No. 631,199. Patented Aug. 15, 1899.

E. J. CANTWELL.

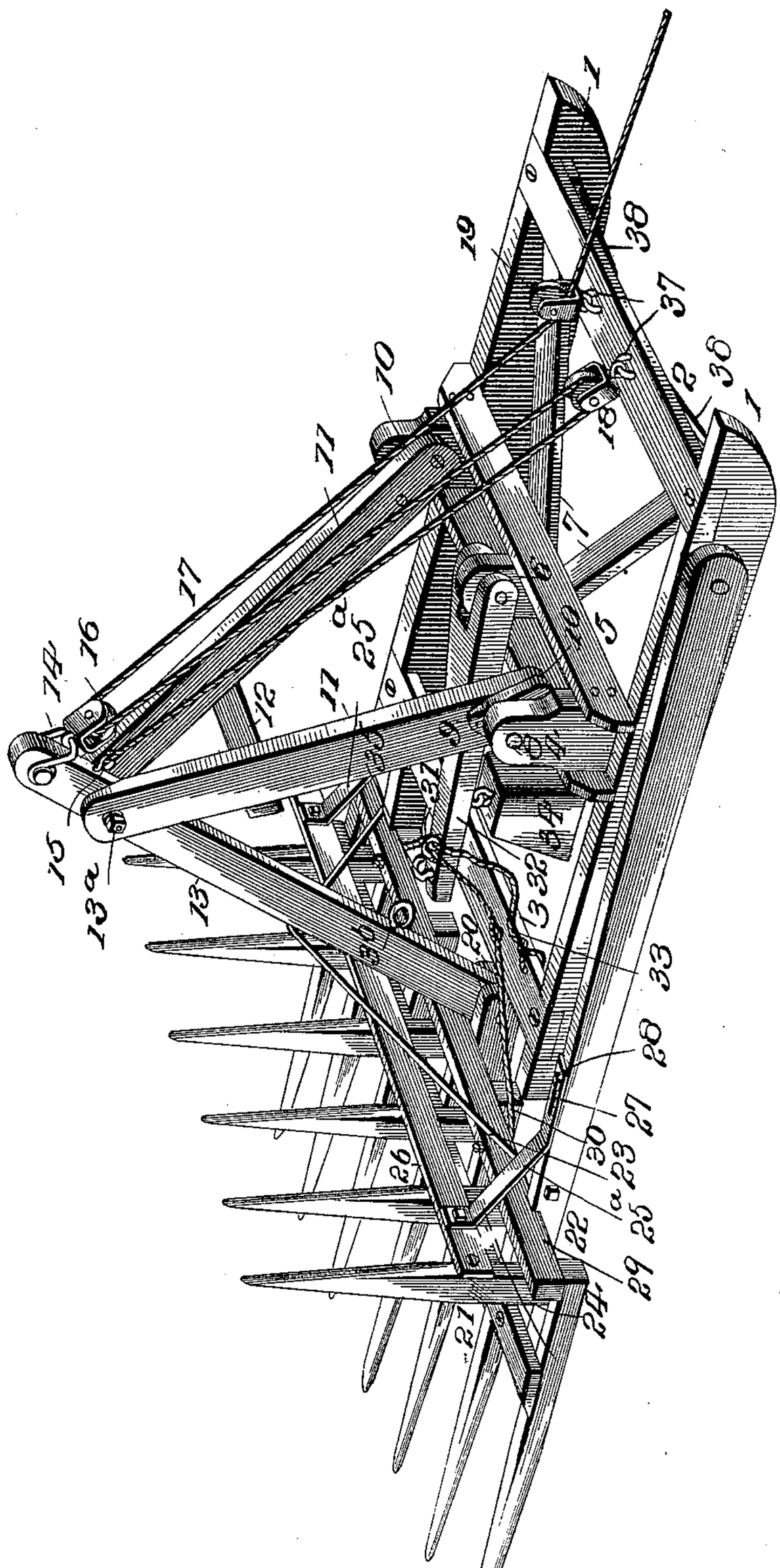
HAY OR STRAW STACKER.

