(No Model.)

C. DAWSON.

ROTARY ENGINE.

No. 360,565. Patented Apr. 5, 1887.

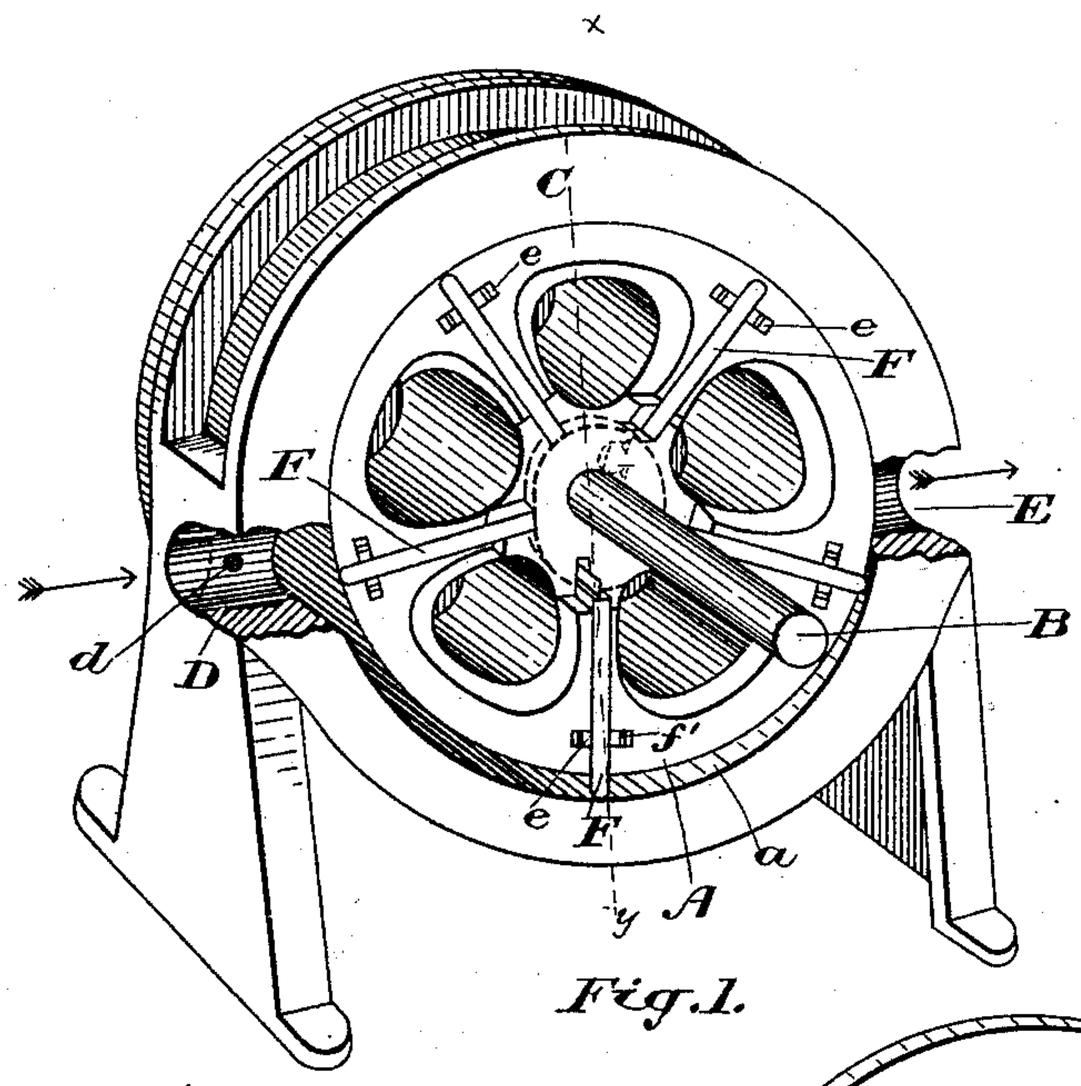

Fig. 1.

