

(No Model.)

3 Sheets—Sheet 1.

J. WEST.
ROTARY ENGINE.

No. 535,337.

Patented Mar. 5, 1895.

Fig. 1.

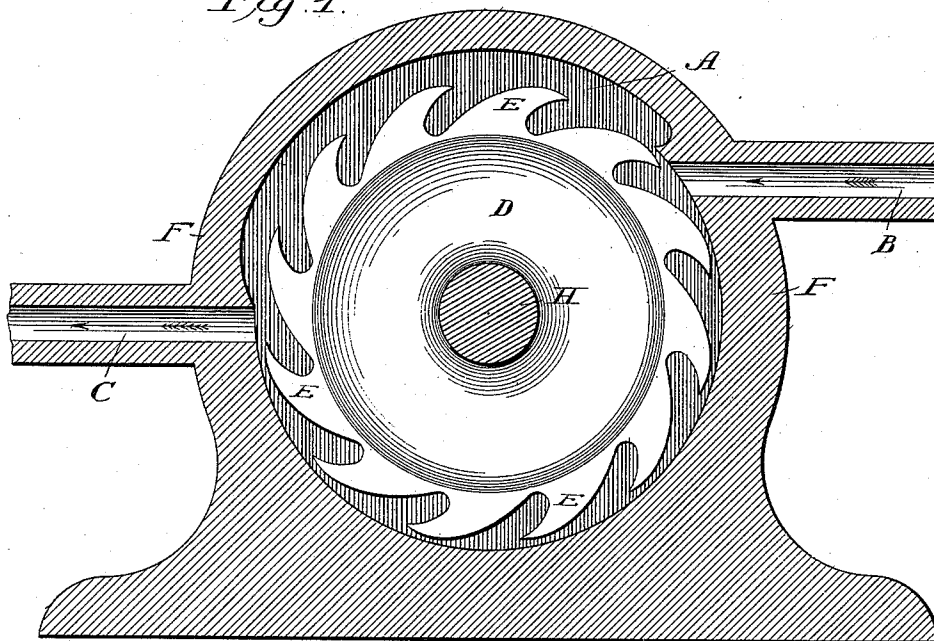
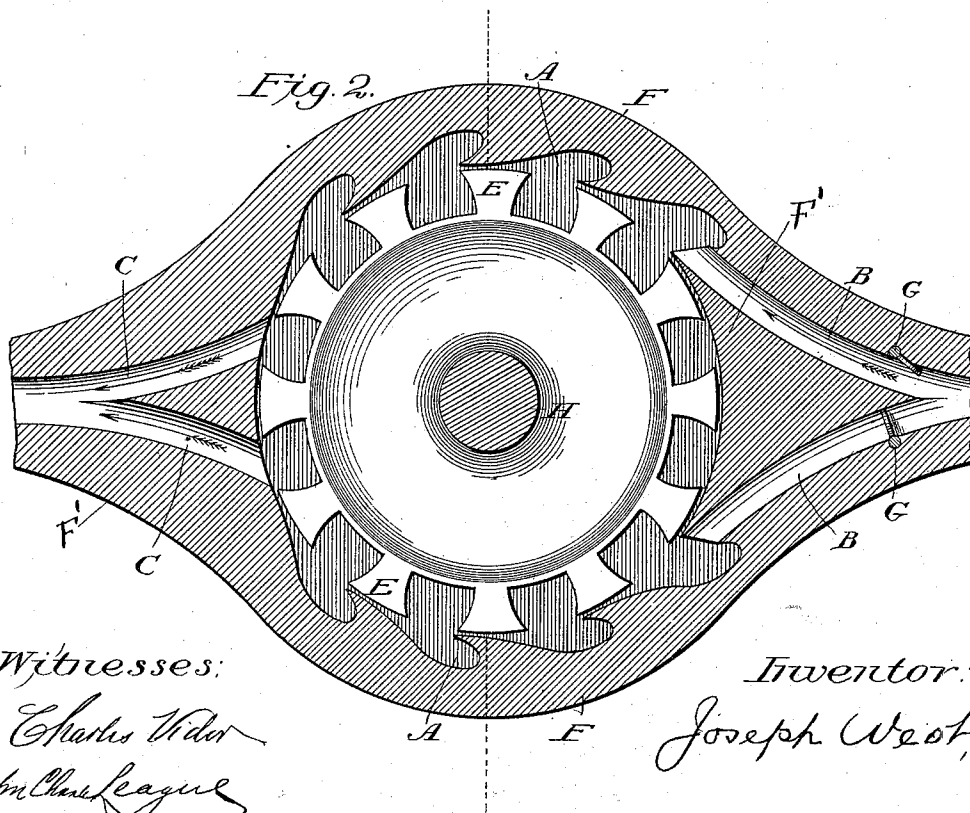


