W. H. Willard
Screw Propeller

No. 35,573. Patented Jun. 10, 1862.

Fig: 2

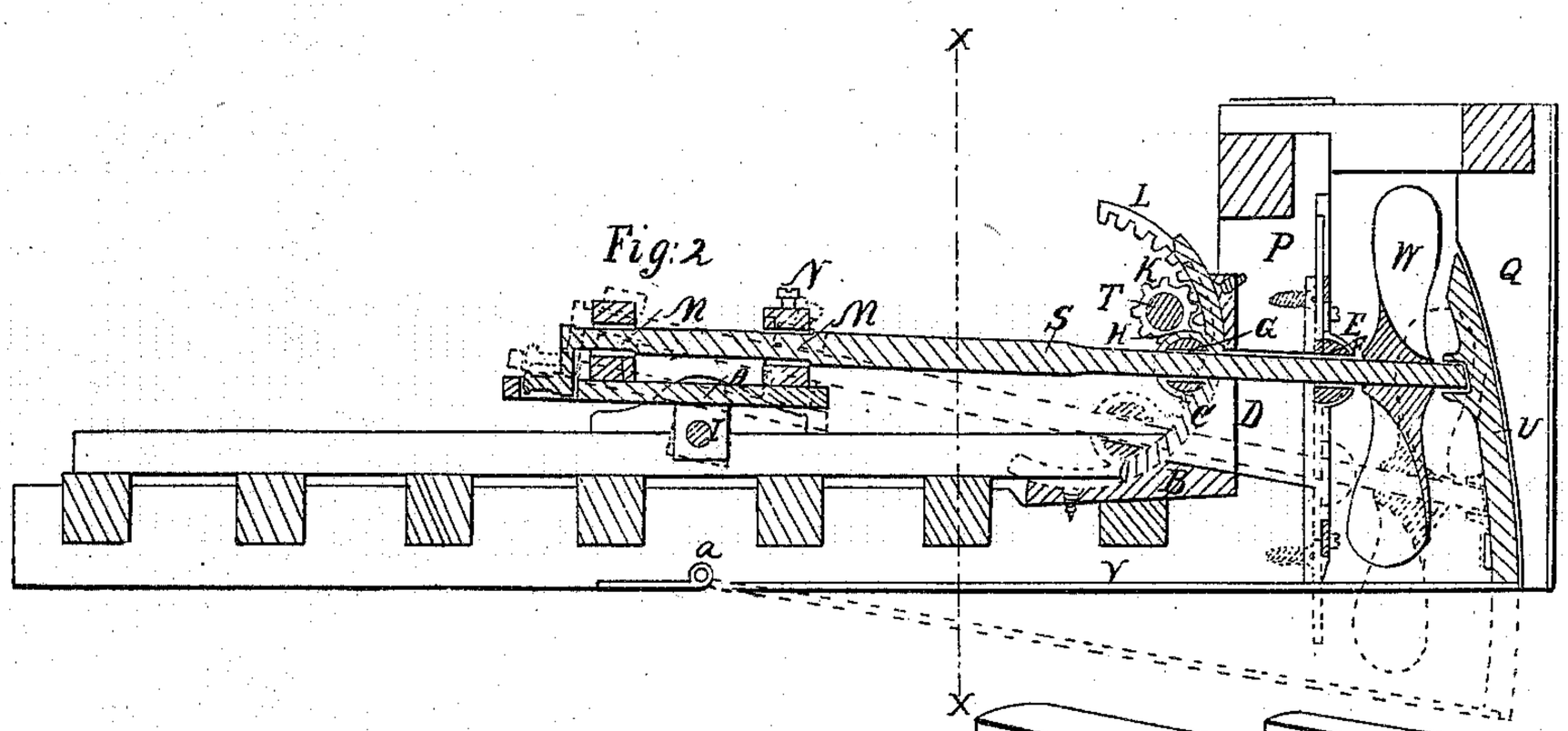


