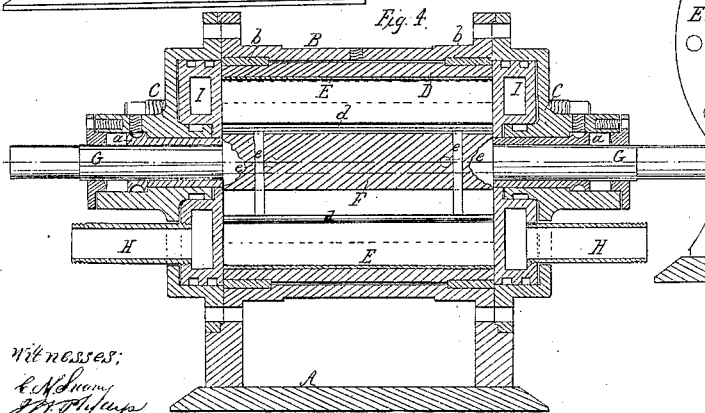
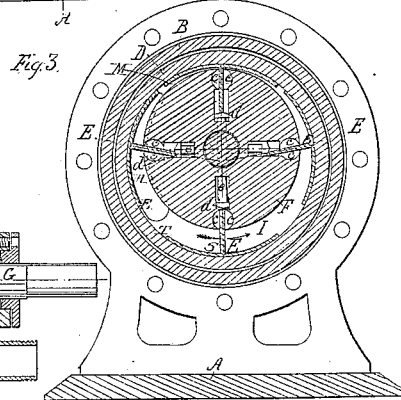
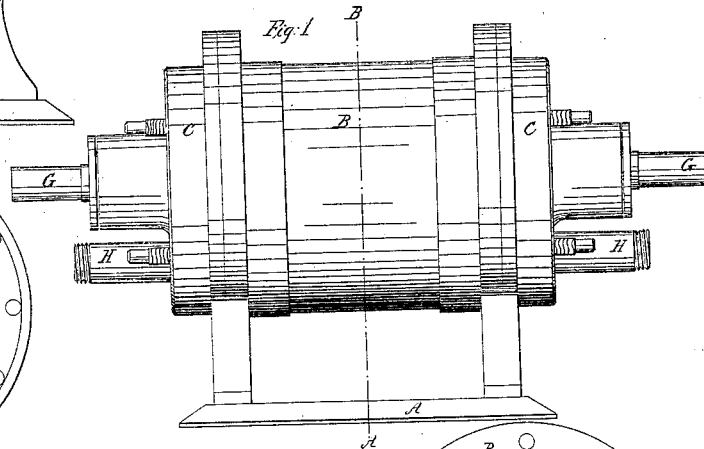
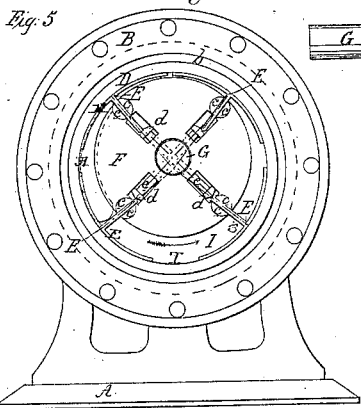
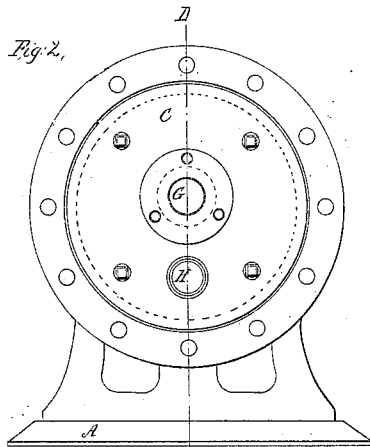


M. Fletcher,
Rotary Steam Engine.

N^o 51,165.

Patented Nov. 28, 1865.



Witnesses:
R. M. Smith
J. M. H. H. H.

Inventor
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by atty. J. C. Fletcher

UNITED STATES PATENT OFFICE.

MATTHEW FLETCHER, OF LOUISVILLE, KENTUCKY.

IMPROVEMENT IN ROTARY STEAM-ENGINES.

Specification forming part of Letters Patent No. 51,165, dated November 28, 1865.

