

Parker & McKelvey,

Water Wheel,

Nº 1,658,

Patented June 27, 1840.

Fig. 2.

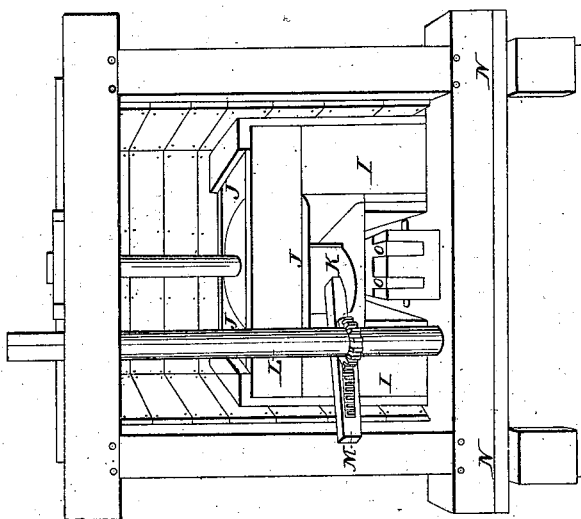
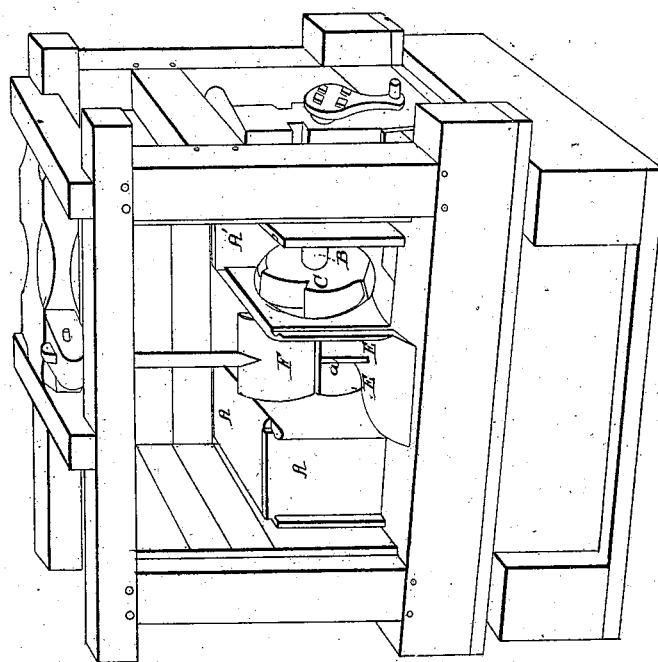


Fig. 1.



UNITED STATES PATENT OFFICE.

ZEBULON PARKER AND ROBERT McKELVEY, (ADMINISTRATOR OF
AUSTIN PARKER, DECEASED,) OF NEWARK, OHIO.

IMPROVEMENT IN PERCUSSION AND REACTION WATER-WHEELS.

Specification forming part of Letters Patent No. 1,658, dated June 27, 1840.

To all whom it may concern:

Be it known that ZEBULON PARKER, of Newark, in the county of Licking and State of Ohio, did, in conjunction with the late AUSTIN PARKER, deceased, make certain Improvements in the Percussion and Reaction Water-Wheel for which Letters Patent of the United States were granted to Zebulon Parker and Austin Parker under date of October 19, 1829; and it is hereby declared that the following is a full and exact description of said improvements.

The percussion and reaction wheel or wheels, whether on a horizontal or a vertical axis or shaft, is inclosed in a box or case, which is denominated a "draft," which draft is made air and water tight at the top and sides; but it is without a bottom, the mouth of said draft dipping into the water and being, whenever the mill is running, below the level of the water in the tail-race. Its action in this case will be like that of any air and water tight box having one side open and that side placed downward, so that its edges shall dip into water—that is to say, if such box be filled with water it will remain full, provided its altitude above the surface of the water be not greater than that of a column which will be sustained by atmospheric pressure. The water which passes into these air-tight cases or drafts passes in through the percussion and reaction wheels in a manner to be presently described.

Figure 1 in the accompanying drawings is a perspective view of the front of the penstock, exhibiting the arrangement of two vertical wheels upon the same horizontal shaft, which arrangement is deemed one of the most convenient for saw-mills, as well as for various other purposes. A A are the boxes or drafts, within which the wheels are contained, one of these A' having the upper portion and one end removed for the purpose of showing the wheel within it. B is the shaft, and C the reaction and percussion wheel within it, which wheel runs, as nearly as may be, water-tight against the side of the draft, the wheel in the other draft serving to balance the pressure of the water upon it, and so reciprocally. D is a crank on one end of the shaft for communicating the power. E E are the passages for

water onto the wheels, which passages are divided from each other by a partition *a* between them. The wheels cover circular openings in the sides of the drafts in the ordinary manner, through which the water is freely admitted to them. F is the gate by which the admission of water to the wheels is regulated. The line G G shows the levels of the tail-water when the mill is running, and the lower edges of the drafts extend a little below this line, when they open to the tail-race. A part of this opening is seen at H.

Fig. 2 is a perspective view of the water-wheel placed horizontally, the vertical shaft of which adapts it directly to the purpose of running millstones, as well as to many other objects. The draft in this case extends down on each side of the wheel, as at I I, these two portions being connected by and forming one water-receptacle with the part denominated the "wheel-chamber" J, which is the part in which the wheel is contained. K is a sliding gate to regulate the admission of water to the wheel, which is shown as governed by a toothed wheel on the vertical shaft L, meshing into a rack on the arm M of the gate. This gate covers an opening on the side of a circular curb upon which the wheel is placed. N N is the tail-water line, as in Fig 1, the operation of the draft being the same as set forth in the explanation of that figure. O is the end of the bridge-tree, operating in the ordinary way. The apertures through which the water is conducted to the wheels are constructed in the manner or upon the principle described in the specification of the original patent above referred to.

As the drafts are made air and water tight and they are usually filled with air before the mill is set in operation, it might be supposed that this air would interfere with their being filled with water; but such, in fact, is not the case, as from the agitation produced by the passing of the water from the wheels into the drafts the air is intermingled therewith, and is speedily carried out with it, leaving the drafts entirely filled with water. By this arrangement of the wheels within the drafts they may be placed at a greater elevation than upon any other known plan, while at the same

time the pressure or draft of the water below them will have the same effect upon them as it would if situated above them and acting in the ordinary manner of head-water.

What is claimed as new in the above-described improvement on the percussion and reaction wheel as originally patented by Z. Parker and A. Parker, is—

The placing of the said wheel or wheels or of wheels analogous thereto in their construction and mode of operation within air and water tight cases or boxes, herein denomi-

nated "drafts," substantially in the manner and for the purpose above set forth.

ZEBULON PARKER.

ROBERT McKELVEY.

Witnesses to the signature of Zebulon Parker:

JOHN MOORE,

B. W. BRICE.

Witnesses to the signature of Robert McKelvey:

WM. H. MERWIN,

C. A. MCBANE.