

(No Model.)

3 Sheets—Sheet 1.

J. SUTHERLAND.

CRANE.

No. 328,081.

Patented Oct. 13, 1885.

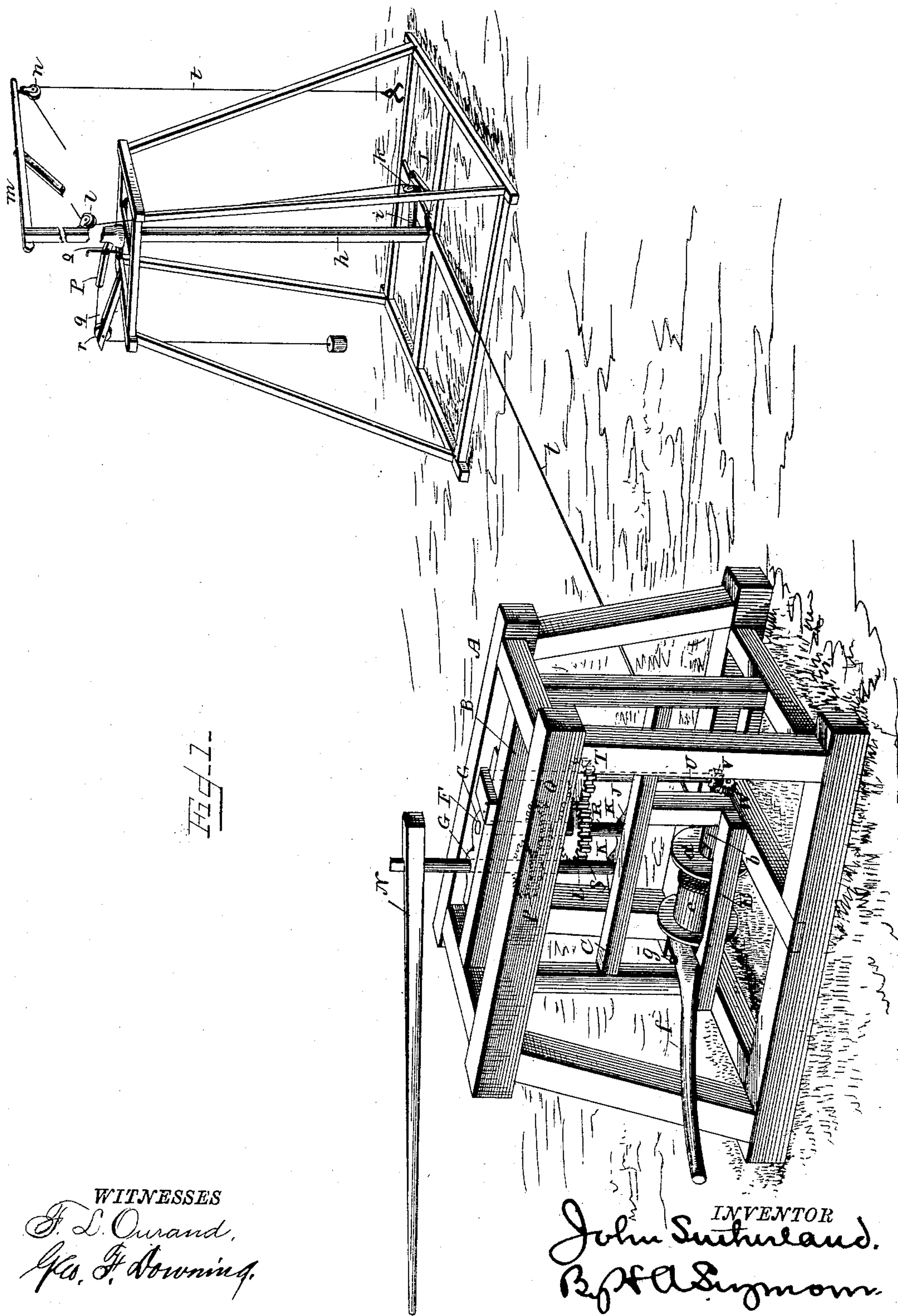


Fig. 1.

WITNESSES

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(No Model.)