Fig. 2.



Witnesses:

Charles Vidor
John Charles League

Inventor:

Joseph West

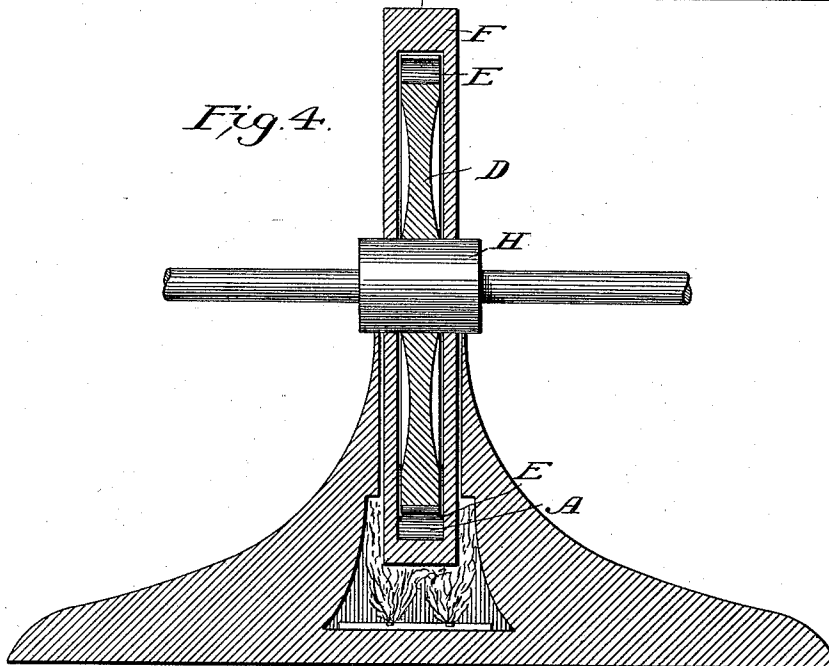
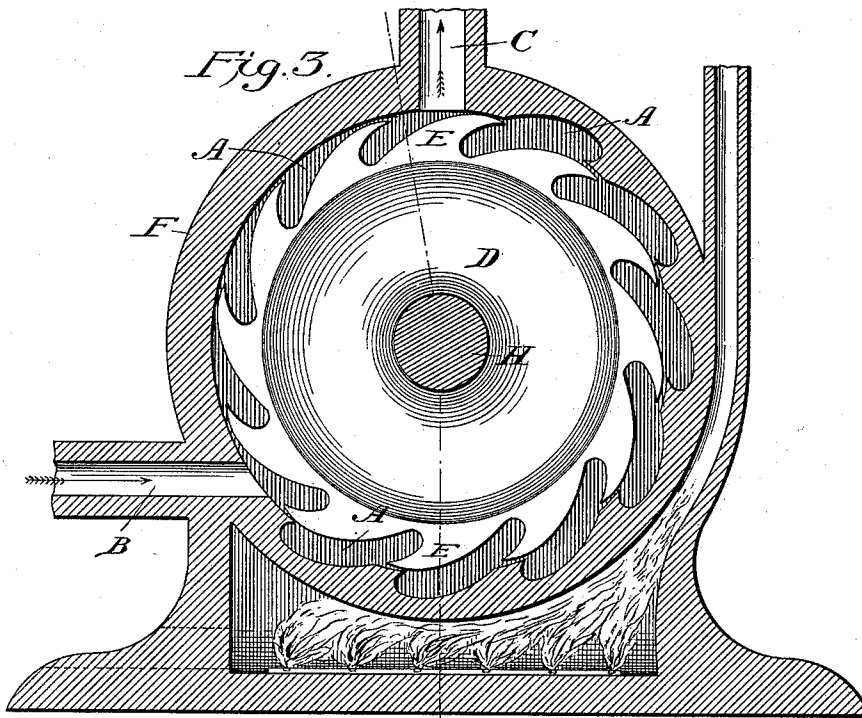
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Witnesses:

