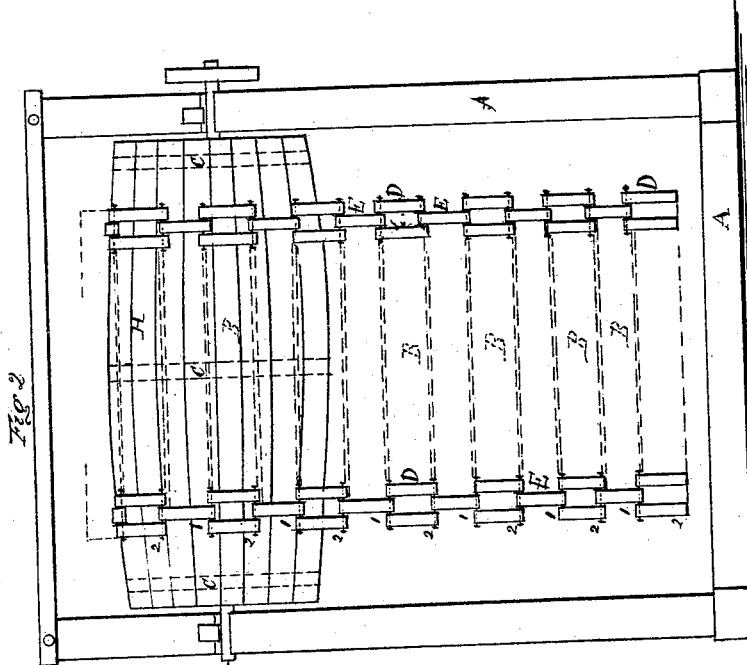
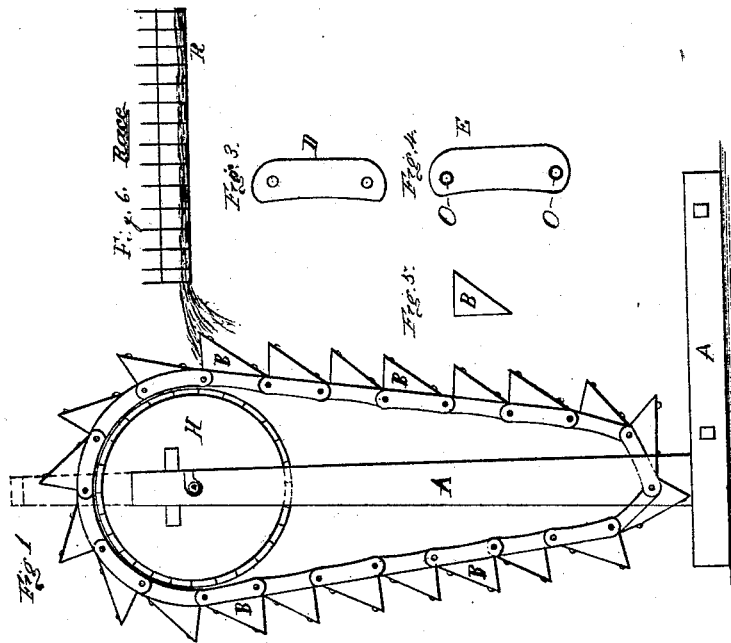


W. M. Starr,
Water Wheel.

No. 109062

Patented Nov. 8, 1870.



Witnesses:
James Adams.
B. B. Ferguson

Inventor
William M. Starr

United States Patent Office.

WILLIAM M. STARR, OF WASHINGTON, DISTRICT OF COLUMBIA.

Letters Patent No. 109,969, dated November 8, 1870.

IMPROVEMENT IN CHAIN 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, WILLIAM M. STARR, of the city and county of Washington, in the District of Columbia, have invented a new and useful Improvement in Chain Water-Wheels, and that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My improvement relates to that class of water-wheels which employs a chain of buckets.

My invention consists of a chain of buckets, in combination with, suspended upon, and guided by a single convex drum, the tread of said chain being curved transversely to fit the drum, which tapers toward both ends.

In the accompanying drawings—

Figure 1 is an end view of my improved water-wheel.

Figure 2 is a front view of the same.

Figures 3, 4, and 5 are detached views.

Figure 6 is a view of the water-inlet or chute.

My improved water-wheel may have any suitable frame, A, for supporting the drum H and chain of buckets B.

The drum H may be made with three or more disks arranged similar to barrel-heads, and then covered in a suitable manner, forming a drum, tapering toward both ends like a barrel.

The chain of buckets B must be made with a tread having a curve in the direction of their length to fit

the drum H, which is of greater diameter in the middle than toward the ends.

The links D of the chain proper are set in pairs, while the links E fit between them, as seen in fig. 2.

These links are fastened together by rods Nos. 1 and 2, which have square heads to fix them in the links D, while metallic bushes O, fig. 4, are inserted in the holes of links E, in order to bring the slight wear of the rods upon these iron bushes or linings of the holes.

These links are also curved longitudinally to fit the circumference of the drum, and the tread of the chain as a whole is curved or made concave transversely, so as to fit the drum's taper toward both ends.

After many years experiment I have found that the above simple water-wheel works efficiently, the chain always keeping its place without any cogs or guides, which have hitherto been regarded as indispensable to this class of wheels.

In this application I make no claim to a chain of buckets suspended on a straight or cylindrical roller.

Having thus described my invention,

I claim—

The combination of the chain of buckets B with the drum H, tapering toward both ends, all substantially in the manner and for the purposes set forth.

WILLIAM M. STARR.

Witnesses:

EDM. F. BROWN,

WM. H. BRERETON.