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(54) Title: **GAS CARTRIDGE ACTUATED ISOLATION VALVE**

(57) Abstract

An isolation gate valve (10, 10a, 10b, 124, 146, 210) is provided which has a valve body (12, 126, 212) presenting a passageway (14, 214) therethrough; a shiftable, apertured gate member (18, 224) is located within the body (12, 126, 212) and is shiftable between a valve open position permitting flow through the passageway (14, 214) and a valve closed position wherein the member (18, 224) is shifted into a flow-blocking relationship relative to the passageway (14, 214). A valve actuator (20, 130, 220) is provided which includes a gas-generating cartridge unit (22, 22a, 22b, 222) which, upon actuation, generates a charge of high pressure subsonic gas for shifting the gate member (18, 224) at a velocity of about 0.2 to about 0.33 in./msec. Preferably, the actuator includes a piston housing (56, 56a, 56b, 256) having a piston (72, 72a, 72b, 272) therein with a piston rod (71, 71a, 71b, 271) coupled between the piston (72, 72a, 72b, 272) and the gate member (18, 224). In the valve open position, the piston (72, 72a, 72b, 272) is adjacent the cartridge unit (22, 22a, 22b, 222) and is oriented so that the pressurized gas from the cartridge unit (22, 22a, 22b, 222) shifts the piston (72, 72a, 72b, 272) thereby closing the valve (10, 10a, 10b, 124, 146, 212). A dampener unit (99, 299) is provided in an association with the gate member (18, 224) to effect predetermined, controlled deceleration thereof as the gate member approaches its fully actuated position.

