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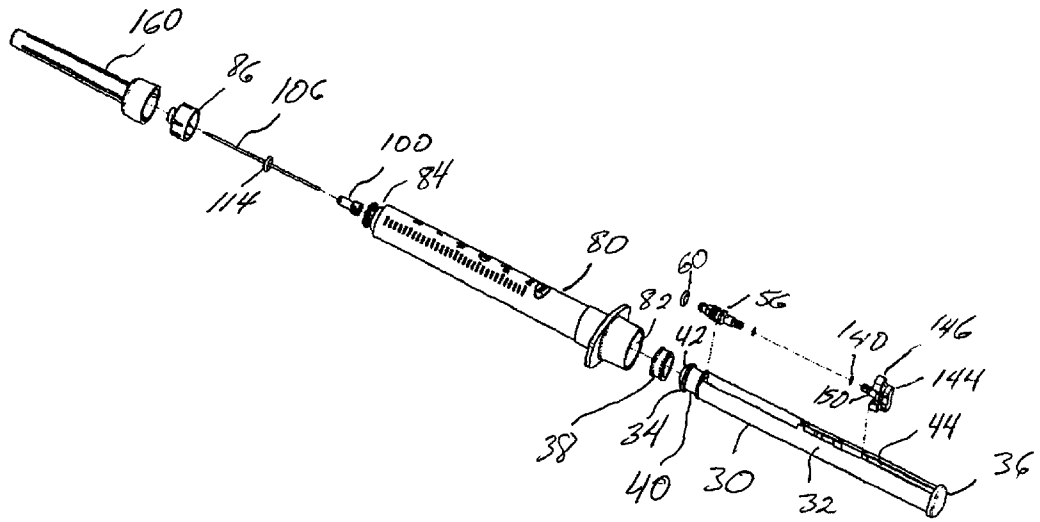
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(54) Title: SYRINGE WITH RETRACTABLE NEEDLE ASSEMBLY




(57) Abstract: A hypodermic syringe employing a plunger (30) slidably disposed within a barrel (80). The plunger (30) has a mounting hole (50) extending through the seal end (34) thereof to receive a mandrel (56). The mandrel (56) has a flexible flange (64) to be releasably engaged with the plunger (30). A spring element (140) withdraws the mandrel (56) into a cavity (44) within the plunger (30) upon full extension of the plunger (30) within the barrel (80). The barrel (80) includes a hub retainer (86) at the forward end thereof and a needle hub (100) retained therein. The mandrel (56) includes barbed tines (66, 68) with surfaces having axes of the conical surfaces that are displaced from one another such that movement of the tines (66) toward one another also brings the axes closer. A catch (144) associated with the back end of the spring element (140) coupled with the mandrel (56) at the other end cooperates with shoulders on smooth surfaces within the cavities to retain tension within the spring element. The hub retainer (86) and the needle hub (100) cooperate to insure that the needle hub (100) is constrained to limited motion such that the mandrel (56) will fully engage the needle hub (100).

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