Description

This invention relates to a parenteral device for the transfer of fluids to, or from a living body.

Throughout this specification the term "parenteral device" shall be taken to include cannulas, syringes including hypodermic syringes, and like devices which may be used for introducing or withdrawing fluids from a living body.

It is the primary characteristic of parenteral devices that a sharp hollow needle be provided to facilitate the transfer of fluids to, or from a body. The difficulty created by the presence of such a needle arises from the possibility of injury which may be caused to a user or clinician when using the device or any person who may be required to handle the device before or subsequent to use. It will be appreciated however that the dangers resulting from possible injury are surpassed by the dangers of infection that may arise from such injuries due to the presence of pathogens which may be present on the needle as a result of its usage. Furthermore this danger does not disappear at the conclusion of the utilisation of the parenteral device but is always present while the device remains in existence which has resulted in very careful disposal procedures being adopted in institutions where such parenteral devices are used. Such precautions, however, are not necessarily adopted where parenteral devices are used in out-of-clinic situations such as instances where the user is required to inject themselves with a parenteral.

In prior art devices, movement of the needle body is not independent of the operating condition of the device and the needle supported by the needle body cannot be independently moved from a retracted position to an extended position and also from an extended position to a retracted position. An example of such a prior device is disclosed in WO-A-84/01510 which is directed to a syringe where the movement of the needle body is associated with movement of the plunger. In addition the syringe comprises a prefilled syringe which is capable of one mode of operation only.

It is an object of this invention to provide a parenteral device which can reduce the possibility of injury and subsequent infection from a used device.

It is an object of the present invention to provide a parenteral device having a retractable needle body where extension or retraction of the needle is independent of the operation of the device and where the retraction and extension of the needle body is controlled.

The invention resides in a parenteral device according to claim 1.

The invention will be more fully understood in the light of the following description of specific embodiments. The description is made with reference to the accompanying drawings in which:

Figure 1 is a schematic side elevation of a syringe according to the first embodiment having the needle in the first position;

Figure 2 is a schematic sectional elevation of a syringe according to the first embodiment having the needle in the second position;

Figure 3 is a sectional side elevation of a syringe according to the second embodiment having the needle in the first position;

Figure 4 is a sectional side elevation of a syringe according to the second embodiment having the needle in the second position;

Figure 5 is a sectional side elevation of a cannula according to the third embodiment having the needle in the second position;

Figure 6 is a sectional side elevation of the cannula of the third embodiment having the needle in the first position;

Figure 7 is a sectional side elevation of a cannula according to the fourth embodiment;

Figure 8 is a cross-sectional view of the fourth embodiment of Figure 7 along line 8 8;

Figure 9 is a cross-sectional view of the fourth embodiment along line 9 9; and

Figure 10 is a cross-sectional elevation of the fourth embodiment along line 10 10.

The first embodiment shown at Figures 1 and 2 comprises a hypodermic syringe 10 which can be used for the injection of parenteral into a living body or alternatively for removal of fluids from a body. The syringe comprises a substantially hollow cylindrical body 11 which slidably and sealingly accommodates a piston 12 which is movable axially through the body 11 and is caused to move by means of a plunger rod 13 which extends from the open end of the body 11. The inner face of the body and piston may be of non-circular configuration to establish rotational stability of the piston in the body. The plunger rod 13 is provided at its outer end with an abutment 14 which together with a flange 15 provided at the outer end of the body 11 facilitates manipulation of the plunger and movement of the piston by a user.

The other end of the body 11 is closed and is provided with an off-centre axially directed annular boss 16 having a passageway 17 which communicates with the hollow interior of the body 11 and the exterior. As the piston 12 is caused to move towards or away from the closed end, so the volume of a chamber 18 defined within the hollow interior of the body between the piston 12 and the closed end is caused to vary. The boss 16 may have a suitable configuration in order to accommodate a "Luer" or like fitting which may be used to effect the transfer of parenteral into the chamber 18 from an ampoule or like container. Alternatively

the boss 16 may be formed with a sharpened tip and suitably shaped to be used to take up fluid from a sealed ampoule.

The piston 12 and plunger rod 13 slidably accommodate a needle body comprising a hollow needle 19 mounted to one end of a control rod 20 whereby the needle 19 is movable axially in relation to the plunger rod 13 through the piston 12. The location of the needle is such that it is aligned with the central passageway 17 in the boss 16 provided on the body 11 whereby on axial movement of the control rod 20 the needle 19 is movable through the central passageway 17. The outer end of the hollow needle 19 is provided with an opening for the transfer of fluid out of the lumen of the needle while the inner end of the needle is provided with a laterally directed second opening 21. The axially directed passageway in the piston which accommodates the control rod 20 and needle 19 is provided with an appropriate sealing means to prevent leakage of fluid from the chamber 18 to the axial passageway 22. In addition, the plunger rod 13 supports a tubular sealing element 23 which slidably and sealingly accommodates the control rod 20 and needle 19 to further prevent any leakage from the chamber 18 and also to prevent contamination of the needle 19 when retracted and accommodated within the tubular support element 23. The outer end of the control rod 20 is provided with an overturned portion which is receivable in a radial slot 25 formed in the flange 15 of the body 11 and a downwardly oblique slot 26, formed in the body 11 and which is configured to facilitate retention of the downturned position 24 of the control rod 23 in the body 11 on the location of the needle in its first position as shown at Figure 1 at which it extends through the central passageway 17 and the boss 16. On outward axial movement of the control rod 20 and once the control rod 20 is disengaged from the slots 25 and 26 in the body 11 the lower end of the downturned portion 24 becomes engaged with the outer axial face of the flange 15 and a stop 27 provided thereon to retain the control rod 23 at its outermost extension in relation to the body as shown at Figure 2 at which position the needle 19 is in its second position whereby it is retracted into the body 11 and is clear of the central passageway 17.

