

S. R. FOSTER.

Improvement in Means of Propulsion.

No. 132,568.

Patented Oct. 29, 1872.

Fig. 1.

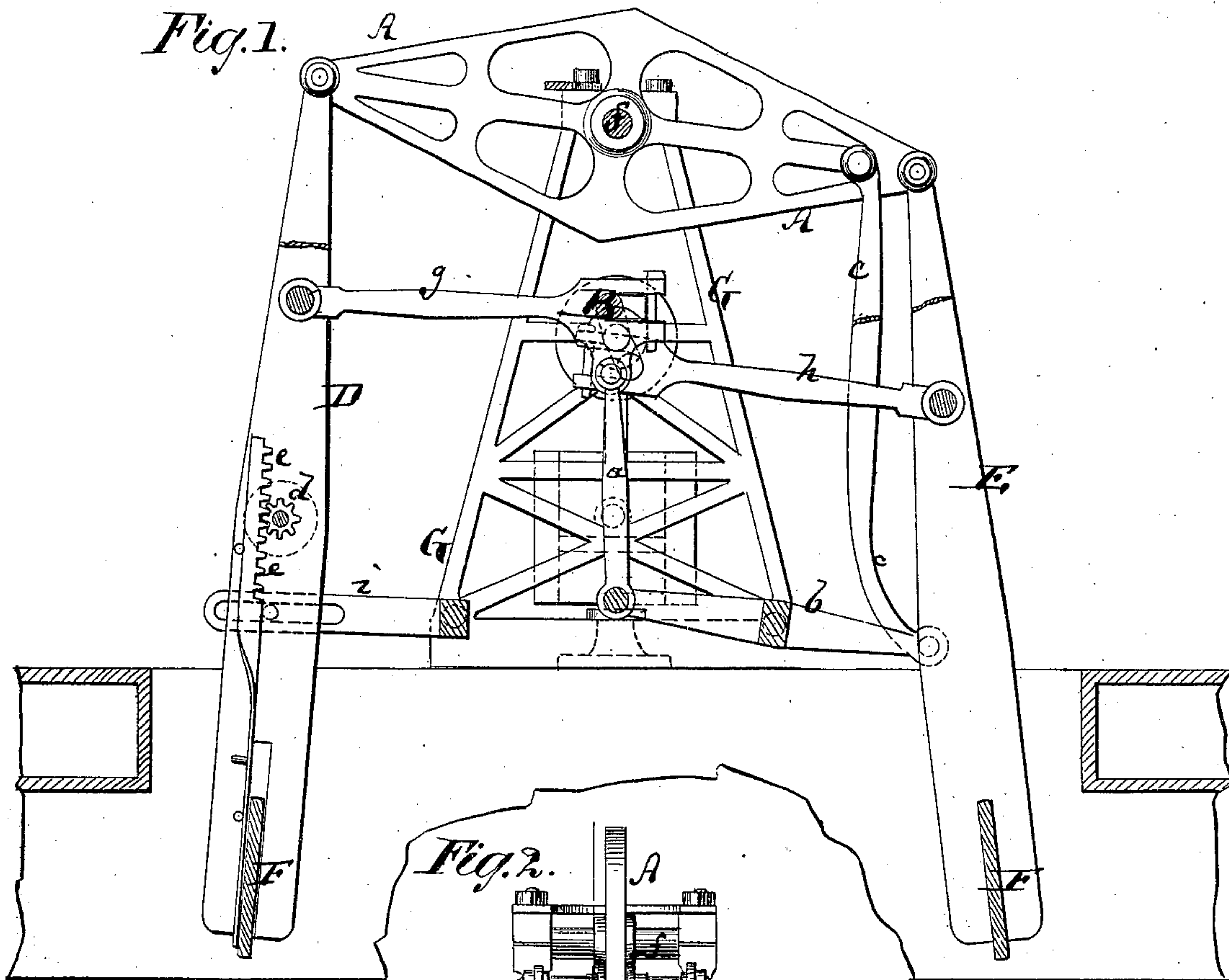
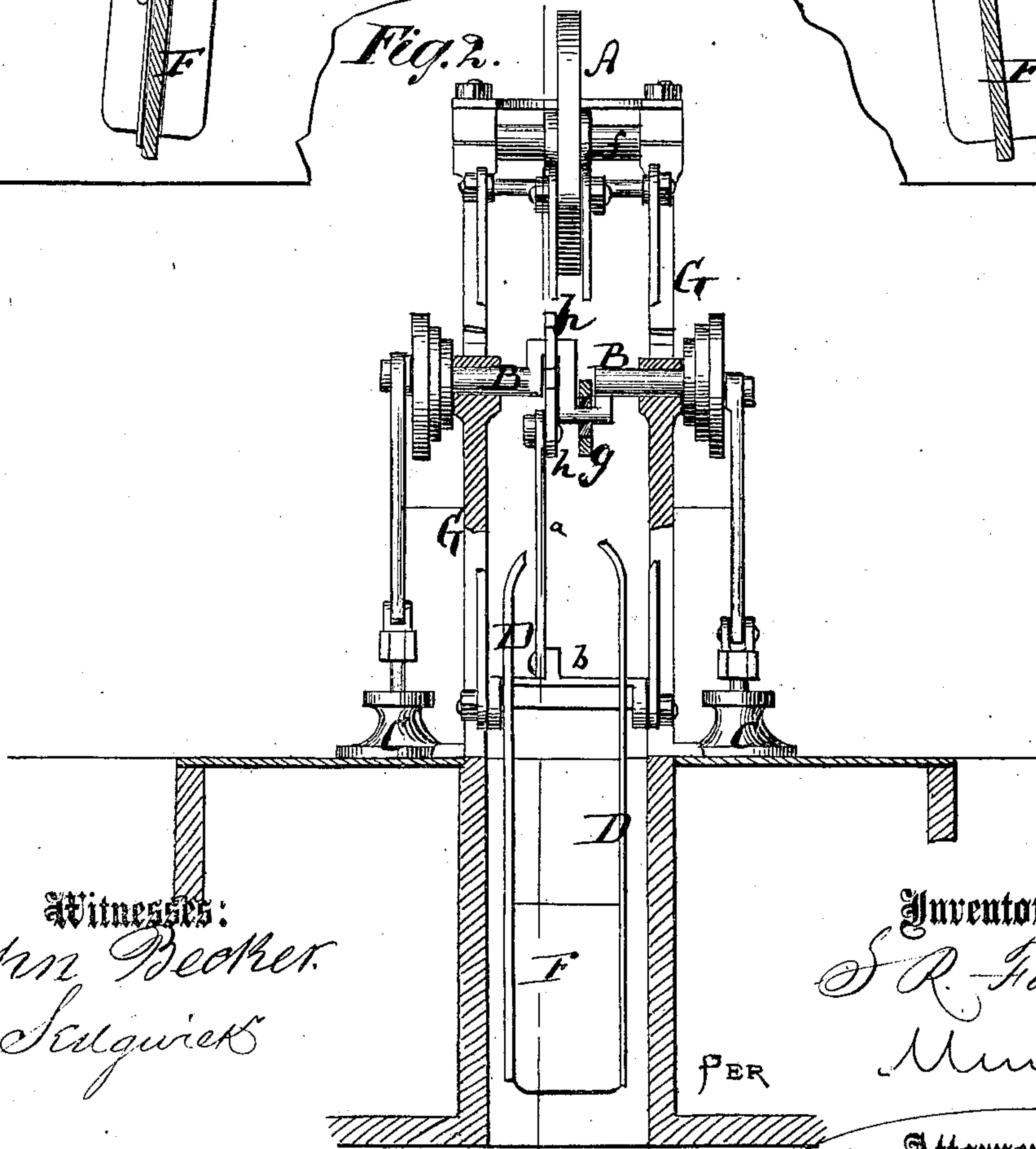


