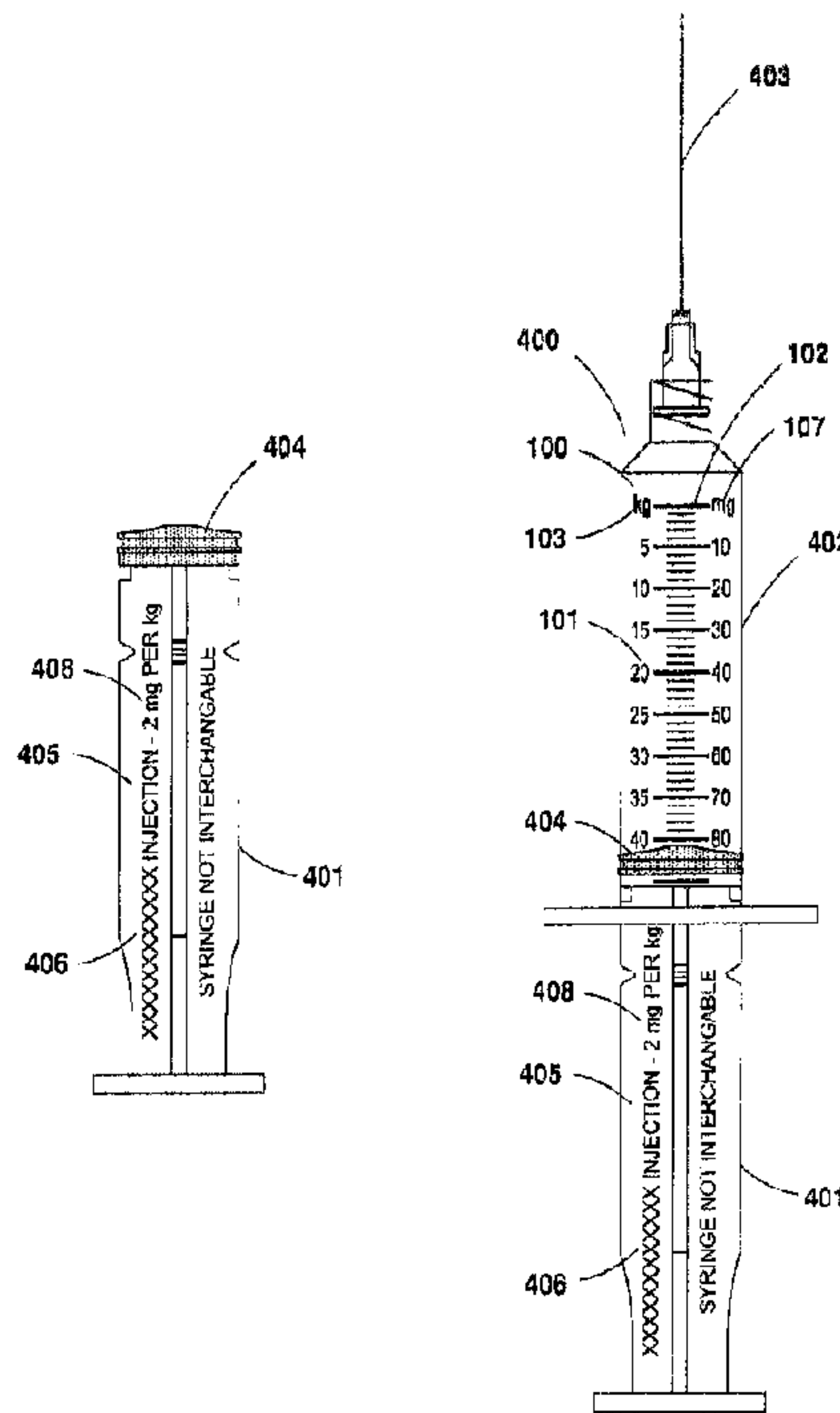




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 (54) Title: SAFETY SYRINGE AND SAFETY DOSE COMBINATION KIT



(57) **Abrégé/Abstract:**

Methods, apparatuses, and systems are disclosed for reducing Medical Administered Errors, (MAE) in the administration of injectable medications to patients by using a syringe device that is designed, labeled, and calibrated to decrease the risk of such errors. The syringe may be designed for a specific medication, and labeled to indicate the name of the medication for which it was designed. The syringe comprises two sets of indicia corresponding to the dosage and the weight or body surface area of a patient, which indicia are calibrated to deliver a specific amount of the medication that is the appropriate dosage for a patient of a particular weight or body surface area, thereby making it unnecessary for the user to perform calculations to determine the correct dosage volume for the particular patient. The syringe may also be calibrated with additional measurement scales that enable the user to verify that the correct dosage.

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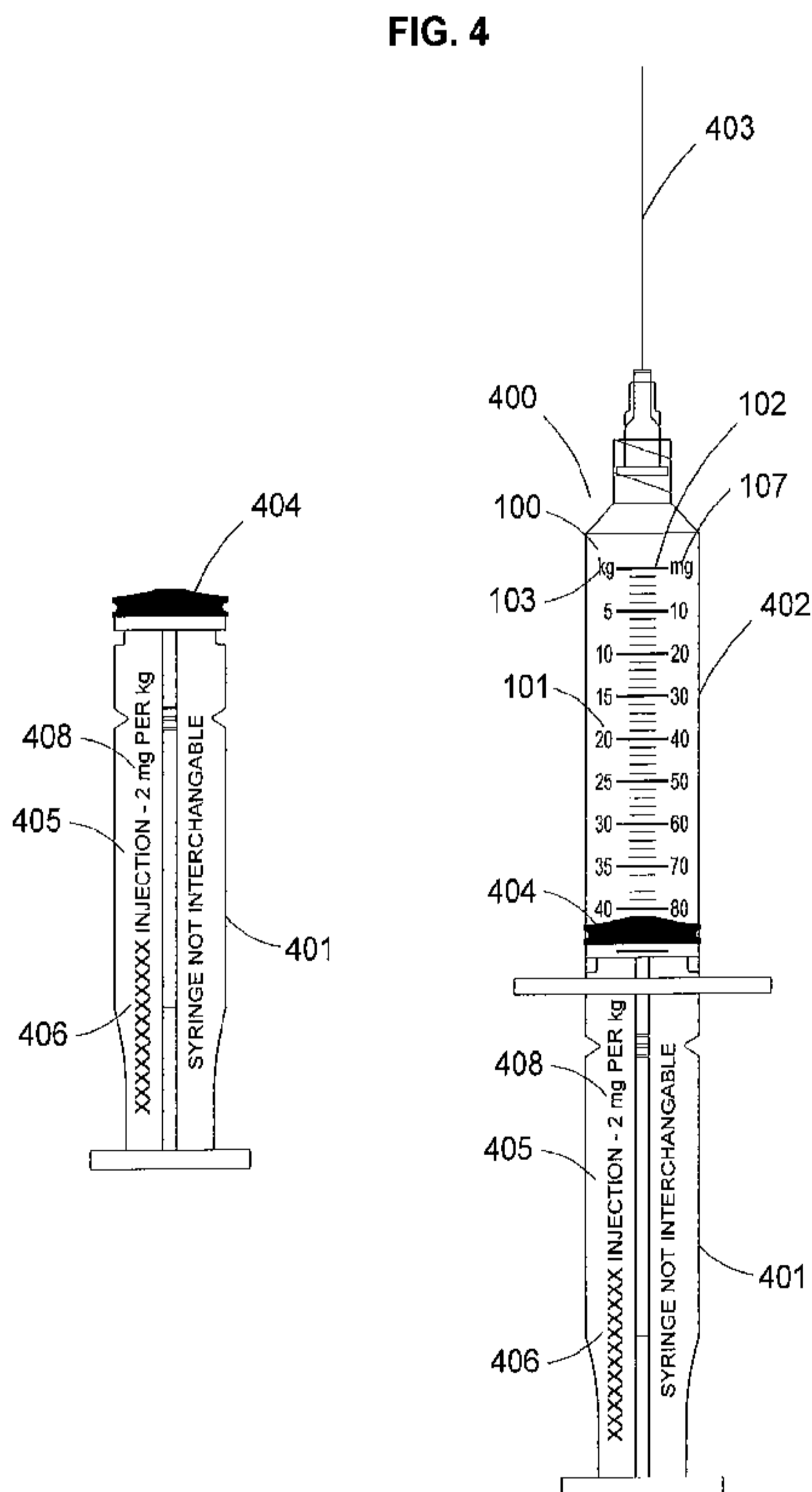
(74) Agents: KRASNOW, David, M. et al.; Smith Moore Leatherwood, LLP, 300 North Greene Street, Suite 1400, Greensboro, NC 27401 (US).

