

Claims:

1. An intravenous catheter assembly, comprising: a catheter comprising a proximal end and a distal end;
a catheter adapter comprising an inner wall forming a lumen, wherein the proximal end of the catheter is coupled with the catheter adapter;
a needle comprising an elongated shaft and distal tip, wherein the needle is disposed within the catheter when the needle is in a ready position, wherein the needle is movable between the ready position in which the distal tip is outside of the catheter adapter and a retracted position in which the distal tip is disposed within the lumen of the catheter adapter;
a needle guard, comprising:
first and second distal walls that overlap one another and form a distal barrier to the needle when the needle is in the retracted position;
a proximal end wall comprising an opening for receiving the needle therethrough; and
first and second resilient arms comprising first and second curved portions, respectively, wherein the first and second resilient arms extend between the first and second distal walls, respectively, and the proximal end wall, wherein the first and second curved portions contact the inner wall of the catheter adapter when the needle is in the ready position and during movement of the needle between the ready position and the retracted position, wherein when the needle is in the retracted position, the elongated shaft no longer biases the first and second resilient arms outwardly such that the first and second curved portions do not contact the catheter adapter and the catheter adapter is released; and
a housing coupled to the needle guard, such that the needle guard is disposed within the housing and wherein the housing and the needle guard enclose the distal tip when the

needle is in the retracted position, wherein the housing is disposed within the lumen, wherein the housing comprises a first shield element and a second shield element opposite the first shield element, wherein the first and second shield elements are spaced apart by a gap, wherein the housing comprises an elongated tubular structure disposed between the first resilient arm and the second resilient arm, where the needle extends through the elongated tubular structure, wherein an outer surface of the tubular structure comprises an angled portion corresponding and adjacent to an angled portion of the first resilient arm or the second resilient arm, wherein the angled portion of the outer surface and the angled portion of the first resilient arm or the second resilient arm inhibit proximal movement of the needle guard with respect to the housing.

2. The intravenous catheter assembly of claim 1, wherein the needle further comprises a notch, wherein the housing and the needle guard enclose the distal tip and the notch when the needle is in the retracted position.

3. The intravenous catheter assembly of claim 1, wherein the gap extends generally linearly along a longitudinal axis of the needle, wherein the first and second resilient arms are urged outwardly by the elongated shaft and extend through the gap when the needle is in the ready position.

4. The intravenous catheter assembly of claim 3, wherein the first resilient arm and the second resilient arm contact the angled portion and a portion of the elongated tubular structure between a distal end of the tubular portion and the angled portion in response to the needle being moved to the retracted position.

5. The intravenous catheter assembly of claim 1, wherein an inner surface of the housing comprises a distal surface and a proximal surface, wherein the distal surface is configured to contact a proximal surface of the first distal wall to prevent the needle guard from sliding proximally with respect to the housing, wherein the proximal surface of the inner surface

of the housing is configured to contact a distal surface of the proximal end wall to prevent the needle guard from sliding distally with respect to the housing.

6. The intravenous catheter assembly of claim 1, wherein the housing and the needle guard are removable from the catheter adapter when the needle is in the retracted position.

7. The intravenous catheter assembly of claim 3, wherein an inner edge of the first shield element comprises a protrusion that extends into the gap, wherein the protrusion contacts an outer surface of the first resilient arm when the needle is in the retracted position.

8. The intravenous catheter assembly of claim 7, wherein the protrusion is a first protrusion, wherein an inner edge of the second shield element comprises a second protrusion that extends into the gap, wherein the first resilient arm passes the second protrusion before the first resilient arm passes the first protrusion when the needle moves from the ready position to the retracted position.

9. The intravenous catheter assembly of claim 1, wherein the first distal wall and the second distal wall comprise first and second lips, respectively, wherein the first and second lips engage the elongated shaft of the needle when the needle is in the ready position.

