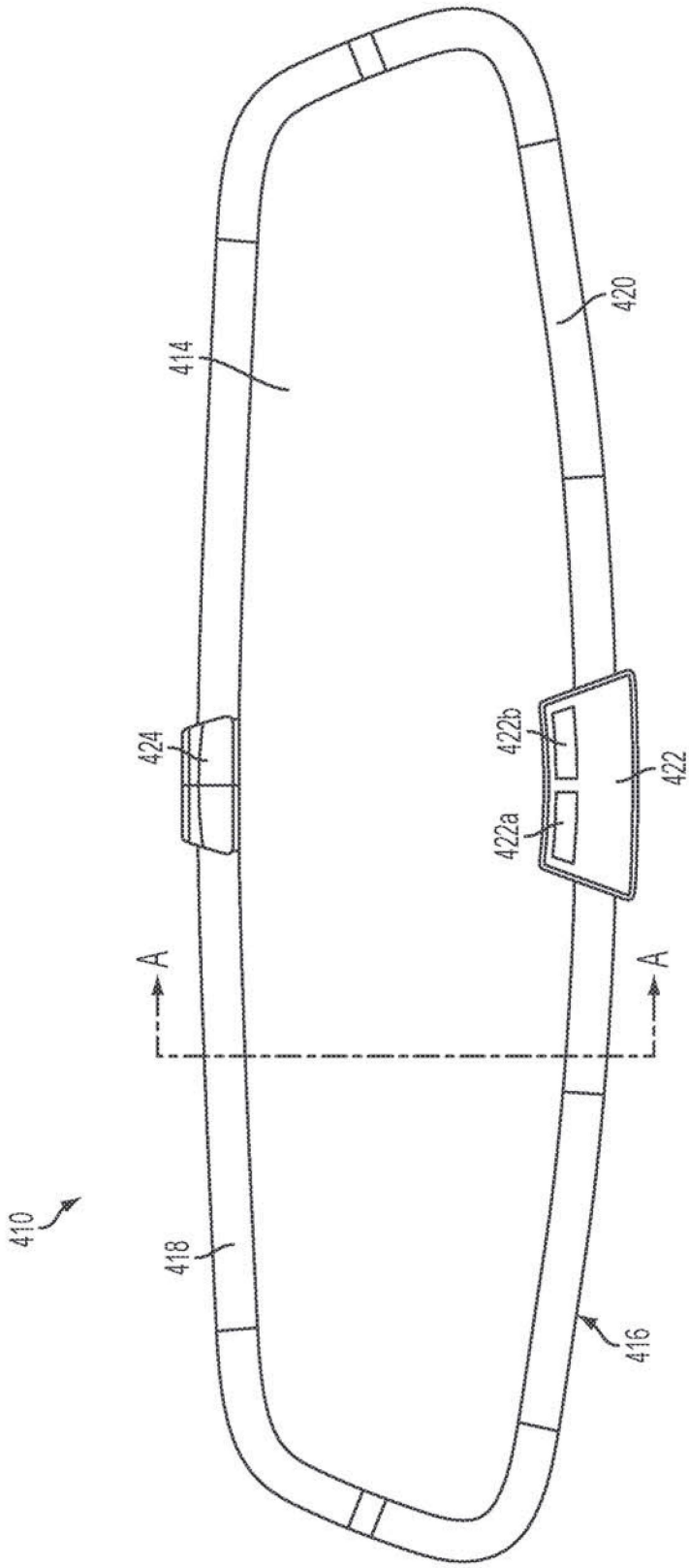


FIG. 45

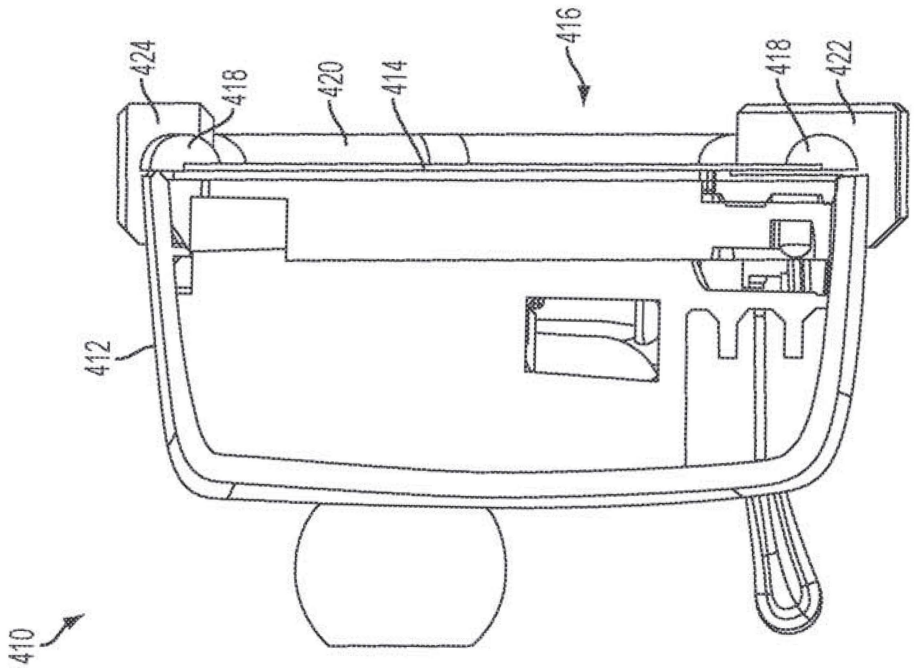


FIG. 45B

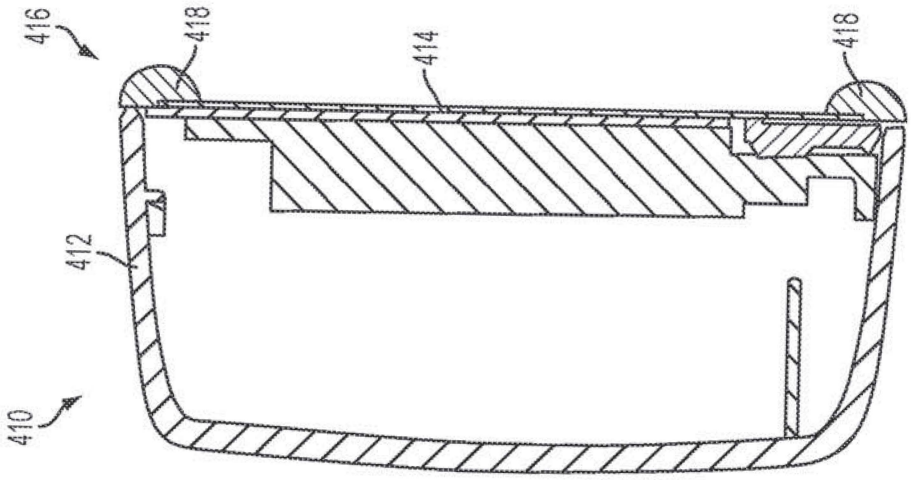


FIG. 45A

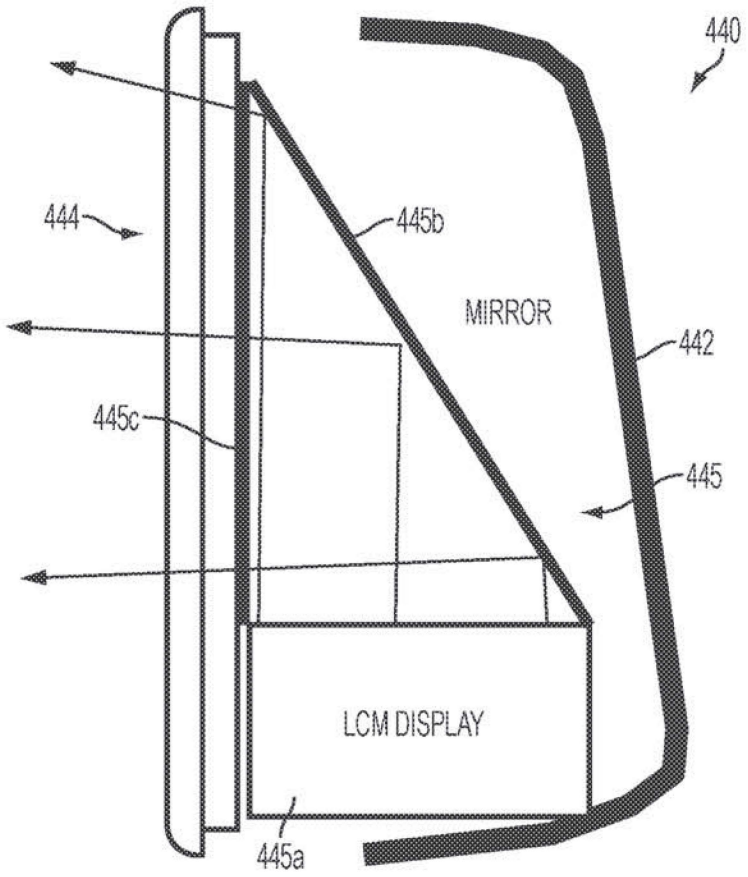


FIG. 46

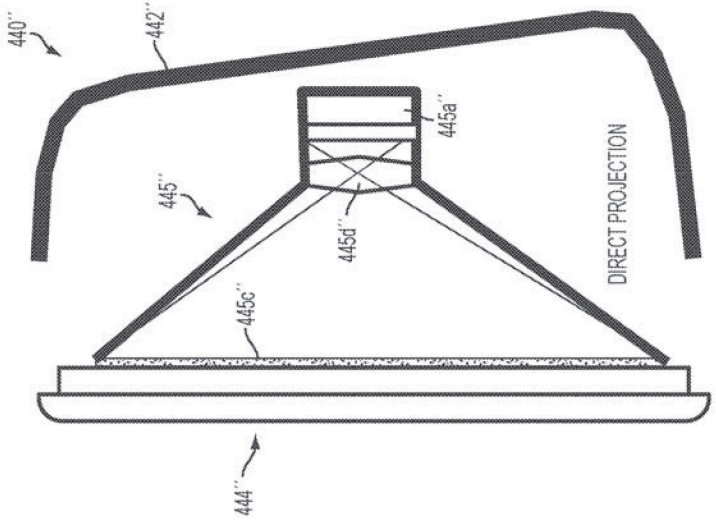


FIG. 48

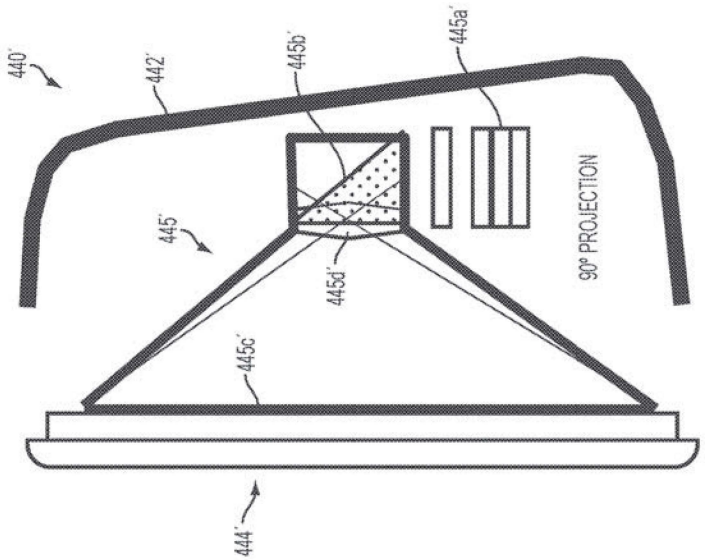


FIG. 47

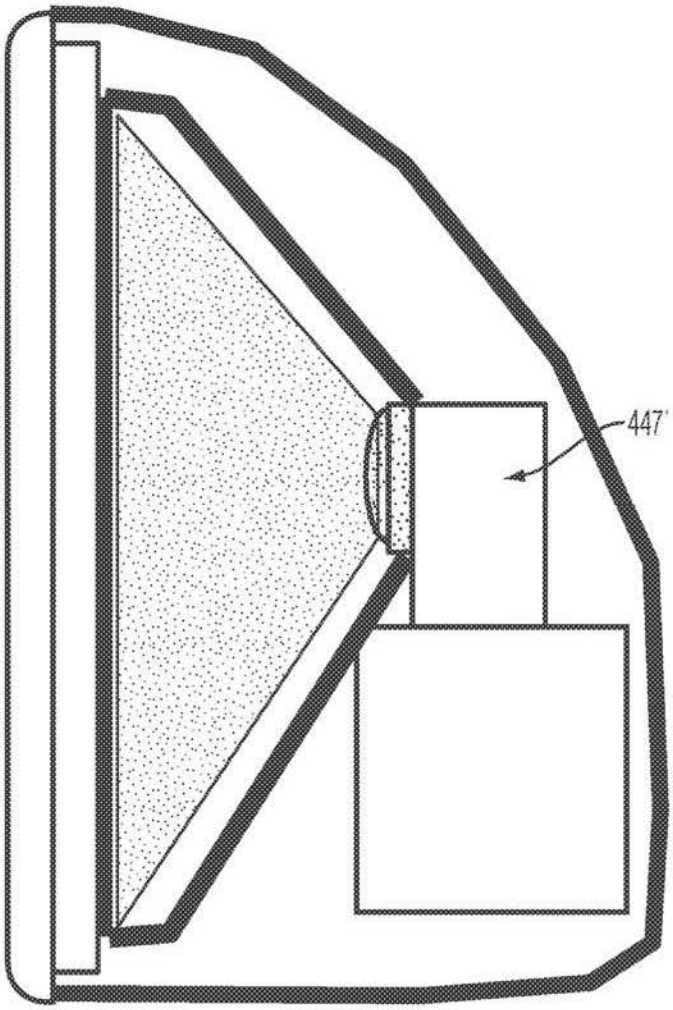


FIG. 49

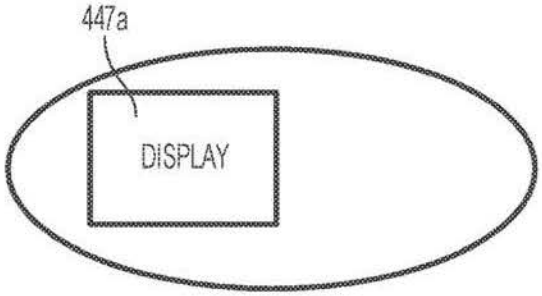


FIG. 50A

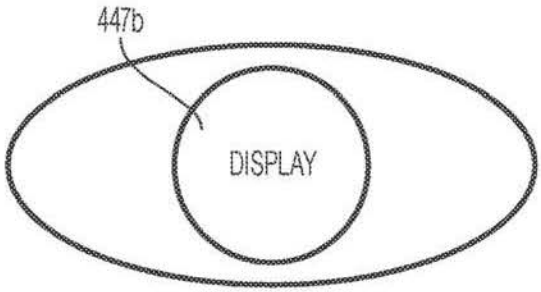


FIG. 50B

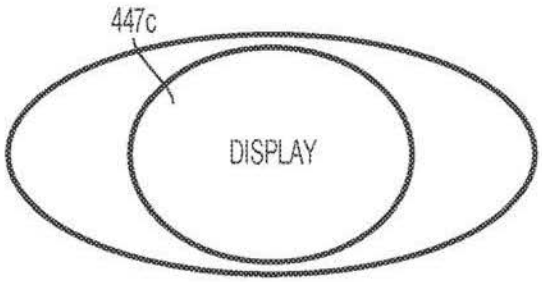


FIG. 50C

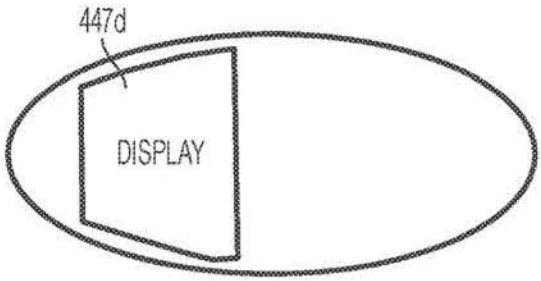


FIG. 50D

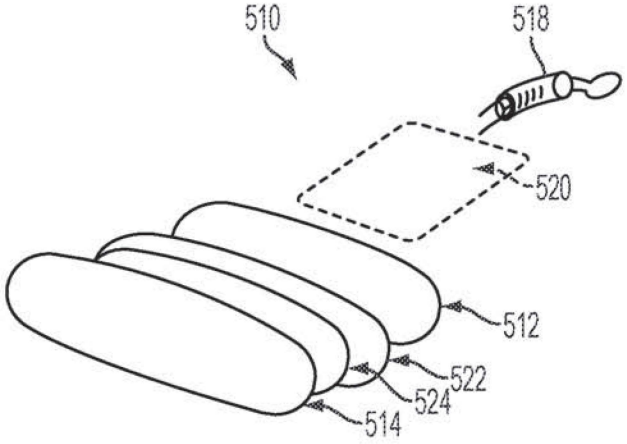


FIG. 51

