

No. 659,151.

Patented Oct. 2, 1900.

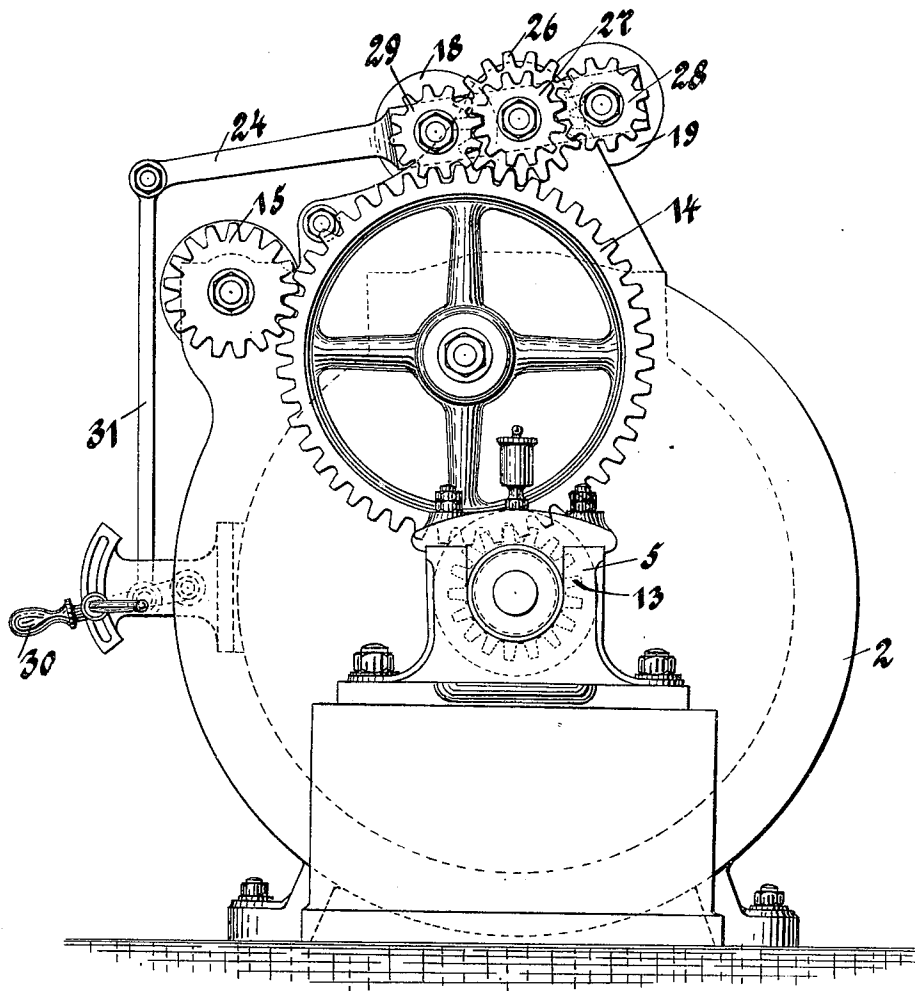
J. MÜLLFARTH.
ROTARY ENGINE.

