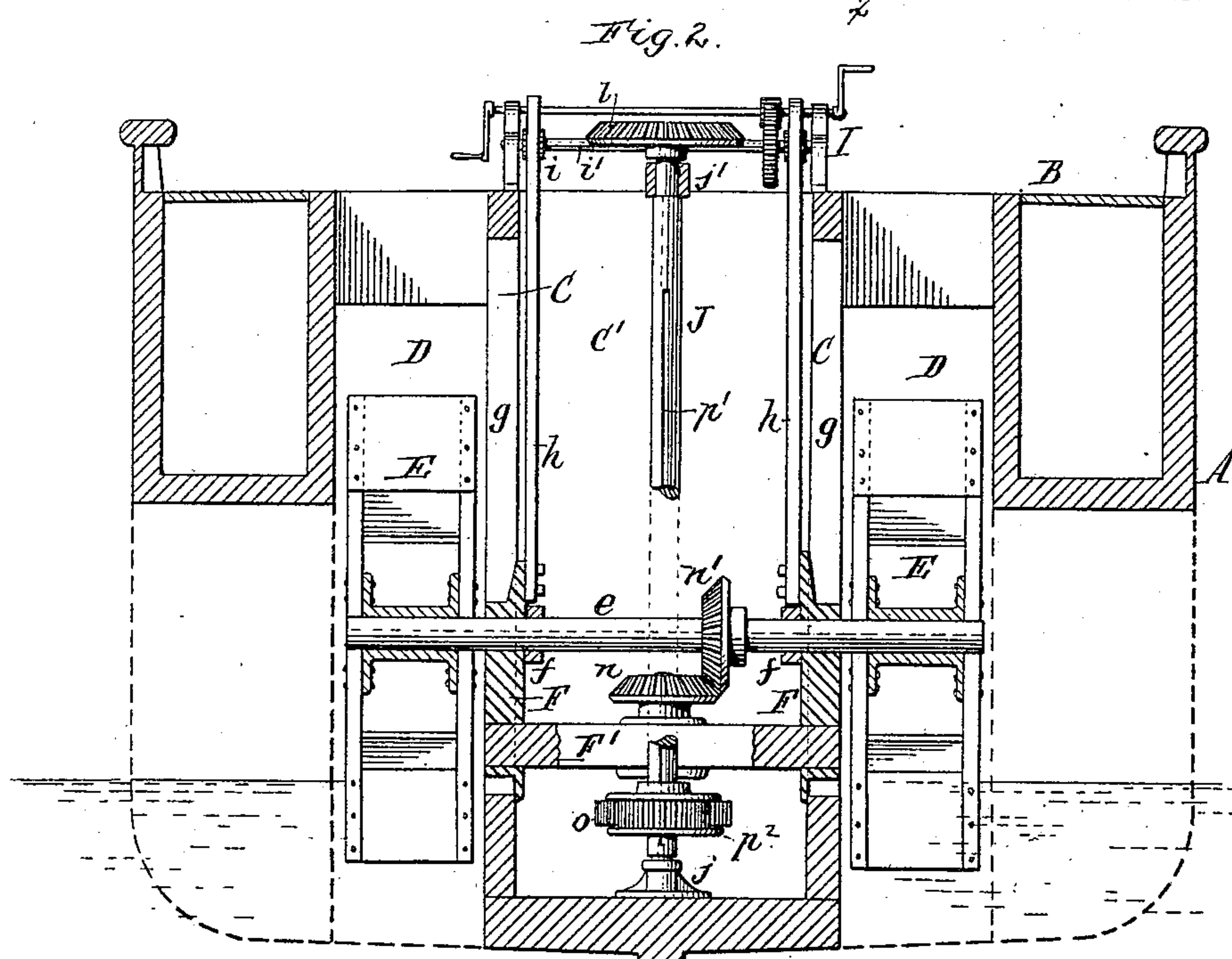
