

I. Stanbrough,

Water Wheel.

N^o 2,375.

Patented Nov. 25, 1841.

Fig: 2.

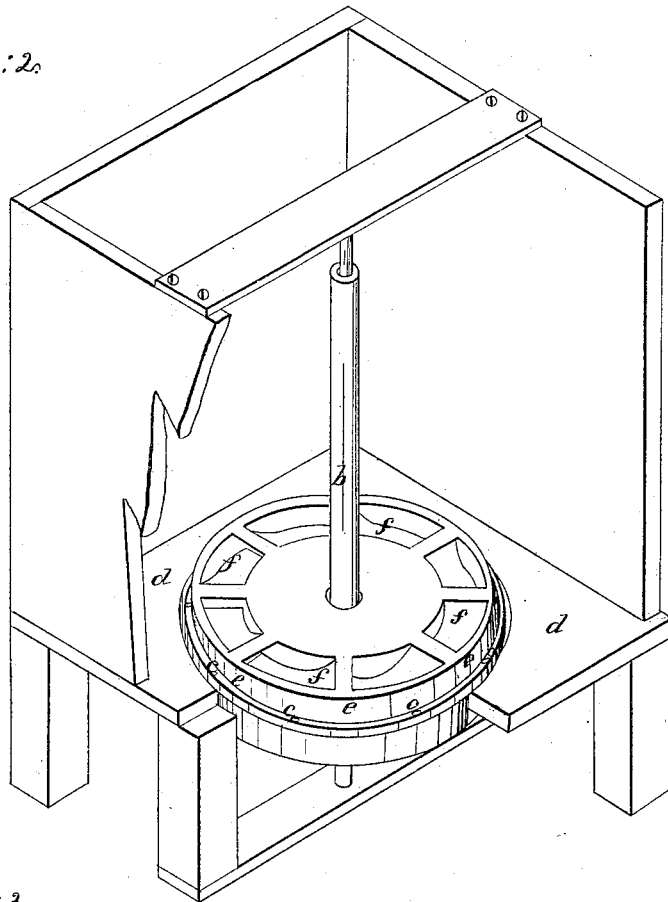


Fig: 3.

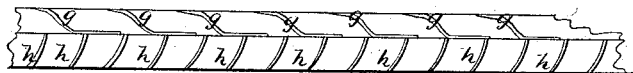
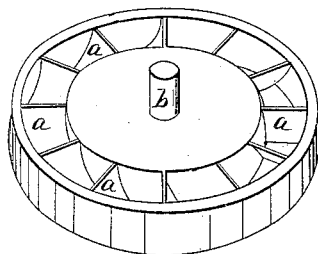


Fig: 1.



UNITED STATES PATENT OFFICE.

IRA STANBROUGH, OF ARCADIA, NEW YORK.

IMPROVEMENT IN THE METHOD OF CONSTRUCTING AND ARRANGING THE OPENINGS OR SPOUTS FOR ADMITTING WATER ON THE BUCKETS OF WATER-WHEELS.

Specification forming part of Letters Patent No. 2,375, dated November 25, 1841.

To all whom it may concern:

Be it known that I, IRA STANBROUGH, of Arcadia, in the county of Wayne and State of New York, have invented a new and Improved Construction and Arrangement of Spouts or Chutes for Directing and Applying Water upon Water-Wheels; and I do hereby declare that the following is a full and exact description thereof.

My said improvement consists in a more convenient and advantageous manner of constructing and arranging the spouts or chutes for conducting and applying water to that kind of water-wheels commonly called "tub-wheels," or any other wheels which receive and discharge the water in the same manner as tub-wheels do; and it consists of a connected system of spouts or chutes, which are made separate from the flume, and can be readily detached and removed therefrom and again replaced whenever it shall be necessary to examine or repair the water-wheel. I construct this system of spouts or chutes in the following manner, and shall describe the same as if made of cast-iron, which I recommend as the most fit material, although wood or other materials may answer the purpose.

