2 Sheets--Sheet 1.

G. S. OLIN.

Mechanisms for Towing Boats.

No. 145,813. Patented Dec. 23, 1873.

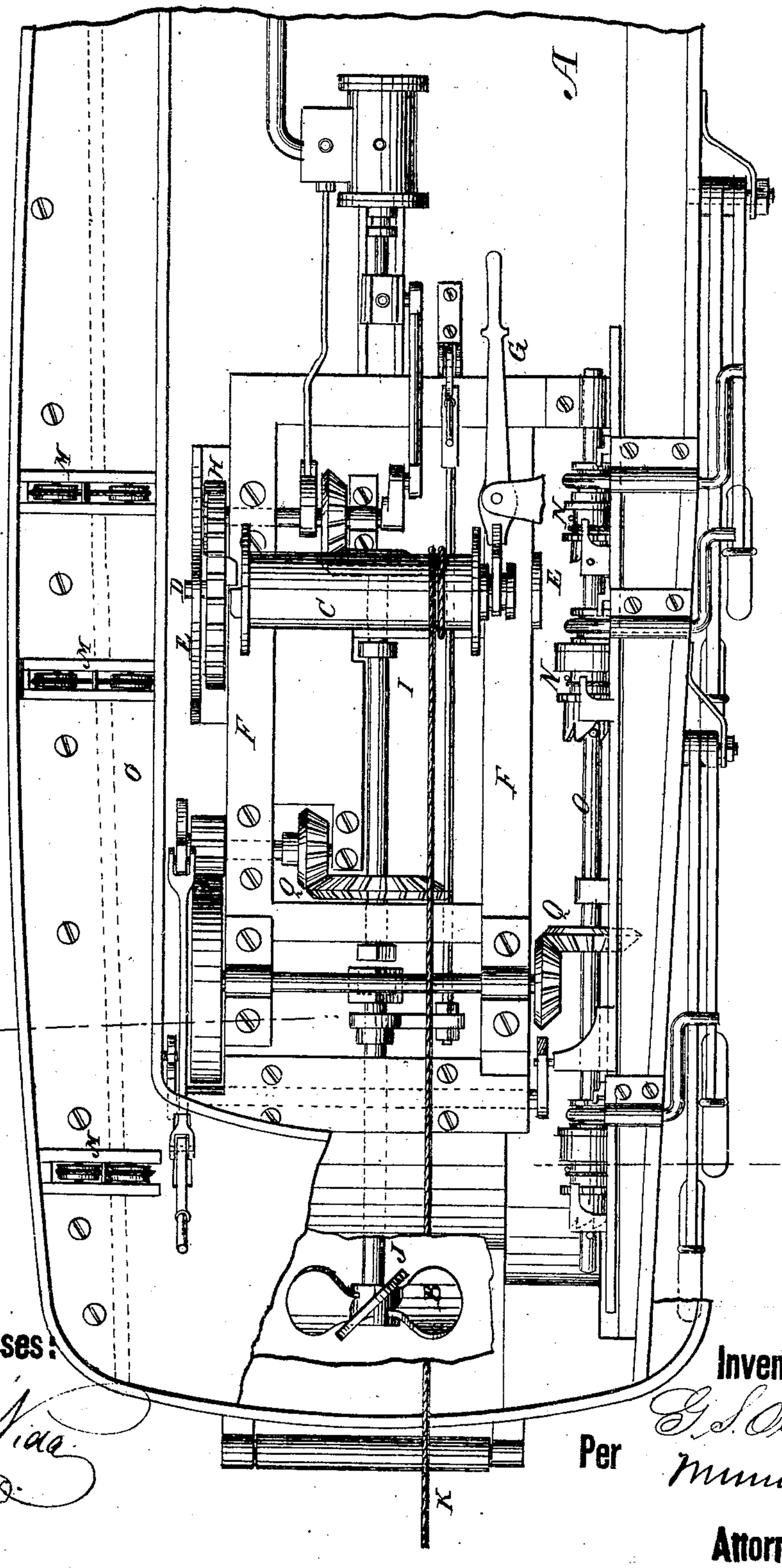

Fig. 1.

