

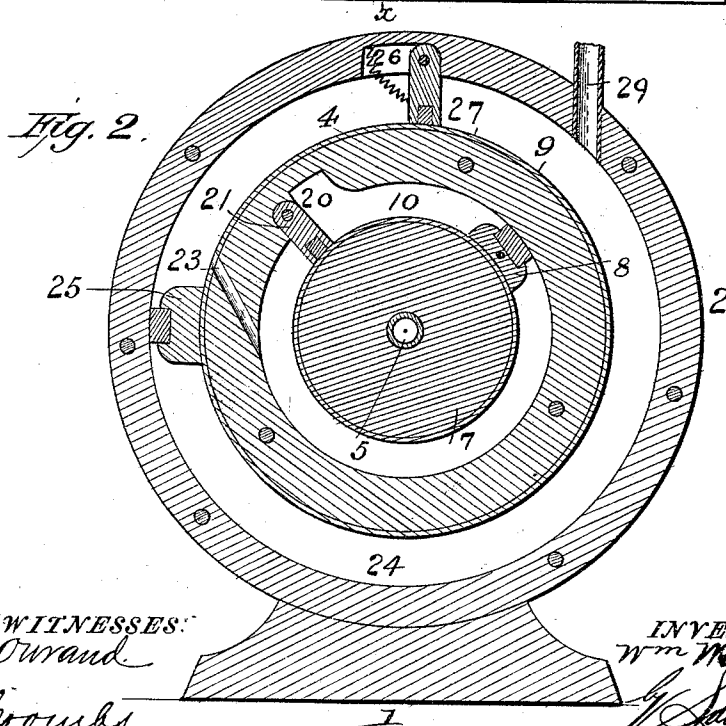
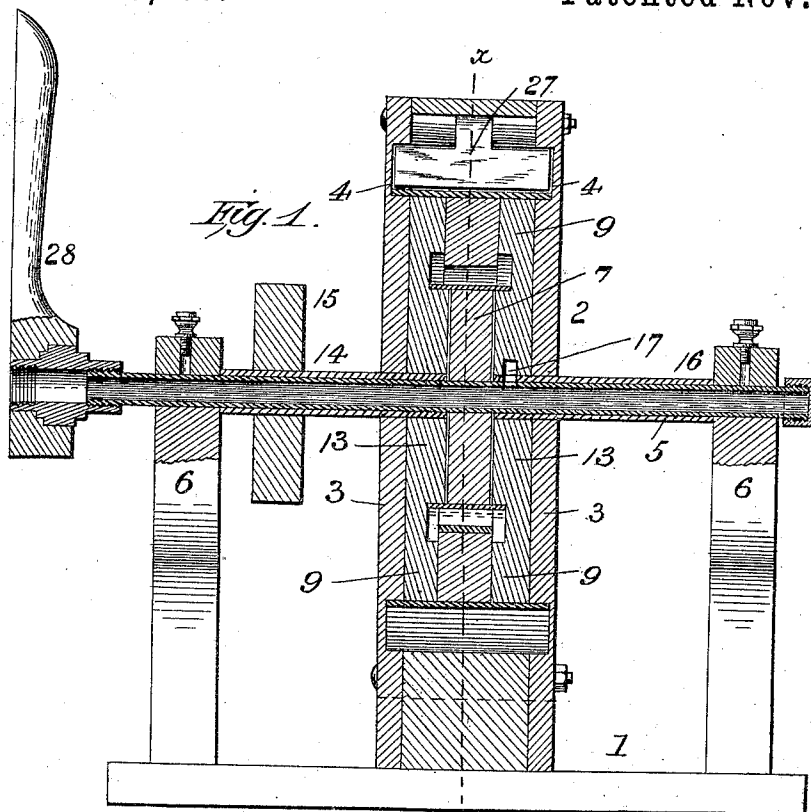
(No Model.)

2 Sheets—Sheet 1.

W. M. WHITELEY.
ROTARY STEAM ENGINE.

No. 509,708.

Patented Nov. 28, 1893.



