(57) **Abstract**: Inline liquid drug medical device having a longitudinal device axis, a housing with a linear displaceable sliding flow control member displaceable along a transverse bore from a first flow control position for establishing flow communication between a first pair of ports for liquid drug reconstitution purposes to a second flow control position for establishing flow communication between a second pair of ports for liquid drug administration purposes, and a manually operated actuating mechanism for applying a linear displacement force for urging the flow control member to slide along the bore from its first flow control position to its second flow control position.

CLAIMS:

1. An inline liquid drug medical device for use with a source of physiological solution and a medicinal vessel for reconstitution and administration of a liquid drug, the device having a longitudinal device axis, and comprising:

(a) a housing having a first port for fluid connection with the source of physiological solution, a second port for fluid connection with the medicinal vessel, a third port for liquid drug administration, and a bore transversely disposed with respect to the device axis and in flow communication with said first port, said second port and said third port;

(b) a linear displaceable sliding flow control member displaceable along said bore from a first flow control position for establishing flow communication between said first port and said second port for liquid drug reconstitution purposes to a second flow control position for establishing flow communication between said first port and said third port for liquid drug administration purposes;

(c) a manually operated actuating mechanism having an initial liquid drug reconstitution position corresponding with said first flow control position and a subsequent liquid drug administration position corresponding to said second flow control position, said actuating mechanism applying a linear displacement force for urging said flow control member to slide along said bore from said first flow control position to said second flow control position on manually actuating said actuating mechanism from said initial liquid drug reconstitution position to said liquid drug administration position; and

(d) a vial adapter for snap fitting onto the medicinal vessel and including a fluid conduit member with a proximal end in flow communication with said second port and a distal end in flow communication with a puncturing cannula extending into the medicinal vessel on its attachment to said vial adapter, and said vial adapter being removably attached to said housing along a line of detachment co-directional with the device axis.

2. The device according to claim 1 wherein said actuating mechanism rotates about an axis of rotation co-directional with the device axis and has an internal cam surface bearing against said flow control member, said internal cam surface has a first separation S1 relative to said axis of rotation in said liquid drug reconstitution position and a second separation S2 relative to said axis of rotation in said liquid drug administration position where said second separation S2 is smaller than said first separation S1 whereby manual actuation of said actuating mechanism from said liquid drug reconstitution position to said liquid drug administration position applies a radial actuation force for imparting said linear displacement force. .

3. The device according to claim 2 wherein said vial adapter is rotationally detachable from said housing and said rotational detachment simultaneously actuates said actuating mechanism from said liquid drug reconstitution position to said liquid drug administration position.

4. The device according to claim 2 wherein said axis of rotation is co-axial with the device axis.

5. The device according to claim 1 wherein said actuating mechanism includes a manually depressed actuator whereby manual actuation of said actuating mechanism applies a linear actuation force for imparting said linear displacement force.

6. The device according to claim 5 wherein said manually depressed actuator has a spring leaf like configuration including a first end resiliently flexibly mounted on said vial adapter and a second free end for urging said flow control member from said first flow control position to said second flow control position.

7. The device according to any of claims 1 to 6 wherein said flow control member includes a peripheral cylindrical surface with a longitudinal flow cutout in flow communication with said first port in said first flow control position and said second flow control position, and a flow channel for establishing flow communication between said flow cutout and said second port in said first flow control position, and said flow cutout and said third port in said second flow control position.

8. The device according to claim 7 wherein said flow channel is a lumen extending through said flow control member.

9. The device according to claim 7 wherein said flow channel is a semi-circular flow channel on said peripheral cylindrical surface.

Dated this 18/04/2012

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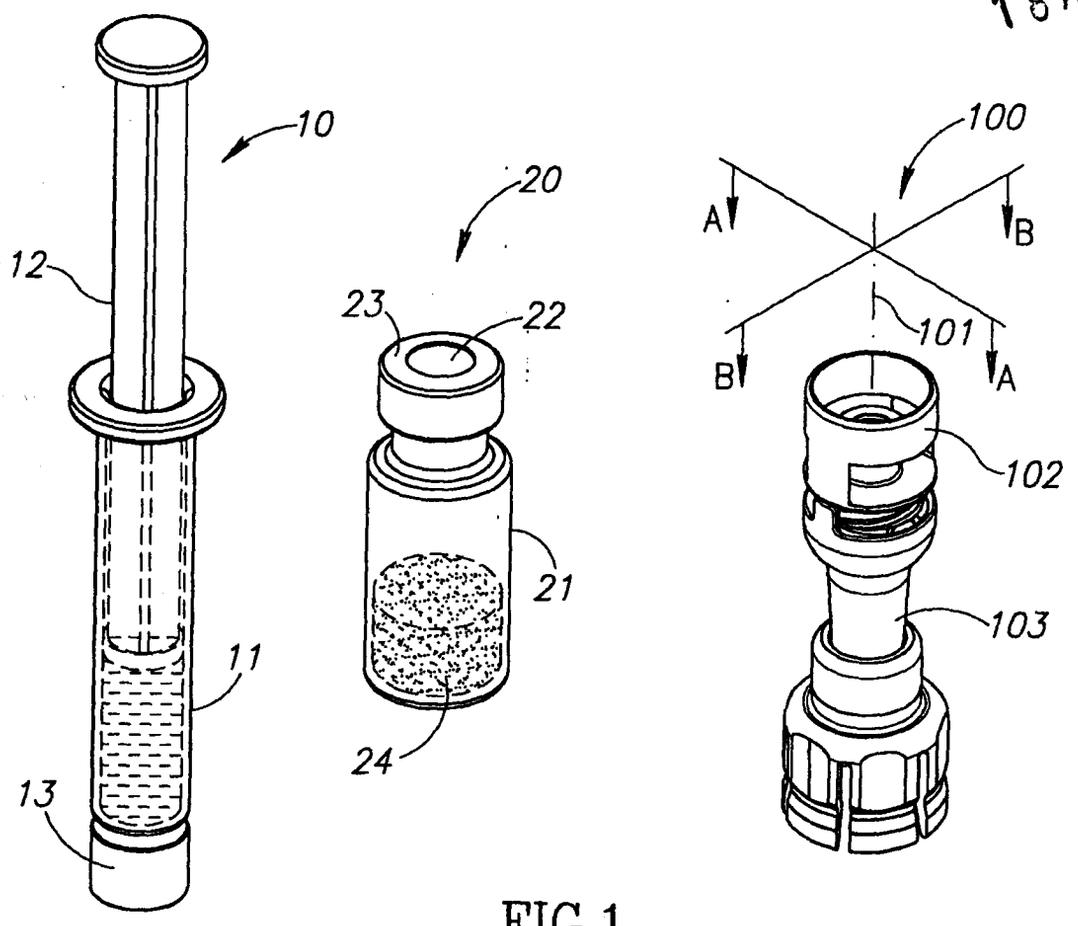