Two circular hoops or short drums are made of the height of about six inches and half an inch in thickness, the outer or larger hoop having the internal diameter thereof equal to the diameter of the water-wheel to which it is applied, and having a flange projecting at right angles outwardly at the lower end about one and a half inch, which flange when the wheel is in action will rest upon the floor of the flume. The inner or smaller hoop is of such diameter that the space between the two when placed concentric with each other is equal to the width of the buckets of the water-wheel. In the circular space between these two hoops or drums are inserted a number of plates (one-fourth of an inch in thickness) at equal distances from each other, extending from the upper ends of the hoops or drums to the lower ends thereof, which partition-plates are curved in such a manner as to conduct the water in a proper direction upon the water-wheel—that is, to direct the water upon the buckets of the water-wheel at right angles to the surface of the upper end of the buckets. The hoops and plates

are then fastened together with bolts, rivets, or otherwise, and the spaces between these plates form the spouts or chutes through which the water is conducted upon the water-wheel. The number of these spouts or chutes may be varied considerably, as circumstances may require; but I have found that twenty-four operate well for a water-wheel six feet in diameter.

The manner of using and applying the above-described system of spouts or chutes is as follows: A circular opening is cut through the bottom or floor of a flume of such diameter that the water-wheel may pass through and turn therein without rubbing, and no more. The water-wheel is placed within this opening, so that the upper points of the buckets are nearly, but not quite, so high as the upper surface of the floor, leaving as little space as may be between the buckets and the lower parts of the partition-plates when the system of spouts or chutes shall be placed down, as hereinafter mentioned, but so that the wheel may run free.

The system of spouts or chutes above mentioned is placed concentrically over the water-wheel, with the aforesaid flange of the outer drum or hoop resting upon the bottom or floor of the flume. Two or more holes being made through the flange, pins or bolts passing loosely through these holes in the floor of the flume will secure the system of spouts or chutes in their places sufficiently. The central space contained within the inner or smaller drum or hoop is covered with plank or a cast-iron plate, so as to prevent the escape of water. This plate has a circular orifice, through which the shaft of the water-wheel passes, or, when more convenient, a circular curb is placed upon the inner hoop or drum, extending above the surface of the water in the flume. The water-wheel and system of spouts or chutes being placed as above described, water is admitted into the flume by means of gates, and the wheel will be put in motion. The water-wheel should have a greater number of buckets when worked in this way than is common to have when worked in the ordinary way with one, two, or three chutes. Although the number of buckets may be varied considerably without material detriment, I have found on trial that thirty buck-

ets in a wheel of six feet diameter operate as well as any other number.

In the annexed drawing, No. 1 represents the water-wheel placed in a circular opening through the bottom or floor of the flume, *a a a* representing the buckets, the system of spouts or chutes being removed.

The annexed drawing No. 2 is a perspective view of the above-described system of spouts or chutes placed upon the floor of the flume, the water-wheel being concealed beneath with the shaft. (Shown at *b*.) At *c c c* the flange of the outer drum is fastened to the flume-floor *d d*. The outer drum is represented by *e e e*, the partition-plates by *f*, &c.

The annexed drawing No. 3 shows a section of the above partition-plates and their position in relation to the buckets of the water-wheel, *g g g*, &c., representing the said partition-plates, and *h h h* representing the buckets of the water-wheel.

The advantages of this system of spouts are, first, by letting on the water all around the wheel every bucket is constantly in action, whereby a small wheel can operate with as much power as a much larger one in the old way; second, the system of spouts or chutes above described being made separate from the floor or any other part of the flume can be easily detached and raised for the purpose of repairing the wheel, and the wheel can be, when necessary, raised from its place for re-

pair, and then the wheel and system of spouts or chutes can be put in their places for action again with little labor or expense, thereby obviating the necessity of breaking up the floor of the flume to get at the water-wheel, as it would be necessary to do if the spouts or chutes were connected with the floor of the flume.

I hereby declare that I do not claim as my invention the employment of a series of spouts at the bottom of the flume for admitting water to the buckets of the wheel, nor do I claim constructing these spouts in a separate plate constituting the bottom of the flume; but

What I do claim as my invention, and for which I desire to procure Letters Patent, is—

Combining a movable plate or system of spouts with the floor of the flume, which is separate and detached from said plate or system of spouts and having apertures for the passage of water to the buckets of the wheel, which plate or system of spouts can be removed when necessary to take out or repair the wheel, and can again be put down in its proper place without taking up or injuring the flume or the floor thereof and without separating the spouts from each other, as above described and set forth.

IRA STANBROUGH.

Witnesses:

JOHN MAYNARD,
EBENEZER INGALLS.