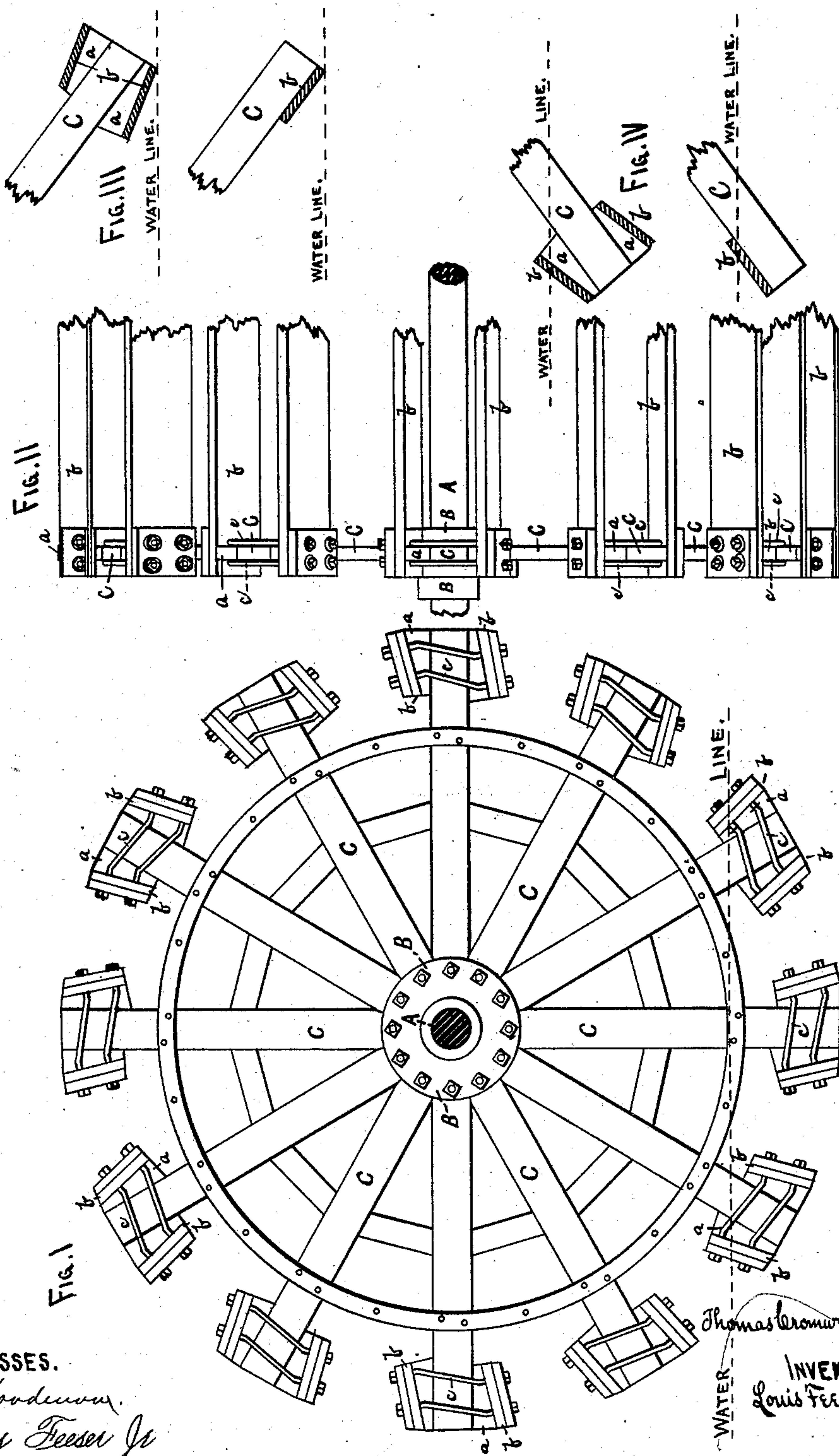


(No Model.)

T. C. ROBINSON.  
Paddle Wheel.

No. 239,623.

Patented April 5, 1881.



WITNESSES.

*J. R. Goodenow.*  
*Louis Feiser Jr.*

# UNITED STATES PATENT OFFICE.

THOMAS C. ROBINSON, OF ST. PAUL, MINNESOTA.

## PADDLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 239,623, dated April 5, 1881.

Application filed October 4, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS CROMWELL ROBINSON, of St. Paul, in the county of Ramsey and State of Minnesota, have invented certain Improvements in Paddle-Wheels for Steamboats, of which the following is a specification.

This invention relates to the paddle-wheels of steamboats; and it consists in arranging the buckets at an angle to the arms, whereby they are made to enter the water more quickly, and leave it in a nearly perpendicular position, as hereinafter set forth.

The invention further consists in the manner of arranging the buckets upon and securing them to the arms, as hereinafter set forth. I obtain these results by the use of the mechanism illustrated in the accompanying drawings, in which—

Figure I is an end elevation of a wheel; and Fig. II, a front elevation of a portion of a wheel, showing my improvements attached thereto. Figs. III and IV are detached detail views of the ordinary form and my improved form of bucket, illustrating their action in entering and leaving the water.

A is the shaft, and B the "hub" or "head," to which the arms C are attached in the usual manner. Upon either side of the outer ends of each arm C angular blocks *a* are secured, across which the buckets *b* are fastened by bolts *c*, as shown. By this means the buckets are arranged at an angle to the arms, and leave the water in a nearly upright position, (see

Figs. I and IV,) so that little or no "lifting" of the water occurs, which is an important advantage, as a very large percentage of power is required to lift the large body of water above the buckets when set at a line parallel with arms C, as shown in lower view of Fig. IV.

I also claim a great advantage by arranging two buckets on each arm, as I thereby obtain double the number of buckets as in the ordinary arrangement; or I can obtain the same number of buckets by using only one-half the number of arms.

Another advantage gained by attaching two buckets to each arm is, that a greater number of buckets are in the water at the same time, thereby increasing the power of the wheel without adding to its diameter.

By slanting the buckets they enter the water in less time than by the old method, and retain their power or "hold" upon the water longer in leaving it.

What I claim as new is—

The combination and arrangement of the arms C, angular blocks *a*, and buckets *b*, secured together by the bolts *c*, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

THOMAS CROMWELL ROBINSON.

Witnesses:

C. N. WOODWARD,  
LOUIS FEESEK.