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Bisset et al.

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(54) **SENSORS ARRANGEMENT**

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(52) **U.S. Cl.** **701/23**; 701/22; 180/167; 180/168; 180/169; 180/180; 318/580; 318/587; 318/868.16; 340/943; 340/435; 15/319; 15/323; 15/339; 15/340.1; 706/905
(58) **Field of Search** 701/23.1, 22; 180/167, 180/168, 169, 280; 706/905; 318/580, 587, 568.16; 340/943, 435; 15/319, 323, 339, 340.1; 134/18, 21, 6

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(57) **ABSTRACT**

An autonomous vehicle, such as a robotic cleaning device, includes wheels which support the vehicle and allow the vehicle to traverse a surface. Downward looking wheel sensors sense the presence of a surface in front of the wheels. Another sensor is provided at or near a leading edge of the vehicle for sensing the presence beneath the leading edge of the vehicle. The vehicle is arranged so that movement of the vehicle is possible if the leading edge sensor senses that there is no surface beneath the leading edge of the vehicle, provided that the wheel sensors indicate that there is a surface adjacent to the wheel. When the leading edge sensor senses that there is no surface beneath the leading edge of the vehicle, the vehicle performs an edge following routine.

13 Claims, 11 Drawing Sheets
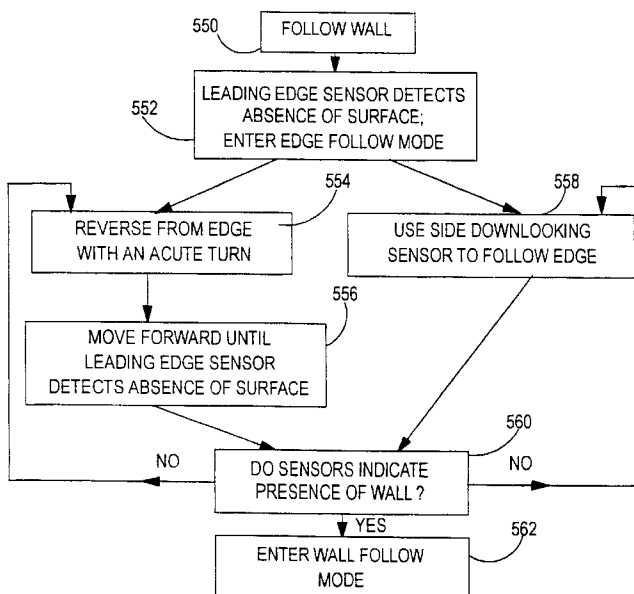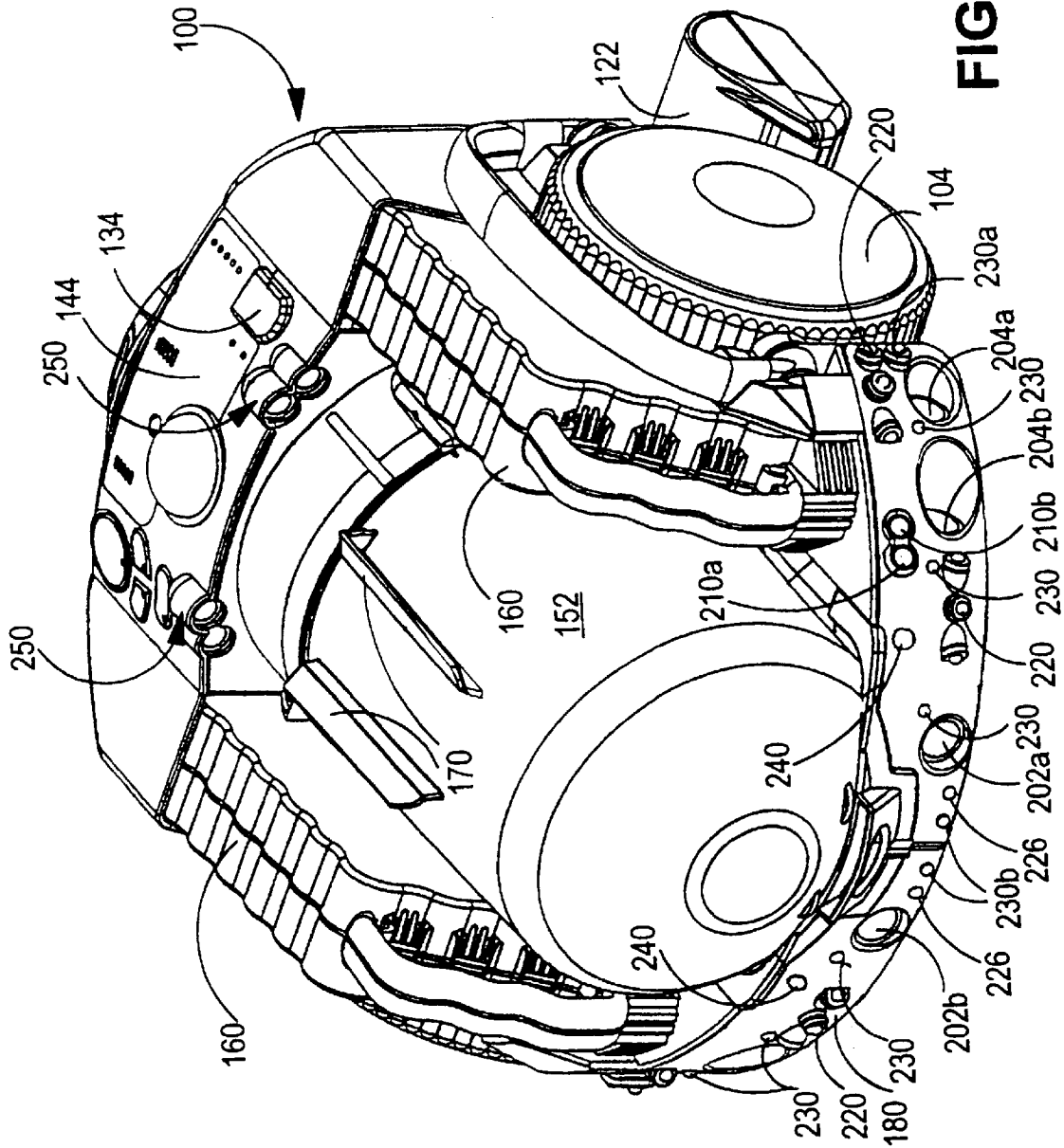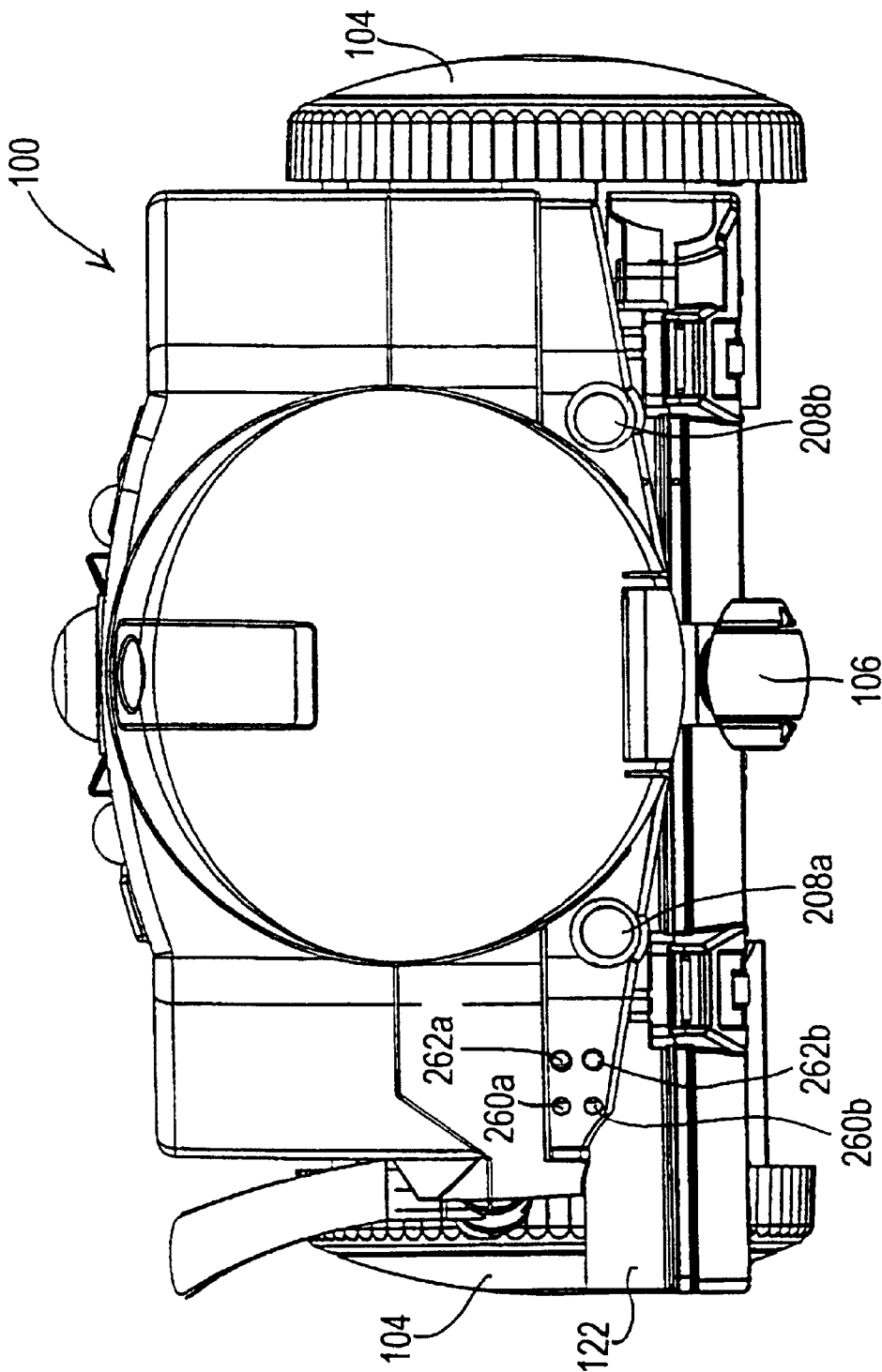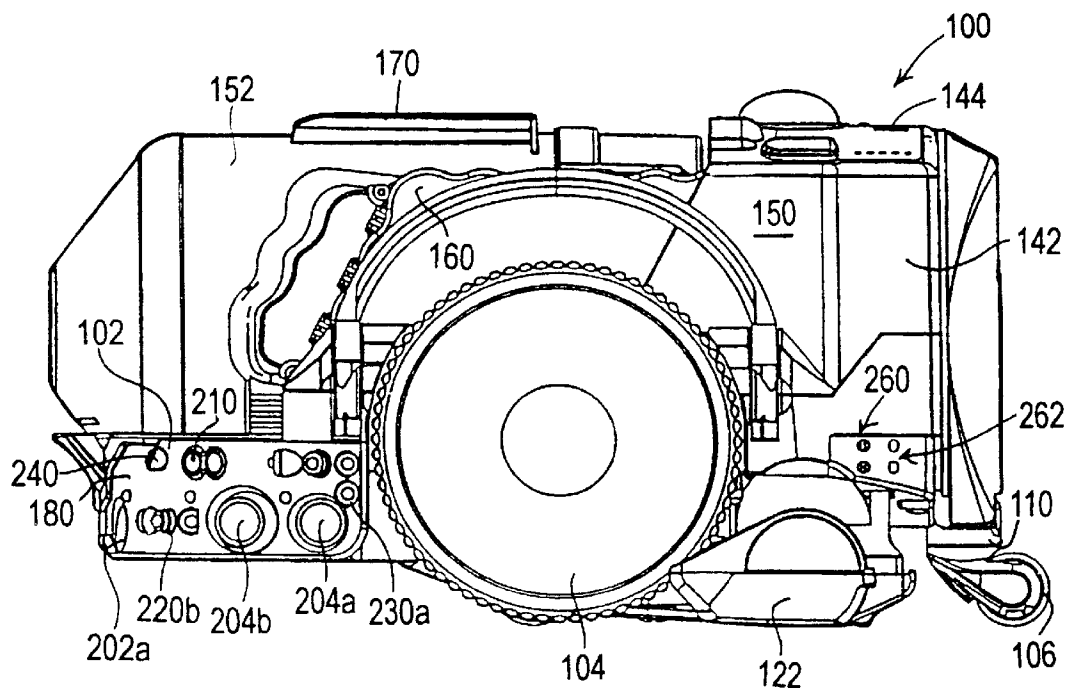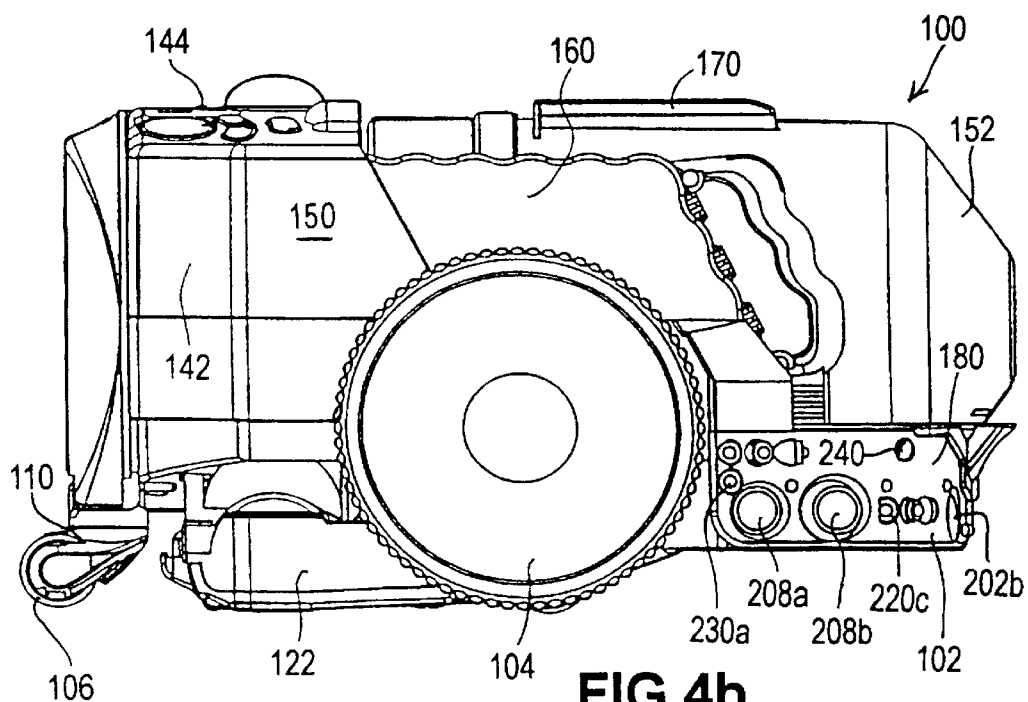
FIG.1.
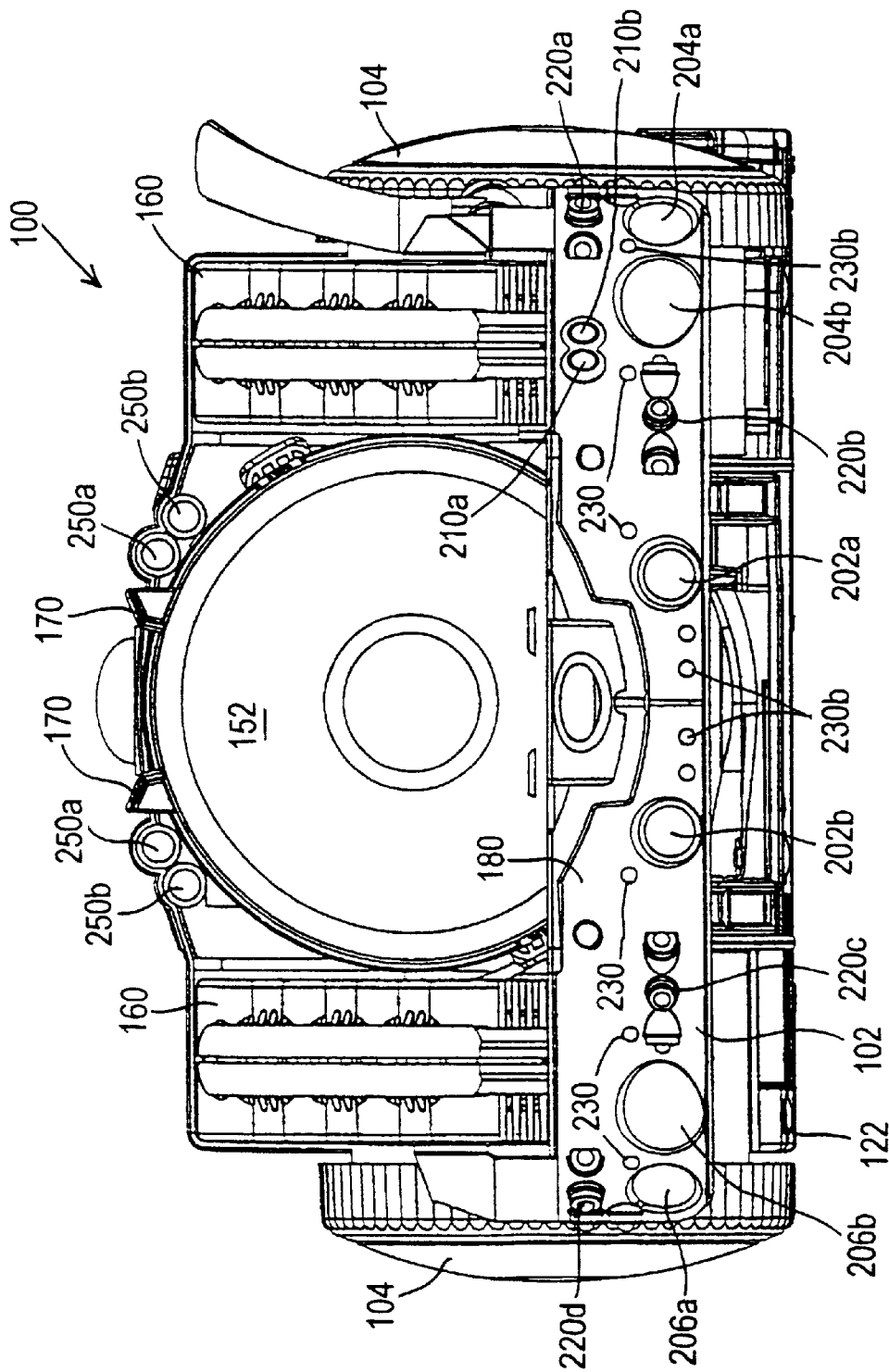
FIG.2.

FIG.3.

FIG.4a.

FIG.4b.

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