

PATENTED SEPT. 5, 1905.

APPLICATION FILED FEB. 4, 1905.

2 SHEETS—SHEET 1.

Fig.I.

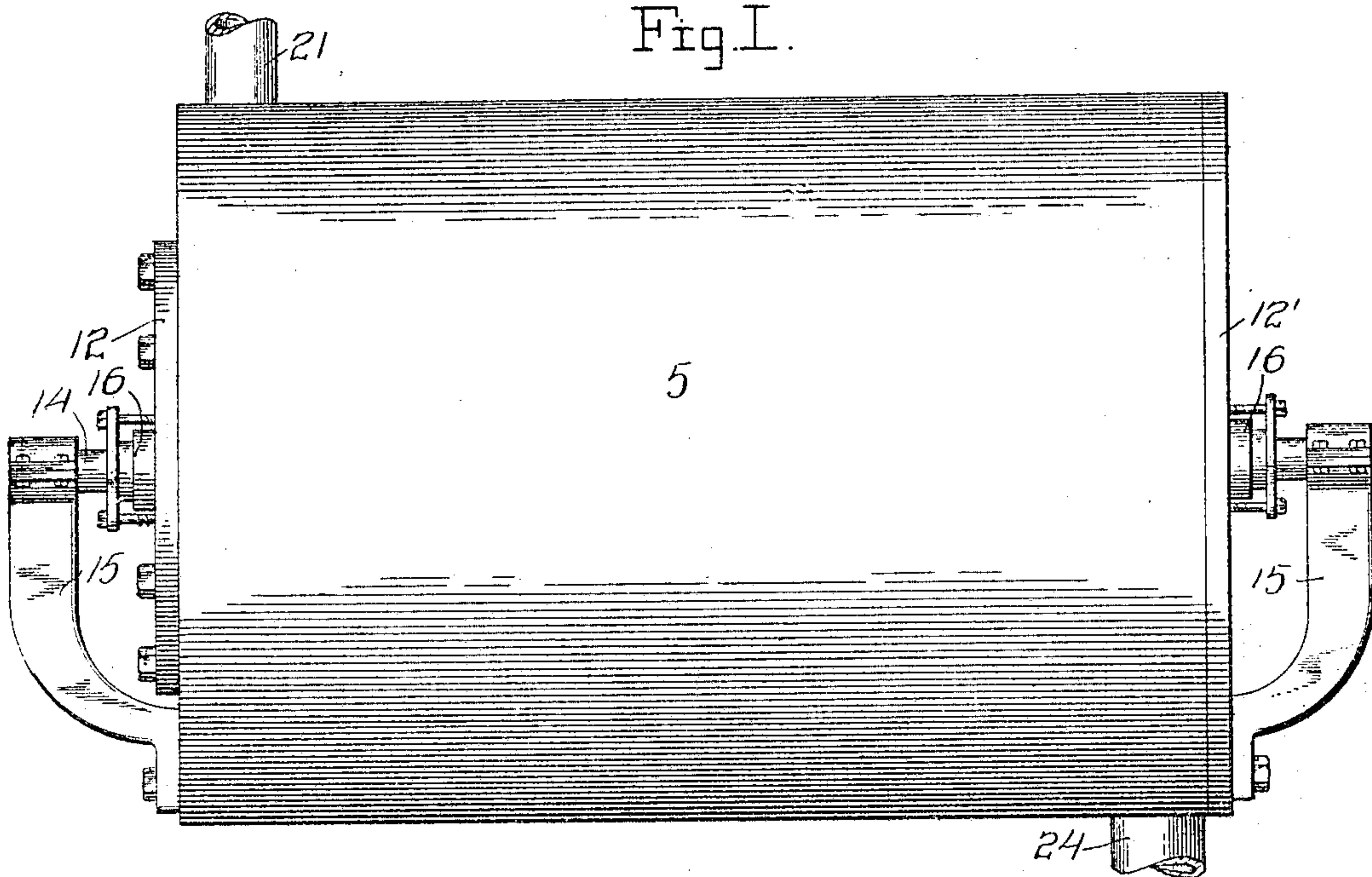
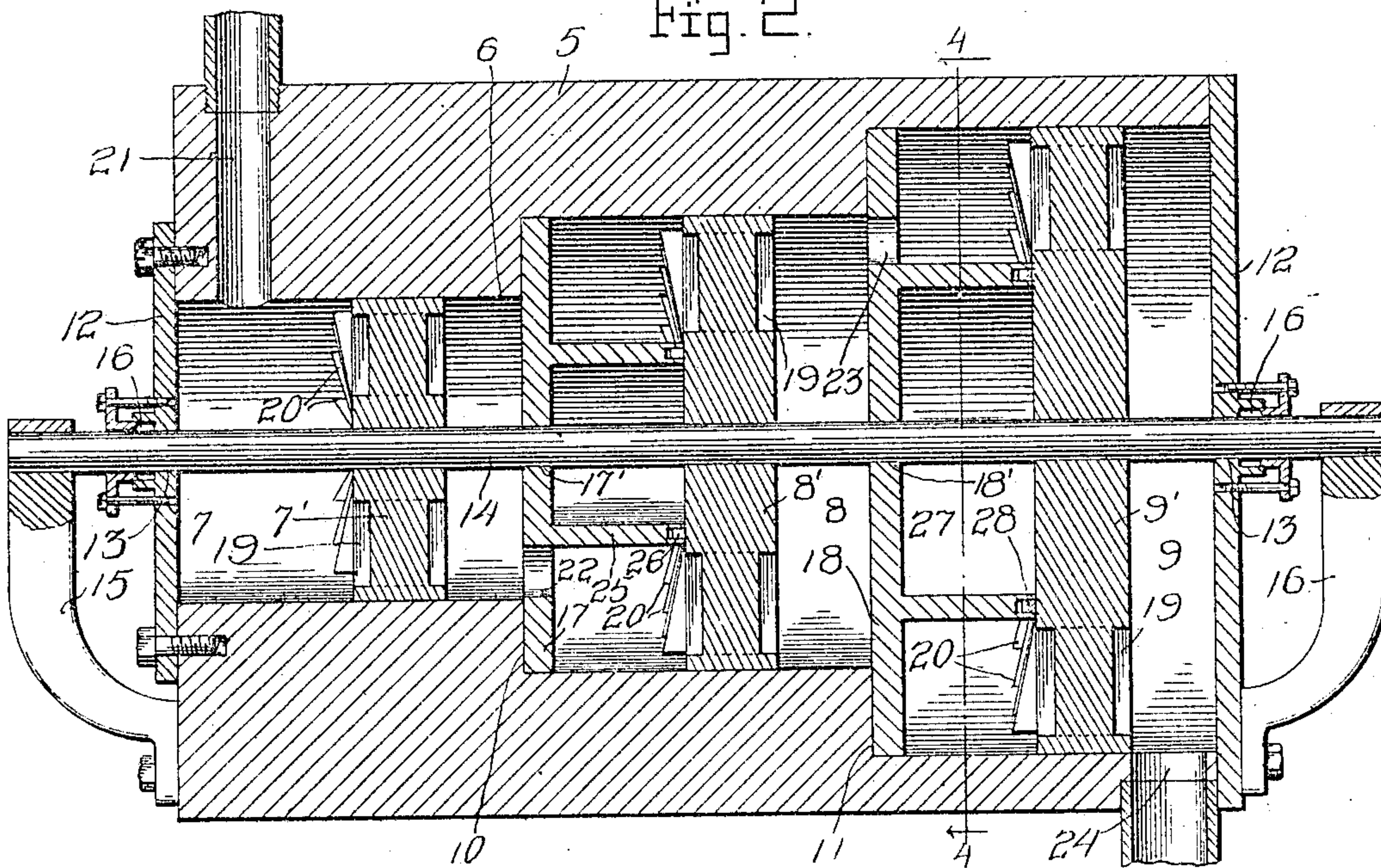