FIG.1

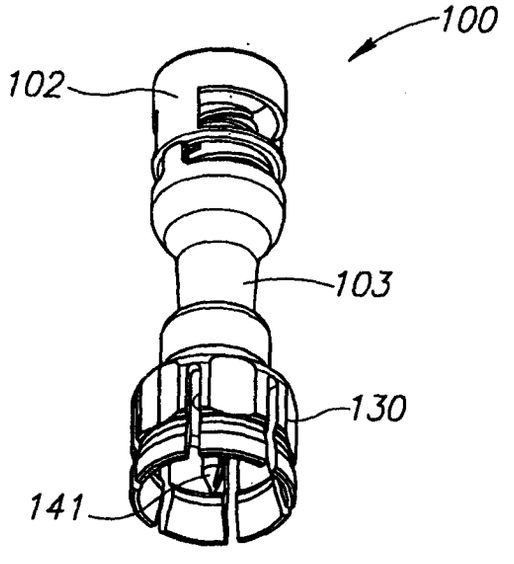

FIG.2

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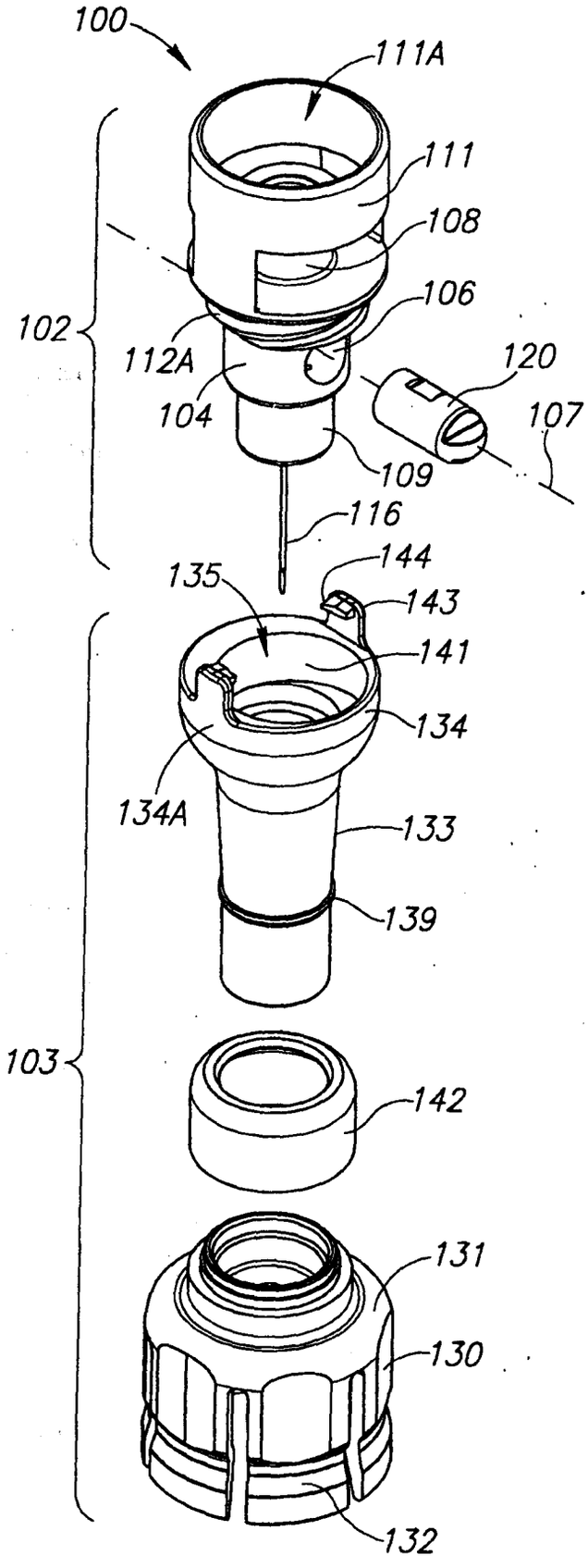

FIG.3A

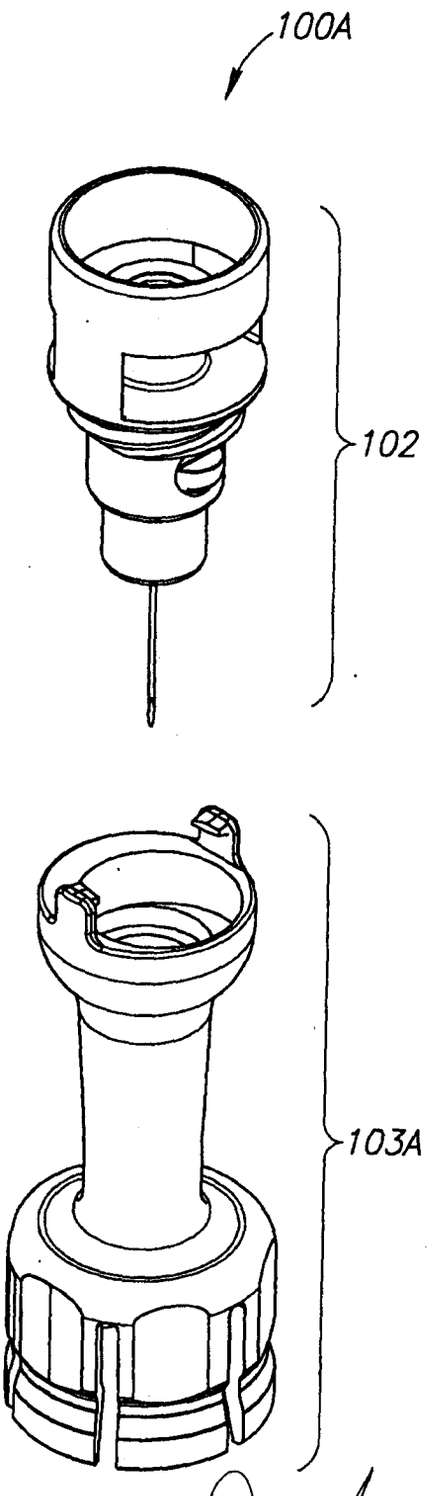

FIG.3B

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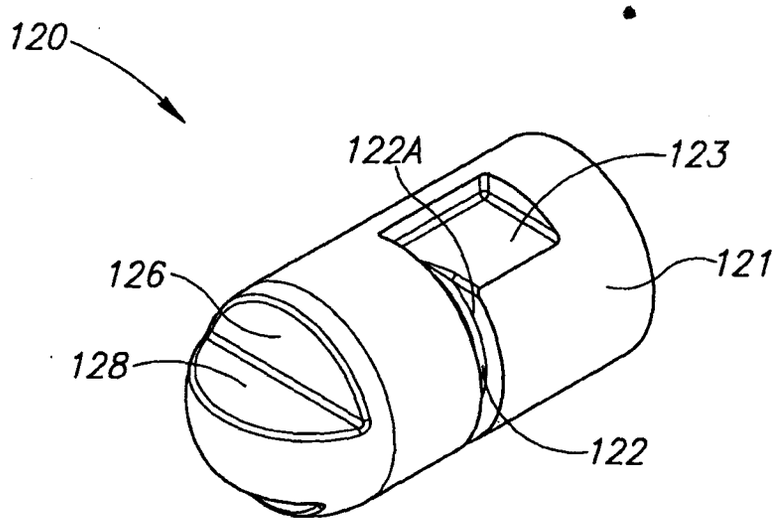

