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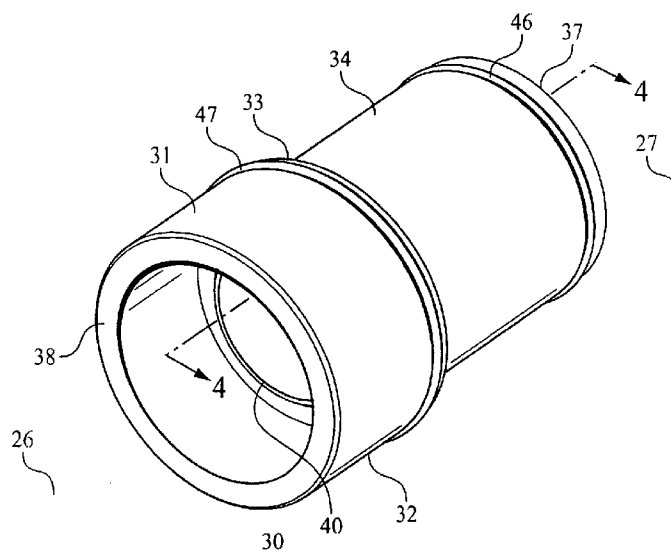


FIG. 2

(57) Abstract: An exemplary embodiment providing one or more improvements includes a shaft seal cartridge for the motor shaft of a vacuum pump which combines three shaft seals in one unit. The cartridge greatly simplifies the replacement of seals and eliminates the requirement for expensive seal lubrication oil, and extends the life of the shaft seals. Embodiments of the cartridge are manufactured from fiberglass/molybdenum filled polytetrafluoroethylene.

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