

No. 755,481.

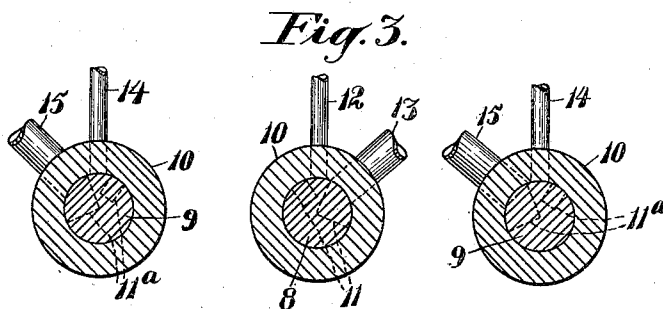
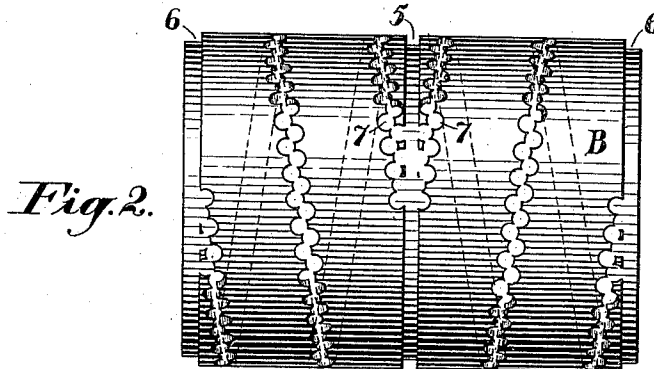
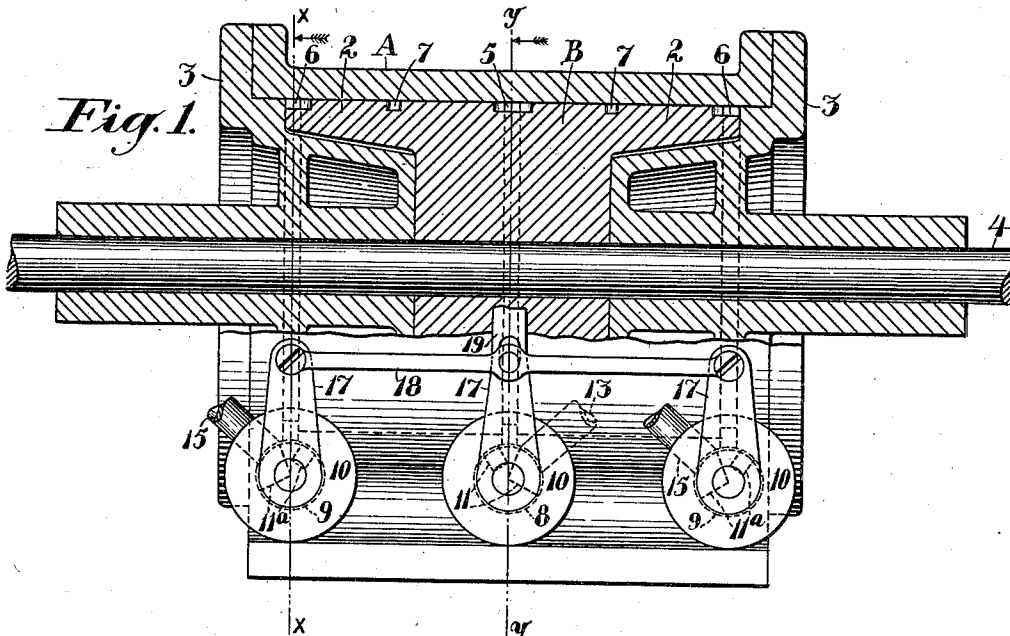
PATENTED MAR. 22, 1904.

G. GRIESCHE.
ROTARY TURBINE ENGINE.

APPLICATION FILED DEC. 12, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses:
F. L. Fliedner
J. H. H. H.

