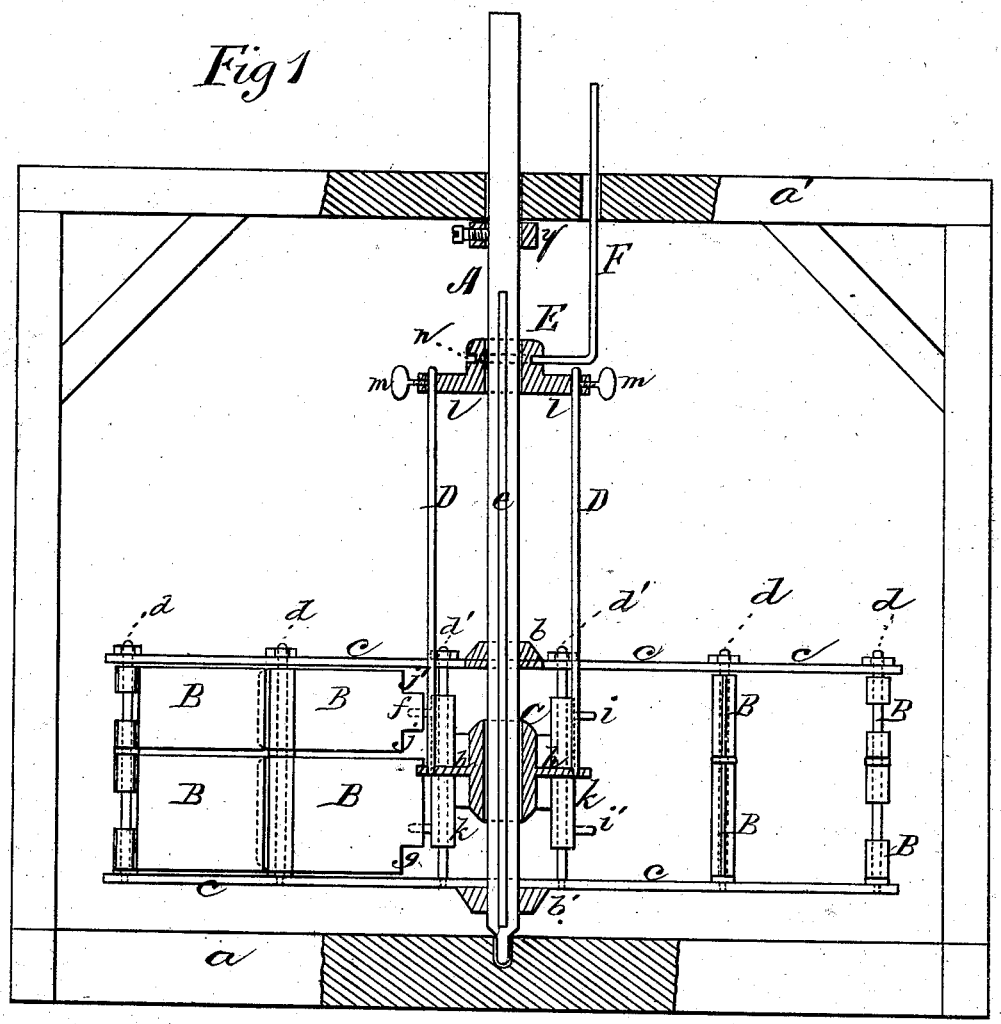
2 Sheets—Sheet 1.

W. J. PERKINS.

CURRENT-WHEEL.

No. 192,000. Patented June 12, 1877.

Fig 1



WITNESSES

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2 Sheets—Sheet 2.

W. J. PERKINS.

CURRENT-WHEEL.

No. 192,000. Patented June 12, 1877.

Fig 2.