FIG.4A

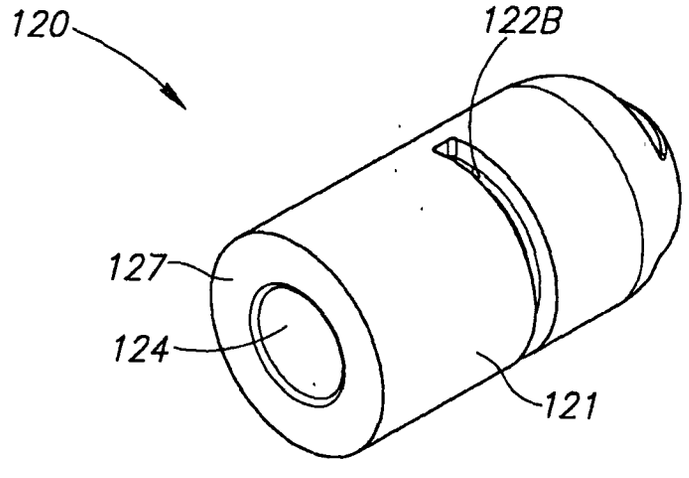

FIG.4B

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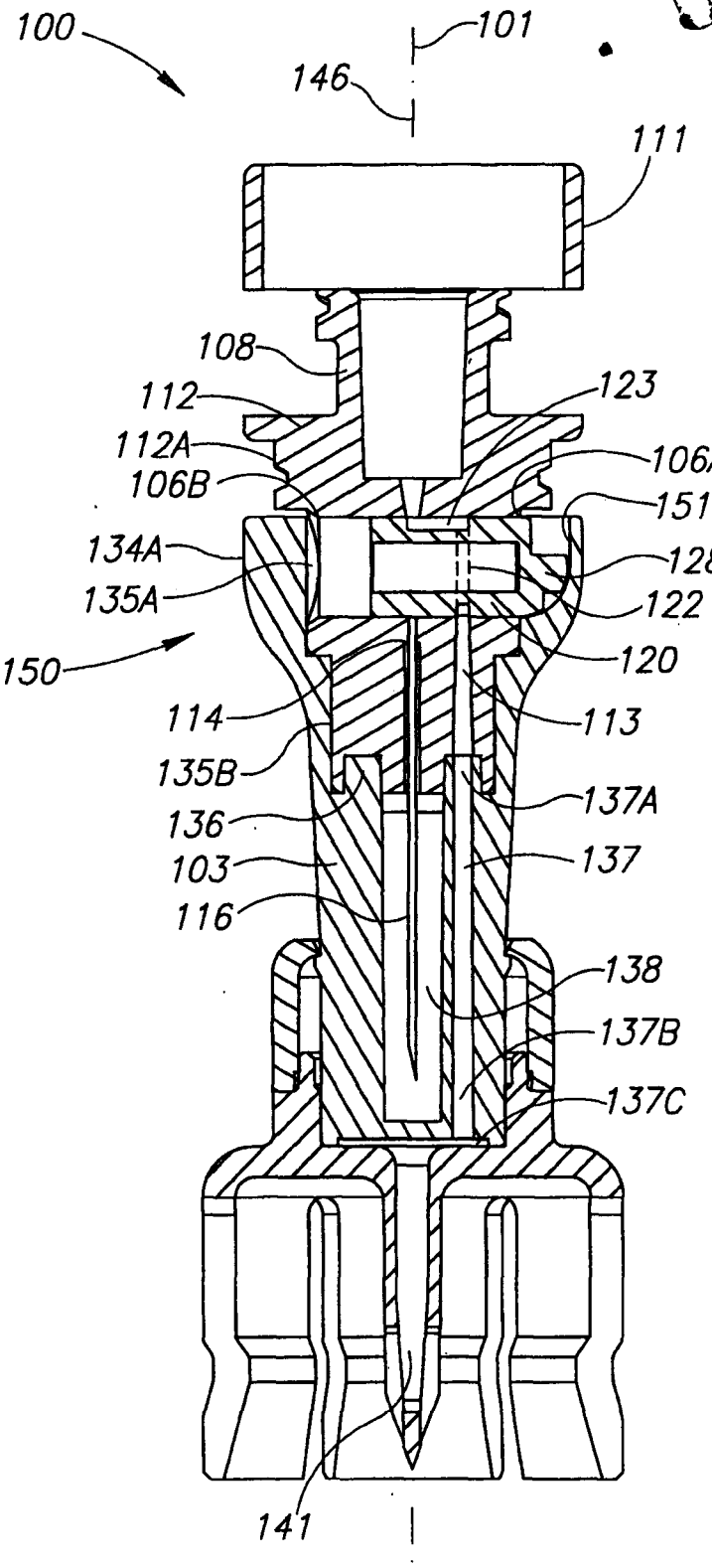

FIG.5A

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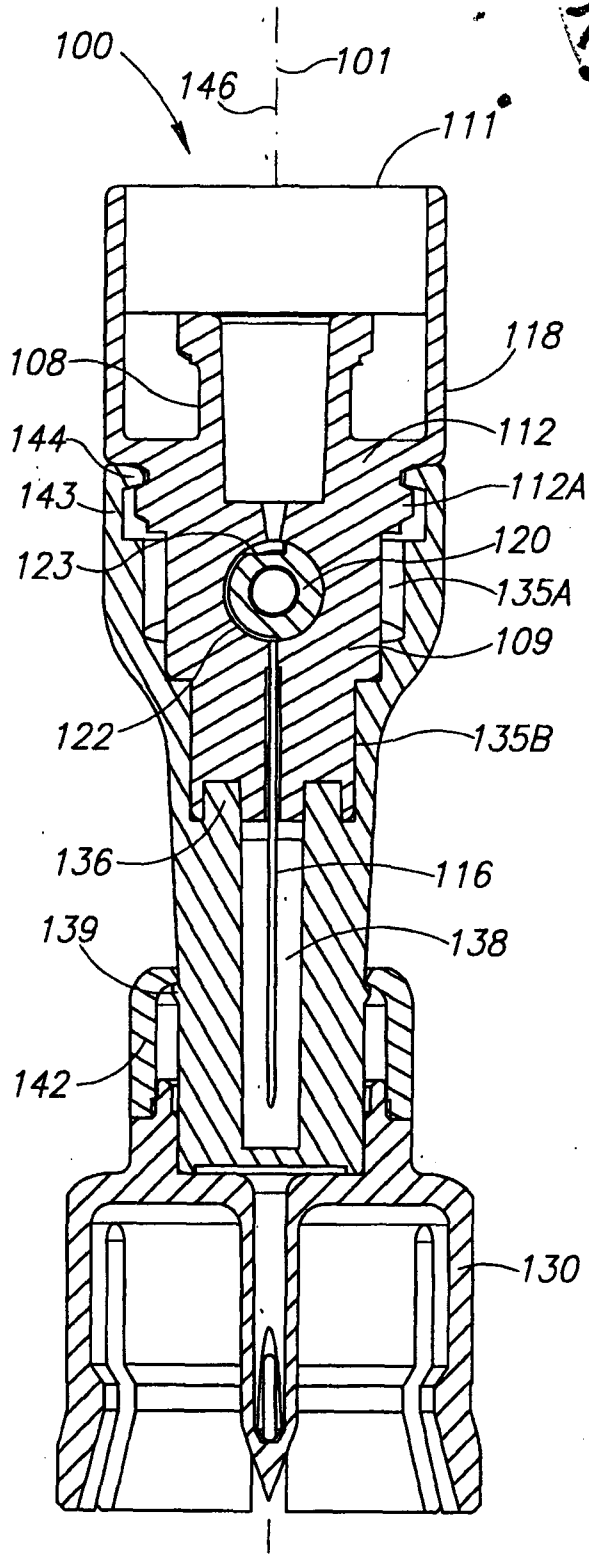

FIG.5B

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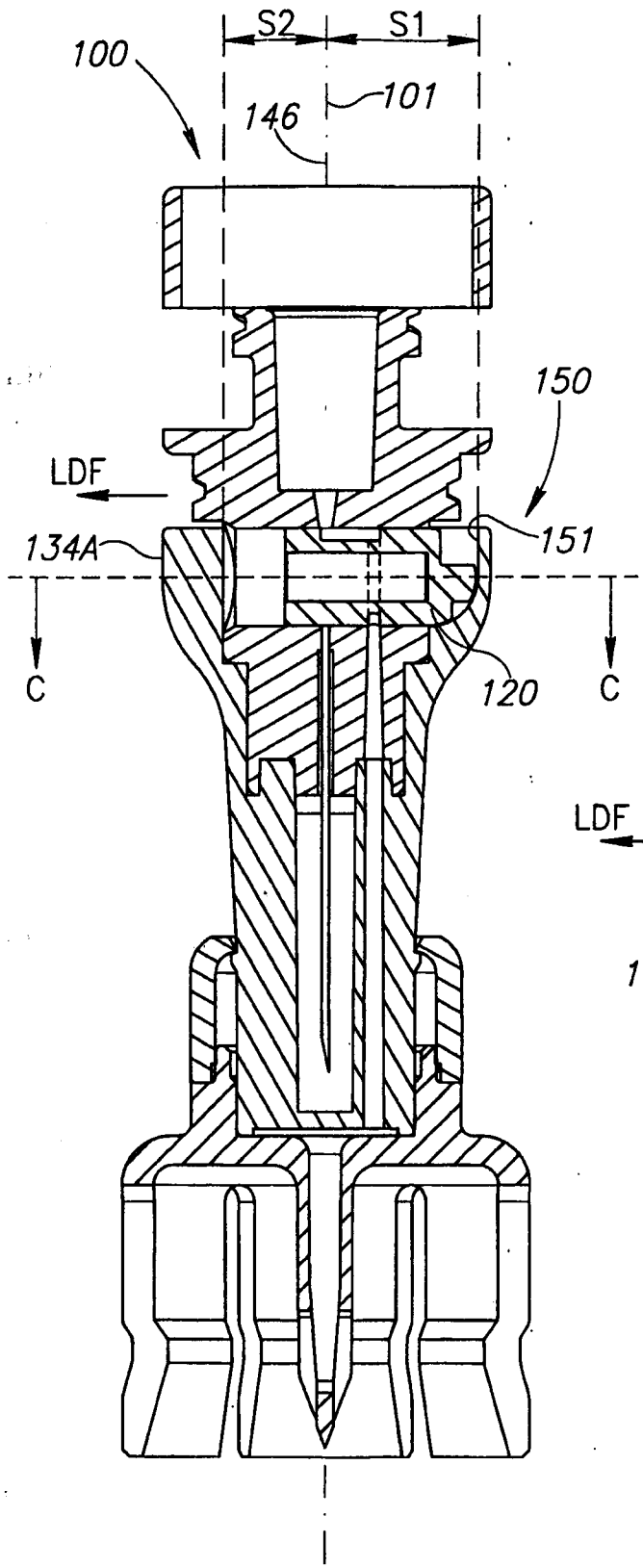

