(No Model.)

J. H. DARRAGH.

ROTARY ENGINE.

No. 267,160. Patented Nov. 7, 1882.

Fig. 2.

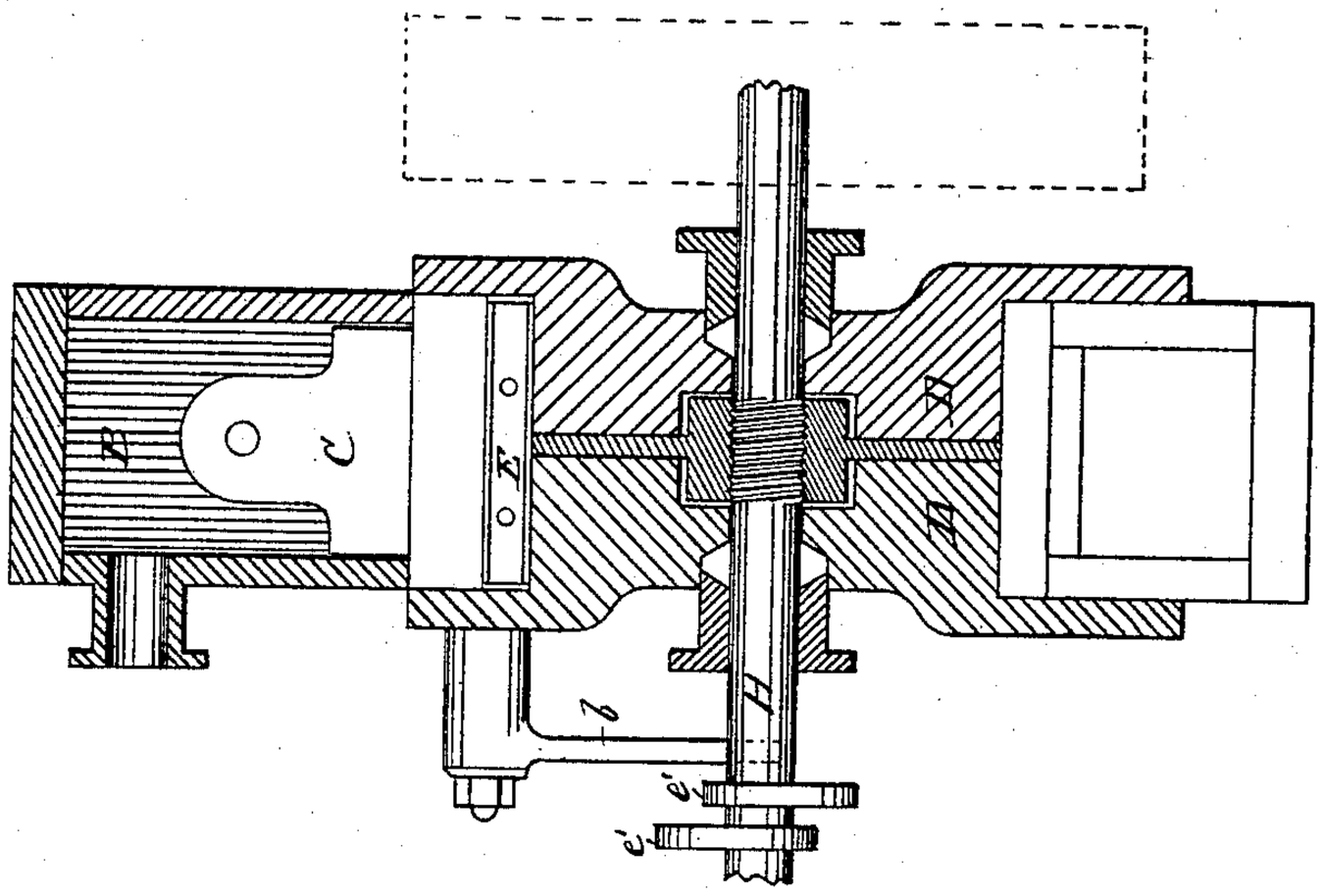
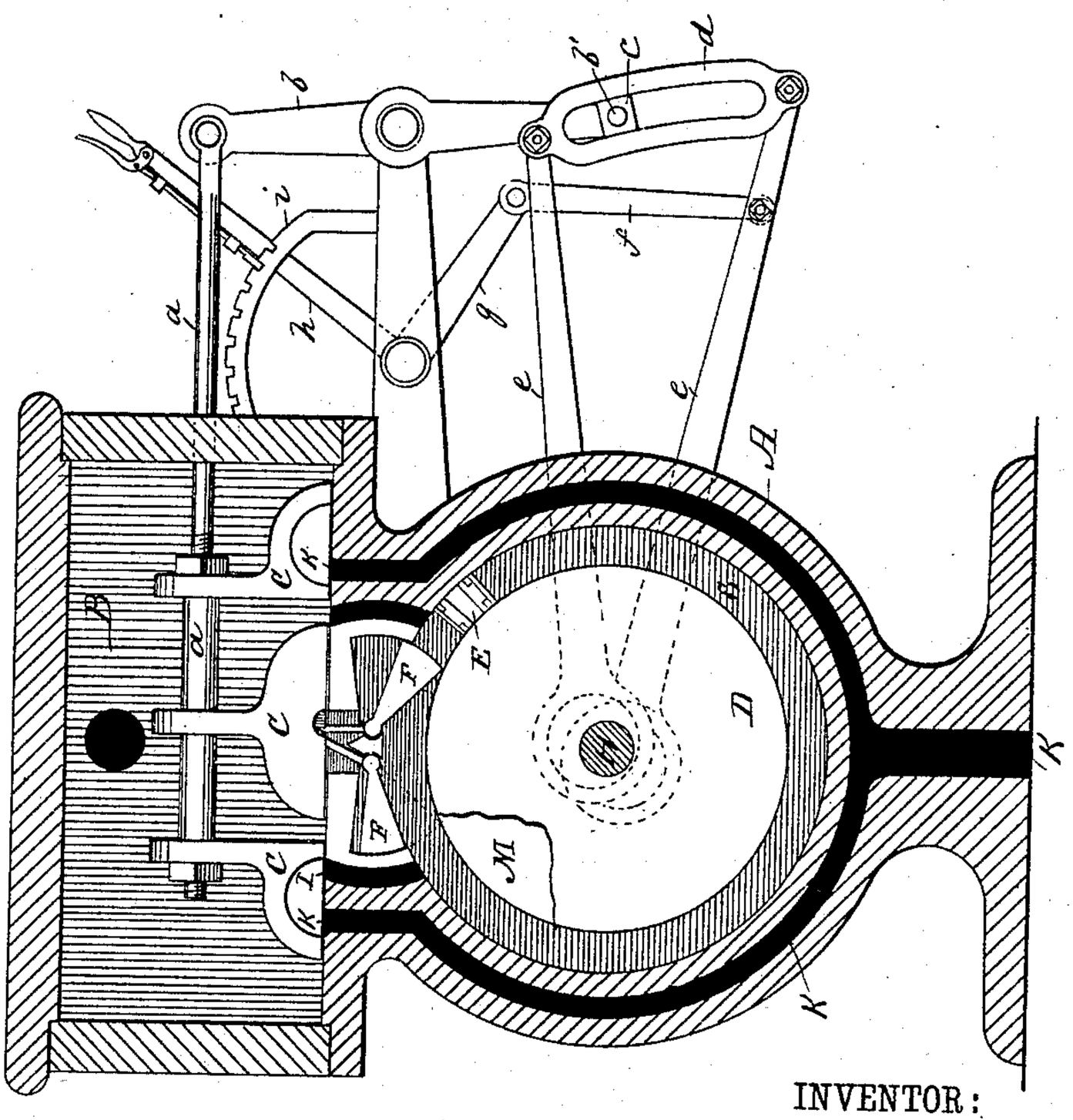