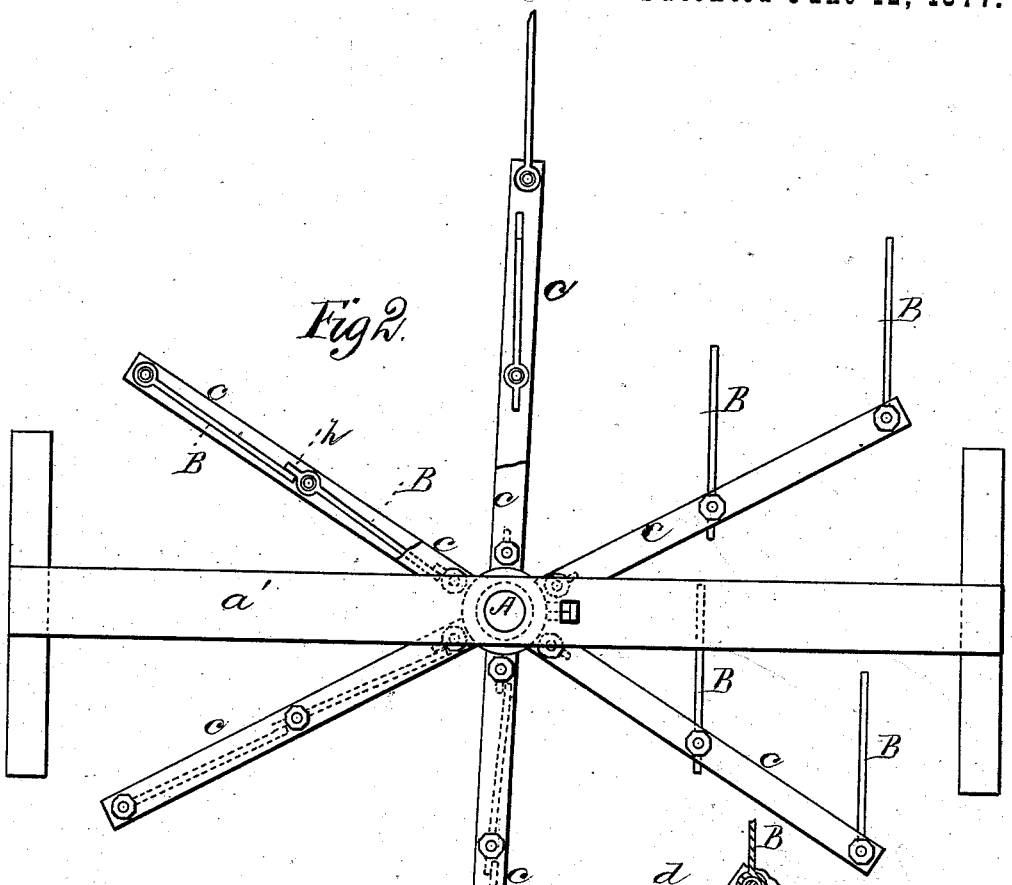
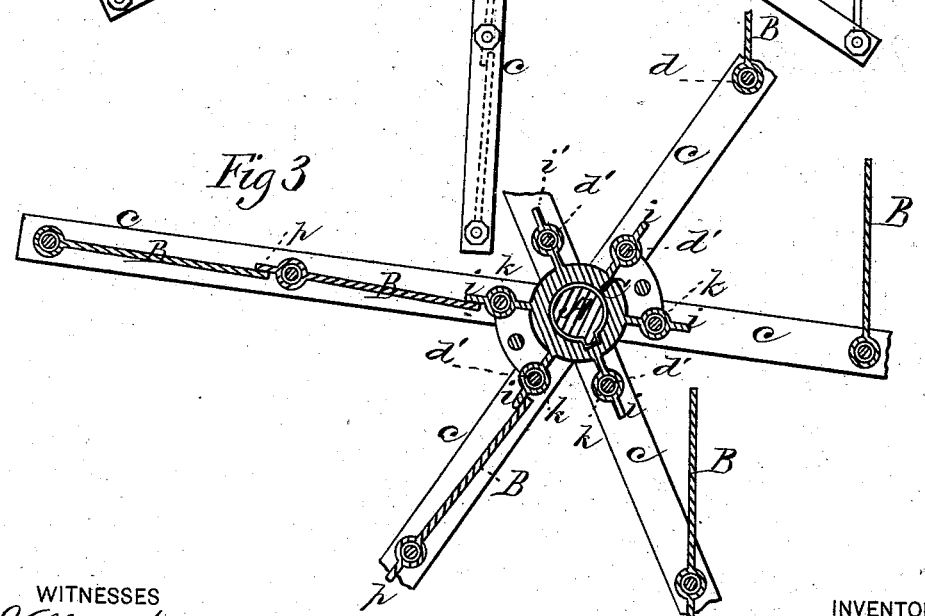


Fig 3



WITNESSES

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UNITED STATES PATENT OFFICE.

WILLIAM J. PERKINS, OF CEDAR FALLS, IOWA, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOSHUA G. WALLACE, OF SAME PLACE.

IMPROVEMENT IN CURRENT-WHEELS.

Specification forming part of Letters Patent No. **192,000**, dated June 12, 1877; application filed November 11, 1876.

To all whom it may concern:

Be it known that I, WILLIAM J. PERKINS, of Cedar Falls, in the county of Black Hawk and State of Iowa, have invented a new and valuable Improvement in Current-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a side elevation of my improved current-wheel, partly in vertical section. Fig. 2 is a top view thereof, and Fig. 3 is a horizontal sectional view taken through the wheel.

This invention has relation to improvements in water-wheels which are actuated by the force of the current.

The object of the invention is to devise a wheel the power of which may be increased, diminished, or wholly done away with without raising the same out of the water, and to provide means whereby the wheel may be raised above the surface thereof for repairs without unstepping the main shaft.

