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(54) Title: PORTABLE HEMODIALYSIS MACHINE AND DISPOSABLE CARTRIDGE

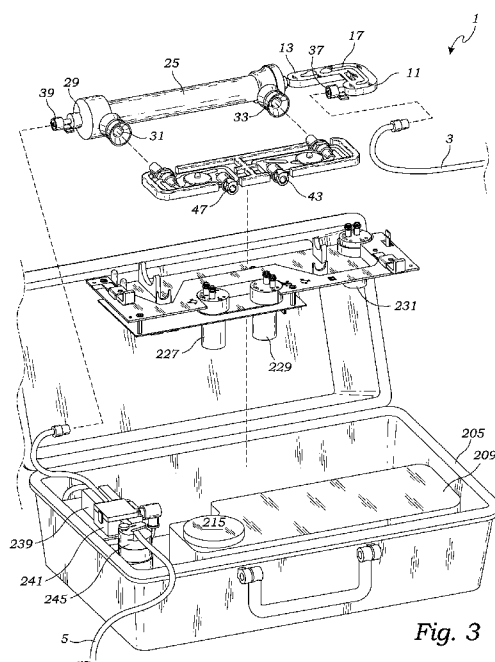


Fig. 3

(57) Abstract: A portable hemodialysis system is provided including a disposable cartridge and a re-used dialysis machine. The disposable cartridge includes a dialyzer, and a dialysate flow path and a blood flow path which flow in opposing directions through the dialyzer. The disposable cartridge includes a filter for removing waste products from the dialysate, and pressure and fluid flow sensors for measuring the pressure and fluid flow in the dialysate flow path and blood flow path. In addition, the disposable cartridge possesses pump actuators (but not pump motors) for pumping dialysate and blood through their respective flow paths. The reused dialysis machine possesses a reservoir for dialysate, a level sensor, a blood leak sensor, an ammonia sensor, a venous blood line pressure sensor, a venous blood line bubble detector, pump motors, and a processor connected to the motors and sensors for controlling and monitoring hemodialysis treatment.