DESIGN AND FABRICATION OF MANUALLY OPERATED RECIPROCATING TYPE PUMP USING SCOTCH YOKE MECHANISM FOR RURAL APPLICATION

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ABSTRACT

In the early 19th century, it was used extensively as a boiler feed water pump. Nowadays, it is used for pumping highly viscous fluids such as concrete, heavy oils etc. Normally it has relatively small capacities and large delivery head and is used in applications where low discharge is required at high pressure.

In this project, a weighted object acts as a pendulum which conserves momentum and swings with the application of human effort. It gives rotational motion to the shaft and the rear sprocket attached with it, which rotates the crank disc which in turn reciprocates the plunger. Because of that water is sucked in one stroke into the cylinder and is delivered out from the cylinder in the successive stroke.

The development for this project was prompted due to the need for pumping systems that do not use electricity as its power source in underdeveloped remote areas.

KEYWORDS: Scotch Yoke Mechanism, Freewheel Sprockets & Pendulum

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