Witnesses:

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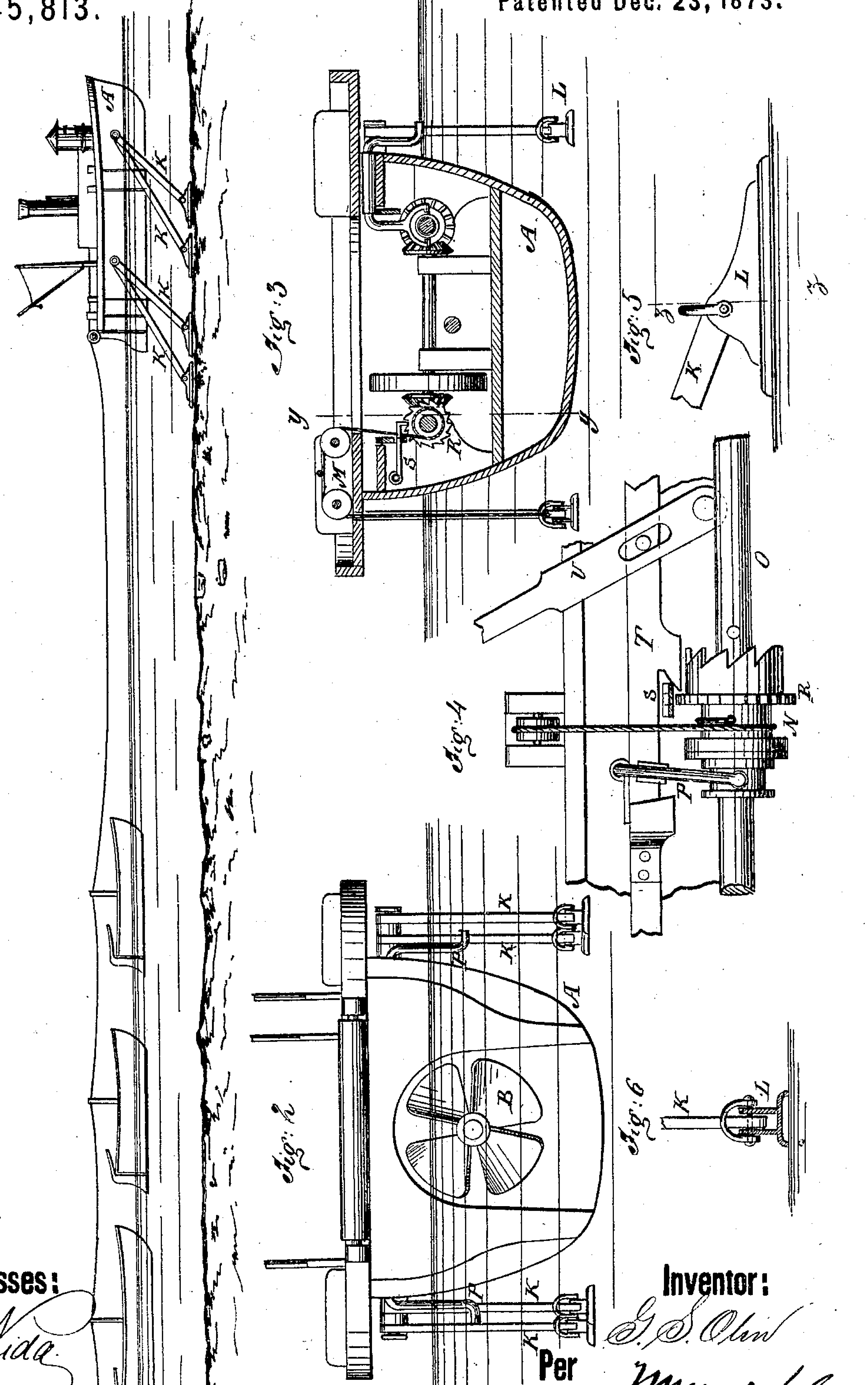

Witnesses:

Chas. Nida

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Inventor:

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UNITED STATES PATENT OFFICE.

GILES S. OLIN, OF DEER LODGE, MONTANA TERRITORY.