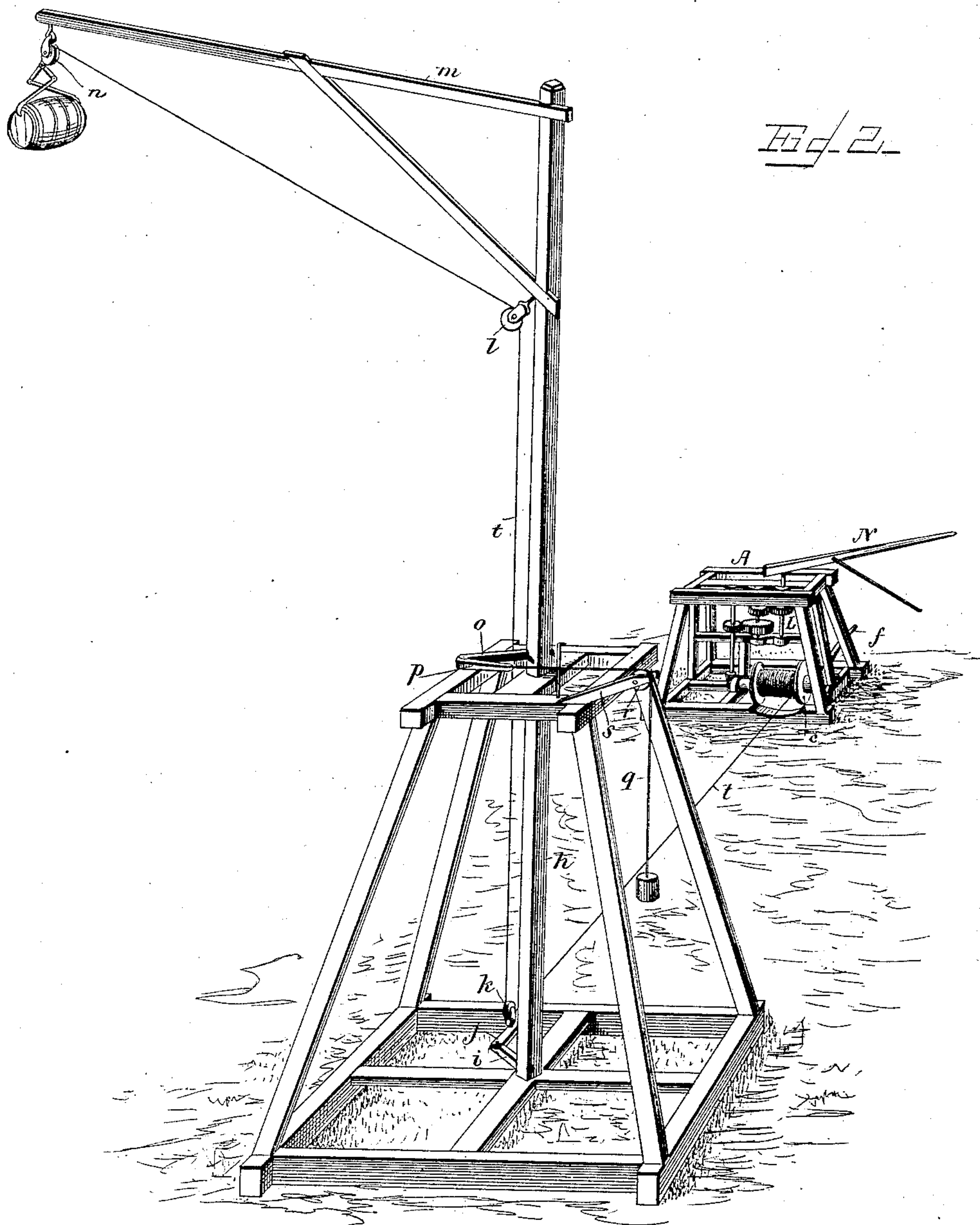
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3 Sheets—Sheet 3.

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Fig. 3.