The axial movement of the control rod 20 and the needle 19 is independent of the axial movement of the plunger rod 13 whereby the needle 19 may be located in either its first position as shown at Figure 1 or its second position as shown at Figure 2 and the piston can be located at any position within the body 11 and moved within the body 11. Therefore when the needle 19 is in its second position at which it is retracted within the body 11 the boss 16 may be fitted with a "Luer" of like fitting for the introduction of a parenteral into a body 11 from an ampoule or like receptacle by operation of the plunger rod 13. Once filled with a parenteral the needle 19 may be moved to its first position after removal of the "Luer" fitting for the administration of the parenteral. Subsequent to the administration of the parenteral the needle 19 is moved to its second position at which time the syringe can be safely discarded. If it is desired to prevent the inadvertent movement of the needle 19 beyond the body 11 of the syringe, the syringe or control rod may be deformed to prevent any further axial movement of the control rod 20 and the needle 19 in the body 11.

If desired the first embodiment may be modified whereby the needle 19 and boss 16 are located centrally in the piston and body 11 respectively.

The second embodiment shown at Figures 3 and 4 also relate to a modified form of syringe. The syringe 10 according to the embodiment comprises a substantially cylindrical body 11 which is closed at one end and is open at the other end. The body supports a piston 12 which is sealingly received within the body 11 and is slidable axially therein. The piston 12 is associated with a plunger rod 13 which extends from the open end of the body 11 and is associated with an enlarged end which together with an outwardly directed flange provided at the open end of the body 11 facilitates manipulation of the plunger. The body 11 is associated with a tubular housing 30 mounted on the exterior wall of the body 11 with the axes of the body 11 and the housing 30 substantially parallel. The lower end of the tubular housing 30 is formed with a boss 16 which extends beyond the lower end of the body 11 which if desired may be configured to facilitate engagement with a "Luer" or like fitting. The boss 16 is formed with a passageway 17 which provides communication between the hollow interior of the housing 30 and its exterior. A secondary passageway 31 is formed through the common wall of the body 11 and housing 30 to provide communication between the hollow interior of the housing and the chamber 18 provided in the body 11 between the piston 12 and the closed end of the body 11. The housing 30 slidably accommodates a needle body which comprises a needle 19 mounted to one end of a control rod 20. The other end of the control rod 20 extends beyond the outer end of the housing 30. The body 11 is provided with a stop member 32 which is intended to engage the upper end of the control rod 20 when the needle is in the first position extending from the boss 17 as shown at Figure 3 to prevent inadvertent axial displacement of the needle into the housing 30. The outer end of the needle 19 is provided with a first aperture to facilitate the flow of parenteral from the needle 19

when in use. The inner end of the needle 19 is provided with a laterally directed second aperture 21. When the needle 19 is in its first position at which it extends through the passageway 17 and from the boss 16 as shown in Figure 3 the second aperture 21 in the needle communicates via the hollow interior of the housing with the secondary passageway 31 provided in the common wall of the body 11 and housing 30 to facilitate the flow of parenteral from the chamber 18 to the hollow interior of the housing and into the needle 19. Suitable seals are provided on the internal walls of the housing 30 to either side of the passageway 31 to prevent leakage of a parenteral between the walls of the housing 30 and the needle 19 and control rod 20. Furthermore, the control rod 20 and needle may be provided with an external configuration to facilitate sealing with the side internal walls of the housing 30.

When the needle 19 is in its fully retracted position at which it is fully accommodated within the housing 30 the enlarged upper end of the control rod 20 extends through an aperture 34 provided in the flange 15 whereby it becomes lockingly engaged with the flange 15 to prevent inadvertent axial displacement of the needle and control rod from the second position as shown at Figure 4.

It should be appreciated that any suitable form of retaining the control rod in each of its positions may be used. When in the second position the free end of the needle 19 is positioned clear of the passageway 17. This facilitates the delivery of body fluids into a specimen receptacle or the application of a "Luer" fitting to the boss 16 for the drawing of parenteral into the chamber 18 from an ampoule or similar container.

In the case of both the first and second embodiments, the boss 16 may be configured to eliminate the need of a "Luer" fitting whereby the boss 16 may be inserted directly into an ampoule or container for the charging of the chamber 18 with parenteral.

