

CLAIMS

1. A sealed retractable needle assembly, comprising:

a needle assembly comprised of a needle hub and a needle securely coupled to the needle hub;
a resiliently deflectable actuator arm extending from the needle hub and having an actuator button formed thereon;

a barrel having proximal and distal ends and a passage extending therebetween, wherein the needle assembly is slidably disposed within the passage and the needle assembly and the actuator arm are axially movable relative to the barrel from a distal position where the needle projects distally beyond the distal end of the barrel to a proximal position where the needle is entirely contained within the barrel, and wherein the barrel defines an aperture extending therethrough, which aperture engages the actuator button when the needle hub is in the distal position and the actuator button disengages the aperture when the actuator arm is resiliently deflected, wherein the barrel comprises an inwardly extending annular flange, the flange having a distal face and a proximal face;

a spring disposed in the barrel for propelling the needle assembly to the proximal position when the actuator arm is deflected inwardly and the actuator button disengages the aperture, wherein an inner diameter of the flange between the distal face and the proximal face is less than an outer diameter of the spring and the proximal face of the annular flange defines a stop for a distal end of the spring; and

a septum fitted within the distal end of the barrel, wherein the needle extends through the septum when the needle is in the distal position, and wherein the septum seals the barrel when the needle is in the proximal position, wherein the septum abuts the distal face of the flange;

wherein the actuator button includes a first interlocking edge that extends proximally and the aperture includes a corresponding second interlocking edge that extends distally, the first interlocking edge overlapping the second interlocking edge when the needle hub is in the distal position to thereby block inward movement of the actuator button, the actuator button being configured to move distally in response to a distal force exerted on the actuator button causing the first interlocking edge to no longer overlap the second interlocking edge and thereby allowing the actuator button to be moved inwardly to disengage the actuator button from the aperture.

2. The sealed retractable needle assembly of claim 1, wherein the actuator button is configured to move distally independently of the actuator arm.
3. The sealed retractable needle assembly of claim 2, wherein the actuator button is coupled to the actuator arm via a spring mounting configuration.
4. The sealed retractable needle assembly of claim 1, 3, wherein the spring biases the first and second interlocking edges into interlocking engagement when the needle hub is in the distal position and the actuator button engages the aperture.
5. The sealed retractable needle assembly of claim 1, wherein a gap is formed between a distal edge of the aperture and a distal end of the actuator arm, the actuator arm moving distally into the gap to free the first interlocking edge from the second interlocking edge.
6. A method, comprising:
providing a fluid transfer device, comprising:
 - a needle assembly comprised of a needle hub and a needle securely coupled to the needle hub;
 - a resiliently deflectable actuator arm extending from the needle hub and having an actuator button formed thereon;
 - a barrel having proximal and distal ends and a passage extending therebetween, wherein the needle assembly is slidably disposed within the passage and the needle assembly and the actuator arm are axially movable relative to the barrel from a distal position where the needle projects distally beyond the distal end of the barrel to a proximal position where the needle is entirely contained within the barrel, and wherein the barrel defines an aperture extending therethrough, which aperture engages the actuator button when the needle hub is in the distal position and the actuator button disengages the aperture when the actuator arm is resiliently deflected;
 - a spring disposed in the barrel for propelling the needle assembly to the proximal position when the actuator arm is inwardly deflected and the actuator button disengages the aperture;
 - a septum fitted within the distal end of the barrel, wherein the needle extends through the septum when the needle is in the distal position, and wherein the septum seals the

barrel when the needle is in the proximal position; and

an absorbent sponge disposed within the barrel distal to and contacting the septum;

wherein the actuator button includes a first interlocking edge that extends proximally and the aperture includes a corresponding second interlocking edge that extends distally, the first interlocking edge overlapping the second interlocking edge when the needle hub is in the distal position to thereby block inward movement of the actuator button, the actuator button being configured to move distally in response to a distal force exerted on the actuator button to thereby cause the first interlocking edge to no longer overlap the second interlocking edge; thereby allowing the actuator button to be moved inwardly to disengage the actuator button from the aperture; causing the needle to be withdrawn proximally through the absorbent sponge and septum and shielded within the fluid transfer device.

7. The method of claim 6, wherein the actuator button is configured to move distally independently of the actuator arm.
8. The method of claim 7, wherein the actuator button is coupled to the actuator arm via a spring mounting configuration
9. The method of claim 6, wherein the spring biases the first and second interlocking edges into interlocking engagement when the needle hub is in the distal position and the actuator button engages the aperture.
10. The sealed retractable needle assembly of claim 1, 2, wherein the annular flange is a first annular flange, wherein the barrel further comprises a second annular flange distal to the first annular flange, wherein the septum also abuts the second annular flange.
11. The sealed retractable needle assembly of claim 10, further comprising an absorbent sponge disposed within the distal end of the barrel distal to the septum such that the absorbent sponge absorbs fluid from an outer surface of the needle as the needle is withdrawn through the septum, wherein the absorbent sponge absorbs the fluid removed from the outer surface of the needle, wherein the absorbent sponge is disposed within an inner diameter of the second annular flange and proximate the septum.