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J. B. FAUCETT.

Improvement in Rotary Steam Engines.

No. 122,713. Patented Jan. 16, 1872.

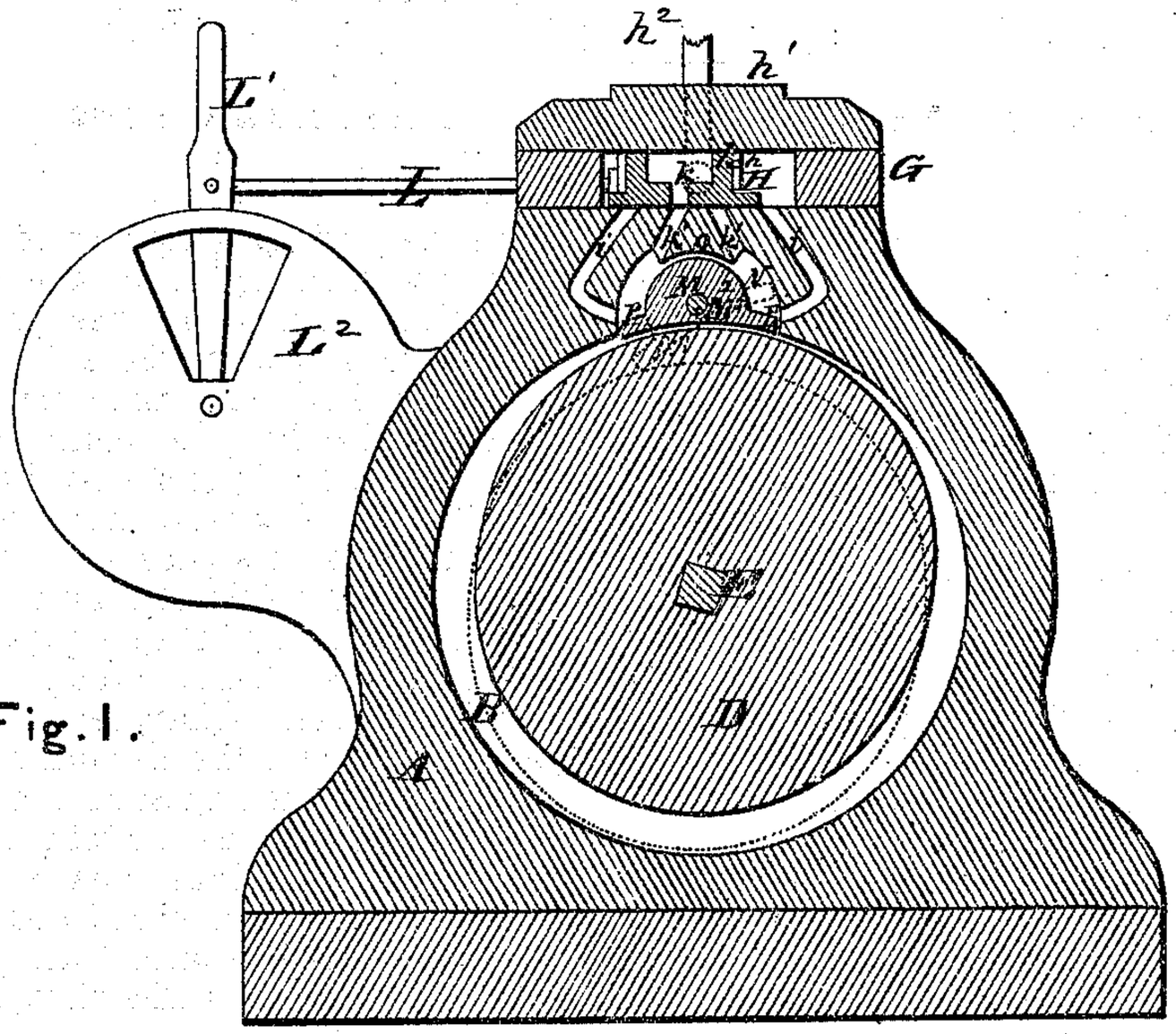


Fig. 1.