In addition, in both the first and second embodiments, the hollow needle when in second position may be sealingly received within the passageway 17. The passageway 17 in the boss 16 is thus closed by the needle and thus the chamber 18 is sealed with the needle in the retracted state.

This latter feature is of importance where the syringe is used to draw samples which are required to be stored in the syringe during transportation to a testing station or like or where the syringe is required to be supplied by the manufacturers in a condition where they are pre-filled with a parenteral.

In the case of the second embodiment, the body 11 and/or secondary housing 30 and/or the control rod 20 may be such that they may be distorted on locating the needle 19 and control rod 20 in the second position to prevent any axial displacement of the needle from the used syringe.

In relation to the second embodiment the sealing provided between the needle 19 and the interior of the secondary housing 30 may be such that the flow of parenteral from the chamber 18 to the needle 19 may be shut off by rotating the needle 19 about and its central axis.

Furthermore, the body 11 may be formed with two compartments which are each provided with their own piston and plunger but with a common housing 30 whereby the chamber of each body may be brought into communication with the lumen of the needle by rotation of the needle within the housing about its central longitudinal axis or alternatively by axial displacement of the needle within the housing 30 between one of the two positions. A further alternative may comprise the provision of a plurality of housings 30 each accommodating their own retractable needle 19 which are capable of communicating with a common chamber 18.

The third embodiment at Figures 5 and 6 relates to cannula 50 which can be used for the passive extraction or administration of fluids to a living body. The cannula comprises a substantially tubular element 51 which is closed at one end and is adapted at the other end 52 to be connected to tubing which is associated with a receptacle containing a parenteral or which is intended to receive body fluids. The tubular element 51 is associated with an elongate hollow housing 53 which is mounted to one side of the tubular element 51 in substantially parallel relationship therewith and which is provided with a passageway 54 at the end adjacent the closed end of the tubular element 51. The passageway 54 provides communication between the hollow interior of the housing 53 and the exterior. The common wall of the tubular element 51 and the housing 53 is formed with a secondary passageway 55 adjacent the inner end of the passageway 54 in the housing 53. The interior of the housing 53 slidably supports a needle body which comprises a hollow needle 56 mounted to one end of a control rod 57. The control rod 57 is slidable within the housing 53 and is provided at its innermost end with a laterally projecting protuberance 58 which is slidably receivable in an axial slot 59 provided in the wall of the housing 53 to allow for axial displacement of the control rod 57 and consequently the needle 56 between a first position as shown at Figure 6 at which the needle extends beyond the closed end of the tubular element 51 and a second position as shown at Figure 5 at which the needle is fully accommodated within the housing 53. The hollow needle is provided with a first opening 60 at its outer end and a second

opening at or near its inner end which communicates via the hollow interior of the housing 53 with the secondary passageway 55 in the wall of the tubular element 51 when the needle is in its first position as shown at Figure 6. Suitable sealing means are provided on the interior wall of the housing 53 in the region of the secondary passageway 55 and/or on the external face of the needle 56 in the region of the second aperture 61 to ensure there is no leakage of any fluids between the internal wall of the secondary tubular housing 53 and the needle 56.

If desired the needle 56 and control rod 57 may be rotatable in the secondary tubular housing 53 about the central longitudinal axis of the needle 56 and the seal provided between the interior wall of the secondary tubular housing 53 and the needle 56 may be such that with rotation of the needle the second aperture therein may be brought into and out of communication with the secondary passageway 55 to allow a flow of fluid therebetween and/or prevent such fluid flow. In addition, the slidable relationship between the protuberance 58 on the control rod 57 within the slot 59 may be such that the needle is retained in either of its end positions to prevent inadvertent displacement from either position. Furthermore, the body of the cannula may be formed of a material which facilitates the permanent distortion of the tubular element 51 when the needle 19 is in its retracted position and which prevents displacement of the needle from a used cannula.

The cannula of the embodiment shown at Figures 5 and 6 incorporates a feature which may be preferred however which is not essential. The feature comprises an annular chamber 62 at a position spaced from the closed end of the tubular element 51 which is provided with an opening 63 which can be connected to tubing 64. The annular chamber 62 is provided with a third passageway 65 which opens into the interior of the housing 53 and which can be brought into communication with the second opening 61 provided in the needle 19. Suitable indexing is provided on the slot 59 to ensure retention of the control rod 57 in a position at which such communication can be provided. The function of the annular chamber is to provide for an alternative admission of a second fluid into a body or alternatively the extraction of body fluids prior to or subsequent to the administration of a parenteral, or alternatively sampling of fluids which have been discharged through the tubular element 51 of the cannula.

