

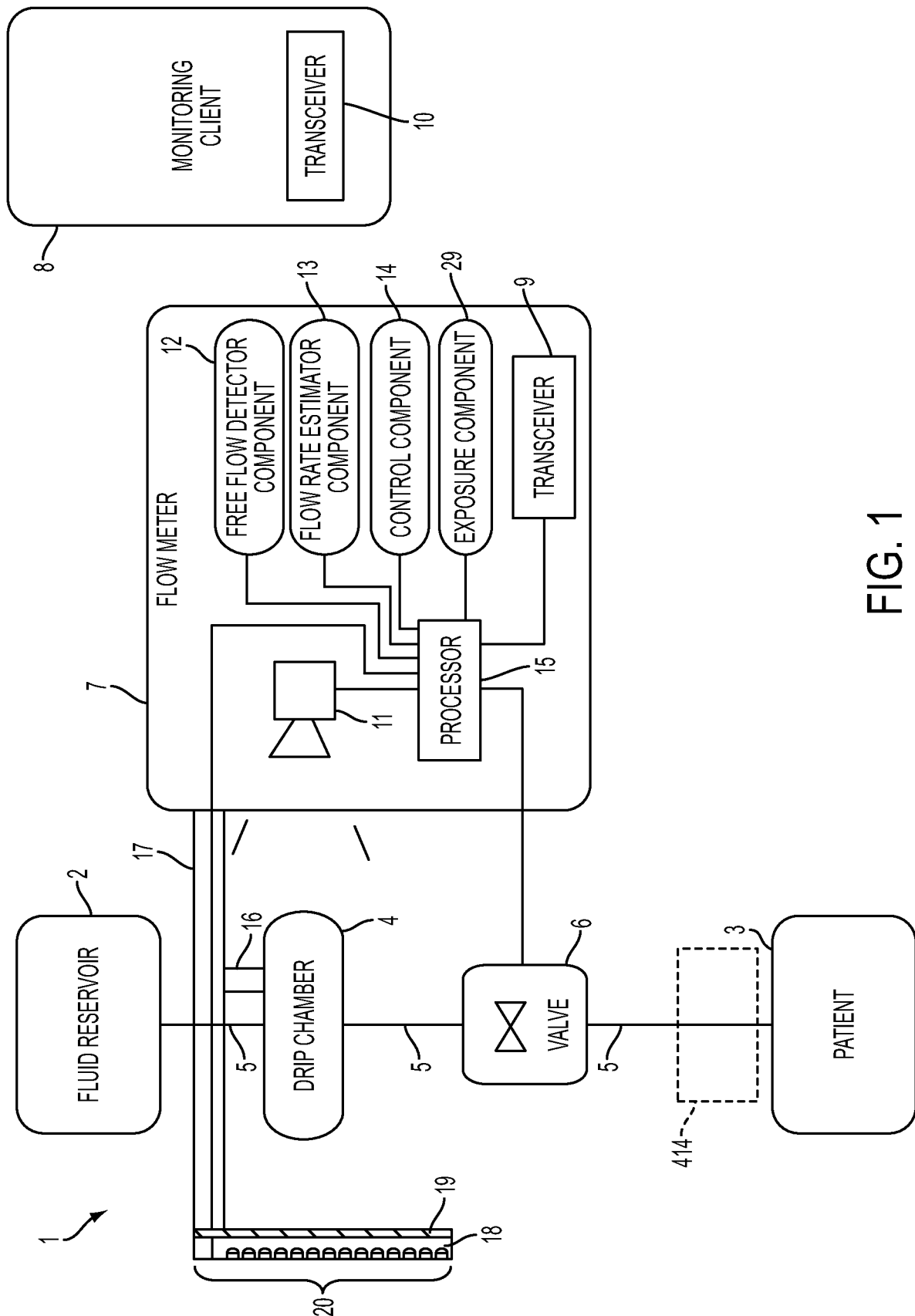


FIG. 1

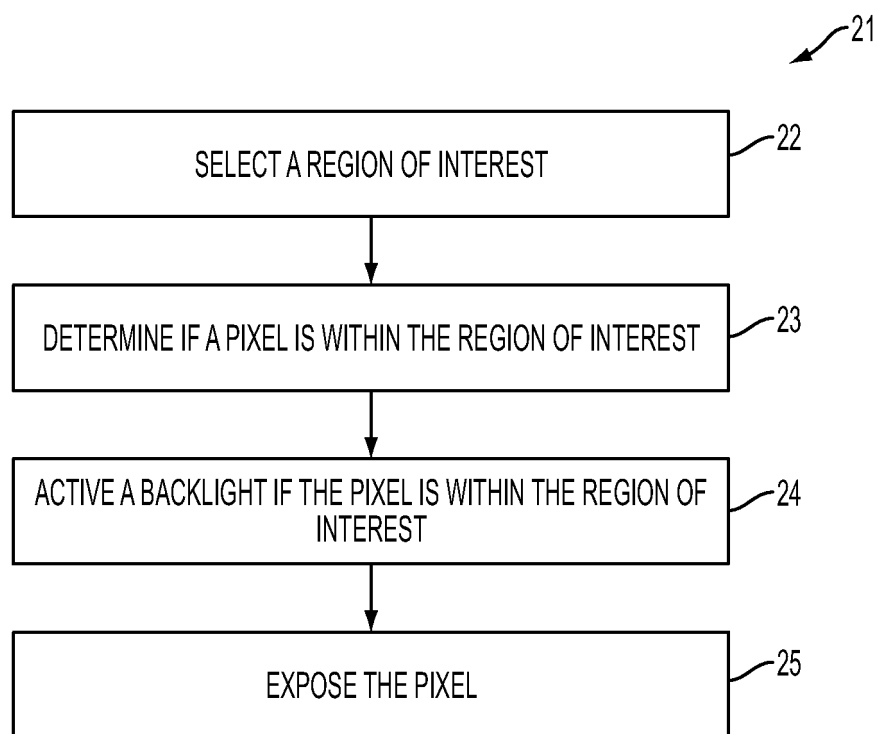


FIG. 2

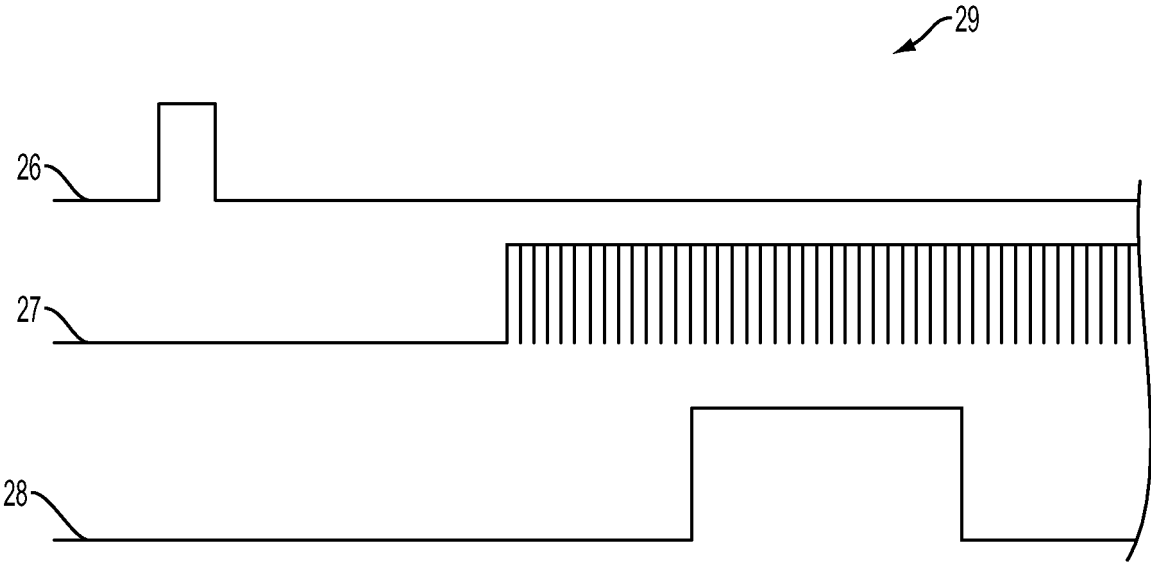


FIG. 3

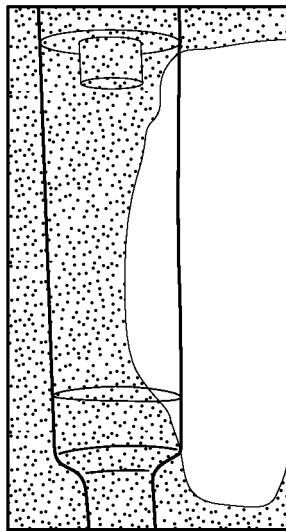


FIG. 4A

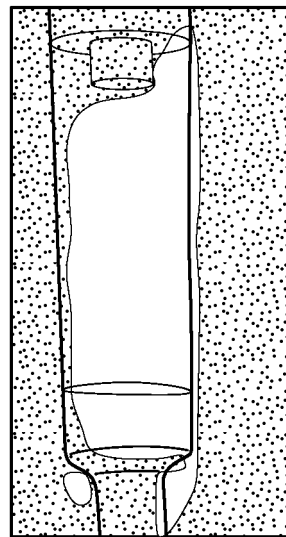


FIG. 4B

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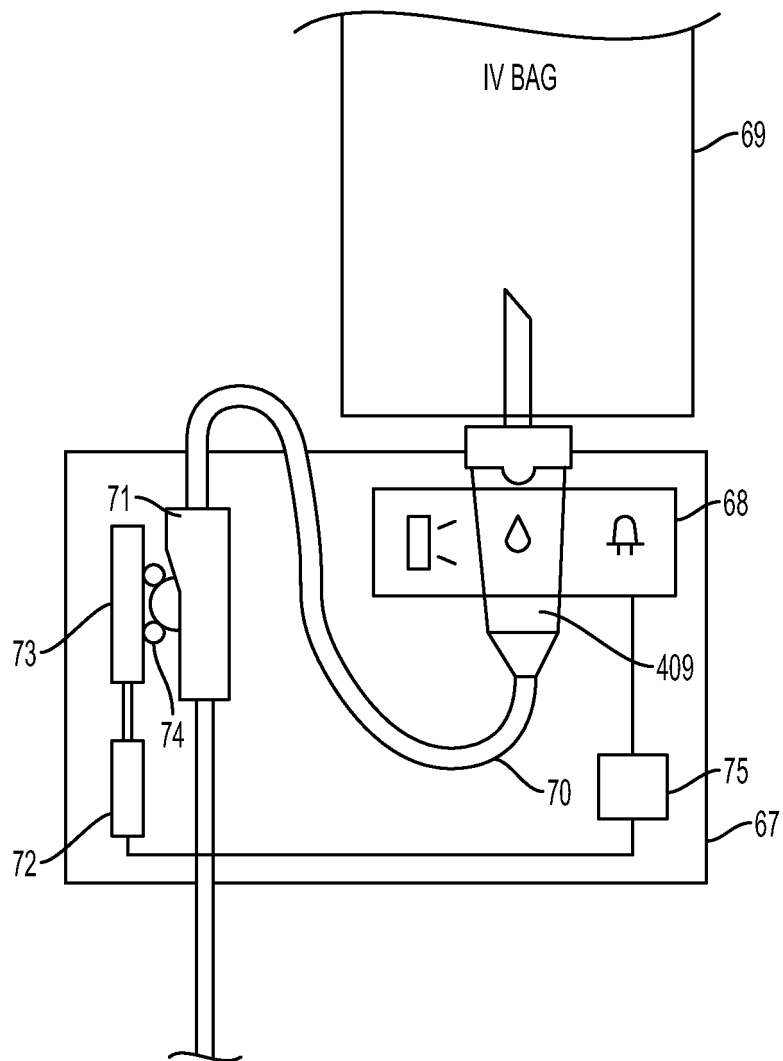


FIG. 5

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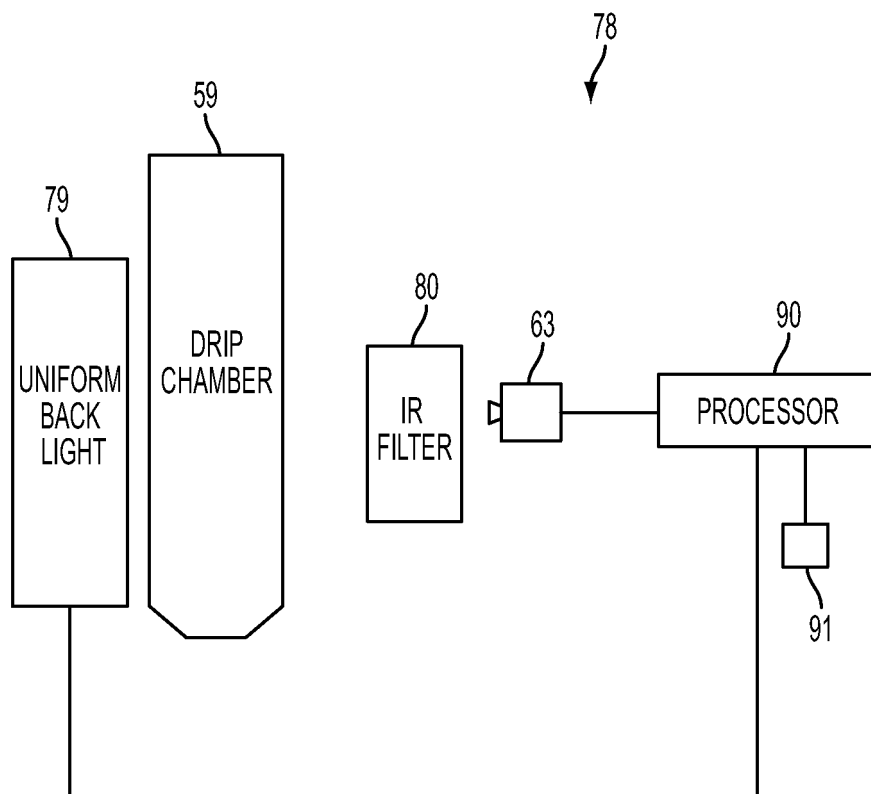


FIG. 6

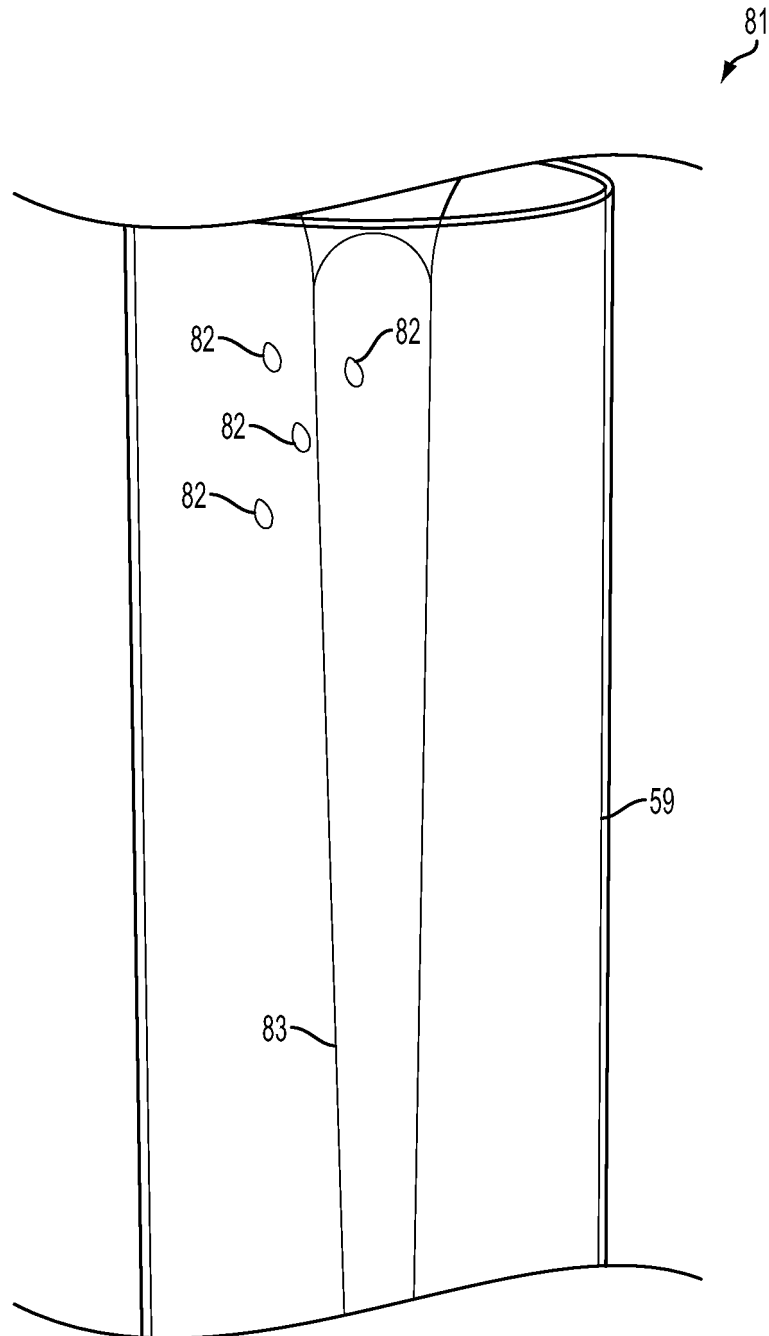


FIG. 7

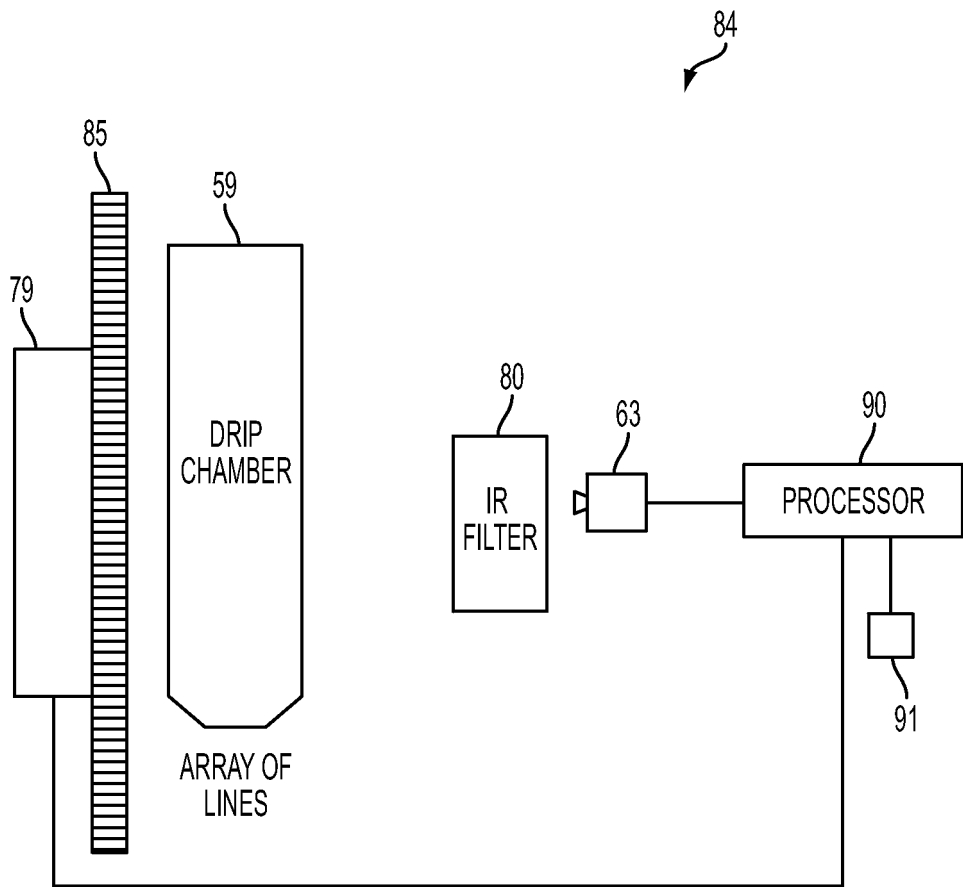


FIG. 8

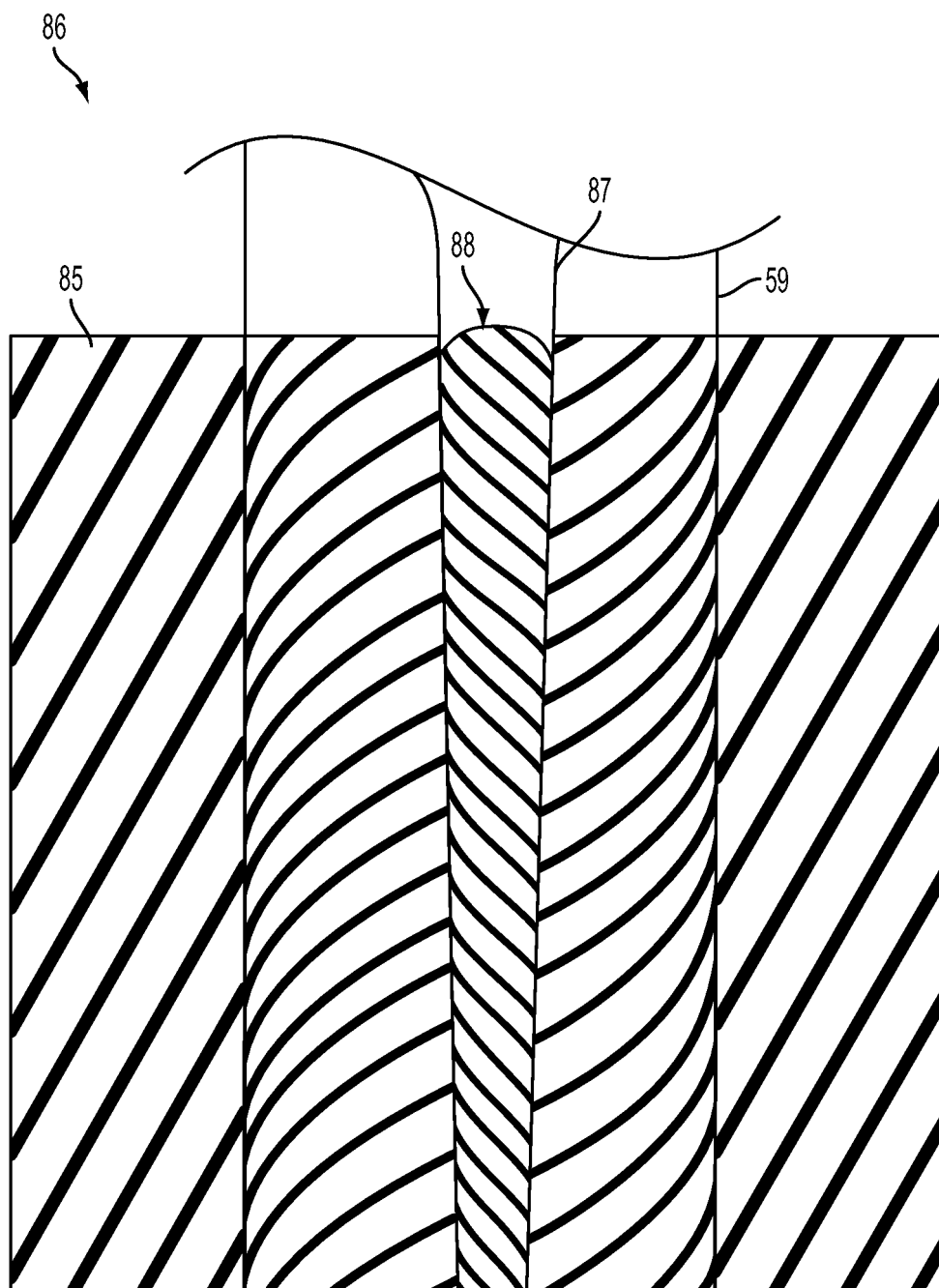
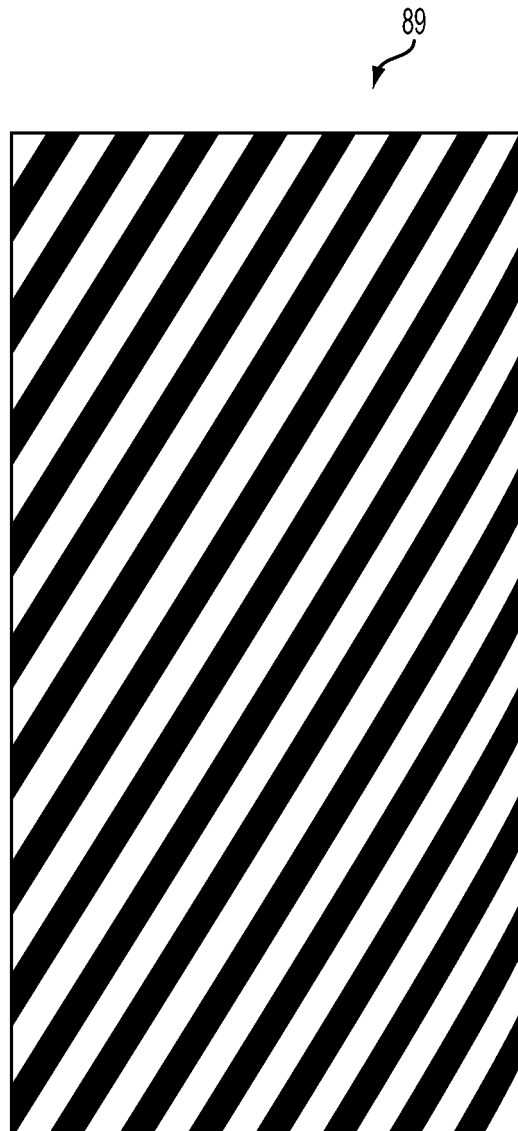


FIG. 9



TYPICAL BACKGROUND IMAGE

FIG. 10



FIG. 13

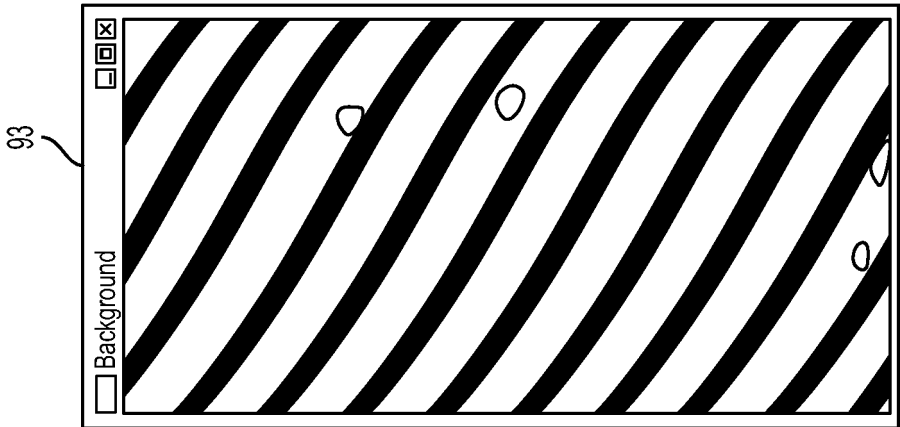


FIG. 12

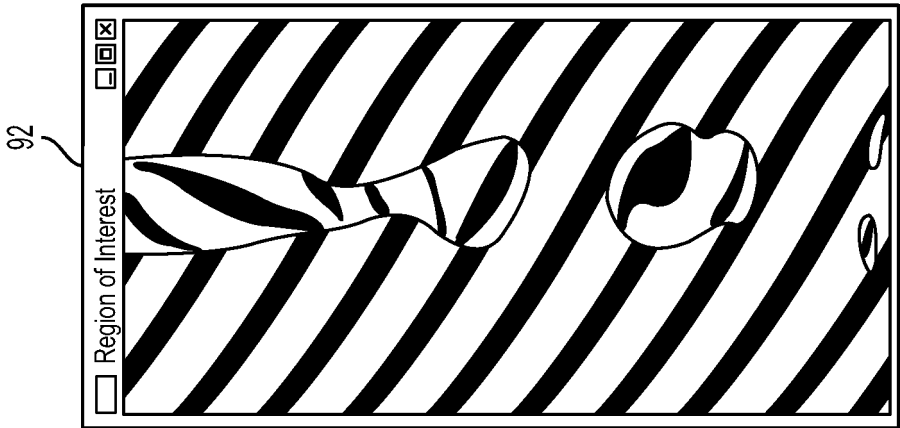


FIG. 11

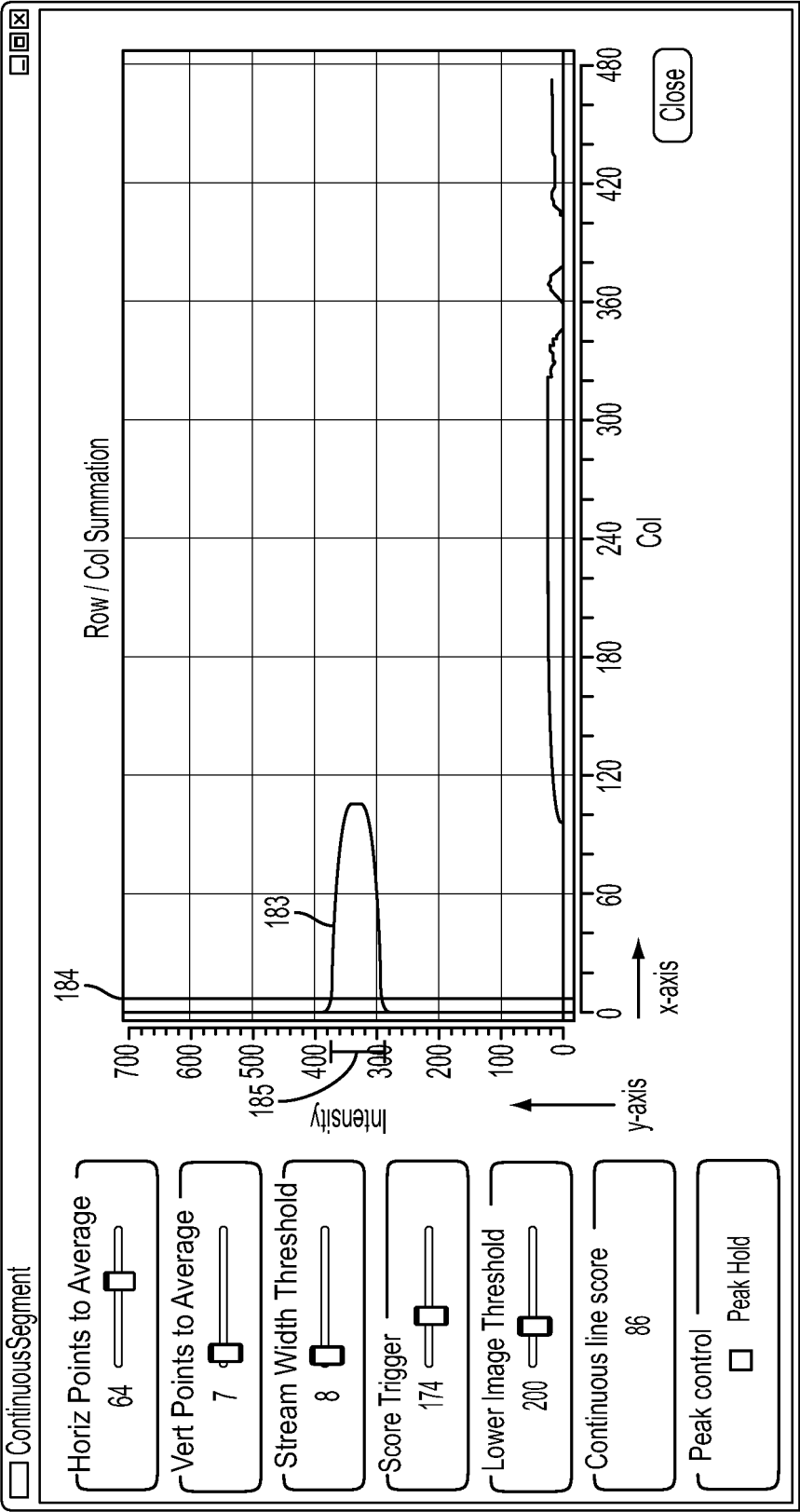


FIG. 14



FIG. 17



FIG. 16

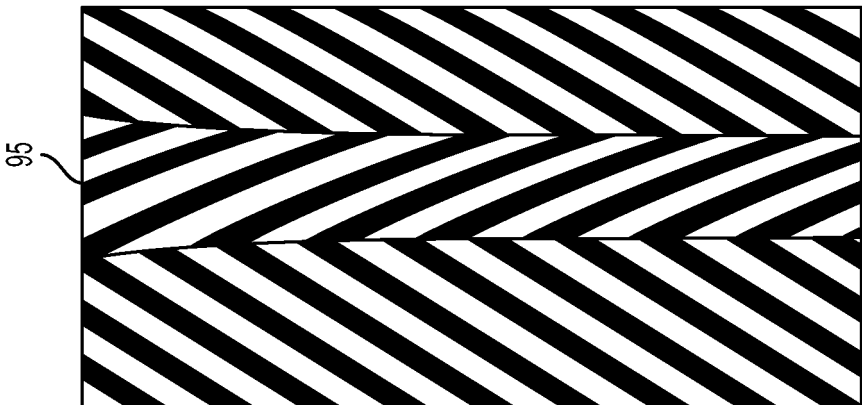


FIG. 15

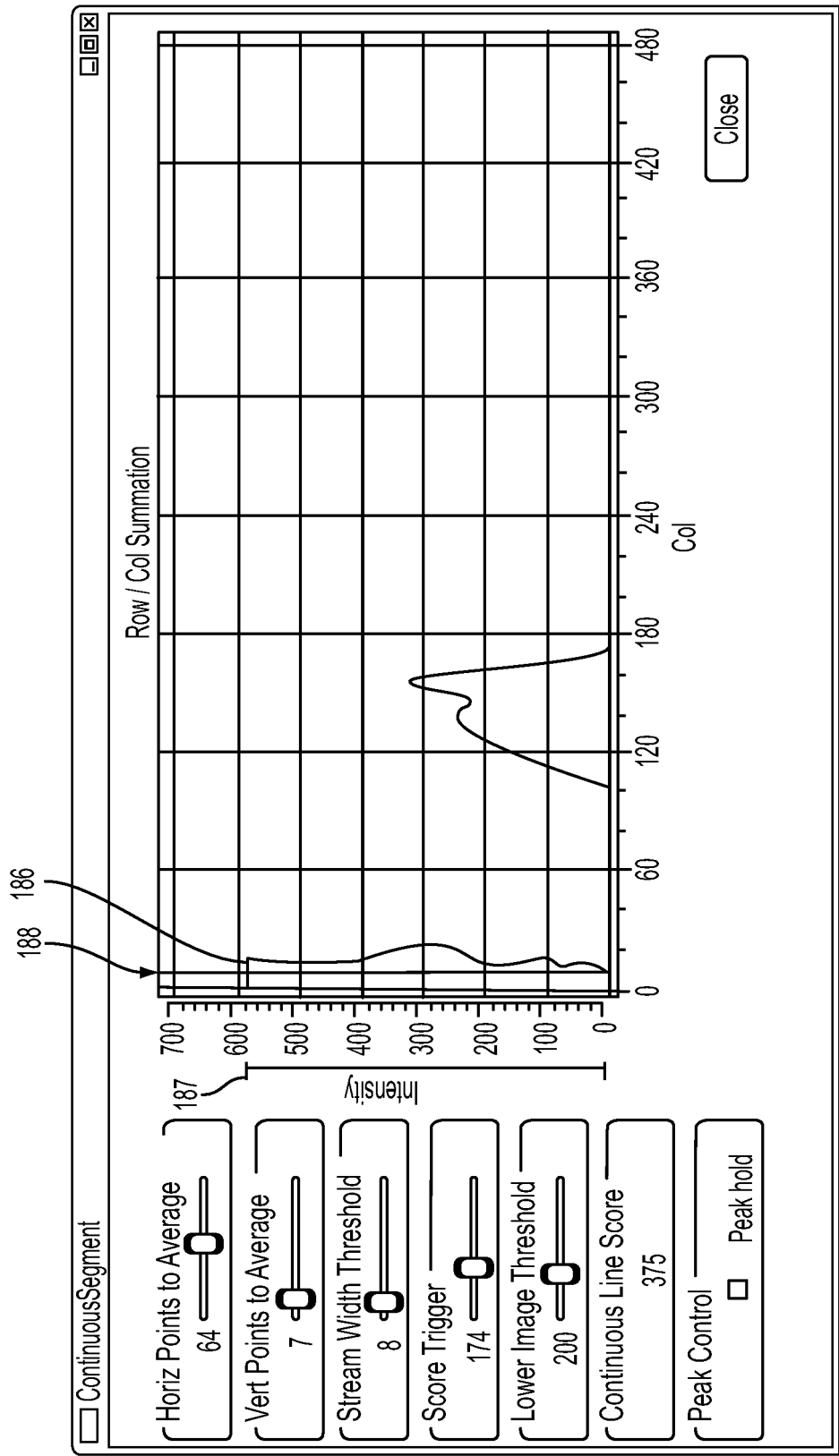


FIG. 18

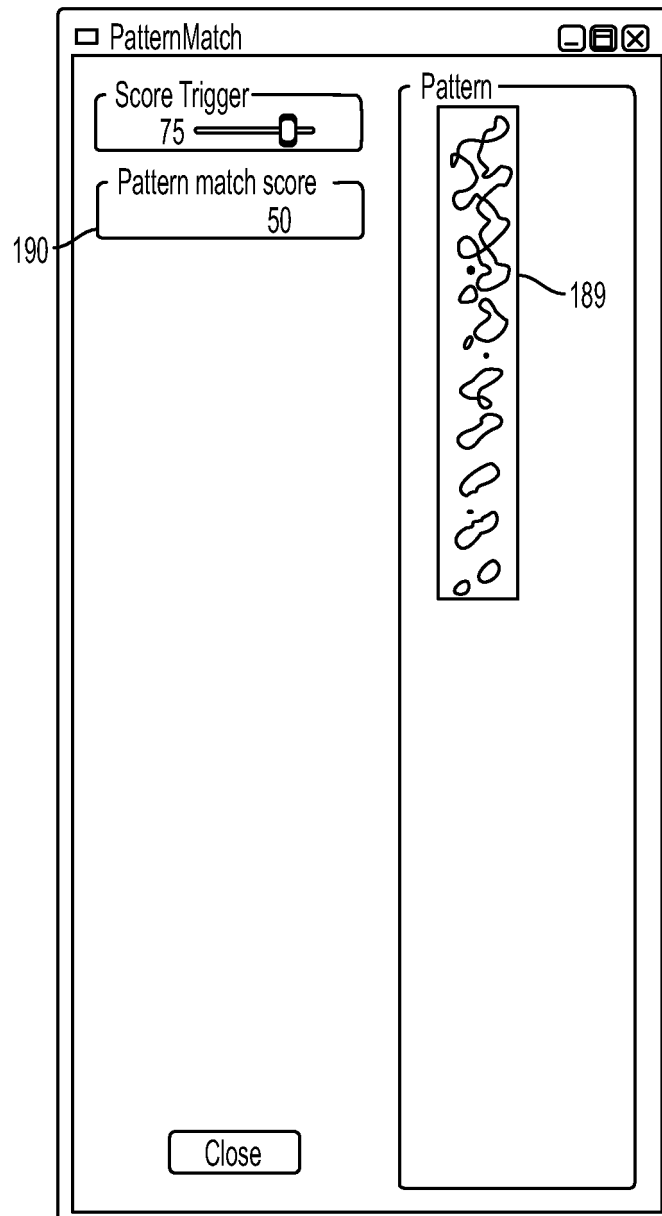


FIG. 19

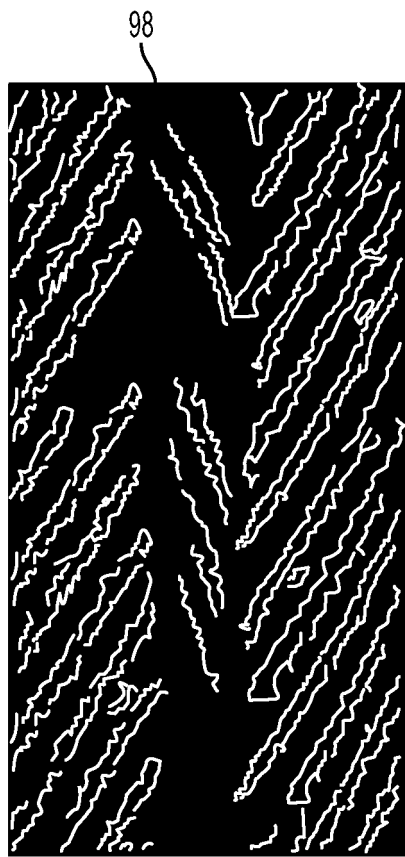


FIG. 20

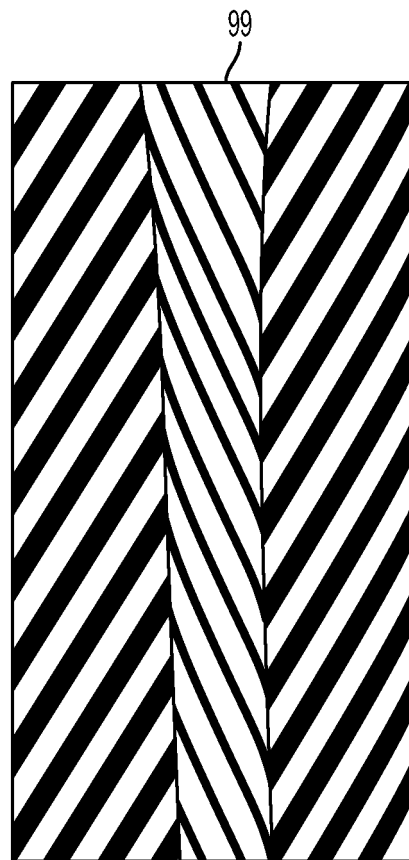


FIG. 21

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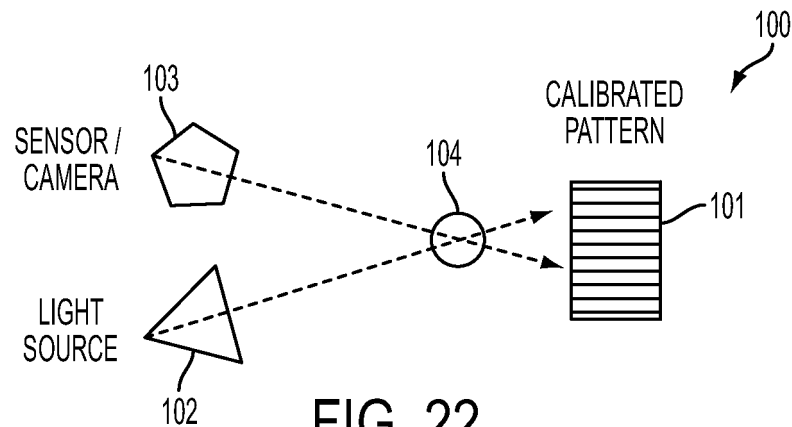


FIG. 22

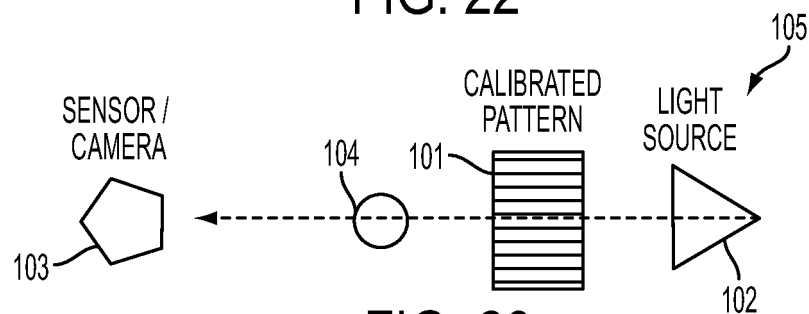


FIG. 23

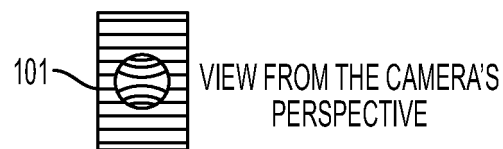


FIG. 24

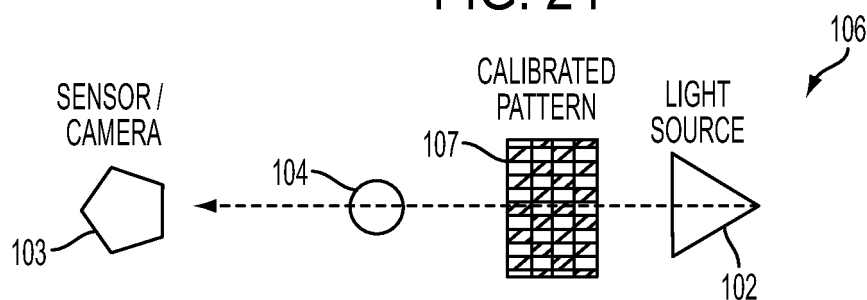


FIG. 25



FIG. 26

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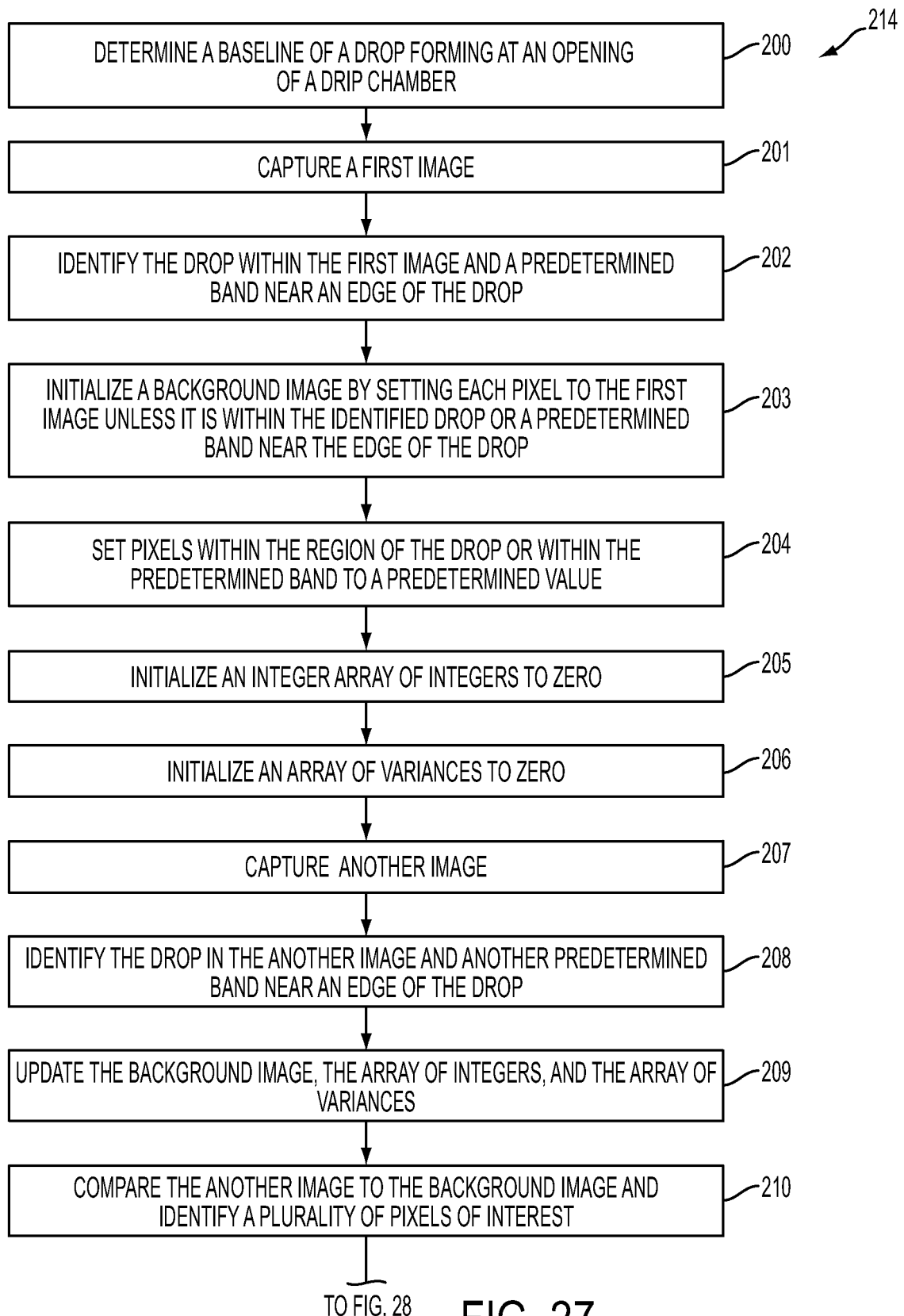


FIG. 27

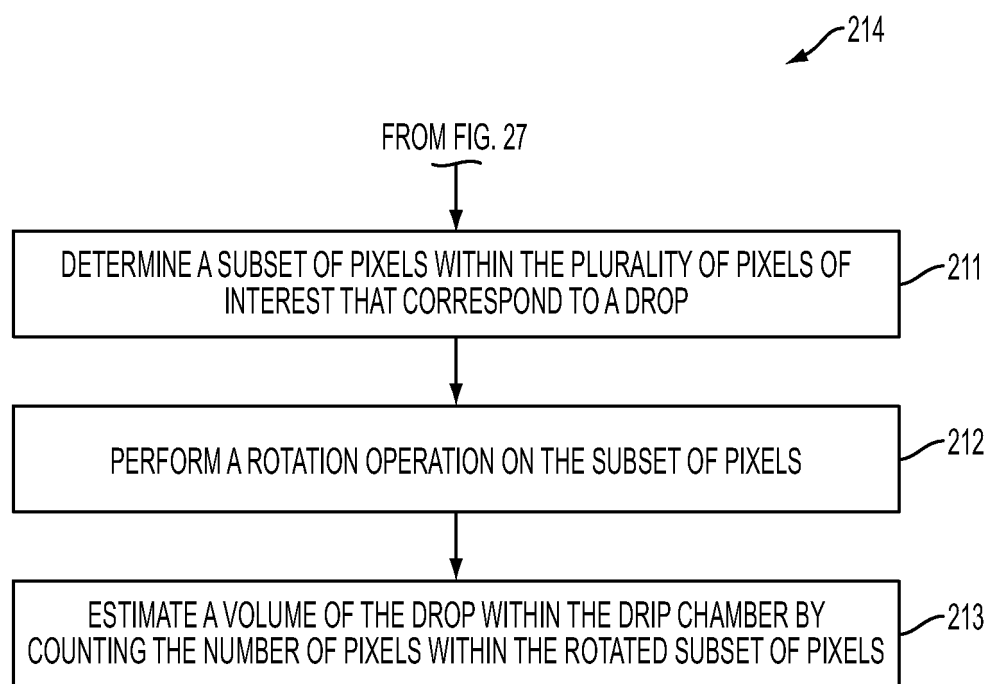


FIG. 28

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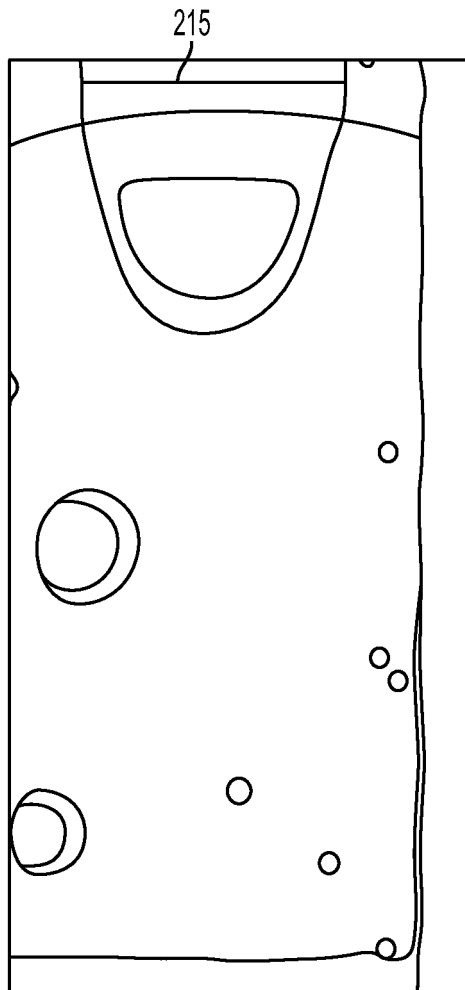


FIG. 29

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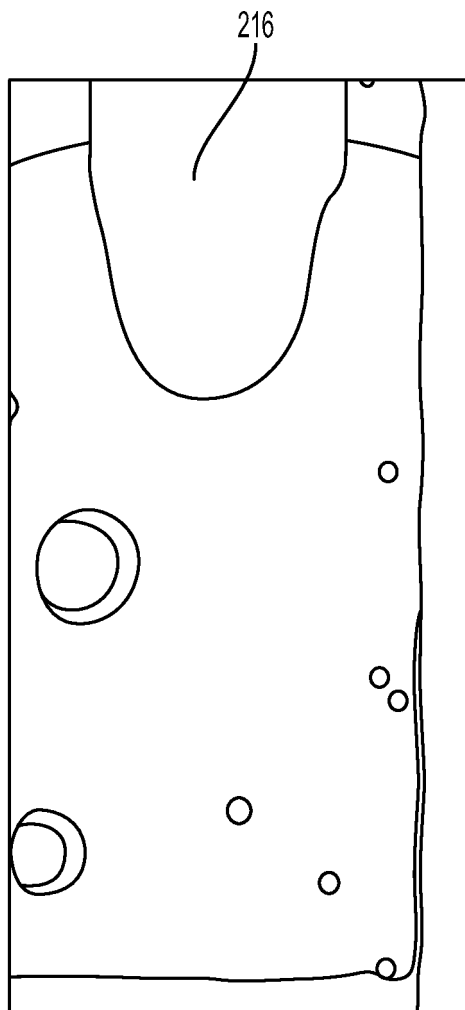


FIG. 30

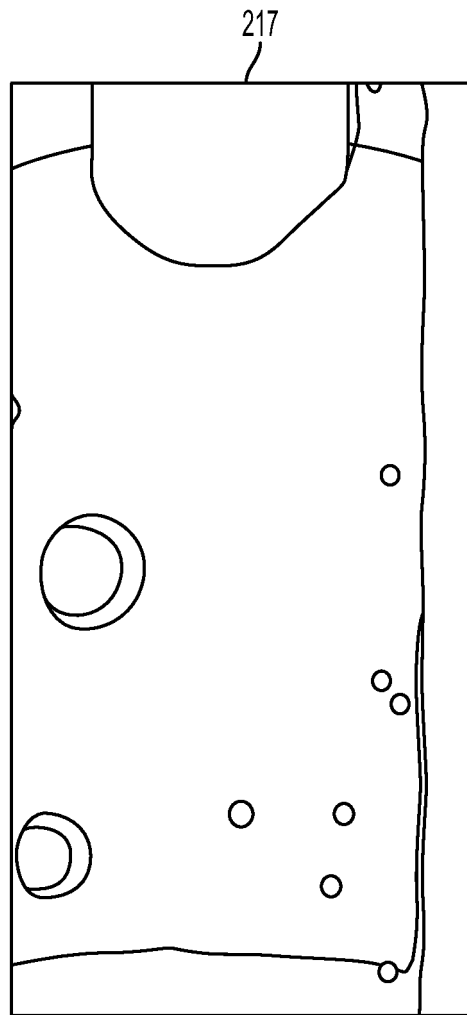


FIG. 31

1. IF THE INPUT PIXEL IS TO THE LEFT OR RIGHT OF THE BASELINE (GREEN LINE) IN THE IMAGE, THEN ITS OUTPUT VALUE IS SET TO ZERO.
2. IF THE INPUT PIXEL'S BACKGROUND COUNT ARRAY INDICATES THAT FEWER THAN A PRE-DETERMINED NUMBER OF IMAGES (E.G., 100) HAVE BEEN USED TO MAKE THIS PIXEL'S BACKGROUND VALUE, THEN
 - a. IF THE INPUT PIXEL'S INTENSITY IS LESS THAN THE THRESHOLD INTENSITY (E.G., 140 IN AN RANGE OF 0 - 255), THEN SET THE PIXEL'S OUTPUT VALUE TO NOT - ZERO (255).
 - b. IF THE INPUT PIXEL'S INTENSITY IS GREATER THAN OR EQUAL TO THE THRESHOLD INTENSITY, THEN SET THE PIXEL'S OUTPUT VALUE TO ZERO.
3. IF THE INPUT PIXEL'S BACKGROUND COUNT ARRAY IS GREATER THAN THE PRE-DETERMINED NUMBER OF IMAGES, THEN:
 - a. IF THE SQUARE OF THE DIFFERENCE BETWEEN THE INPUT PIXEL INTENSITY AND THE BACKGROUND PIXEL INTENSITY IS GREATER THAN THE PIXEL'S ESTIMATE OF BACKGROUND VARIANCE TIMES A CONSTANT γ^2 , THEN SET THE PIXEL'S OUTPUT VALUE TO NOT-ZERO (255). *(THIS EFFECTIVELY SAYS IF THE CURRENT PIXEL VALUE IS MORE THAN γ , THEN THE PIXEL IS DISTINCT.)*
 - b. IF THE SQUARE OF THE DIFFERENCE BETWEEN THE INPUT PIXEL INTENSITY AND THE BACKGROUND PIXEL INTENSITY IS LESS THAN OR EQUAL TO THE PIXEL'S ESTIMATE OF BACKGROUND VARIANCE TIMES A CONSTANT γ^2 , THEN SET THE PIXEL'S OUTPUT VALUE TO ZERO.

