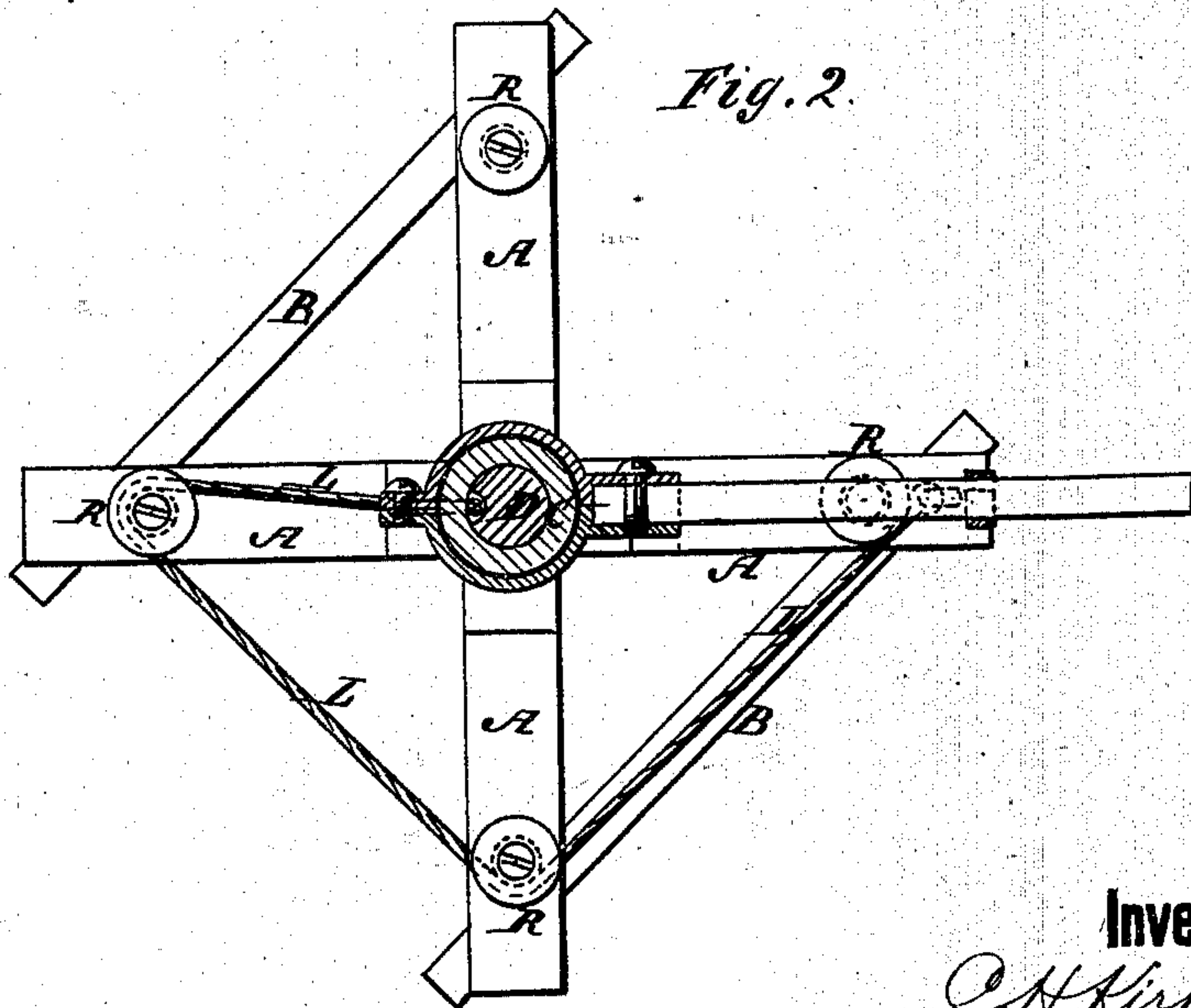
