

D. Cushman,

Water Wheel.

No. 106,787.

Patented Aug. 30. 1870.

Fig. 3

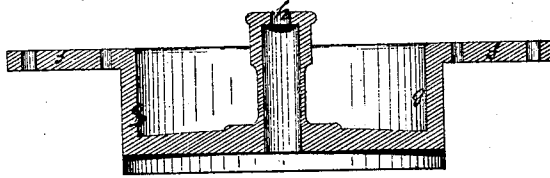


Fig. 4

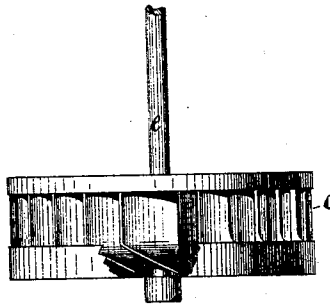


Fig. 6

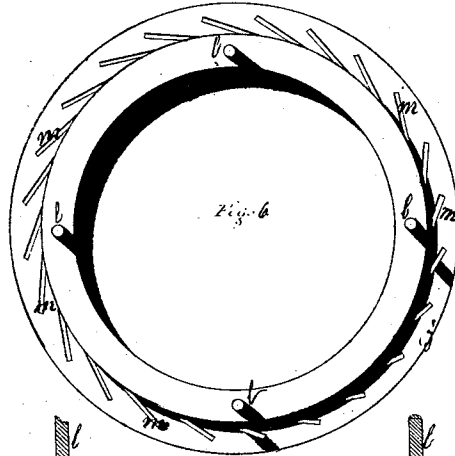
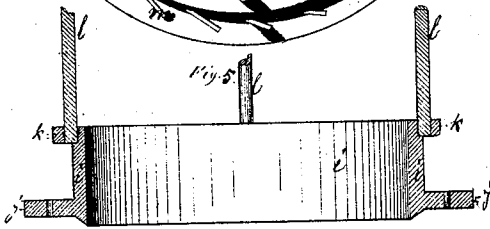


Fig. 5



Witnesses

Ernest
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D. Cushman, 2. Sheets, Sheet. 2.

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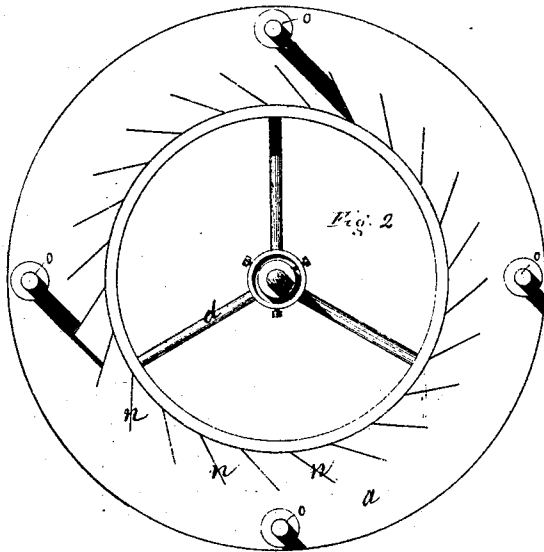
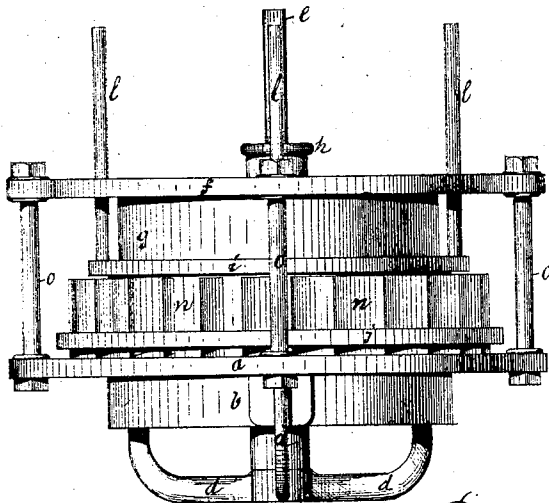


Fig. 1



Witnesses.