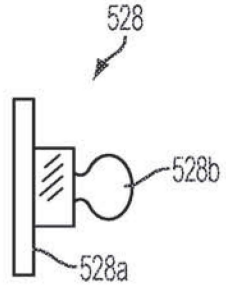


FIG. 52A

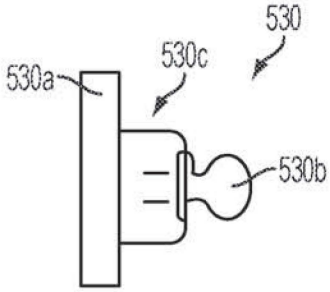


FIG. 52B

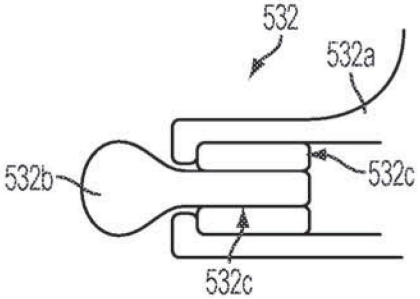


FIG. 52C

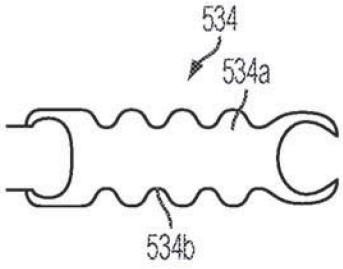


FIG. 52D

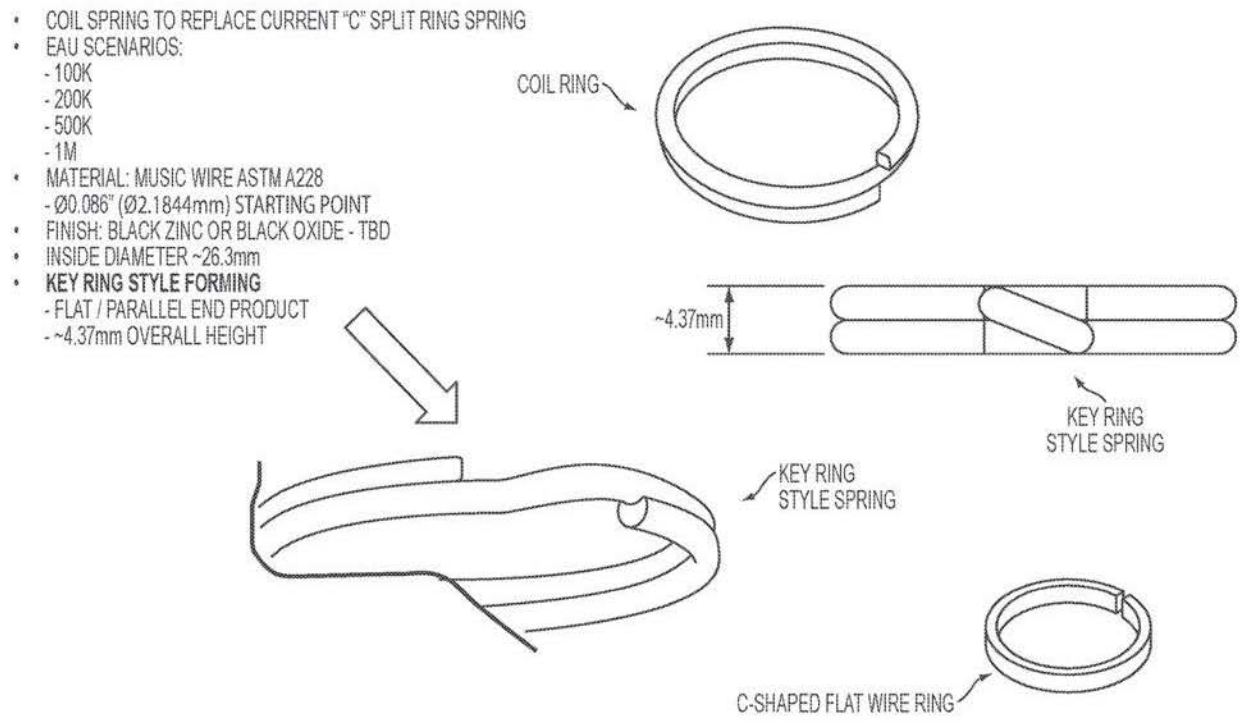

• COIL SPRING TO REPLACE CURRENT "C" SPLIT RING SPRING
• EAU SCENARIOS:
- 100K
- 200K
- 500K
- 1M
• MATERIAL: MUSIC WIRE ASTM A228
- Ø0.086" (Ø2.1844mm) STARTING POINT
• FINISH: BLACK ZINC OR BLACK OXIDE - TBD
• INSIDE DIAMETER ~26.3mm
• KEY RING STYLE FORMING
- FLAT / PARALLEL END PRODUCT
- ~4.37mm OVERALL HEIGHT
COIL RING
~4.37mm
KEY RING STYLE SPRING
KEY RING STYLE SPRING
C-SHAPED FLAT WIRE RING