(Application filed Feb. 19, 1900.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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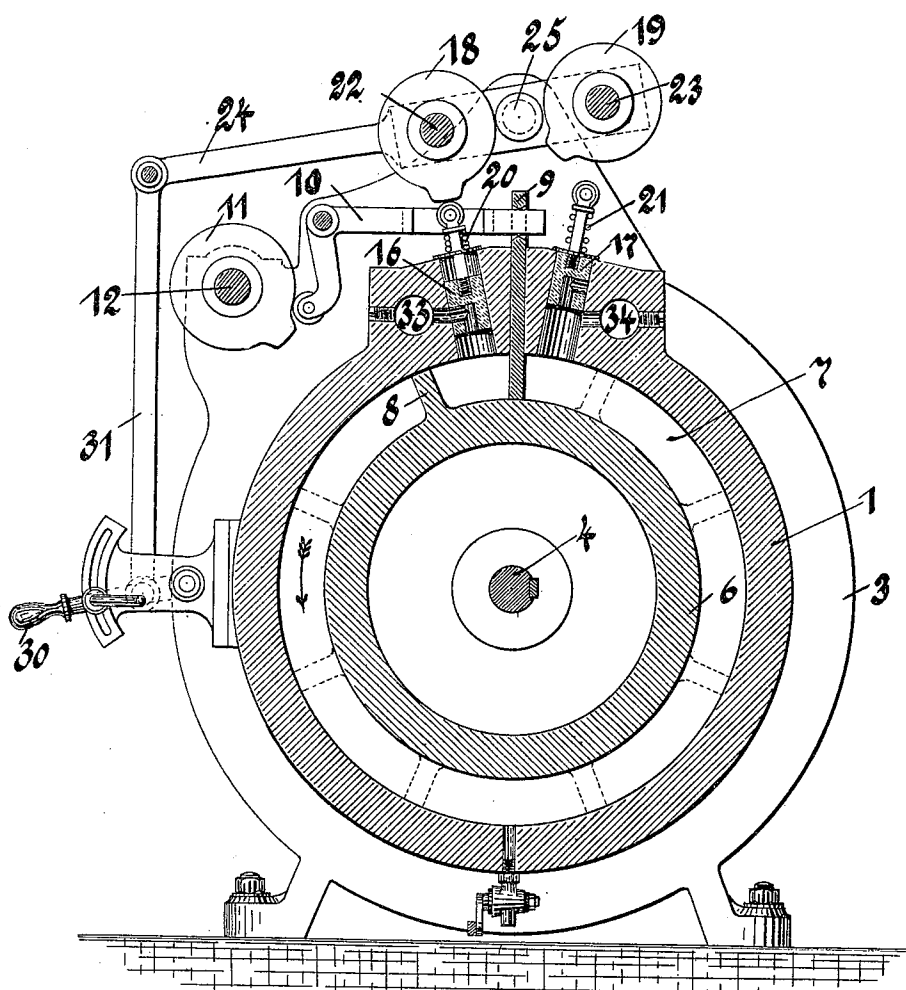
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Fig. 2.



