

S. GERHARD.
Propelling Vessels.

No. 137,359.

Patented April 1, 1873.

Fig.1.

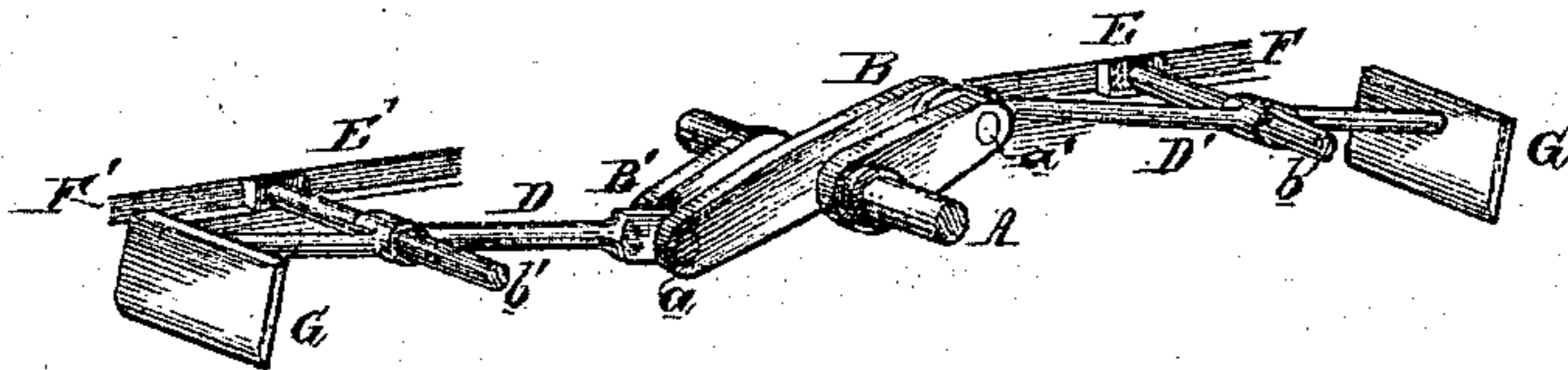


Fig.2.

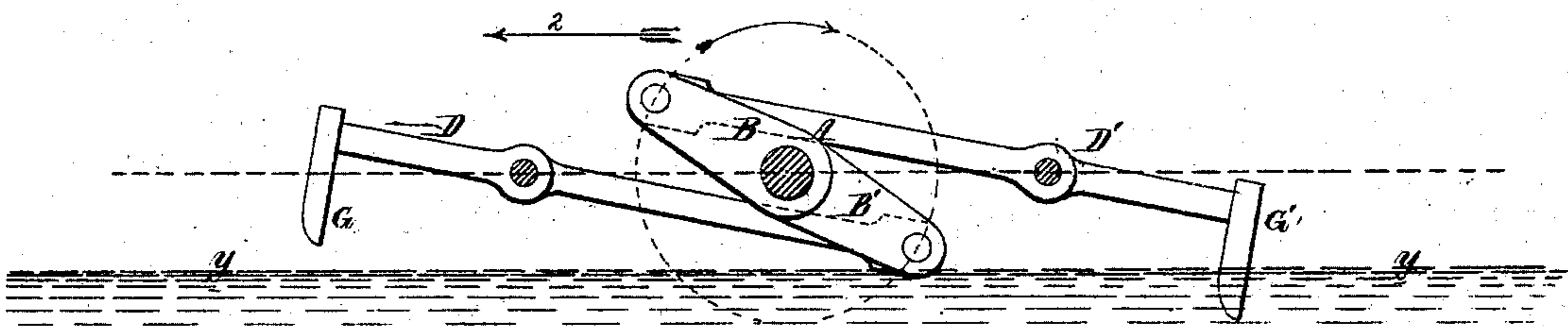


Fig.3.

