

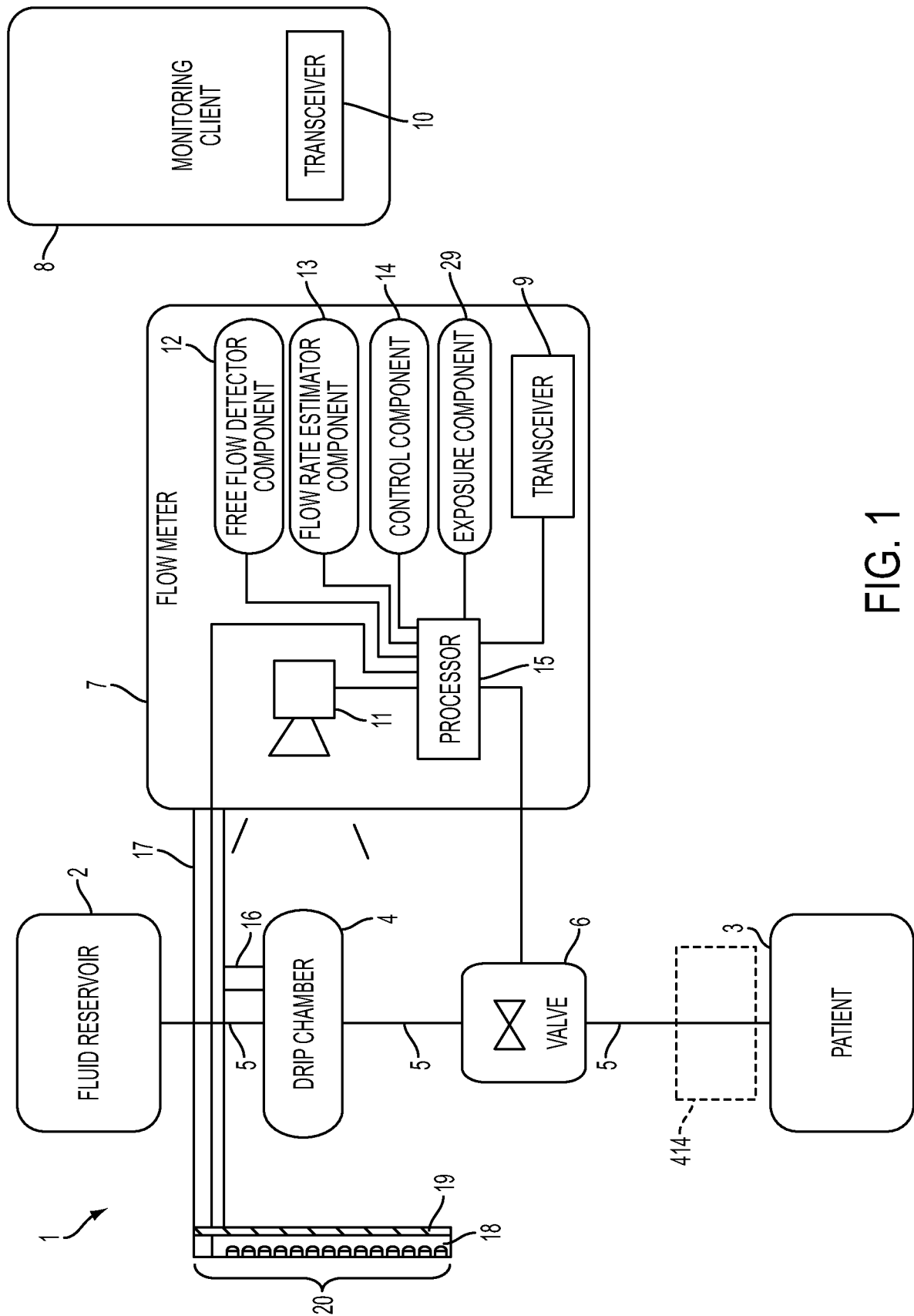


FIG. 1

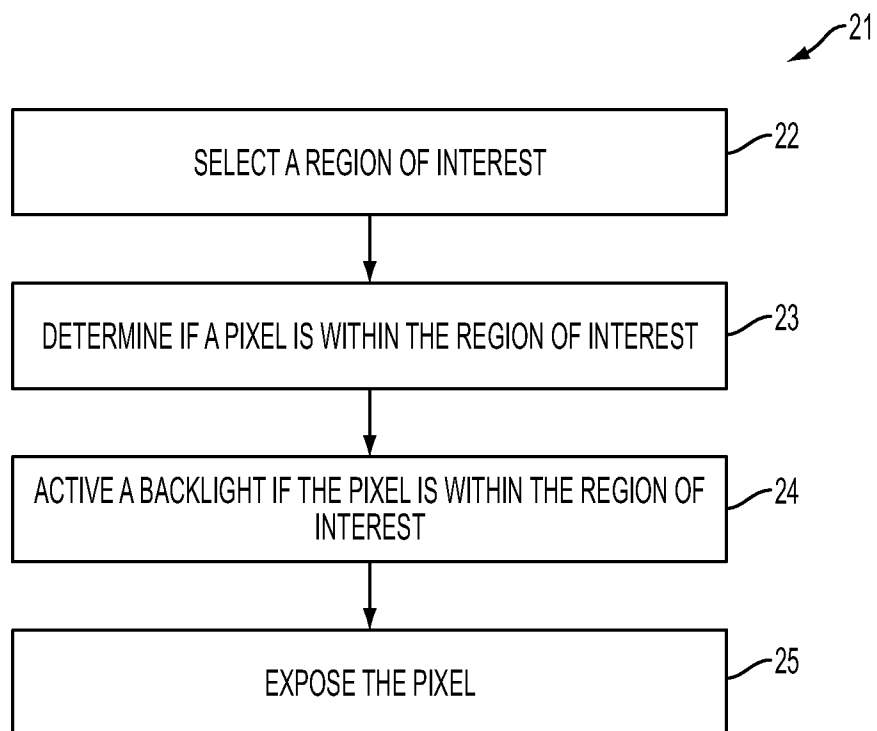


FIG. 2

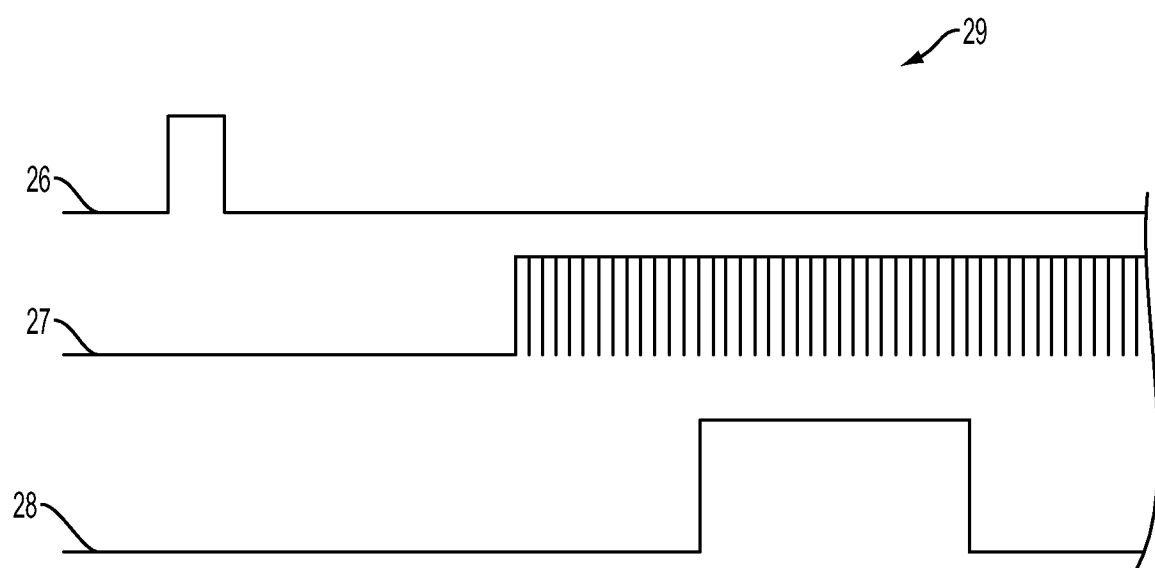


FIG. 3

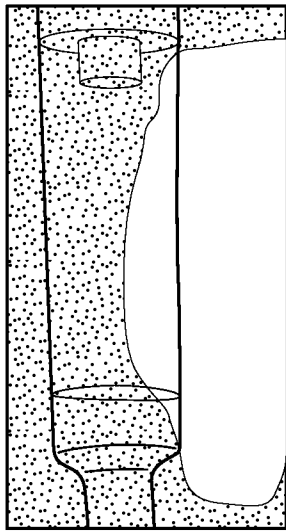


FIG. 4A

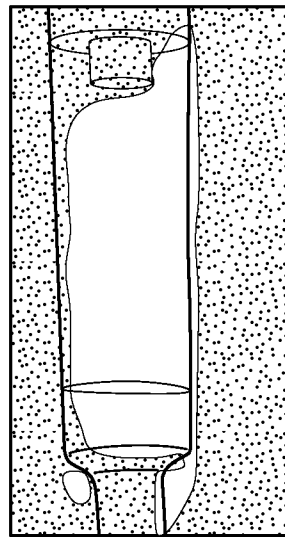


FIG. 4B

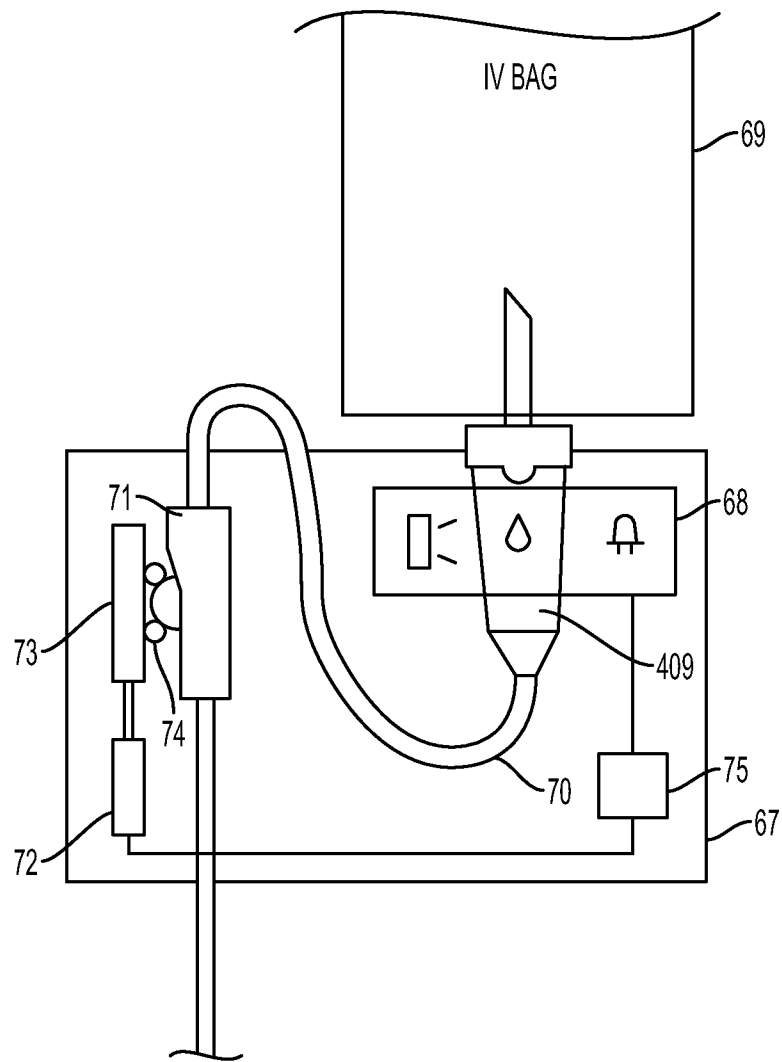


FIG. 5

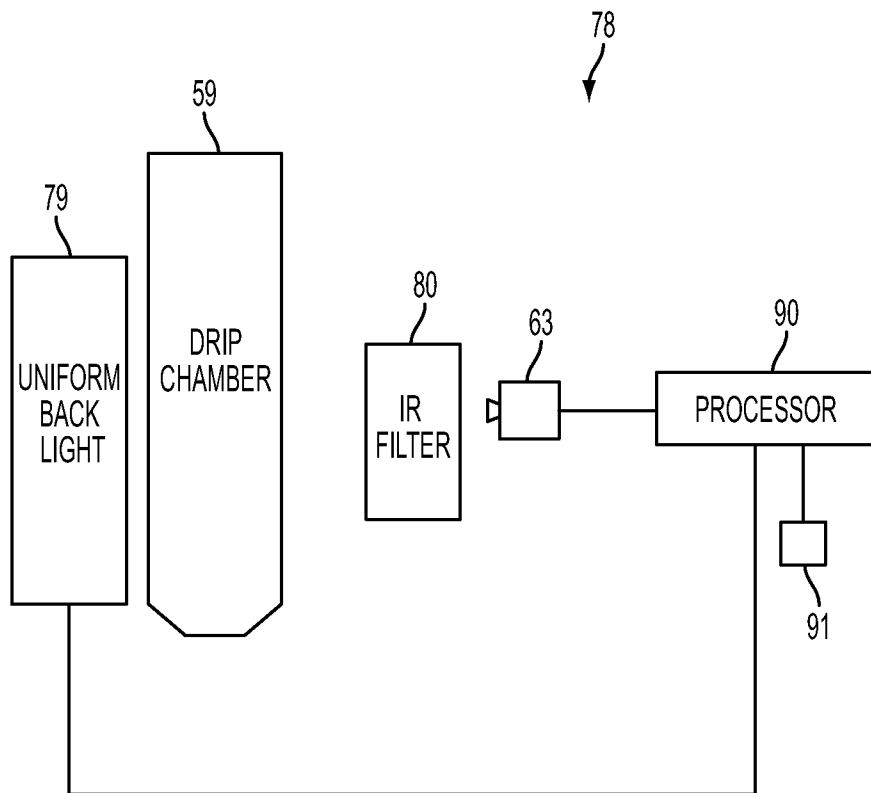


FIG. 6

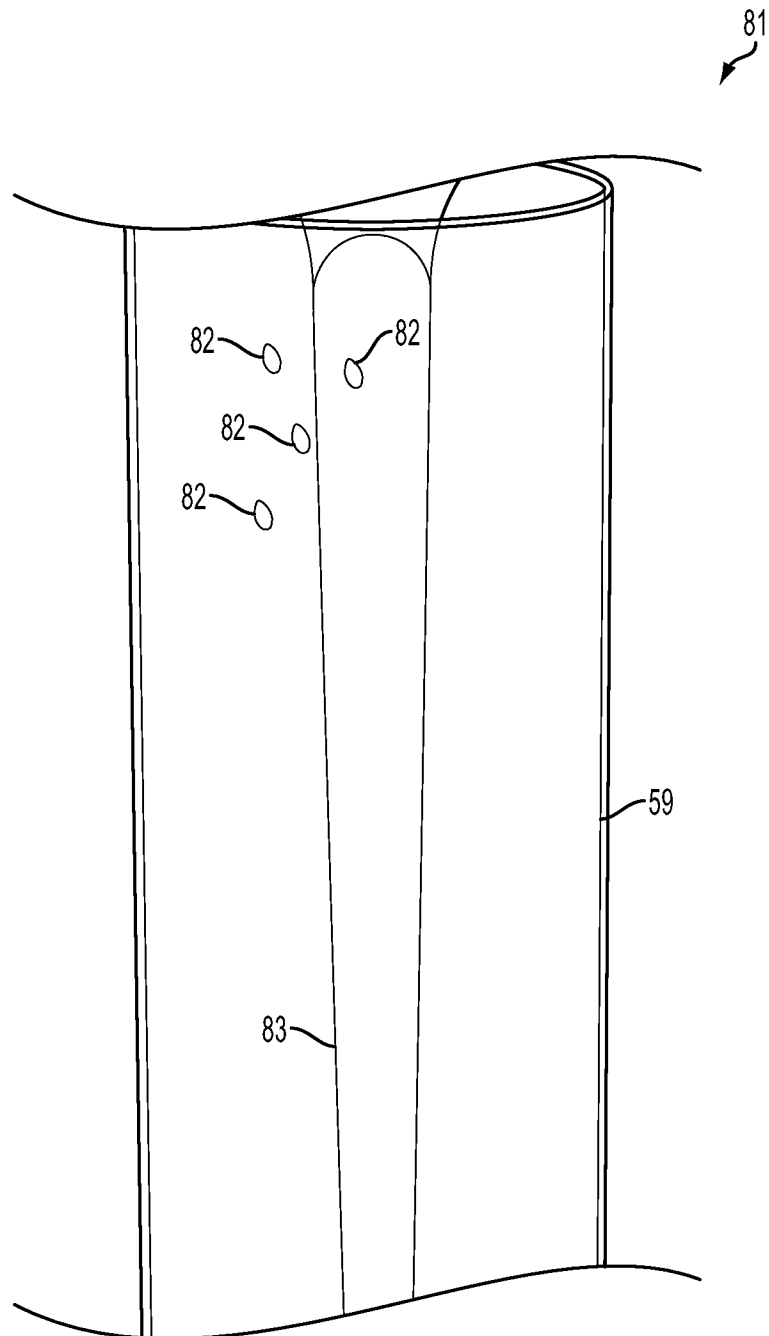


FIG. 7

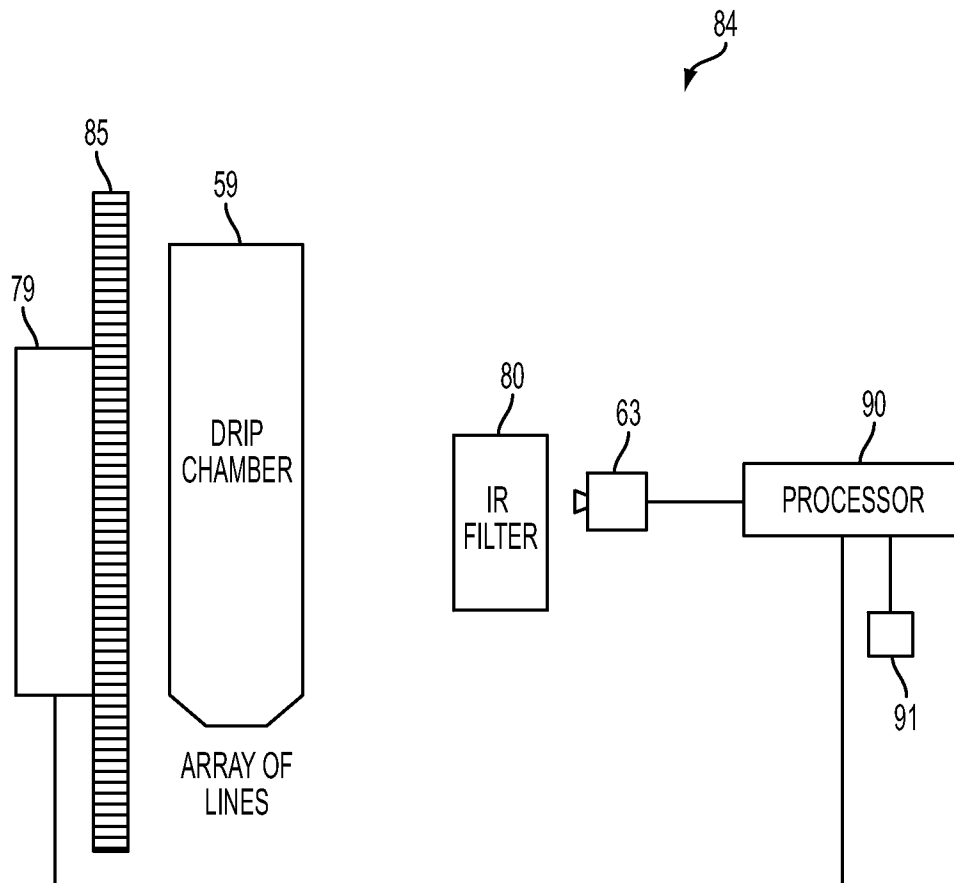


FIG. 8

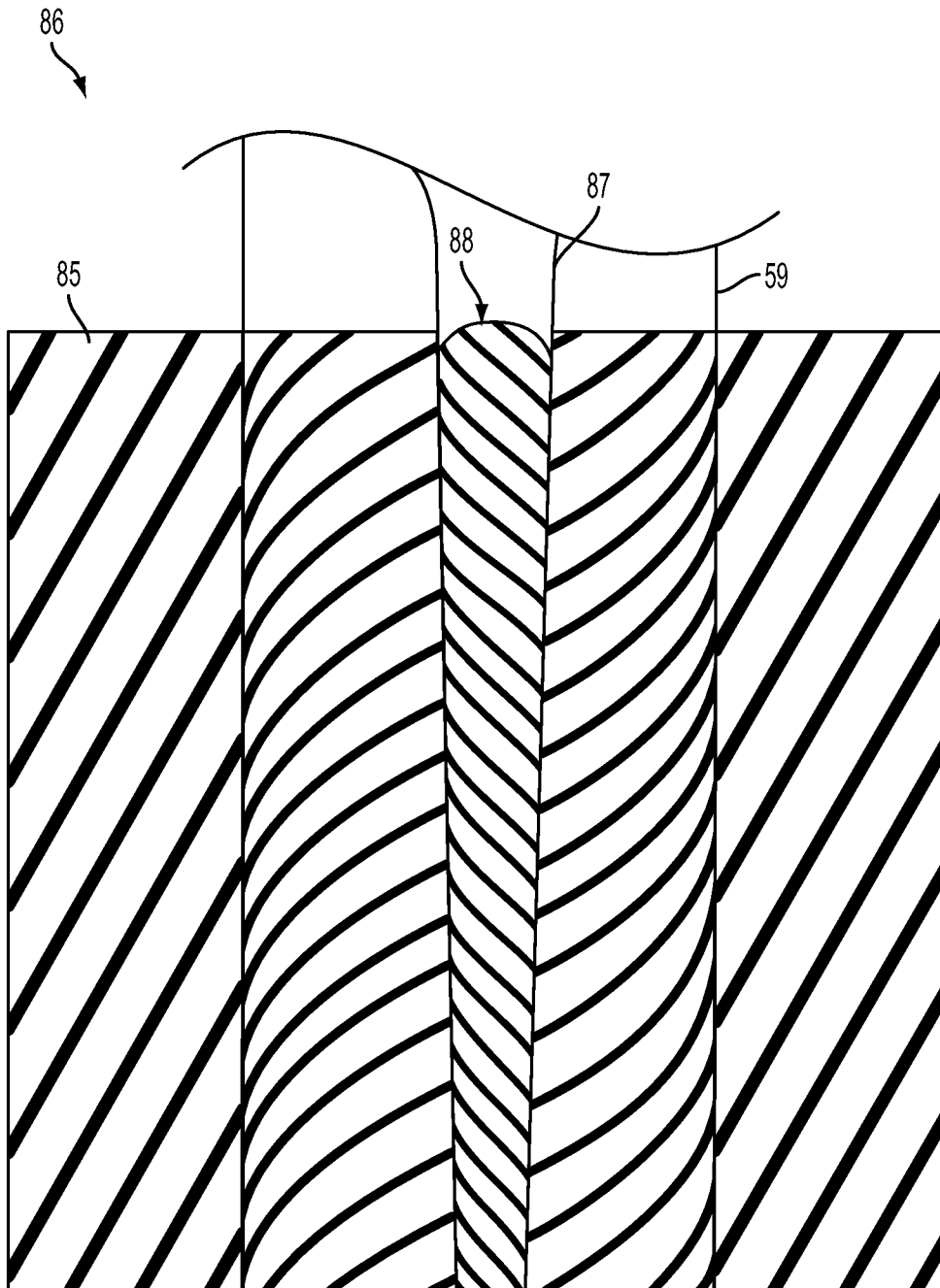
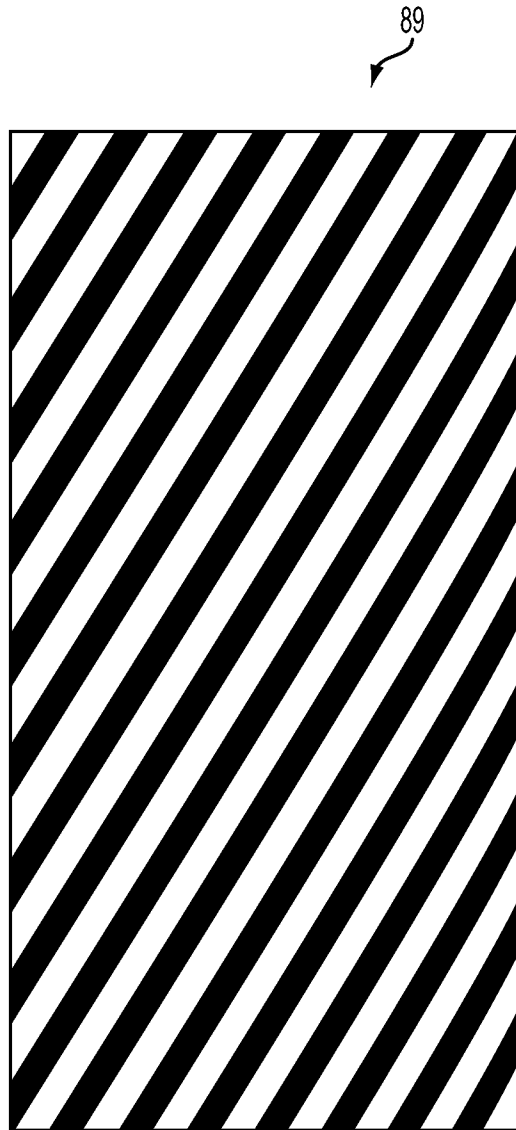