Fig. 2.



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No. 798,757.

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TURBINE.

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2 SHEETS—SHEET 2.

Fig. 3.

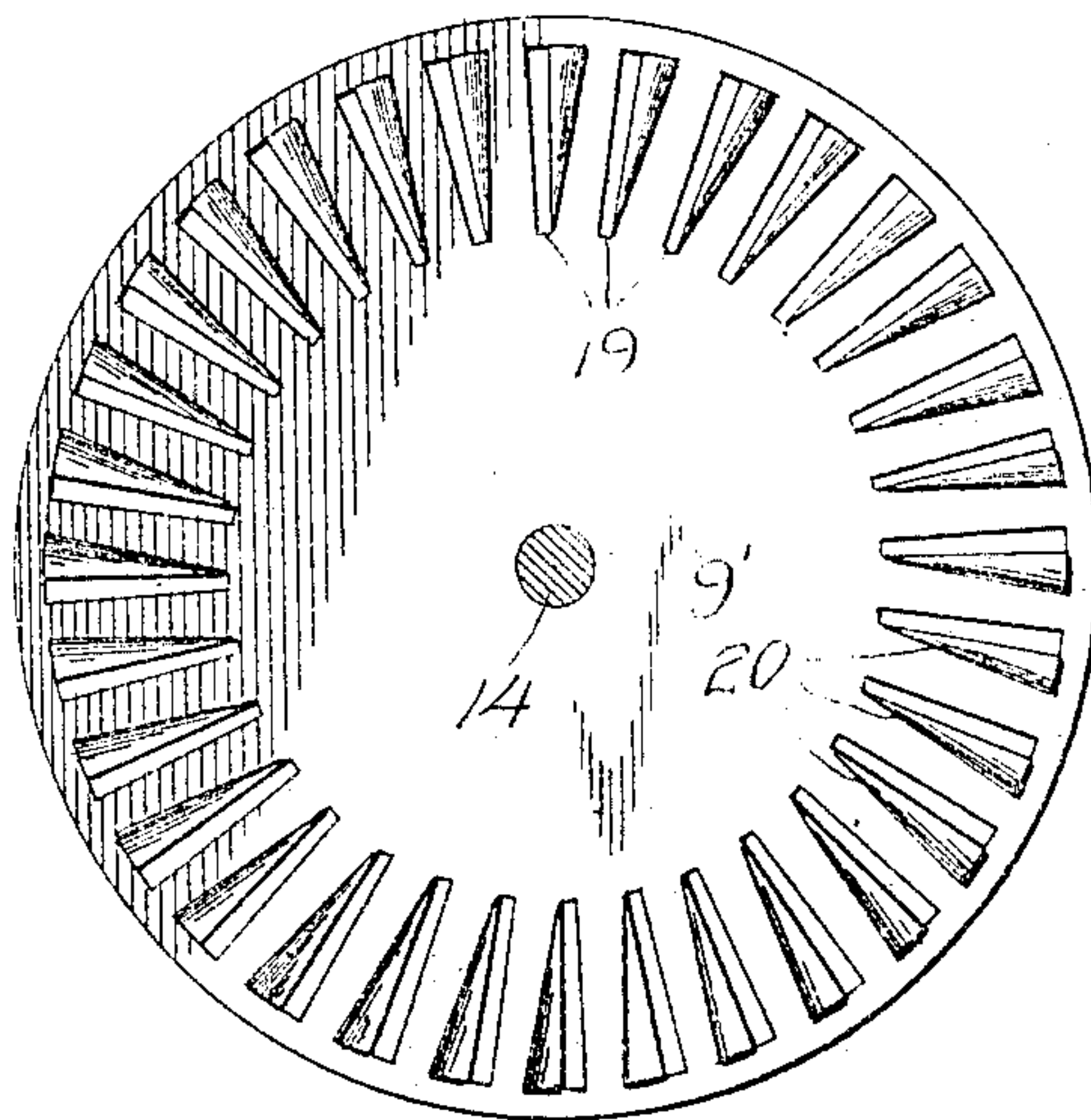
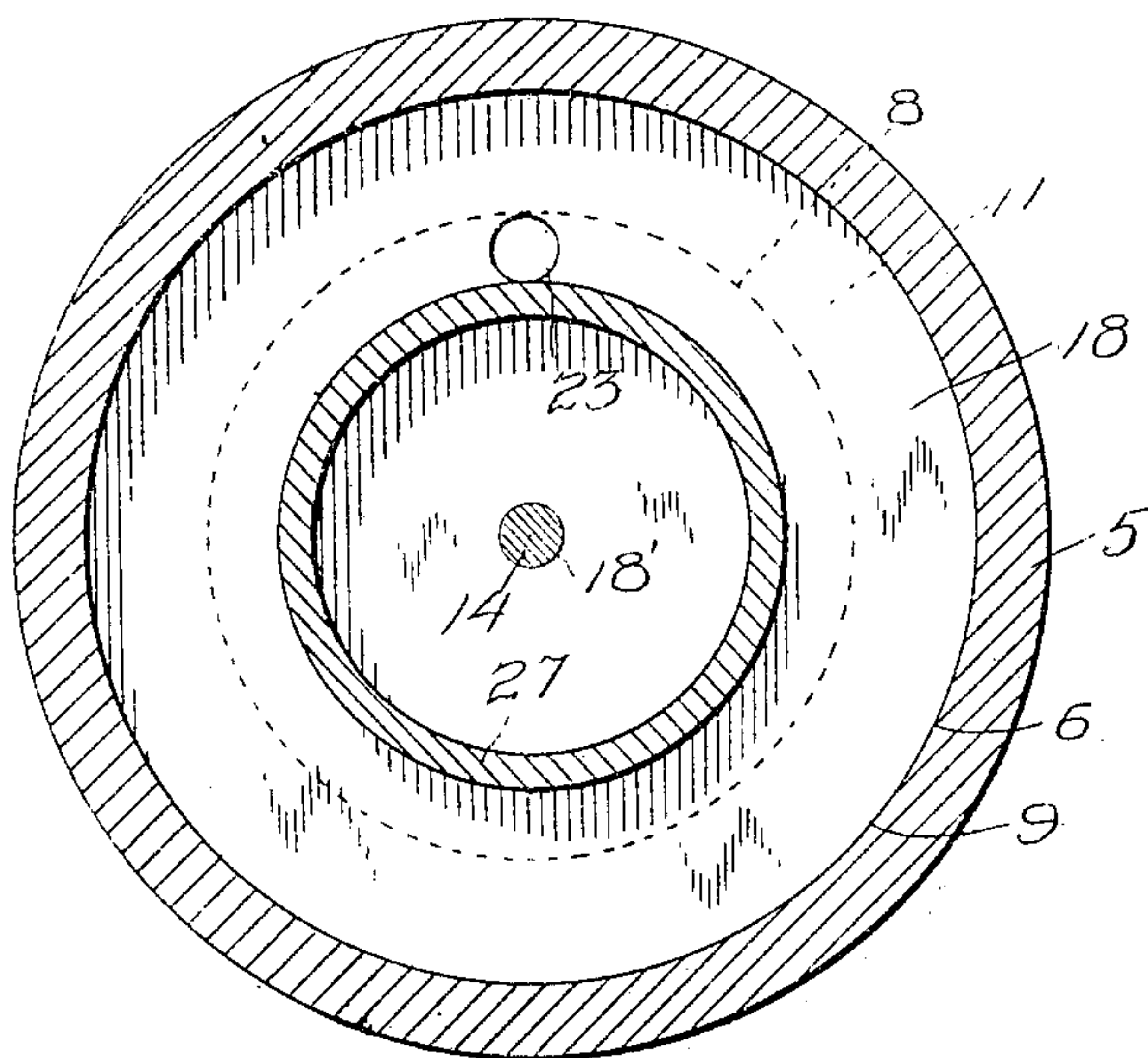