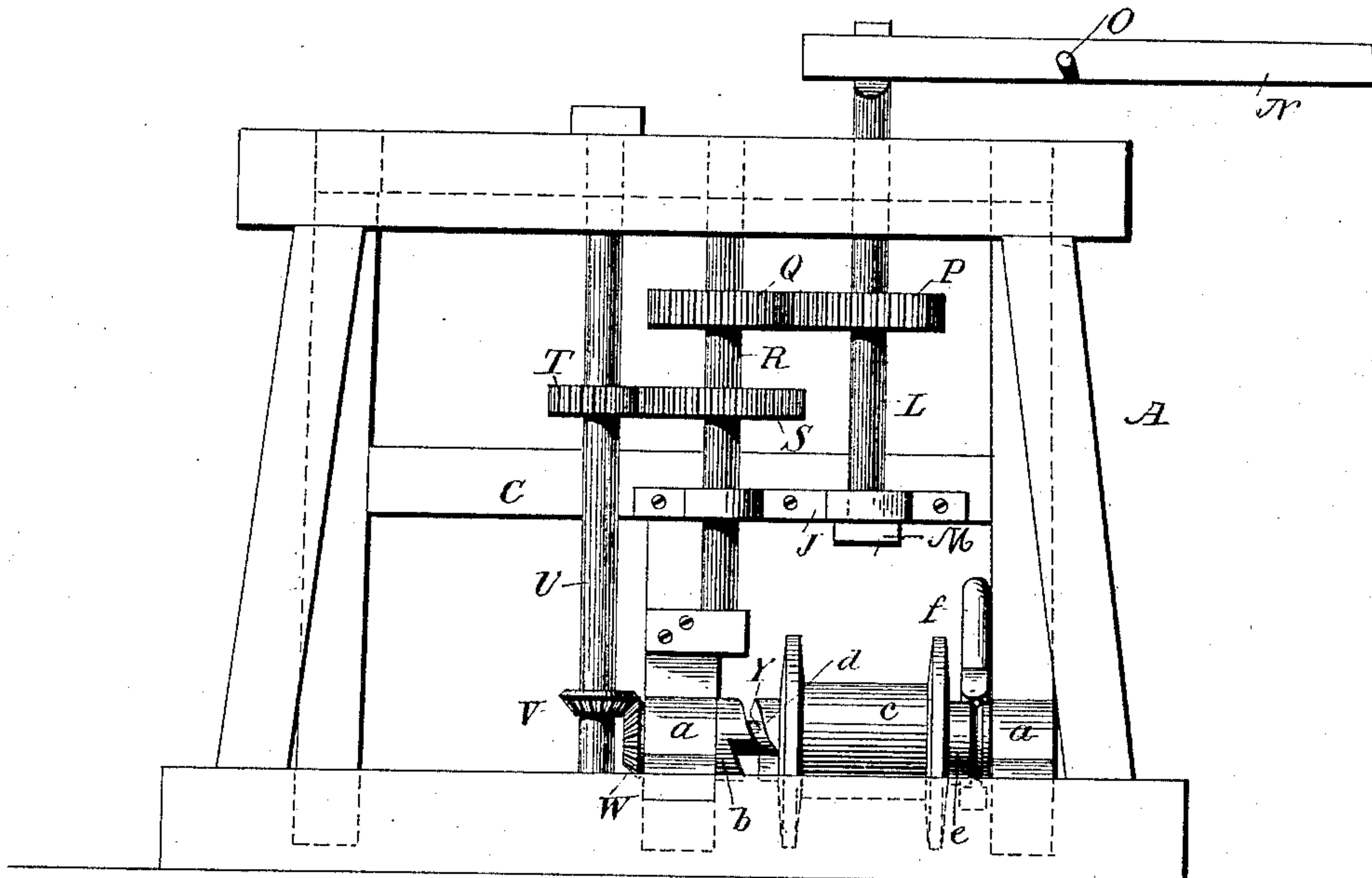