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[Continued on next page]

(54) Title: SAFETY SYRINGE AND SAFETY DOSE COMBINATION KIT



(57) Abstract: Methods, apparatuses, and systems are disclosed for reducing Medical Administered Errors, (MAE) in the administration of injectable medications to patients by using a syringe device that is designed, labeled, and calibrated to decrease the risk of such errors. The syringe may be designed for a specific medication, and labeled to indicate the name of the medication for which it was designed. The syringe comprises two sets of indicia corresponding to the dosage and the weight or body surface area of a patient, which indicia are calibrated to deliver a specific amount of the medication that is the appropriate dosage for a patient of a particular weight or body surface area, thereby making it unnecessary for the user to perform calculations to determine the correct dosage volume for the particular patient. The syringe may also be calibrated with additional measurement scales that enable the user to verify that the correct dosage.

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**CLAIMS:**

1. A syringe calibrated for use with only a single predetermined medication, comprising:
  - a. a barrel having an internal reservoir volumetrically calibrated to contain the single predetermined medication;
  - b. a plunger received within the barrel and axially movable relative thereto;
  - c. a first set of graduated indicia marked on the barrel indicating a predetermined patient characteristic selected from patient weight, patient body surface area and patient body mass index calibrated to a manufacturers recommended volumetric dosage for the single predetermined medication;
  - d. a second set of graduated indicia marked on the barrel indicating volumetric dosage of the single predetermined medication selected from at least one of CC, MG, MCG, IU and ML calibrated to the manufacturers recommended volumetric dosage for the single predetermined medication; and
  - e. graduation lines marked on the barrel correlating the first set of graduated indicia with the second set of graduated indicia.

2. The syringe of Claim 1, further comprising a dosage schedule on the barrel, said dosage schedule being correlated to one of the volumetric indicia, patient weight and patient body surface area.
3. The syringe of Claim 1, wherein at least one of the barrel and the plunger are marked with a name of the single predetermined medication and the manufacturers recommended volumetric dosage for the single predetermined medication.
4. The syringe of Claim 1, wherein the syringe is empty.
5. The syringe of Claim 1, wherein the patient weight and body surface area is indicated in units of KG, LB, G and  $m^2$ .
6. A kit comprising:
  - a. a medication container containing a volume of a predetermined medication; and
  - b. an empty syringe volumetrically calibrated for use with only the predetermined medication, the syringe comprising:

- i. a barrel having an internal reservoir volumetrically calibrated to contain the predetermined medication;
- ii. a plunger received within the barrel and axially movable relative thereto;
- iii. a first set of graduated indicia marked on the barrel indicating a predetermined patient characteristic selected from patient weight, patient body surface area and patient body mass index calibrated to a manufacturers recommended volumetric dosage for the predetermined medication;
- iv. a second set of graduated indicia marked on the barrel indicating volumetric dosage of the predetermined medication selected from at least one of mg, mcg, IU and mL calibrated to the manufacturers recommended volumetric dosage for the predetermined medication;
- v. graduation lines marked on the barrel correlating the first set of graduated indicia with the second set of graduated indicia; and
- vi. at least one of the barrel and the plunger marked with a name and the manufacturers recommended volumetric dosage of the predetermined medication.

7. The kit of Claim 6, wherein the container is a vial or an ampoule.
  
8. The kit of Claim 6, further comprising a diluent container containing a volume of diluent compatible for use in reconstituting the predetermined medication.

**CLAIMS:**

1. A syringe calibrated for use with only a single predetermined medication, comprising:
  - a. a barrel having an internal reservoir volumetrically calibrated to contain the single predetermined medication;
  - b. a plunger received within the barrel and axially movable relative thereto;
  - c. a first set of graduated indicia marked on the barrel indicating a predetermined patient characteristic selected from patient weight, patient body surface area and patient body mass index calibrated to a manufacturers recommended volumetric dosage for the single predetermined medication;
  - d. a second set of graduated indicia marked on the barrel indicating volumetric dosage of the single predetermined medication selected from at least one of CC, MG, MCG, IU and ML calibrated to the manufacturers recommended volumetric dosage for the single predetermined medication; and
  - e. graduation lines marked on the barrel correlating the first set of graduated indicia with the second set of graduated indicia.



2. The syringe of Claim 1, further comprising a dosage schedule on the plunger, said dosage schedule being correlated to one of the volumetric indicia, patient weight and patient body surface area.
3. The syringe of Claim 1, wherein at least one of the barrel and the plunger are marked with a name of the single predetermined medication and the manufacturers recommended volumetric dosage for the single predetermined medication.
4. The syringe of Claim 1, wherein the syringe is empty.
5. The syringe of Claim 1, wherein the patient weight and body surface area is indicated in units of KG, LB, G and m<sup>2</sup>.
6. A kit comprising:
  - a. a medication container containing a volume of a predetermined medication; and
  - b. an empty syringe volumetrically calibrated for use with only the predetermined medication, the syringe comprising:

- i. a barrel having an internal reservoir volumetrically calibrated to contain the predetermined medication;
- ii. a plunger received within the barrel and axially movable relative thereto;
- iii. a first set of graduated indicia marked on the barrel indicating a predetermined patient characteristic selected from patient weight, patient body surface area and patient body mass index calibrated to a manufacturers recommended volumetric dosage for the predetermined medication;
- iv. a second set of graduated indicia marked on the barrel indicating volumetric dosage of the predetermined medication selected from at least one of mg, mcg, IU and mL calibrated to the manufacturers recommended volumetric dosage for the predetermined medication;
- v. graduation lines marked on the barrel correlating the first set of graduated indicia with the second set of graduated indicia; and
- vi. at least one of the barrel and the plunger marked with a name and the manufacturers recommended volumetric dosage of the predetermined medication.

7. The kit of Claim 6, wherein the container is a vial or an ampoule.
  
8. The kit of Claim 6, further comprising a diluent container containing a volume of diluent compatible for use in reconstituting the predetermined medication.

