

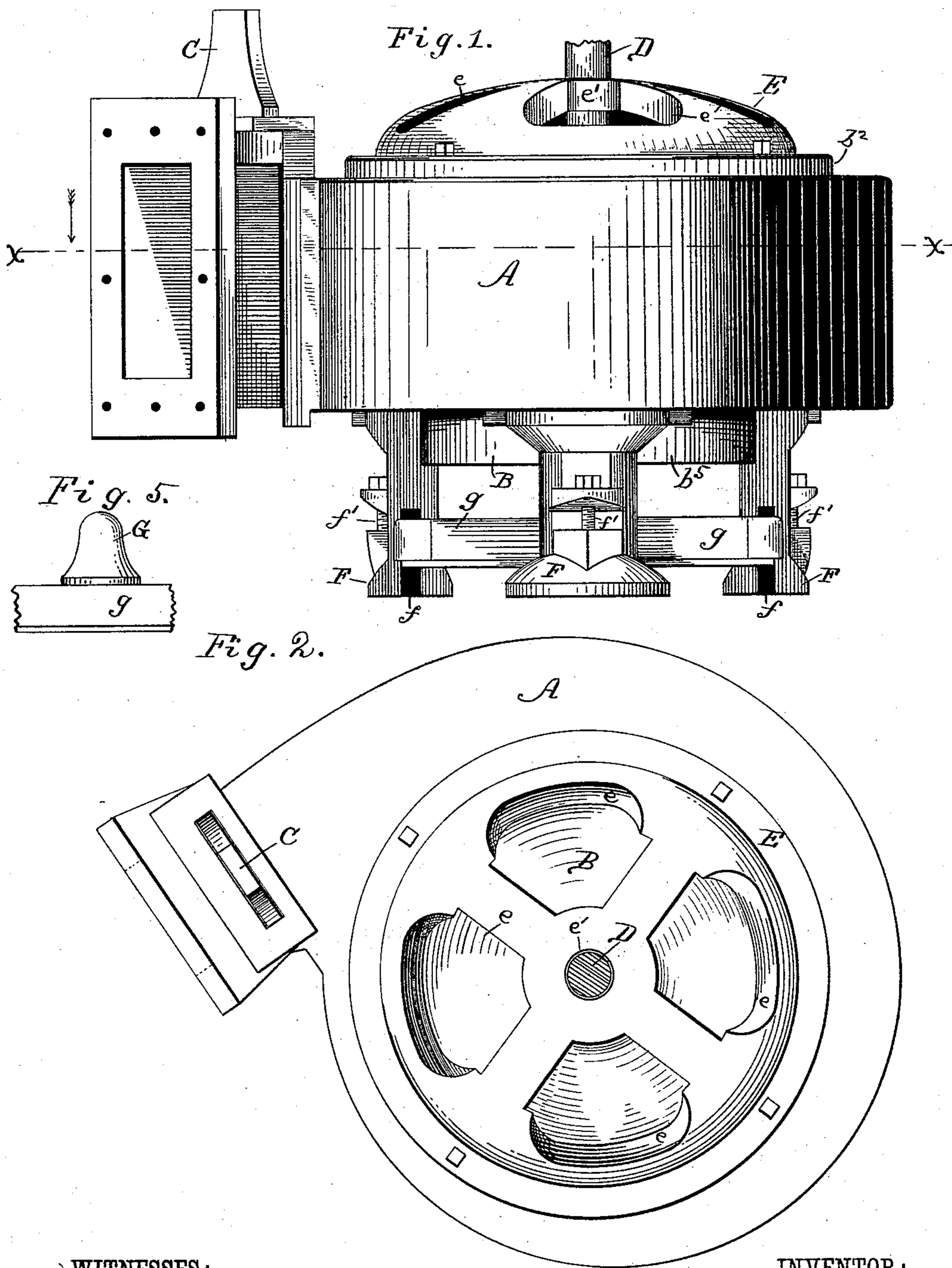
(No Model.)