Fig. 1.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN H. DARRAGH, OF SAN FRANCISCO, CALIFORNIA.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 267,160, dated November 7, 1882.

Application filed December 31, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. DARRAGH, of the city and county of San Francisco, and State of California, have invented a new and useful Improvement in Rotary Engines, of which the following is a full, clear, and exact description.

My invention has reference to rotary steam-engines; and it consists in certain features of construction and arrangement hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts.

Figure 1 of drawings is a transverse, and Fig. 2 a longitudinal vertical, section of the shell.

A is the shell or case, of cylindrical form.

B is a steam-chest fitted on the top of the case, and containing slide-valves C, of which there are three on one stem, *a*. The valves are so arranged that one of the two outer covers the exhaust-port continually while the other valve is working.

H is the shaft, having bearings in heads M.

D is a disk, fixed on the shaft between the heads, and carrying a piston or pistons, E, in the steamway S between the inner surface of case A and the projections of the heads.

F F are hinged gates, fitted in recesses of the case. The middle valve C is arranged to raise one gate F, according to the direction of revolution, and retain it, while at each revolution of the piston the other gate is alternately raised and lowered by the piston, until by operation of a reversing-lever the valves are shifted and the direction of revolution and entire operation reversed.

There are two steam-ports, I, and two exhaust-ports, K. Three ports are in use at a time, as indicated by the arrows. As shown, the steam exhausts to a condenser, Y, but may exhaust to the open air.

The engine may be used as a pump, and for that purpose driven by a separate motor.

The stem *a* is operated by the rocker-arm *b*, having a side pivot, *b'*, oscillating in a slide-nut, *c*, which works in the slot of a link, *d*. This link is pivoted at the ends to arms *e e*, which carry yokes surrounding the cams *e' e'* on shaft H. *f* and *g* are rods pivoted together at one end and connecting the lower arm *e* with the lever *h*, which carries a spring-catch to work in the curved rack *i*. The lower arm *e* is made longer than the upper one, so that when the hand-lever *h* is thrown over the rack *i* the link *d* may be drawn up so as to reverse the valves, and consequently the movements of the piston.

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

1. The combination, with the shell or case A, having heads M, the ports K I K, and the steam-chest B, of the stem *a*, carrying three slide-valves C, the hinged gates F F, and the disk D, fixed on shaft H, said shaft being also provided with one or more suitably-packed pistons, E, as and for the purpose specified.

2. The combination of hinged gates F F and slide-valves C, fitted to raise and retain either gate, substantially as shown and described.

JOHN HARISON DARRAGH.

Witnesses:
LEE D. CRAIG,
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