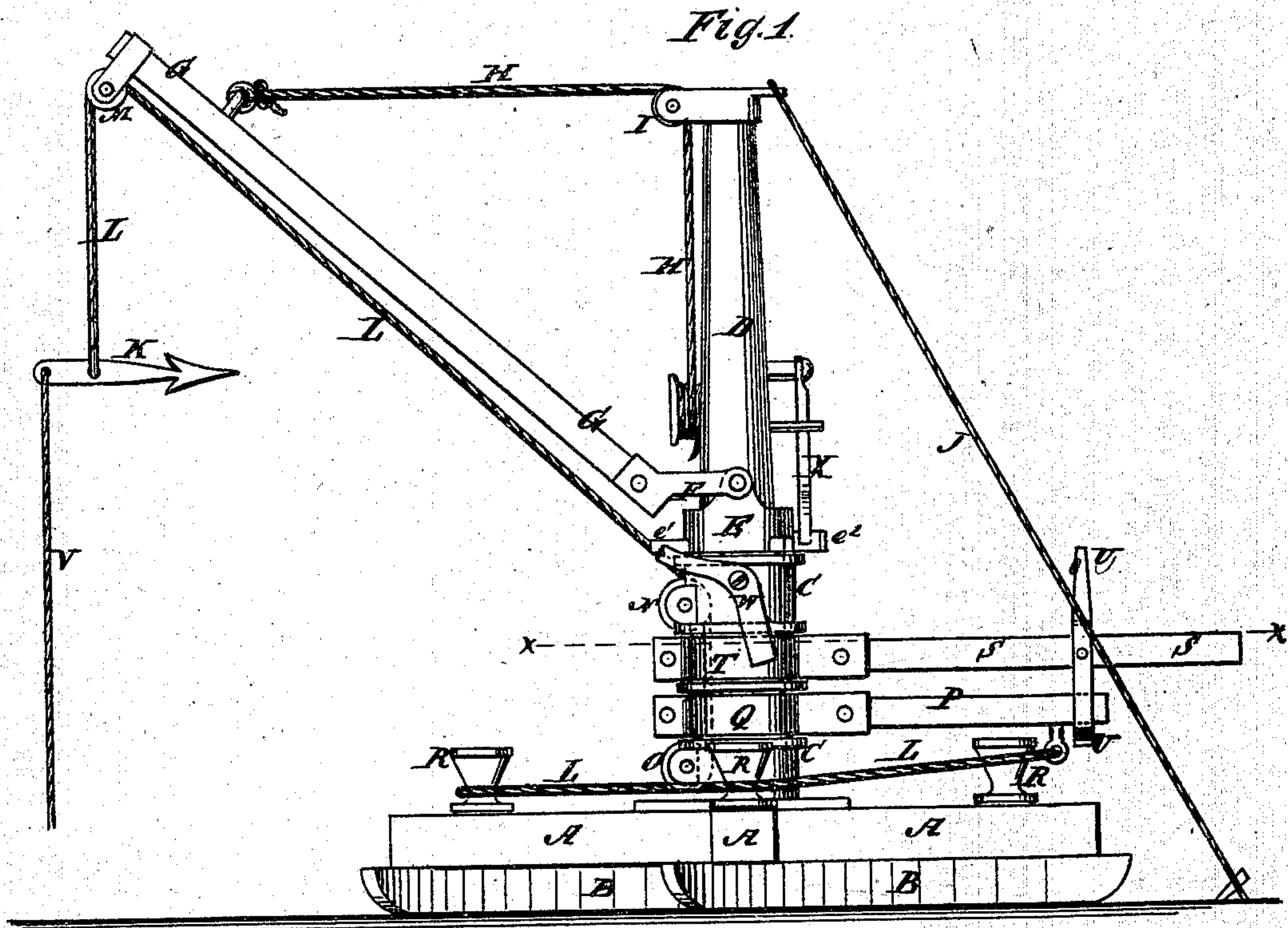


