H. H. Old's.

Crank Paddle.

No. 12,067. Patented Dec. 12, 1854.

Fig. 1.

Fig. 2.

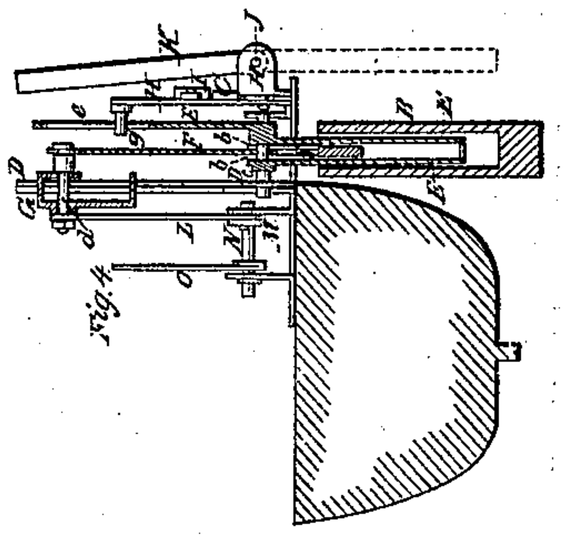

Fig. 4.

Fig. 3.

Fig. 5.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY H. OLDS, OF NEW HAVEN, CONNECTICUT.

PROPULSION OF VESSELS.

Specification of Letters Patent No. 12,067, dated December 12, 1854.

To all whom it may concern:

Be it known that I, HENRY H. OLDS, of New Haven, New Haven county, State of Connecticut, have invented a new and useful Improvement in Propellers; and I do hereby declare that the following is a full and exact description thereof.

The nature of my improvement consists in providing the sides of the vessels with suitable frames through which two or more pushing propellers operate, with reciprocating motion, the propellers being made to act on the water at an angle of about forty-five degrees, and to move the vessel by the contact of the bottoms of the propellers with the water; also in providing the propeller machinery with a hinged water float, so arranged that by bringing it down into contact with the water, the operations of the propeller may be instantly reversed, without altering the motion of the engine.

To enable others skilled in the art to make and use my improvement I will proceed to describe its construction and operation, reference being had to the annexed drawings, forming a part of this specification, in which—

Figure 1, is a side elevation of my improvement, the propellers in position to cause the vessel to advance. Fig. 2, side elevation of same the propellers backing. Fig. 3, side elevation of the propelling machinery in position for vertical movement of the propellers. Fig. 4, vertical end sectional elevation of my improvement. Fig. 5, vertical view of one of the propellers, and its top fixtures. Fig. 6, horizontal section of one of the propellers detached.

Similar letters of reference indicate corresponding parts in the several figures.

A, the vessel; B B, the propeller; C, guiding and supporting frame; D, cross head guides; E, E, extension bars of the propellers; F, F, connecting rods; G, G, cross heads; H, H, shifting bars; I, shifting bar catch; K, shifting float; J, hinge of same; L L, rock bar lever connecting rods; M, rocking bar; N, shaft of the same; O, rocking lever; P, engine connecting rod; *a a′*, notches for catch I in the frame C; *b*, pivots which unite connecting rods F with propeller head plates *f*; *c*, bearings of bars E; *d*, pins uniting rods F, and L, to cross heads G; *g*, pivots which unite extension bars E, and shifting bars H; *e* slots in the extension bars E.

Reciprocating motion is communicated by means of the rod P, to the rocking lever O, which operates the rocking shaft N, and rocking bar M. Suitable connecting rods, L, unite the cross heads G, with the ends of bar M, whereby the former receive vertical movement between their guides D, D.

A horizontal section of the propellers B (see Fig. 6) shows an oval form. They are hollow in their interior, and furnished at their tops with head plates *f*, *f*. These are connected with the cross heads G, by means of connecting rods F. F. The extension guide bars E, E, project below their bearings at *c*, into the interior of the propellers B, where they form guides upon which the propellers slide up and down. The lower parts of guide bars E, E, are in U form as shown. The propellers receive their up and down movement from the cross heads G to which they are connected by rods F, in the manner before described. The upper ends of the extension guide bars E, E, are slotted (*e*) and through these slots the pins *g*, which unite them with the shifting bars H, H, pass. The latter slide laterally upon the frame C, being fixed at a given point thereon by catch I, which enters notches *a a′*. In order therefore to change the angle at which the propellers B, B, operate, it is only necesary to move the shifting bars H, H.

When the vessel is in motion, advancing in direction of arrow 1, Fig. 1, and it becomes necessary to back the vessel, the catch I is raised and the shifting float K, which is attached to the shifting bars H, by means of hinge J, is thrown down, so that its lower end rests in the water as indicated by the red lines Fig. 1. The force of the water against the float, carries it, and with it the shifting bars H, H, to the other end of frame C, when the catch I, fastens in notch *a′*, and retains the shifting bars (as shown in Fig. 2) at that end of frame C. This movement of the shifting bars H, H, reverses the position of the propellers B, B, without any change in the motions of the engine, and causes the vessel to move backward in direction of arrow 2.

In the practical application of this improvement I propose, if needed, to have suitable levers so connected with the shifting bars that the position of the propellers B, can be instantly changed independently of the shifting floats K.

It will be observed that by my method of

shifting the position of the propellers, without stopping, reversing, or touching the engine, offers many advantages in the navigation of the vessel. It especially enables me to turn the vessel rapidly and in a short circle, for it I have only to reverse the position of the propellers on one side of the vessel, to have two of them push forward, and two of them push backward at the same time, thereby causing the vessel to go around on its own axis.

I am not limited to the precise form and combination of parts here described, for I propose to adopt any other form or combination which is substantially the same in principle.

The peculiar form of the propellers, and the angle at which they hang when in full operation, affords steadiness to the boat, while the fact that the propellers balance each other gives them a remarkable ease of operation. I estimate a clear gain of at least ninety per cent. in the use of these propellers, over any other successful means of propulsion with which I am acquainted.

Having thus described my invention, I claim,

1. The combination of the extension guide bars E, E, with the frame C, propellers B, B, shifting bars H, H, and cross heads G, G, in the manner and for the purposes as herein set forth.

2. The combination of the shifting bars H, H, catch I, and shifting float K, with the frame C, in the manner and for the purposes substantially as herein set forth.

HENRY H. OLDS.

Witnesses:

THOS. BENNETT,

A. B. JACOCKS.