FIG.5C

S1>S2

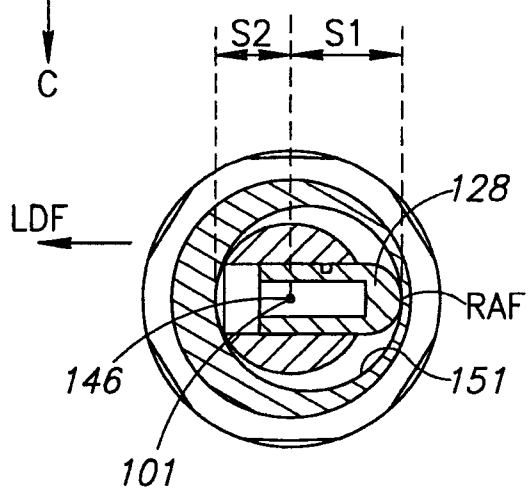

FIG.5D

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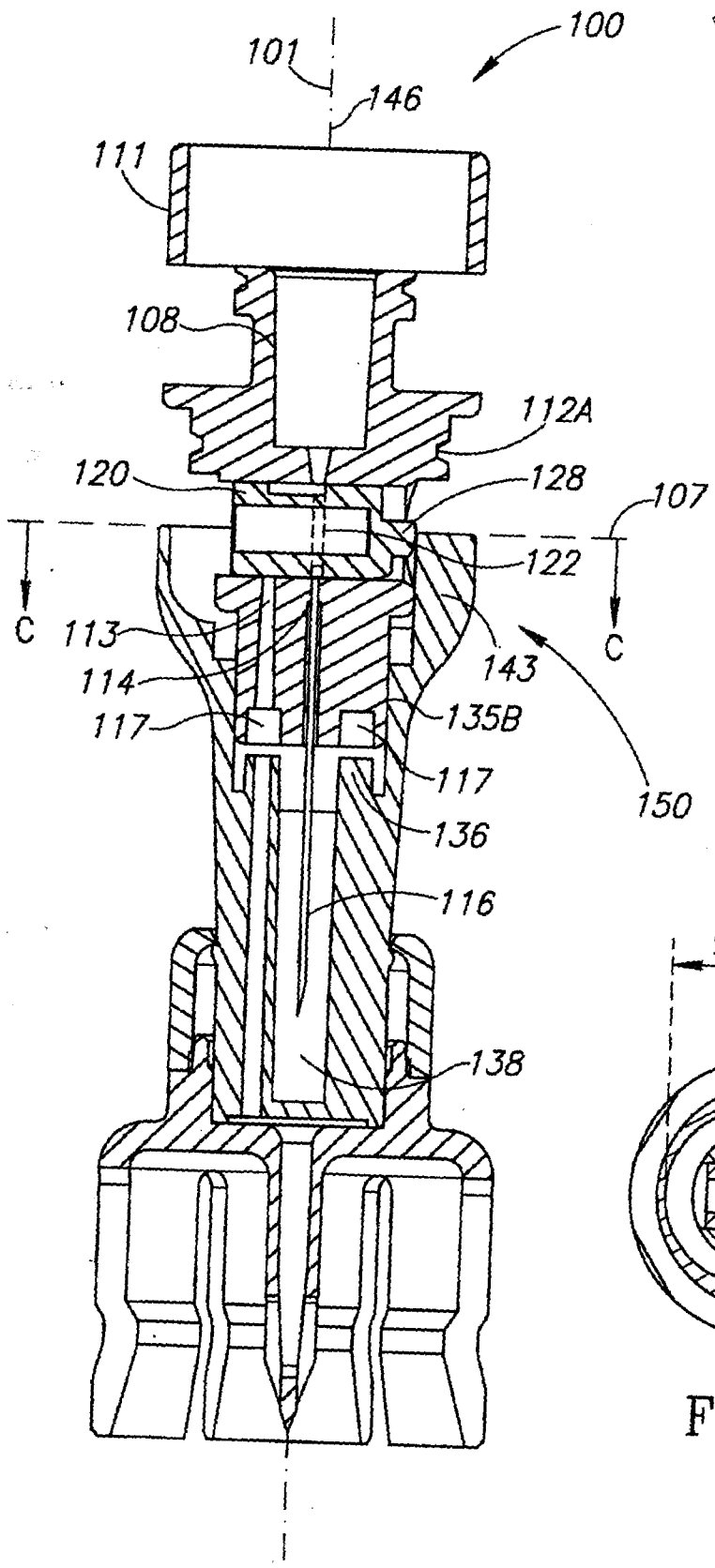

FIG.6A

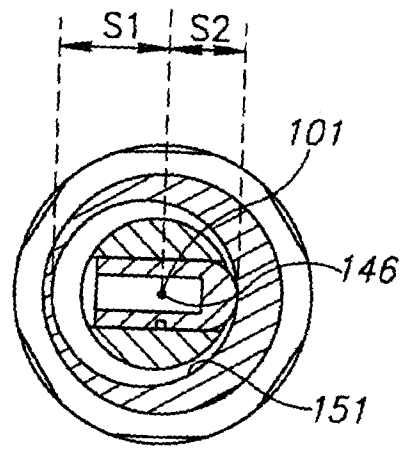

FIG.6B

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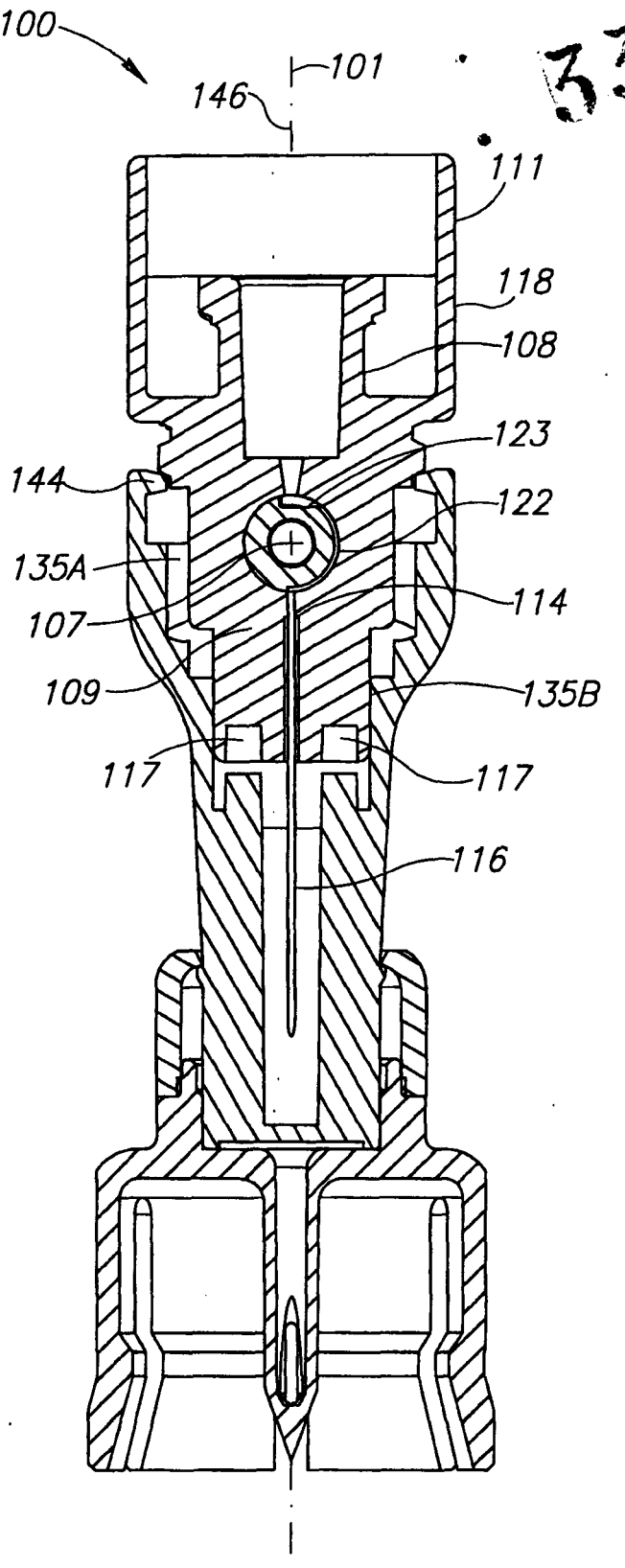

FIG.6C

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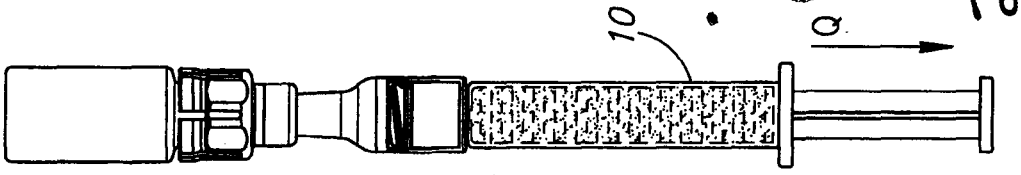

