

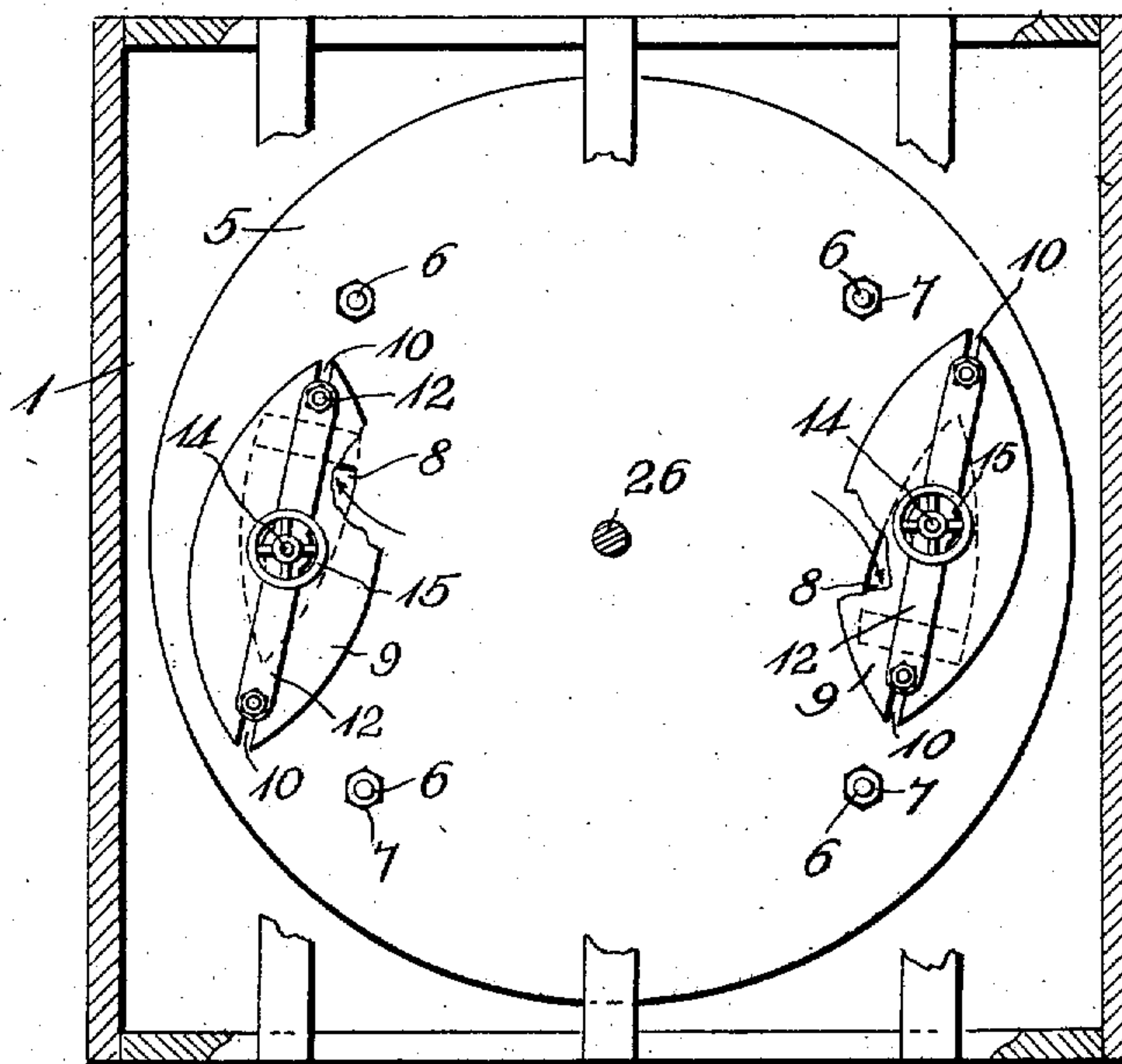