Charles Vidor
John Charles Leagell

Inventor:

Joseph West.

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Fig. 5.

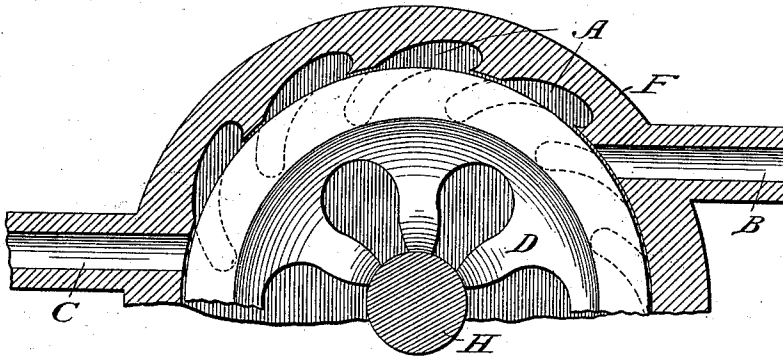


Fig. 6.

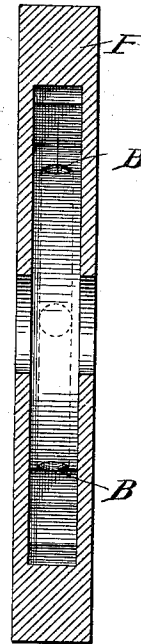
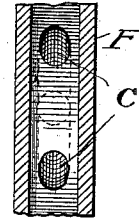
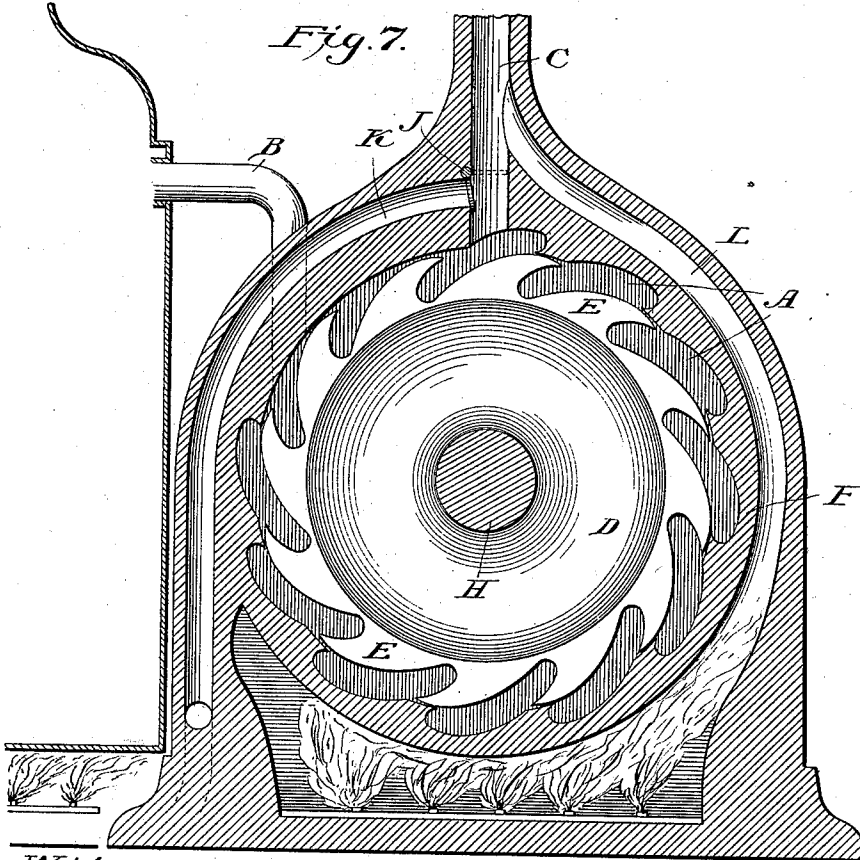


