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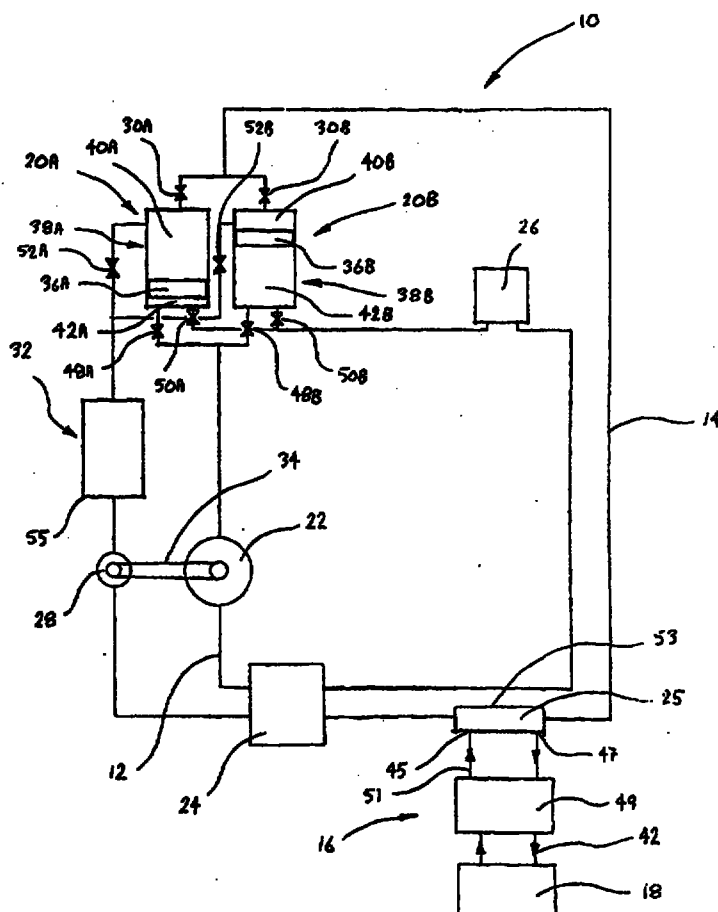
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(54) Title: A THERMO-VOLUMETRIC MOTOR

(57) Abstract

The present invention relates to a thermo-volumetric motor (10) comprising a continuous incompressible fluid path in the form of a hydraulic oil path (12), a continuous compressible fluid path in the form of a refrigerant path (14), and a solar collector (18). The solar collector (18) is adapted to absorb heat from a heat source, in this example, sunlight. The hydraulic oil path (12) includes pressure transfer means, in this example a pair of hydraulic cylinders (20A, 20B) located in a parallel flow arrangement. The oil path (12) further comprises actuating means, in this example a hydraulic loader (22), in fluid communication with a first heat exchanger (24). The refrigerant path (14) comprises a pump (28) operatively coupled to the hydraulic motor (22), and heat transfer means, in this example a second heat exchanger (25). The refrigerant path (14) further comprises cooling means, in this example a first accumulator or condenser (32) used for cooling the refrigerant. The second heat exchanger (25) comprises a shell and tube arrangement wherein refrigerant is passed through a helical tube, and a first phase change substance, such as sodium acetate trihydrate, is contained within the shell. In operation, sunlight absorbed by the solar collector (18) is used to fuse the first phase change substance and thereafter refrigerant passing through the second heat exchanger (25) cools and solidifies the first phase change substance releasing latent heat. The refrigerant then expands and is ejected into one of the hydraulic cylinders (20A, 20B) thus effecting movement of a piston (36A, 36B). The piston (36A, 36B) drives hydraulic oil through the hydraulic oil path (12) and drives the hydraulic motor (22) which can be used to provide motive power.



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