FIG. 9



TYPICAL BACKGROUND IMAGE

FIG. 10

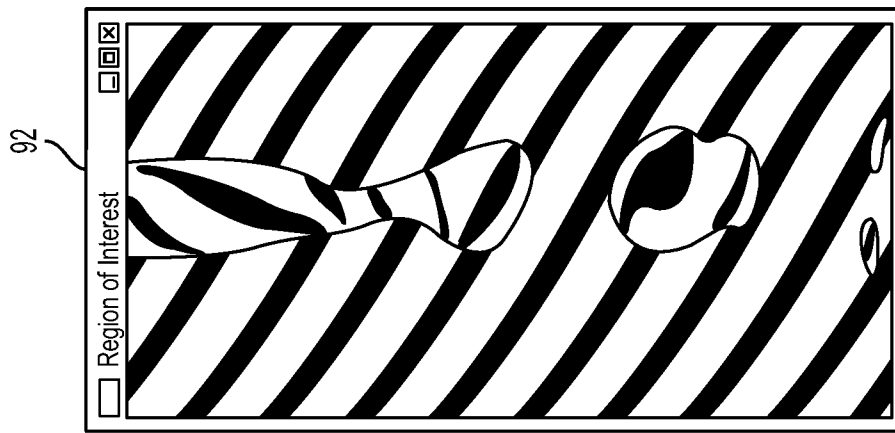


FIG. 11

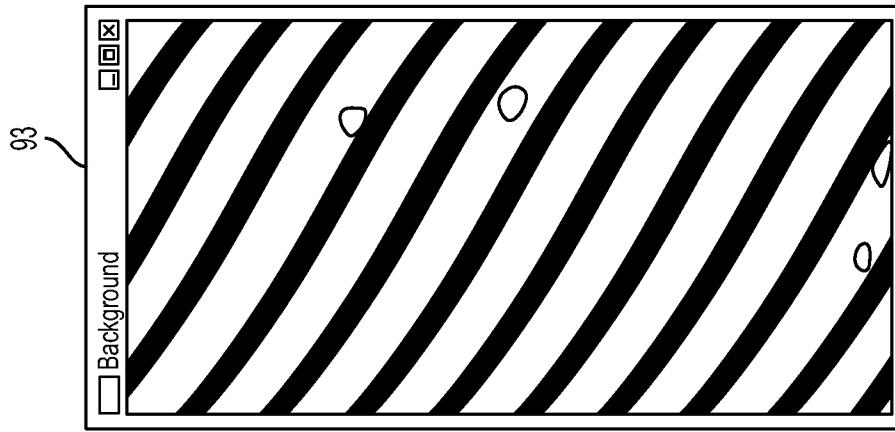


FIG. 12



FIG. 13

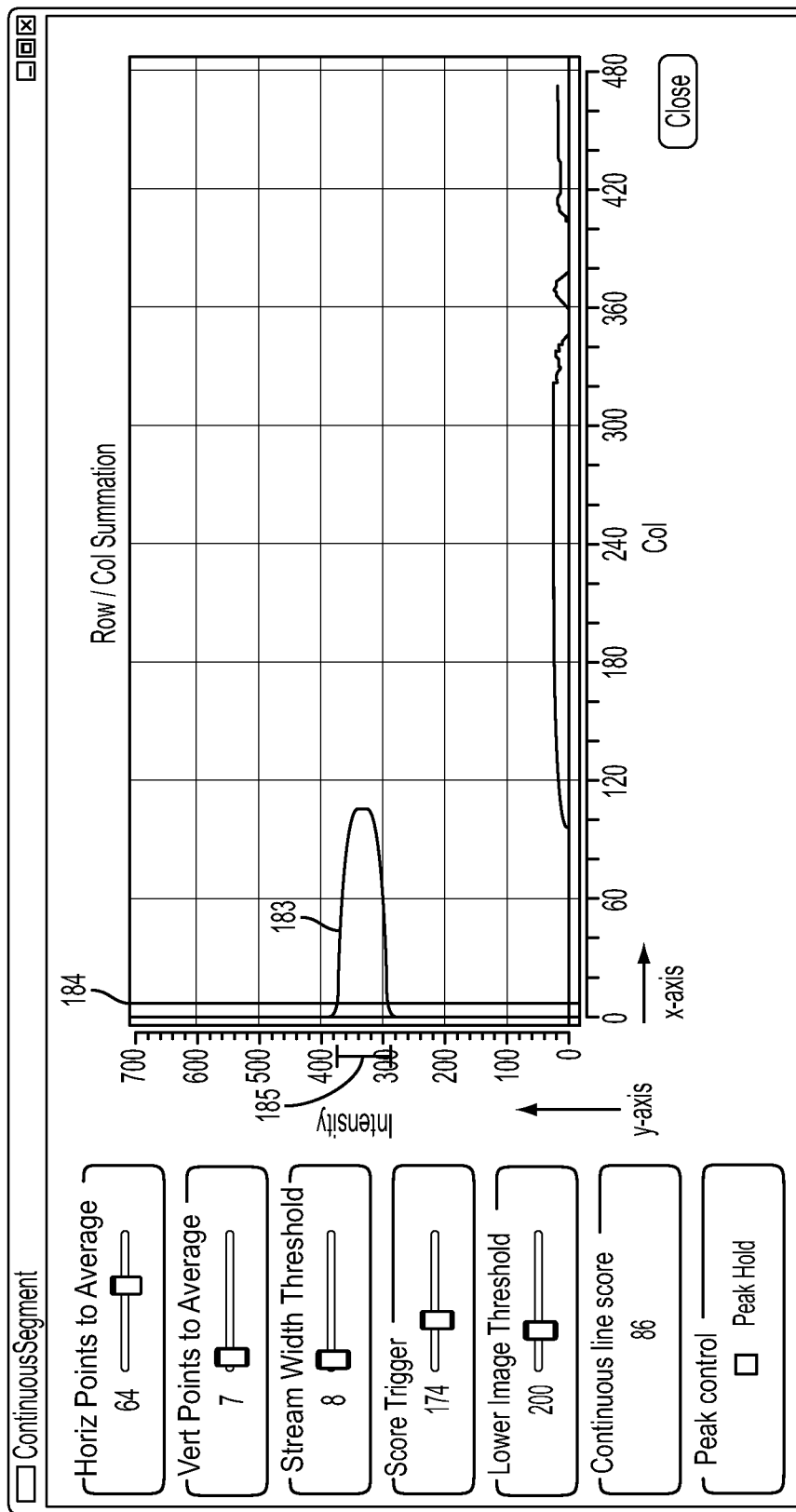


FIG. 14



FIG. 17

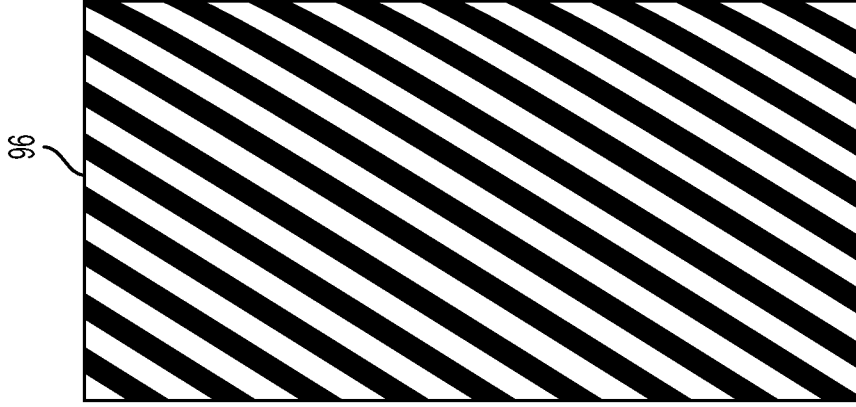


FIG. 16

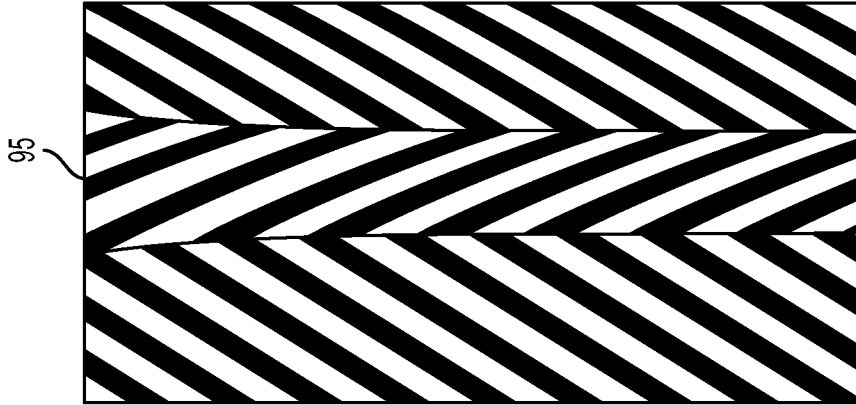


FIG. 15

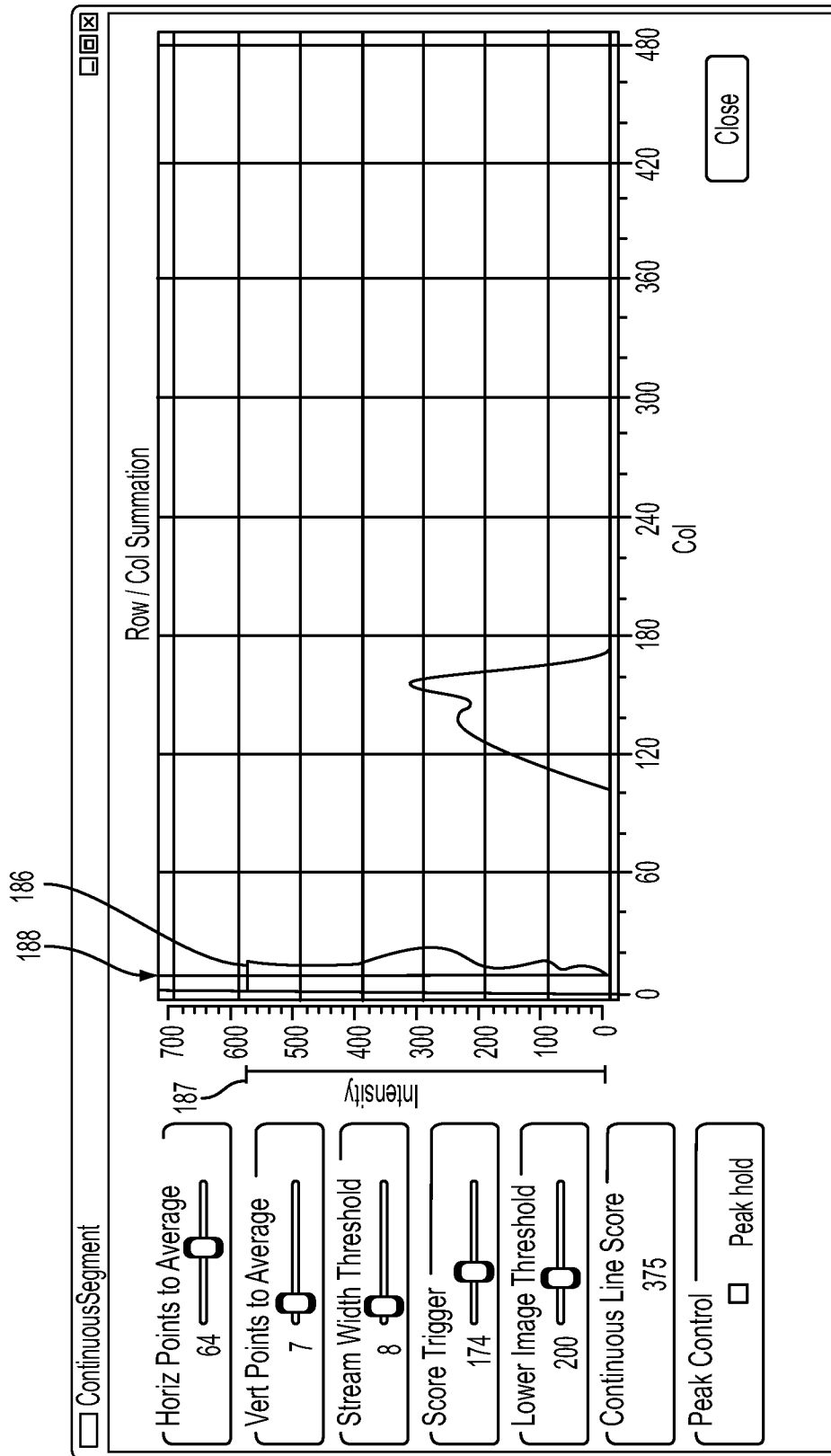


FIG. 18

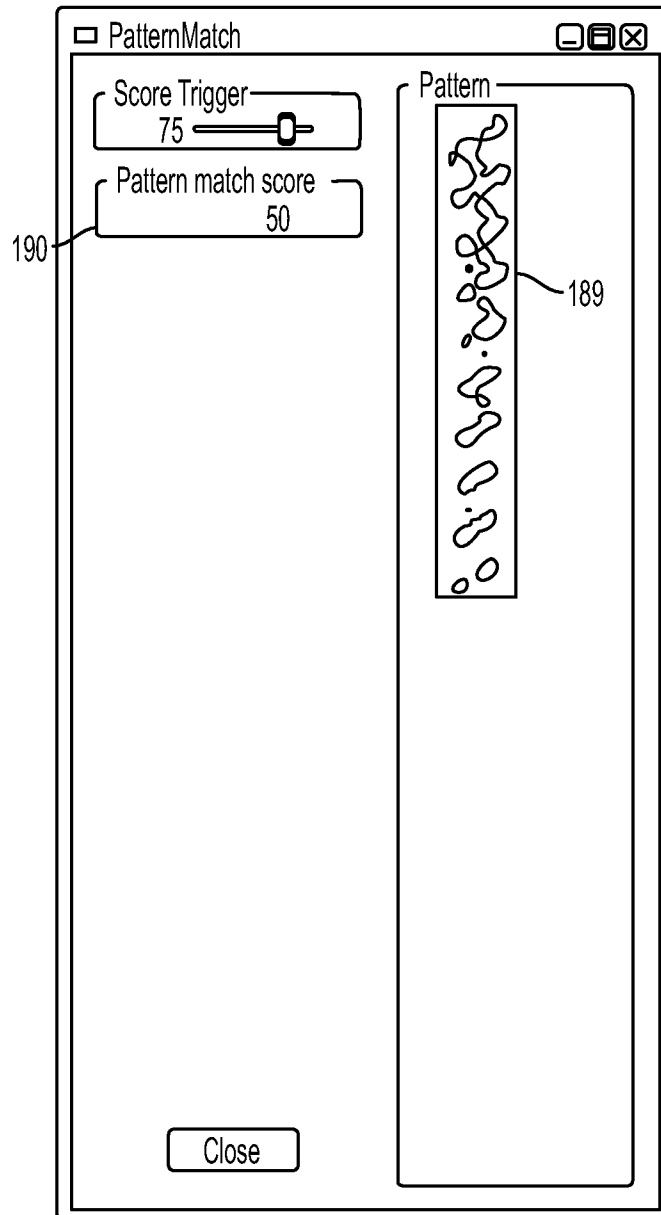


FIG. 19

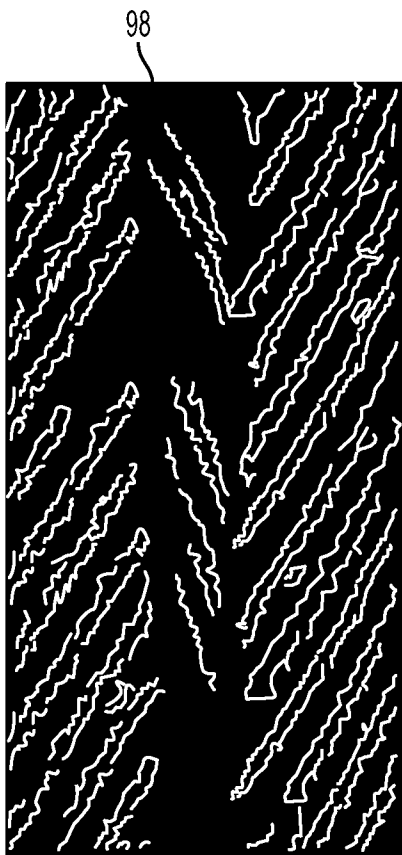


FIG. 20

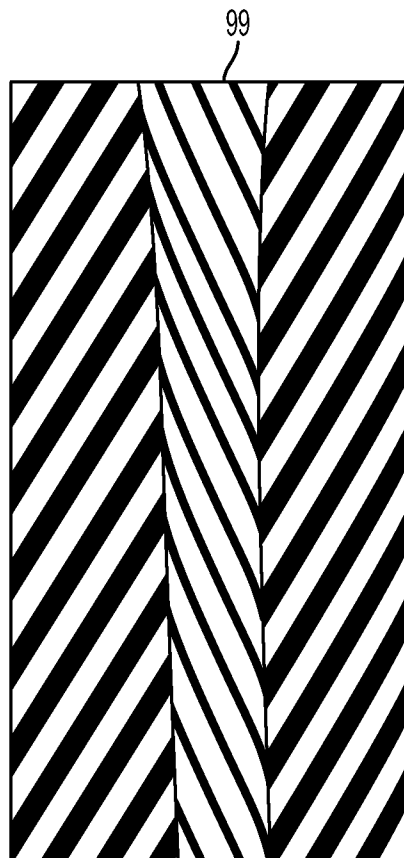


FIG. 21

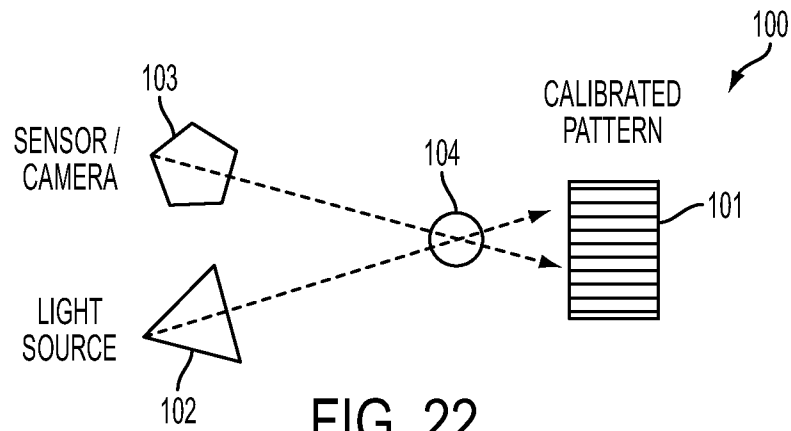


FIG. 22

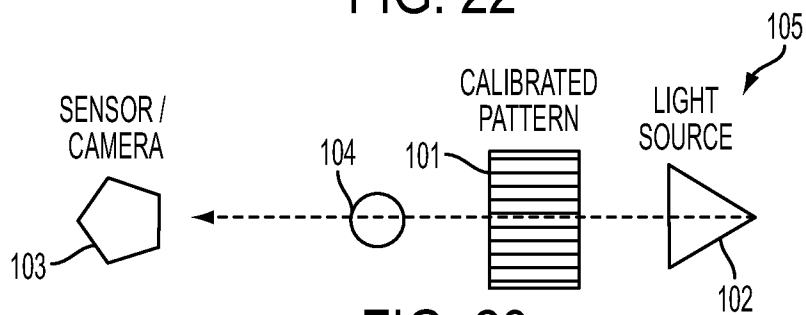


FIG. 23

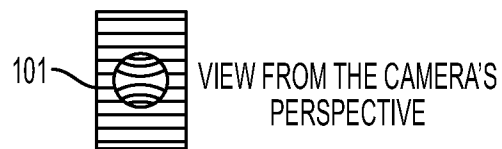


FIG. 24

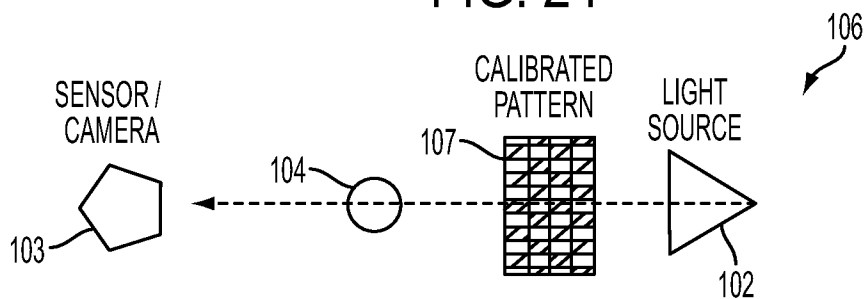


FIG. 25



FIG. 26

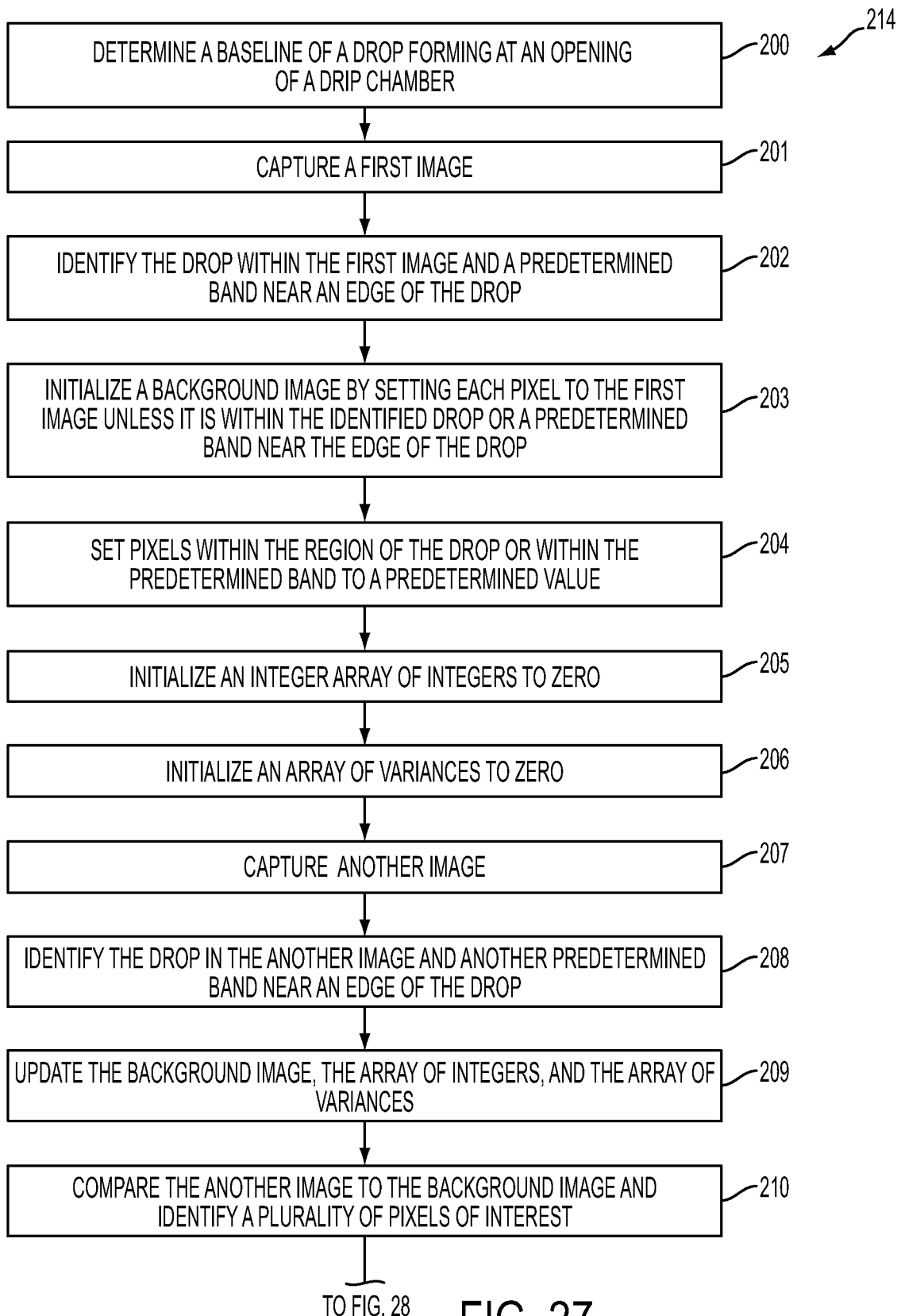


FIG. 27

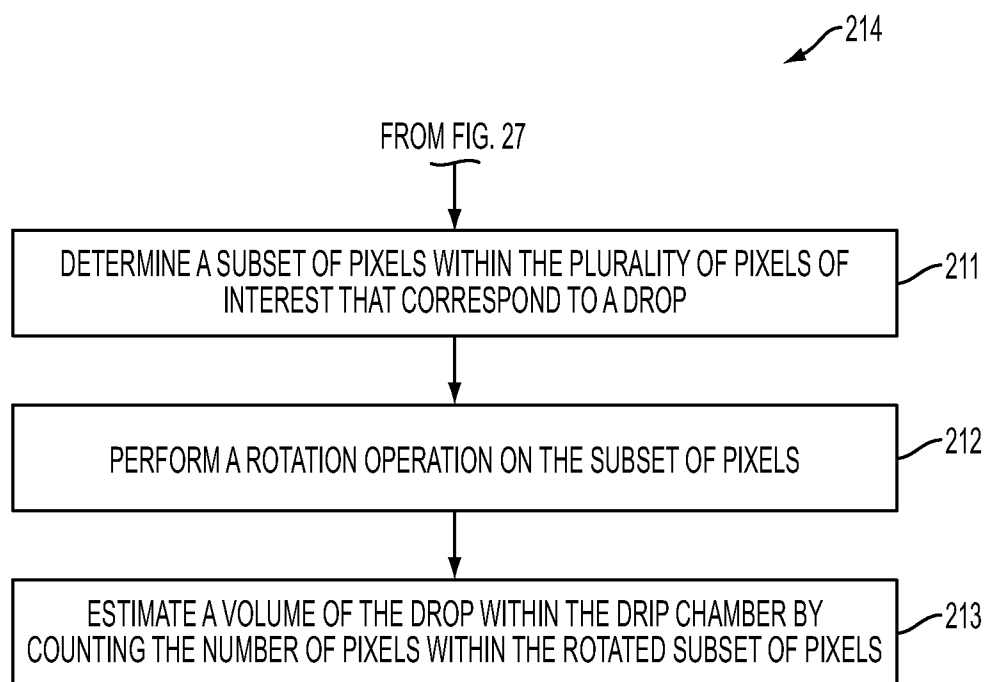


FIG. 28

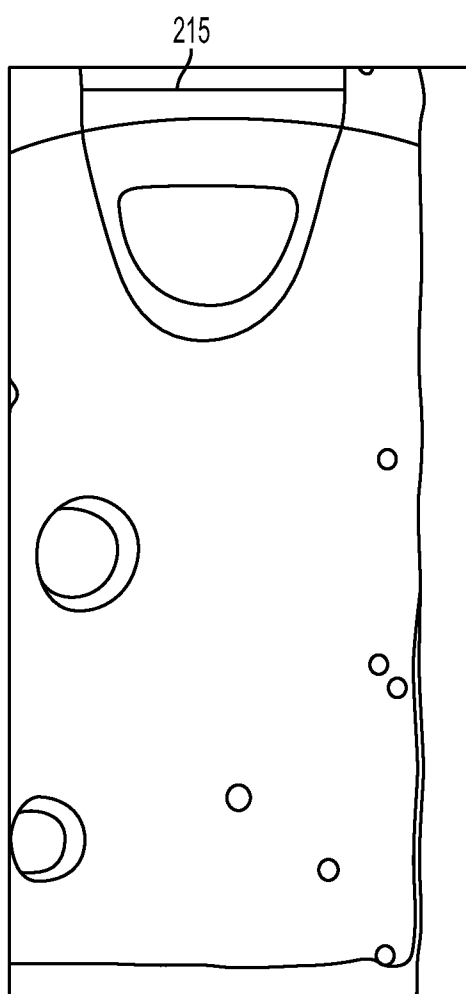


FIG. 29

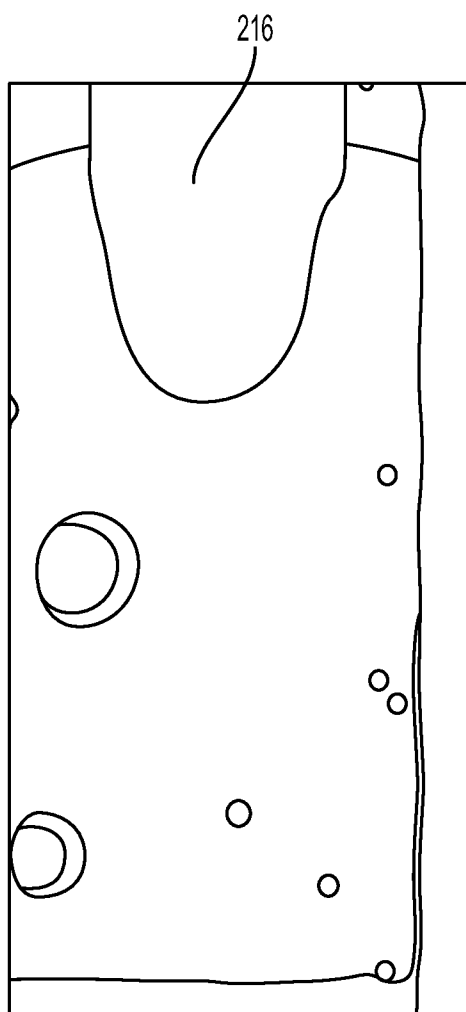


FIG. 30

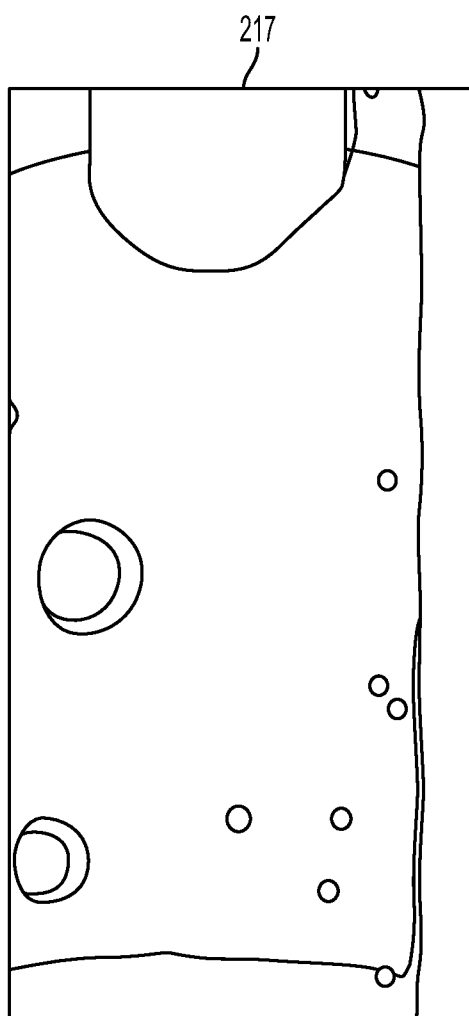


FIG. 31

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

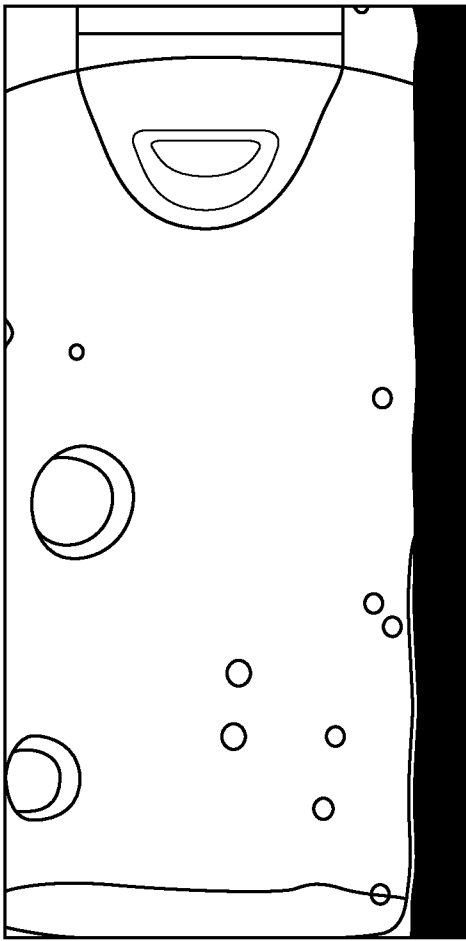


FIG. 33

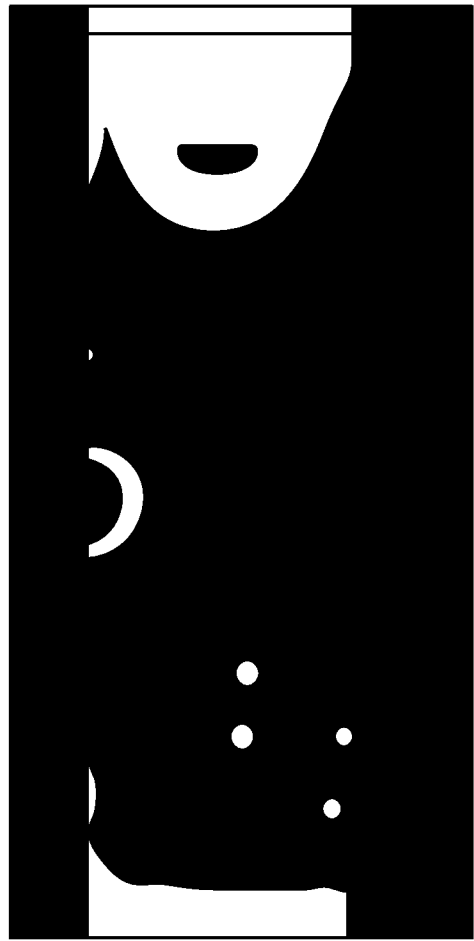


FIG. 34

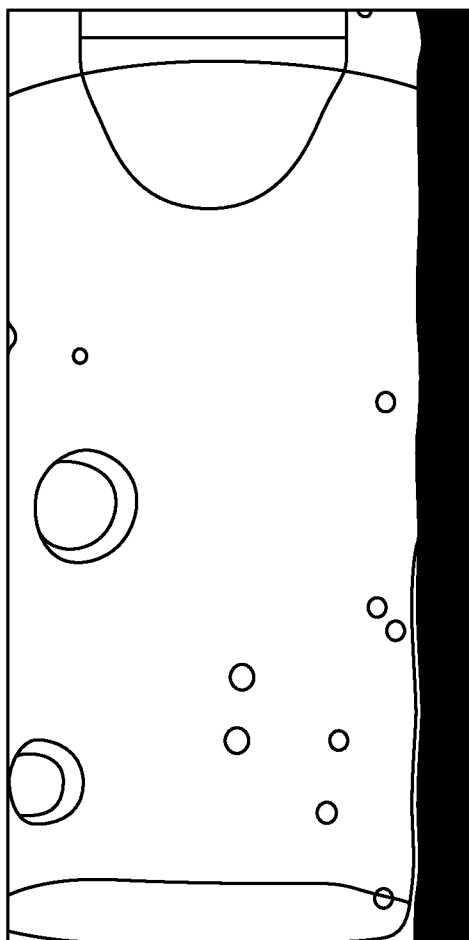


FIG. 35

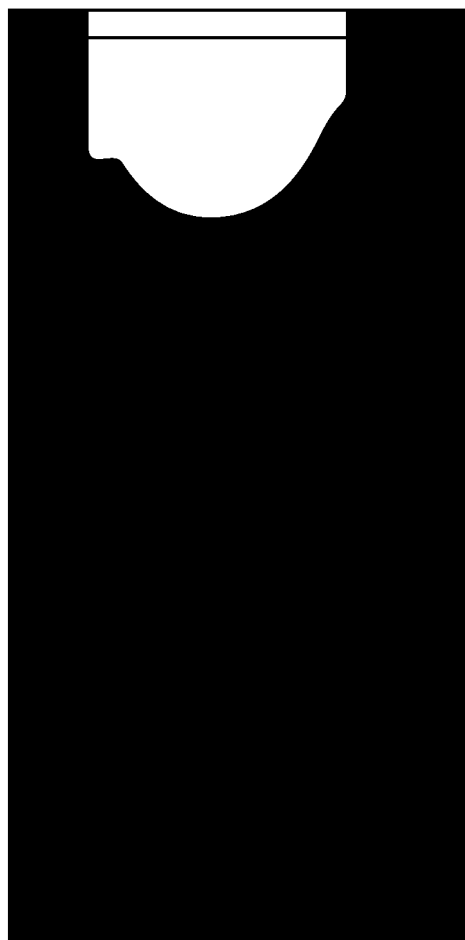


FIG. 36

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

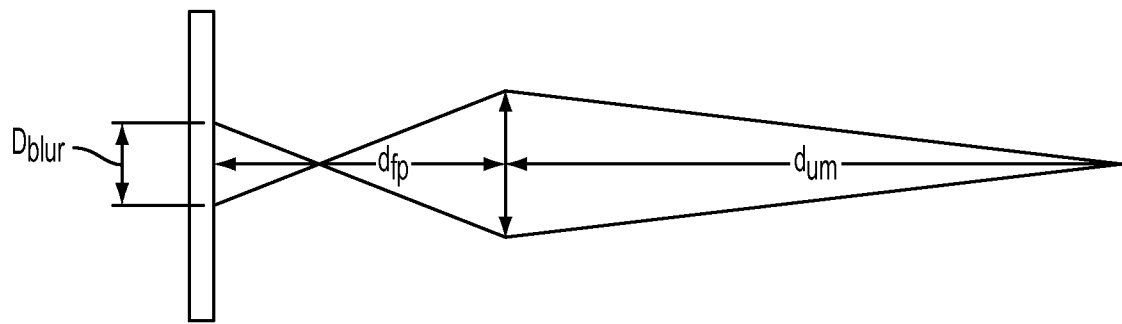


FIG. 38

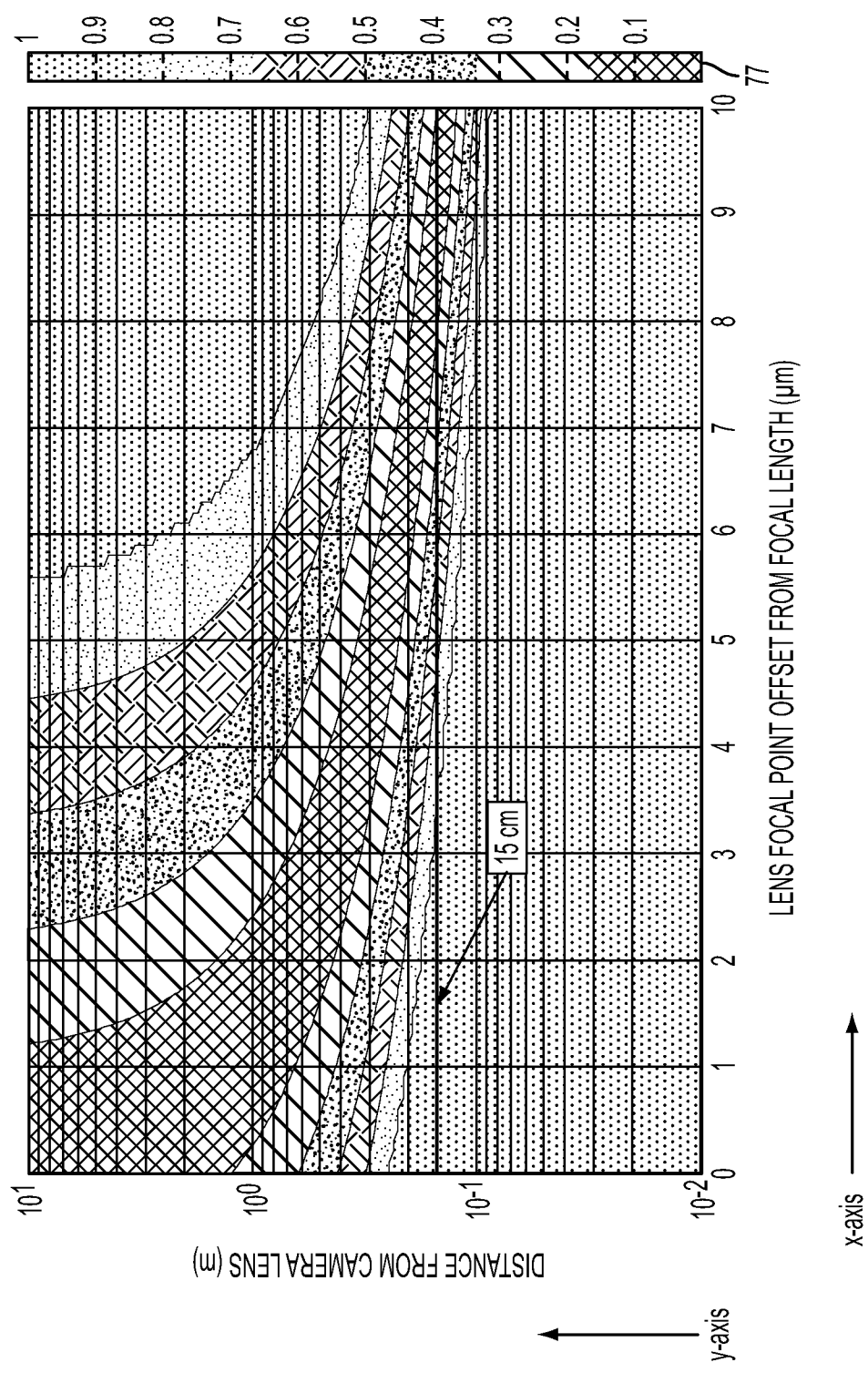


FIG. 39

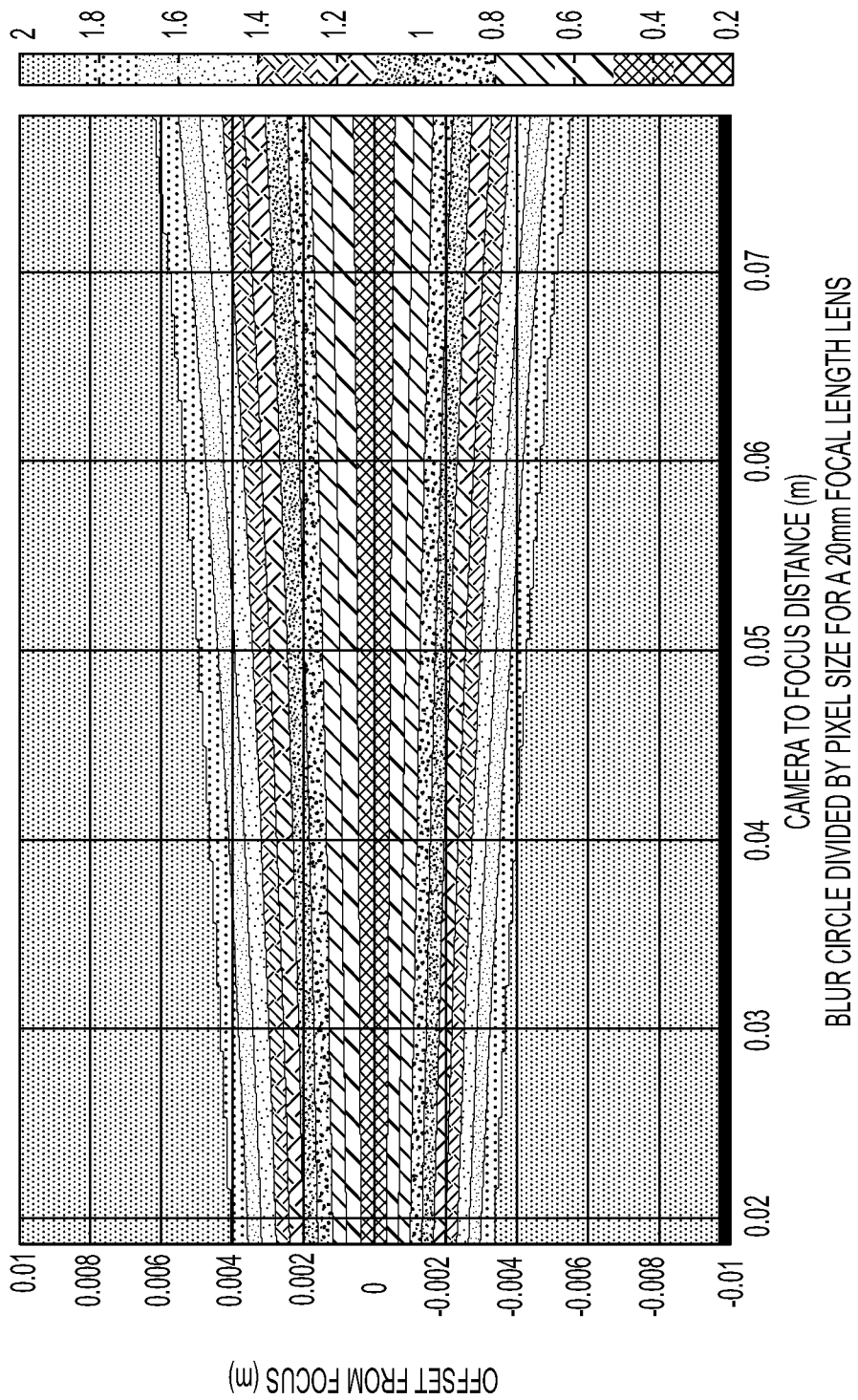


FIG. 40

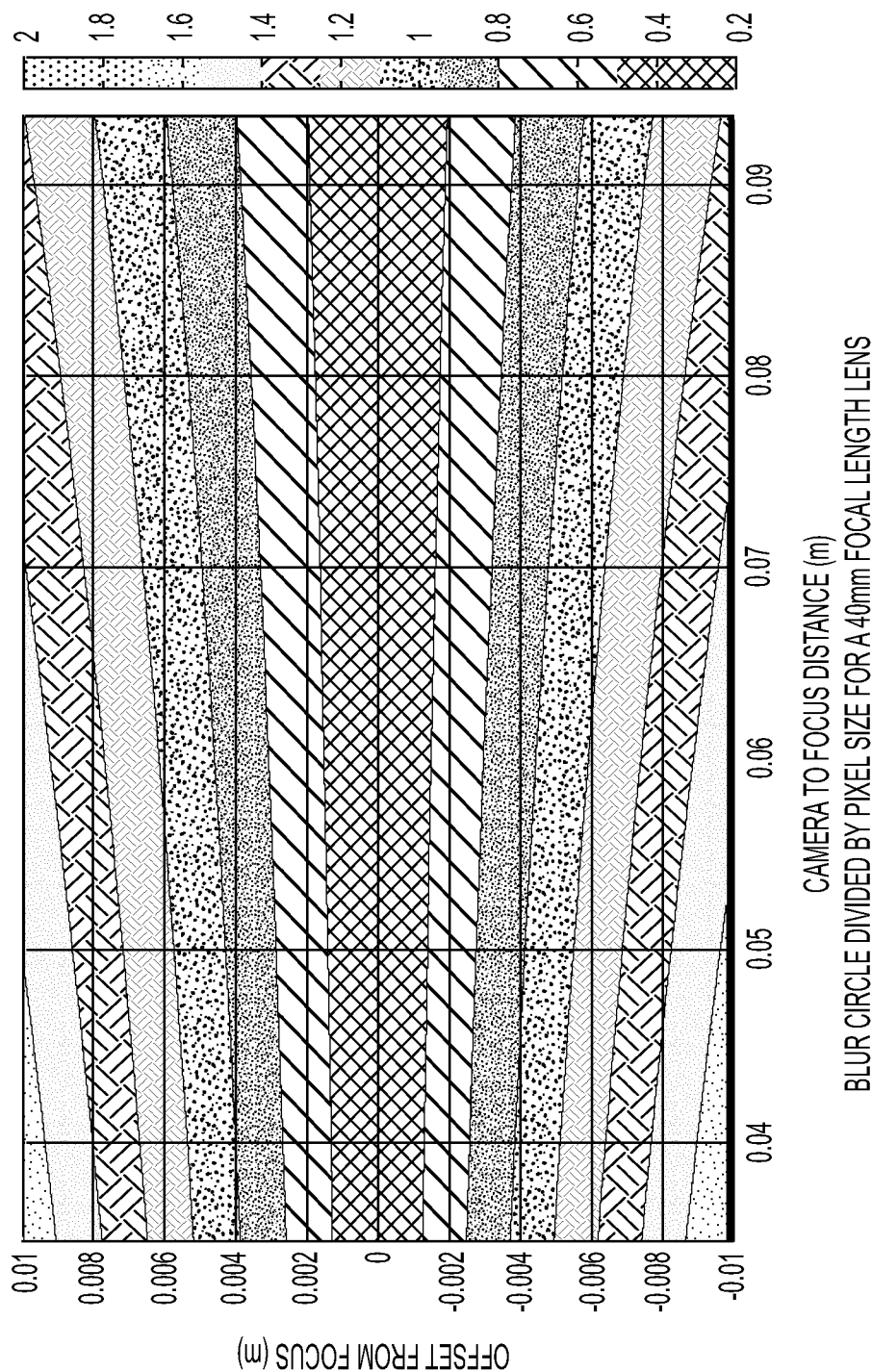


FIG. 41

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	$\pm 9.7\text{mm}$	$\pm 2\text{mm}$	$\pm 4\text{mm}$
20mm	60mm	78.2mm	$\pm 12.3\text{mm}$	$\pm 3\text{mm}$	$\pm 6\text{mm}$
40mm	0mm	34.8mm	$\pm 18.2\text{mm}$	$\pm 5\text{mm}$	$\geq 10\text{mm}$
40mm	60mm	93.5mm	$\pm 22.6\text{mm}$	$\pm 10\text{mm}$	$\geq 10\text{mm}$
60mm	0mm	48.9mm	$\pm 25.6\text{mm}$	$\geq 10\text{mm}$	$\geq 10\text{mm}$
60mm	60mm	106.4mm	$\pm 31.4\text{mm}$	$\geq 10\text{mm}$	$\geq 10\text{mm}$