Fig: 1

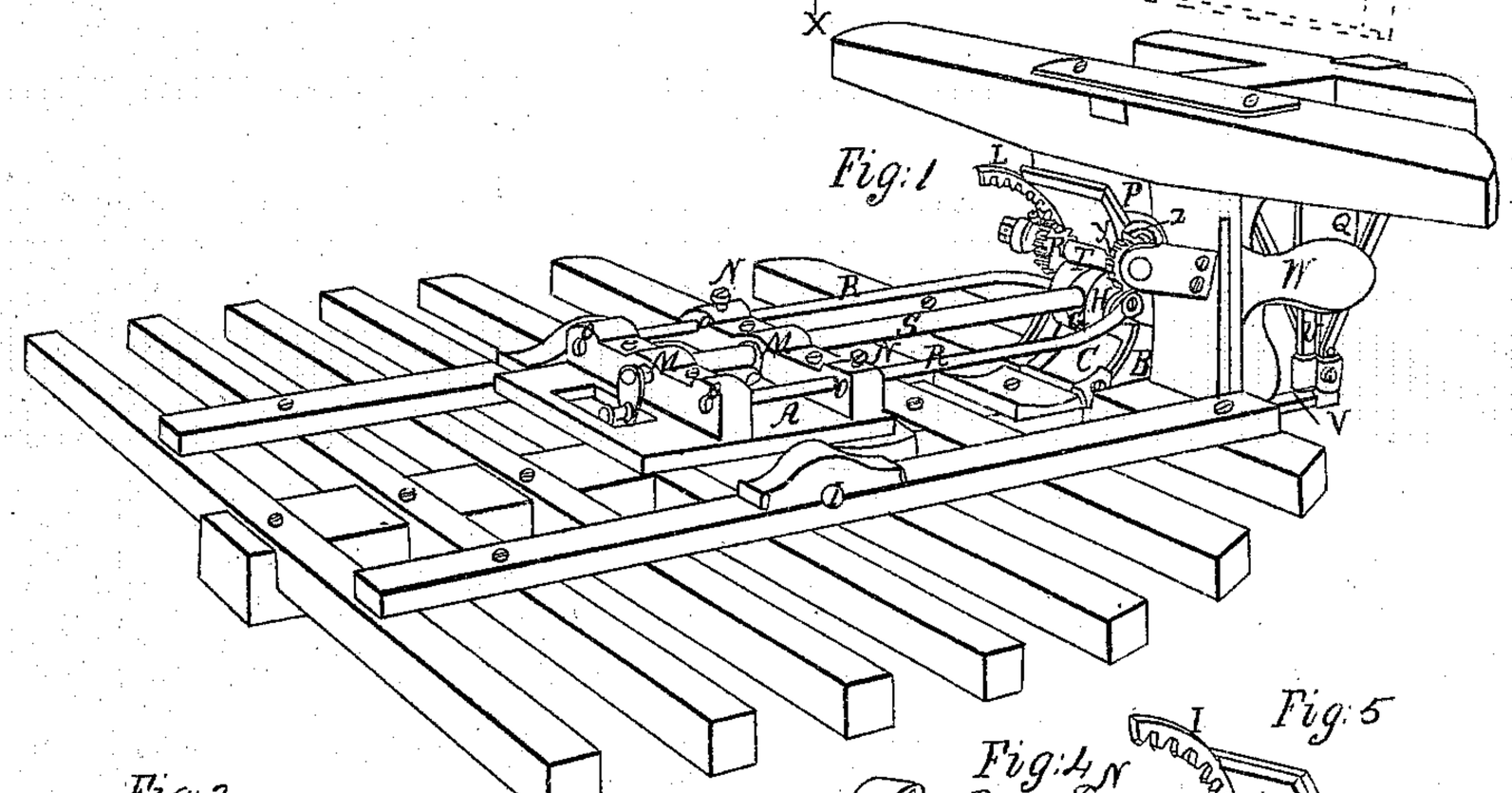


Fig: 3

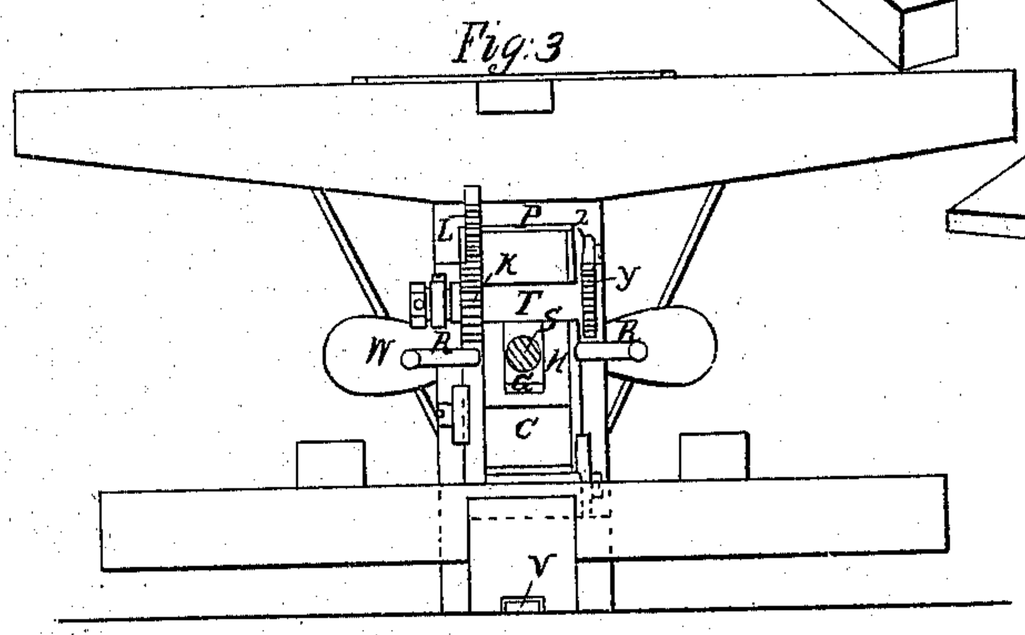


Fig: 4