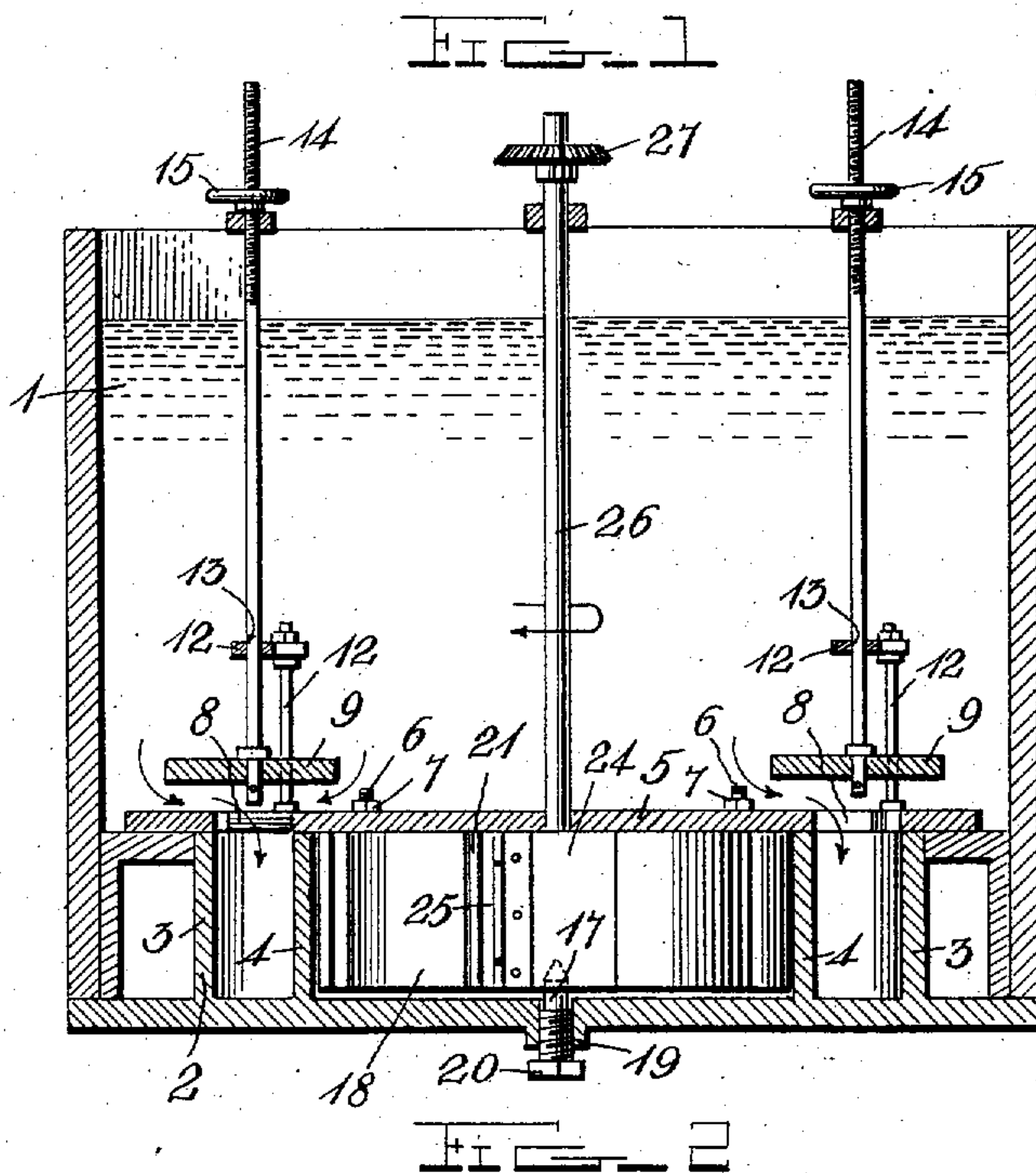
No. 884,202.