FIG. 42

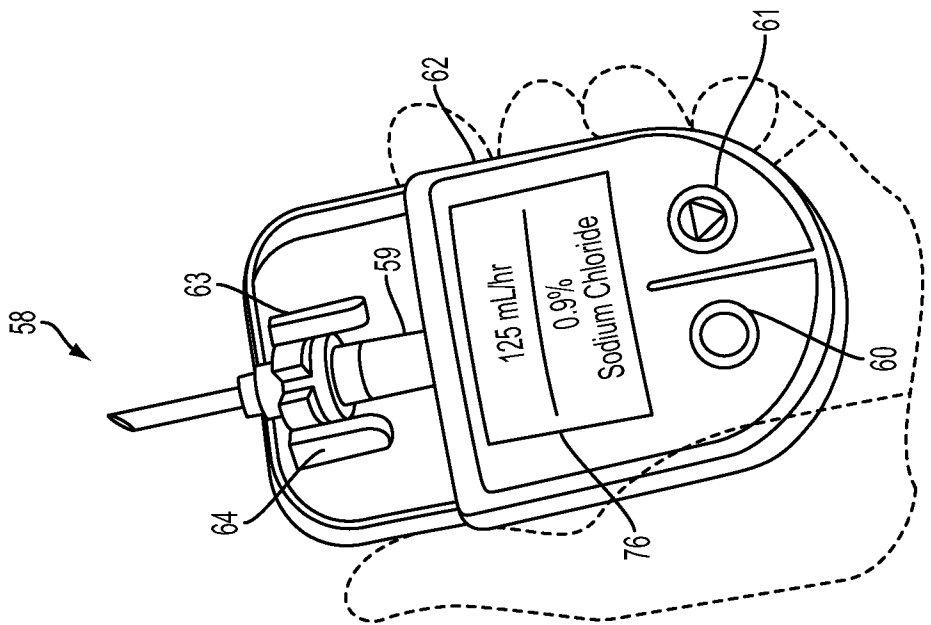


FIG. 43

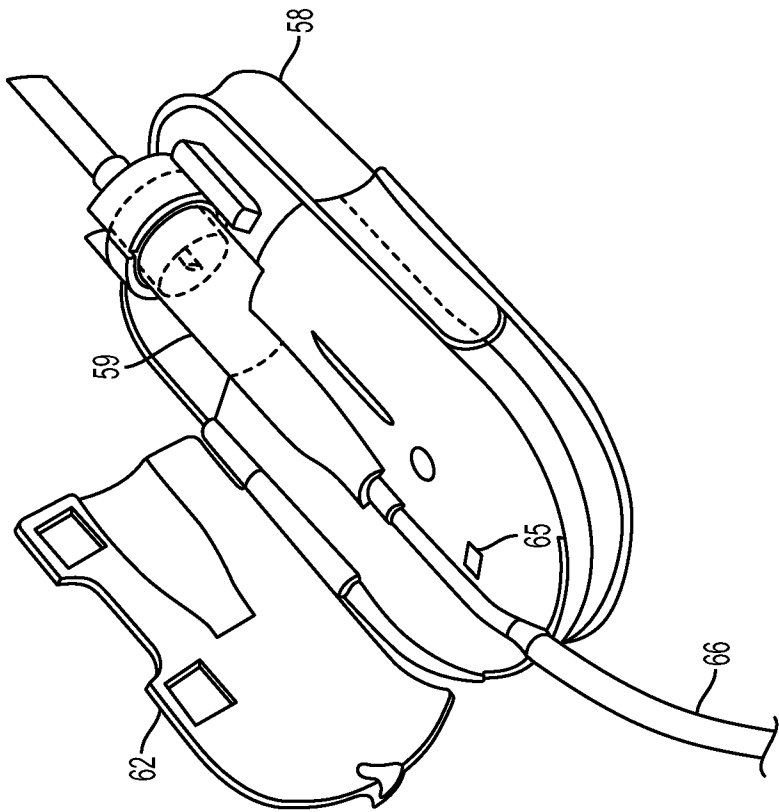


FIG. 44

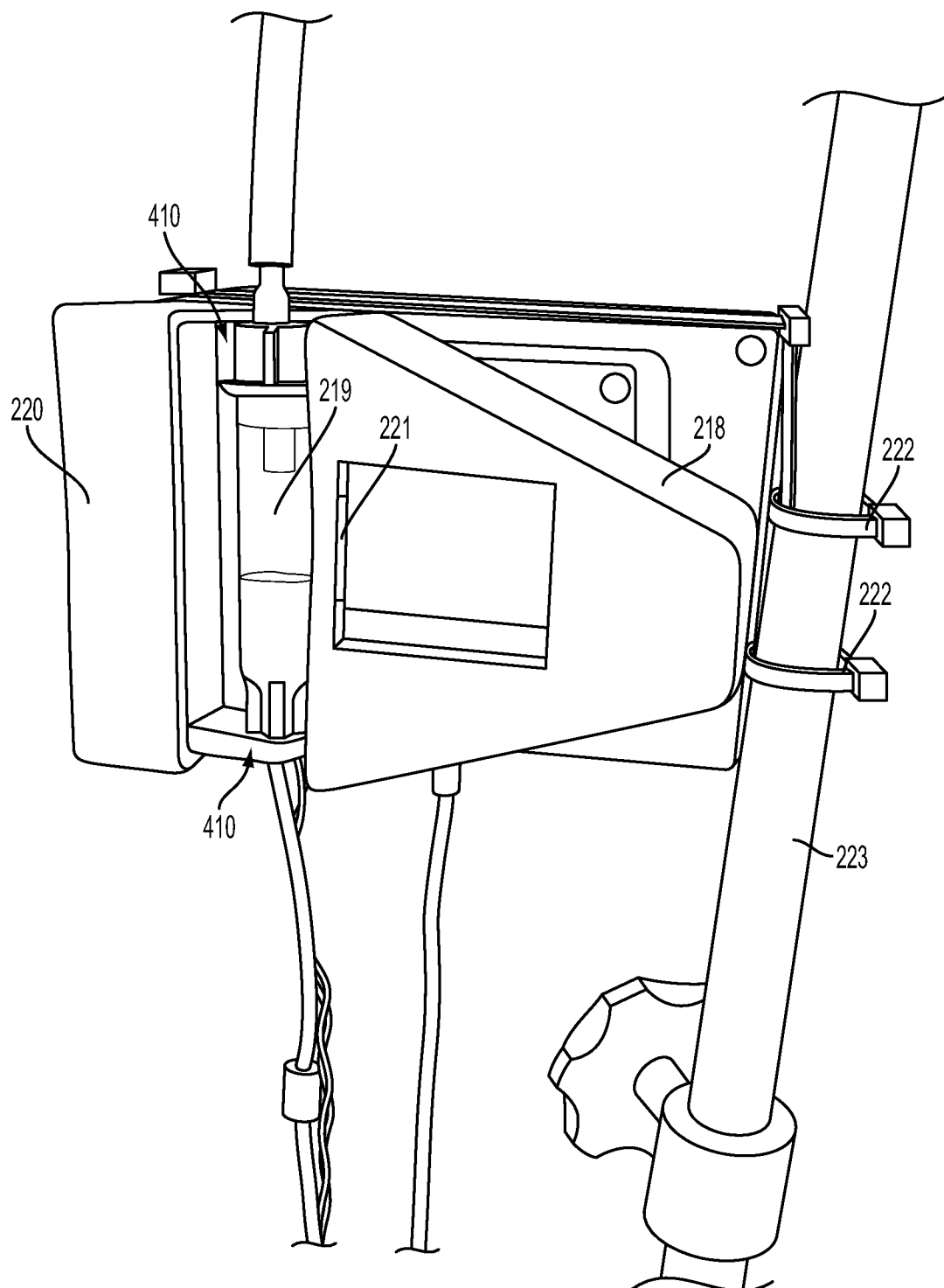


FIG. 45

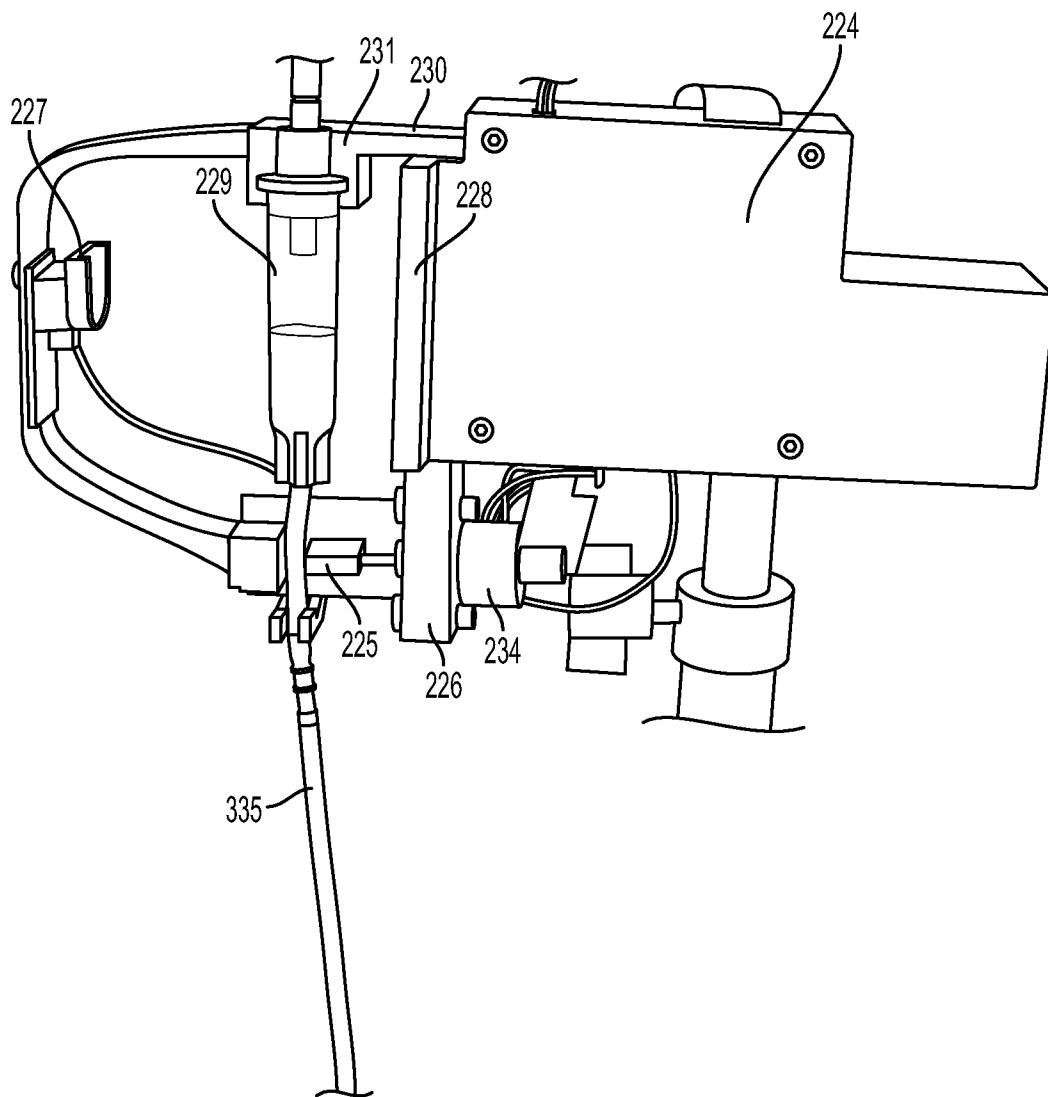


FIG. 46

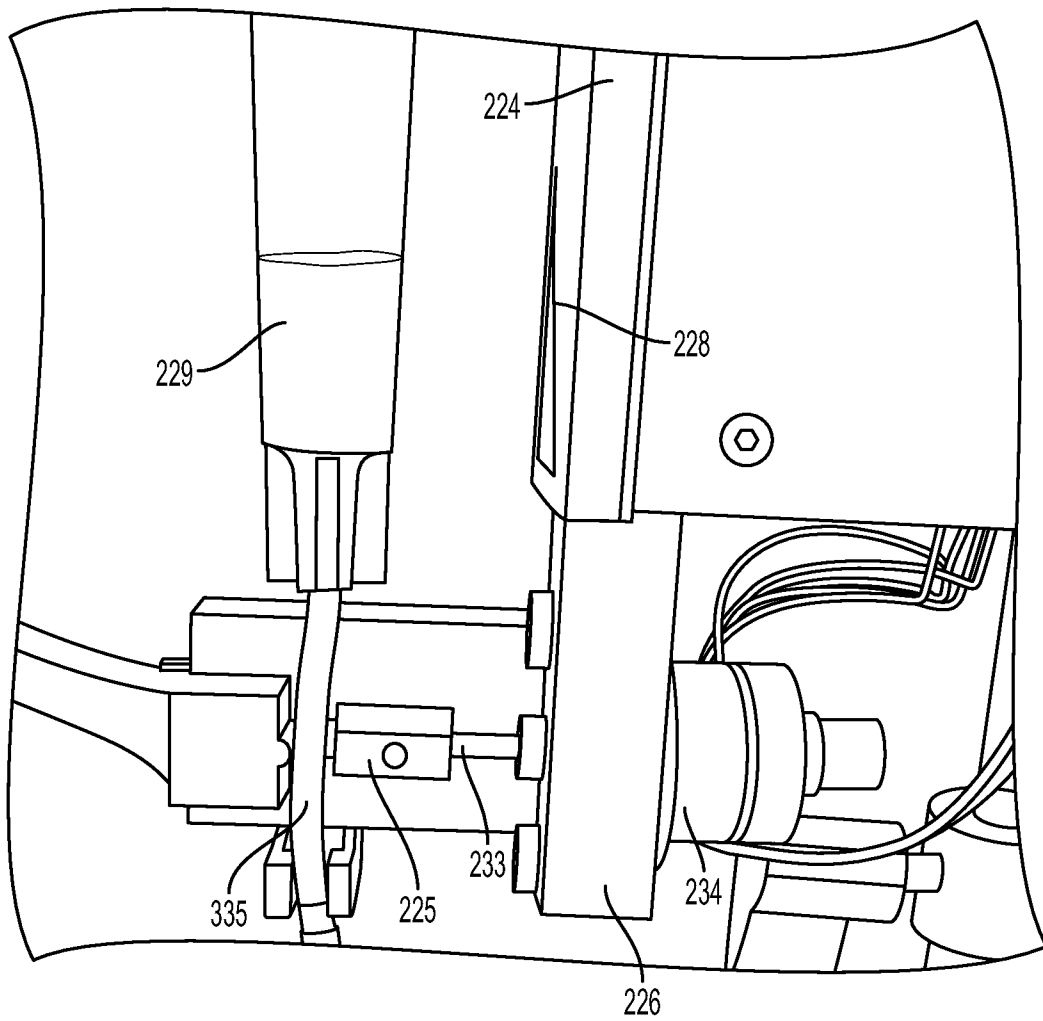


FIG. 47

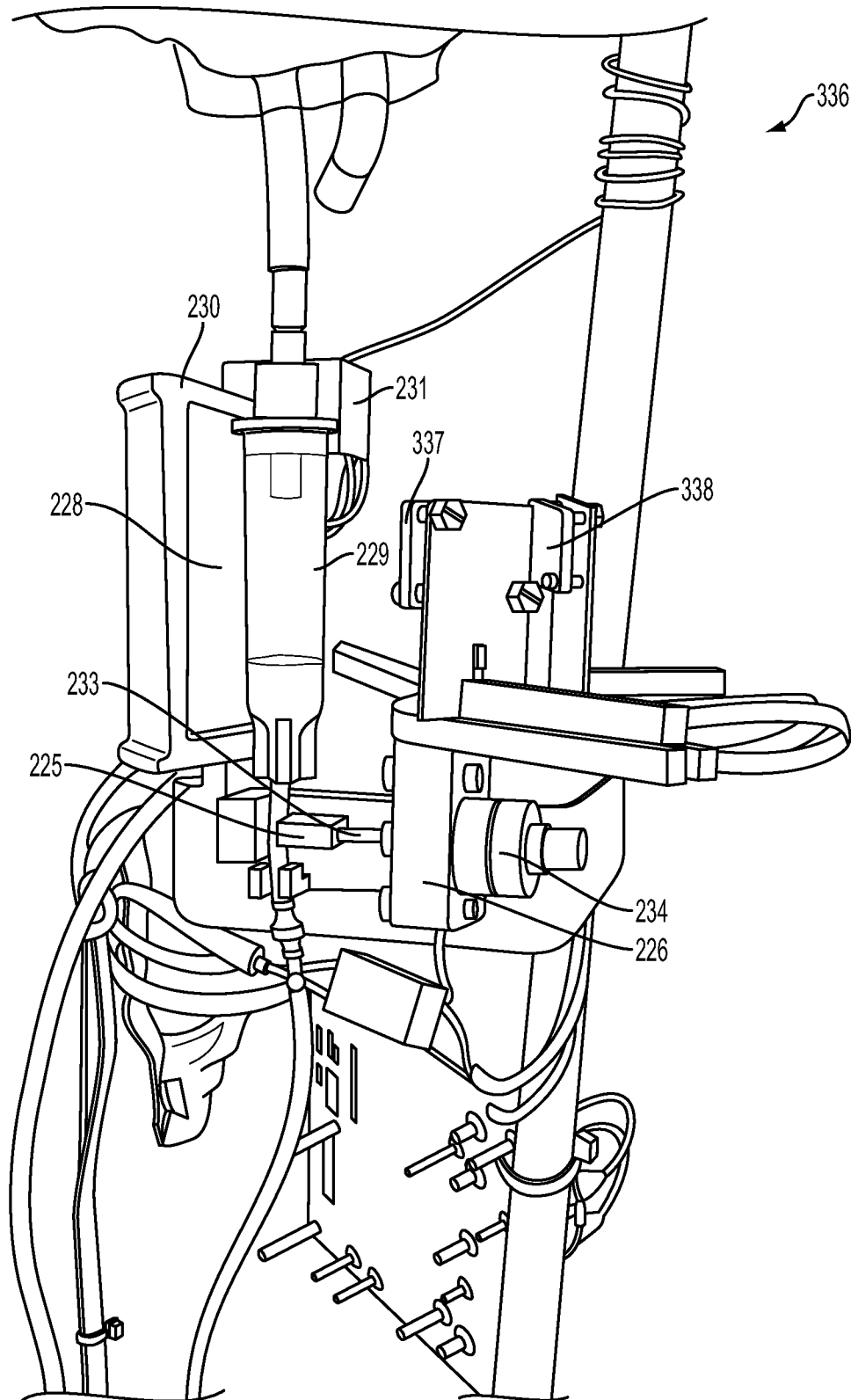


FIG. 48

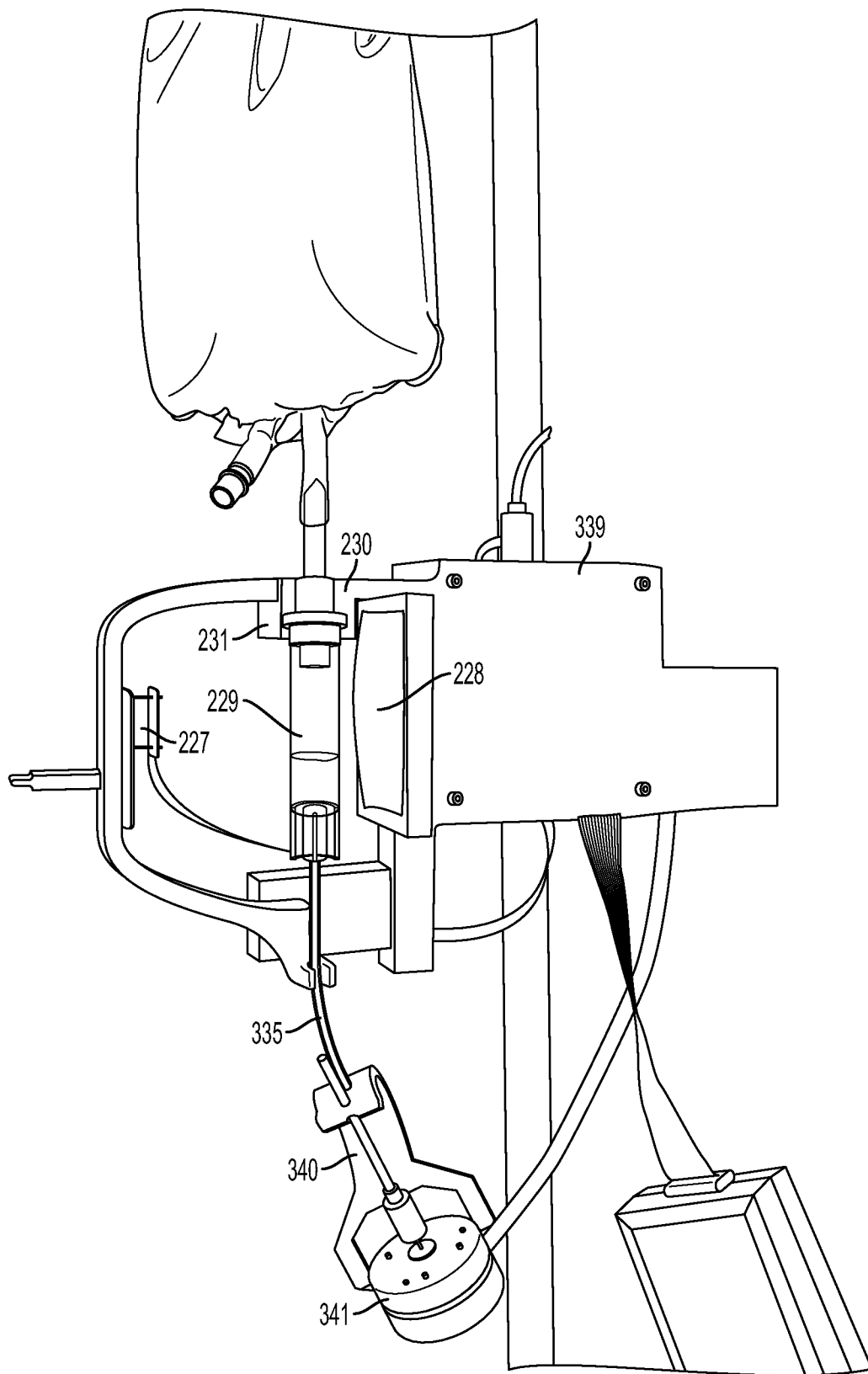


FIG. 49

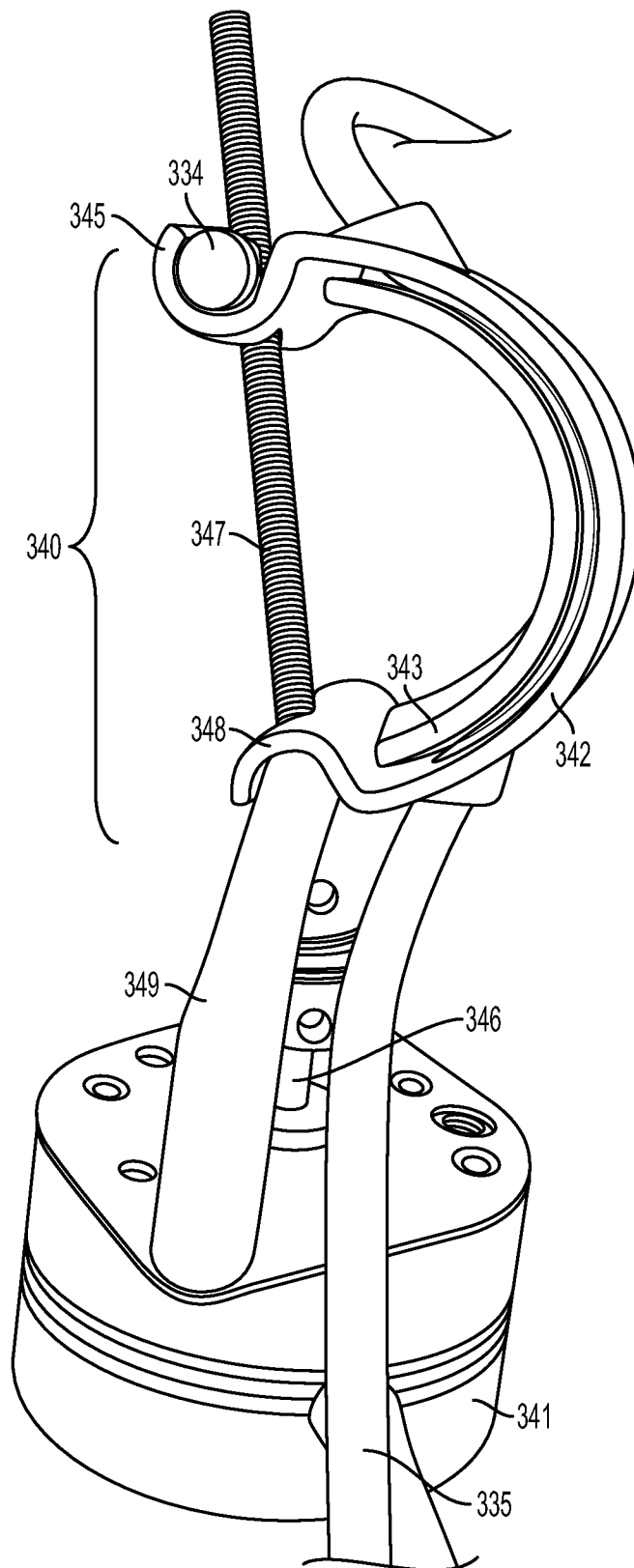


FIG. 50A

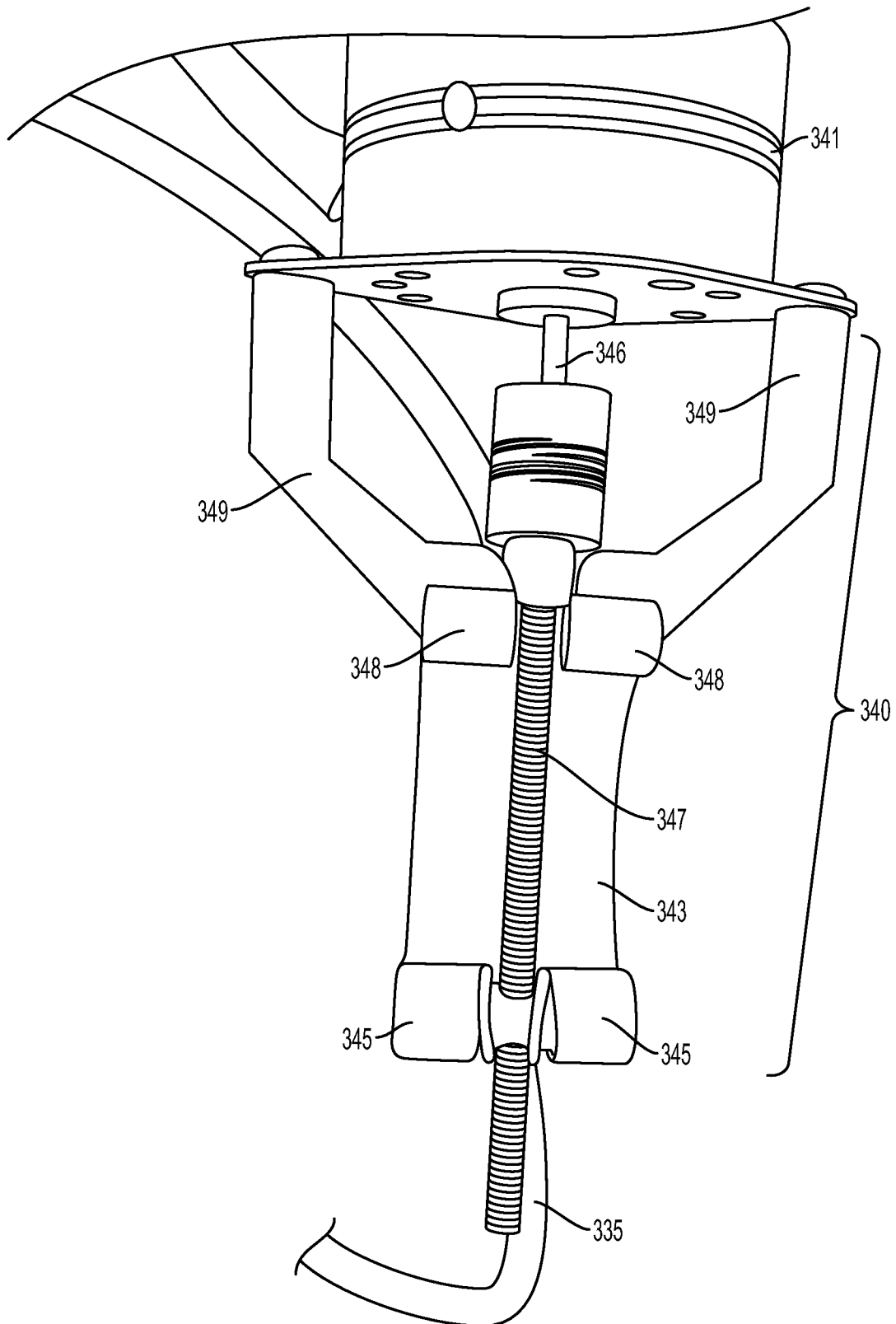


FIG. 50B

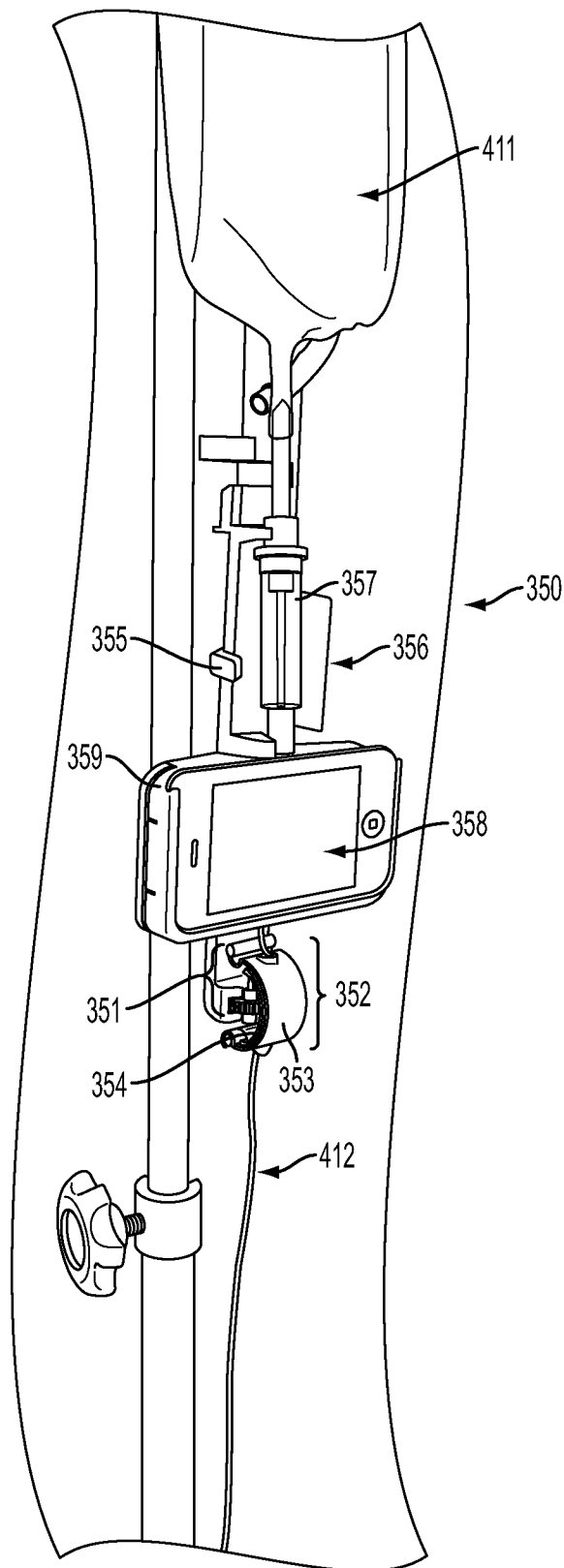


FIG. 51A

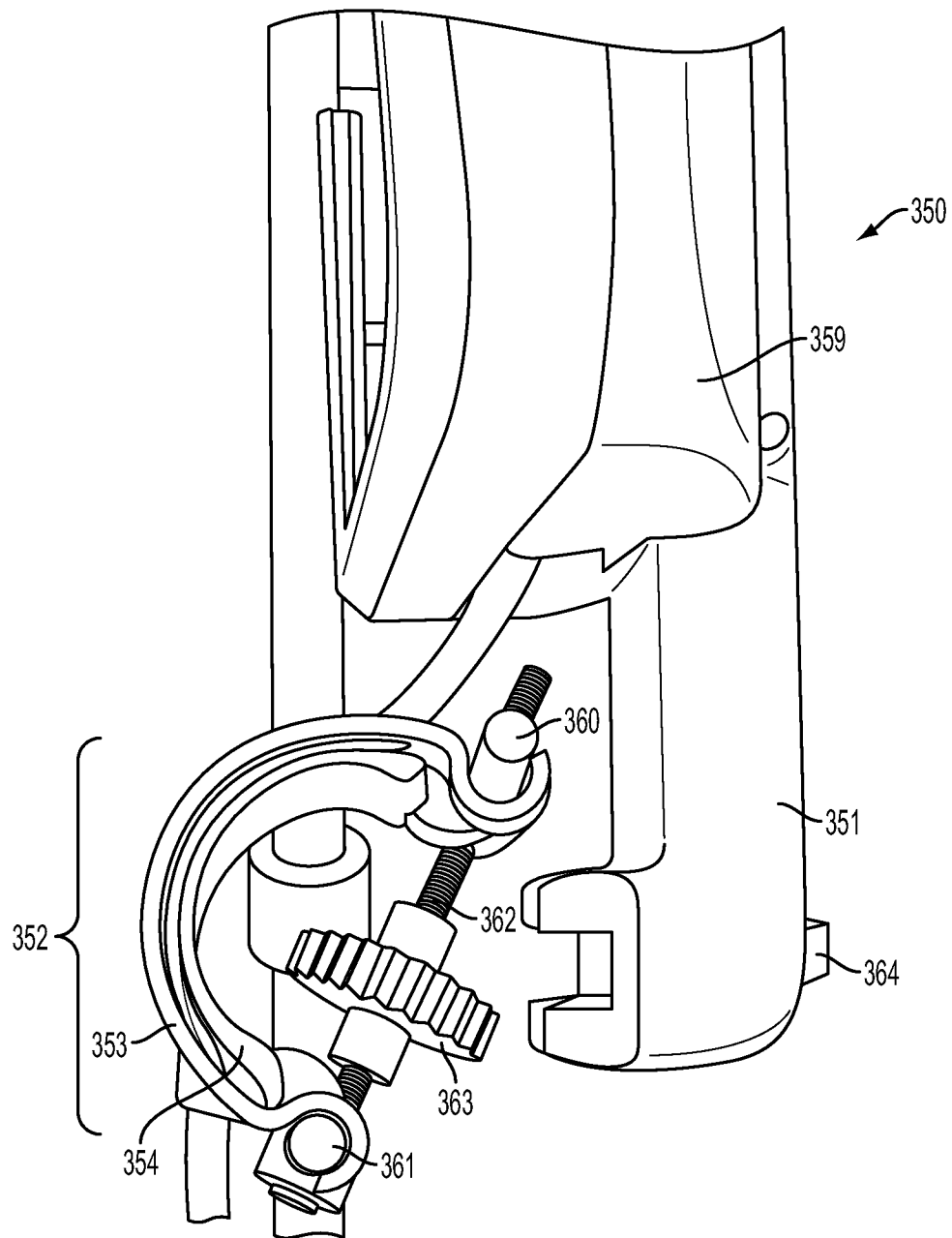


FIG. 51B

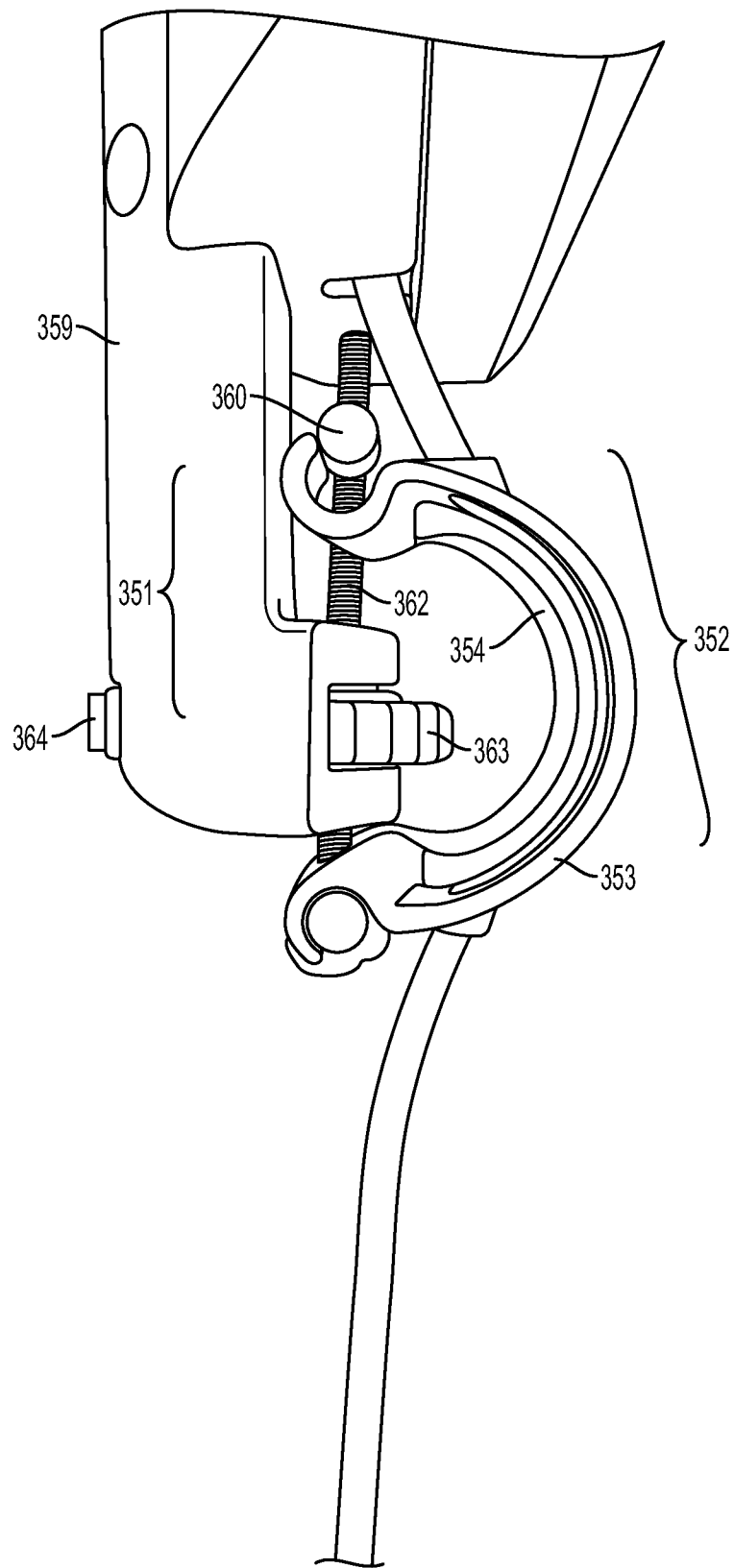


FIG. 51C

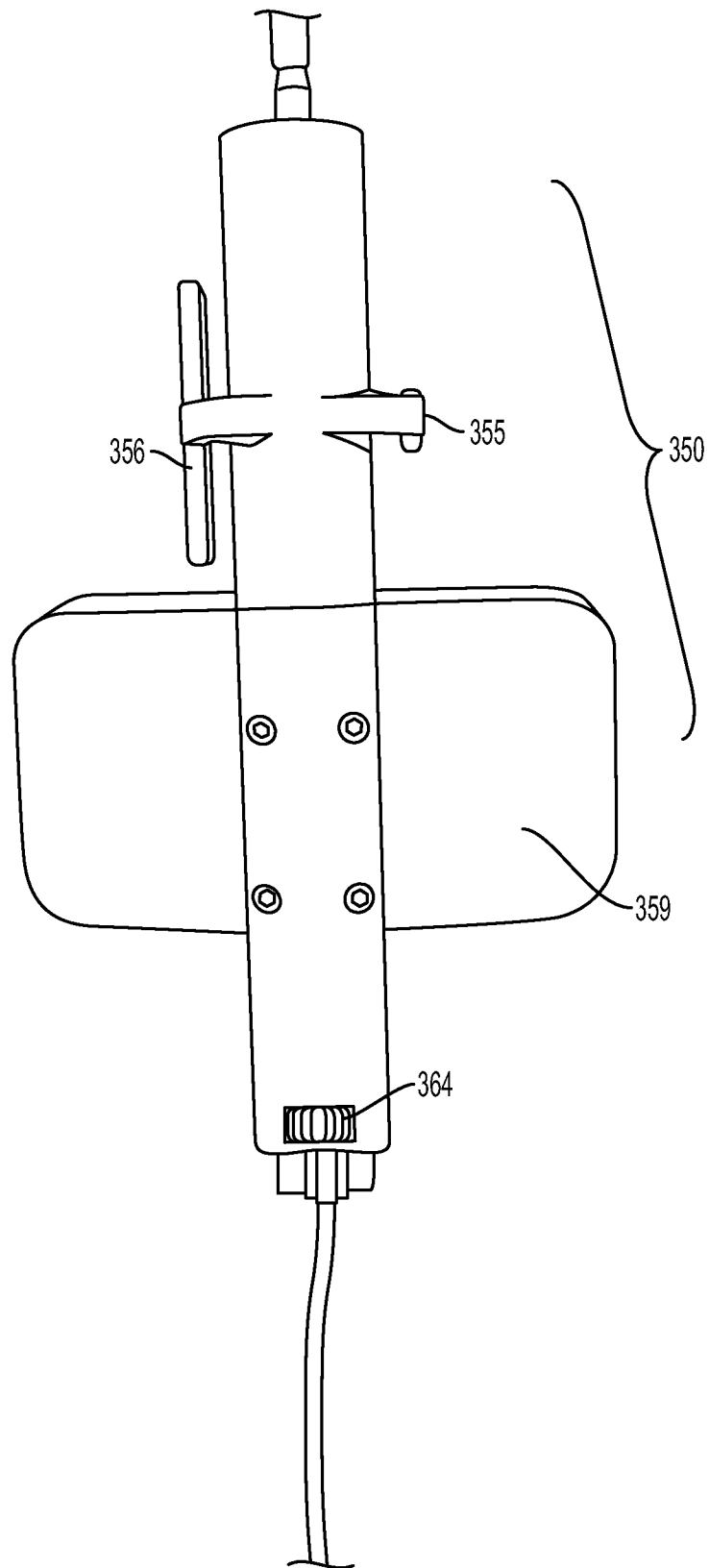


FIG. 51D

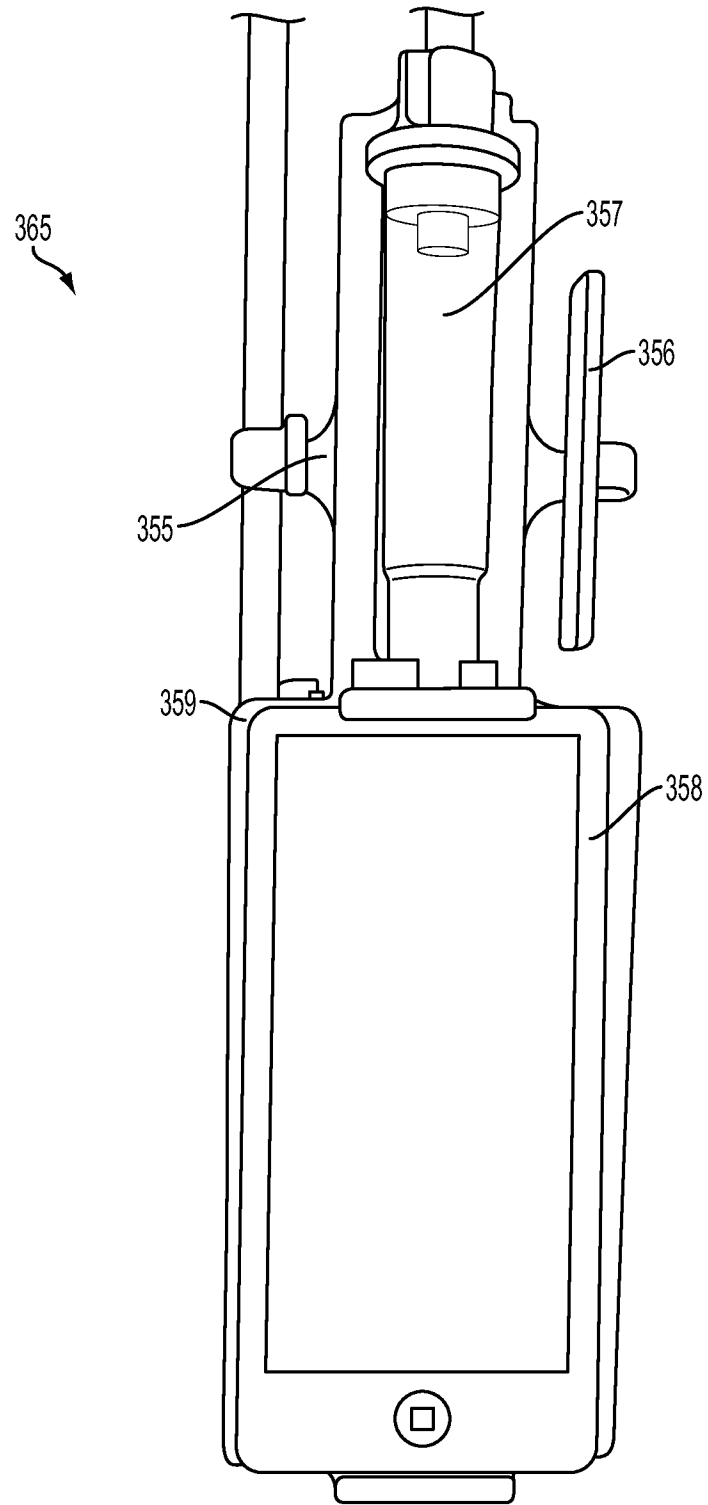


FIG. 52A

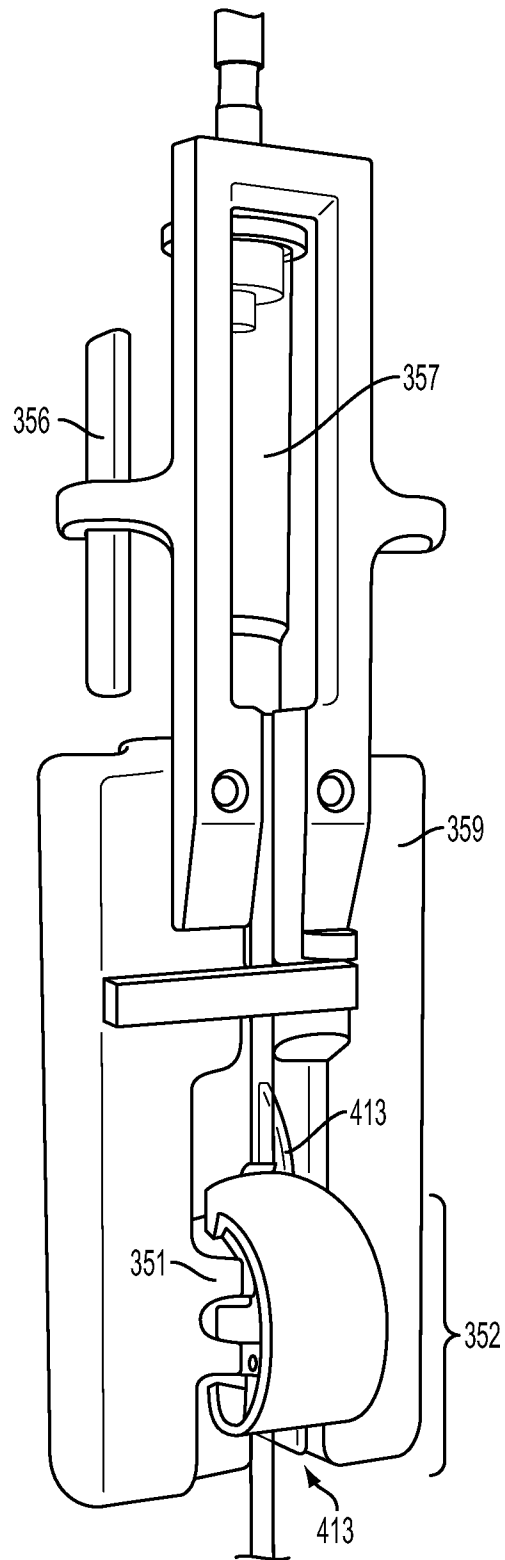


FIG. 52B

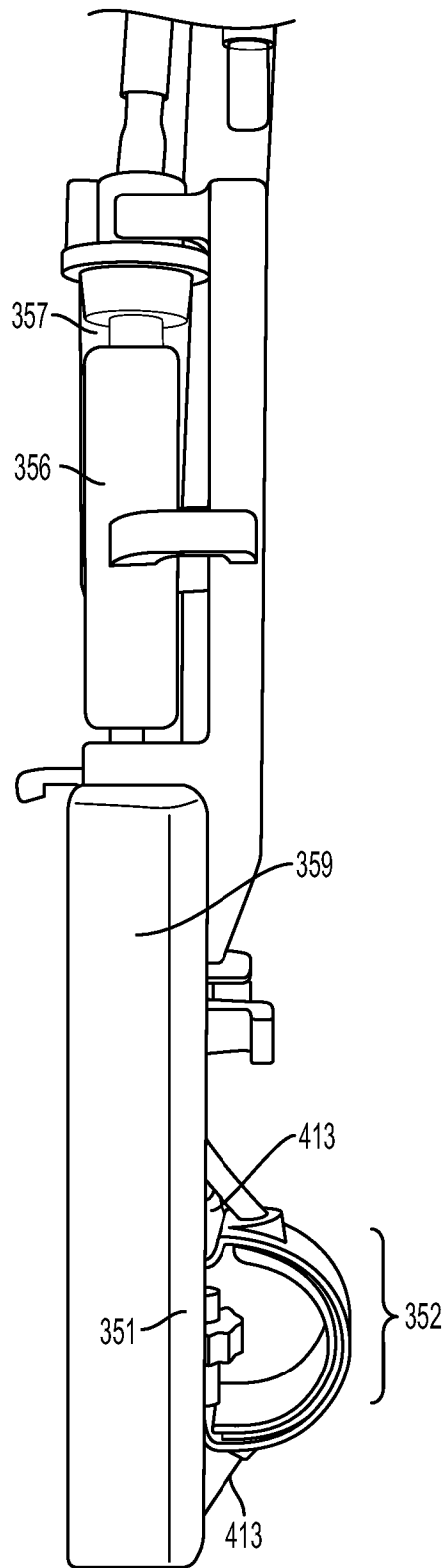


FIG. 52C

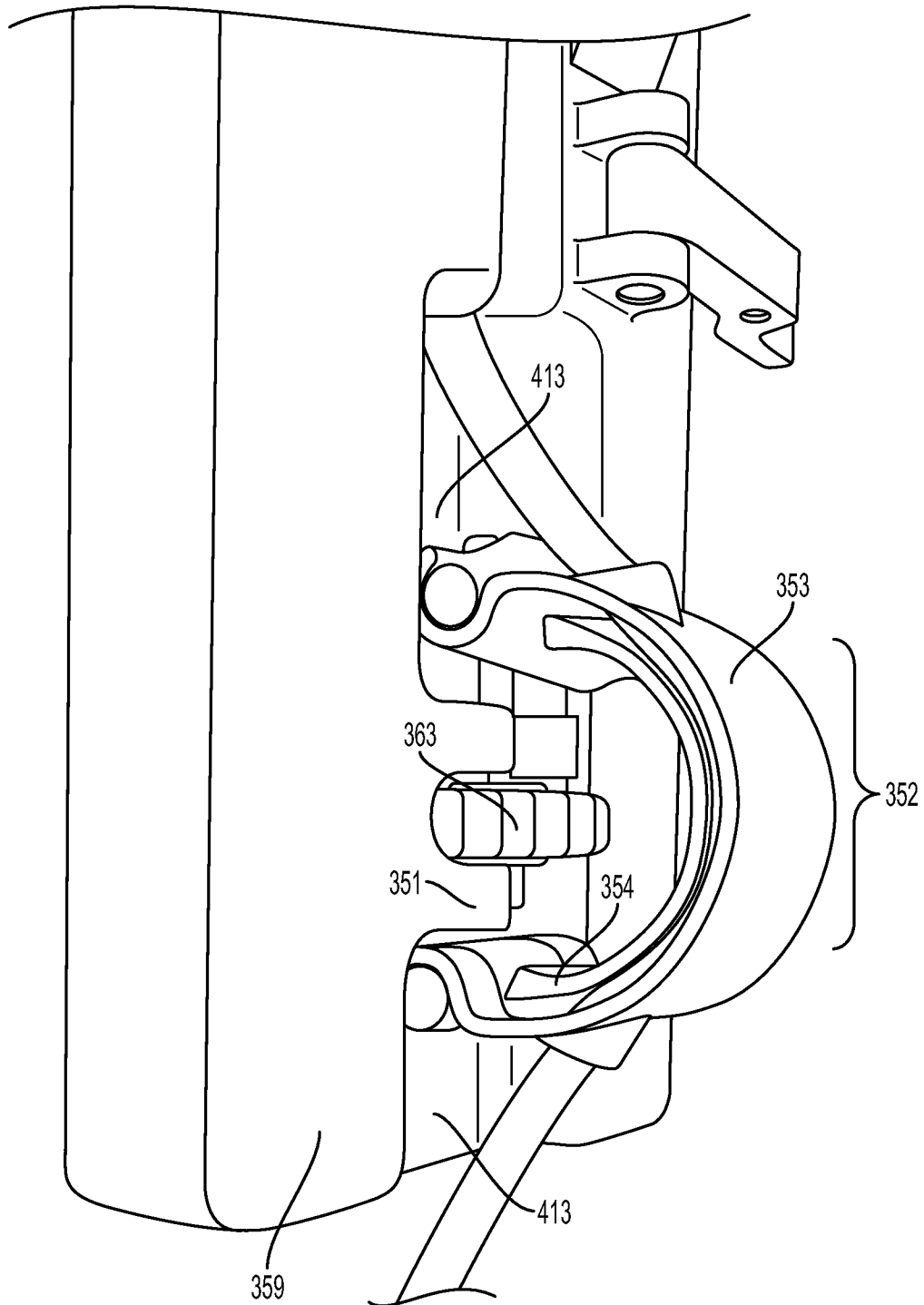


FIG. 52D

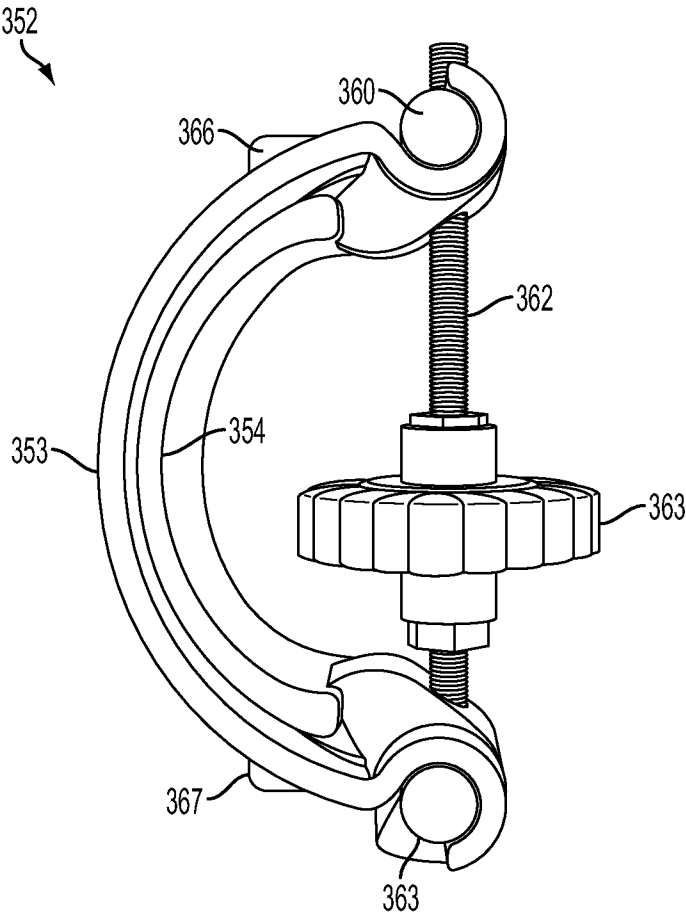


FIG. 53A

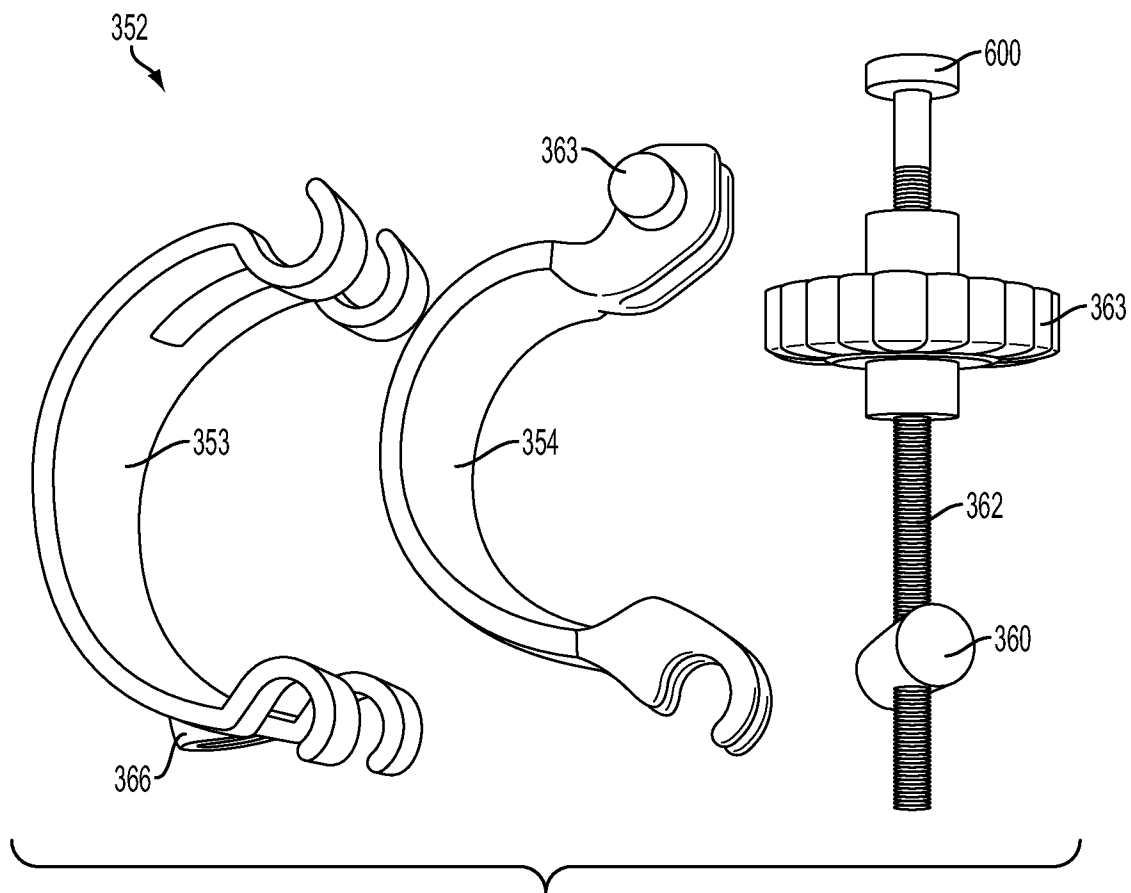


FIG. 53B

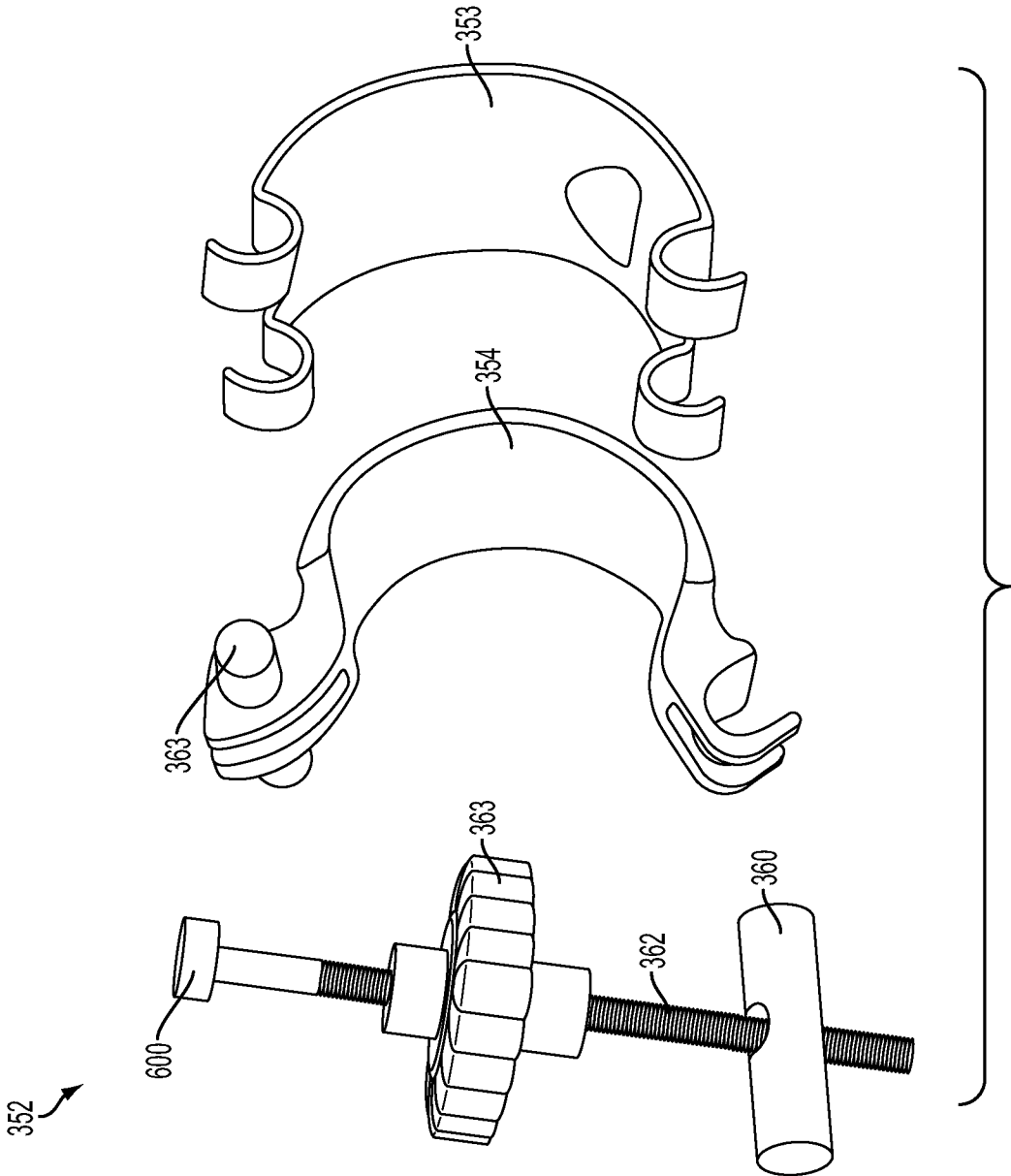


FIG. 53C

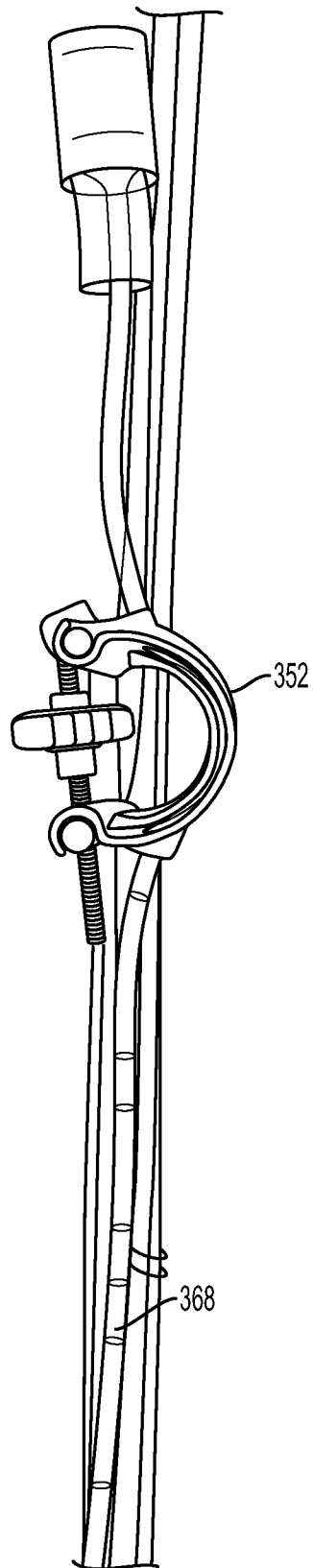


FIG. 54

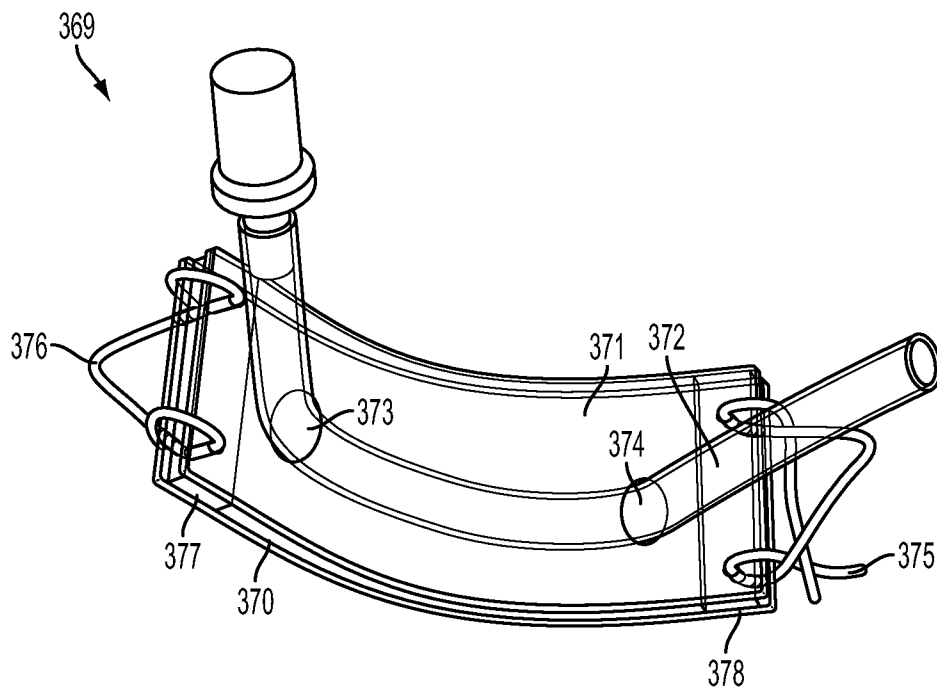


FIG. 55

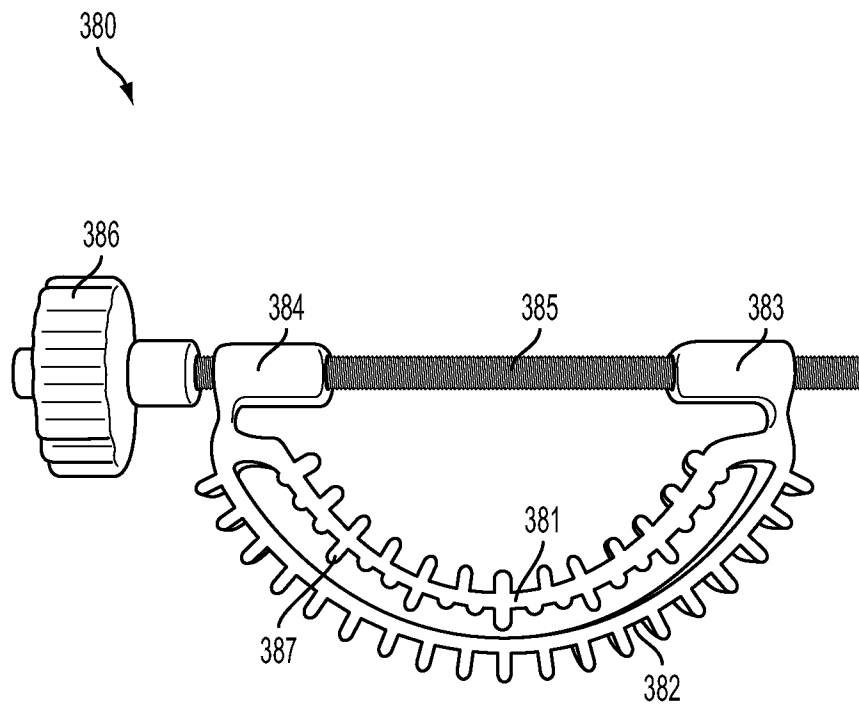


FIG. 56A

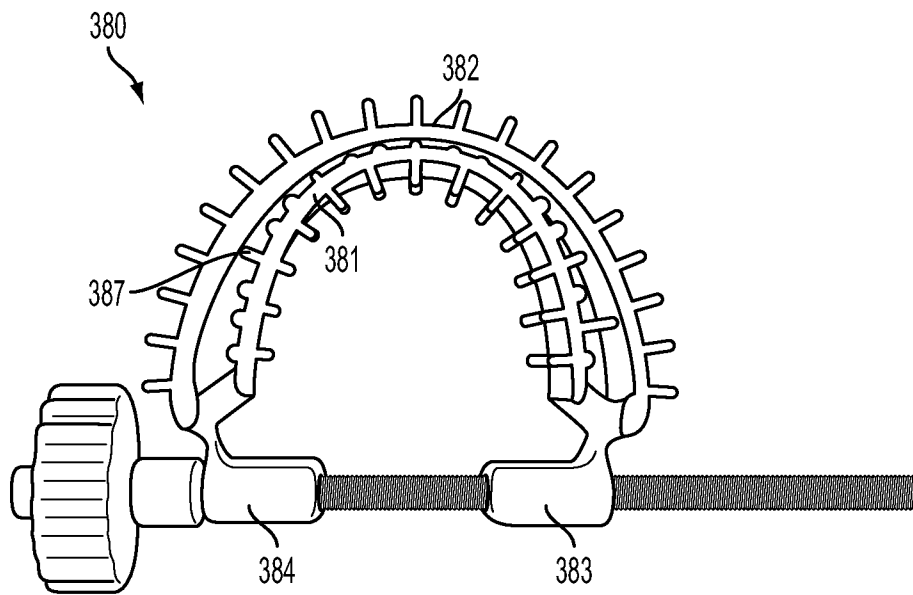


FIG. 56B

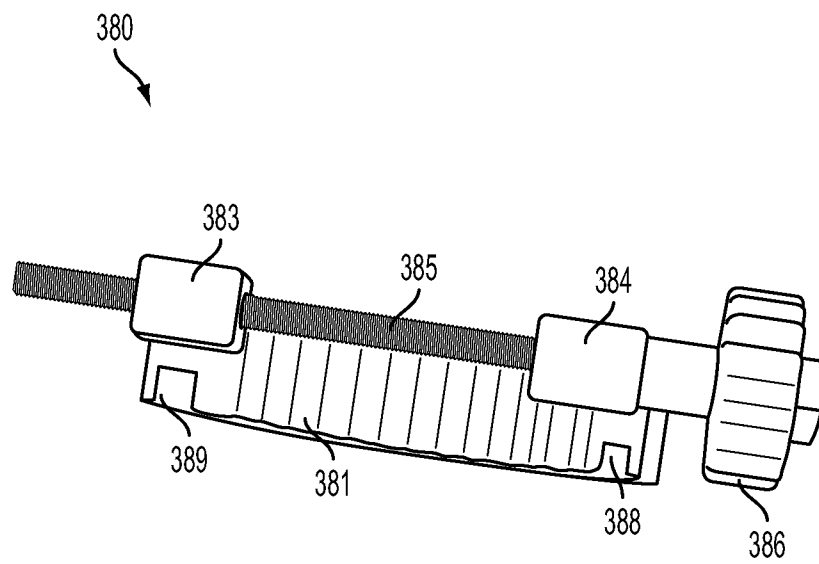


FIG. 56C

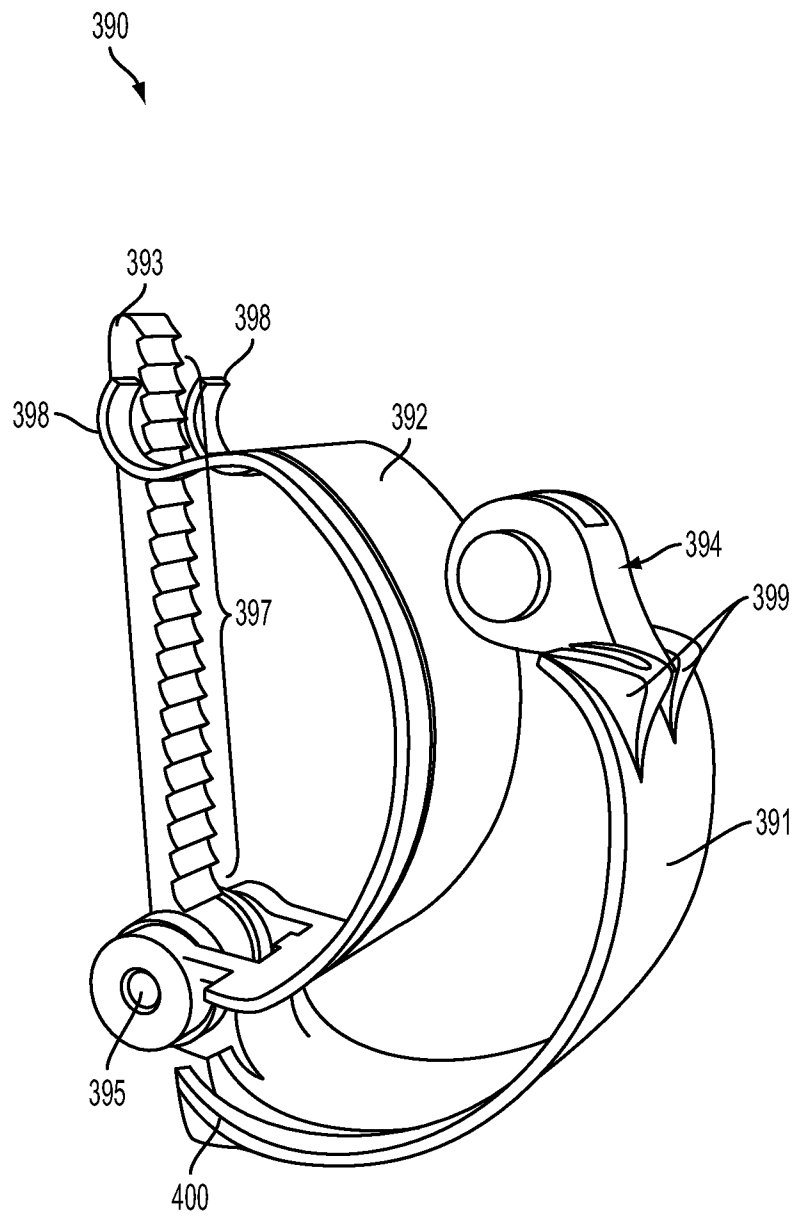


FIG. 57A

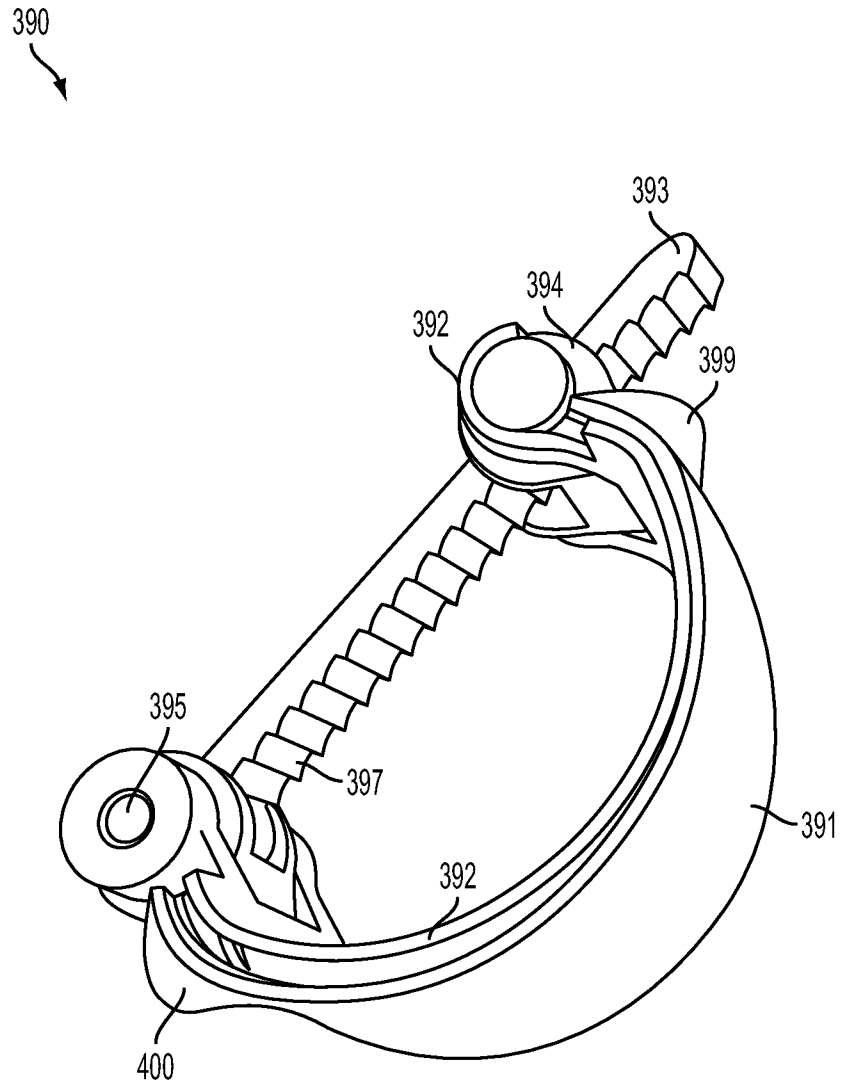


FIG. 57B

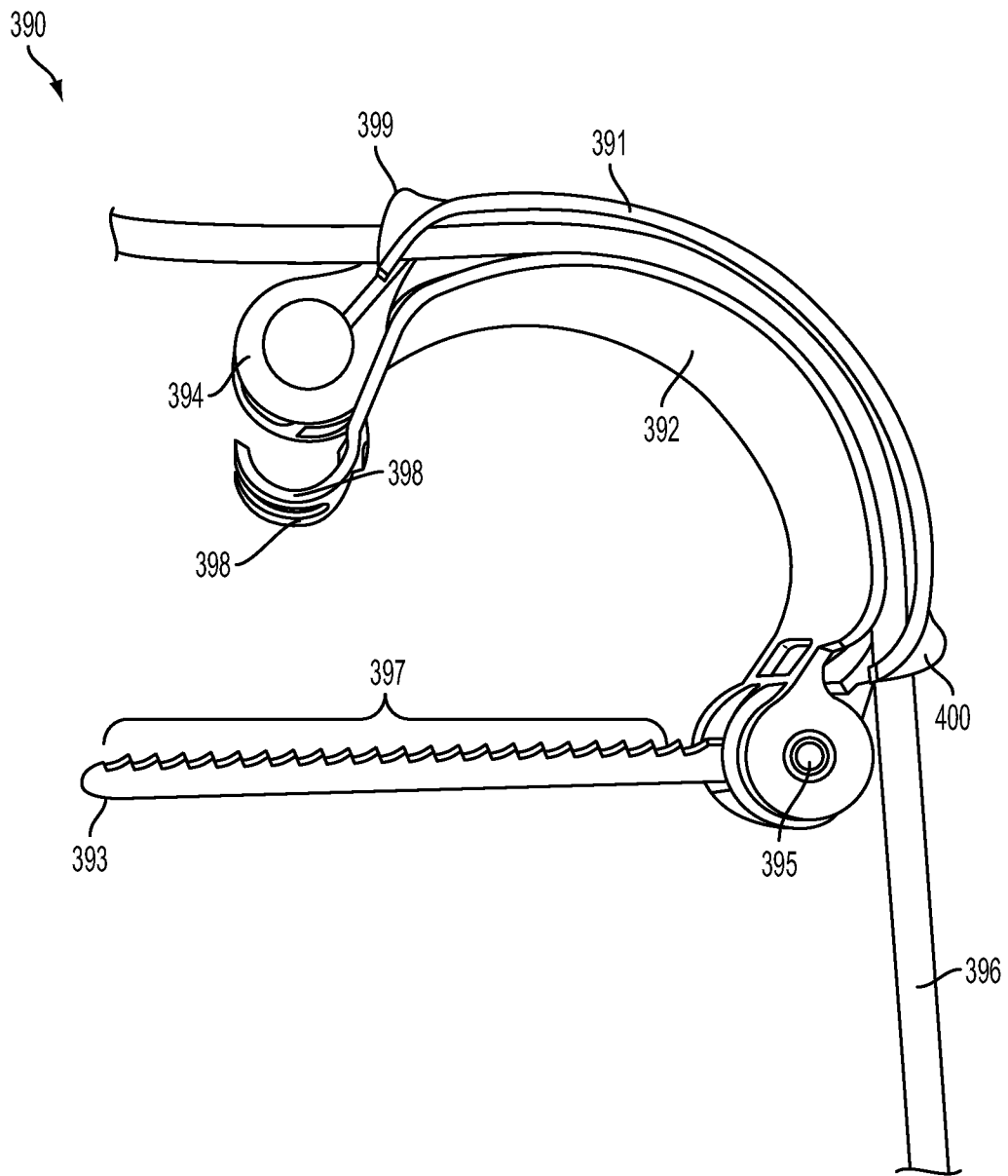


FIG. 57C

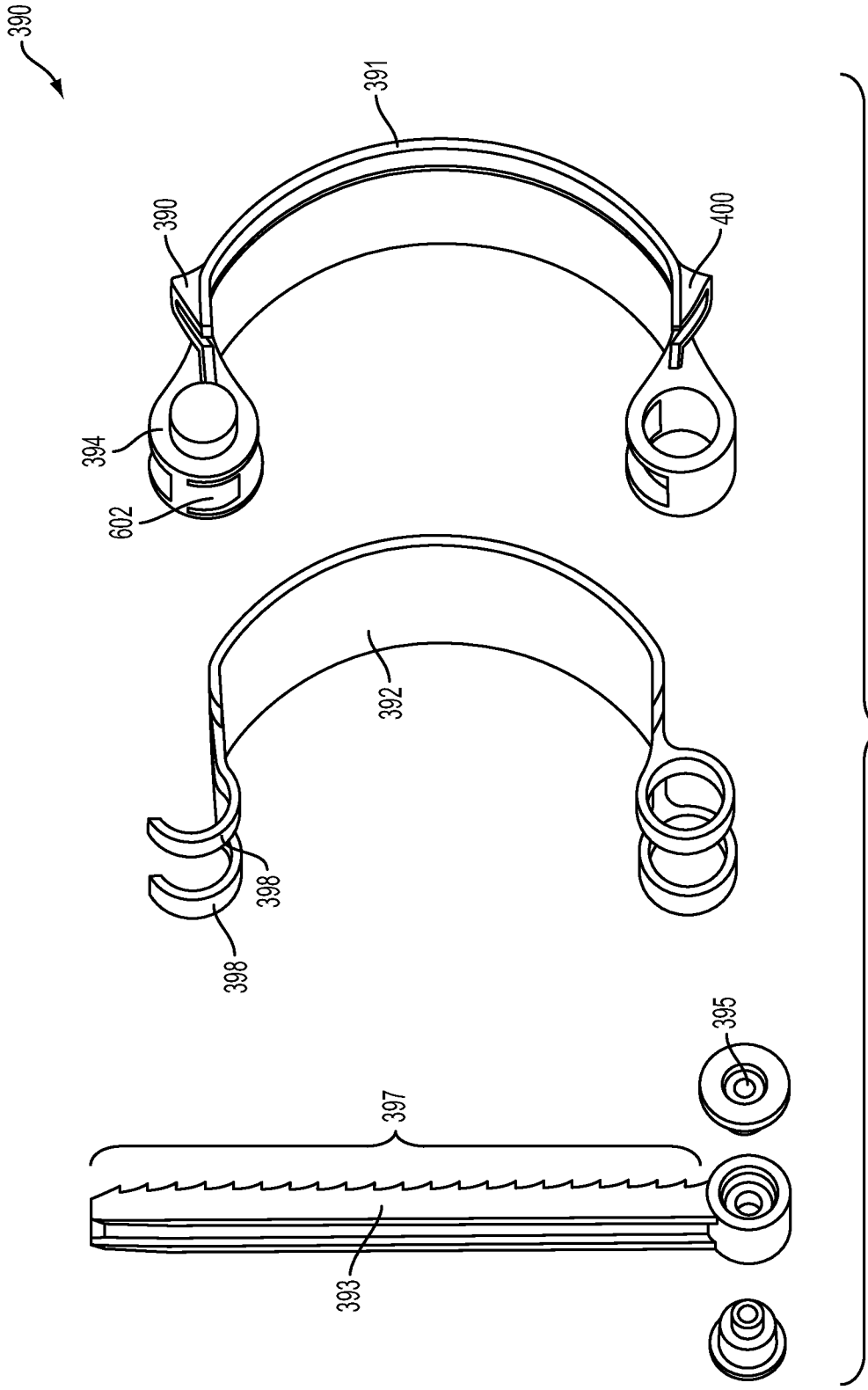


FIG. 57D

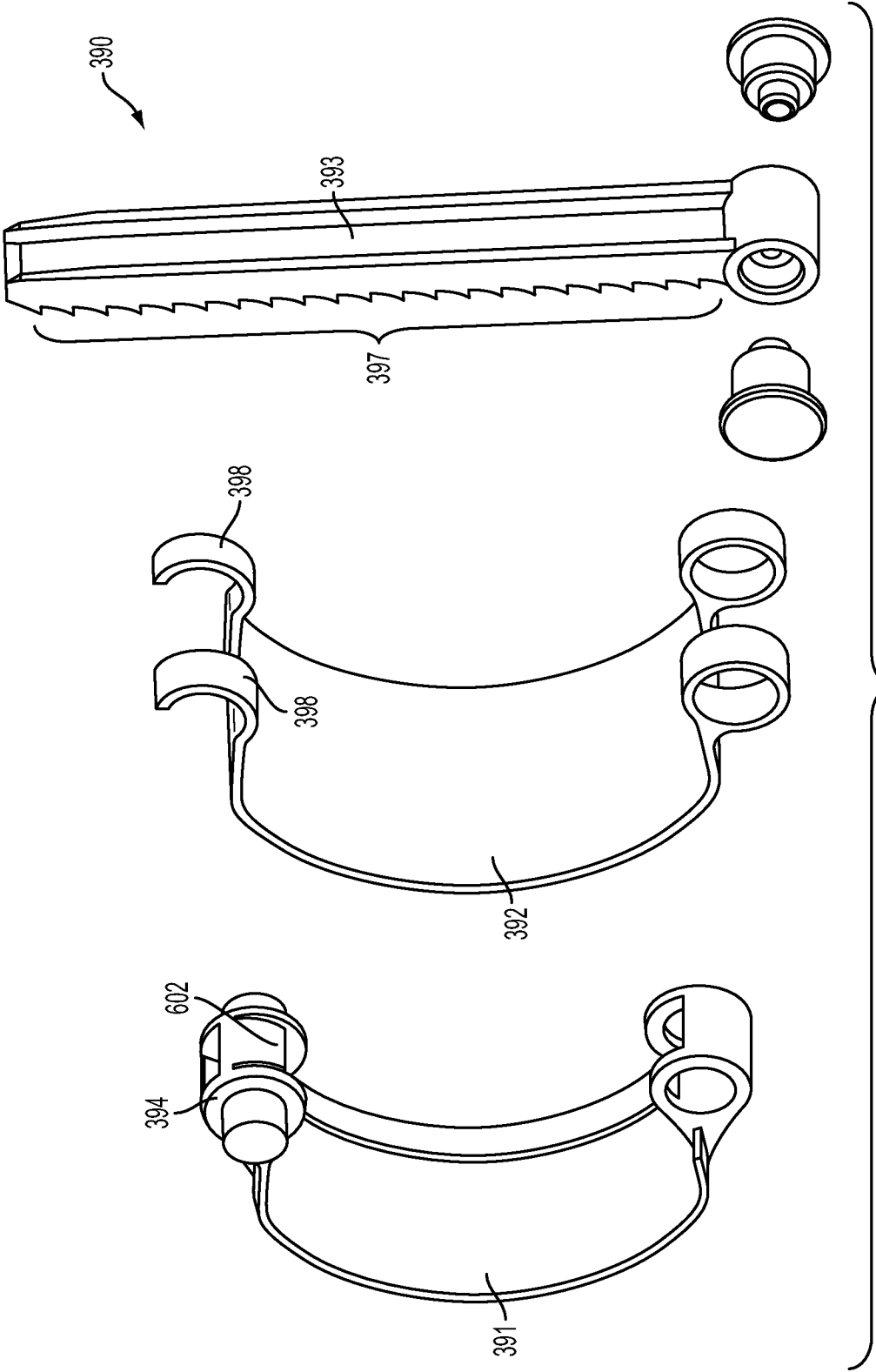
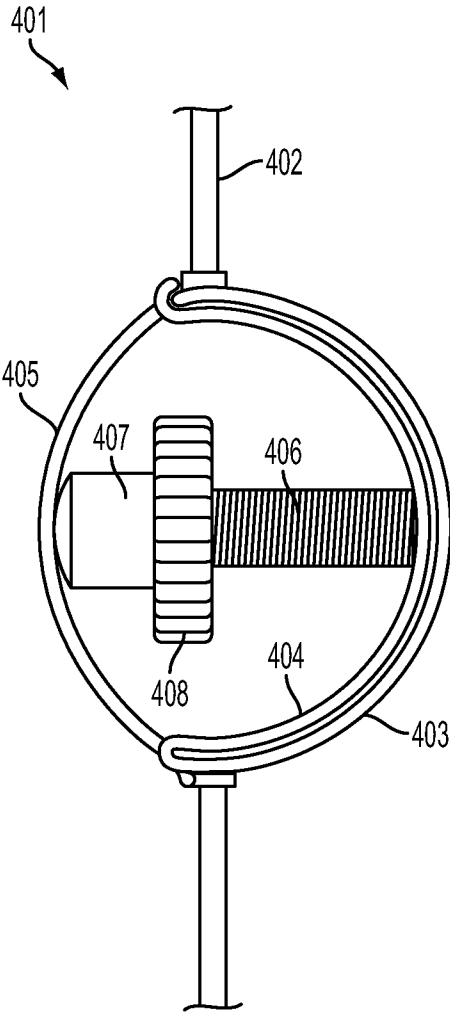
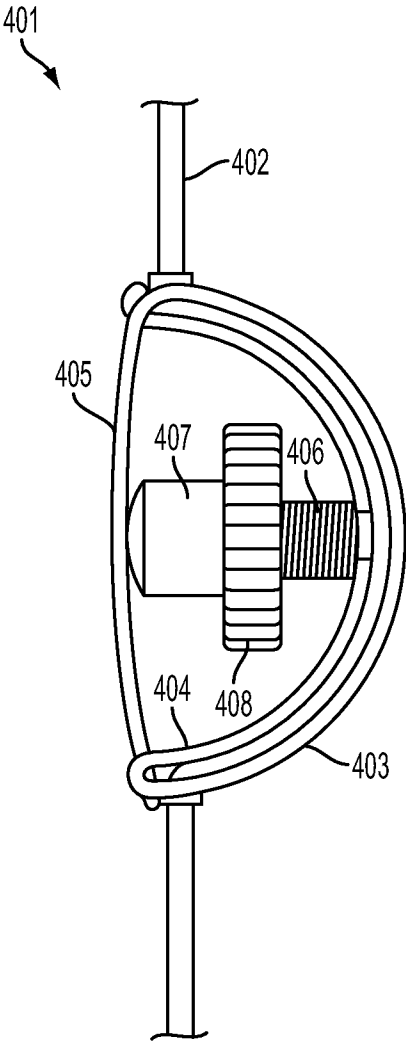