FIG. 32

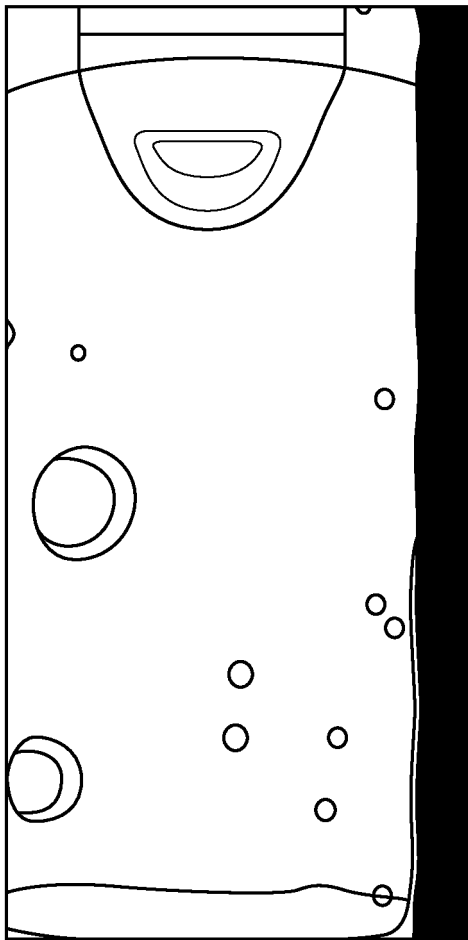


FIG. 33

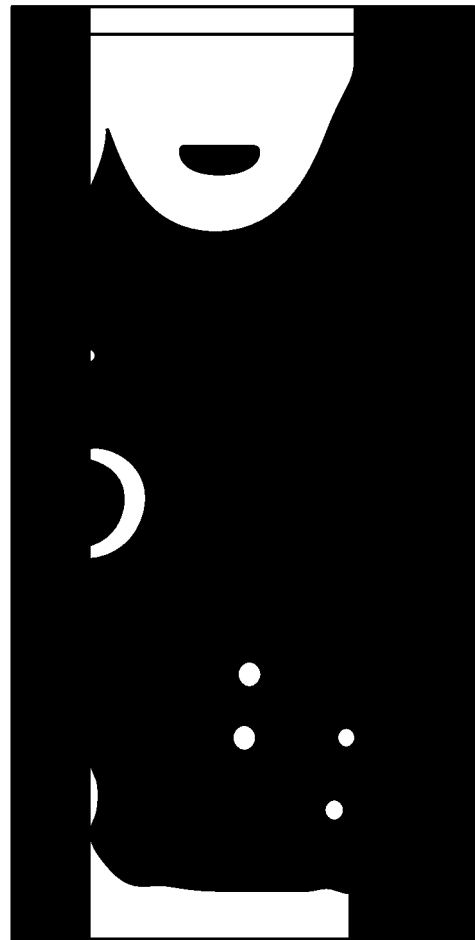


FIG. 34

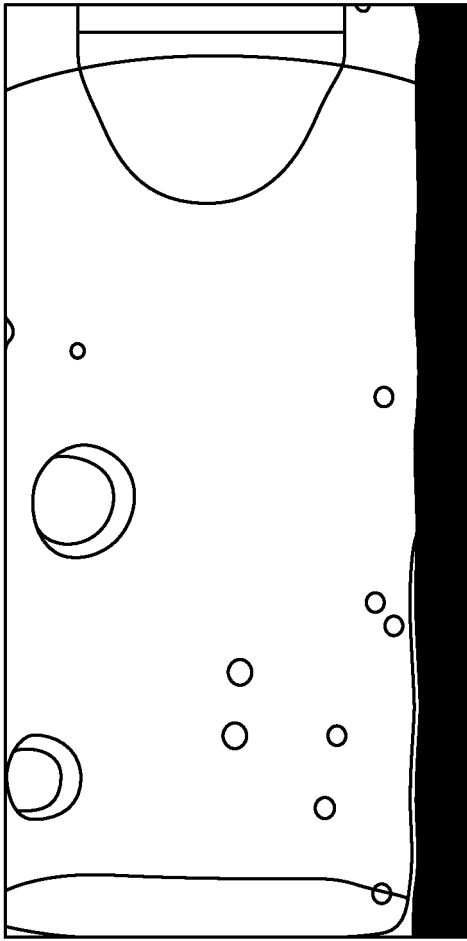


FIG. 35

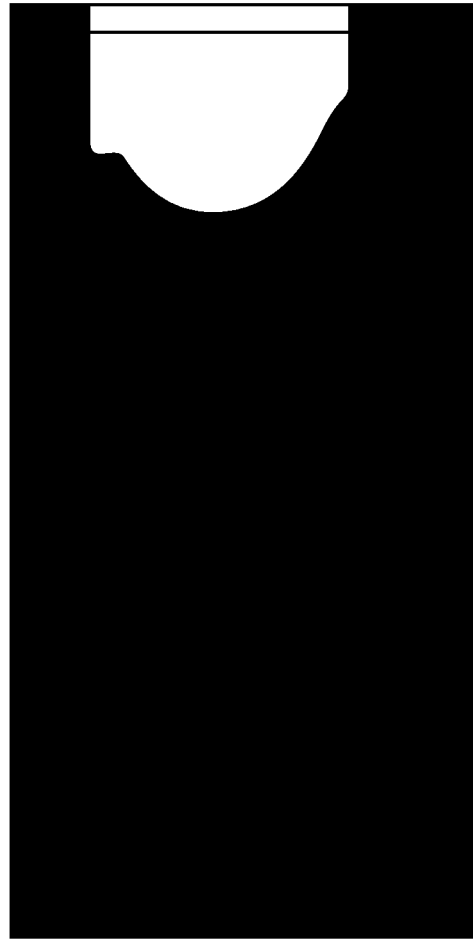


FIG. 36

1. PUSH THE LOCATION OF THE FIRST PIXEL ONTO A STACK
2. WHILE THE STACK IS NOT EMPTY:
 - a. POP THE NEXT LOCATION (i,j) OFF OF THE STACK
 - b. MAKE THE OUTPUT PIXEL VALUE AT (i,j) WHITE
 - c. EXAMINE THE EIGHT PIXELS ADJACENT TO (i,j) :
 - i. IF THE ADJACENT INPUT PIXEL (ι,φ) IS WHITE, BUT THE OUTPUT PIXEL (ι,φ) IS BLACK ADD THE LOCATION (ι,φ) TO THE STACK
 - d. RETURN TO 2

FIG. 37

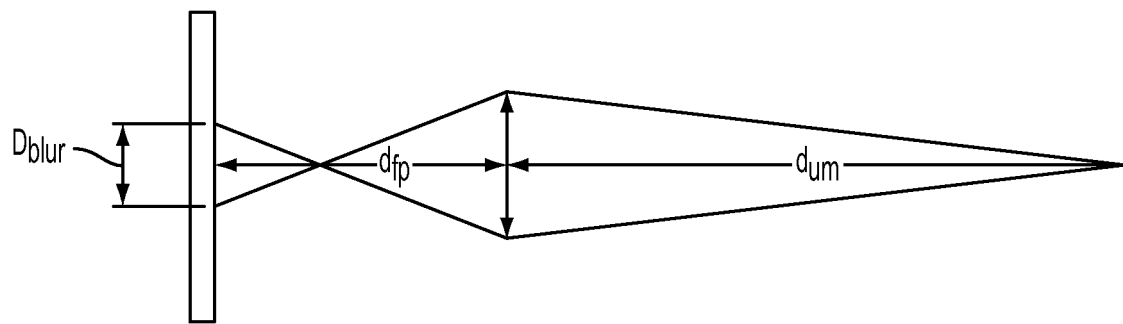


FIG. 38

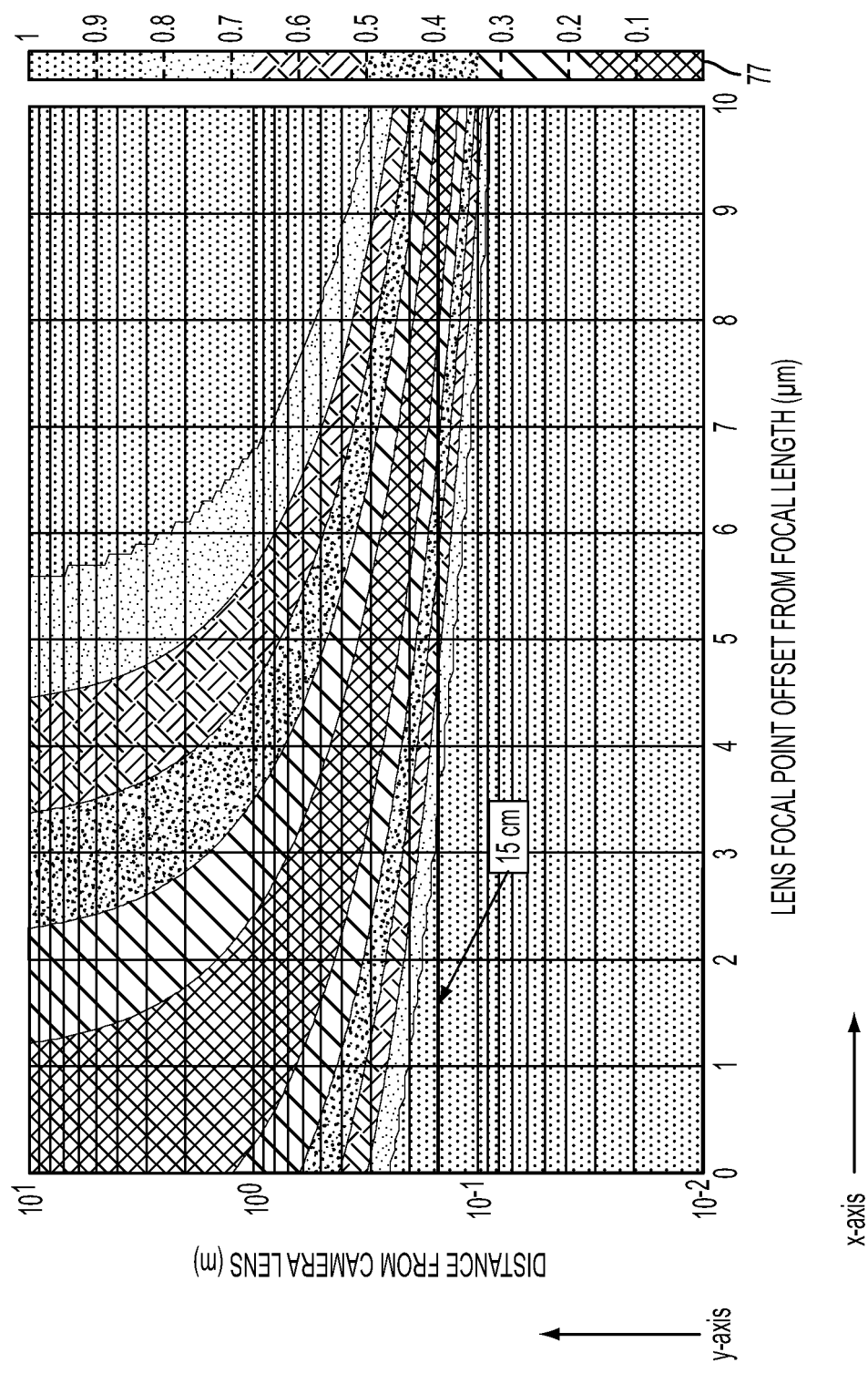


FIG. 39

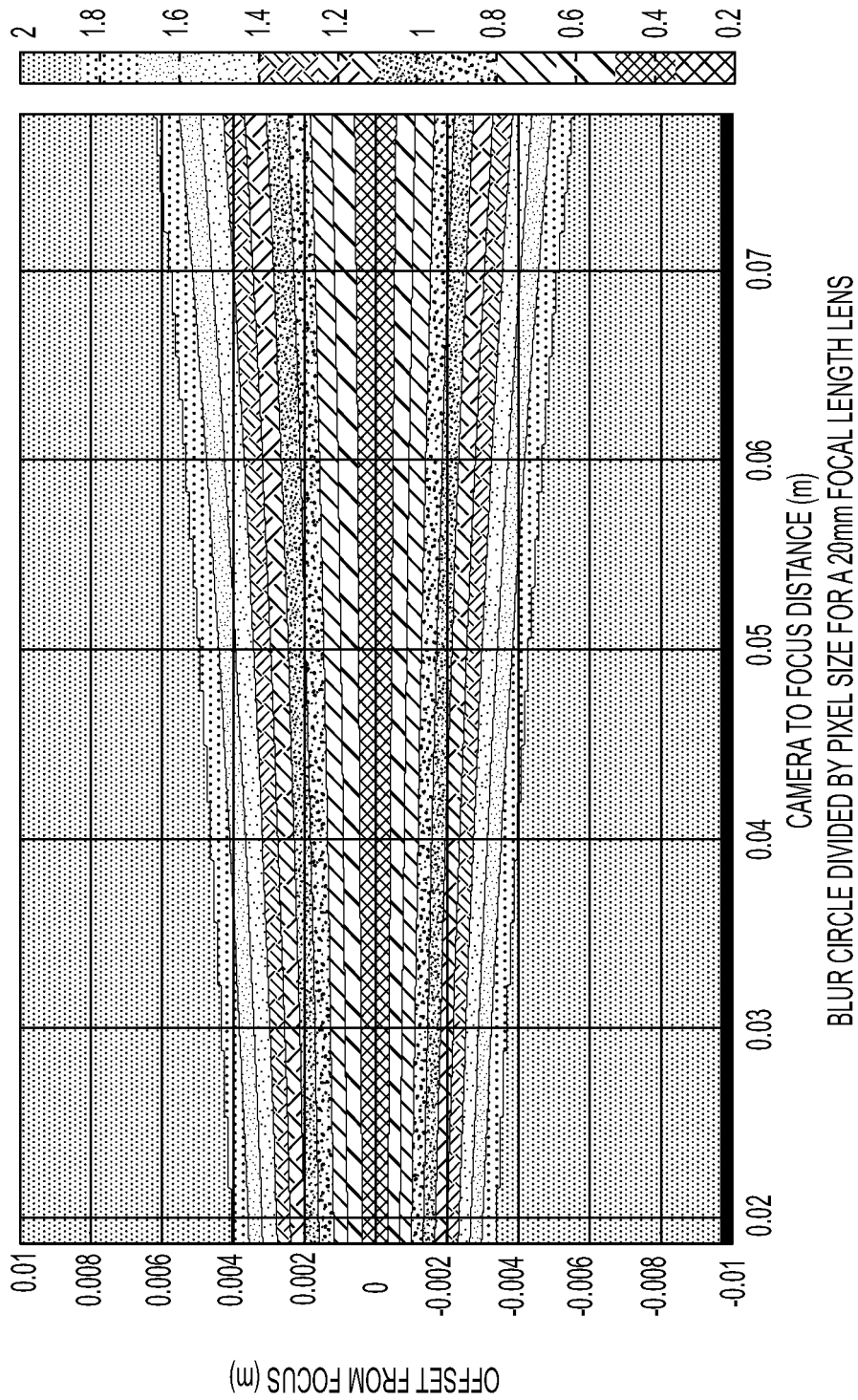


FIG. 40

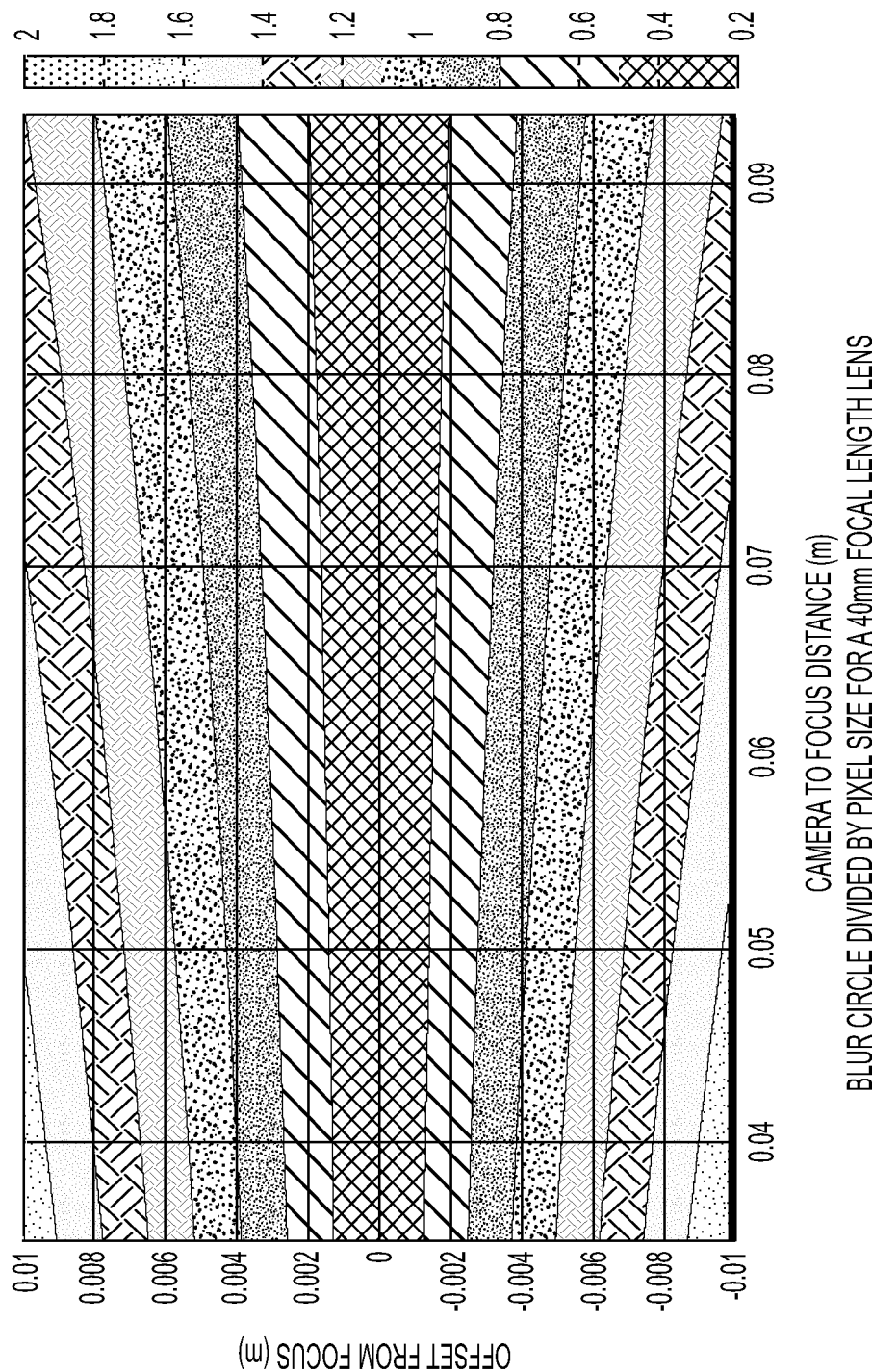


FIG. 41

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LENS FOCAL LENGTH	LENS SEPARATION FROM THE CAMERA	FOCUS SEPARATION FROM THE CAMERA	FIELD OF VIEW	DEPTH OF FIELD (D _{BLUR} /D _{PIXEL})=1	DEPTH OF FIELD (D _{BLUR} /D _{PIXEL})=2
20mm	0mm	18.6mm	<u>+9.7mm</u>	<u>+2mm</u>	<u>+4mm</u>
20mm	60mm	78.2mm	<u>+12.3mm</u>	<u>+3mm</u>	<u>+6mm</u>
40mm	0mm	34.8mm	<u>+18.2mm</u>	<u>+5mm</u>	<u>>10mm</u>
40mm	60mm	93.5mm	<u>+22.6mm</u>	<u>+10mm</u>	<u>>10mm</u>
60mm	0mm	48.9mm	<u>+25.6mm</u>	<u>>10mm</u>	<u>>10mm</u>
60mm	60mm	106.4mm	<u>+31.4mm</u>	<u>>10mm</u>	<u>>10mm</u>

FIG. 42

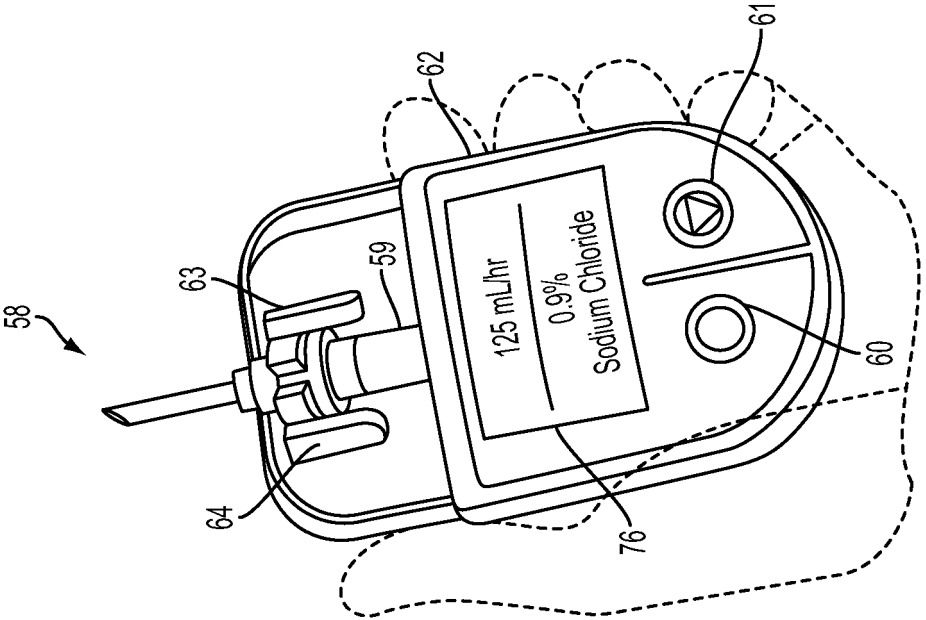


FIG. 43

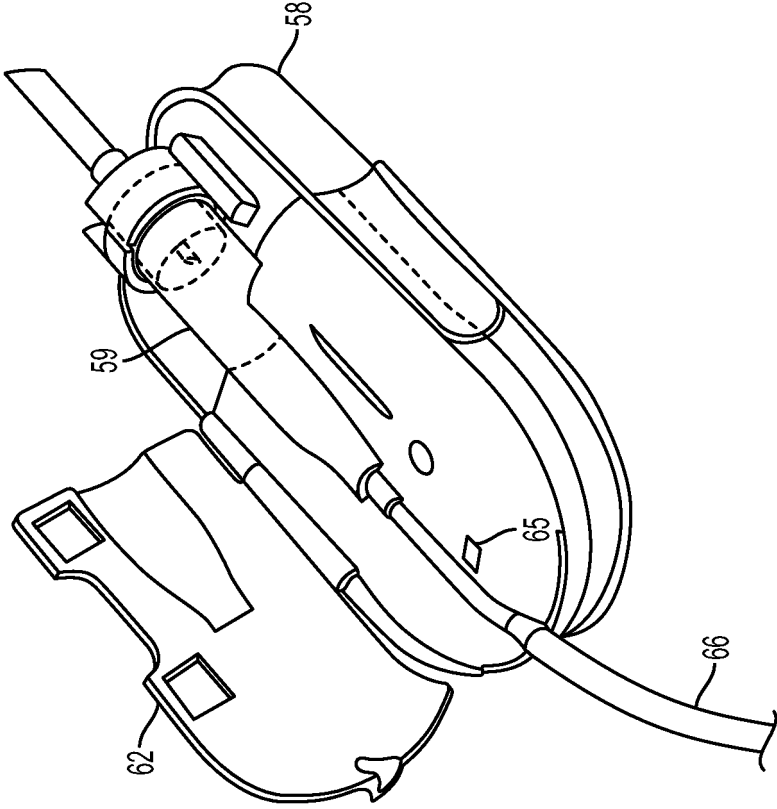


FIG. 44

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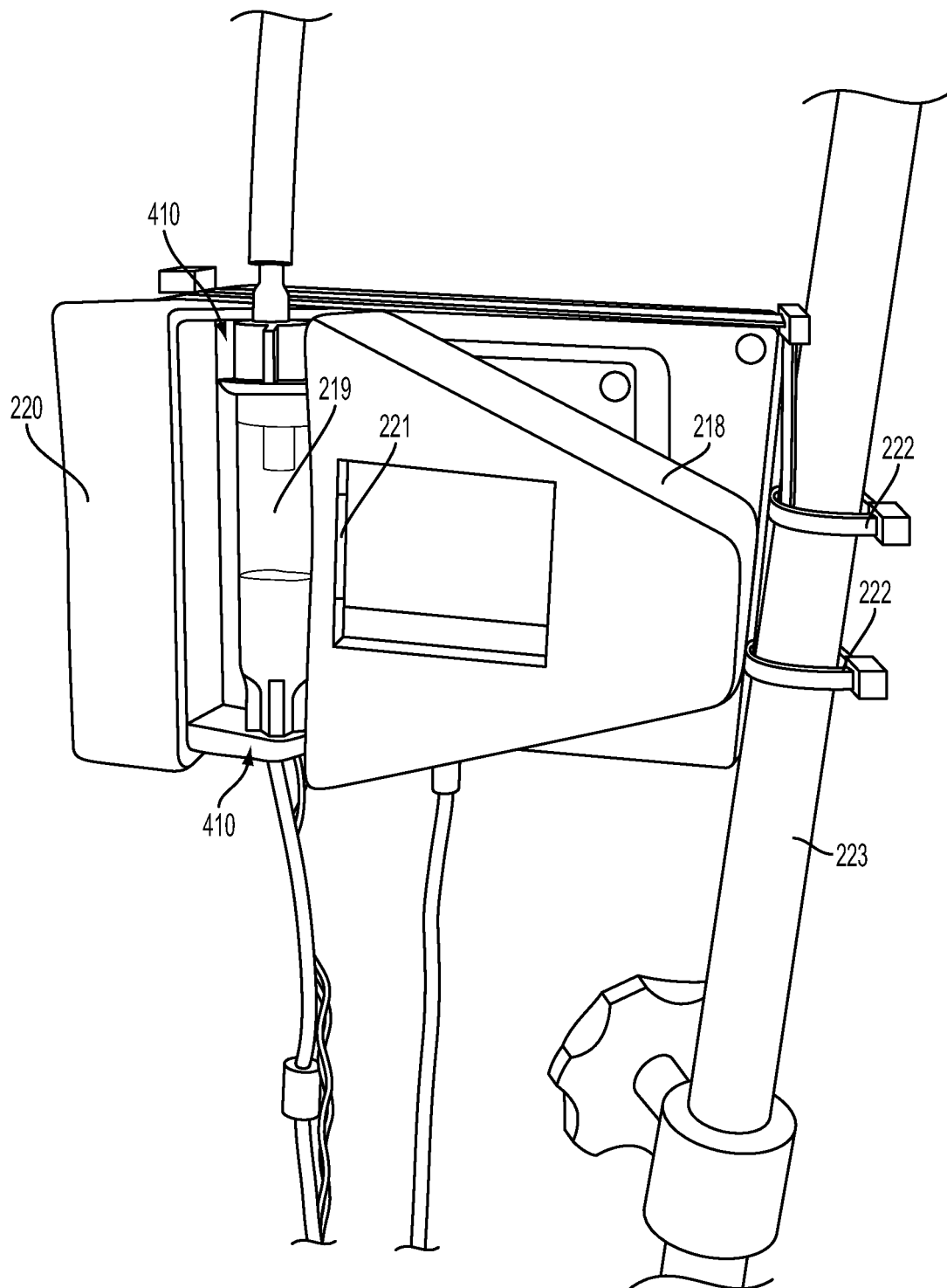


FIG. 45

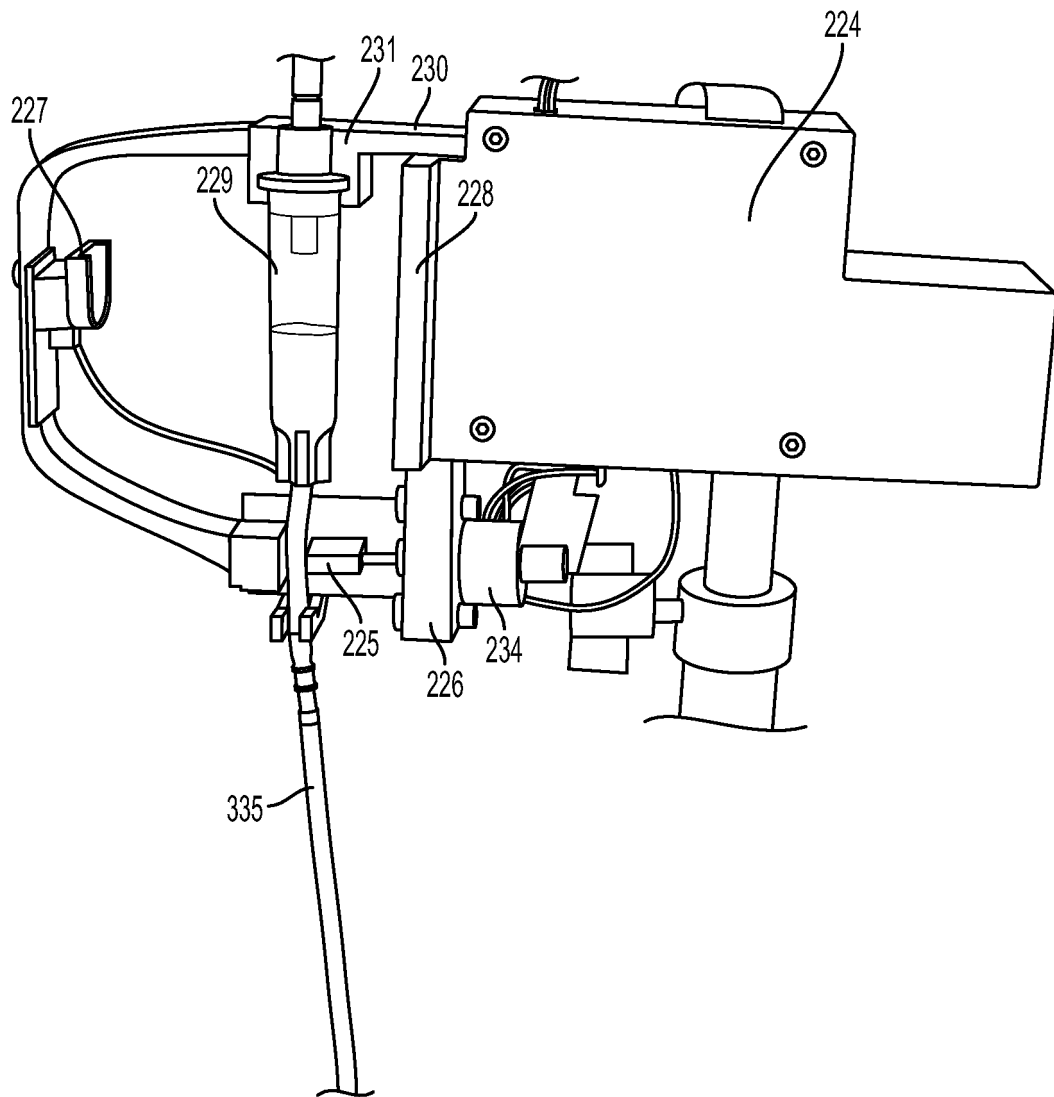


FIG. 46

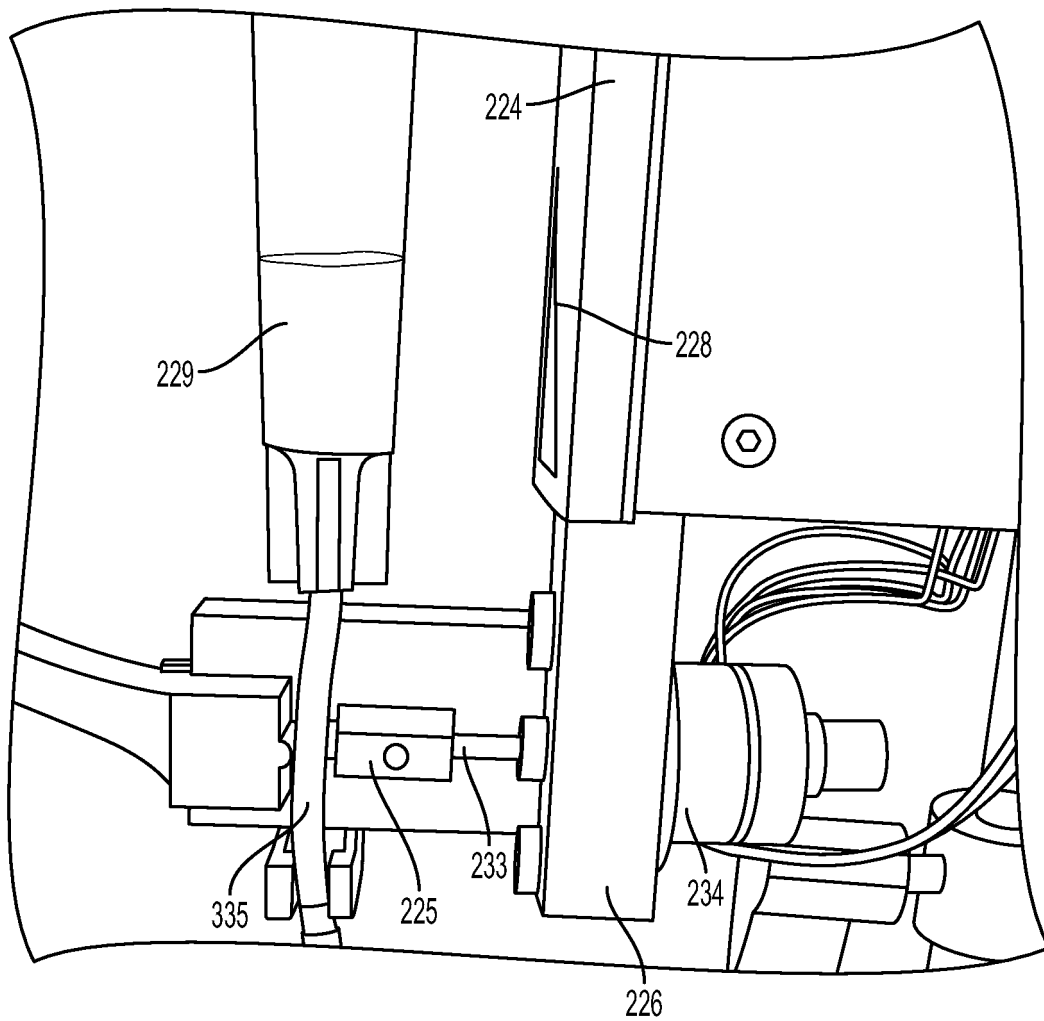


FIG. 47

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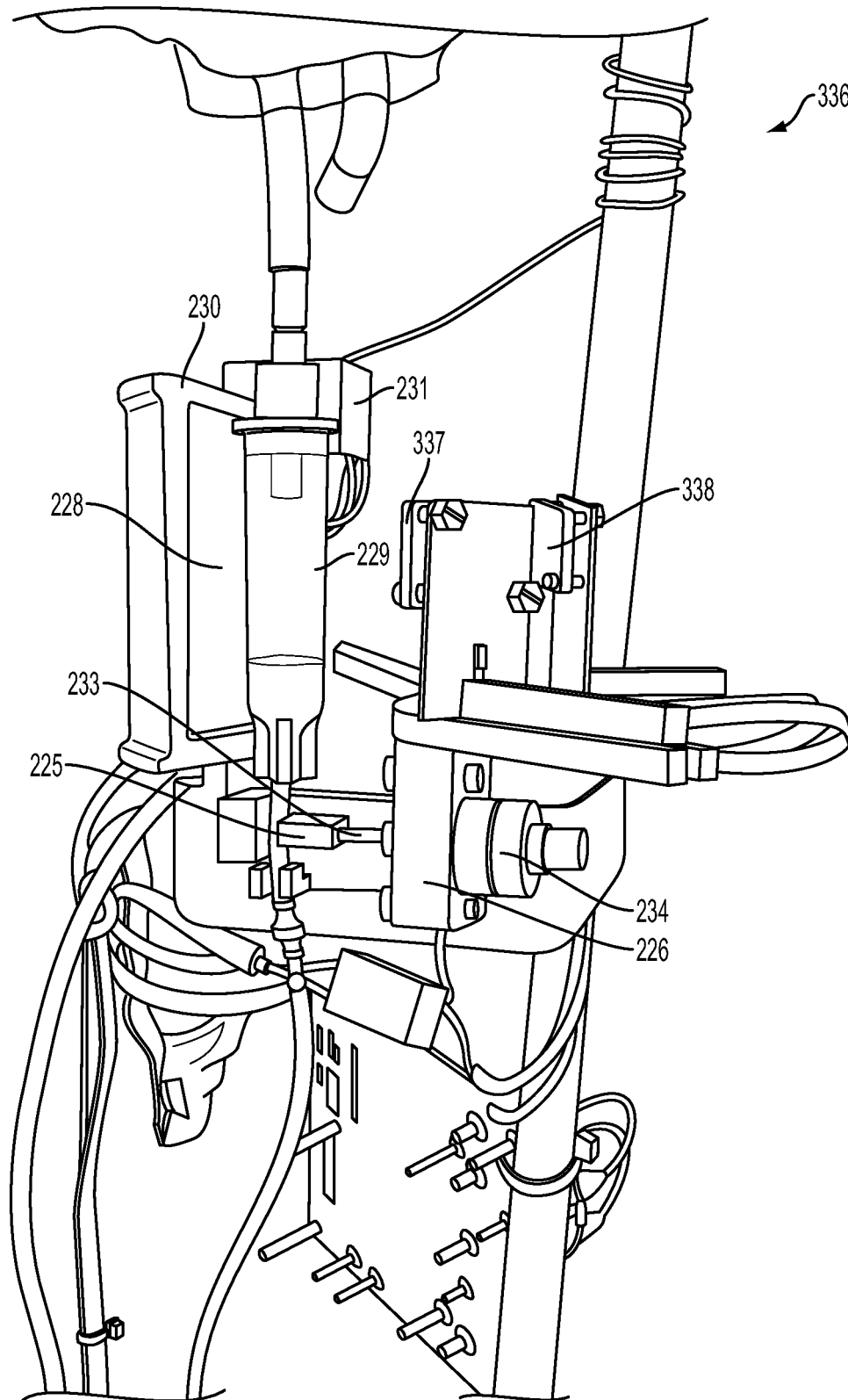


FIG. 48

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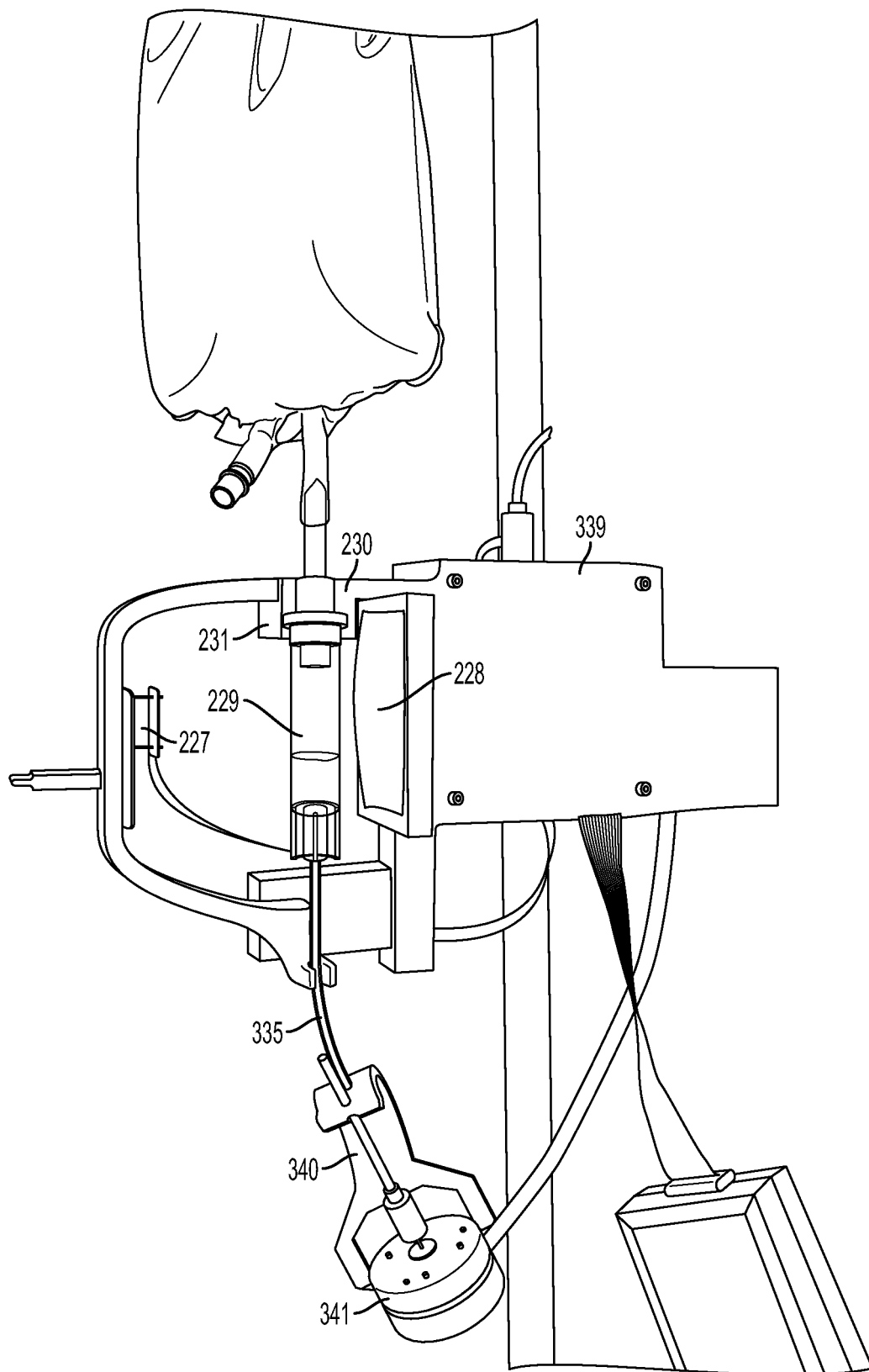


FIG. 49

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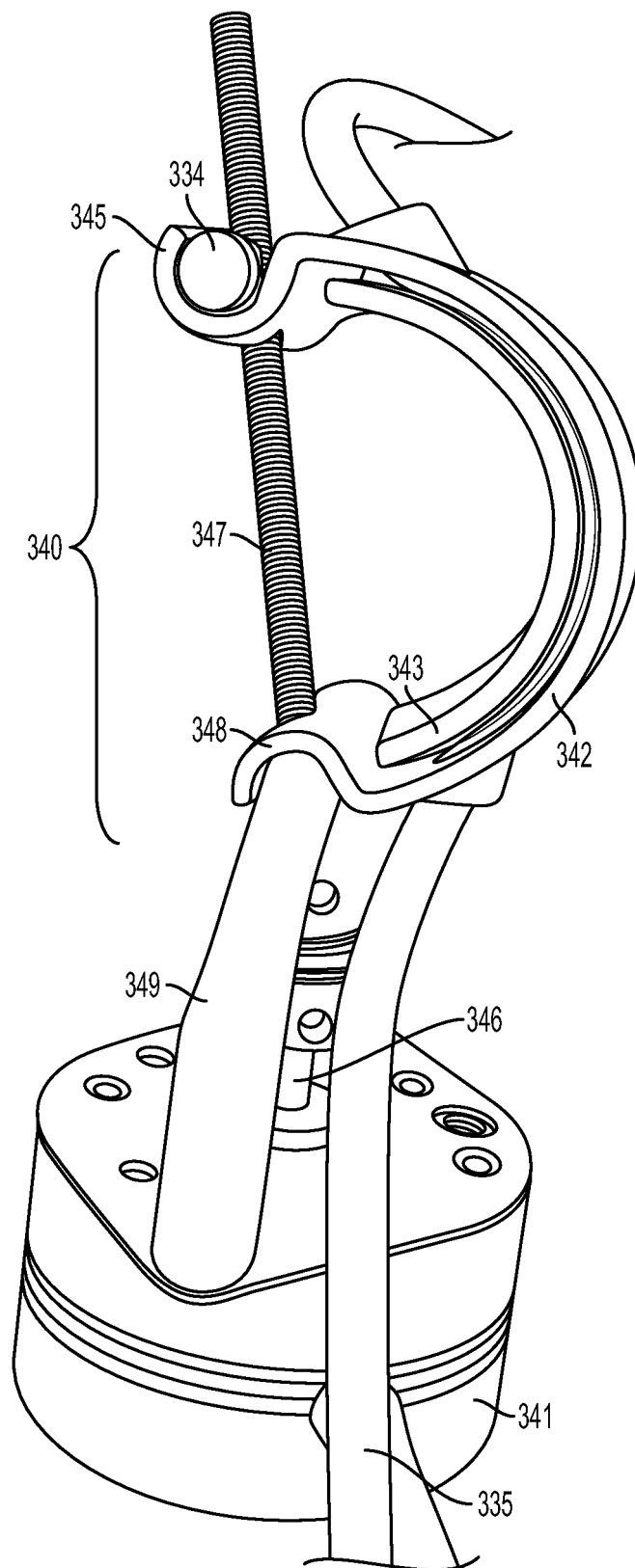


FIG. 50A

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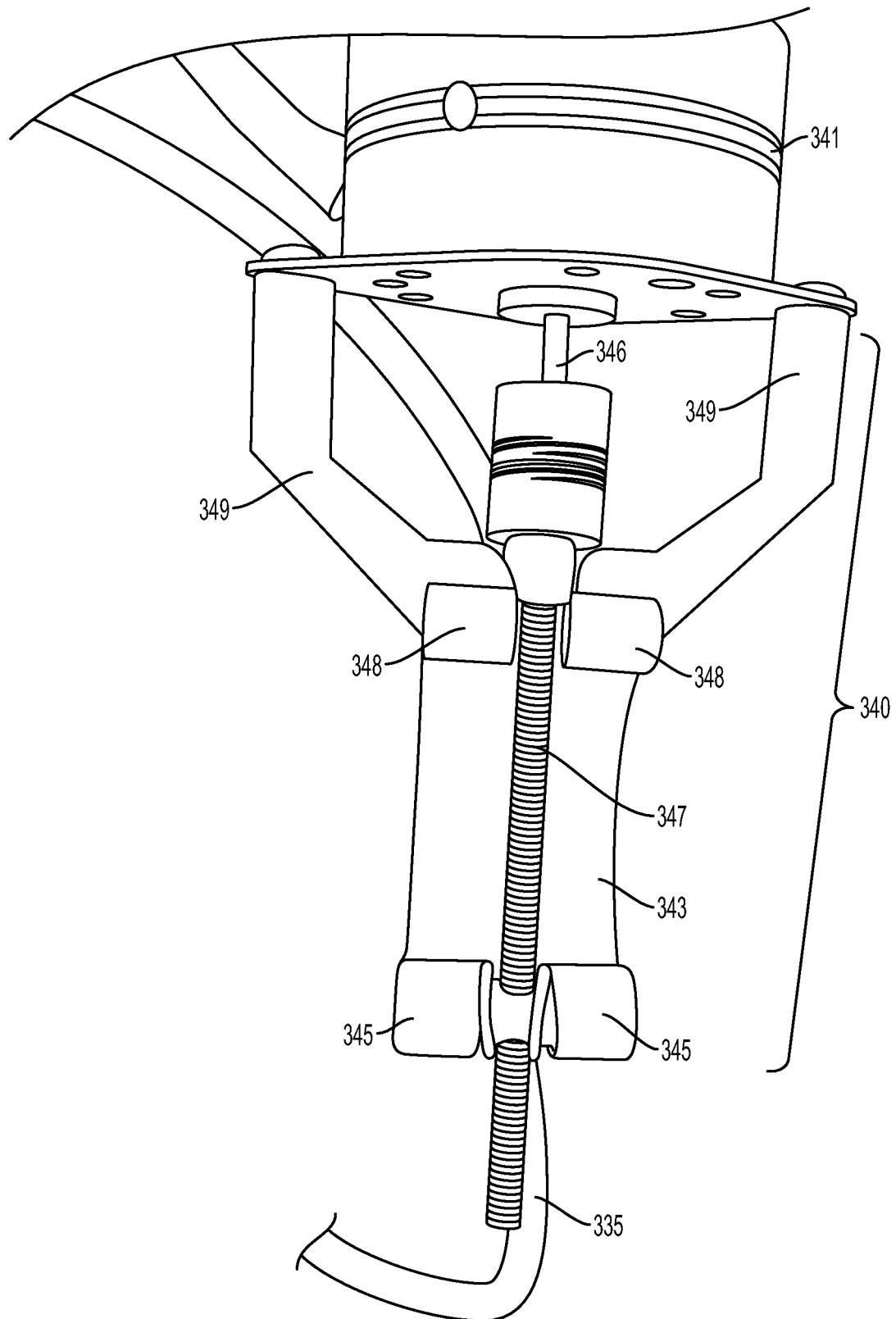


