M. B. MOOMAW.

Water-Wheel Chute.

No. 160,457. Patented March 2, 1875.

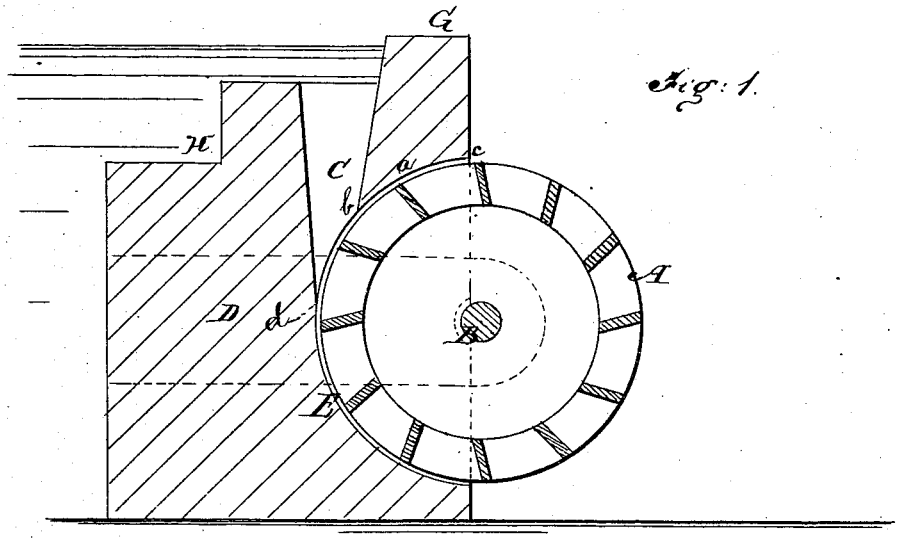

Fig: 1.

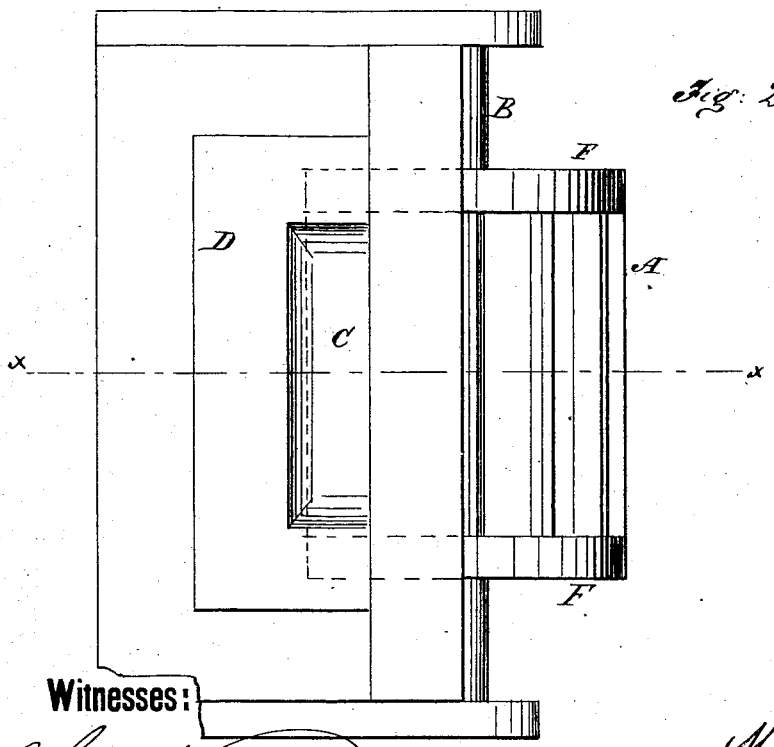

Fig: 2.

Witnesses:

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UNITED STATES PATENT OFFICE.

MARK B. MOOMAW, OF CATAWBA, VIRGINIA.

IMPROVEMENT IN WATER-WHEEL CHUTES.

Specification forming part of Letters Patent No. **160,457**, dated March 2, 1875; application filed June 28, 1873.

To all whom it may concern:

Be it known that I, MARK B. MOOMAW, of Catawba, county of Roanoke and State of Virginia, have invented certain new and useful Improvements in Water-Wheel Chutes; and do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, making a part of this specification.

Figure 1 represents a horizontal section, and Fig. 2 a plan view.

My invention has for its objects, first, to utilize the entire flow of water through the chute upon the wheel, and to cause the water from the chute to impinge upon the wheel in such a manner that the entire power of the water will be most advantageously received by the wheel; second, to so combine the wheel with the chute as to avoid any great amount of air between the water and the wheel, and thereby receive the full concussion of the water; third, to so construct the breast-plank and breastwork that they combine strength and durability, and avoid leakage of water; and fourth, to so construct the breast-plank as to form a mud and trash receiving reservoir, to prevent such from being carried through the chute upon the wheel. The nature of my invention, therefore, consists in the construction of parts, as hereinafter more fully set forth.

A represents a water-wheel of any known construction, and mounted upon a shaft, B. D represents the breast-plank, and G the breastwork, with the chute C between. These parts are constructed of a solid block or blocks of heavy timber, with the chute mortised between, as shown in Fig. 1. The top of the breastwork G is a little higher than the top of the breast-plank D, so that the water will flow over the top of the breast-plank, and not over the top of the breastwork G. This work G is inclined from its top rearward (or toward the part D) to the point *b*, and forms the front wall of the chute. The under edge of this work G is curved from *b* to *c*, to conform to the shape of the wheel. The rear wall of the chute is also slightly inclined forward from the top of the breast-plank D to the point *d*. From thence a curve, E, is formed to the end of the plank, to conform to the wheel. H represents a reservoir formed in the top of the breast-plank, just in the rear of the chute, for the purposes of collecting the mud, weeds, sticks, and trash, and preventing them from flowing through the chute upon the wheel. The chute C is from six to eighteen inches in length, according to the size of the wheel employed, and can be used with or without pen-stock or fore-bay. The wheel is so mounted that it will hug closely under the breastwork at *a*, and close to the curve E, with the end *d* of the chute on a horizontal line with the shaft B of the wheel, so that the full force of water is had directly upon the bucket that is on the horizontal plane with the wheel-shaft.

By these means there is no air intervening between the water and the wheel, and the full power of concussion thereof is received in addition to the weight of water, and directly upon that part of the wheel where it is of the greatest power.

The usual gate is employed over the chute to cut off the flow when desired.

This construction of parts is of strong and durable nature without being expensive, and is compact and highly advantageous for the purposes designed.

What I claim is—

The combination of the solid breast-plank D, solid breastwork G, with curved bottom *a*, and the tapering chute C, with the wheel A supported close under the curved bottom *a*, and close to the bottom of the chute C, as and for the purposes set forth.

MARK B. MOOMAW.

Witnesses:

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