FIG. 1

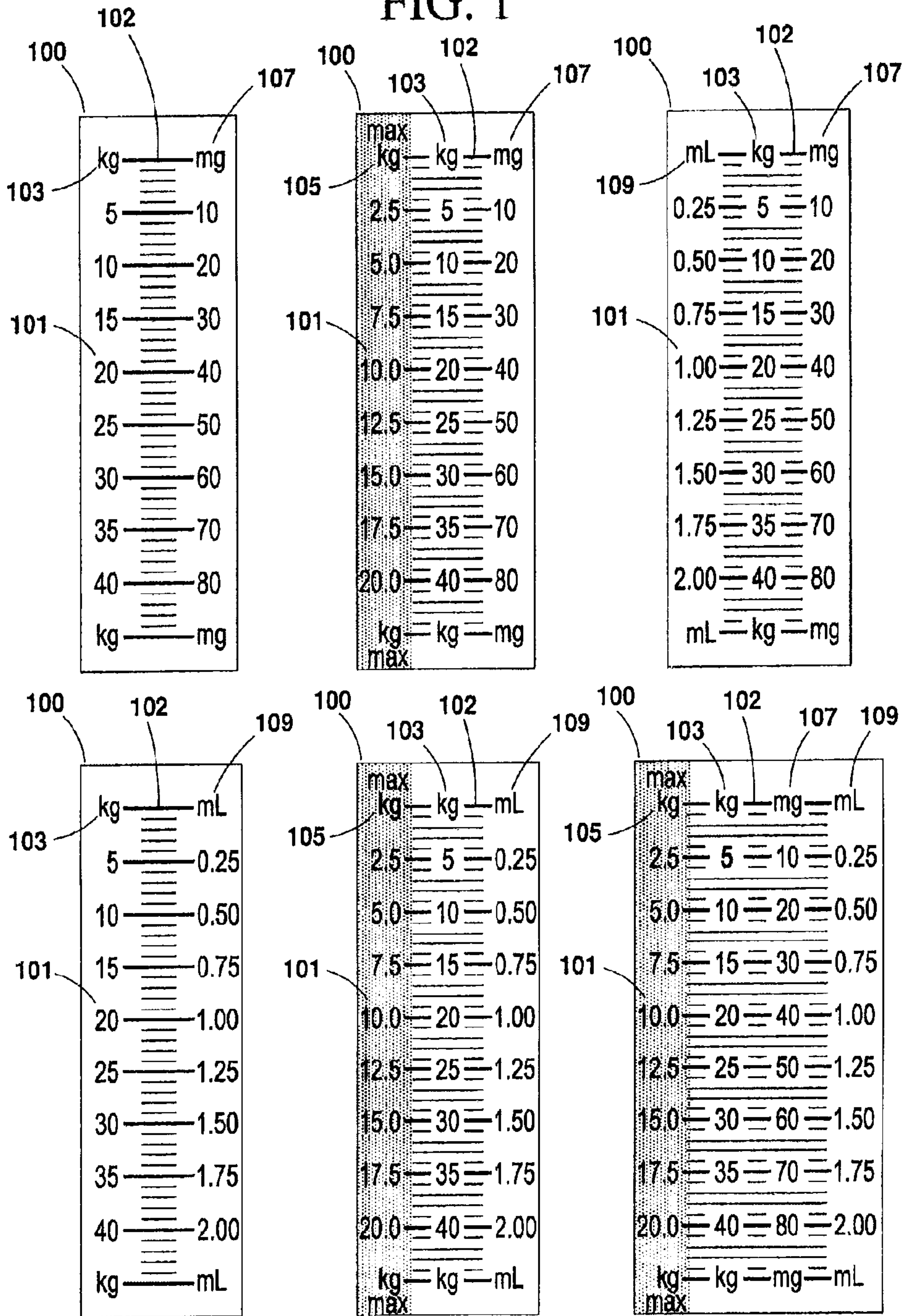


FIG. 2

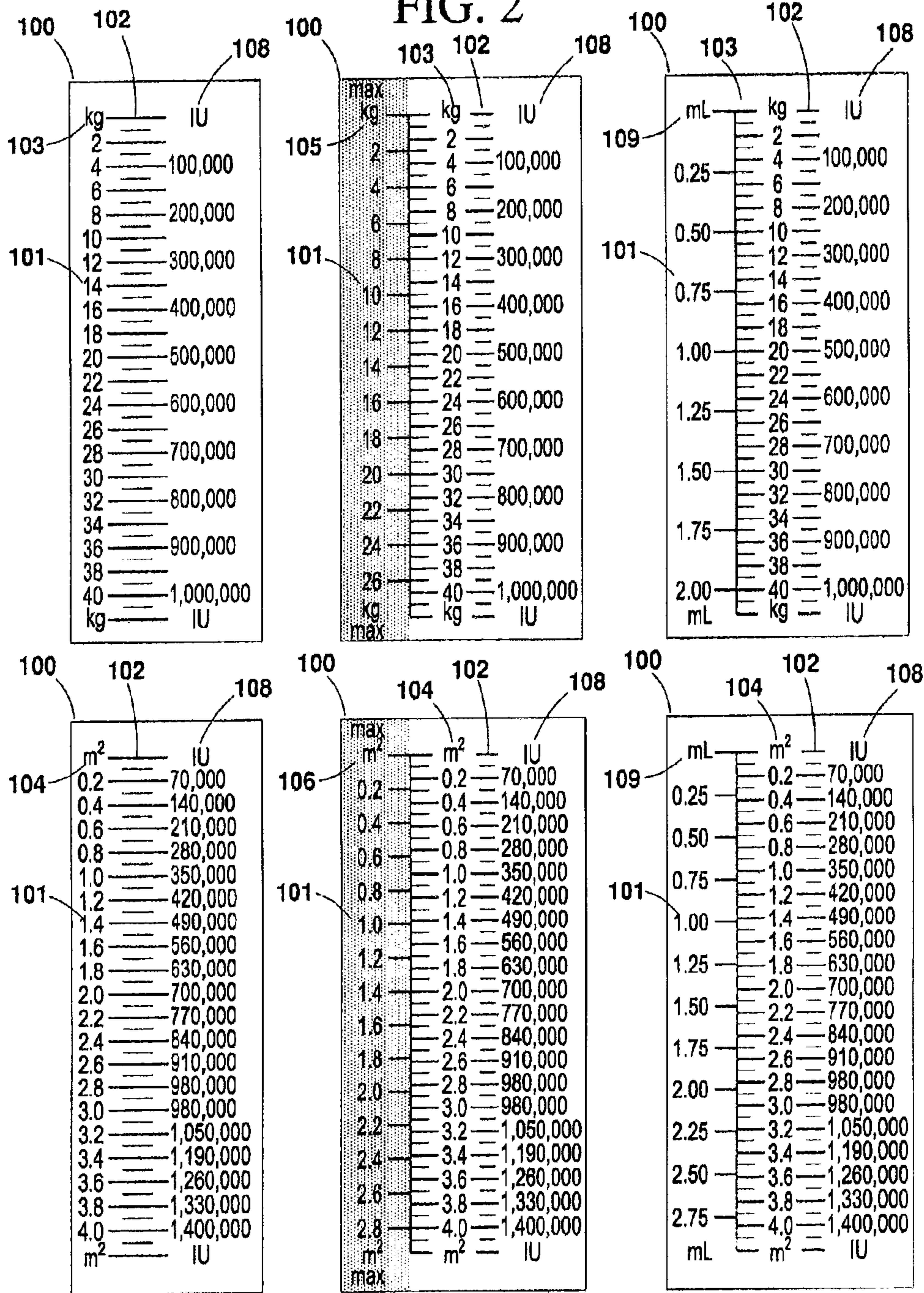


FIG. 3