FIG. 50B

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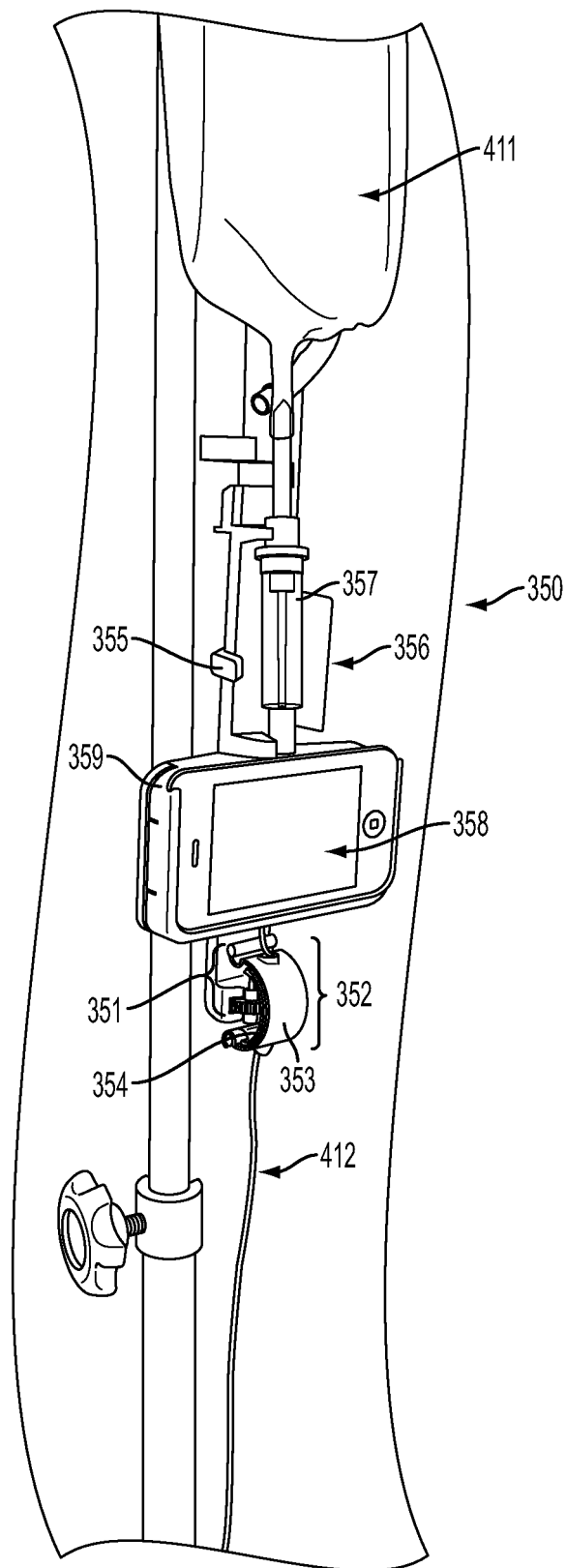


FIG. 51A

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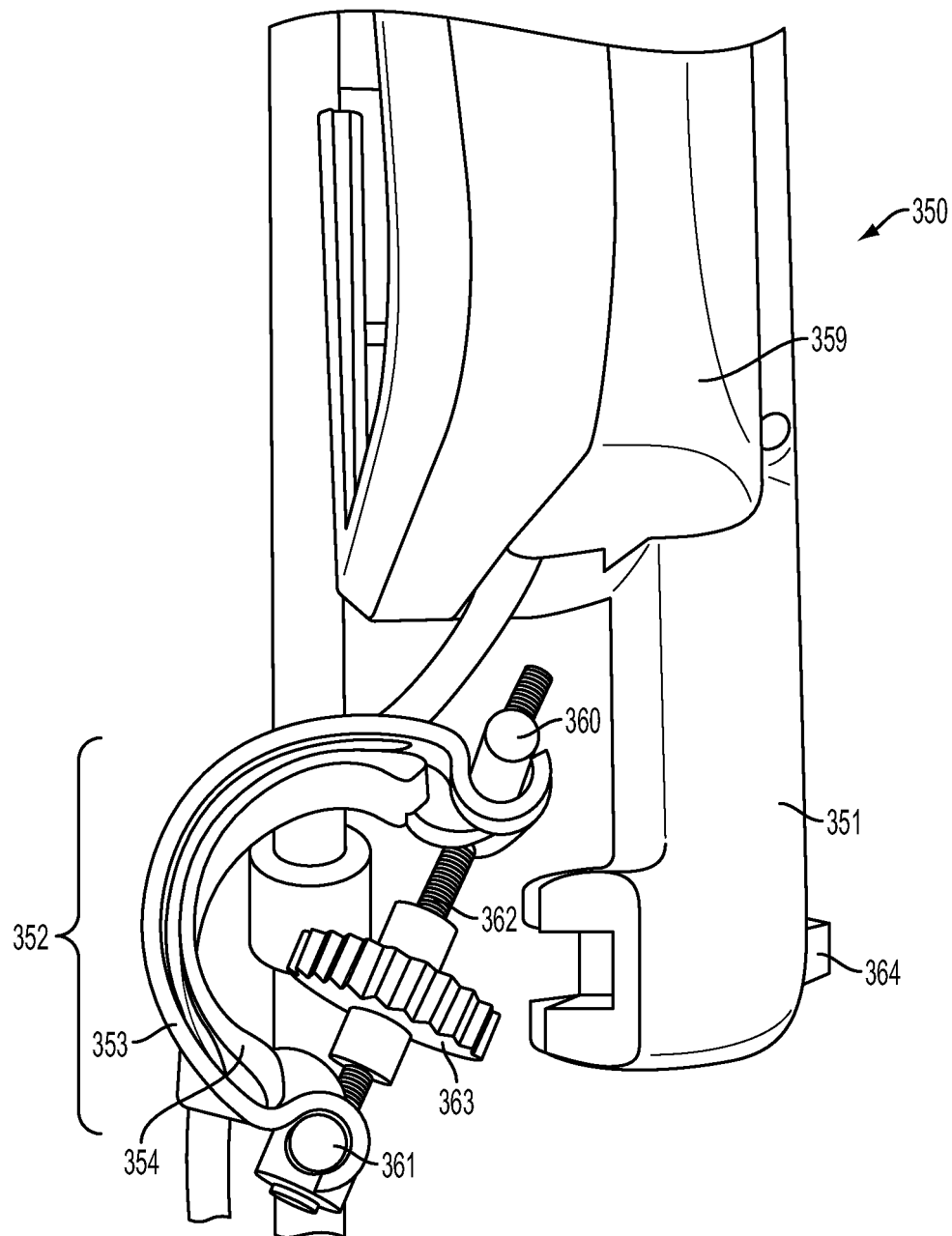


FIG. 51B

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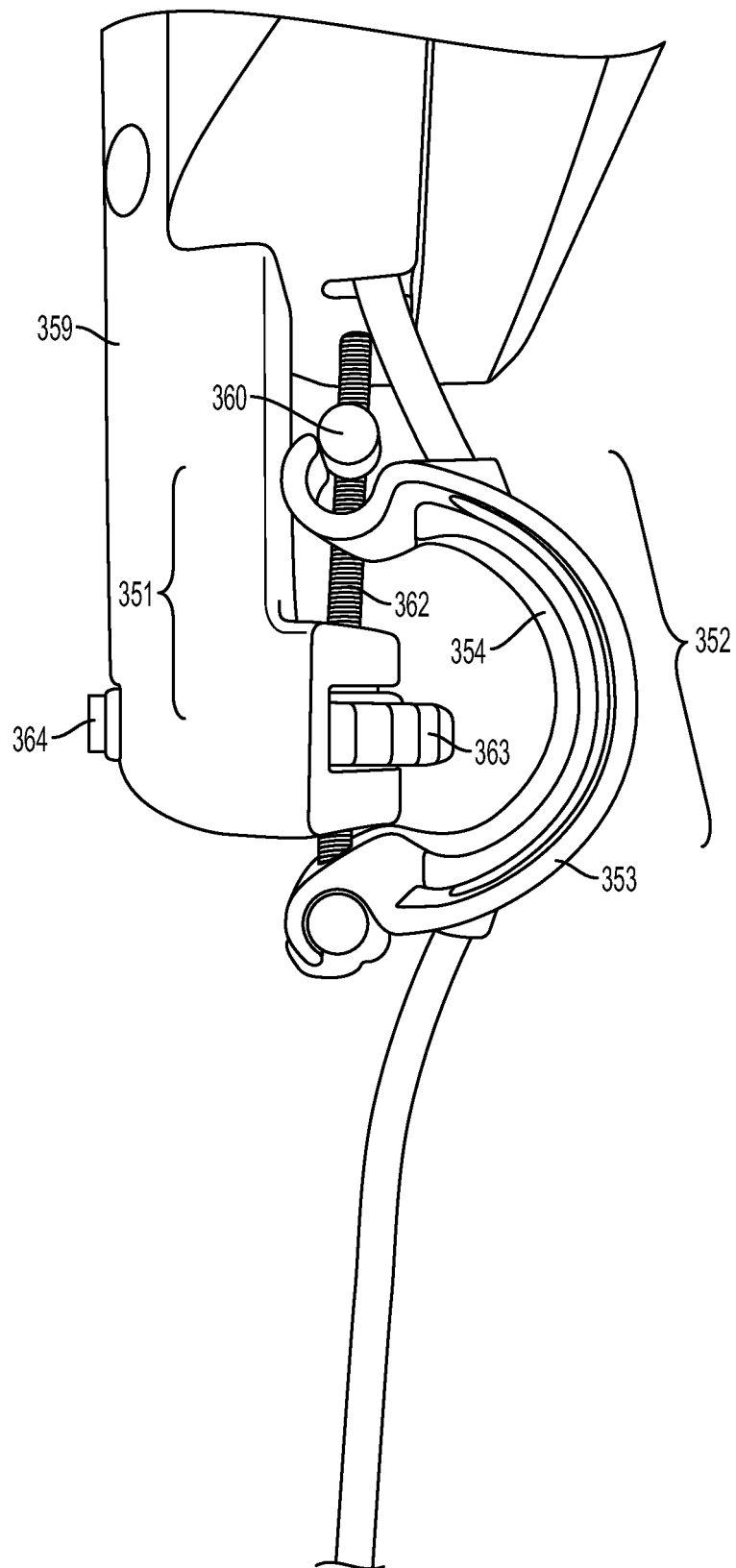


FIG. 51C

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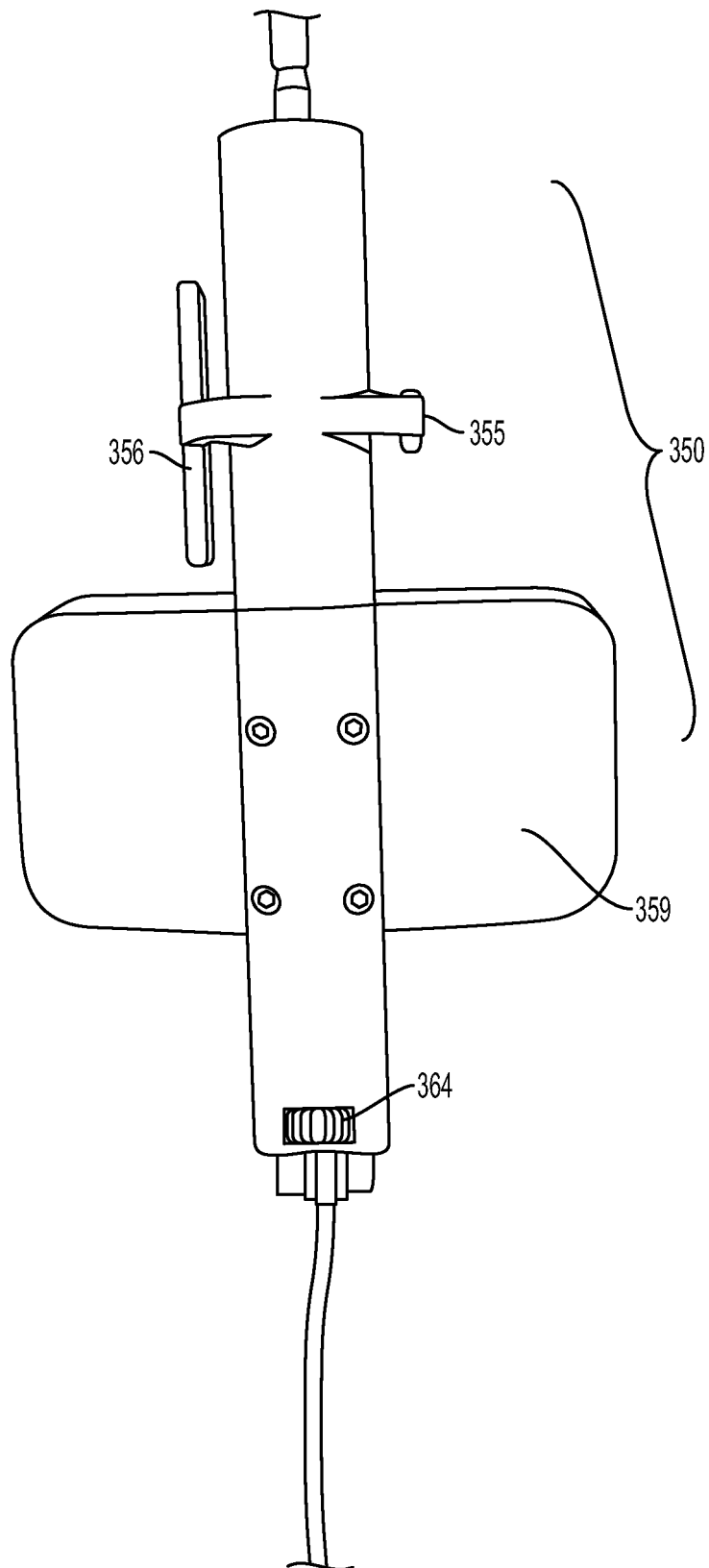


FIG. 51D

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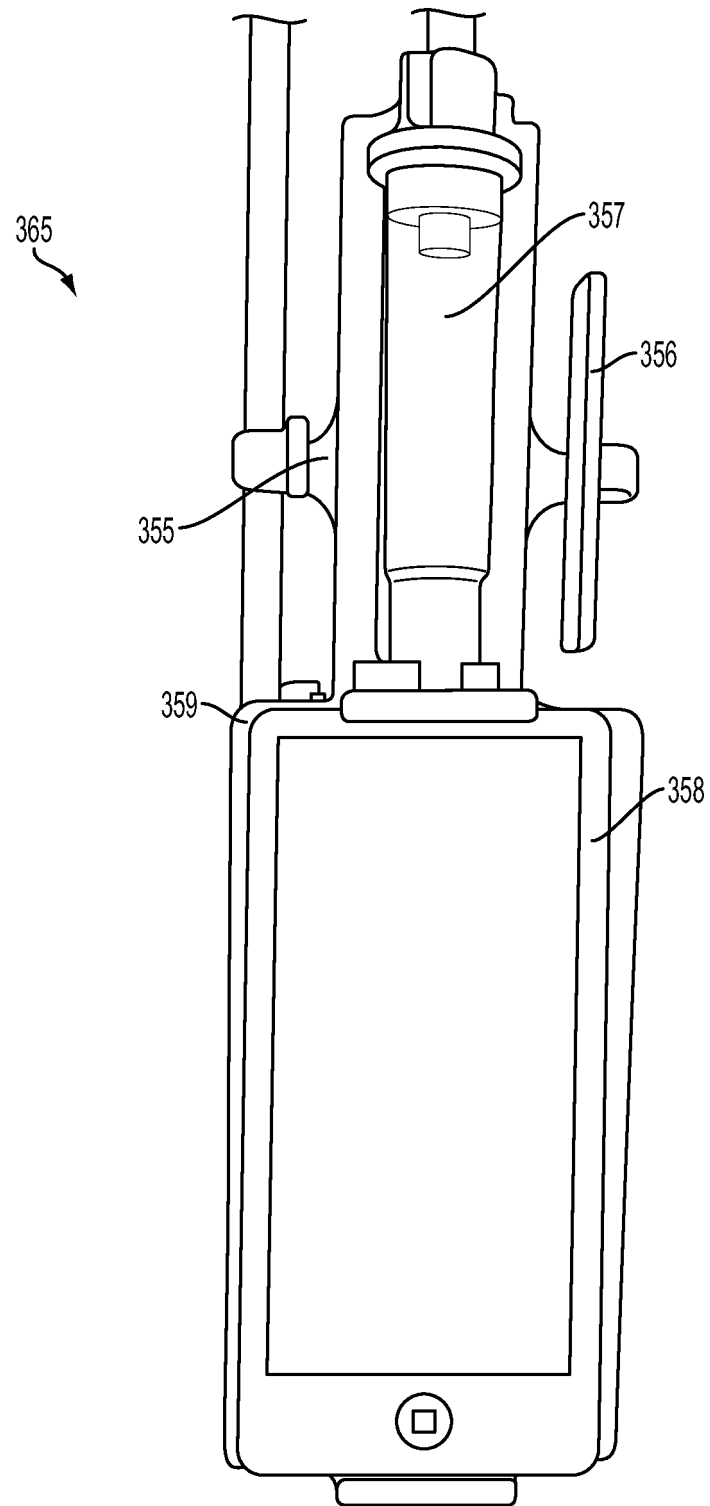


FIG. 52A

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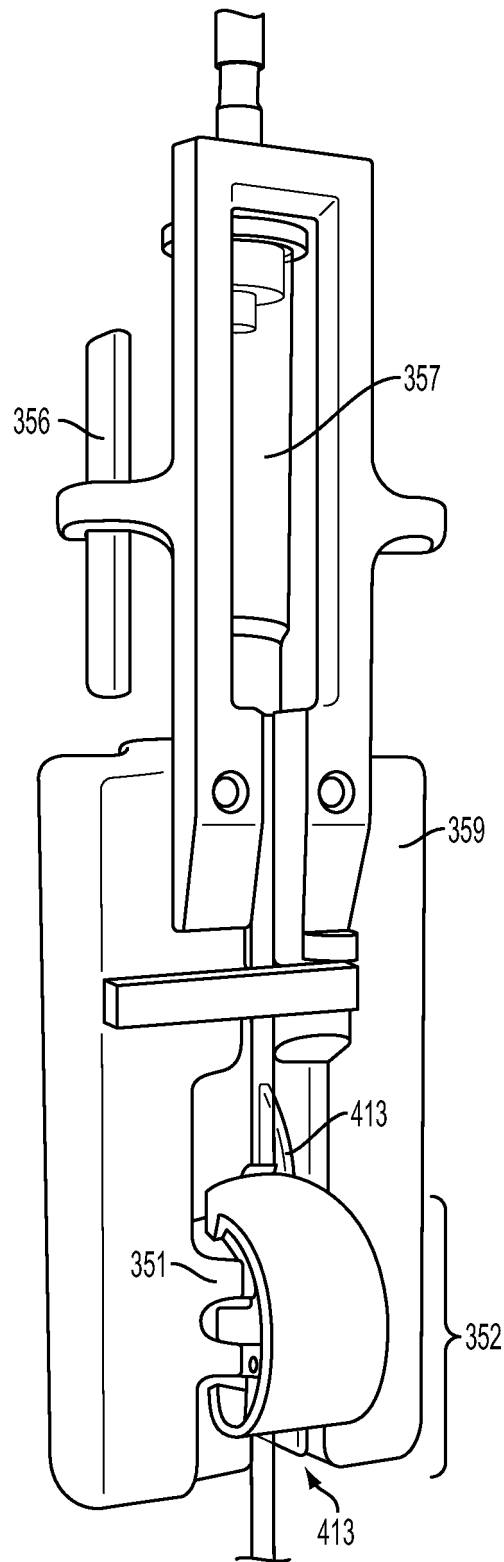


FIG. 52B

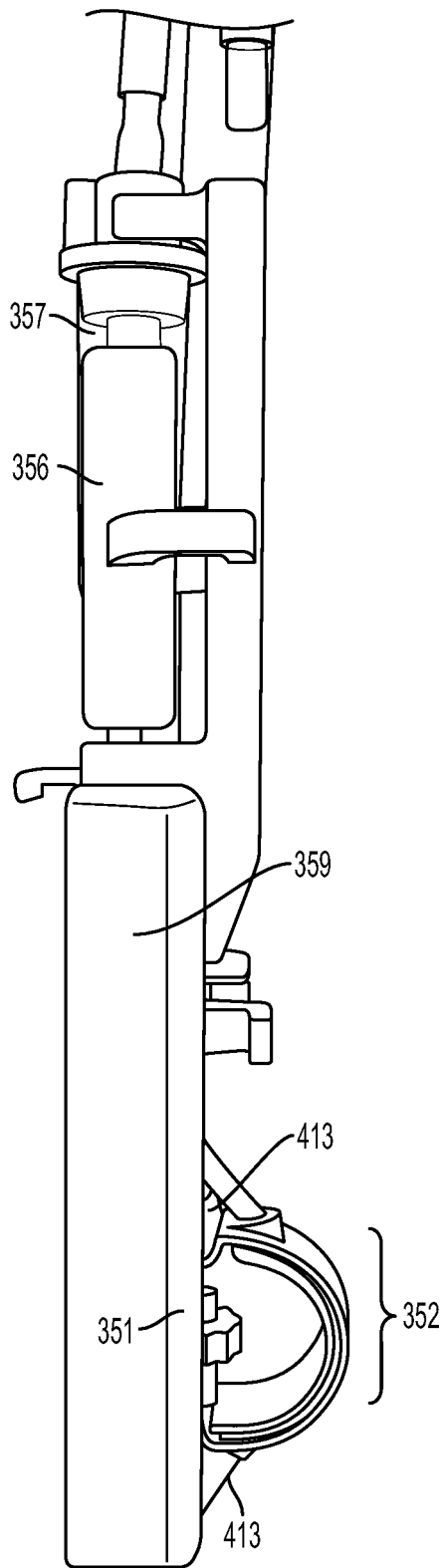


FIG. 52C

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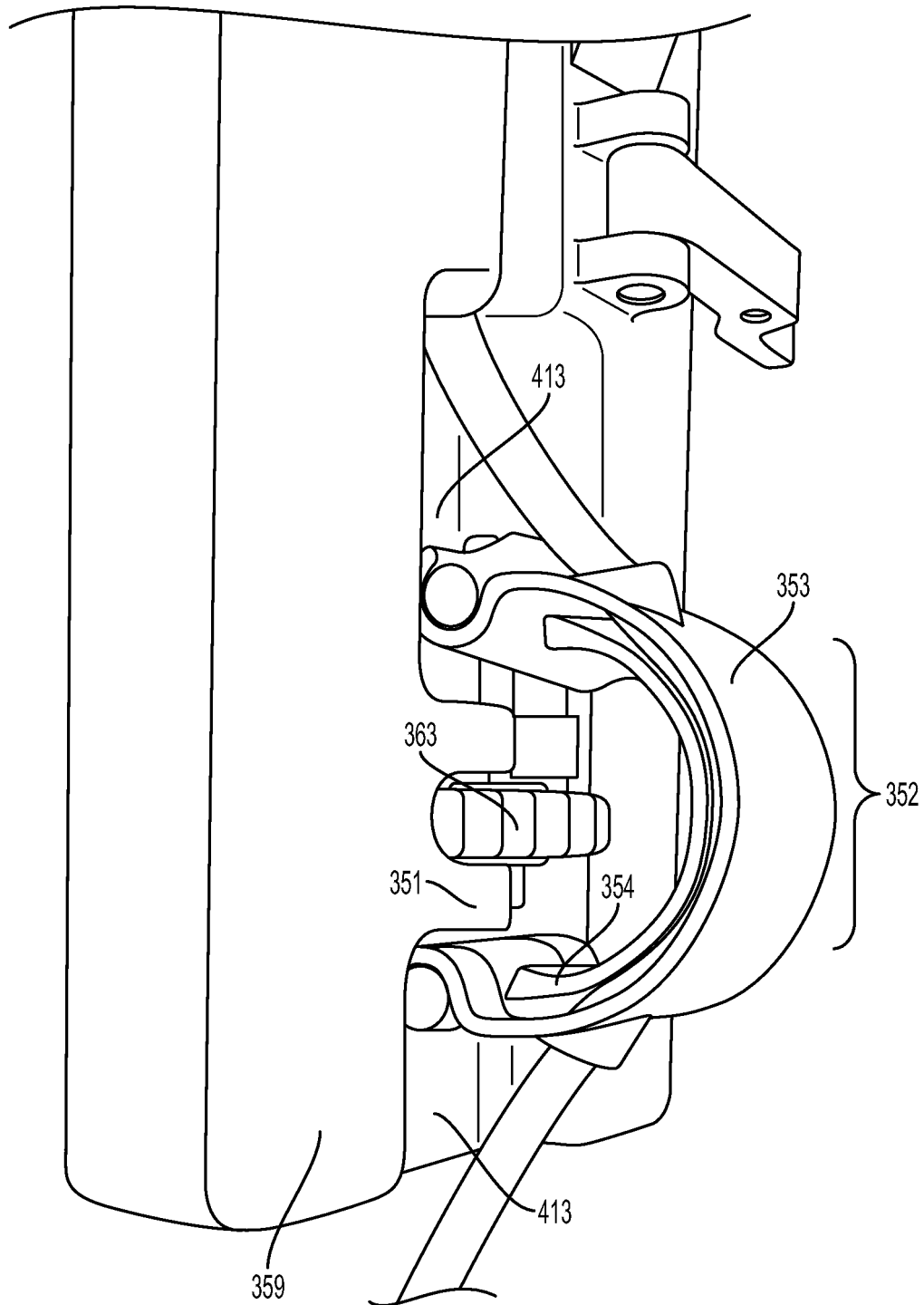


FIG. 52D

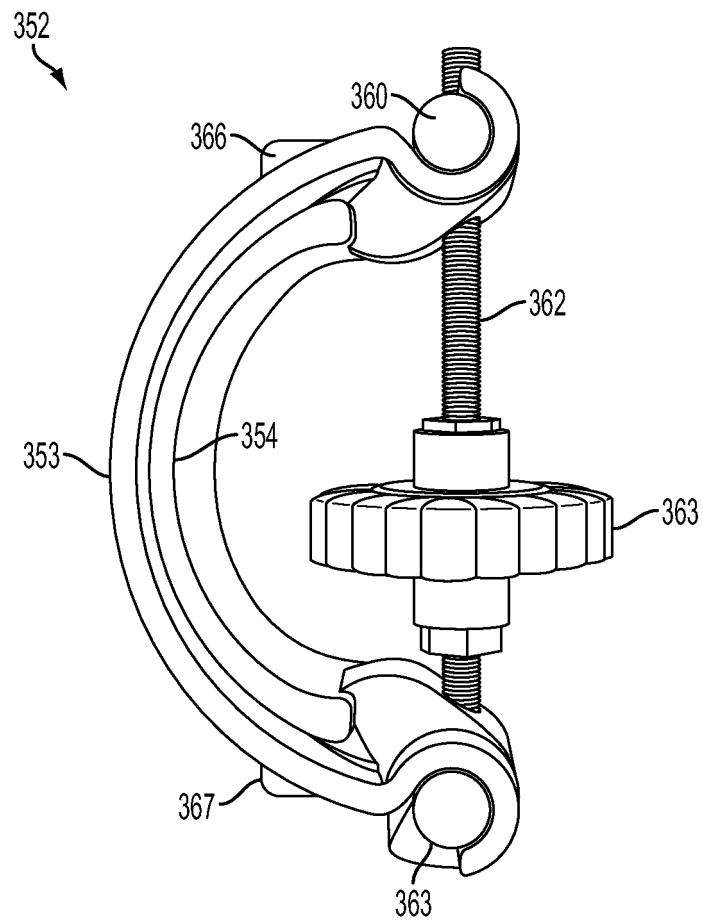
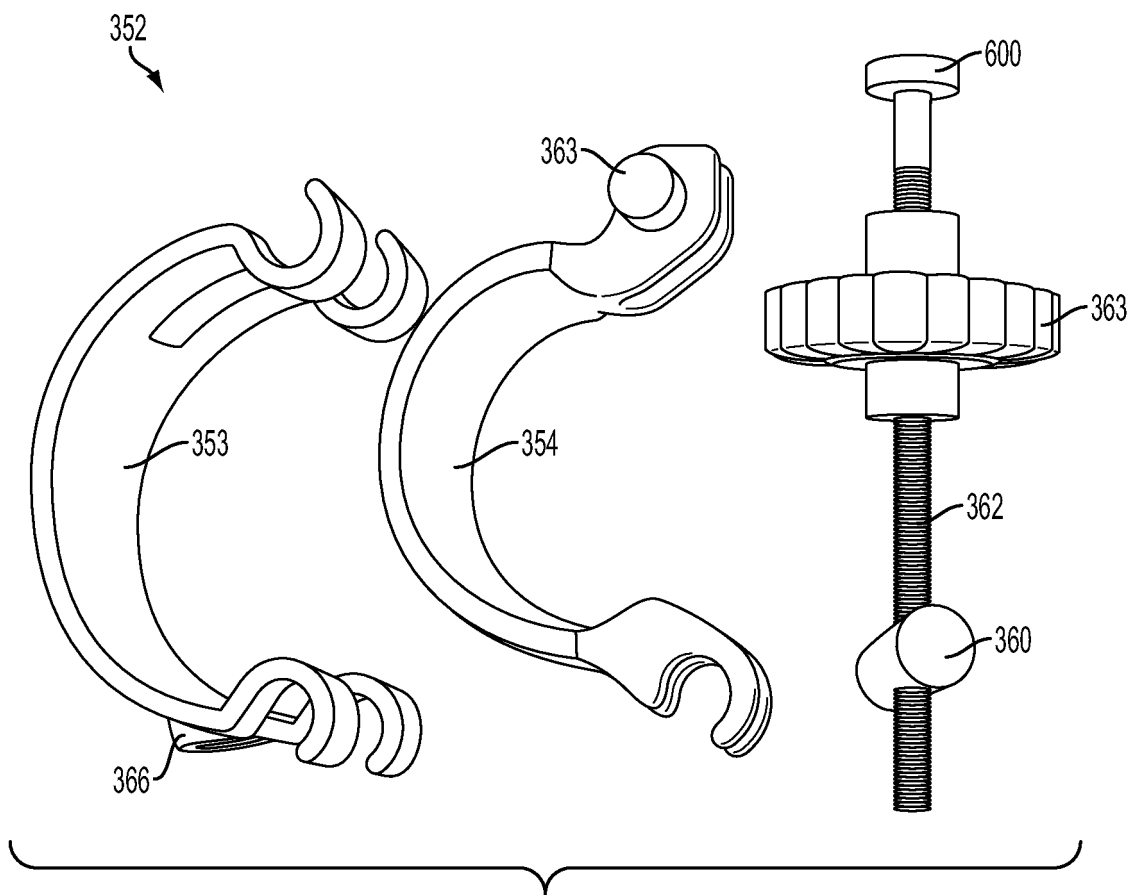
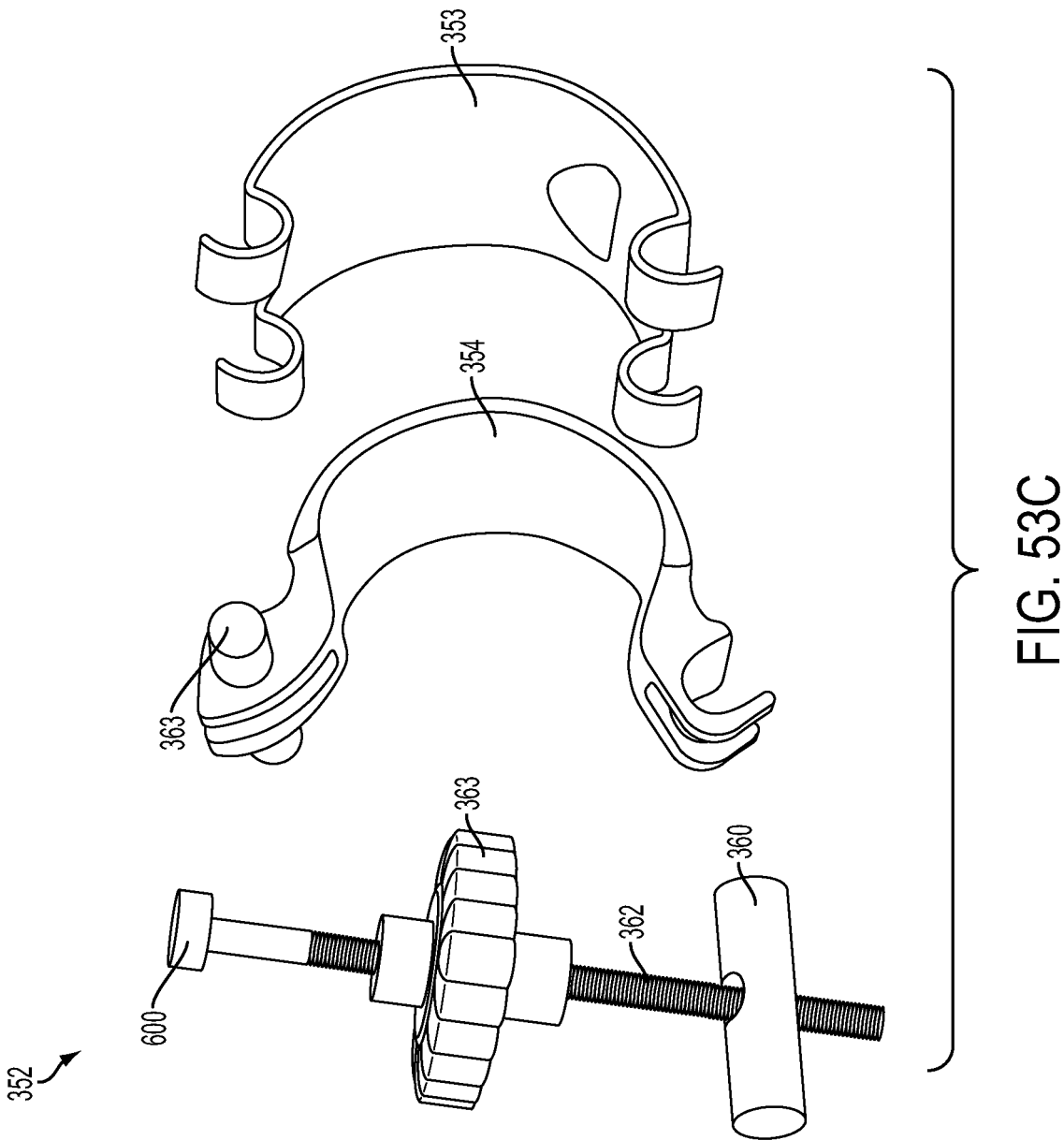


FIG. 53A





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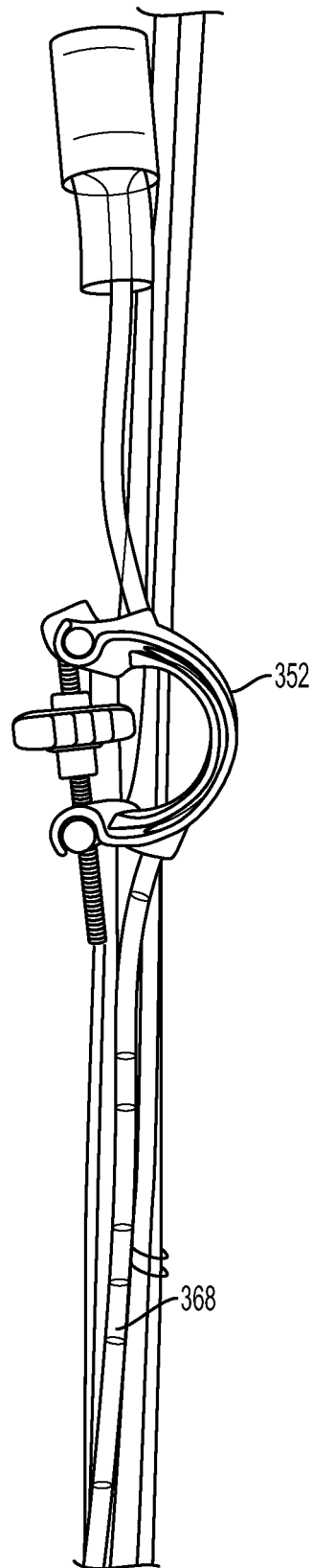


FIG. 54

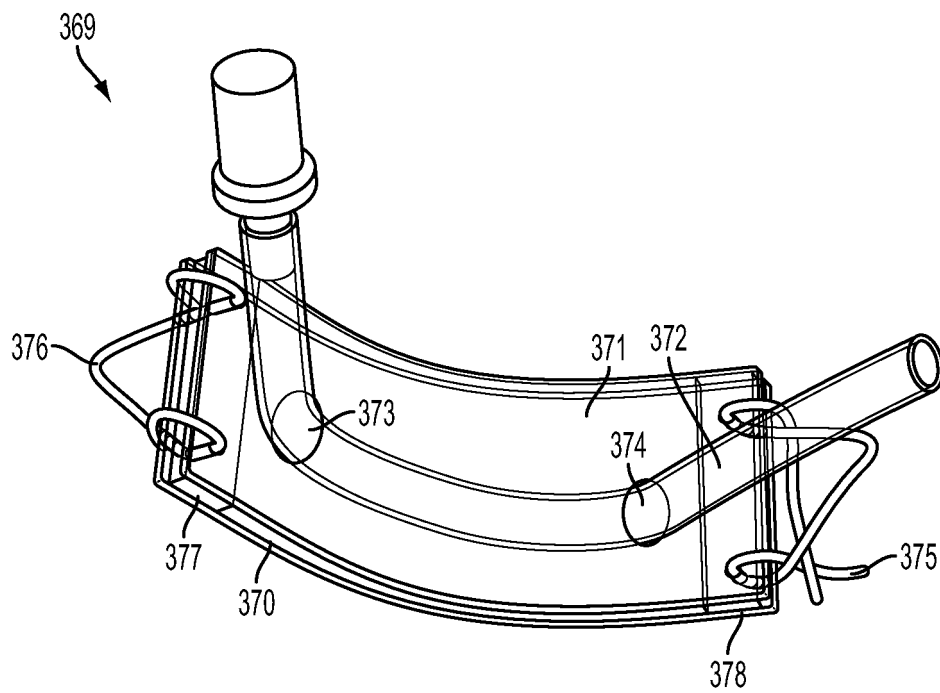


FIG. 55

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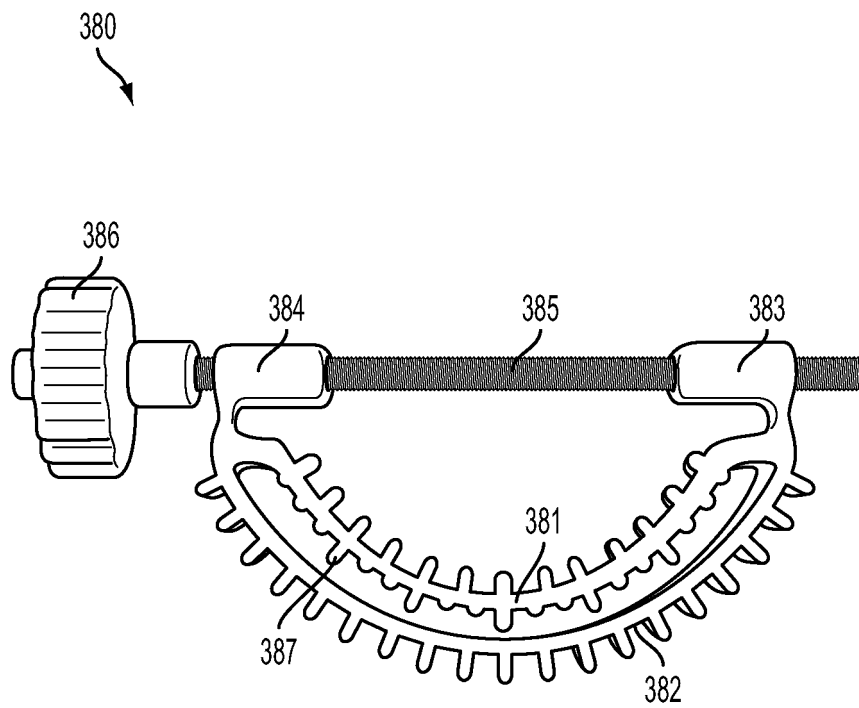


FIG. 56A

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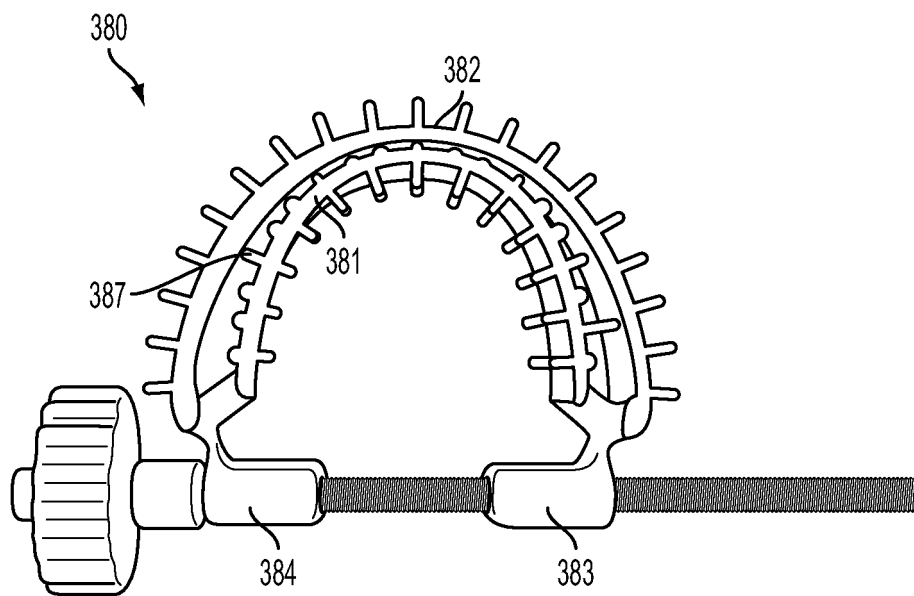


FIG. 56B

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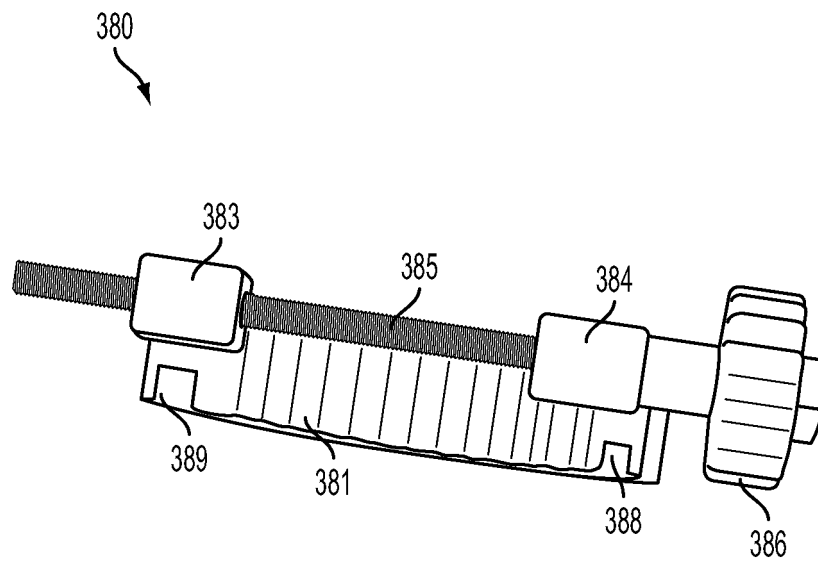


FIG. 56C

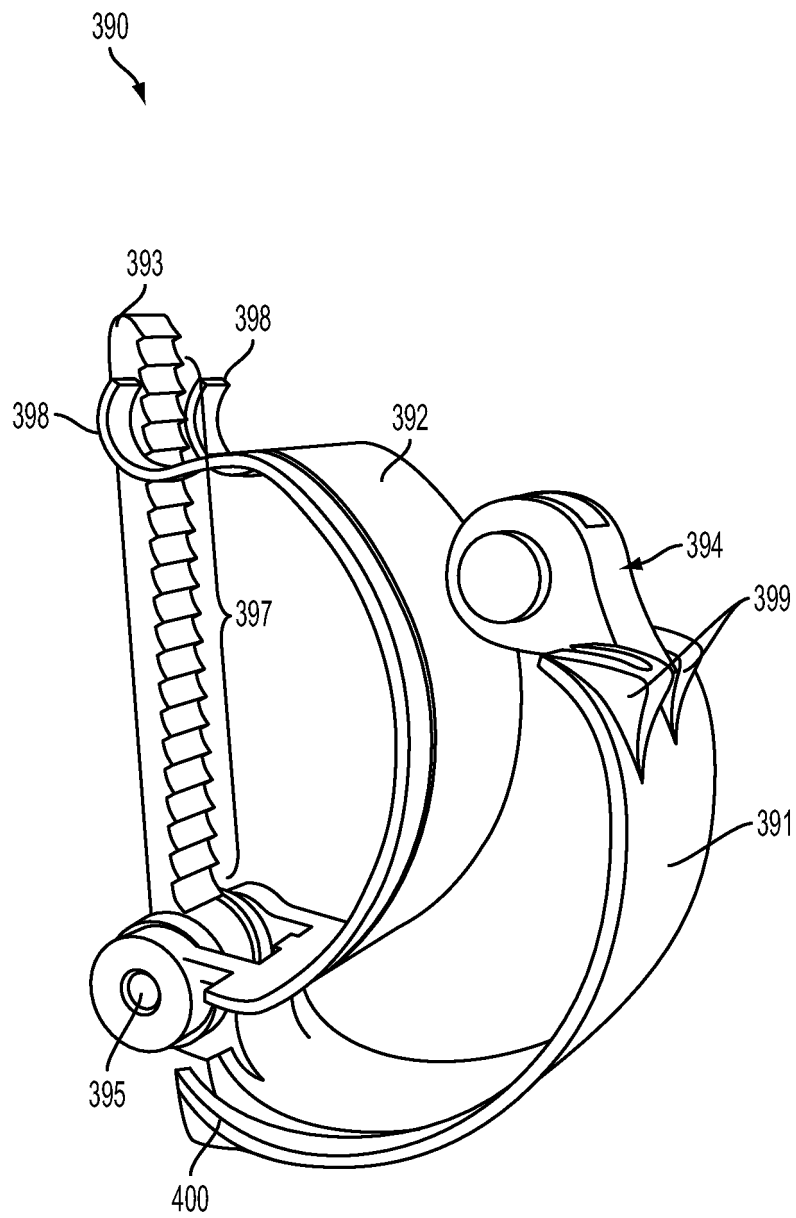


FIG. 57A

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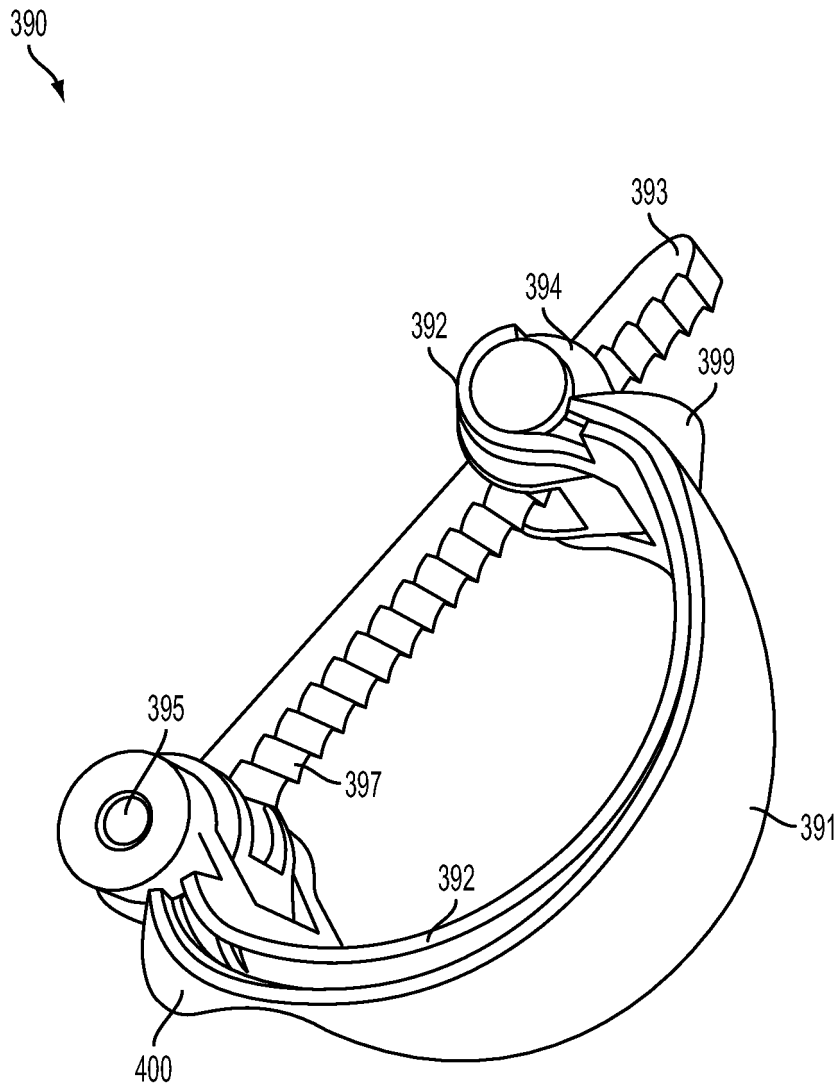


FIG. 57B

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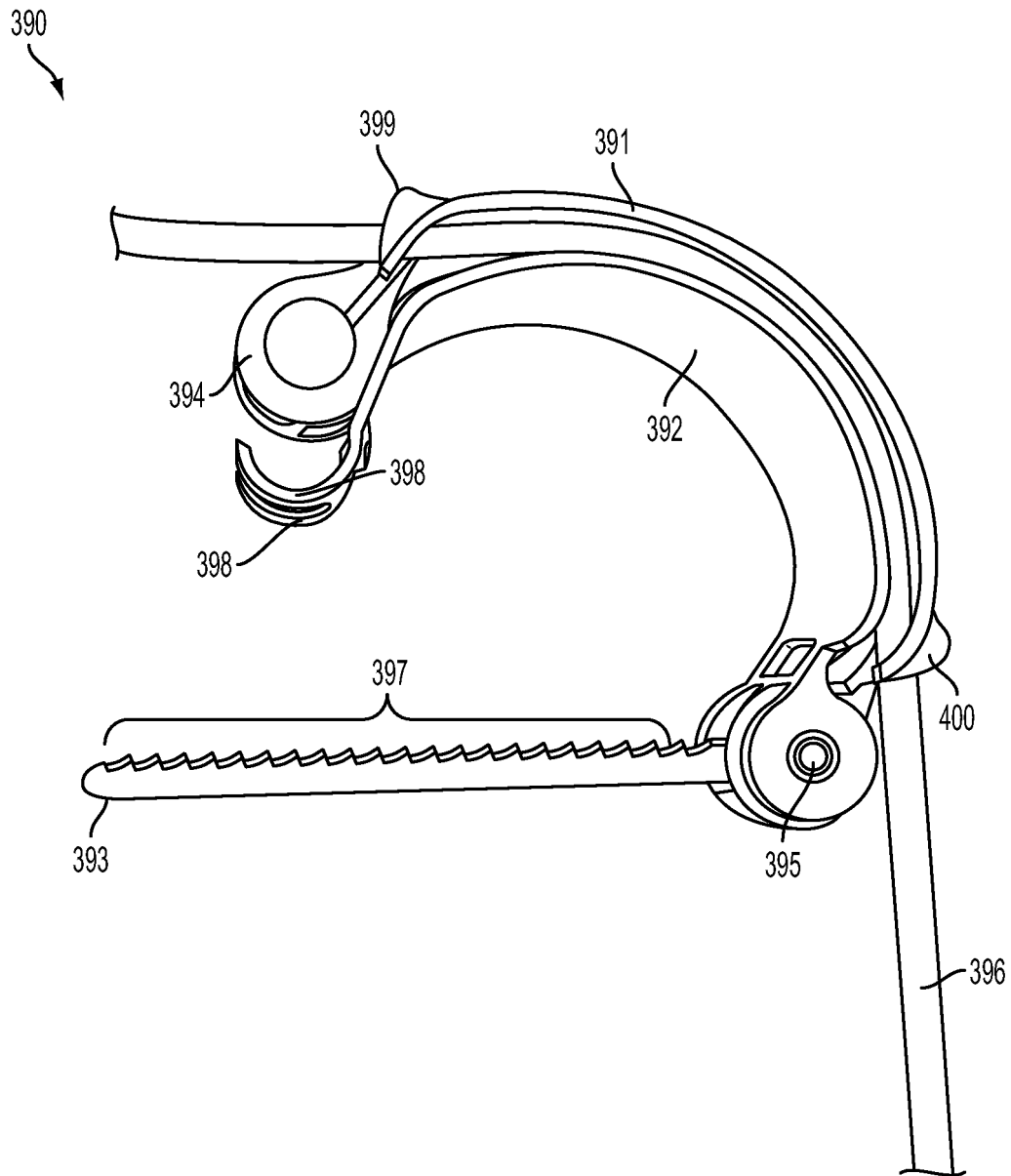


