CLAIMS

1. An apparatus for infusion equipment comprising a vessel having a tubular bore and a separate actuator pump for the vessel, said apparatus comprising :

a holder shaped and dimensioned to hold the vessel; and

a pump attachment with which the holder can be engaged, the attachment being shaped and dimensioned to be removeably engagable with an actuator pump, to thereby, when the holder and pump attachment are so engaged, removeably hold the pump and vessel in mutual fixed relation such that the actuator pump is operably engaged with a piston of the vessel without attaching the vessel to the pump.

2. An apparatus according to claim 1, wherein the pump attachment and the holder comprise corresponding engageable means for allowing the said engagement and wherein the engageable means can be engaged for securely fitting the holder to the pump attachment.

3. An apparatus according to claim 1, wherein the pump attachment is shaped and dimensioned to be removeably engageable with an actuator pump by means of one or more wings on one of the pump attachment and the pump and corresponding one or more recesses on the other of the pump attachment and the pump which wings and recesses interengage.

4. An apparatus according to claim 3, wherein the wings comprise a stepped radius arranged to engage with a corresponding stepped recess.

5. An apparatus according to claim 1, wherein, when engaged, the holder and the pump attachment define a tubular bore into which a vessel can fit snugly.

6. An apparatus according to claim 5, wherein the tubular bore is arranged to cover a substantial part of the vessel.

7. An apparatus according to claim 5 or claim 6, wherein a substantial part of the tubular bore is formed by the holder.

8. An apparatus according to any of claims 5 to 7, wherein, when engaged, the holder and the pump attachment are arranged to limit movement of a vessel out of the bore towards an end distal from the pump attachment.

9. An apparatus according to claim 8, wherein the movement limitation is effected by tapering of the bore.

10. An apparatus according to claim 8 or claim 9, wherein the movement of a vessel is limited such that, when a vessel is held in the holder, an open end of the vessel is enveloped by the bore to thereby protect it.

11. An apparatus according to any preceding claim, wherein the holder comprises user-operable means for assisting engagement with and disengagement from the pump attachment.

12. An apparatus according to any preceding claim, further comprising a case defining an internal cavity that is shaped and dimensioned to accommodate the holder and pump attachment when fitted together and holding a vessel removeably engaged with a pump.

13. An apparatus according to claim 12, wherein the case is shaped and dimensioned to cover a substantial proportion of the holder and pump attachment.

14. An apparatus according to claim 12 or claim 13, wherein the case comprises two halves, and wherein a first half comprises the pump attachment, which first half is arranged to accommodate the holder.

15. An apparatus according to claim 14, wherein the other half of the case is attachable to the first half of the case and is for accommodating a pump.

16. An apparatus according to any of claims 12 to 15, wherein the case is arranged to allow a user-operable means on the holder to project from the case for insertion and removal of the holder into the case.

17. A kit comprising :

a pre-filled vessel having a tubular bore;

an actuator pump for the pre-filled vessel;

a holder for holding the vessel; and

a pump attachment with which the holder can engage, the attachment being shaped and dimensioned to be removeably engagable with the actuator pump, to thereby, when the holder is engaged with the pump attachment, removeably hold the pump and vessel in mutual fixed relation such that the actuator pump is operably engaged with a piston of the vessel without attaching the vessel to the pump.

18. A kit according to claim 17, further comprising a case for accommodating the holder, the pump and the pump attachment.

19. A method of holding infusion equipment, comprising a vessel having a tubular bore and a separate actuator pump for the vessel, comprising :

inserting a pre-filled vessel into a holder;

engaging the holder with a pump attachment; and

removeably engaging the pump attachment with an actuator pump to thereby hold the pump and vessel in mutual fixed relation such that the actuator pump is operably engaged with a piston of the vessel without attaching the vessel to the pump.

20. A method according to claim 19, further comprising inserting the holder, pump attachment and actuator pump into a case.

21. A portable case for infusion equipment comprising a vessel having a tubular bore and a separate actuator pump for the vessel, said case having a shell-like body defining an internal cavity that is shaped and dimensioned to accommodate said pump and vessel, said case being shaped within the cavity for removably holding the pump and vessel in mutual fixed relation such that the actuator pump is operably engaged with a piston of the vessel without attaching the vessel to the pump.