FIG.7D

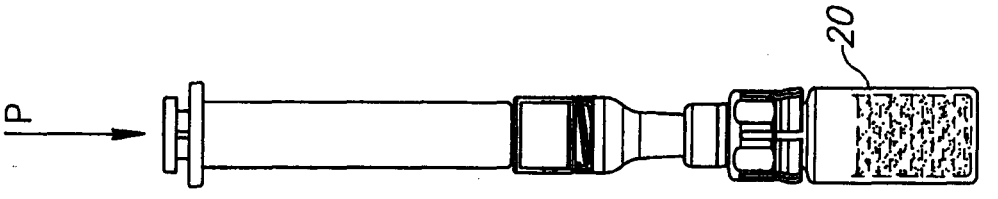

FIG.7C

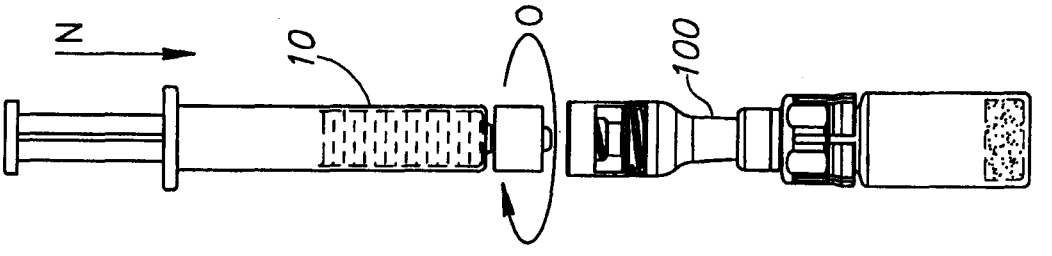

FIG.7B

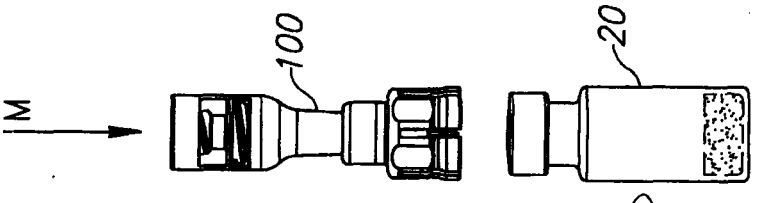

FIG.7A

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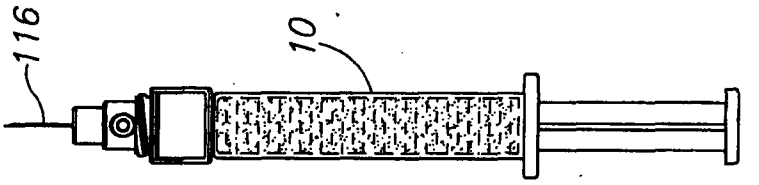

FIG.7G

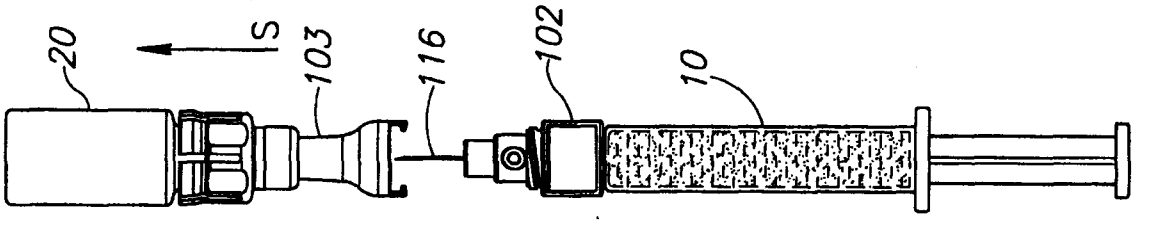

FIG.7F

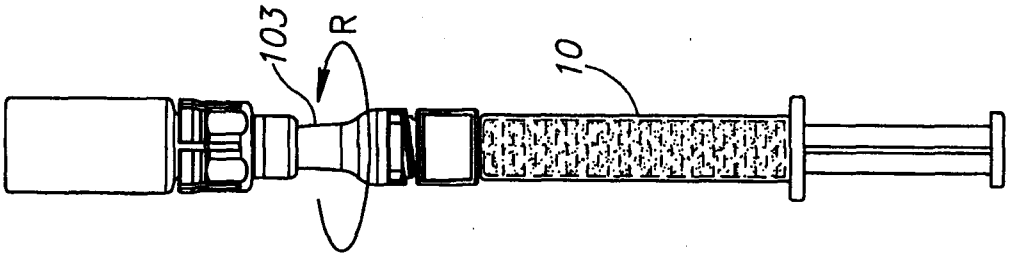

FIG.7E

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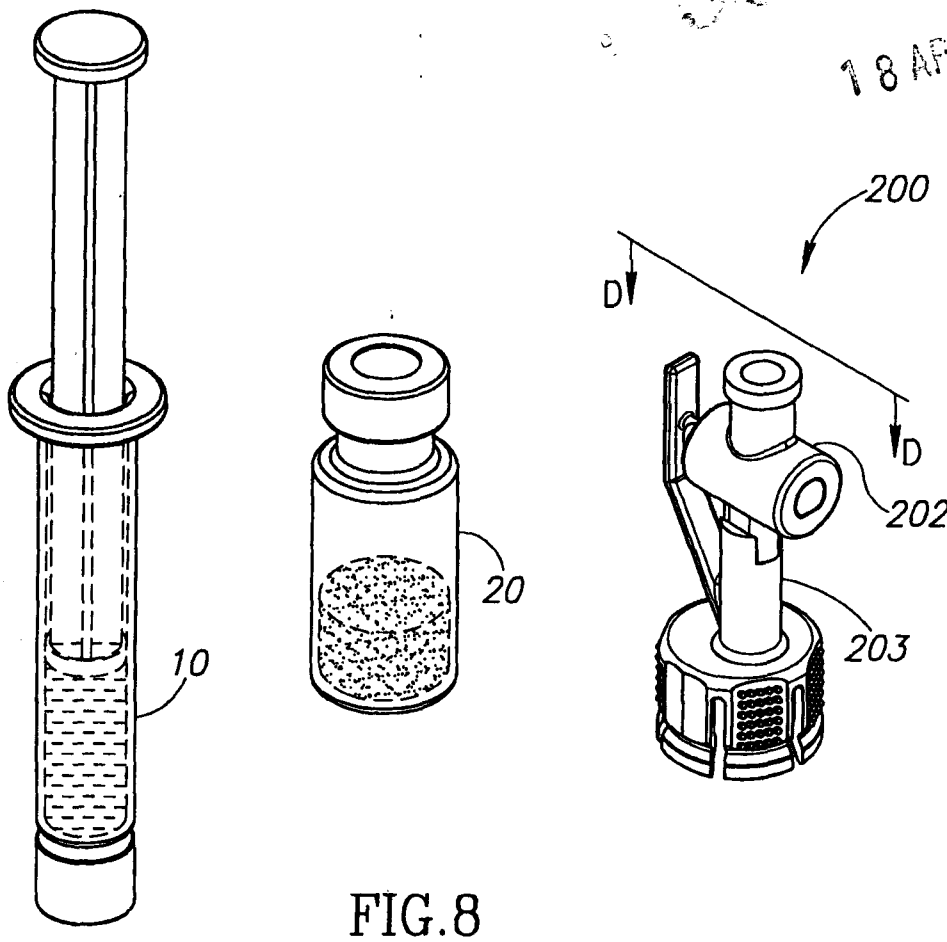

