

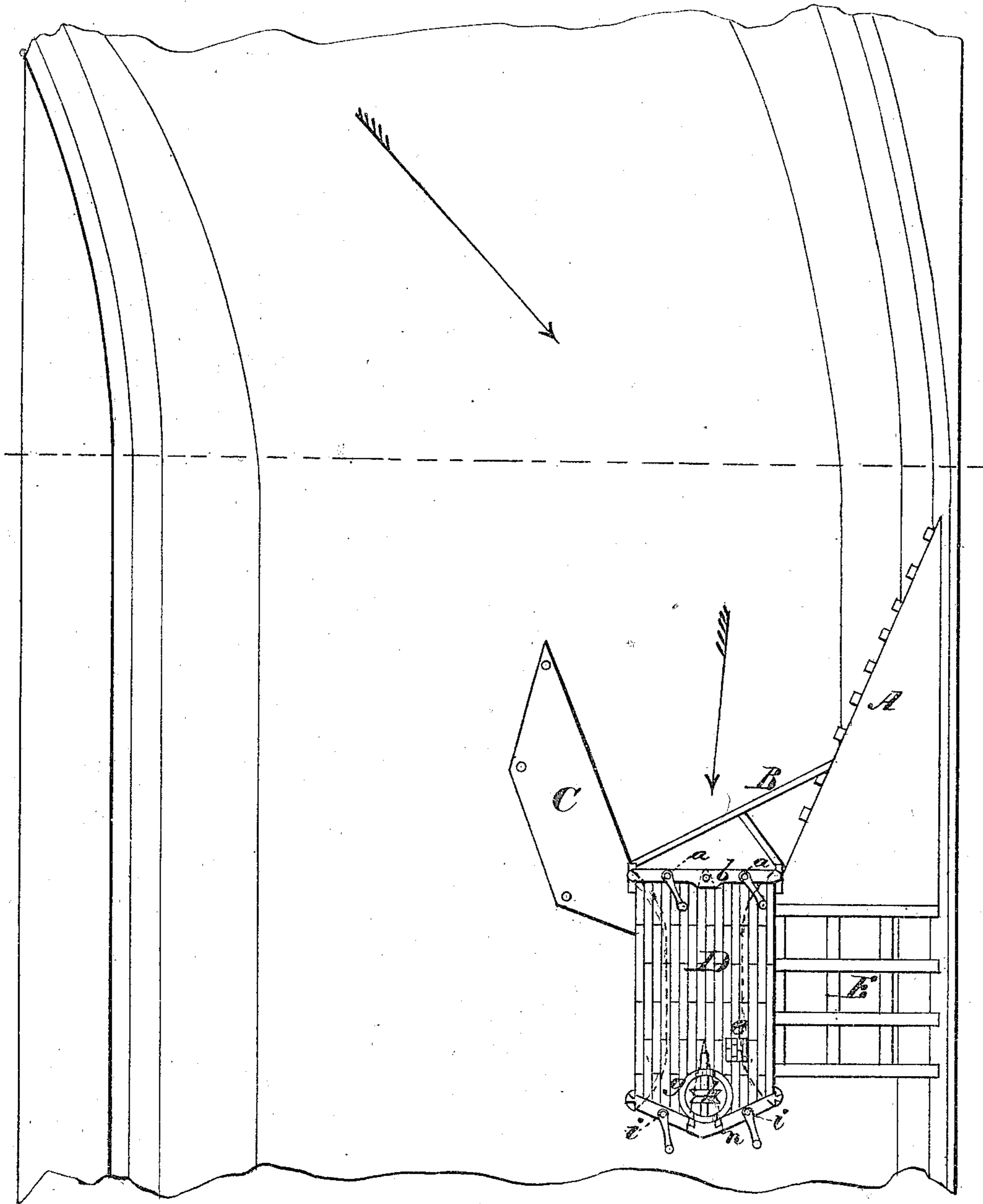
E. VALADE.

Mode of Utilizing the Currents of Rivers.

No. 134,618.

Patented Jan. 7, 1873.