FIG. 52E

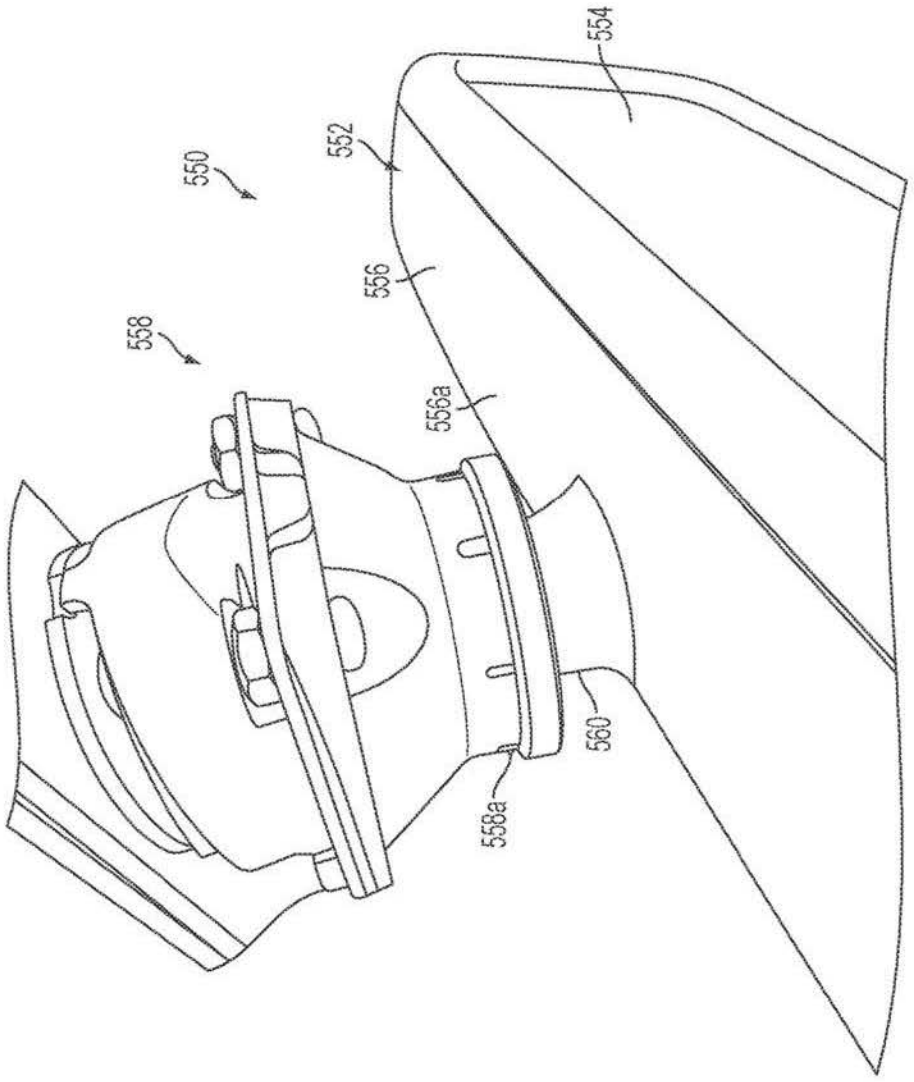


FIG. 53

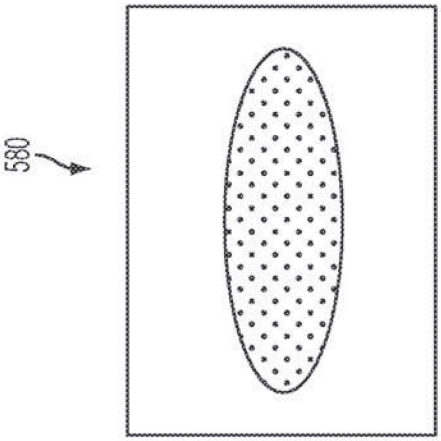


FIG. 55

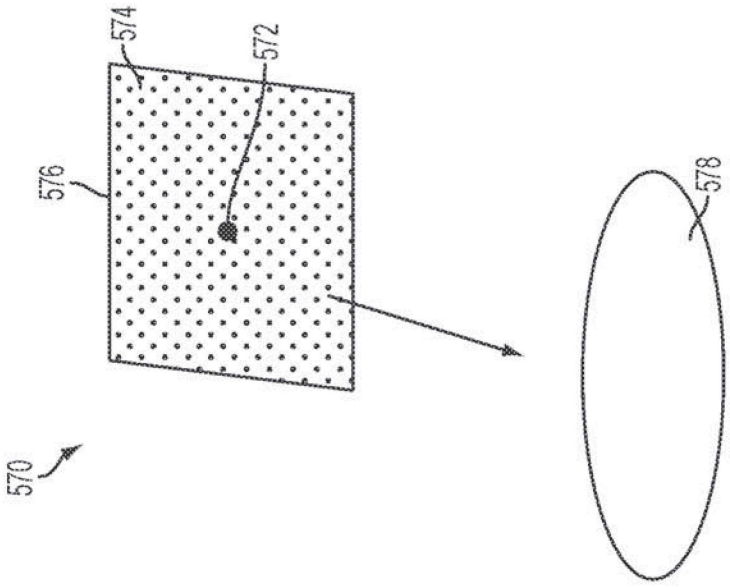


FIG. 54

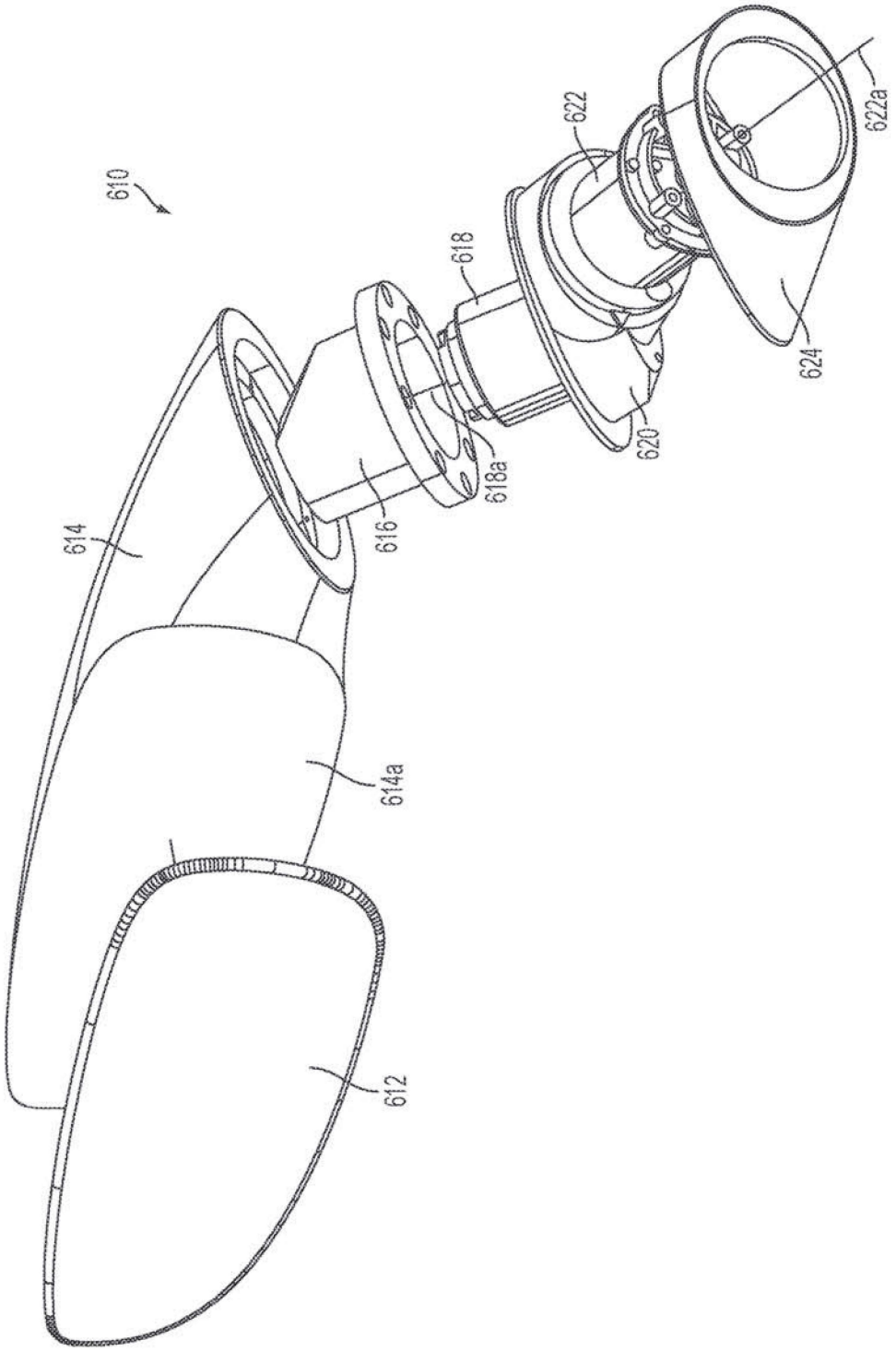


