B. F. Sampson,

Water Wheel.

No. 104,500. Patented June 21. 1870.

Fig. 1.

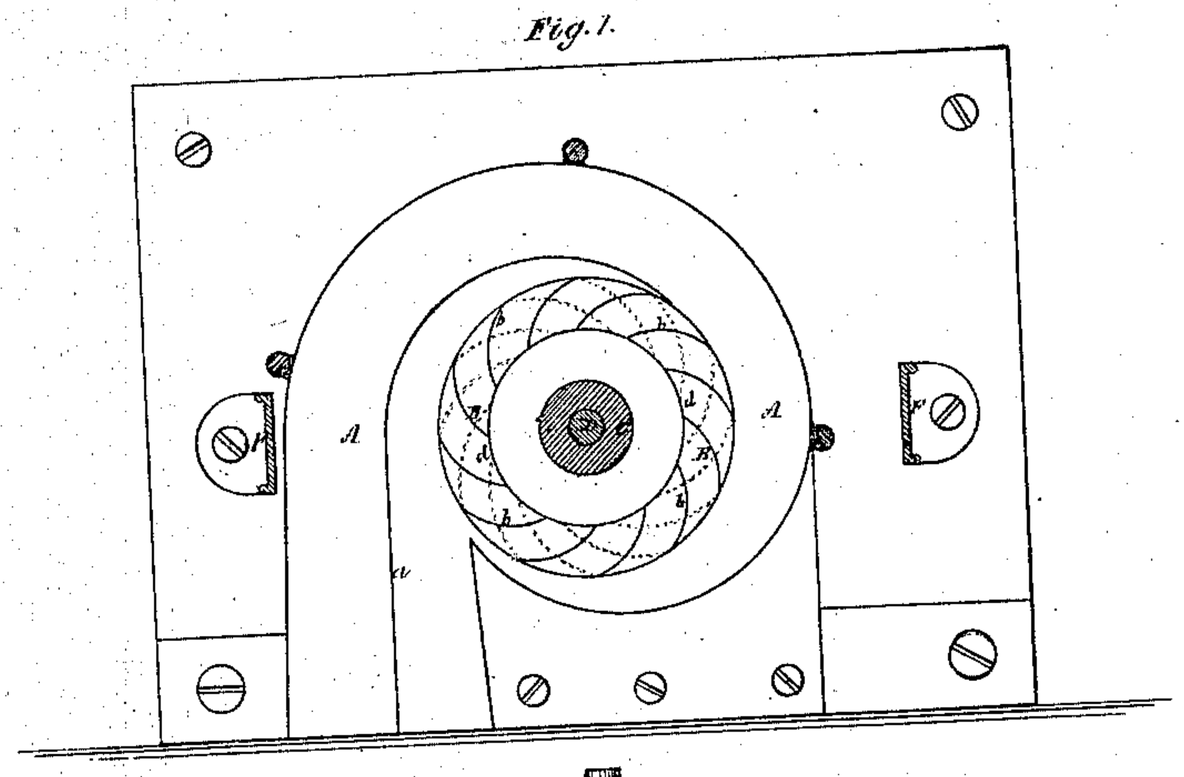


Fig. 2.