*Fig. 1*



Witnesses  
R. Campbell  
J. H. Campbell

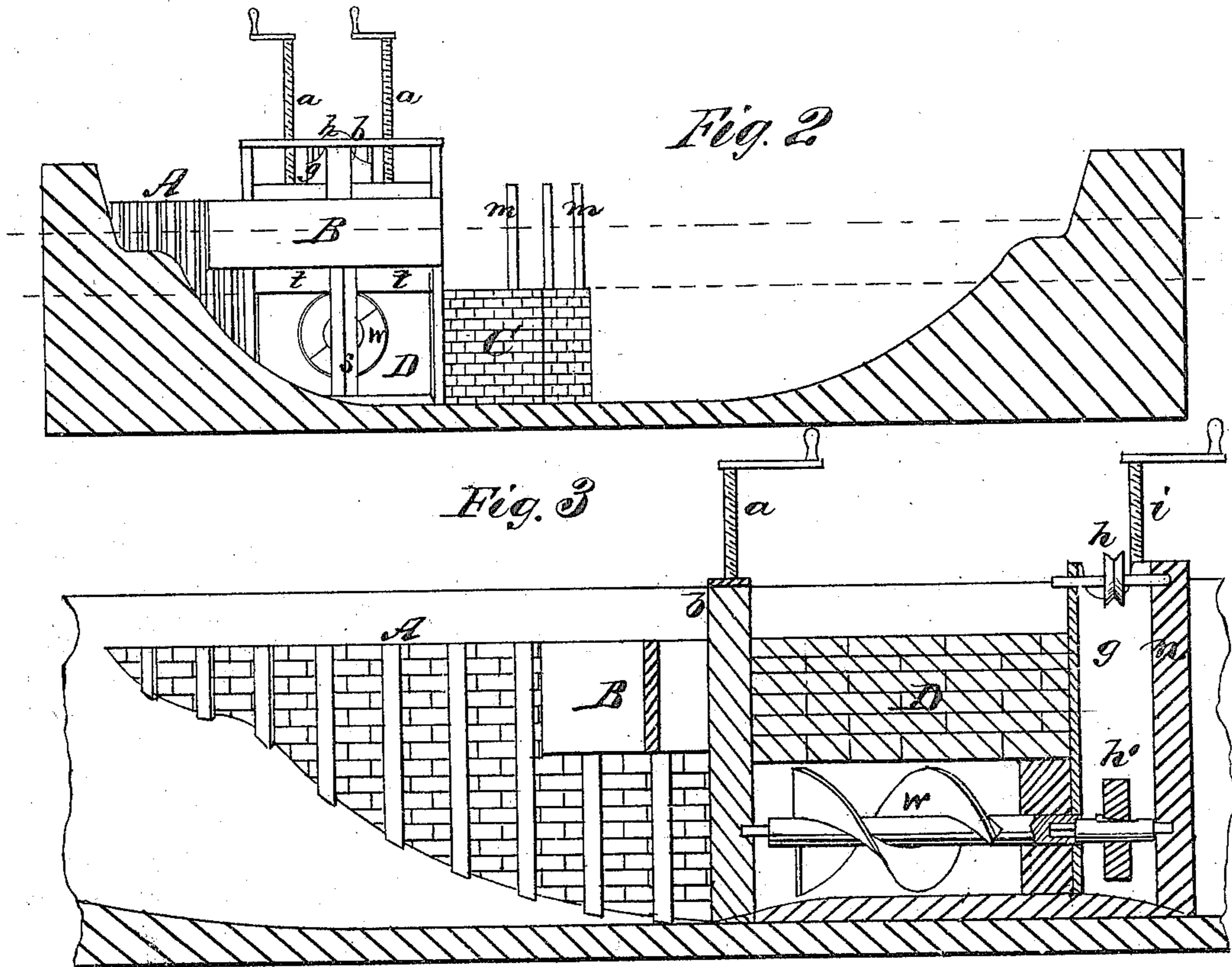
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# UNITED STATES PATENT OFFICE.

ELIE VALADE, OF MEMPHIS, TENNESSEE.

## IMPROVEMENT IN THE MODE OF UTILIZING THE CURRENTS OF RIVERS.

Specification forming part of Letters Patent No. 134,618, dated January 7, 1873.

