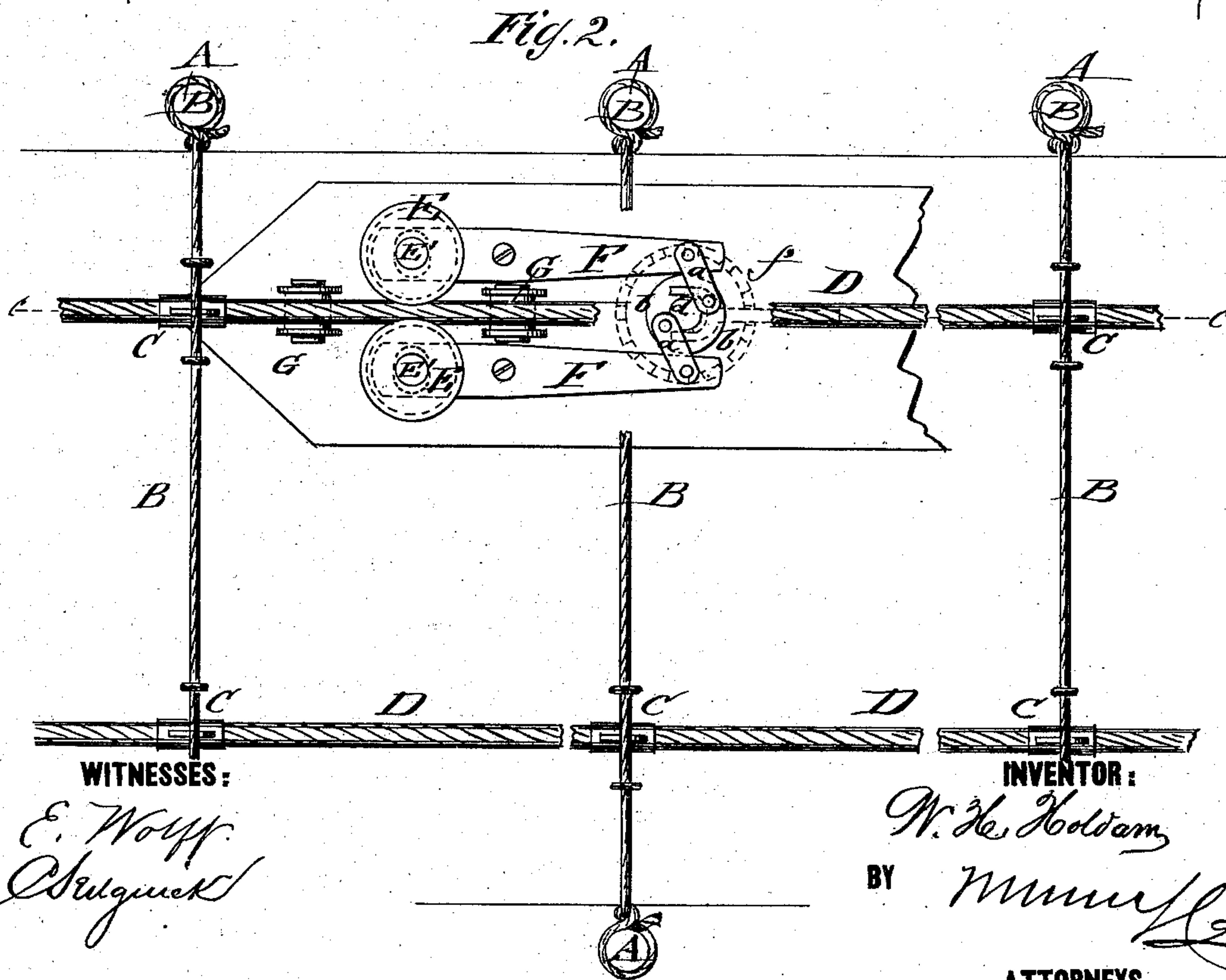
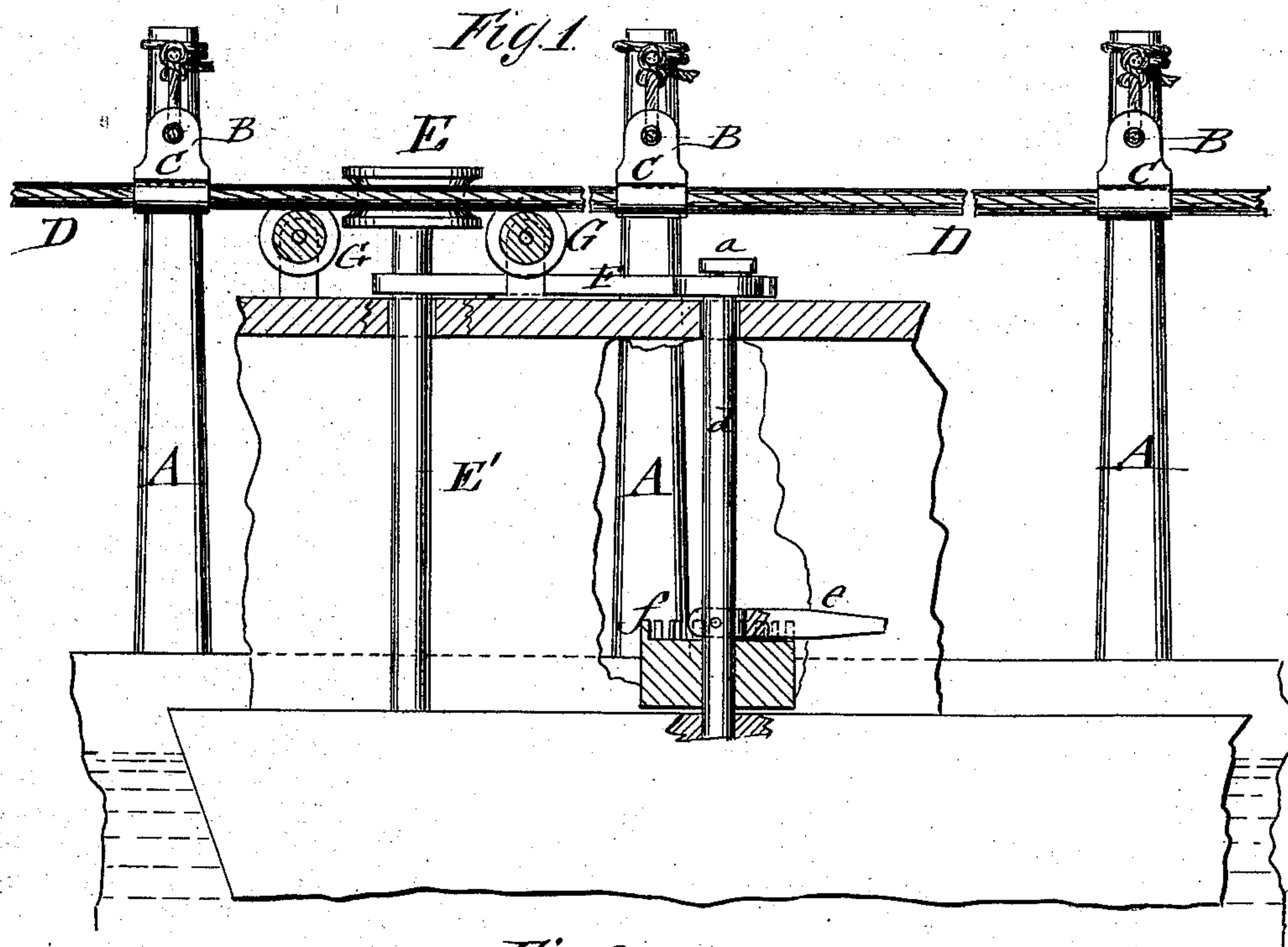