Fig. 7.



Witnesses:

Charles Vidor
John Charles Hogue

Inventor

Joseph West,

UNITED STATES PATENT OFFICE.

JOSEPH WEST, OF GALVESTON, TEXAS.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 535,337, dated March 5, 1895.

Application filed March 10, 1894. Serial No. 503,148. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH WEST, a citizen of the United States, residing at Galveston, in the county of Galveston and State of Texas, have invented a new and useful Rotary Engine, of which the following is a specification.

My invention relates to improvements in rotary engines by which a flanged or bladed disk is made to revolve in a steam tight chamber or chest. I attain this object by a revolving disk having transverse flanges or blades on its periphery being caused to rotate in an annular recess in a steam tight chamber by the introduction of steam through an opening or port in one part of the circumference of said chamber and striking the flanges or blades of the disk in the required direction in its passage to another opening or port for the exit or escape of the steam; thus causing the disk to revolve. I have the space in the chamber between the entrance and exit ports of the steam, flowing in the required direction, of greater diameter than the part where the blades are not intended to carry steam or that part of wall of the chamber may be suitably serrated or corrugated, thus forming a series of pockets or recesses therein, my object being by the enlargement of steam space at this part of chamber the better insuring of direction and the giving of greater pressure on the blades of the disk at that part by the steam impinging against stationary wall at that part of the chamber, the blades rotating closely along the general circumference of the recess of the chamber at other places.

Blades may be set at any angle with disk and may be scalloped out on concave side or in place of projecting blades, hollow spaces or pockets may be sunk into the periphery of the disk without extending through its faces.

Steam may be introduced at any angle with blades and the entrance and exit ports for steam may be through either face or circumference of casing and at any desired distance apart. Steam may also be superheated or expanded in this chamber.

By using an inflammable gas in place of steam I can by means of cut off in the escape conduct the gas after passing through the en-

gine back to the fire box and there use it as fuel.

For a more complete description reference is had to accompanying the drawings. 55

Similar letters refer to similar parts throughout the several views.

Figure 1 is a vertical section of the machine with face of casing removed, "A" being steam chamber showing enlarged diameter of the recess in direction of rotation between entrance of steam at the port "B" and its exit at the port of escape "C." At "D" is shown the revolving disk with its transverse flanges or blades "E" thereon. "F" designates the perimeter or outer casing. H shows axis or shaft of disk projecting through face of casing from which motion is taken. 60

Fig. 2 shows the same machine adapted to both forward and reverse motions, the chamber being enlarged at such places and in such position as direction may be required, blades of disk running closely to smaller circumference of chamber between the two ports of entrance "B" and the two ports of exit at "C" direction being determined and regulated by admission of steam through the cut off "G." "F'" shows solid parts of casing narrowing chamber to diameter of disk at that part. Figs. 3 and 4 show same machine in position for superheating or expanding the steam in its passage through the enlarged part of the steam chamber. 70

Fig. 5 shows excavations or pockets in disk in place of blades on its periphery also excavations in wall of chamber forming impact pockets for the impingement of steam thereon, parts of disk being cut away to lessen friction. 85