C. H. KIRKPATRICK.

Hay-Derricks.

No. 146,395.

Patented Jan. 13, 1874.



Witnesses:

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UNITED STATES PATENT OFFICE

CYRUS H. KIRKPATRICK, OF LA FAYETTE, INDIANA.

IMPROVEMENT IN HAY-DERRICKS.

Specification forming part of Letters Patent No. **146,395**, dated January 13, 1874; application filed October 11, 1873.

To all whom it may concern:

Be it known that I, CYRUS H. KIRKPATRICK, of La Fayette, in the county of Tippecanoe and State of Indiana, have invented a new and useful Improvement in Hay-Derrick, of which the following is a specification:

Figure 1 is a side view of my improved derrick; and Fig. 2 is a horizontal section of the same, taken through the line *x x*, Fig. 1.

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

A are the two sills, halved to each other at their centers at right angles, and the ends of which rest upon and are secured to the parallel bars B, the lower side of the ends of which are beveled to adapt them to serve as runners for moving the derrick from place to place. To the central parts of the sills A is bolted the flanged or lugged lower end of the cast-iron hollow cylinder C, in the cavity of which is placed the lower end of the post D. E is a collar, which rests and works upon the upper end of the cylinder C, and the movement of which is limited by a screw, which passes through a slot in said collar and screws into said cylinder. To lugs formed upon the opposite sides of said upper part of the collar E are pivoted the inner ends of the curved arms F, to and between the outer ends of which is secured the lower end of the crane G. The crane G may be of any desired length, or it may be made in parts, so that it may be contracted or expanded, as desired. The crane G is supported at any desired inclination by a rope, H, the end of which is secured to the upper side of the outer part of the crane G. The rope H passes over a pulley, I, pivoted to a cap-plate or attached to the top of the post D, and then passes down and is secured to said post D near its lower end by means of a belaying-cleat, or in any other convenient manner. By this construction, by drawing in the rope H the outer end of the crane G may be raised as the stack increases in height. The post D is strengthened against the side draft of the crane G by two guy-ropes, J, attached to its upper end, and the lower ends of which are staked to the ground or secured in some other convenient manner. K represents a hay-fork, which is attached to the end of the hoisting-rope L, which passes over a pulley, M, piv-

oted to the outer end of the crane G. The rope L passes down along the lower side of the crane G and over a pulley, N, pivoted in a slot in the upper part of the hollow cylinder C just below the collar E. The rope L passes down through the interior of the cylinder C, along a groove in the post D, out around a pulley, O, pivoted in a slot in the lower part of the said cylinder C directly beneath the pulley N. From the pulley O the rope L passes to the sweep P, and is secured to it near its outer end. The inner end of the sweep P is secured in a socket formed in and between the ends of the straps Q, which pass around a journal formed upon the cylinder C, and their other ends are bolted to each other upon the other side of the said cylinder, as shown in Fig. 1. R are guide-pulleys pivoted to the end parts of the sills A for the rope L to be drawn around to raise the loaded fork as the sweep P moves around the cylinder, so as to take up the rope and keep it in proper position with respect to the pulleys N O. Directly above the sweep P is placed a second sweep, S, the inner end of which is held and connected with the cylinder C by straps T, which pass around the said cylinder C, one end of said straps being bolted to the end of the sweep S, and their other ends being bolted to each other. The outer end of the sweep S, to which the horse is attached, projects beyond the outer end of the sweep P, to which the hoisting-rope L is attached, so that the horse may pass around without interfering with the sweep P and rope L. To the sweep S is pivoted a lever, U, the lower end of which projects downward into such a position that it may strike against the end of the sweep P, as shown in Fig. 1, and thus enable the sweep S to carry the sweep P with it in its movement. By swinging the lower end of the clutch bar or lever U outward it will release the sweep P, so that the sweep S will move on alone, allowing the sweep P and the crane G to be drawn back to their places by the descent of the unloaded fork and by the operator pulling upon the trip-cord V. The upper end of the lever or clutch bar U projects above the sweep S for convenience in operating it. As the crane G is drawn back into position over the pulleys N O it is caught and held by a lever-catch, W, which is pivoted to the cyl-

inder C upon one or the other side of the pulley N, according to the direction in which the crane G is to swing, and which catches upon a projection, e^1 , formed upon the collar E. The lower end of the lever-catch W projects downward and is made heavier, so as to hold the engaging end of said catch always in operating position, and so that the said lever-catch may be tripped by the sweep S as it moves around the cylinder C. As the crane G is released from the catch W it is swung around to bring the loaded fork over the stack by a spring, X, which is attached to the post D, and which presses against a projection, e^2 , formed upon the collar E, with which the said crane G is connected.

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

1. The combination of the lever-catch W

and spring X with the hollow cylinder C, post D, collar E $e^1 e^2$, and crane G, substantially as herein shown and described.

2. The socket-straps Q T, in combination with the two sweeps P S and the hollow cylinder C, for connecting said sweeps with said cylinder, substantially as herein shown and described.

3. The pulleys R, in combination with the sills A, hollow cylinder C, and pulleys N O, for receiving and guiding the hoisting-rope L, substantially as herein shown and described.

4. The combination of the lever U with the two sweeps P S, substantially as herein shown and described.

CYRUS H. KIRKPATRICK.

Witnesses:

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