W. G. KETCHUM.

PROPELLERS FOR STEAM VESSELS.

No. 187,535. Patented Feb. 20, 1877.

Fig. 1

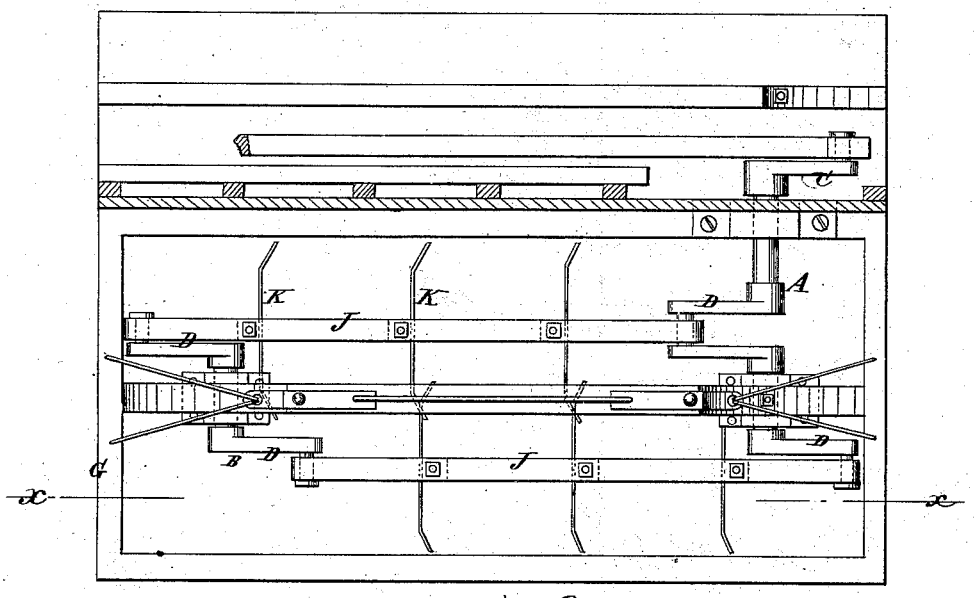


Fig. 2

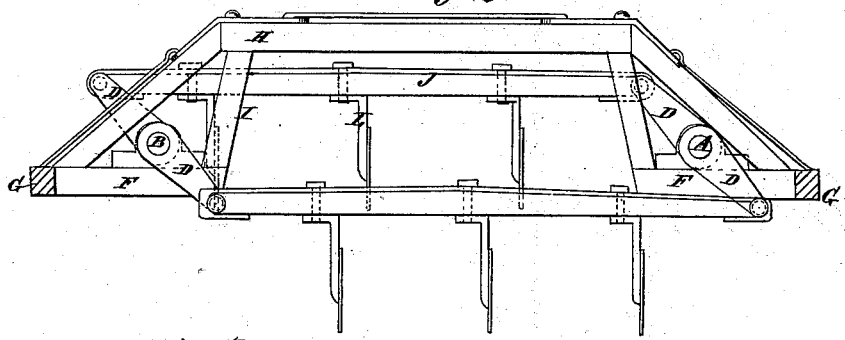


Fig. 3

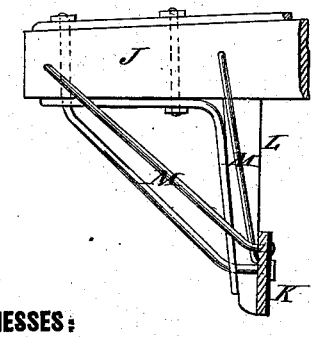


Fig. 4

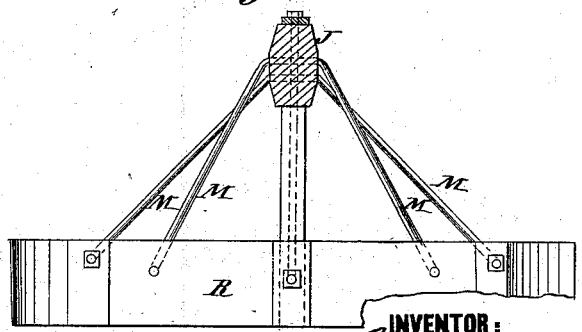
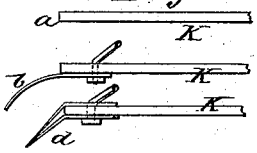


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM G. KETCHUM, OF AUGUSTA, ILLINOIS, ASSIGNOR OF TWO-THIRDS HIS RIGHT TO D. W. VOWLES, OF WASHINGTON, D. C.

IMPROVEMENT IN PROPELLERS FOR STEAM-VESSELS.

Specification forming part of Letters Patent No. **187,535**, dated February 20, 1877; application filed May 1, 1876.

To all whom it may concern:

Be it known that I, WILLIAM GREEN KETCHUM, of Augusta, Hancock county, State of Illinois, have invented a new and Improved Propeller for Steamboats, of which the following is a specification:

My invention relates to paddle-propellers of the kind which are made to enter and leave the water vertically, and are carried forward above the water and backward in it, as distinguished from revolving paddles; and it consists of two sets mounted on double cranks set opposite each other, and connected to the paddle-beams by diagonal braces, with the driving-crank adjusted so that, when it is passing the centers, both sets of paddles are out of the water, and offer but little resistance to the passing of the centers by the crank, whereby it is less liable to stop on the centers, and in case it does is much easier to start.

Figure 1 is a plan view of my improved propeller. Fig. 2 is a longitudinal section on line X X of Fig. 1. Figs. 3 and 4 are details, showing the manner of attaching the paddles; and Fig. 5 represents different forms of paddles that may be used.

In the drawing, A and B represent the double crank-shafts for carrying the paddles. C is the driving-crank, attached to shaft A, and, when driven by a horizontal engine, arranged in the plane of the paddle-cranks D, which are set opposite to each other, but, if driven by a beam-engine, will be set at right angles, in order that the cranks D will be horizontal and the paddles raised out of the water when the engine is on centers. The crank-shafts have bearings in pillow-blocks F, supported by the projecting beams G, which are stayed by the truss H and posts I. J represents the paddle rods or beams, which are mounted at their ends on the paddle-cranks, and K represents the paddles, which are suspended at the middle from rods J by strong brackets L, and are stayed by braces M.

The paddles may be placed at the ends, as at *a*, Fig. 5, or have curved plates *b*, or angular plates *d*, to gather and hold the water. This plan is believed to possess advantages in respect to holding against the water entering without loss of power by beating downward, and escaping without lifting, calculated to render it more efficient than the ordinary revolving paddles, and it also possesses the important quality of increasing and diminishing the area of the paddle-surface presented to the water in the same measure that the power of the crank increases and decreases in the revolutions.

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

1. The combination of the pillow-blocks F, beams G, truss H, and posts I, all constructed and arranged as and for the purpose described.

2. The combination of paddles K, brackets L, rods J, and diagonal braces M, extending from the paddle to the carrier-beam J, as and for the purpose set forth.

WILLIAM GREEN KETCHUM.

Witnesses:

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