

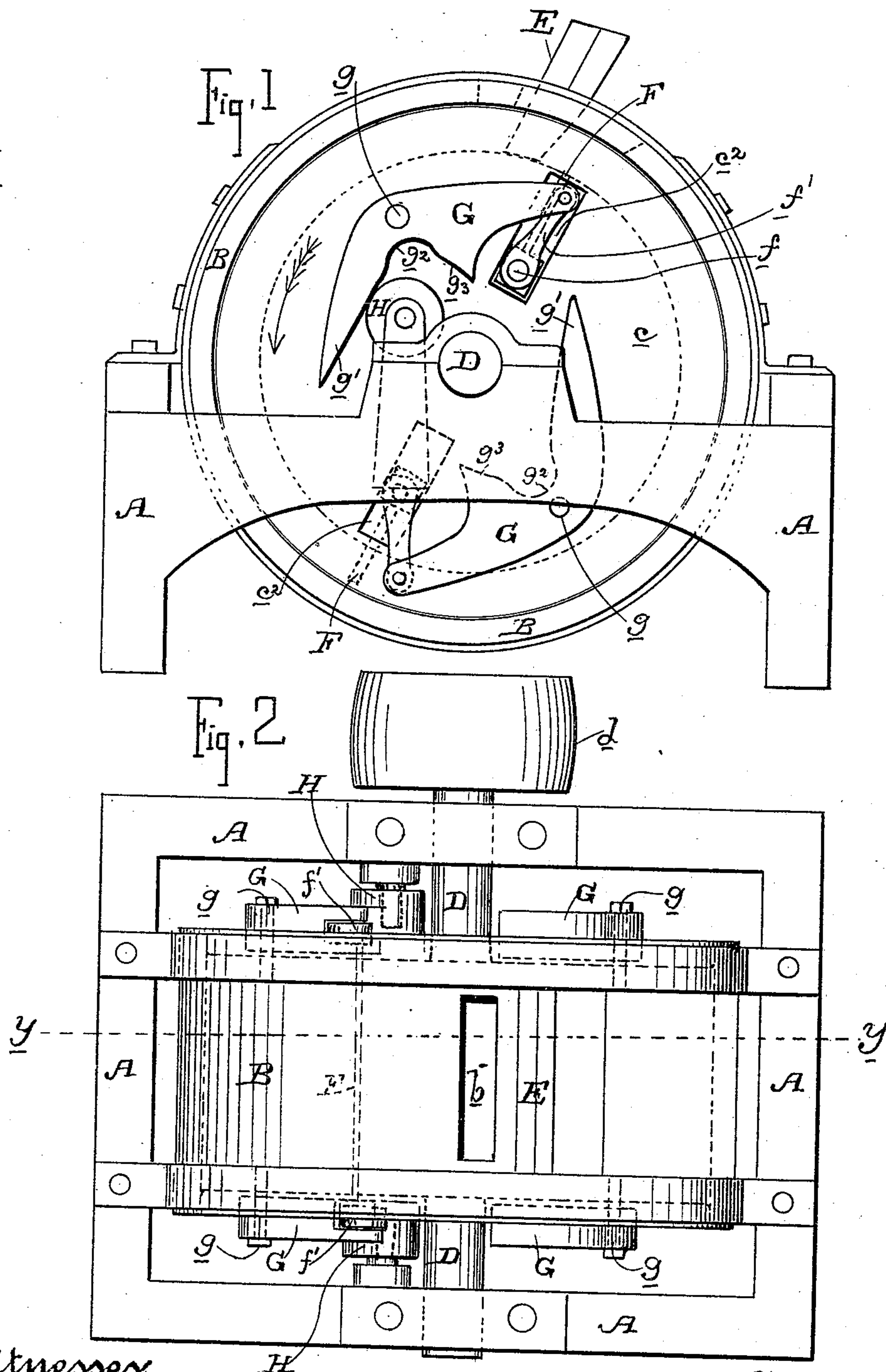
(No Model.)

2 Sheets—Sheet 1.

C. TABER.  
WATER WHEEL.

No. 488,723.

Patented Dec. 27, 1892.



Witnesses,  
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# UNITED STATES PATENT OFFICE.

CLARK TABER, OF SUMPTER, OREGON.

## WATER-WHEEL.

SPECIFICATION forming part of Letters Patent No. 488,723, dated December 27, 1892.

Application filed July 21, 1892. Serial No. 440,799. (No model.)

*To all whom it may concern:*

Be it known that I, CLARK TABER, a citizen of the United States, residing at Sumpter, Baker county, State of Oregon, have invented an Improvement in Water-Wheels; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of water-wheels in which the wheel operates within an encircling casing having a fixed abutment, said wheel being provided with radially reciprocating buckets adapted by their withdrawal to pass the abutment, and by their projection to form the necessary water chamber in the casing.

My invention consists in the novel construction and arrangement of parts hereinafter fully described and specifically pointed out in the claims.

The object of my invention is to provide a simple and effective water-wheel of this class.