22. A portable case as claimed in claim 21, wherein the case is shaped completely to envelop the vessel and pump.

23. A portable case as claimed in claim 21 or claim 22, wherein the case comprises two halves and means for releasably securing the two halves together in a closed arrangement, thereby to enclose the pump and vessel.

24. A portable case as claimed in claim 23 wherein the two halves are hinged together for opening and closing the case.

25. A portable case as claimed in any of claims 21 to 24, wherein the case is configured within the cavity to support stably the pump and vessel around their entire extents.

26. A portable case as claimed in any of claims 21 to 25, wherein the case comprises, within the cavity, a plurality of formations for supporting the pump and vessel.

27. A portable case as claimed in claim 26, wherein said formations define a first

recess that is configured to receive snugly the vessel and a second recess that is configured to receive snugly the pump.

28. A portable case as claimed in claim 27, wherein the formations comprise locating means arranged to facilitate location of the pump and/or vessel in the first and/or second recess and to engage with the pump and/or vessel to facilitate the said holding in mutual fixed relation.

29. A case according to claim 28, wherein the locating means comprises a plurality of ribs.

30. A case according to any of claims 21 to 29, wherein the internal cavity comprises one or more finger recesses or releasable tabs to facilitate insertion into and removal of the pump and/or vessel from the case.

31. A case according to any of claims 23 to 30, wherein the means for releasably securing the two halves together comprise a fastening means, the fastening means being operable to securely close the case or allow the case to be opened.

32. A case according to claim 31, wherein the fastening means comprises a buffer means and a user-operable means.

33. A case according to claim 32, wherein the user-operable means comprises a textured portion which can be felt by a user to assist in opening and closing the case.

34. A case according to any of claims 21 to 33, wherein the shell-like body is substantially rigid and comprises flexible, stiffening formations.

35. An apparatus or case according to any preceding claim further comprising an outlet port for exiting a cannula connected to the vessel from the apparatus or case.

36. An apparatus or case according to any of claims 12 to 20 or 23 to 35, further comprising a seal which acts between the two halves when secured together.

37. An apparatus or case according to any preceding claim, wherein the vessel of the infusion equipment comprises a cylindrical barrel defining the tubular bore along which the piston can move.

38. An apparatus or case according to claim 37, wherein the vessel is one of a syringe; a cartridge; and a carpoule.

39. A kit comprising :

a portable case;

a pre-filled vessel having a tubular bore and able to be held within the case; and

an actuator pump for the pre-filled vessel able to be held within the case, wherein the case is arranged for holding the pump in mutual fixed relation with the vessel such that the pump is operably engaged with a piston of the vessel.

40. A kit according to any of claims 17, 18 or 39, wherein the vessel has a flangeless end at which it can be pre-filled with a liquid, and wherein the flangeless end is arranged to be in unattached contact with the pump when the pump and vessel are operably engaged.

41. A kit as claimed in any of claims 17, 18, 39 or 40, wherein the vessel comprises a brittle material and wherein the case is arranged to hold the vessel in mutual fixed relation with the pump such that the vessel is substantially protected from shattering.

42. A kit according to any of claims 17, 18 or 39 to 41, wherein the vessel comprises a cylindrical barrel defining the tubular bore along which the piston can move.

43. A kit according to claim 42, wherein the vessel is one of a syringe; a cartridge; and a carpoule.

44. A method of holding infusion equipment comprising a vessel having a tubular bore and a separate actuator pump for the vessel, comprising inserting a pump and a pre-filled vessel in a portable case, said case having a shell-like body defining an internal cavity that is shaped and dimensioned to accommodate said pump and vessel, such that the pump and vessel are removably held in mutual fixed relation and the actuator pump is operably engaged with a piston of the vessel without attaching the vessel to the pump.