To all whom it may concern:

Be it known that I, MATTHEW FLETCHER, of Louisville, in the county of Jefferson and State of Kentucky, have invented new and useful Improvements in the Rotary Steam-Engine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure I is a side view. Fig. II is an end view. Fig. III is a cross-section at A B. Fig. IV is a cross-section at C D. Fig. V is an end view without the lid.

A (shown in Figs. I, II, III, IV, V) is the base-plate for the engine to stand on.

B, Figs. I, III, IV, V, is an external cylinder bolted down to the base-plate and turned and bored out at each end.

C C, Figs. I, II, IV, are the two end lids of cylinder, bored eccentric, which lids are bolted fast to the cylinder, and support the bushes or bearings *a a*, for the rotative shaft to work in.

D, Figs. III, IV, V, is an internal cylinder working in two brass rings, *b b*, and revolving independently inside of the external cylinder.

E E E E, Figs. III, IV, V, are the fliers or pistons where the steam presses on to exert its power, which fliers propel the drum F, Figs. III, IV, V, by pressing on them half-round pieces *cccccccc*, Figs. III, V, and those half-round pieces form joints or hinges for the fliers to move on and reciprocate through. Consequently the fliers, as seen in Figs. III, V, lying against the inside of internal cylinder point to the center of the same. G G, Figs. I, II, IV, V, is the rotative shaft, which works in the bearings or bushes in lids of cylinder, and keyed fast, or made in one piece, with the drum. H H, Figs. I, II, IV, are the steam or eduction pipes, to admit or pass the steam in or out of the hollow ends or face-plates I I, Figs. III, IV, V. These steam or eduction pipes H H are screwed fast in the ends or face-plates and pass easy through the cylinder-lids. On the inside of the face-plates I I are the passages cut for the entry and delivery of steam. (See passages Figs. III, V.) One passage is cut at the opposite side to the other, so that by reversing the entry of steam from one end of cylinder to the other it changes the rotary motion from right to left. There will be seen in

Figs. III, IV, V four pieces of flat steel, *d d d d*, beveled on their outer edges, and which work up and down in the drum-grooves, so as always to lie on the internal part of fliers E E E. Those pieces of flat steel are kept out to their right distance by the cross-pins *eeee*, Figs. III, IV, V, which pins go through the drum, and on their ends lie against the internal part of those pieces of flat steel. This machine has a concentric and eccentric motion, as the drum-shaft is out of the middle of cylinder, and consequently it causes the distance of the outside of fliers E E E E, in one part of their revolution, to be nearer together than at the other, (see Fig. III,) in which it will be seen that the upright fliers are of a greater distance apart than the horizontal fliers. This fault or deficiency is obviated by the motion of the fliers in the joints where they work in, as it causes their internal part in its motion to lie on different parts of the beveled pieces of steel *d d d d*, and thereby the fliers are always kept in the radius of the cylinder. The different principal parts of this machine are as follows: Figs. I, II, III, IV, V is the base-plate A. Figs. I, III, IV, V is the external cylinder, B B. Figs. I, II, IV are the two end lids of cylinder, C C; Figs. III, IV, V, the internal cylinder, D D; Figs. III, IV, V, the fliers or pistons E E E E; Figs. III, IV, V, the grooved drum F; Figs. I, II, IV, V, the rotative shaft G G; Figs. I, II, IV, the steam or eduction pipes H H; Figs. III, V, the hollow movable ends or face-plates I I; Fig. IV, the bushes or bearings *a a*; Figs. III, IV, V, the two brass rings *b b*; Figs. III, V, the half-round pieces that form the joints *cccccccc*; Figs. III, IV, V, the flat pieces of steel *d d d d*; Figs. III, IV, V, the cross-pins *eeee*.

I do not claim the concentric and eccentric motion in conjunction with jointed fliers or pistons, (having used the same in my previous invention of 1841;) nor do I claim the movable face-plates; but

I claim—

1. The double cylinder, as described.
2. The internal cylinder so arranged with reference to the fliers or pistons as to have a rotary motion nearly corresponding with them, and so as to rotate within the outer cylinder, substantially as shown and described.
3. The hollow rings or chambers placed with-

in the cylinder-heads for the purpose of equalizing the pressure on the ends of the pistons, substantially as shown and described.

4. The devices for always keeping the fliers or pistons against the sides of cylinder, although the distance of the outside of fliers one from the other differs in their revolution, as described, and the whole arranged substantially in the manner and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name.

MATTHEW FLETCHER.

Witnesses:

JOHN DOYLE,

MICHAEL DAWSON.