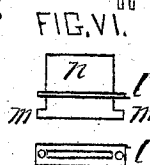
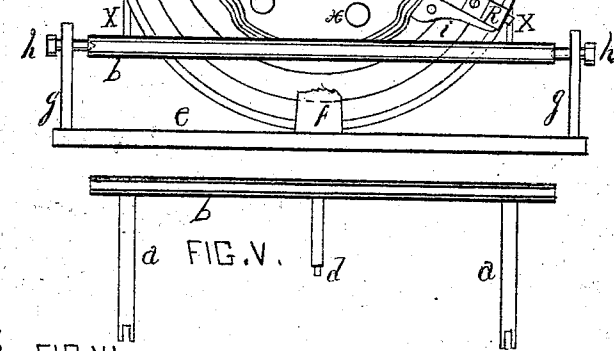
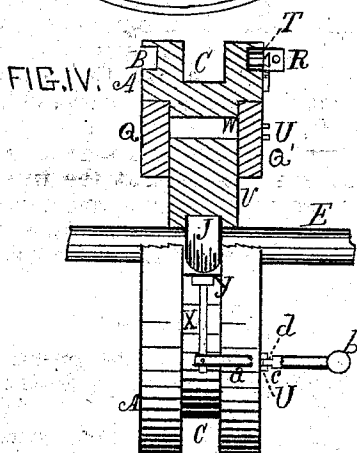
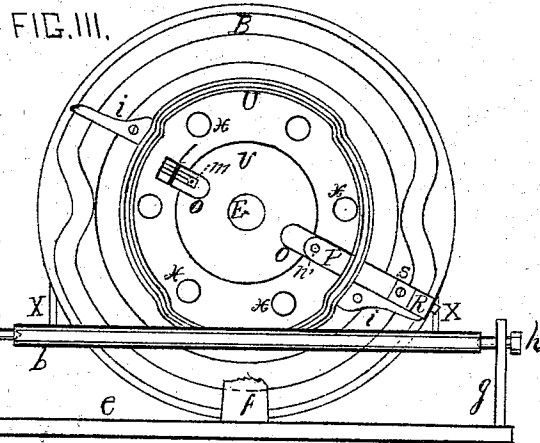
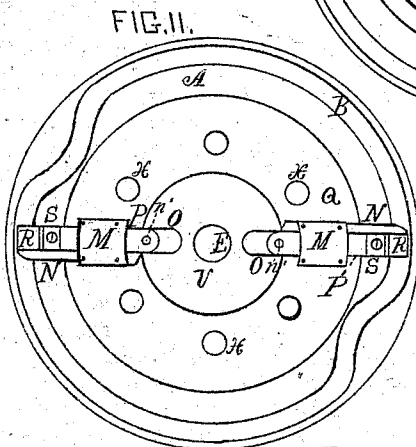
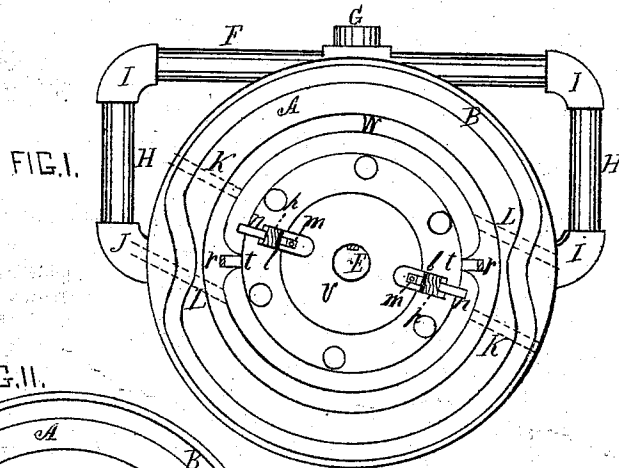


C. INMAN.

Rotary Steam-Engines.

No. 136,164.

Patented Feb. 25, 1873.



WITNESSES

Frank M. Merrill
Sam. Street

INVENTOR

Charles Inman,
By G. D. Chapin, Atty.

UNITED STATES PATENT OFFICE.

CHARLES INMAN, OF HOPE, MICHIGAN.

IMPROVEMENT IN ROTARY STEAM-ENGINES.