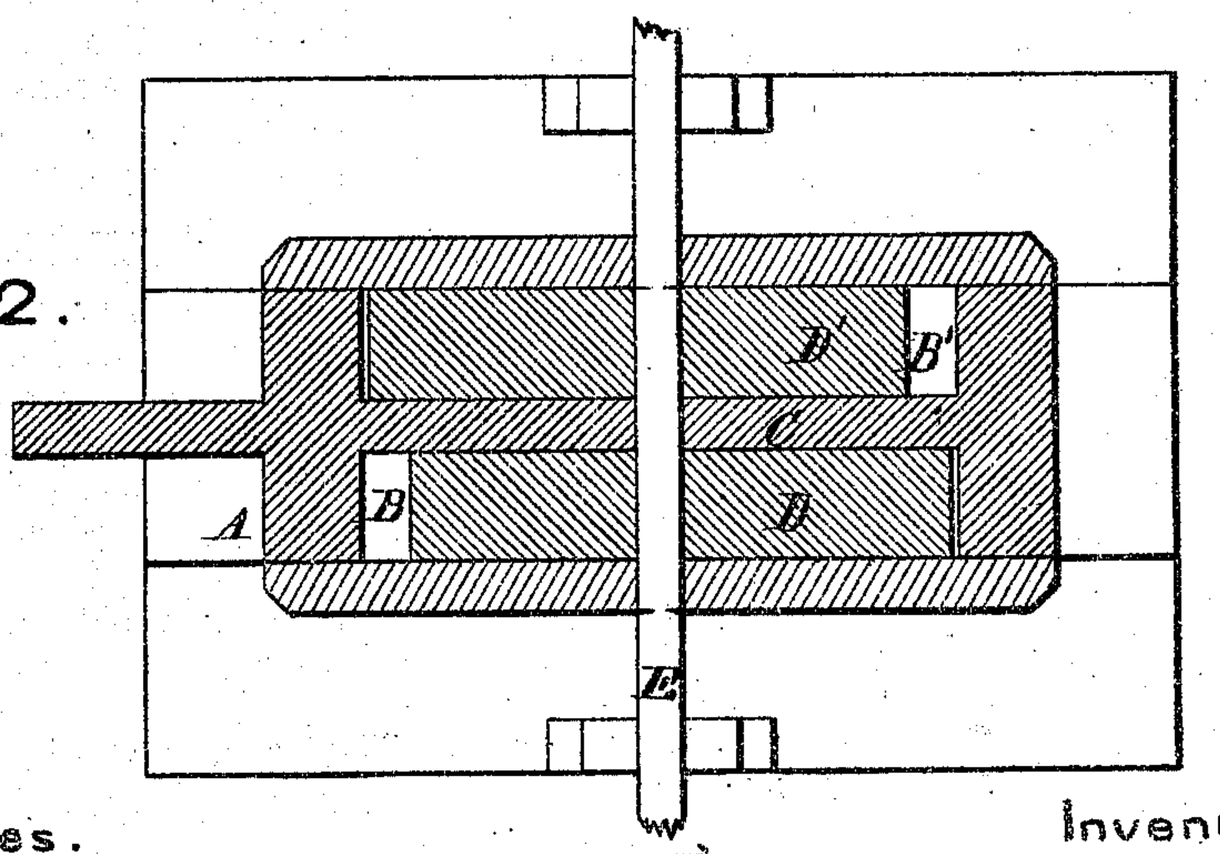
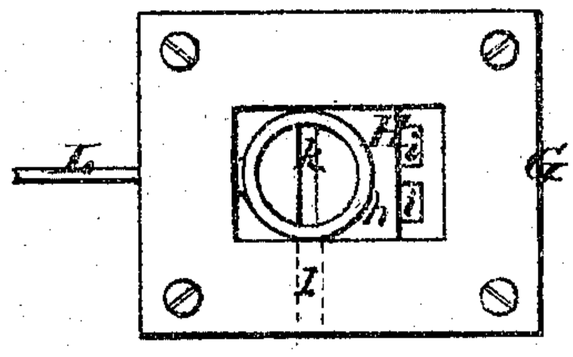


Fig. 2.

Fig. 3.



Witnesses.

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122,713

UNITED STATES PATENT OFFICE.

JAMES BEARD FAUCETT, OF POPE'S STATION, MISSISSIPPI.

IMPROVEMENT IN ROTARY ENGINES.

Specification forming part of Letters Patent No. 122,713, dated January 16, 1872.

To all whom it may concern:

Be it known that I, JAMES BEARD FAUCETT, of Pope's Station, in the county of Panola and State of Mississippi, have invented a new and valuable Improvement in Rotary Engines; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a central vertical section of my invention. Fig. 2 is a central horizontal transverse section, and Fig. 3 is a detail view, showing the exhaust-passages.