FIG. 57E



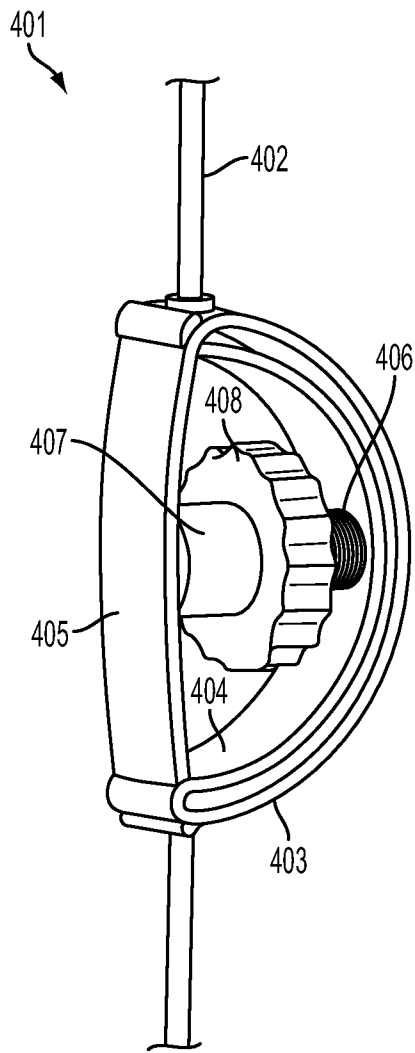


FIG. 58C

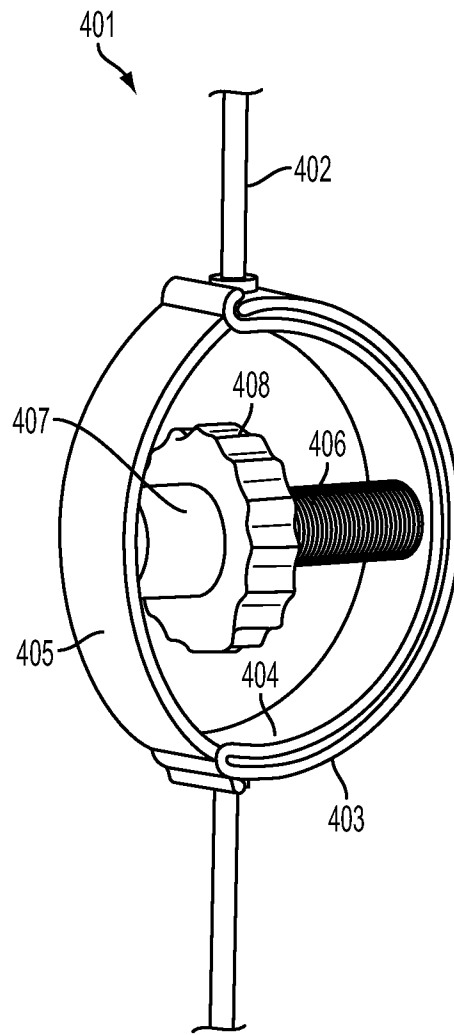


FIG. 58D

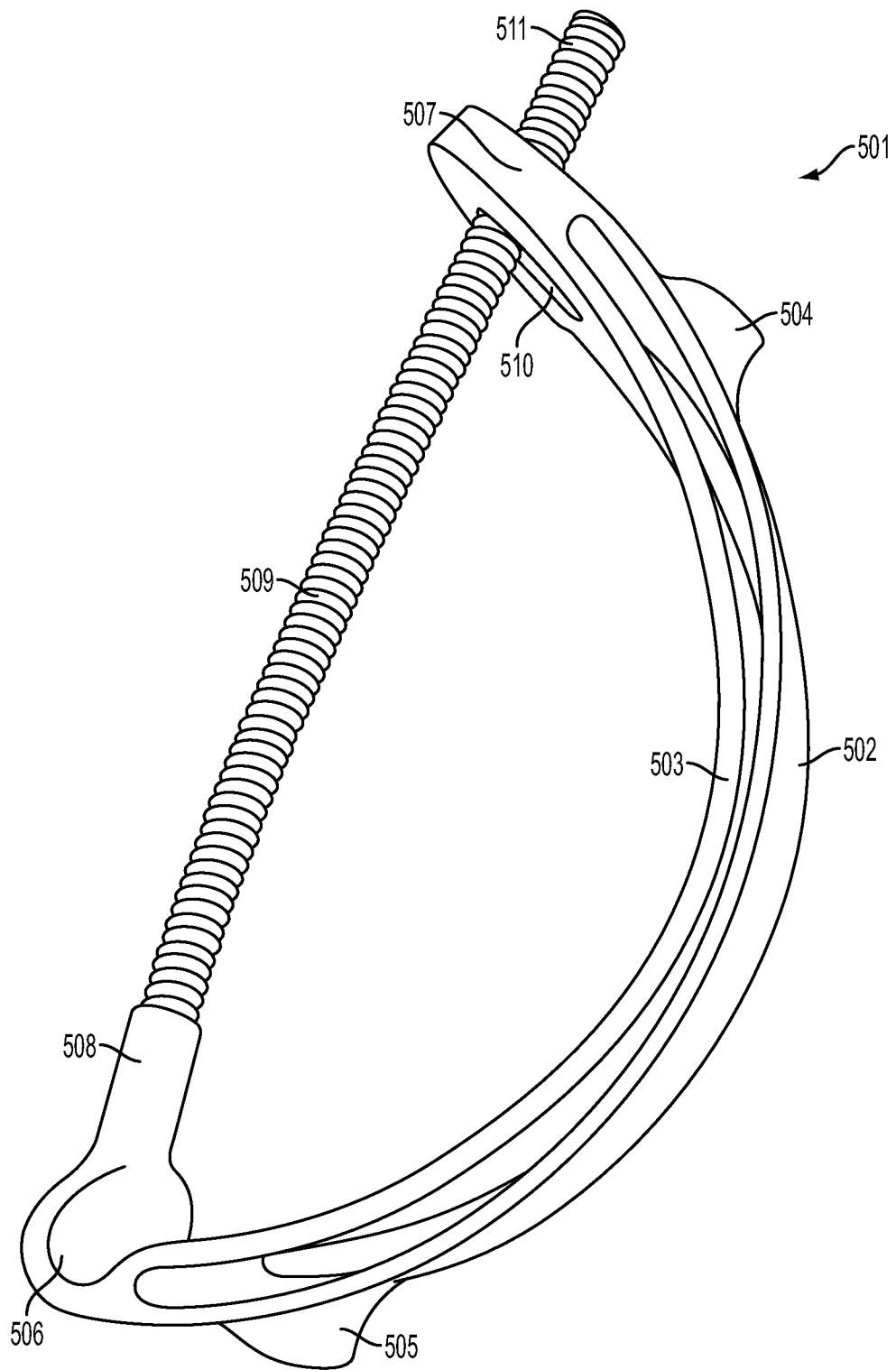


FIG. 59A

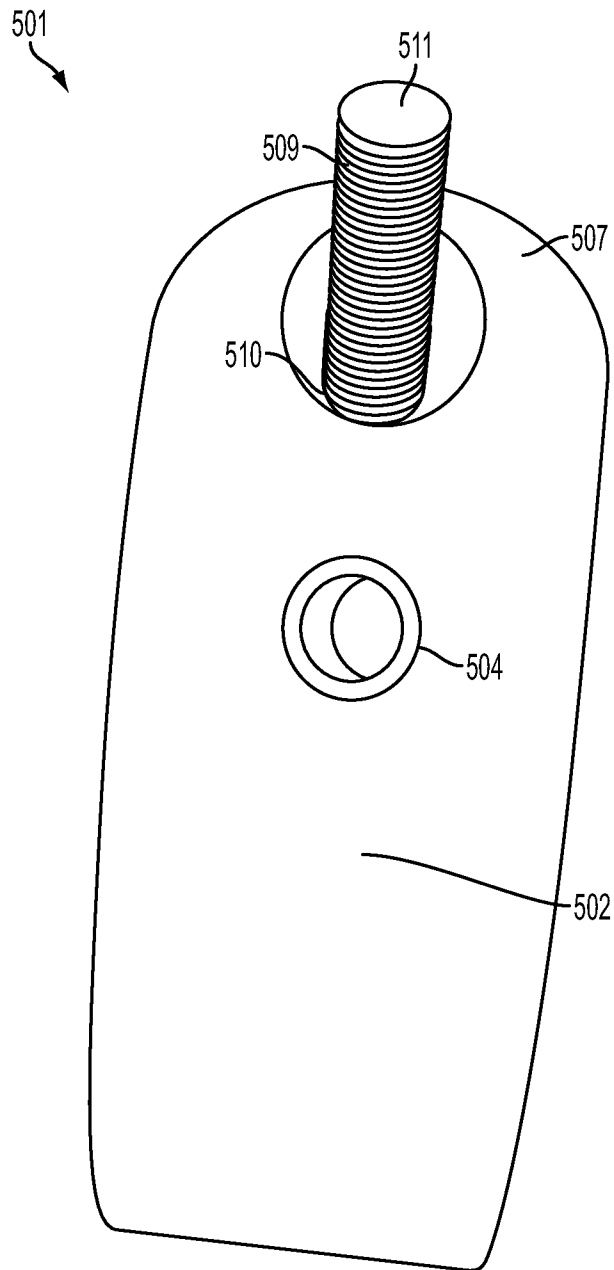


FIG. 59B

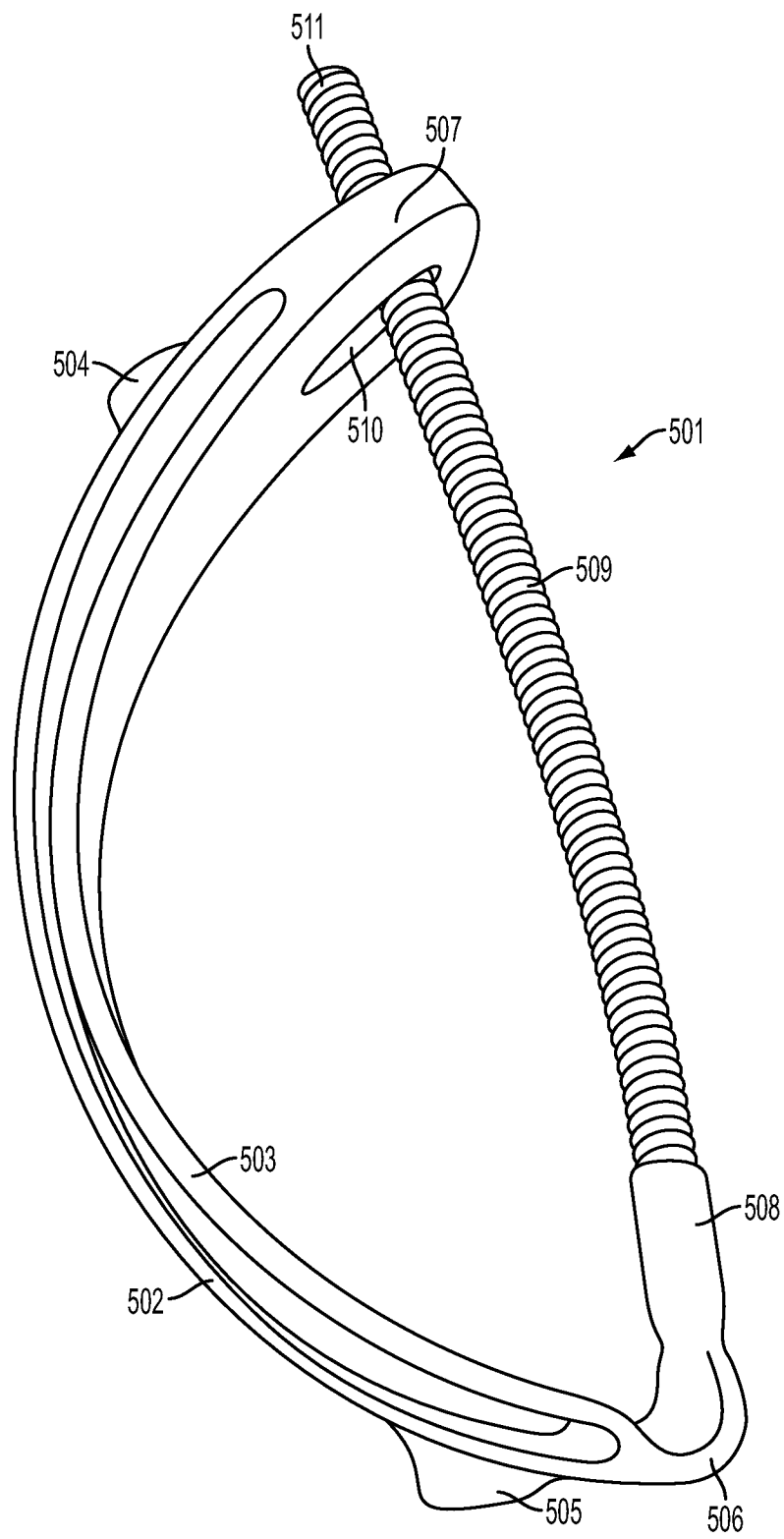


FIG. 59C

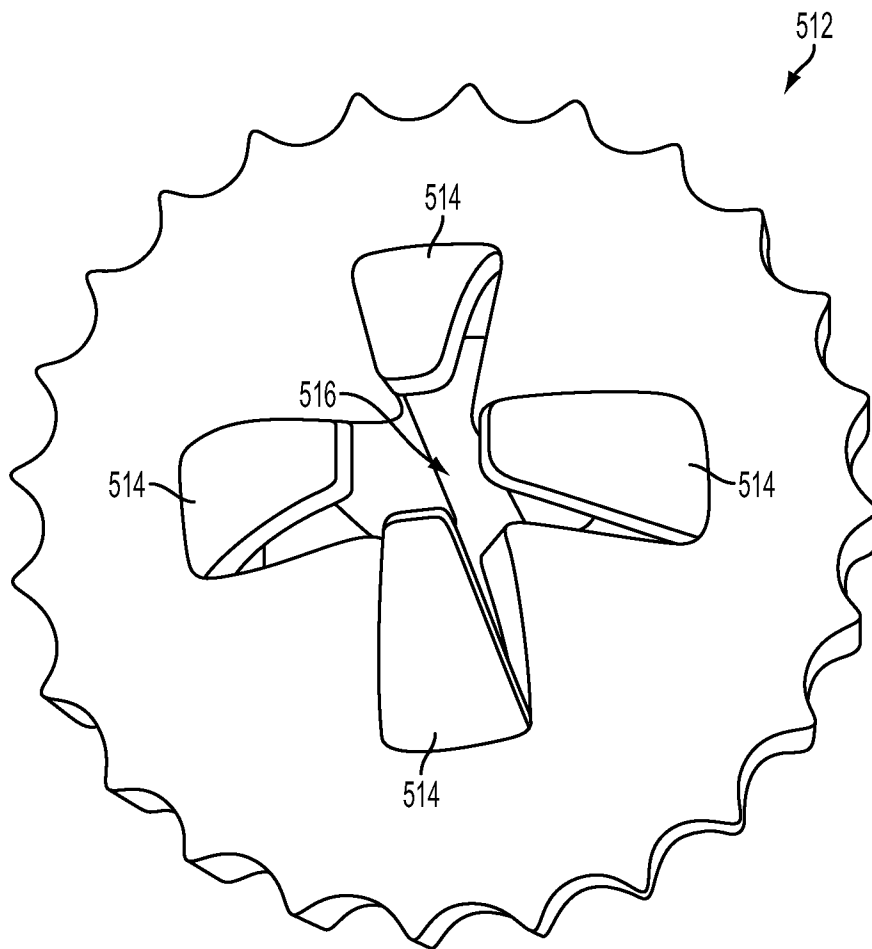


FIG. 59D

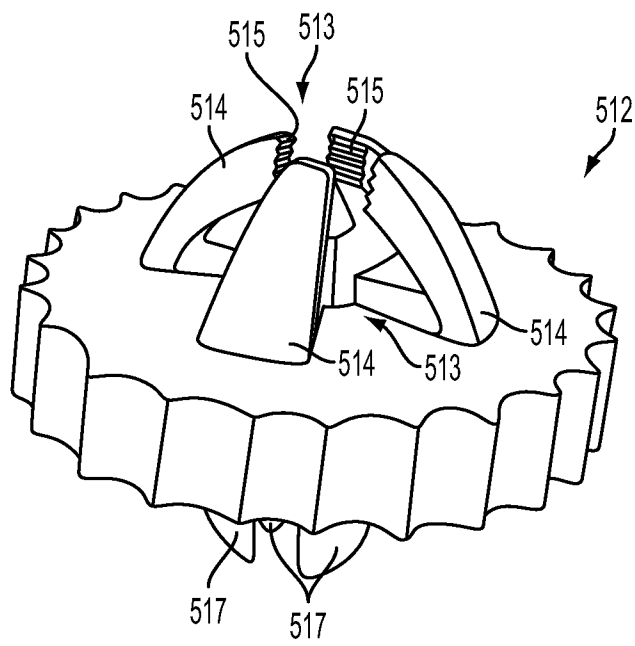


FIG. 59E

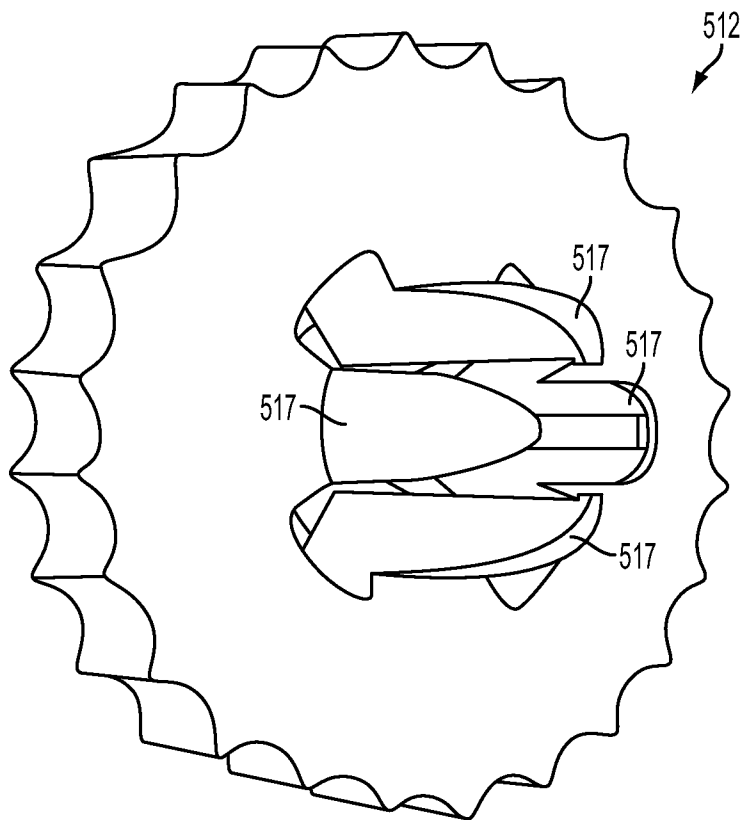


FIG. 59F

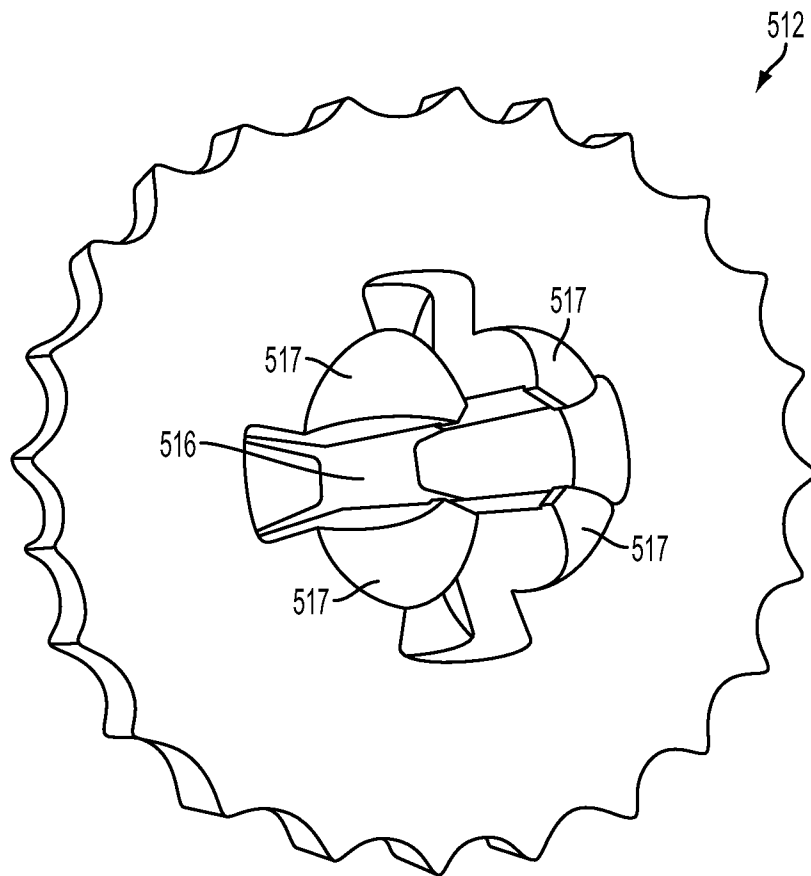


FIG. 59G

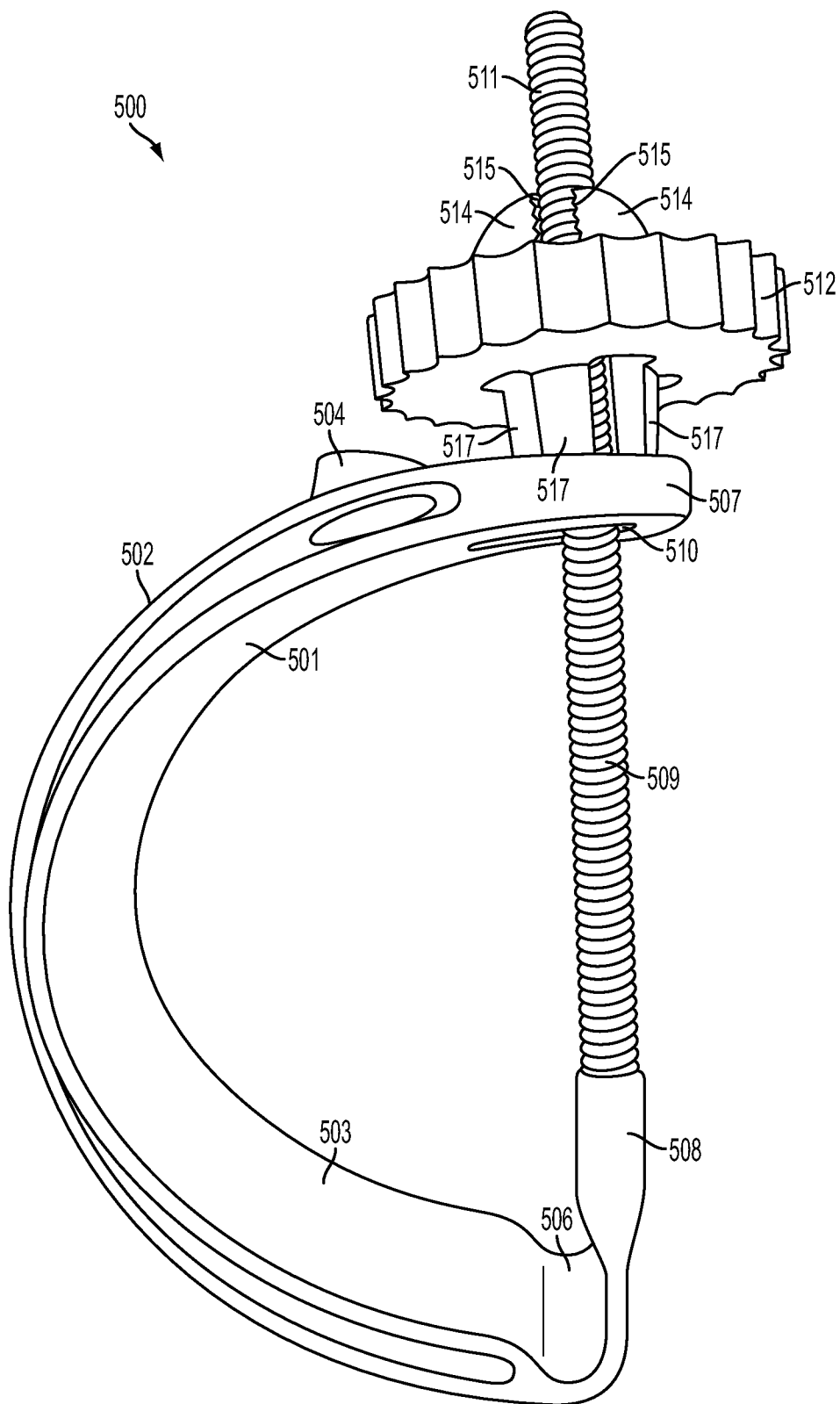


FIG. 59H

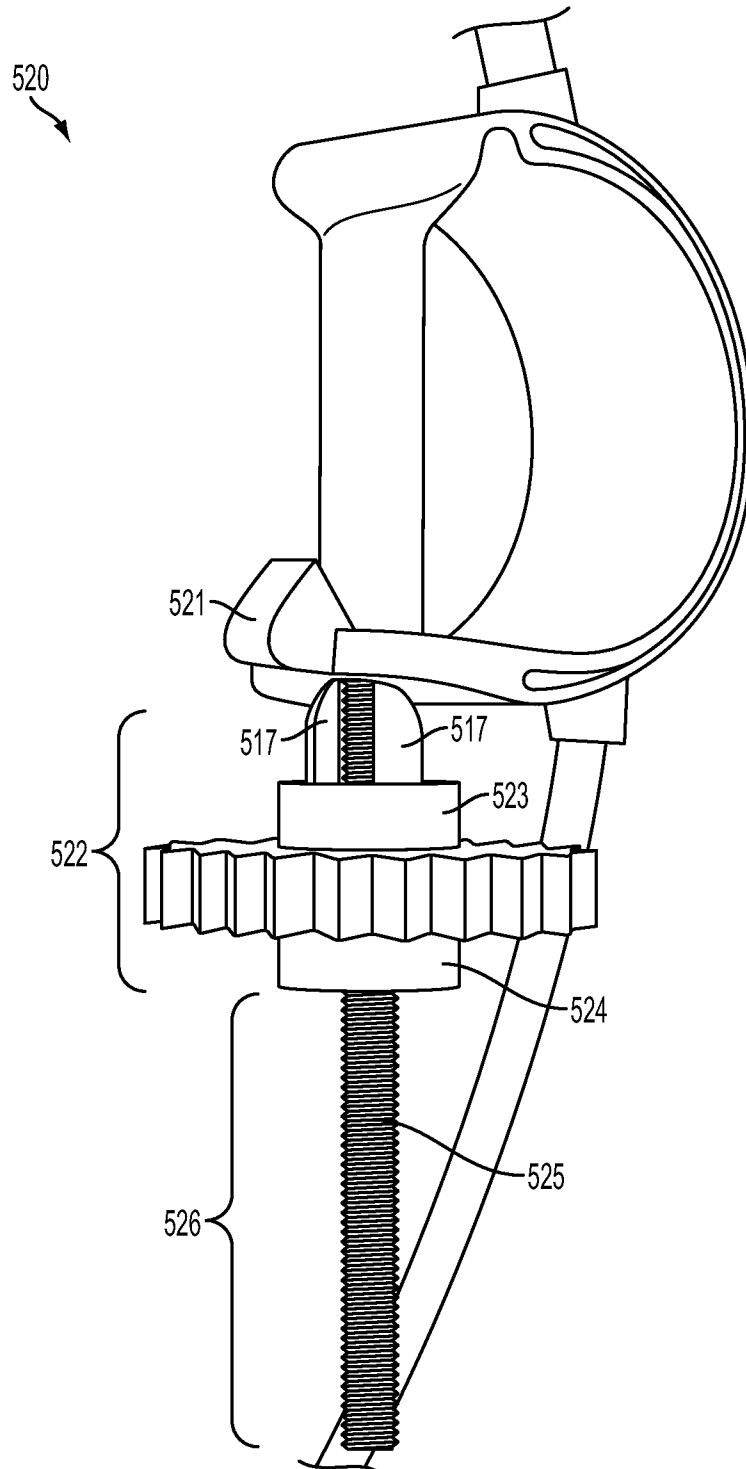


FIG. 60

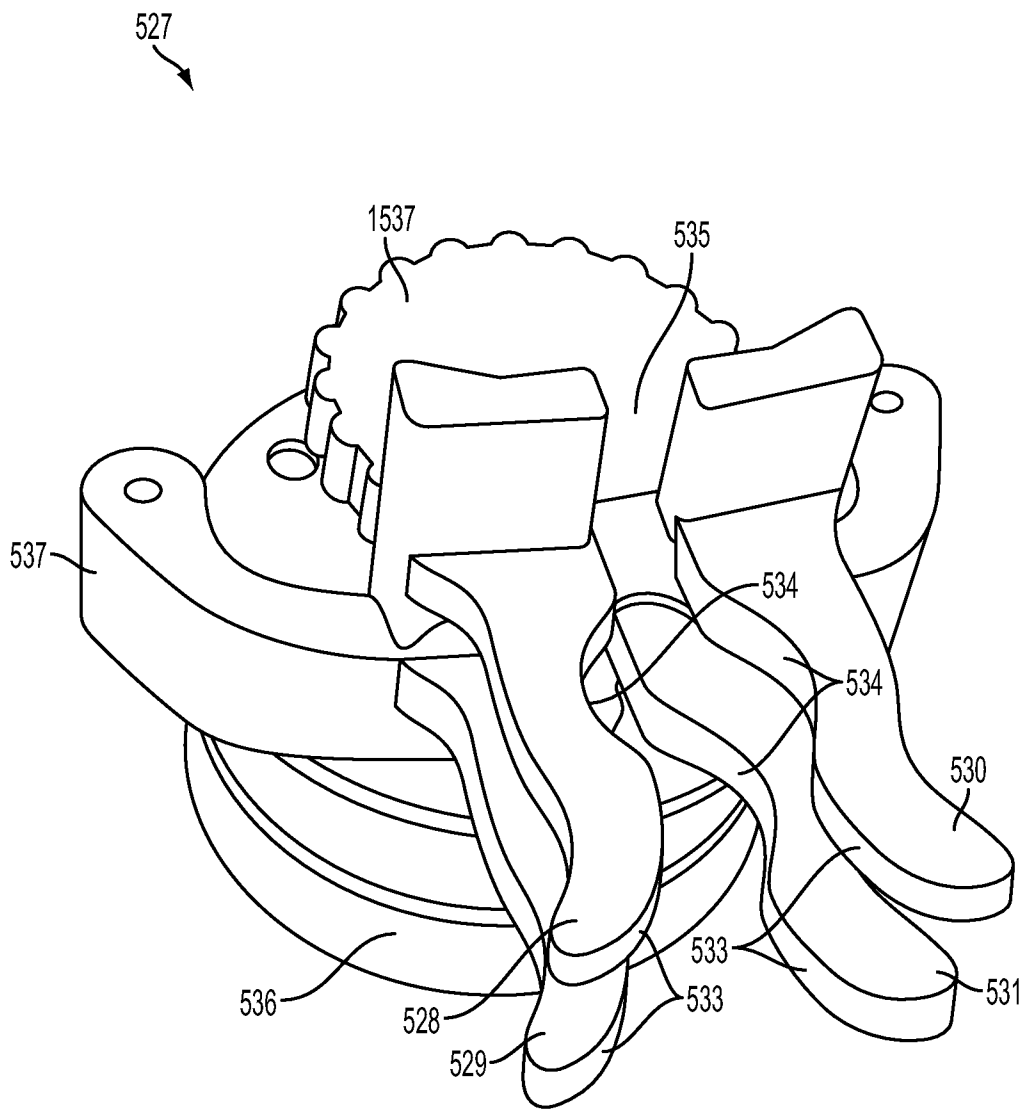


FIG. 61

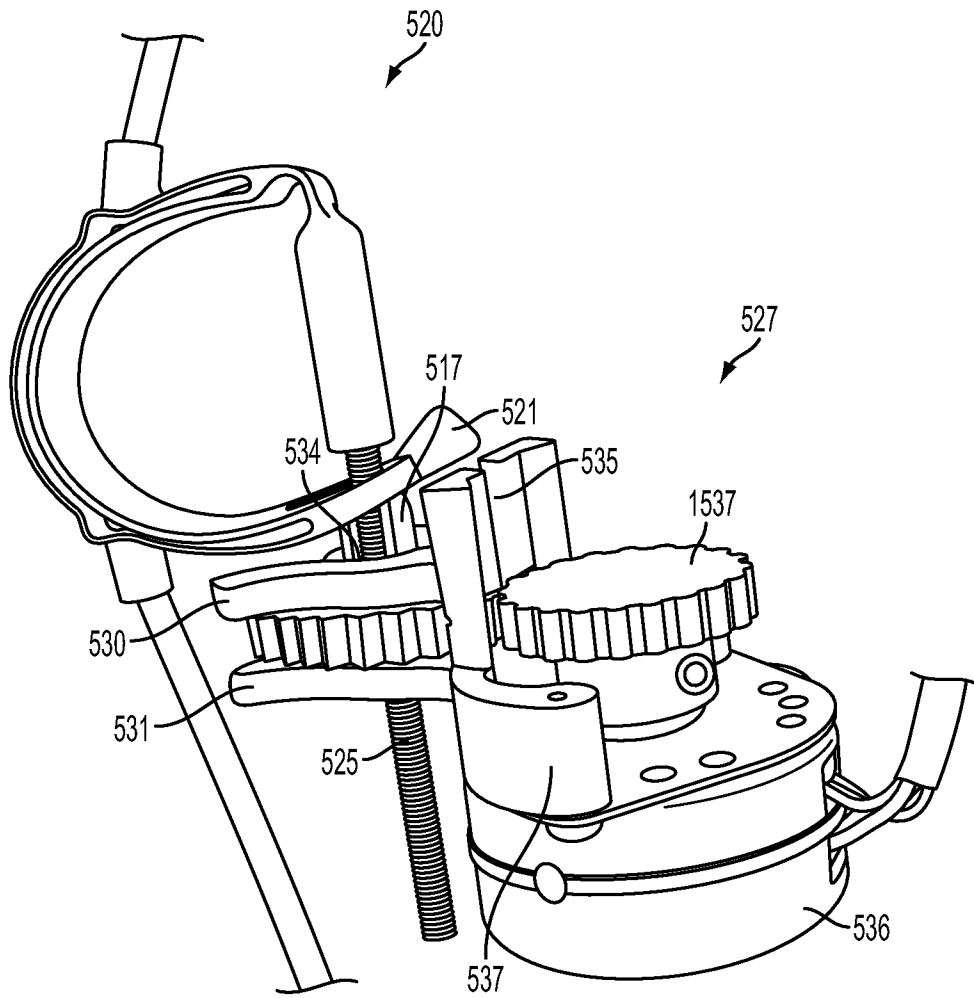


FIG. 62

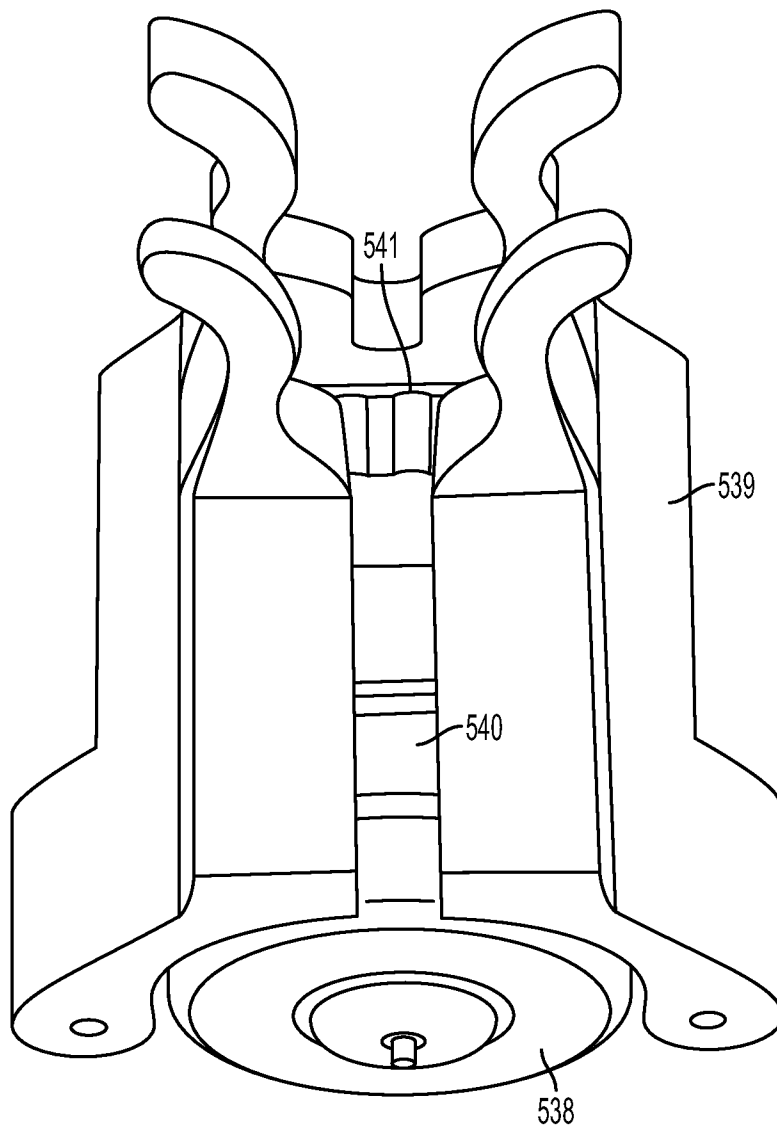


FIG. 63

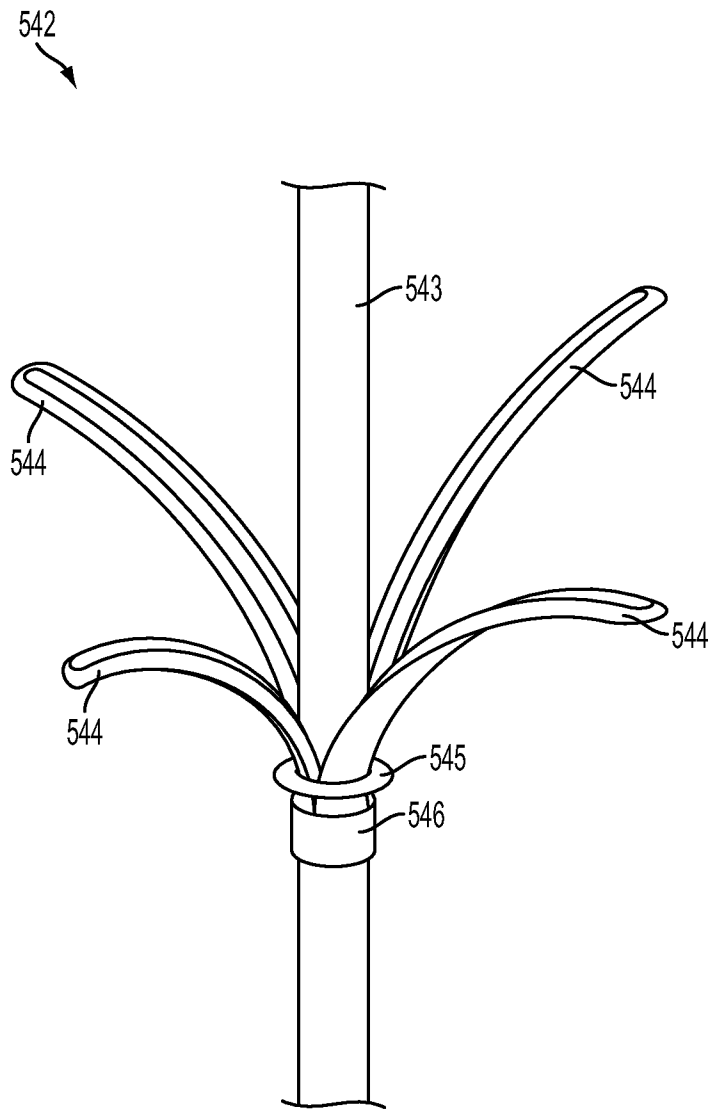


FIG. 64A