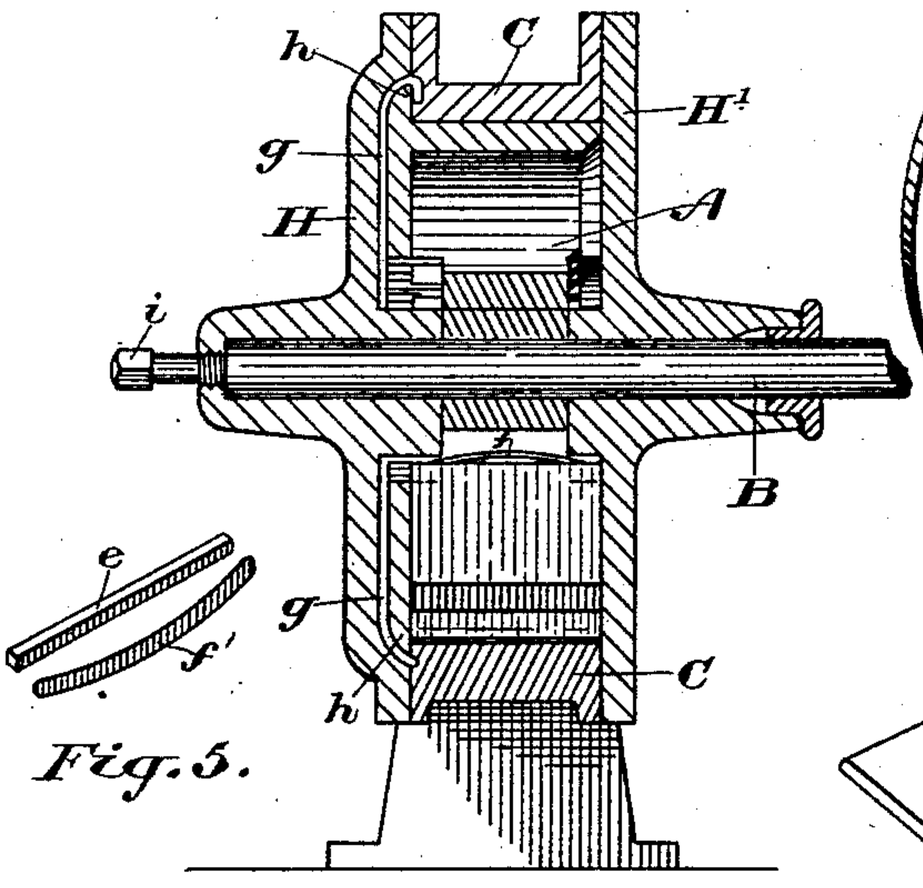

Fig. 5.

Fig. 2.

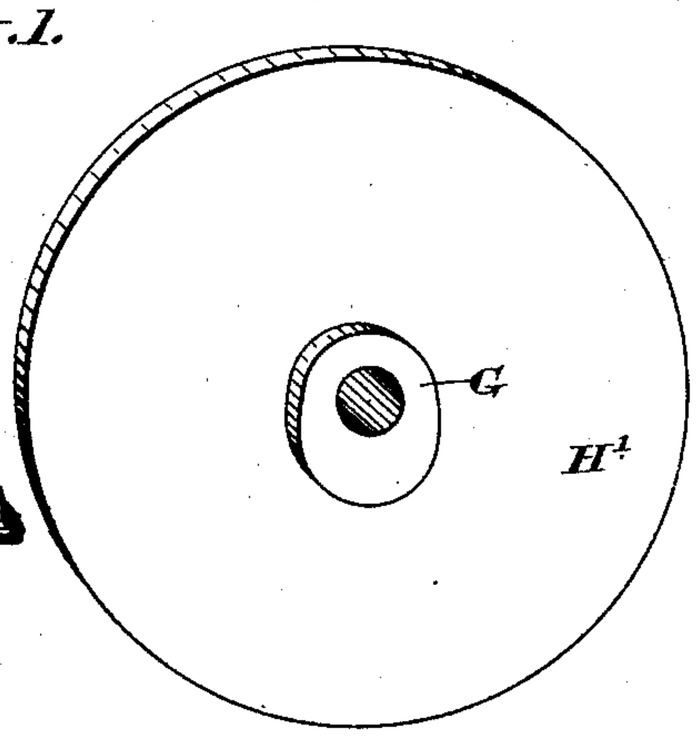

Fig. 3.

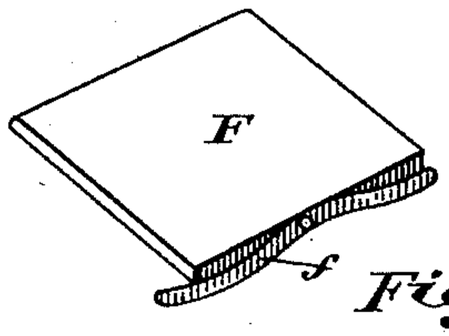

Fig. 4.

Witnesses.

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UNITED STATES PATENT OFFICE.

CHARLES DAWSON, OF PETERBOROUGH, ONTARIO, CANADA.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 360,565, dated April 5, 1887.

