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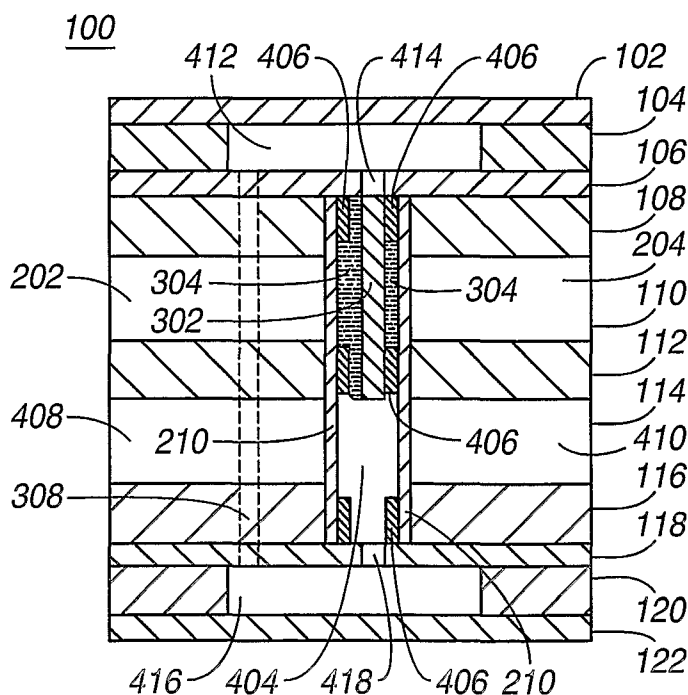
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(54) Title: **PRESSURE ACTUATED SOLID SLUG OPTICAL LATCHING RELAY**



(57) Abstract: A pressure actuated optical relay containing a transparent mirror housing (210), located at the intersection of two optical paths. A solid slug (302) is moved within a channel (404) passing through the transparent mirror housing by the action of pressure exerted by an actuation fluid. The solid slug (302) is moved in or out of the transparent mirror housing to select between the optical paths and is wetted by a liquid metal (304). When the solid slug (302) is within the optical path, an incoming optical signal is reflected from a wetted surface of the slug. The liquid metal (304) forms a surface tension bond between the slug and wettable metal surfaces (406) within the channel (404) to provide a latching mechanism.



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