PATENTED APR. 7, 1908.

W. J. PEARSON.
WATER WHEEL.

APPLICATION FILED SEPT. 9, 1907.

2 SHEETS—SHEET 1.



Witnesses
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FIG. 3

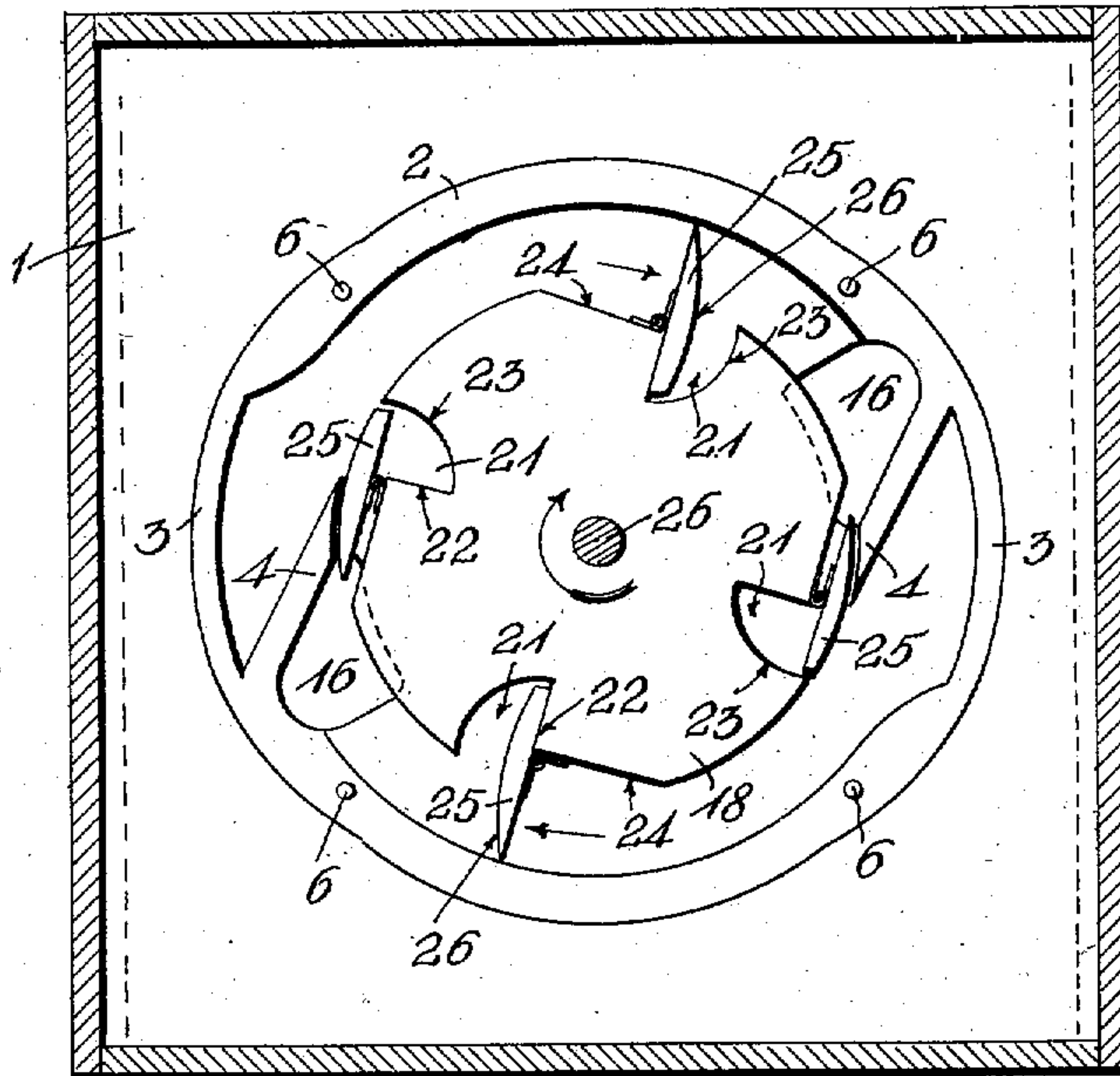
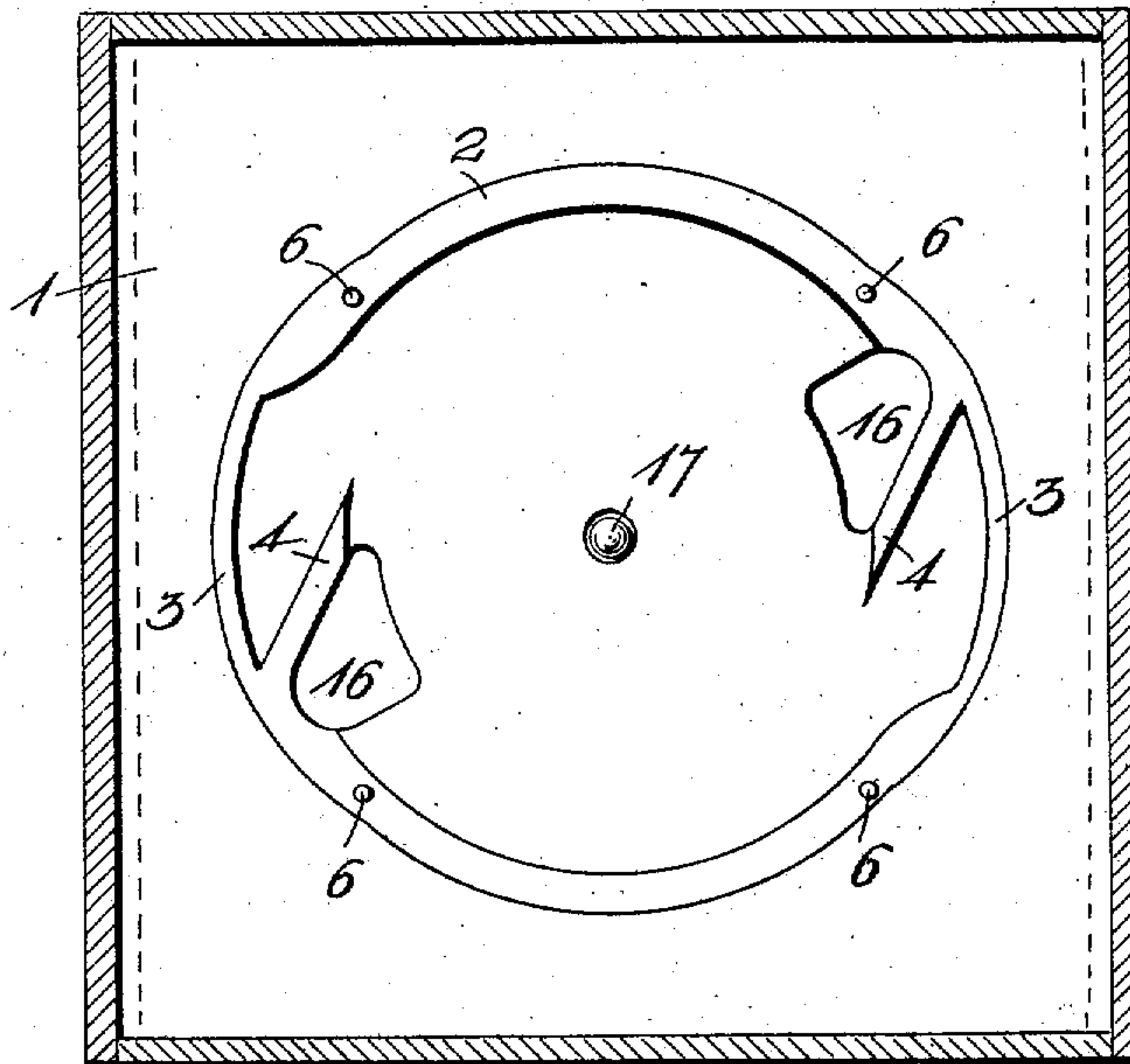


FIG. 4



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UNITED STATES PATENT OFFICE.