FIG. 56

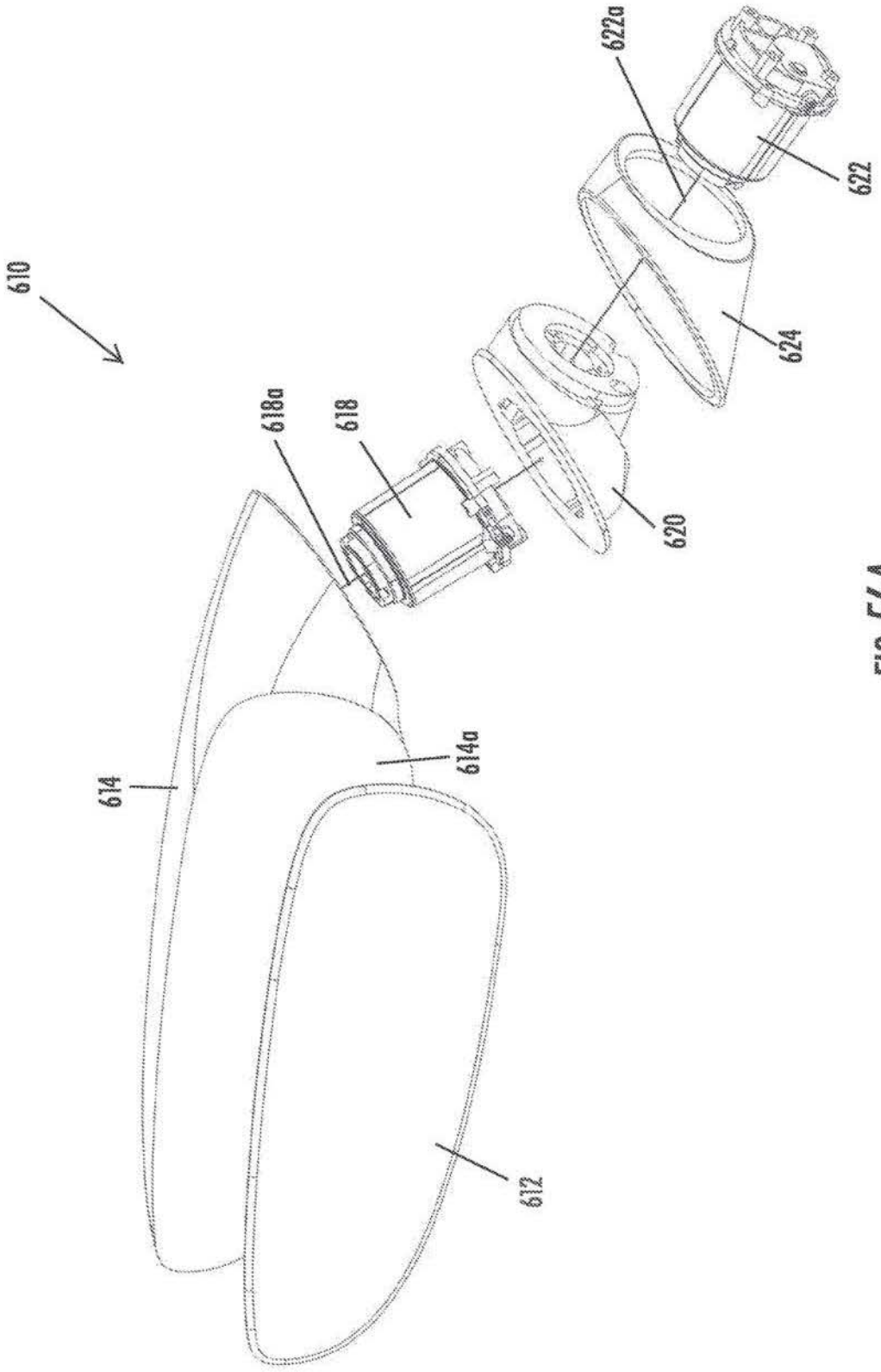


FIG. 56A

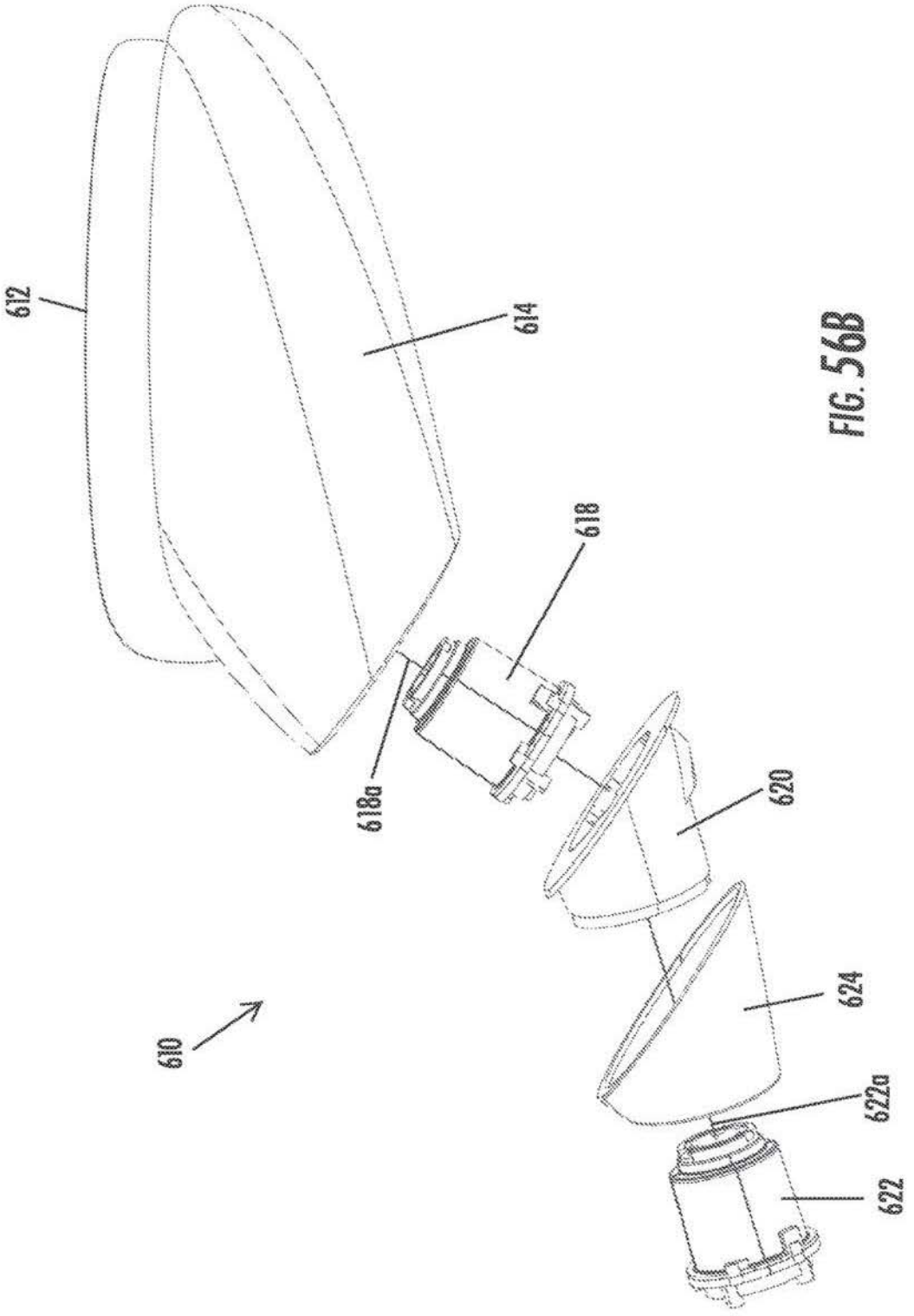


FIG. 56B

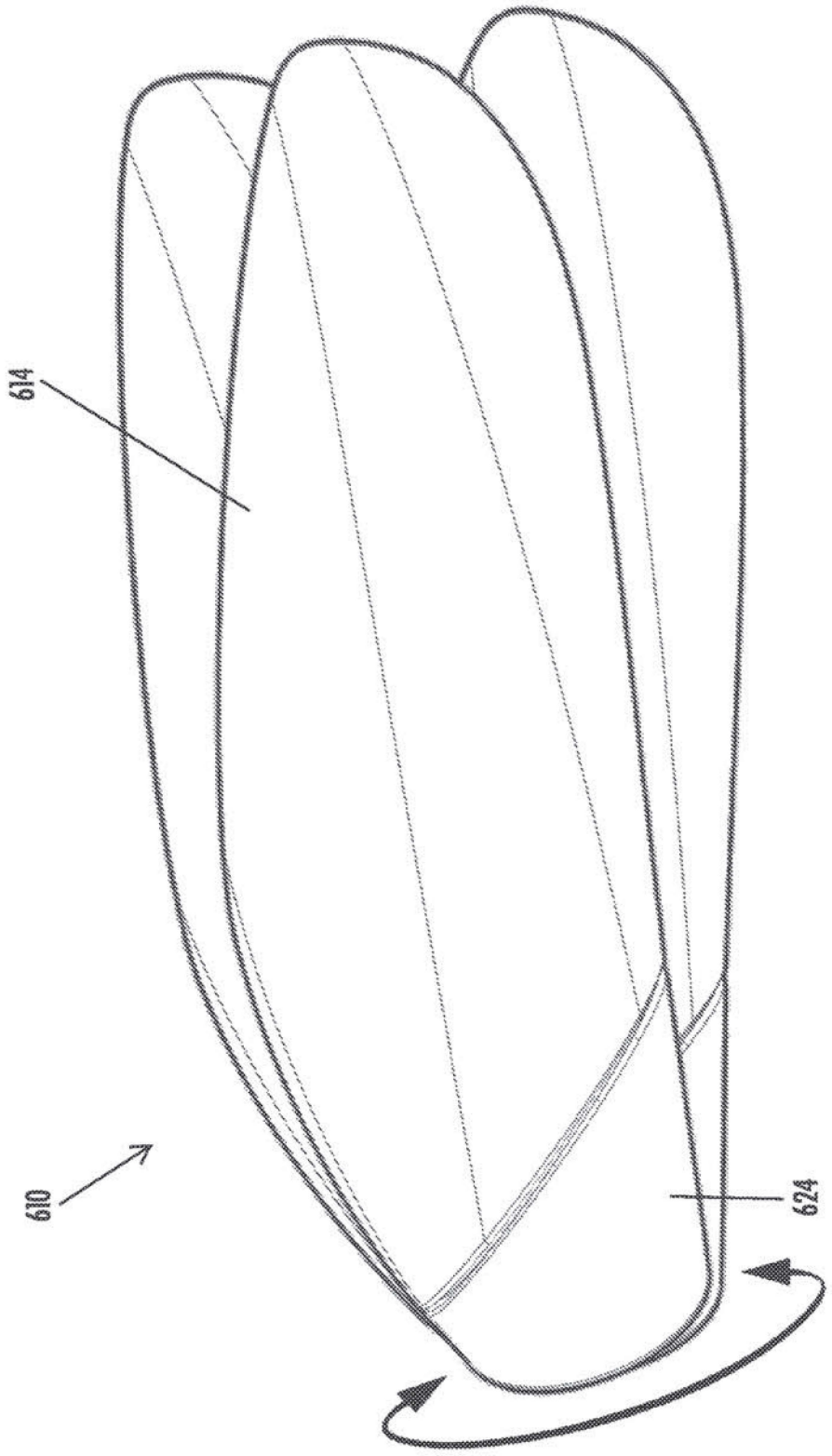


FIG. 57 +/-15 degree tip (only tip actuator required)

