

CLAIMS

1. A catheter system, comprising:

a catheter assembly, comprising a catheter adapter and a catheter extending distally from the catheter adapter;

a needle assembly coupled to the catheter assembly, the needle assembly comprising a needle hub and an introducer needle, wherein the needle hub is coupled to a proximal end of the catheter adapter and wherein a proximal end of the introducer needle is secured within the needle hub; and

a housing retained within a lumen of the catheter adapter, the housing comprising:

a distal end and a proximal end;

a cavity disposed within the housing to contain a longitudinal shaft of the introducer needle, wherein the introducer needle extends through the distal end of the housing, the cavity, and the proximal end of the housing; and

a safety clip located within the cavity, wherein the safety clip comprises an elongated arm portion and a barrier feature angled with respect to the elongated arm portion, wherein the barrier feature extends from the elongated arm portion towards the introducer needle, wherein the introducer needle biases the barrier feature outwardly away from a longitudinal axis of the introducer needle, wherein in response to proximal retraction of the introducer needle, the barrier feature is configured to move toward the longitudinal axis of the needle and shield the sharp distal tip.

2. The catheter system of claim 1, wherein the housing is sealed.

3. The catheter system of claim 1, wherein an outside surface of the housing comprises at least one retainer feature configured to engage at least one securement feature disposed within the lumen.
4. The catheter system of claim 1, wherein the distal end of the housing is configured to contact or couple to a septum disposed within the lumen.
5. The catheter system of claim 1, wherein the housing comprises a resilient material.
6. The catheter system of claim 1, wherein the cavity comprises a reinforcement rib to exert a downward force on the safety clip to urge the barrier feature against the longitudinal shaft of the introducer needle.
7. The catheter system of claim 1, wherein the cavity comprises a length sufficient to contain the sharp distal tip and a notch of the introducer needle.
8. The catheter system of claim 1, wherein the cavity comprises a cutout feature to reduce friction between the cavity and the introducer needle.
9. The catheter system of claim 1, wherein the safety clip is resilient.

10. The catheter system of claim 1, wherein the sharp distal tip of the introducer needle is configured to form a hole through at least one of the proximal end and the distal end of the housing such that the longitudinal shaft may extend through the cavity.

11. A catheter system, comprising:

a catheter assembly comprising a catheter adapter and a catheter extending distally from the catheter adapter;

a needle assembly coupled to the catheter assembly, the needle assembly comprising a needle hub and an introducer needle, wherein the needle hub is coupled to a proximal end of the catheter adapter and wherein a proximal end of the introducer needle is secured within the needle hub; and

a housing retained within a lumen of the catheter adapter, the housing comprising:

a first resilient element, comprising a proximal end, a distal end, a first central bore, and a coupling element;

a second resilient element proximal to the first resilient element, wherein the second resilient element comprises a proximal end, a distal end, a second central bore, and another coupling element, wherein the coupling element and the other coupling element are coupled together,

wherein the first central bore and the second central bore form a central passageway configured to receive a longitudinal shaft of the introducer needle therethrough, wherein the first and second resilient elements are configured to form a V-shape in response proximal retraction of the introducer needle proximal to a distal wall of the first resilient element.

12. The catheter system of claim 11, wherein the housing further comprises a first exterior covering coupled to an outer surface of the first resilient element and a second exterior covering coupled to an outer surface of the second resilient element.
13. The catheter system of claim 12, wherein the first exterior covering and the second exterior covering comprise an aperture to receive the introducer needle therethrough.
14. The catheter system of claim 13, wherein the distal end of the first resilient element is configured to contact or couple to a septum disposed within the lumen.
15. The catheter system of claim 14, wherein in response to the introducer needle extending through the central passageway into the septum, the V-shape straightens along the longitudinal shaft.
16. The catheter system of claim 15, wherein in response to withdrawing the introducer needle from the septum, the first resilient element disengages from the septum to facilitate removal of the housing from the catheter adapter.
17. The catheter system of claim 15, wherein in response to formation of the V-shape, a sharp distal tip of the introducer needle contacts a wall of the central passageway.

18. The catheter system of claim 17, wherein in response to formation of the V-shape, a notch of the introducer needle is secured within the central passageway.
19. The catheter system of claim 11, wherein at least one of the first central bore and the second central bore is formed by the introducer needle.
20. The catheter system of claim 11, wherein the first coupling element comprises a protrusion and an aperture, wherein the second coupling element comprises another protrusion and another aperture.