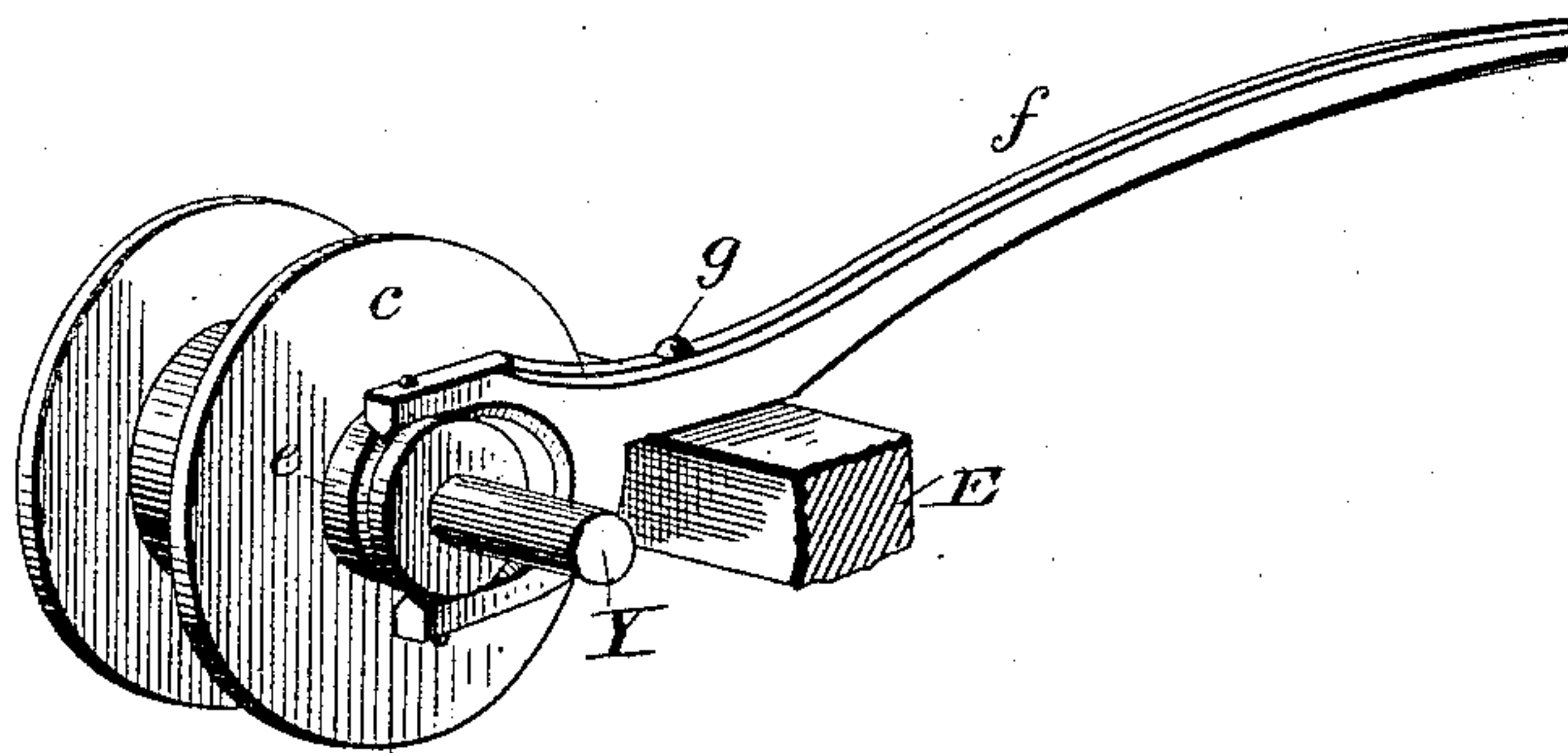


