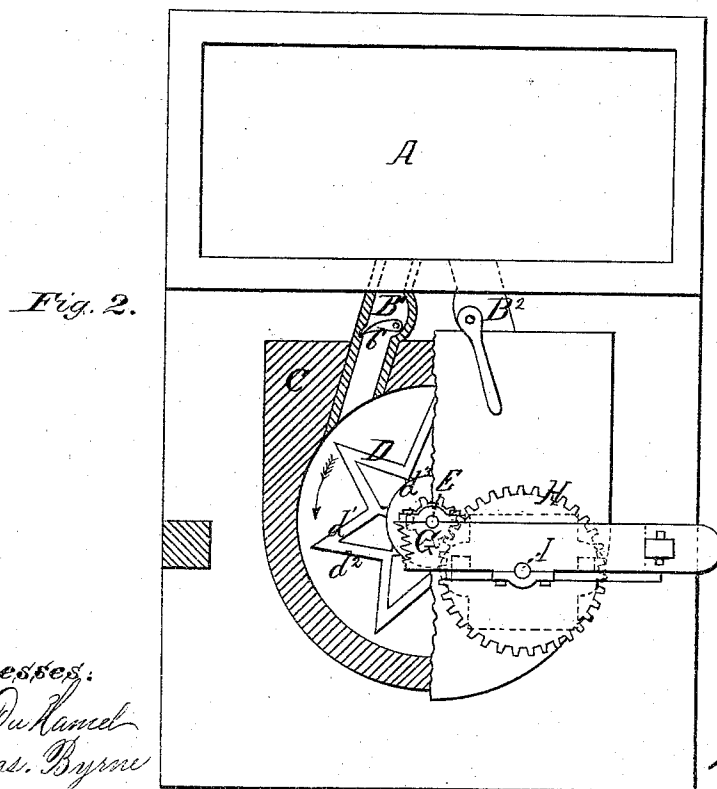
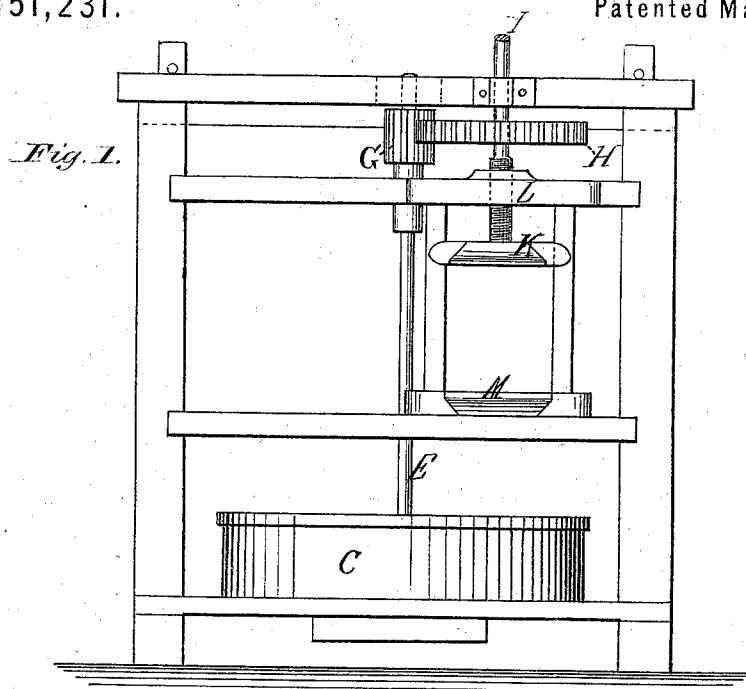


Water-Wheels.

No. 151,231.

Patented May 26, 1874.



Witnesses:

H. H. DuRamel
Thomas. Byrne

Inventor:

E. B. Lyon
W. P. Lyon
Per H. S. Abbot.
Attorney.

UNITED STATES PATENT OFFICE.

EDWARD B. LYON AND WILLIAM P. LYON, OF FRANKLINTON, N. C.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. 151,231, dated May 26, 1874; application filed October 24, 1873.

To all whom it may concern:

Be it known that we, EDWARD B. LYON and WILLIAM P. LYON, of Franklinton, county of Franklin and State of North Carolina, have invented certain new and useful Improvements in Tobacco-Presses, of which the following is a specification:

Our invention relates to certain improvements in water-wheels, designed more especially for application to our improvement in tobacco-presses. The invention consists in the peculiar form of the gates and of the wheel, as hereinafter particularly described and set forth.

In the accompanying drawing, Figure 1 is a front view of our invention. Fig. 2 is a top view, partly in section.

A represents the flume, through which the water is supplied to the wheel through trunks $B^1 B^2$. C is the casing, which incloses the wheel D. The trunks $B^1 B^2$ are provided with gates $b^1 b^2$, by which the supply of water may be regulated or cut off altogether. These gates are arranged to move horizontally instead of vertically, by which means the water passing through the trunks impinges against the buckets nearer their outer ends than would be the case if the gates moved vertically. The gates are provided with levers or other suitable mechanism for operating them. The wheel D is provided with double floats or buckets; or, in other words, each float is composed of two sides, $d^1 d^2$, extending tangentially from the hub d^3 , and meeting at a point near the casing C, so that the buckets resemble the points of a star. When the water passes through the trunk B^1 it impinges against the sides d^1 , and when passing through the trunk B^2 it impinges against the sides d^2 . Thus the direction in which the wheel revolves depends upon whether the water passes through the trunk B^1 or the trunk B^2 . Attached to the hub d^3 is a vertical shaft, E, the lower end of which is properly stepped underneath the wheel, and the upper end is journaled in the

frame-work of the machine. Near the upper end of the shaft E is a long pinion, G, which engages with a toothed wheel, H, on a vertical shaft, I, which has a follower, K, attached to the lower end. The upper portion of the shaft I, below the gear-wheel H, has a screw-thread cut on it, and passes through the head-block L of the press, and engages with a female thread cut therein.

The vessel containing the tobacco or other article to be pressed is placed on the foot-block M of the press immediately under the follower K. The gate b^1 is then opened, and the water passes from the flume A through the trunk B^1 , and impinges against the sides d^1 of the buckets, causing the wheel to revolve in the direction of the arrow. As the wheel revolves, the engagement of the long pinion G with the toothed wheel H, and the engagement of the screw-thread on the shaft I with the female thread in the head-block L, cause the follower K to descend and press the tobacco or other article in the vessel. When the follower has descended a sufficient distance, the gate b^1 is closed and the gate b^2 is opened, when the water passes through the trunk B^2 , impinging against the sides d^2 of the buckets, reversing the motion of the wheel, and causing the follower to rise to its former position.

What we claim as new, and desire to secure by Letters Patent, is—

The combination of the flume A, trunks $B^1 B^2$, and wheel D, having floats formed with the two sides $d^1 d^2$, whereby the wheel may be caused to rotate in either direction, substantially as shown and described.

In testimony that we claim the foregoing as our invention we hereunto affix our signatures this 14th day of October, 1873.

EDWARD B. LYON.
WILLIAM P. LYON.

Witnesses:

R. P. FLOYD,
JOHN R. OVERBEY.