*To all whom it may concern:*

Be it known that I, ELIE VALADE, of Memphis, in the county of Shelby and State of Tennessee, have invented a Mode of Utilizing the Currents of Rivers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1, Plate 1, is a bird's-eye view of the bend or curve of a river, showing my improvement erected therein. Fig. 2, Plate 2, is a vertical front section of the same. Fig. 3, Plate 2, is a vertical rear section of the same.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to a new and improved mode of utilizing the currents of rivers for the purpose of obtaining a force for driving machinery, as will be hereinafter explained.

The following description of my invention will enable others skilled in the art to understand it:

In the accompanying drawing I have represented in outline the banks of a river at a bend or curve, where the current sweeping around it will take the course indicated by the arrows in Fig. 1. At a suitable point on the bank having the longest sweep I erect a break-water or abutment, A, of a substantial character, which will deflect the current obliquely outward toward the center of the river. At the termination of this abutment downstream I construct, of masonry, a wheel-house, D, and at the outer side of this house I construct another break-water, C, which does not rise above low-water mark, and which presents an acute angle to the current. It will thus be seen that I have two walls converging toward the wheel-house, one of which, A, rises as high as the wheel-house and the river-bank, while the other will be submerged when the water rises in the river above low-water mark. At the base of the house D is an outwardly-flaring circular chamber, in which I place a screw, *w*, whose shaft has its end bearings in suitable journal-boxes, one end of which shaft is coupled with the shaft of a belt-wheel, *h'*, in a well, *g*. At the upper end of the well *g* is a belt-wheel, *h*, which receives its motion from the wheel *h'* by means of a belt, and from which motion can be transmitted to any suitable machinery.

Instead of using a belt and pulleys in the well *g* the force derived from the screw *w* may be transmitted by spur-wheels and shafts.

At the front of the wheel-house, where the water enters it, and also at the rear end thereof, I apply vertically-adjustable gates for the purpose of regulating the influx and efflux of water through the chamber in which is the screw *w*. The two front gates *t t* are guided in a frame, *b*, and adjusted by means of cranks and screws *a a*; and the two rear gates are guided by a frame, *n*, and adjusted by means of screws and cranks *i*. For the purpose of protecting the front gates *t*, as well as to prevent an accumulation of drift-wood and other substances in front of the wheel-house, I employ a deflector, B, which extends obliquely across from one abutment, A, to the other, C, and rises as high as the abutment A. This will break the force of the drift-wood, and direct it outward toward the posts *m m*, which rise from the abutment C. E represents an open staging, which may be substituted by masonry.

From the above description it will be seen that a current more or less strong will be directed through the screw-chamber and rotate the screw therein, the force of which current may be regulated by means of the gates at the ends of the wheel-house.

If at any time it is necessary to repair the screw or readjust its journal-boxes the gates can be shut, and after the water is pumped out of the screw-chamber only, the well being always dry, persons can descend therein and make the necessary repairs.

If at any time it is desired to obtain motive power from the force of a current at or near the middle of a river, a floating structure may be employed, properly anchored at the desired point. Or a permanent structure may be made between the banks, in both of which instances the current will be arrested between two converging walls, and the operating parts will be protected as above described.

I am aware that it is not new to employ undershot-wheels in river currents; also, to dam up portions of a river, and use undershot-wheels and overshot-wheels for the purpose of obtaining motive power for raising water and other purposes, and these I do not claim. The gist of my invention lies in the employment, in combination with convergent

walls and a submerged screw, of regulating and cut-off gates, and a protecting-guard, whereby a large body of running water is concentrated at the mouth of the screw-chamber and forced through it with great velocity.

I do not confine myself to any particular kind of screw; but prefer to employ one whose shaft is considerably enlarged for about two-thirds of its length, and then tapered as shown in Fig. 3, Plate 2.

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

1. The abutments A C, converging toward a screw, *w*, which is applied in a wheel-house, D, substantially as and for the purposes described.

2. The guard B, combined with the abutments A C, the latter one being below or on a level with low-water mark, substantially as and for the purposes described.

ELIE VALADE.

Witnesses:

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WILLIAM DUNCAN.