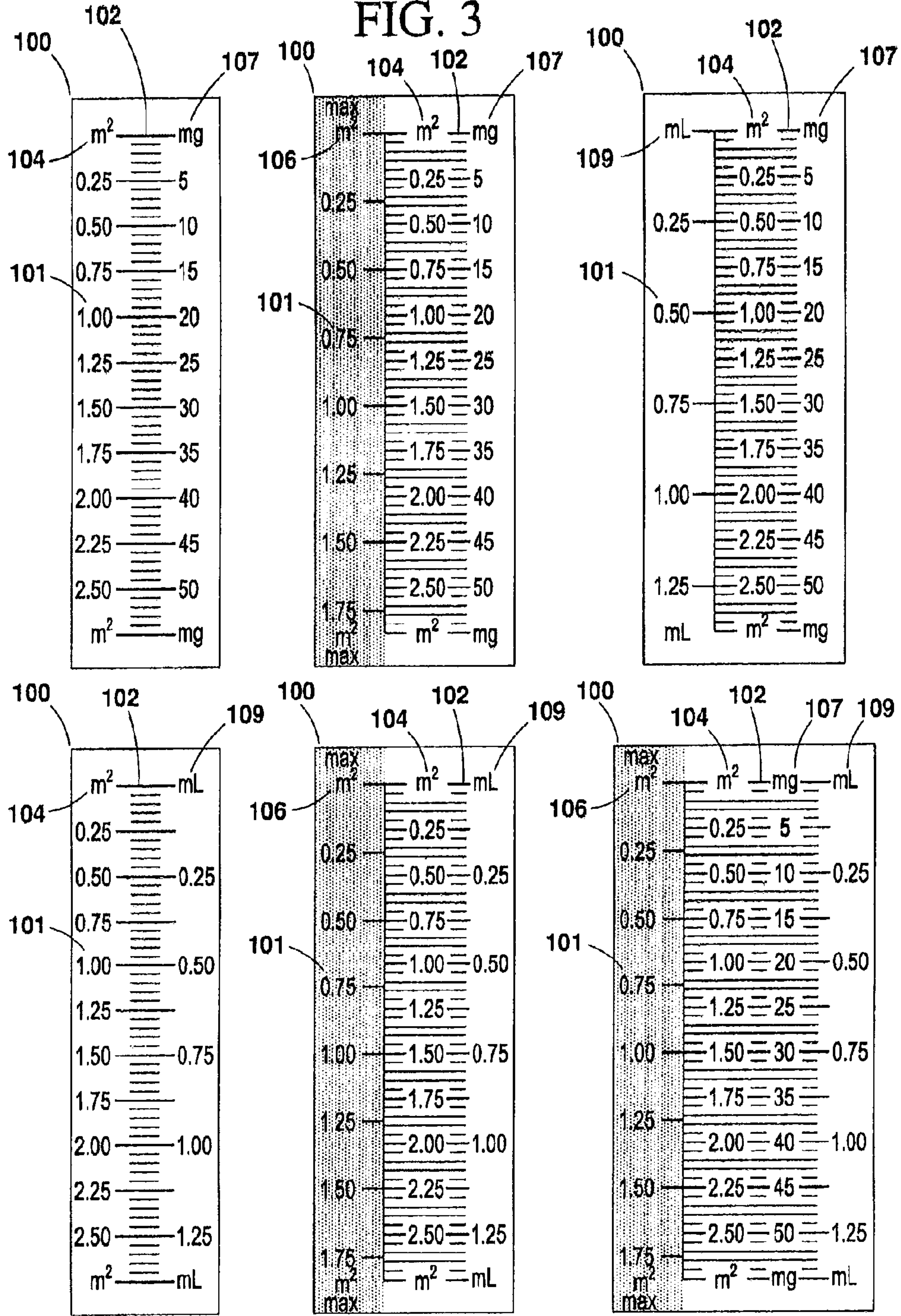


FIG. 4

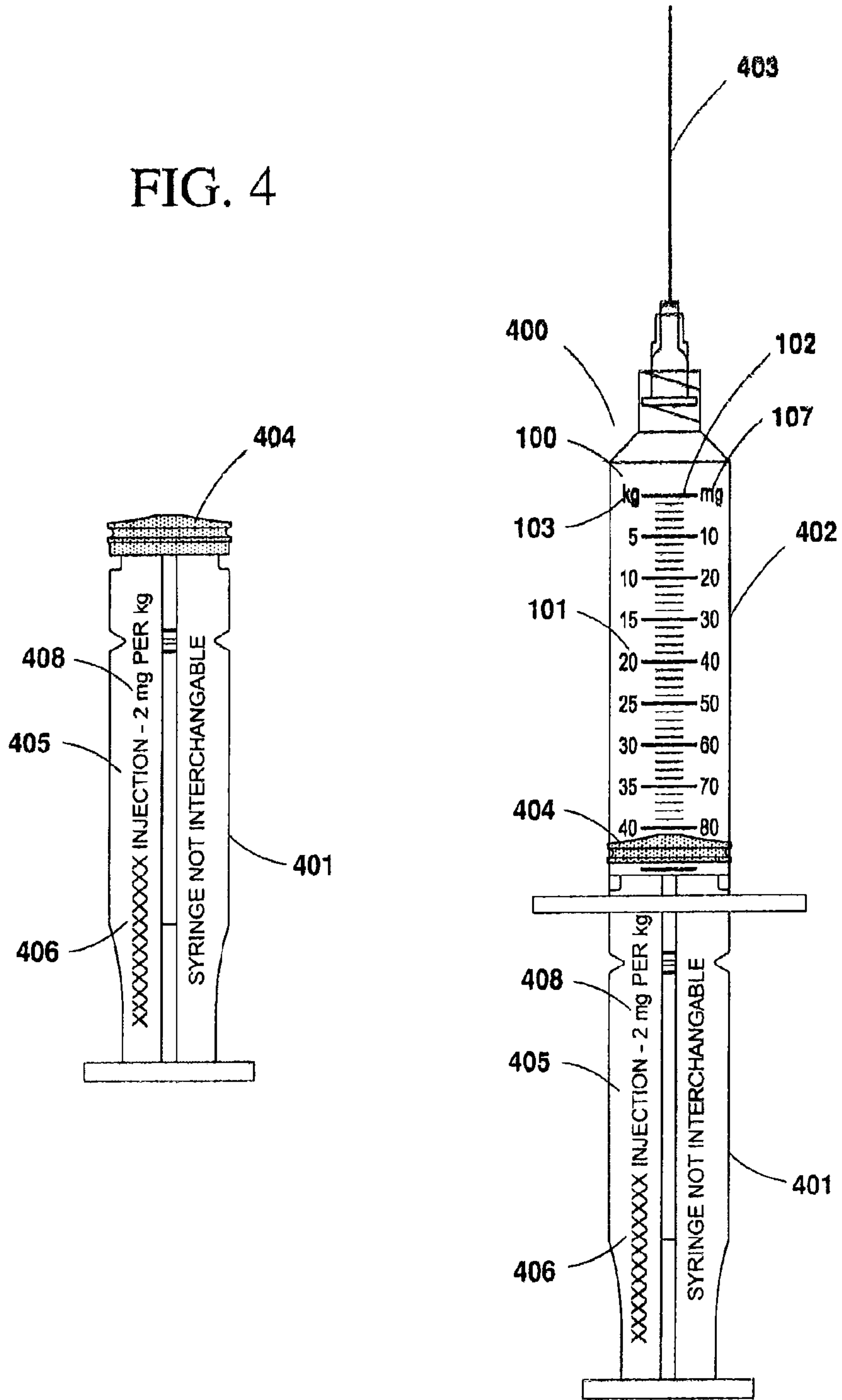
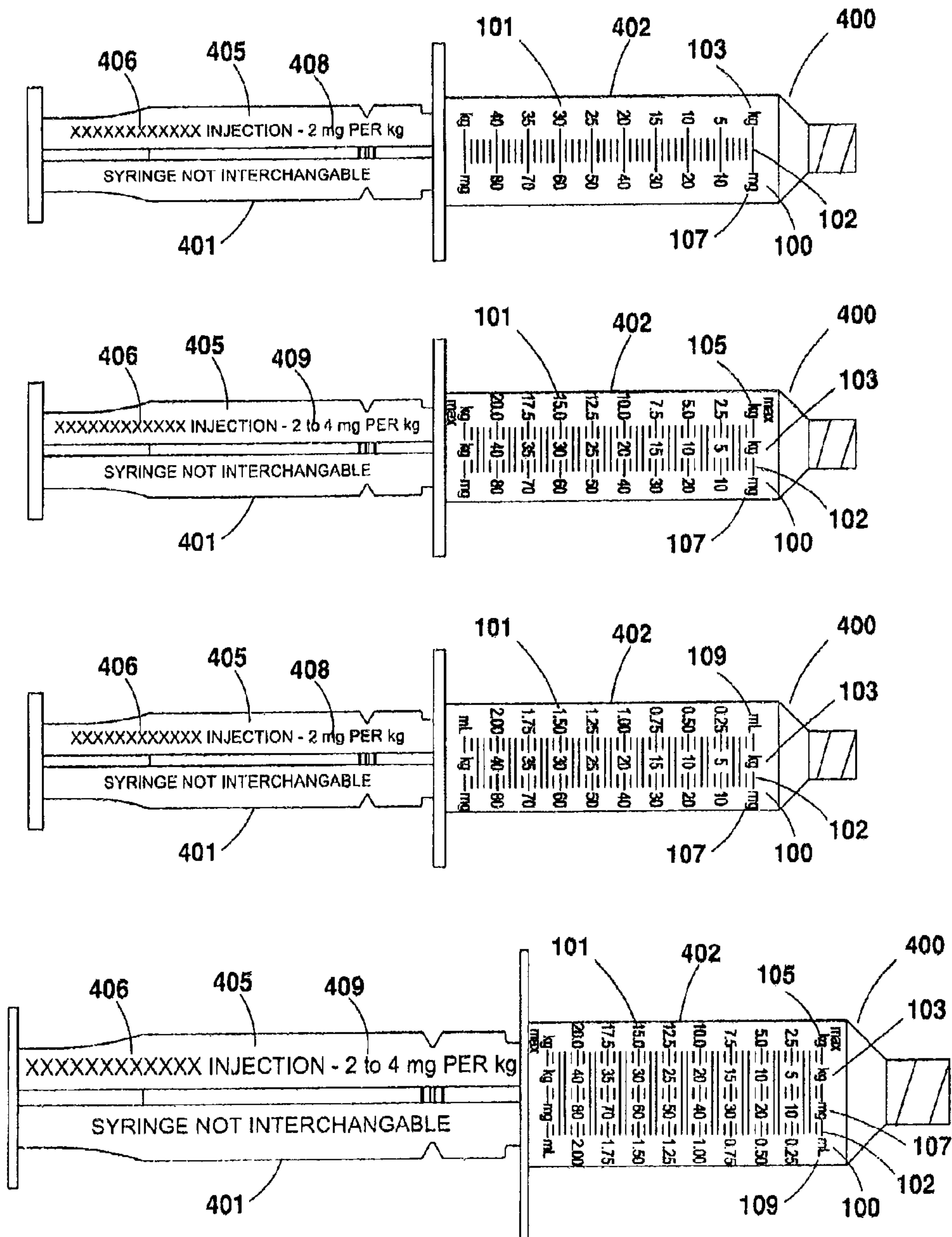


