

Claims

1. A method comprising:

protecting an entire length of a needle (116) of a needle-based device (100) protruding from a needle mount (112) coupled to a body of the needle-based device (100) based on providing a needle shield (302) configured to completely encompass the entire protruding length of the needle (116) in a first state of disuse of the needle-based device (100);

retracting the needle shield (302) in a first direction toward the body of the needle-based device (100) to cause the needle to emerge out of the needle shield (302) to prepare the needle-based device (100) for a second state of use thereof;

transitioning the needle-based device (100) back to the first state of disuse thereof following the second state of use in accordance with a force applied in a second direction diametrically opposite to the first direction;

securedly maintaining the encompassing of the entire protruding length of the needle (116) by the needle shield (302) in the first state of disuse of the needle-based device (100) based on coupling between the needle shield (302) and the body of the needle-based device (100); and

locking the needle shield (302) with a lock button (708) formed one of: on the needle shield (302) and external thereto in the first state of disuse of the needle-based device (100) based on the lock button (708) coupling to a groove (706) formed one of: on the needle shield (302) and on an external cap (702).

2. The method of claim 1, further comprising providing at least one of: wings (202) on lateral sides of one of: the needle mount (112) and the body of the needle-based device (100), a connector (306) on one of: the body of the needle-based device (100) and a body of the needle mount (112), and a ring (602) on an outer wall (304) of the one of:

the body of the needle-based device (100) and the body of the needle mount (112) to enable the coupling between the needle shield (302) and the body of the needle-based device (100).

3. The method of claim 1, further comprising:

additionally encompassing the entire protruding length of the needle (116) of the needle-based device (100) with a spring (604) configured to rest on the needle mount (112) on one end thereof in the first state of disuse of the needle-based device (100);

encompassing, through the needle shield (302), an entire length of the spring (604) in addition to the entire protruding length of the needle (116) in the first state of disuse of the needle-based device (100); and

automatically transitioning the needle-based device (100) back to the first state of disuse thereof following the second state of use based on decompression of the spring (604) that provides for the force applied in the second direction diametrically opposite to the first direction.

4. The method of claim 1, further comprising at least one of:

utilizing a barrel (104) of at least one of: a hypodermic syringe, a hypodermic needle, a pen injector and a fluid collection device as the body of the needle-based device (100); and

securing the needle shield (302) with the external cap (702) in the first state of disuse of the needle-based device (100).

5. The method of claim 3, comprising locking the needle shield (302) with the lock button (708) based on the lock button latching onto coils (1106) of the spring (604) via the groove (706) formed on the needle shield (302) in the first state of disuse of the needle-based device (100).

6. The method of claim 4, further comprising covering the lock button (708) of the needle shield (302) with the external cap (702) to prevent at least one of: premature and accidental locking of the needle-based device (100) during one of: transportation and handling thereof.
7. A method comprising:
 - protecting an entire length of a needle (116) of a needle-based device (100) protruding from a needle mount (112) coupled to a body of the needle-based device (100) based on providing a needle shield (302) configured to completely encompass the entire protruding length of the needle (116) in a first state of disuse of the needle-based device (100);
 - additionally encompassing the entire protruding length of the needle (116) of the needle-based device (100) with a spring (604) configured to rest on the needle mount (112) on one end thereof in the first state of disuse of the needle-based device (100);
 - encompassing, through the needle shield (302), an entire length of the spring (604) in addition to the entire protruding length of the needle (116) in the first state of disuse of the needle-based device (100);
 - retracting the needle shield (302) in a first direction toward the body of the needle-based device (100) to compress the spring (604) and cause the needle (116) to emerge out of the needle shield (302) to prepare the needle-based device (100) for a second state of use thereof, the second state of use encompassing both drawing of a fluid and injection of the fluid via the needle-based device (100);
 - automatically transitioning the needle-based device (100) back to the first state of disuse thereof following the second state of use based on decompression of the spring (604) that provides for a force applied in a second direction diametrically opposite to the first direction; and

securedly maintaining the encompassing of the entire protruding length of the needle (116) and the entire length of the spring (604) by the needle shield (302) in the first state of disuse of the needle-based device (100) based on coupling between the needle shield (302) and the body of the needle-based device (100).

