

(No Model.)

A. F. G. BROWN.
ROTARY ENGINE.

No. 478,843.

Patented July 12, 1892.

Fig. 1.

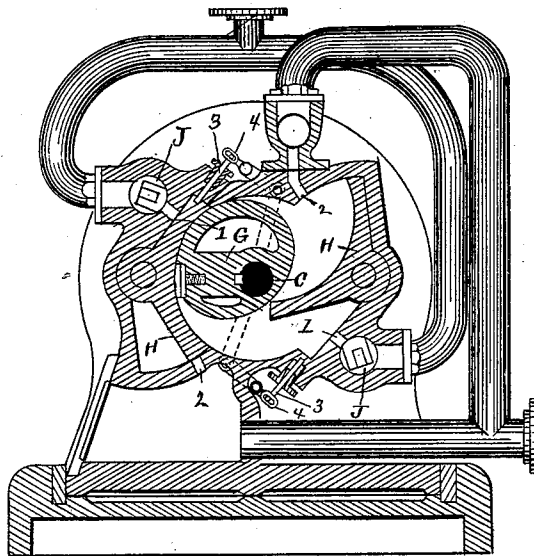


Fig. 2.

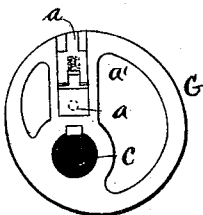


Fig. 3.

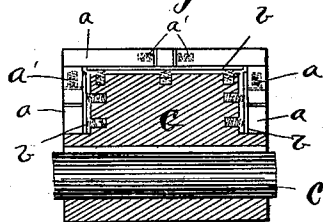


Fig. 4

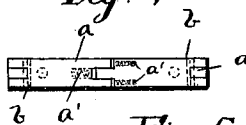
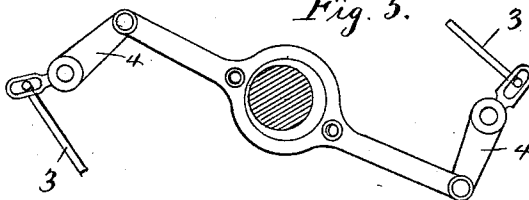


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALEXANDER FRANCIS GARDEN BROWN, OF SWINDRIDGE MUIR, DALRY,
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ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 478,843, dated July 12, 1892.

Application filed April 15, 1891. Serial No. 389,056. (No model.) Patented in England October 26, 1889, No. 16,913.

To all whom it may concern:

Be it known that I, ALEXANDER FRANCIS GARDEN BROWN, a citizen of the United Kingdom of Great Britain and Ireland, residing at Swindridge Muir, Dalry, in the county of Ayr, Scotland, have invented new and useful Improvements in Rotary Engines, (which have not been patented in any country except Great Britain by Letters Patent dated the 26th day of October, 1889, No. 16,913;) and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art or manufacture to which it relates to make and use the same.

This invention relates to improvements in single-acting and in reversing rotary engines, and it is a further development of the invention for which Letters Patent of the United Kingdom of Great Britain and Ireland, dated the 2d day of February, 1888, No. 1,555, and also Letters Patent of the United States of America, dated the 28th day of January, 1890, No. 420,331, have been granted to me for improvements in rotary engines.

Figure 1 is a sectional elevation of an engine embodying my invention. Figs. 2, 3, and 4 are detail views thereof. Fig. 5 is a view of the crank or eccentric for the locking device.

Under the present invention the piston G is keyed direct to the said shaft C. The packing-strip *a*, extending across the breadth of the piston, and the similar strips extending down the ends of the piston are, as seen at Figs. 2, 3, and 4, made in two pieces dovetailed or rabbeted into each other at the center, and at the said joints springs *a'* are inserted, the tendency of which is to force the two parts of the strips asunder, so as to insure that, notwithstanding tear and wear of the parts, the strips shall always bear steam-tight against the interior of the cylinder, and more particularly in the corners. Under the strip *a* and within the end strips a thin plate *b* is situated.

Fig. 1 represents an arrangement in which each arm H has two horns or branches extending in opposite directions from its boss, and in single-acting engines a steam-passage 1, communicating with the distributing valve-casing J, is made in the recess of the cylinder

behind one of the said branches, as before, while an exhaust-passage 2 is made at a part of the cylinder which is covered by the end of the other branch of the arm when it is not necessary that the said passage should be open for the exhaust of steam. With this construction as the piston G rotates and the horn or branch in front of one steam-passage 1 is thrown out against it the other horn or branch of the said arm is thrown back, so as to uncover its exhaust-passage 2, while at the same time the piston moves out the corresponding horn or branch of the other arm to cover its exhaust-port 2. In reversing engines steam admission and exhaust passages are provided, as described, in conjunction with both horns or branches of each arm, the arrangement in either case having the effect of lessening or preventing shock and noise in working the engine. To insure that the arms shall only move at the proper times, a bolt 3 is or may be provided in conjunction with the steam-distributing horn of each arm, the said bolt being connected to a rocking lever 4, worked by a crank or eccentric from the main shaft, so as to be entered into and withdrawn from the point of the said horn or branch at the required times.

Having now described the invention, what I desire to claim and secure by Letters Patent is—

1. In a rotary engine, the combination of a cylinder having its interior recessed with admission-ports leading from distributing-valves to said recesses, a rotating segmental piston in said cylinder keyed direct to the main shaft, packing for said pistons, consisting of strips, each made in two pieces, dovetailed one into the other and spread apart by springs, said strips being forced against the surface of the cylinder by springs situated in recesses made in the piston and acting against interior pressure-plates, and two or more branched arms arranged to alternately lie in and be extended to the piston-face from said recesses, said arms having exhaust-ports therein, and means operated from the main shaft for locking and unlocking said arms, substantially as described.

2. In a rotary engine, the combination of a cylinder having its interior recessed with admission-ports leading from distributing-valves

to said recesses and exhaust-ports leading
from said recesses to exhaust pipes or pas-
sages, a rotating segmental piston in said cyl-
inder keyed direct to the main shaft, and two
5 arms arranged to alternately lie in and be ex-
tended to the piston-face from said recesses,
each arm having two branches extending in
opposite directions from its boss and one of
which when the arm lies in the recess covers
10 or closes the exhaust-passage, and means for
locking and unlocking said arms, consisting
of bolts, said bolts being connected to a rock-

ing lever worked by a crank or eccentric from
the main shaft, substantially as described.

In witness whereof I have hereunto set my 15
hand and seal this 21st day of November, 1890.

ALEXANDER FRANCIS GARDEN BROWN. [L. S.]

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