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(54) Title: BLOOD WARMING APPARATUS**(57) Abstract**

An apparatus (10) for the controlled heating of fluid is provided. The apparatus (10) has a general elongated heating core (16) with an exterior surface (36) formed of a material having a high thermal conductivity and frustoconically shaped to slidably receive an assembly (14) so that the assembly envelops the surface along at least a portion of the length of the core. The assembly (14) forms a sealed passageway (46) for generally unidirectional sheet like flow upward along the core (16). A control system (20) selectively operates the heating core (16) so that the fluid, under varying flow rates, is warmed to a desired temperature without overheating, before the fluid flows from the passageway (46).

