J. S. Anderson,

Water Wheel.

No. 96,182. Patented Oct. 26. 1869.

Fig. 1.

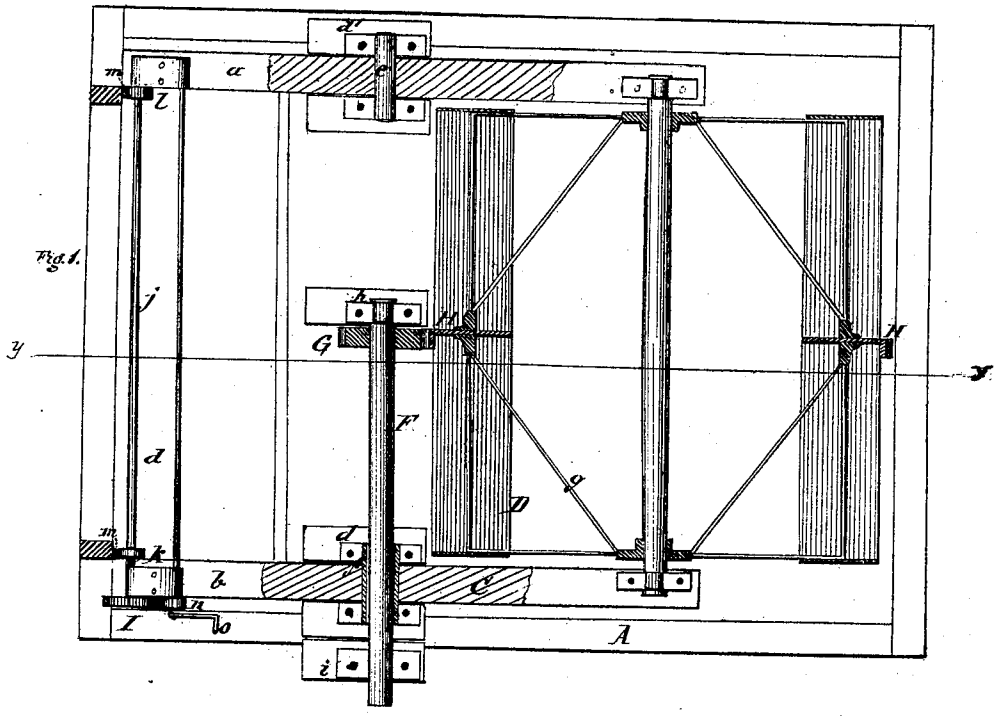
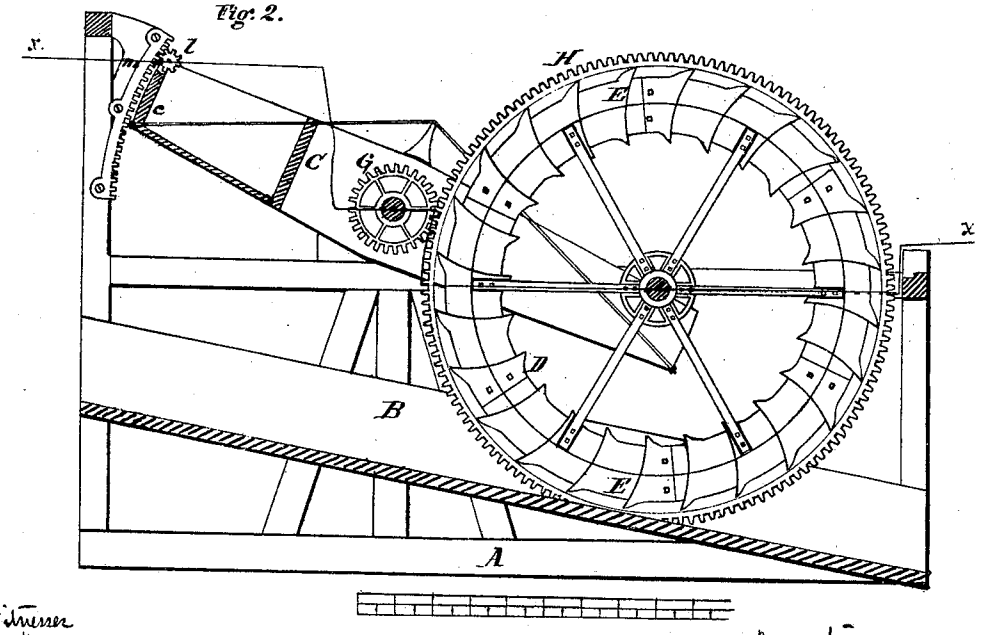


Fig. 2.



Witnesses
S. A. Ellsworth
C. H. Fuller

Inventor
J. S. Anderson

N. Peters. Photo-Lithographer Washington. D.C.

United States Patent Office.

J. S. ANDERSON, OF OCONOMOWOC, WISCONSIN.

Letters Patent No. 96,182, *dated October* 26, 1869.

