(No Model.)

J. V. ERICSON.

HOISTING MECHANISM.

No. 452,914. Patented May 26, 1891.

Fig. 1.

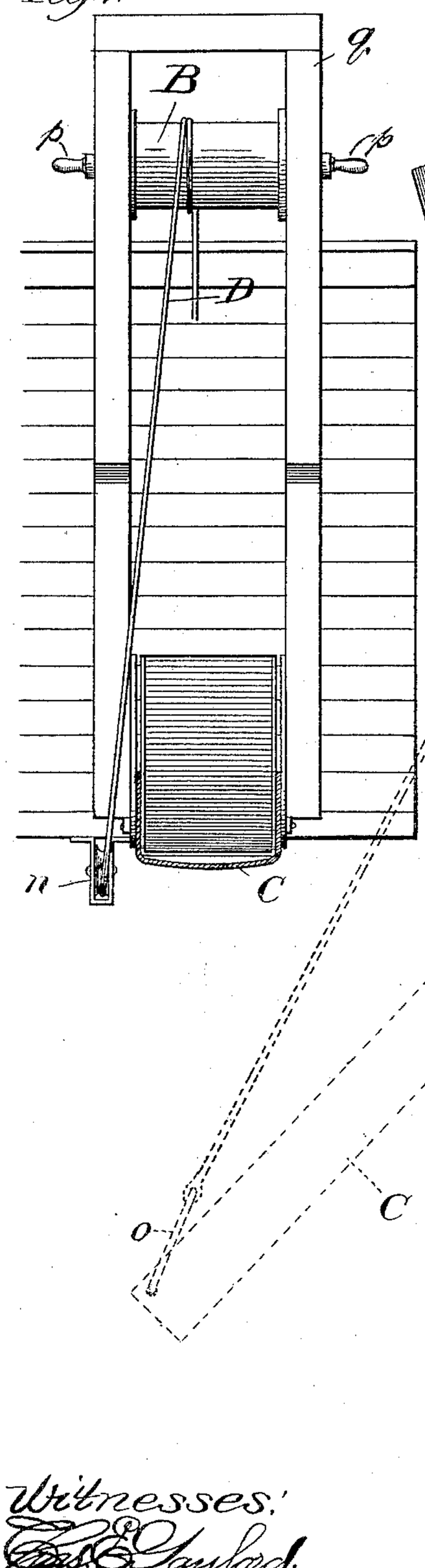
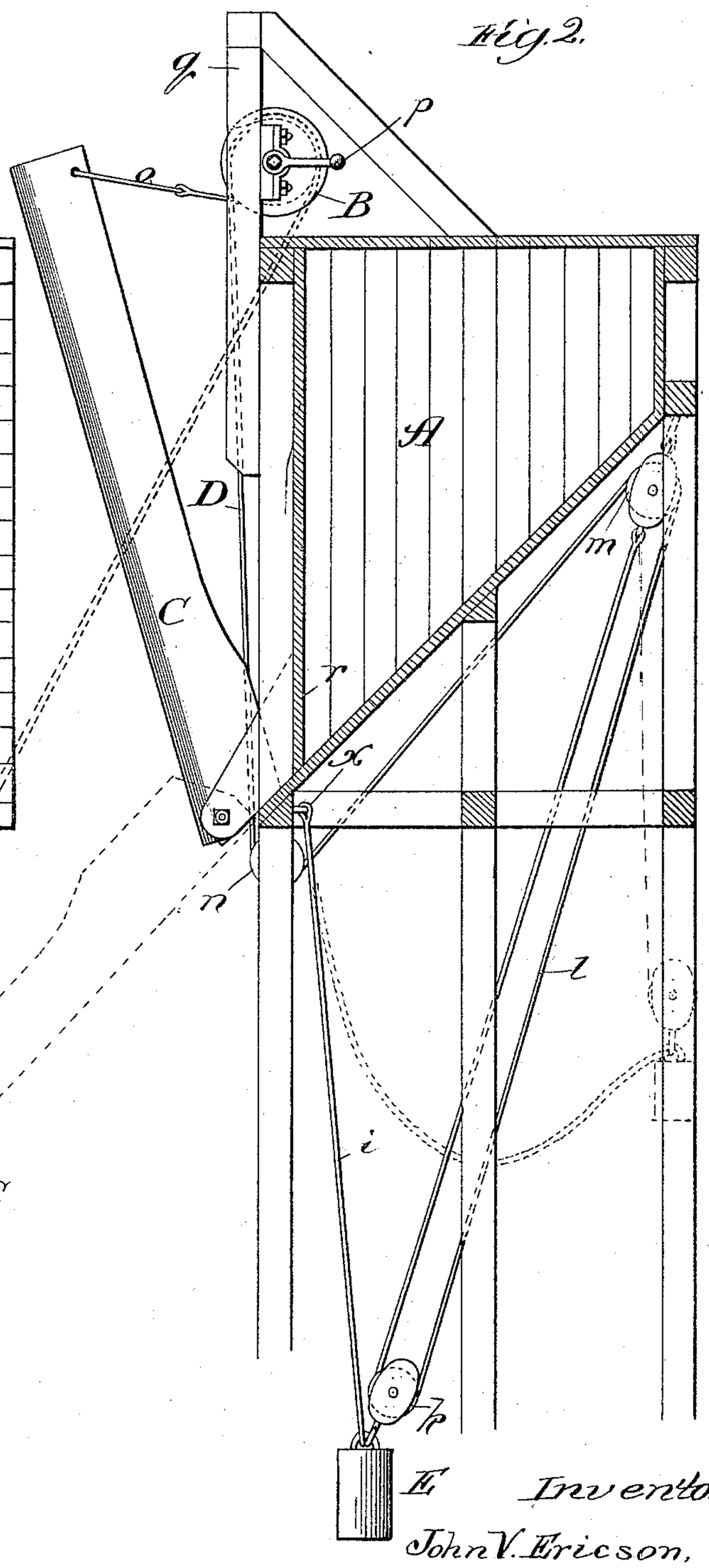