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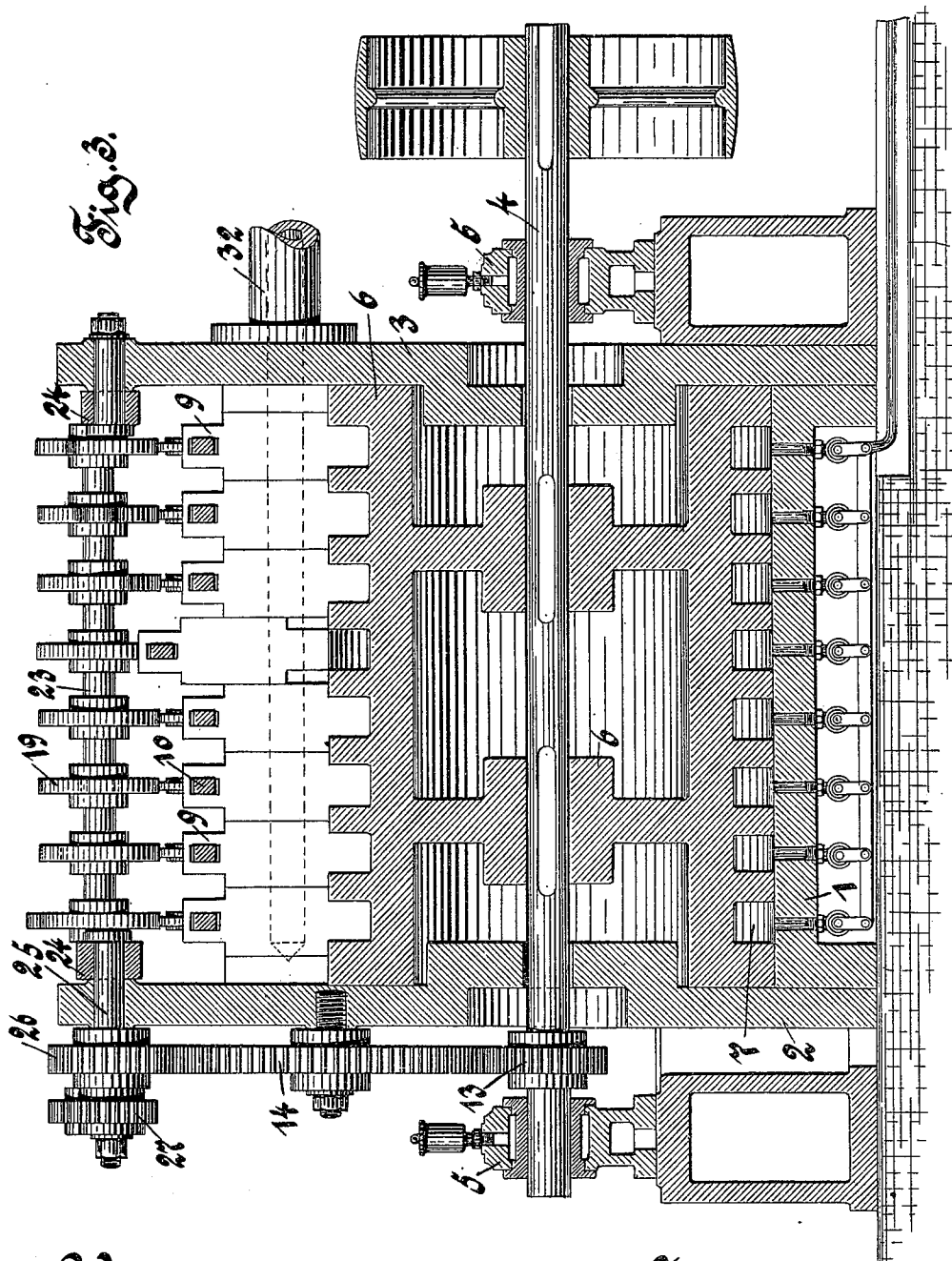
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UNITED STATES PATENT OFFICE.

JOHANN MÜLLFARTH, OF COLOGNE, GERMANY.

ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 659,151, dated October 2, 1900.

Application filed February 19, 1900. Serial No. 5,841. (No model.)

To all whom it may concern:

Be it known that I, JOHANN MÜLLFARTH, a subject of the King of Prussia, German Emperor, residing at Cologne, in the Province of the Rhine, Kingdom of Prussia, German Empire, have invented a new and useful Rotary Engine, of which the following is a specification.

My invention relates to improvements in rotary expansion-engines, and has for its chief object to provide an engine the revolutions of which can be easily regulated as well as reversed in direction.

In the accompanying drawings, Figure 1 is side view of the engine. Fig. 2 represents a vertical cross-section of the engine, and Fig. 3 a longitudinal vertical section through the center of the same.

Similar characters refer to similar parts throughout the several figures.

1, Figs. 2 and 3, denotes the cylinder, closed at both ends by covers 2 and 3, each provided with a hole for shaft 4 to project through. This shaft 4 is journaled in standard-bearings 5, provided on each end of the engine. Upon this shaft 4 a cylindrical wheel 6 is fixed, having eight annular grooves 7 turned into its periphery, in each of which grooves a plate or block 8 is provided. These blocks 8 form the pistons of the engine and are arranged in such way that the plate of each groove is exactly one-eighth of the periphery of the cylinder 6 before or after the preceding plate, so that in each eighth of the periphery one of the plates 8 is placed. In order to separate each of the grooves 7 in two parts, a plate 9 is provided in each groove, which plate is guided in the cylinder 1. In order to raise the plates 9 in the moment in which the wing-pistons 8 have to pass the spot on which the plates 9 are usually situated, levers 10, operated by cam-wheels 11, are fixed to a shaft 12, driven from the main shaft 4 by means of the gears 13, 14, and 15. For each of the grooves 7 two valves 16 and 17 are provided, which alternately serve as steam-inlet and steam-outlet valves. These valves 16 and 17 are operated in one direction by means of cam-wheels 18 and 19 and in the other direction by means of spiral springs 20 and 21. The cam-wheels 18 and 19 are fixed to shafts 22 and 23, journaled in the beam 24, pivoted at 25.