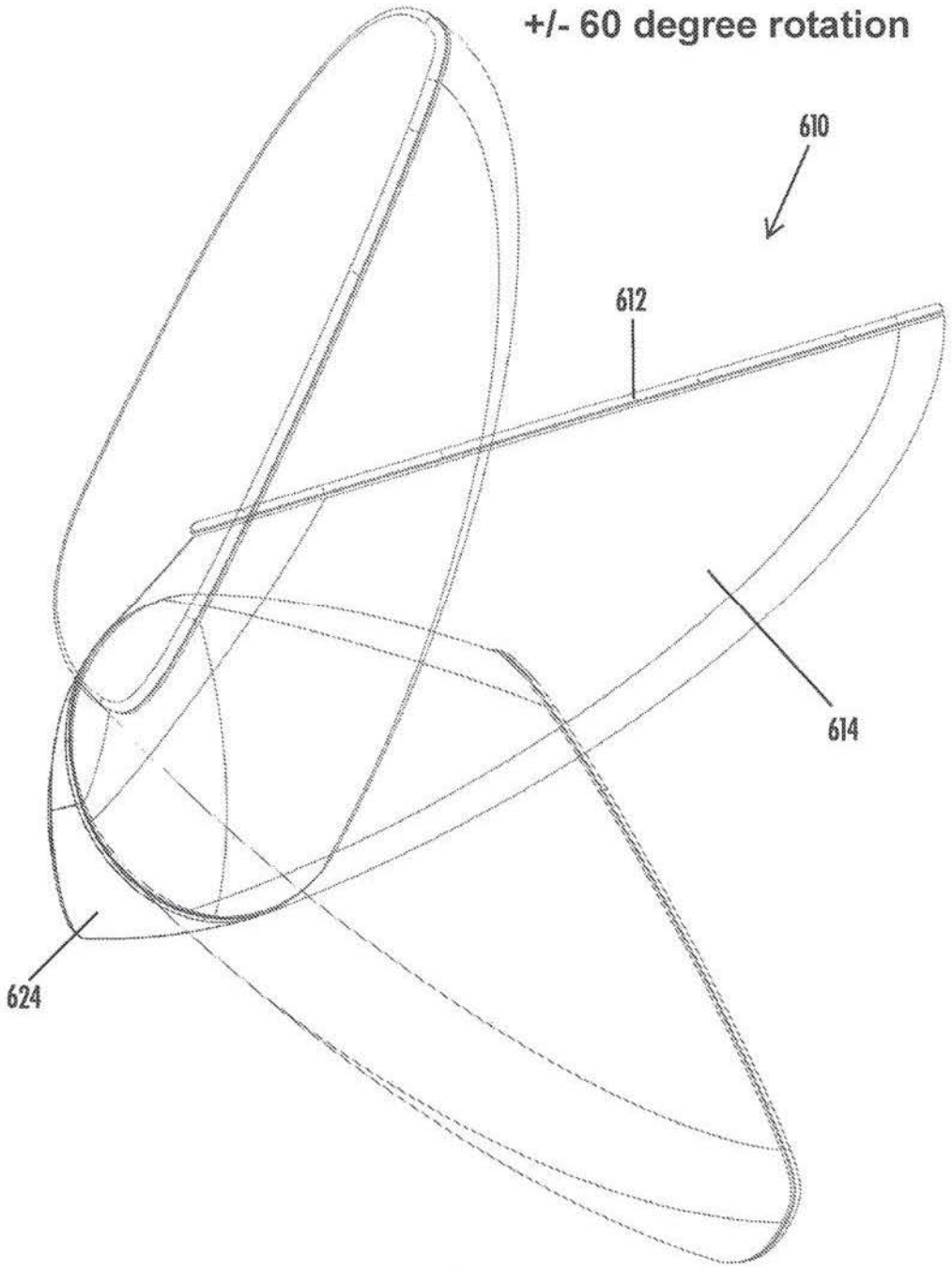
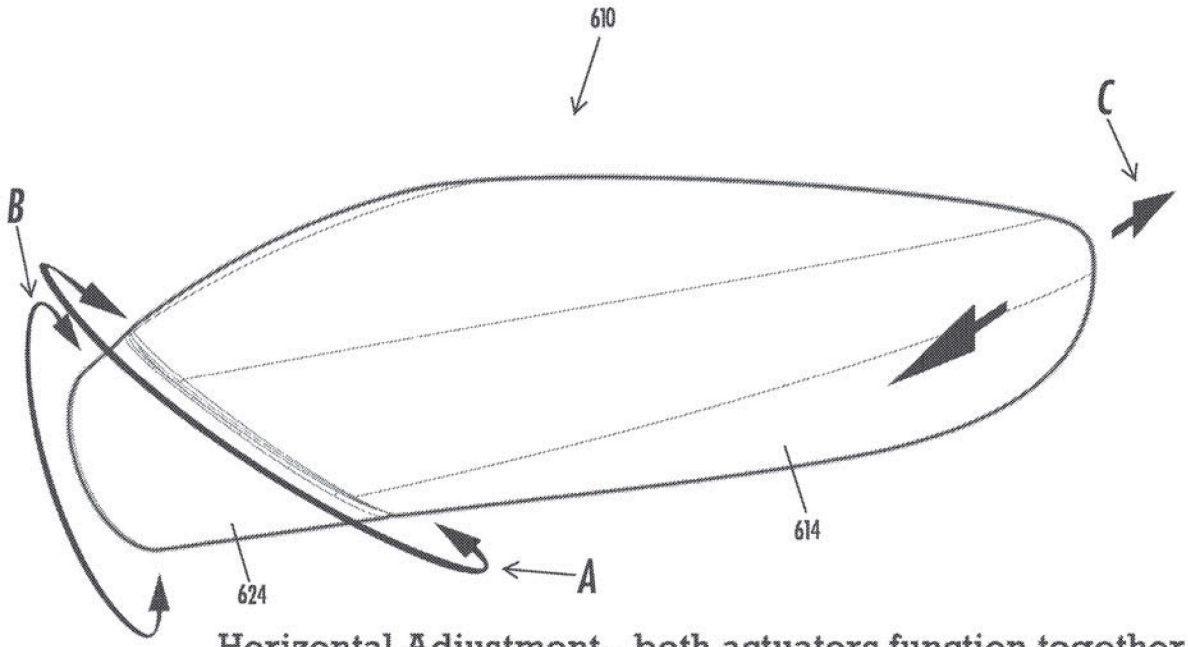


FIG. 58A



Horizontal Adjustment - both actuators function together at different speeds to maintain constant tip angle.