W. H. HOLDAM.

Means for Propelling Boats.

No. 155,025.

Patented Sept. 15, 1874.



WITNESSES:

*E. Woff.*  
*Chadwick*

INVENTOR:

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ATTORNEYS.

# UNITED STATES PATENT OFFICE.

WILLIAM H. HOLDAM, OF CRAB ORCHARD, KENTUCKY.

## IMPROVEMENT IN MEANS FOR PROPELLING BOATS.

Specification forming part of Letters Patent No. **155,025**, dated September 15, 1874; application filed July 3, 1874.

*To all whom it may concern:*

Be it known that I, WILLIAM H. HOLDAM, of Crab Orchard, in the county of Lincoln and State of Kentucky, have invented a new and useful Improvement in Propelling Canal-Boats, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical longitudinal section of my improved device for propelling canal-boats, taken on the line *c c*, Fig. 2, and Fig. 2 is a plan view of the same.

Similar letters of reference indicate corresponding parts.

The invention will first be fully described, and then pointed out in the claim.

In the drawing, A represents strong posts, which are set at suitable distances from each other into the banks of the canal. Two corresponding posts, A, at both sides, are connected at proper height above the water by lateral ropes, B, of wire or other durable material, from which are suspended directly, or by intermediate ropes, the guide-rope-supporting clips C. The connection of the clips C with the suspension-ropes is made in such a manner that they do not cut or otherwise injure the ropes. The longitudinal guide-ropes D are arranged near both banks in such a manner that boats may be run in both directions on the canal without interfering with each other in the least, the traffic being readily and conveniently kept up by transferring the boats for the return trip to the opposite guide-rope D. Horizontal friction-wheels E are keyed to the ends of vertical shafts E', and are turned by suitable gear-wheel connection with the main shaft of the engine at equal speed, but in opposite direction to each other. The friction-pulleys E are lined with rubber or similar material for passing easily over the clips or other irregular parts of the ropes, and

applied or taken off from the guide-ropes by means of fulcrumed levers F attached to shafts E'. Shafts E' are moved by the levers F in suitable slots of the supporting-frame, either toward or from the rope, so as to bring the friction-pulley in contact therewith, or release them. The application of the pulleys to the rope is accomplished by pivoting the opposite ends of the levers F, by links *a*, eccentrically to a disk, *b*, of vertical shaft *d*, and adjusting shaft *d* by means of a lever-pawl, *e*, and ratchet *f*, placed at a suitable part of the boat. By turning the lever-pawl to one side the friction-pulleys are instantly applied to the rope, and the boat is propelled thereby, being detached by turning the pawl in opposite direction, so as to rotate without imparting motion to the boat. A reversing-gear of the engine admits of the ready propulsion of the boat on the same rope for the purpose of backing up in landing, &c. Lateral guide-rollers or idlers G are applied in front and rear of the friction-rollers for taking up the sagging rope and guiding it in horizontal position to and from the friction-rollers.

A greater speed of the boat, with hardly any agitation of the water and washing of the banks, is obtained by this mode of propelling the boats, as wheels, rudders, or other parts are entirely dispensed with.

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

The combination, with pulleys and shaft E E', of two levers, F F, having links *a a*, pivoted eccentrically to a rotary disk, *b*, to alternately clamp and unclamp said pulleys on the rope D, in the manner described.

WILLIAM HARDEN HOLDAM.

Witnesses:

W. T. GREEN,

JOHN EDMISTON.