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United States Patent Office.

DWIGHT CUSHMAN, OF HARTFORD, CONNECTICUT.

Letters Patent No. 106,787, dated August 30, 1870.

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, DWIGHT CUSHMAN, of Hartford, county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Water-Wheels ; and, to enable others skilled in the art to make and use the same, I will proceed to describe, referring to the drawing, in which the same letters indicate like part in each of the figures.

The nature of this invention consists of a cylindrical sleeve, arranged to rise and fall over the wheel-chamber, having a perforated flange projecting from its lower edge, and so formed as to allow the upper end of the water-guide plates to enter said perforations and be supported thereby.

The object of said flanged cylindrical sleeve is to regulate the quantity or flow of water between the water guide-plates, to act upon the wheel, and to insure the instant closing of the flow of water from the wheel, when desirable, by its own gravity.

In the accompanying drawing—

Figure 1 is a side elevation of this wheel.

Figure 2 is the bed-plate of the wheel.

Figure 3 is the top plate of the same.

Figure 4 is the wheel broken away on one side, to show the form of the buckets.

Figure 5 is a side sectional elevation of the sliding cylindrical-flanged sleeve.

Figure 6 is a top view of the same.

a is a bed-plate, having a cylindrical rim, *b*, which partially forms a boxing for the wheel *c*, the diameter of which is dropped into an orifice or opening in the bottom of the flume.

d is a spider or wheel-support, the ends of which are firmly secured to the bed-plate *a*, in the hub or center of which is provided a step (such as is in common use) for the lower end of the wheel-shaft *e*, and upon which it revolves.

f is the top plate of the wheel-case, (see fig. 3,) having a cylindrical depression, *g*, in the upper side, and a central box-elevation or bearing, *h*, for the upper end of the wheel-shaft *e*.

i (figs. 5 and 6) is a sliding cylindrical flange-sleeve, which is fitted closely, and moves freely up and down upon the outside of the cylindrical depression *g* of the top plate *f*.

The flange *j* is arranged a little distance above the lower edge of the sleeve, and the lower edge of the sleeve is made basil-shaped, so that any small obstruction lying upon the surface of the plate *a* shall not prevent the gate or sleeve *i* from perfectly shutting off the water from the wheel.

k are bosses or flanges, formed on the upper edge of the sleeve *i*, in which the lifting-rods *l* are firmly secured, and pass up through the plate *f*, and are connected by gearing, so as to produce the lifting and adjusting action thereof by devices as are in common use.

The flange *j* has perforations *m*, into or through which the upper ends of the water guide-plates *n* are fitted, so that the sleeve *i*, with its flange *j*, may be freely and easily raised and lowered over the upper ends of the plates *n*, thereby perfectly supporting and protecting the upper ends of the plates *n*, and securing a fixed and uniform water-passage to the wheel, and so that, by lifting or depressing the flange-sleeve, a greater or lesser supply of water may be introduced, to give action to the wheel, and so that if, by any accident, the gate or flange-sleeve will close by its own gravity, thereby preventing great damage or loss of life or limb, which might otherwise occur.

The plates *n* are cast, formed, or secured in their proper position upon the plate *a*, (see fig. 2.)

These plates are firmly secured together, with the mechanism inclosed therein, by means of stud-bolts *o*.

By this construction or arrangement I am enabled to produce a cheaper wheel, efficient and durable, and, by its use, less liability to serious accidents.

I believe I have thus shown the nature, construction, and advantage of this invention, so as to enable others skilled in the art to make and use the same therefrom.

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

The combination of the flanged sleeve *i* with the plates *a* *f* and wheel *c*, all constructed and arranged substantially as set forth.

DWIGHT CUSHMAN. [L. S.]

Witnesses:

E. W. BLISS,
JEREMY W. BLISS.