Inventor:
Gustav Griesche
By Geo. H. Strong. atty

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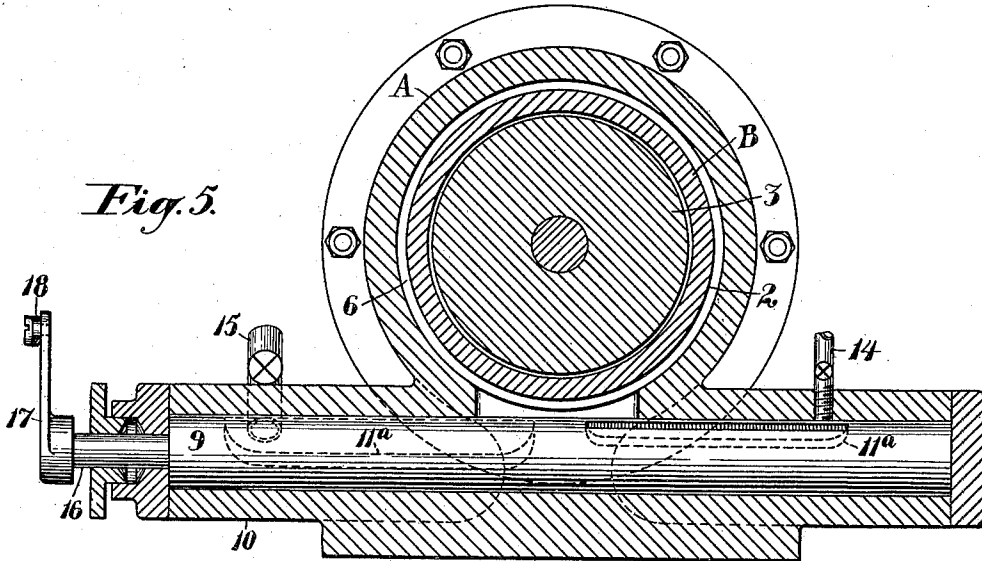
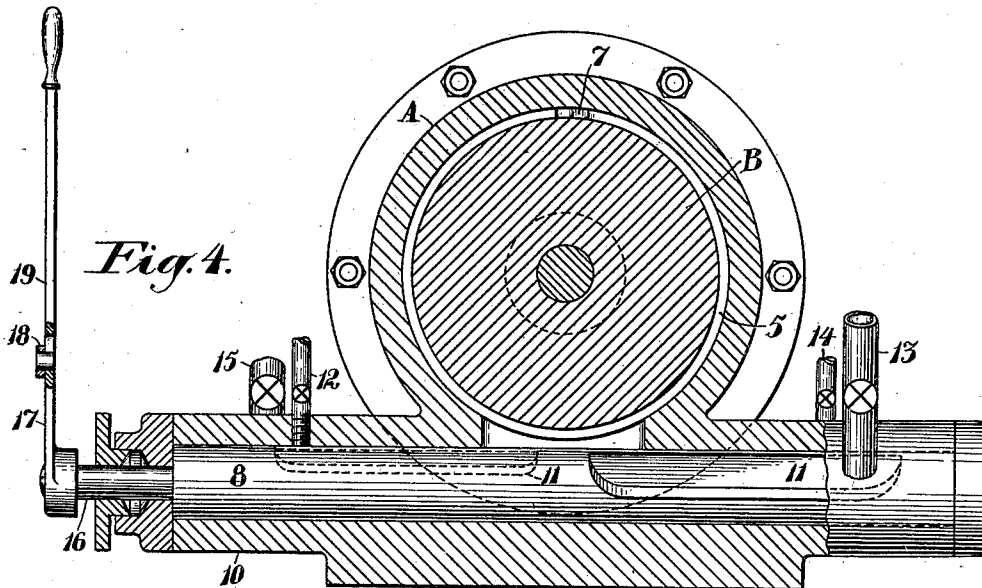
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F. C. Fliedner

J. A. Morse

Inventor:

Gustav Griesche

By Geo. H. Strong atty.

UNITED STATES PATENT OFFICE.

GUSTAV GRIESCHE, OF BERKELEY, CALIFORNIA.

ROTARY TURBINE-ENGINE.

SPECIFICATION forming part of Letters Patent No. 755,481, dated March 22, 1904.