10. The intravenous catheter assembly of claim 1, wherein when the needle is in the ready position, the first resilient arm is entirely disposed on a first side of the needle and the second resilient arm is entirely disposed on a second side of the needle opposite the first side of the needle.

11. The intravenous catheter assembly of claim 1, wherein the inner wall of the catheter adapter comprises a groove, a protrusion, or an aperture, wherein the groove, the protrusion, or the aperture receives the first curved portion of the first resilient arm when the needle is in the ready position.

12. An intravenous catheter assembly, comprising: a catheter comprising a proximal end and a distal end;
- a catheter adapter comprising an inner wall forming a lumen, wherein the proximal end of the catheter is coupled with the catheter adapter;
- a needle comprising an elongated shaft and distal tip, wherein the needle is disposed within the catheter when the needle is in a ready position, wherein the needle is movable between the ready position in which the distal tip is outside of the catheter adapter and a retracted position in which the distal tip is disposed within the lumen of the catheter adapter;
- a needle guard, comprising:
- first and second distal walls that overlap one another and form a distal barrier to the needle when the needle is in the retracted position;
- a proximal end wall comprising an opening for receiving the needle therethrough;
- first and second resilient arms comprising first and second curved portions, respectively, wherein the first and second resilient arms extend between the first and second distal walls, respectively, and the proximal end wall, wherein the first and second curved portions contact the inner wall of the catheter adapter when the needle is in the ready position and during movement of the needle between the ready position and the retracted position, wherein when the needle is in the retracted position, the elongated shaft no longer biases the first and second resilient arms outwardly such that the first and second curved portions do not contact the catheter adapter and the catheter adapter is released; and
- a housing disposed within the lumen and coupled to the needle guard, such that each of the first distal wall and the second distal wall is disposed within the housing when the needle is in the ready position and the first and second distal walls enclose the distal tip within the housing when the needle is in the retracted position.

13. The intravenous catheter assembly of claim 12, wherein the needle further comprises a notch, wherein the housing and the needle guard enclose the distal tip and the notch when the needle is in the retracted position.

14. The intravenous catheter assembly of claim 12, wherein the housing comprises a first shield element and a second shield element opposite the first shield element, wherein the first and second shield elements are spaced apart by a gap, wherein the gap extends generally linearly along a longitudinal axis of the needle, wherein the first resilient arm and the second resilient arm are urged outwardly by the elongated shaft and extend through the gap when the needle is in the ready position.

15. The intravenous catheter assembly of claim 12, wherein an inner surface of the housing comprises a distal surface and a proximal surface, wherein the distal surface is configured to contact a proximal surface of the first distal wall to prevent the needle guard from sliding proximally with respect to the housing, wherein the proximal surface of the inner surface of the housing is configured to contact a distal surface of the proximal end wall to prevent the needle guard from sliding distally with respect to the housing.

16. The intravenous catheter assembly of claim 14, wherein an inner edge of the first shield element comprises a first protrusion that extends into the gap and an inner edge of the second shield element comprises a second protrusion that extends into the gap, wherein when the needle is in the retracted position, the first protrusion contacts an outer surface of the first resilient arm.

17. The intravenous catheter assembly of claim 16, wherein the first resilient arm passes the second protrusion before the first resilient arm passes the first protrusion when the needle moves from the ready position to the retracted position.

18. The intravenous catheter assembly of claim 1, wherein the first distal wall or the second distal wall comprises a lip, wherein the lip engages the elongated shaft of the needle when the needle is in the ready position.

19. The intravenous catheter assembly of claim 12, wherein the inner wall of the catheter adapter comprises a groove, a protrusion, or an aperture, wherein the groove, the protrusion, or the aperture receives the first resilient arm or the second resilient portion arm when the needle is in the ready position.

20. The intravenous catheter assembly of claim 1, wherein in response to the needle being in the retracted position, a portion of the first resilient arm extending from the first curved portion to the angled portion is generally parallel to a portion of the second resilient arm extending from the second curved portion to the angled portion.