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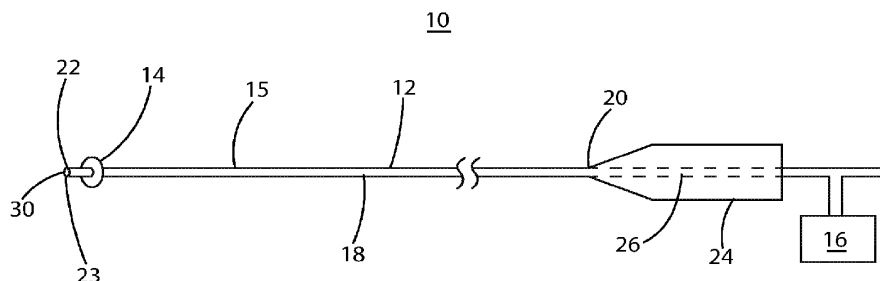


Fig. 1

(57) Abstract: A system or device for infusing a therapeutic agent to a blood vessel of a patient, comprising a catheter arrangement and a turbulence inducing structure. The catheter arrangement extends from a distal end to a proximal end having an outer surface and an interior surface. The catheter arrangement comprising an opening at a distal tip of the catheter arrangement in a continuous fluid pathway with a lumen extending through the catheter arrangement defined by the interior surface. The turbulence inducing structure is formed from or attached to the outer surface or the distal tip of the catheter arrangement. The turbulence inducing structure is configured to induce turbulence to blood flowing through a localized region of the blood vessel. The turbulence inducing structure is suitably sized and shaped to not fully occlude the blood vessel such that the blood can flow past the turbulence inducing structure.

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