

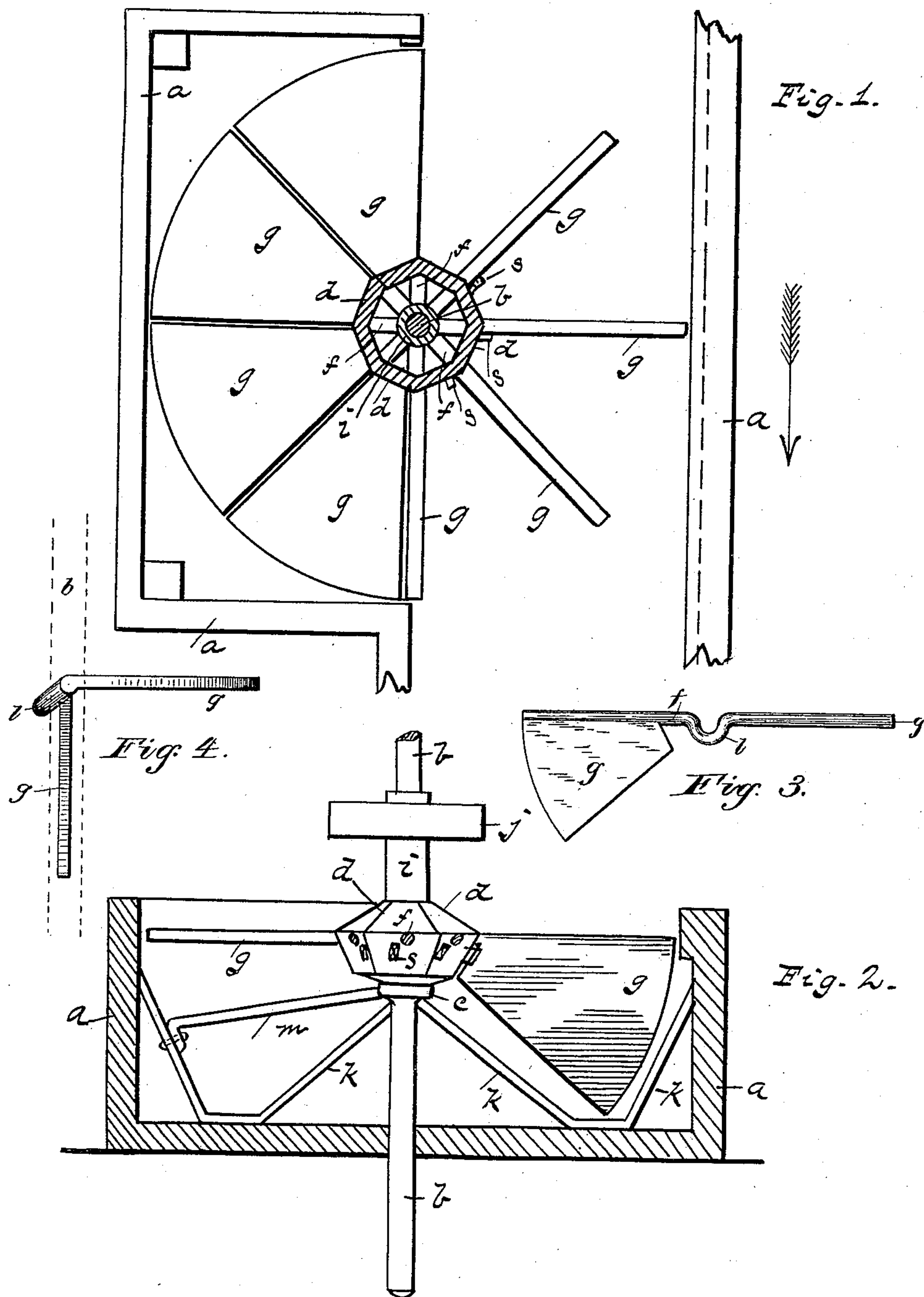
(No Model.)

J. B. FOX.

MEANS FOR OBTAINING MOTIVE POWER FROM WATER AND AIR CURRENTS.

No. 397,118.

Patented Feb. 5, 1889.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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MEANS FOR OBTAINING MOTIVE POWER FROM WATER AND AIR CURRENTS.

SPECIFICATION forming part of Letters Patent No. 397,118, dated February 5, 1889.