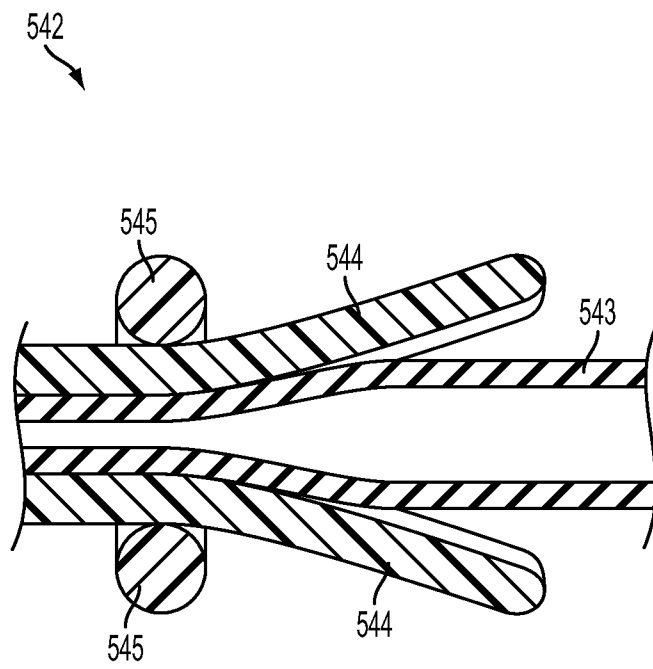


FIG. 64B

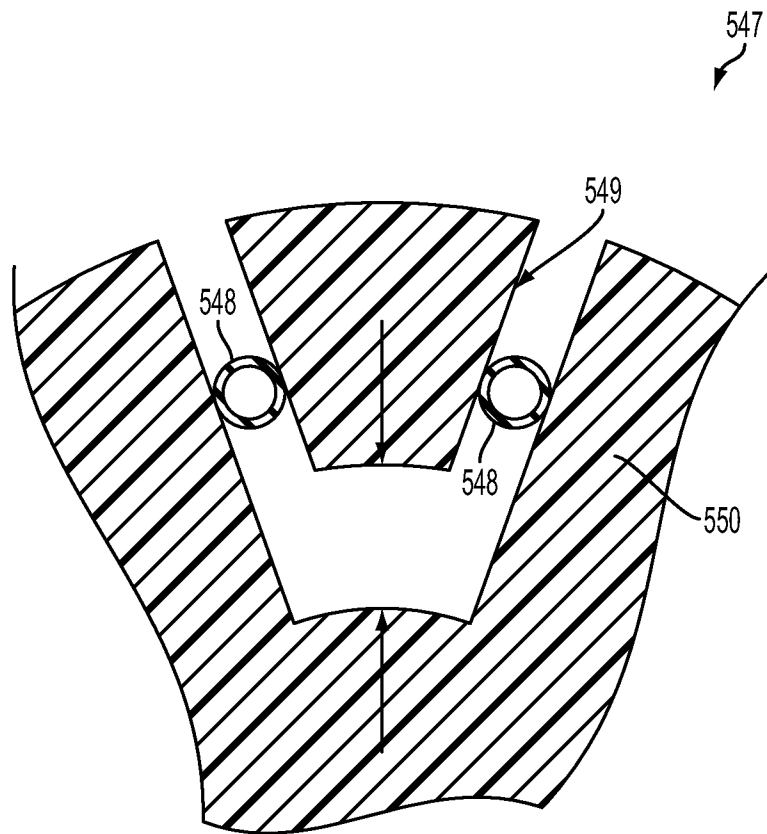


FIG. 65

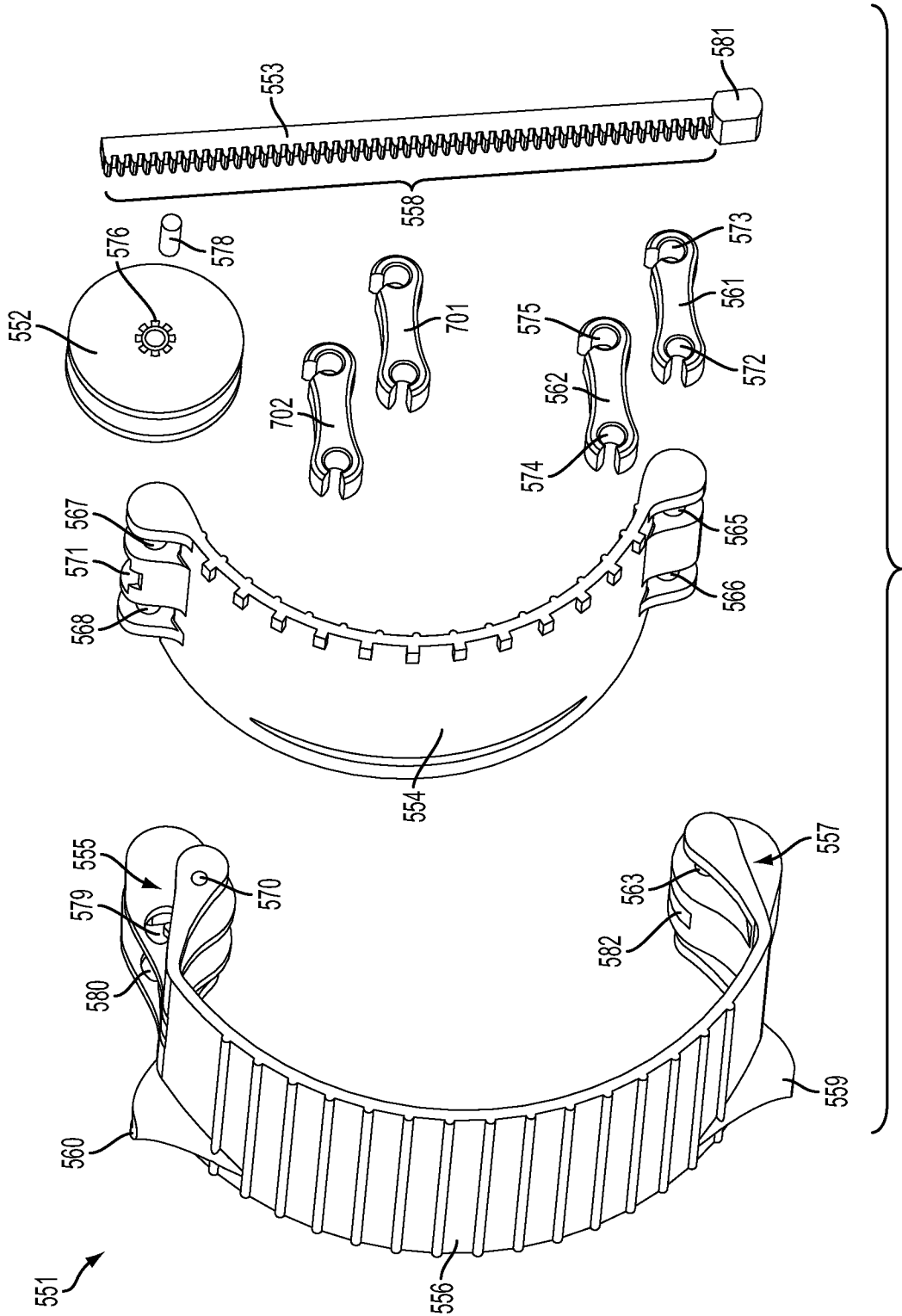


FIG. 66A

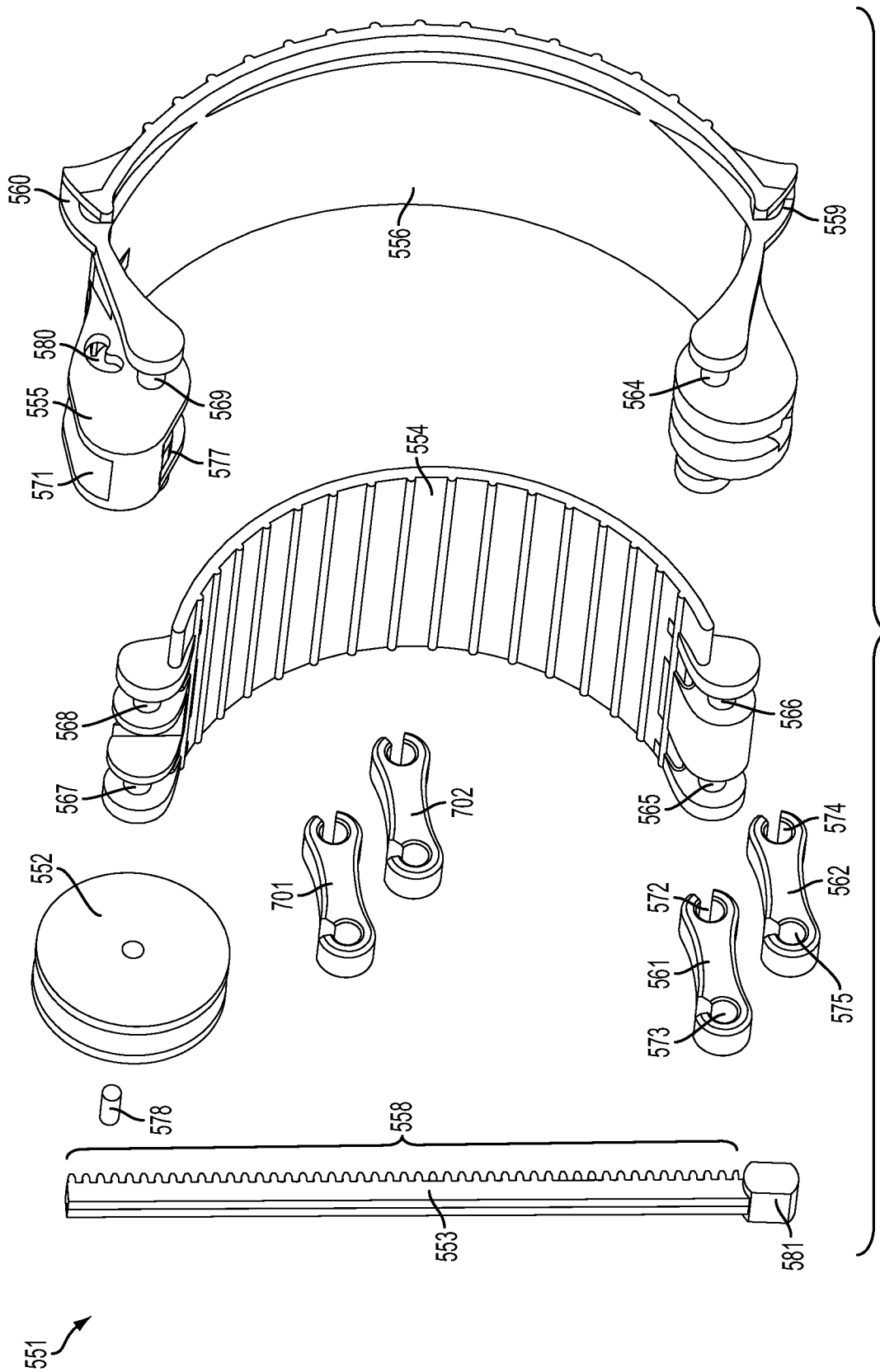


FIG. 66B

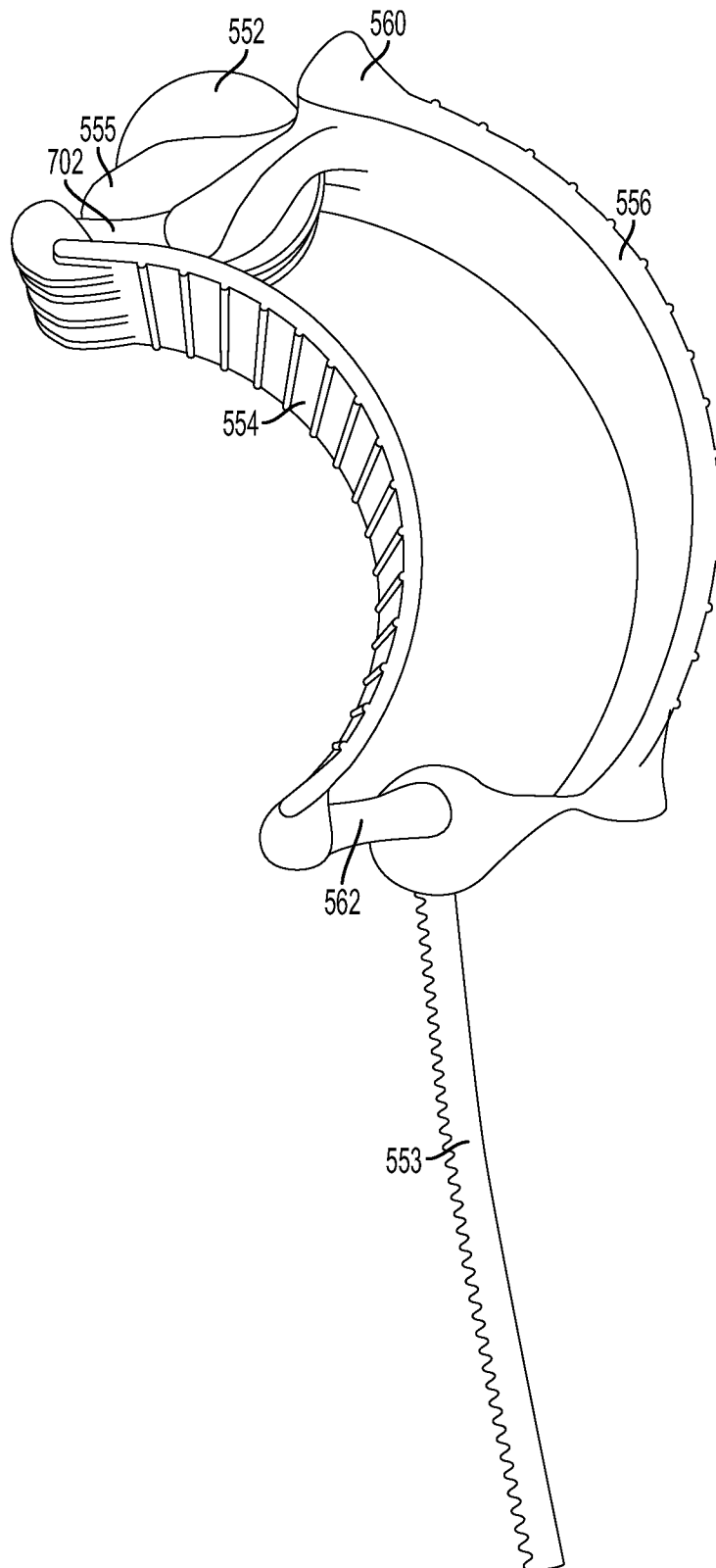


FIG. 66C

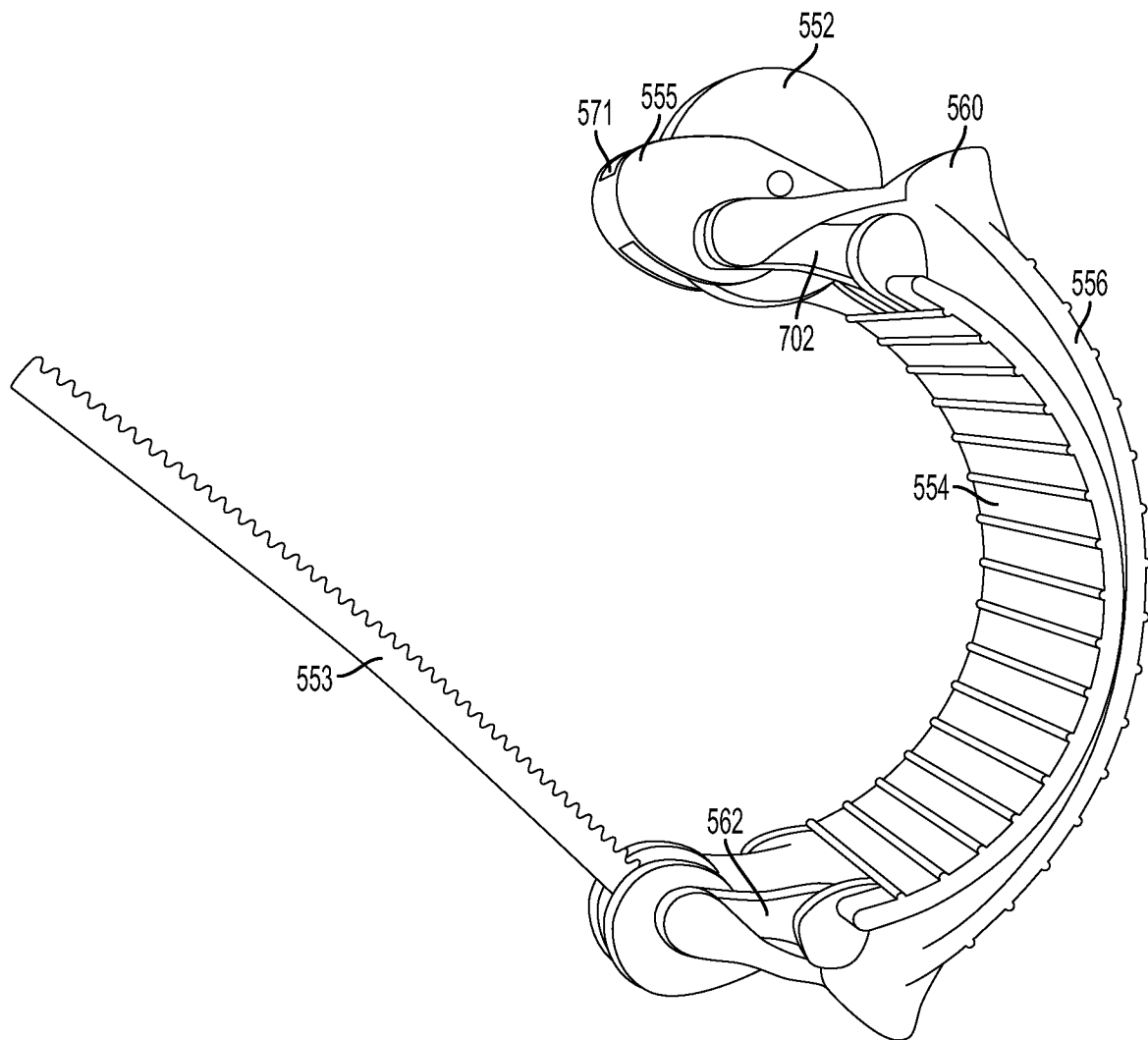


FIG. 66D

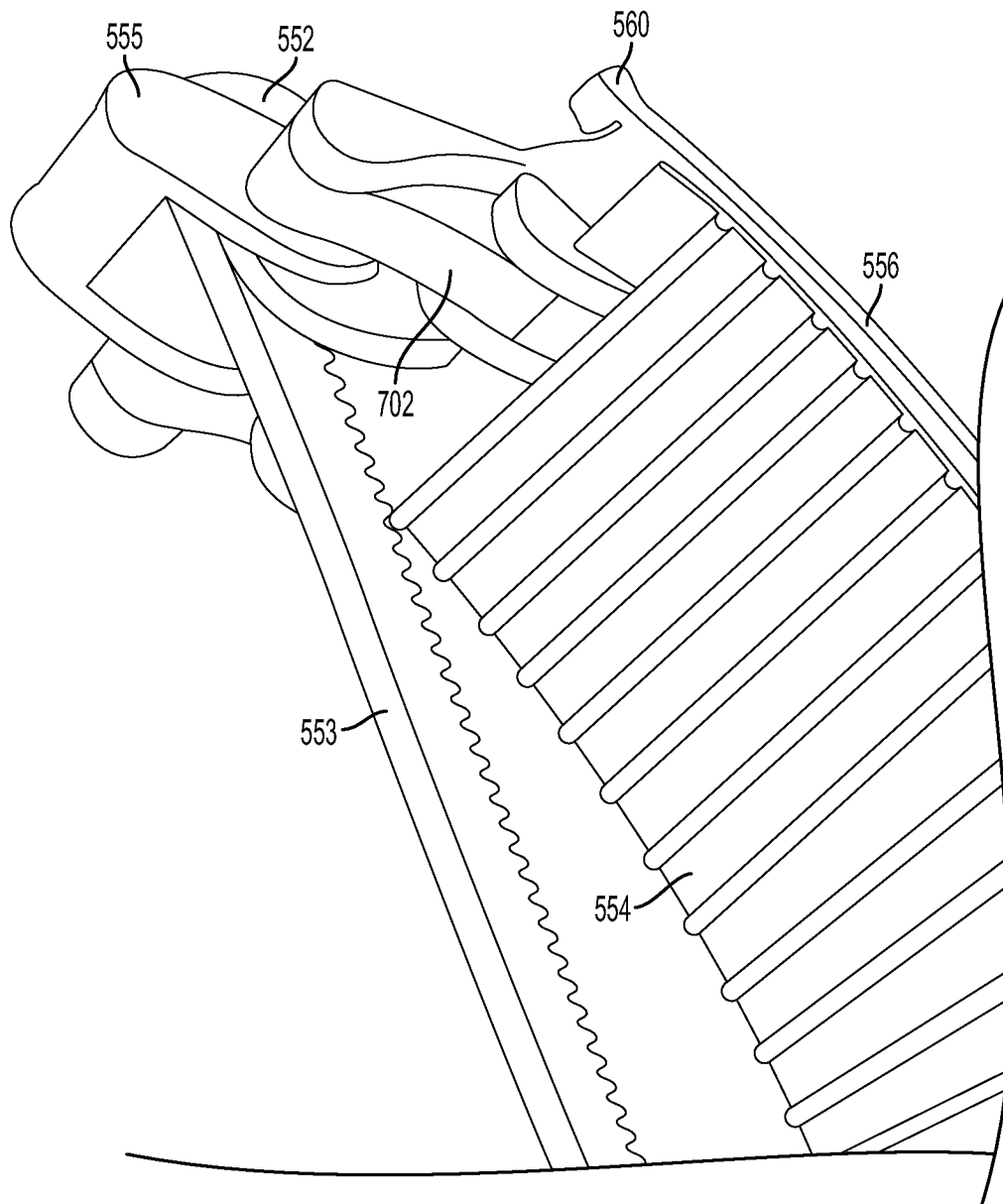


FIG. 66E

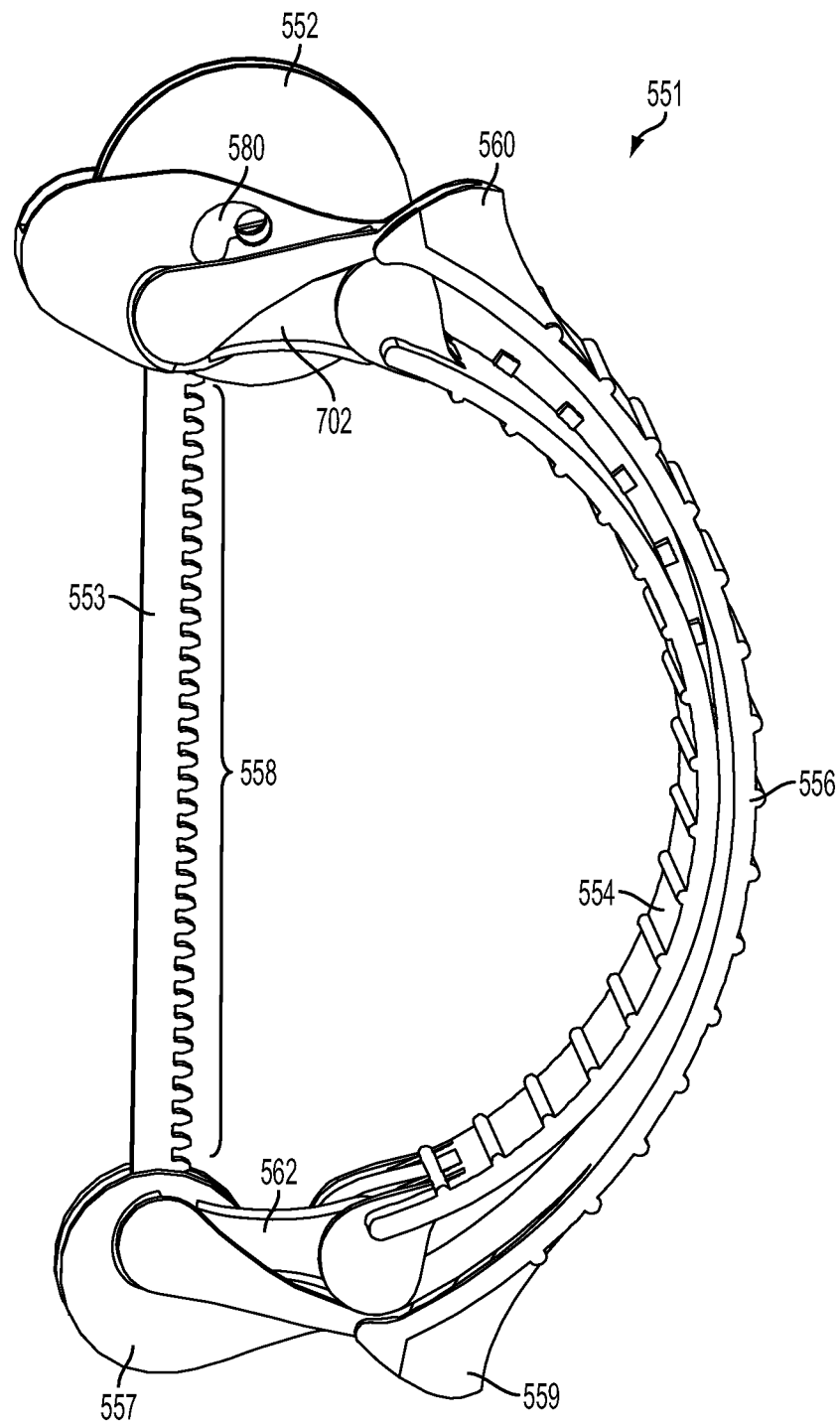


FIG. 66F

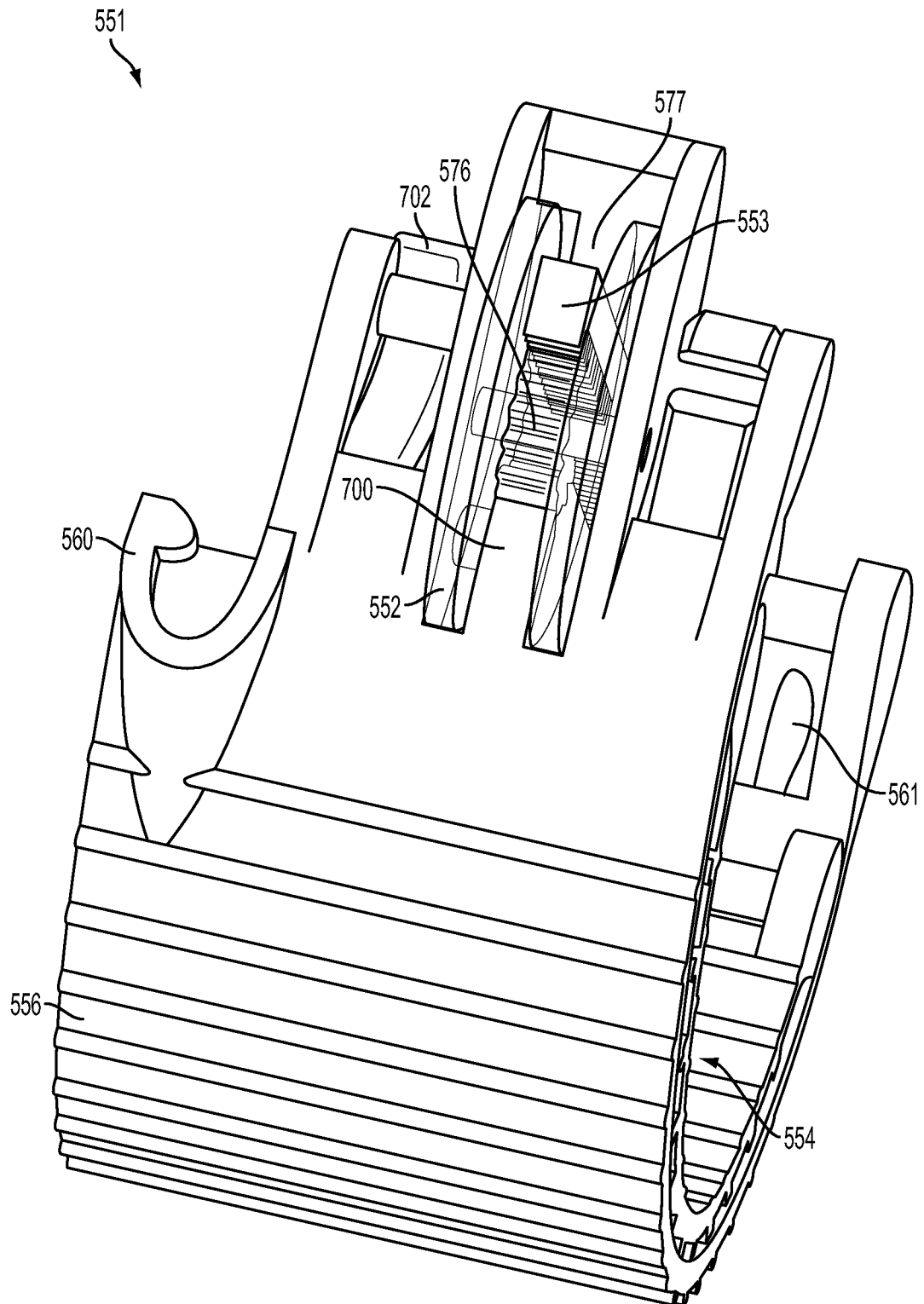


FIG. 66G

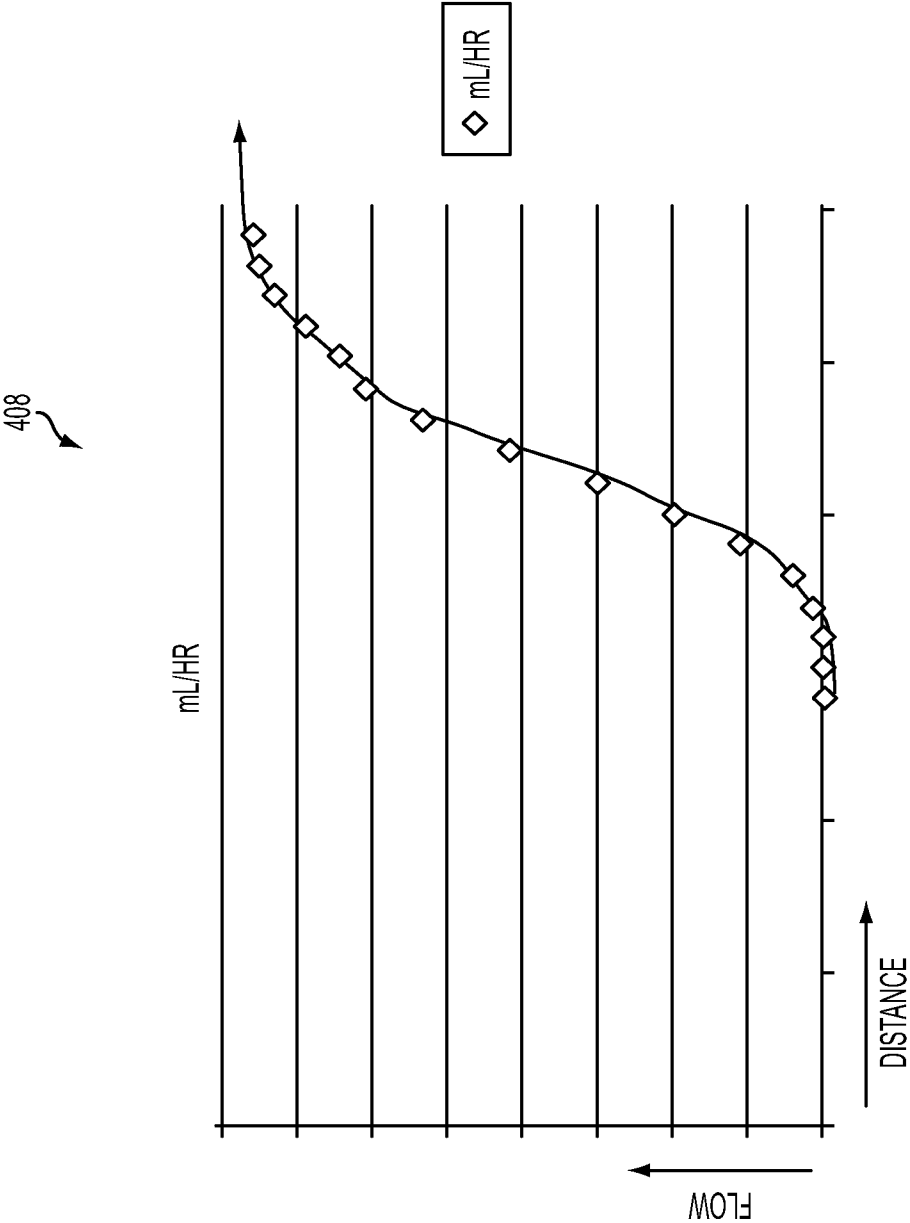


FIG. 67

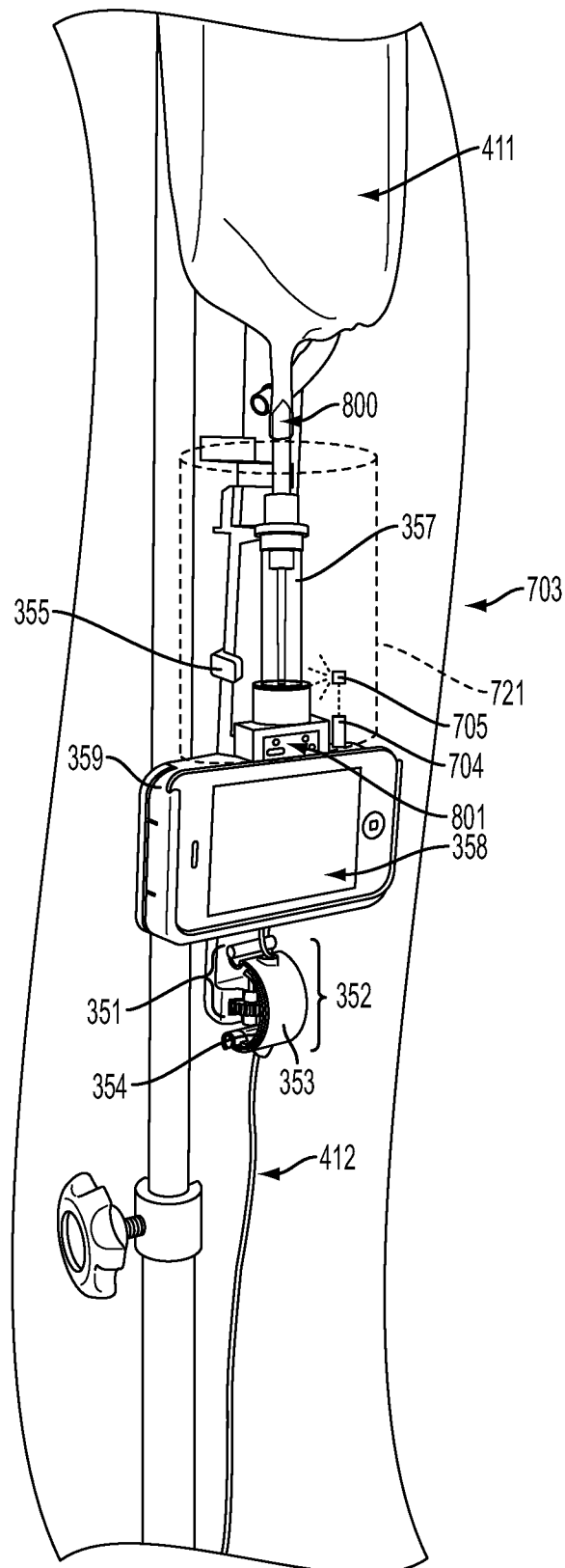


FIG. 68A

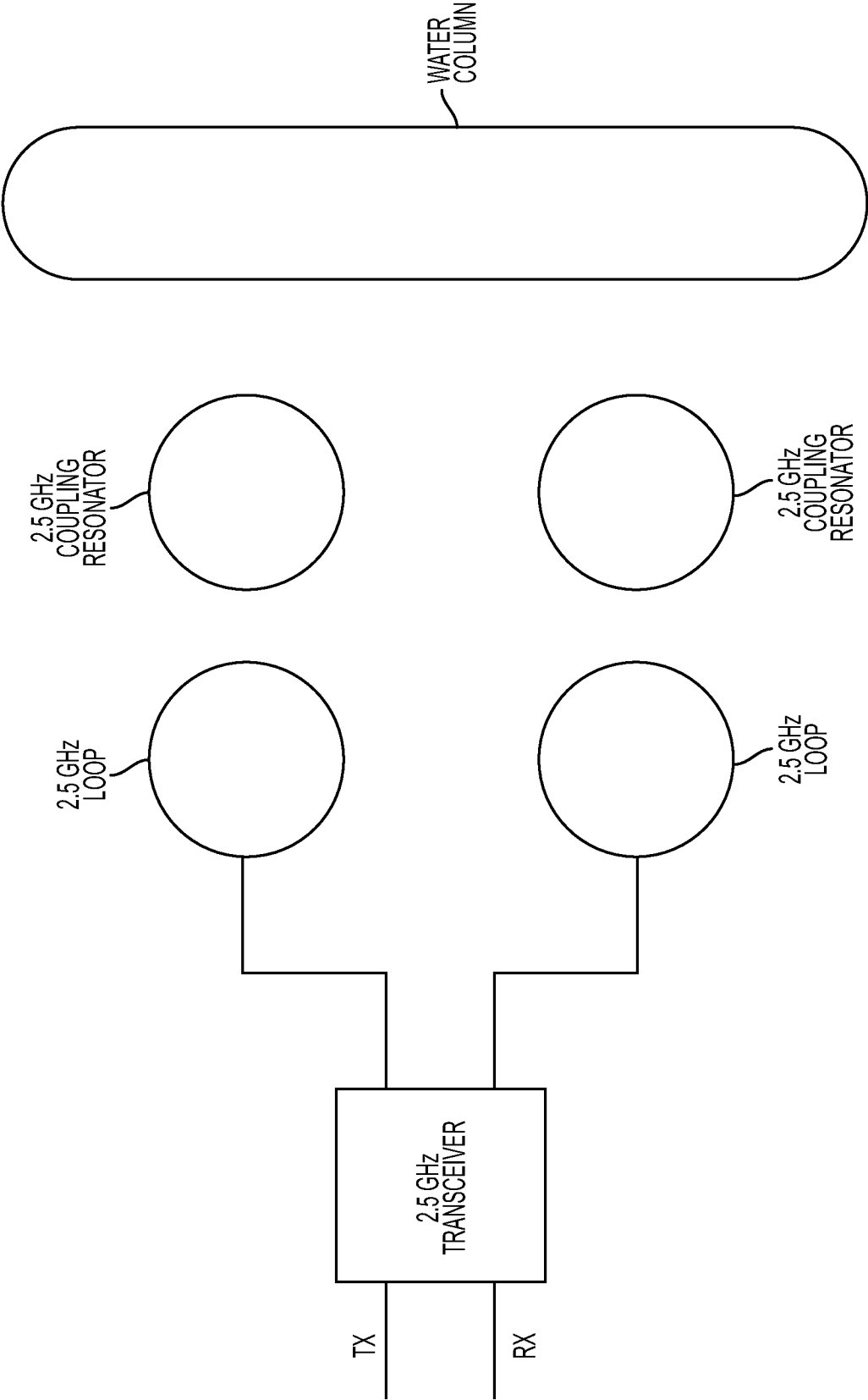


FIG. 68B

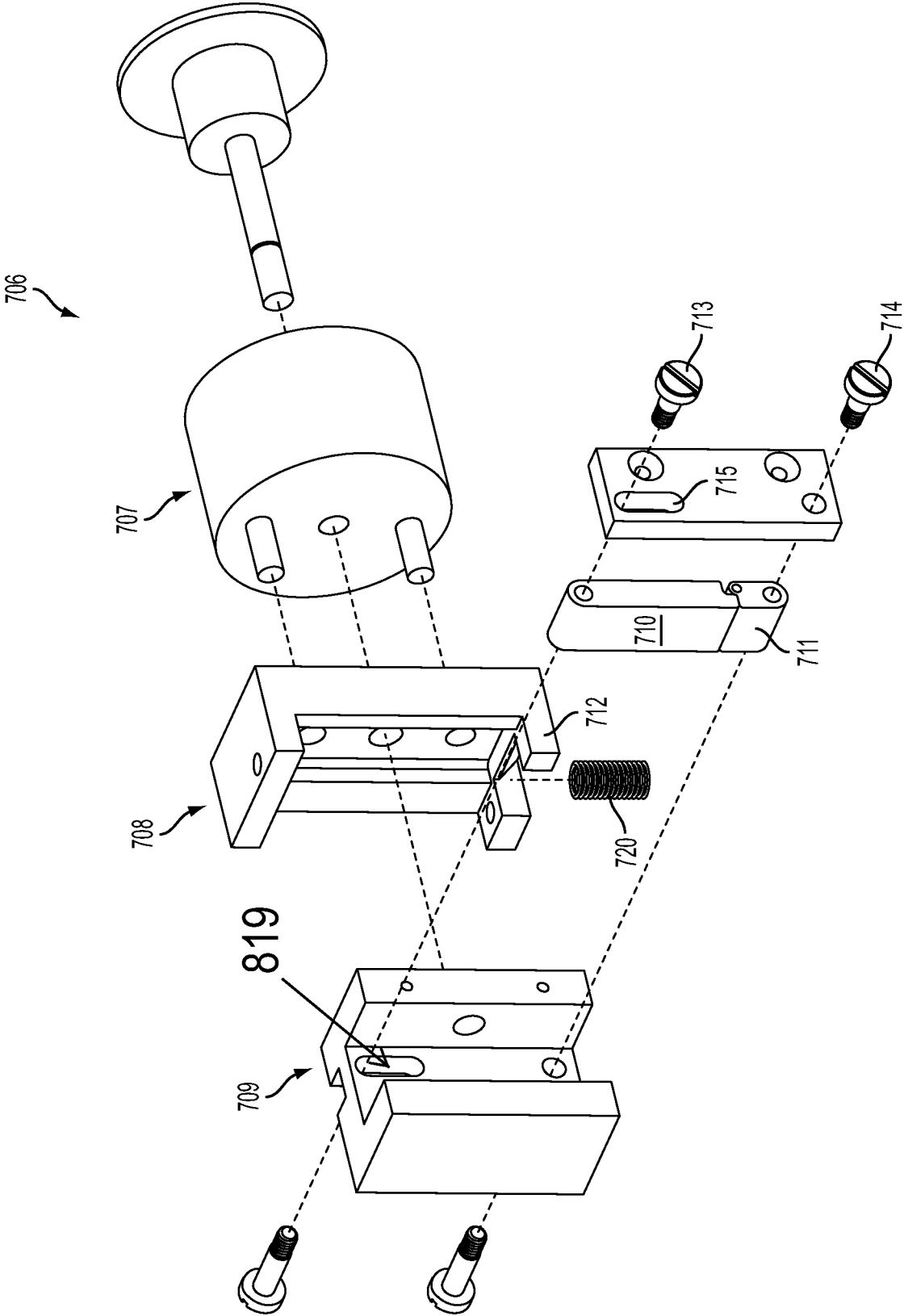


FIG. 69A

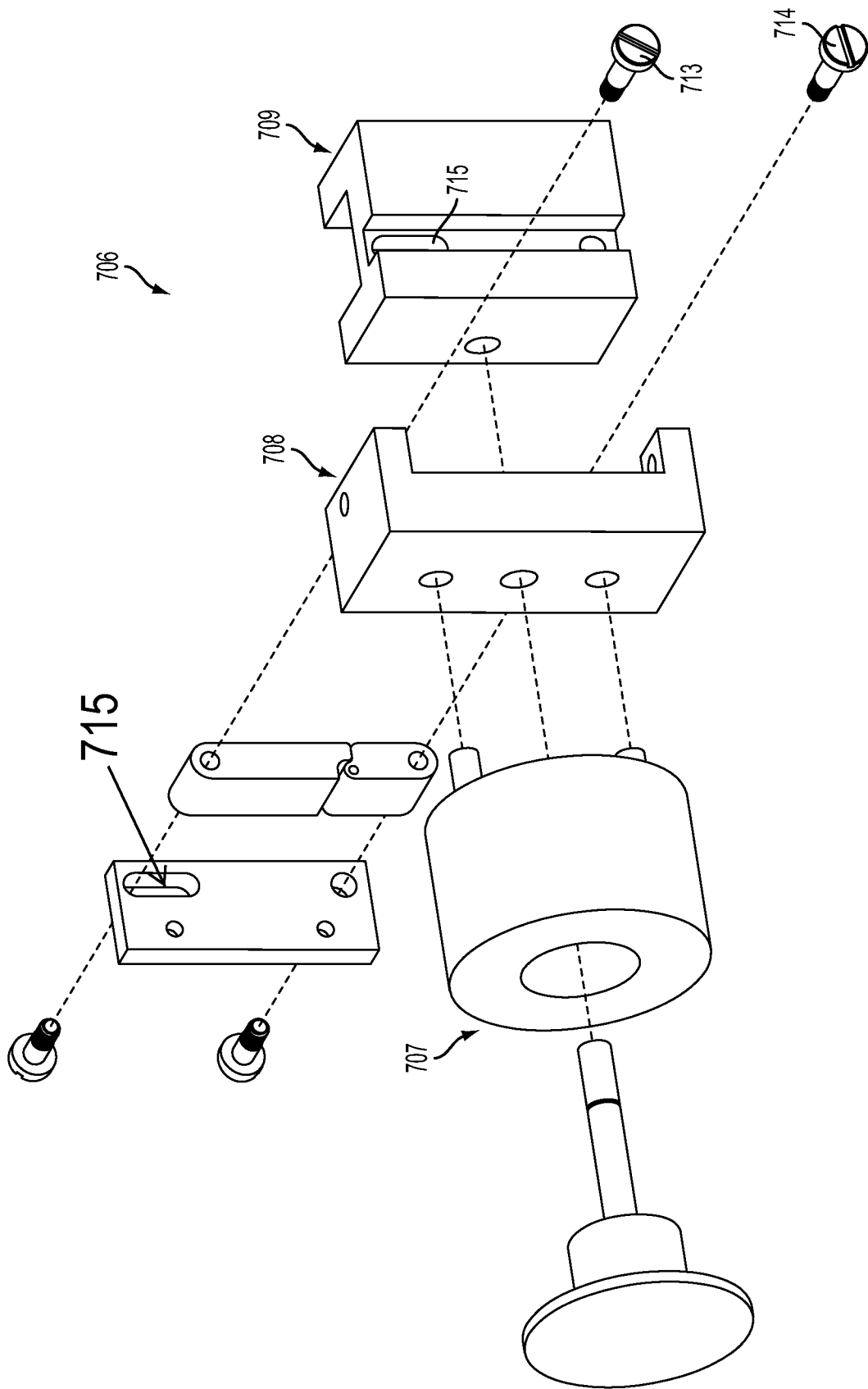


FIG. 69B

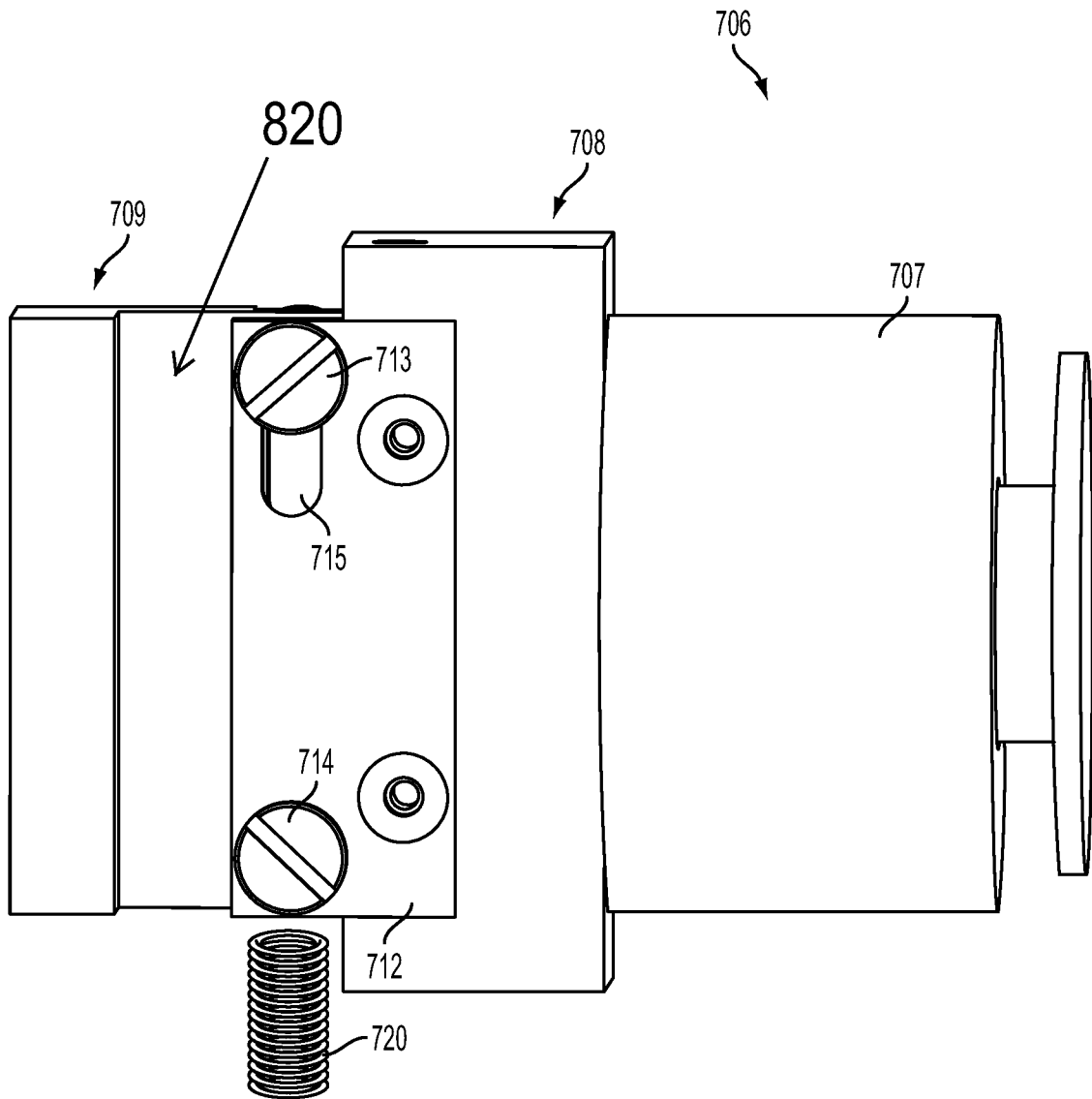
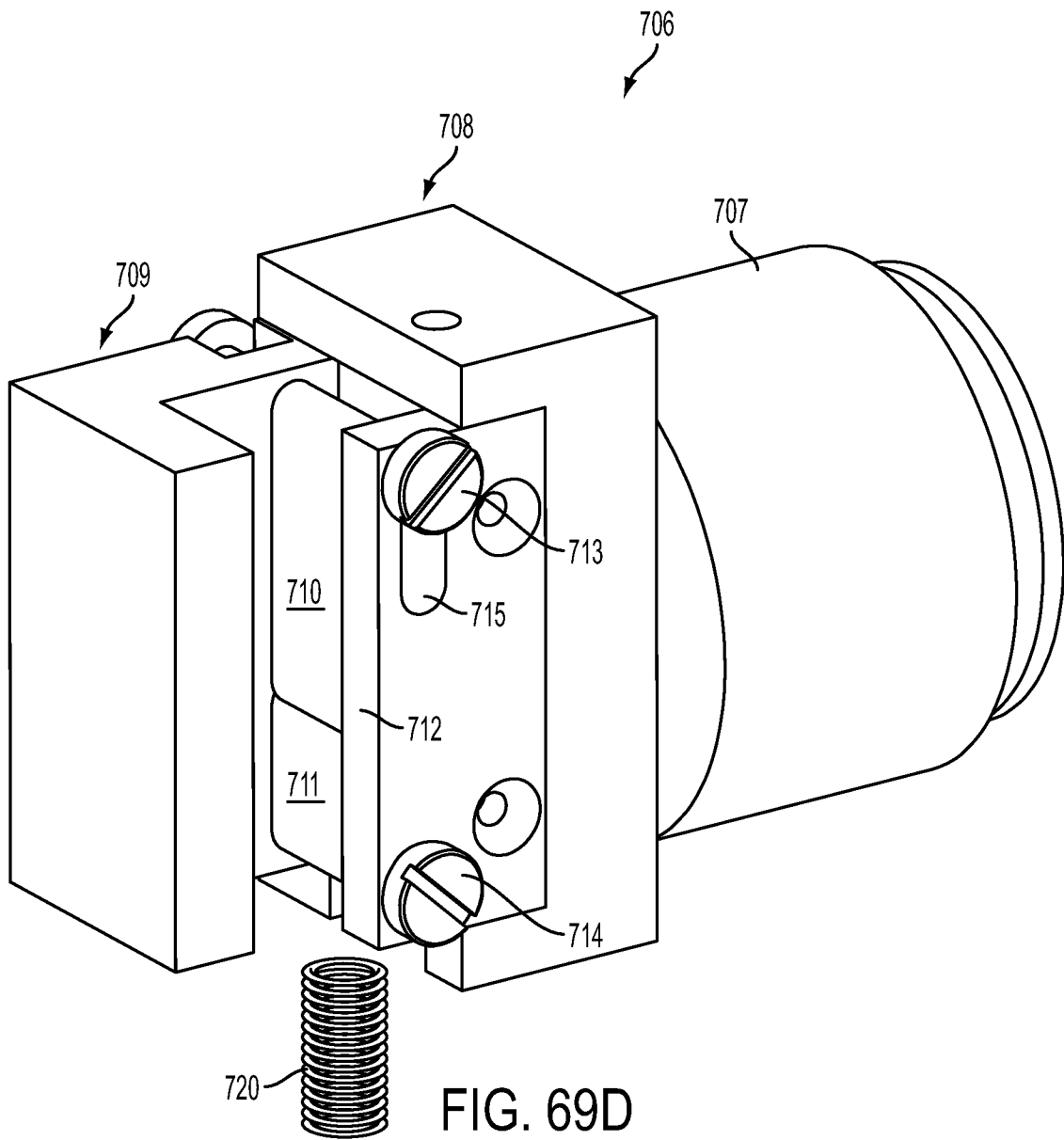


