(No Model.)

T. C. VAN WYCK.

MECHANICAL MOVEMENT.

No. 509,977. Patented Dec. 5, 1893.

Fig. 1.

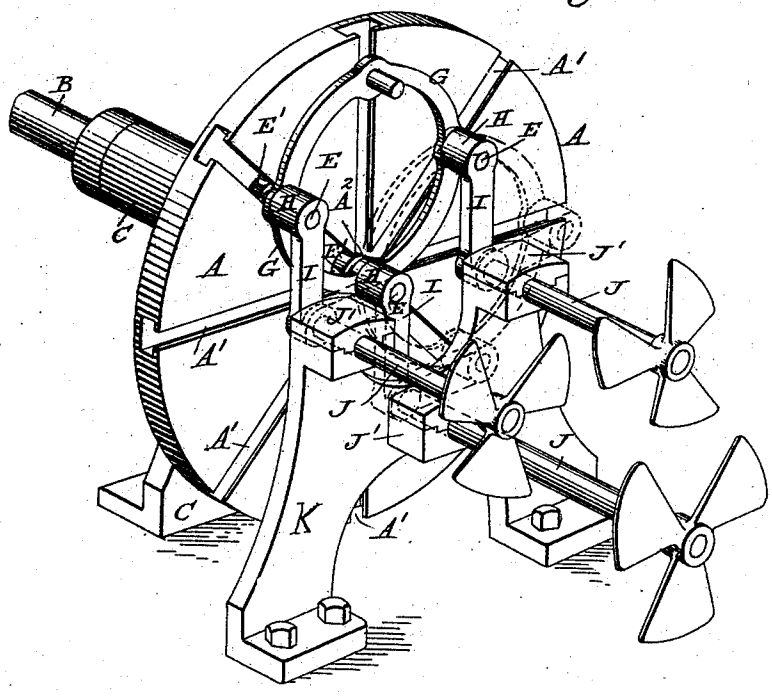


Fig. 2.

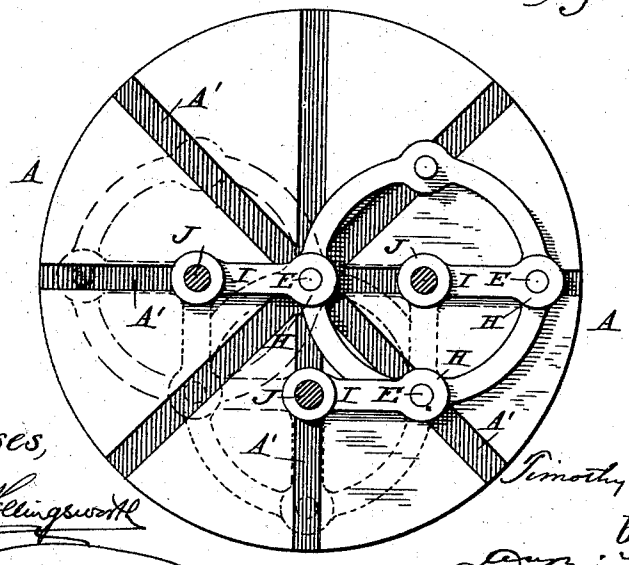
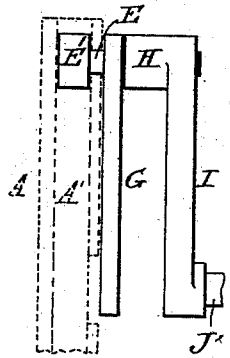


Fig. 3.



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MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 509,977, dated December 5, 1893.

Application filed August 23, 1893. Serial No. 483,829. (No model.)

To all whom it may concern:

Be it known that I, TIMOTHY C. VAN WYCK, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Mechanical Movements; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to a mechanical movement adapted to multiply speed without the use of cog-wheels, and my object is to reduce friction, increase steadiness and smoothness of operation, and to avoid the noise which usually accompanies the use of ordinary gearing.