Application filed January 14, 1888. Serial No. 260,778. (No model.)

*To all whom it may concern:*

Be it known that I, JOSIAH B. FOX, a citizen of the United States, residing at Emlenton, county of Venango, State of Pennsylvania, have invented a new and useful Improvement in Means for Obtaining Motive Power from Water and Air Currents, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

Similar letters of reference indicate corresponding parts.

My invention relates to improvements in hydraulic motors; and it consists of the novel combination and construction of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of my improved wheel constructed in accordance with my invention, the same being partly shown in section the better to show its working parts. Fig. 2 is a front sectional elevation of the same. Fig. 3 is a plan view of one of the paddles detached from the wheel. Fig. 4 is an enlarged detail view in end elevation of one of the paddles to more clearly show the oblique bend therein to enable said paddles to make a quarter-turn without obstruction from the fixed supporting-shaft.

To put my invention into practice I provide a frame, *a*, of suitable size and form of construction, and anchor the same securely to the bed-rock of a running stream. In the center of this frame *a* is a vertical shaft, *b*, one end of which is rigidly secured in the bottom of the stream and the other extended above the surface of the water. Secured over this shaft *b*, and resting on a collar, *c*, integral with the shaft *b*, is a loose sleeve, *i*, to which is secured a peculiar-shaped hub, *d*, octagonal in form on its outside surface. Projecting through this hub *d* is a number of shafts, *f*, arranged on a horizontal plane, each shaft *f* provided with two paddles, *g*, arranged the one at right angles to the other in such a manner that when one of the paddles *g* stands in a vertical position the other occupies a horizontal position. These shafts *f* are loosely journaled in the hub *d*, so as to be capable of making a quarter turn or revolution therein

with the paddles *g* at the ends thereof; and to enable this shaft *f* to make this turn without striking the central fixed shaft, *b*, or the rotary sleeve *i*, said shaft *f* is bent laterally at its middle in the form of the letter **U**, as at *l*. (Indicated very clearly in Figs. 3 and 4.) This U-shaped bend *l* of the shaft lies at an oblique line or angle to the line of juncture of the two right-angled paddles, (see Fig. 4,) so that when the paddles occupy one position the bend will be turned down alongside the shaft *b*, as indicated in Fig. 4, and when the paddles are reversed by striking the turning piece *m* and the action of the current of water the bend will be turned up alongside of the fixed central shaft, as is obvious, thus permitting the paddles to make a quarter-turn without obstruction from the central shaft, *b*. Suitable braces, *k*, are placed inside the frame *a*, in order to strengthen the same. To one of these braces *k* is secured a turning piece, *m*, the other end of which is attached to the shaft *b*. This device *m* serves to rotate the vertical paddle to a horizontal position by means of the paddles *g* revolving against the same, and when partly turned the current acting on the opposite paddle completes the quarter-revolution. A suitable projection, *s*, formed on the hubs at the back of each of the paddles *g*, prevents the same when in a vertical position from revolving away from the line of pressure of the current.

By this construction the paddles *g* are kept vertical on one side of the wheel and horizontal on the other until each one comes again in line with the current at the upper side of the wheel, at which time the paddle *g* turns so as to present its broad side against the current until again in line with the current at the lower or downstream end of the frame *a*, when they will again be turned by the obstruction *m*, previously mentioned.

A crank or wheel, *j*, secured to the top of the sleeve *i*, serves as a means of transferring the power thus generated to points or places requiring the same.

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

1. The combination consisting of the frame *a*, the vertical shaft *b*, the sleeve *i*, and hub *d*,

attached thereto, the double paddles *g*, arranged securely about the hub *d*, and the turning device *m*, substantially as set forth.

2. The combination of a fixed central shaft,  
5 a sleeve loosely fitted thereon and carrying a hub, the paddles *g*, arranged in pairs and at right angles to one another on opposite ends of horizontal shafts *f*, which are loosely jour-  
naled in said hub, each shaft having an ob-  
10 lique bend, *l*, therein arranged at an obtuse angle to the line of juncture of the pair of

right-angled blades, whereby the shaft and paddles can make a quarter-turn without obstruction from the fixed central shaft, and a fixed turning piece arranged in the path of 15 the paddles, substantially as and for the purpose described.

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Witnesses:

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