FIG. 69C



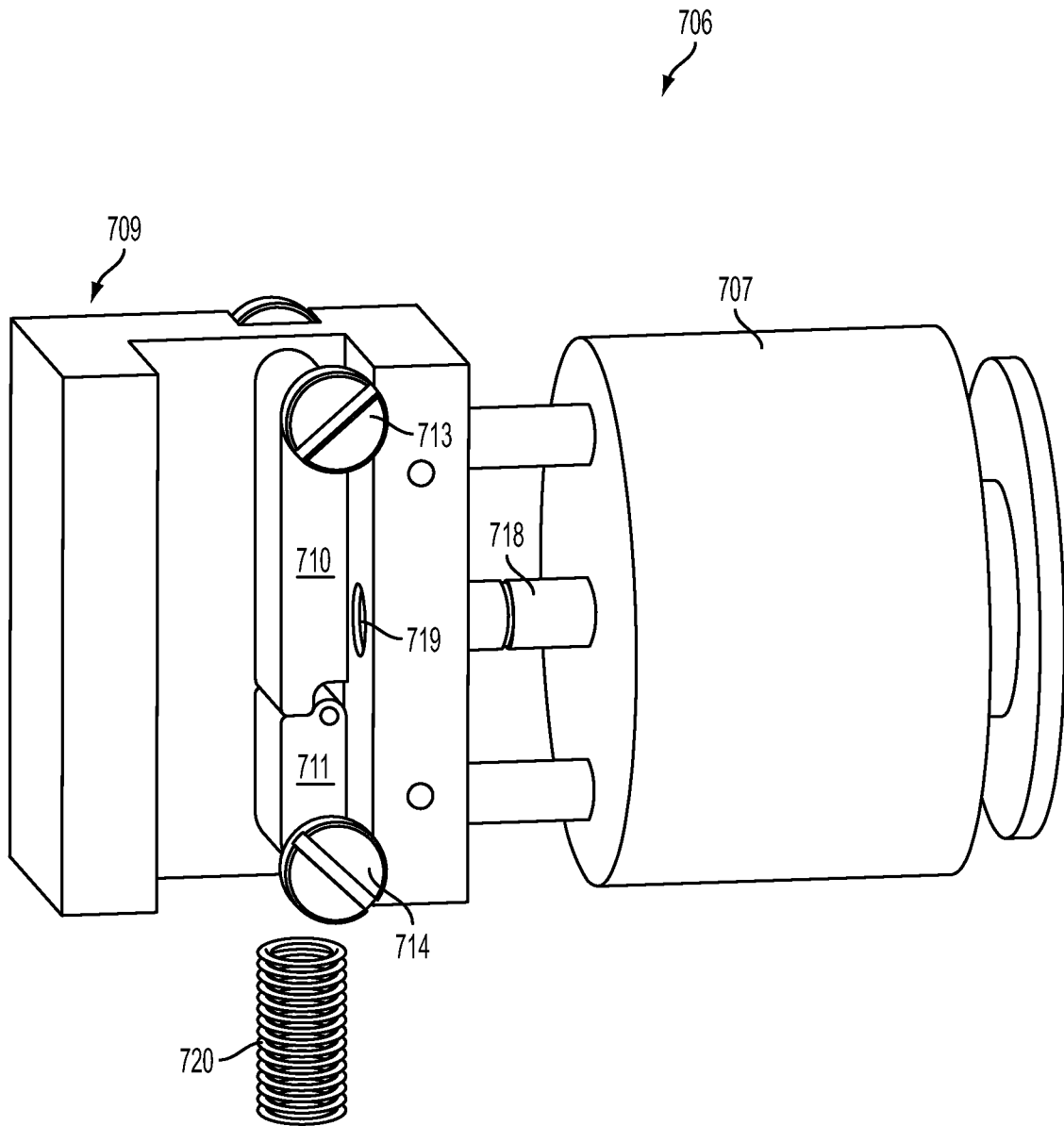


FIG. 69E

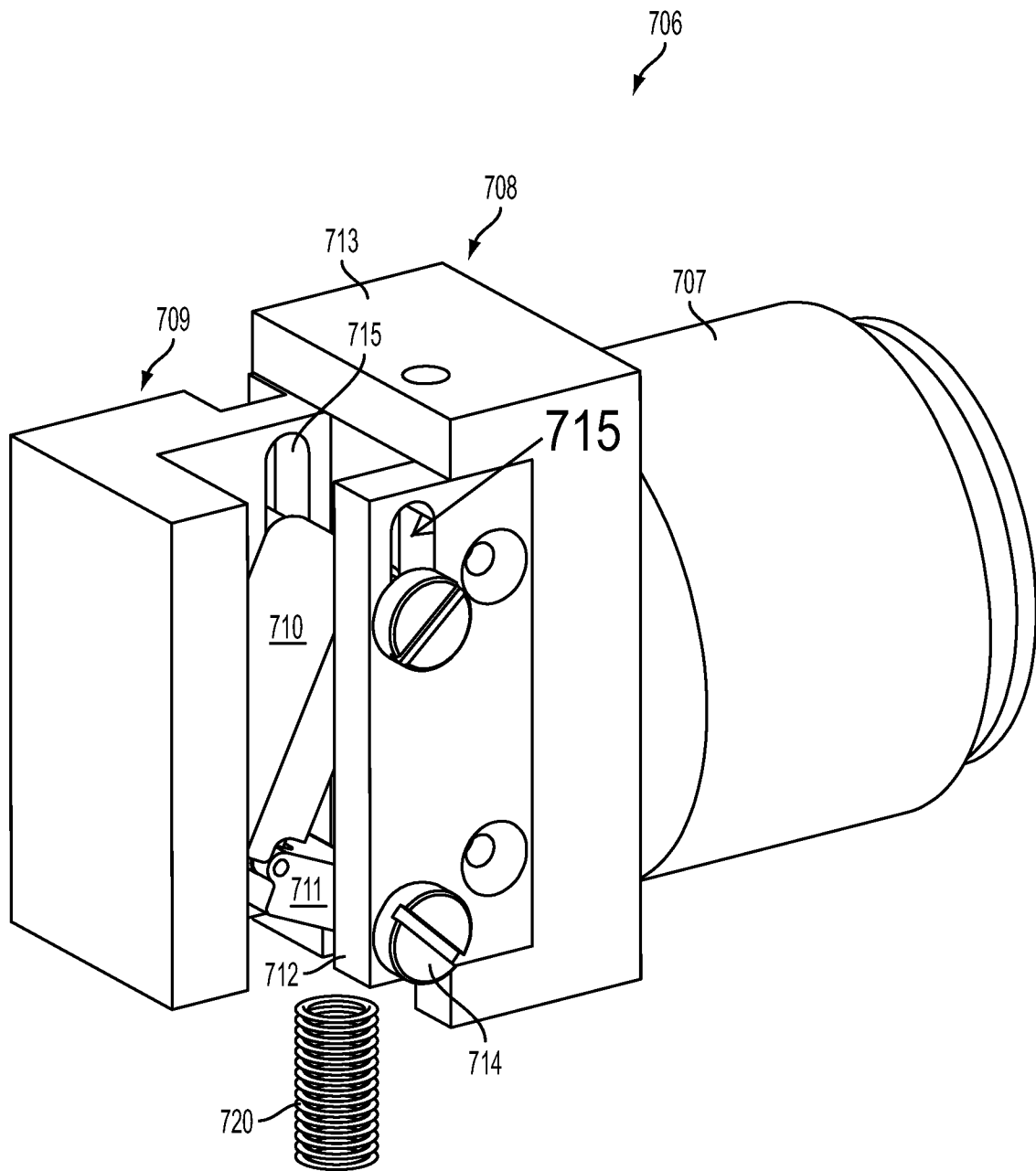


FIG. 69F

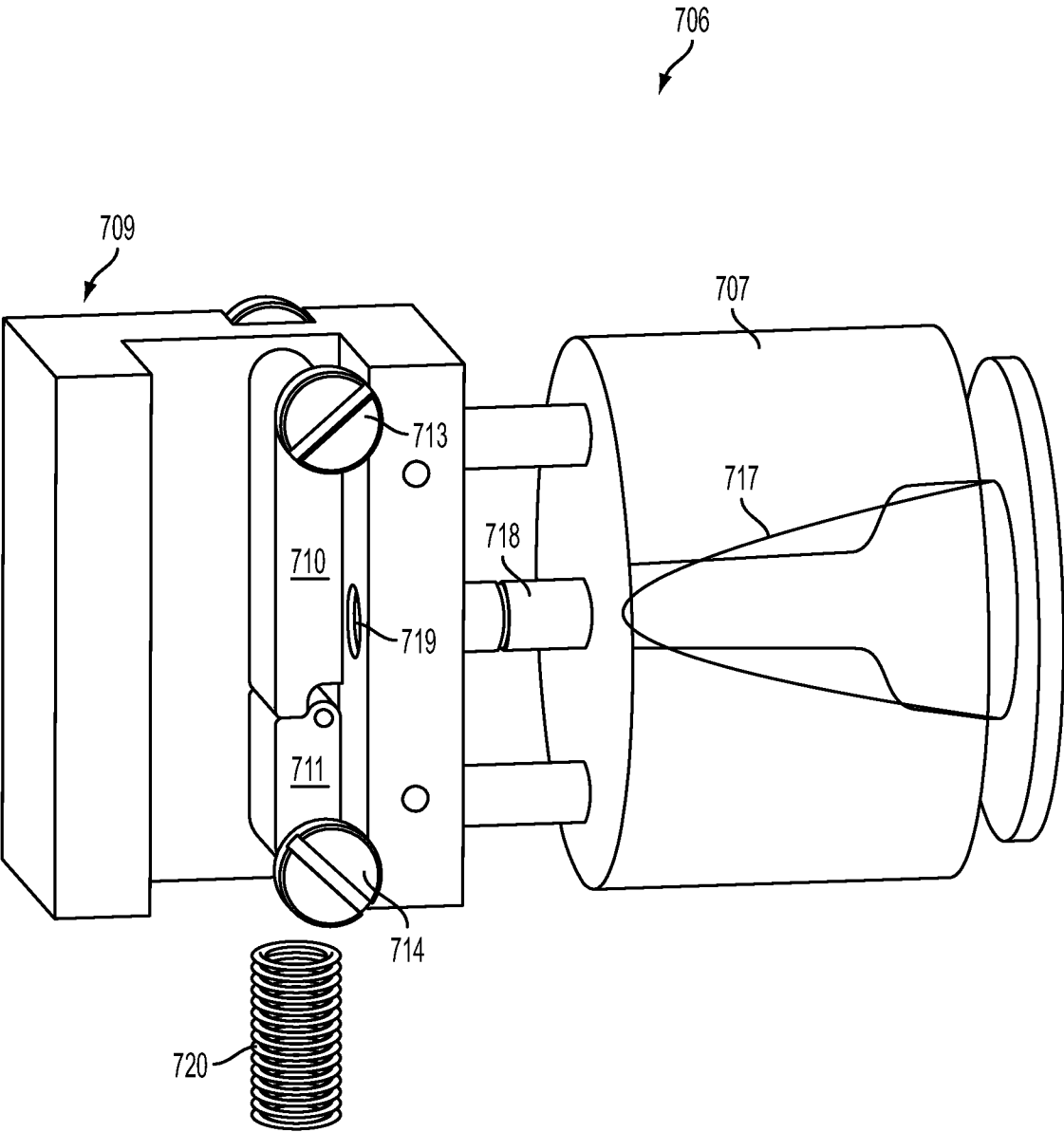


FIG. 69G

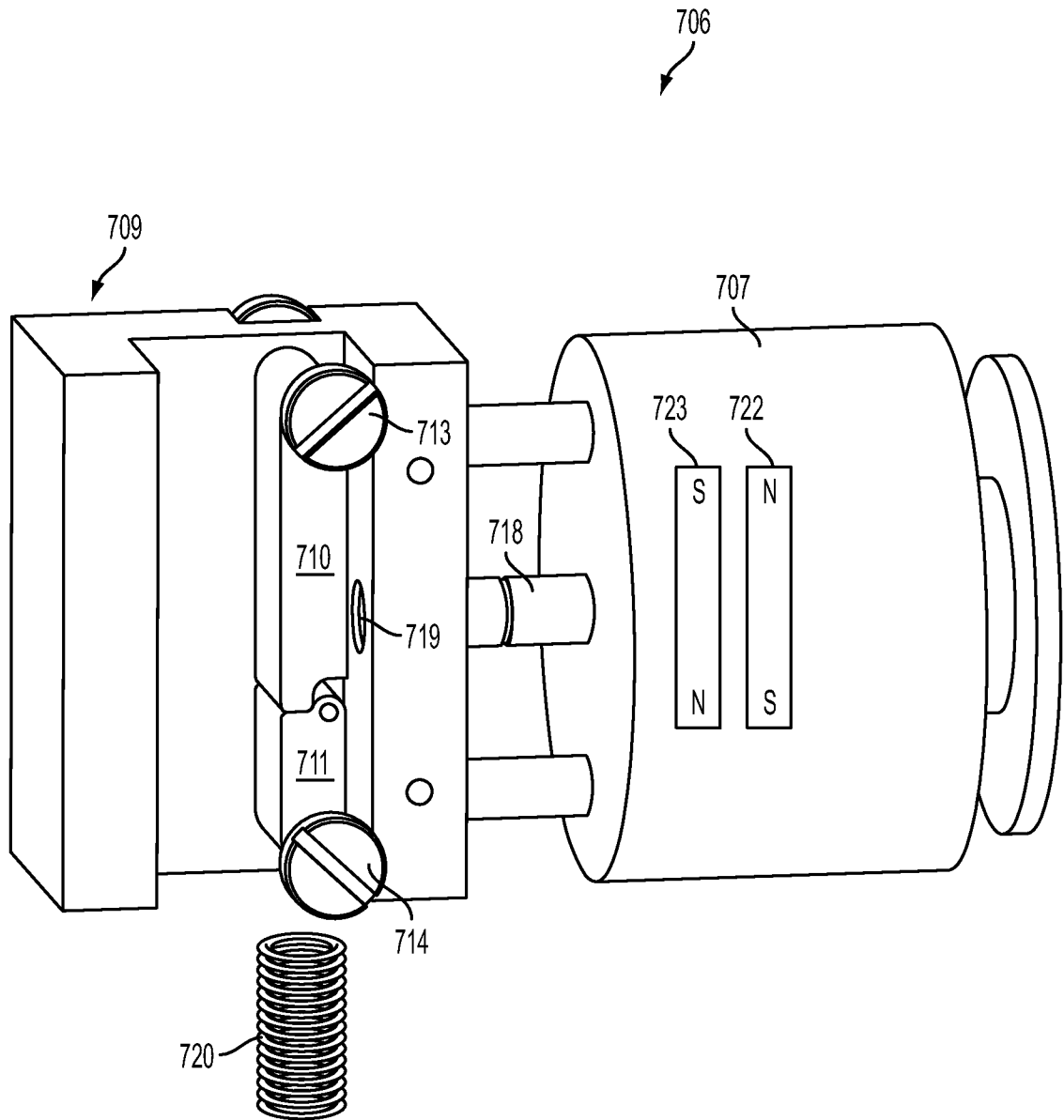


FIG. 69H

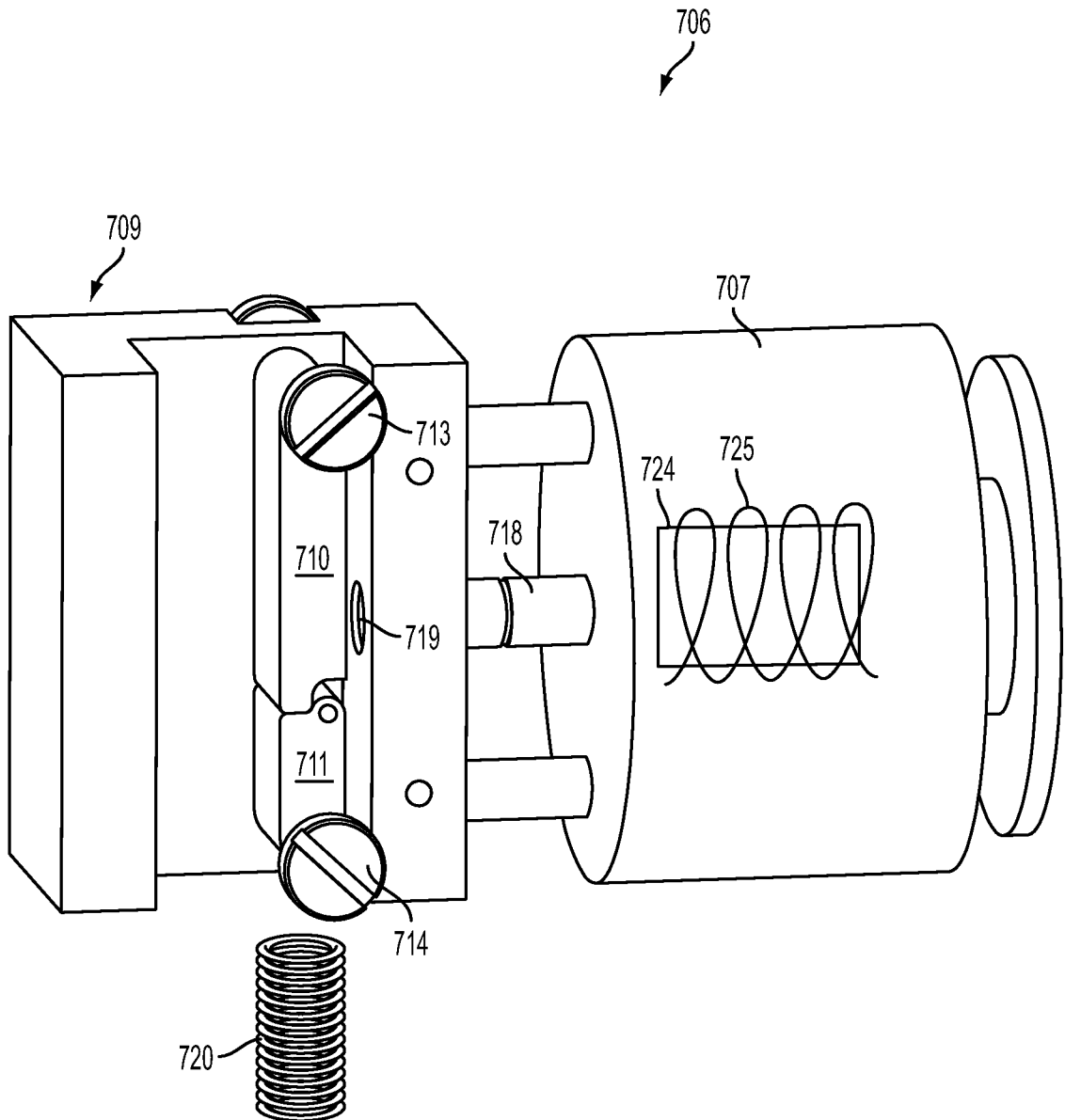


FIG. 69I

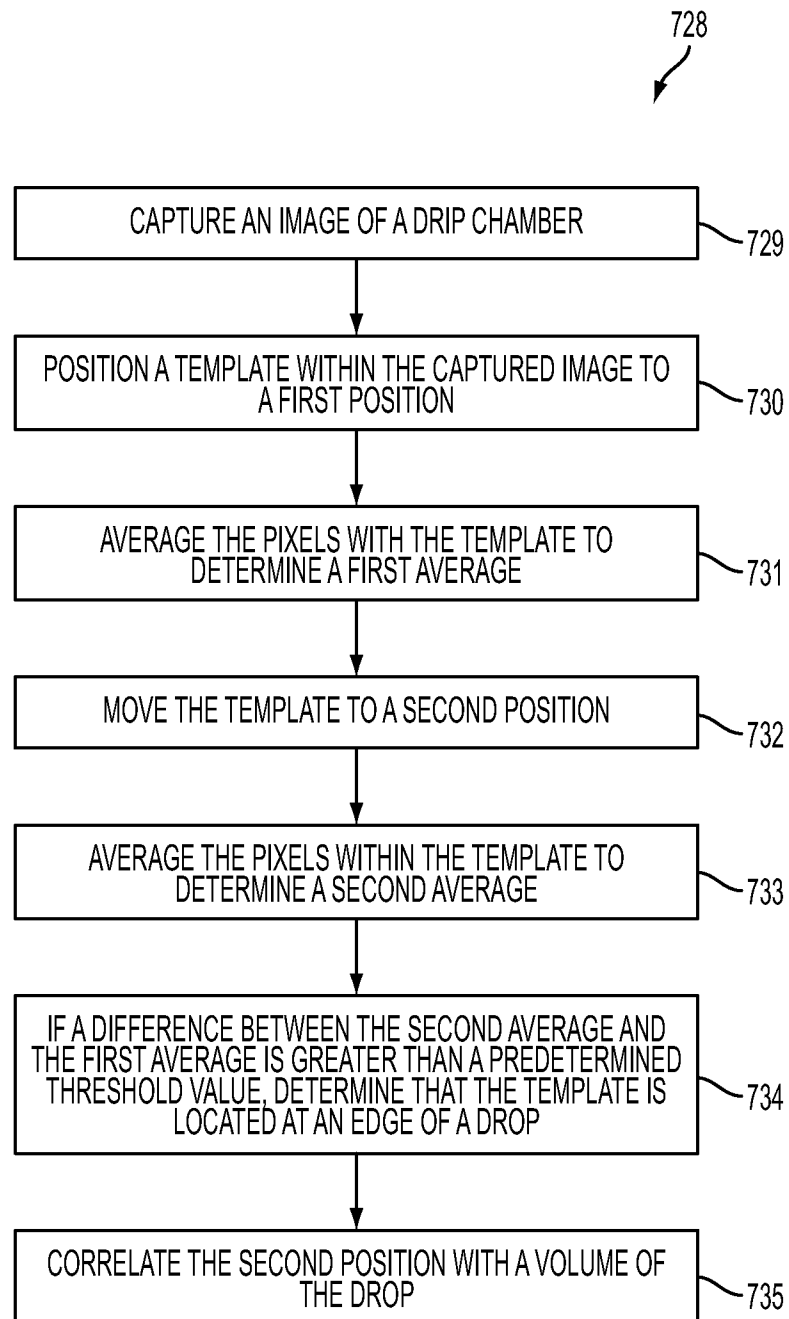


FIG. 70

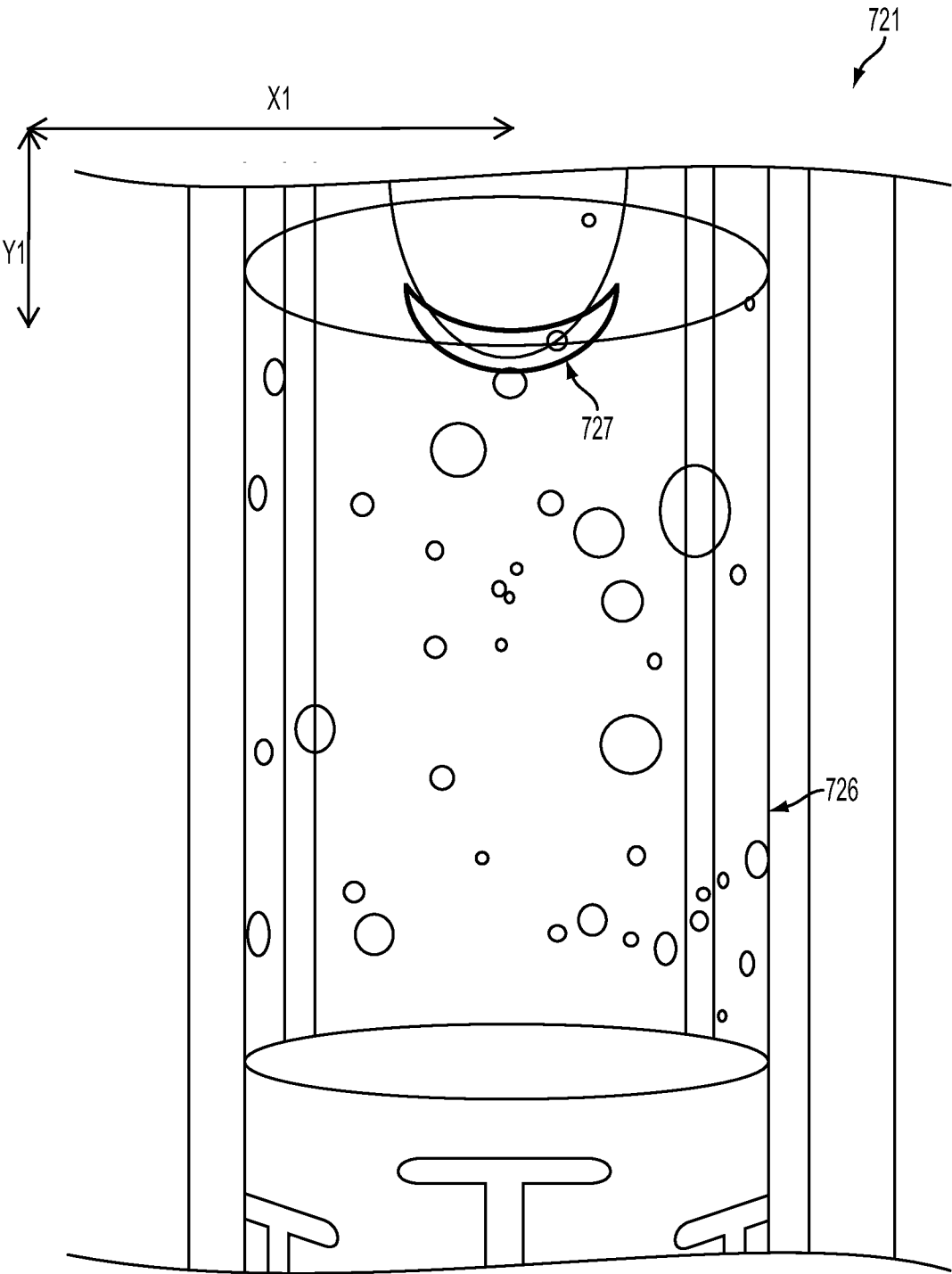


FIG. 71A

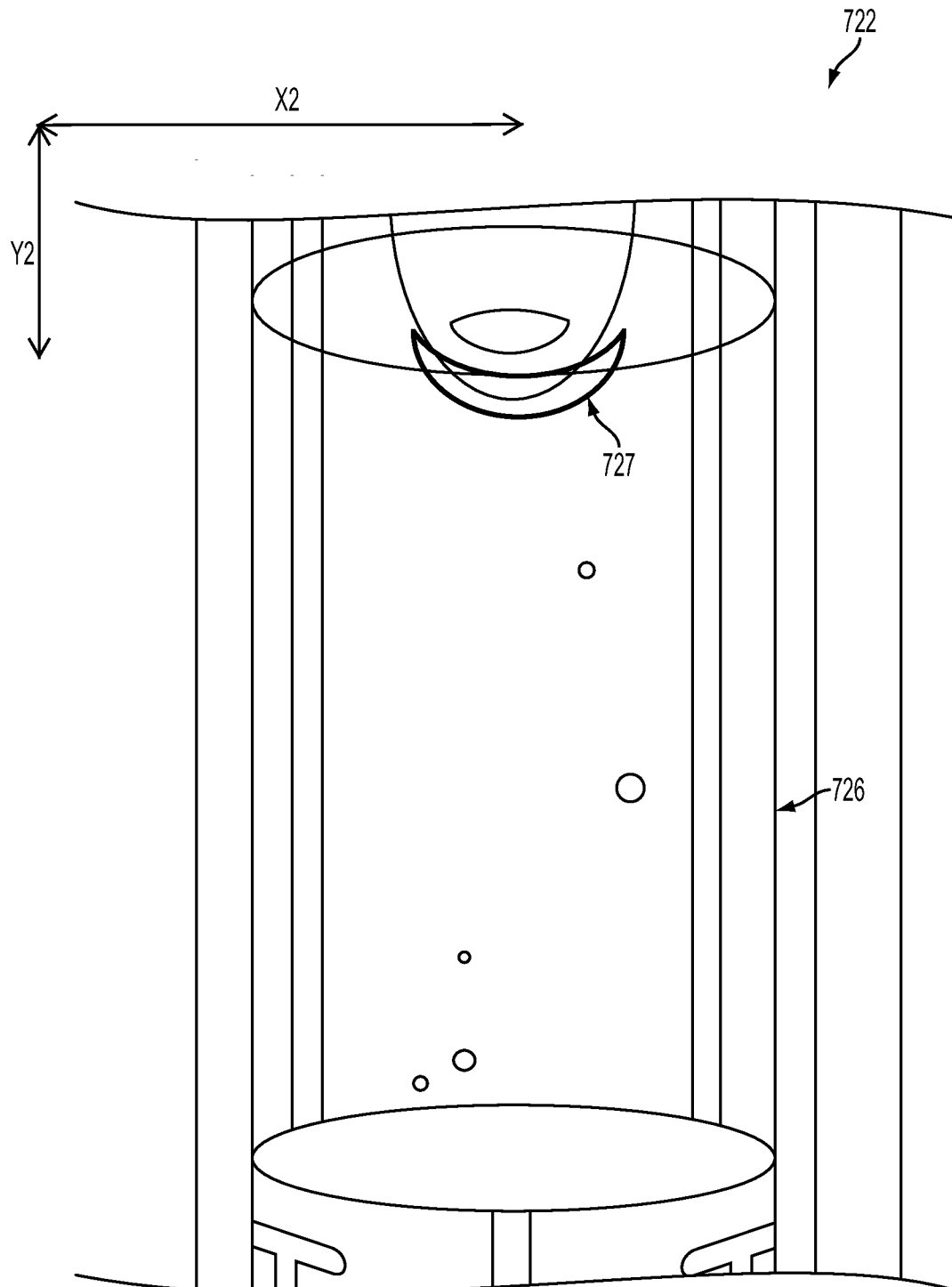


FIG. 71B

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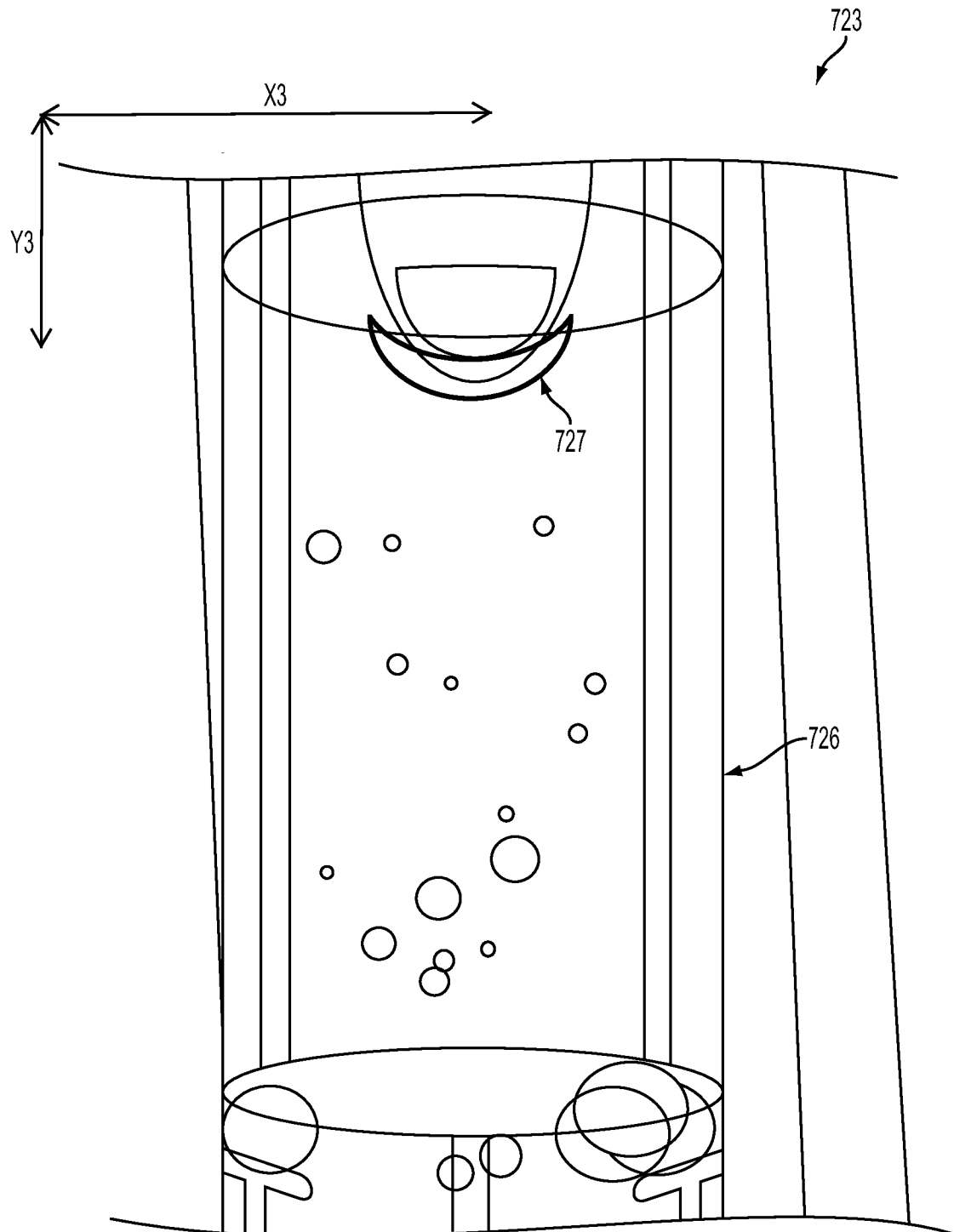


FIG. 71C

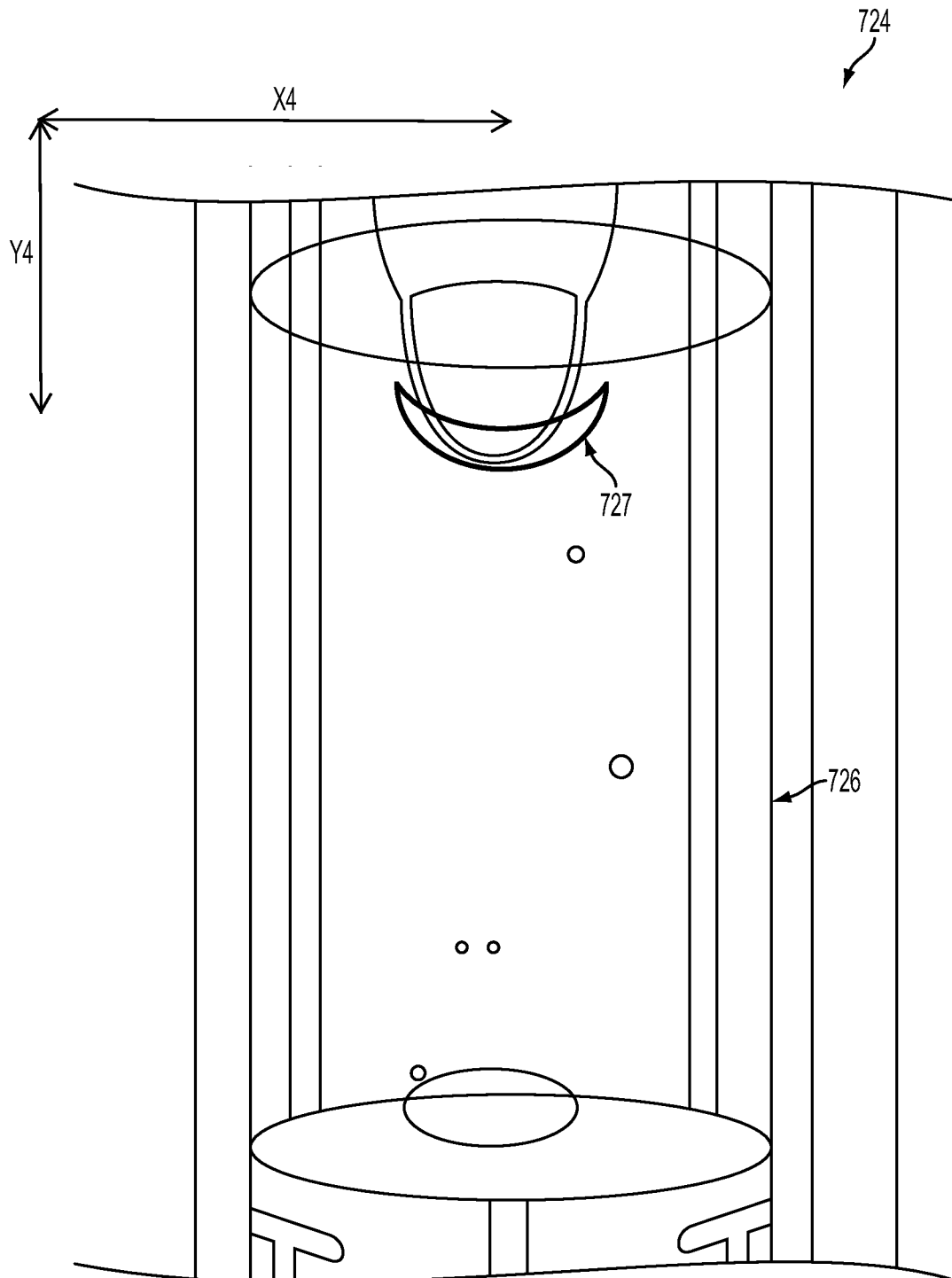


FIG. 71D

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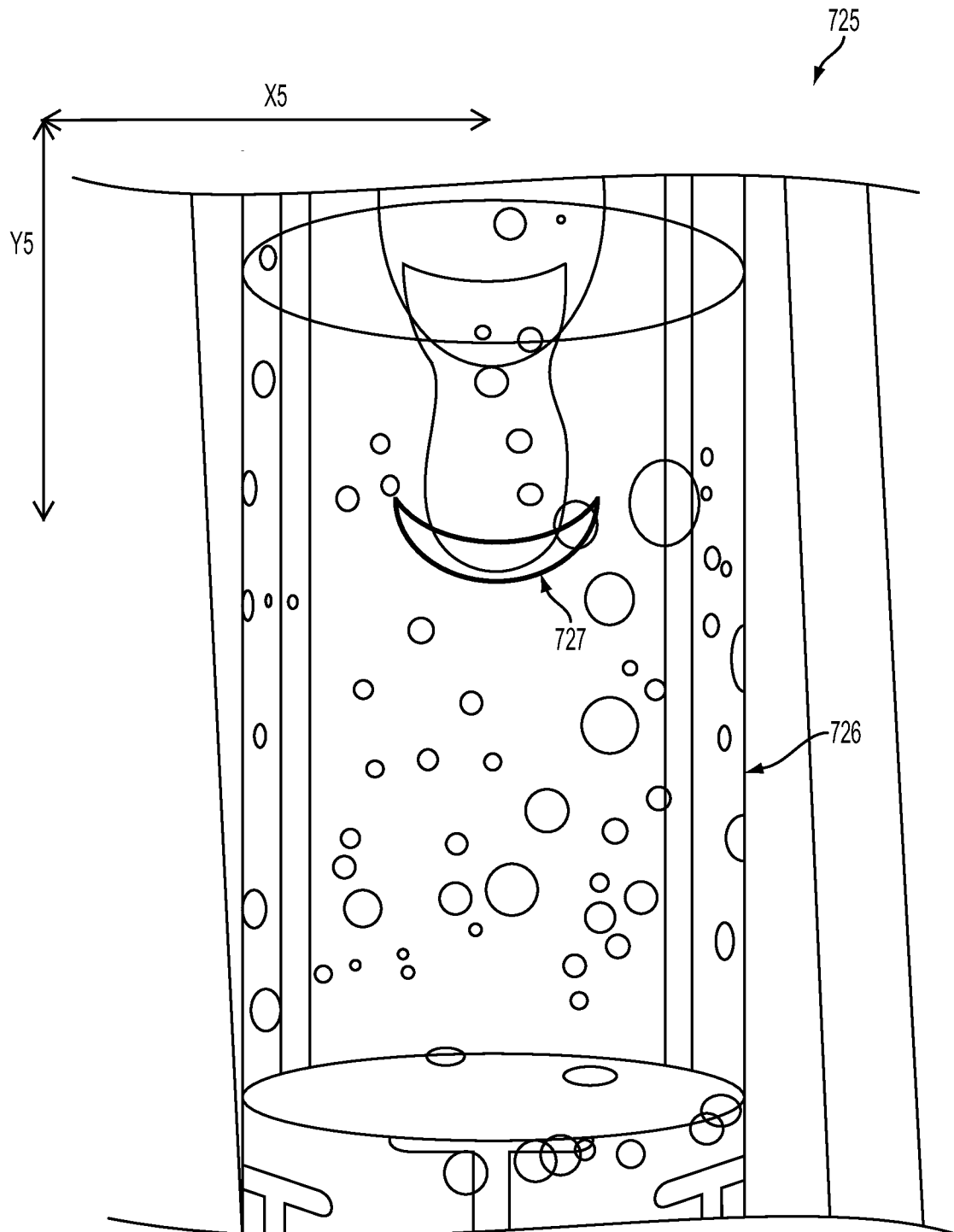