To this end the nature of the invention consists in the combination, with a water-wheel having horizontally-vibrating floats journaled in its arms in tiers one above the other, a vertically-movable non-rotating collar on the main shaft, having spaced spurs adapted to lock all, one, or more of the said floats against swinging down stream, whereby the power of the wheel may be utilized fully, in part, or not at all, as may be required.

It also consists in combining with a water-wheel locked against rotation on the main shaft, and vertically movable thereon, rods secured to the sliding collar aforesaid, and extending above the water, which rods are adjustably secured to a vertically movable non-rotating sleeve, and are operated to lock or unlock the floats, or to raise the water-wheel by a furcated lifting-rod applied in a peripheral groove in the said sleeve.

In also consists in certain other novel details of construction, as will be hereinafter more fully explained.

In the annexed drawings, the letter A designates the main shaft of my improved water-wheel mechanism, the lower end of which shaft is stepped in a sill, *a*, and has its upper bearing in a beam, *a'*, through which it preferably extends. B represents the water-wheel, consisting of two spaced hubs, *b b'*, from which radiate arms *c*, connected and braced by metallic rods *d d'*, in number two or more. The shaft A will be provided with a spline, *e*, and hubs *b b'*, with a groove adapted to receive the said spline. Consequently the wheel will be incapable of rotating on the shaft, but will be freely movable vertically thereon.

In illustrating my invention I have shown two floats B, vibrating on each of the rods *d*, the one above the other; but it will be understood that a greater number or a less may be used if required.

The upper float B nearest the main shaft will have a prolongation, *f*, at the middle of the length of its free vertical edge, formed by cutting out a rectangular piece above and below, and the lower float B, in the same relative position, will have a notched lower edge, *g*, the object of which I will hereinafter explain.

C represents a vertically movable or sliding sleeve applied between hubs *b b'* on the main shaft A, and, like the said hubs, held against rotation by spline *e*. This hub is connected, by means of radial arms *h*, to vertically-arranged sleeves *k*, having endwise movement on the inner brace-rods *d'*, and provided with spaced spurs *i i'*.

When the sleeve C is at its lowest point of depression the former will be in line with the notch *j* on the lower edge of the upper float B, and the latter with the notch *g* in a corresponding position on the lower float B, and all the said floats will swing down stream, and the wheel will remain motionless; but if the said collar be raised up so as to bring the spurs *i i'* above the notches *j g*, floats B will abut against them, and be locked against vibration, thus exposing their flat surfaces to the stream, whereby the wheel will be actuated.

Should the power thus obtained prove excessive, the collar aforesaid will be still fur-

ther raised, bringing the upper notches *j'* of the upper floats on a line with spurs *i*, when the said floats will be released and the power of the wheel decreased proportionately. D represents metallic rods, rigidly secured to the collar C, and extending up above the water to a non-rotating sliding collar E. These rods pass through radial lugs *l* in the said collar, and are adjustably secured thereto by means of set-screws *m*, and the said collar will have a peripheral groove, *n*, into which a lower forked end of an angular lifting-rod, F, will be received. By raising this rod I unlock or lock all, or one or more, of the floats, and by releasing the rods D, and forcing collar E down, re-applying the set-screws, and then drawing up the lifting rod F, the entire wheel may be raised above the water, and all necessary repairs made without unstepping the main shaft, all endwise movement of the latter being prevented by means of a collar or stop, *y*, adjustably applied to shaft A, below beam *a*, and in close contact therewith. The inner floats B will have heels *p*, projecting beyond the brace *d*, upon which they are hinged, against which the free ends of the outer floats will abut, thus forming a lock which will hold the latter against swinging down stream. As the radial arms successively pass the point down stream in which their lengths coincide with the line of the force of the current, the floats will vibrate outward into the current, and will retain this position until they successively pass the point up stream where a similar result is reached, when they will become automatically locked.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a water-wheel having horizontally-vibrating floats B B, with notches *j j'* and *g*, the vertically-movable collar C, having locking-spurs *i i'*, adapted for use substantially as specified.

2. In combination with a horizontally-rotating water-wheel, its notched vibrating floats, and the vertically-movable spurred collar C, the rods D D, sliding collar E, clamp-screws *m*, and the lifting-rod F, substantially as specified.

3. In combination with shaft A and a vertically-movable current-wheel rotating therewith, the vertically-movable sleeve C, connecting-rods D, the vertically-adjustable grooved collar E, set-screws M, and a rod for raising the said collar, substantially as set forth.

4. In combination with the inner-tiered floats B of a current-wheel, having each a heel, *p*, projecting therefrom outward, and adapted to be locked against swinging down stream, the outer vibrating floats adapted to lock with the heels of the inner ones, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WILLIAM J. PERKINS.

Witnesses:
A. S. SMITH,
FRED. STOLTE.