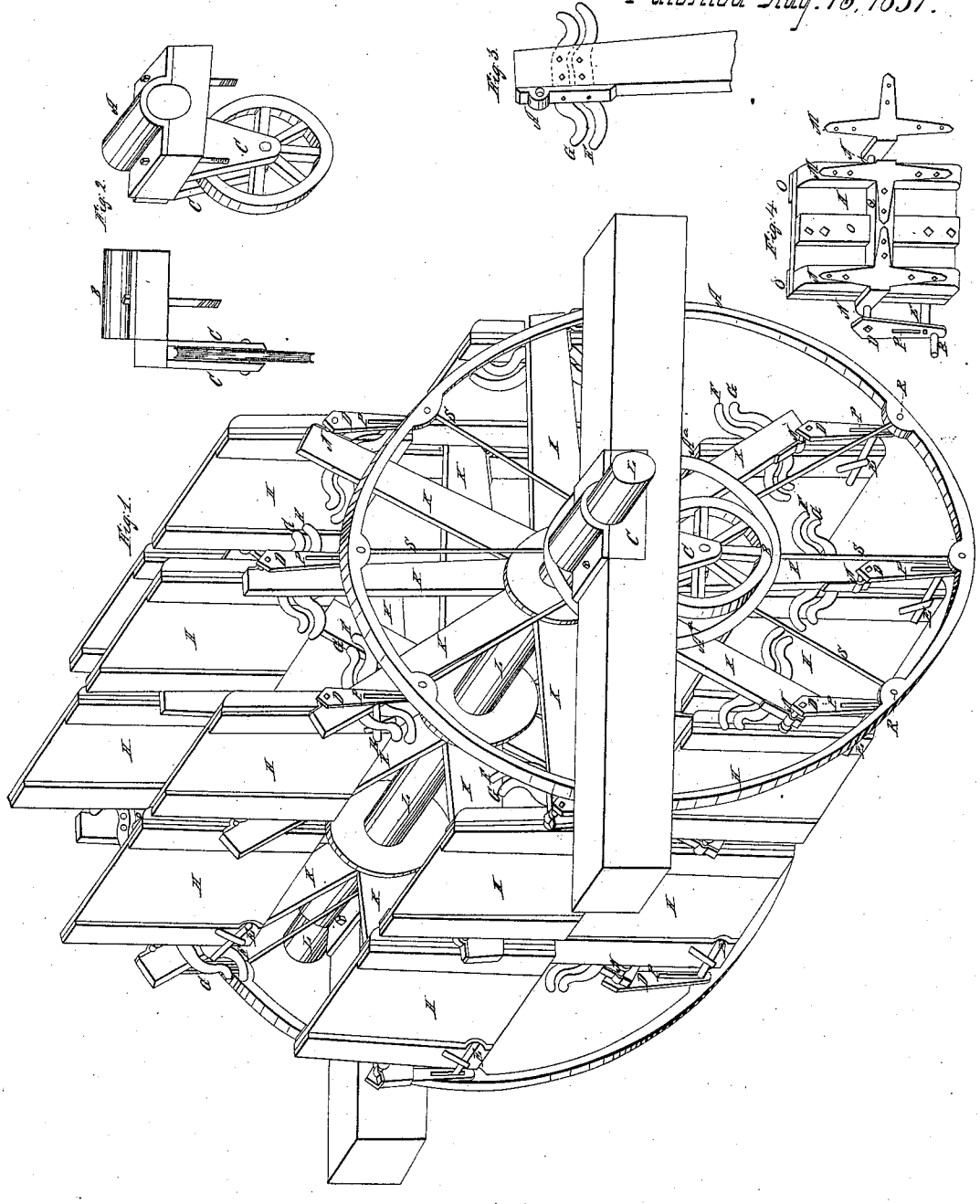
J. J. Greenough.

Water Wheel.

No. 360.

Patented Aug. 18, 1837.



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UNITED STATES PATENT OFFICE.

JOHN J. GREENOUGH, OF BOSTON, MASSACHUSETTS.

MODE OF CONSTRUCTING PADDLE-WHEELS FOR PROPELLING BOATS, &c.

Specification of Letters Patent No. 360, dated August 18, 1837.

To all whom it may concern:

Be it known that I, JOHN JAMES GREENOUGH, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in the water-wheel called "Greenough's Vertical-Bucket Water-Wheel," which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

This water wheel consists of an axle, arms, buckets with cranks; balance or guide wheels; latch-bolts for bracing the buckets in their proper position; with lifters and followers for raising the latch-bolt and returning it to its place again; and friction wheels to confine the guide wheels in their place.

The improvement here claimed is the manner in which the buckets are kept parallel, and, either vertical or at any angle deemed most efficacious for propelling. First, the axle L Fig. 1 is made of cast or wrought iron of the usual form. It runs on plumber blocks C, cast with arms to support the friction wheel. Second, the arms K are made and braced like those of the common water wheel; on the end of the arm is an iron brace or strap to admit the bucket pin N, Fig. 1, to be attached to the arm. There is also an iron lifter F, Fig. 3, attached to each arm and a follower G to lift the latch bolt E, Fig. 1, and follow it back again. Third, the buckets H, Figs. 1 and 4 are made of plank with two stout braces M, at its back, one at each end with a piece of plank O running through the center; having also a cross brace Q running over the plank horizontally, in the center with an iron T brace M; the iron being brought to the front of the bucket to keep it steady; the pin N is attached at the front. These buckets are swung at the center by pins N turning in the irons on the arms. There are cranks D, Fig. 1, attached to the bucket pins, having oblong holes P in them for the latch bolts to shut in. Fourth, the balance or guide wheels A A Fig. 1 for keeping the buckets in their proper position by means of the cranks are constructed, with holes in the rim to receive the pins R of the cranks. In the center are smaller rims A^a, A^a, connected by arms or spokes S, working into friction wheels B, Fig. 1, grooved on the periphery to hold the balance wheels down in their proper position; the smaller rims must be made large enough to clear the axle L at top, by which there can be two guide wheels attached without interfering with the straight axle L. Fifth, the lifters F and followers G Fig. 3, for lifting the latch bolt E at the top of the wheel and following it back are attached to the arms K. Sixth, the latch bolt E. is fastened to the bottom of the bucket and shuts into the hole P in the crank; its use is to take the twisting strain from the bucket pin.

Operation: While the wheel revolves the buckets are kept in their position by means of the cranks D attached to the rim of the balance or guide wheels A these guide wheels being held in their position by the small rims A^a working into the groove on the periphery of the friction wheels B which are attached to the arms of the plumber blocks; the latch bolts E are lifted when the buckets are nearly at the top of the wheel by means of the lifters F; and when they have passed the arm they are pressed into place again by the followers G.

What I claim as my invention and desire to secure by Letters Patent consists in—

The arrangement and adaptation of the parts of the before described water wheel: to wit, the application of the arms to the plumber block described in sec. 1; the application of the friction wheel described in sec. 4; the form of the guide wheel with the center rim in the same described in sec. 4; the form of the cranks with the holes P, in the same, applied as described in sec. 3; the use and application of the lifters and followers (see section 5) the manner of bracing the buckets, section 3 and the latch-bolts section 6.

JOHN JAMES GREENOUGH.

Witnesses:

GEO. S. EICHELBERGER,

CHAS. E. CUSHING.