Fig. 2.



Witnesses:

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# UNITED STATES PATENT OFFICE.

SETH R. FOSTER, OF ST. JOHN, CANADA.

## IMPROVEMENT IN MEANS OF PROPULSION.

Specification forming part of Letters Patent No. 132,568, dated October 29, 1872.

*To all whom it may concern:*

Be it known that I, SETH R. FOSTER, of St. John, in the province of New Brunswick and Dominion of Canada, have invented a new and Improved Propeller for Vessels, of which the following is a specification:

Figure 1 is a side view of my improved propelling apparatus for vessels. Fig. 2 is a vertical transverse section of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a new paddle attachment to steam-engines for propelling vessels of various sizes; and consists in suspending the paddles directly from the ends of the walking-beams of the propeller, and in certain auxiliary means connected therewith, as hereinafter fully described.

By this means I economize considerable machinery, and obtain the full power of the engine on the water without any unnecessary disturbance and creation of waves.

A, in the drawing, represents the walking-beam of the steam-engine, hung in a boat or vessel of suitable dimensions. I propose to impart the requisite vibratory motion to the beam A by a jointed rod connection, *a*, *b*, and *c*, with a crank-shaft, B, and to rotate the crank-shaft by the pistons of two steam-cylinders, C C, as indicated in Fig. 2. The beam A may, however, be oscillated by other suitable mechanism. From the ends of the beam are suspended the two bars D and E, respectively, to the lower ends of which the paddles F F are secured. The bars or dashes D E extend through slots in the bottom of the vessel into the water, so that the paddles may work in the water. Every dash D E has one or more paddles of suitable kind attached to it. These paddles may be made vertically adjustable on the dashes by means of pinion and rack *d* *e*, shown in Fig. 1, or by other equivalent means. The vibrations of the beam A

on its pivot *f* serve to impart up-and-down motion to the dashes and paddles; but the horizontal sweep is imparted to the same by means of rods *g* and *h*, which connect them respectively with the cranks of the shaft B, as shown in Fig. 1. The shaft B is hung directly beneath the pivot *f* of the beam A, and is therefore equidistant from both dashes D E. The lengths of the cranks with which the rods *g* *h* connect determine the horizontal strokes of the paddles. Lateral play of the dashes is or can be prevented by forks *i* *i*, which are pivoted to the frame G that supports the beam A, or formed as extension on the rod *b*, or by other suitable means.

This propeller mechanism is particularly practical, as the paddles can be made to enter the water vertically, and then to make the horizontal working strokes. The invention can also be used for canal-boats, in which case the propeller is placed on the bow or stern by a little alteration in its construction—viz., by having two walking-beams instead of one, the sweeps attached to one end instead of both, and propelling machinery attached to the other end of each beam.

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

1. The beam A, operated by a jointed connection, *a* *b* *c*, attached to a crank-shaft, B, arranged as described.

2. The paddle-bars D E, vertically operated by vibrating beam A, and at right angles to said motion by rods *g* *h* and shaft B, as and for the purpose set forth.

3. The forks *i* *i*, pivoted to frame G and combined with paddle-bars D E, as and for the purpose specified.

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Witnesses:

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