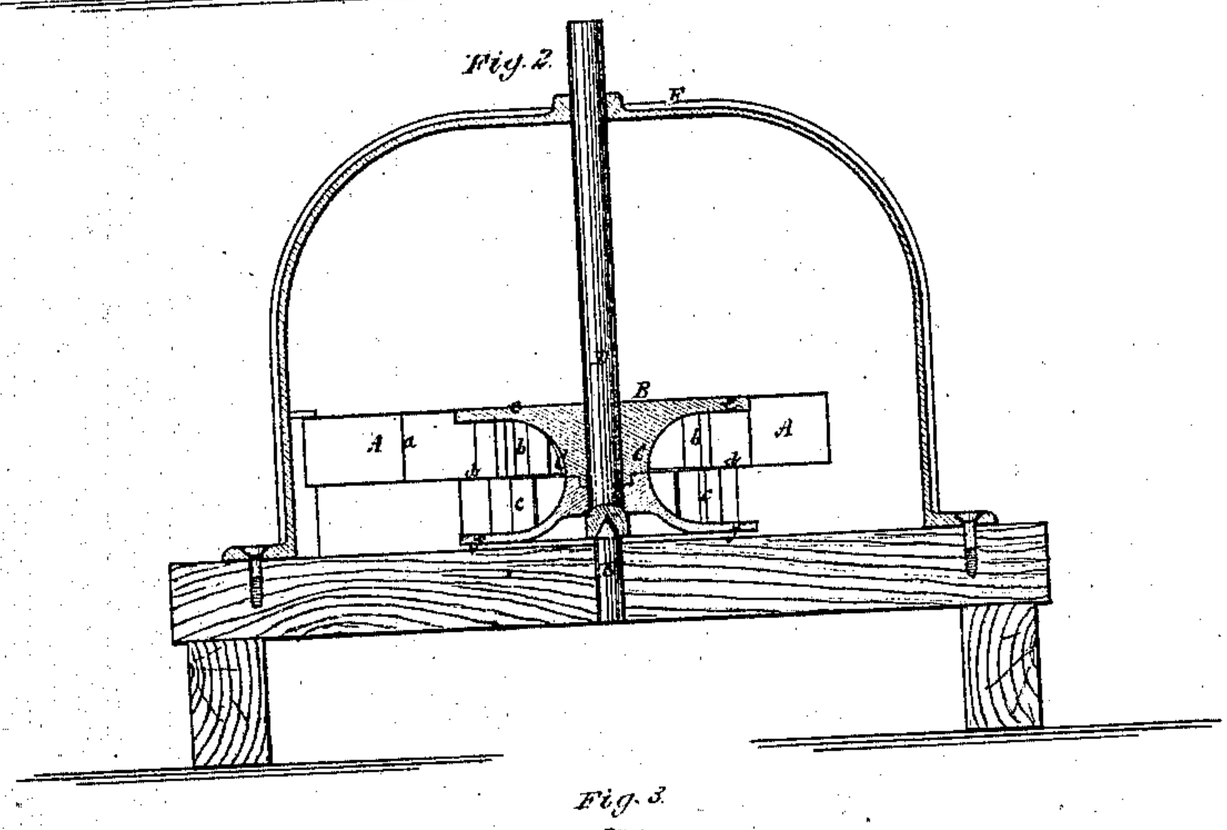
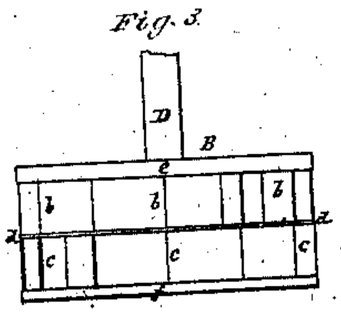


Fig. 3.

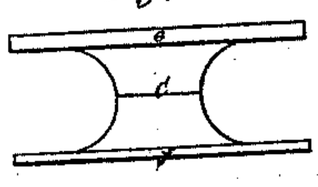


Witnesses.

S. N. Piper

[illegible]

Fig. 4.



B. F. Sampsan

by his attorney.

N. W. Eddy

United States Patent Office.

BENJAMIN F. SAMPSON, OF WEST BROOKFIELD, MASSACHUSETTS.

Letters Patent No. 104,500, *dated June* 21, 1870.

IMPROVEMENT IN TURBINE WATER-WHEELS.

The Schedule referred to in these Letters Patent and making part of the same

To all persons to whom these presents may come:

Be it known that I, BENJAMIN F. SAMPSON, of West Brookfield, of the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Hydraulic Motors, or Turbine Water-Wheels; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawing, of which—

Figure 1 is a horizontal section of a water-wheel, and its directing-flume or conduit.

Figure 2 is a vertical section of the two.

Figure 3 is a side elevation of the wheel.

The wheel-flume or directing scroll conduit A encompasses the upper set of brackets or floats of the wheel B, and has a partition, *a*, extending through it and terminating against the periphery of the wheel, in manner as represented, the same being to divide the current flowing upon opposite halves or parts of the wheel into two separate currents, whereby the water is caused to operate to better advantage on the wheel, as the outer current, on its introduction to the wheel, will not be disturbed or retarded by centrifugal force generated in the inner current by the wheel while in rotation.

The wheel B I construct with two series of curved floats, *b c*, one being arranged over the other, and separated from it by a flat ring, *d*.

The upper set of floats stands in directions opposite to those of the lower set, and both sets are disposed between two close heads, *e f*, and around a double tapering deflector, C, extending between the two heads, such deflector, with the heads, being formed as shown in side view in fig. 4.

The shaft of the wheel is shown at D as working on a step, E, and within an arch or supporter, F, extended over the wheel, as represented.

The lower series of buckets of the wheel extends entirely below the flume or scroll conduit.

The purpose of the deflector is to turn the water from the upper set of buckets by an easy curve into the spaces between the lower set, thus avoiding the friction and disturbance of the water, and loss of power incident thereto, which would be likely to result were no such deflector employed.

In the operation of my hydraulic motor or turbine, as described, the water will first be delivered to the upper set of buckets, against which it will operate by impact or direct action, after which it will flow against the deflector, and by it be turned into the spaces between the lower series of buckets, and will flow outside therefrom, and operate by reaction to revolve the wheel.

Thus it will be seen that the turbine is what is or may be termed a direct action, and a reaction water-wheel.

I claim as of my invention, the following, viz:

The wheel B, as constructed with the two series of curved floats *b c*, the flat ring *d*, the two close heads *e f*, and the double tapering deflector C, arranged as described.

B. F. SAMPSON.

Witnesses:
R. H. EDDY,
J. R. SNOW.