(No Model.)

E. E. BARDSLEY.

ROTARY FLUID MOTOR.

No. 509,644. Patented Nov. 28, 1893.

FIG. 1.

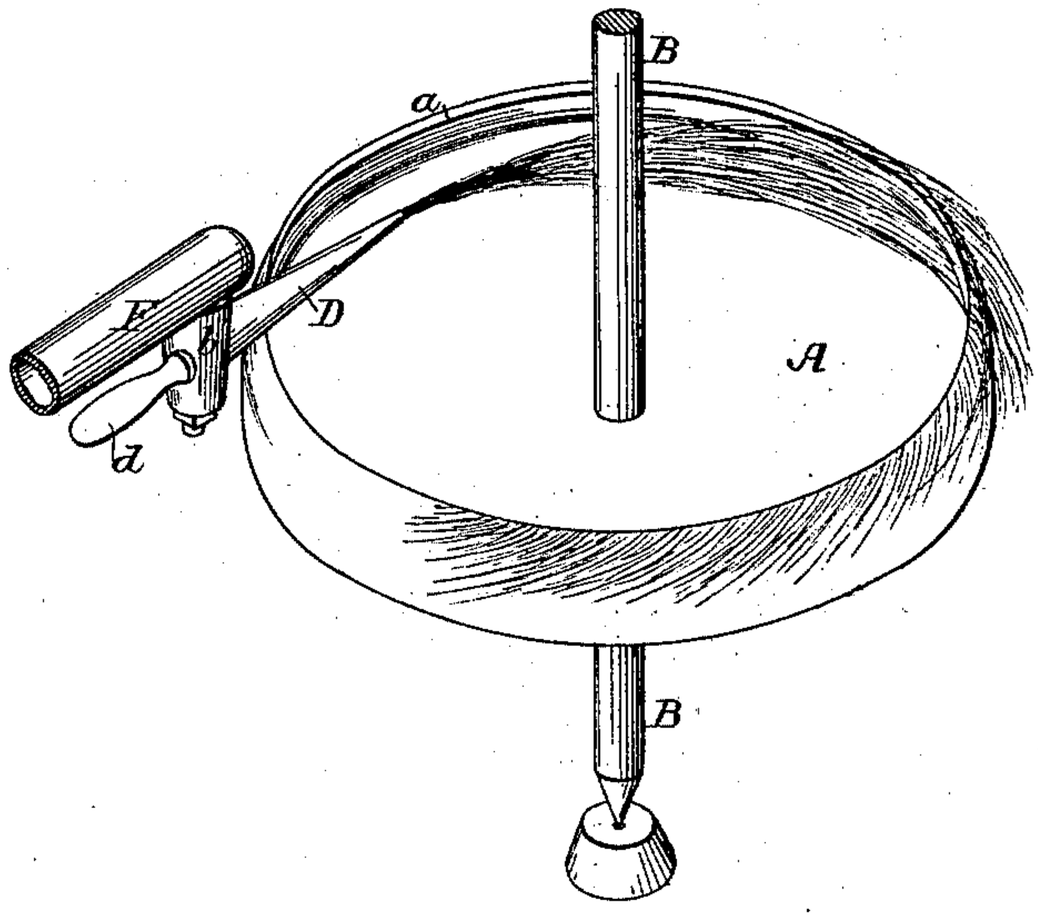


FIG. 2.

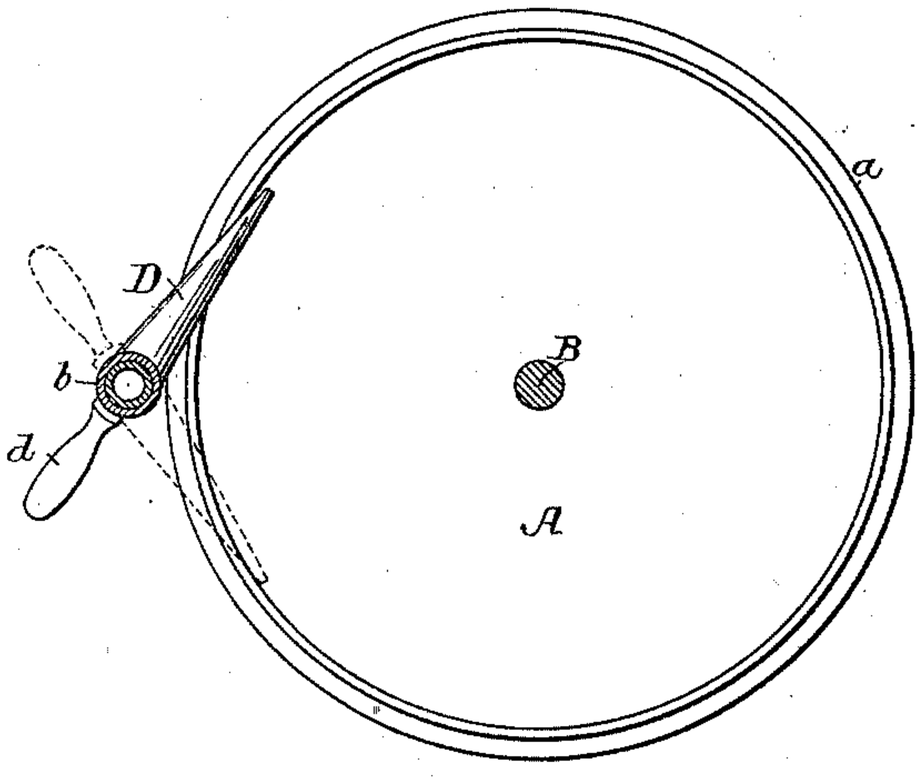


FIG. 3.