2 Sheets—Sheet 1.

B. V. IDOL.
TURBINE WATER WHEEL.

No. 324,113.

Patented Aug. 11, 1885.



WITNESSES:
Thos Houghton.
John Kenyon.

INVENTOR:
B. V. Idol
BY *Munn & Co*
ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

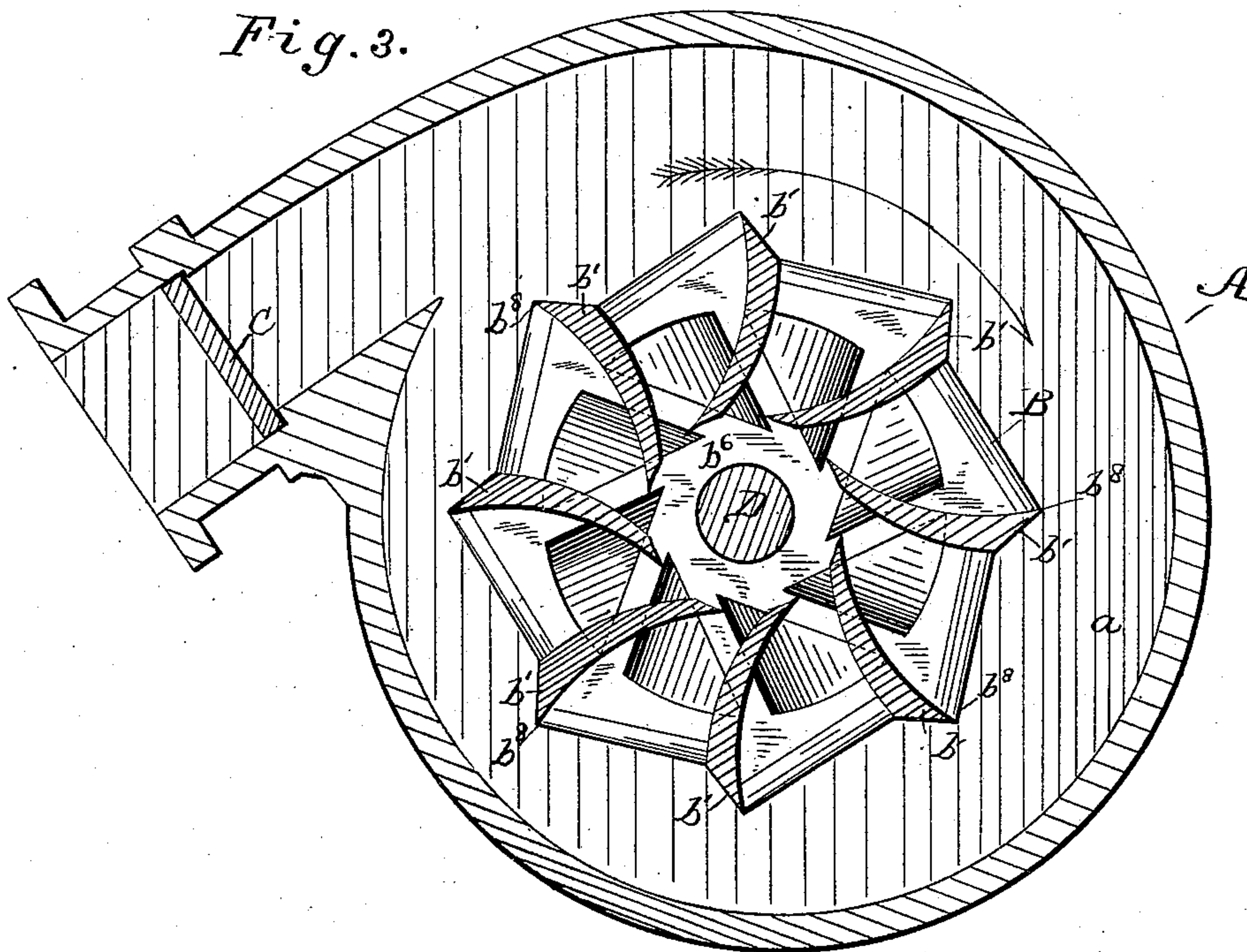
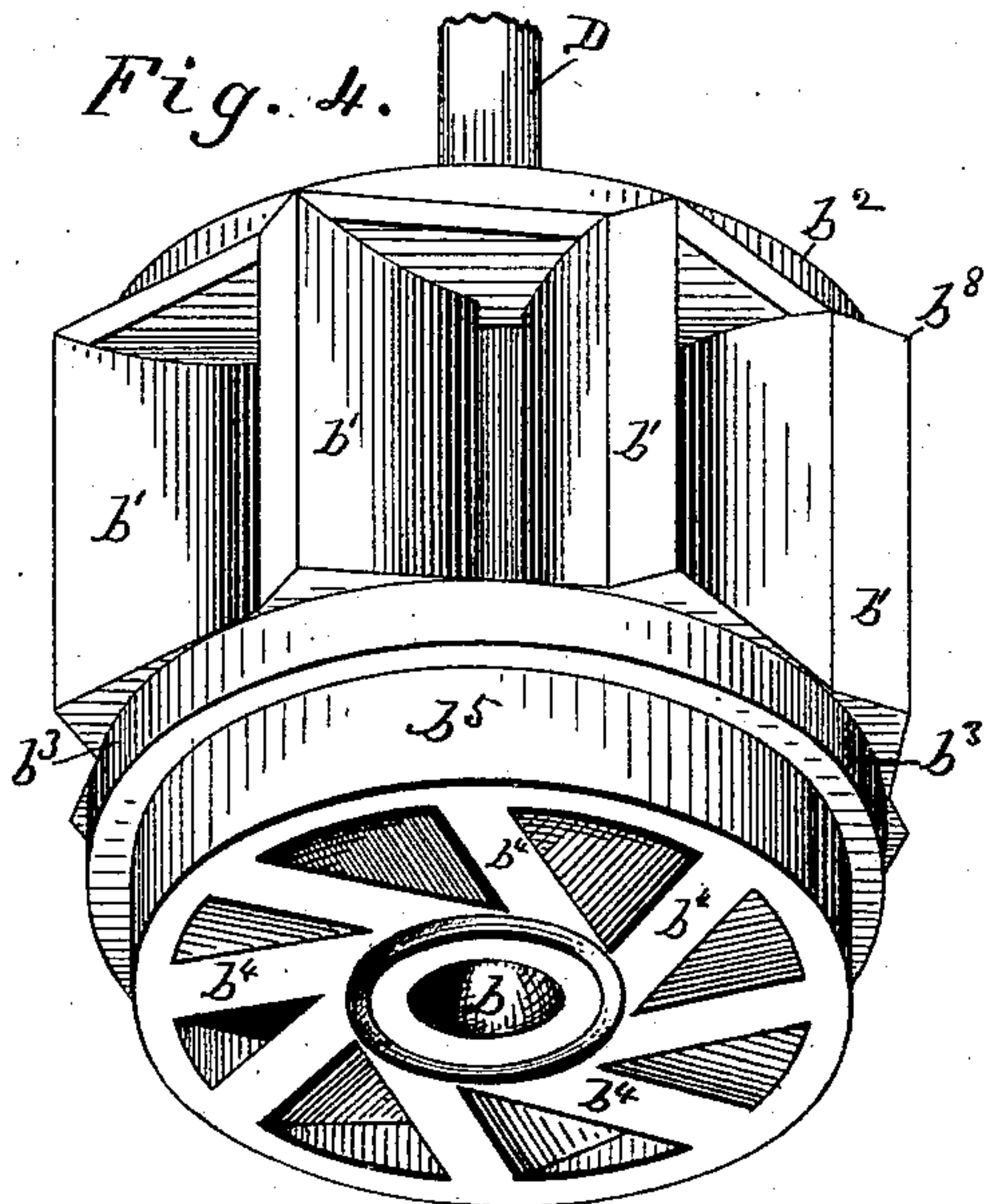


Fig. 4.