The shafts 22 and 23 are driven from the main shaft by means of the gears 13, 14, 26, 27, 28, and 29. The beam 24 is connected with a hand-lever 30 by means of the connection-rod 31, so that by moving the hand-lever 30 the beam 24 can be turned around its pivot 25.

The effect of the engine is as follows: The steam-enters the engine through the pipe 32, Fig. 3, and is directed either into the channel 33 or 34, Fig. 2, which depends upon the direction in which the engine shall revolute. In the position shown in the accompanying drawings the engine is to revolve in the direction of the arrow. The steam is therefore let into the channel 33, and enters, as soon as the valve 16 is open, the room between the plate 9 and the wing-piston 8, so that the cylinder 6 will naturally revolve. A short time afterward the valve 16 will be closed, so that the steam contained between plate 9 and wing-piston 8 will entirely expand and no power will be lost. As soon as the wing-piston 8 passes the opening for the valve 17 the steam still contained in the groove 7 will exhaust through the channel 34. The plate 9 will thereafter be raised by means of the lever 10 and the cam-wheel 11, so that the wing-piston 8 can freely pass. By the arrangement of eight grooves, which alternately work in the manner described, a smooth and even running of the engine is attained without the necessity of a fly-wheel.

In order to change the revolutions of the engine, the hand-lever 30 is raised, whereby the cam-wheel 18 will no more entirely open the valve 16, so that only a small quantity of steam can enter the room between the plate 9 and the wing-piston 8. If the hand-lever 30 is farther raised, so that neither the valve 16 nor the valve 17 will be opened by the cam-wheels 18 and 19, the engine will stop entirely. In case the hand-lever 30 is still farther raised, the cam-wheel 19 will begin to operate the valve 17, so that the engine will work in a reverse direction.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In a rotary engine the combination with a cylinder 1 of a cylindrical wheel 6, provided with eight grooves 7 turned into the periph-

ery of the same, a wing-piston 8 fixed in each groove, plates 9 for separating each groove in two parts, levers 10 for moving said plates, cam-wheels 11 for moving the levers 10, valves 16 and 17 and means for operating said valves, as and for the purpose set forth.

2. In a rotary engine the combination with a cylinder 1 of a cylindrical wheel 6, provided with eight grooves 7 turned into the periphery of the same, a wing-piston 8 fixed in each groove, plates 9 for separating each groove in two parts, levers 10 for moving said plates, cam-wheels 11 for moving the levers 10, valves 16 and 17, cam-wheels 18 and 19 for opening said valves and springs 20 and 21 for closing the same, as and for the purpose set forth.

3. In a rotary engine the combination with a cylinder 1 of a cylindrical wheel 6, provided with eight grooves 7 turned into the periphery of the same, a wing-piston 8 fixed in each groove, plates 9 for separating each groove in two parts, levers 10 for moving said plates, cam-wheels 11 for moving the levers 10, valves

16 and 17, cam-wheels 18 and 19 for opening said valves, springs 20 and 21 for closing the same, beams 24 and means for moving said beams, as and for the purpose set forth.

4. In a rotary engine the combination with a cylinder 1 of a cylindrical wheel 6, provided with eight grooves 7 turned into the periphery of the same, a wing-piston 8 fixed in each groove, plates 9 for separating each groove in two parts, levers 10 for moving said plates, cam-wheels 11 for moving the levers 10, valves 16 and 17, cam-wheels 18 and 19 for opening said valves, springs 20 and 21 for closing the same, beams 24, a hand-lever 30 and a rod 31 connecting the hand-lever 30 with the beam 24, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHANN MÜLLFARTH.

Witnesses:

MAX WESCHER,
PAUL WOLLENKAUPT.