Application filed December 12, 1903. Serial No. 184,855. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV GRIESCHE, a citizen of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented new and useful Improvements in Rotary Turbine-Engines, of which the following is a specification.

My invention relates to a device which I call a "rotary turbine-engine."

It consists of a drum having spirally-disposed grooves or passages extending around it from the center toward each end and means for admitting an elastic medium under pressure either to pass through the said spiral passages from the center outwardly to drive in one direction or from the ends toward the center to reverse the motion of the apparatus. In conjunction with this drum is a casing within which it is revoluble and valves so disposed as to admit the propelling medium either from the center or the ends and to exhaust it from the opposite ends of the passages from the point at which it is admitted. These spiral passages are peculiarly constructed so as to permit an expansible action of the medium and both direct and reactionary pressure to propel the drum.

My invention also comprises details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side elevation and partial longitudinal section of my apparatus. Fig. 2 is an exterior view of the drum, showing the spiral passages. Fig. 3 is a transverse section of the valve and valve-casing. Fig. 4 is a transverse section of the apparatus, taken through *yy* of Fig. 1. Fig. 5 is a similar section taken through *xx* of Fig. 1.

As shown in the drawings, A is an exterior case within which the drum B is revoluble. I have shown the drum as made with a central web, and the periphery of the drum forms flanges which extend outwardly in either direction from the web, as shown at 2.

The heads 3, which are secured to the ends of the casing, are fitted to enter the depressions or cavities formed by the flanges of the drum extending outwardly from the web, and these heads also carry journal-boxes suitable

for the shaft 4, to which the drum is secured and through which power and motion may be transmitted when the drum is revolved. The drum fits revolubly but substantially gas-tight within the case A, and around its periphery are three grooves or channels—the central one (shown at 5) and two end ones, as at 6. Connecting these grooves are spiral passages 7, which pass around the periphery of the cylinder, as shown plainly in Fig. 2, the inner ends connecting with the groove 5 and the outer ends, respectively, with the grooves 6, the spirals being right and left from the center outwardly. These passages may be made in any suitable or desired shape. In the present case I have shown them as formed with buckets connecting with each other and in zigzag lines upon each side of the center of the spiral passage, these buckets connecting with each other, so that when the fluid under pressure is admitted it acts first by impact against the forward sides of the buckets and afterward by a reactionary force as it passes on through the passages, expanding as it goes until it reaches the discharge.

It will be manifest that when the fluid is admitted at the center to enter the channel 5 it will pass outwardly, respectively right and left around the drum, through the buckets 7 until it reaches the end channels 6 and escapes therefrom through suitably-constructed ports and valve-openings, as will be hereinafter described. If the fluid is admitted to the end channels, it then passes in the opposite direction through the buckets around the drum and is discharged through the central channel 5 and thence through ports to a discharge-opening, this movement of the fluid acting to reverse the movement of the drum, and motion may be transmitted from the drum in either direction by means of the shaft 4.

In order to reverse the movement of the fluid and the consequent motion of the drum, I have shown a central valve 8 and end valves 9. These valves are revoluble in casings, as at 10, these casings extending transversely to the axis of the drum and having passages communicating with the channels 5 and 6 of the drum. The valves 8 and 9 are chambered, as shown at 11. Each of the chambers of the

valve 8 has connecting inlet-pipes 12 and the exhaust-pipes 13, this valve controlling the central passage to either admit the fluid, which will be exhausted from the outer ends, or it may serve to exhaust the fluid which has been admitted from the outer ends, as previously described. The valves at the outer ends have similar chambers, as at 11^a, each of these valves having connected with it an inlet-passage, as at 14, and an exhaust-passage, as at 15. These valves 8 and 9 have stems projecting outwardly through stuffing-boxes in the cases 10, as shown at 16, and upon the outer ends of these stems are crank-arms 17, which are connected together by a rod 18, extending across and connecting with each crank.

A lever 19 serves to move the connecting-rod and the crank-arms simultaneously, so that when this lever is moved in one direction—as, for instance, to the right—the central inlet-passages will be opened and the exhaust at the end of the drum. By moving the lever to the left the end inlets will be opened and the central exhaust. If the lever be left at a central position substantially vertical, as shown, the fluid will be cut off and the engine remain stationary.