In the accompanying drawings, Figure 1 represents a perspective view of my invention in which the cranks of the several rotary shafts are shown standing in a vertical position with the movable connecting frame raised to the highest position it reaches on the driving disk. Dotted lines represent the position of parts when the disk is moved an eighth of a revolution from left to right. Fig. 2 represents a front view of the driving disk, the plurality of shafts driven thereby, and the connecting frame for connecting the cranks of the driven shafts, the standards for the shafts being removed, dotted lines being made to represent the various positions the connecting frame assumes during the revolution of the driving disk, and Fig. 3 detail view of the connecting frame and the studs which form a connection between the cranks of the driven shafts, and the disk.

The driving disk A, is fixed on the end of a rotary driving shaft B, which shaft is mounted on a standard C. In the face of the disk A, are made a number of straight diametrical grooves A′, which intersect each other at the center or axis of the disk. The grooves are T-shaped in cross-section to receive the heads E′ of the pins E, projecting out from the face of the disk and through a frame G, and ends H, of a number of cranks. The cranks are fixed to rotary horizontal shafts J, mounted in suitable bearings J′ in a standard K. It will be seen that instead of the employment of two intersecting straight grooves at right angles to each other as in the ordinary trammel wheel or elipsograph, I employ double this number, or four. As these four grooves or ways extend across the widest diameter of the disk they leave at their point of intersection, which is the center of the disk, a common space A′, thereby subdividing the grooves into double the number or eight shorter grooves. These radiate from the center of the disk, and terminate at the periphery at distances apart equal to the eighth of a circle. The heads E′, of the pins E, are made integral with the latter, and during their movements through the grooves the heads roll over the walls, and hence create little friction.

In the present instance I have shown, by way of illustration, the driven shafts provided with screw propellers adapted for the propulsion of steam launches. It will be observed that the lower shaft is provided with a larger propeller, whereby the main power is exerted by the shaft located nearest the bottom of the boat.

It is apparent that my mechanism can be utilized and applied in various other ways for the purpose of multiplying speed, and it is also apparent that the form of grooves and connection between the revolving drive wheel and the cranks it drives, could be altered in many ways without departing from the spirit and scope of my invention; and it is further apparent that one or more shafts can be driven by the same disk.

The preferred form of my device having been set forth, I will now proceed to describe its operation. Upon application of power to the main drive shaft B, the driving disk A is made to revolve therewith and each revolution causes the sides of the grooves to press upon the heads E′, of the pins E, which pressure makes the pins shift position, and, being connected together by the frame G, they slide in unison from one side of the driving wheel to the other, like the movement of an eccentric, and cause the revolution of the cranks I, which in turn revolve the small shafts J. The radii of the circles described by each crank pin pass through the open space in the center

of the driving wheel, or, in other words, they cross the axis of said wheel, and as the cranks are revolved, the pins pass out of one of the grooves, across the center of the driving disk and into the coincident groove in the opposite side. Now it will be seen that the diameter of the circle described by each crank pin on the small shaft is equal to only one half the diameter of the grooved driving wheel, and hence one revolution of the latter produces two revolutions of the former.

Some of the advantages of my device are that it can be so employed in connection with a boat that the main propeller shaft may be located with greater facility closer to the bottom of the boat, that no grinding noise or unpleasant vibrations accompany the operation of the mechanism, and that the action of the parts are smooth running and practically noiseless.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a mechanical movement, the combination with a rotary disk having radial grooves in its face, of a movable frame provided with studs projecting in the grooves and actuated by the walls thereof, and a plurality of shafts having cranks connected to and operated by said frame, all arranged and adapted to operate in the manner, and for the purpose substantially as described.

2. In a mechanical movement, the combination with a rotary disk having radial T shaped grooves in its face, of a movable frame provided with a stud projecting into the grooves and actuated by the walls thereof, a plurality of pins projecting from the opposite side of the frame and away from it, a plurality of cranks connected to the pins, and shafts fixed to said cranks.

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

TIMOTHY C. VAN WYCK.

Witnesses:
R. G. DuBois,
I. B. Owens.