The fourth embodiment shown at Figures 7, 8, 9 and 10 is also directed to a cannula. The cannula of the fourth embodiment comprises a hollow elongate housing 53 which slidably receives a needle body comprising a control rod 57 having a hollow needle 56 mounted to one end thereof which is movable through a passageway 54 provided in one end of the tubular housing 53. The side walls of the tubular body 51 are provided with two separate fluid flow ducts 70 and 71 which open into the hollow interior of the tubular housing 53 through separate secondary passageways 72 and 73 which are angularly displaced from each other about a central longitudinal axis and each of which are provided with their own outlet and or inlet 74 and 75. The needle 56 is provided at its outer end with a first aperture 60 and at its inner end with a second laterally opening aperture 61. The control rod 57 is provided with a laterally extending portion 58 which extends through an axial slot 59 provided in the side wall of the tubular housing 53. When the portion 58 is at the end of the slot 59, corresponding to the position at which the needle is in its first position as shown at Figure 7 where it extends beyond the opening 54 in the body 51, the second aperture 61 in the needle is brought into communication with either secondary passageway 72 or 73 of either duct 70 or 71 respectively by rotation of the control rod 57. This is achieved by means of a circumferential slot provided in the end of the axial slot 59 not shown which permits rotation of the protuberance 58.

By means of the fourth embodiment the cannula may be used to service two different purposes without the need for replacing the cannula by another to facilitate an exchange of such purposes.

It should be appreciated that each of the embodiments may be modified whereby the needle of each is spring biased to either its first or second position and is associated with a latching means whereby on release of the latching means the needle will move under the influence of the spring pressure to its first or second position respectively.

Each of the embodiments described above provide a parenteral device whereby the exposure of the needle can be minimised during use and disposal without the need for a needle cap and which can reduce the need for special disposal procedures previously required of the needle of such devices.

It should be appreciated that the scope of the present invention need not be limited to the particular scope of the embodiment described above.

Claims

1. A parenteral device comprising a hollow body (11) having a wall which defines a hollow interior (18) within the body; a passageway (17) formed through a portion of the wall; a needle body comprising a needle (19) having a lumen and a first aperture at one end; the needle body being slidable within the hollow body,

opening at or near its inner end which communicates via the hollow interior of the housing 53 with the secondary passageway 55 in the wall of the tubular element 51 when the needle is in its first position as shown at Figure 6. Suitable sealing means are provided on the interior wall of the housing 53 in the region of the secondary passageway 55 and/or on the external face of the needle 56 in the region of the second aperture 61 to ensure there is no leakage of any fluids between the internal wall of the secondary tubular housing 53 and the needle 56.

If desired the needle 56 and control rod 57 may be rotatable in the secondary tubular housing 53 about the central longitudinal axis of the needle 56 and the seal provided between the interior wall of the secondary tubular housing 53 and the needle 56 may be such that with rotation of the needle the second aperture therein may be brought into and out of communication with the secondary passageway 55 to allow a flow of fluid therebetween and/or prevent such fluid flow. In addition, the slidable relationship between the protuberance 58 on the control rod 57 within the slot 59 may be such that the needle is retained in either of its end positions to prevent inadvertent displacement from either position. Furthermore, the body of the cannula may be formed of a material which facilitates the permanent distortion of the tubular element 51 when the needle 19 is in its retracted position and which prevents displacement of the needle from a used cannula.

The cannula of the embodiment shown at Figures 5 and 6 incorporates a feature which may be preferred however which is not essential. The feature comprises an annular chamber 62 at a position spaced from the closed end of the tubular element 51 which is provided with an opening 63 which can be connected to tubing 64. The annular chamber 62 is provided with a third passageway 65 which opens into the interior of the housing 53 and which can be brought into communication with the second opening 61 provided in the needle 19. Suitable indexing is provided on the slot 59 to ensure retention of the control rod 57 in a position at which such communication can be provided. The function of the annular chamber is to provide for an alternative admission of a second fluid into a body or alternatively the extraction of body fluids prior to or subsequent to the administration of a parenteral, or alternatively sampling of fluids which have been discharged through the tubular element 51 of the cannula.

The fourth embodiment shown at Figures 7, 8, 9 and 10 is also directed to a cannula. The cannula of the fourth embodiment comprises a hollow elongate housing 53 which slidably receives a needle body comprising a control rod 57 having a hollow needle 56 mounted to one end thereof which is movable through a passageway 54 provided in one end of the tubular housing 53. The side walls of the tubular body 51 are provided with two separate fluid flow ducts 70 and 71 which open into the hollow interior of the tubular housing 53 through separate secondary passageways 72 and 73 which are angularly displaced from each other about a central longitudinal axis and each of which are provided with their own outlet and or inlet 74 and 75. The needle 56 is provided at its outer end with a first aperture 60 and at its inner end with a second laterally opening aperture 61. The control rod 57 is provided with a laterally extending portion 58 which extends through an axial slot 59 provided in the side wall of the tubular housing 53. When the portion 58 is at the end of the slot 59, corresponding to the position at which the needle is in its first position as shown at Figure 7 where it extends beyond the opening 54 in the body 51, the second aperture 61 in the needle is brought into communication with either secondary passageway 72 or 73 of either duct 70 or 71 respectively by rotation of the control rod 57. This is achieved by means of a circumferential slot provided in the end of the axial slot 59 not shown which permits rotation of the protuberance 58.