Although but one spiral is shown upon the drum on each side of the central groove, it will be understood that there may be as many of these spirally-disposed chambers connecting the outer and inner grooves of the drum as the surface of the drum will admit, and the elastic fluid will be admitted to and exhausted from each set and all of said chambers simultaneously during the operation of the machine.

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

1. A rotary turbine comprising a cylindrical drum, a journaled shaft upon which it is mounted, spirally-disposed and connected chambers formed upon the periphery and extending in right and left directions from the central portion of said drum, a cylindrical casing within which the drum is revoluble, means for delivering an elastic fluid under pressure into one end of the spiral chamber and means for exhausting the fluid from the opposite end.

2. A rotary turbine-engine comprising a cylindrical drum mounted upon a centrally-journaled shaft, spirally-disposed connected chambers extending around the drum in right and left directions from the central portion thereof, grooves or channels with which opposite ends of said chambers connect, a cylindrical casing within which the drum fits and is revoluble, valves by which an elastic fluid under pressure may be admitted to the grooves to pass through the chambers and valves through which the fluid may be exhausted after completing its work.

3. A rotary turbine-engine comprising a

cylindrical drum, a journaled shaft upon which it is mounted and turnable, grooves or channels formed around the center and ends of said drum, spirally-disposed and connected expansion-chambers having their inner ends connected with the central groove and having their convolutions around the drum in opposite directions from the center to the ends, said spirals having their outer ends connected with the outermost grooves, an inclosing casing within which the drum is revoluble and inlet and outlet valves connecting with the circumferential grooves of the drum.

4. A rotary turbine-engine consisting of a cylindrical drum mounted upon a centrally-journaled shaft, and an inclosing casing within which the drum fits and is revoluble, grooves or channels made respectively around the center and the ends of the drum, right and left spirally-disposed and connected expansion-chambers extending around the drum and having their ends connected with the central and end channels respectively, valve-chambers having inlet and exhaust ports, said ports connecting respectively with the inlet and exhaust ends of the spiral chambers.

5. A rotary turbine-engine consisting of cylindrical centrally-journaled revoluble drum and a corresponding casing within which it fits and is turnable, grooves or channels formed around the ends and around the center of the drum, right and left spirally-disposed and connected expansion-chambers formed around the periphery of the drum with their ends connecting respectively with the outer and central grooves, valves having connections with the center and end channels, ports in said valves connecting respectively with inlets for an elastic fluid under pressure and with an exhaust for the same, and means for connecting said ports with either the end or central grooves of the drum, whereby the elastic fluid may be admitted to the grooves and chambers, and exhausted therefrom to revolve the drum in either direction.

6. A rotary turbine-engine comprising a cylindrical centrally-journaled revoluble drum and an exterior casing within which it fits and is turnable, grooves or channels formed respectively about the ends and center of the drums, right and left spirally-disposed and connected expansion-chambers passing around the drum and having their ends connected with the outer and central grooves, valve-chambers connected with each of the grooves, cylindrical valves fitting and turnable in said chambers, each having inlet and exhaust ports and corresponding passages connecting therewith and means for moving the valves in unison whereby the propelling elastic fluid may be admitted and exhausted to propel the drum in either direction.

7. A rotary turbine-engine consisting of a centrally-journaled cylindrical drum, a corresponding closed casing within which it is rev-

oluble, grooves or channels made around the ends and center of the drum, right and left spirally-disposed and connected expansion-chambers formed around the surface of the drum, with their ends connecting respectively
5 with the outer and central grooves, cylindrical valve-chambers connecting with the casing in line with each of said grooves, cylindrical valves fitting and turnable in said chambers having inlet and exhaust passages and
10 ports by which said passages may be connected either with the outer or inner grooves, rocker-arms upon the outer ends of the valve-

stems and a connecting-rod and actuating-lever by which the valves may be turned in uni- 15
son to admit and exhaust an elastic fluid under pressure and to revolve the drum in either direction.

In testimony whereof I have hereunto set my hand in presence of two subscribing wit- 20
nesses.

GUSTAV GRIESCHE.

Witnesses:

EUGENE W. LEVY,
R. E. STENNER.