FIG. 5





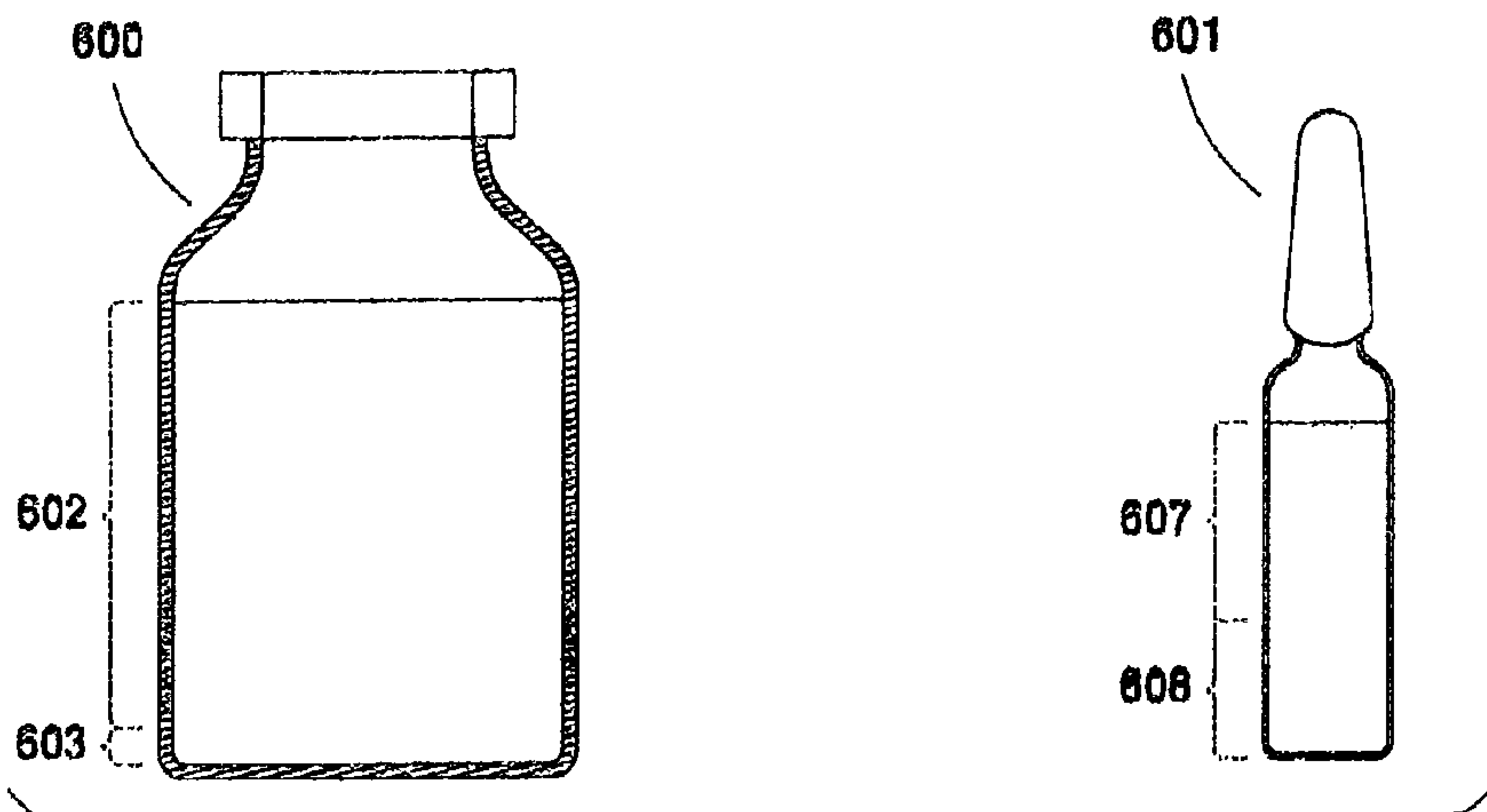


FIG. 6

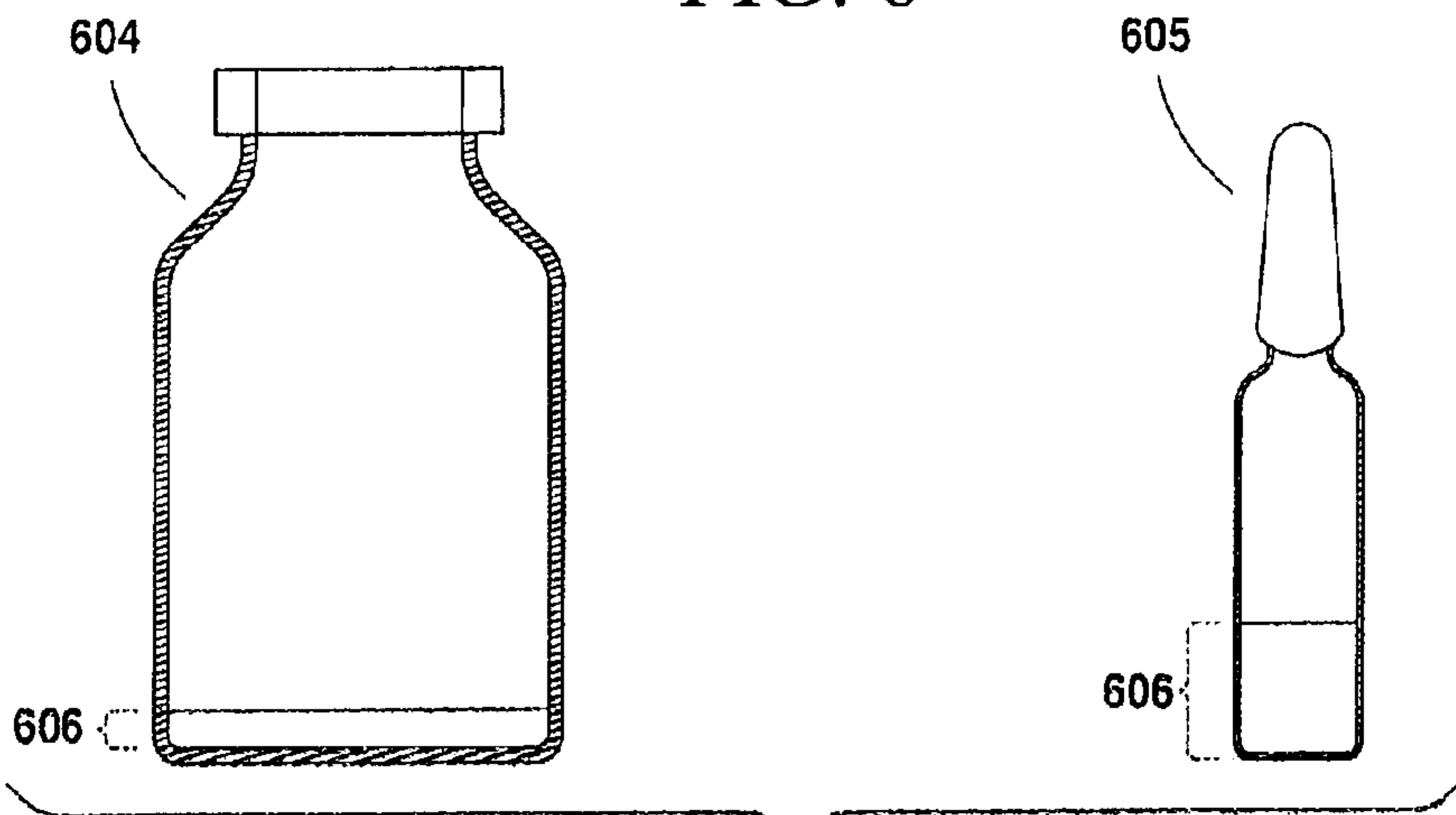


FIG. 6A