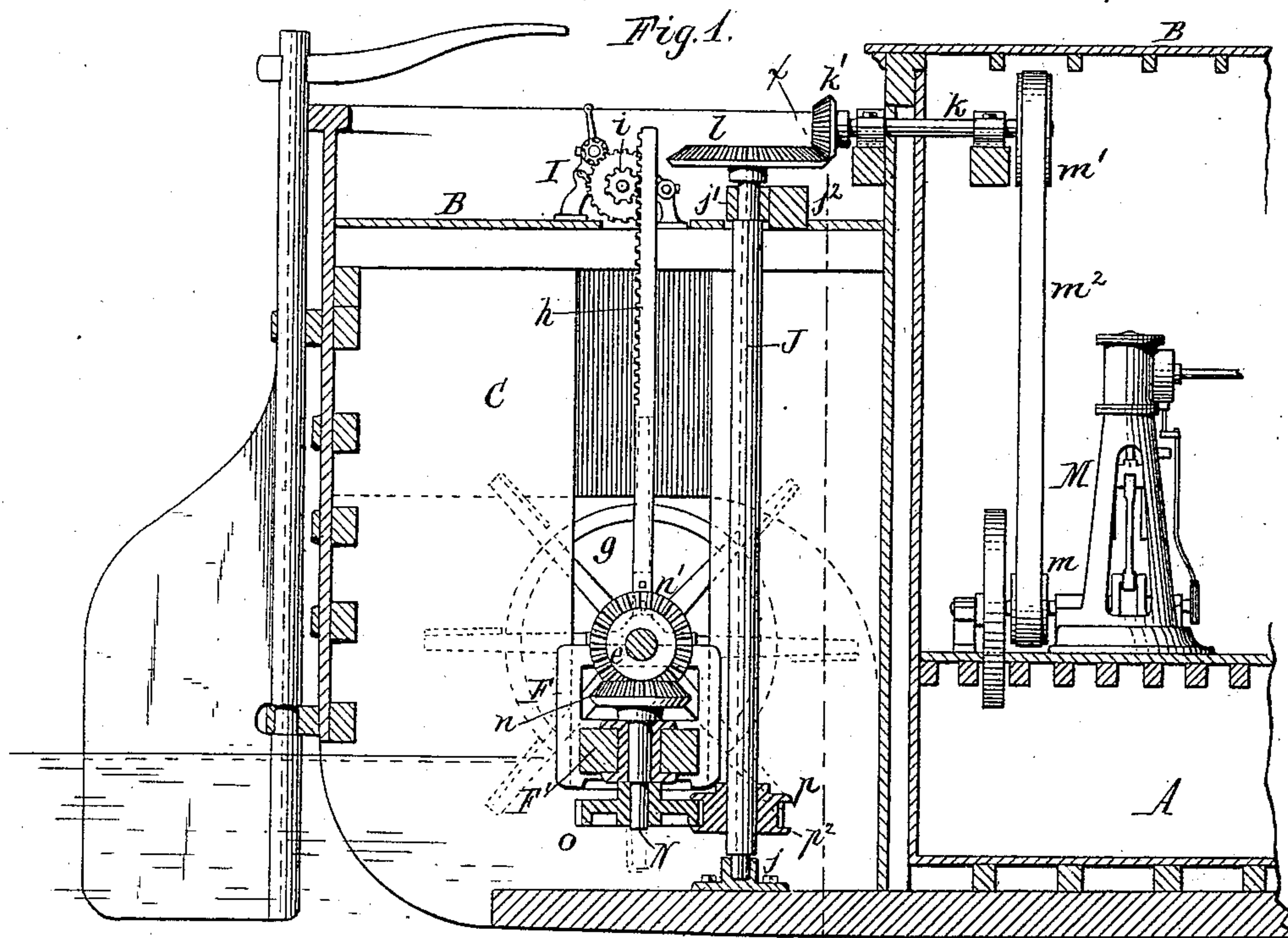