FIG. 57C

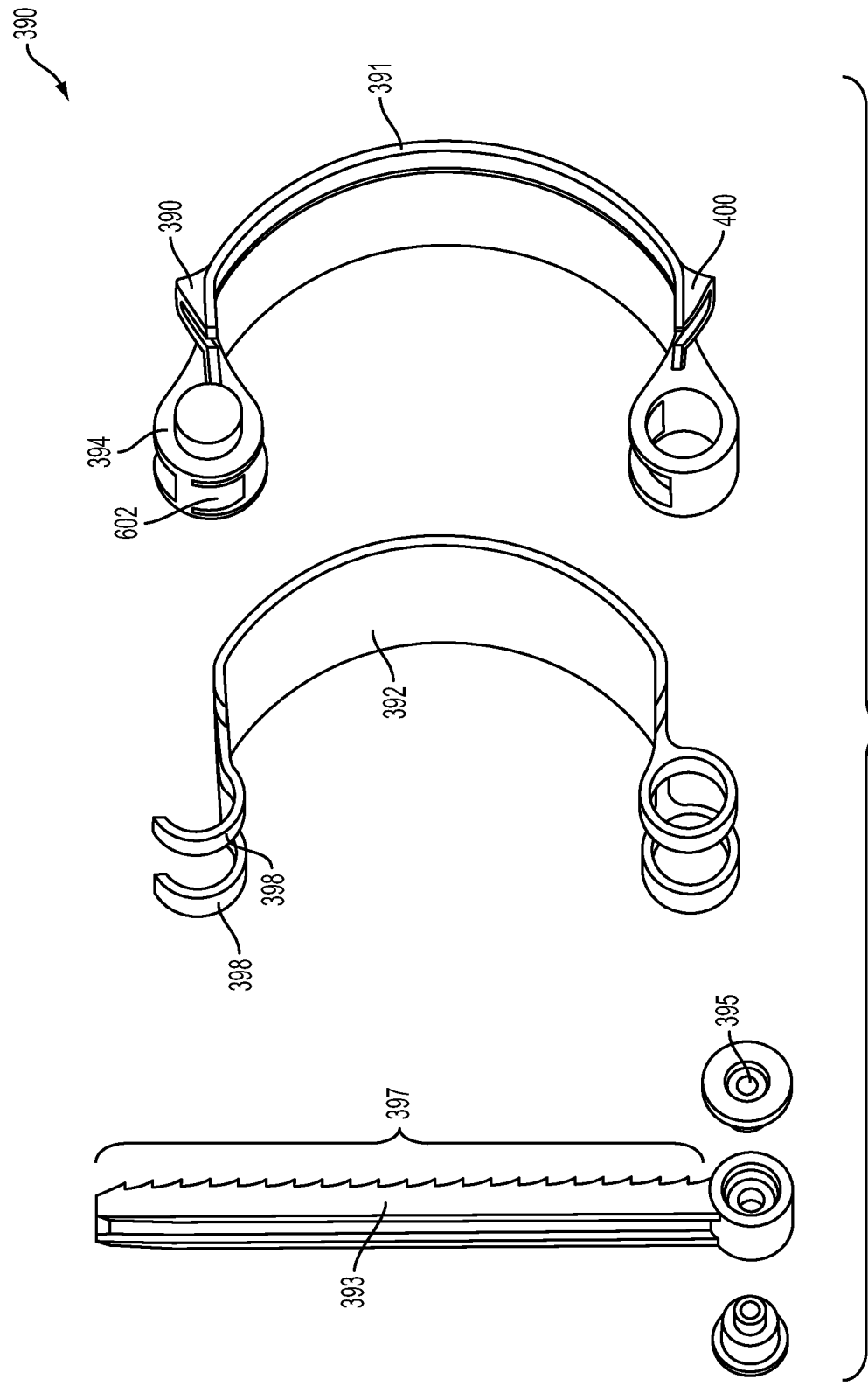


FIG. 57D

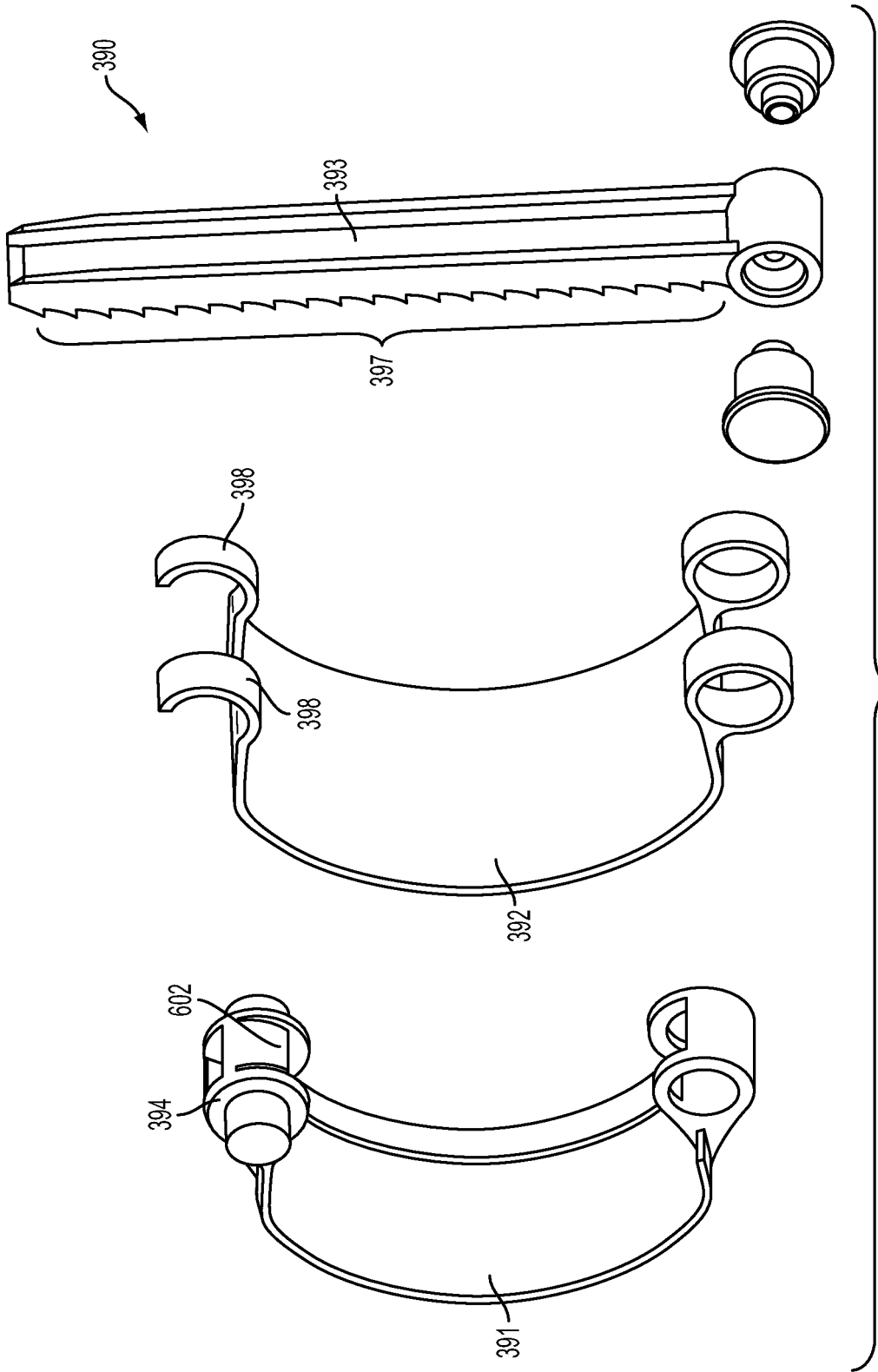


FIG. 57E

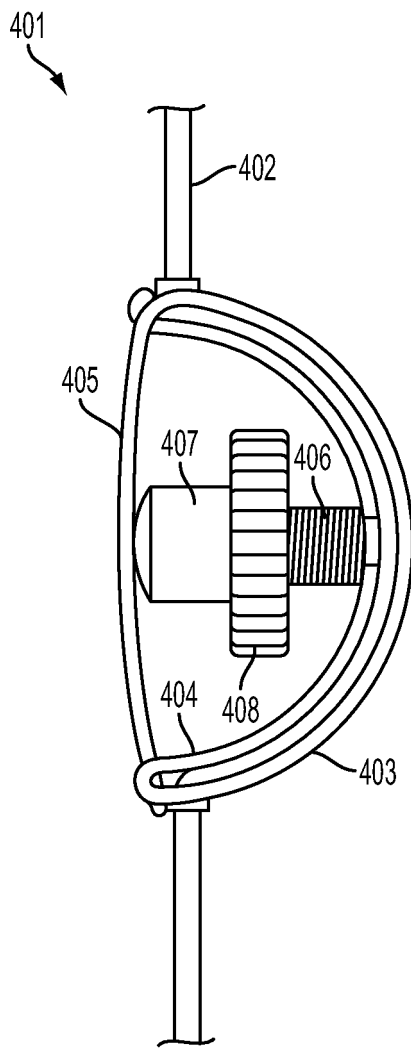


FIG. 58A

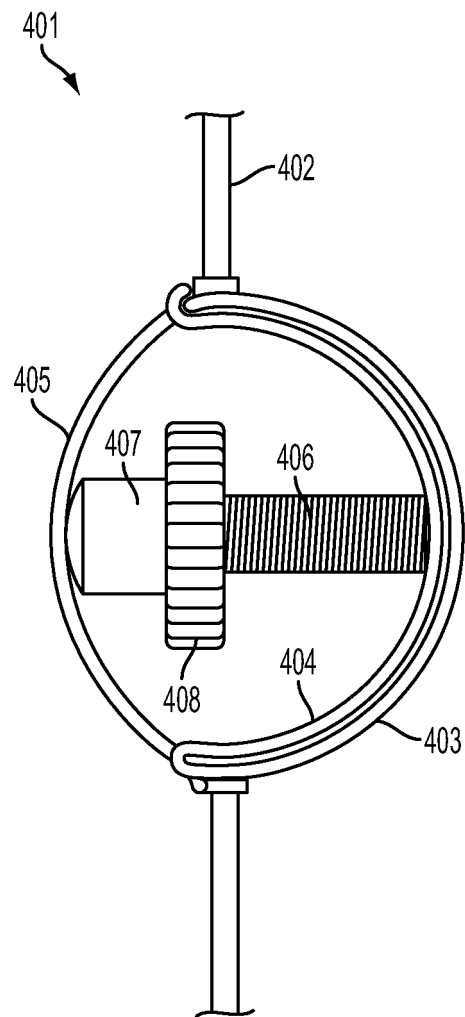


FIG. 58B

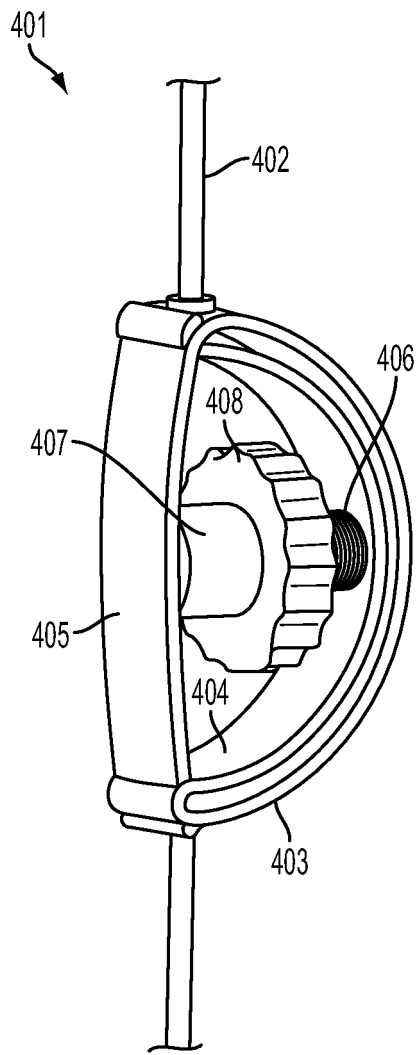


FIG. 58C

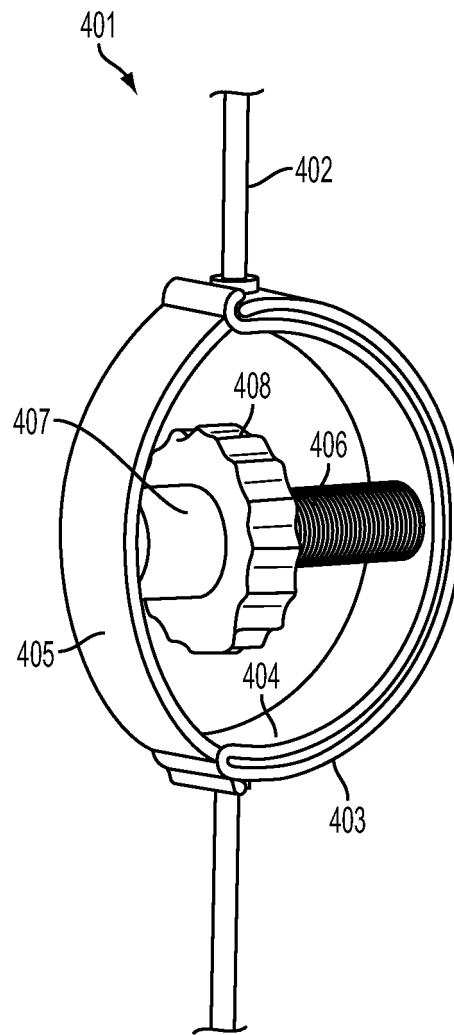


FIG. 58D

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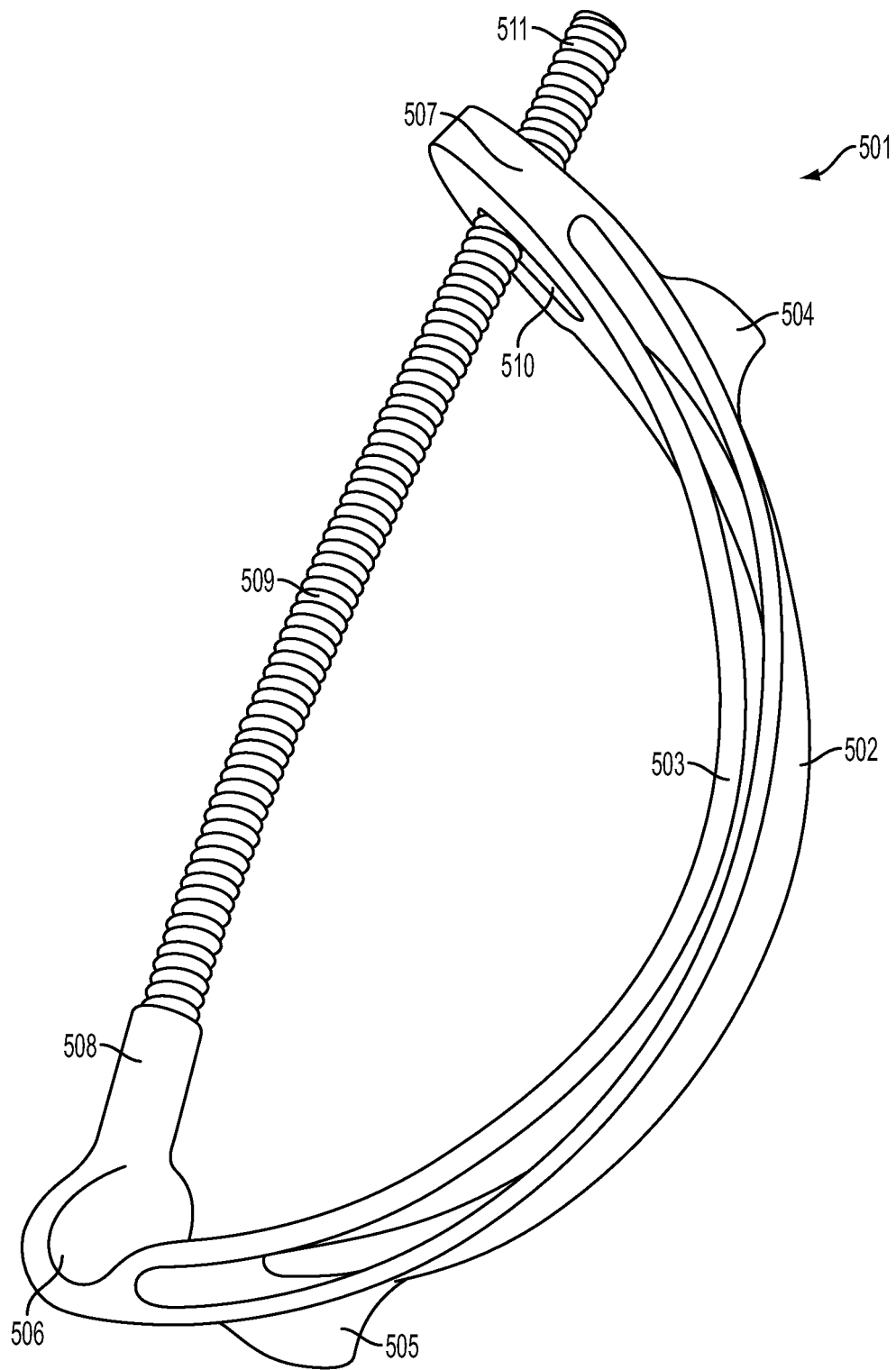


FIG. 59A

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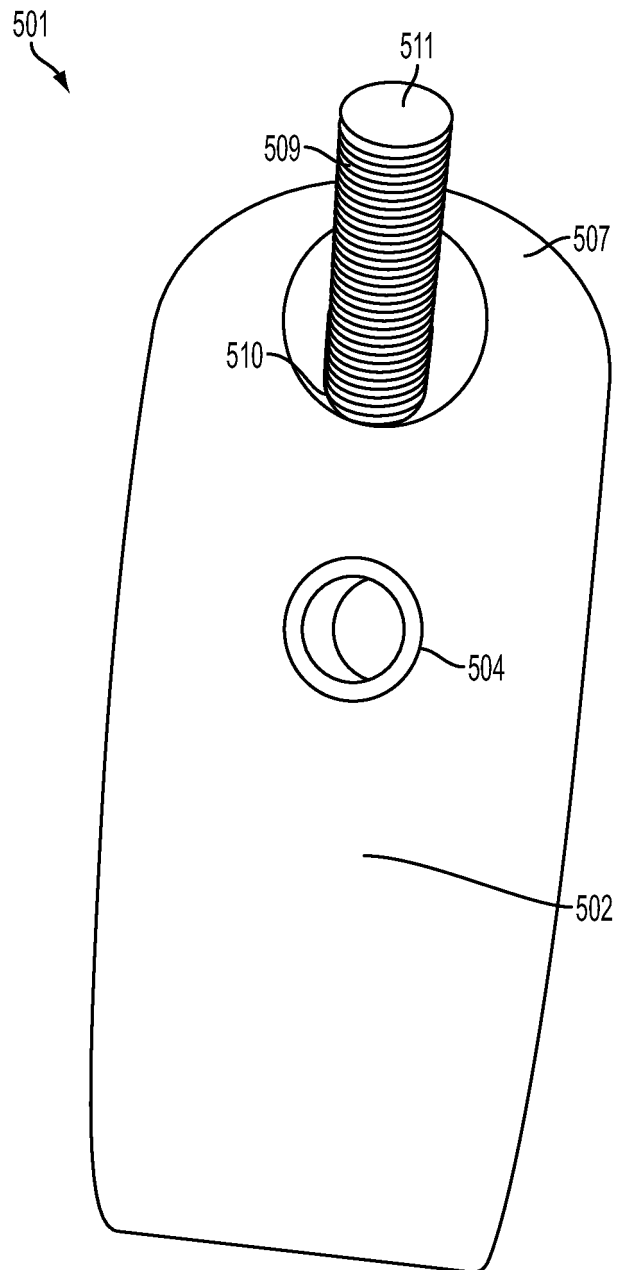


FIG. 59B

65/140

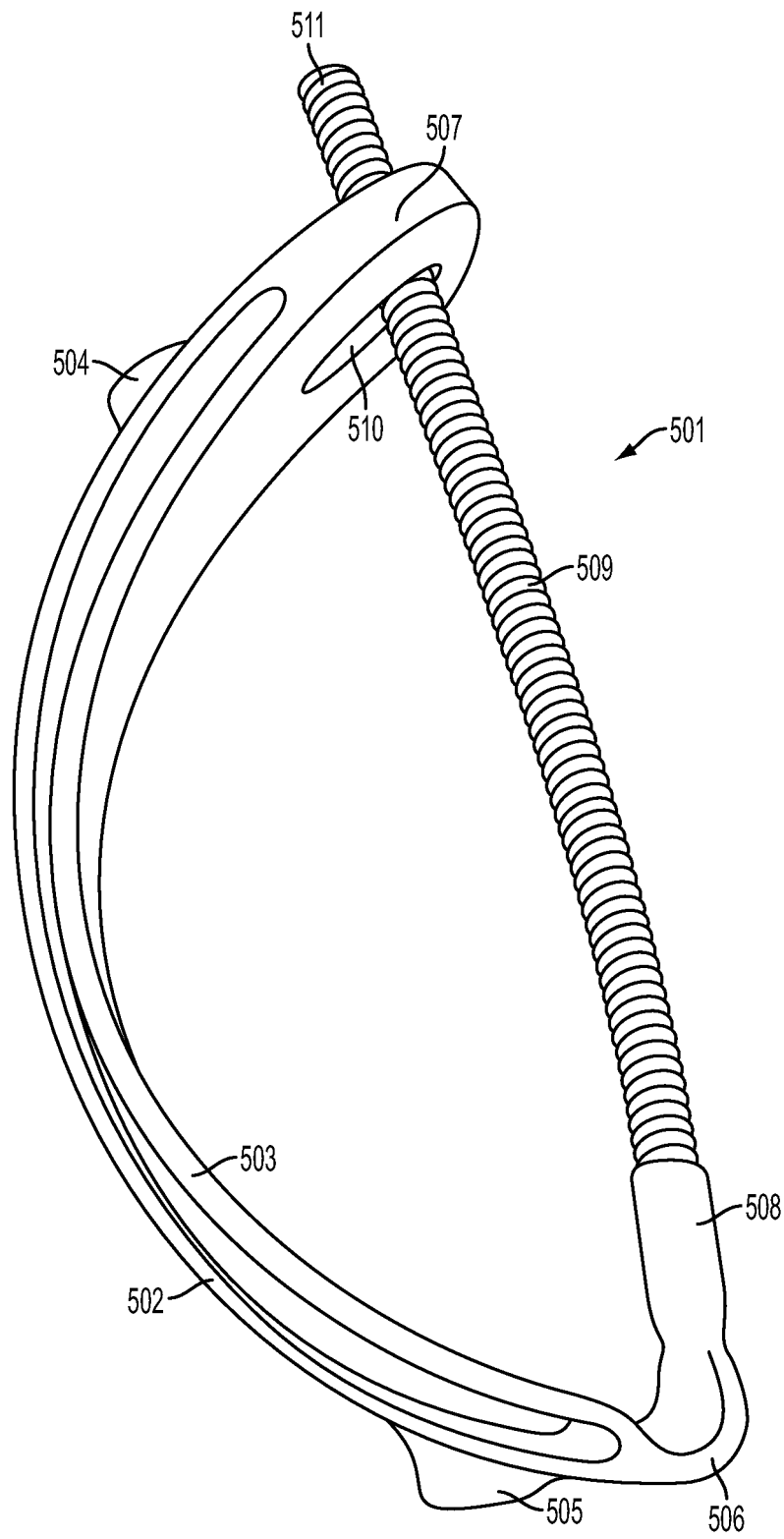


FIG. 59C

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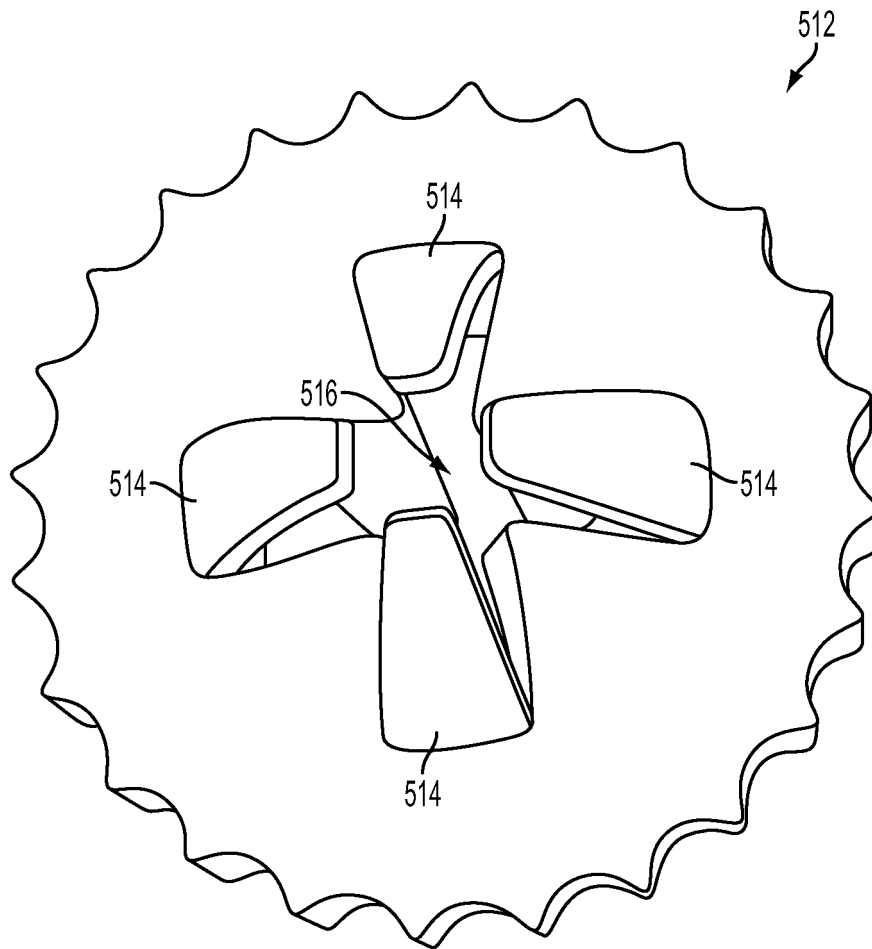


FIG. 59D

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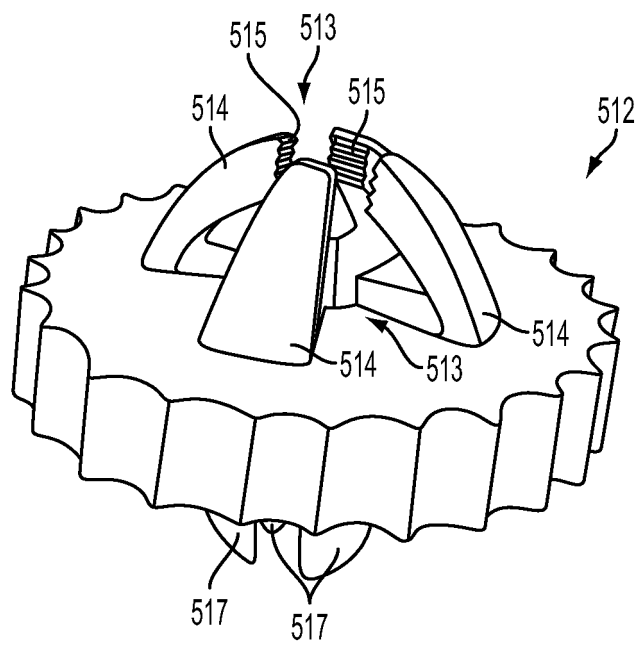


FIG. 59E

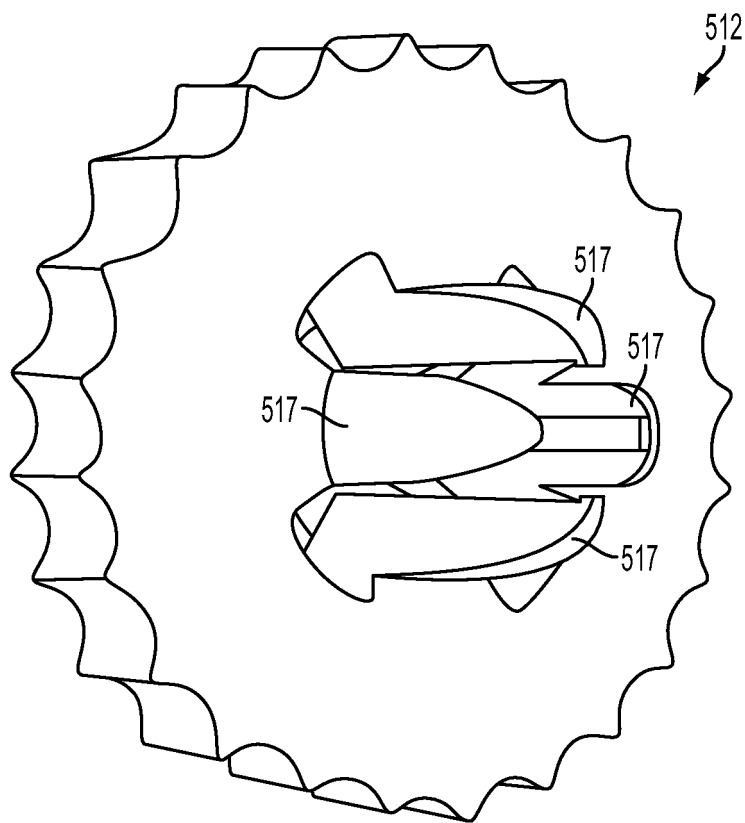


FIG. 59F

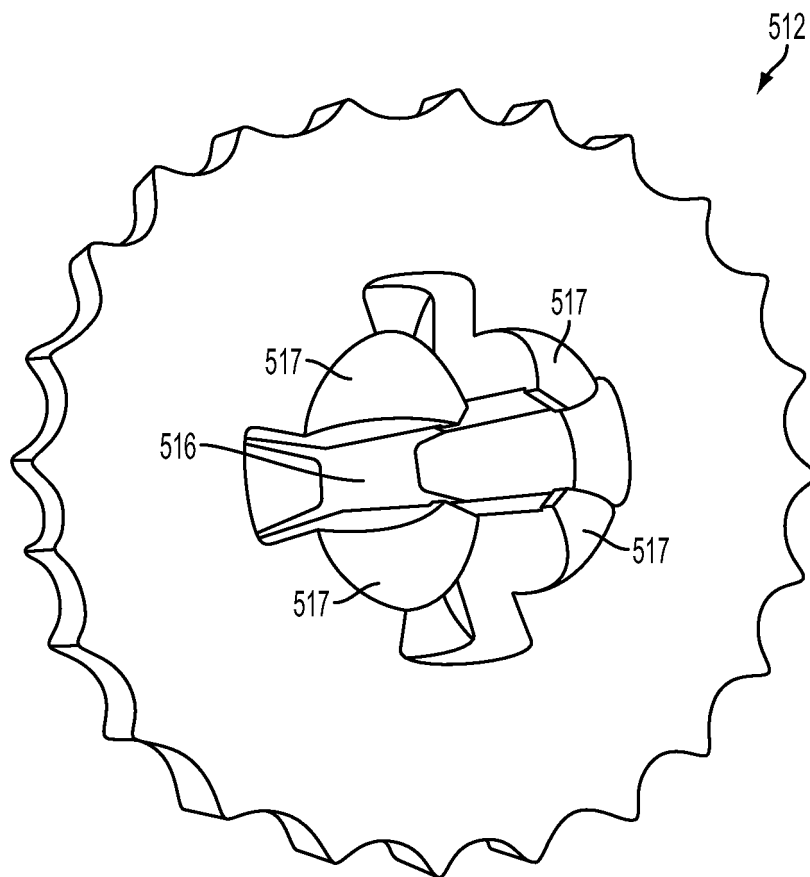


FIG. 59G

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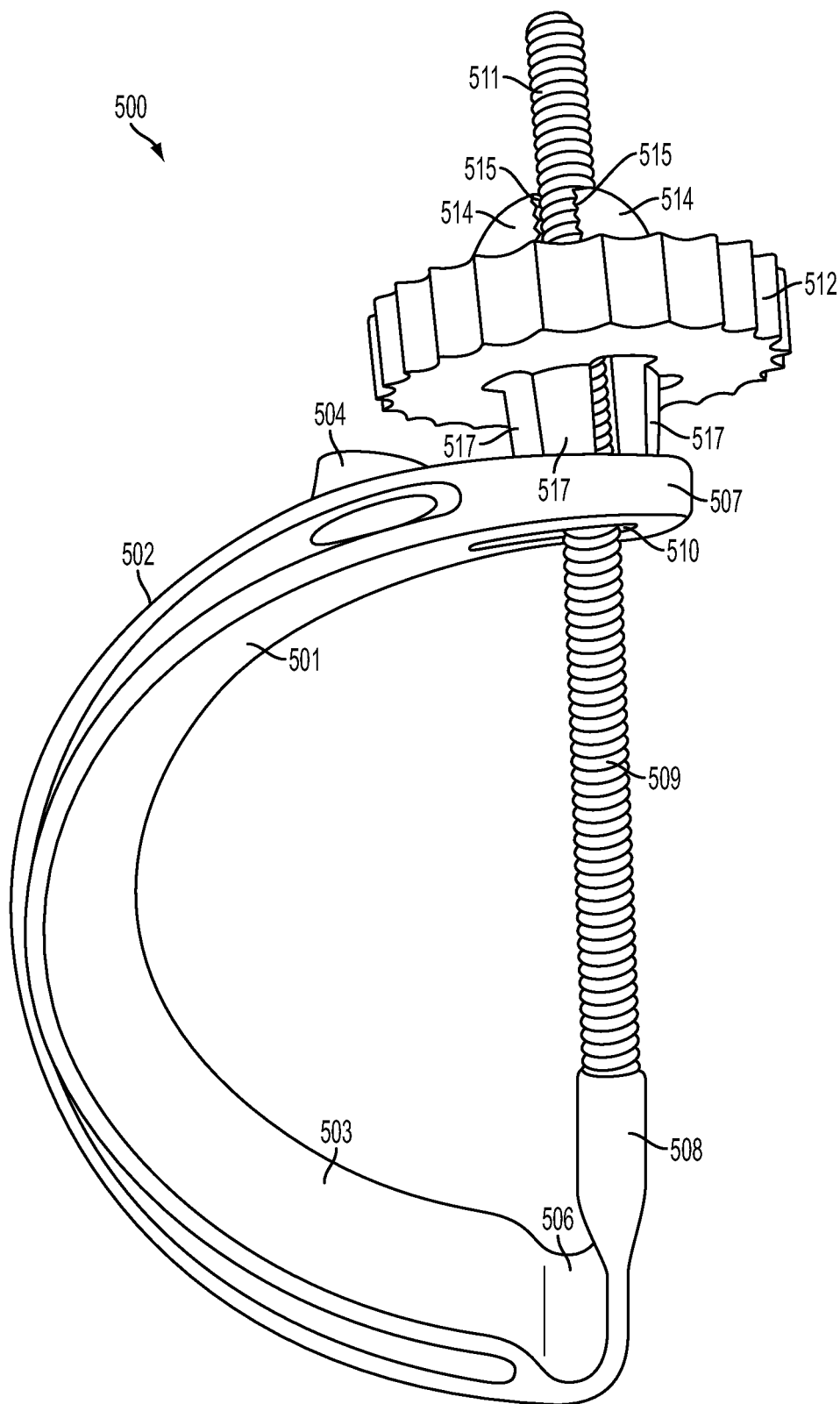


FIG. 59H

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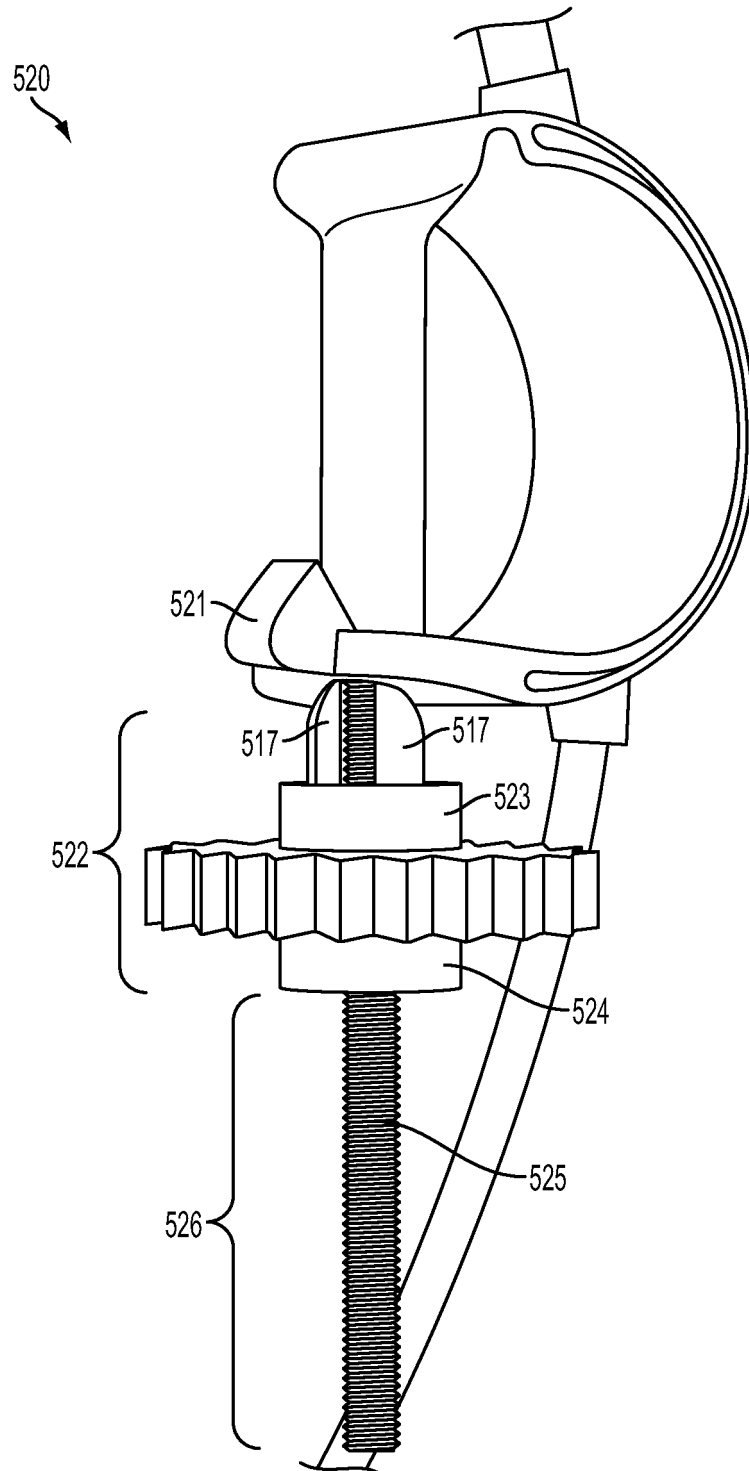


FIG. 60

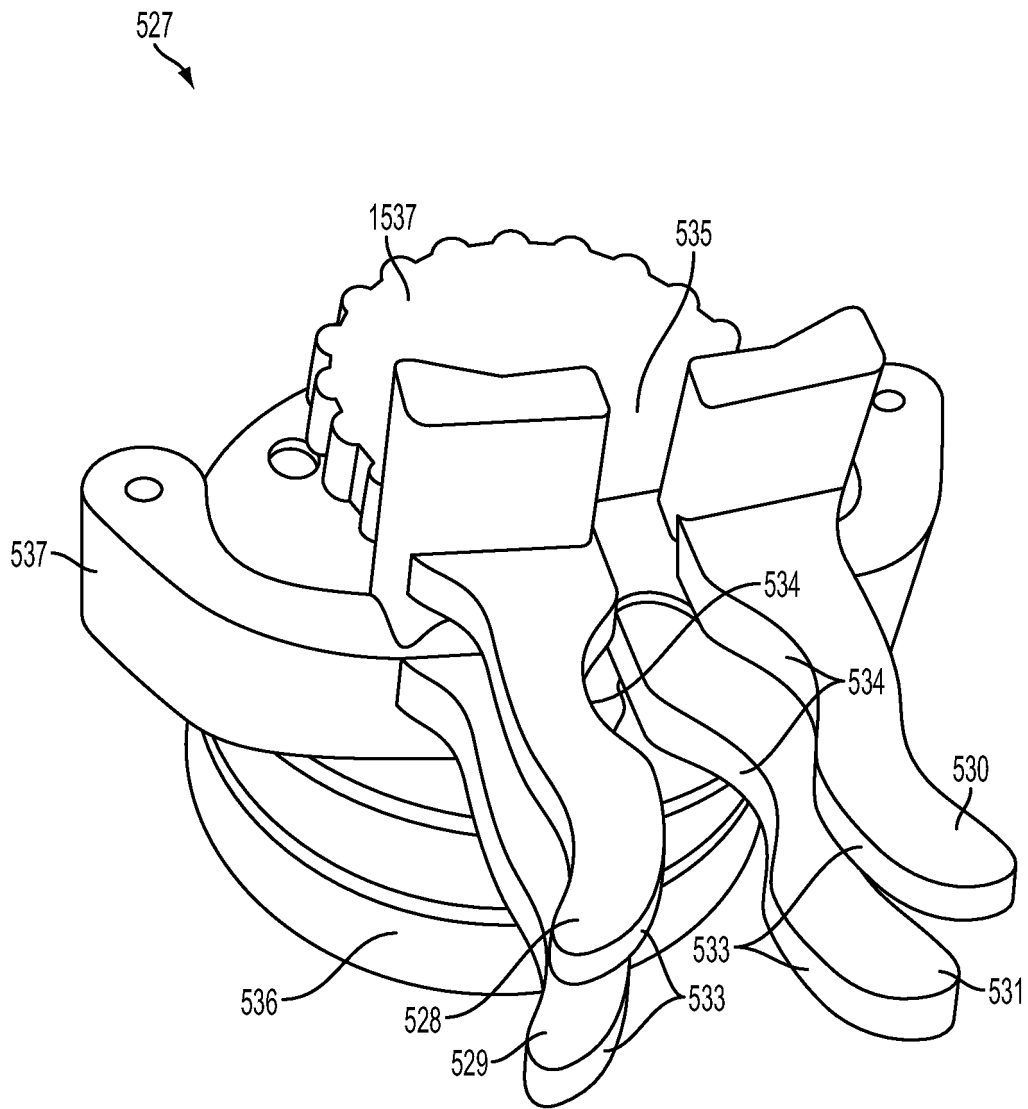


FIG. 61

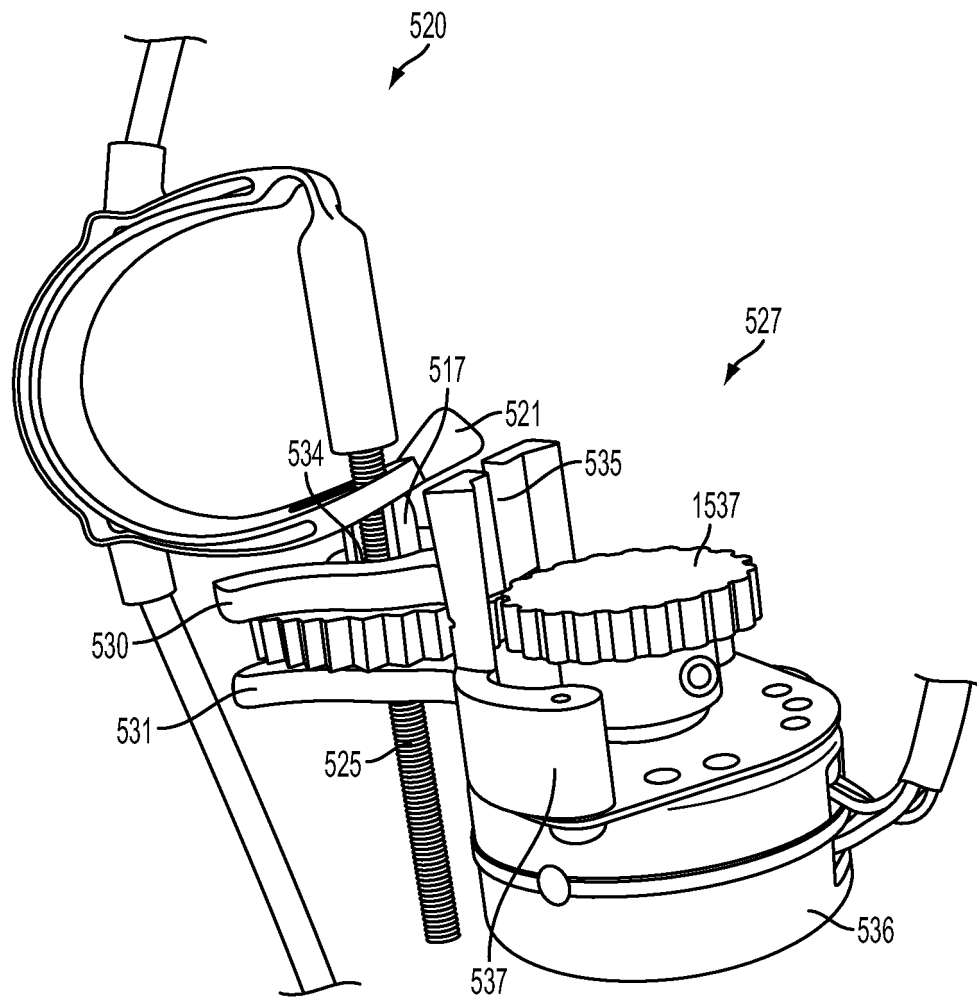


FIG. 62

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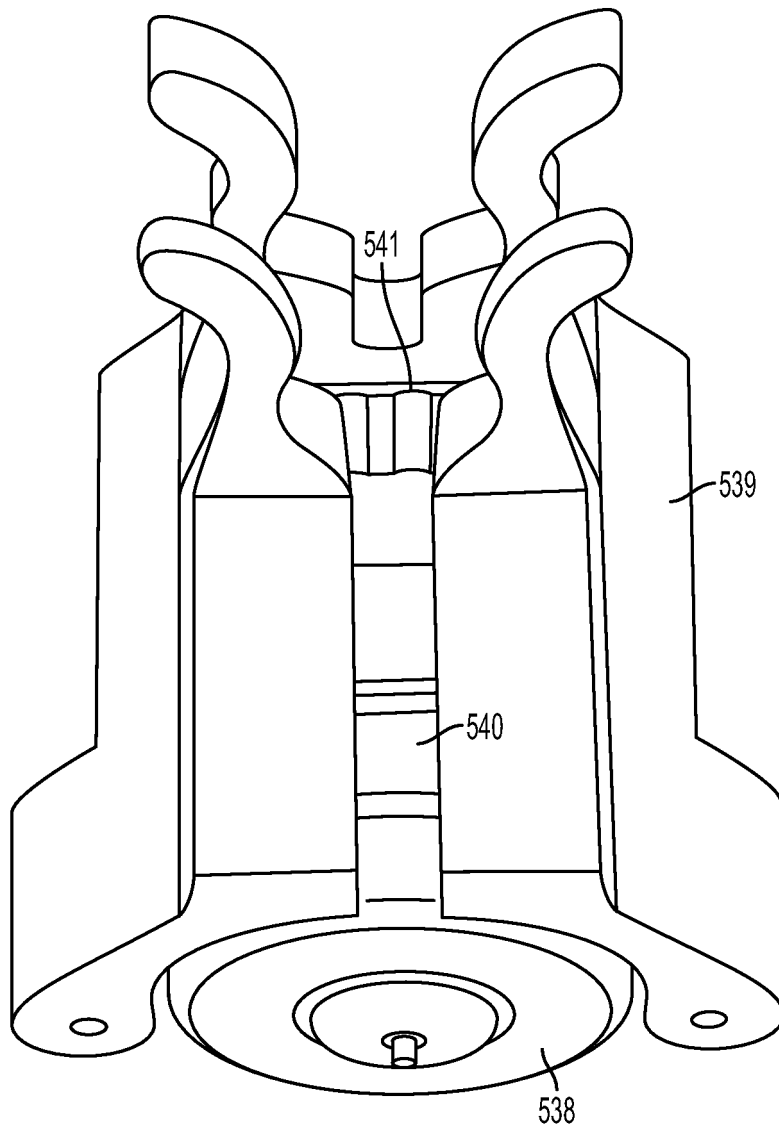


FIG. 63

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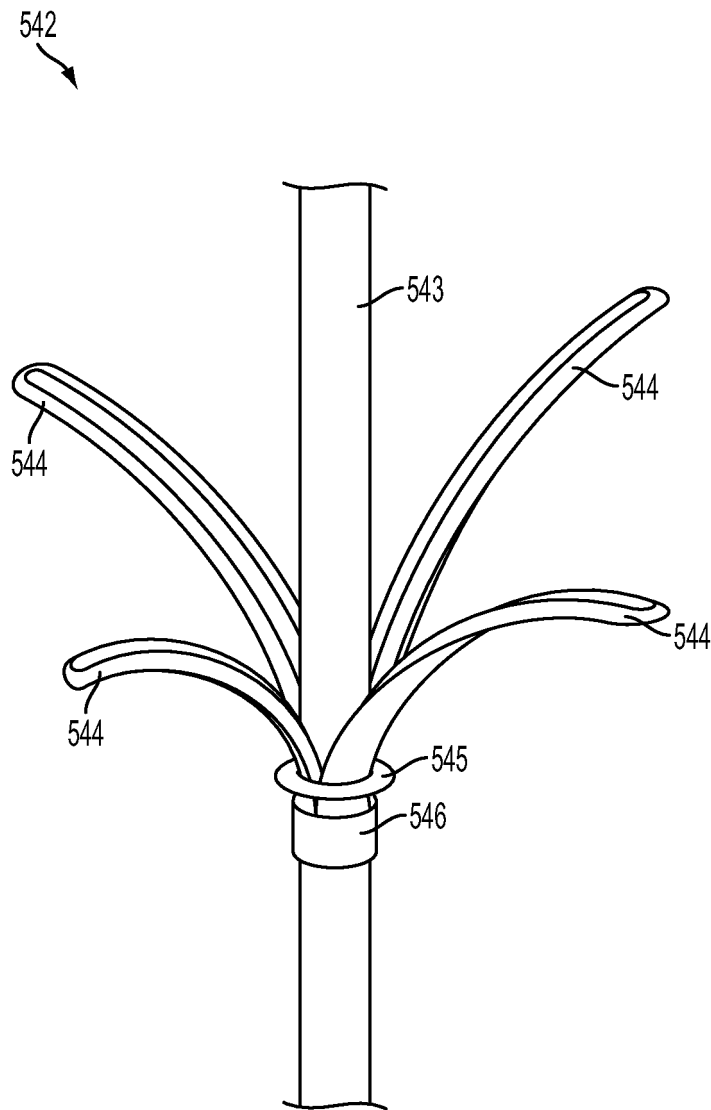