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN SUTHERLAND, OF ATTICA, INDIANA, ASSIGNOR OF ONE-HALF TO
JACOB HESS, OF SAME PLACE.

CRANE.

SPECIFICATION forming part of Letters Patent No. 328,081, dated October 13, 1885.

Application filed July 7, 1885. Serial No. 170,879. (No model.)

To all whom it may concern:

Be it known that I, JOHN SUTHERLAND, of Attica, in the county of Fountain and State of Indiana, have invented certain new and useful
5 Improvements in Cranes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-
10 pertains to make and use the same.

My invention relates to an improvement in cranes, the object of the same being to provide means for automatically lowering the crane, and improved mechanism for regulat-
15 ing the descent thereof; a further object is to provide means whereby the crane will automatically swing when a load is elevated and released. An additional object is to provide a machine of the above character which shall be simple and economical in construction, and
20 durable and efficient in use; and with these ends in view my invention consists in the certain features of construction and combinations of parts, as will be hereinafter fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of my invention, showing the elevated mechanism in lowered adjustment. Fig. 2 is a view thereof in elevated adjustment. Fig. 3 is a rear view of the table and elevating
30 mechanism, and Fig. 4 is a detached view of the drum and speed-regulating brake.

A represents the table firmly secured in position, the same consisting of the suitable standards and cross-bars, as shown. The ta-
35 ble is provided centrally with the horizontal bars B and C, and also near its center, at the bottom, with the sectional cross-bars D and E. To the upper bar, B, is rigidly secured the bracket F, the same being provided vertically
40 with the series of perforations G. To the bar C is firmly secured the bracket J, the same being provided with the vertical perforations K. The main driving-shaft L is journaled in the brackets F and J, and is held in position
45 by means of the lateral seat M, secured to the bar C. To the upper portion of the shaft is secured in any convenient manner the tongue N, near the end of which is secured a whiffle-tree, to which may be attached the animal in-
50 tended to drive the power. The shaft L is further provided, between the bars B and C,

with the cog-wheel P, the same being adapted to mesh with the cog-wheel Q, secured on the spindle R, journaled in the brackets F and J, the said spindle R being further provided 55
with the cog-wheel S, adapted to mesh with the cog-wheel T on the vertical shaft U, which is journaled in the bars B and D. The shaft U is provided near the lower end with the beveled cog-wheel V, meshing with the spur- 60
wheel W, secured on the inner end of the horizontal shaft Y, journaled in the bearings a. To the shaft Y, between the bearings a, is rigidly secured the clutch b. The shaft Y is also provided with the drum c, loosely mounted 65
thereon, the inner rim of the drum being provided with the lugs or cams d, adapted to engage the cam b and lock the drum on the shaft. The outer end of the drum is provided with the spool e, to which is secured the bifurcated 70
ends of the lever f, which is pivotally secured to the table in lateral adjustment by means of the rod g, secured to one of the uprights and the bar E.

From the above it will be observed that 75
when the lever is canted laterally the drum will be caused to engage the clutch b, and consequently rotate with the shaft, and vice versa.

The lever is pivoted in such manner that it 80
will also be capable of slight vertical movement, whereby the spool will be caused to engage the shaft frictionally, and thereby regulate the descent of the bucket, tongs, or other elevating device. 85

At a suitable distance from the table is lo- 85
cated the post h, the same being loosely mounted in the frame-work, as shown. The post is provided near its bottom with the horizontal arm i, to the end of which is pivotally secured 90
the swinging arm j, provided at or near its end with the pulley k. Near the upper end of the post is secured the pulley l, and to the extreme upper end thereof is secured the boom m, suitably braced, as shown, and to the 95
end of which is secured the pulley n. To the post, near its center, is secured the horizontal arm o, to the end of which is pivoted the swinging arm p, to which is secured the weighted rope q, adapted to run on the guide- 100
pulley r, secured to the end of the beam s. An elevating-rope, t, is secured to the drum

c, and passed through the pulleys k, l, and n, and to the end of which is attached the elevating device or mechanism.

Having fully described the construction of my machine, the operation thereof is as follows: Supposing the machine to occupy the position shown in Fig. 1, with the lugs on the spool in engagement with the cam on the shaft Y, which shaft is set in motion by means of the cog-wheels above therewith, as above described, and the elevating-rope is thus wound around the spool. The buck finally reaches the boom, the motion is continued, and the post is caused to rotate, such rotation being admitted by means of the arm i and the pivotal arm j, connected therewith. When the boom is thus swung around to a desired point, the article secured to the end of the rope is released. The lever f is canted inwardly, thus disengaging the spool from the shaft and the rope descends, its descent being assured by means of the weighted rope q, which also causes the boom to swing around to its former position, the rapidity of the descent being regulated by means of the lever f, which, when elevated, causes the spool to frictionally engage the shaft.

I would have it understood that I do not limit myself to the exact construction shown and described, but consider myself at liberty to make such changes and alterations as properly fall within the spirit and scope of my invention.

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

1. The combination, with a movable crane provided near its lower end with an outwardly-projecting arm and a hoisting-rope passing

through a pulley secured to said arm, of a second arm secured to the crane and a weighted rope passing over a pulley and connected to said latter arm, substantially as set forth.

2. The combination, with a swinging crane and hoisting mechanism, of a jointed lever secured to the crane near its base and adapted to form a guide for the hoisting-rope, whereby the hoisting-strain on said rope causes the crane to automatically swing when the load is elevated, and a weighted lever secured to the crane, whereby it is caused to automatically return when the load is released, substantially as set forth.

3. The combination, with a suitable support, a crane pivoted or journaled thereto, and a winding-drum for hoisting the load, of a jointed arm secured to the crane near its base and adapted to form a guide for the hoisting-rope, whereby the hoisting-strain on said rope causes the crane to automatically swing when the load is elevated, and means for causing the crane to automatically return when the load is released, substantially as set forth.

4. The combination, with a swinging crane having a laterally-projecting arm and the elevating-rope passing through a pulley secured to the outer end of said arm, of the hoisting-drum, and the devices, substantially as described, for regulating the speed of said drum, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN SUTHERLAND.

Witnesses:

I. E. SCHOONOVER,
WILL B. REED.