Fig. 6 is a view of that part of inner circumference or wall of chamber showing entrance and exit ports of steam and the curvilinear part of solid casing "F'" narrowing the chamber to diameter of disk between the two ports of entrance as in machine adapted to forward and reverse motions as shown in Fig. 2. 90

Fig. 7 represents the machine adapted to the consuming of an inflammable gas if used in the place of steam. By means of the cut off "J" in the escape pipe and the conducting pipe "K" the gas after passing through 100

the engine is led to the fire box and there consumed as fuel, "L" being the smoke or fire flue also having its vent in the escape pipe.

5 Among its claims to merit are: that it can be used in either a vertical or horizontal position; its small number of parts; its simplicity of construction and mode of working; its compactness, solidity and durability. In size
10 it may be from the smallest toy to large enough to answer the most powerful requirements. The larger the diameter of the disk and consequently more blades engaged the more steam
15 would be utilized and greater power gained, while from a smaller disk extreme velocity could be obtained. Drawings are not made to scale. Neither are blades as shown proportionate to size of disk.

Wherever the word "steam" is used it is
20 intended to imply any liquid or gaseous current of pressure.

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

25 1. In a rotary engine, the combination of a casing with inlet and exit ports for steam and a bladed disk or drum mounted therein, as herein described, the disk casing being provided with a steam reservoir for accumulating
30 and distributing steam simultaneously to all the disk blades encompassed in their passage through it; said reservoir or steam chamber being formed by enlarging the diameter of the recess in the casing between inlet and
35 exit ports in direction of rotation and being concentric with the annular recess of the casing, terminating in a curved or straight rear end at the inlet point, for the impingement of steam thereon, and a gradually sloping forward
40 end to point of exhaust; said reservoir also forming a steam channel embracing all the blades in their passage through it, the blades of the disk being adapted to rotate in contact with the general circumference of the
45 recessed chamber at all other places.

2. In a rotary engine, the combination of a casing inclosing steam chambers with a bladed disk or drum mounted therein, and being adapted to both forward and reverse motions
50 as herein described, the casing being provided with two oppositely directed inlet ports for steam conducting to oppositely sloped or in-

clined steam chambers forming reservoirs for accumulating and distributing steam simultaneously to all the disk blades encompassed
55 in their passage through them; said steam chambers or reservoirs being formed concentric with and located in the annular recess of the casing and being bounded at each inlet port by a curved or straight end for the im-
60 pingement of steam thereon, and a gradually sloping forward end to the point of exhaust, each inclining and conducting in opposite directions, the disk blades having their steam faces oppositely curved or inclined, being
65 encompassed with steam in their passage through either chamber or reservoir to which steam is admitted, and passing freely through the opposite empty reservoir, the direction of rotation being determined by admission of
70 steam into and through either chamber.

3. In a rotary engine, the combination of a casing inclosing a steam chamber with a bladed or bucketed drum mounted therein, the chamber being provided with two oppositely directed inlet ports for steam conducting
75 through oppositely sloped or inclined impact pockets formed in the wall or inner circumference of the said chamber, one set leading in one direction and one set leading in the
80 opposite direction to port of escape or exhaust, the disk or drum blades having their steam faces oppositely curved or inclined so as to engage with either set of steam pockets in wall of chamber; admission of steam through
85 either inlet port determining the direction of rotation.

4. In a rotary engine comprising the casing, chamber and disk as hereinbefore described the combination of the cut off in the exit or
90 exhaust port in connection with the channel or conducting flue leading down or back to the fire box for the consuming of gas when an inflammable gas is used in place of steam.

5. In a rotary engine the combination of the casing, steam chamber, disk or drum, the arrangement for expanding steam in the engine, the cut off valve in the exhaust and the returning channel from exhaust back to the fire box, all substantially as described and shown.
100 JOSEPH WEST.

Witnesses:

CHARLES NIDOR,
JOHN C. LEAGUE.