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(54) Title: ACTIVE COOLING OF MEDIUM VOLTAGE POWER UMBILICALS

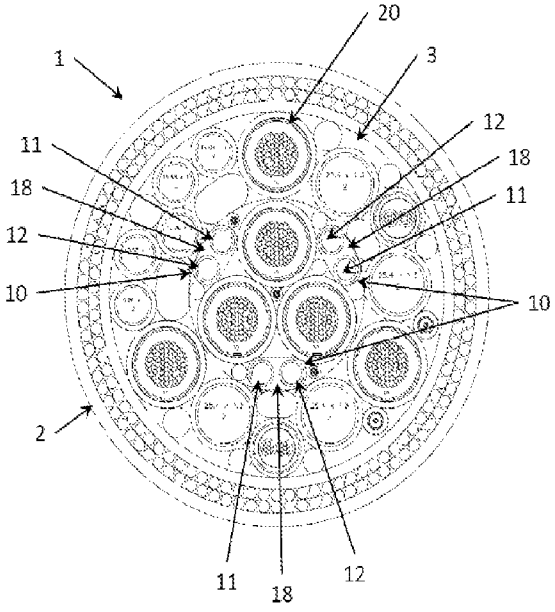

FIGURE 1

(57) Abstract: An umbilical comprises an outer sheath defining an interior void; one or more power cores; and one or more forced convection cooling circuits disposed within the interior void proximate the power cores, typically at least one forced convection cooling circuit paired with each power core. The forced convection cooling circuit comprises a heat exchange delivery fluid conduit and a heat exchange return fluid conduit in fluid communication with the heat exchange delivery fluid conduit, where at least one of the fluid conduits is disposed either proximate to the other conduit or disposed within the other conduit. The forced convection cooling circuit has a length which has been determined to be sufficient to achieve a desired heat exchange that results in a desired efficient evacuation of heat energy from the power cores along a predetermined length of the umbilical.

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