This invention has relation to that class of rotary steam-engines in which a revolving disk is employed instead of a piston. The engine which is the subject of the following description is double-acting so as to produce continuity of motion. The novelty consists in the construction and arrangement of a pair of oval eccentrics secured to a single transverse shaft, each revolving within a separate steam-chamber which communicates with its own steam-supply and exhaust-passages. A slide-valve governs the supply and escape of steam in such a manner as to regulate the direction of rotation, while each chamber is furnished with a rocking valve of a peculiar form and action, and adapted to work independently of the other, all as hereinafter more fully described.

In the accompanying drawing illustrating this invention, A represents a steam-case or cylinder, constructed with two distinct steam-chambers, B B′, of circular form, and separated from each other by a wall, C. D D′ represent the steam-disks, oval or elliptical in shape, and secured to the transverse shaft E, which passes through the wall C and exactly through the center of the chambers B B′. These disks are arranged in relation to the shaft E in an eccentric manner, which will be understood by supposing said shaft to pass through a point which constitutes the center of the circle of which one end of the disk is half. It passes through these points near the opposite ends of the two disks, as shown in the drawing. In consequence of this arrangement, and of the size of the disks, the changeable steam-space, which surrounds the greater part of the periphery of each disk, is concentric with the semicircular end through which the shaft passes, and thence tapers off on each side to the point where the other end of the disk is flush with the surface of the steam-chamber B or B′. G represents the steam-chest, in which works the slide-valve H. The latter is constructed with a circular flange, *h*, the top of which is designed to be flush with the inside of the cover h^1, and forms a cup, into which the steam from the supply-pipe h^2 enters, to be conducted thence through the proper passages to the steam-chambers. The valve H is constructed with the circular flange *h* on account of the exhaust-passage I on the side of the steam-chest. The exhaust steam passes around this flange to reach the passage I, but is prevented from a further course around the flange by reason of the latter being close up to the side of the chest. The valve has cut or cast through it one long or two short slots, *k*, which has or have communication with the steam-supply passages *k′*, through which steam is conveyed to the chambers B B′. L represents a rod secured at one end to the valve H, and at the other end to a lever, L^1, pivoted to a bracket, L^2. The direction which the disks rotate is governed by the end to which the valve is directed and retained by the rod L and lever L^1, as there are two sets of steam-supply passages, *k*, and two sets of exhaust-passages, leading from the steam-chest into each of the chambers B B′. Thus, when the valve is at one end of the chest the mouth of the exhaust at that end is closed and the mouth of the nearest supply opened. At the same time the exhaust at the opposite end is opened and the supply nearest to it closed, as shown clearly in Figs. 1 and 3. Each of the chambers B B′ is provided with a balanced or rocking valve, M M, respectively, adapted to work in a stationary shaft, M^2, and located within recesses N. The upper parts of the valves M M are semicircular, fitting the segmental projections O of the recesses N, and they are provided with flanges P, which fit the steam-spaces on each side of the valve peripheries. The bottom parts of the valves are properly formed segmental to coincide with the ends of the steam-disks, which come in contact therewith as they revolve. The exhausts *i* open into the recesses

N N near their lower parts, and the supply-passages open near the top parts, or on each side of the projections O.

The disks operate as follows: The steam passes through one of the passages k^1, on each side of the case A, according to the position of the valve H, and, pressing down upon the flanges P, tilts the valves M. The steam then rushes into the chambers B B′, but, finding an impediment in the disks as they approach the sides of the chambers, forces the disks around until escape-openings are produced leading to the exhaust-passages, through which the steam, having served its purpose, passes off. But, in revolving, the disks close up the valves M for a short time, the period of which is different in each case—that is, one valve is open while the other is closed. In the latter condition of one of the valves the steam on its side of the engine is without effect. Hence the rotation of the disk is continued by the aid of that on the other side. When the disk passes by the closed valve sufficient to allow it to open, the steam, as at first, opens the valve, at the same time allowing a supply and escape of steam to and from the steam-chamber.

I claim as my invention—

1. The combination, with the case A and rotary, elliptic, and eccentric pistons D D, of the rocking valve M having wings or flanches P, the slide-valve H, and the steam-passages *k i*, substantially as specified.

2. The combination, in a rotary steam-engine with the elliptic and eccentric rotary disk D, of the circular recess B, the semicircular recess N, the projection O, and the rocking valves M having the lateral flanches or wings P, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JAMES BEARD FAUCETT.

Witnesses:

E. C. MAXWELL,

M. J. DEATON. (150)