FIG.8

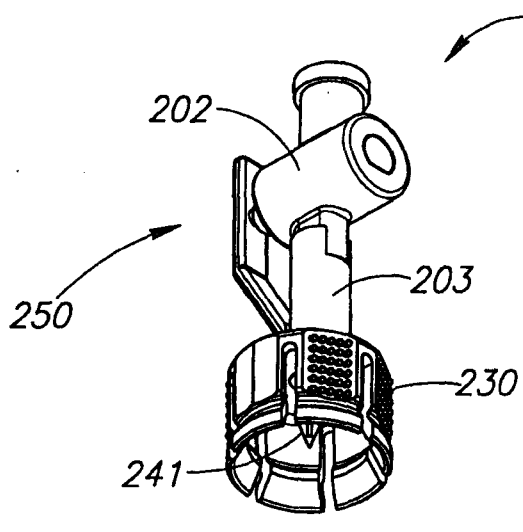

FIG.9

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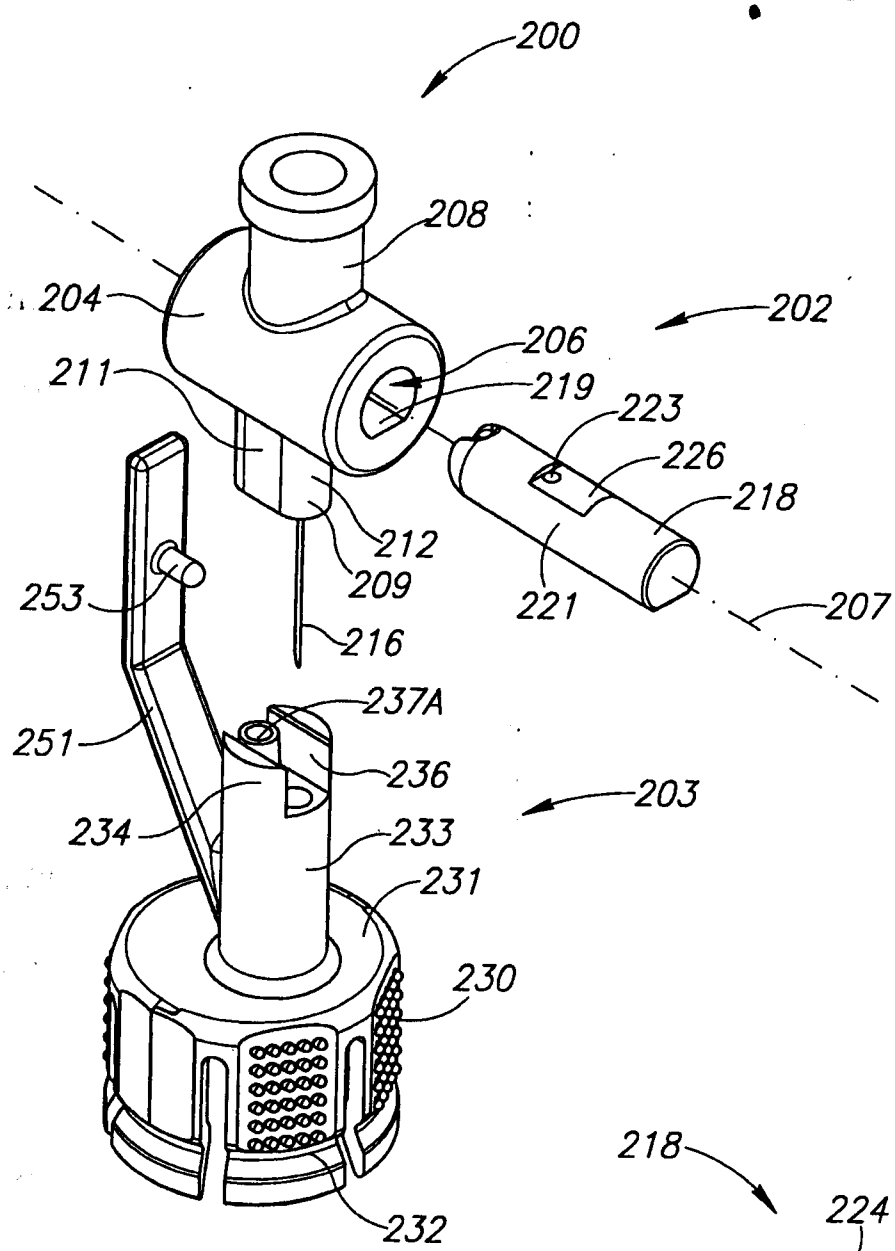

FIG.10

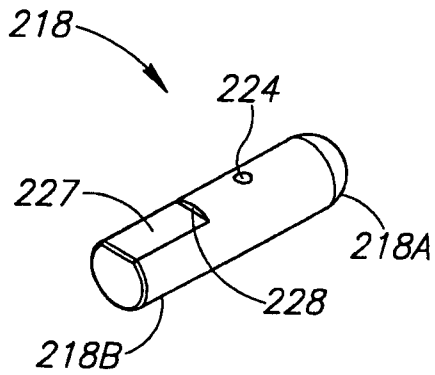

FIG.11

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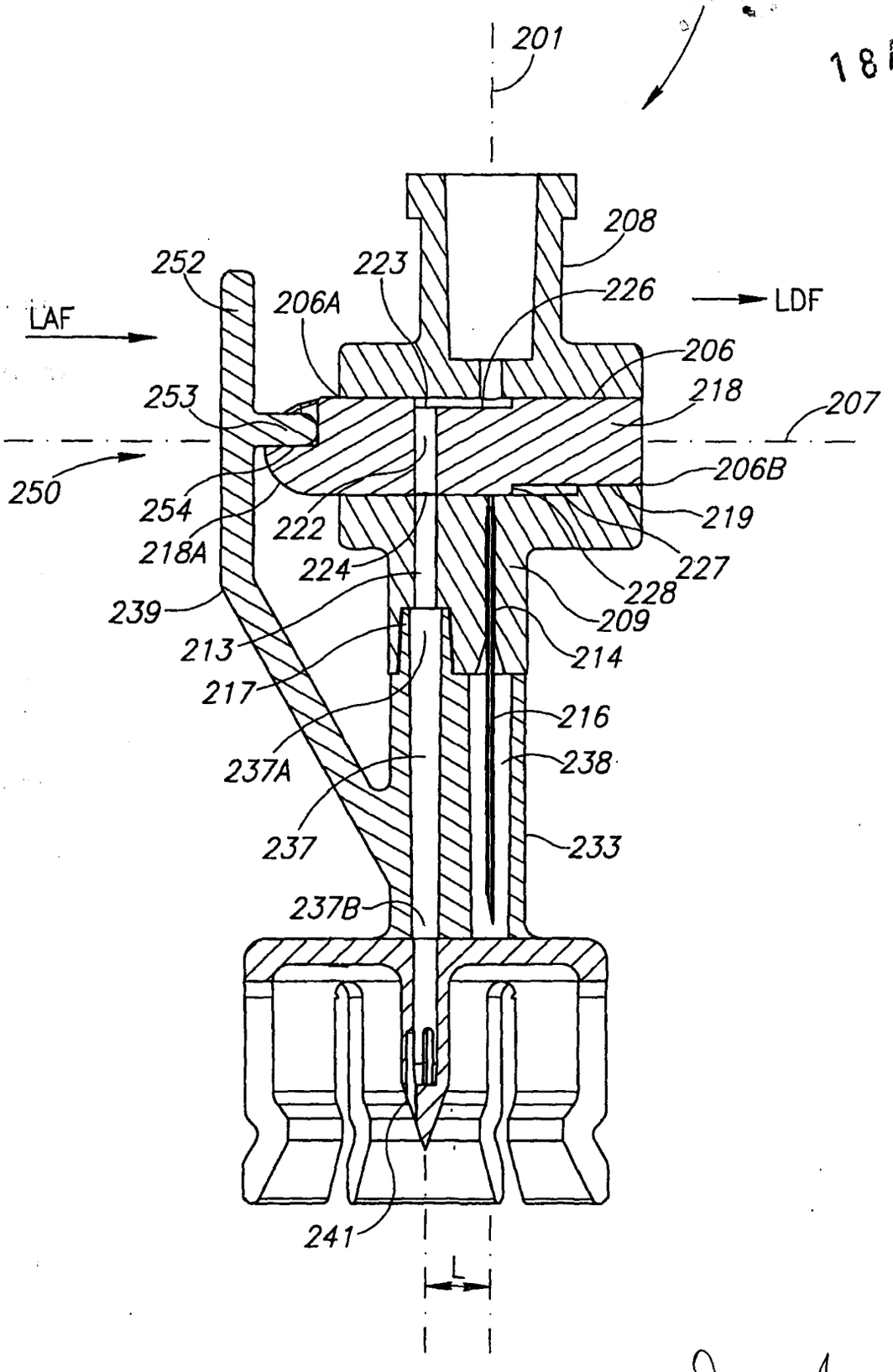