FIG. 64A

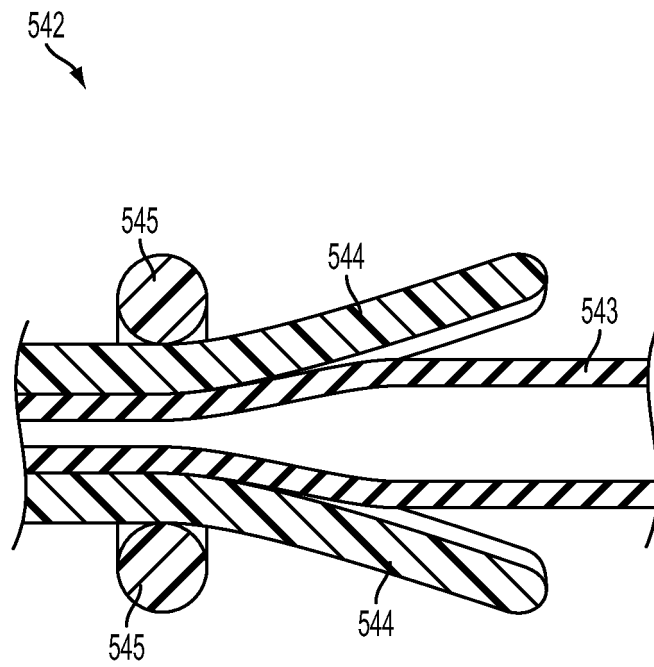


FIG. 64B

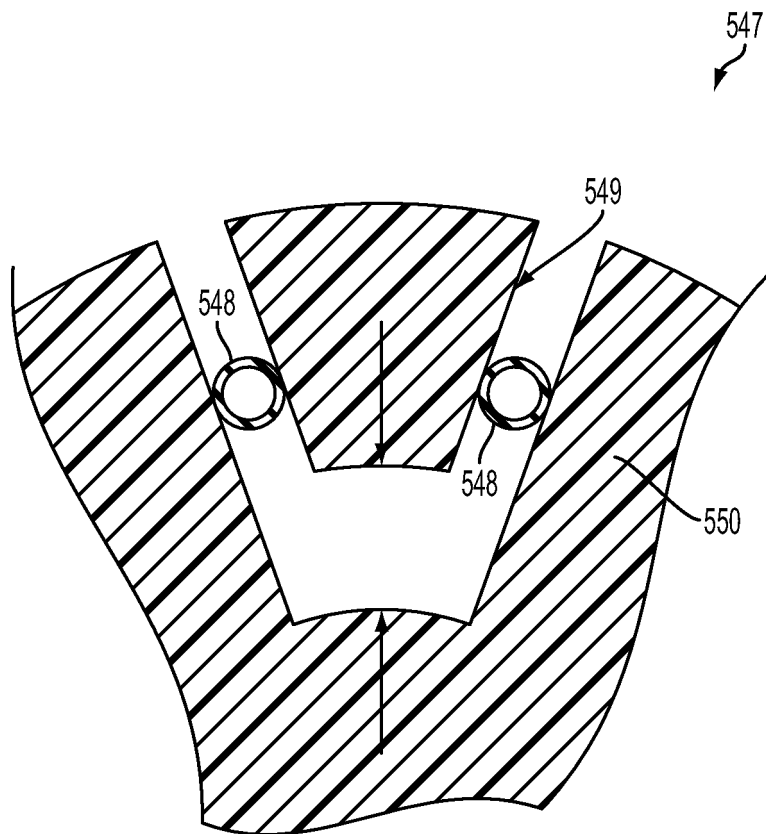
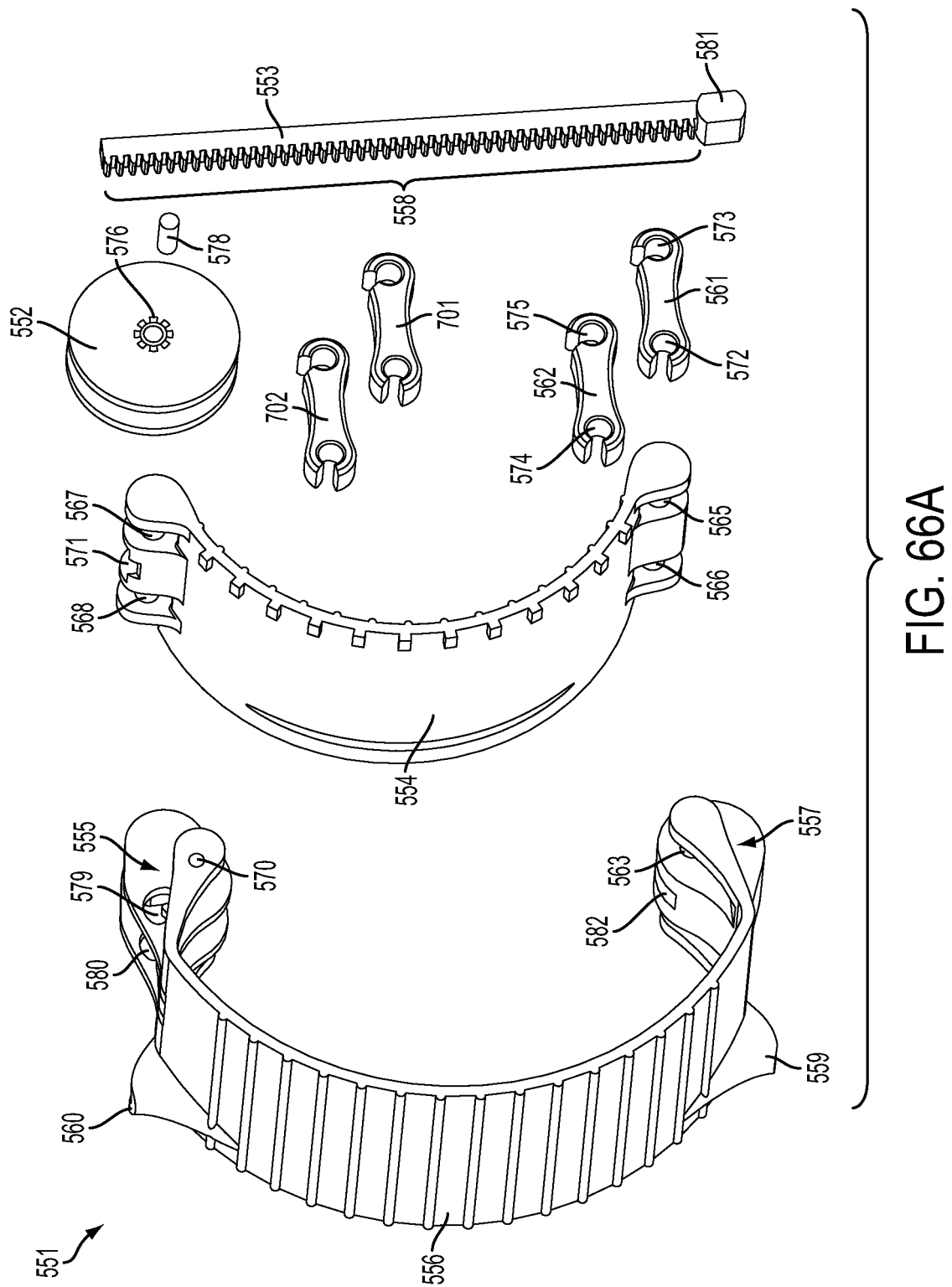
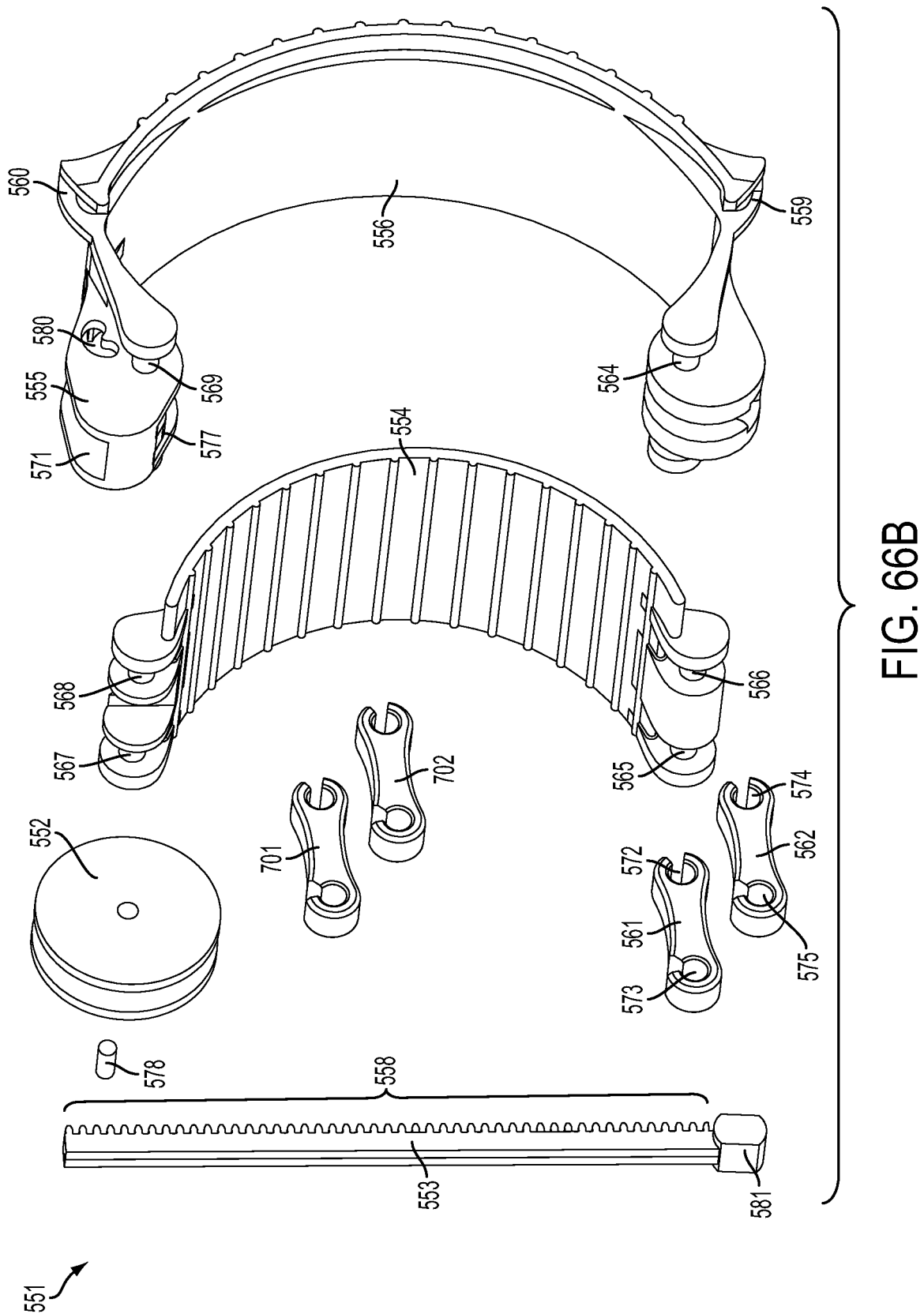


FIG. 65

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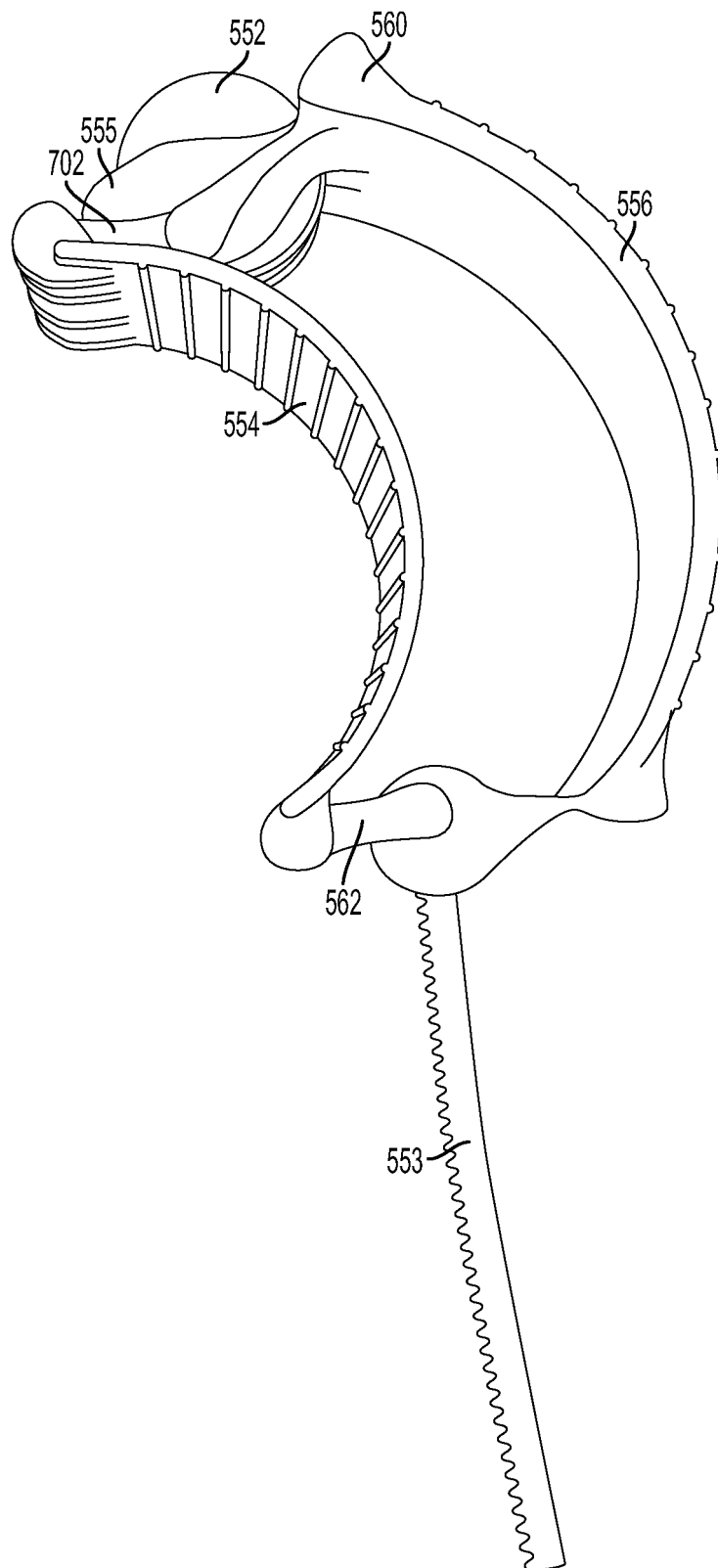


FIG. 66C

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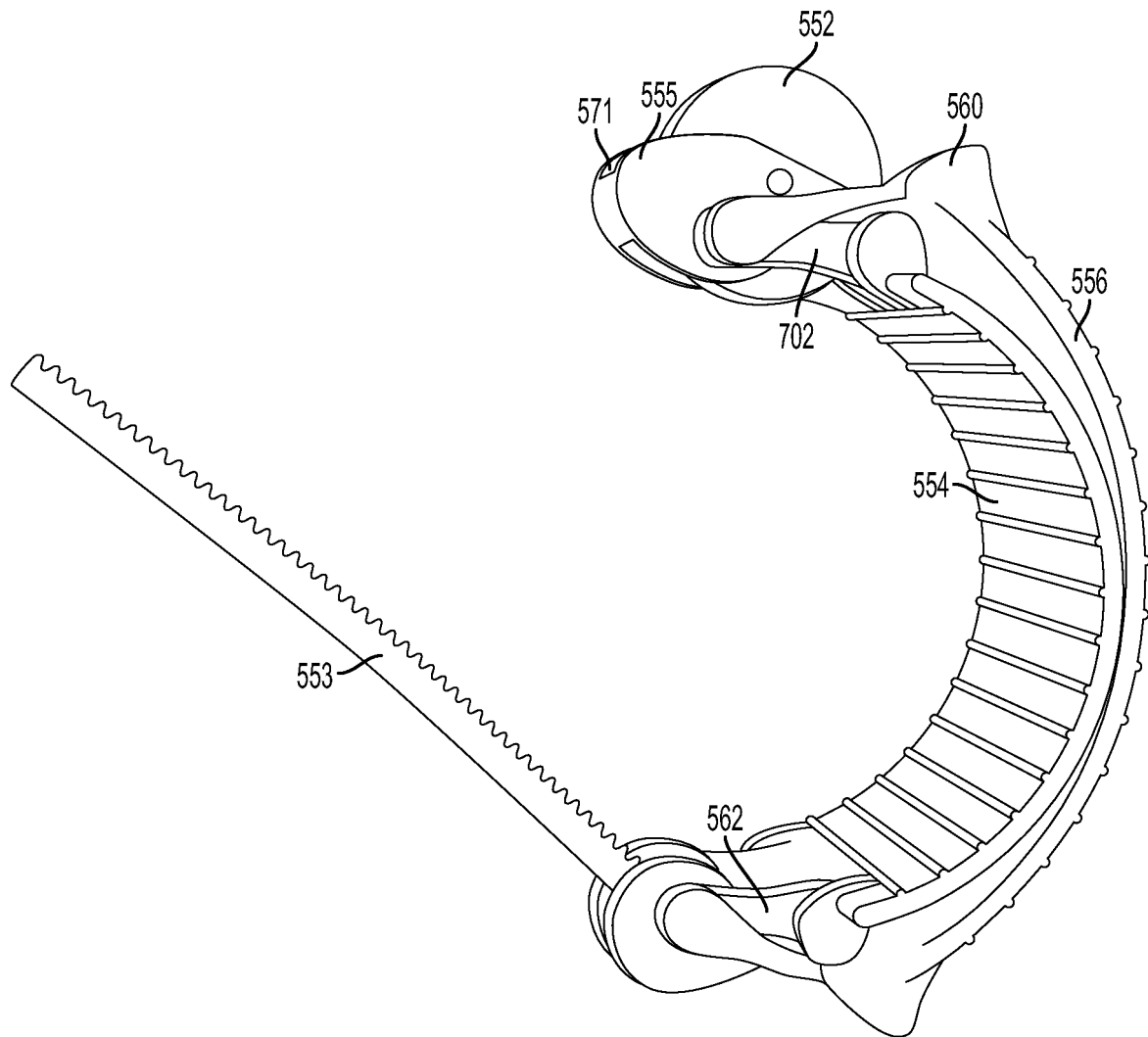


FIG. 66D

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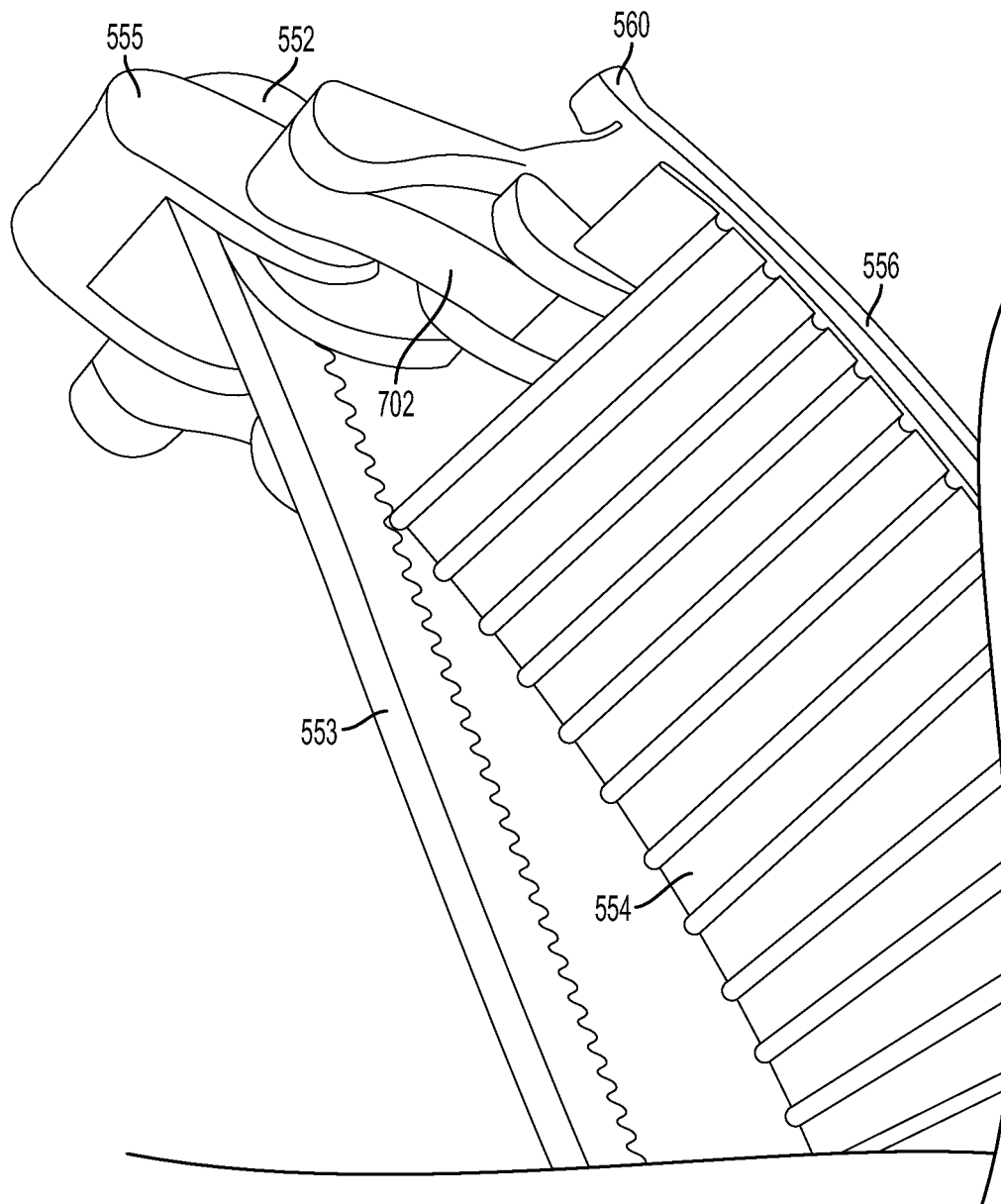


FIG. 66E

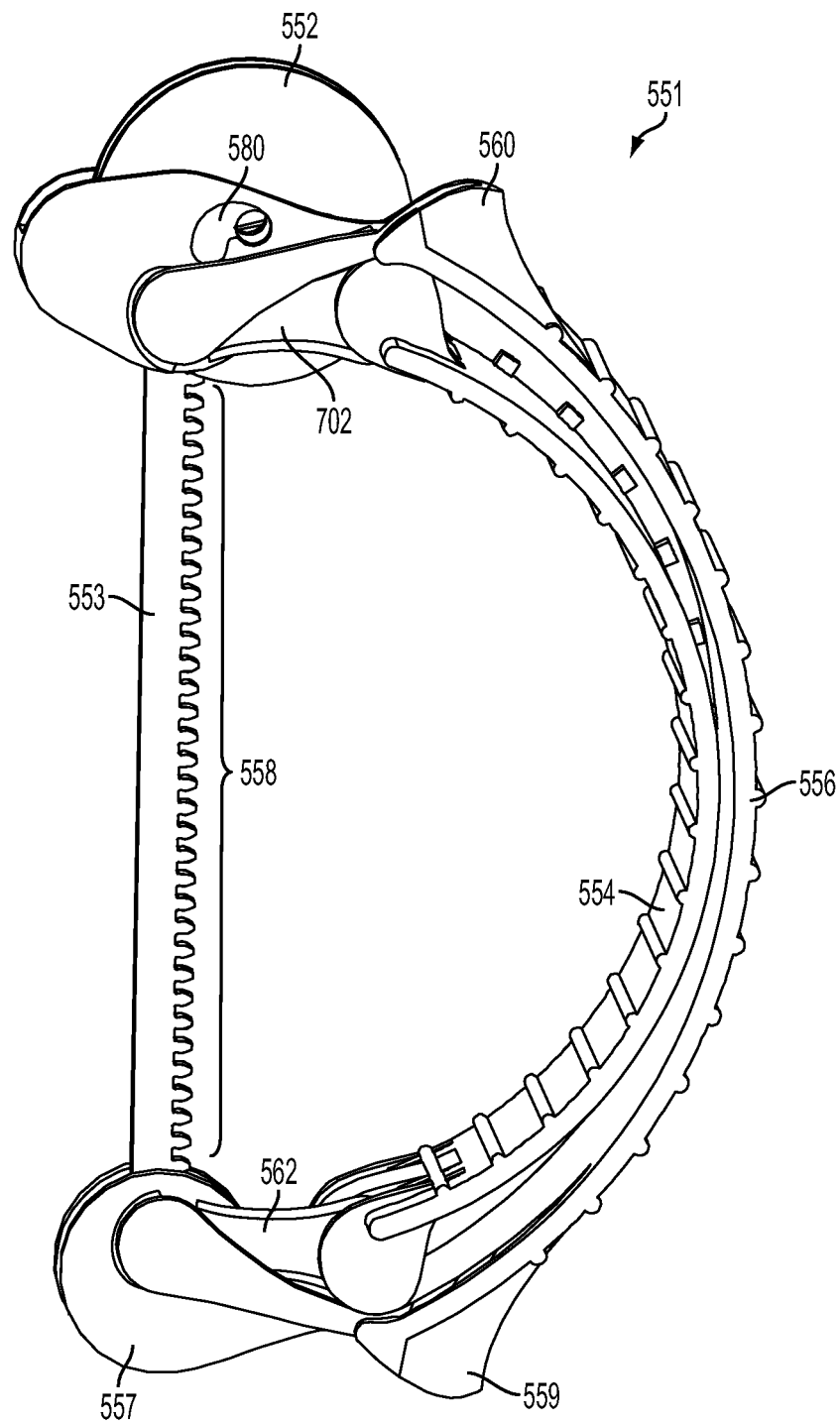


FIG. 66F

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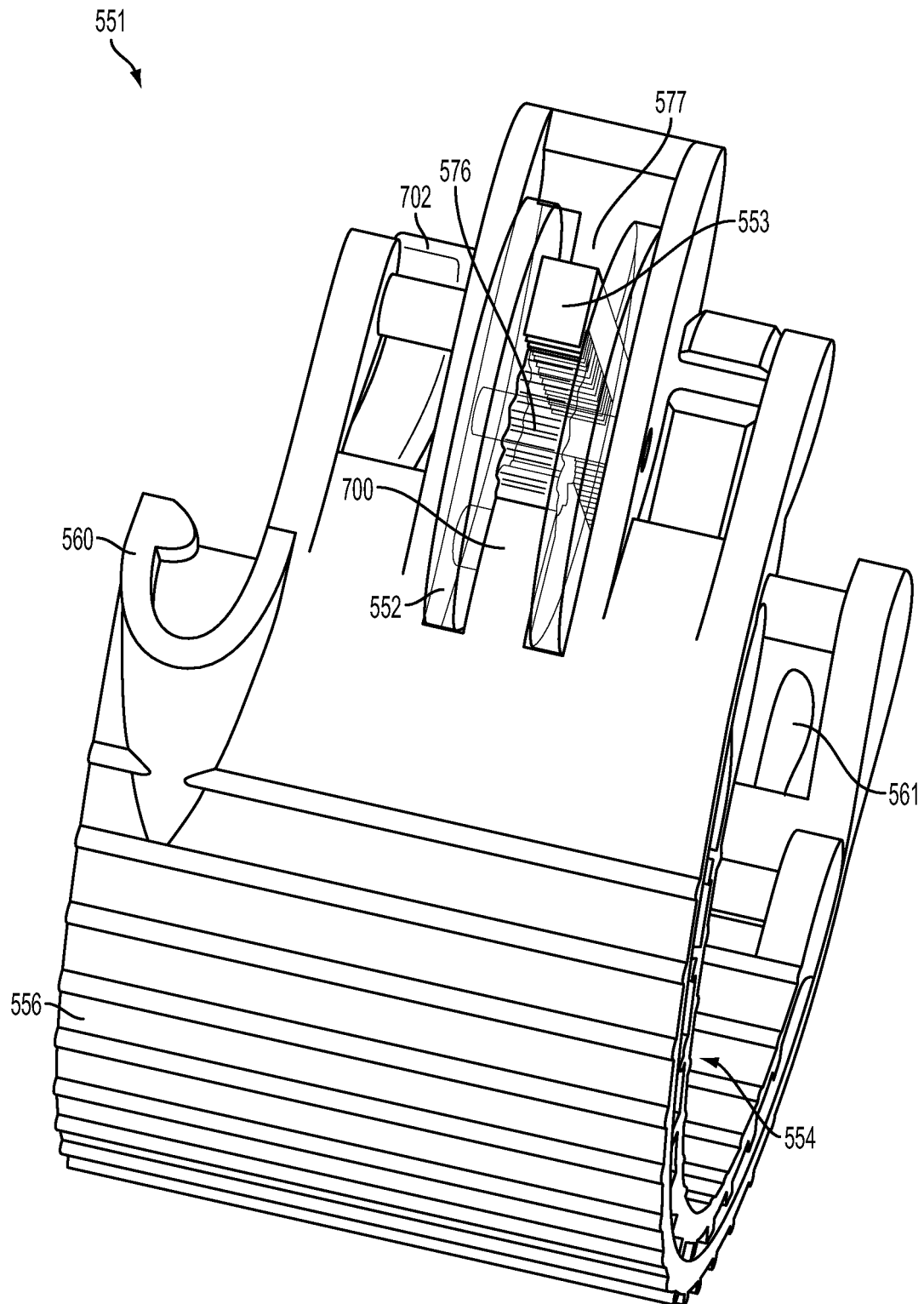


FIG. 66G

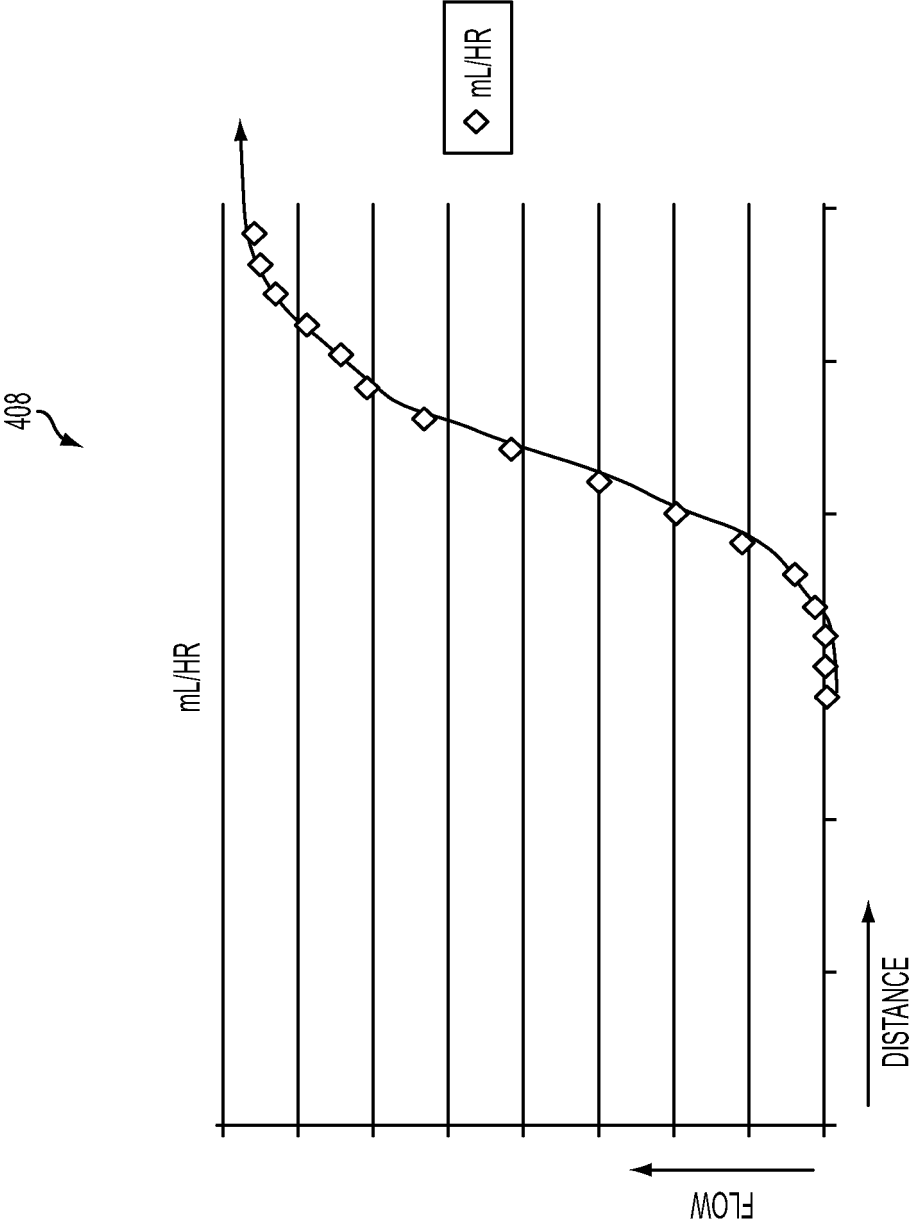


FIG. 67

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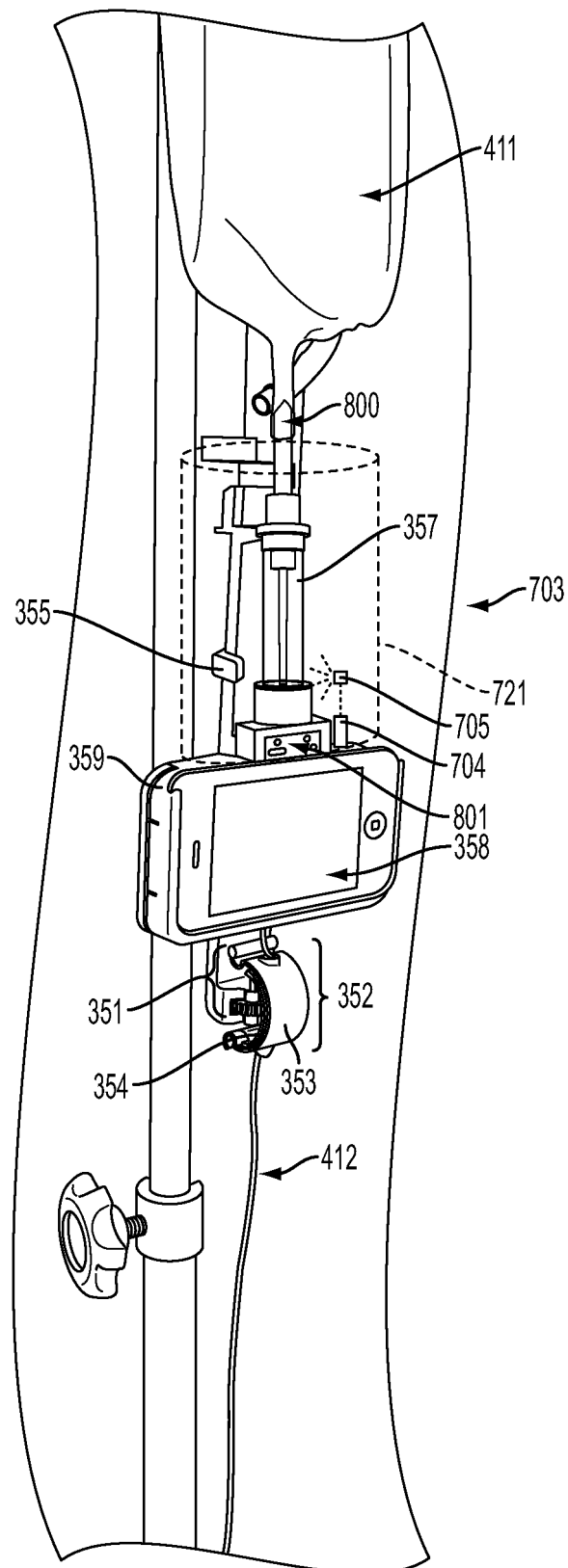


FIG. 68A

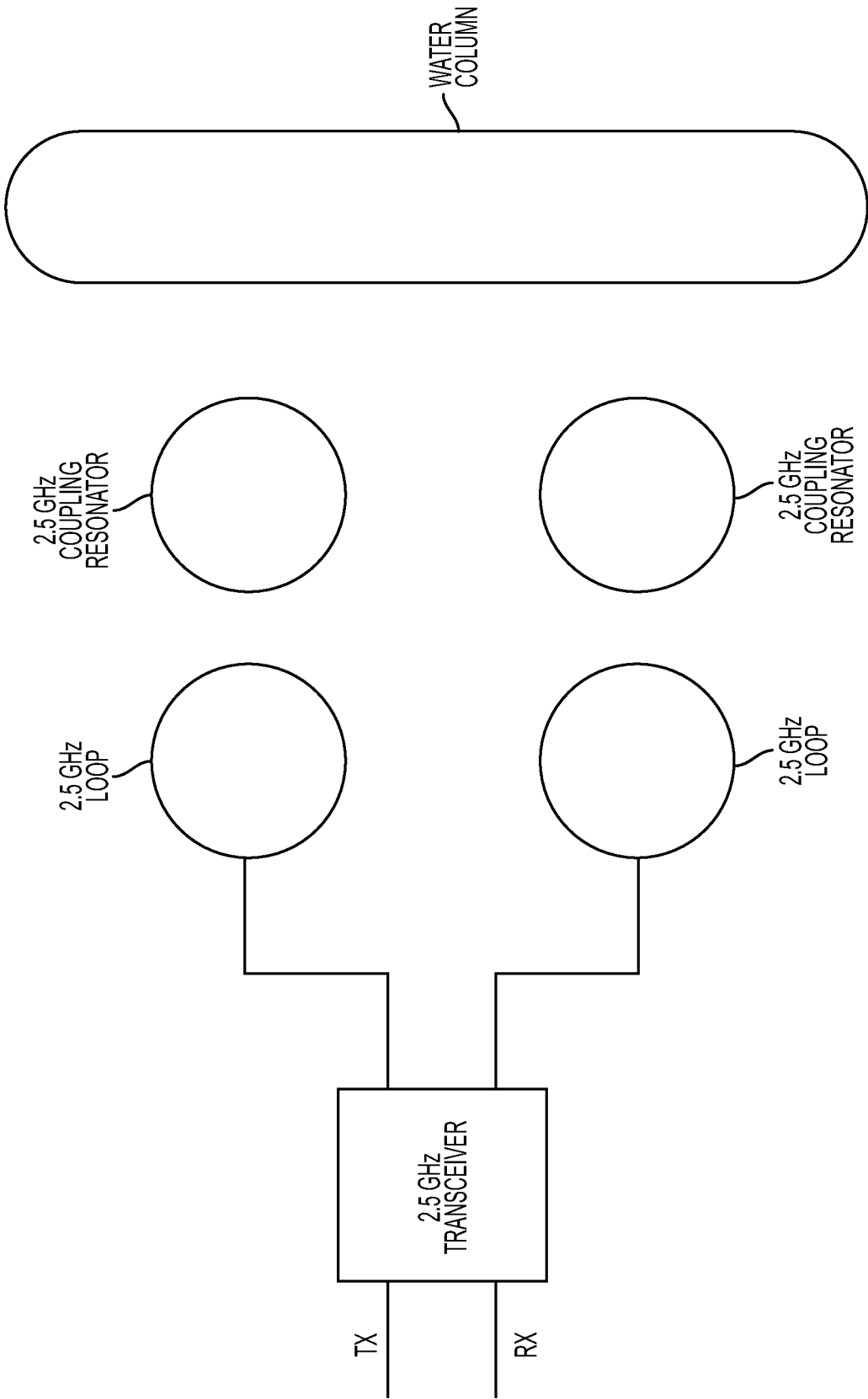


FIG. 68B

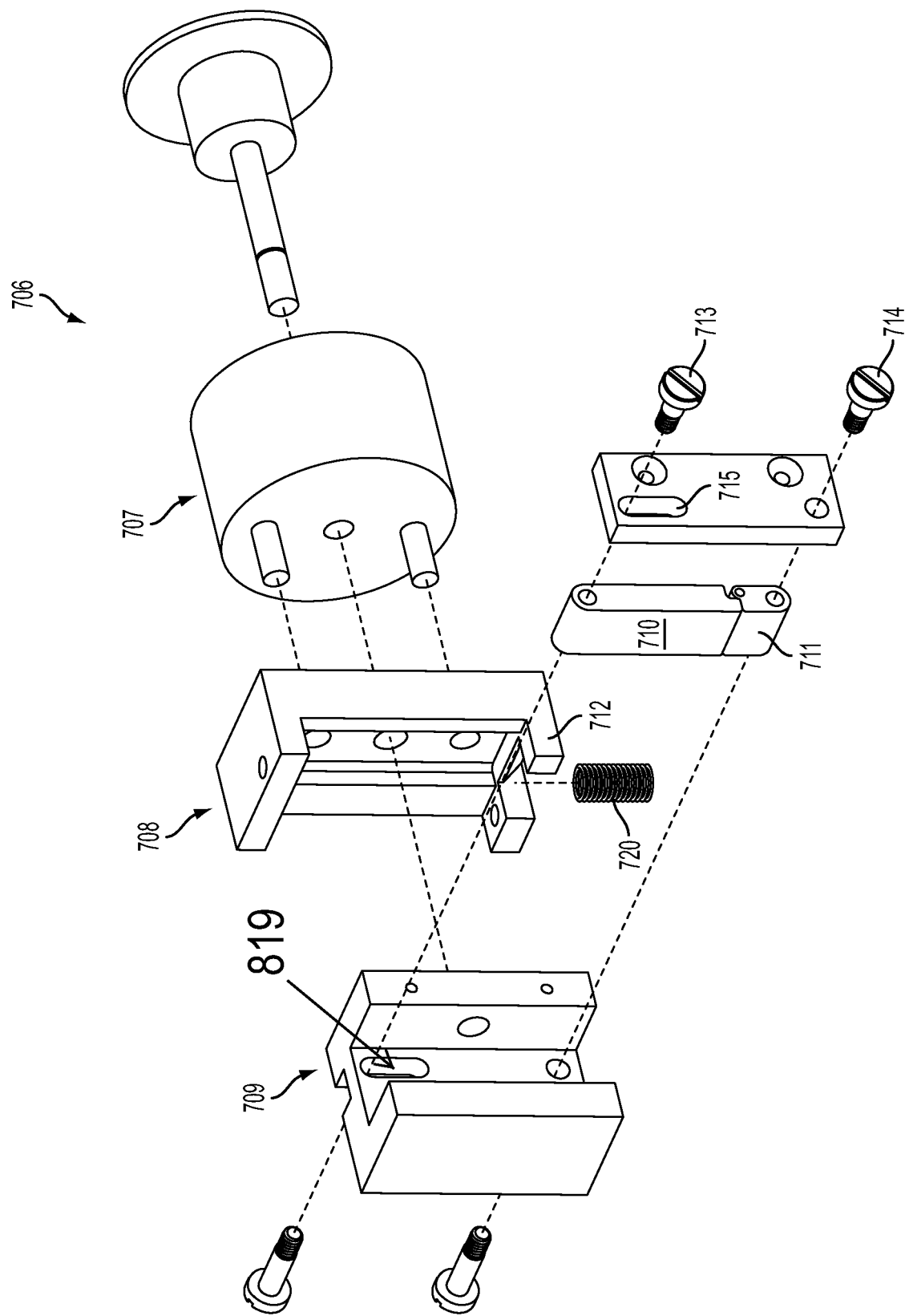


FIG. 69A

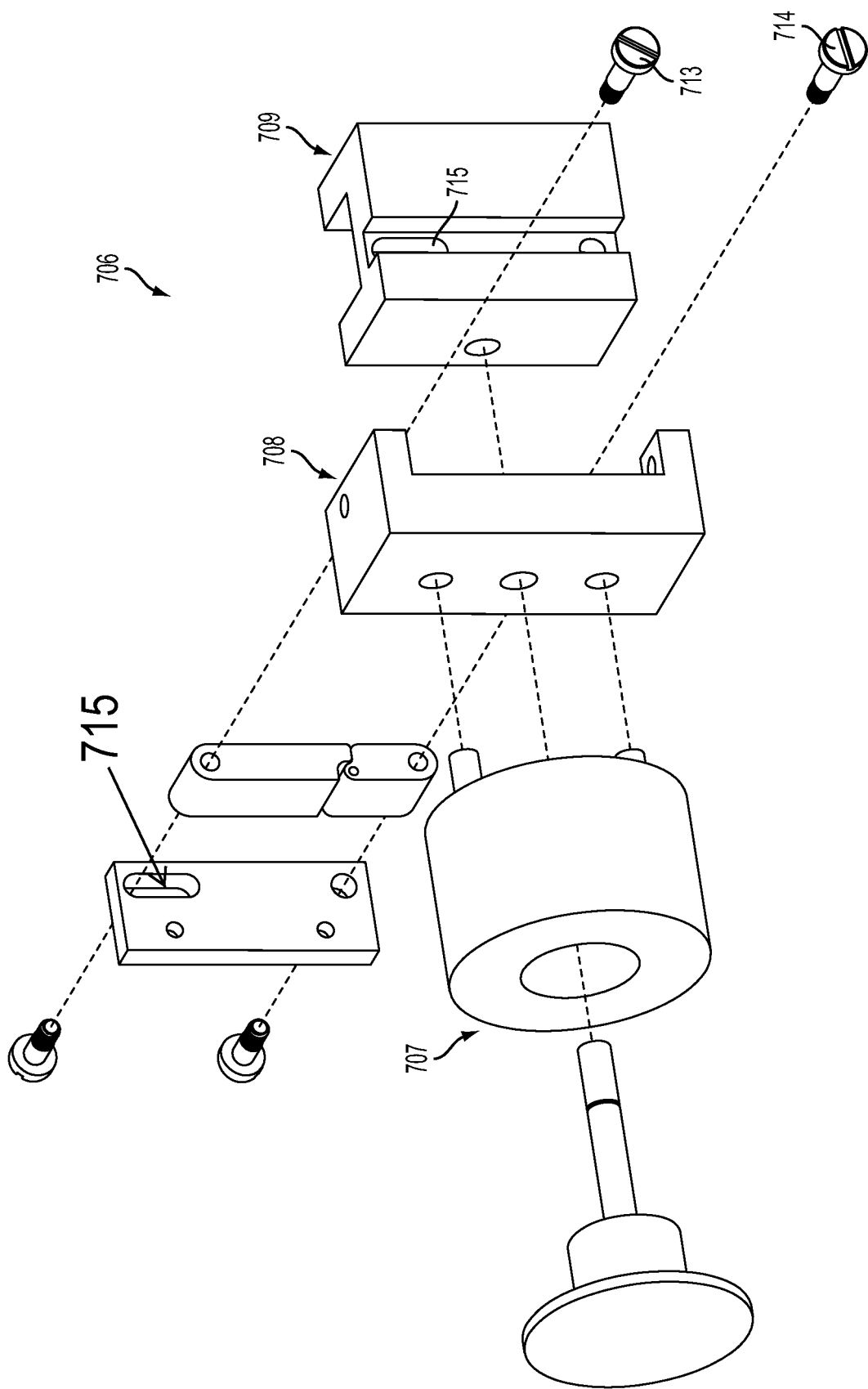


FIG. 69B

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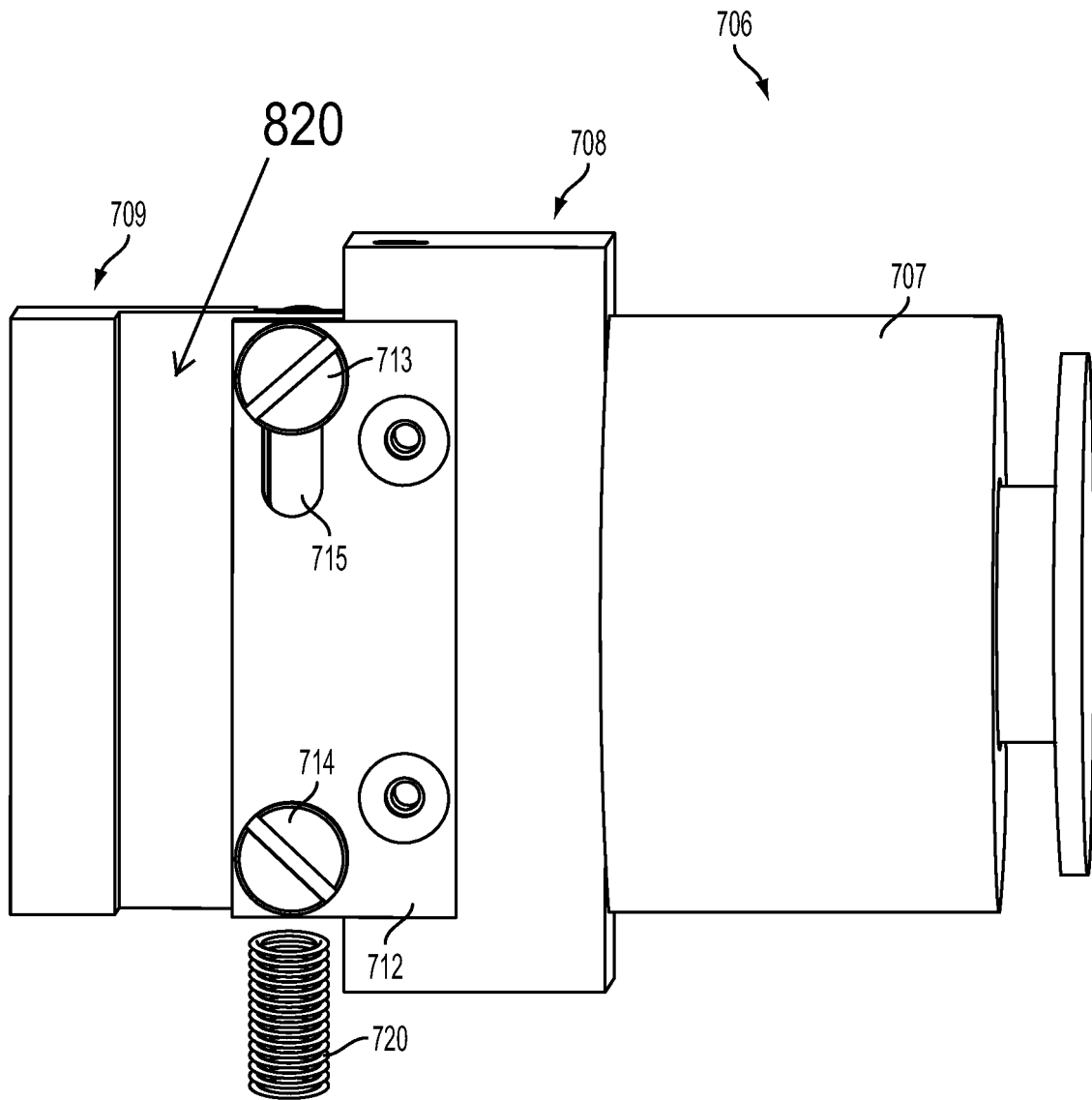
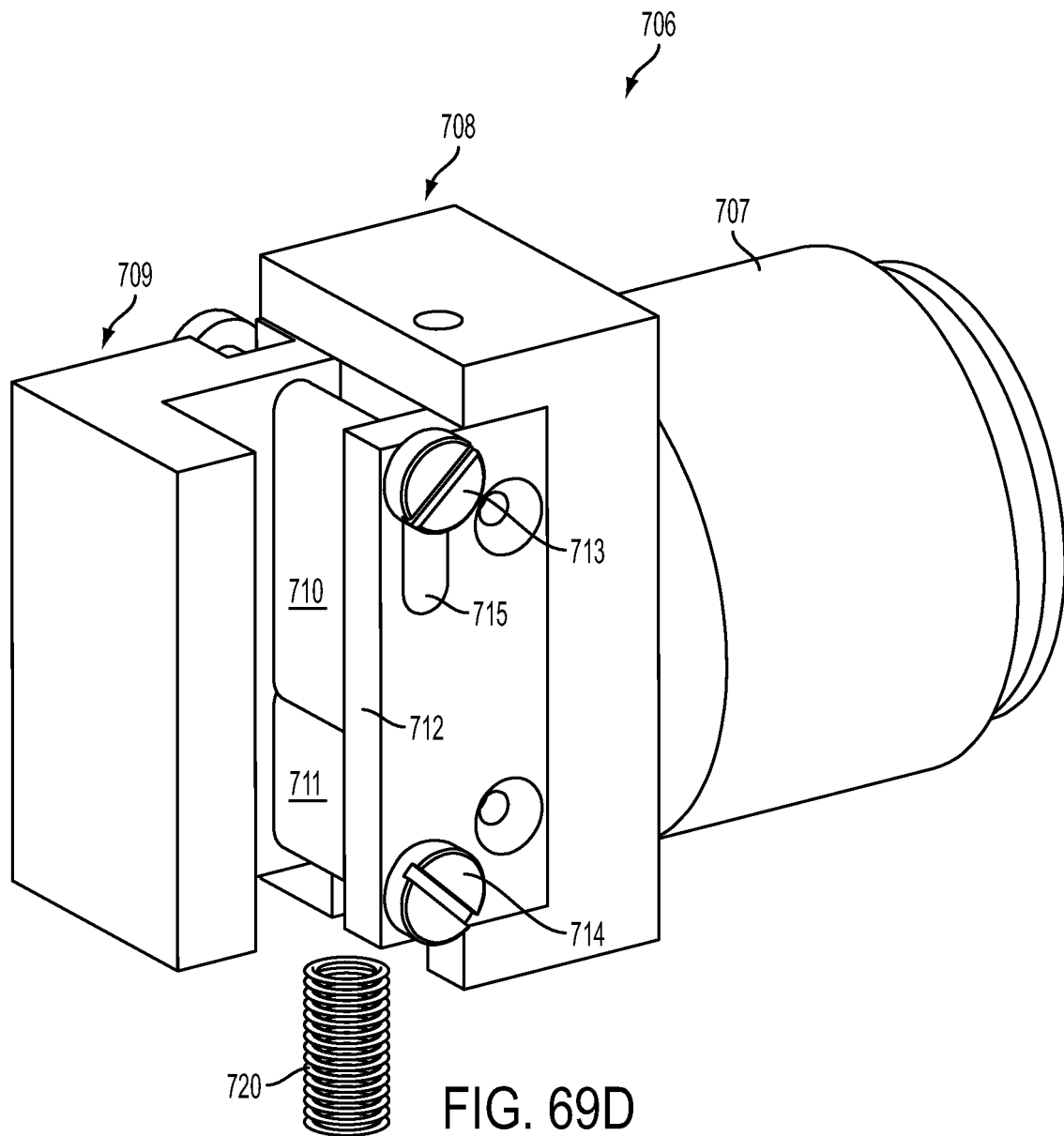