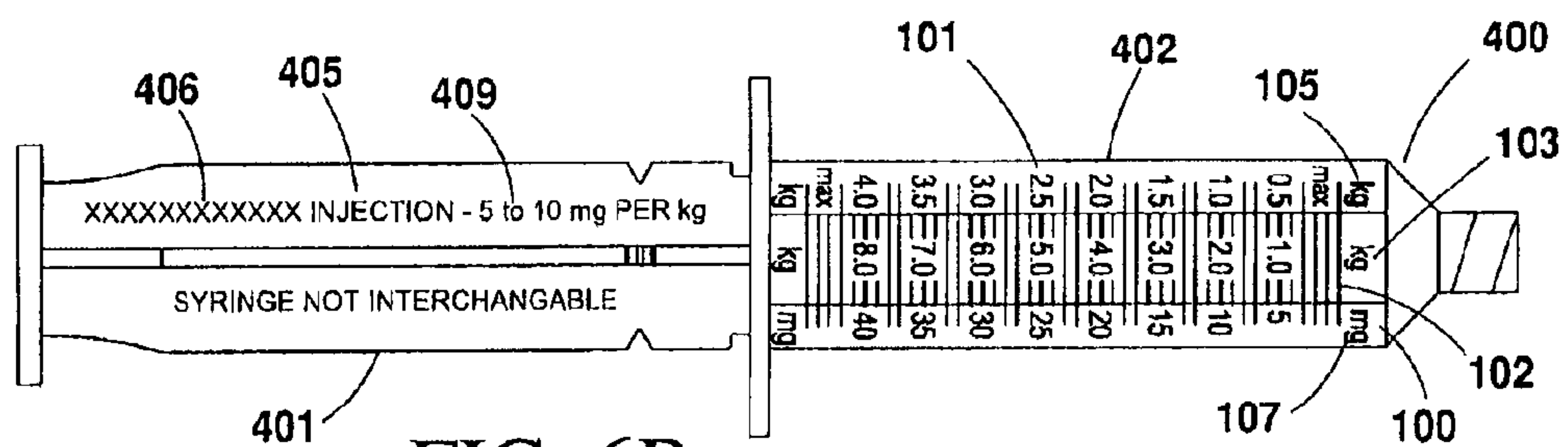


FIG. 6B

FIG. 7

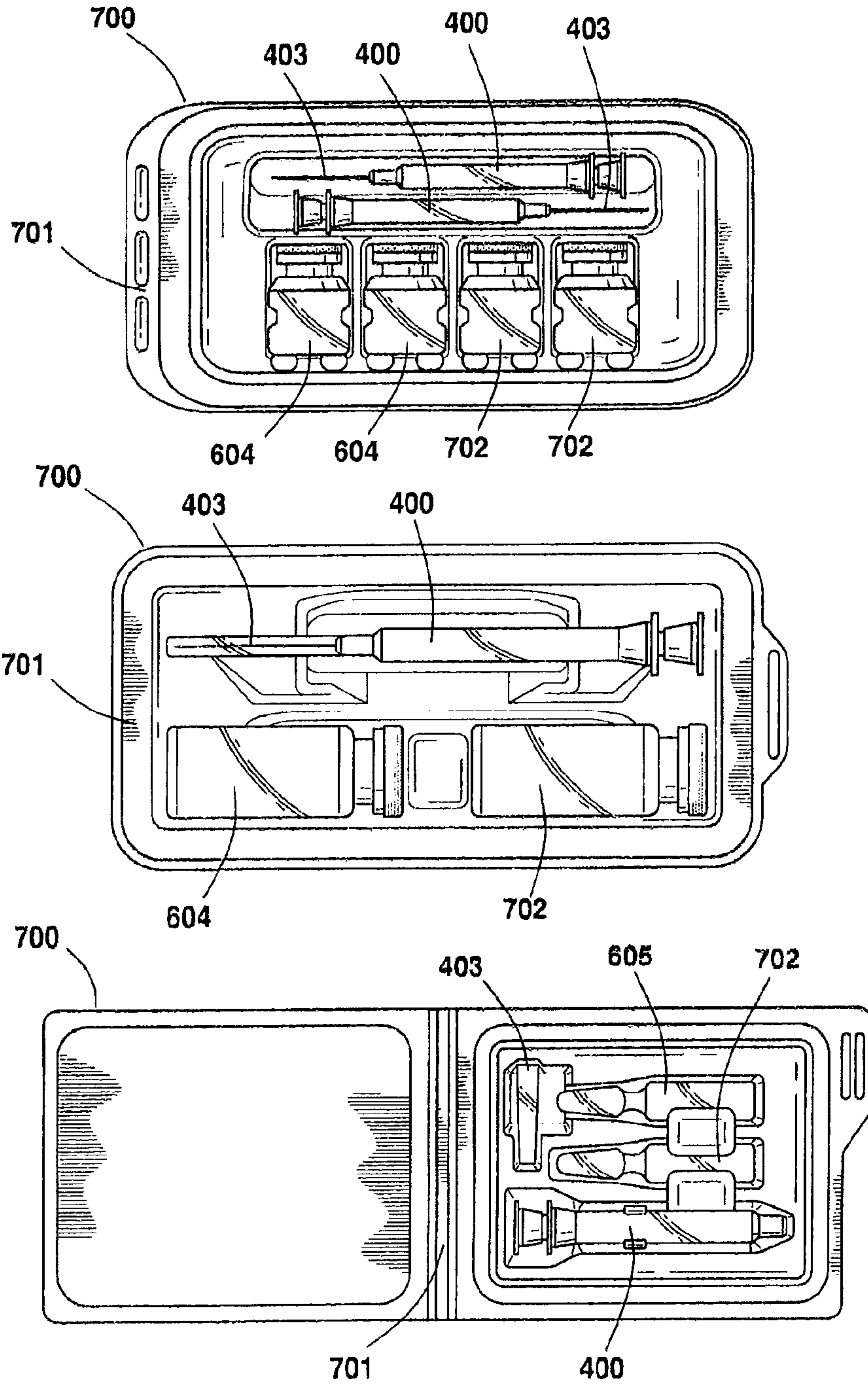
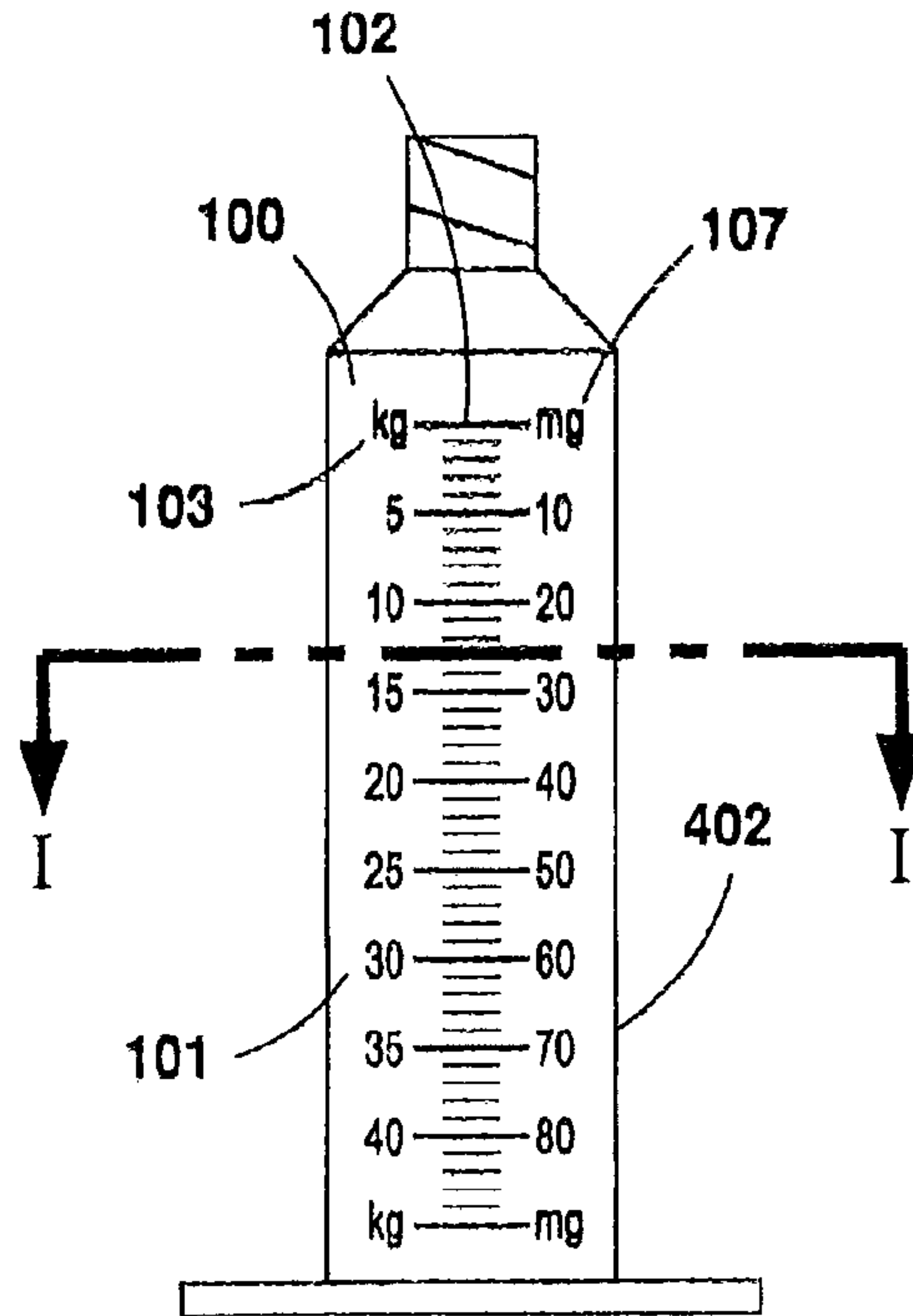


