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(54) Title: SELF-RETRACTING MEDICAL NEEDLE APPARATUS AND METHODS

(57) Abstract

Method and apparatus associated with safe retraction of medical needles (140, 140', 540, 1140, 2070, 2320) after use. Embodiments are disclosed for self-retracting needle systems for both blood draw (10, 610, 820, 2010, 2400), syringe (510, 900, 1010) and catheter insertion systems (400, 800, 2300). Manufacture of the invention requires only a minimal number and complexity of parts such that a projected manufacturing cost is potentially low enough to permit the apparatus to be cost competitive with contemporary non-self retracting needle systems. Methods for making and assembling each of the disclosed embodiments is also disclosed. One blood draw embodiment (2400) can be made with as few as three molded parts. Energy-storing, needle-retracting mechanisms comprise elastic tubing (180, 570, 1180) and vacuum generating piston parts (416, 2351). In an elastic tubing embodiment (10, 510, 610, 800, 820, 900, 1010, 2010, 2400), selective, constrictive control of stretched tubing (180, 570, 1180) volumes effectively inhibits regurgitant flow from the needle (140, 140', 540, 1140, 2070, 2320). In all embodiments (10, 400, 510, 610, 800, 820, 900, 1010, 2010, 2300, 2400), needle retraction is a single handed operation permitting a technician's other hand to be used in wound care. A combination of parts, comprising the apparatus housing (20, 30, 80', 500, 520, 620, 630, 752, 802, 842, 902, 904, 1020, 2020, 2200, 2302, 2402) and a needle cover (120, 120', 268, 524, 720, 720', 804, 1190, 2350), are used as a transport container which protects a medical needle (140, 140', 540, 1140, 2070, 2320) from inadvertent contamination without requiring special packaging, thereby, further reducing apparatus costs.