IMPROVEMENT IN WATER-WHEELS.

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

To all whom it may concern:

Be it known that I, J. S. ANDERSON, of Oconomowoc, in the county of Waukesha, and State of Wisconsin, have invented certain new and useful Improvements in Water-Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification; and to the letters of reference marked thereon, like letters indicating like parts wherever they occur.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

My invention relates to water-wheels, of the class known as the undershot-wheels, and consists in mounting the wheel in a frame, so constructed and arranged, that by means of simple mechanical devices, the wheel may be elevated and lowered at will, to suit different stages of water, without changing in any way the position of the devices through which the motion of the wheel is transmitted.

In the drawings—

Figure 1 is a sectional view on the line *x x* of fig. 2, and

Figure 2 is a sectional view on the line *y y* of fig. 1.

As is well known, many streams cannot be dammed without causing the water to overflow too much of the surrounding territory.

This arises either from the slight descent of the water, or from the nature of the banks of the stream, and yet it is often very desirable to utilize the power of the running water.

This is usually done with the ordinary undershot-wheel, but as these streams often vary in depth, and sometimes rise very rapidly, the usual method of setting these wheels does not admit of their being conveniently and readily adjusted to suit the varying depth of the water.

The object of my invention is to supply a want of this kind.

I construct a stout, strong frame, A, of any size desired, and out of wood or other suitable materials, and provide it with a water-slide or chute, B, inclined sufficiently to secure a rapid flow of the water.

Within the frame A, I mount a second frame, C, consisting of the side-pieces *a* and *b* and the end-piece *c*, in such a manner that it will rock easily in its bearings, as clearly shown in fig. 1.

The bearings for this second frame consist of journal-boxes *d d'*, attached to the sides of the main frame A.

In the side *a*, of the frame C, I place a solid axle or journal, *e*, and in the opposite side *b*, a hollow axle or journal, *f*, as also shown in fig. 1, so that the frame may rock easily in these bearings.

Between and upon the front ends of the frame C, I mount an undershot-wheel, D, in bearings suitable for the purpose, and as clearly shown in figs. 1 and 2, making it in size to correspond with the main frame A and the slide or chute B, and provide its periphery with a series of curved buckets, E, as shown in fig. 2, and with braces *g*, as shown in fig. 1.

On the upper side of the main frame A, and so as to be in line with the bearings of the frame C, I mount a shaft, F, in bearings *h* and *i*, as clearly shown in fig. 1.

This shaft passes through the hollow journal *f*, in such a manner as to turn freely therein.

Near its inner end is keyed a cog-wheel, G, into which gears a large cog-wheel, H, which is connected to and passes around the middle of the water-wheel D, as clearly shown in fig. 2, so that, as the water-wheel moves, the shaft F is revolved or turned, by means of the wheel G.

The rear end of the frame C, I so construct as to have it counterbalance the weight of the water-wheel, mounted on its opposite end.

This may be done by attaching iron weights, or constructing it so that it may be loaded.

I also mount in the rear end of this frame C, a shaft, *j*, in suitable bearings *k*, and provide it with two small cog-wheels *l*, arranged so as to gear into curved racks *m*, attached to the front sides of the rear posts of the main frame A, as clearly shown in both figures.

On the outer end of the shaft *j*, I attach a large cog-wheel, I, into which a smaller one, *n*, is arranged to gear.

This small cog-wheel *n* is connected to a shaft or axle, having its bearings in the frame C, and is provided with a crank, *o*, as shown in fig. 1.

Having thus constructed and arranged my frames, and mounted my wheel therein, and attached my mechanical devices, it is ready for operation.

The stream in which it is to be placed should be narrowed so as to confine its current, if necessary, to the place where it is desired that the wheel be located.

Having done this, I place the frame in the current, and so that the water will run through the chute B. As it does so, it will strike against the current, and cause the wheel to revolve.

Should it be desired to have the wheel run slow, or should the stream rise rapidly, it is only necessary, by means of the crank *o*, operating through the wheels *n*, I, and *l*, and the rack *m*, to raise the wheel from the water, in whole or in part.

By this construction and arrangement, it will be seen that my wheel can be made to run in streams, without creating mill-ponds for the purpose; that it can be easily adjusted, to suit the varying heights of

the water; and that these changes do not in any way affect the arrangement for transmitting the power or motion from the wheel.

I am aware that current and tide-wheels have been mounted in frames, adapted to rise and fall with, or be adjusted to the rise or fall of the water; but I am not aware that a water-wheel, intended to be driven by water flowing in chute, from a dam or other reservoir, has ever before been so arranged, to adapt it to use more or less water, as herein described.

Having thus described my invention,

What I claim, is—

The combination of a supply-chute, B, and the wheel D, mounted in an oscillating frame, C, so arranged as to adjust the wheel in relation to the chute, substantially as described.

J. S. ANDERSON.

Witnesses:

J. McKENNEY,

H. B. MUNN.