Specification forming part of Letters Patent No. **136,164**, dated February 25, 1873.

To all whom it may concern:

Be it known that I, CHARLES INMAN, of Hope, in the county of Midland and State of Michigan, have invented a new and useful Improvement in Rotary Engines, of which the following is a specification:

The nature of the present invention consists of a rock-shaft, which is driven by a cam on the face of the rotating part of the engine, so as to operate a cut-off on both steam-induction pipes, in combination with internal cut-offs and slides, whereby steam has a more direct application to the rotating center or cylinder, and the mechanism made to operate with regularity and reduction of friction, as hereinafter described and shown.

In the drawing, Figure 1 is a face view of my improved engine with the face-plate of the rotating part removed to show the inside; Fig. 2, a view of the opposite side of the engine from that shown in Fig. 1, the steam-pipes and frame-work being removed; Fig. 3, a front elevation of the engine with the shaft-standard broken away, more clearly to show the working parts, one of the slides which operate the cut-offs being removed; Fig. 4, a sectional elevation of the engine; Fig. 5, a plan view of the rock-shaft. Fig. 6 shows a side view of one of the internal cut-offs and the packing-plate thereon.

A represents the external rim of the engine, which is provided with a recess, C, on its periphery for the convenience of attaching the steam-pipes F H I J, and providing room in the flanges, at the sides of the recess, for cam-grooves B B, for giving reciprocating movement to slides P P. Rabbets W, Figs. 1 and 4, are formed in the inner angles of the rim A to receive a face-plate, Q', on one side, and a face-plate, Q, on the other side. Between the plates Q Q' is placed a disk, V, to which the plates Q Q' are fastened by bolts X X, &c., Figs. 1, 2, and 3, thus holding the rim A and the rotating parts Q Q' V together, in position to receive steam. Reciprocating guides P P on the back of the engine are provided with suitable guides M to operate in, said guides being fastened to the plate Q. To prevent the slides P

from springing to one side when passing the cams in grooves B, braces N N are fastened to the guides M, and extend outwardly against the roller-supports R, thus preventing any springing of the parts so as to cause a jar. The position of one of the friction-rollers running in the cam-grooves B is shown at T, Fig. 4, all of the rollers being constructed and arranged to operate in the same manner by pivots put through slides P and into roller-supports R, and held in place by means of screws S, which pass through the roller-supports R into the slides P. The opposite ends of these slides are fastened, by screws n', to internal cut-offs n at m, so that as the slides P are moved the cut-offs will also be moved with them. Openings O O are made through the shaft-cylinder to enable the cut-offs n n to operate; and the plates Q Q' are notched out on their inner peripheries for the same purpose—that is, to give room. On the inner periphery of the rim A are formed cut-offs t t, provided with suitable packing r, Fig. 1, which form steam-tight joints against the periphery of the shaft-cylinder V. The cut-offs n n extend outwardly from the cylinder V to the internal periphery of the rim A, and form steam-tight joints against it. b represents a rock-shaft, which is hung in bearings h put through standards g g, and which supports arms a a, which operate the cut-offs X X, and an arm, d, which is operated by a cam-groove, U, in such a manner as to give the proper movement to the arms a a to open and close the cut-offs X at the time the cut-offs n n are passing the projecting packing r t, Fig. 1, thereby using no steam while the cut-offs n are passing from exhaust K to induction-ports L.

Operation.

Steam is admitted at the pipe G, and enters through ports shown by dotted lines L, and escapes through ports K. The steam strikes the cut-offs n n and carries them round to the cut-offs r t, at which places they are drawn in by slides P and cam-groove B, while at the same time the rock-shaft b is put in motion by cam-groove U.

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

1. The rock-shaft *b*, provided with arms *a c a*, in combination with the cam-groove *U*, face-plate *Q'*, cut-offs *X*, steam-pipes *F G H J I*, and disk *V*, constructed and arranged as and for the purpose set forth.

2. The combination of the cut-offs *n n*,

slides *P* provided with rollers *T*, cam-grooves *B*, braces *i N*, cut-offs *r t*, rim *A*, plates *Q Q'*, and disk *V*, constructed and arranged to operate as set forth.

CHARLES INMAN.

Witnesses:

WILLIAM MILLS,
GEORGE FRASER.