FIG. 8



CROSS-SECTIONAL VIEW  
I-I

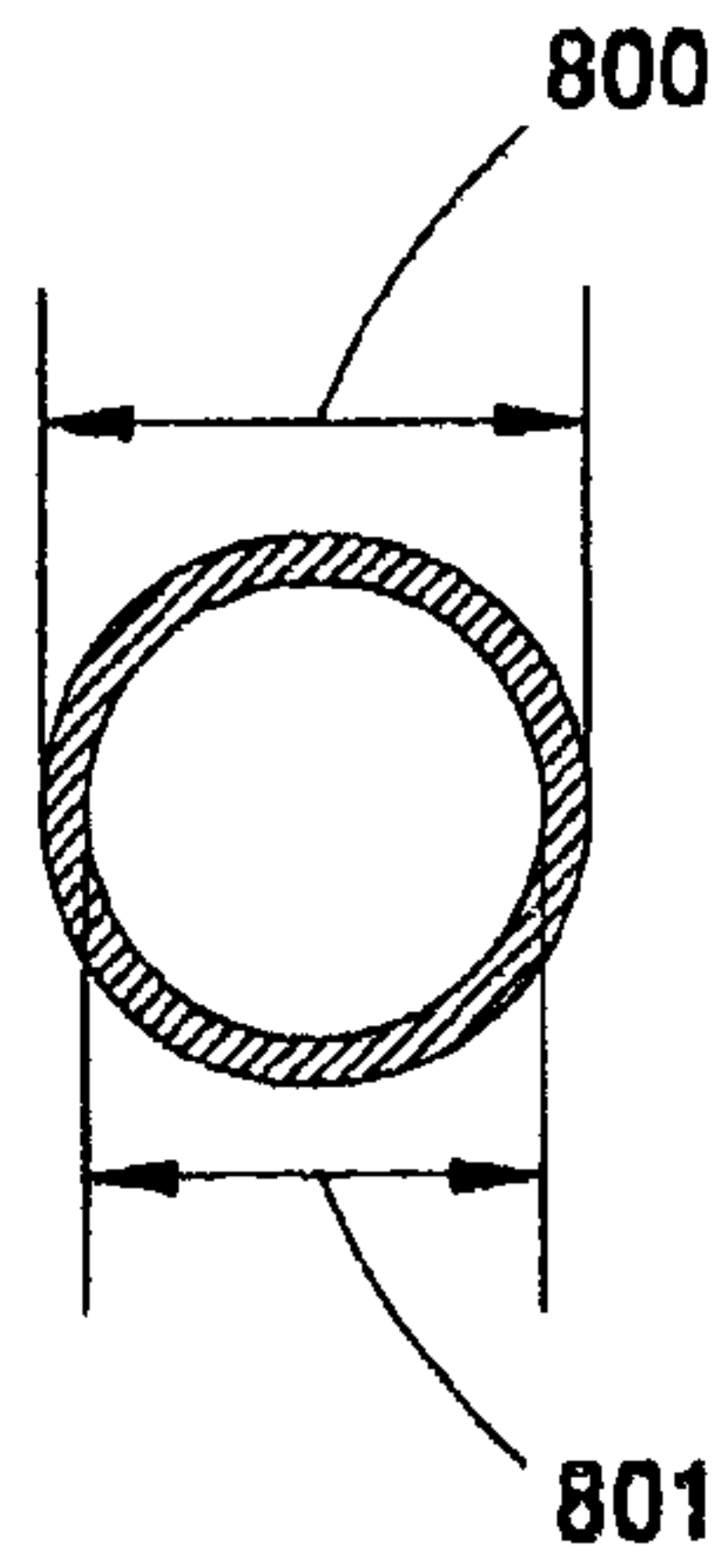
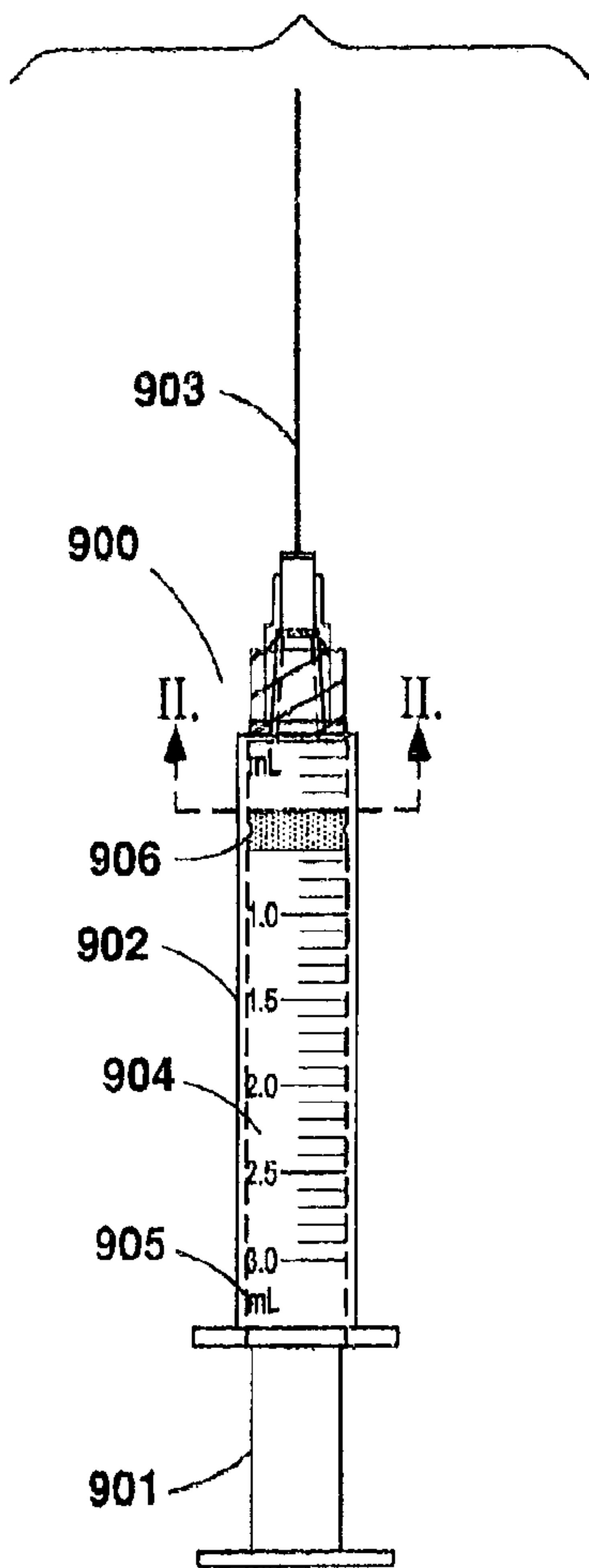