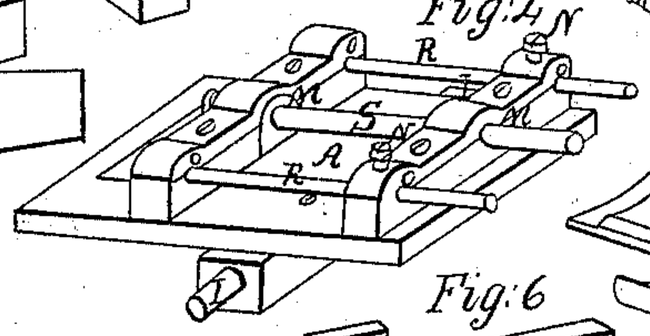


Fig: 5

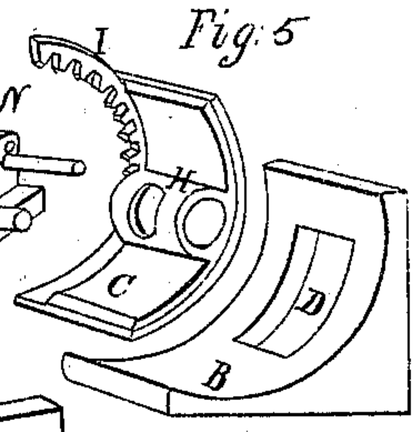
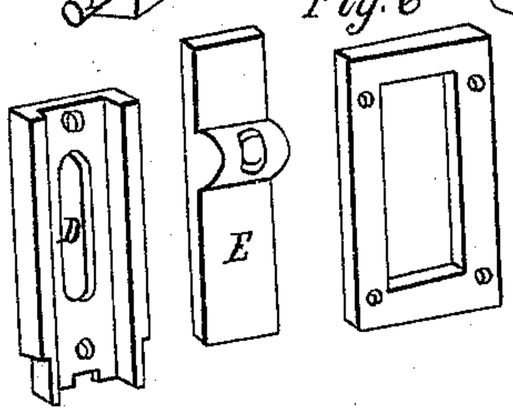


