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(54) Title: ACTIVE CIRCUIT PROTECTION OF DOWNHOLE ELECTRICAL SUBMERSIBLE PUMP MONITORING GAUGES

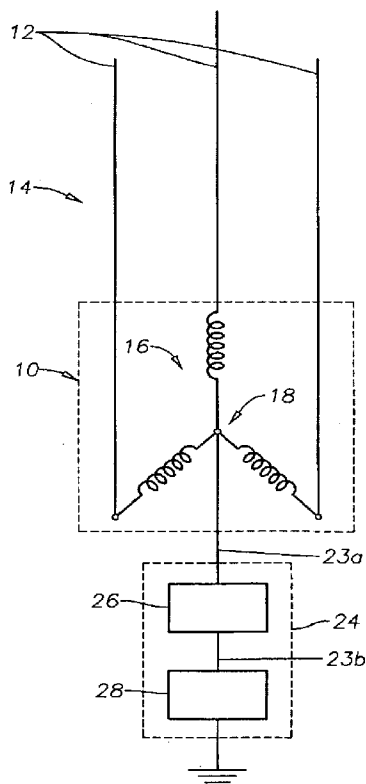


Fig. 2

(57) Abstract: Embodiments of the present invention beneficially provide circuits and methods which isolate downhole electronics of a well pump assembly from a power surge. The pump assembly includes a motor (10) and a housing (24), including head (40), base (42), and manifold plate (44). The head (40) has a hollow interior (34) and a shoulder (43). The head is mounted to the motor (10) so that, in operation, oil from the motor fills the interior of the head. The base (42) has an outside diameter to fit snugly inside the head (40). The manifold plate (44) has an outside diameter to fit snugly inside the head (40). The manifold plate (44) is located between an upper end of the base and the shoulder of the head so that the axis of the manifold plate is perpendicular to the axis of housing. A gauge circuit (28) and an isolation circuit (26) are mounted to the manifold plate. The isolation circuit (26) includes active semiconductor elements to detect excessive voltage and to protect the gauge circuit (28) from the excessive voltage.



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