THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A syringe including:

at least one substance storage chamber;

a hypodermic needle in fluid communication with the substance storage chamber, the hypodermic needle defining a needle tip;

a sheath slidably disposed for displacement between a retracted position in which at least the needle tip is exposed and an extended position in which the needle tip is shrouded; and

biasing means adapted to bias the sheath toward the extended position.

2. A syringe according to claim 1 wherein the biasing means is resilient.

3. A syringe according to claim 2 wherein the resilient biasing means is a spring.

4. A syringe according to any one of the preceding claims wherein the substance storage chamber defines a proximal end having an aperture for receipt of a plunger and wherein a flange is disposed at or adjacent to the proximal end of the substance storage chamber.

5. A syringe according to claim 4 wherein the biasing means extends between the flange and the sheath.

6. A syringe according to claim 5 wherein a distal end of the biasing means abuts a proximal end of the sheath.

7. A syringe according to claim 5 or 6 wherein the biasing means is a coil spring and wherein at least part of the substance storage chamber is disposed internally of the coil spring.

8. A syringe according to claim 7 wherein the coil spring, substance storage chamber and sheath are all substantially cylindrical.

9. A syringe according to any one of the preceding claims wherein a guide slot is defined in one of the substance storage chamber or the sheath and wherein a follower element adapted for displacement along said slot is provided upon the other of the substance storage chamber or the sheath.

10. A syringe according to claim 9 wherein the guide slot defines a first position for locking of the sheath in the retracted position and wherein the guide slot defines a second position for locking of the sheath in the extended position.

11. A syringe according to claim 9 or 10 wherein the guide slot has an open end adapted for passage of the follower element into and out of the slot such that the sheath is selectively attachable and detachable from the substance storage chamber.

12. A syringe according to claim 11 wherein the needle is disposed on a needle assembly which is selectively detachable from the substance storage chamber to allow for attachment of a connector to the substance storage chamber.

13. A syringe according to claim 12 wherein the connector is any one of:
a catheter; an intravenous feeding tube; a Luer lock or a Luer slip.

14. A syringe according to any one of the preceding claims wherein the sheath has a side wall thickness of greater than or equal to 0.5mm.

15. A syringe according to any one of the preceding claims wherein the sheath has a side wall thickness of greater than or equal to 1mm.

16. A syringe according to any one of the preceding claims wherein the syringe is a single-use syringe.

17. A syringe according to any one of the preceding claims further including an automatically operable locking means adapted to lock the sheath in the extended position.

18. A syringe according to claim 17 when depended from claim 10 wherein the automatically operable locking means includes an arcuate portion of the guide slot leading to the second position, such that extension of the sheath displaces the follower element along the arcuate portion and into the second position.

19. A syringe according to claim 18 wherein the slot defines a recess adjacent the second position such that the recess contacts and halts the follower element in response to retraction forces applied to the sheath whilst locked in the extended position.

20. A method of using a syringe including the steps of:

providing a syringe as defined in claim 1;

positioning a distal end of the sheath on a patient whilst allowing the biasing means to retain the sheath in the extended position;

displacing the syringe toward the patient so as to simultaneously retract the sheath and insert the needle into the patient.

21. A method according to claim 20 further including the step of displacing the syringe away from the patient so as to simultaneously withdraw the needle from the patient and allow the biasing means to displace the sheath toward the extended position, thereby retaining the distal end of the sheath in contact with the patient until the sheath reaches the extended position.

22. A method according to claim 21 further including the step of locking the sheath in the extended position.

CLAIMS

~~THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:~~

1. A syringe including:

at least one substance storage chamber;

a hypodermic needle in fluid communication with the substance storage chamber, the hypodermic needle defining a needle tip;

a sheath slidably disposed for displacement between a retracted position in which at least the needle tip is exposed and an extended position in which the needle tip is shrouded; and

biasing means adapted to bias the sheath toward the extended position,

wherein a guide slot is defined in one of the substance storage chamber or the sheath and wherein a follower element adapted for displacement along said slot is provided upon the other of the substance storage chamber or the sheath,

wherein the guide slot defines a first position for locking of the sheath in the retracted position and wherein the guide slot defines a second position for locking of the sheath in the extended position,

wherein the syringe further includes an automatically operable locking means adapted to lock the sheath in the extended position, the automatically operable locking means including an arcuate portion of the guide slot leading to the second position, such that extension of the sheath displaces the follower element along the arcuate portion and into the second position, and

wherein the slot defines a recess adjacent the second position such that the recess contacts and halts the follower element in response to retraction forces applied to the sheath whilst locked in the extended position.

2. A syringe according to claim 1 wherein the biasing means is resilient.

3. A syringe according to claim 2 wherein the resilient biasing means is a spring.

4. A syringe according to any one of the preceding claims wherein the substance storage chamber defines a proximal end having an aperture for receipt of a plunger and wherein a flange is disposed at or adjacent to the proximal end of the substance storage

chamber.

5. A syringe according to claim 4 wherein the biasing means extends between the flange and the sheath.

6. A syringe according to claim 5 wherein a distal end of the biasing means abuts a proximal end of the sheath.

7. A syringe according to claim 5 or 6 wherein the biasing means is a coil spring and wherein at least part of the substance storage chamber is disposed internally of the coil spring.

8. A syringe according to claim 7 wherein the coil spring, substance storage chamber and sheath are all substantially cylindrical.

9. A syringe according to any one of the preceding claims wherein the guide slot has an open end adapted for passage of the follower element into and out of the slot such that the sheath is selectively attachable and detachable from the substance storage chamber.

10. A syringe according to claim 9 wherein the needle is disposed on a needle assembly which is selectively detachable from the substance storage chamber to allow for attachment of a connector to the substance storage chamber.

11. A syringe according to claim 10 wherein the connector is any one of:
a catheter; an intravenous feeding tube; a Luer lock or a Luer slip.

12. A syringe according to any one of the preceding claims wherein the sheath has a side wall thickness of greater than or equal to 0.5mm.

13. A syringe according to any one of the preceding claims wherein the sheath has a

side wall thickness of greater than or equal to 1mm.

14. A syringe according to any one of the preceding claims wherein the syringe is a single-use syringe.