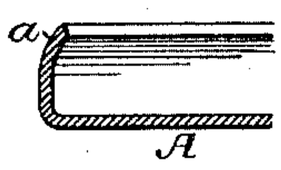


FIG. 4.

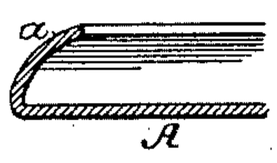
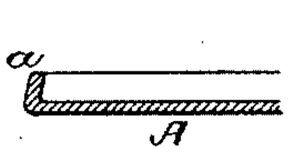


FIG. 5.



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EDWARD E. BARDSLEY, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO WINFIELD S. BARDSLEY, OF SAME PLACE.

ROTARY FLUID-MOTOR.

SPECIFICATION forming part of Letters Patent No. 509,644, dated November 28, 1893.

Application filed February 11, 1893. Serial No. 461,857. (No model.)

To all whom it may concern:

Be it known that I, EDWARD E. BARDSLEY, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented a certain Improvement in Rotary Fluid-Motors, of which the following is a specification.

One object of my invention is to construct a rotary fluid motor of an extremely cheap and simple character compared with its efficiency, and one which can be run in either direction at will, a further object being to provide for the ready changing of the direction of rotation of the motor. These objects I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1, is a perspective view of a fluid motor constructed in accordance with my invention. Fig. 2, is a plan view of the same, partly in section; and Figs. 3, 4 and 5, are sectional views illustrating different forms of motor wheel or disk which can be employed.

My improved fluid motor consists of a disk A secured to a shaft B which is mounted in suitable bearings so as to be free to turn, the disk having upon its outer edge a projecting flange *a* which is, by preference, bent inward slightly at the top, as shown in Fig. 3. The central portion of the disk may be in the form of spokes or openwork if desired, and the disk may run either horizontally, vertically or at an angle.

Above and at one side of the disk A is a conical nozzle D which is preferably mounted upon the depending end of a fluid supply pipe F so that it can be turned thereon, the hub or butt *b* of the nozzle being provided with a handle *d* for this purpose.

The nozzle D is so disposed that the jet therefrom will be delivered parallel with a line tangential to the periphery of the disk A and will strike the surface of said disk close to the outer flange, the force of the water being exerted upon the disk and flange and the stream spreading upward on said flange to which it clings by reason of capillary attraction until it is finally discharged by centrifugal force over the edge of the flange, as shown in Fig. 1. The water is thus caused to act upon the disk and flange throughout a considerable portion of the entire circumference of the disk so that I am enabled to obtain almost as high a degree of power as in a bucket motor operated by a jet, especially in cases where the jet is very small and issues with great velocity from the nozzle.

One important advantage possessed by my improved motor over the ordinary form of bucket motor, moreover, is that it is capable of being run either backward or forward with equal facility, by simply changing the direction of the jet, and in order that this latter result may be readily accomplished I use a pivoted nozzle as shown in Fig. 1, which when adjusted to the position shown by full lines in Fig. 2, will drive the motor disk in one direction, and when adjusted to the position shown by dotted lines in said figure, will drive said disk in the opposite direction.

In carrying out my invention various forms of flange may be formed upon the disk A in place of that shown in Figs. 1 and 3. For instance, an inwardly curved flange such as shown in Fig. 4 may be used, or a low upturned flange, such as shown in Fig. 5, or in some cases the flange may be dispensed with altogether, as I have obtained good results from a motor in which the jet was simply discharged upon the face of a flat disk, the use of the flange in all cases, however, being preferred, as it serves to confine the water to the disk for a longer time and thus enables it to exert a greater amount of power than if it were not so confined.

It will be evident that, in carrying out my invention, there can be two or more nozzles disposed so as to discharge upon the disk at different points, and the jets can all act upon the same face of the disk or some upon one face and some upon the opposite face of the same, and in other cases there may be more than one disk upon the shaft, each of the disks being acted upon by one or more jets. In some cases, also, the face of the disk may be slightly roughened or provided with fine corrugations, but these should not be such as to break up the jet or cause any rebounding of the water on striking the disk.

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

1. A fluid motor consisting of a disk or plate and a nozzle located above the plate but inclined downward toward the same, and also occupying a position parallel with a line tangential to the periphery of the plate so that it will discharge downward upon the face of the plate, adjacent to the periphery of the same, a jet parallel to such tangential line, substantially as specified.

2. A fluid motor in which are combined a disk or plate having an upturned flange upon its outer edge, and a nozzle located above the plate but inclined downward toward the same, and also occupying a position parallel with a line tangential to the periphery of the plate, whereby it will discharge downward upon the face of the plate, adjacent to the periphery of the same and within the flange, a jet parallel to such tangential line, substantially as specified.

3. A fluid motor in which are combined a disk or plate, and a nozzle located above the plate but inclined downward toward the same, said nozzle being pivoted to the supply pipe and capable of being moved thereon to right or left so as to occupy, when in either extreme of movement, a position parallel with a line tangential to the periphery of the plate, substantially as specified.

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

EDWARD E. BARDSLEY.

Witnesses:

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