FIG. 69C

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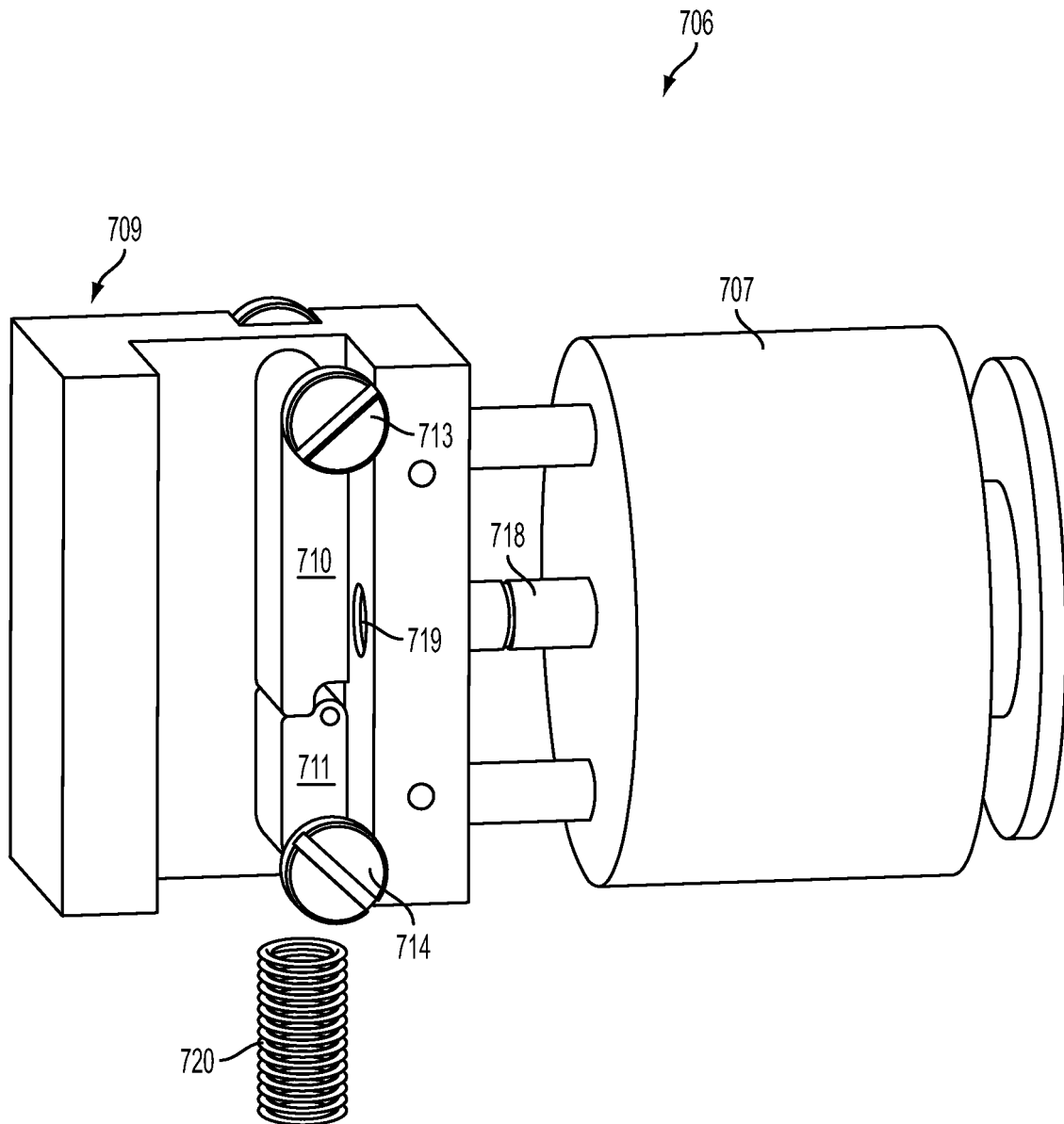


FIG. 69E

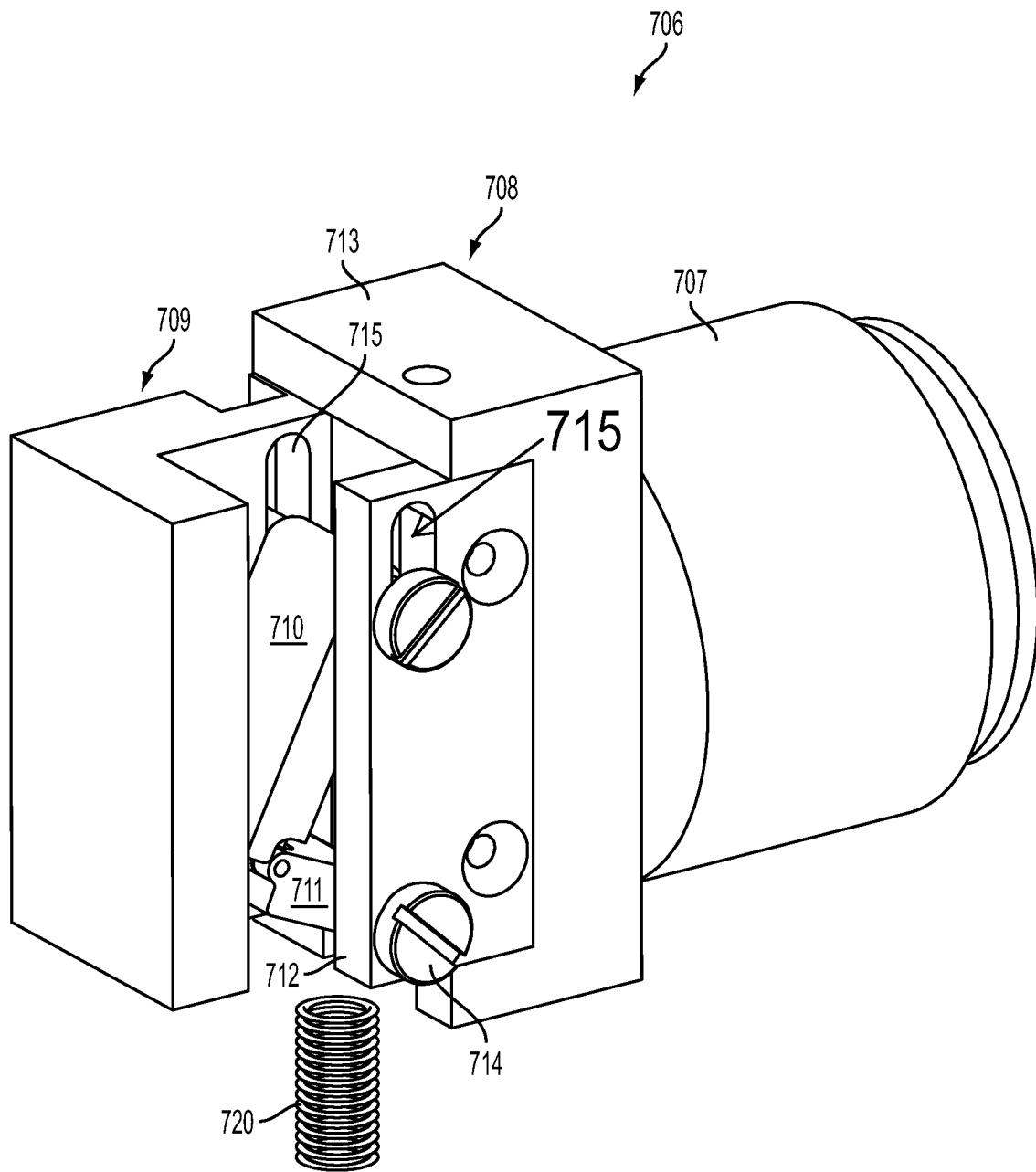


FIG. 69F

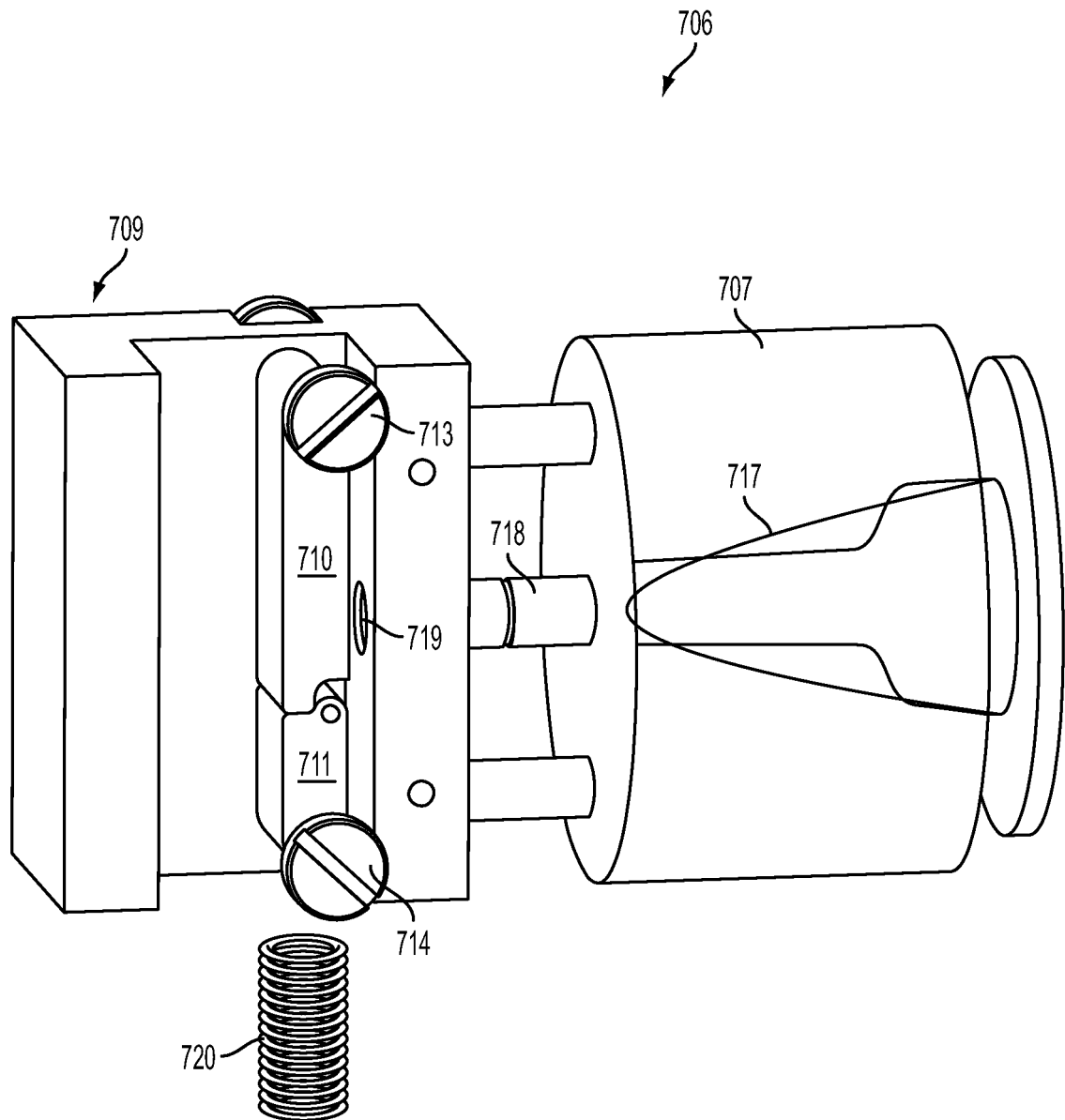


FIG. 69G

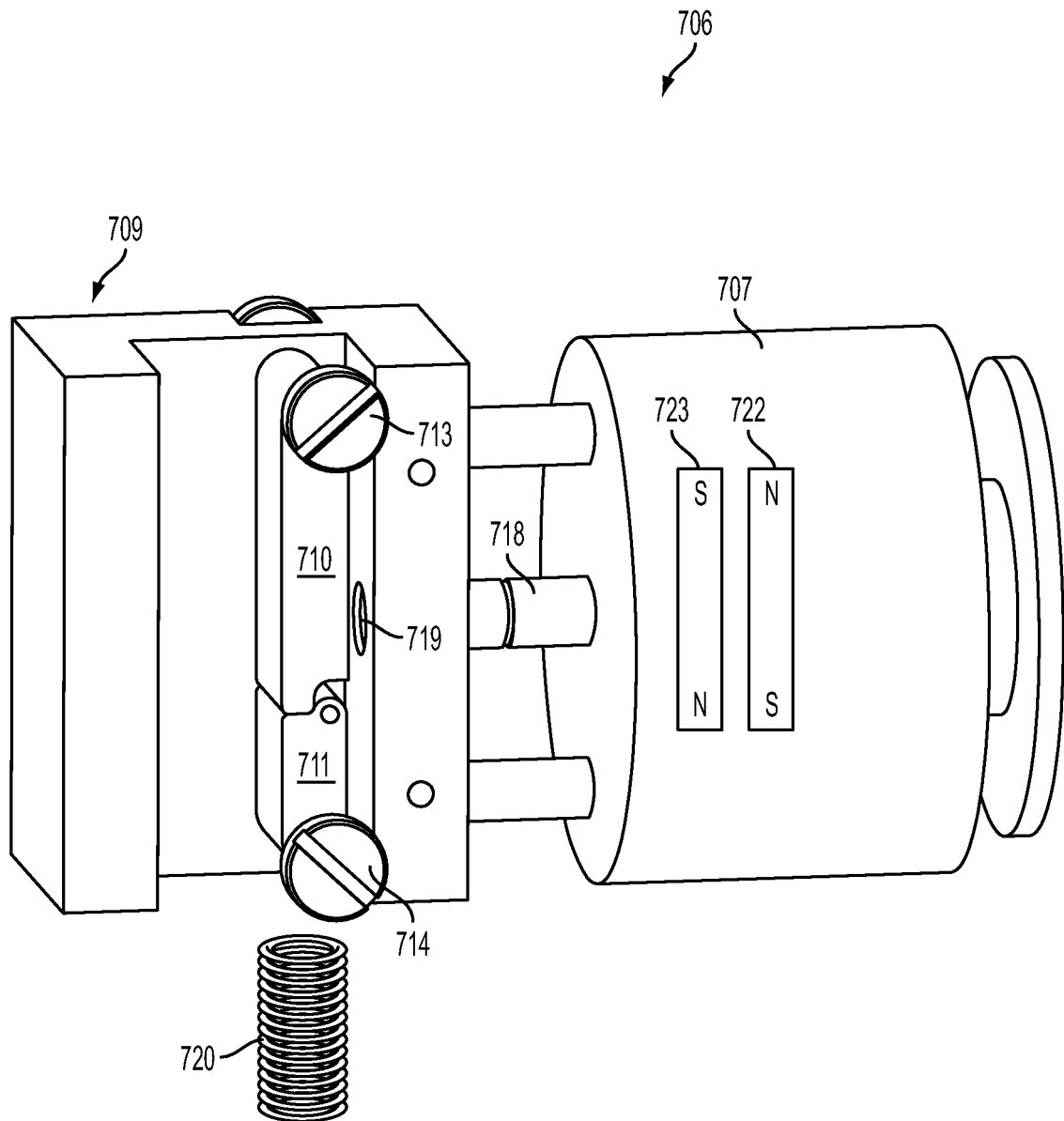


FIG. 69H

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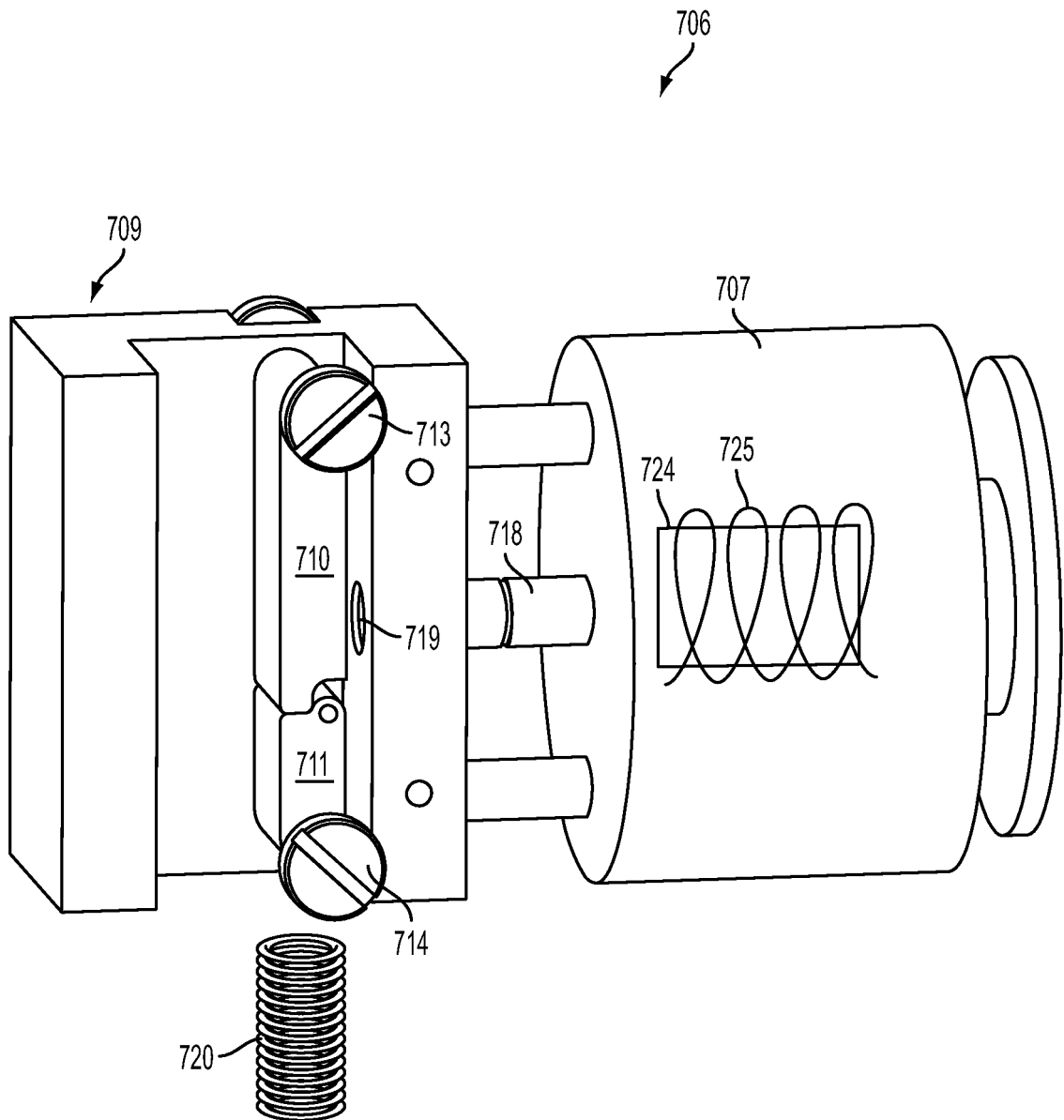


FIG. 69I

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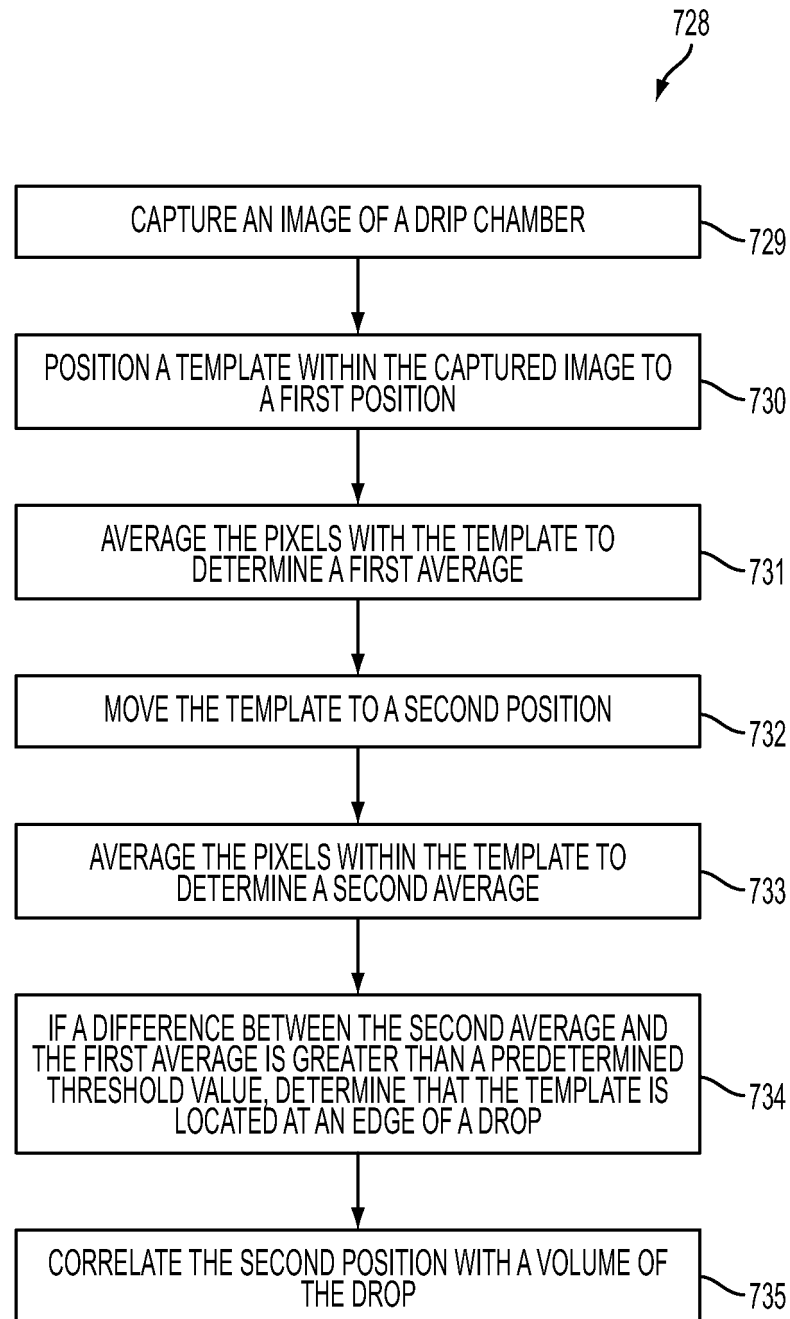


FIG. 70

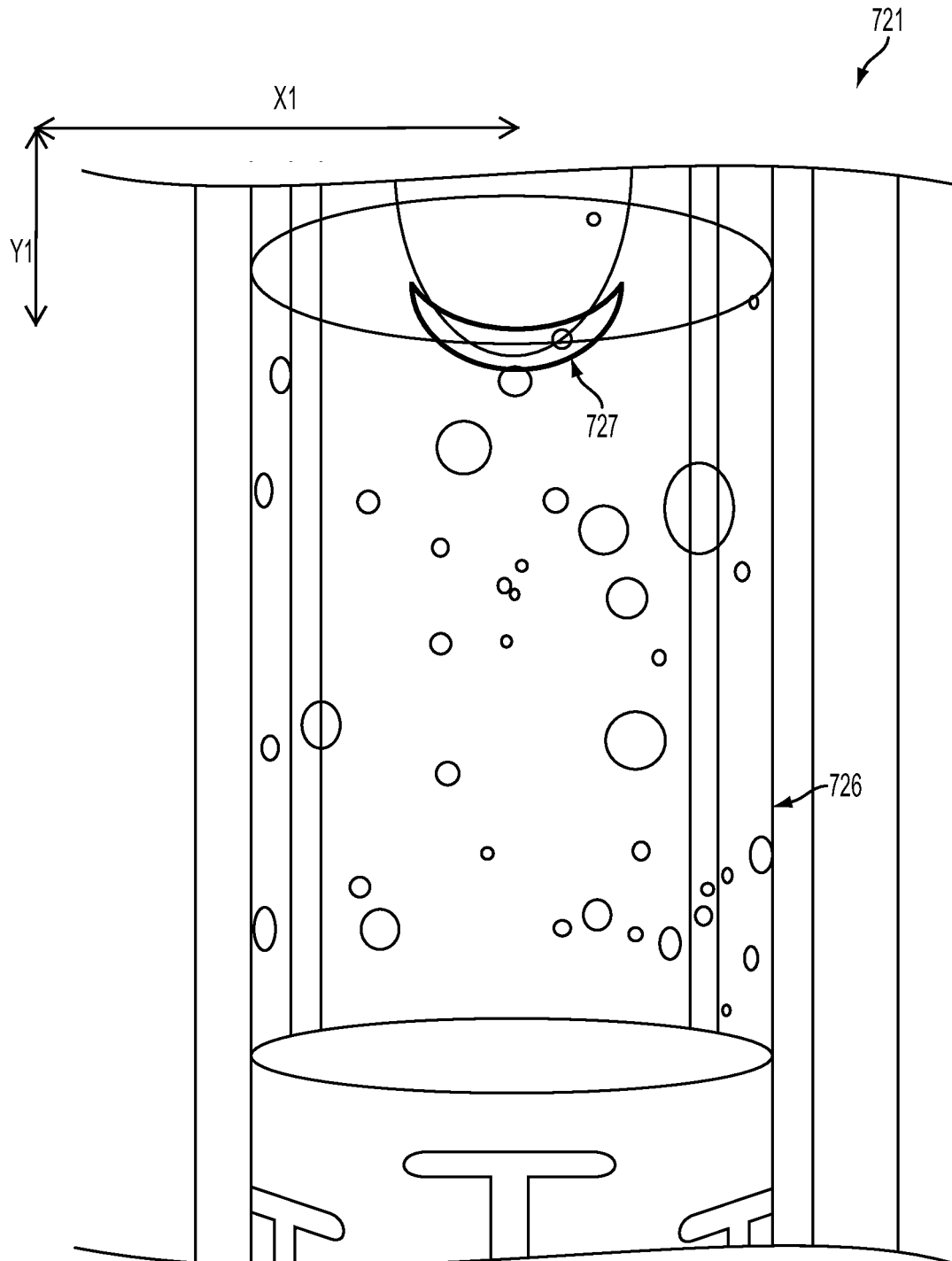


FIG. 71A

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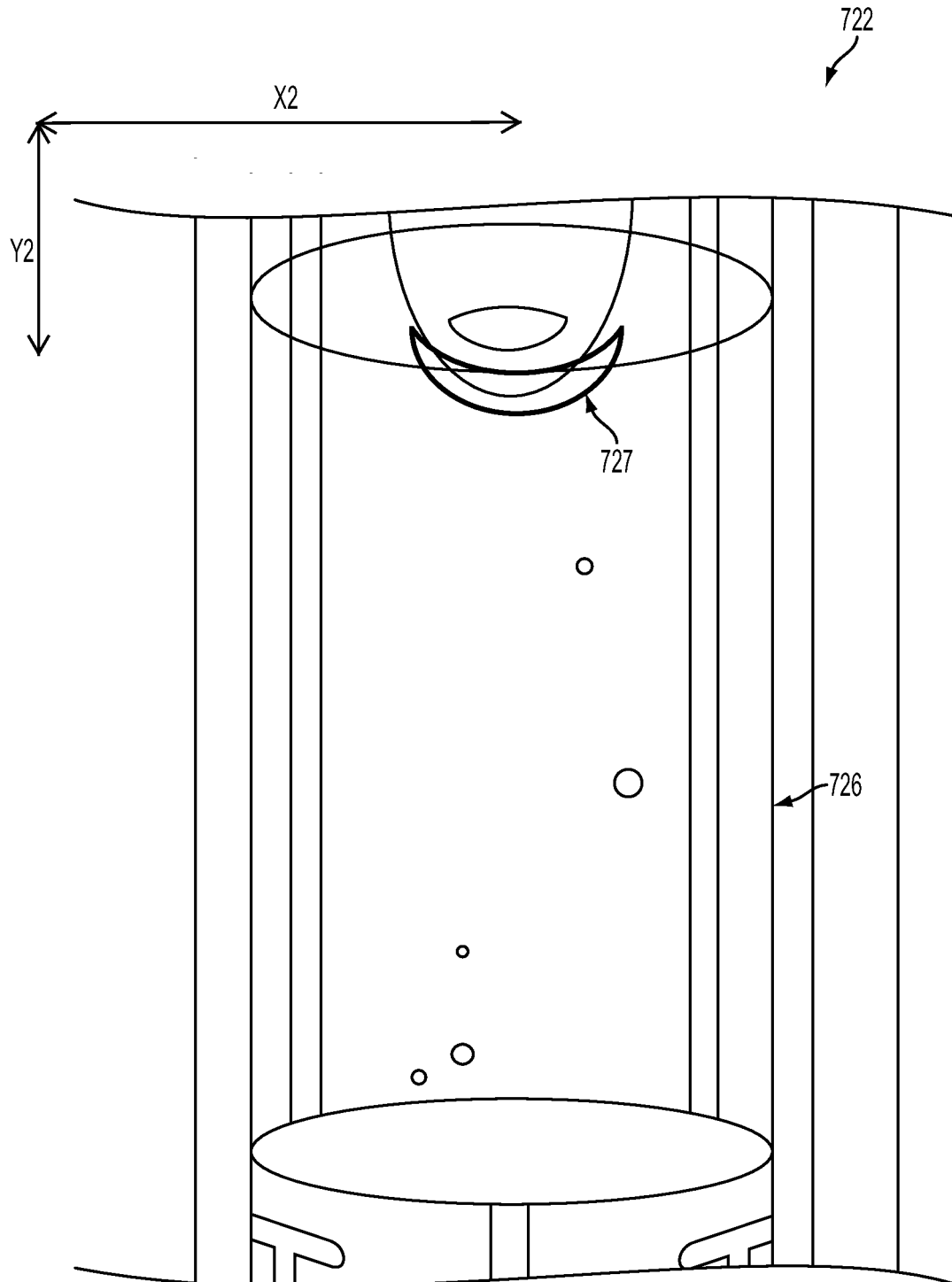


FIG. 71B

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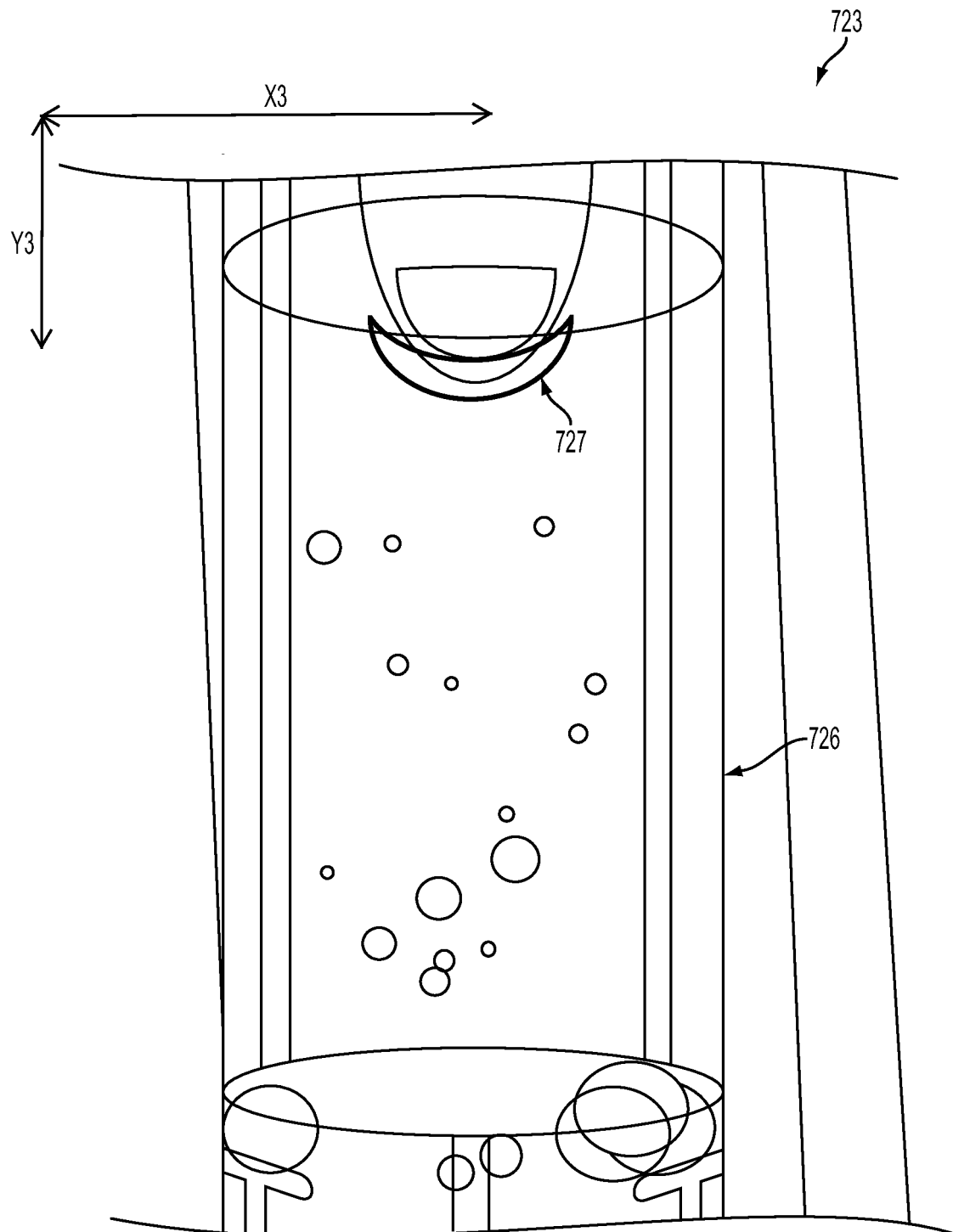


FIG. 71C

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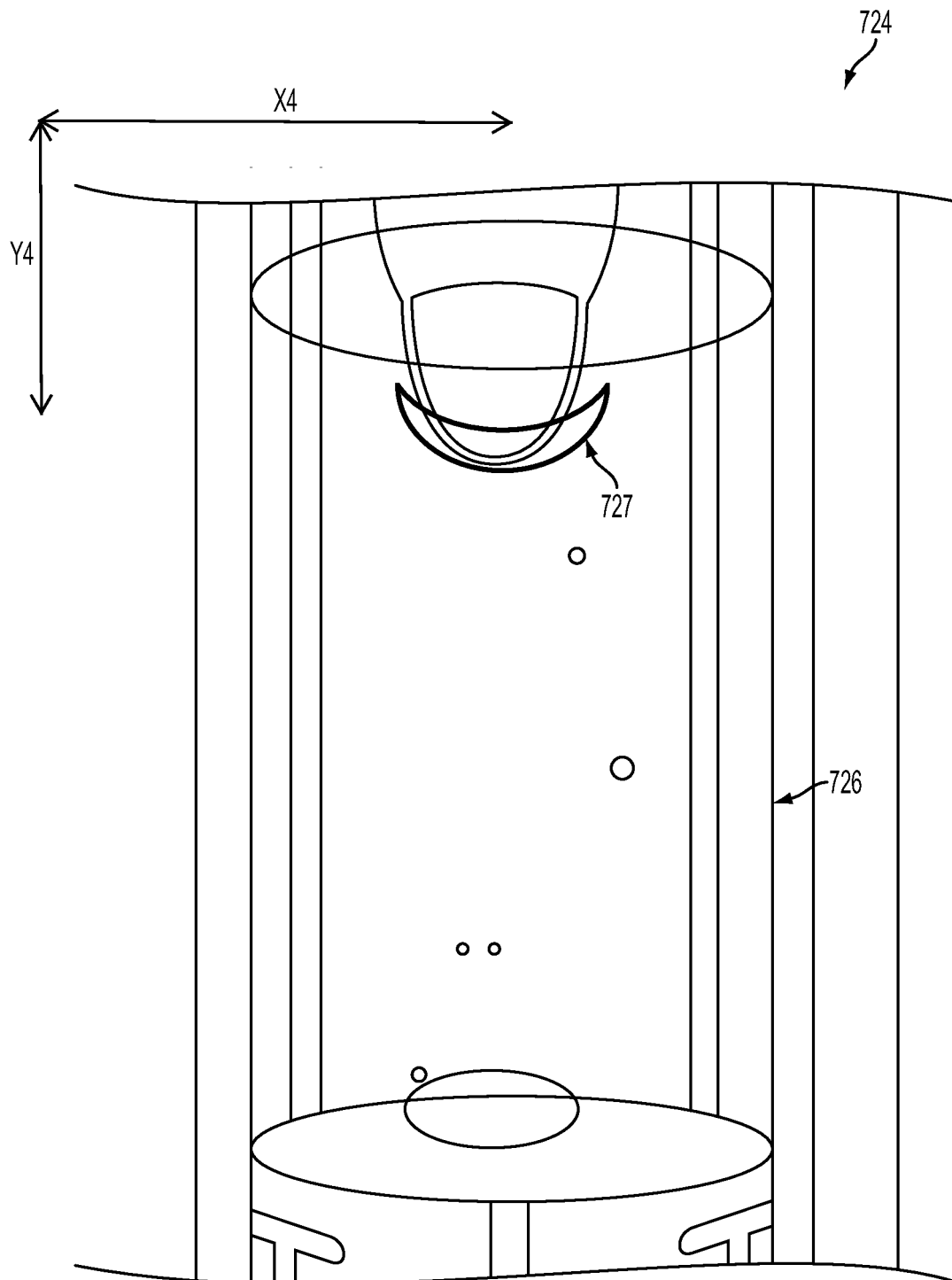


FIG. 71D

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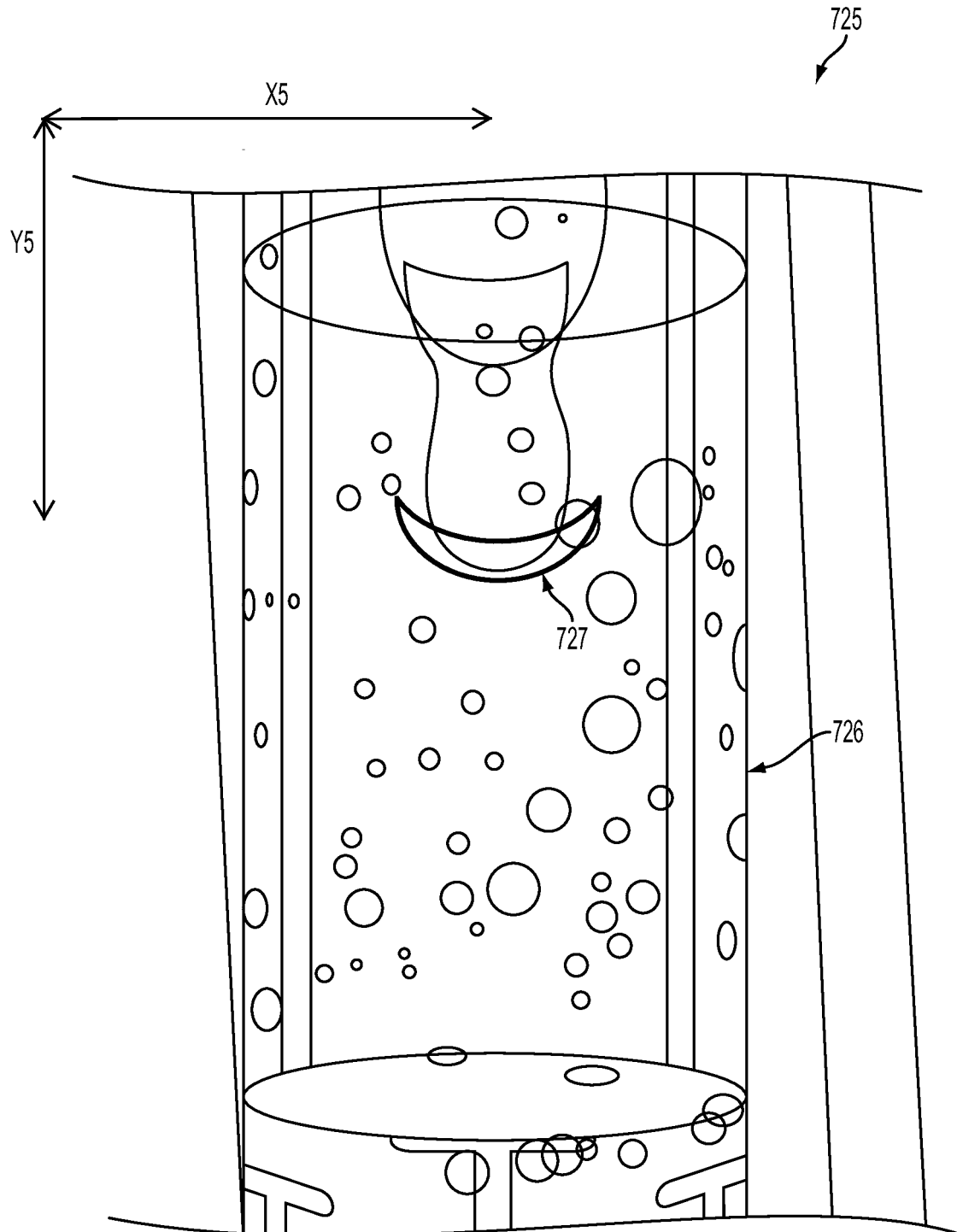


FIG. 71E

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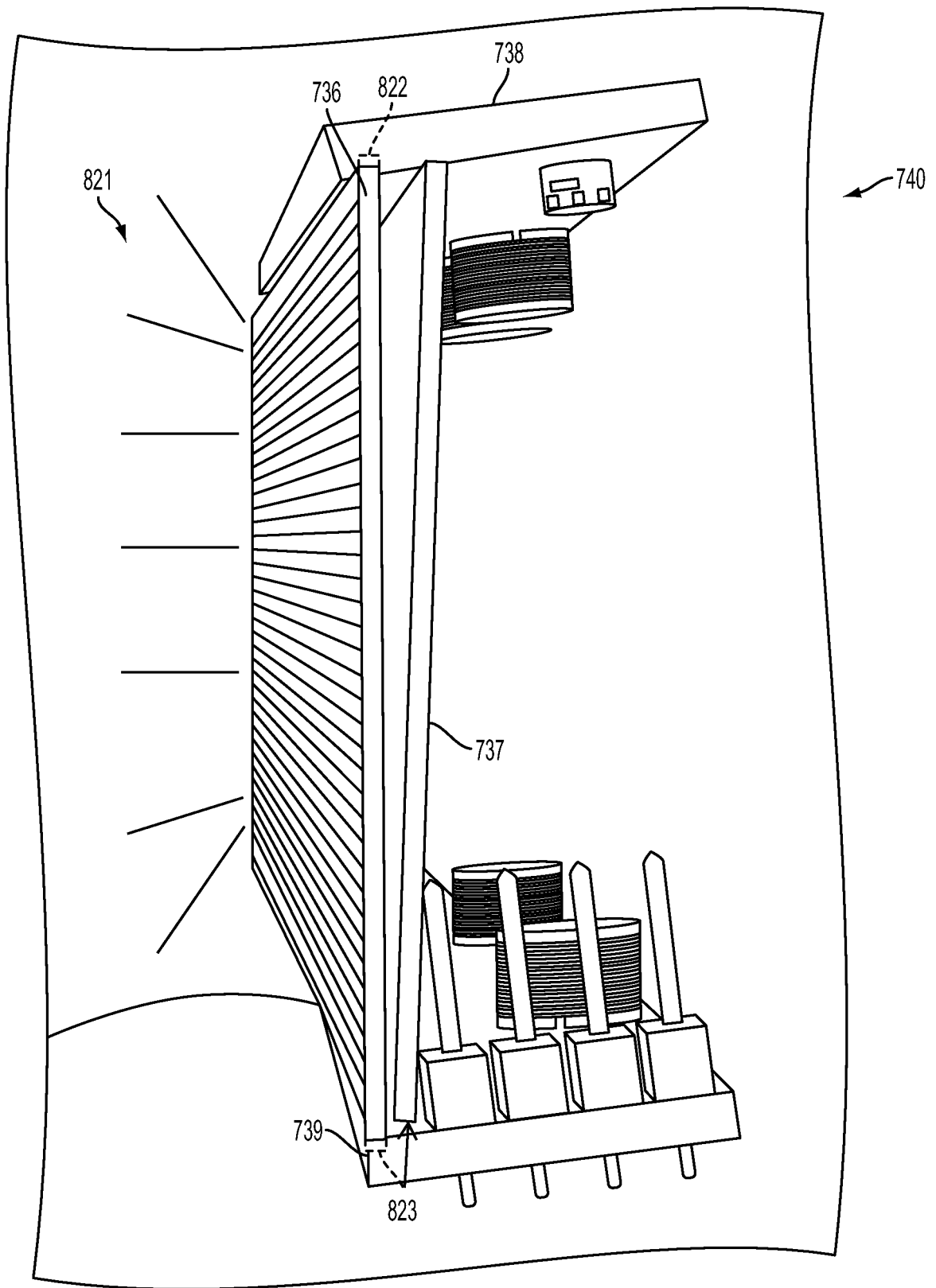


FIG. 72

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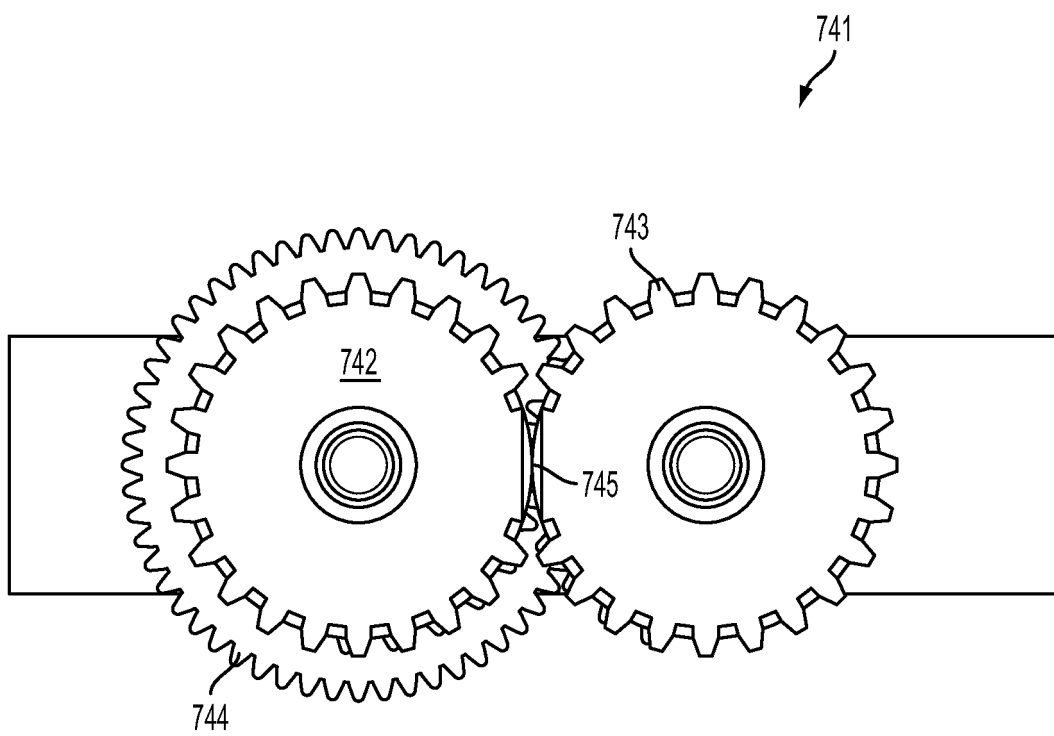


FIG. 73A

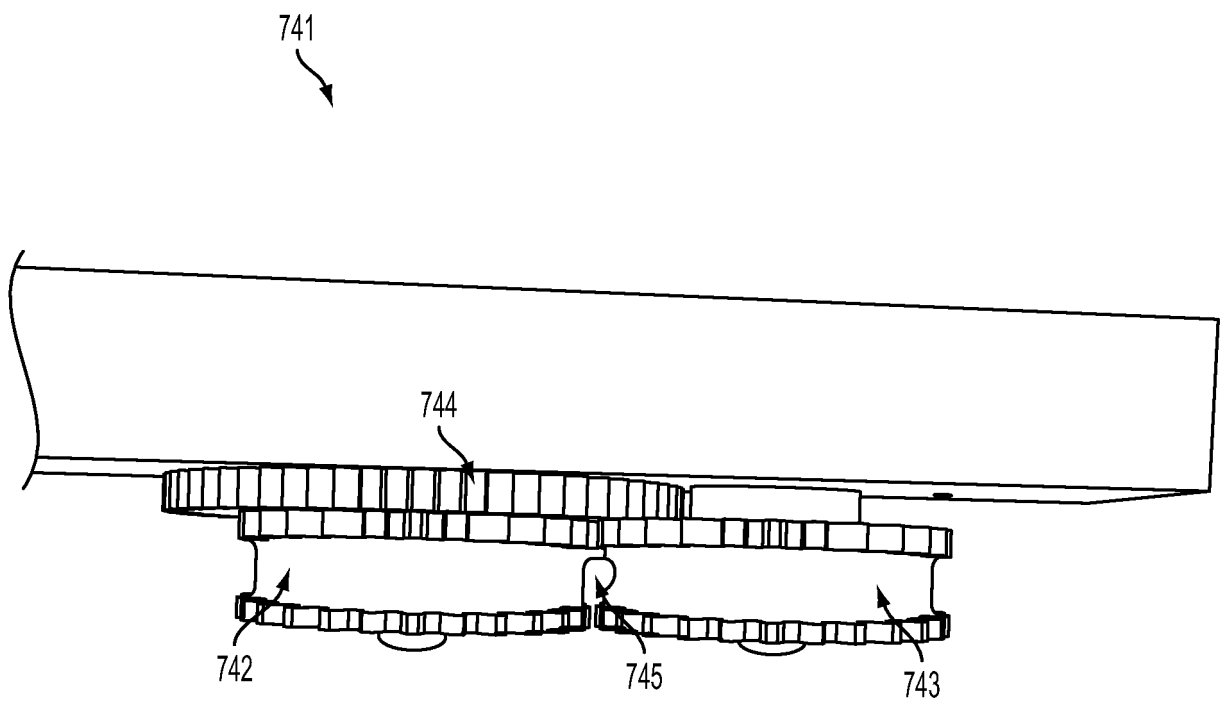


FIG. 73B

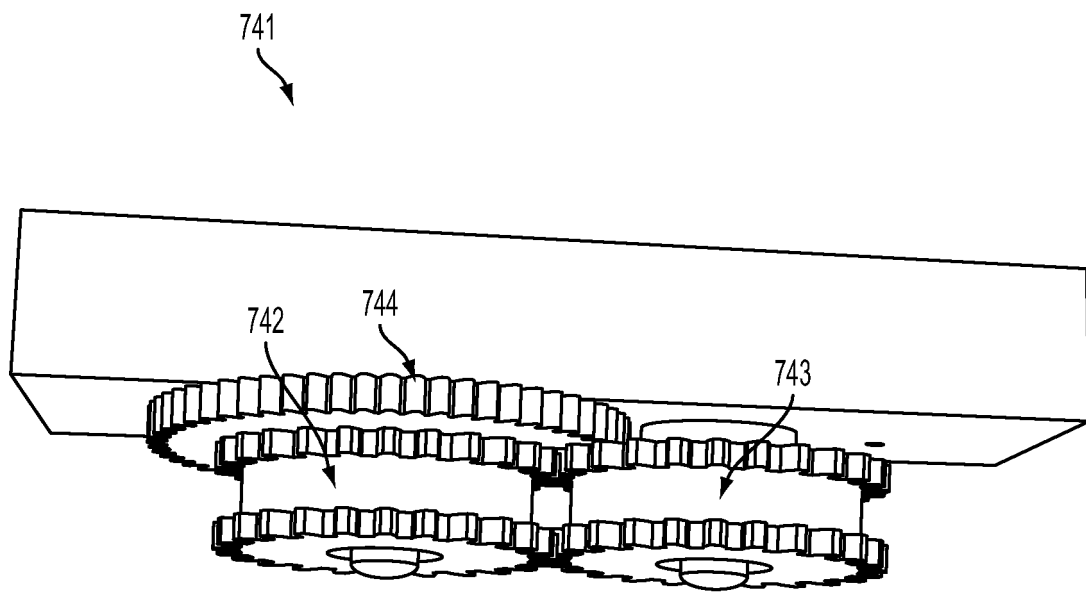


FIG. 73C

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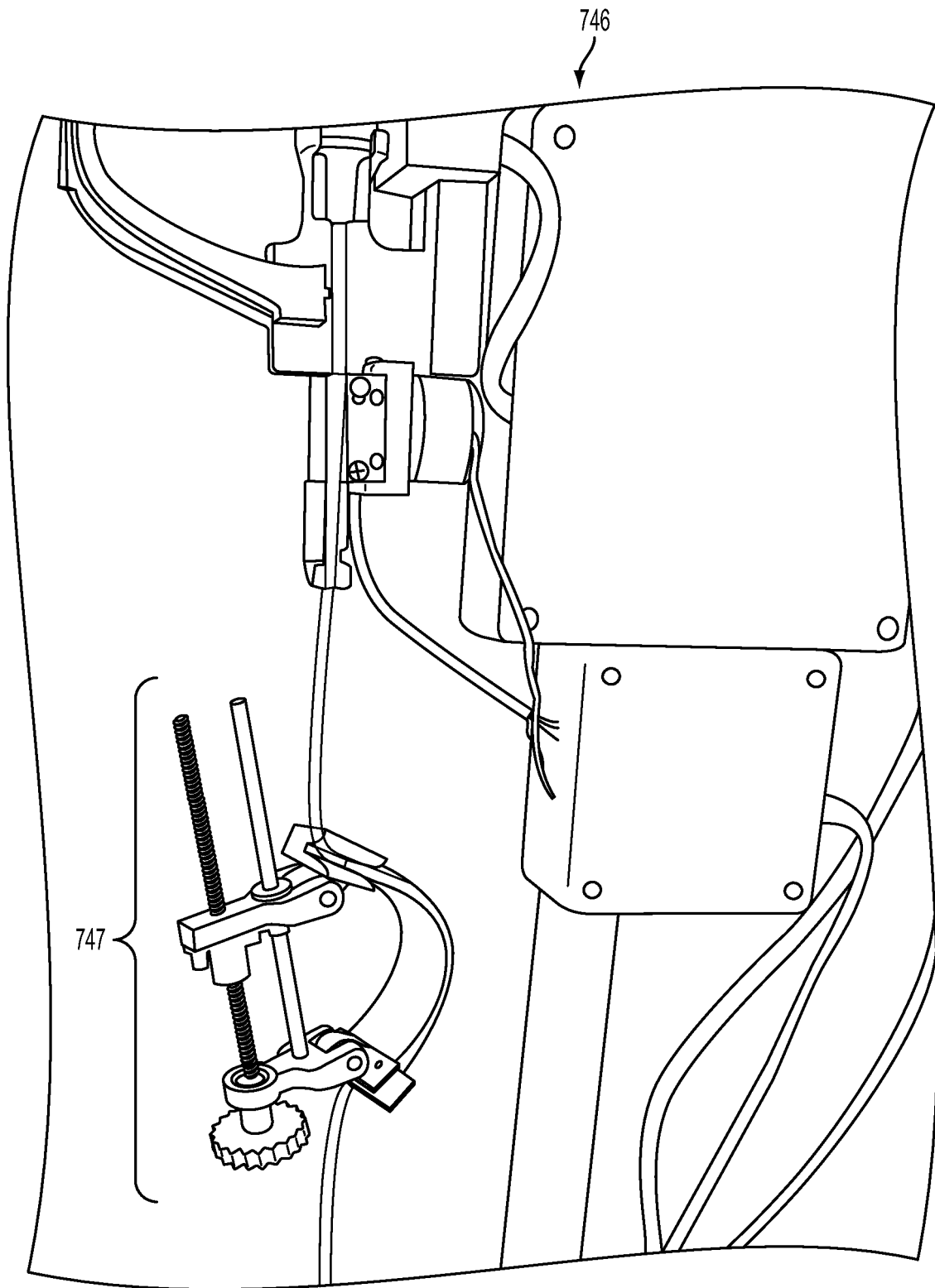


