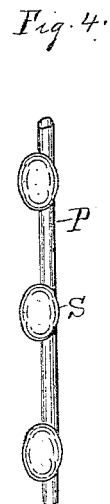
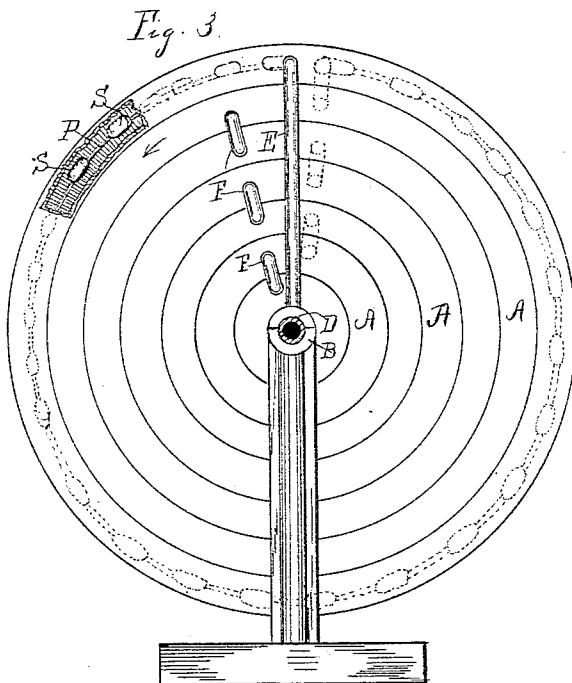
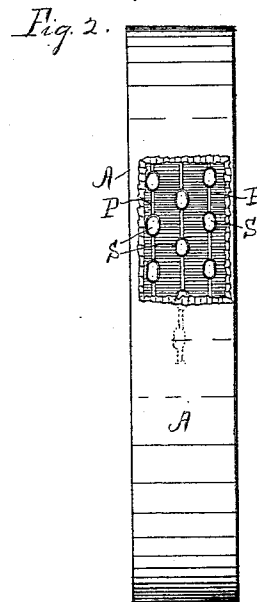
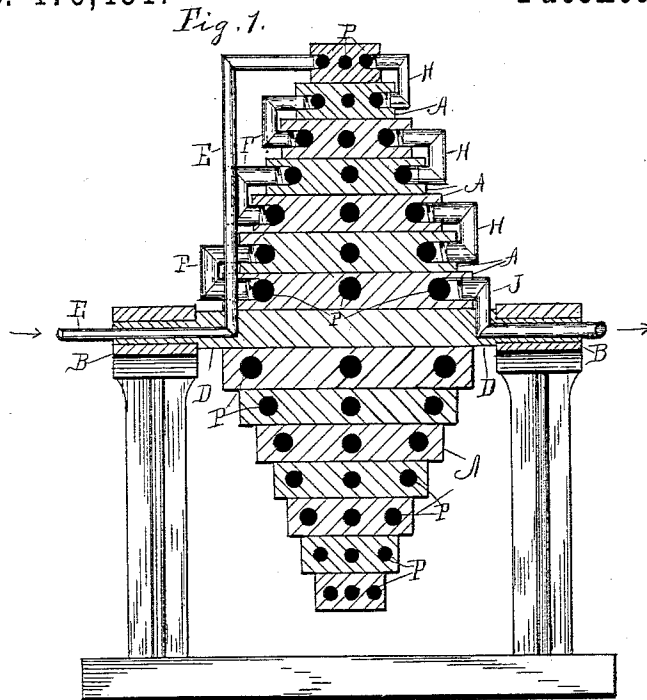


(No Model.)

G. ELRICK.
ROTARY ENGINE.

No. 476,451.

Patented June 7, 1892.



Witnesses

H. Cowell
H. C. Hutchins

Inventor

George Elrick By
Thos. H. Hutchins his atty

UNITED STATES PATENT OFFICE.

GEORGE ELRICK, OF JOLIET, ILLINOIS.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 476,451, dated June 7, 1892.