What is claimed is:

1. An apparatus for infusion equipment comprising a vessel having a tubular bore and a separate actuator pump for the vessel, said apparatus comprising :

a holder shaped and dimensioned to hold the vessel; and

a pump attachment with which the holder can be engaged, the attachment being shaped and dimensioned to be removeably engagable with an actuator pump, to thereby, when the holder and pump attachment are so engaged, removeably hold the pump and vessel in mutual fixed relation such that the actuator pump is operably engaged with a piston of the vessel without attaching the vessel to the pump.

2. An apparatus according to claim 1, wherein the pump attachment and the holder comprise corresponding engageable means for allowing the said engagement and wherein the engageable means can be engaged for securely fitting the holder to the pump attachment.

3. An apparatus according to claim 1, wherein the pump attachment is shaped and dimensioned to be removeably engageable with an actuator pump by means of one or more wings on one of the pump attachment and the pump and corresponding one or more recesses on the other of the pump attachment and the pump which wings and recesses interengage.

4. An apparatus according to claim 3, wherein the wings comprise a stepped radius arranged to engage with a corresponding stepped recess.

5. An apparatus according to claim 1, wherein, when engaged, the holder and the pump attachment define a tubular bore into which a vessel can fit snugly.

6. An apparatus according to claim 5, wherein the tubular bore is arranged to cover a substantial part of the vessel.

7. An apparatus according to claim 5 or claim 6, wherein a substantial part of the tubular bore is formed by the holder.

8. An apparatus according to any one of claims 5 to 7, wherein, when engaged, the holder and the pump attachment are arranged to limit movement of a vessel out of the bore towards an end distal from the pump attachment.

9. An apparatus according to claim 8, wherein the movement limitation is effected by tapering of the bore.

10. An apparatus according to claim 8 or claim 9, wherein the movement of a vessel is limited such that, when a vessel is held in the holder, an open end of the vessel is enveloped by the bore to thereby protect it.

11. An apparatus according to any one of claims 1 to 10, wherein the holder comprises user-operable means for assisting engagement with and disengagement from the pump attachment.

12. An apparatus according to any one of claims 1 to 11, further comprising a case defining an internal cavity that is shaped and dimensioned to accommodate the holder and pump attachment when fitted together and holding a vessel removeably engaged with a pump.

13. An apparatus according to claim 12, wherein the case is shaped and dimensioned to cover a substantial proportion of the holder and pump attachment.

14. An apparatus according to claim 12 or claim 13, wherein the case comprises two halves, and wherein a first half comprises the pump attachment, which first half is arranged to accommodate the holder.

15. An apparatus according to claim 14, wherein the other half of the case is attachable to the first half of the case and is for accommodating a pump.

16. An apparatus according to any one of claims 12 to 15, wherein the case is arranged to allow a user-operable means on the holder to project from the case for insertion and removal of the holder into the case.

17. A kit comprising :

a pre-filled vessel having a tubular bore;

an actuator pump for the pre-filled vessel;

a holder for holding the vessel; and

a pump attachment with which the holder can engage, the attachment being shaped and dimensioned to be removeably engagable with the actuator pump, to thereby, when the holder is engaged with the pump attachment, removeably hold the pump and vessel in mutual fixed relation such that the actuator pump is operably engaged with a piston of the vessel without attaching the vessel to the pump.

18. A kit according to claim 17, further comprising a case for accommodating the holder, the pump and the pump attachment.

19. A method of holding infusion equipment, comprising a vessel having a tubular bore and a separate actuator pump for the vessel, comprising :

inserting a pre-filled vessel into a holder;

engaging the holder with a pump attachment; and

removeably engaging the pump attachment with an actuator pump to thereby hold the pump and vessel in mutual fixed relation such that the actuator pump is operably engaged with a piston of the vessel without attaching the vessel to the pump.

20. A method according to claim 19, further comprising inserting the holder, pump attachment and actuator pump into a case.

21. A portable case for infusion equipment comprising a vessel having a tubular bore and a separate actuator pump for the vessel, said case having a shell-like body defining an internal cavity that is shaped and dimensioned to accommodate said pump and vessel, said case being shaped within the cavity for removably holding the pump and vessel in mutual fixed relation such that the actuator pump is operably engaged with a piston of the vessel without attaching the vessel to the pump.