FIG.74

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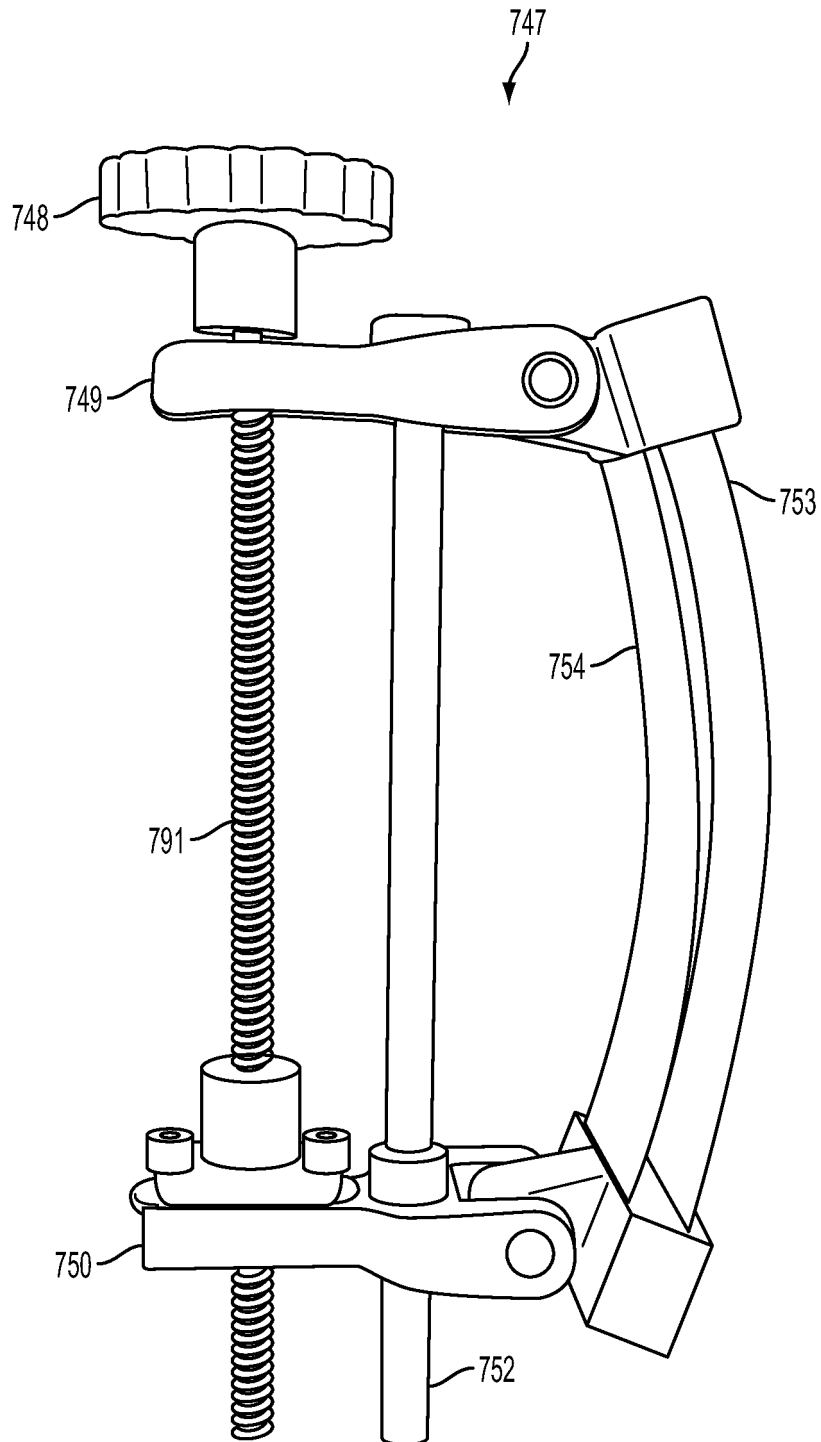


FIG.75

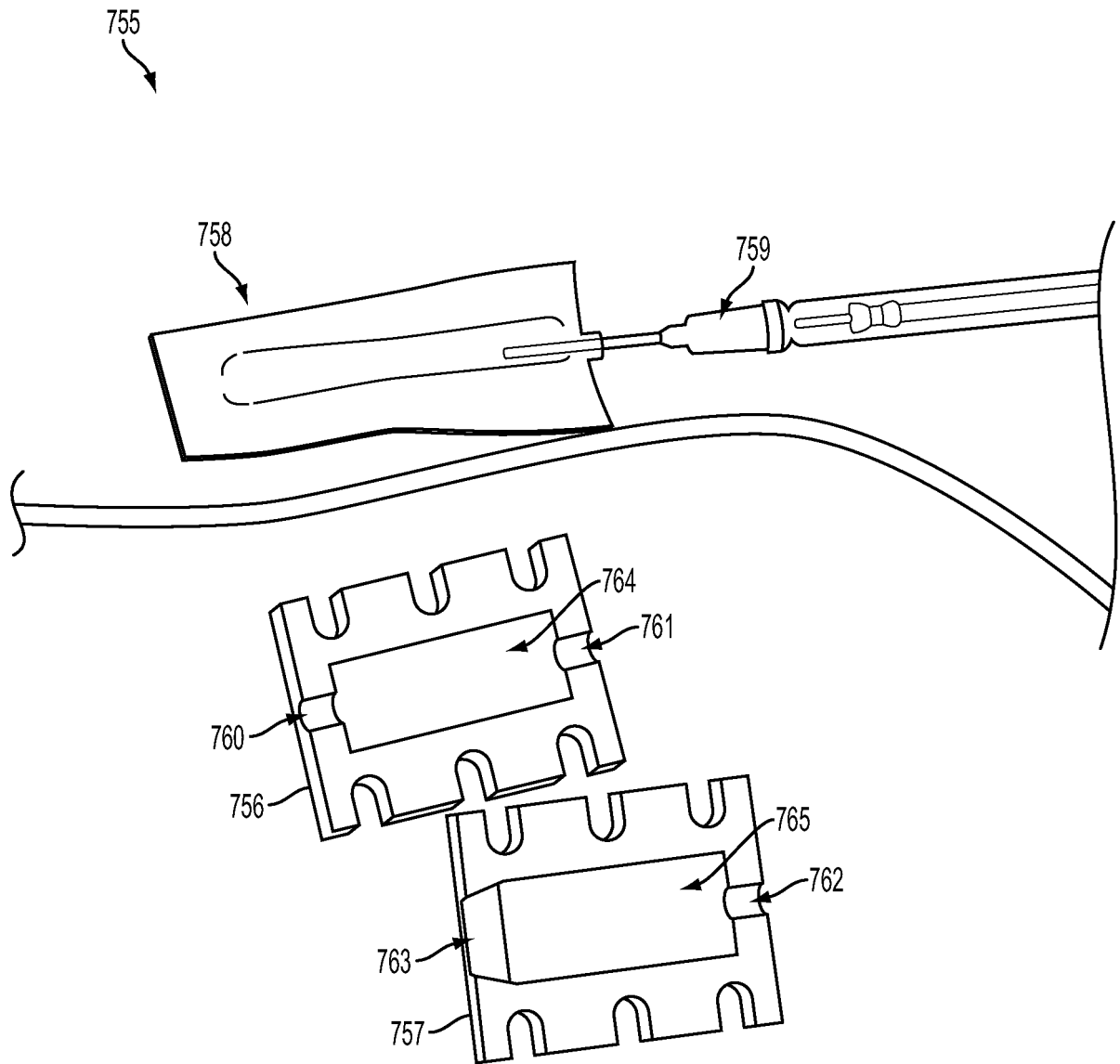


FIG. 76A

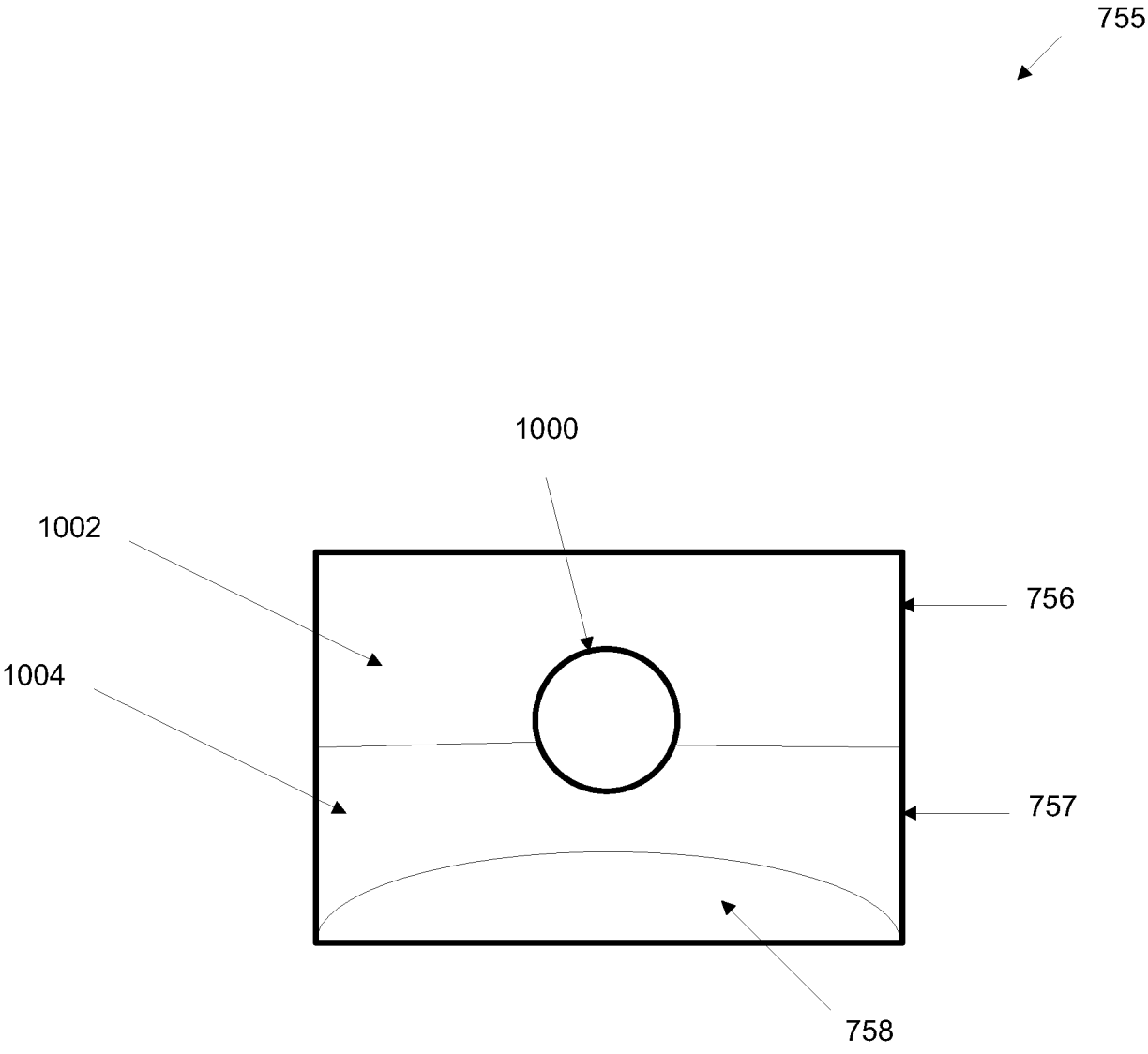


Fig. 76B

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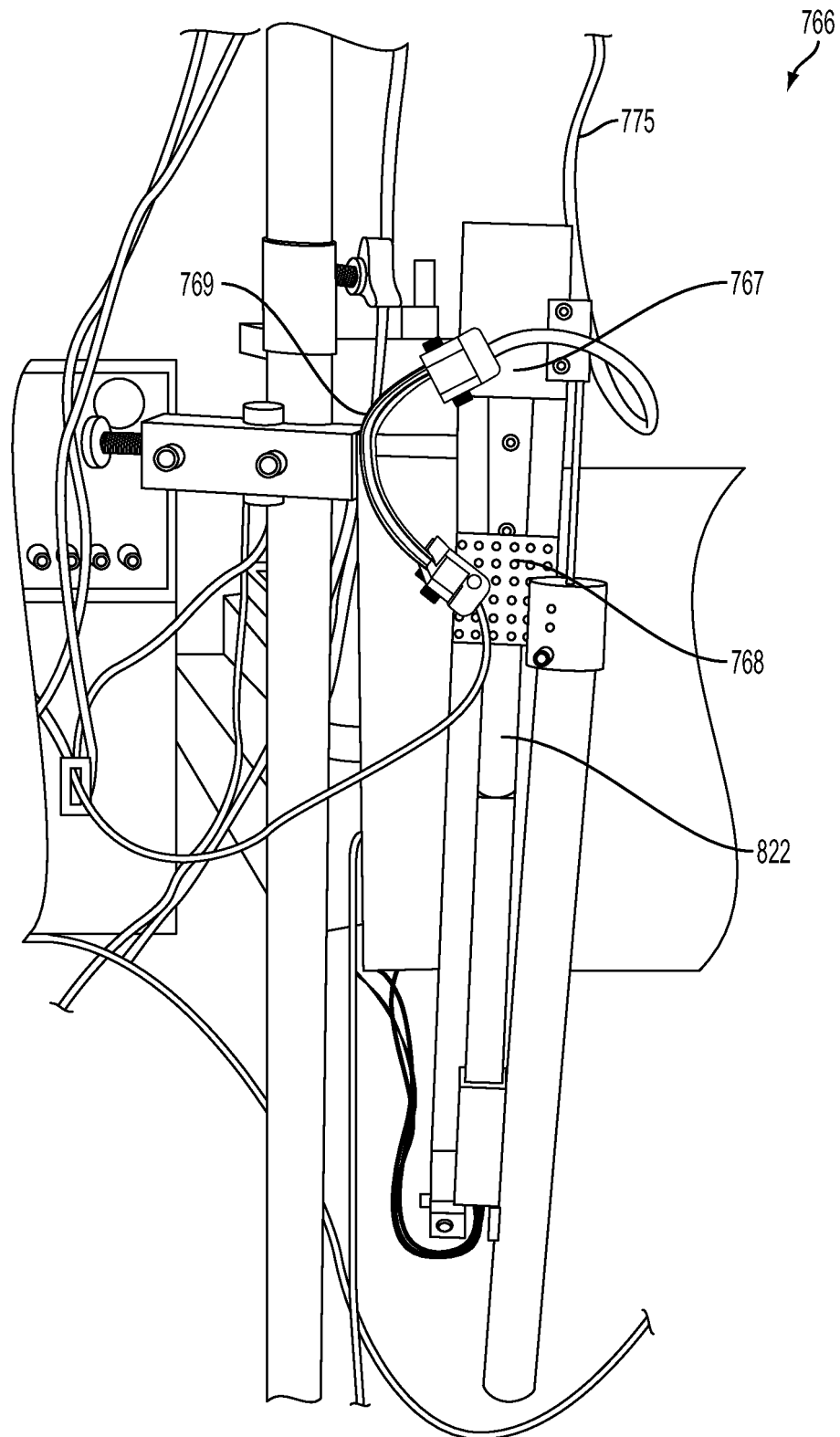


FIG. 77

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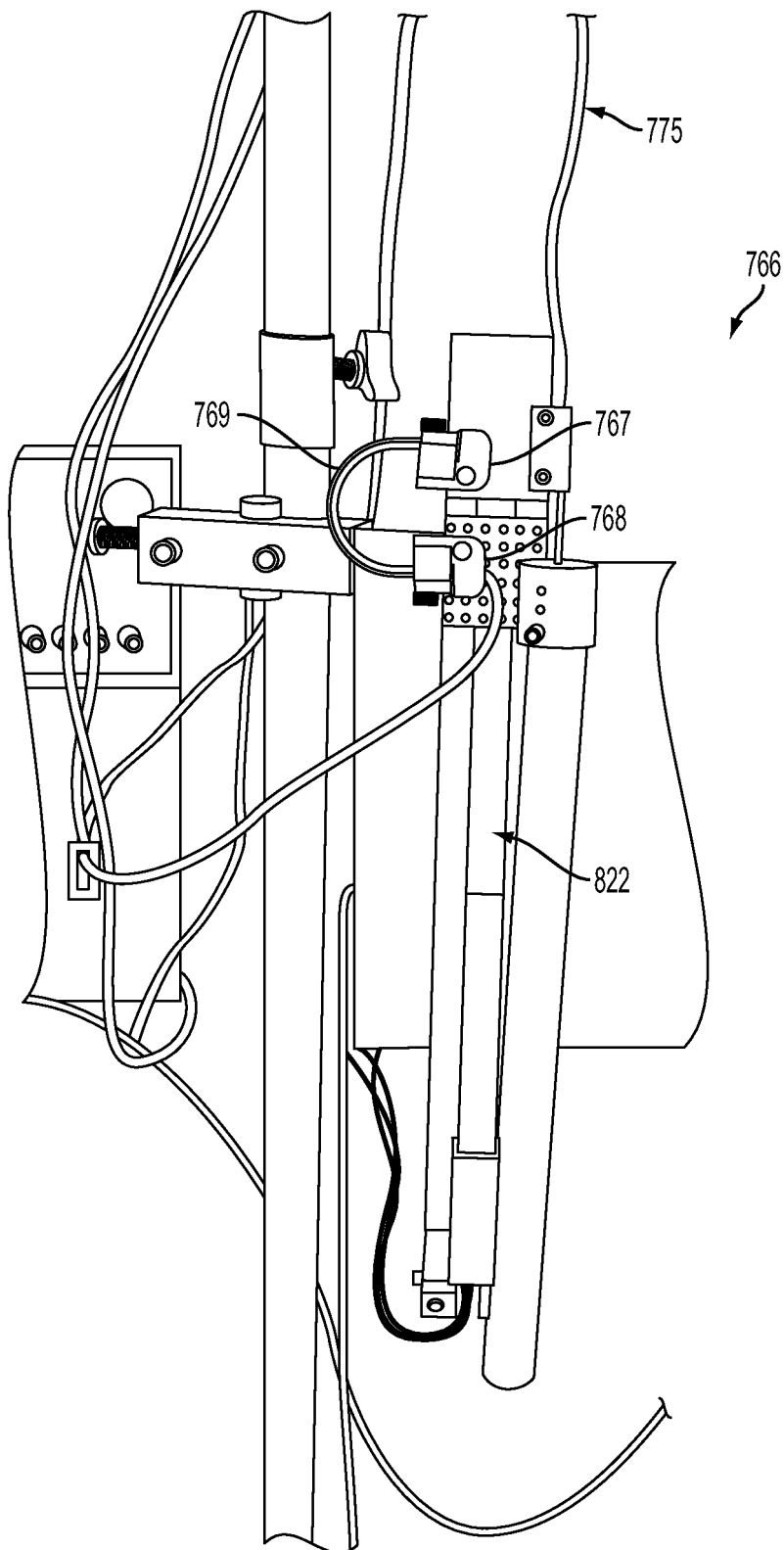


FIG. 78

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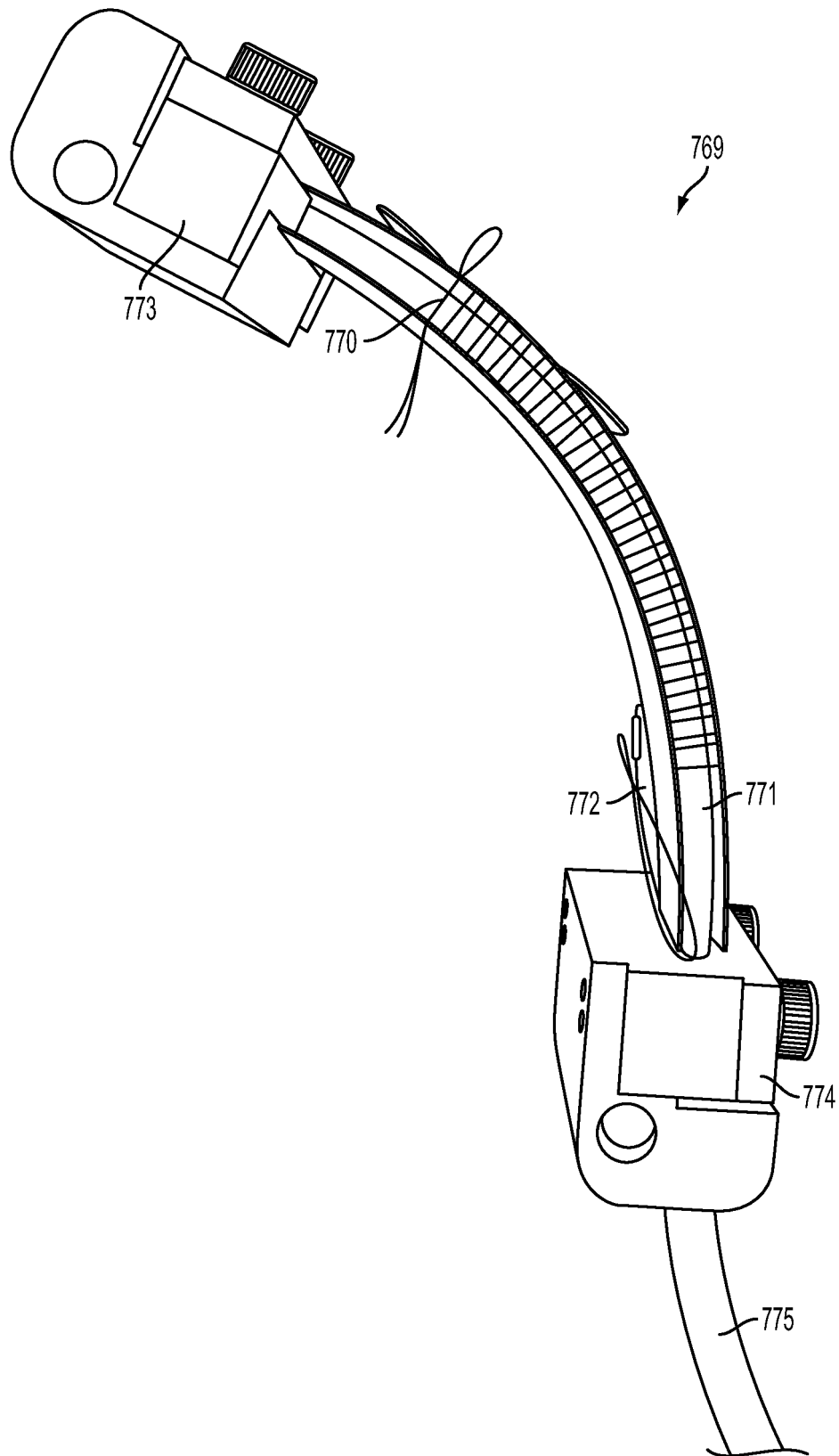


FIG. 79

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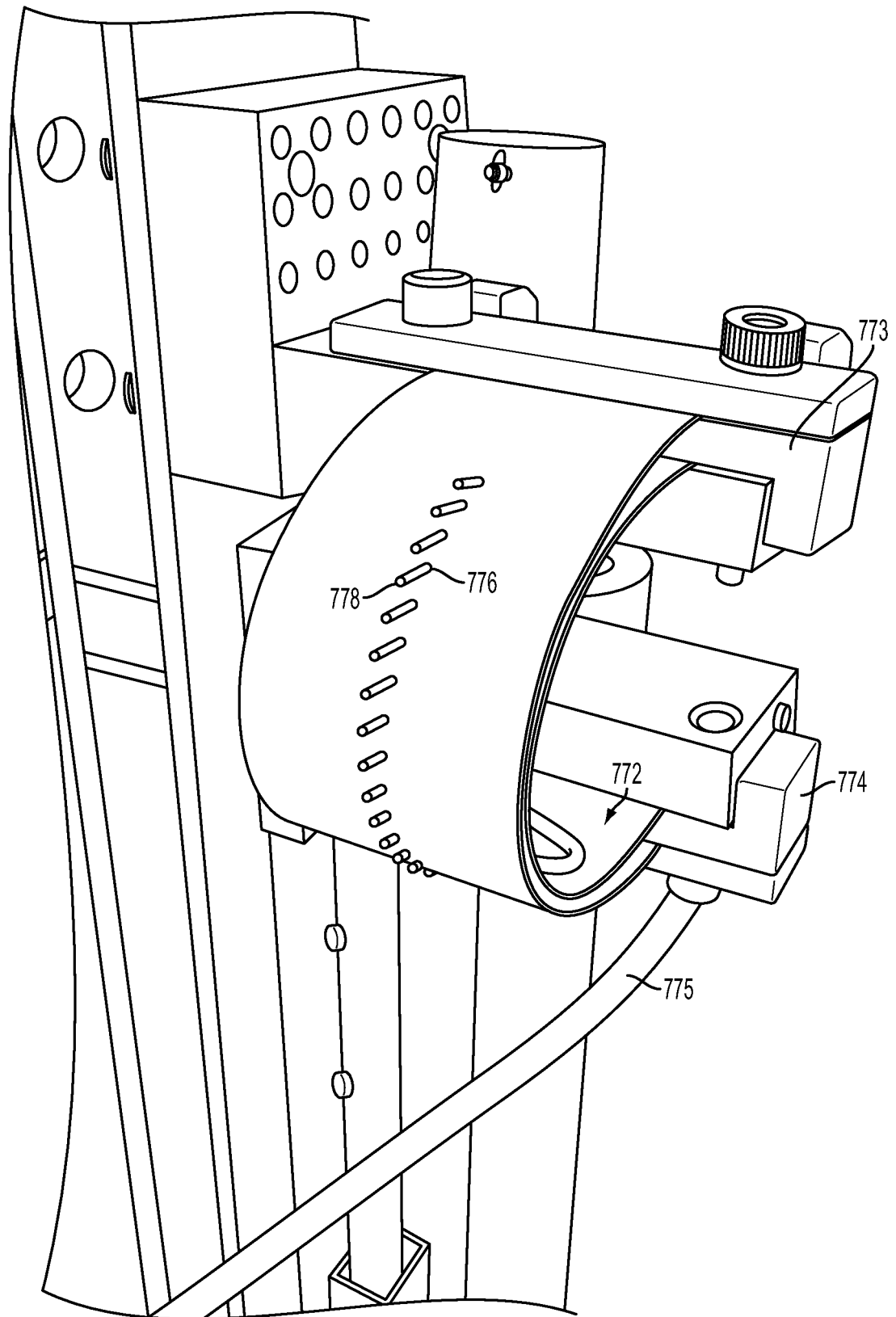


FIG. 80

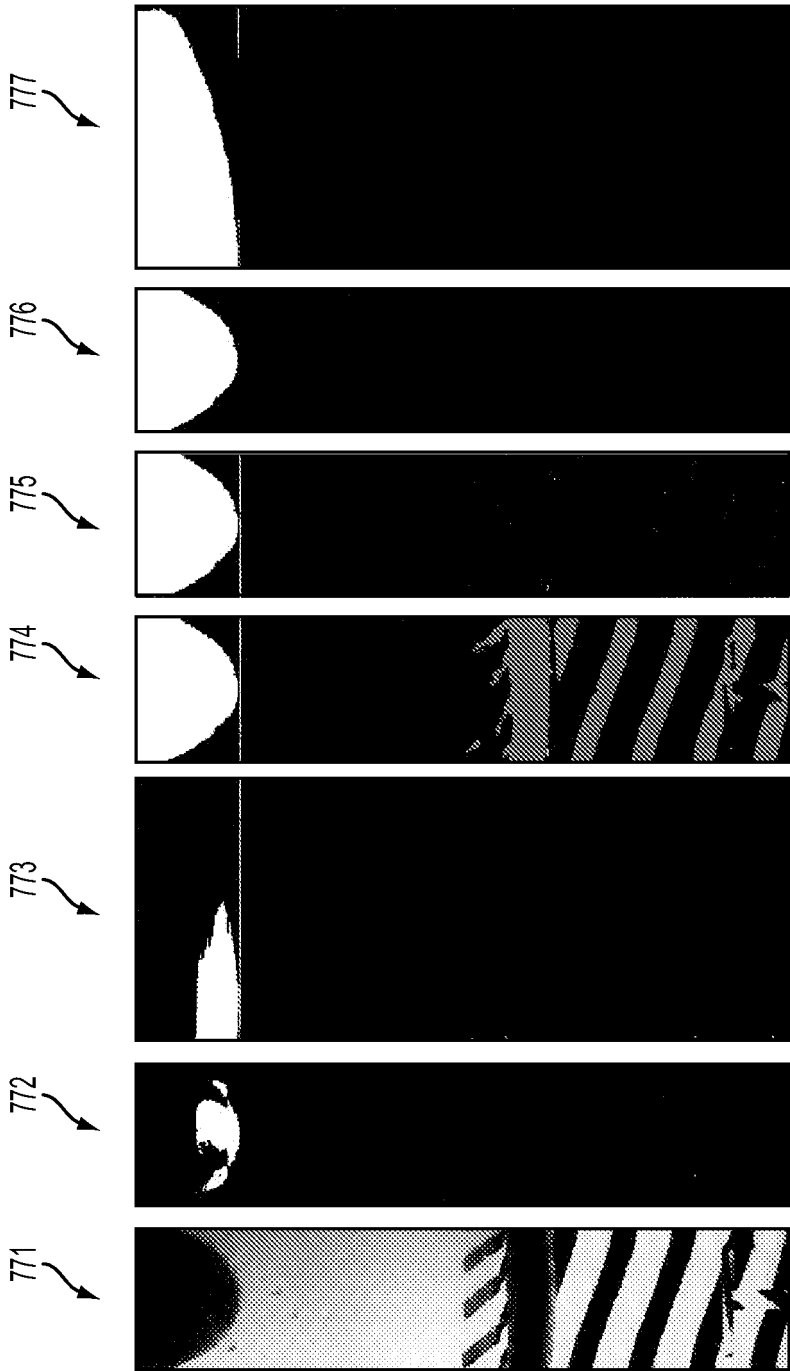


FIG. 81

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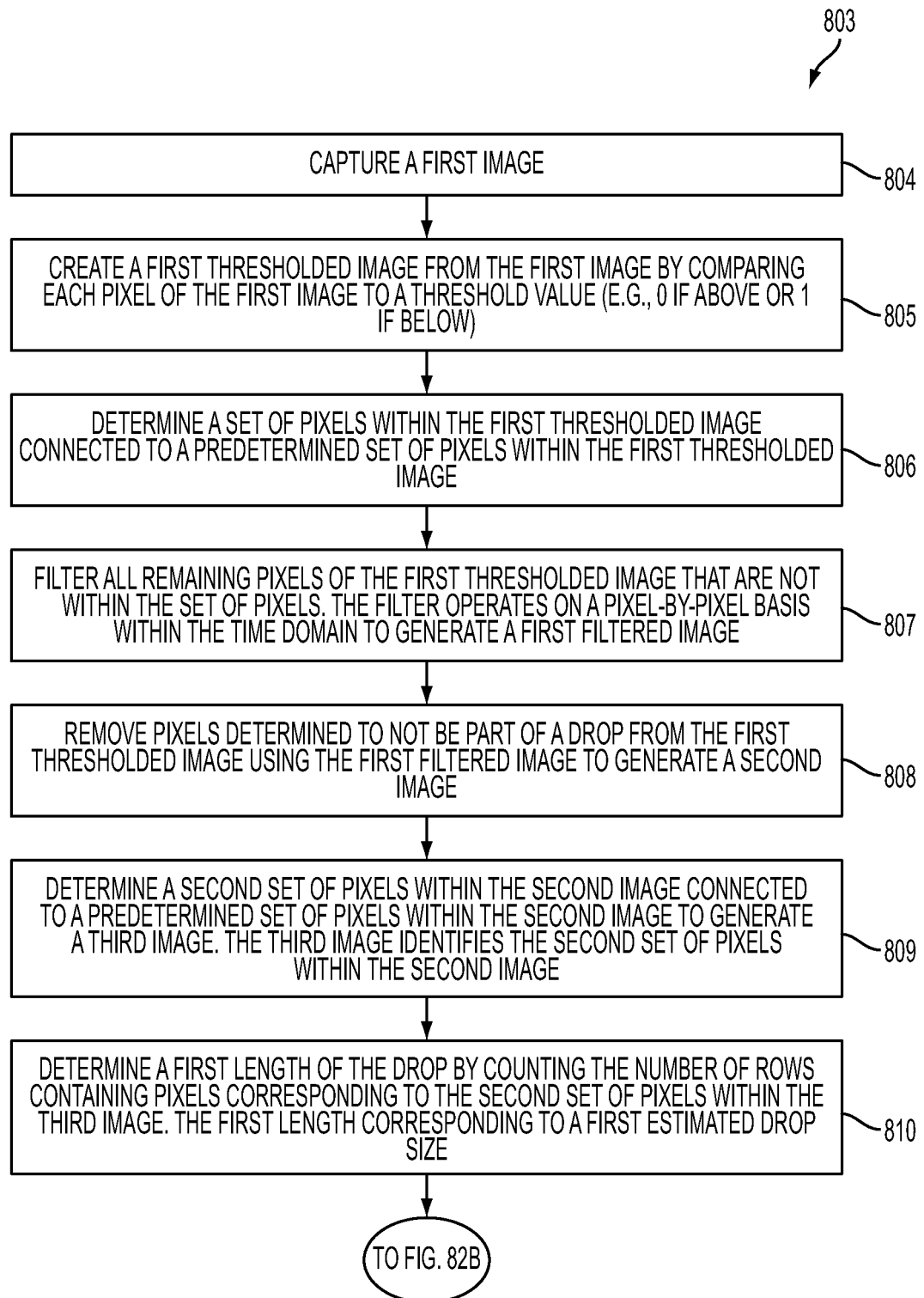


FIG. 82A

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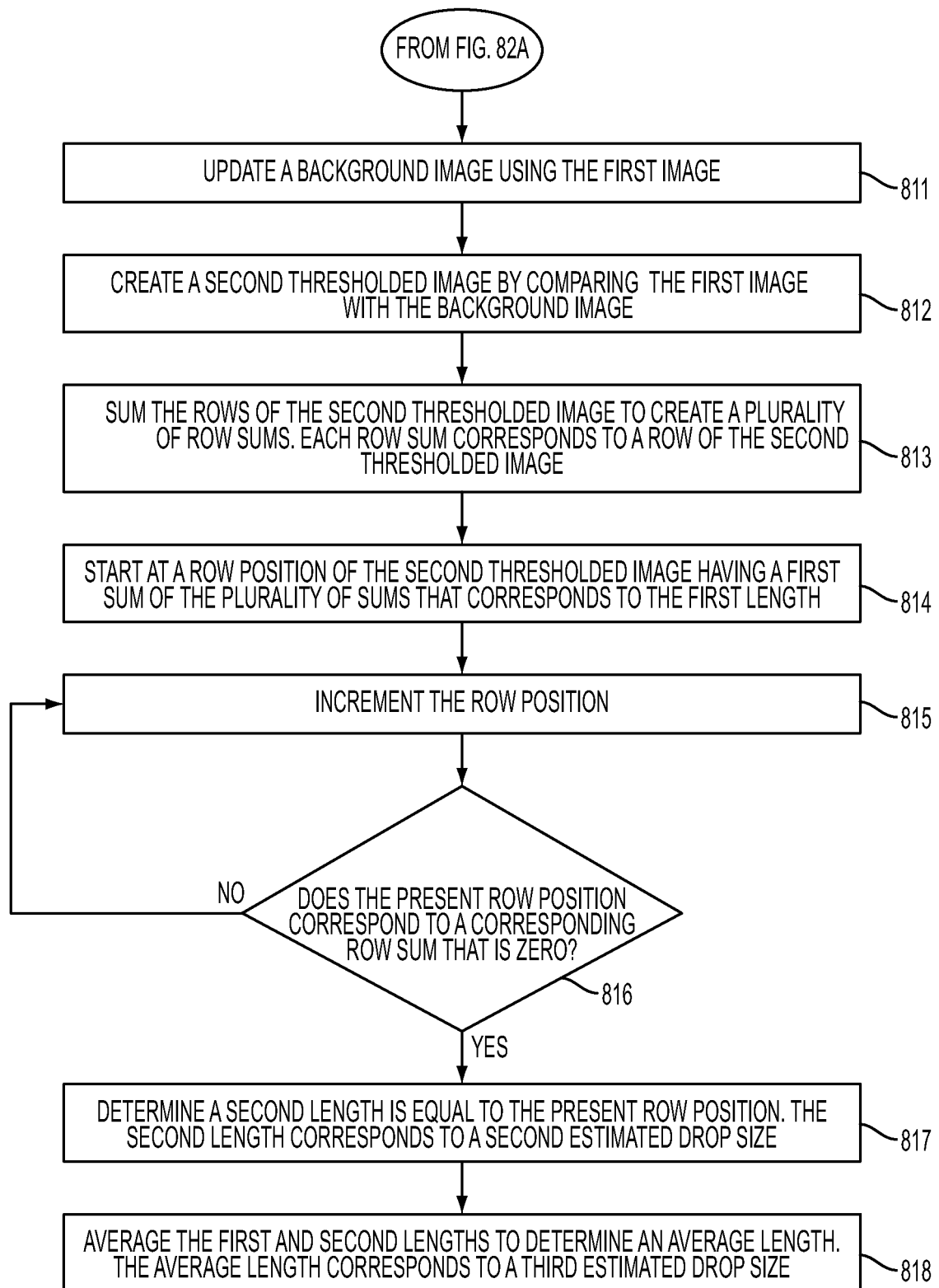


FIG. 82B

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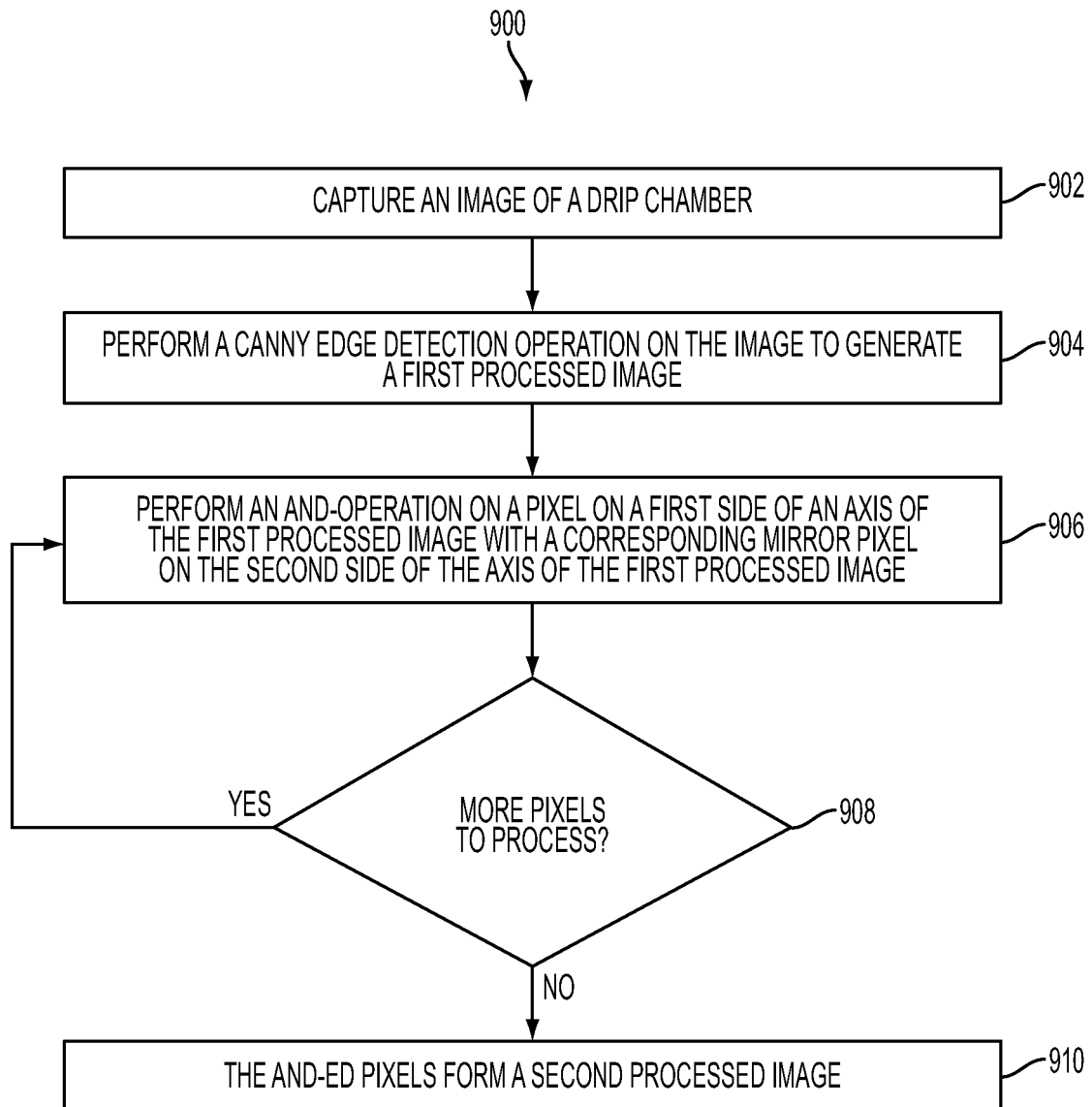


FIG. 83

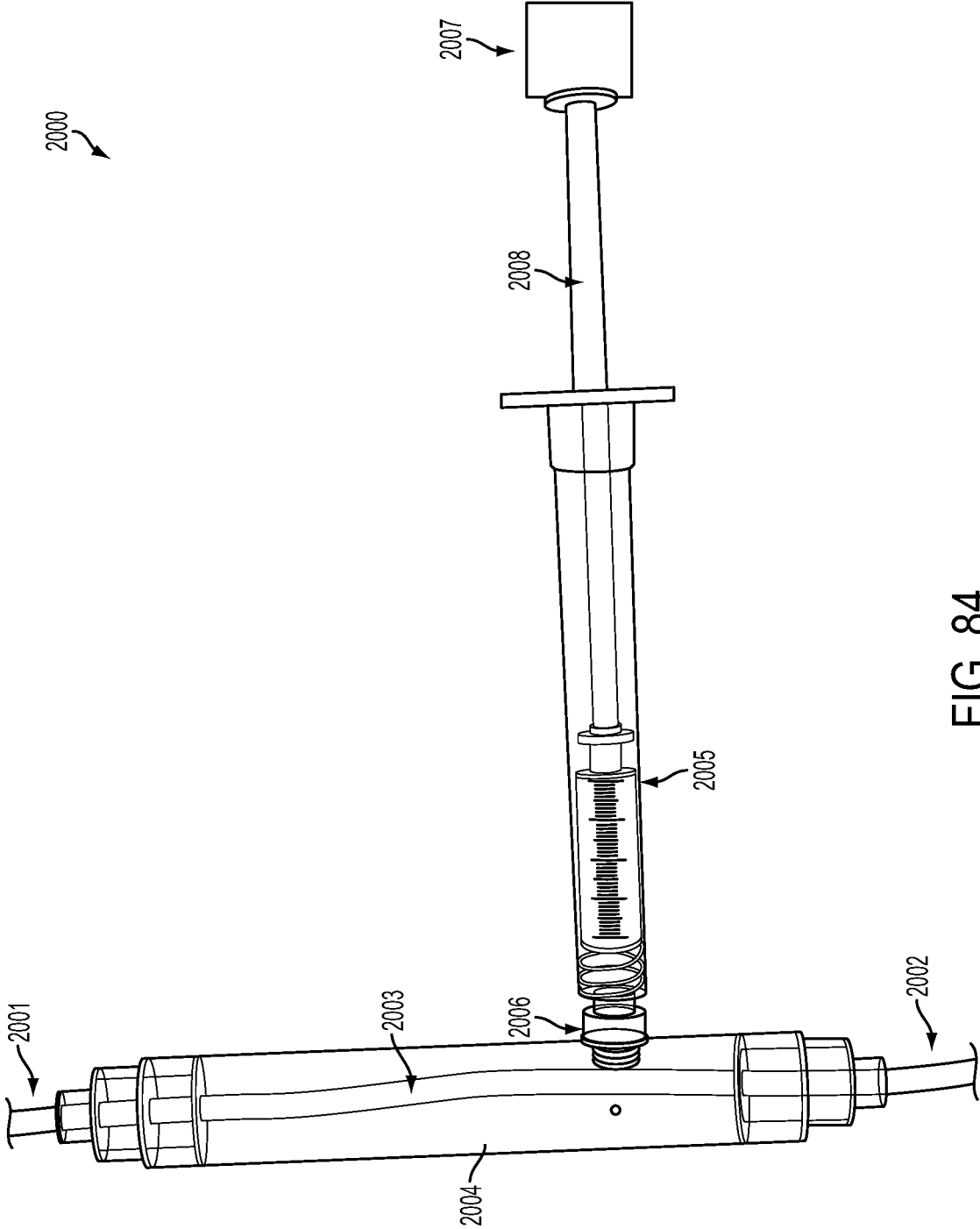


FIG. 84

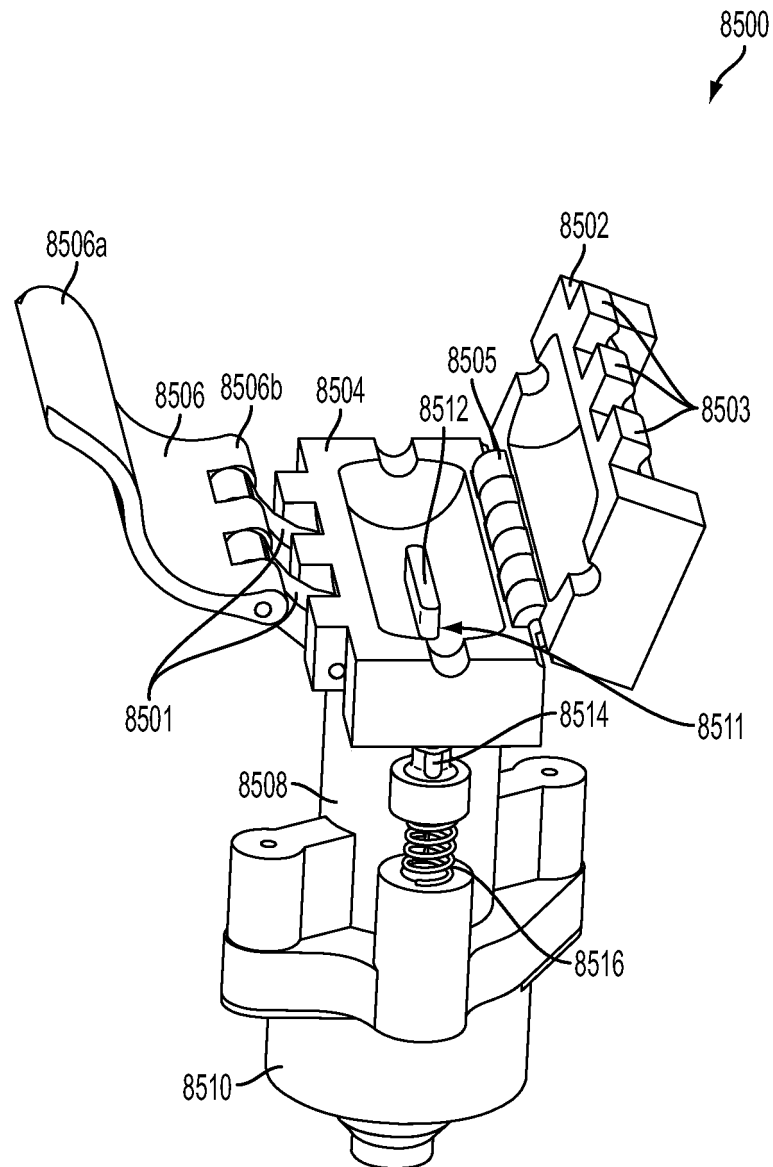


FIG. 85A

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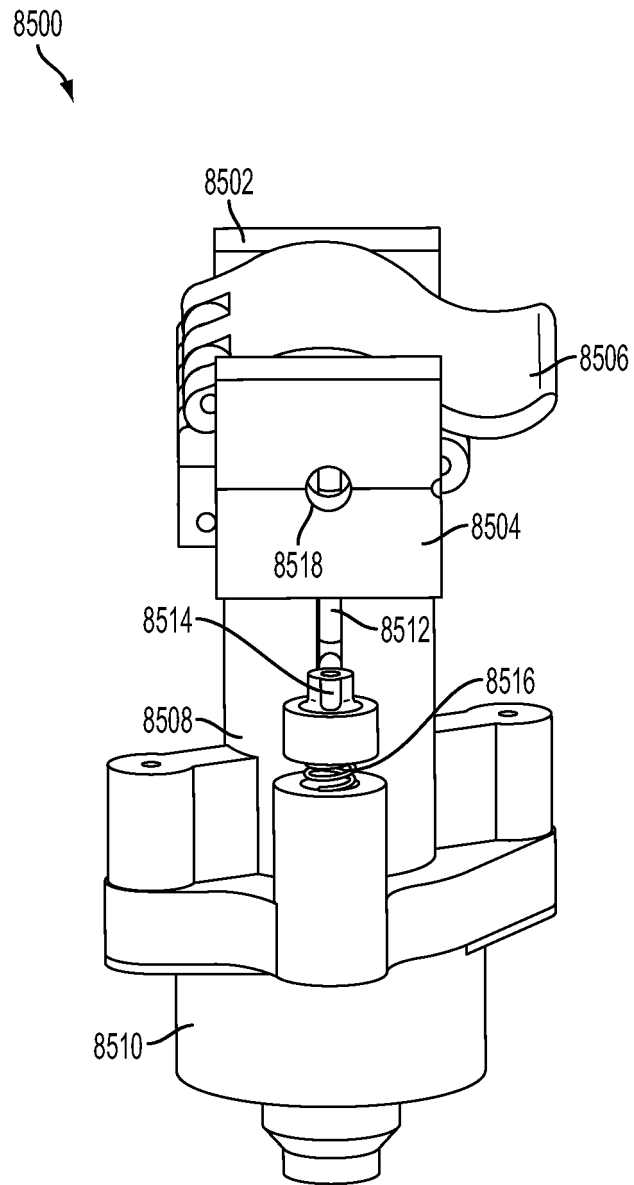


FIG. 85B

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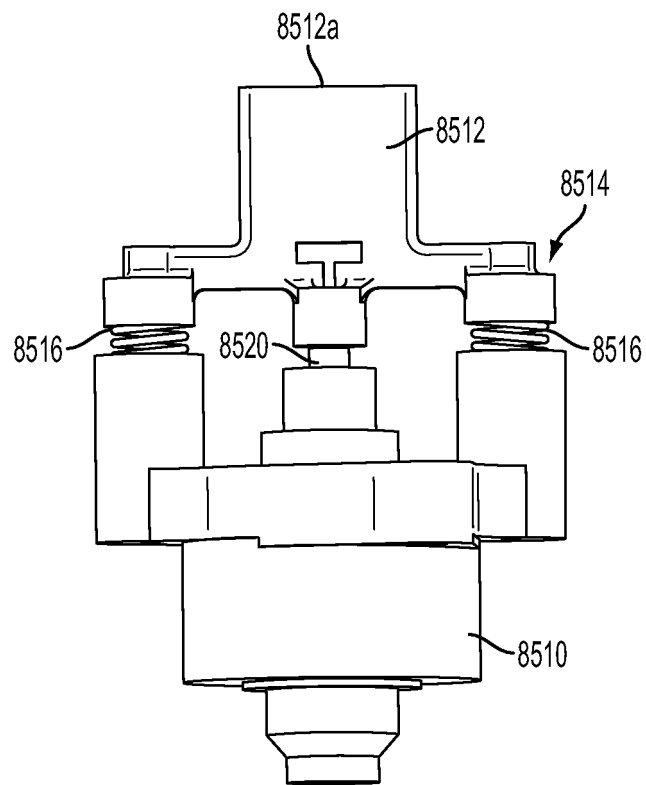