By means of the fourth embodiment the cannula may be used to service two different purposes without the need for replacing the cannula by another to facilitate an exchange of such purposes.

It should be appreciated that each of the embodiments may be modified whereby the needle of each is spring biased to either its first or second position and is associated with a latching means whereby on release of the latching means the needle will move under the influence of the spring pressure to its first or second position respectively.

Each of the embodiments described above provide a parenteral device whereby the exposure of the needle can be minimised during use and disposal without the need for a needle cap and which can reduce the need for special disposal procedures previously required of the needle of such devices.

It should be appreciated that the scope of the present invention need not be limited to the particular scope of the embodiment described above.

Claims

1. A parenteral device comprising a hollow body (11) having a wall which defines a hollow interior (18) within the body; a passageway (17) formed through a portion of the wall; a needle body comprising a needle (19) having a lumen and a first aperture at one end; the needle body being slidable within the hollow body,

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and having a second aperture (21) in the wall of the needle body which opens into the lumen of the needle; the needle body further comprising an axial extension (20) supported from the other end of the hollow needle, said axial extension (20) having a handle means (24) to enable manipulation to effect the slidable movement of the needle body in the hollow body (11); the needle body being able to occupy a first position at which the one end of the needle (19) extends through the passageway (17) at which position the needle (19) is sealingly received in the passageway (17) and a second position the needle body being movable from the second position to the first position; the second aperture (21) in the wall of the needle body providing communication between the hollow interior (18) and the lumen of the needle when the needle body is in the first position; and a seal (23) slidably and sealingly engaging the axial extension (20) between the second aperture (21) and the handle means (24); said parenteral device being characterised in that said portion of the wall is fixed in relation to the hollow body; the passageway (17) is provided with an opening at its outer end, whereby the one end of the needle (19) extends beyond the opening at the first position and is located inward from the opening at the second position, the needle body being also movable from the first position to the second position.

2. A parenteral device as claimed in claim 1 further characterised that when the needle body is in its second position the opening is in communication with the hollow interior (18) through the passageway (17).

3. A parenteral device as claimed in claim 1 further characterised in that the needle (19) is sealingly engaged in the passageway (17) inward of the opening when the needle body is in the second position to sealingly close the hollow interior (18).

4. A parenteral device as claimed in any one of the preceding claims further characterised by a releasable retention means (20) provided to retain the needle body in its first position or in its second position.

5. A parenteral device as claimed in any one of the preceding claims further characterised in that the said portion of the wall is formed as a tubular boss (16) on the body (11), the exterior side walls of the boss (16) having a tapered configuration.

6. A parenteral device as claimed in claim 5 further characterised in that the boss (16) has a sharpened end.

7. A parenteral device as claimed in claim 1 further characterised in that the body (11) comprises a syringe having a piston (12) slidably accommodated within the body (11) to form a chamber (18) which defines the hollow interior and which is of a variable volume, said needle body being slidably and sealingly received by the piston (12).

8. A parenteral device as claimed in claim 7 further characterised in that the needle body is slidably accommodated by a tubular seal (23) associated with the piston (12) and which accommodates a portion of the hollow needle (19) when in the second position.

9. A parenteral device as claimed in claims 7 or 8 further characterised in that movement of the piston (12) and movement of the needle body are independent of each other.

10. A parenteral device as claimed in any one of claims 1 to 6 further characterised in that the body (11) comprises a tubular housing (30) associated with a second body defining a chamber (18) wherein the said portion of the wall is located at one end of the tubular housing (30) and a second opening (31) extends from the chamber (18) to the hollow interior.

11. A parenteral device as claimed in claim 10 further characterised in that sealing means are provided between the interior wall of the tubular housing (30) and the exterior face of the needle body to each side of the second opening (31).

12. A parenteral device as claimed in claim 10 or 11 further characterised in that a plurality of second chambers (70, 71) open into the tubular housing (53) through second openings (72, 73) which are located at spaced locations and wherein seals are provided between the interior of the wall of the tubular housing (53) and the needle body to isolate said second openings (72, 73) from each other, said needle (56) being movable to a plurality of first positions to bring the second aperture into separate communication with each second opening (72, 73).

13. A parenteral device as claimed in claim 12 further characterised in that the second openings (72, 73) are axially or circumferentially spaced from each other.

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14. A parenteral device as claimed in claim 10 or 11 further characterised in that one second chamber (70, 71) comprises a duct adapted to be connected to a receptacle.

15. A parenteral device as claimed in any one of the preceding claims further characterised in that the needle body is spring biased to its first or second position and latching means are provided to retain the needle body in its first or second position.

16. A parenteral device as claimed in any one of claims 1 to 6 and 10 to 15 wherein the parenteral device comprises a cannula (50).

17. A parenteral device as claimed in claim 10, 11 or 12 further characterised in that the second body comprises a substantially cylindrical body having one closed end and another open end, said cylindrical body slidably supporting a piston (12) , said chamber (18) being defined between the piston and the closed end of the cylindrical body.