FIG.12

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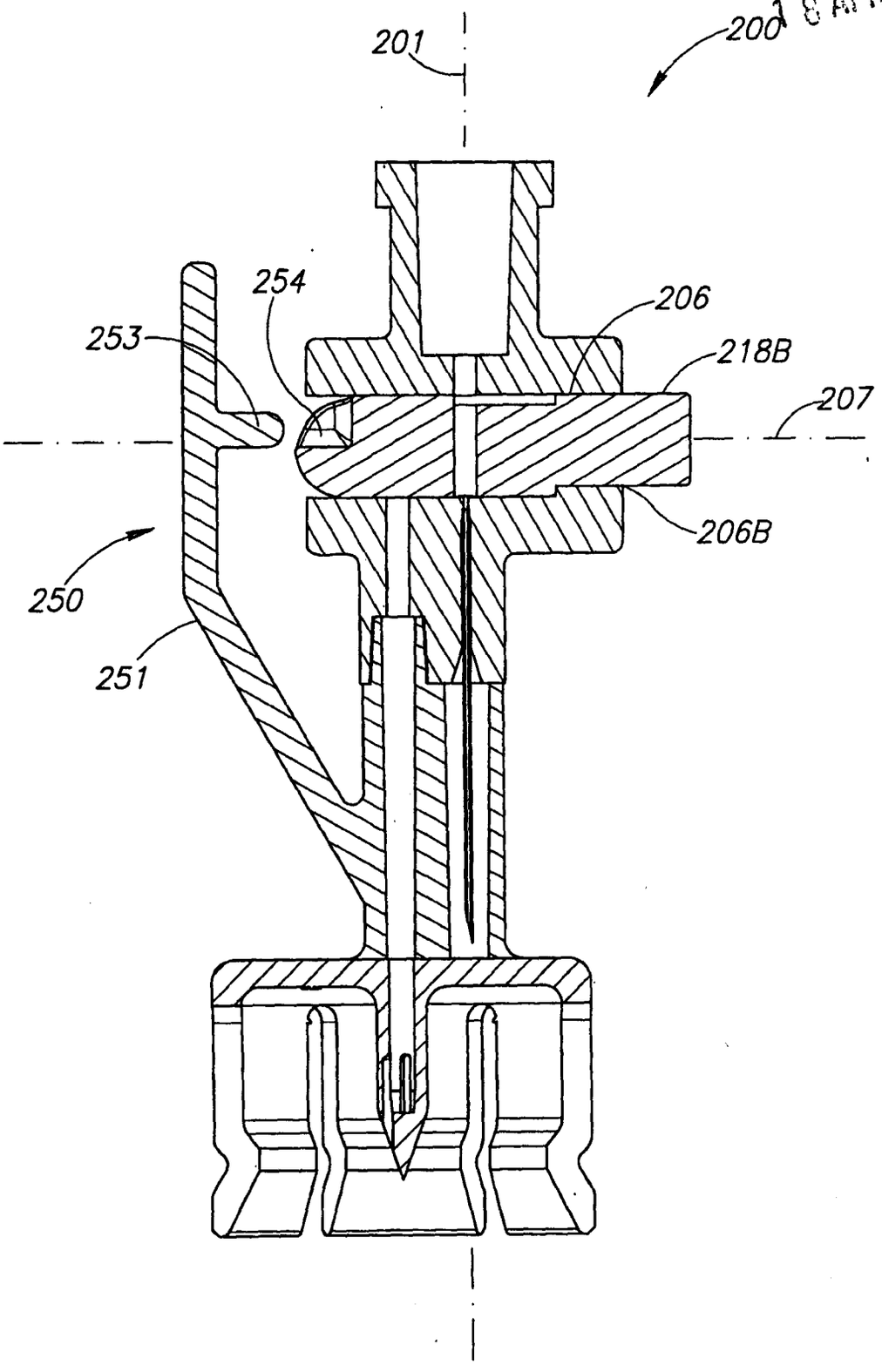

FIG.13

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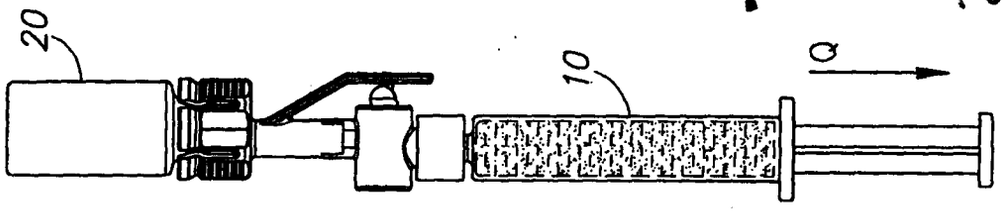

FIG.14D

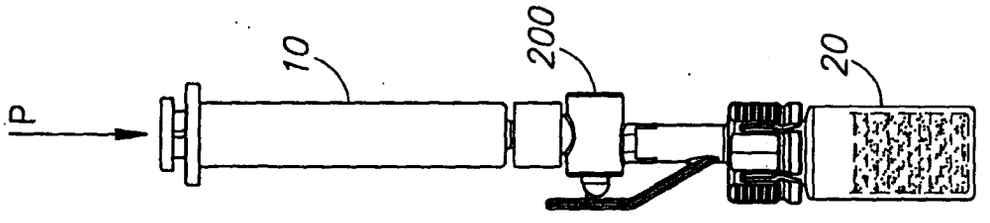

FIG.14C

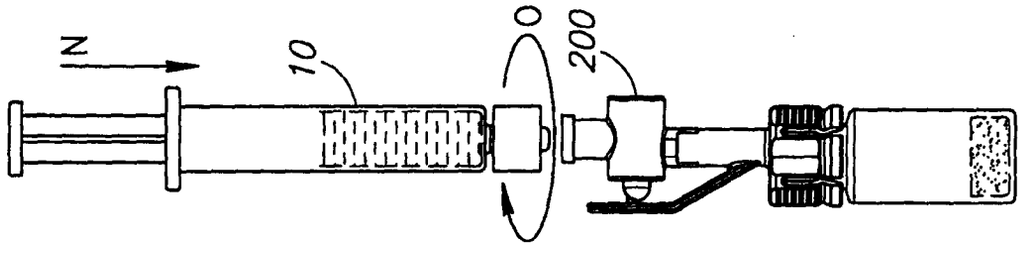

FIG.14B

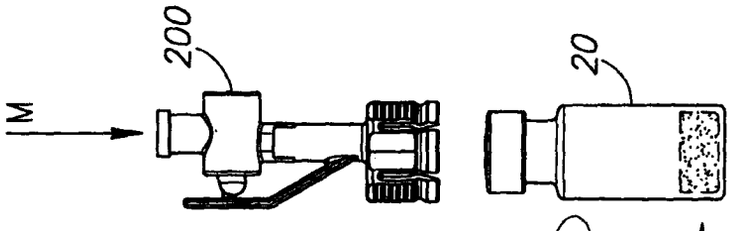

FIG.14A

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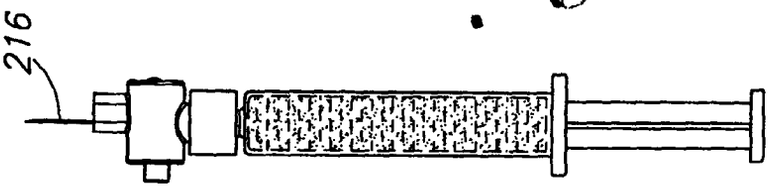