Fig: 6



Witnesses.
Geo. W. Wills
K & Myers

Inventor
W. H. Willard

UNITED STATES PATENT OFFICE.

WILLIAM H. WILLARD, OF CLEVELAND, OHIO, ASSIGNOR TO SARAH E. WILLARD.

IMPROVED APPARATUS FOR ADJUSTING PROPELLERS RELATIVELY TO THE DRAFT OF WATER.

Specification forming part of Letters Patent No. **35,573,** dated June 10, 1862.

To all whom it may concern:

Be it known that I, WILLIAM H. WILLARD, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement for Adjusting Propeller-Wheels; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective view. Fig. 2 is a longitudinal section, the dotted lines representing the wheel lowered. Fig. 3 is a transverse section as seen from the line X X in Fig. 2. Fig. 4 is a view of the bed-plate A detached. Fig. 5 is a view of a part of the inside packing-box, B, and the slide C, which covers the slot D. Fig. 6 is a view of the outside slide and packer, E.

The nature of my invention consists in providing an oscillating bed-plate on which the engine sits, and the stern-post of the vessel with a slot and sliding packing-box to allow the adjusting of the propelling-wheel to the draft of water, thereby obtaining the advantage of submerging the wheel to suit the draft of the vessel, be the same light or heavy laden, and is intended for flat-bottom craft, but may be applied to craft of any construction.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I construct a bed-plate, A, resting on journals I I, which has an oscillating movement, allowing the end of the shaft S, on which the propelling-wheel W is attached, to be raised or lowered as circumstances may require. The engine and machinery are placed on this bed-plate and are subject to the oscillating movement, and are kept in a right-angle position to the shaft S. There are two rods, R R, passing through the bearings O O, and secured to the journal G, for the purpose of supporting the shaft and relieving the bearings at M M. They are also secured in the bearings O O by means of the set-screws N N. I also constuct a packing-box, B, placed on the inside of the stern-post P, having a slot, D, of sufficient length to allow the upward and downward movement of the shaft. This slot is covered with a rotating slide-plate, C, to prevent the ingress of water, and is provided with a journal, G, for the shaft S. This journal is inclosed in the cylinder H, which rotates upon it.

There is attached to the slide-plate C the segment of a circular ratchet, L, worked by means of the gear-wheel K on the cross-shaft T. This is for the purpose of raising or lowering the propelling-wheel, which may be secured at any point desired by the ratchet-wheel and dog *y z*. There is also on the outside of the stern-post another slide-plate, E, and journal F, for the same purpose as the inside one, either or both of which may be used, at the option of the builder. I also construct a fender or guard, V, placed in a groove running along on the under side of the keel, and is secured to it by a joint, *a*. To the back end of this is attached a slide, U, which plays in a groove in the rudder-post Q, and has a socket, *b*, for the end of the shaft S to rest in. This is for the purpose of protecting the wheel and guarding against any obstruction—as, for instance, in passing over a stone the wheel is raised up.

Now, when the vessel is light or unladen, and it is desired, the wheel is lowered by lifting the dog *z* and turning the cross-shaft T, and the wheel is submerged, thereby gaining the desired subject of obtaining the full power of the propelling-wheel under all circumstances.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the oscillating bed-plate A, rotating packer B, and guard or fender V, constructed substantially as described, and for the purposes set forth.

W. H. WILLARD.

Witnesses:

G. W. TIBBITTS,

H. E. MYER.