FIG. 71E

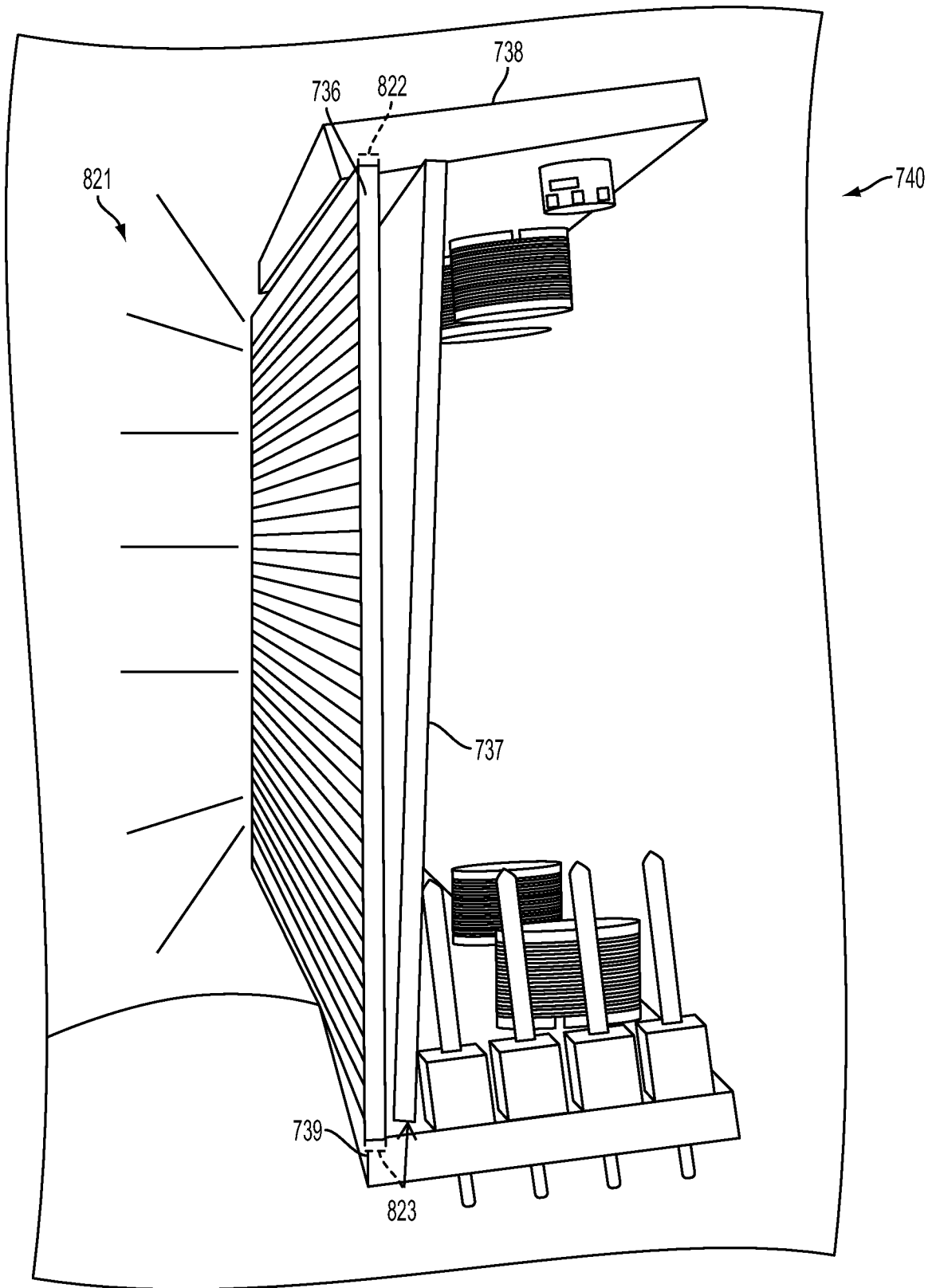


FIG. 72

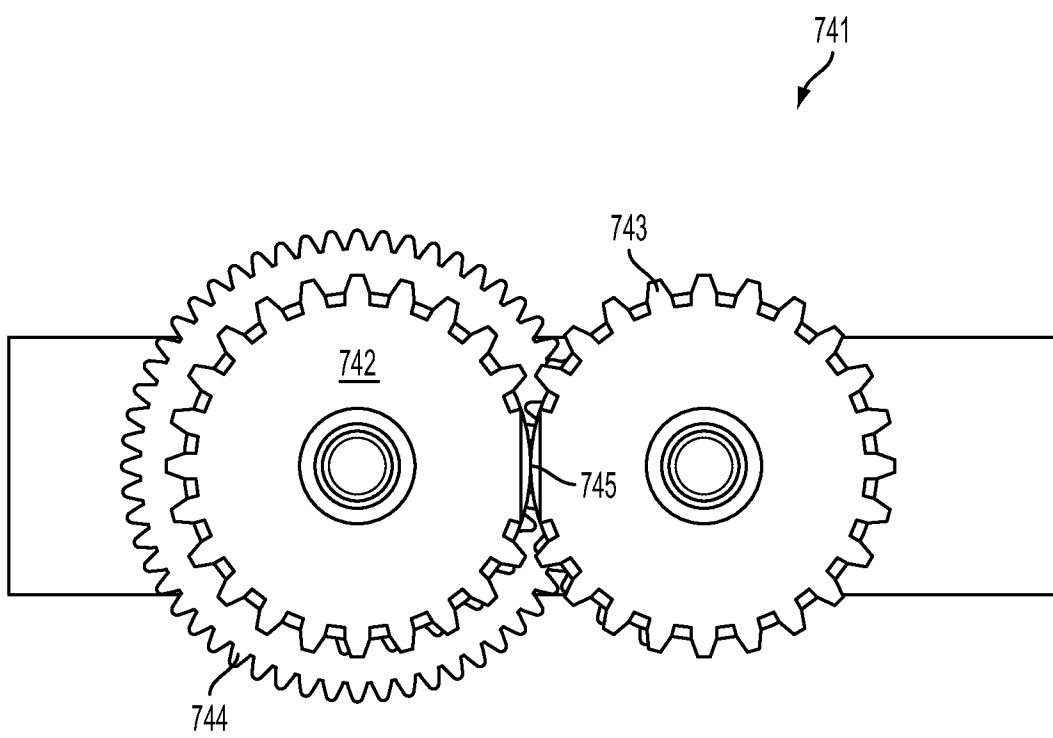


FIG. 73A

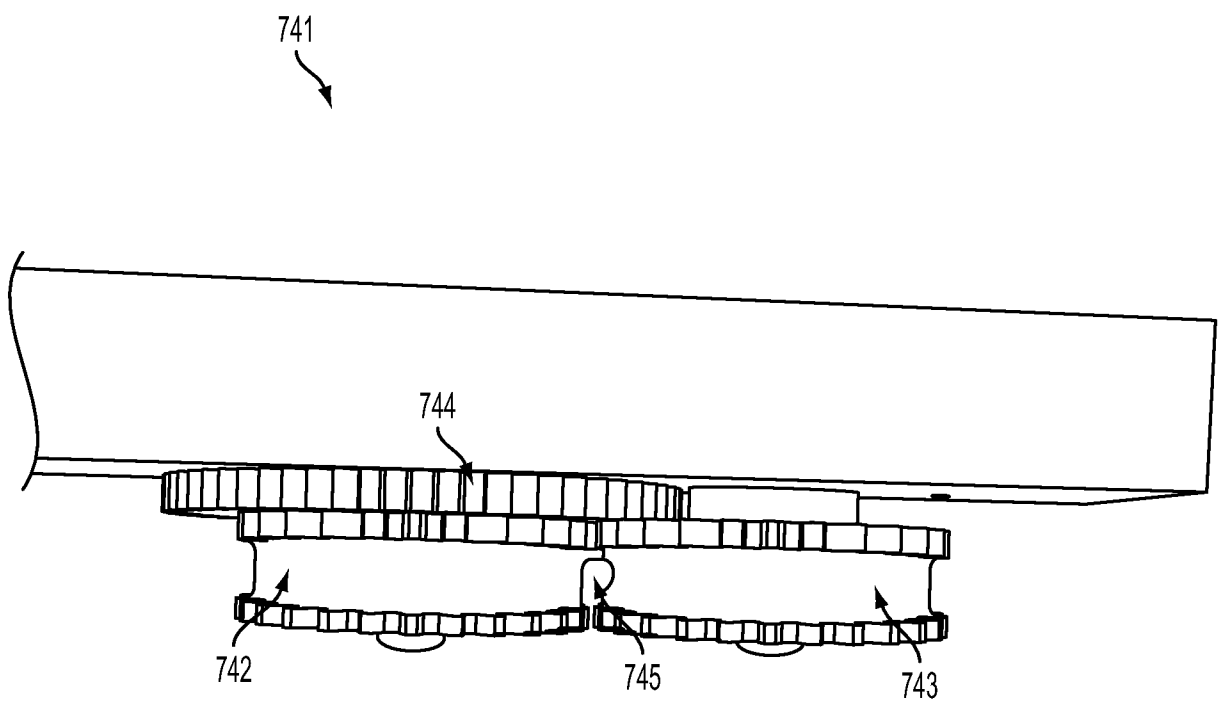


FIG. 73B

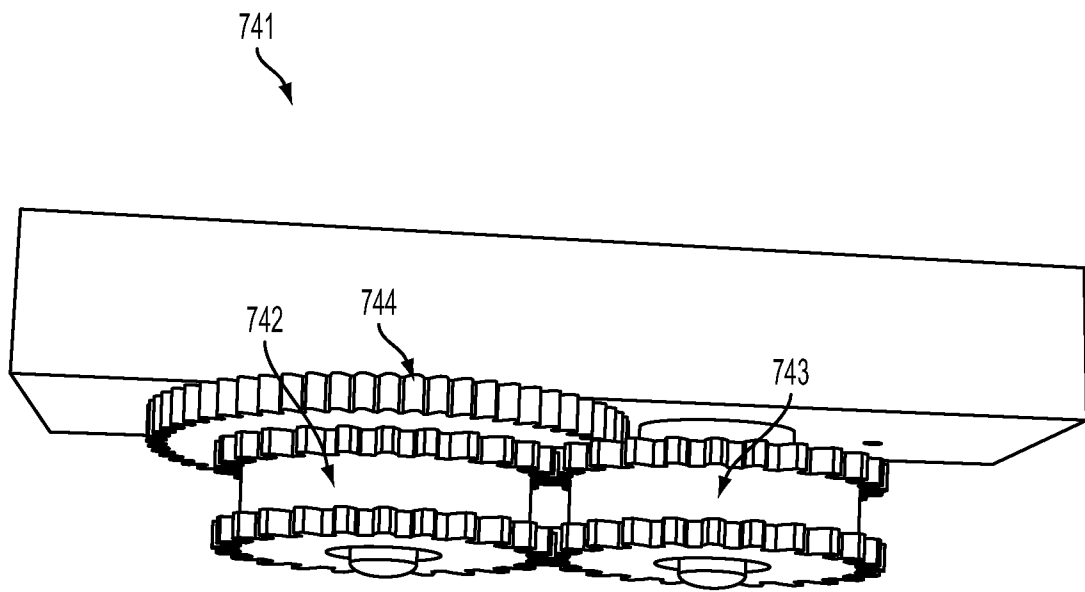


FIG. 73C

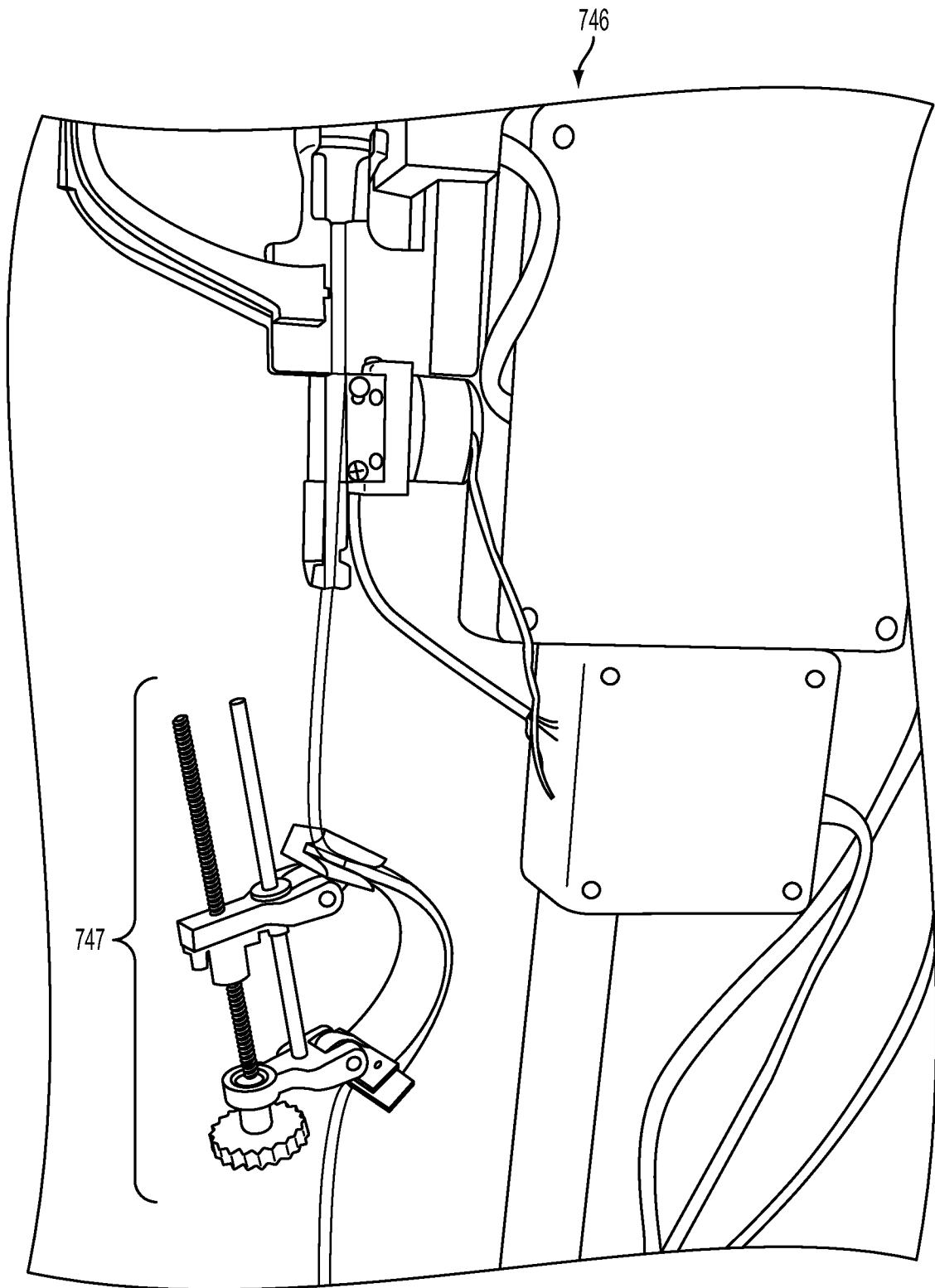


FIG.74

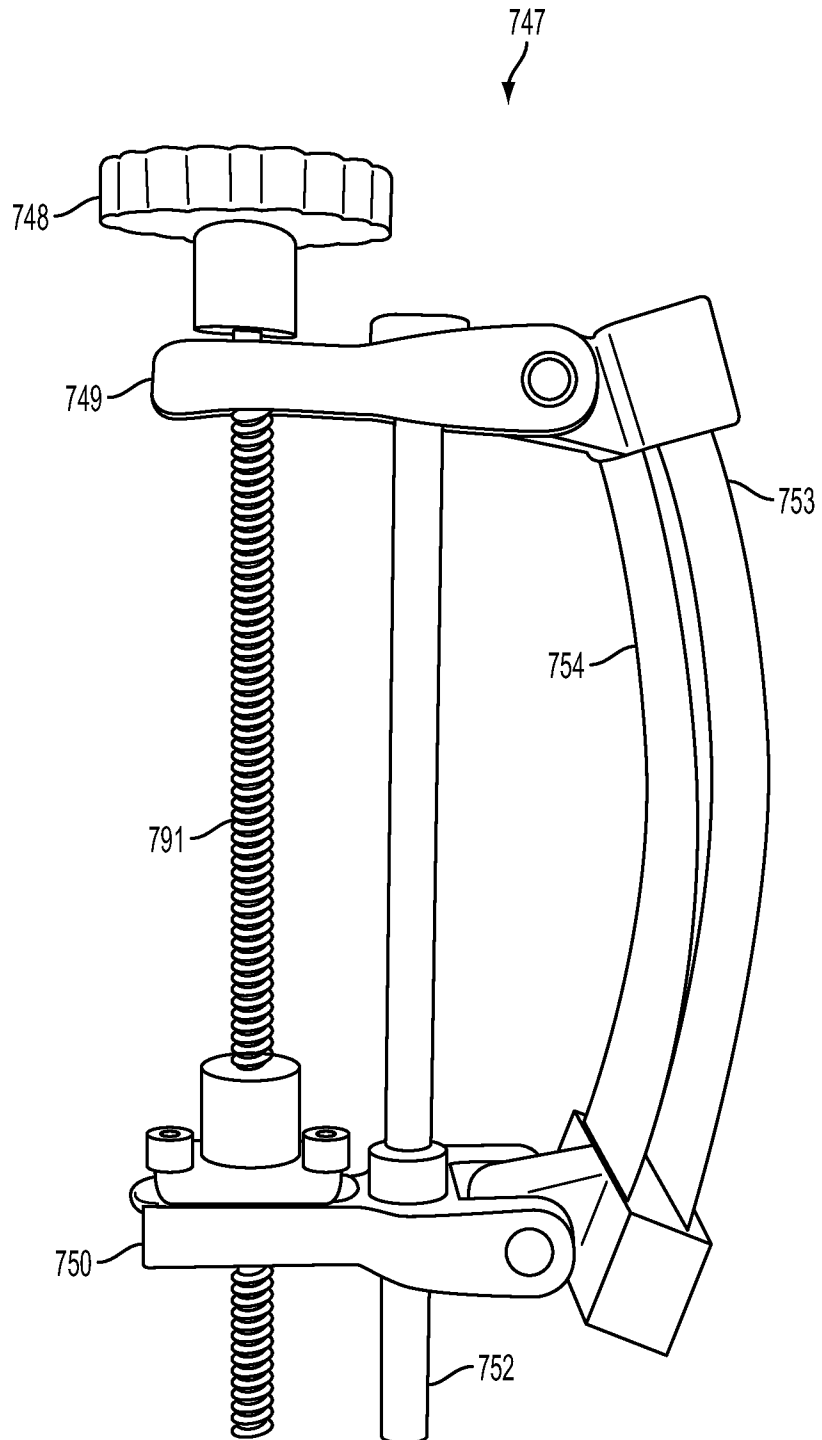


FIG.75

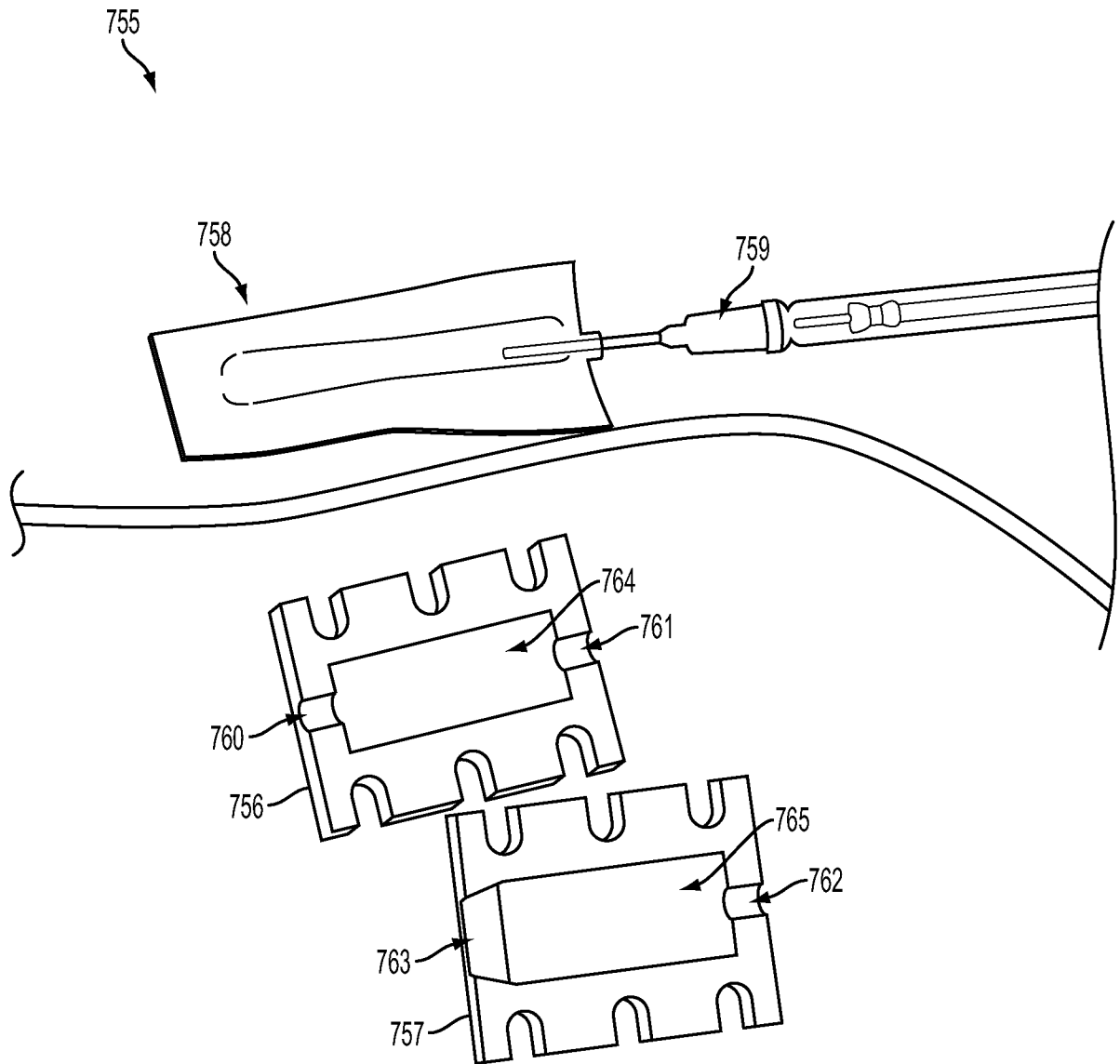


FIG. 76A

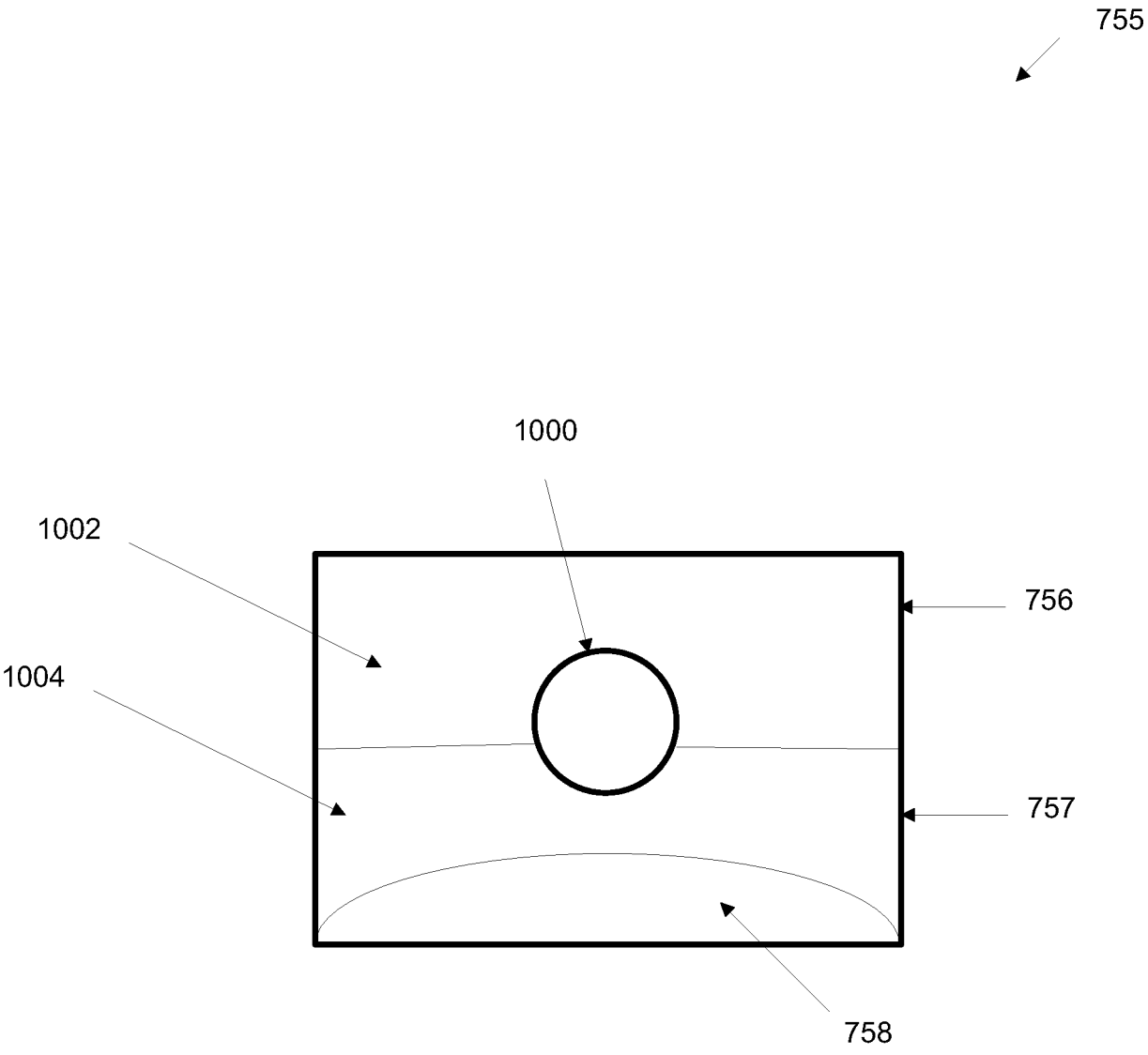


Fig. 76B

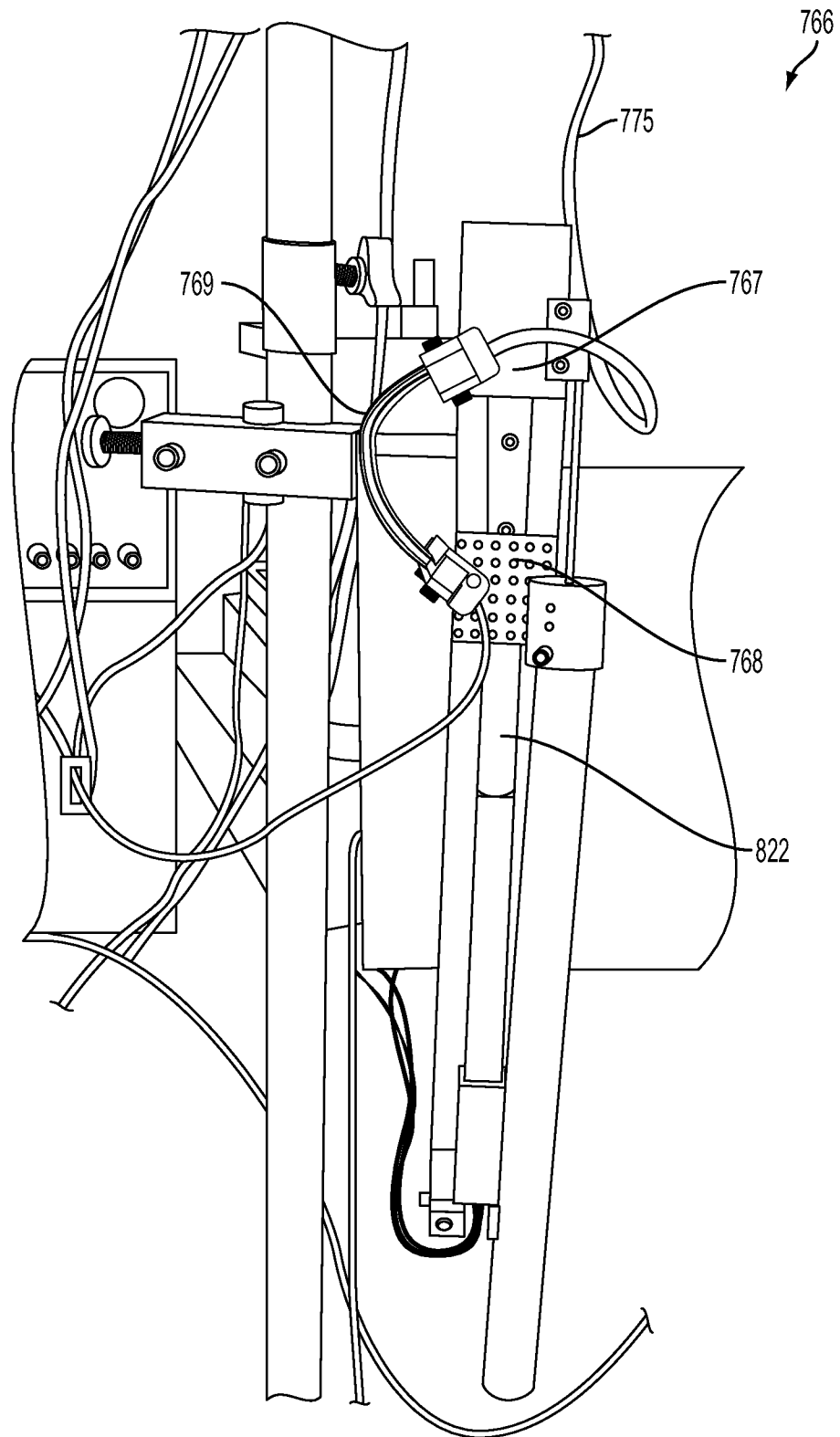


FIG. 77

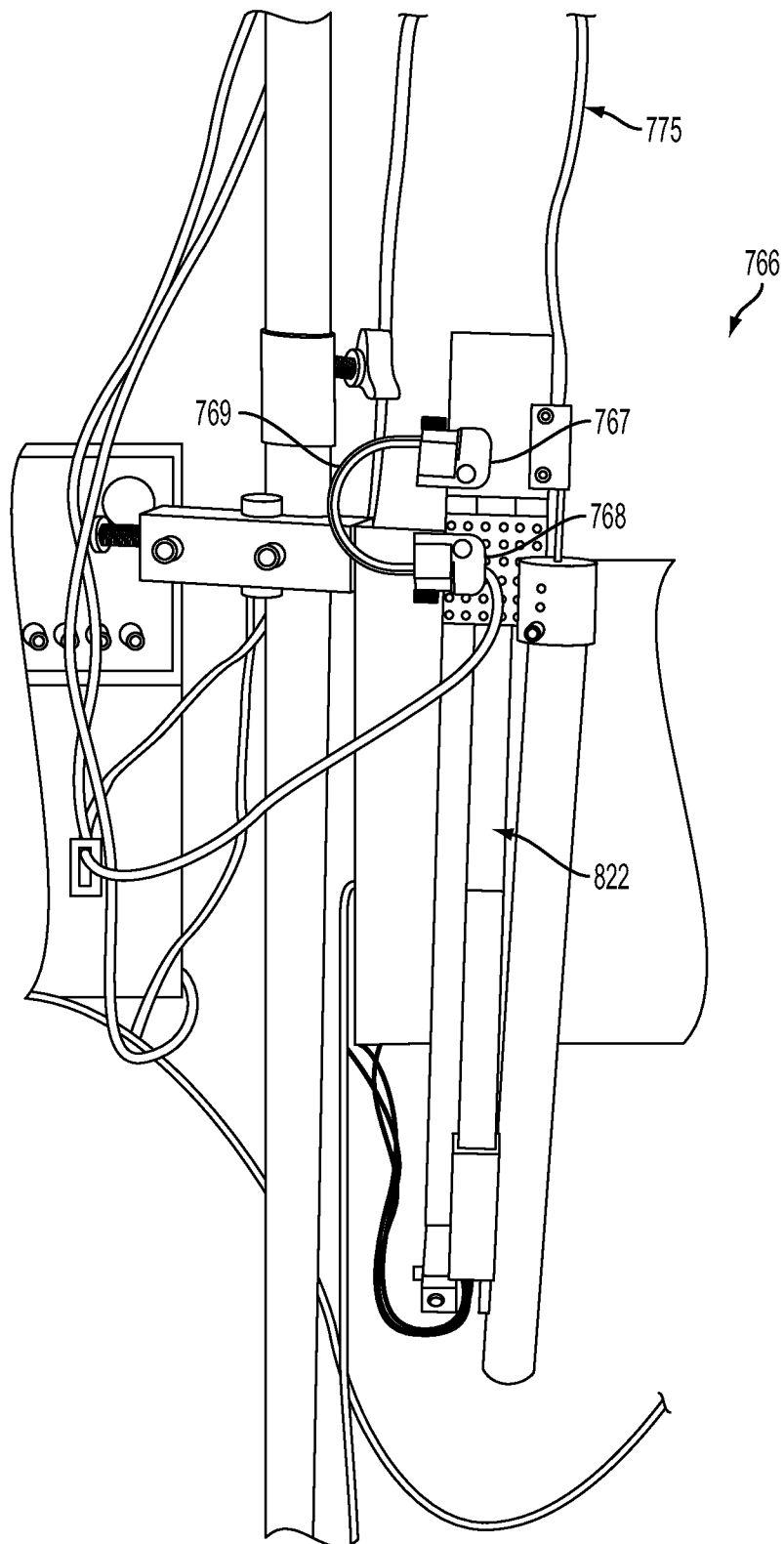


FIG. 78

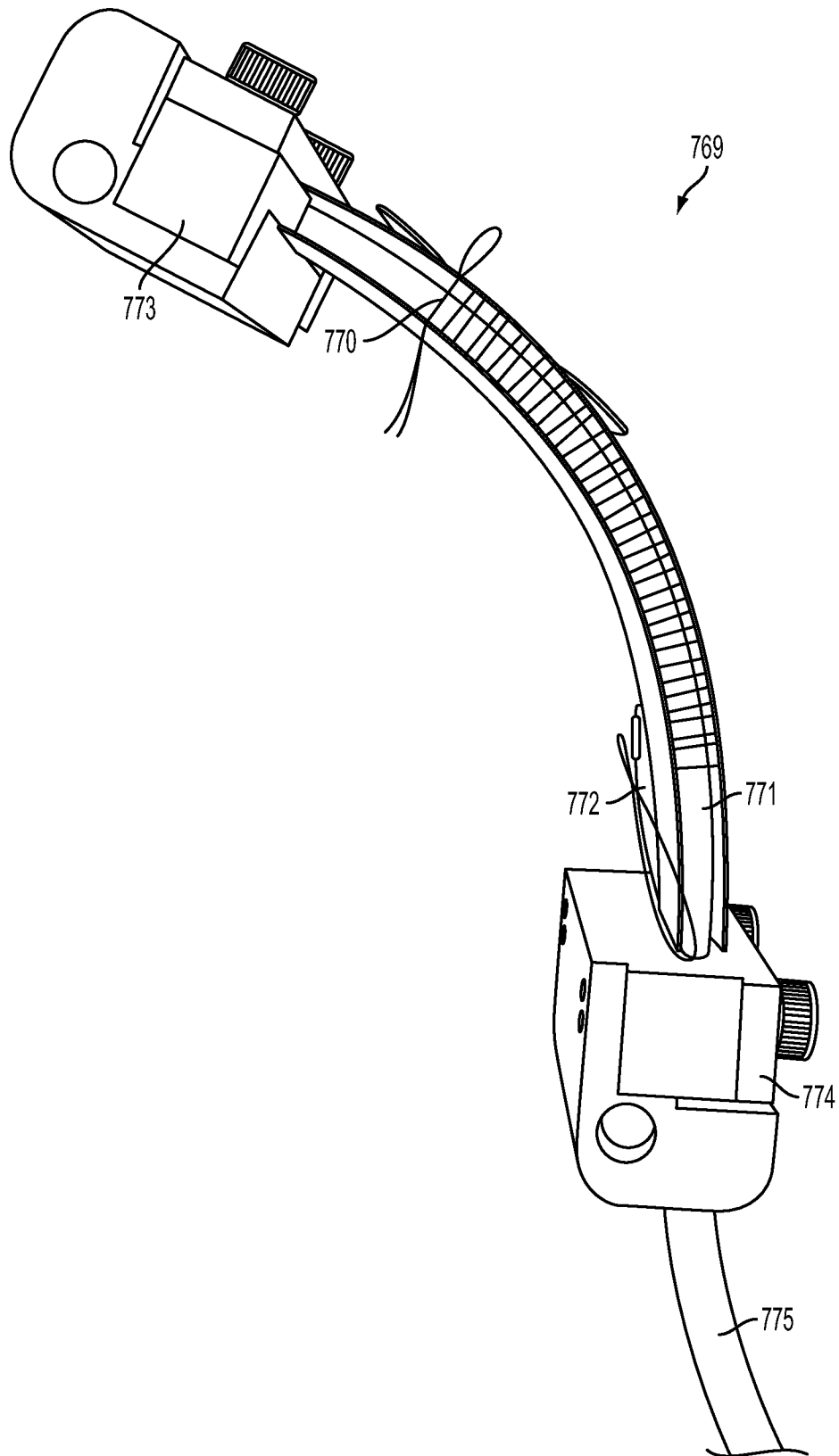


FIG. 79

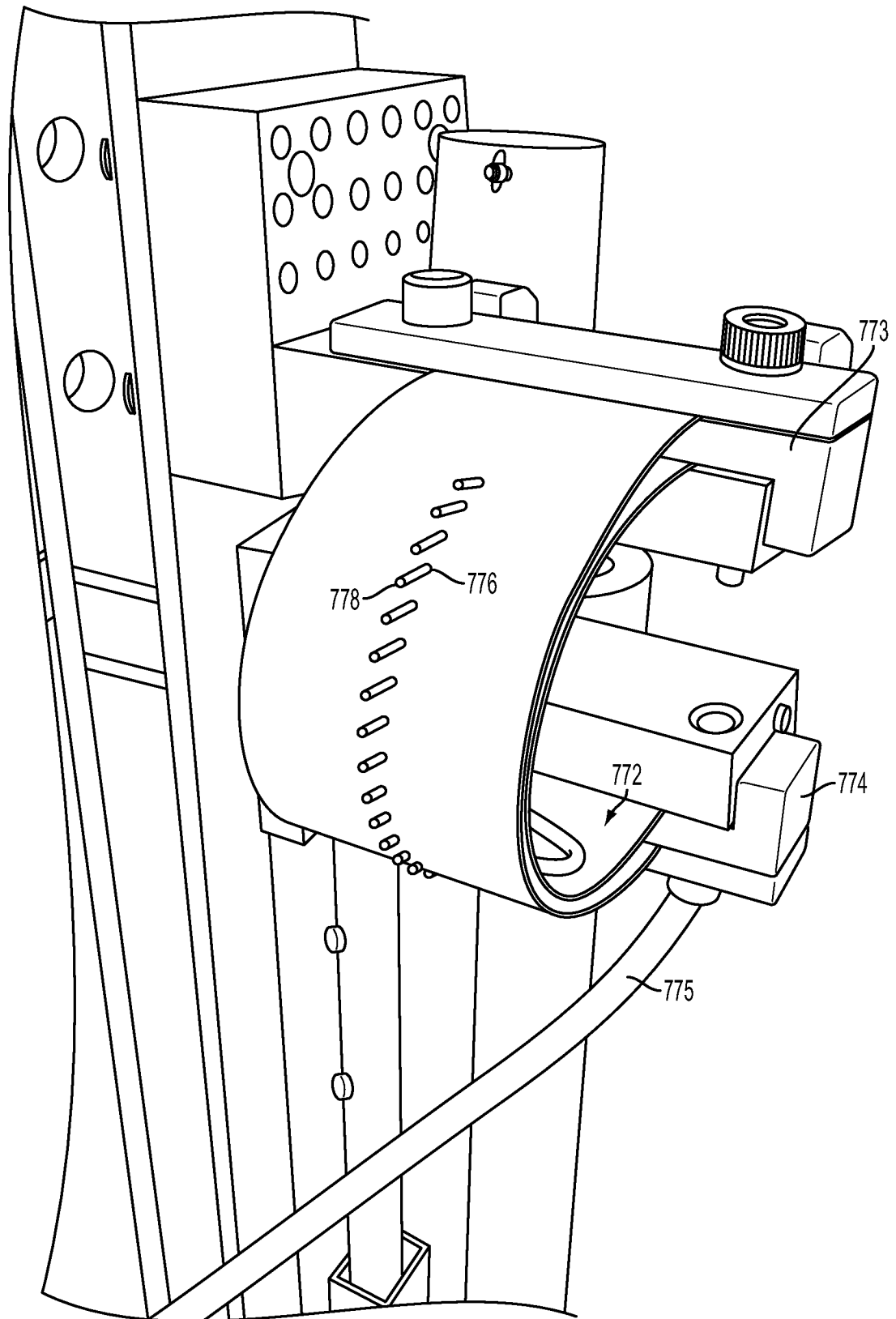


FIG. 80

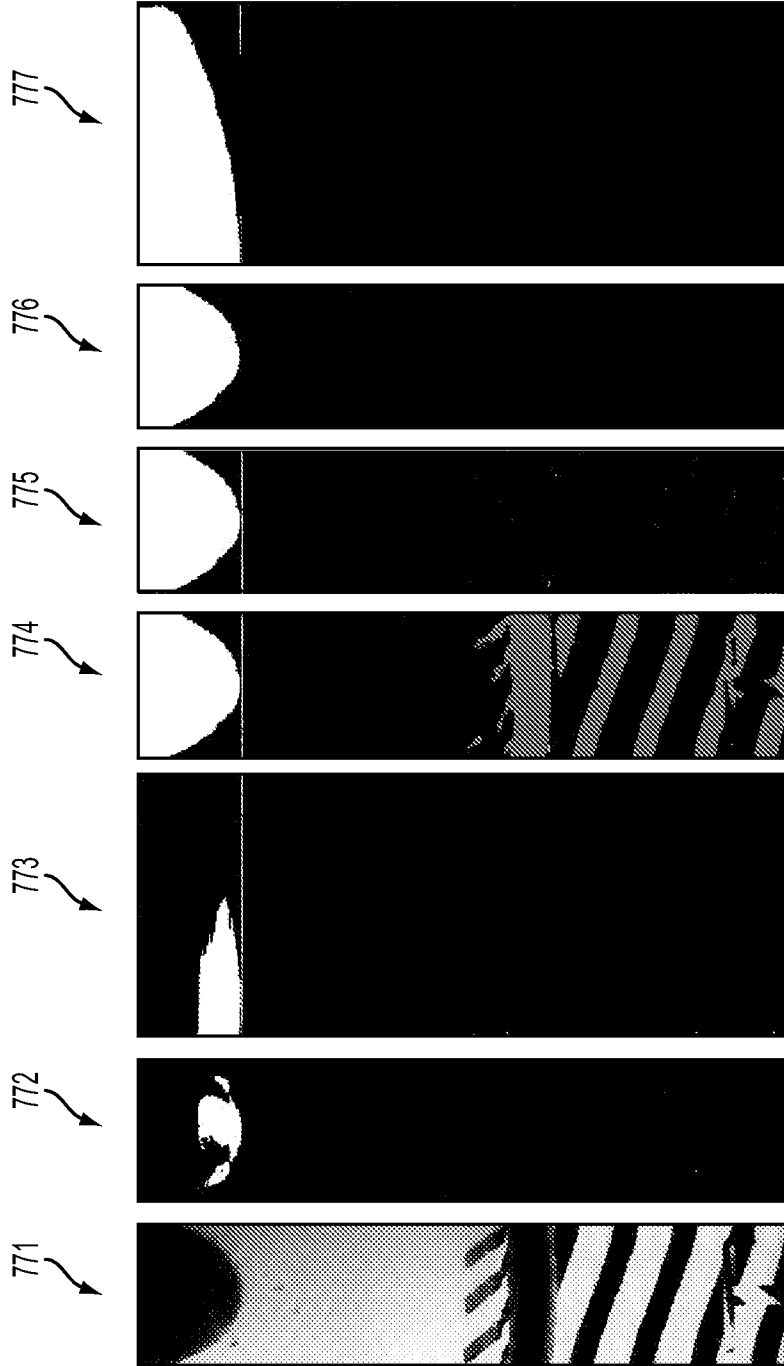


FIG. 81

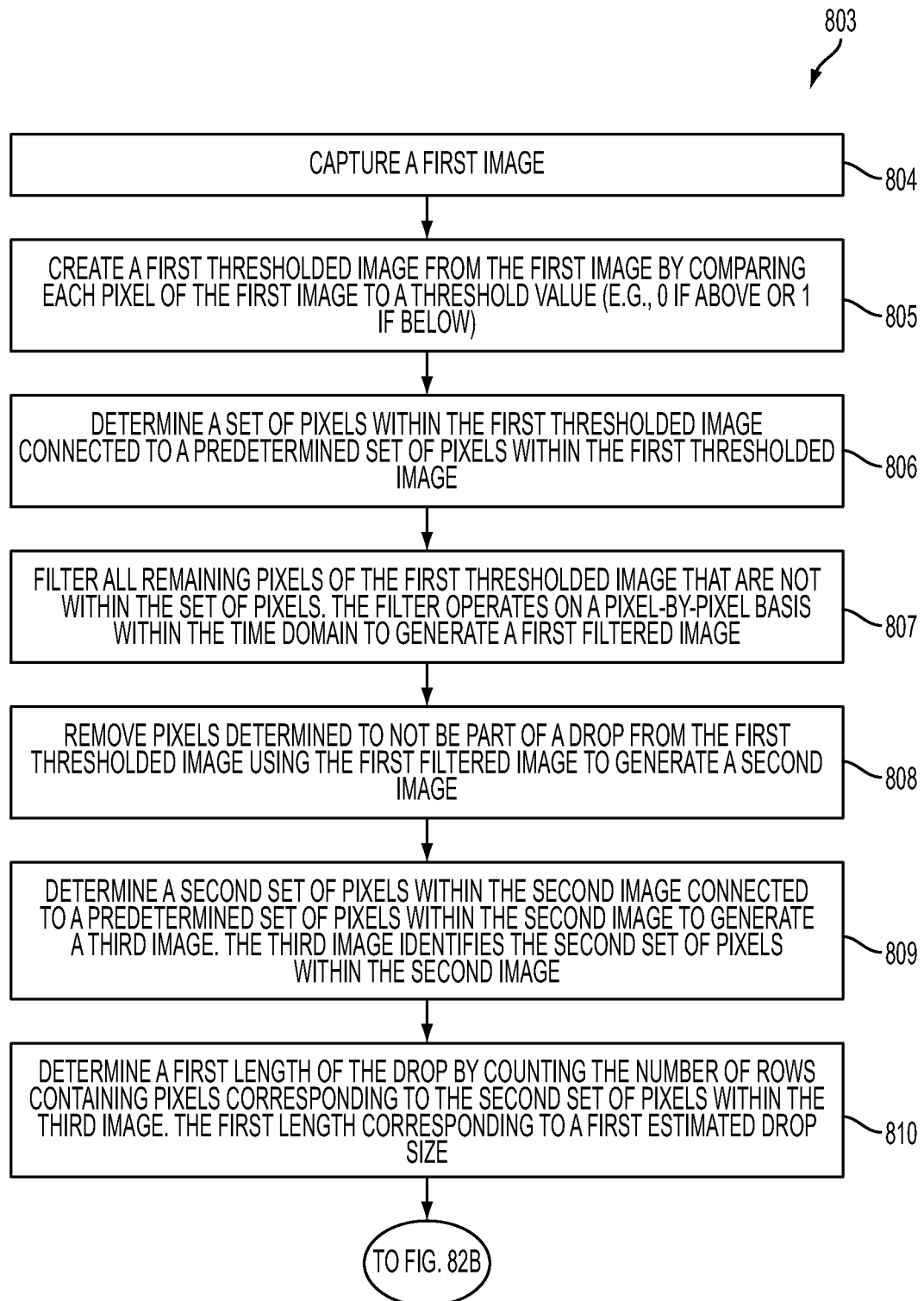


FIG. 82A

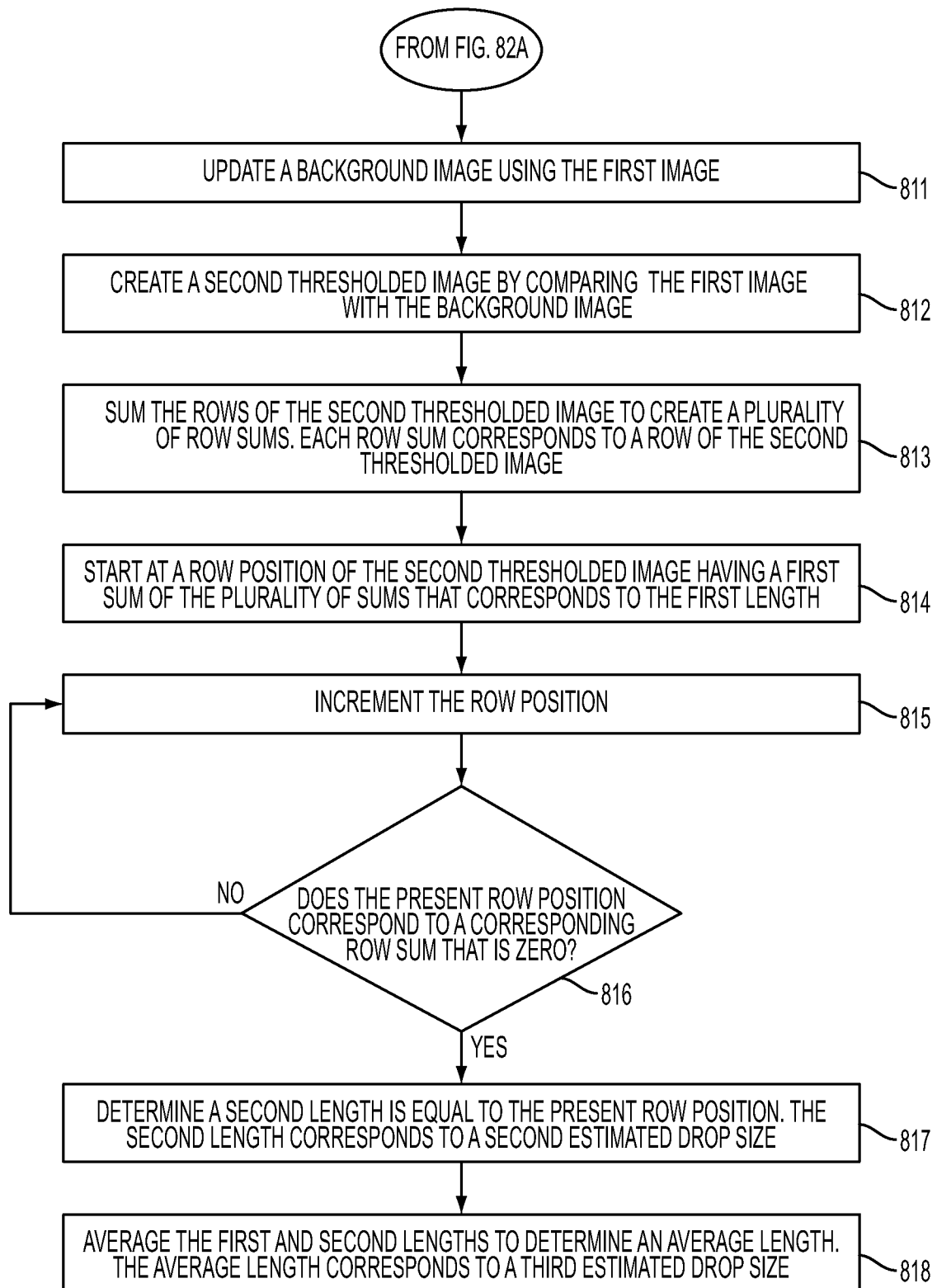


FIG. 82B

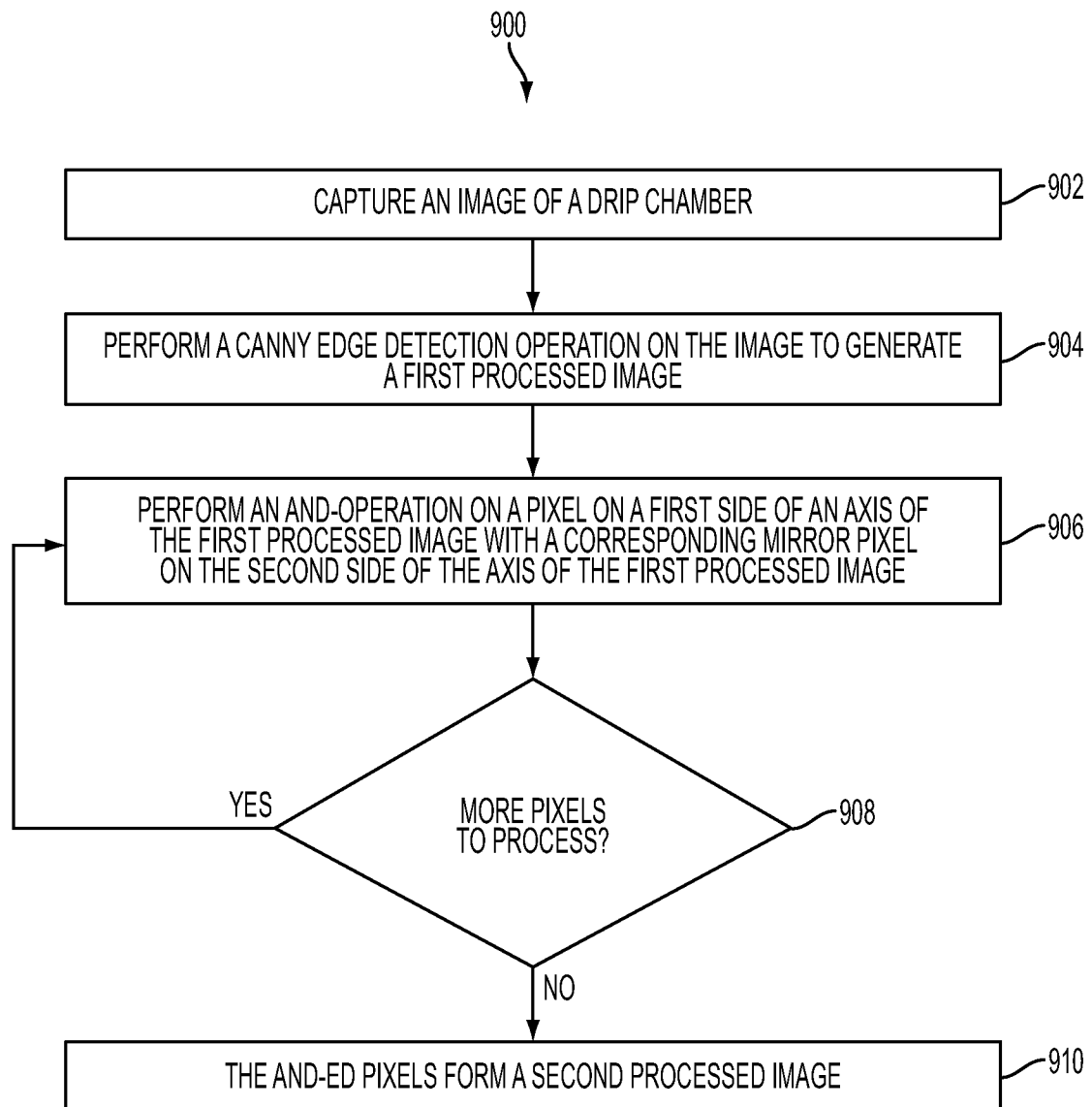


FIG. 83

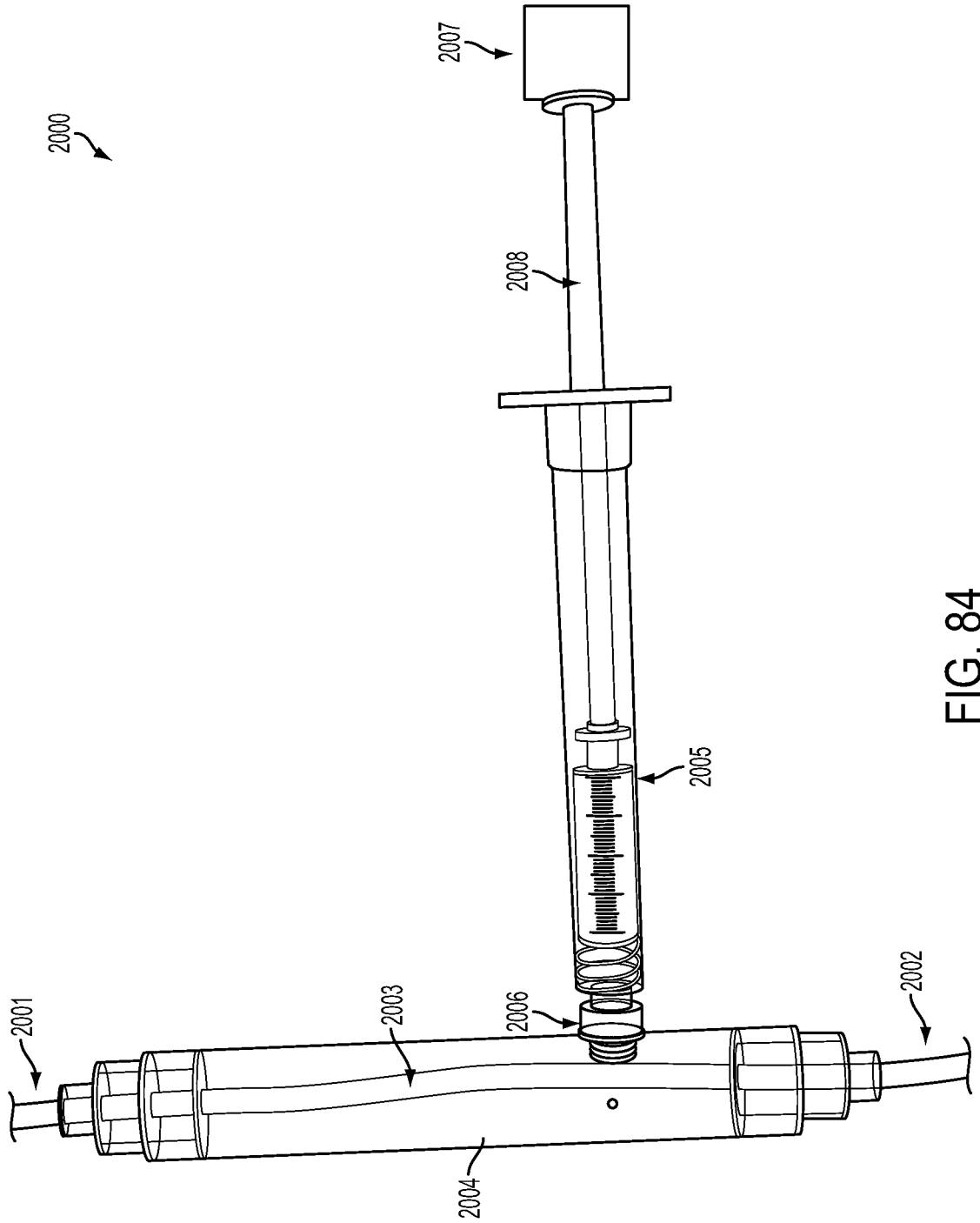


FIG. 84

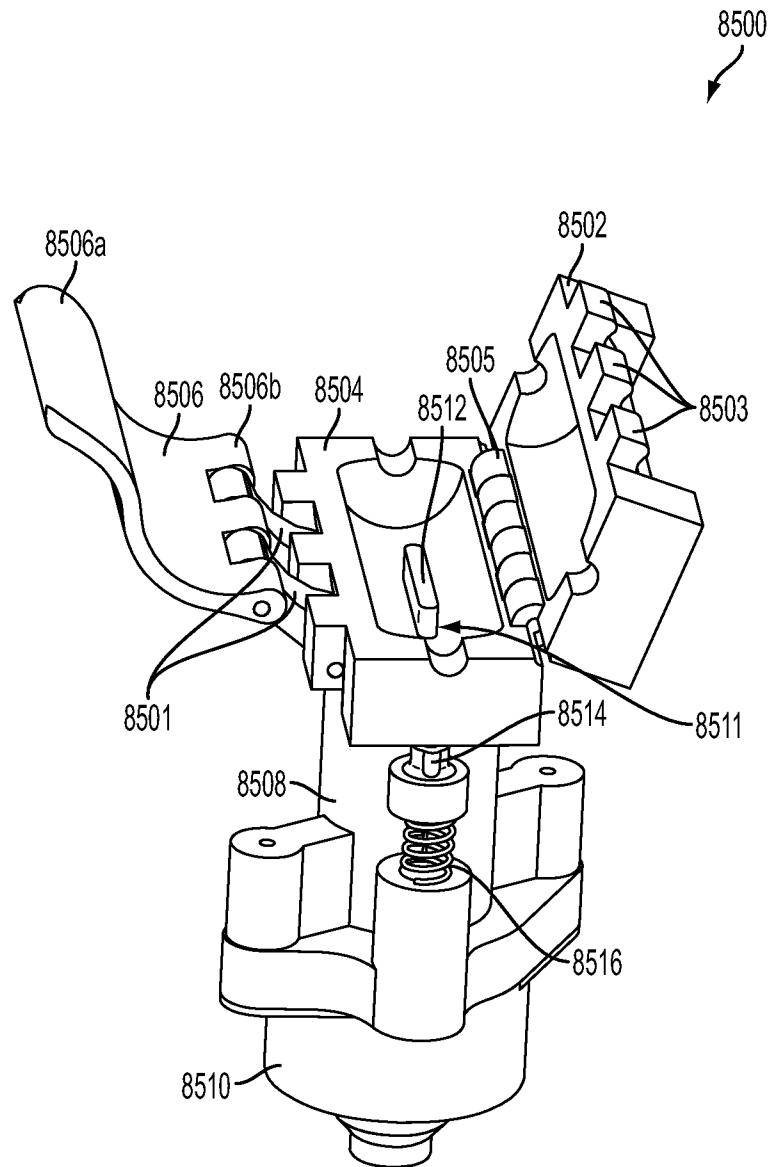


FIG. 85A

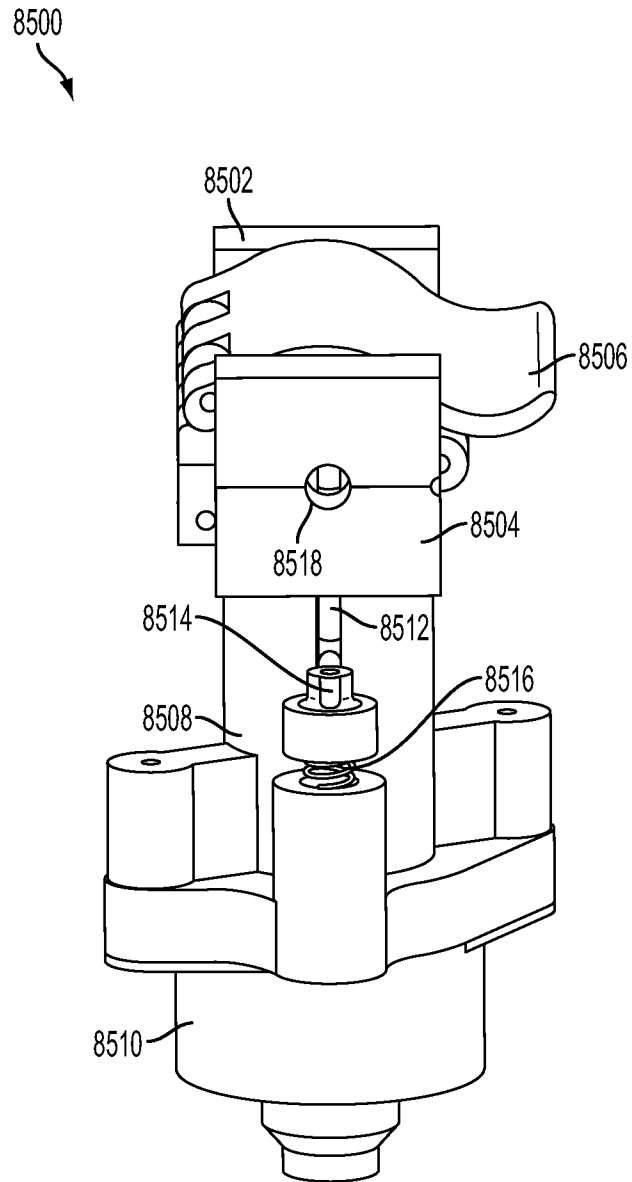


FIG. 85B

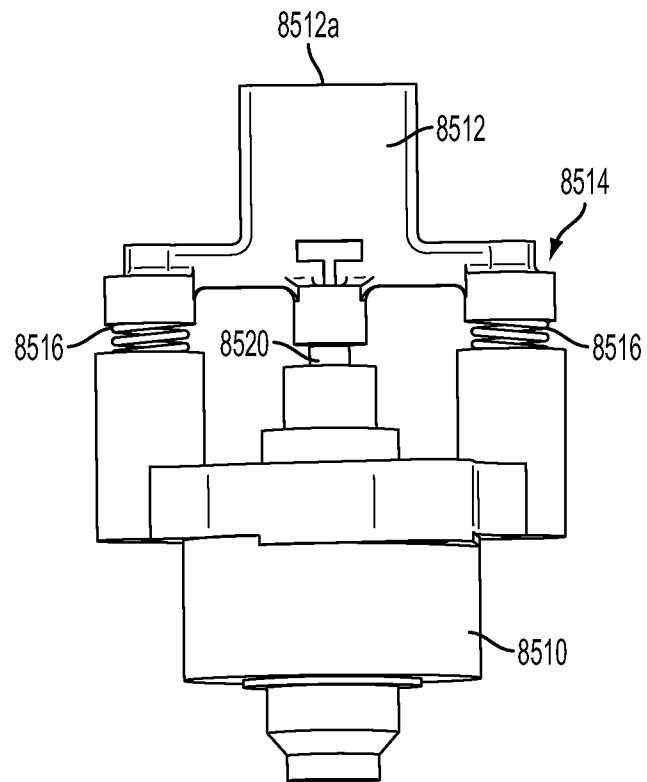