Fig. 4.



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TURBINE.

No. 798,757.

Specification of Letters Patent.

Patented Sept. 5, 1905.

Application filed February 4, 1905. Serial No. 244,147.

To all whom it may concern:

Be it known that I, HARRY L. YOUNG, a citizen of the United States, residing at St. Joseph, in the county of Buchanan, State of Missouri, have invented certain new and useful Improvements in Turbines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to turbines, and more particularly to fluid-pressure turbines, and has for its object to provide a mechanism of this kind of the triple-expansion type which will be simple and cheap in structure and which will be constructed in such a way that the maximum of power will be developed.

Another object is to provide a structure in which the parts will be readily removed when worn or broken to permit of replacement.

Other objects and advantages will be apparent from the following description, and it will be understood that modifications of the specific construction shown may be made and any suitable materials may be used without departing from the spirit of the invention.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a side elevation of the present invention. Fig. 2 is a longitudinal section. Fig. 3 is an elevation of the blade side of one of the wheels. Fig. 4 is a section on line 4 4 of Fig. 2, taken through one of the filling-pieces.

Referring now to the drawings, the present invention comprises a cylinder 5, having a longitudinal passage 6 therethrough. This passage 6 includes three portions 7, 8, and 9, respectively, the portion 8 being somewhat larger than the portion 7, while the portion 9 is somewhat larger than the portion 8, there being thus formed shoulders 10 and 11, the former lying between the portions 7 and 8 of the passage, while the latter lies between the portions 8 and 9, as will be readily seen. The portions of the passage are circular in cross-section and lie concentric with each other. Bolted to the ends of the cylinder are cylinder-heads 12 and 12', which close the ends of the passage 6, and these cylinder-heads have openings 13 therein, in which there are revolubly mounted the end portions of a shaft 14, the extremities of which are journaled in brackets

15, secured to the ends of the cylinder. The openings 13 are provided with suitable stuffing-boxes 16 to prevent leakage.