WILLIAM J. PEARSON, OF WINCHESTER, OREGON.

WATER-WHEEL.

No. 884,202.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed September 9, 1907. Serial No. 392,022.

To all whom it may concern:

Be it known that I, WILLIAM J. PEARSON, a citizen of the United States, residing at Winchester, in the county of Douglas and State of Oregon, have invented certain new and useful Improvements in Water-Wheels; 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.

This invention relates to improvements in water wheels.

The object of the invention is to provide a water wheel by means of which high speed and power may be obtained from a low head and a comparatively small amount of water, means being provided whereby the flow of water to the wheel may be regulated.

With this object in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a vertical sectional view of a water wheel and casing constructed in accordance with the invention; Fig. 2 is a horizontal sectional view of the flume showing a top plan view of the wheel casing; Fig. 3 is a similar view, with the top of the casing removed; and Fig. 4 is a plan view of the casing with the wheel and cover removed.

Referring more particularly to the drawings, 1 denotes the flume through which the water is run to the wheel, and in the lower end of which is suitably mounted the wheel casing, 2, said casing being substantially circular in form and provided at diametrically opposite points with outwardly projecting segmental extensions, 3, at one end of which are arranged beveled, obliquely disposed water deflecting plates, 4. The casing, 2, is provided with removable cover plate, 5, which is preferably secured thereto by means of laterally projecting stub bolts, 6, arranged on the sides of the casing and which project upwardly through apertures formed in the cover plate, and on the upper ends of which are screwed clamping nuts, 7. In the cover plate at diametrically opposite points are formed substantially V-shaped water inlet passages, 8. The underside of the cover plate adjacent to the larger end of the passages, 8, is beveled or inclined to facilitate the passage of the water through said pas-

sages, 8, into the casing. The passages, 8, are adapted to be opened and closed by means of gates, 9, which are preferably in the form of elliptically shaped plates having in their opposite ends notches, 10, which are adapted to engage the end bars of yoke-shaped guide frames, 12. The upper bar of the guide frame, 12 is provided with a centrally disposed opening, 13, through which is adapted to extend a threaded regulating stem or rod, 14, the lower ends of which is secured to the gates, 9. On the threaded stems 14 are screwed hand wheels, 15, which are adapted to be screwed up or down to raise or lower the gates and thereby open or close the water passages 8. In the bottom of the casing, adjacent to each of the deflecting plates, 4, is formed a discharge passage, 16, said passages being arranged at diametrically opposite points.

In the center of the bottom plate of the casing is arranged a pivot pin, 17, having an upwardly projecting conically-shaped point, which extends into the casing and on which is pivotally mounted a wheel, 18. The pin, 17, has a threaded engagement with a boss, 19, arranged on the underside of the bottom of the casing, and the lower end of said pin is provided with a suitable head, 20, whereby the same may be turned to project the point of the same in the casing to a greater or less extent, thus providing for the adjustment of the wheel. The wheel, 18, is in the form of a circular disk, at diametrically opposite points in which are formed recesses or notches, 21. The notches 21 have one of their side walls formed straight and in line with the center of the wheel, as shown at 22, while the opposite wall of the recess is grooved or segmental in shape, as shown at 23. The edge of the wheel adjacent to each of the flat sides, 22, of the notches, 21, is cut away to form a flat bearing surface, 24. Pivotal or hingedly mounted on each of the flat surfaces, 24, adjacent to the flat sides, 22, of the notches, are wings, 25, which consist of flat, substantially rectangular plates, the outer ends of which are beveled on one side as shown at 26. The wings, 25 are pivotally connected to the wheel midway between their ends, said pivotal connection being concentric to the curved walls, 23, of the notches, 21, thus permitting said wings to swing freely into and out of engagement with the notches.

