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A Greenleaf,

Rotary Steam Engine.

Patented Apr. 18, 1831.

Fig. 2

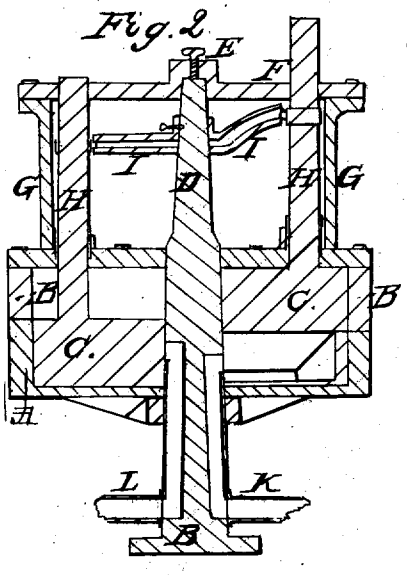


Fig. 1.

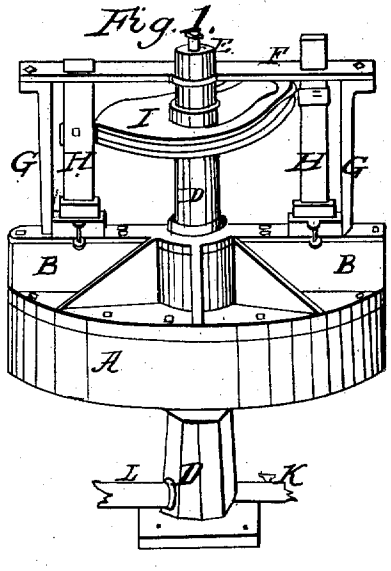


Fig. 3

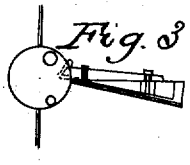


Fig. 4

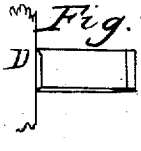


Fig. 5



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

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Thel Greenleaf

Valves Valved

The Schedule referred to in these Letters Patent and making part of the same containing a description in the words of the said Thel Greenleaf Esquire of his improvement in the Rotary Steam Engine.

To all whom it may concern. Be it known that I Thel Greenleaf have made certain improvements in the Rotary Steam Engine and that the following is a full and exact description of the same; reference being had to the accompanying drawings. A Fig 1 is the outside of the Cylinder within which the valves and piston operate AA Fig 2 is a section of the same part BB Fig 1 are valve chambers to receive the valves of the cylinder CC are the valves one of which is shewn as raised & the other as closed.

The Cylinder is represented Fig 2 DD made of iron this shell is turned perfectly true and is slightly conical in the part which passes through the Cylinder and the collar which surrounds it between the valve chambers. It is thus made for the purpose of accurately fitting the packing part to it & by raising or lowering this part it may be made to run steam tight without packing and without binding, & adjust it wherever most beneficial there are two E E passing through the cap bar F which is supported by the upright G G: the mode of adjustment being adopted when the position is changed. The valves C C. have shews HH & stems which pass through stuffing boxes in the top of the valve chambers. The valve chambers have the packing pieces closely fitted against the shell and sliding in grooves in the cylinder in which they fit steam tight & each side bitted with a wedge edge. The valves are raised and lowered by means of a groove formed around a cylinder upon the end of a wheel I which groove such a direction is given as shall be best adapted to produce the effect intended.

Fig 3 shews Sectional & there are pockets in the which Hidden Springs are placed the bearing which would otherwise be the place of steam admitted through the shaft by the Steam pipe K and is discharged

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through the openings of these openings being similar to those in steam rotary Engines Fig 3 is a section of the shaft of the piston and of the lever or arm which the shaft by which the piston is forced forward as the whole body of the rotary Engines is intended to have some vertical play upon the shaft it is necessary that the piston should also be movable. This end is attained by allowing some play to the shanks of the screws by which it is attached to the arm or lever.

Fig 4 is a side view of the piston towards the shaft Door opening is shown: This is intended to receive packing between its back end and the shaft which packing is secured by plates of metal screwed over it on one side Fig 5 is an end view of the piston which is made in two pieces as shown by the lines thereon. This is for the purpose of regulating its width with perfect precision. The middle line near the upper part represents a pin of metal through which regulating screws work their points bearing upon the parts M. and their thread being in the upper plate. Besides the plate of metal Cloth or other elastic packing may be interposed between the two parts The manner of putting this piston together may be varied and the same end attained merely by adjusting it to the chamber but in all its forms the manner of attaching it to the lever or bar to admit of some play thereon is an essential feature of my invention.

Have described the cylinder as revolving and the shaft as stationary And the intelligent mechanic will perceive that all its essential features may be preserved and the revolving motion given to the shaft when such a variation may be preferred. What I claim as my invention is the conical form given to that part of the shaft upon which the cylinder revolves for the purpose of adjusting them to each other without packing: the attaching the piston to the arm or lever in such a way as to give a play enough to adapt itself to the chamber of the cylinder The manner of forming the piston in parts so as to adjust it to the Cylinder and the particular manner in which the valves are made to slide through the head of the cylinder into the valve chambers. Several variations may be made in the foregoing machine without the principles upon which it acts remaining unchanged Thus for example there may be a greater number of valves and for this Valve chambers may be placed on the ends of the Cylinder opposite to that described and a plate or head put across the Cylinder at right angles with the shaft dividing the steam chamber into two parts pistons attached to levers or

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mined formed upon and operating on the principle described being attached thereto: the Steam being admitted into and escaping from each Chamber as with the Single Piston. There may if thought best be two pistons and one valve in each chamber to admit the Steam to act upon both sides of the Piston at the same time. Provision may also be made for admitting Steam through other openings for the purpose of initiating conveniently reversing the motion when required

Witnesses

Jos Andrews

Silas Sloan

Abel Greenleaf

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1156 recorded