18. A parenteral device as claimed in claim 17 wherein movement of the piston (12) and movement of the needle body are independent of each other.

Patentansprüche

1. Parenterale Vorrichtung mit einem Hohlkörper (11), welcher eine Wand aufweist, welche einen hohlen Innenraum (18) in dem Hohlkörper ausbildet; einem Durchlaß (17), welcher in einem Wandteil ausgebildet ist; einem Nadelkörper, welcher eine Nadel (19) aufweist, die einen Hohlraum und eine erste Ausnehmung an einem Ende aufweist; wobei der Nadelkörper im Inneren des Hohlkörpers verschiebbar ist; und eine zweite Ausnehmung (21) in der Wand des Nadelkörpers ausgebildet ist, welche zu dem Hohlraum der Nadel hin offen ist; wobei der Nadelkörper weiter eine axiale Verlängerung (20) aufweist, welche von dem anderen Ende der hohlen Nadel abgestützt ist, wobei die axiale Verlängerung (20) eine Griffeinrichtung (24) aufweist, mittels welcher die Gleitbewegung des Nadelkörpers in dem Hohlkörper (11) manipuliert werden kann; wobei der Nadelkörper eine erste Position einnehmen kann, in welcher das eine Ende des Nadelkörpers (19) sich durch den Durchlaß (17) erstreckt, wobei in dieser Stellung die Nadel (19) abgedichtet in dem Durchlaß (17) aufgenommen ist, und der Nadelkörper eine zweite Position einnehmen kann sowie von der zweiten Stellung in die erste Stellung bewegbar ist, und wobei die zweite Öffnung (21) in der Wand des Nadelkörpers eine Verbindung zwischen dem Hohlraum (18) und dem Hohlraum der Nadel herstellt, wenn der Nadelkörper sich in seiner ersten Position befindet; und eine Dichtung (23) vorgesehen ist, welche gleitverschiebbar abdichtend mit der axialen Verlängerung (20) zwischen der zweiten Ausnehmung (21) und der Griffeinrichtung (24) in Kontakt steht; wobei die parenterale Vorrichtung dadurch gekennzeichnet ist, daß der genannte Wandteil bezogen auf den Hohlkörper fixiert ist; der Durchlaß (17) mit einer Öffnung an seinem äußeren Ende versehen ist, wobei das eine Ende der Nadel (19) sich in der ersten Position über die Öffnung hinaus erstreckt und in der zweiten Position einwärts bezogen auf die Öffnung angeordnet ist, und der Nadelkörper ebenfalls von der ersten Position in die zweite Position bewegbar ist.

2. Parenterale Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß wenn der Nadelkörper sich in seiner zweiten Position befindet, die Öffnung mittels des Durchlasses (17) in Verbindung mit dem hohlen Innenraum (18) steht.

3. Parenterale Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die Nadel (19) in abgedichtetem Eingriff mit dem Durchlaß (17) einwärts von der Öffnung steht, wenn der Nadelkörper sich in seiner zweiten Position befindet, um so den hohlen Innenraum (18) dicht zu verschließen.

4. Parenterale Vorrichtung nach einem der vorangehenden Ansprüche, gekennzeichnet durch eine lösbare Festhalteeinrichtung (20), welche vorgesehen ist, um den Nadelkörper in seiner ersten Position oder in seiner zweiten Position festzuhalten.

5. Parenterale Vorrichtung nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß der besagte Teil der Wand als ein auf dem Körper (11) geformter rohrförmiger Vorsprung (16) ausgebildet ist, wobei die äußeren Seitenwände des rohrförmigen Vorsprungs (16) sich verjüngend verlaufen.

6. Parenterale Vorrichtung nach Anspruch 5, dadurch gekennzeichnet, daß der rohrförmige Vorsprung (16) ein zugespitztes Ende aufweist.

7. Parenterale Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß der Körper eine

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Spritze mit einem Kolben (12) aufweist, welcher verschiebbar in dem Körper (11) untergebracht ist, um so eine Kammer (18) auszubilden, welche den hohlen Innenraum begrenzt und welche in ihrem Volumen veränderbar ist, wobei der Nadelkörper verschiebbar und abgedichtet von dem Kolben (12) aufgenommen ist.

8. Parenterale Vorrichtung nach Anspruch 7, dadurch gekennzeichnet, daß der Nadelkörper verschiebbar von einer rohrförmigen Dichtung (23) aufgenommen ist, welche mit dem Kolben (12) verbunden ist und welche einen Teil der hohlen Nadel (19) aufnimmt, wenn diese sich in ihrer zweiten Position befindet.

9. Parenterale Vorrichtung nach Anspruch 7 oder 8, dadurch gekennzeichnet, daß die Bewegung des Kolbens (12) und die Bewegung des Nadelkörpers unabhängig voneinander sind.

