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(71) Applicant (for all designated States except US): **FMC TECHNOLOGIES, INC.** [US/US]; 1777 Gears Road, Houston, TX 77067 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MCSTAY, Daniel** [GB/GB]; 6 Kirkton Of Durris, Aberdeenshire AB31 6BQ (GB). **NOLAN, Aidan** [GB/GB]; 13 The Shielling, Cairneyhill, Fife KY12 8FH (GB). **SHIACH, Gordon** [GB/GB]; 1c Elliot Street, Dunfermline, Fife KY11 4TE (GB). **ROKKE, Espen** [NO/NO]; Haraldstua 20, N-3030 Drammen (NO). **MCAYVOY, Sean** [GB/GB]; 10 Burnside View, Coatbridge, North Lanarkshire ML5 1HR (GB).

(74) Agent: **DIRING, Scott, F.**; Williams Morgan & Amer-
son, P.C., 10333 Richmond, Suite 1100, Houston, TX
77042 (US).

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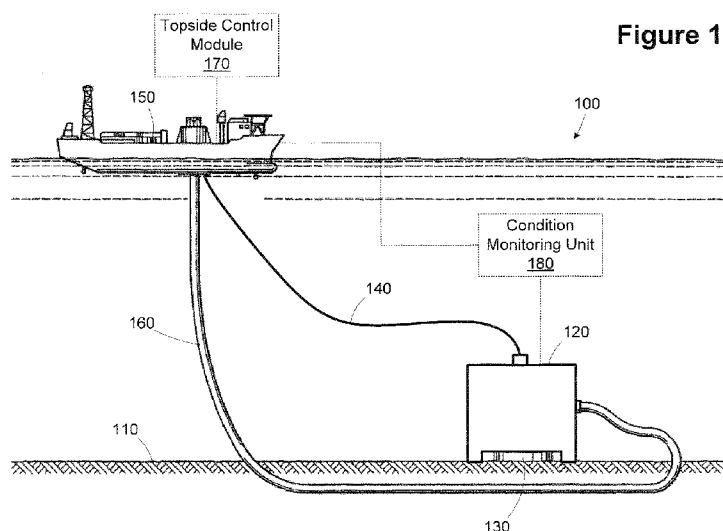


Figure 1

(57) Abstract: A system includes a Christmas tree assembly mounted to a hydrocarbon well, an optical feedthrough module, and a plurality of optical sensors. The optical feedthrough module is operable to communicate through a pressure boundary of the Christmas tree assembly. The plurality of optical sensors is disposed within the Christmas tree assembly for measuring parameters associated with the Christmas tree assembly and is operable to communicate through the optical feedthrough module.