Referring to the accompanying drawings for a more complete explanation of my invention,—Figure 1 is a side elevation. Fig. 2 is a top view. Fig. 3 is a vertical transverse section on the line  $x-x$  of Fig. 4. Fig. 4 is a vertical section on the line  $y-y$  of Fig. 2.

A represents the bed-frame of the wheel. Upon this is mounted the fixed open-ended casing B which, at its upper portion, is provided with the inlet port  $b$  for the water and at one side has the discharge aperture  $b'$ . Concentrically mounted within this casing is the wheel C having solid flanged heads  $c$  which fit in the open ends of the casing. Said wheel is carried by a shaft D journaled in suitable boxes on the bed-frame, and having the pulley  $d$  by which its power may be transmitted. Between the inner surface of the casing and the periphery of the wheel is formed an annular chamber  $c'$  in which the wheel buckets reciprocate. Within the top of the casing, just back of the inlet port  $a$ , is the fixed abutment E extending downwardly to the surface of the wheel.

Radially mounted in suitable seats in the wheel are the buckets F, consisting of transverse plates adapted to be projected from the surface of the wheel to traverse the space or chamber  $c'$  between the wheel and casing, and to be withdrawn again into the wheel.

This movement of the bucket is effected automatically by the following mechanism:—Each bucket has at each end an outwardly projecting pin  $f$  which plays in a radial slot  $c^2$  in the heads of the wheel and to each pin is connected an arm  $f'$ .

Pivoted at  $g$  to the end head of the wheel is a cam lever G. There is one of these for each end arm of each bucket. One end of the cam lever is pivoted to the arm, and the other end is free. The lower or inner surface of this cam lever is provided with a forwardly extending guide point  $g'$ , the rear end of which joins a recessed plane  $g^2$  terminating in an inclined elevation  $g^3$ .

Mounted upon the fixed bed-frame A, on each side, is a fixed bearing which, to reduce the friction to the minimum, is preferably in the shape of an anti-friction roller H. Against this roller the cam levers G operate to effect their movement and the consequent projection and retraction of the buckets.

The operation of the wheel is as follows:—As the bucket reaches the beginning of the discharge aperture  $b'$  of the casing, it is still in a projected position but immediately thereafter the forwardly projecting point  $g'$  of its cam levers (one on each side) come in contact with the fixed rollers H, whereby said levers being thrown upwardly at their forward ends have their rear ends forced downwardly and inwardly, thereby withdrawing the bucket radially into the body of the wheel. This withdrawal is complete immediately before the bucket reaches the fixed abutment E of the casing. The bucket is thereby adapted to pass said abutment, and as it passes by the plane of the inlet port it is again projected outwardly to completely traverse the space  $c'$  between the wheel and casing. This outward movement is effected by the impingement of the inclined elevation  $g^3$  of the cam lever upon the fixed roller H. The bucket being thus projected receives the pressure of the water introduced through the inlet port, which pressure causes the propulsion of the wheel. The second bucket is likewise operated and so on.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is—

1. In a water-wheel, the combination of the



exterior casing having the inlet port, the discharge aperture and the fixed abutment, the rotary wheel mounted concentrically within the casing and having the radially reciprocating buckets adapted to traverse the space between the wheel and casing, and means for operating said buckets consisting of pivoted cam levers carried by said wheel and secured to the buckets at each end and provided with forwardly projecting points and fixed bearings against which the points of said levers impinge, substantially as herein described.

2. In a water-wheel, the combination of the exterior casing having the inlet port, the discharge aperture and the fixed abutment, the rotary wheel mounted concentrically within the casing, and having the radially reciprocating buckets adapted to traverse the space between the wheel and casing, and the means for reciprocating said buckets consisting of the pivoted cam levers carried by the wheel heads, and connected with the ends of the buckets, said cam levers having the forwardly projecting points and the inclined elevations of their lower surfaces and fixed bearings against which the cam levers bear in their revolution, substantially as herein described.

3. In a water-wheel, the combination of the fixed open-ended casing having the inlet port, the discharge aperture and the intervening abutment, the wheel mounted concentrically in said casing and having flanged heads fitting the open ends thereof whereby a chamber is formed between wheel and casing, the

reciprocating radially mounted buckets carried by said wheel, and adapted to traverse said chamber, and means for operating said buckets consisting of cam levers carried by the wheel and having forward projections said levers being connected with the buckets and fixed roller bearings against which said extensions of the cam levers impinge, substantially as herein described.

4. In a water-wheel, the combination of the fixed open-ended casing having the inlet port, the discharge aperture and the intervening abutment, the wheel mounted concentrically in said casing and having flanged heads fitting the open ends thereof whereby a chamber is formed between wheel and casing, the reciprocating radially mounted buckets carried by said wheel, and adapted to traverse said chamber, and means for operating said buckets, consisting of the end arms connected with said buckets and playing in slots in the end heads of the wheel, the pivoted cam levers carried by the heads of the wheel and connected with said end arms, said levers having the forwardly projecting points and the inclined elevations, and the fixed bearings upon which said cam levers impinge, substantially as herein described.

In witness whereof I have hereunto set my hand.

CLARK TABER.

Witnesses:

O. O. BENSON,  
JOHN JAMES.