WITNESSES:
F. L. O'Rand
W. L. Brown

INVENTOR:
Wm M. Whiteley
J. L. Patten & Co.
Attorneys.

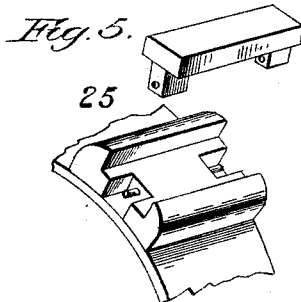
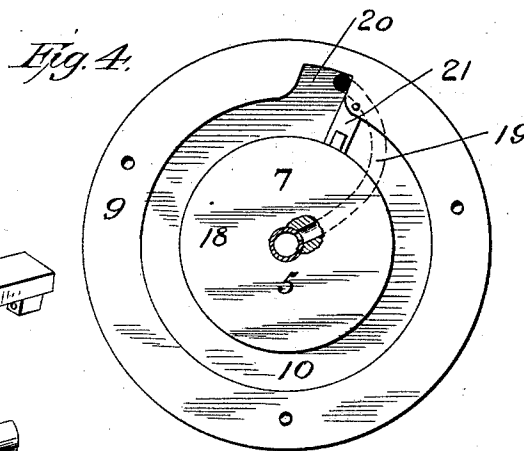
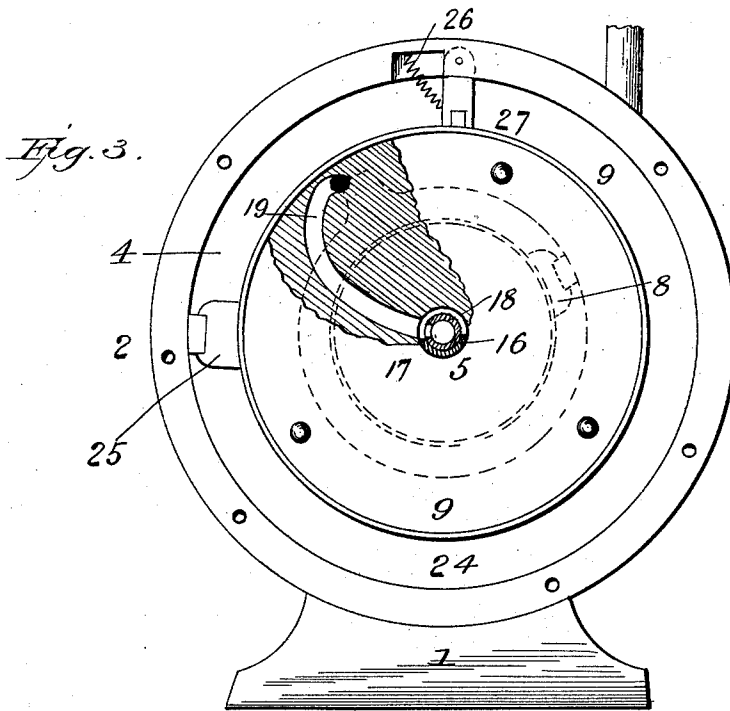
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2 Sheets—Sheet 2.

W. M. WHITELEY.
ROTARY STEAM ENGINE.

No. 509,708.

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WITNESSES:
H. L. Curand
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INVENTOR:
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UNITED STATES PATENT OFFICE.

WILLIAM MAREDITH WHITELEY, OF WEBB CITY, MISSOURI.

ROTARY STEAM-ENGINE.

SPECIFICATION forming part of Letters Patent No. 509,708, dated November 28, 1893.

Application filed June 17, 1893. Serial No. 478,028. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MAREDITH WHITELEY, a citizen of the United States, and a resident of Webb City, in the county of Jasper and State of Missouri, have invented certain new and useful Improvements in Rotary Steam-Engines; 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 to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

My invention relates to improvements in rotary steam engines its object being to provide an improved construction of the same whereby the steam first acts by momentum or pressure on a piston upon the inner surface of a rotatable hub or wheel and afterward by expansion on a piston on the periphery thereof.

The invention consists in the novel construction and combination of parts herein-after fully described and claimed.

