

F. H. Southworth,

Water Wheel,

No. 1,478,

Patented Jan. 23, 1840.

Fig. 1

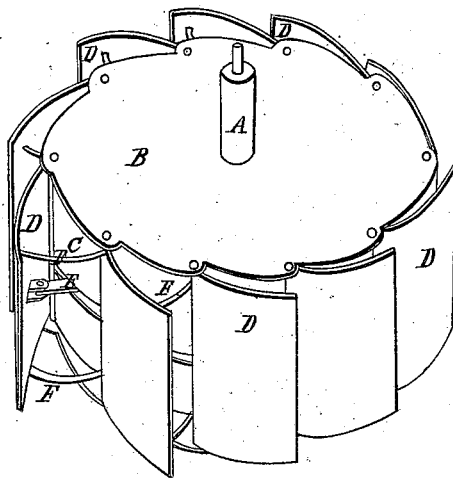
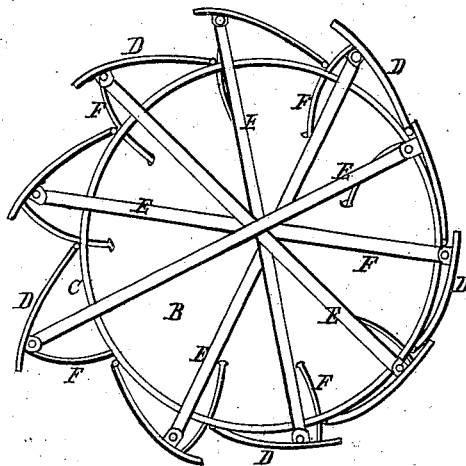


Fig. 2



UNITED STATES PATENT OFFICE.

F. H. SOUTHWORTH, OF ST. LOUIS, MISSOURI.

TIDE OR CURRENT WHEEL.

Specification of Letters Patent No. 1,478, dated January 23, 1840.

To all whom it may concern:

Be it known that I, F. H. SOUTHWORTH, of St. Louis, in the State of Missouri, have invented an Improved Tide and Current Water-Wheel; and I do hereby declare that the following is a full and exact description thereof.

My tide and current wheel consists of a drum or cylinder, revolving on an axis which is, in general, placed vertically, said drum or cylinder being surrounded by buckets hinged thereto, so that they may open to receive the action of the water on one side thereof, while the buckets on the opposite side close, so as to pass around in the direction against that of the tide, or current, with little or no resistance.

My principal improvement in said wheel consists in the connecting together of the pairs of buckets which are diametrically opposite to each other, by means of rods jointed to said buckets, so that the opening, or closing, of one of them shall aid in effecting the reverse action in that with which it is connected.

In the accompanying drawing, Figure 1, is a representation of my wheel in perspective, and Fig. 2, a horizontal section through the middle thereof.

A, is one end of the axis of the wheel, which is attached to the head B, of the drum, or cylinder, of which C, is the periphery.

D, D, D, are the buckets, which turn upon suitable hinges, or joint pins.

E, E, E, are connecting rods jointed to opposite buckets, so that they may open and close simultaneously. The effect of this arrangement is the entire correction of the irregular action to which such buckets have been subjected, as they have heretofore been constructed, each bucket having been allowed to act independently, both in opening and

closing; but in the present case, the same power which tends to open one bucket, has an equal effect in closing that opposite to it, and, vice versa, the power which tends to close one, operates equally in opening that to which it is connected. In the arrangement as exhibited in the drawings, the connecting rods pass through slots in the middle of the periphery of the drum; but, if preferred, this may be entirely closed, and the connecting rods be attached to the edges of the buckets, and pass outside of the heads of the drum, they having slots in them, or being so curved as to work free of the axis, which axis may then be continued through the drum, instead of being attached to each head, as is supposed to be done in the form shown in the drawing.

F, F, F, are quadrants, or check rods to aid in sustaining the bucket against the action of the water, when open.

Although it is intended, in general, to place this wheel with the axis standing vertically, this is not necessary to its action; and there may be situations where the depth of water is sufficient, and in which it may be preferred, to place the axis horizontally, and this may be done with perfect facility and without, in any way, interfering with the principle upon which it operates.

What I claim as constituting my improvement in the above subscribed tide and current water wheel, is—

The connecting of the opposite buckets by means of connecting rods, in such manner as to compel one of them to open, and the other to close, simultaneously, upon the principle, and for the purpose, herein set forth.

F. H. SOUTHWORTH.

Witnesses:

THOS. P. JONES,
GEORGE WEST.