FIG. 85C

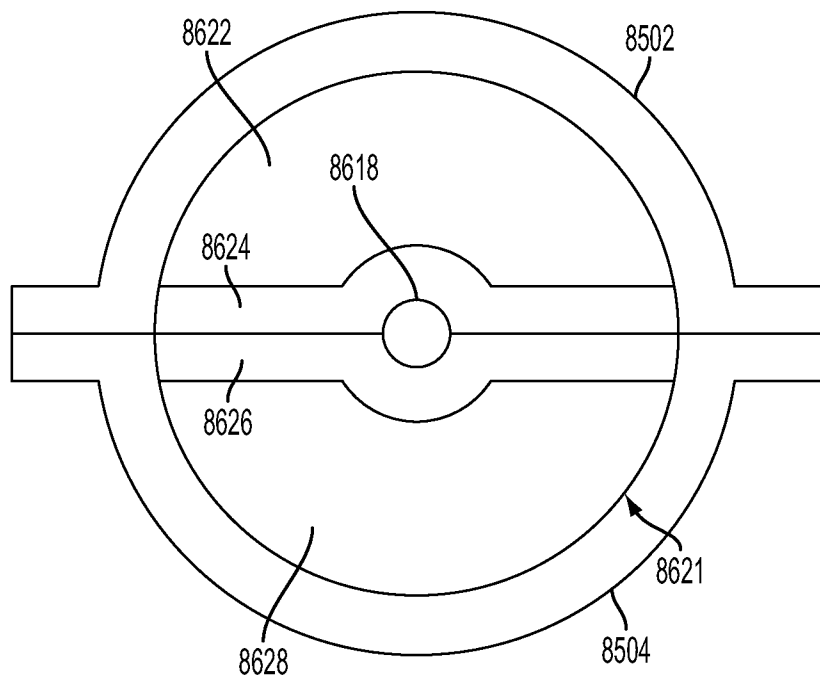


FIG. 86

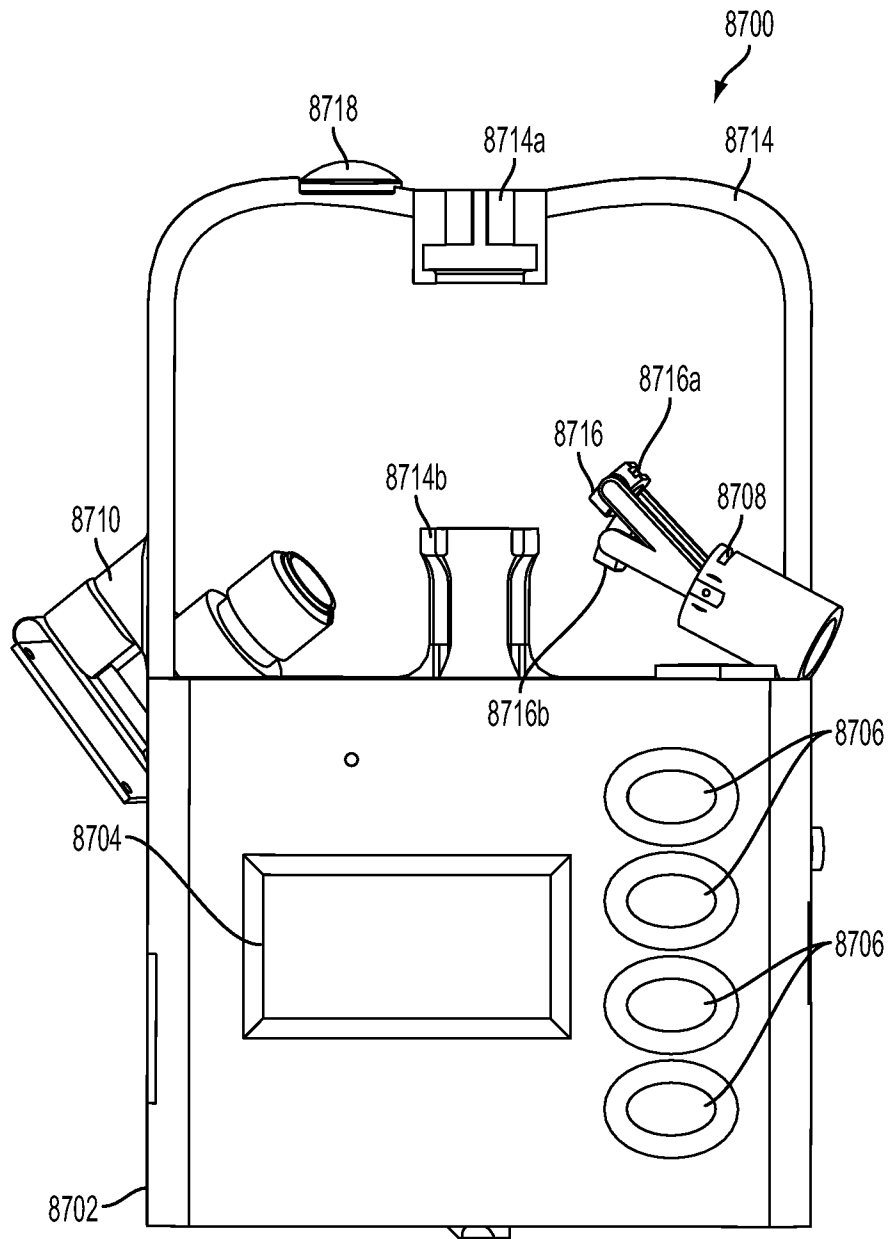


FIG. 87A

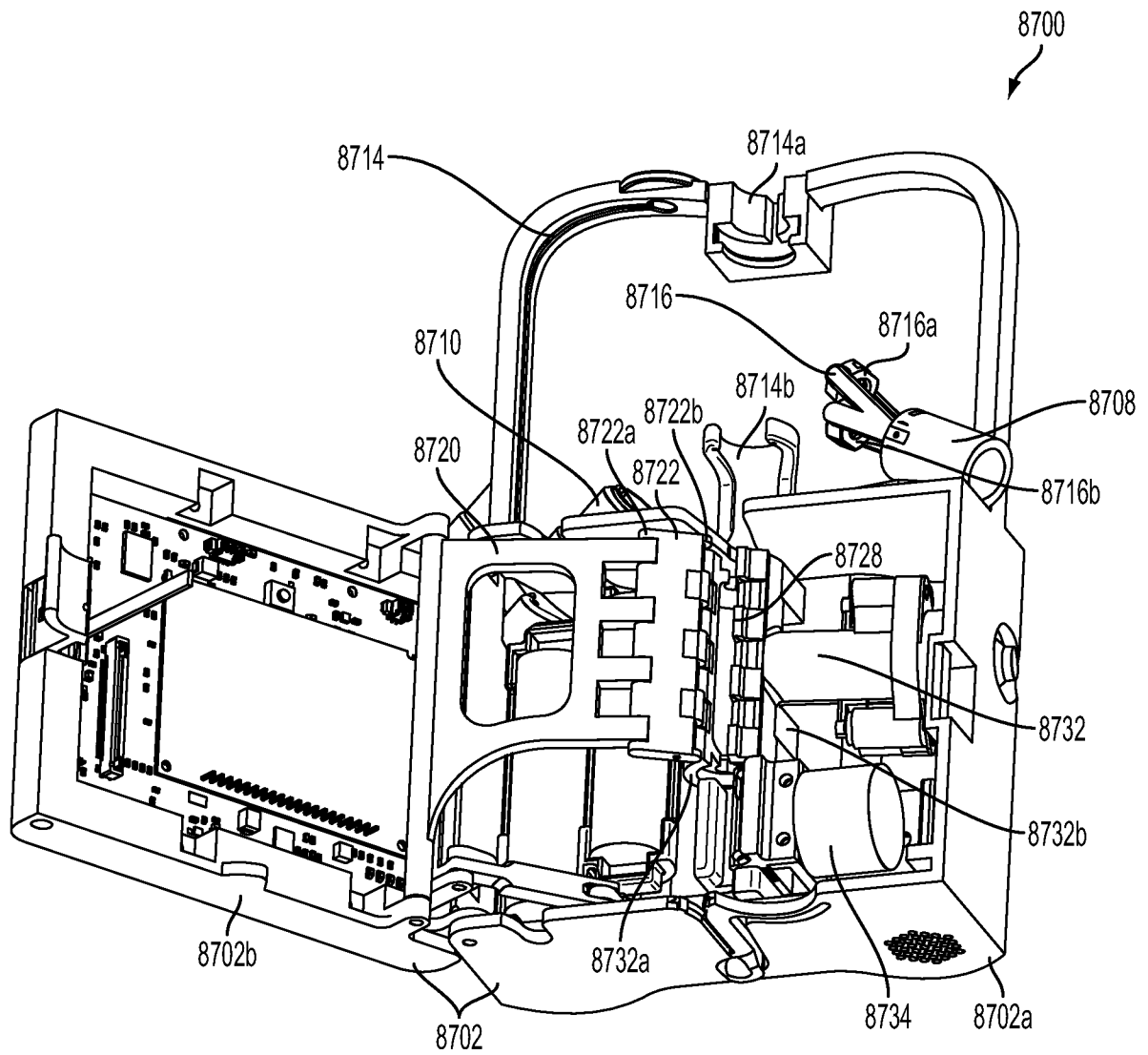


FIG. 87B

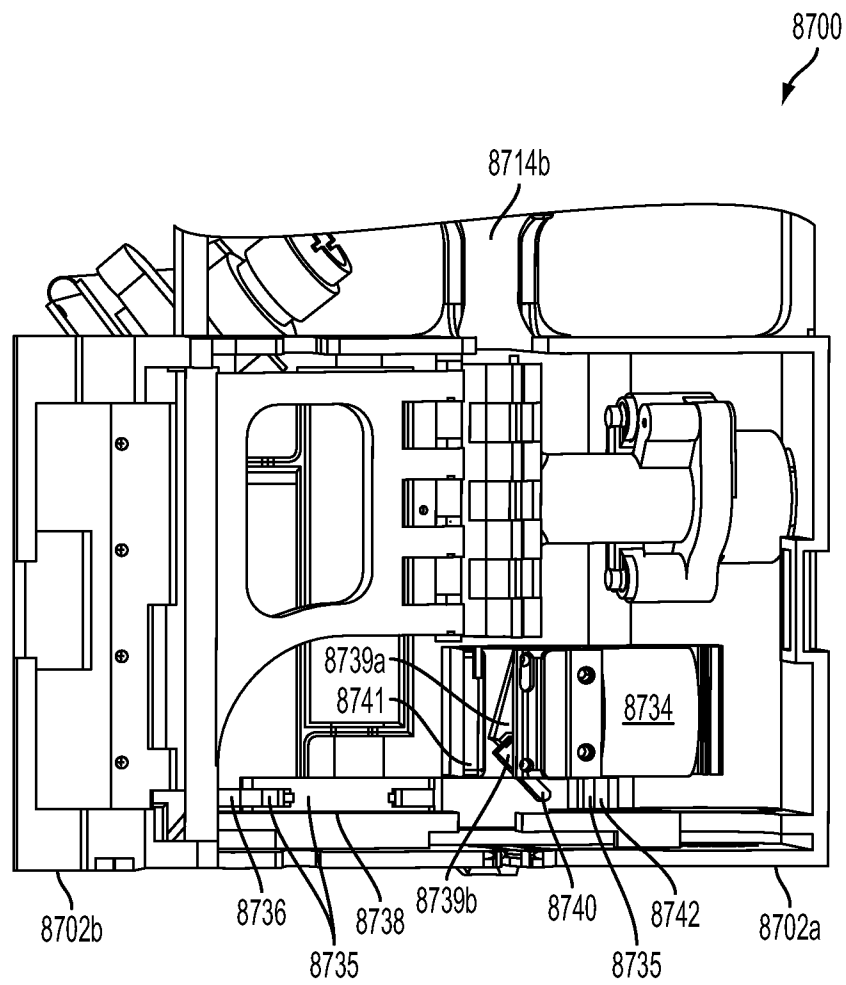


FIG. 87C

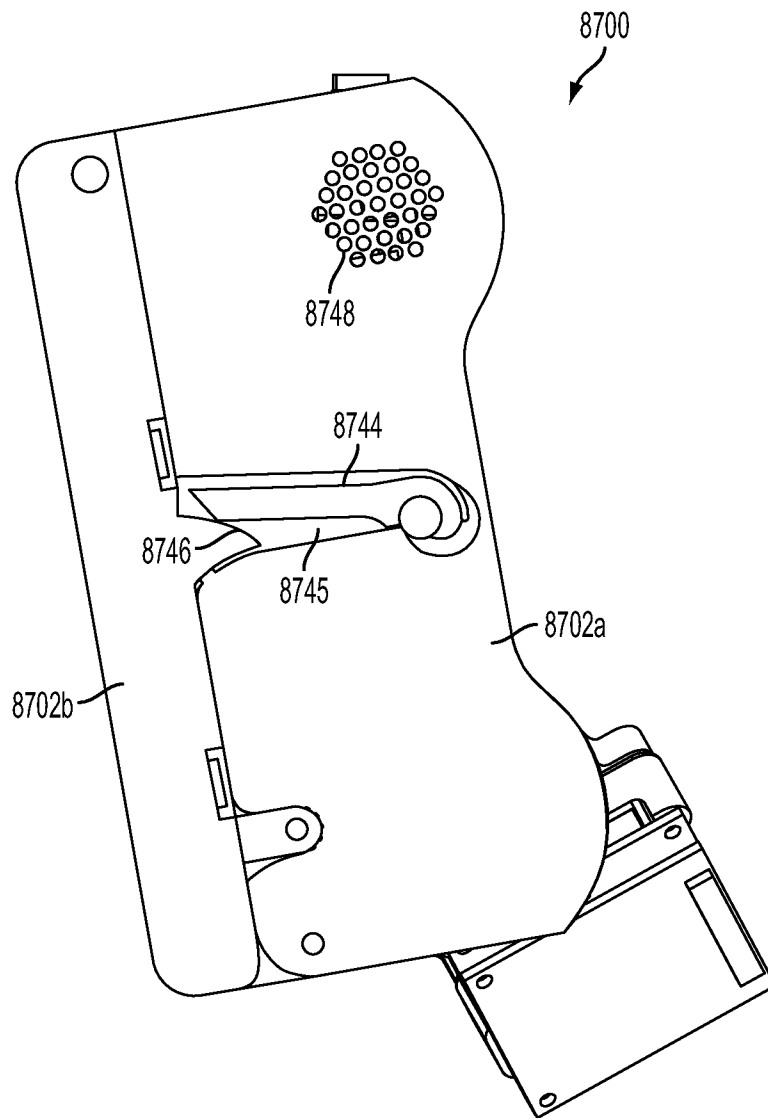


FIG. 87D

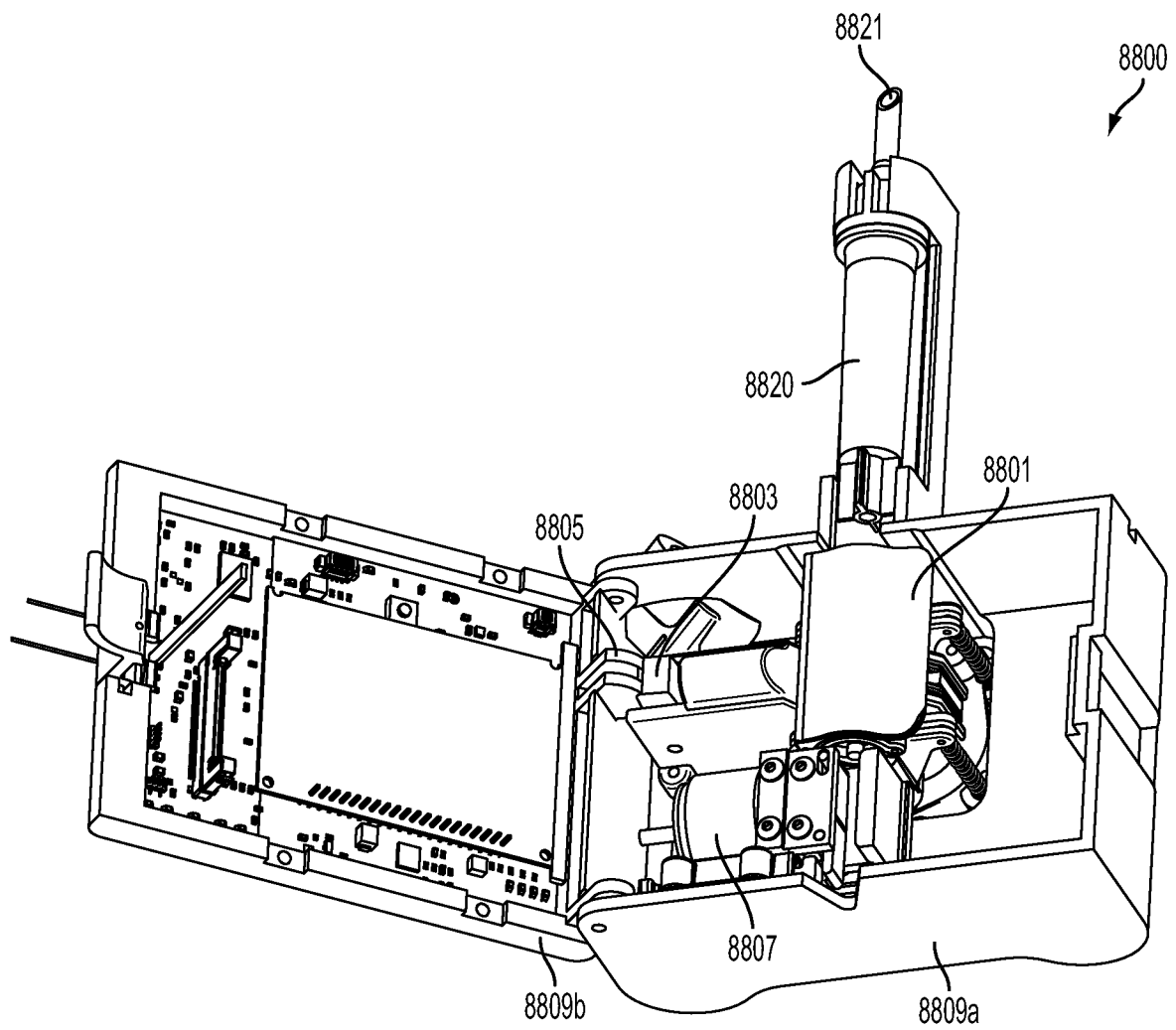


FIG. 88A

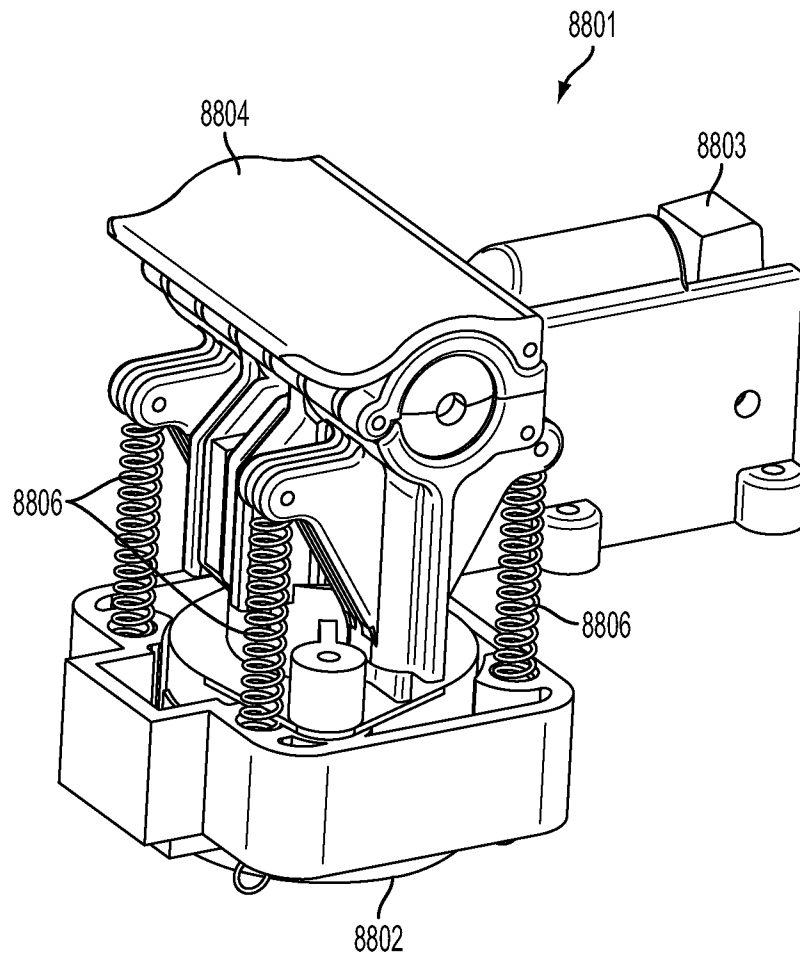


FIG. 88B

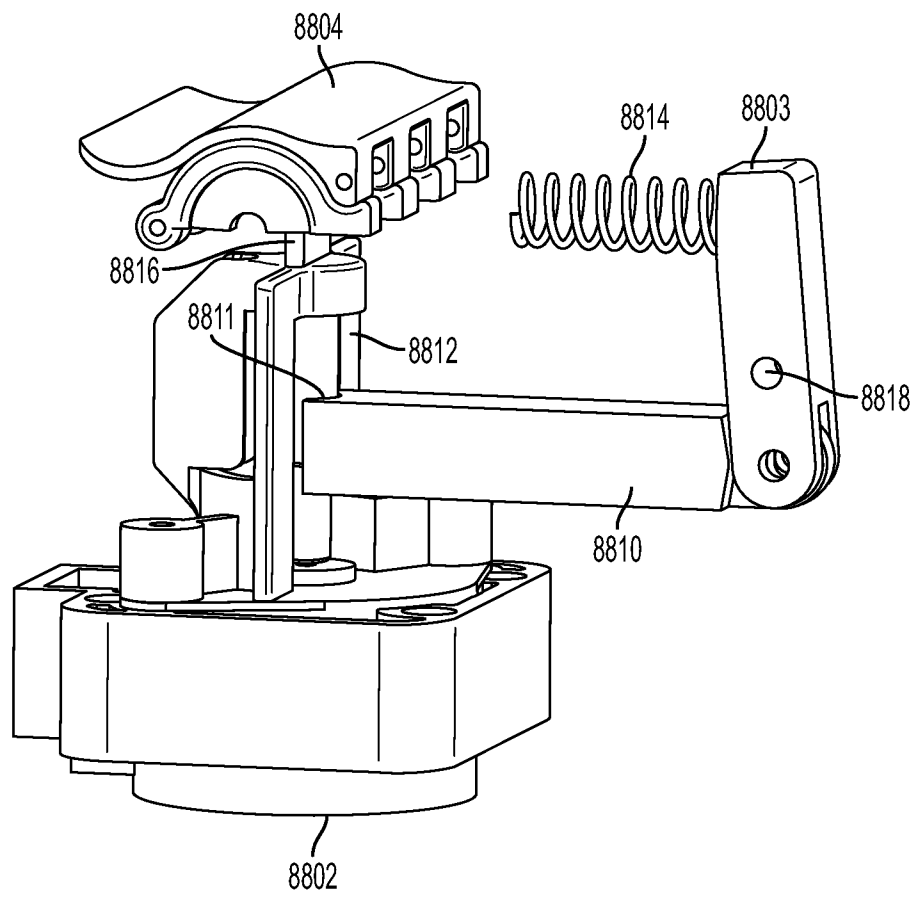


FIG. 88C

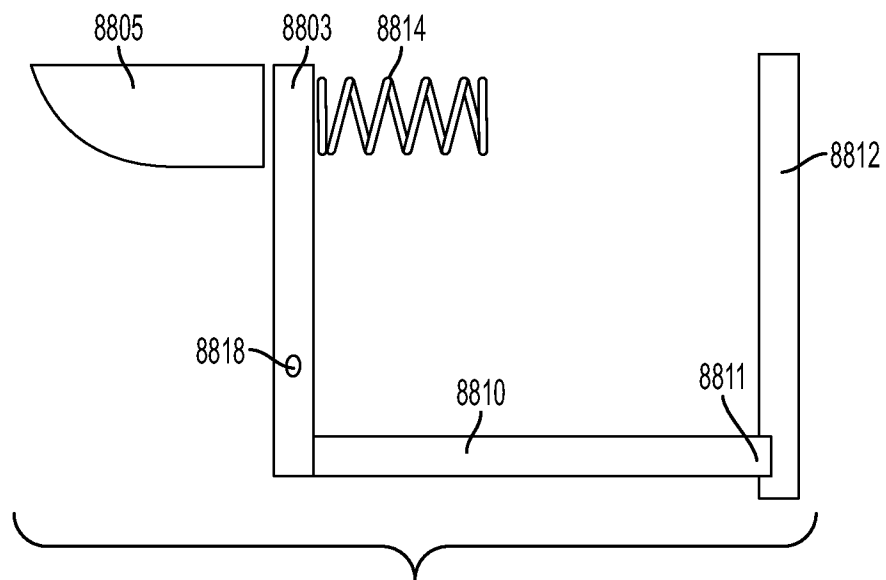


FIG. 88D

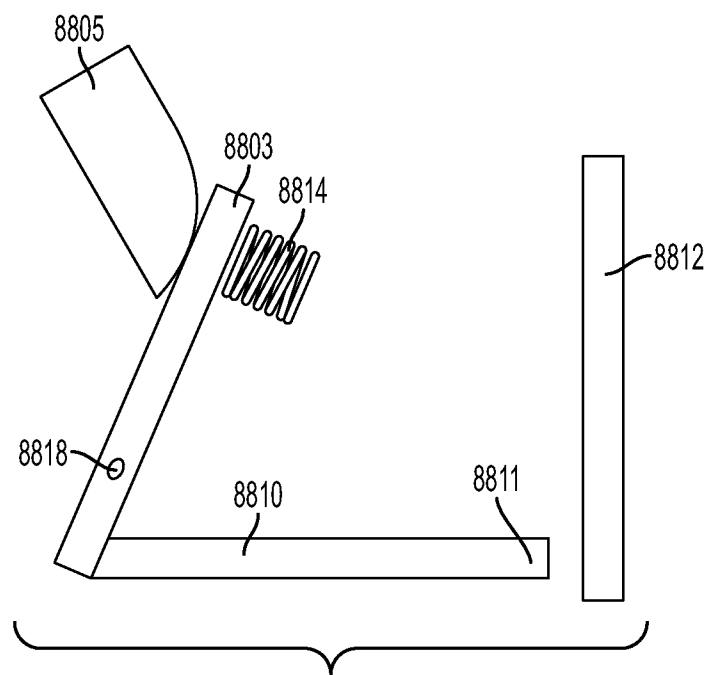


FIG. 88E

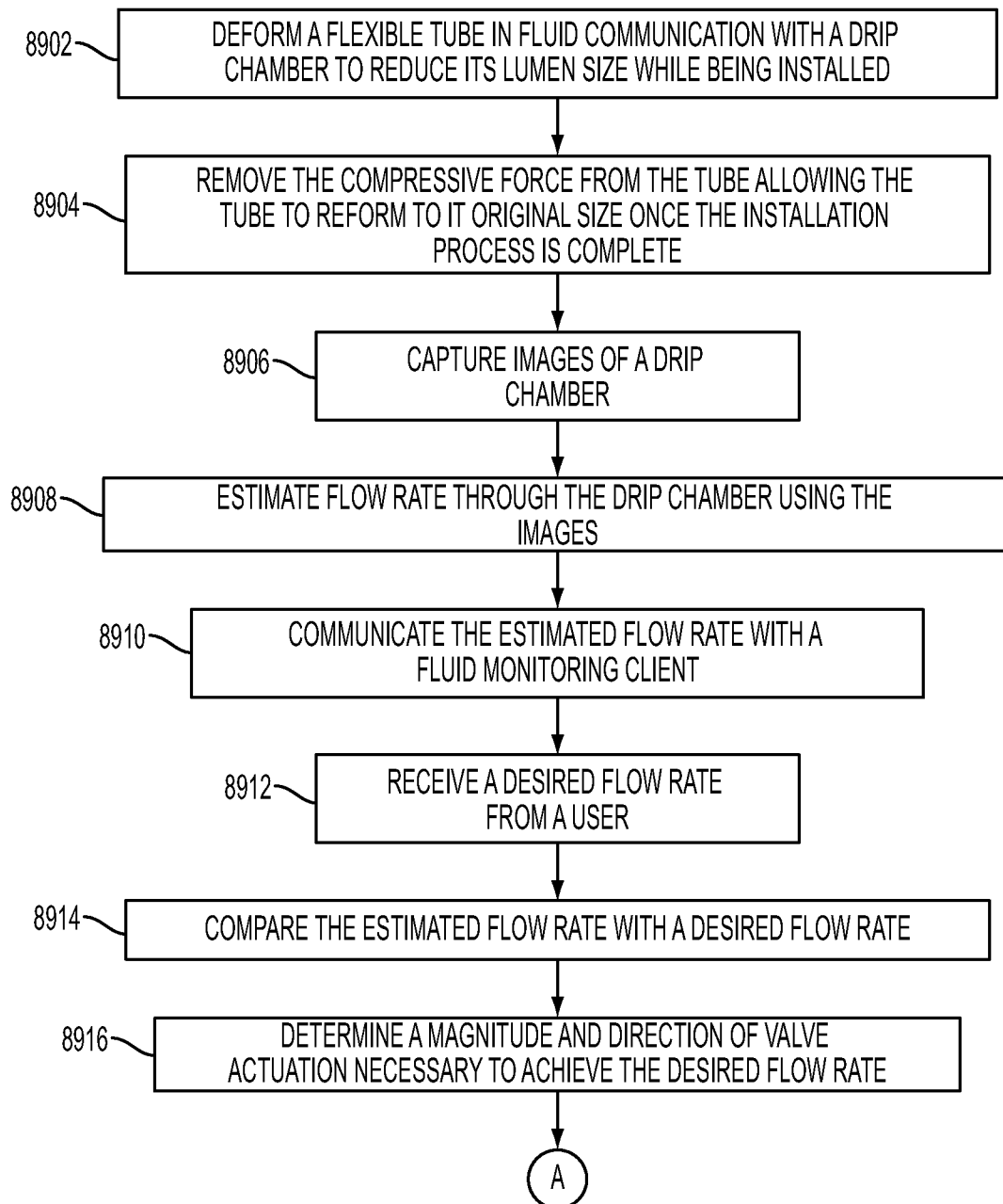


FIG. 89A

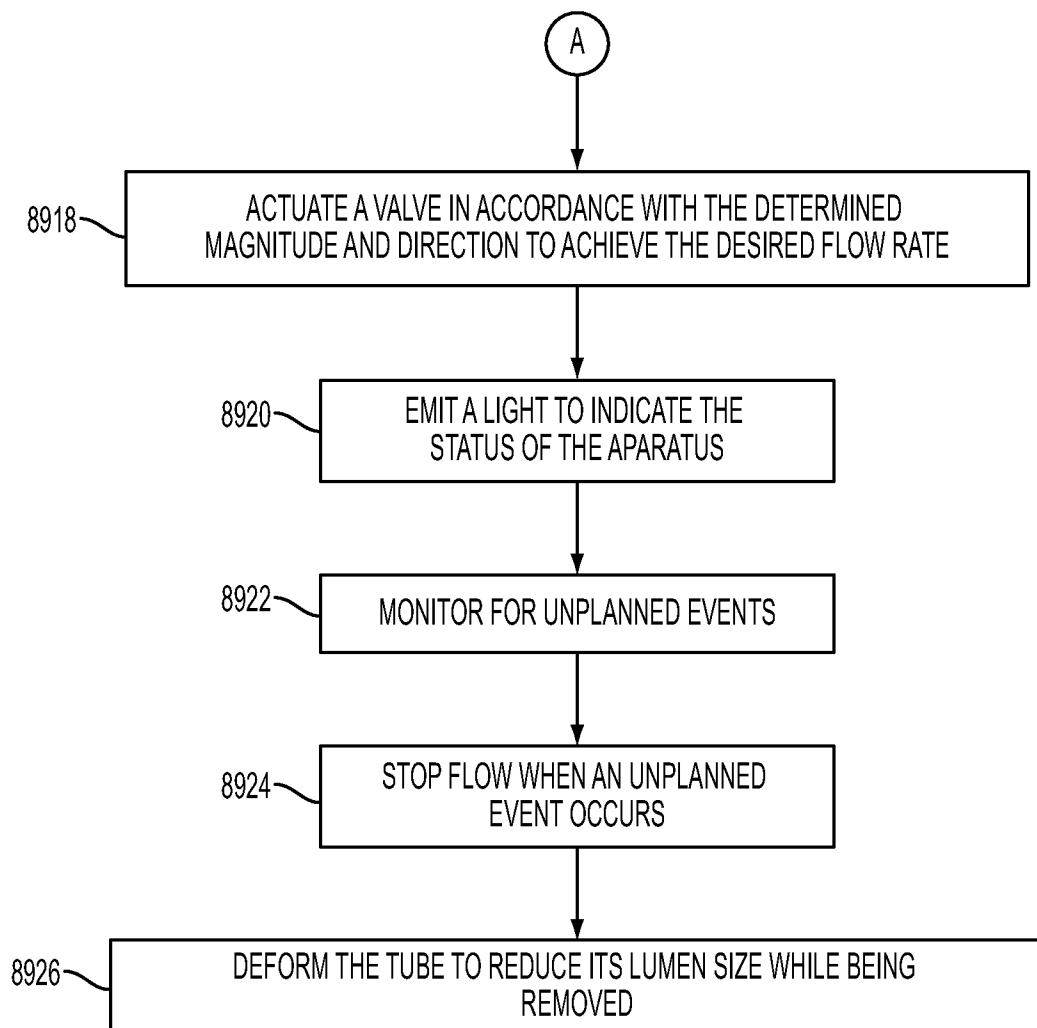


FIG. 89B

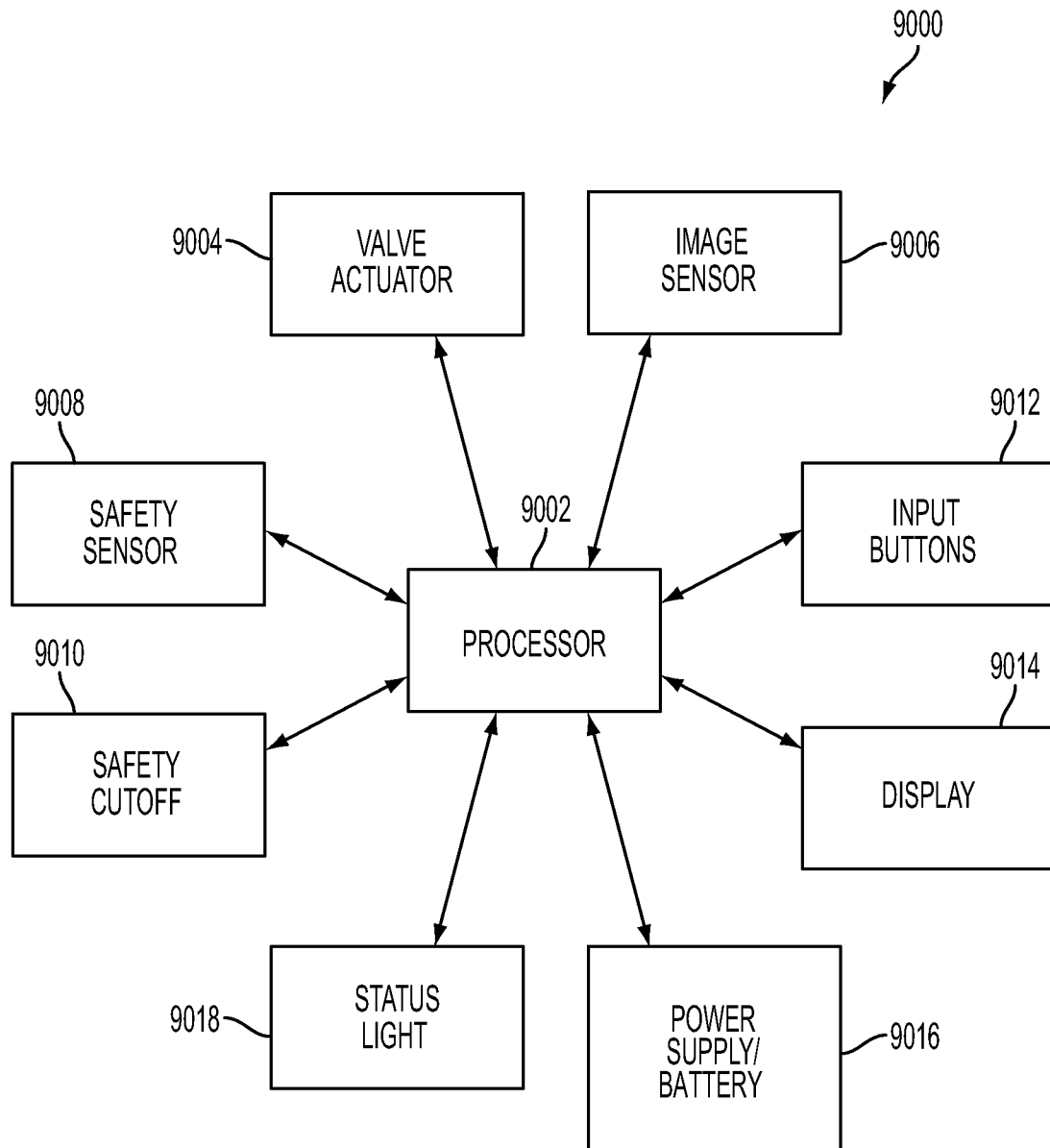


FIG 90

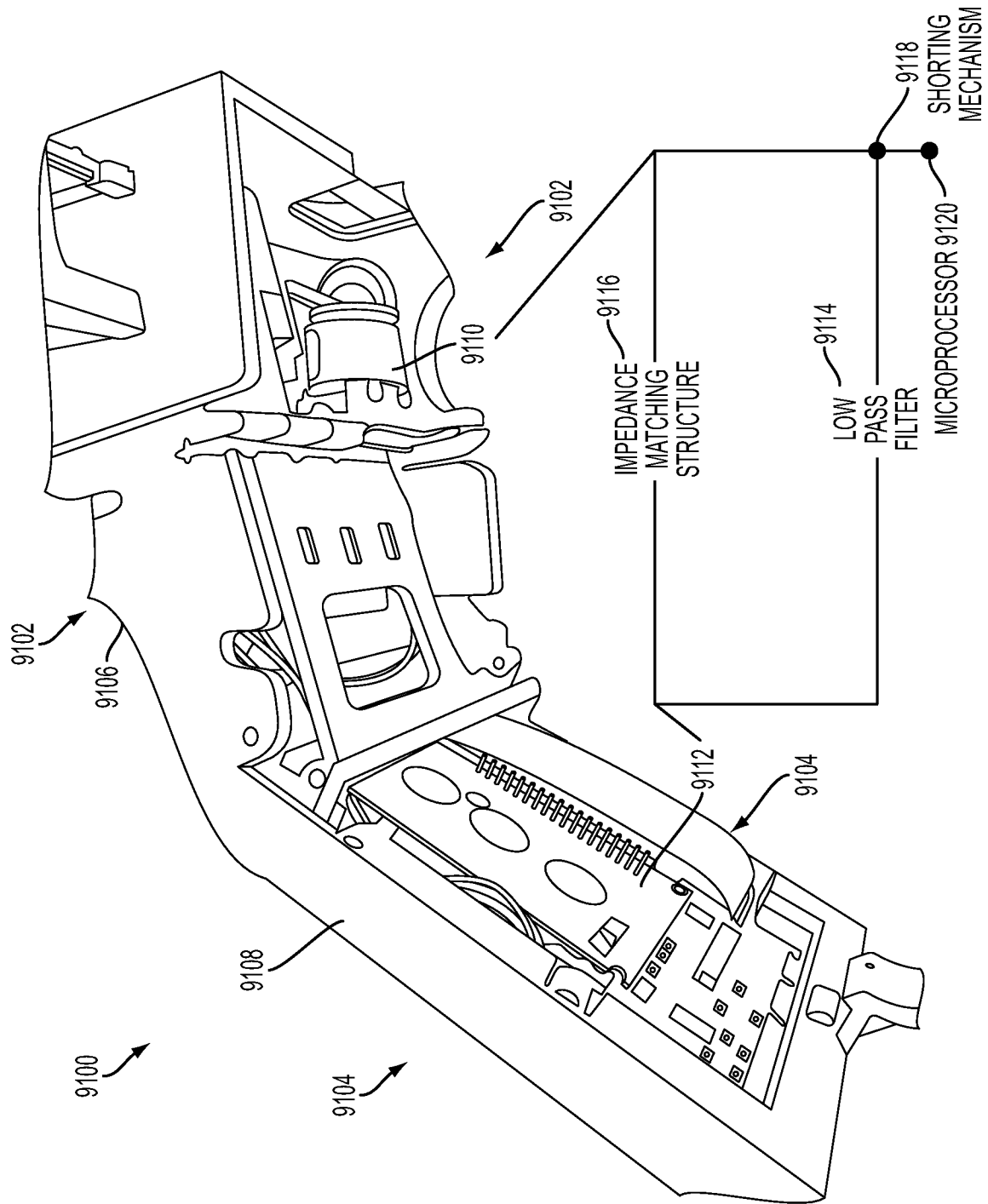


FIG. 91

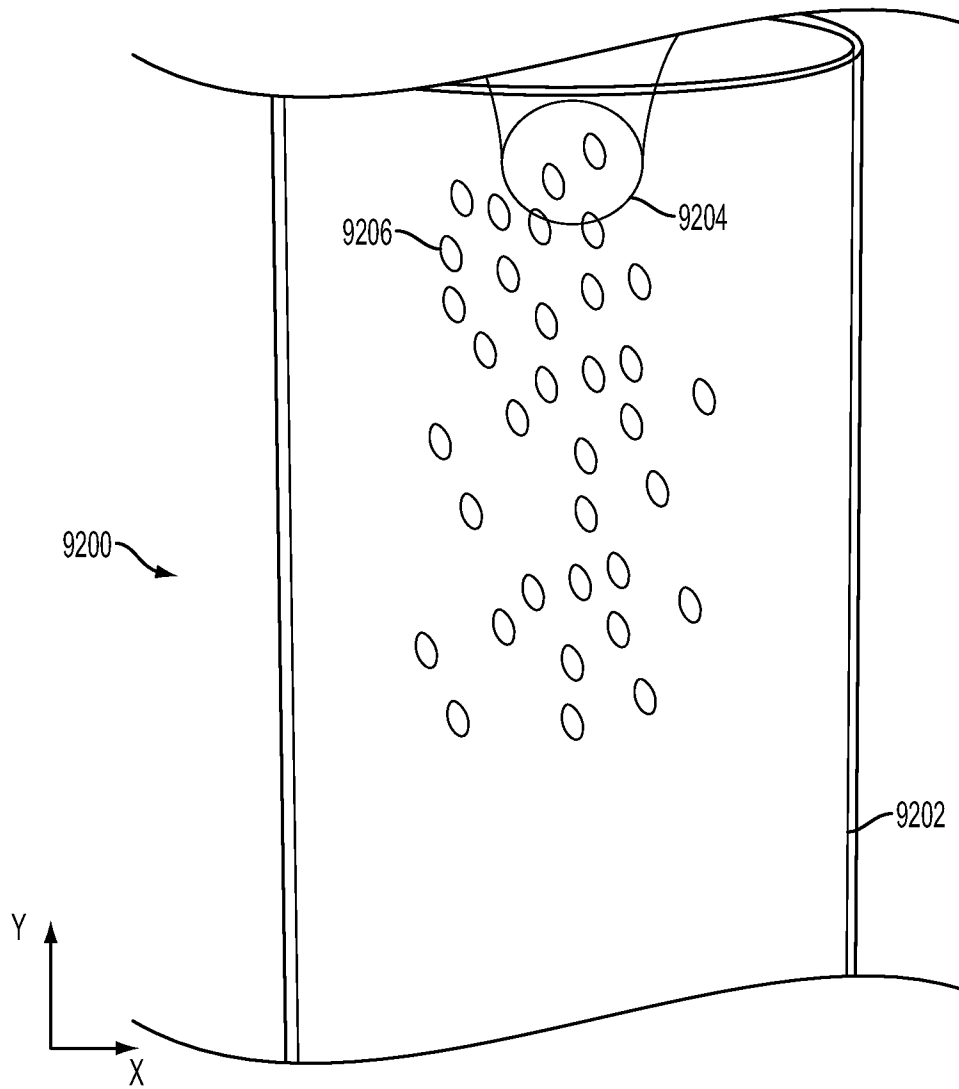


FIG. 92

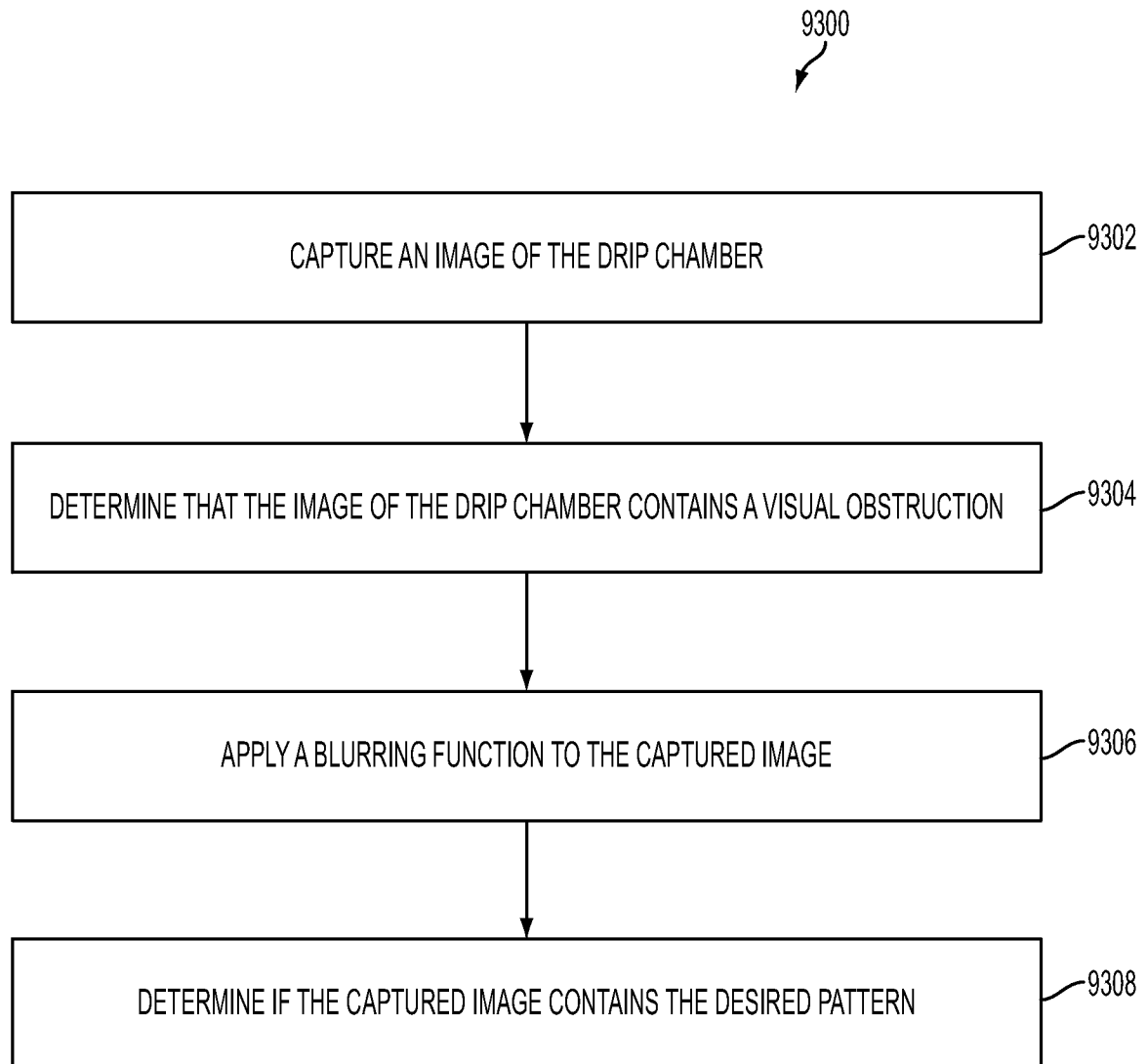


FIG. 93

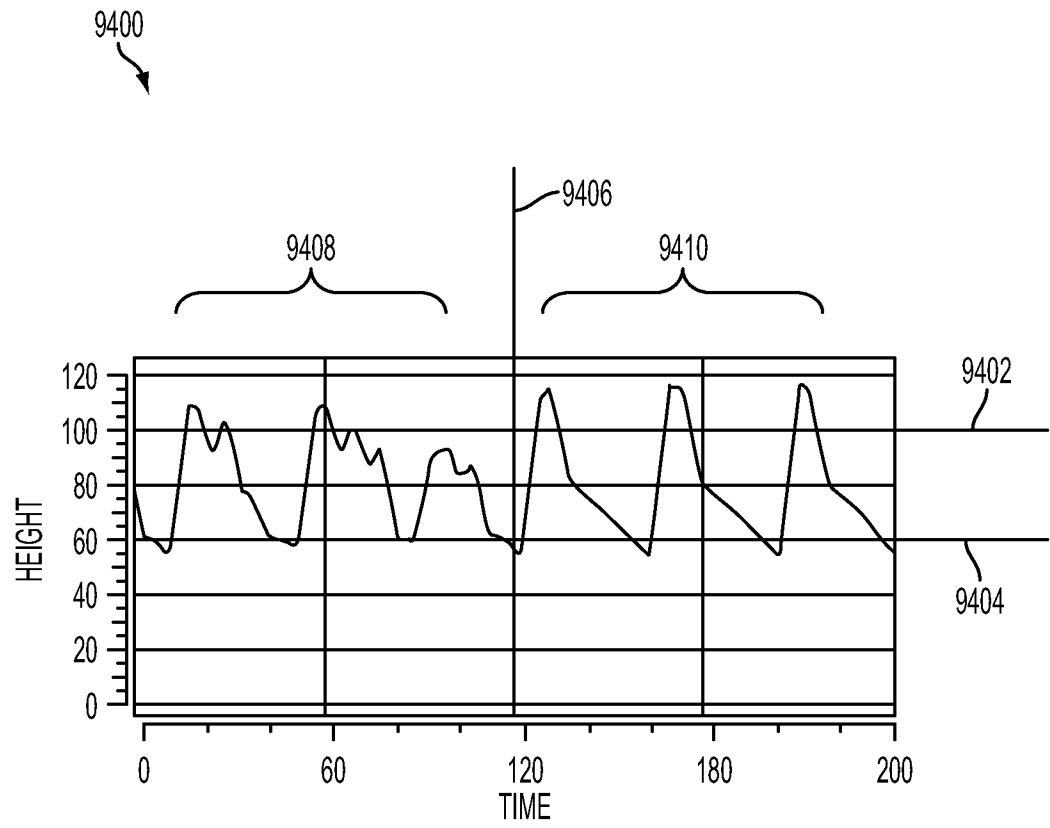


FIG. 94

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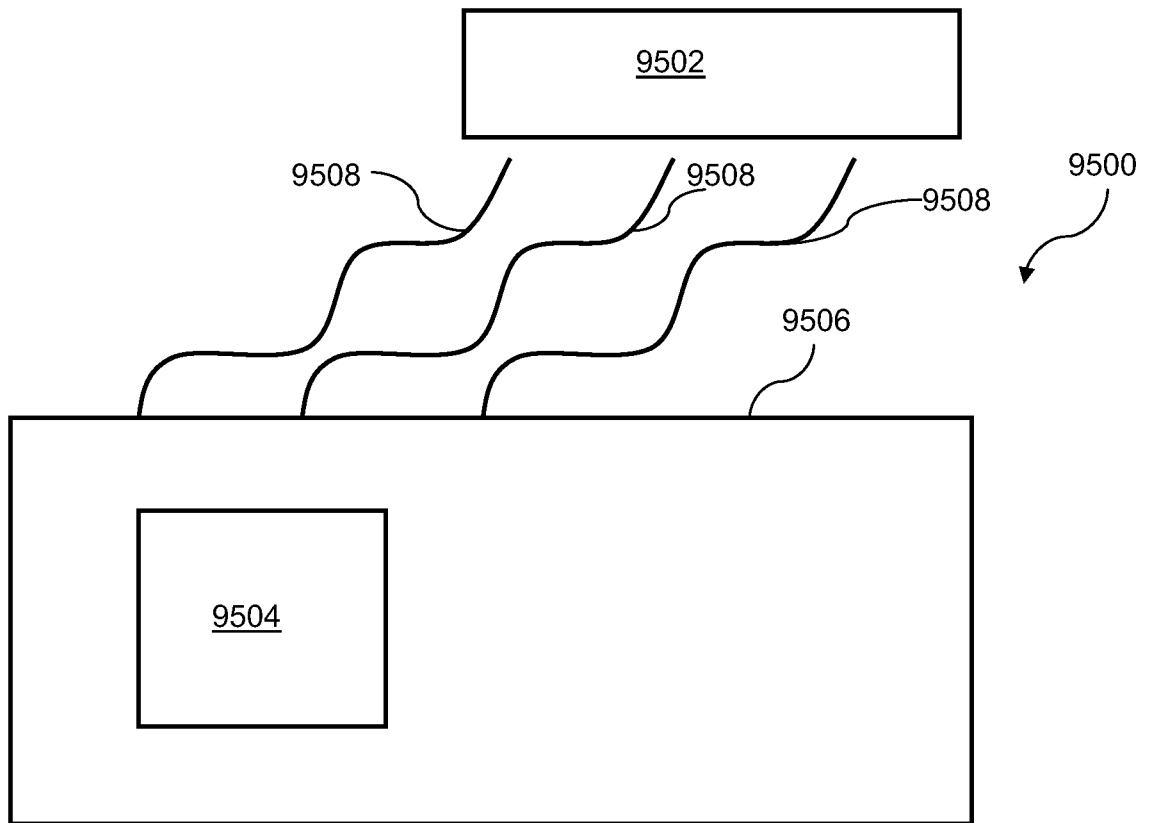


FIG. 95