

F. L. WOOD.
VALVE MECHANISM FOR MOTORS.
APPLICATION FILED MAR. 14, 1912.

1,042,634.

Patented Oct. 29, 1912.

Fig. 1.

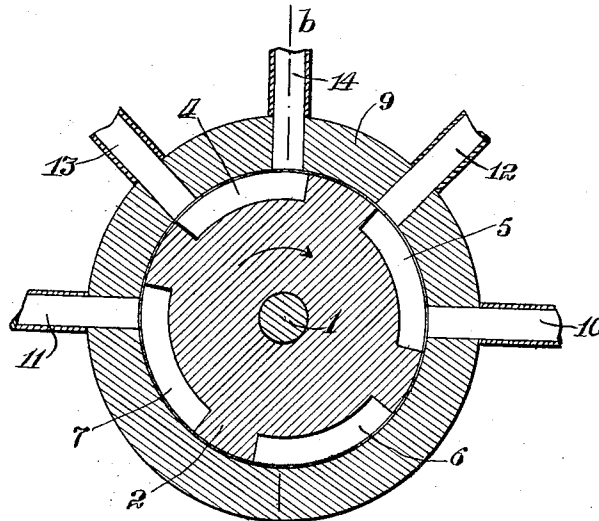


Fig. 2.

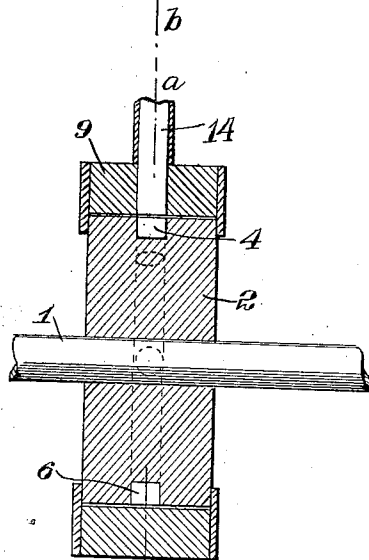
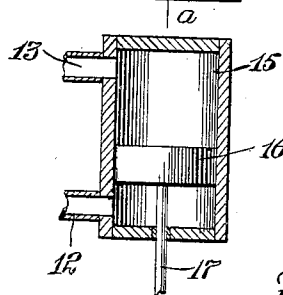


Fig. 3.



Attest:
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by *Oscar T. Gunn* Atty

UNITED STATES PATENT OFFICE.

FREDERICK L. WOOD, OF MERIDEN, CONNECTICUT, ASSIGNOR TO AEOLIAN COMPANY,
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VALVE MECHANISM FOR MOTORS.

1,042,634.

Specification of Letters Patent.

Patented Oct. 29, 1912.

Application filed March 14, 1912. Serial No. 683,675.

To all whom it may concern:

Be it known that I, FREDERICK L. WOOD, a citizen of the United States, and a resident of Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Valve Mechanism for Motors, of which the following is a specification.

The object of my invention is to provide a new and improved valve mechanism of simple construction, for producing reciprocations of parts of machinery at a very high speed, which mechanism is simple in construction, effective and reliable in action.

In the accompanying drawings in which like letters of reference indicate like parts in all the figures: Figure 1 is a vertical transverse sectional view through one embodiment of my improved valve mechanism on the line *a-a* Fig. 2. Fig. 2 is a longitudinal sectional view on the line *b-b* Fig. 1. Fig. 3 is a vertical transverse sectional view through a cylinder and connections which illustrates an embodiment of one of the possible uses of the valve.

On the shaft 1 which is suitably mounted in any conventional manner and which is to be rotated from some source of power, a valve disk 2 is mounted which is provided in its periphery with the segmental grooves 4, 5, 6 and 7 and this valve disk 2 fits closely within the annular casing 9 in which it can rotate. Two diametrically opposite inlet ports 10 and 11 are connected with the casing 9 and connected with suitable conductors such as tubes, for conveying a suitable motive fluid to the casing, for example, compressed air. Two ports 12 and 13 are provided in the casing 9 at opposite sides of the vertical plane and are separate from the inlets 10 and 11 respectively, a distance not exceeding the longest dimension of one of the grooves 4, 5, 6 and 7 and between the ports 12 and 13 an exhaust port 14 is provided in the casing 9, the distance from either port 12 and 13 to the exhaust port 14 being no greater than the length of one of the grooves 4, 5, 6 or 7. The ports 12 and 13 may be connected with the opposite ends of a cylinder 15 containing a piston 16 connected with the piston rod 17.

The operation is as follows: When the valve disk 2 is in the position shown in Fig. 1 the motive fluid, for example, compressed air enters through the port 10, passes through the groove 5 and through the port 12 and a conduit into the lower end of the cylinder 15 and raises the piston 16 and at the same time the port 13 is connected by the groove 4 with the exhaust port 14.

As the valve disk 2 continues to rotate in the direction of the arrow, Fig. 1, the communication between the inlet port 10 and the port 12, by means of the groove 5 is interrupted, and at the same time the communication between the port 13 and the exhaust port 14, by means of the groove 4 is also interrupted and the communication between the supply port 11 and the port 13 is established and the motive fluid can now pass from the inlet port 11, through the groove 7 and port 13 and a connected conduit to the upper end of the cylinder, whereby the piston 16 is forced down, and so on alternately. By the time that the groove 7 has connected the ports 11 and 13 in the manner described, the groove 4 will have connected the port 12 with the exhaust port 14 so that the spent motive fluid beneath the piston can be forced out of the cylinder and so on continuously.

Having described my invention what I claim as new and desire to secure by Letters Patent is:—

1. In a valve mechanism for motor devices the combination with a disk and means for rotating the same axially, said disk having a series of segmental grooves in its periphery, of a casing closely surrounding the disk, two opposite inlet ports in the casing, an exhaust port between the inlet ports, and outlet ports midway between each inlet port and the exhaust port, the distance between any two adjacent ports being no greater than the length of a groove in the periphery of the disk, substantially as set forth.

2. In a valve mechanism for motors, the combination with a disk, and means for rotating the same, said disk being provided with grooves in its periphery, said grooves extending substantially in the direction of

the circumference of the disk, of a casing surrounding the disk, and a series of ports formed in the casing and adapted to be connected at intervals one with the other by the grooves in the disk, substantially as set forth.

Signed at Meriden in the county of New

Haven and State of Connecticut this 25th day of January A. D. 1912.

FREDERICK L. WOOD.

Witnesses:

WILLARD S. PAIN,
E. S. VOTEY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."