(No Model.)

C. H. TURVER.
CANAL BOAT.

No. 449,092.

Patented Mar. 24, 1891.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES H. TURVER, OF BUFFALO, ASSIGNOR TO FRANK BROWNING, OF
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CANAL-BOAT.

SPECIFICATION forming part of Letters Patent No. 449,092, dated March 24, 1891.

Application filed May 23, 1890. Serial No. 352,847. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. TURVER, a citizen of the United States, residing at the city of Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Canal-Boats, of which the following is a specification.

This invention relates to that class of propelling mechanism which is more especially adapted for canal-boats, and in which the paddle-wheels and the propelling mechanism are adjustable vertically, so that the paddle-wheels may be raised and lowered to properly immerse the same, whether the boat be lightly or heavily laden.

The object of my invention is to provide an efficient mechanism for raising and lowering the paddle-wheels and to exclude grass and weeds from the actuating-gearing.

In the accompanying drawings, Figure 1 is a longitudinal sectional elevation of the rear portion of a canal-boat provided with my improved propelling device. Fig. 2 is a transverse section thereof in line *x x*, Fig. 1, looking rearwardly.

Like letters of reference refer to like parts in both figures.

A represents the hull of the canal-boat, and B the deck.

C C represent two upright longitudinal walls or partitions arranged in the stern of the boat and extending from the keel to the deck. These walls form a well C', in which the actuating parts of the propelling mechanism are inclosed.

D D represent wells arranged on opposite sides of the well C'.

E E represent vertical paddle-wheels of any ordinary construction, arranged with their upper portions in the wells D D and mounted upon opposite ends of a horizontal shaft *e*, which turns in bearings *f*, arranged in vertically-movable frames F F. These frames are guided in upright ways or openings *g* formed in the longitudinal walls C, and are connected together by a cross-beam F'.

h h represent vertical rack-bars secured at their lower ends to the sliding frames F F, respectively, and meshing with gear-pinions *i i*, mounted upon the horizontal shaft *i'* of a windlass I, arranged upon the deck of the

canal-boat. The rack-bars project through an opening formed in the deck, as shown. The windlass I may be of any approved construction, and is provided with the usual ratchet-wheel and detent for preventing retrograde movement of the windlass. By turning the crank of the windlass in one or the other direction the vertical rack-bars are caused to raise or lower the vertical frames F and the paddle-wheels carried by the same.

J represents a vertical driving-shaft arranged forward of the paddle-wheel shaft and turning with its lower end in a step-bearing *j*, and with its upper end in a bearing *j'*, secured to a cross-timber *j''*. The driving-shaft J is driven from a horizontal shaft *k*, having a bevel-pinion *k'*, which meshes with a bevel-wheel *l*, secured to the upper end of the vertical driving-shaft, and the horizontal shaft is in turn driven from the shaft of the engine M by pulleys *m m'*, mounted, respectively, upon the engine-shaft and the horizontal shaft and connected by a belt *m''*.

N represents a short vertical shaft mounted in a bearing in the cross-beam F' and provided at its upper end with a bevel-wheel *n*, which meshes with a similar wheel *n'*, mounted upon the horizontal paddle-wheel shaft.

Motion is imparted to this short shaft from the vertical driving-shaft J by a spur-wheel *o*, secured to the lower end of the short shaft, and meshing with a vertically-sliding gear-wheel *p*, mounted upon the driving-shaft J. The gear-wheel *p* is connected to the driving-shaft by a key and longitudinal feather-way *p'*, so as to permit the same to slide vertically upon the shaft while compelling it to turn therewith. This sliding gear-wheel is provided with projecting annular flanges *p''*, which bear against opposite sides of the spur-wheel *o*, so that upon raising or lowering the sliding frames F the sliding gear-wheel will be shifted with the same.

By my improved propelling mechanism the paddle-wheels may be adjusted vertically in accordance with the draft of the boat so as to always immerse the wheels to a depth which is most effective for speed and power.

The propelling mechanism is compact and occupies comparatively little room in the stern of the boat.

The actuating-gearing is inclosed on all sides by the bottom of the boat and the upright walls C C, whereby weeds are prevented from becoming entangled with the actuating-gearing and interfering with the operation thereof.

The portion of the hull on opposite sides of the paddle-wheels is recessed or cut away, as shown by dotted lines in Fig. 1, to allow the water to fully enter between the floats of the paddle-wheels.

I claim as my invention—

The combination, with a canal-boat provided at its stern with upright walls and a closed bottom forming a well, of a vertically-movable frame sliding in ways in said upright walls, and provided with elevating mech-

anism, a horizontal paddle-shaft supported on said frame and provided with a gear-wheel, an upright driving-shaft arranged in said well, a gear-wheel sliding upon said shaft and provided with projecting flanges, and an intermediate upright shaft also arranged in said well, provided with a gear-wheel meshing with the gear-wheel of the paddle-shaft, and a gear-wheel engaging with said movable wheel between the flanges thereof, substantially as set forth.

Witness my hand this 26th day of April, 1890.

CHARLES H. TURVER.

Witnesses:

F. C. GEYER,

ALICE G. CONNELLY.