Application filed September 14, 1891. Serial No. 405,629. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ELRICK, a citizen of the United States of America, residing at Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Rotary Engines, of which the following is a specification, reference being had therein to the accompanying drawings and the letters of reference thereon, forming a part of this specification, in which—

Figure 1 is a central vertical cross-section. Fig. 2 is a face view of one of the ring-sections, having a part broken away to show the steam-port within. Fig. 3 is a side elevation of the engine, and Fig. 4 is a perspective view of a section of a pipe from which to form one of the steam-ports.

This invention relates to certain improvements in rotary steam-engines, which improvements are fully set forth and explained in the following specification and claims.

Referring to the drawings, A represents a series of flat rings arranged concentrically with relation to each other and placed on the shaft D, having hollow journals for the inlet and exhaust ports. These rings A are shown as being placed one within the other in the form shown in Figs. 1 and 3, the center ring being the widest and the outer one being the narrowest, the intermediate rings being graduated in size from the inner one to the outer one, so that the sides of the engine appear in offsets something like stairs. Each ring is provided with a steam-port P, which enters at one side and passes in a spiral form one or more times around within the body of the ring concentrically with its circumference and exhausts at the opposite side of the ring about opposite where it enters. These ports are largest in the inner ring and gradually decrease in size, so that those in the outer ring are the smallest.

F and H are pipes for alternately connecting the port of one ring with that of the next adjacent ring, so as to form a continuous port through all the rings from its inlet to its exhaust. Steam is admitted through pipe E from the hollow journal of shaft D to the port P of the outer one of the rings A, and after passing through its spiral port passes through pipe H to the port of the next adjacent ring,

and from its port through pipe F to the port of the next adjacent ring, and so on through the ports of each ring consecutively to the exhaust-pipe J, which passes out through the opposite hollow journal of the shaft D. The inlet-pipe E and exhaust-pipe J are intended to be fitted with steam-tight joints, so they may turn and not leak steam.

The ports P are constructed so as to have formed in them at short regular intervals throughout their length the chambers S, larger in diameter than the ports, as shown in Figs. 2, 3, and 4. These chambers S form a resistance to the steam-blast as it passes through the ports, and thus cause the steam to rotate the engine. Were the ports smooth and of the same diameter throughout their length the steam would simply blow through them and not move the engine. These chambers may be any size or form that may be found best in practical use.

The rings A are intended to be made of cast metal and cored to form the spiral ports and chambers; but the said ports and chambers may be first formed of metal pipe or tubing such as is shown in Fig. 4 and then bent in a spiral form and have the ring cast around it and left within the ring, so as to save cleaning out the ports when cast with a core; also, instead of building up the engine of a succession of concentric rings it may be cast all in one solid piece with the ports therein, as shown. The ports should pass at least once around in a ring in a spiral form, but may pass around any number of times desired if for any reason that is found advantageous. The journals of the shaft D rest in suitable boxes B and may extend beyond the boxes, so as to carry a band-wheel or gear for propelling machinery. The ports P should gradually increase in size from the inlet to the exhaust on account of the condensation of the steam. To reverse the engine, the steam should enter at the exhaust and pass through the engine in the opposite direction.

If desired, the ports of one ring may be connected with the ports of an adjacent ring by any other means than by the pipes F and H, and the rings A may all be of the same face width, if desired.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is as follows, to wit:

1. In a rotary engine, the combination of the concentric rings A, each provided with a spiral port P, having the chambers S, the port of each ring being connected with the port of an adjacent ring, substantially as and for the purpose set forth.

2. The rotary steam-engine shown and described, consisting of the body portion A, having the connected spiral ports P, provided

with the chambers S, disposed at regular intervals throughout their length and increasing in diameter from the inlet to the exhaust, and having its spiral form extend alternately in either direction, substantially as and for the purpose set forth.

GEORGE ELRICK.

Witnesses:

THOS. H. HUTCHINS,
T. M. FOLEY.