10. Parenterale Vorrichtung nach einem der Ansprüche 1 bis 6, dadurch gekennzeichnet, daß der Körper (11) ein rohrförmiges Gehäuse (30) aufweist, welches mit einem zweiten Körper verbunden ist, welcher eine Kammer (18) begrenzt, wobei der genannte Wandteil der Wand an einem Ende des rohrförmigen Gehäuses (30) angeordnet ist und sich eine zweite Öffnung (31) von der Kammer (18) zu dem hohlen Innenraum hin erstreckt.

11. Parenterale Vorrichtung nach Anspruch 10, dadurch gekennzeichnet, daß diese weiter Dichtungseinrichtungen aufweist, welche zwischen der Innenwand des rohrförmigen Gehäuses (30) und der Außenfläche des Nadelkörpers zu allen Seiten der zweiten Öffnung (31) hin vorgesehen sind.

12. Parenterale Vorrichtung nach Anspruch 10 oder 11, dadurch gekennzeichnet, daß eine Mehrzahl von zweiten Kammern (70, 71) zu dem rohrförmigen Gehäuse (53) durch zweite Öffnungen (72, 73) hindurch offen sind, welche im Abstand zueinander angeordnet sind, und wobei Dichtungen zwischen der Innenwand des rohrförmigen Gehäuses (53) und dem Nadelkörper vorgesehen sind, um die zweiten Öffnungen (72, 73) voneinander zu isolieren, wobei die Nadel (56) in eine Mehrzahl von ersten Positionen bewegbar ist, um die zweite Ausnehmung in getrennte Verbindung mit jeder der zweiten Öffnungen (72, 73) zu bringen.

13. Parenterale Vorrichtung nach Anspruch 12, dadurch gekennzeichnet, daß die zweiten Öffnungen (72, 73) in Axialrichtung oder in Umfangsrichtung in Abstand zueinander angeordnet sind.

14. Parenterale Vorrichtung nach Anspruch 10 oder 11, dadurch gekennzeichnet, daß eine zweite Kammer (70, 71) einen Kanal aufweist, welcher dazu geeignet ist, um mit einem Behälter verbunden zu werden.

15. Parenterale Vorrichtung nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß der Nadelkörper in seine erste oder zweite Position federvorgespannt ist, und Verriegelungseinrichtungen vorgesehen sind, um den Nadelkörper in seiner ersten oder zweiten Position festzuhalten.

16. Parenterale Vorrichtung nach einem der Ansprüche 1 bis 6 und 10 bis 15, dadurch gekennzeichnet, daß die parenterale Vorrichtung eine Kanüle (50) aufweist.

17. Parenterale Vorrichtung nach Anspruch 10, 11 oder 12, dadurch gekennzeichnet, daß der zweite Körper einen im wesentlichen zylindrischen Körper aufweist, welcher ein geschlossenes und ein weiteres, offenes Ende aufweist, wobei der Zylinderkörper gleitverschiebbar einen Kolben (12) abstützt, und wobei die Kammer (18) zwischen dem Kolben und dem geschlossenen Ende des zylindrischen Körpers begrenzt wird.

18. Parenterale Vorrichtung nach Anspruch 17, dadurch gekennzeichnet, daß die Bewegung des Kolbens (12) und die Bewegung des Nadelkörpers unabhängig voneinander sind.

Revendications

1. Dispositif parentéral comprenant un corps creux (11) dont une paroi définit à l'intérieur dudit corps une cavité (18) ; un passage (17) formé à travers une partie de ladite paroi ; un corps d'aiguille comprenant une aiguille (19) munie d'un passage et d'une première ouverture à l'une de ses extrémités, ledit corps d'aiguille étant susceptible de coulisser à l'intérieur dudit corps creux, ainsi que d'une seconde ouverture (21) ménagée dans la paroi dudit corps d'aiguille et communiquant avec ledit passage de ladite aiguille ; ledit corps d'aiguille comprenant en outre une extension axiale (20) en appui sur l'autre extrémité de l'aiguille creuse, ladite extension axiale (20) étant pourvue d'un organe de préhension (24) destiné à permettre la manipulation en vue de faire coulisser ledit corps d'aiguille dans ledit

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corps creux (11) ; ledit corps d'aiguille étant apte à occuper une première position, dans laquelle ladite extrémité de ladite aiguille (19) fait saillie à travers ledit passage (17) et dans laquelle ladite aiguille (19) est reçue hermétiquement dans ledit passage (17), et une seconde position, ledit corps d'aiguille étant susceptible d'être déplacé de ladite seconde à ladite première position, ladite seconde ouverture (21) ménagée dans ladite paroi dudit corps d'aiguille mettant en communication ladite cavité (18) avec ledit passage de ladite aiguille lorsque ledit corps d'aiguille est dans ladite première position ; et un dispositif d'étanchéité (23) en prise coulissante et hermétique avec ladite extension axiale (20), situé entre ladite seconde ouverture (21) et ledit organe de préhension (24) ; ledit dispositif parentéral étant caractérisé en ce que ladite partie de paroi est fixe par rapport audit corps creux ; ledit passage (17) est pourvu d'un orifice à son extrémité extérieure, grâce à quoi ladite extrémité de ladite aiguille (19) fait saillie au-delà dudit orifice dans ladite première position et est située à l'intérieur par rapport audit orifice dans ladite seconde position, ledit corps d'aiguille étant également susceptible d'être déplacé de ladite première à ladite seconde position.