Secured against the shoulder 10 there is a division-plate 17, a similar though somewhat larger division-plate 18 being secured against the shoulder 11, and these division-plates have openings 17' and 18' therein, respectively, in which the shaft 14 is engaged. The portions 7, 8, and 9 of the passage are thus divided to form three chambers, and in each of these chambers there is disposed an impact-wheel, (indicated at 7', 8', and 9', respectively,) these wheels being mounted upon the shaft 14 for rotation thereof when the wheels are rotated. Each of these impact-wheels is provided with a plurality of slots 19, arranged in annular series adjacent to its periphery, the slots extending inwardly at an angle from the peripheries of the wheels and opening through the faces of the wheels, and the slots also extend at an angle to the faces of the wheels, so that passages are formed diagonally through the wheels. At one side of each of the slots there is disposed a wing 20, these wings being located at one side only of each of the wheels. The wheel 7' is disposed with its winged side away from the wheel 8', while the wheels 8' and 9' are disposed with their winged sides in the direction of the wheel 7', the winged sides of the wheels being thus all turned in the same direction. The wings 20 slant outwardly from the faces of the wheels away from the adjacent slots and form continuations of the walls of the slots, at which they are attached. This arrangement is such that the impact of fluid striking the walls of the slots and the wings will cause the wheels and the shaft to rotate in one direction. An inlet-port 21 communicates with the portion 7 of the passage at the winged side of the wheel 7', and formed through the division-plate 17 there is a passage 22, a similar passage 23 being formed through the division-plate 18. An exhaust-port 24 communicates with the portion 9 of the passage 6 beyond the wheel 9' and is located at the bottom of the passage.

Formed upon the division-plate 17 and extending toward the wheel 8' there is a cylindrical filling-piece 25, having a packing layer 26 secured thereto, which rests against the adjacent face of the wheel 8' and within the inclosure of the series of slots 19 of this wheel. A similar piece 27, having a packing layer 28,

is formed upon the division-plate 18, the packing layer 28 resting against the adjacent face of the wheel 9' and within the inclosure of series of slots 19. The filling-pieces are spaced
5 from the walls of the portion of the passage within which they lie, so that the steam is permitted to pass to the wings and through the slots 19 of the wheels 8' and 9'.

It is thought that the operation of the engine will be clearly understood without further description.

What is claimed is—

1. An apparatus of the class described comprising a cylinder having a plurality of concentric communicating chambers therewithin,
15 said chambers increasing in diameter from one end of the cylinder to the other, said cylinder having shoulders between the chambers, a shaft journaled in the cylinder and
20 passing centrally through the several chambers, division-plates secured to the shoulders, said shaft being revolubly engaged in the division-plates, winged impact-wheels revolubly disposed in the chambers, and secured to
25 the shaft for rotation of the latter therewith, and filling-pieces carried by the division-plates and lying within certain of the chambers, said division-plates having fluid-passages formed therethrough, said cylinder having a fluid-
30 supply passage communicating with the smallest of the chambers at the opposite side of the winged wheel from the adjacent chamber.

2. An apparatus of the class described comprising a cylinder having a plurality of con-

centric chambers therewithin, said chambers
35 being of increased diameters from one end of the cylinder to the other, said cylinder having shoulders between its chambers, division-plates secured to the shoulders, the outermost chambers opening through the ends of the
40 cylinders, cylinder-heads secured over the open ends of the outermost chambers, a shaft revolubly engaged in the cylinder-heads and in the division-plates and lying centrally of the chambers, impact-wheels mounted upon
45 the shaft and lying one within each of the chambers, and members carried by one side of each of the division-plates and resting against the adjacent impact-wheels, said members being spaced from the walls of the cham-
50 bers, said division-pieces having fluid-passages formed therethrough communicating with the spaces between the members and the walls of the chambers, said cylinder having a fluid-supply passage communicating with the
55 smallest chamber at the opposite side of the impact-wheel from the adjacent chamber and having an exhaust-port communicating with its largest chamber at the opposite side of the impact-wheel of said chamber from the supply-
60 passage.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY L. YOUNG.

Witnesses:

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