FIG. 85C

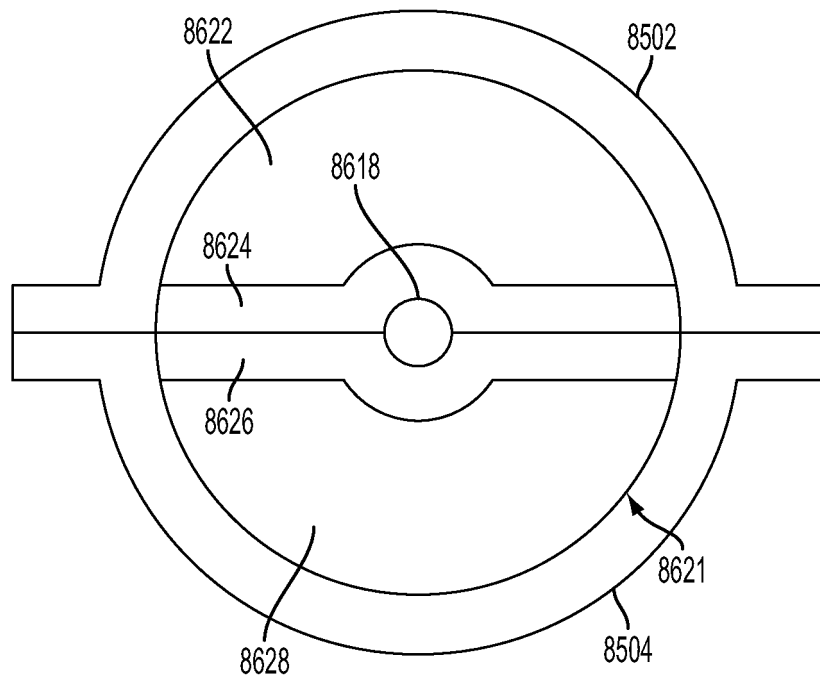


FIG. 86

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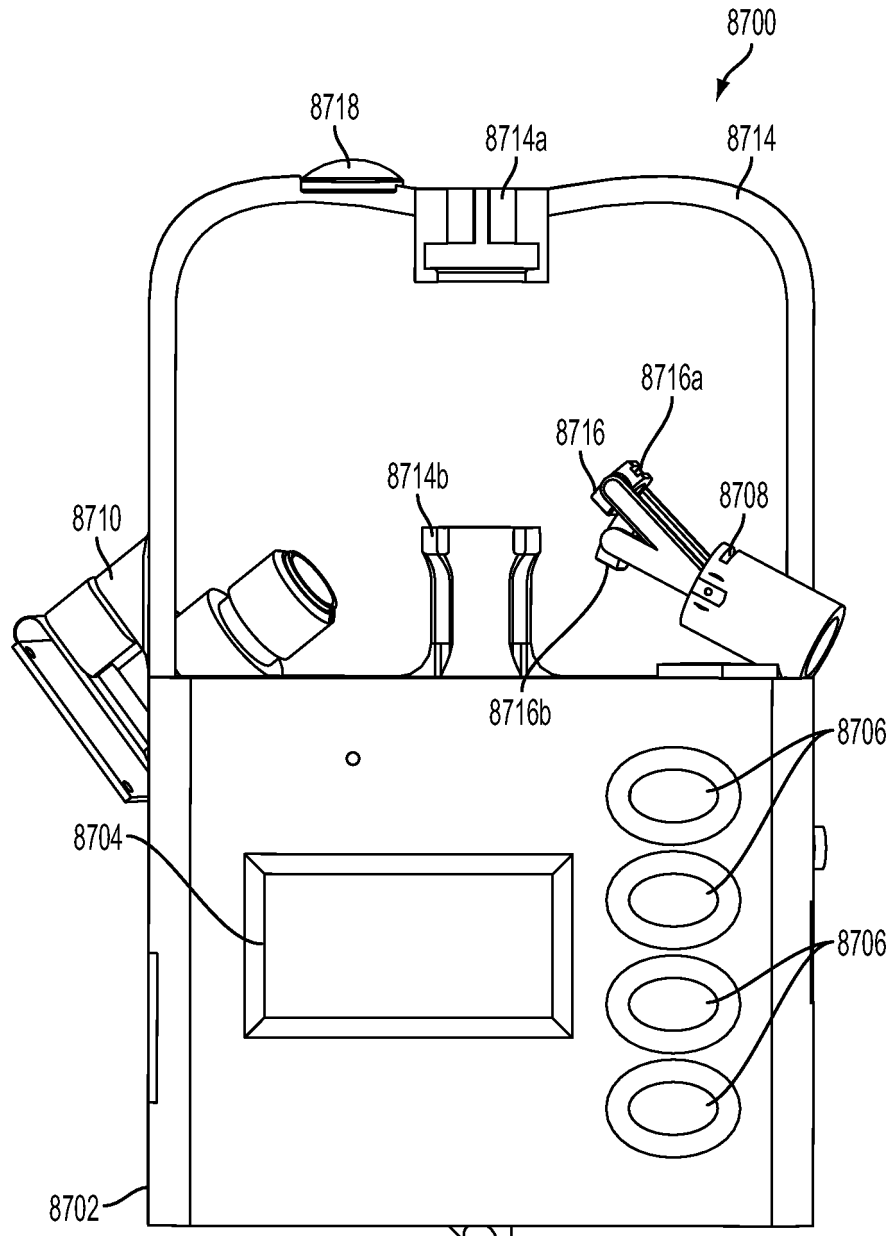


FIG. 87A

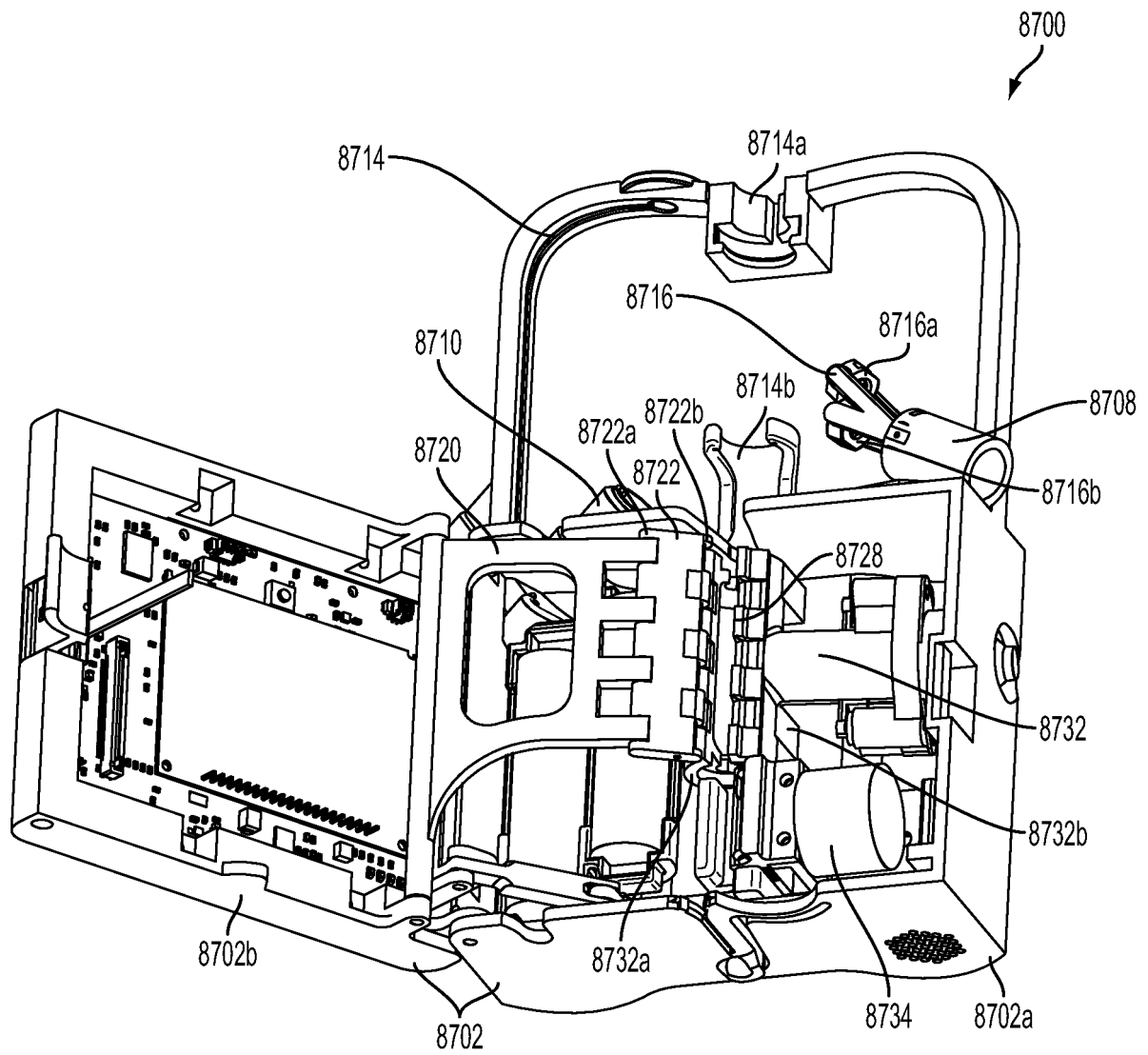


FIG. 87B

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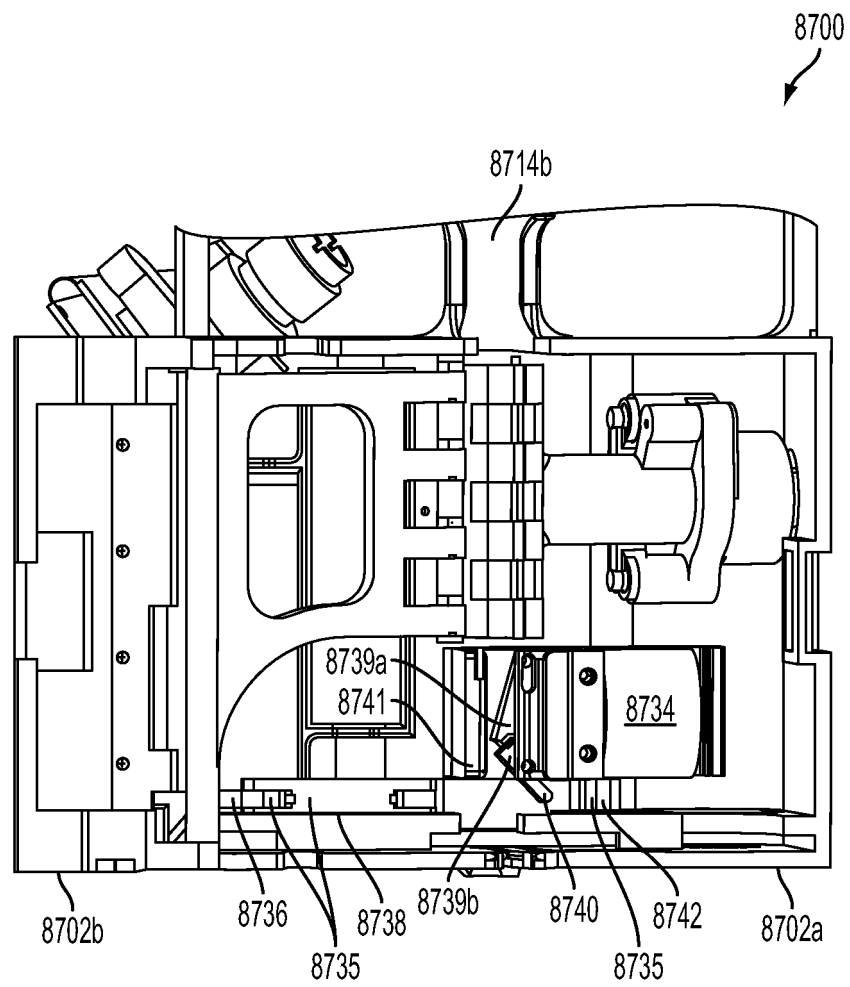


FIG. 87C

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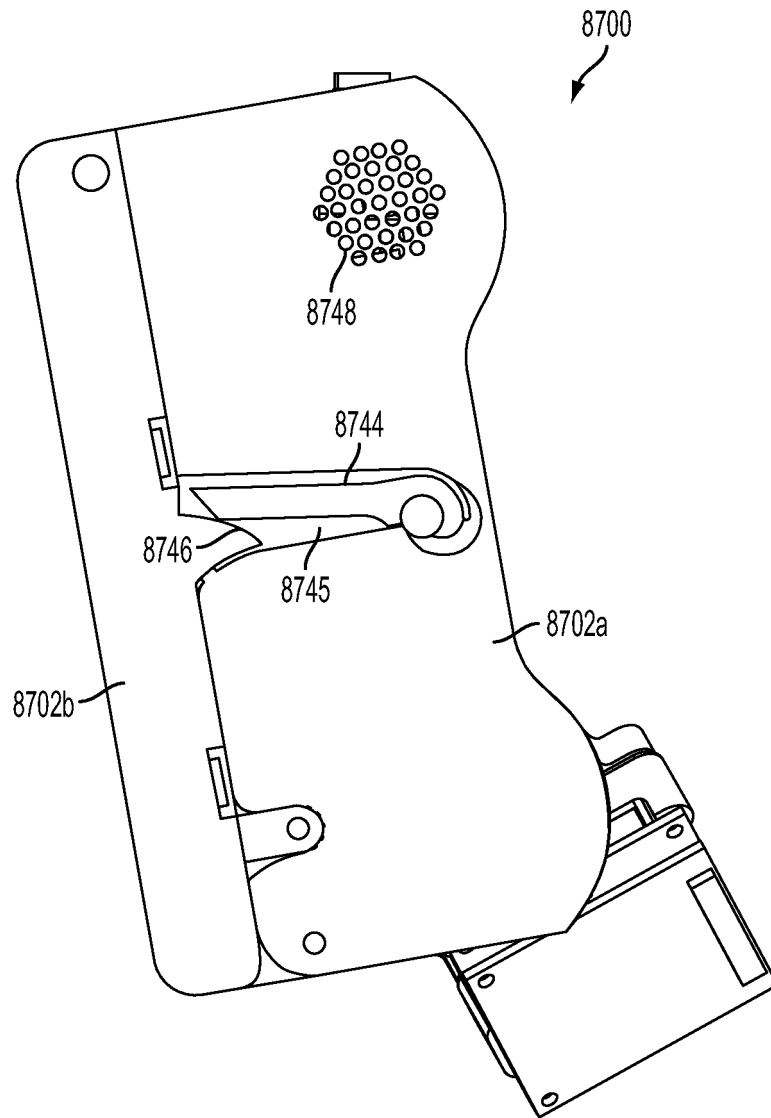


FIG. 87D

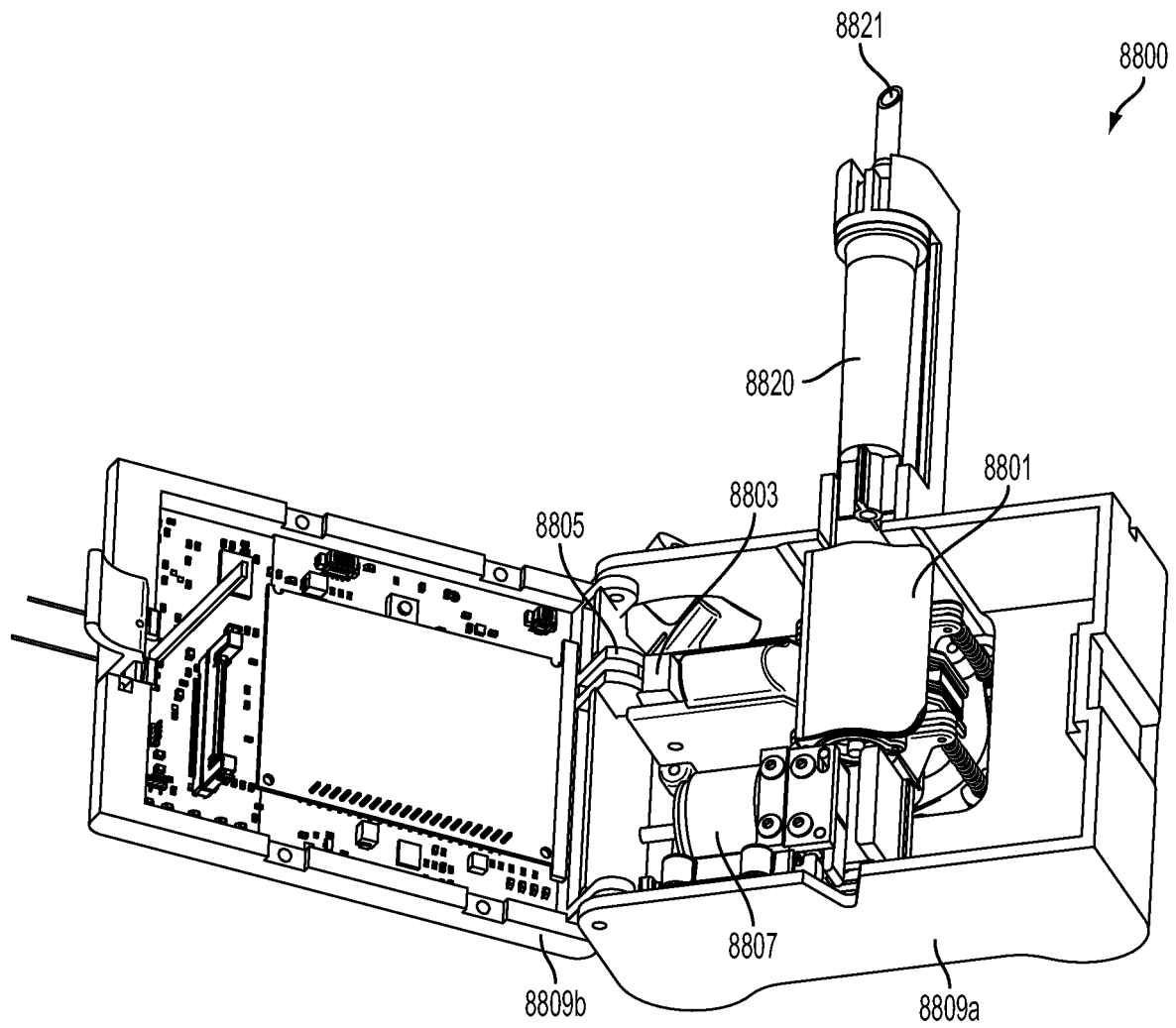


FIG. 88A

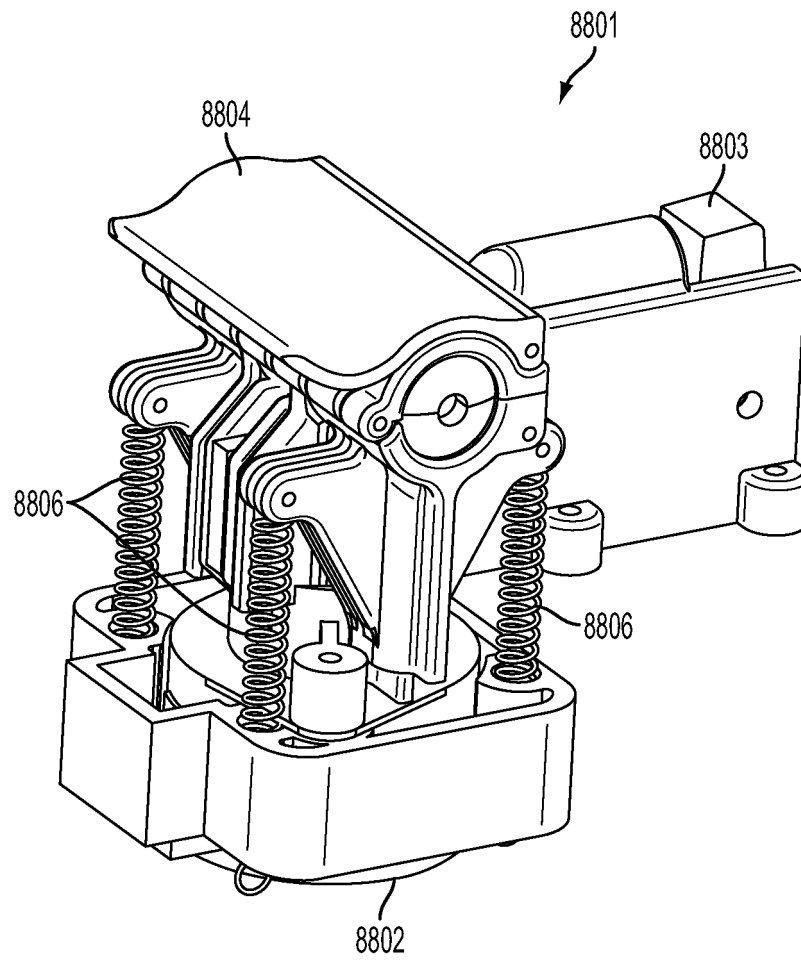


FIG. 88B

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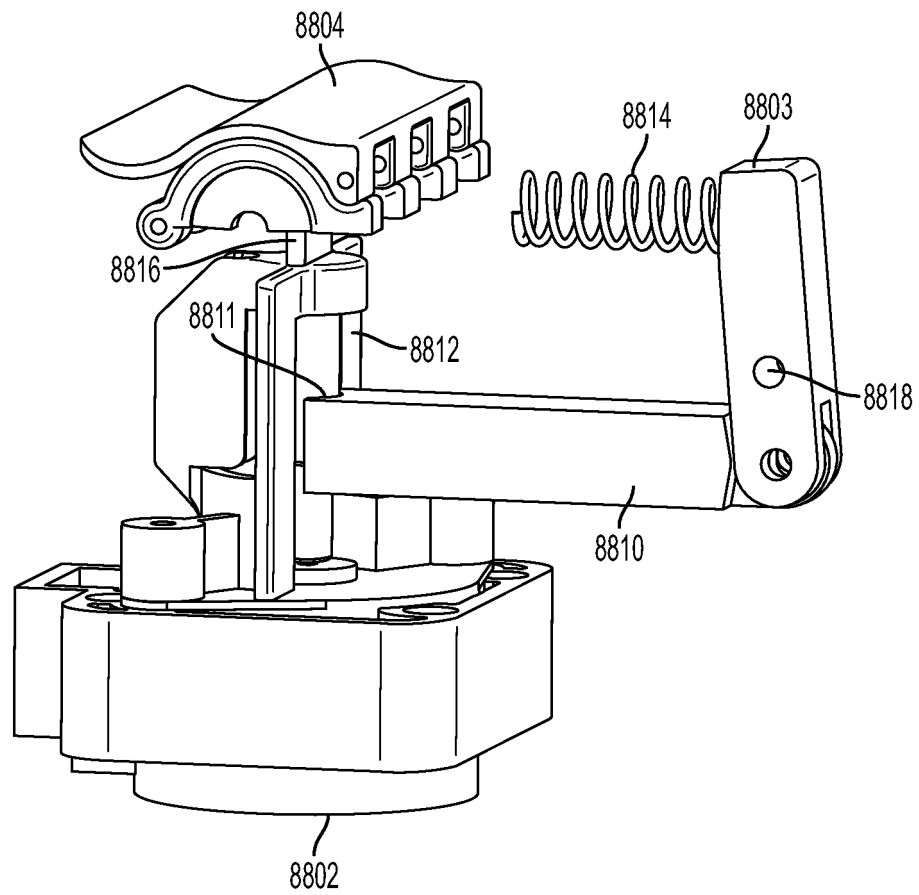


FIG. 88C

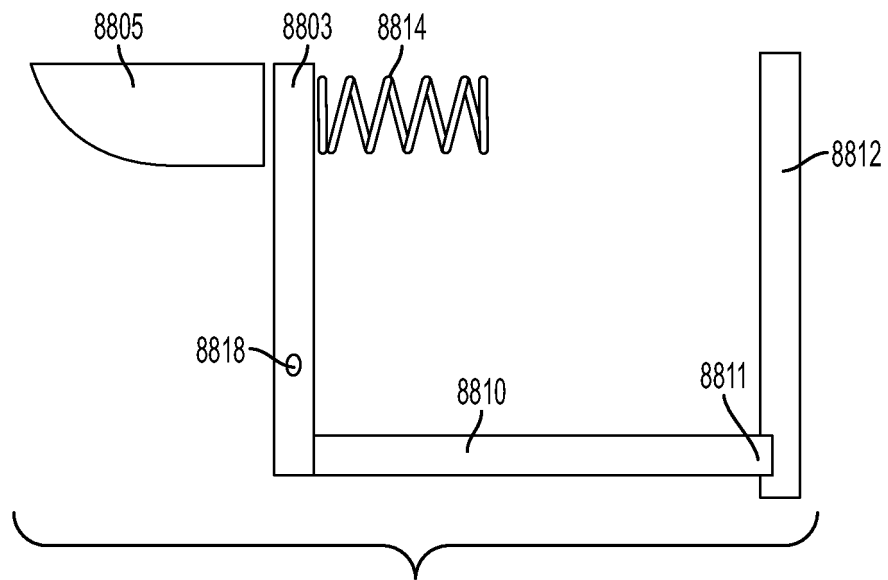


FIG. 88D

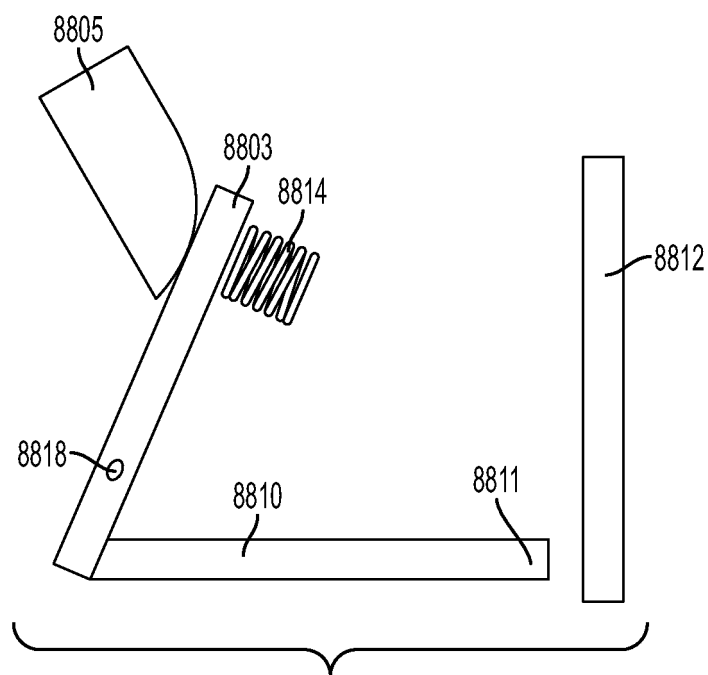


FIG. 88E

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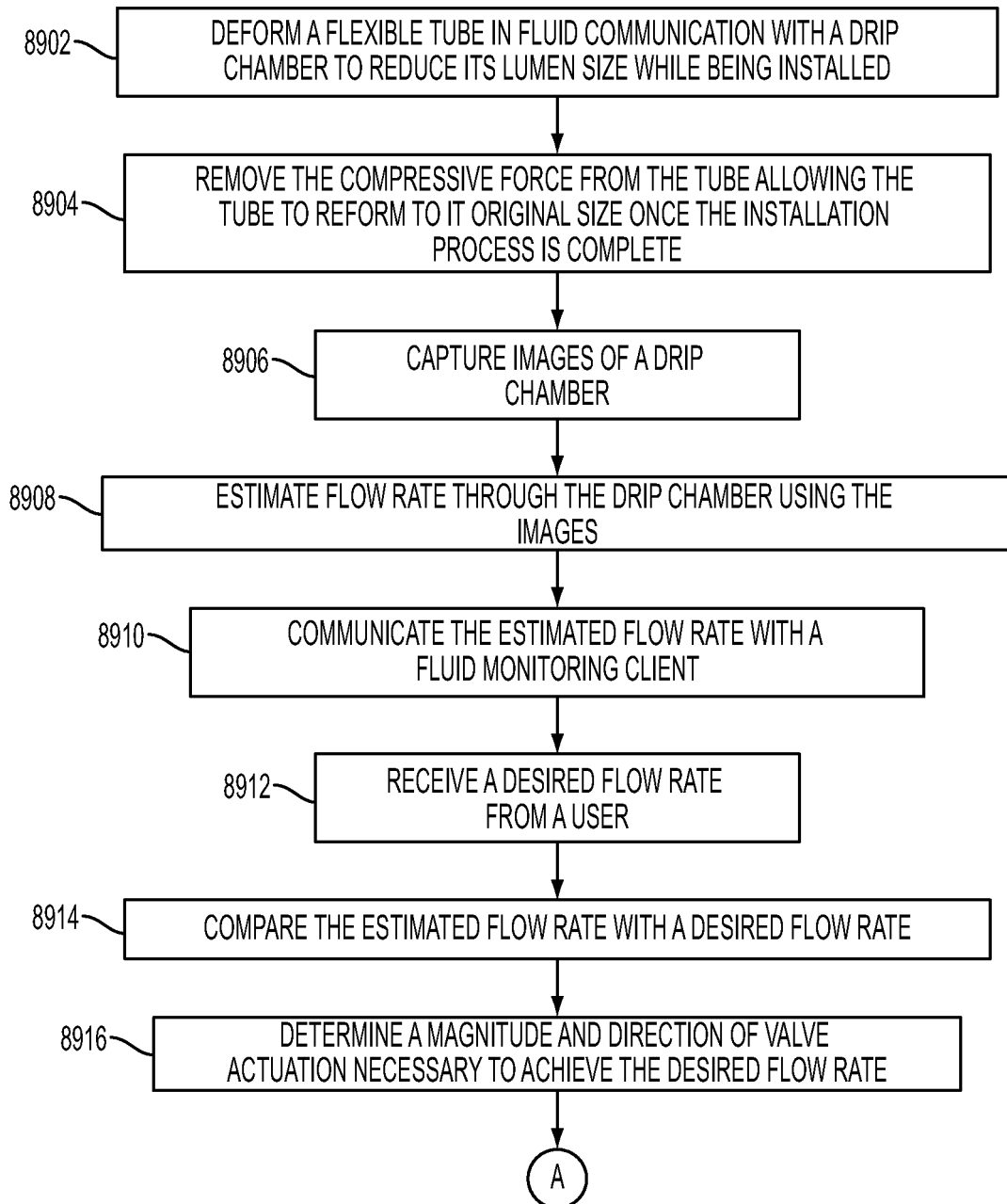


FIG. 89A

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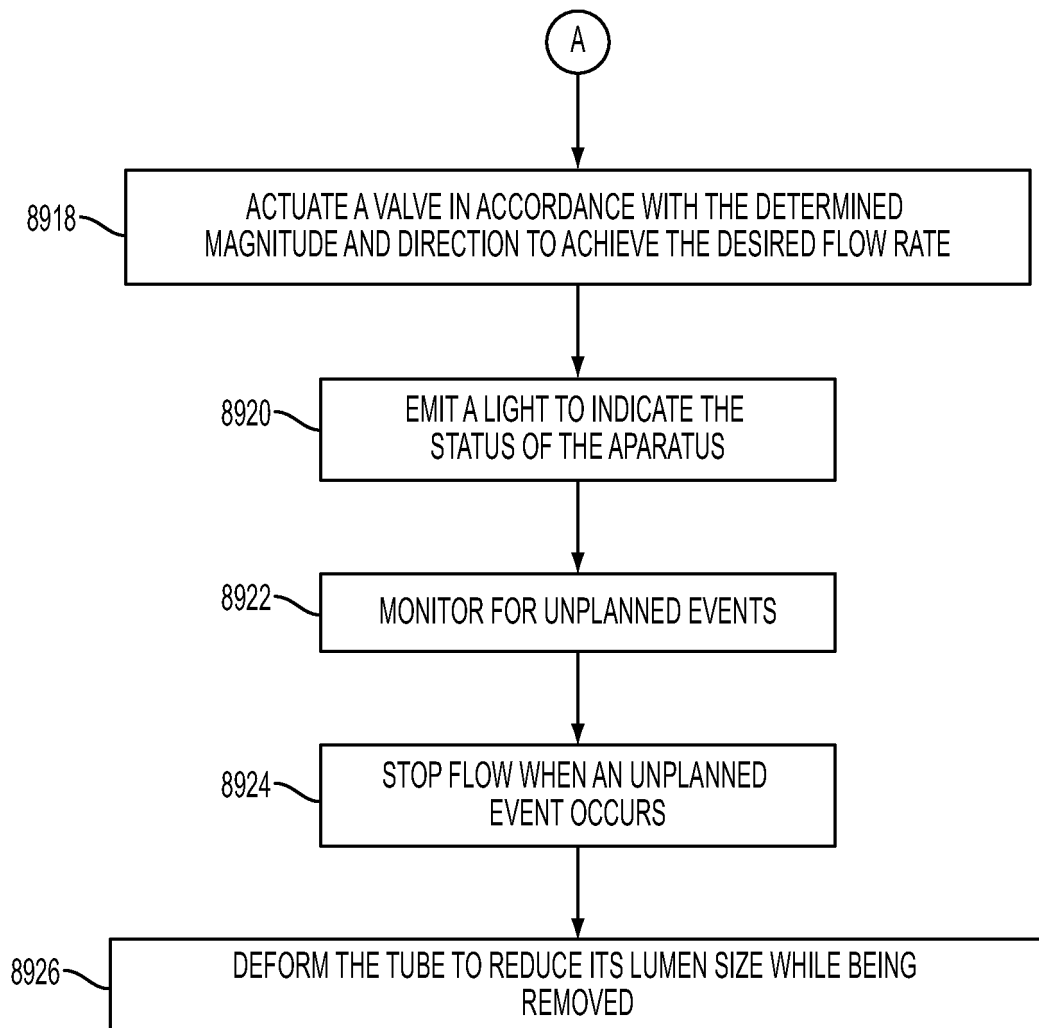


FIG. 89B

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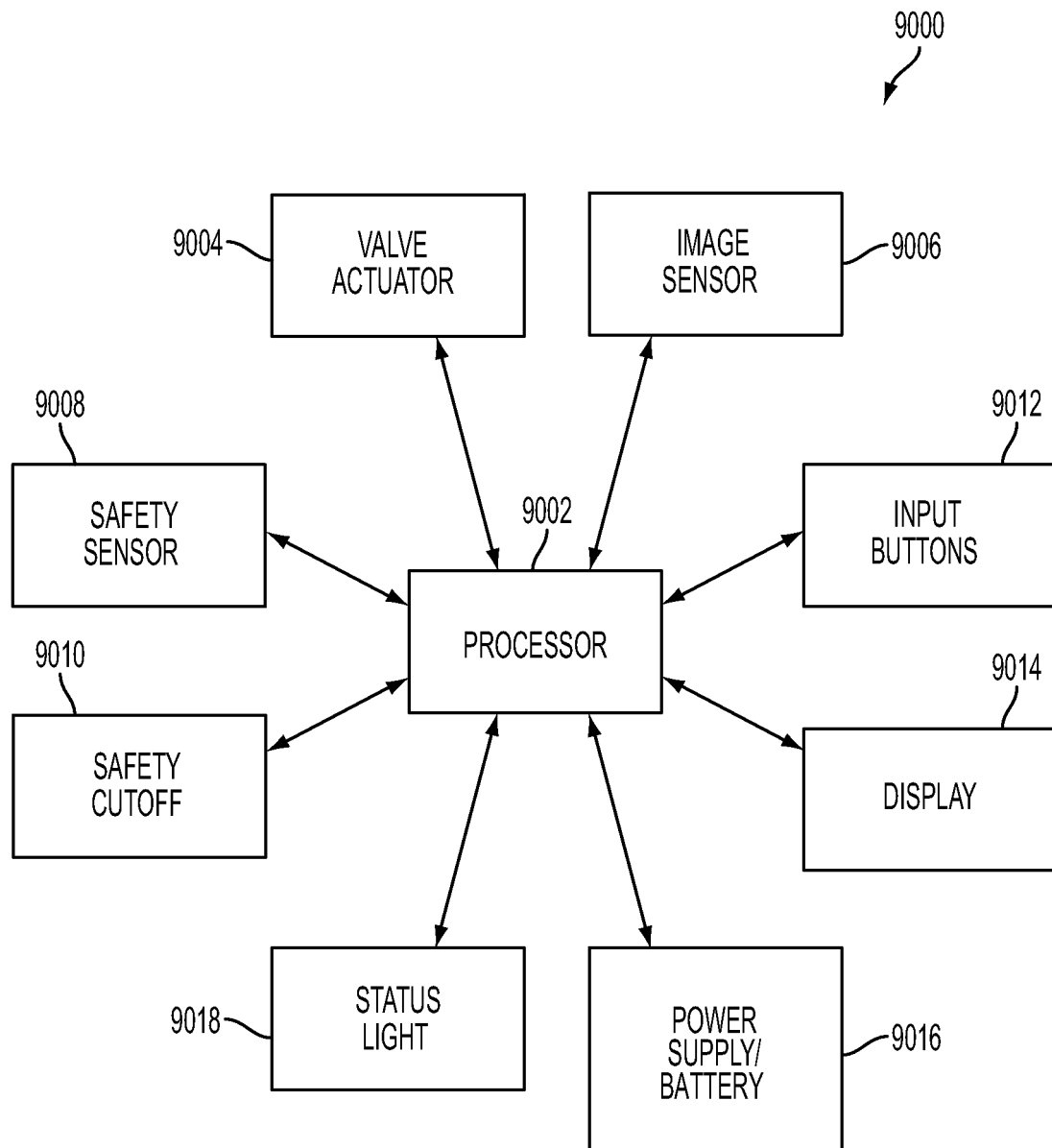


FIG 90

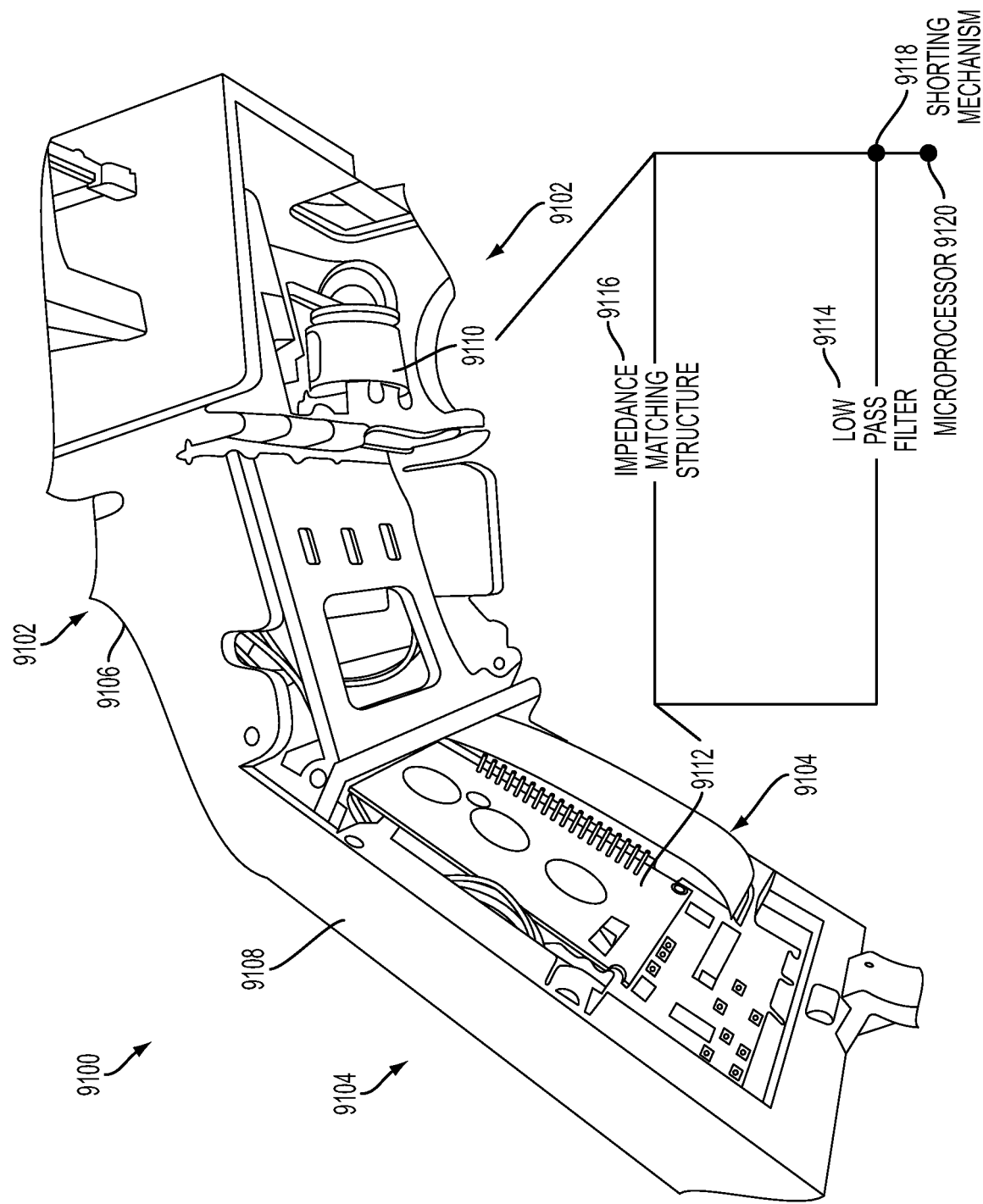


FIG. 91

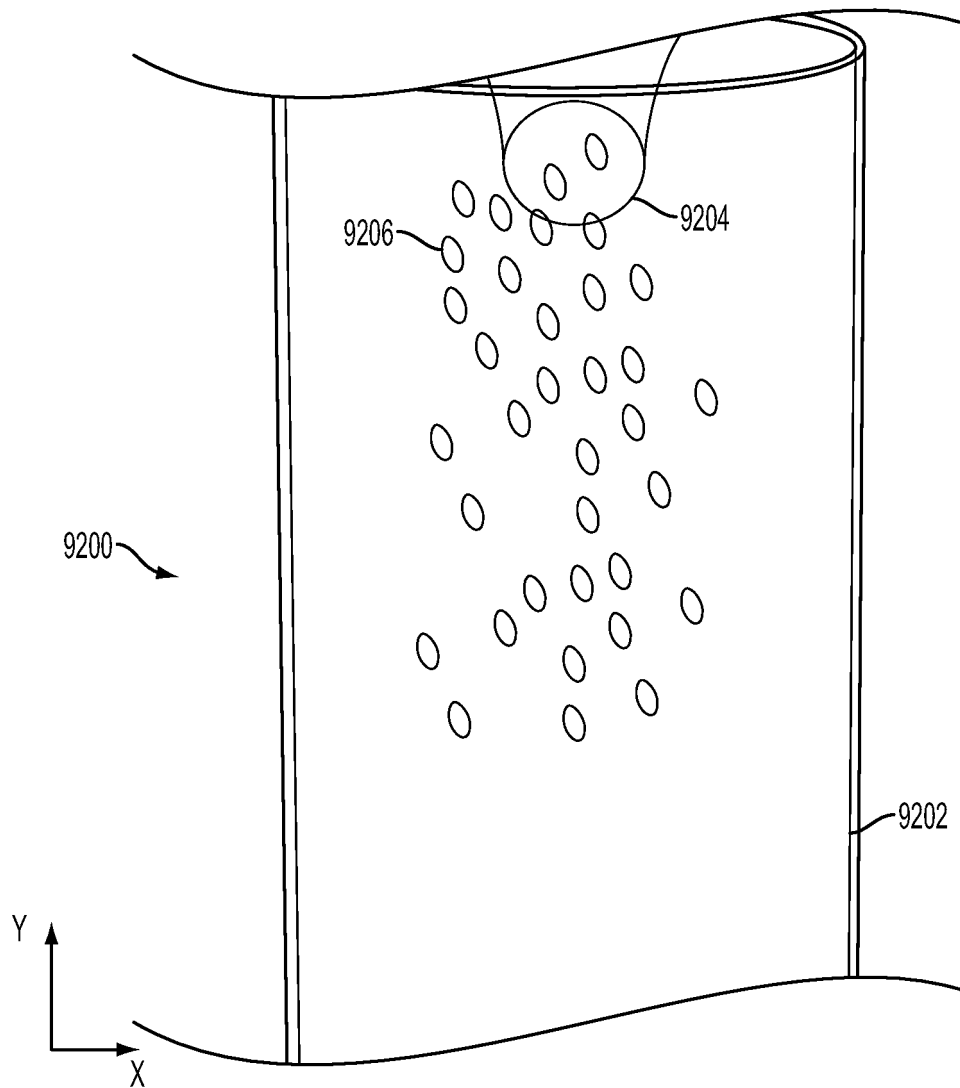


FIG. 92

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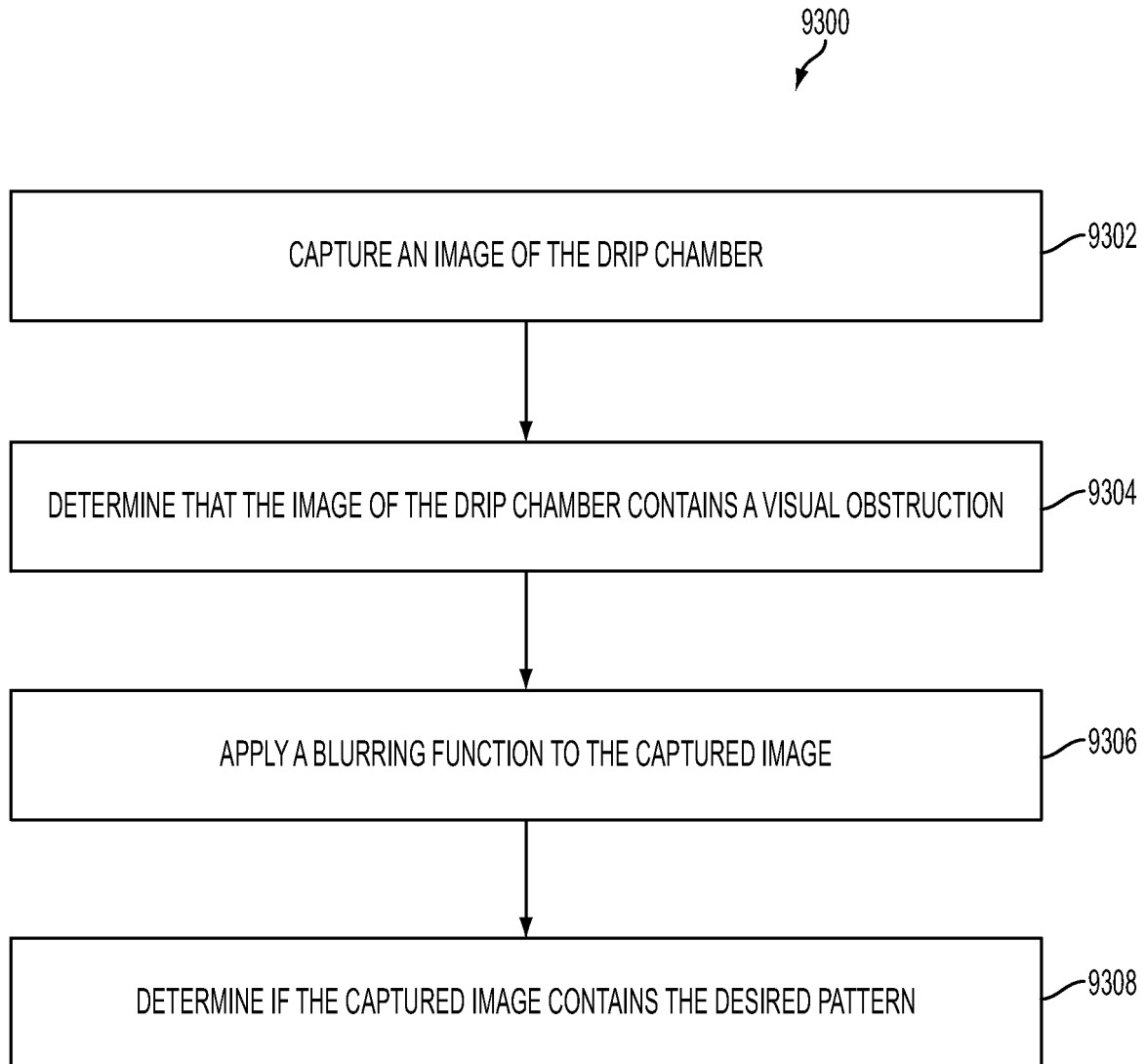


FIG. 93

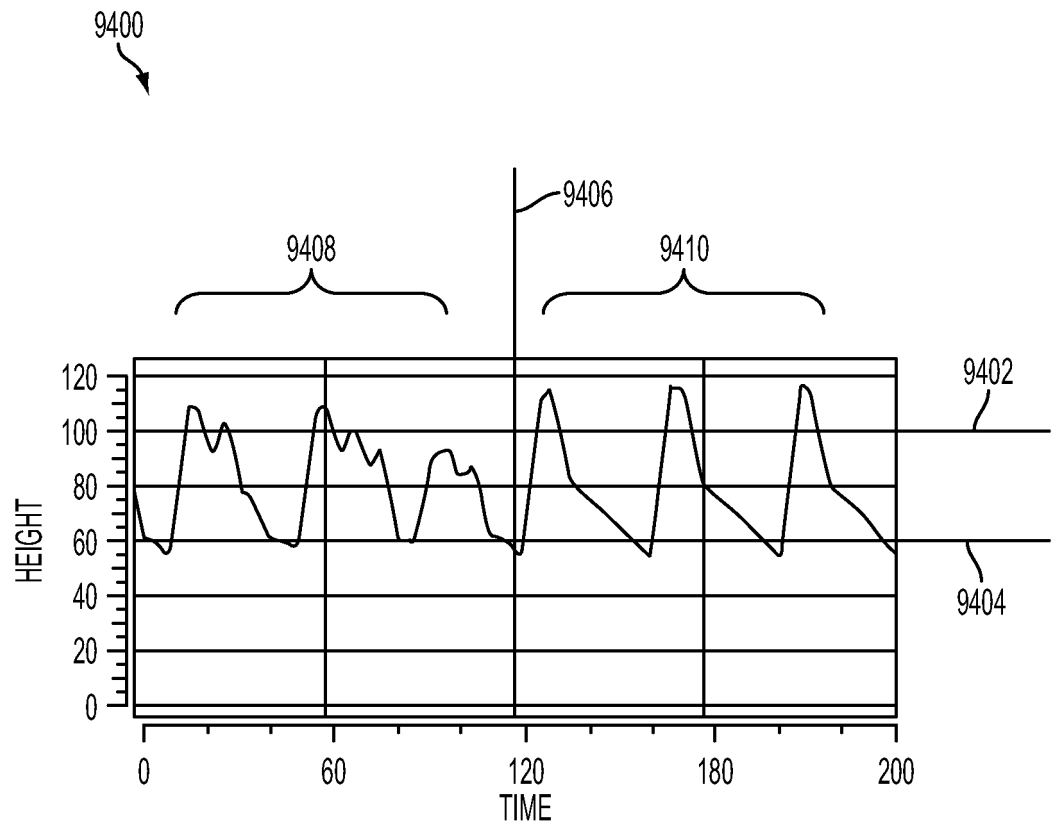


FIG. 94

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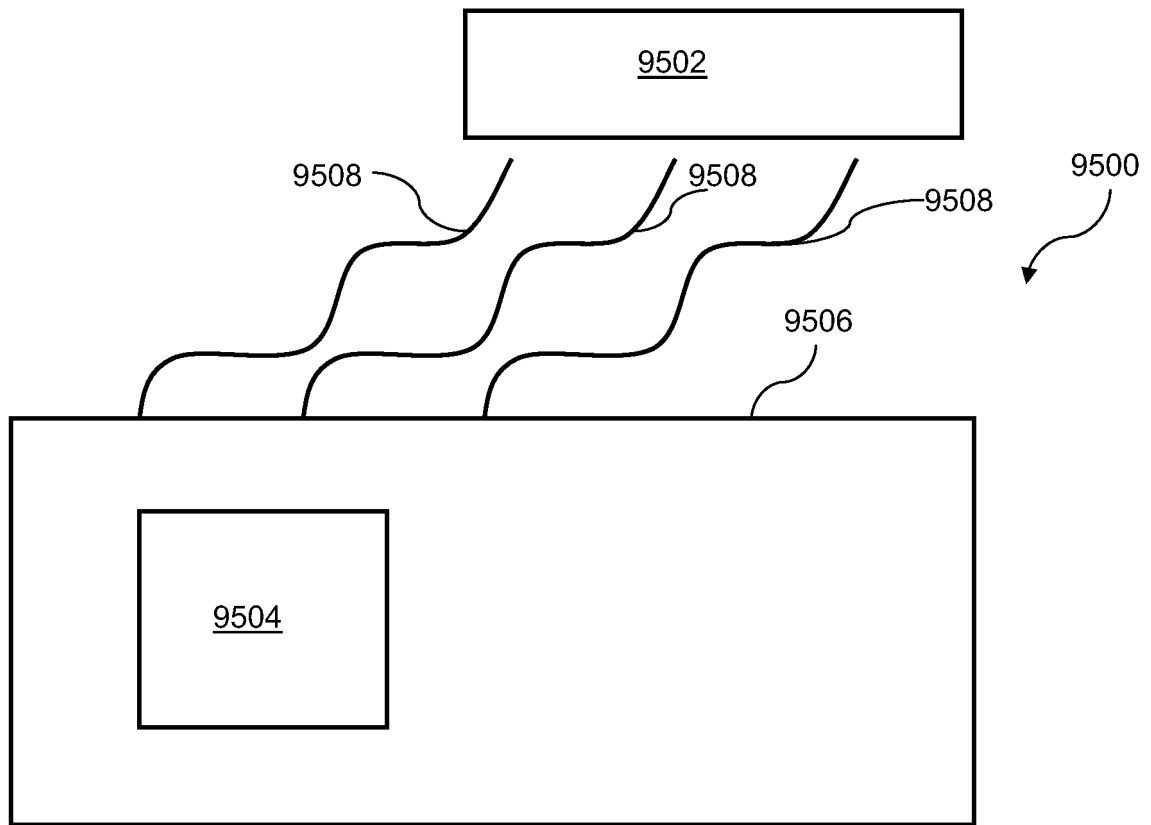


FIG. 95