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INVENTOR:

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UNITED STATES PATENT OFFICE.

BARNET VIRGIL IDOL, OF IDOL'S MILLS, NORTH CAROLINA.

TURBINE WATER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 324,113, dated August 11, 1885.

Application filed May 26, 1885. (No model.)

To all whom it may concern:

Be it known that I, BARNET VIRGIL IDOL, a citizen of the United States, residing at Idol's Mills, in the county of Ashe and State of North Carolina, have invented certain new and useful Improvements in Turbine Water-Wheels, of which the following is a description.

Figure 1 is a side elevation of the turbine water-wheel and casing. Fig. 2 is a plan view of the same. Fig. 3 is a sectional plan view of the wheel and casing, taken on the line xx in Fig. 1. Fig. 4 is a view of the turbine water-wheel in perspective, showing it removed from the casing; and Fig. 5 is a detail view.

This invention relates to turbine water-wheels; and it consists in the detailed construction of the parts, hereinafter fully described and claimed, by which the power of the wheel is largely increased and its construction rendered more simple and convenient of adjustment.

In the accompanying drawings similar letters of reference indicate corresponding parts in all the figures.

A is the casing in which the turbine water-wheel B revolves.

C is the regulating-valve, by which the admission of water to the casing is controlled.

D is the center shaft, by which the motion of wheel B is communicated to the machinery to be driven.

E is a cover secured on top of the casing A, and provided with openings e , through which the surplus water may escape from the interior of the casing, and with a bearing, e' , in which the shaft D revolves.

To the bottom of the casing A are attached legs F, provided with feet and with slots f , in which the pivot-arms g are free to slide.

f' are screws, by means of which the position of the said arms in the slots can be adjusted.

G is the center pivot, upon which the wheel B revolves and to which the arms g are attached, so that the height of the said pivot is adjusted by the position given to the projecting arms g in the slots f .

The wheel B is provided with a recess, b , at the bottom of it, which fits over the top of the pivot G.

The portions of wheel B, from which it derives its rotary motion, consist of a series of curved arms, b' , situated between the top flange, b^2 , and the bottom flange, b^3 , and a second series of arms, b^4 , situated within the thickness of the said bottom flange, b^3 , and its continuation b^5 , which is made somewhat smaller in diameter. The curved arms b' extend for some distance inward from the periphery of the wheel, but leave an annular open space, b^6 , round the center casting, which helps to unite the top and bottom flanges. These curved arms b' form with the top and bottom flanges a series of horizontal buckets having projecting water-guides b^8 , into which the water rushes and causes the wheel to revolve in the direction of the arrow in Fig. 3. The arms b^4 form with the bottom flange and its extension a series of vertical buckets situated beneath the first-mentioned horizontal buckets, and through which the water rushes after it has done duty in the said horizontal buckets. These vertical buckets also assist in rotating the wheel and keep it moving in the same direction as the horizontal buckets. The casing A is provided with a flange, a , having a central hole through which the part b^5 of the bottom flange of the wheel projects, while the bottom flange, b^3 , revolves freely in the said hole, but does not allow much water to escape. The casing A is not made concentric with the wheel, but is so arranged that the water has a wide passage where it enters through the regulating-valve C, which passage gradually diminishes as it passes round the circumference of the wheel. After having done duty in the horizontal buckets the water descends vertically through the second series of vertical buckets, which also assist in rotating the wheel. As the central pivot wears away, the vertical height of the wheel can be adjusted by means of the screws f' .

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

In a turbine water-wheel, the combination

of the shaft D, the flanges b^2 and b^3 , and the
extension b^5 thereon, the curved arms b' , lo-
cated between the said flanges and extend-
ing from points a little distance from the
5 shaft to points outside of the flanges, forming
the projections b^3 , and the vertical buckets
 b^4 , located in the flange b^3 , and the extension

b^5 within a smaller circumference than that
of the arms b' , substantially as shown and de-
scribed.

BARNET VIRGIL IDOL.

Witnesses:

JOHN F. LOGAN,
FRANK HARDIN.