2. Dispositif parentéral selon la revendication 1, caractérisé en outre en ce que ledit orifice communique avec ladite cavité (18) par ledit passage (17) lorsque ledit corps d'aiguille est dans ladite seconde position.

3. Dispositif parentéral selon la revendication 1, caractérisé en outre en ce que ladite aiguille (19), située à l'intérieur dudit orifice lorsque ledit corps d'aiguille est dans ladite seconde position, est en prise hermétique avec ledit passage (17) afin de boucher hermétiquement ladite cavité (18).

4. Dispositif parentéral selon l'une quelconque des revendications précédentes, caractérisé en outre en ce qu'il est équipé d'un moyen de fixation (20) qui peut être débloqué pour maintenir ledit corps d'aiguille dans ladite première position ou dans ladite seconde position.

5. Dispositif parentéral selon l'une quelconque des revendications précédentes, caractérisé en outre en ce que ladite partie de paroi revêt la forme d'un renflement tubulaire (16) sur ledit corps (11), les parois latérales extérieures dudit renflement (16) présentant une configuration conique.

6. Dispositif parentéral selon la revendication 5, caractérisé en outre en ce que ledit renflement (16) présente une extrémité pointue.

7. Dispositif parentéral selon la revendication 1, caractérisé en outre en ce que ledit corps (11) comprend une seringue ayant un piston (12) monté coulissant dans ledit corps (11) pour former une chambre (18) de volume variable définissant ladite cavité, ledit piston (12) recevant ledit corps d'aiguille de façon hermétique et coulissante.

8. Dispositif parentéral selon la revendication 7, caractérisé en outre en ce que ledit corps d'aiguille est monté coulissant dans un joint étanche tubulaire (23) associé audit piston (12) et qui contient une partie de ladite aiguille creuse (19) lorsqu'elle est dans ladite seconde position.

9. Dispositif parentéral selon la revendication 7 ou 8, caractérisé en outre en ce que le mouvement dudit piston (12) et le mouvement dudit corps d'aiguille sont indépendants l'un de l'autre.

10. Dispositif parentéral selon l'une quelconque des revendications 1 à 6, caractérisé en ce que ledit corps (11) comprend un logement tubulaire (30) associé à un second corps définissant une chambre (18), dans lequel ladite partie de paroi est située à une extrémité dudit logement tubulaire (30) et un second orifice (31) relie ladite chambre (18) à ladite cavité.

11. Dispositif parentéral selon la revendication 10, caractérisé en outre en ce que des moyens d'étanchéité sont prévus entre la paroi interne dudit logement tubulaire (30) et la face externe dudit corps d'aiguille, de chaque côté dudit second orifice (31).

12. Dispositif parentéral selon la revendication 10 ou 11, caractérisé en outre en ce qu'une pluralité de secondes chambres (70,71) communiquent avec ledit logement tubulaire (53) par de seconds orifices (72,73) espacés, dans lequel des joints étanches sont prévus entre ladite paroi interne dudit logement tubulaire (53) et ledit corps d'aiguille pour isoler lesdits seconds orifices (72,73) les uns des autres, ladite aiguille (56) étant susceptible d'être placée dans une pluralité de premières positions, afin que ladite seconde ouverture communique avec chacun desdits seconds orifices (72,73) séparément.

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13. Dispositif parentéral selon la revendication 12, caractérisé en outre en ce que lesdits seconds orifices (72,73) sont espacés axialement ou circonférentiellement les uns des autres.

14. Dispositif parentéral selon la revendication 10 ou 11, caractérisé en outre en ce qu'une seconde chambre (70,71) comprend un conduit adapté à être connecté à un réceptacle.

15. Dispositif parentéral selon l'une quelconque des revendications précédentes, caractérisé en outre en ce que ledit corps d'aiguille est sollicité par un ressort vers ladite première ou ladite seconde position et en ce que des verrous sont prévus pour maintenir ledit corps d'aiguille dans ladite première ou ladite seconde position.

16. Dispositif parentéral selon l'une quelconque des revendications 1 à 6 et 10 à 15, caractérisé en ce qu'il comprend une canule (50).

17. Dispositif parentéral selon la revendication 10, 11 ou 12, caractérisé en outre en ce que ledit second corps comprend un corps essentiellement cylindrique ayant une extrémité fermée et une autre extrémité ouverte, ledit corps cylindrique soutenant un piston (12) coulissant, ladite chambre (18) étant définie entre ledit piston et ladite extrémité fermée dudit corps cylindrique.

18. Dispositif parentéral selon la revendication 17, dans lequel le mouvement dudit piston (12) et le mouvement dudit corps d'aiguille sont indépendants l'un de l'autre.

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