In operation, one or both of the gates 9 are opened in the manner hereinbefore described,

thus permitting water from the flume to rush into the casing. Said water will force the wings to an open position, thereby confining the water entering the casing between said wings and the deflecting plates, and the pressure of the water thus entering the casing will force the wheel around until the open plates reach the discharge passages adjacent to the deflecting plates, 4, at which time the water passes out of said discharge passages, while the open wing engages the beveled side of the deflecting plates and is folded back upon the flat surfaces, 24, on the side of the wheel, which permits said wings to pass the deflecting plates. Immediately after the folded wings thus pass the plates, 4, they receive the impact of a fresh supply of water passing through the inlet openings, which again opens said wings and acts upon the same to force the wheel around in the manner hereinbefore described. Any number of water inlet passages and cover plates or gates may be provided and the capacity of the wheel thereby increased or diminished by opening one or more of the gates and admitting a greater or less volume of water into the casing. By providing a plurality of water inlet openings, the wheel may be adapted for use with a very small or large head of water. The construction and arrangement of the parts of the wheel provide for a maximum amount of speed and power from a minimum of water.

The wheel is provided with a centrally disposed, upwardly projecting shaft, 26, which extends through an opening formed in the cover of the casing, and is provided on its upper end with a bevel gear, 27, or other suitable power-transmitting device, whereby the motion of the wheel and the power developed thereby may be utilized.

Having thus fully described my invention, what I claim as new and desire to secure by Letters-Patent, is:

1. In a water wheel, the combination with a flume, of a casing arranged therein, said casing having water discharge passages formed in its lower side, a water wheel revolvably mounted in said casing, a removable cover arranged on the latter, said cover having formed therein water inlet passages, vertically adjustable gates adapted to open and close said passages, guide frames arranged on said cover to hold and guide said gates in their movement, threaded operating rods secured to said gates and held in operative position by said guide frames, interiorly threaded hand wheels adapted to be engaged with the threaded upper ends of said rods whereby

the latter are actuated to open and close said gates, substantially as described.

2. In a water wheel, the combination with a flume, of a wheel casing arranged therein, said casing having inlet and discharge passages, beveled deflecting plates arranged in said casing, and forming therein oppositely disposed water-receiving pockets, an adjustable pivot pin arranged in the center of the bottom of said casing, a water wheel pivotally mounted on the inner ends of said pin, wings pivotally mounted on said wheel, a centrally disposed power-transmitting shaft secured to the wheel and projecting upwardly through said casing, a power-transmitting gear on the upper end of said shaft, vertically operating gates adapted to open and close the inlet passages of said casing, threaded operating rods connected to said gates, and threaded adjusting wheels on the upper ends of said flume, said wheels having a threaded engagement with said rods whereby the gates are opened and closed, substantially as described.

3. In a water wheel, the combination with a flume, of a casing arranged therein, said casing having inlet and discharge passages, obliquely disposed deflecting plates arranged in said casing, a water wheel revolvably mounted in the latter, said wheel having radially disposed recesses formed in its periphery, a series of radially disposed water-engaging wings carried by said wheel, said wings having a pivotal connection midway between their ends with the outer sides of the wheel, whereby one of said wings is adapted to engage with the recess in the wheel when in an open or operative position, a curved outer surface formed on one side of said wings, whereby when the latter are folded to an inoperative position, said curved outer surface will form a continuation of the outer surface of the wheel, vertically adjustable, horizontally-disposed closing plates adapted to open and close the inlet passages in the casing, guide frames to hold and guide said gates in their movement, threaded adjusting rods connected to the upper sides of the gates and adapted to extend to the upper end of said flume, and hand wheels screwed on said adjusting rods to open and close the gate, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM J. PEARSON.

Witnesses:

R. W. MARSTERS,
E. L. CANNON.