IMPROVEMENT IN MECHANISMS FOR TOWING BOATS.

Specification forming part of Letters Patent No. **145,813,** dated December 23, 1873; application filed September 27, 1873.

To all whom it may concern:

Be it known that I, GILES S. OLIN, of Deer Lodge, in the county of Deer Lodge and Territory of Montana, have invented a new and useful Improvement in Mode of Propelling Canal and other Boats, of which the following is a specification:

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

Figure 1, Sheet 1, is a plan view. Fig. 2, Sheet 2, is a view of the stern of my improved propelling-tug. Fig. 3 is a vertical section of Fig. 1 taken on the line *x x*. Fig. 4 is a section of Fig. 3 on the line *y y*. Fig. 5 is a side view of one of the anchor-shoes. Fig. 6 is a vertical section of Fig. 5 on the line *z z*. Fig. 7 is a side view of the tug, showing a train of boats attached, as when in actual use.

Similar letters of reference indicate corresponding parts.

A represents the tug-boat, which is provided with one or more engines, for furnishing motive power, and a propeller-wheel, B, which is made to operate at the stern of the boat. C is a drum, supported on a horizontal shaft, D, by stands E E, attached to the sides of the frame F. This drum is revolved by the motive power with the shaft when winding up the two ropes, and on the shaft when unwinding it. The drum is given a slight longitudinal motion by means of the lever G, which couples it with the gear-wheel H on the drum-shaft. The motive power is applied to the propeller by means of the central shaft I. J is the propeller-shaft, and the two shafts are coupled together and uncoupled by means of a shifting-lever, the propeller-wheel being used only periodically, or to move the tug ahead and unwind the rope.

The towing of the boat, or train of boats, is done while the tug is anchored and stationary.

K′ represents the towing-rope. This rope (preferably a flat wire rope) may be of any length which can be conveniently wound on the drum, four or five hundred yards not being deemed impracticable.

One end of the rope is attached to the drum, and the other end to the train of boats. The drum is thrown into gear with the shaft and motive power, and the train of boats is drawn to or near to the tug by revolving the drum and winding up the rope. When this is accomplished, the propeller-wheel is slipped into gear and the tug is driven ahead, while the drum is uncoupled, so that it revolves freely on the shaft and unwinds the rope. When the rope is unwound, the propeller-wheel is uncoupled, the tug is anchored, the drum is thrown into gear, and the rope is again wound up, and this process is repeated as rapidly as may be.

This explains my mode or system of propelling boats on canals and in other shallow waters.

I do not confine myself to any particular mode of anchoring the tug; but in this example of my invention I accomplish it by means of a number of bars, K, which are pivoted to the boat at their upper ends, each having on its lower end an adjustable shoe, L, to rest upon the bottom of the canal. The anchor-bars, when resting on the bottom, will stand at an angle of about forty-five degrees, more or less, with the surface of the water, (according to the depth,) and are raised by means of ropes or chains attached to the shoes. These ropes or chains pass up from the shoes, over the pulleys M on the guards of the tug, and then down around small loose clutch-drums N, which are coupled to the longitudinal shafts O by means of the levers P. (See Fig. 4.) These longitudinal shafts O O are revolved by means of bevel-gears Q, which connect them with the main shaft. The clutch-drums N have each a ratchet-wheel, R, and are held in position by means of a pawl, S. The pawl drops into the ratchet by its own gravity, and is detached from ratchet by means of the sliding bar T, which is actuated by means of the lever U.

This mode of anchoring the tug is feasible; but I am aware that it may be accomplished in many ways.

By this mode of towing, the power is applied in the most direct manner, and the momentum of the train need not be lost. The tug will shoot forward after the rope is wound

up, so as to keep the train of boats in continuous motion, and with but slight variation of speed.

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

The combination, in a canal-tug, of the detachably-coupled drive-shaft I and propeller-shaft J, with a shaft, D, and drum C, also detachably connected, as described, to allow the same power mechanism to wind up the rope, and thus tow the boat along at one time, while at another it pays out the rope by propelling forward the tug.

GILES S. OLIN.

Witnesses:
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H. A. D. ACKEND.