May 29, 1915.

DRAWING

326

A careful search has been made this day for the original drawing or a photolithographic copy of the same, for the purpose or reproducing the said drawing to form a part of this book, but at this time nothing can be found from which a reproduction can be made.

Finis D. Morris
Chief of Division E.

AWK.

UNITED STATES PATENT OFFICE.

WM. A. DOUGLAS, OF ALBANY, NEW YORK.

MODE OF CONSTRUCTING PADDLE-WHEELS FOR PROPELLING STEAM AND OTHER BOATS.

Specification of Letters Patent No. 326, dated July 31, 1837.

To all whom it may concern:

Be it known that I, WILLIAM A. DOUGLAS, of the city and county of Albany and State of New York, have invented a new and useful Improvement in Paddle-Wheels, which consists in keeping the buckets or paddles of the wheel vertical while passing through the water by different and better means than has heretofore been known or used and is shown in the following description of the bucket or paddle and machinery appertaining to a single pair of wheel-arms, each pair of arms being fitted in the same manner. The proportions given are for a wheel sixteen feet in diameter.

Reference may be had to the accompanying drawing or lineal representation making part of this specification.

The bucket or paddle (2) is hung upon pivots at or near the middle of each end, the pivots being firmly fixed to the wheel arms.

A right angled lever, (3) with a long arm of eighteen inches and a short arm of twelve inches long, having a brace (4) between its arms to strengthen it, is attached, by a joint or hinge (10) at the end of the long arm, to the bucket at its end, and about one foot from its pivot. The lever is attached at its angle by a hinge to the main slide (5), and is upon the inside of the wheel arm.

The main slide (5) surrounds the wheel arm like a band. A bar (11) which is fastened to and forms part of the slide extends along the outside of the wheel arm, toward the shaft about three and a half feet, and is supported in part by another slide (12). On this bar about two feet from the band of the slide a roller (13) of about four or five inches diameter is attached by a pivot upon which it turns. There is another slide (12) nearer the shaft which surrounds the wheel arm excepting a space on the outside of the wheel arm through which the bar of the main slide plays. Upon the outside of the wheel arm this slide extends each way from the band along both edges of this bar about one foot. So that the bar of the main slide plays between two bars of the last described slide, thus supporting each other. A roller 15 like that before mentioned is fastened by a pivot upon which it turns, to that end of the slide nearest the shaft.

Upon the inside of the wheel arm a bar (7) about two and a half feet long is attached to the band of this slide by a pivot or hinge and reaches to the end of the short arm of the right angled lever before described to which it is attached by a hinge. This bar, the slide last described, the guide upon the side of the wheel house which communicates with the slide—and the short arm of the right angled lever are the parts which forces the bucket or paddle past its dead point.

The slides are moved up and down upon the wheel arm and the desired positions given to the bucket by the rollers upon the slides moving in guides (8 and 9) fixed upon a perpendicular plane at the side of the wheel house.

The proper courses for the guides of which there is one for each kind of slide are indicated upon the plane by pins fixed upon the slides at the centers of the rollers while the wheel is turned and the bucket or paddle kept in the desired position. The bucket or paddle after leaving the water turns over upon its axis so that the edge which left the water last enters the water first. The motion of the bucket upon its axis is alternating, it performs a part of a revolution upon its axis and back again during one revolution of the wheel.

Another mode than that mentioned may be used for forcing the motion of the buckets past their dead points, and is this: A short guide or catch is fastened upon the wheel house and hull of the boat at the place where the dead point occurs and communicates as the bucket comes opposite with a small crank or lever upon a pivot of the bucket which pivot plays through the wheel arm and is firmly fastened to the bucket. The lever or crank is upon the outside of the wheel arm and stands at about right angles to the plane of the bucket or paddle. Or under the water the pressure of the water upon the lower part of the bucket may be employed.

The above described means of communicating motion to buckets of paddle wheels are also applicable to other kinds of wheels.

The before described mode or means of keeping the buckets or paddles of wheels vertical or in any other position during a part of a revolution of the wheel I claim as of my invention and for them ask Letters Patent of the United States.

Albany, July 3, 1837.

WM. A. DOUGLAS.

Witnesses:

WM. ORR,

S. O. COLE.