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(54) Title: VACUUM INSERTION METHODS FOR INSERTING LUBRICANT FREE SYRINGE STOPPERS AND A SYSTEM FOR ASSEMBLING SAME

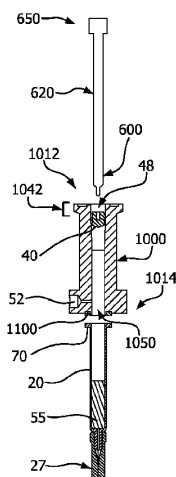


FIG. 8A

(57) Abstract: Methods of inserting a lubricant free stopper into a lubricant free syringe barrel or lubricant free tube is disclosed. The method includes (1) inserting a stopper with a sealing rib into a placement region of vacuum chamber, (2) creating a seal between the vacuum chamber and a syringe barrel or a cartridge tube, (3) maneuvering the stopper into a proximal end of the syringe barrel or cartridge tube by a first differential pressure and/or an insertion rod, (4) maneuvering the stopper through the barrel by second differential pressure and/or an insertion rod, (5) optionally sealing a pressure sealing cap to the proximal end of the vacuum chamber, (6) removing the vacuum chamber, insertion rod, and, if present, the pressure sealing cap. The methods are lubricant free or substantially lubricant free. The vacuum chamber may be electropolished and/or extrude honed.

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