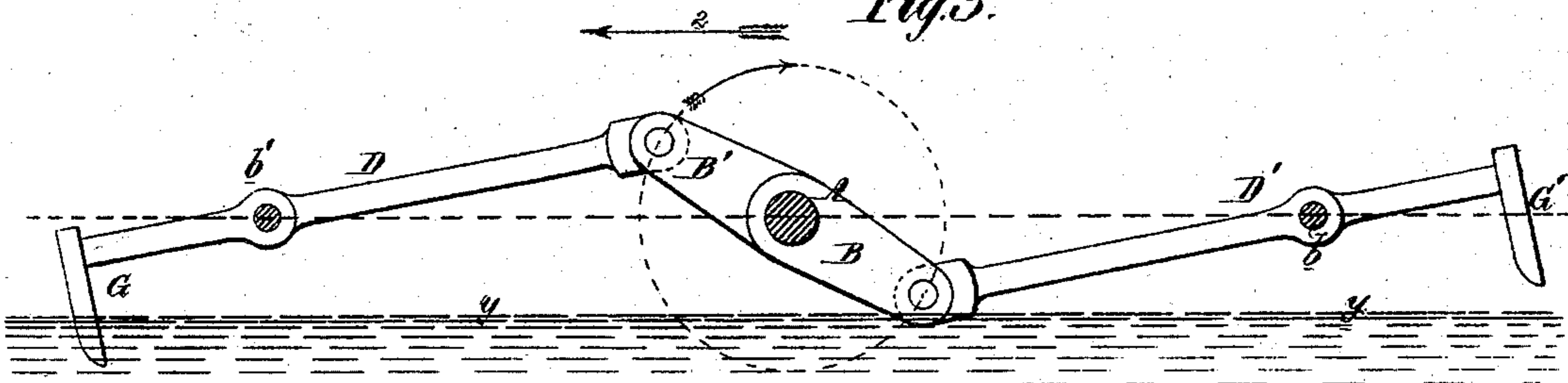
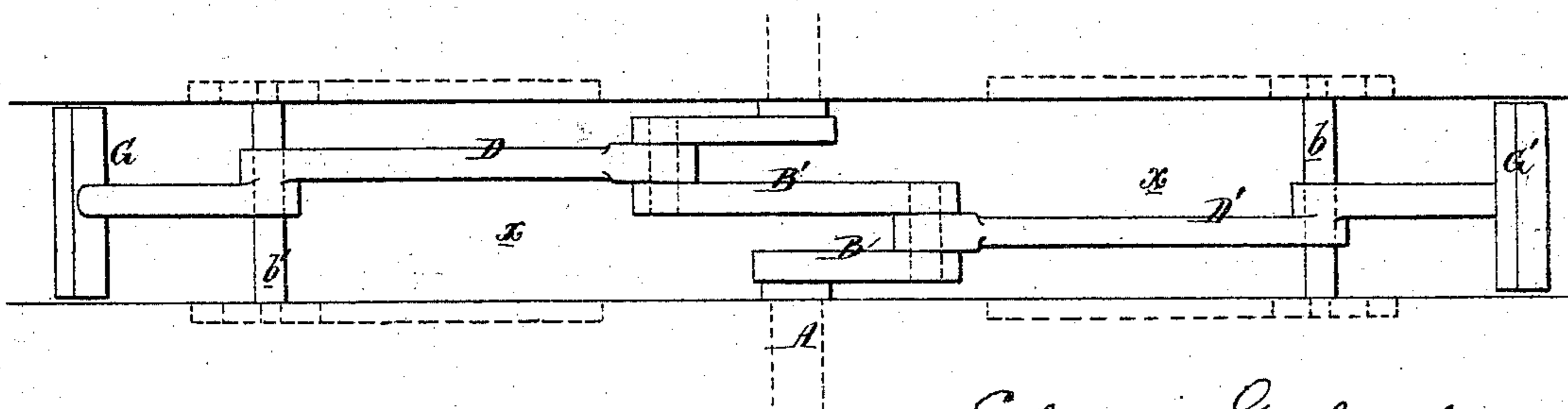


Fig.4.



Witnesses.

Harry Smith
Thomas McWhain

Solomon Gerhard
by his Atty.
Hudson and Son

UNITED STATES PATENT OFFICE.

SOLOMON GERHARD, OF CAMDEN, NEW JERSEY.

IMPROVEMENT IN PROPELLING VESSELS.

Specification forming part of Letters Patent No. **137,359**, dated April 1, 1873; application filed June 8, 1872.

To all whom it may concern:

Be it known that I, SOLOMON GERHARD, of Camden, New Jersey, have invented a Propelling Device for Vessels, of which the following is a specification:

My invention has for its object the more effective propulsion of vessels through the water than by the usual paddle-wheels or screws. This end I accomplish by the use of a propelling device, the nature of which will be best understood by reference to the perspective diagram, Figure 1, in which A represents a shaft driven by an engine or engines, and on this shaft are two cranks, B and B', the pin *a* of the latter being connected to the long arm of the lever D, and the pin *a'* of the crank B being connected to the long arm of the lever D', the fulcrum of which is a pin, *b*, projecting from a slide, E, adapted to horizontal guides F F, and the lever D having its fulcrum on a pin, *b'*, projecting from a slide, E', adapted to guides F'. The end of the short arm of each lever is provided with a paddle, G.

The above-described device may be situated in a space, *x*, Fig. 4, between twin boats, or on each side of a vessel, as circumstances may suggest.

The operation of the paddles on the water as the shaft A revolves will be readily understood by reference to Figs. 2 and 3, in which *y* represents the water-line. In Fig. 2 the

paddle of the lever D is elevated above the water-line, and that of the lever D' depressed and partially submerged; as the shaft, therefore, revolves, the paddle G' will be forced through the water until it has nearly reached the limit of its outward movement, when it will be raised simultaneously with the depression of the paddle G, and the latter, as seen in Fig. 3, will be drawn inward through the water as the lever D' with its paddle is being returned to its original position, Fig. 2, preparatory to taking a fresh stroke. The continued action of the two paddles, operating alternately upon the water, will propel the vessel in the direction of the arrow 2, and by reversing the motion of the shaft the whole action will be reversed, and the vessel consequently propelled in a contrary direction.

I claim as my invention—

The arms D D' having paddles at their outer ends and vibrating on pins *b b'*, which slide horizontally, in combination with a double crank-shaft, A, situated between the two arms and connected directly thereto, so as to raise and lower the paddles alternately, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SOLOMON GERHARD.

Witnesses:

WM. A. STEEL,
HARRY SMITH.