22. A portable case as claimed in claim 21, wherein the case is shaped completely to envelop the vessel and pump.

23. A portable case as claimed in claim 21 or claim 22, wherein the case comprises two halves and means for releasably securing the two halves together in a closed arrangement, thereby to enclose the pump and vessel.

24. A portable case as claimed in claim 23 wherein the two halves are hinged together for opening and closing the case.

25. A portable case as claimed in any one of claims 21 to 24, wherein the case is configured within the cavity to support stably the pump and vessel around their entire extents.

26. A portable case as claimed in any one of claims 21 to 25, wherein the case comprises, within the cavity, a plurality of formations for supporting the pump and vessel.

27. A portable case as claimed in claim 26, wherein said formations define a first

recess that is configured to receive snugly the vessel and a second recess that is configured to receive snugly the pump.

28. A portable case as claimed in claim 27, wherein the formations comprise locating means arranged to facilitate location of the pump and/or vessel in the first and/or second recess and to engage with the pump and/or vessel to facilitate the said holding in mutual fixed relation.

29. A case according to claim 28, wherein the locating means comprises a plurality of ribs.

30. A case according to any one of claims 21 to 29, wherein the internal cavity comprises one or more finger recesses or releasable tabs to facilitate insertion into and removal of the pump and/or vessel from the case.

31. A case according to claim 23 or claim 24 or according to any one of claims 25 to 30 when dependent from claim 23 or claim 24, wherein the means for releasably securing the two halves together comprise a fastening means, the fastening means being operable to securely close the case or allow the case to be opened.

32. A case according to claim 31, wherein the fastening means comprises a buffer means and a user-operable means.

33. A case according to claim 32, wherein the user-operable means comprises a textured portion which can be felt by a user to assist in opening and closing the case.

34. A case according to any one of claims 21 to 33, wherein the shell-like body is substantially rigid and comprises flexible, stiffening formations.

35. An apparatus according to any one of claims 1 to 16 or a case according to any one of claims 21 to 34, further comprising an outlet port for exiting a cannula connected to the vessel from the apparatus or case.

36. An apparatus according to claim 14 or claim 15 or a case according to claim 23 or claim 24 or any one of claims 25 to 35 when dependent from claim 23 or claim 24, further comprising a seal which acts between the two halves when secured together.

37. An apparatus according to any one of claims 1 to 16 or a case according to any one of claims 21 to 36, wherein the vessel of the infusion equipment comprises a cylindrical barrel defining the tubular bore along which the piston can move.

38. An apparatus or case according to claim 37, wherein the vessel is one of a syringe; a cartridge; and a carpoule.

39. A kit comprising :

a portable case;

a pre-filled vessel having a tubular bore and able to be held within the case; and

an actuator pump for the pre-filled vessel able to be held within the case,

wherein the case is arranged for holding the pump in mutual fixed relation with the vessel such that the pump is operably engaged with a piston of the vessel without attaching the vessel to the pump.

40. A kit according to any one of claims 17, 18 or 39, wherein the vessel has a flangeless end at which it can be pre-filled with a liquid, and wherein the flangeless end is arranged to be in unattached contact with the pump when the pump and vessel are operably engaged.

41. A kit according to any one of claims 17, 18, 39 or 40, wherein the vessel comprises a brittle material and wherein the case is arranged to hold the vessel in mutual fixed relation with the pump such that the vessel is substantially protected from shattering.

42. A kit according to any one of claims 17, 18 or 39 to 41, wherein the vessel comprises a cylindrical barrel defining the tubular bore along which the piston can move.

43. A kit according to claim 42, wherein the vessel is one of a syringe; a cartridge; and a carpoule.

44. A method of holding infusion equipment comprising a vessel having a tubular bore and a separate actuator pump for the vessel, comprising inserting a pump and a pre-filled vessel in a portable case, said case having a shell-like body defining an internal cavity that is shaped and dimensioned to accommodate said pump and vessel, such that the pump and vessel are removably held in mutual fixed relation and the actuator pump is operably engaged with a piston of the vessel without attaching the vessel to the pump.