Application filed July 29, 1886. Serial No. 209,458. (No model.)

To all whom it may concern:

Be it known that I, CHARLES DAWSON, of the town of Peterborough, in the county of Peterborough, in the Province of Ontario, Canada, machinist, have invented an Improved Rotary Engine for Steam or Water Power, of which the following is a specification.

The object of the invention is to design a rotary engine which may be driven either by steam or water power, and which may also be used as an effective pump; and it consists in the peculiar combinations and the novel construction and arrangement of the parts, all as more fully hereinafter described and claimed.

Figure 1 is a view of my improved rotary engine or pump, having one of its cylinder ends removed and partially broken away to exhibit its ports. Fig. 2 is a cross-section through *x y* of Fig. 1. Fig. 3 is a detail of one of the cylinder-heads. Fig. 4 is a detail of one of the piston-blades. Fig. 5 is a detail of one of the blocks and its springs for pressing against the sides of the blades.

A is the piston, secured in any suitable manner to its shaft B. The cylinder C is bored to receive the piston A, but is slightly eccentric, so as to leave a lune, *a*, on one side of the cylinder, as represented, and extending from the steam-port D to the exhaust-port E.

F are a series of blades fitted into slots made in the piston A, and radiating from its center, as indicated.

f are springs attached to the blades F, and designed to impart a slight outward pressure to each blade F.

G is a cam formed upon or attached to each of the cylinder-heads H H′, and shaped to correspond with the shape of the bore of the cylinder C.

The inner edge of each of the blades F, or of the springs attached to them, rest upon the cams G, which cams are made such a shape as mentioned, so that as the piston A revolves the outer ends of the blades F shall be constantly held against the interior surface of the cylinder C. It will be noticed on reference to Fig. 1 that the circular surface of the piston A hugs the interior circular surface of the cylinder C above the ports D and E, and that below the said ports a lune, *a*, is formed between the circular surface of the piston A and that of the cylinder C. Into this lune each of the blades F is forced as it comes opposite to it, either by the action of the cam G or the pressure of steam admitted into the interior of the piston A through the small port *d*. The steam which enters the port D will naturally flow into the lune, and, coming in contact with one of the blades projecting therein, forces the piston A around, and, owing to the lune shape of the cylinder C, each blade F, as it passes the port D, acts as a cut-off, and as the blade F next to it in the lune *a* presents a much larger surface for the steam than the blade which has just passed the said port, the steam between the two blades will, from its natural expansion, contribute to the revolving of the piston, and consequently I secure from the formation of my cylinder described the advantage of the expansive force of the steam as well as the direct force of the live steam.

I provide the springs *f*, so that any wear on the ends of the blades will be compensated for by the expansion of the said springs.

On each side of each blade F, I place a block, *e*, inserted in a slot in the piston A and held against the blade F by the action of the spring *f′*, which blocks prevent the steam admitted into the interior of the piston A from escaping into the lune.

On reference to Fig. 2 it will be noticed that a space, *g*, is left between the end of the piston A and the back cylinder-head, H. It is into this space *g* that the steam enters into the center of the piston A.

With the view of preventing the flange *h* on the back of the piston A from jamming against the face of the cylinder C, the space *g* is carried around behind the said flange, as indicated in Fig. 2, thereby assisting the steam within the piston in balancing the piston. The set-screw *i*, screwed into the back cylinder-head, H, butts against the end of the shaft B, and is intended for adjusting the pressure against the piston A, so as to hold its face and the edges of the blades F against the front cylinder-head, H′.

From this description the general construction and operation of my improved rotary engine will be understood, and in conclusion I may say that I secure an economically-working rotary engine which is durable and powerful in proportion to the steam consumed, and, further, that it may be advantageously

employed as a rotary pump or as a water-engine.

What I claim as my invention is—

1. The revolving piston A and the cylinder C, bored as specified, and provided with a flange, *h*, formed on the piston-head A to butt against the cylinder C, in combination with the cylinder-head H, shaped so as to leave a space, *g*, between it and the piston, which space is connected to the steam-port D by the small steam-port *d*, substantially as and for the purpose specified.

2. The combination, with the cylinder, bored as specified, and the revolving piston A in said cylinder, of the blades F, working in guides in said piston, connections between the steam-port and the interior of the piston, the blocks *e*, and the springs *f'*, for holding said blocks against said blades, substantially as and for the purpose specified.

Peterborough, July 22, 1886.

CHARLES DAWSON.

In presence of—

A. P. POUSSETTE,

H. W. BUCKE.