In the accompanying drawings: Figure 1 is a central longitudinal section of a rotary steam engine constructed in accordance with my invention. Fig. 2 is a cross section on the line $x-x$, Fig. 1. Fig. 3 is a side elevation with one of the cylinder heads removed. Fig. 4 is a detail view of the rotatable hub or wheel. Fig. 5 is a detail perspective view of one of the pistons.

In the said drawings the reference numeral 1 designates the base of the machine to which is secured the cylinder or casing 2, provided with heads 3, formed on their inner sides with annular grooves 4, and with central holes or apertures. Passing through these apertures is a hollow steam supply 5, supported at each end by standards 6, secured to the base 1. Firmly secured to this pipe is a stationary hub 7, provided on its periphery with an abutment 8. Encircling or surrounding this hub is a rotatable hub or wheel 9, having a central recess 10. It will be seen that the hub 7 is smaller than said recess, thus forming a steam chamber. The outer end of abutment 8, bears against the inner surface of this rotatable hub piston. Secured to the ends of heads 13 of said hub at one end is a hollow shaft 14, to which is fixed a driving pulley 15. At the other end is a shaft 16, having a port

17, extending part way around the same, and communicating with an opening 18, in the steam supply pipe 5, and also communicating with a steam passage 19, formed in one end of hub 9. This passage 19, opens into a recess 20, in the inner surface of the wheel 9 in which is hinged a piston 21. This recess communicates with the central recess 10. Just in front of said piston the rotatable hub is formed with an exit or discharge passage 23, which leads to a steam chamber 24, formed between the periphery of said hub and the inner surface of the cylinder 2. Secured to the periphery of this hub is a piston 25 which works in said chamber. Upon the inner surface of the cylinder 2 is a recess 26 to receive an abutment 27 hinged or pivoted to the cylinder, a coiled spring being located in said recess and bearing against the abutment. The shafts 14 and 16, are secured to the rotatable hub and turn upon the steam supply pipe. At one end the steam supply pipe is provided with a lever 28, by which it may be turned so as to vary the point of cut off of the steam.

The operation is as follows: The parts to be in position shown in Fig. 1, and steam being admitted to pipe 5, from a boiler, it will escape through the opening 18, through port 17 in shaft 16 into passage 19, and out into chamber 10, when being confined by abutment 8, it will act upon piston 21, which being connected with the rotatable hub will cause the same to be rotated. As the hub rotates the piston will come in contact with the stationary abutment 8 causing the piston to be turned on its hinge or pivot and be thrown into recesses 20 so as to be out of the way. At about this time the opening 18 passes out of register with port 17, so that the steam supply is cut off. Just before the piston strikes the said abutment, the discharge passage 23, will have passed the latter so that the steam in chamber 10 will escape into the larger steam chamber 24, and act upon piston 25, and aid in rotating the hub. As soon as piston 8 passes the passage 23, the supply to chamber 24 will be cut off so that the steam therein will act expansively. After piston 25 strikes and throws abutment 27, into recess 26, so as to allow the former to pass the steam escapes through discharge pipe 29.

From the above it will be seen that the steam first acts by momentum upon the inner piston of the hub and afterward expansively upon the outer piston whereby I obtain the
5 combined force of momentum and expansion.

By means of the lever 28, the supply pipe can be turned so as to vary the point of cut off of the steam.

Having thus described my invention, what
10 I claim is—

In a rotary steam engine, the combination with the stationary hollow supply pipe provided with an opening, the hub secured thereto provided with an abutment, the rotatable
15 hub, having a central recess forming a steam chamber, and formed with supply and discharge passages and provided with a hinged

piston, the hollow shafts secured to said hub and journaled on the steam supply pipe, one of said shafts being provided with an opening communicating with the said opening and supply passage, the casing or cylinder formed with a steam chamber and a discharge pipe and provided with a hinged abutment, the piston on the periphery of the rotatable hub,
20 25 and the lever attached to the steam supply pipe, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

WILLIAM MAREDDITH WHITELEY.

Witnesses:

WILLIAM S. CHINN,
THOMAS F. COYNE.