FIG.14H

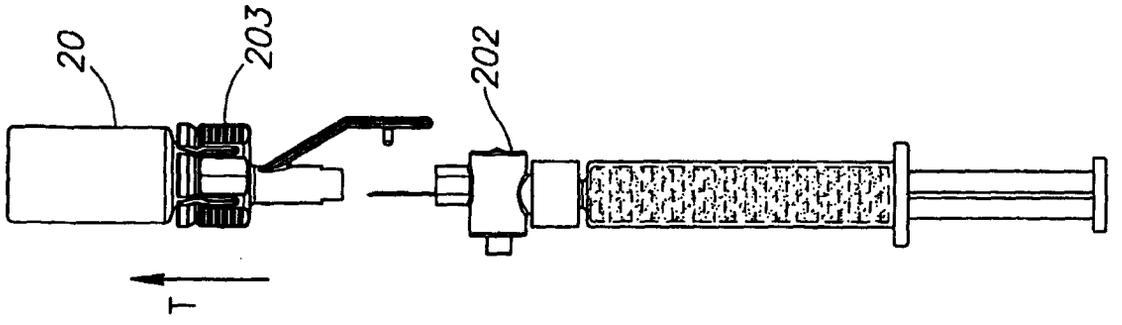

FIG.14G

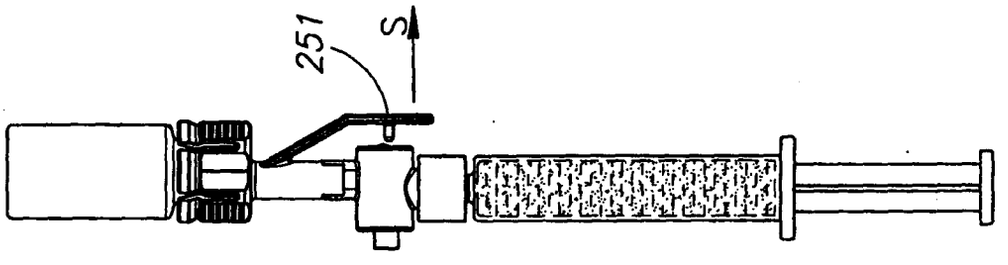

FIG.14F

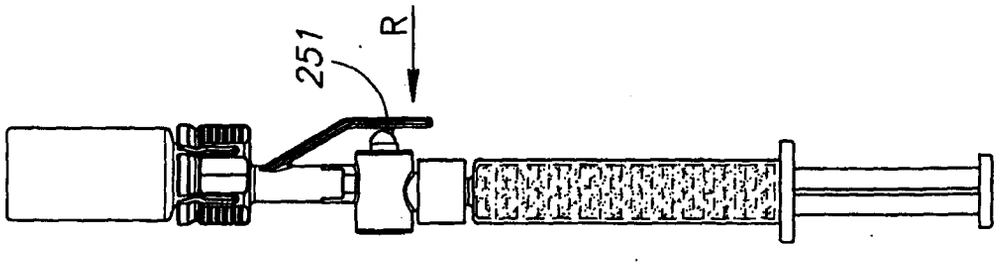

FIG.14E

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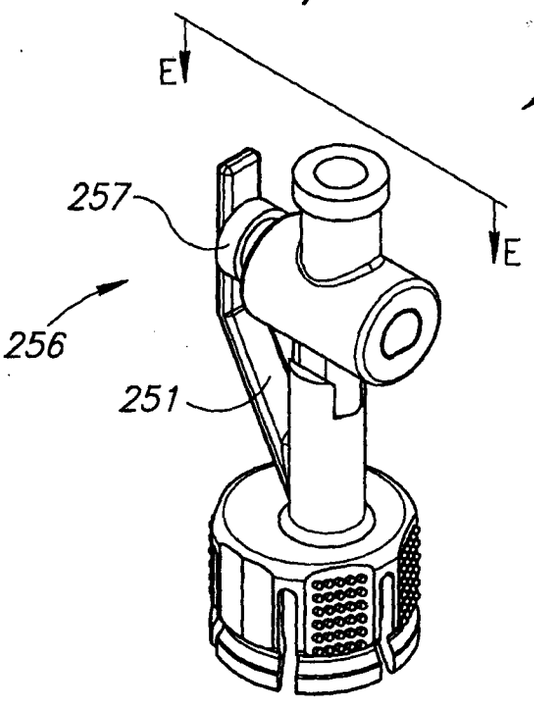

FIG.15

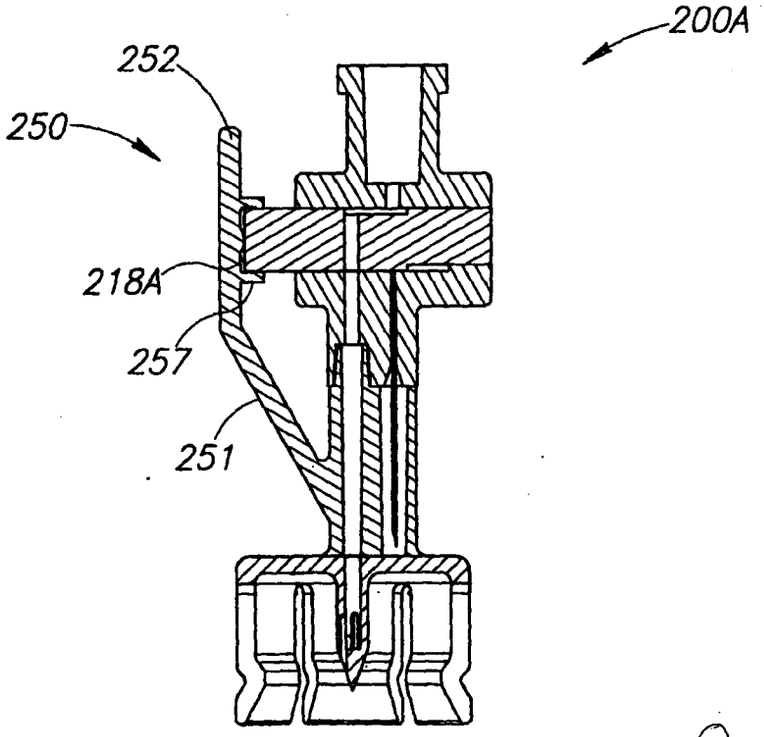

FIG.16

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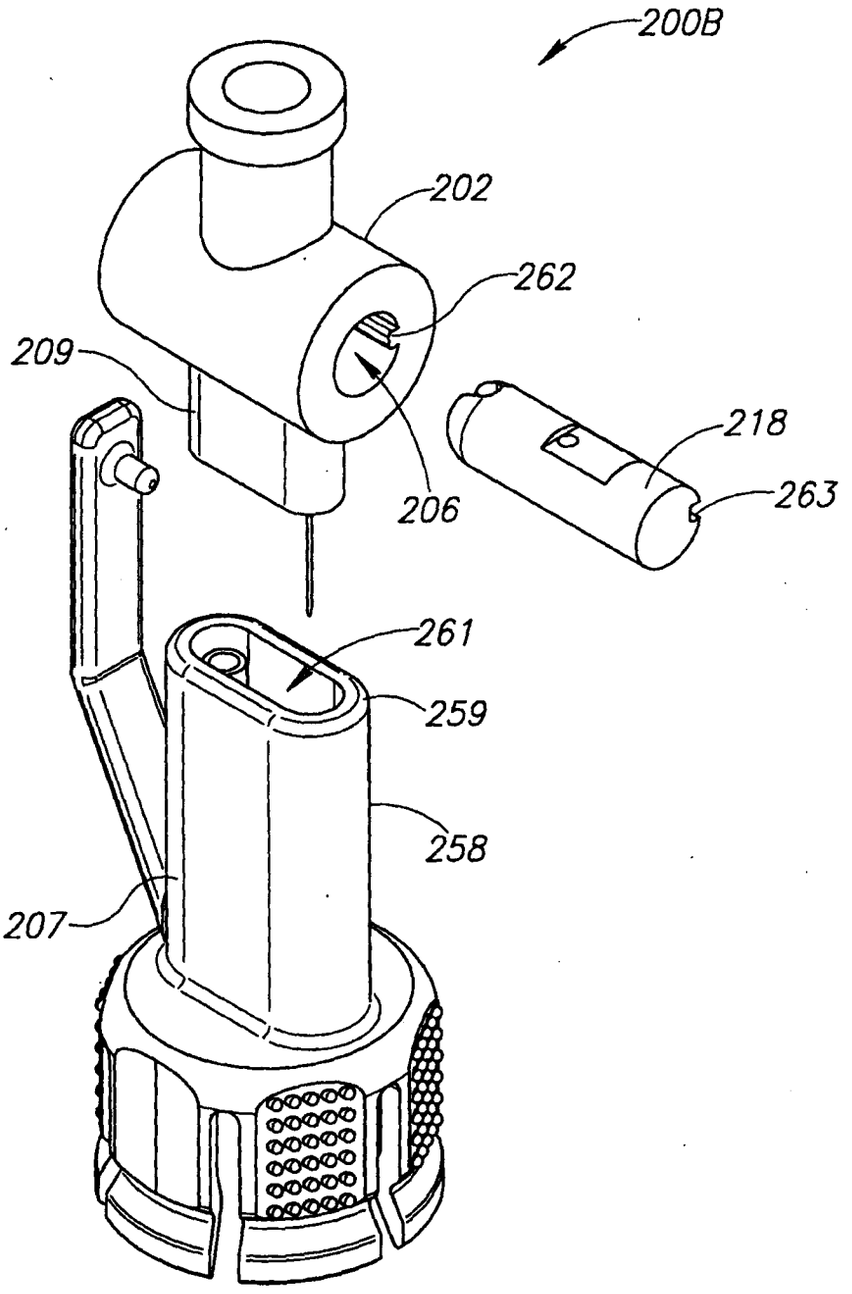

FIG.17

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