FIG. 9



CROSS-SECTIONAL VIEW  
II-II

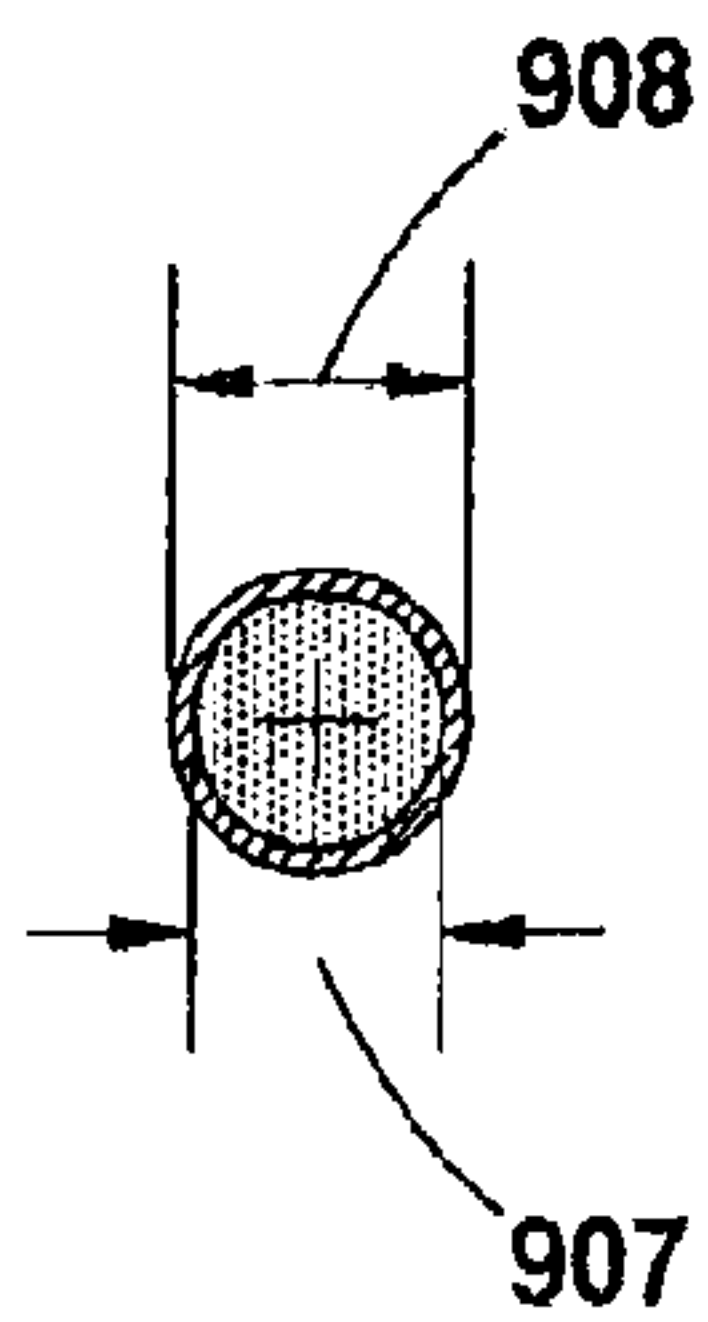
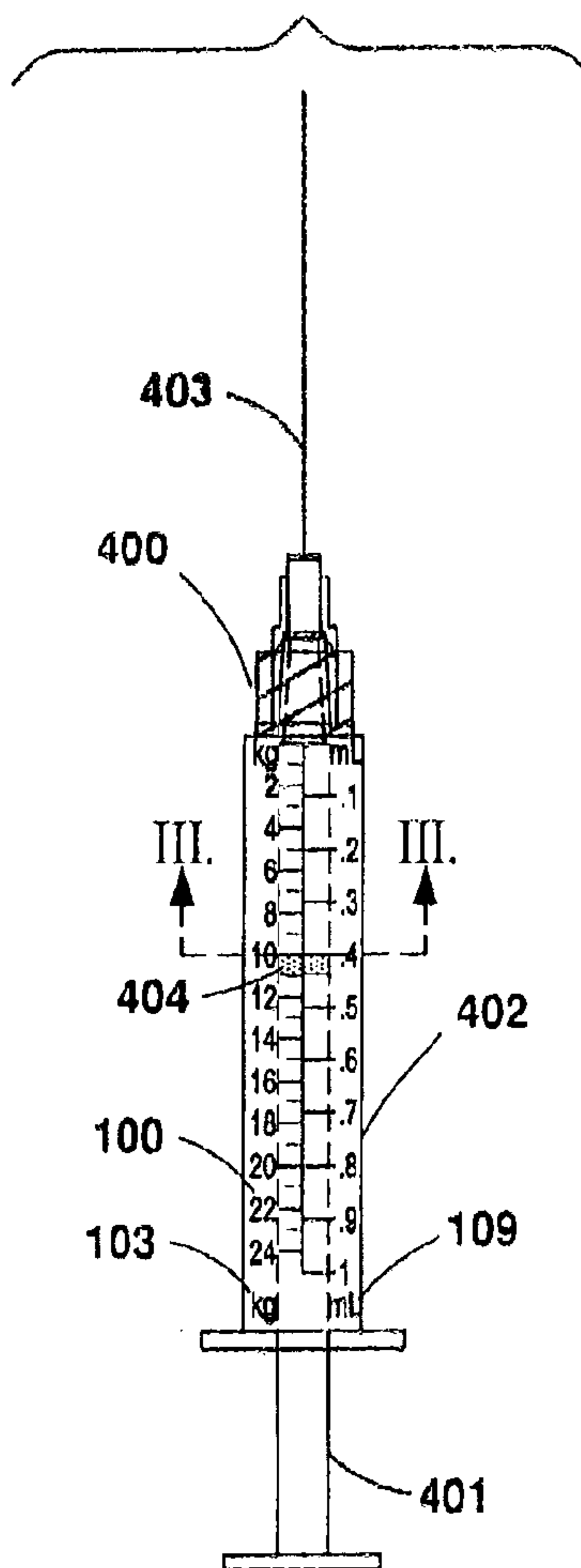


FIG. 10



CROSS-SECTIONAL VIEW  
III-III