FIG. 58B

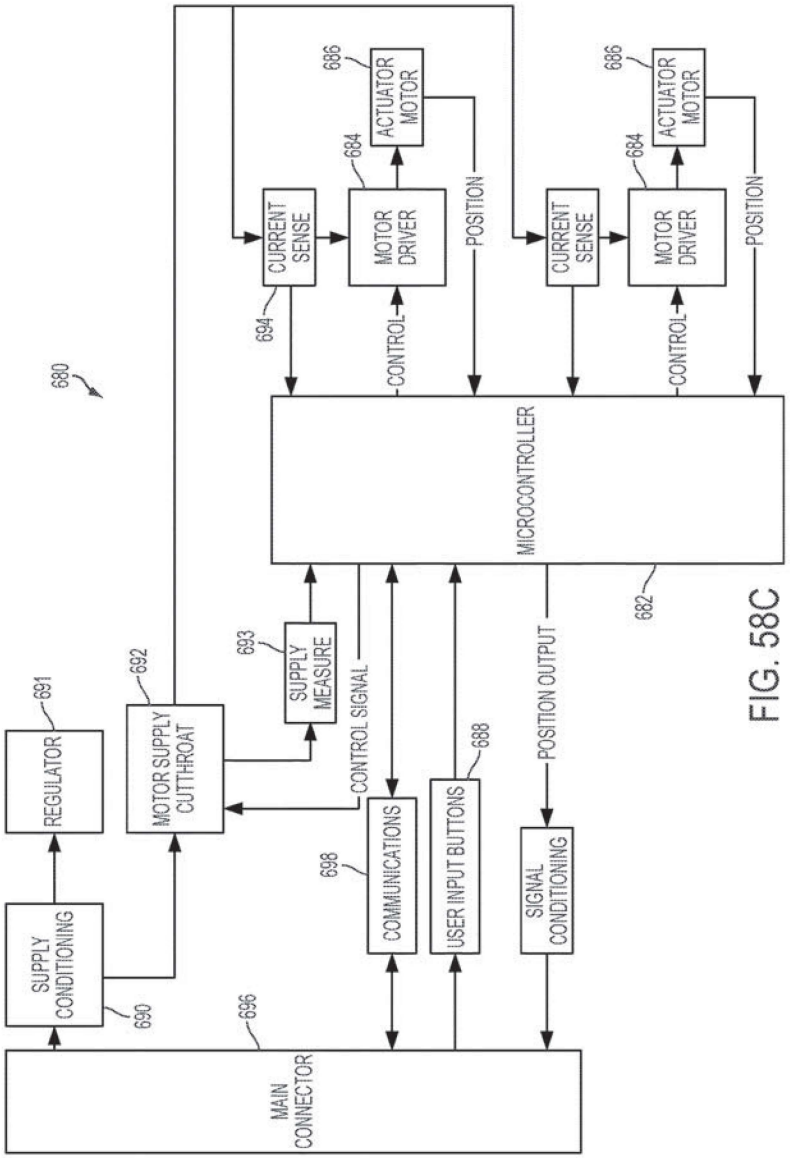


FIG. 58C

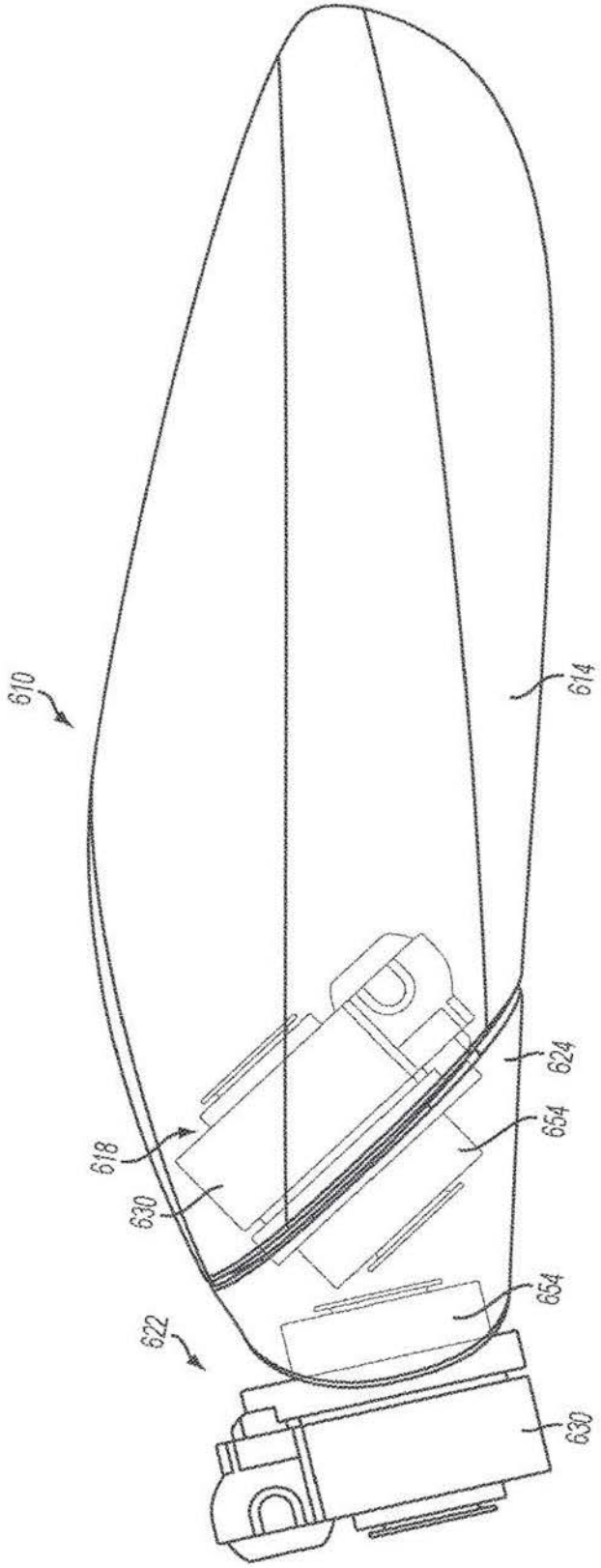


FIG. 59

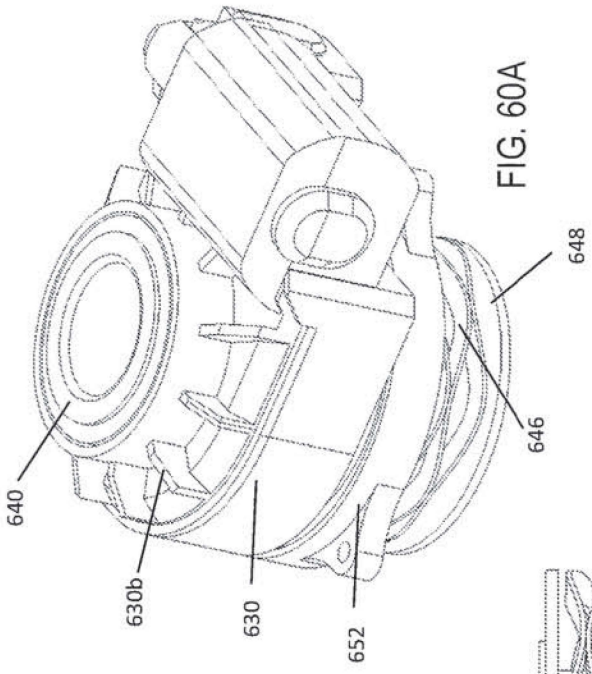


FIG. 60A

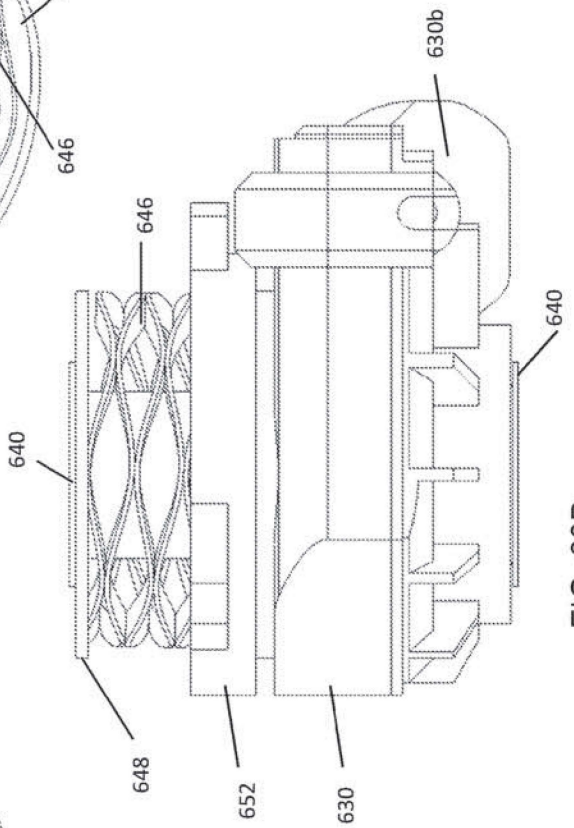


FIG. 60B

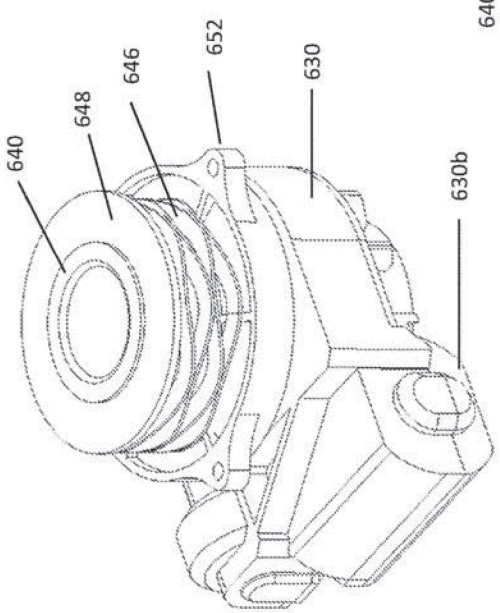


FIG. 60C

