A. HEINER.

Hydraulic Rotary Motors.

No. 197,631. **Patented Nov. 27, 1877.**

FIG. I.

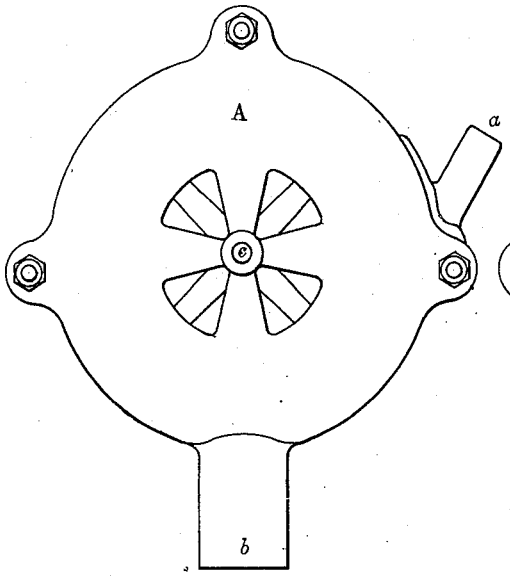


FIG. II.

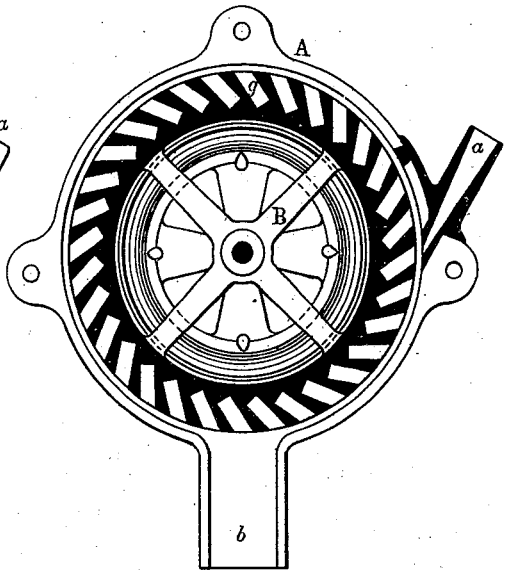
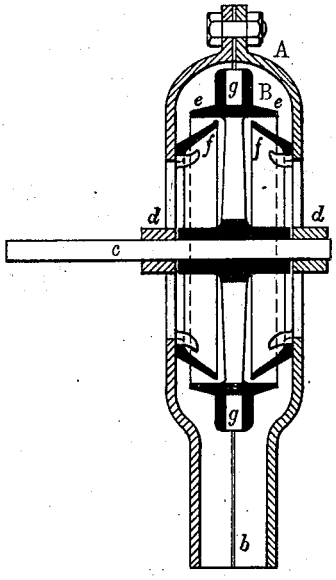


FIG. III.



WITNESSES.

Wm. W. Towson

Frank M. Burnham

INVENTOR.

Adam Heiner,

by G. H. & H. T. Howard
Attys

UNITED STATES PATENT OFFICE.

ADAM HEINER, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN HYDRAULIC ROTARY MOTORS.

Specification forming part of Letters Patent No. **197,631**, dated November 27, 1877; application filed September 4, 1877.

To all whom it may concern:

Be it known that I, ADAM HEINER, of the city of Baltimore and State of Maryland, have invented certain Improvements in Rotary Motors, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

This invention relates to certain improvements in a rotary motor, wherein a current of air, water, or other elastic or non-elastic fluid is discharged under pressure upon or against the periphery of a wheel revoluble within a stationary or fixed casing; and the invention consists, first, in a novel construction of the said casing and wheel, whereby the escape of the impelling-fluid, except at the discharge-aperture, is prevented without the formation of a frictional air or water tight joint between the rotating and the stationary parts of the same.

In the following description of a motor made in accordance with the present improvements, and propelled by water, reference is made to the accompanying drawing, forming a part hereof, and in which—

Figures 1 and 2 are, respectively, an exterior and a sectional side view of the improved motor, and Fig. 3 is a transverse section of the same.

Similar letters of reference indicate similar parts in all the views.

A is the shell or casing of the motor, constructed in two parts, bolted together, as shown, and provided with the induction and eduction openings, respectively represented by *a* and *b*. B is a wheel adapted to revolve with the shaft *c*, to which it is secured, within the casing A, the said shaft being supported in bearings *d*, secured to, or forming a part of, the casing. The wheel B is furnished with flanges *e*, extending from its sides, which overlap the flaring flanges *f*, projecting inwardly from the inner sides of the casing or shell A. The portion of the sides of the casing within the flaring flanges *f* is perforated, for purposes hereinafter described.

The periphery of the wheel B is provided with cavities *g*, having a common angular position with reference to radial lines intersecting the circumference of the wheel at a regular distance apart. These cavities successively receive the jet of water from the induction-opening, which opening corresponds nearly in angle of inclination with the cavity into which it discharges during the revolution of the wheel.

By locating the cavities *g* in close proximity to each other, as shown in the drawing, the propelling action of the jet of water is practically continuous, and nearly the full power of the water is utilized.

The distance between the induction and eduction openings is, preferably, about ninety degrees, as, by using this proportion only of the entire circle, the overlapping of the flanges *e* and *f* effects a perfect safeguard against leakage through the perforations in the sides of the casing or shell A. In having two hundred and seventy degrees of the circumference of the wheel not acted upon by the water-jet the rapid revolution of the wheel tends to form a partial vacuum in the casing, and it is to prevent this reduction in pressure in the said casing that the sides of the same are perforated, as before described.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent of the United States, is—

In a rotary motor, the wheel B, having the flanges *e* extending from the sides thereof, in combination with the casing or shell A, provided with the flared flanges *f*, projecting inwardly from the sides of the said casing or shell, substantially as and for the purpose herein set forth.

In testimony whereof I have hereunto subscribed my name this 19th day of July, in the year of our Lord 1877.

ADAM HEINER.

Witnesses:
JNO. T. MADDOX,
W. W. WHARTON.