Fig. 2.



Witnesses:
Chas. E. Gaylord.
Clifford P. White.

Inventor:
John V. Ericson,
By Dyrenforth & Dyrenforth
Attys

UNITED STATES PATENT OFFICE.

JOHN V. ERICSON, OF ESCANABA, MICHIGAN, ASSIGNOR TO PETTIBONE, MULLIKEN & COMPANY, OF CHICAGO, ILLINOIS.

HOISTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 452,914, dated May 26, 1891.

Application filed March 30, 1891. Serial No. 386,979. (No model.)

To all whom it may concern:

Be it known that I, JOHN V. ERICSON, a citizen of the United States, residing at Escanaba, in the county of Delta and State of Michigan, have invented a new and useful Improvement in Hoisting Mechanism for Counterbalanced Ore-Dock Chutes, of which the following is a specification.

The object of my improvement is to provide a simple manner of suspending the weight for counterbalancing the pivotal chute, whereby the weight shall occupy a position back from the front of the dock, thus out of the way, where it is not liable to work injury or endanger the lives of the men, and shall not require an inconvenient amount of room for its vertical play in the raising and lowering of the chute.

In the accompanying drawings, Figure 1 is a broken view of the upper portion of an ore-dock in front elevation with the chute provided with my improvement represented in cross-section and as projecting horizontally outward. Fig. 2 is a view of the same in sectional side elevation.

A denotes one of the usual series of pockets supported in elevated position (with relation to the body of water) by the ordinary or any suitable substructure, as that shown, and from the discharge-opening *r* of which extends the pivotal vertically-swinging chute C. A frame *q*, extending upward from the front of the pocket, affords bearings for journaling a winding drum or spool B, operative through the medium of winches *p* at its opposite ends. A cable D or any other suitable flexible suspending medium is fastened at one end to the chute near its outer end, preferably at a bail *o*, hinged thereto, passes thence one or more times around the drum or spool B, from which it passes down the front of the pocket under a guide-pulley *n*, supported below the pocket. From the pulley *n* the cable passes over a guide-pulley *m*, supported below the pocket toward its rear side, and the end of the cable is fastened to the block of the pulley *m*, thus forming there a double length of the cable or loop *l*, in which is supported the counterbalancing-weight E on a pulley *k*.

To raise the chute C the drum B is turned in the proper direction, and with the rise of the chute the weight E descends, through a comparatively short distance, however, owing to the manner of supporting it in a double length of the cable, which should be long enough to cause the weight to reach the base of the dock with the chute in its elevated position, though to prevent the weight from resting then on the said bar it may be connected from the forward portion of the base of the pocket, as shown at *x*, by a cable *i*, which is of a length to save the weight from reaching the base by suspending it perpendicularly from the point *x* before it reaches its lowest point. The effect of the connection through the medium *i* is, furthermore, to divide the gravity of the weight as it approaches its lower point between the cables D and *i*, thereby decreasing its strain on the chute as the resistance of the latter decreases in rising toward its elevated position.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with an ore-dock A, a pivotal chute C, a rotary drum B, a pulley *n*, supported below the front portion of the pocket, a pulley *m*, supported behind the front of the pocket, a cable D, fastened to the chute near its outer end, passing thence about the drum and over the said pulleys, a counterbalancing-weight E, supported in the said cable, and a cable *i*, having one end fastened below the forward portion of the pocket and fastened at its opposite end to the weight, substantially as and for the purpose set forth.

2. In combination with an ore-dock A, a pivotal chute C, a rotary drum B, a guide-pulley *n*, supported below the forward part of the pocket, and a pulley *m*, supported in the rear thereof, a cable D, fastened to the chute near its outer end, passing thence about the drum and over the pulleys *n* and *m* and fastened at its end to the block of the pulley *m*, thereby forming a loop *l*, a counterbalancing-weight E on a pulley *k*, hung in the loop *l*, and a cable *i*, having one end fastened below the forward portion of the pocket and fastened at its opposite end to the weight, the whole being constructed and arranged to operate substantially as described.

JOHN V. ERICSON.

In presence of—
WM. R. NORTHUP,
A. SHIPMAN.