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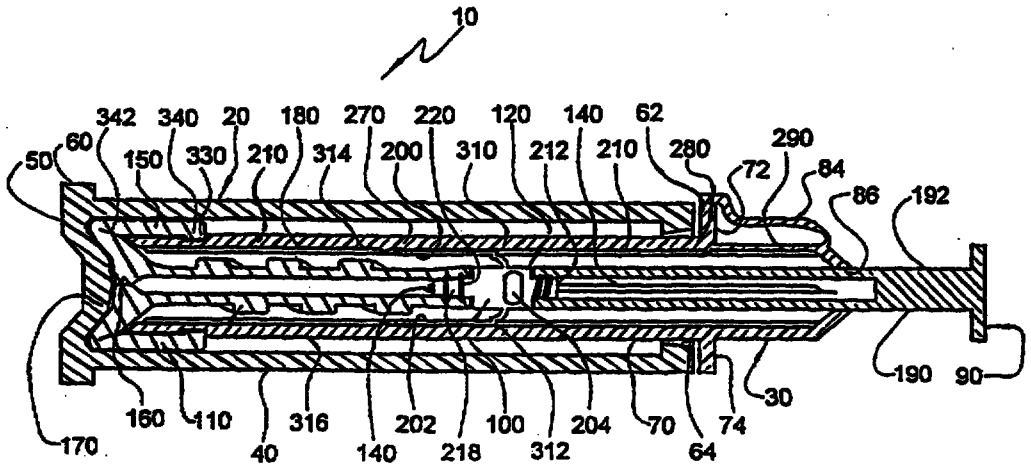
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(54) Title: MEDICAL SYRINGE AND SELF-RETRACTING NEEDLE APPARATUS

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(57) Abstract

Method and apparatus associated with safe retraction of medical needles after use. Embodiments are disclosed for combinations comprising medical syringes and self-retracting needle systems (10). An energy-storing, needle-retracting mechanism comprises an elastic tubing (180) which also is taught to perform a plurality of functions comprising the storing of force by which a medical needle (140) is retracted, slidable seals (150), normally closed valves (160) and dynamic volume control by which fluid regurgitation upon needle retraction is voided. Selective, constrictive control of the internal volume of the tubing (180) when stretched effectively inhibits regurgitant flow from the needle (140) as the tubing (180) relaxes while retracting the needle (140). In all embodiments, needle retraction is initiated by forces applied in a direction transverse to the long axis of the needle (140) using but a single hand. The syringe (10) may be used in a plurality of modes such as a standard syringe or as a pre-filled syringe. Methods for making and assembling the combination are also disclosed. Invention manufacture 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 combinations of hypodermic syringes and non-self-retracting needle systems.