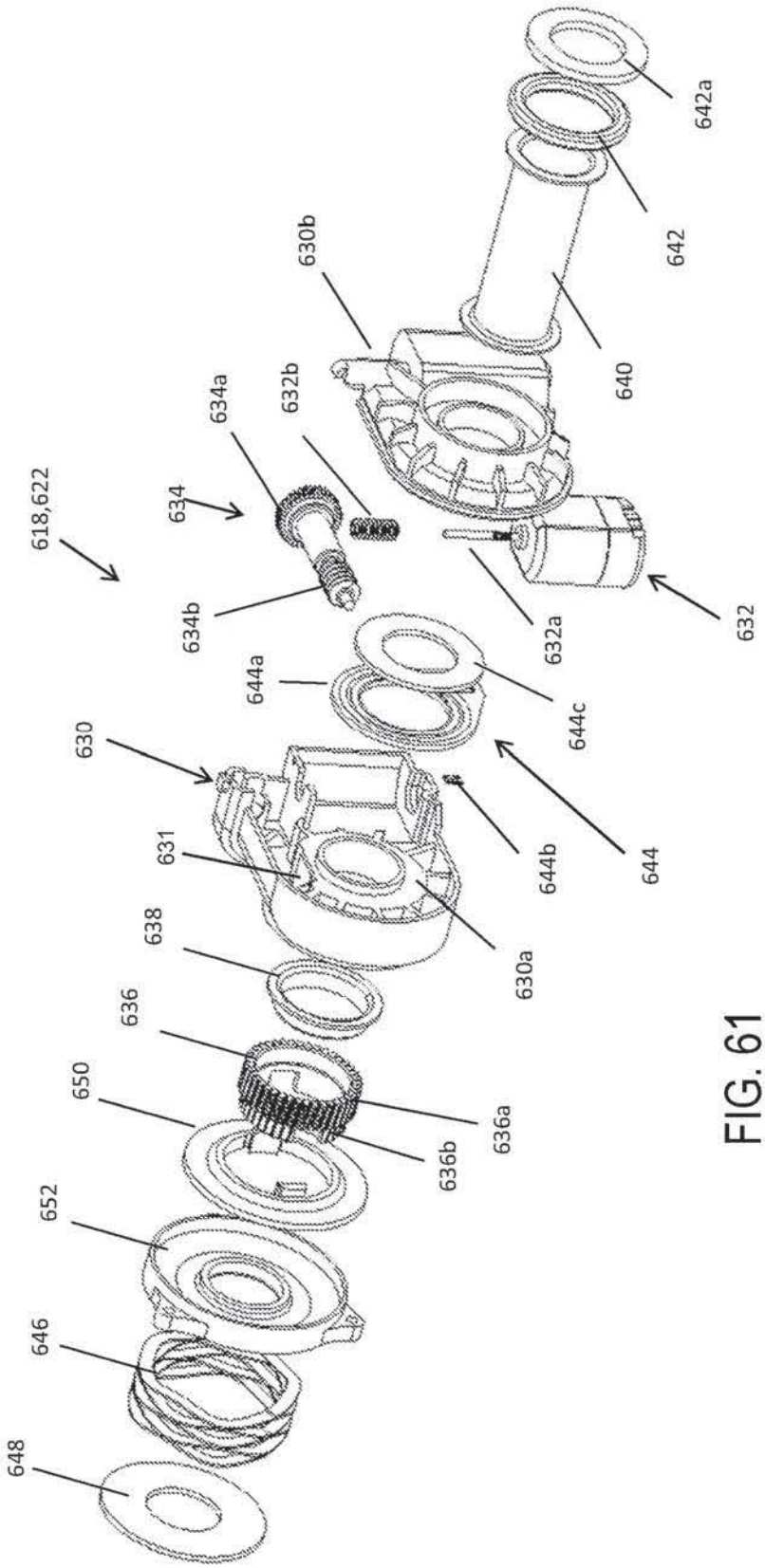


FIG. 61

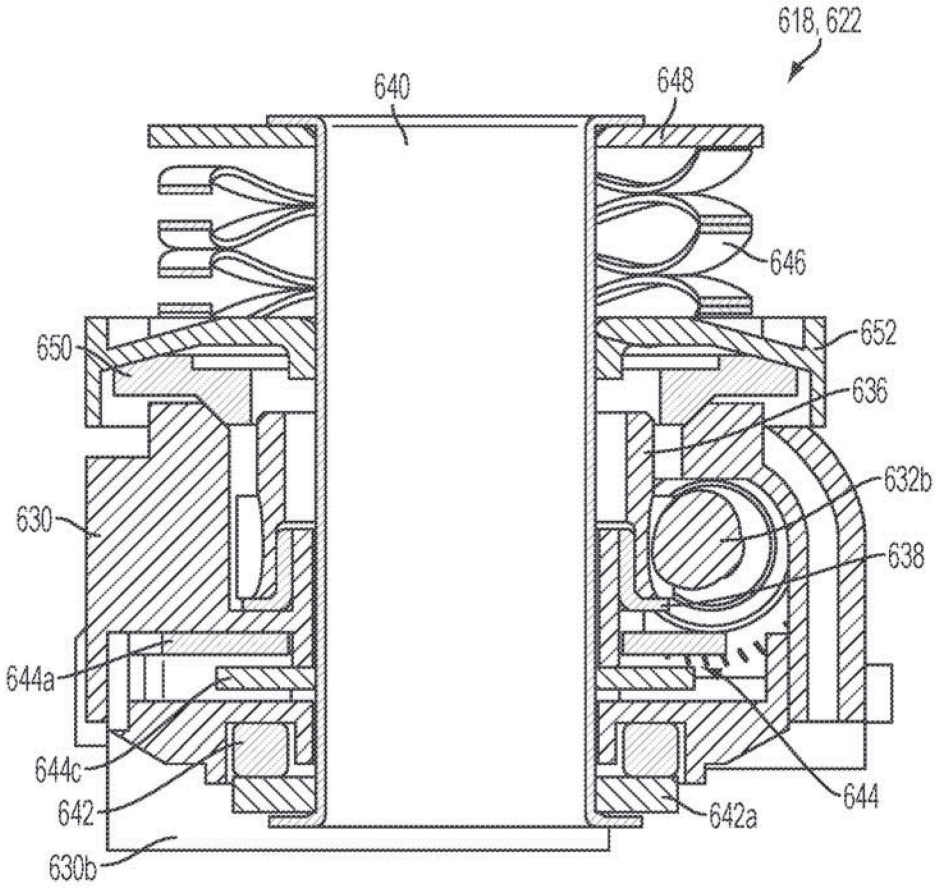

618, 622
640
648
646
650
652
636
632b
630
638
644a
644c
642
644
642a
630b

FIG. 62

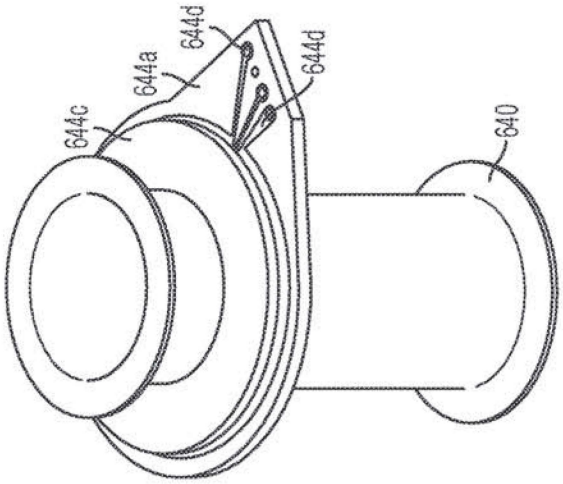


FIG. 64

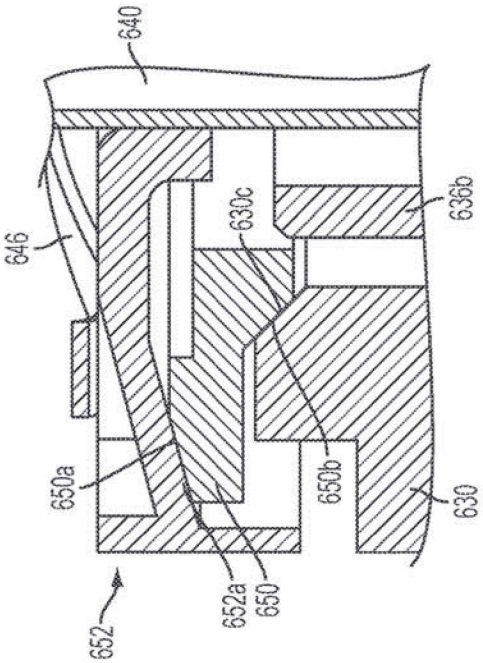


FIG. 63

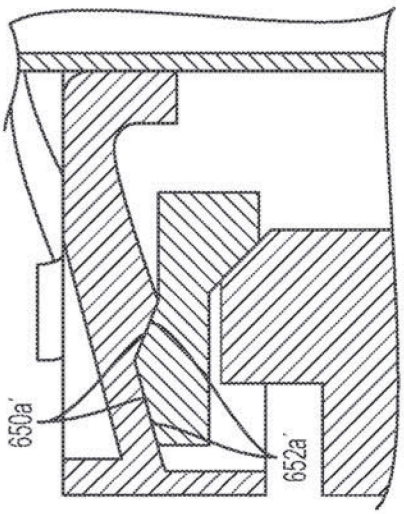