8. The method of claim 7, comprising at least one of:

the coupling between the needle shield (302) and the body of the needle-based device (100) being based on providing at least one of: wings (202) on lateral sides of one of: the needle mount (112) and the body of the needle-based device (100), a connector on one of: the body of the needle-based device (100) and a body of the needle mount (112), and a ring (602) on an outer wall (304) of the one of: the body of the needle-based device (100) and the body of the needle mount (112); and

a barrel (104) of at least one of: a hypodermic syringe, a hypodermic needle, a pen injector and a fluid collection device as the body of the needle-based device (100).

9. The method of claim 7, further comprising at least one of:

securing the needle shield (302) with an external cap (702) in the first state of disuse of the needle-based device (100);

locking the needle shield (302) with a lock button (708) one of: formed thereon and external thereto in the first state of disuse of the needle-based device (100); and

covering the lock button (708) of the needle shield (302) with the external cap (702) to prevent at least one of: premature and accidental locking of the needle-based device (100) during one of: transportation and handling thereof.

10. The method of claim 7, further comprising locking the needle shield (302) with a lock button (708) one of: formed thereon and external thereto based on the lock button

latching onto coils (1106) of the spring (604) in the first state of disuse of the needle-based device (100).

11. A method comprising:

protecting an entire length of a needle (116) of a needle-based device (100) protruding from a needle mount (112) coupled to a body of the needle-based device (100) based on providing a needle shield (302) configured to completely encompass the entire protruding length of the needle (116) in a first state of disuse of the needle-based device (100), the body of the needle-based device (100) being a barrel (104) of at least one of: a hypodermic syringe, a hypodermic needle, a pen injector and a fluid collection device;

retracting the needle shield (302) in a first direction toward the body of the needle-based device (100) to cause the needle (116) to emerge out of the needle shield (302) to prepare the needle-based device (100) for a second state of use thereof;

transitioning the needle-based device (100) back to the first state of disuse thereof following the second state of use in accordance with a force applied in a second direction diametrically opposite to the first direction;

securedly maintaining the encompassing of the entire protruding length of the needle (116) by the needle shield (302) in the first state of disuse of the needle-based device (100) based on coupling between the needle shield (302) and the body of the needle-based device (100); and

locking the needle shield (302) with a lock button (708) formed one of: on the needle shield (302) and external thereto in the first state of disuse of the needle-based device (100) based on the lock button (708) coupling to a groove (706) formed one of: on the needle shield (302) and on an external cap (702).

12. The method of claim 11, further comprising at least one of:

providing at least one of: wings (202) on lateral sides of one of: the needle mount (112) and the body of the needle-based device (100), a connector on one of: the body of the needle-based device (100) and a body of the needle mount (112), and a ring (602) on an outer wall (304) of the one of: the body of the needle-based device (100) and the body of the needle mount (112) to enable the coupling between the needle shield (302) and the body of the needle-based device (100); securing the needle shield (302) with the external cap (702) in the first state of disuse of the needle-based device (100); and the second state of use of the needle-based device (100) encompassing both drawing of a fluid and injection of the fluid via the needle-based device (100).

13. The method of claim 11, further comprising:

additionally encompassing the entire protruding length of the needle (116) of the needle-based device (100) with a spring (604) configured to rest on the needle mount (112) on one end thereof in the first state of disuse of the needle-based device (100); encompassing, through the needle shield (302), an entire length of the spring (604) in addition to the entire protruding length of the needle (116) in the first state of disuse of the needle-based device (100); and automatically transitioning the needle-based device (100) back to the first state of disuse thereof following the second state of use based on decompression of the spring (604) that provides for the force applied in the second direction diametrically opposite to the first direction.

14. The method of claim 13, comprising locking the needle shield (302) with the lock button (708) based on the lock button latching onto coils (1106) of the spring (604) via the groove (706) formed on the needle shield (302) in the first state of disuse of the needle-based device (100).

15. The method of claim 12, further comprising covering the lock button (708) of the needle shield (302) with the external cap (702) to prevent at least one of: premature and accidental locking of the needle-based device (100) during one of: transportation and handling thereof.