

ABSTRACT

TITLE: VALVE MECHANISM

The present invention relates to an hydraulic ram (2) comprising a cylinder (10) having journalled for axial movement therein a piston (11), the piston (11) carrying a rod member (12) extending through an end wall (13, 14) of the cylinder (10) and adapted to be connected to a hammer weight (1), said cylinder (10) having means (60, 61, 62) for achieving flow of fluid to and from the head space between the piston (11) and said first end (13, 14) of the cylinder (10), a sleeve valve mechanism (40) journalled in sealing engagement upon the cylinder wall (10) and positioned at or adjacent the other end (20) of the cylinder (10) for controlling the flow of fluid into and out of the cylinder (10), and a position control chamber (24) which encompasses one end (41) of said sleeve valve member (40) and which is adapted to be put selectively in fluid flow communication with either a low pressure zone (80) or with a source of fluid at elevated pressure (3, 32) whereby one or more radial components of the end face (41) of the sleeve valve member (40) are exposed selectively to high (3, 32) or low (80) pressure so as to move the sleeve valve member (40) axially so as selectively to control the flow of fluid to and from the cylinder (10); characterised in that:

- a. the sleeve valve member (40) is journalled within the cylinder (10) in sealing engagement with the internal wall of the cylinder (10), said sleeve valve member (40) having with the co-operating wall of the cylinder (10) a circumferential gallery (43) adapted to be in fluid flow communication with a supply of fluid at elevated pressure (3, 32) at all positions of the valve sleeve member (40);
- b. the co-operating cylinder wall (10) has one or more ports (62, 63) adapted to place said gallery (43) in fluid flow communication with the said head space at a first axial position of said sleeve valve member (40) and to place said head space in fluid communication with a port (28, 29) for

discharging fluid from the cylinder (10) at a second axial position of said sleeve valve member (40); and

c. the relative radial components of end faces (45, 46) of the portion of said circumferential gallery (43) carried by said sleeve valve member (40) and the end face (41) of said sleeve valve member (40) exposed to the fluid in said control chamber (24) are such that the sleeve valve member (40) is biased to said second axial position at which the said head space in the cylinder (10) is in fluid communication with the port (61, 62, 63, 28, 29) for discharging fluid from the cylinder (10) when said control chamber (24) is in communication with a low pressure zone (80), or said bias is overcome when the control chamber (24) is in communication with a source of fluid at elevated pressure (3, 32) whereby the feed of fluid to said control chamber (24) is adapted to move said sleeve valve member (40) axially with respect to the cylinder (10) to said first position so that said circumferential gallery (43) is in communication (63, 61, 62) with said head space.

FIGURE 2 IS SUGGESTED FOR PUBLICATION