FIG. 63A

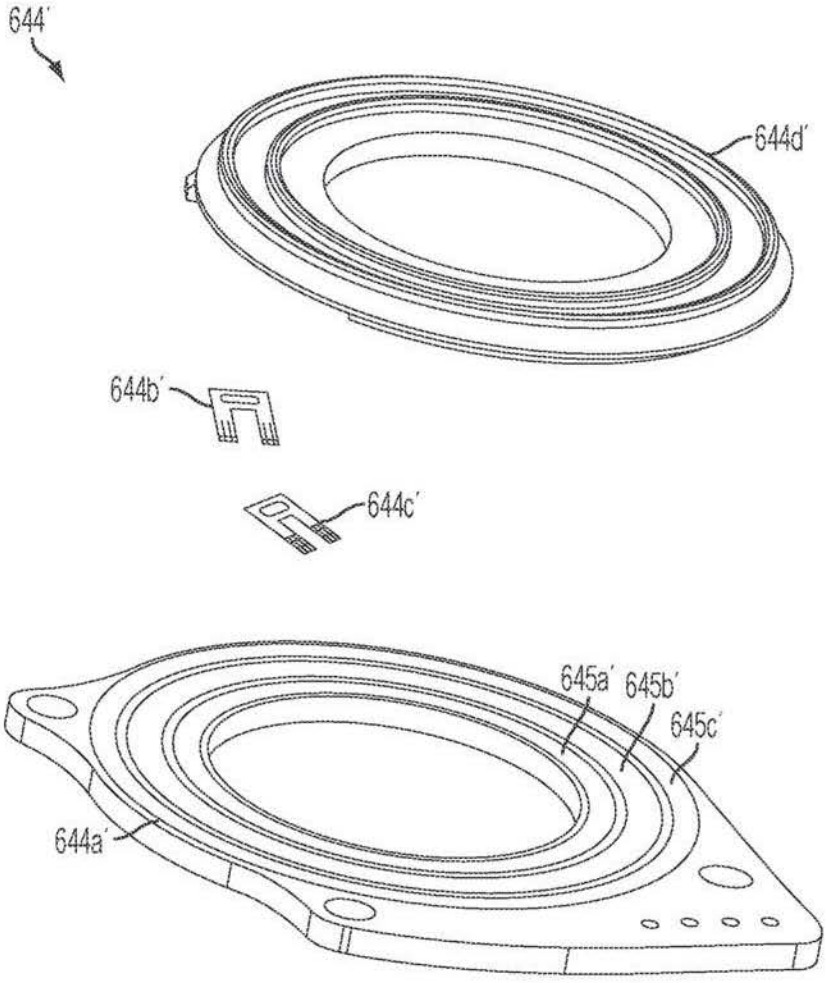


FIG. 64A

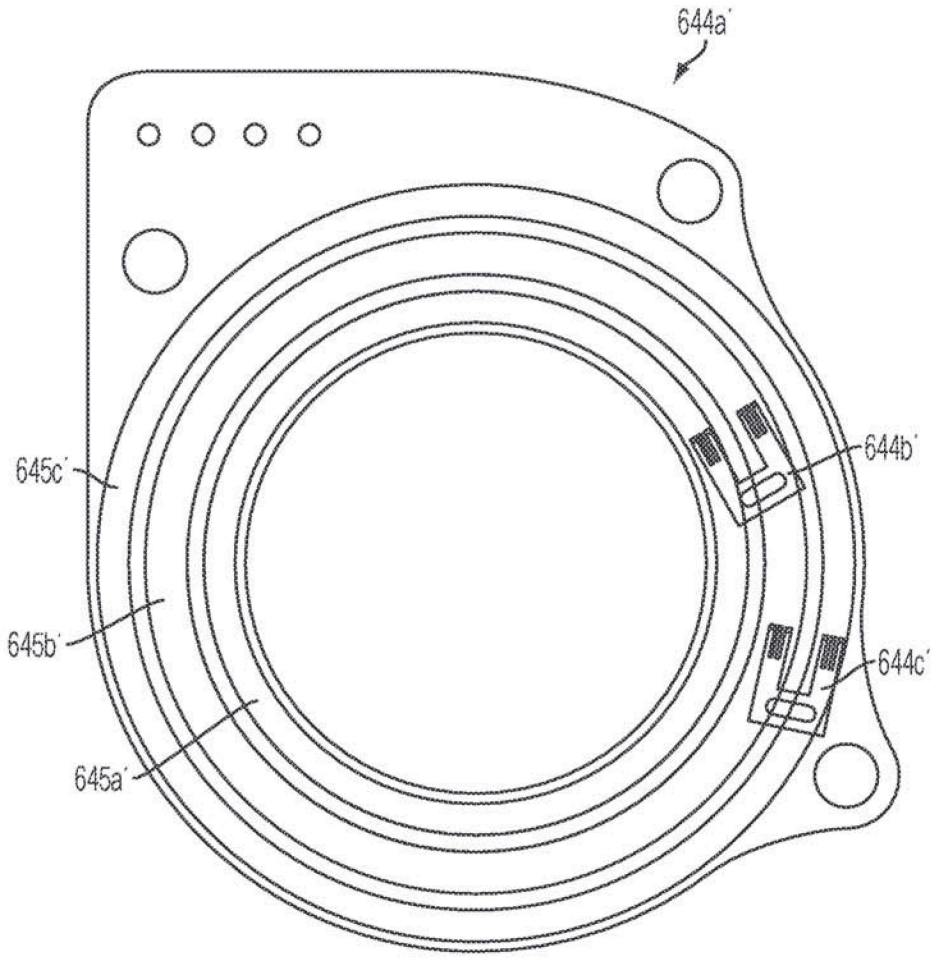


FIG. 64B

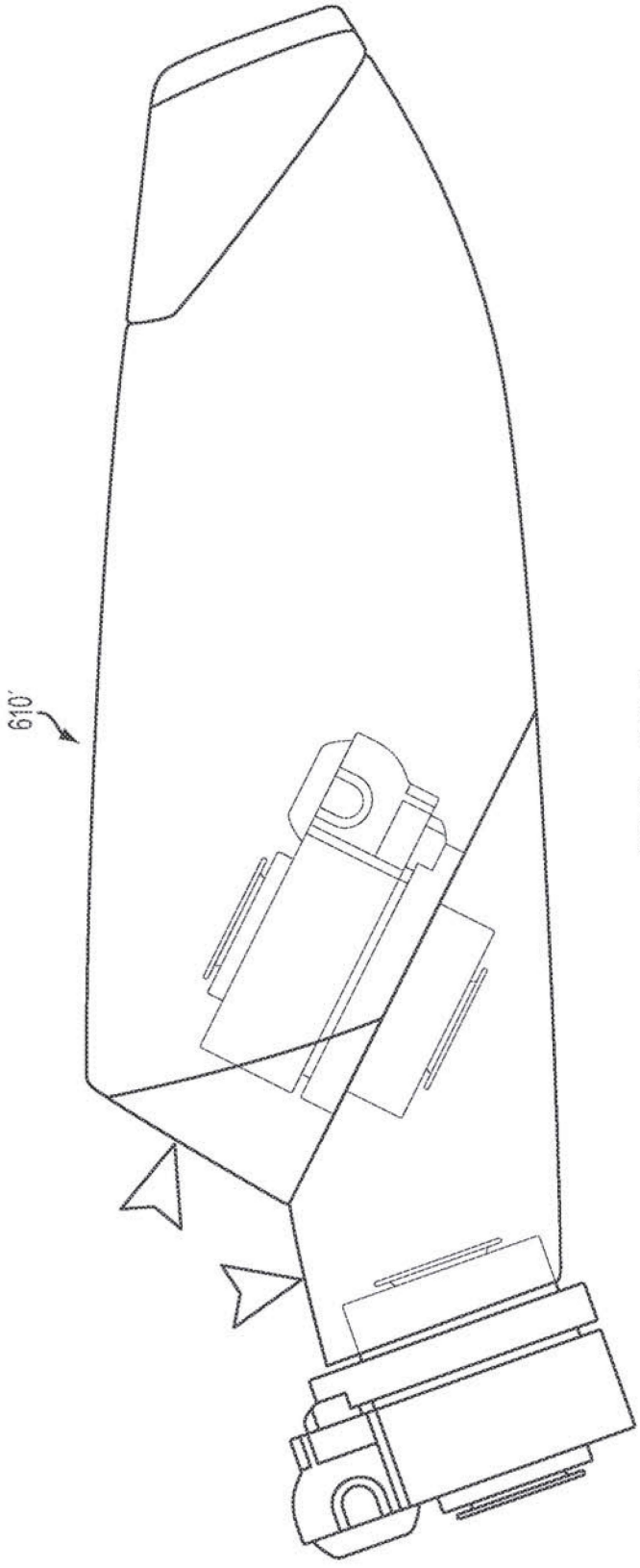


FIG. 65A

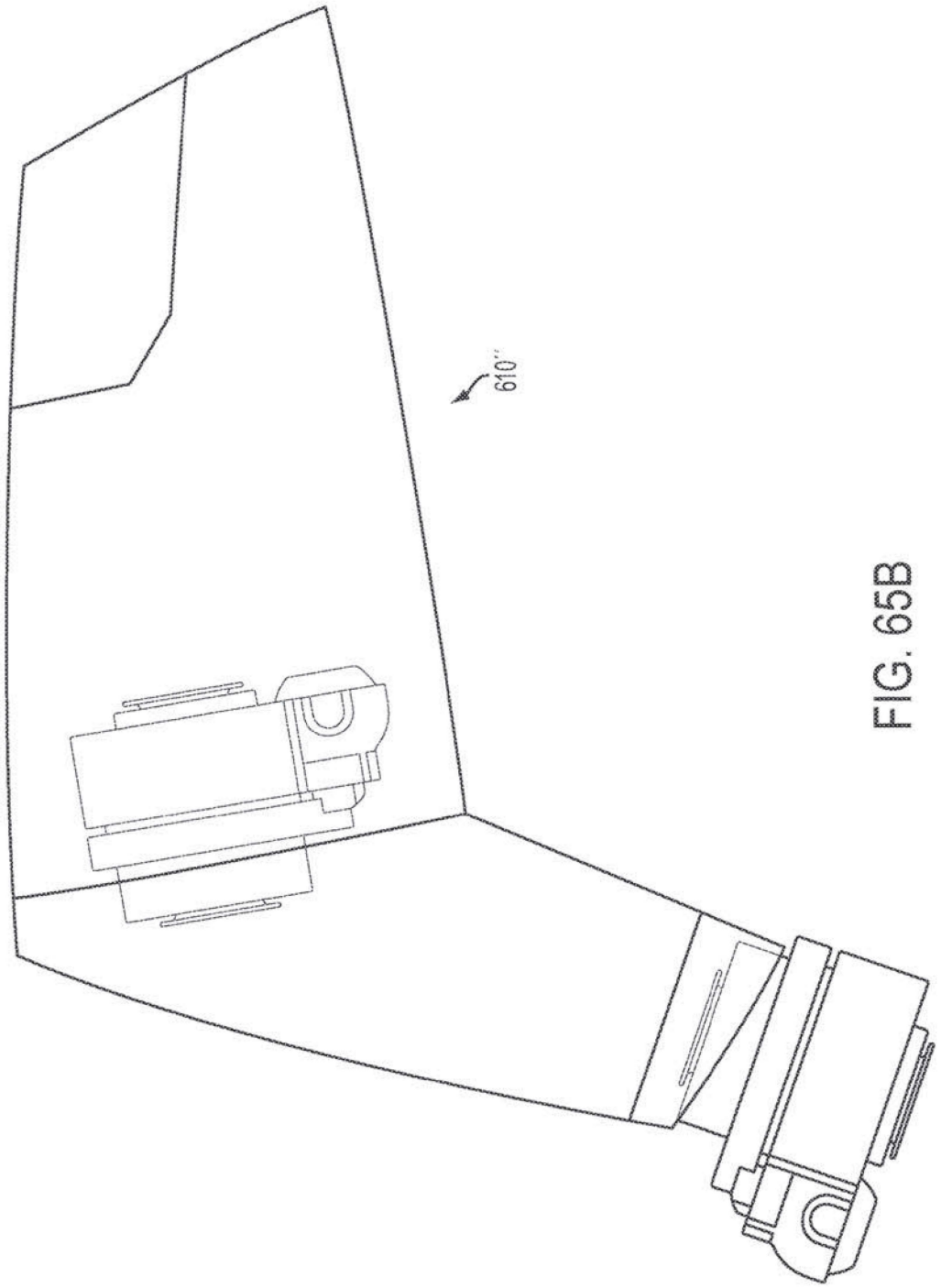


FIG. 65B

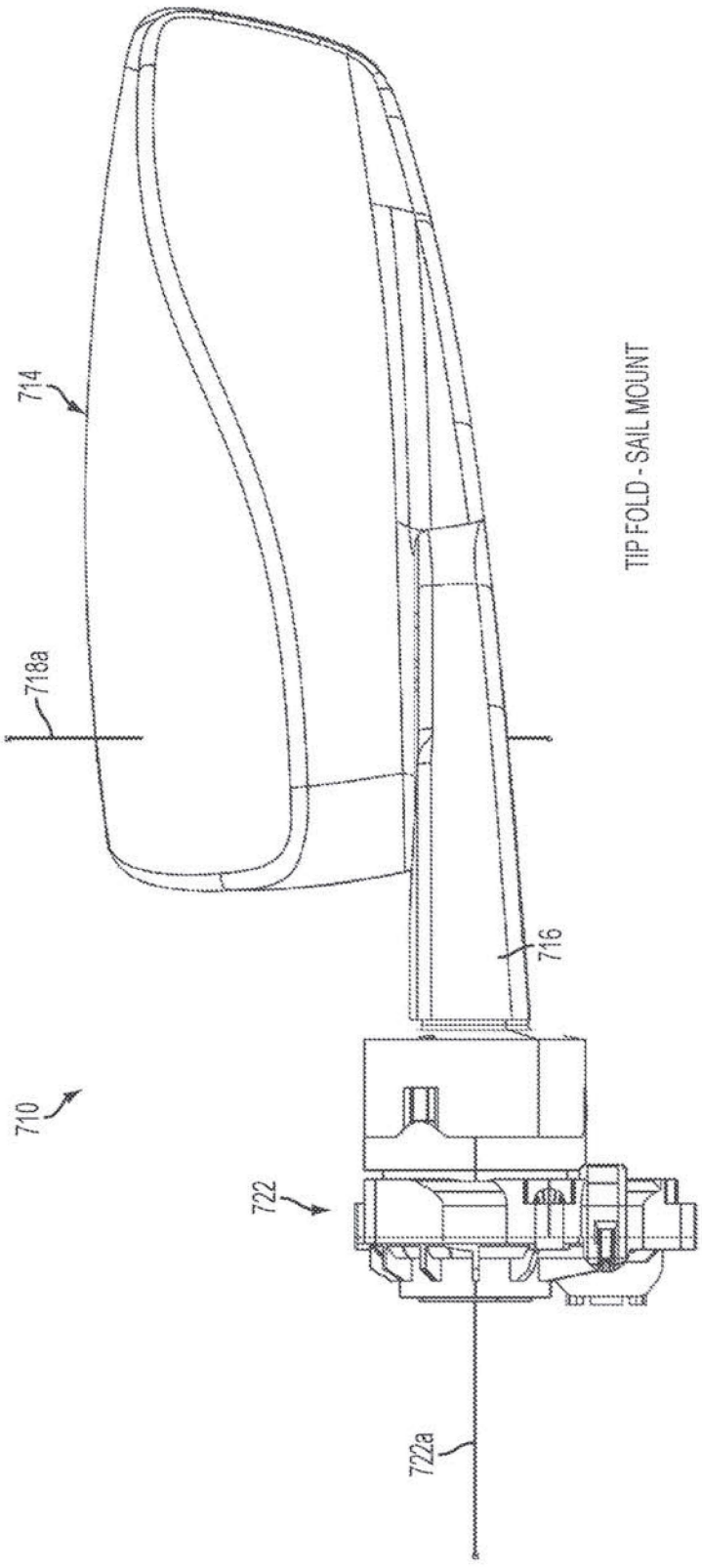


FIG. 66A