(Application filed Dec. 3, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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(No Model.) 3 Sheets—Sheet 2.

Fig. 2.

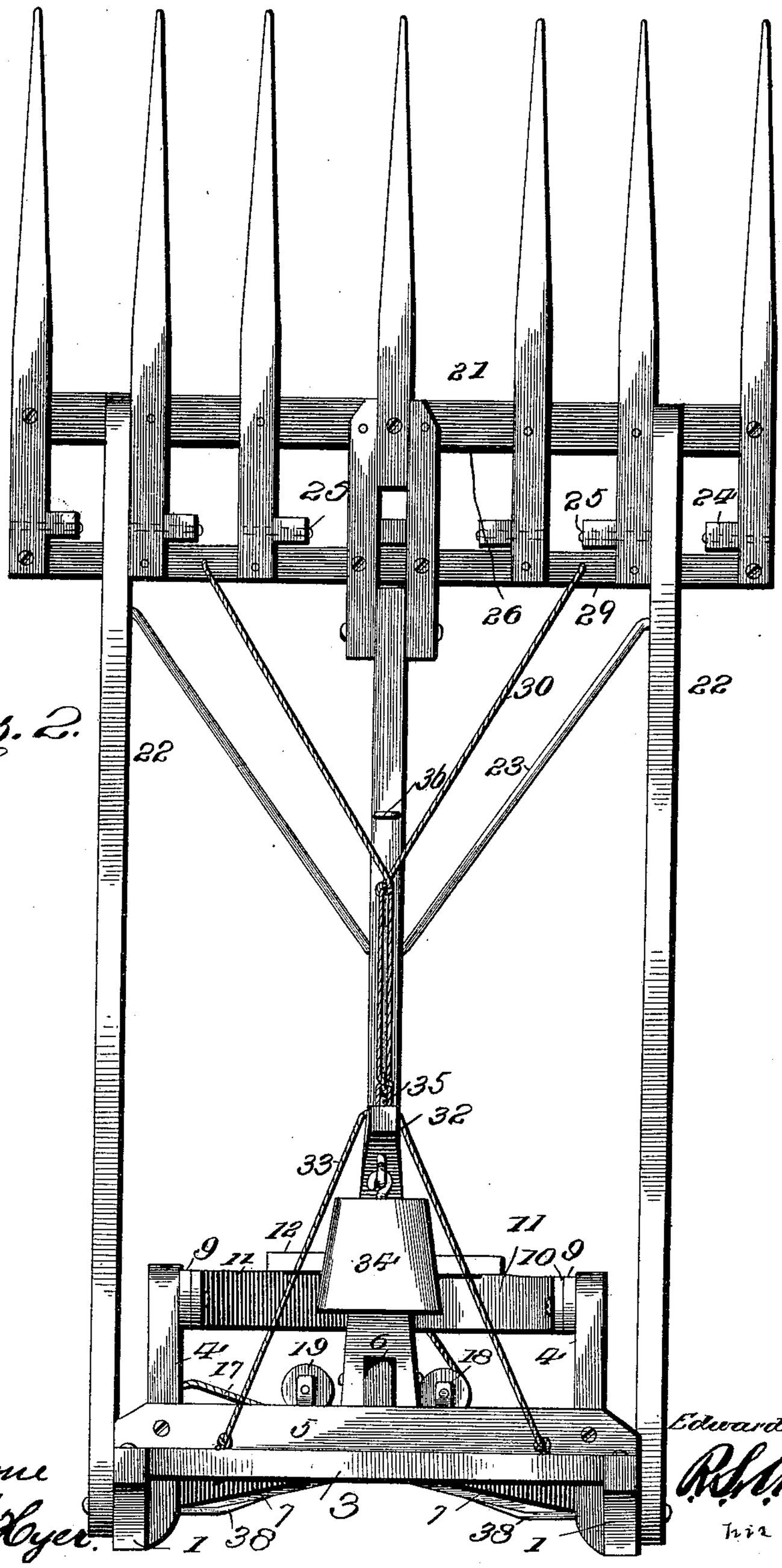

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Fig. 4.

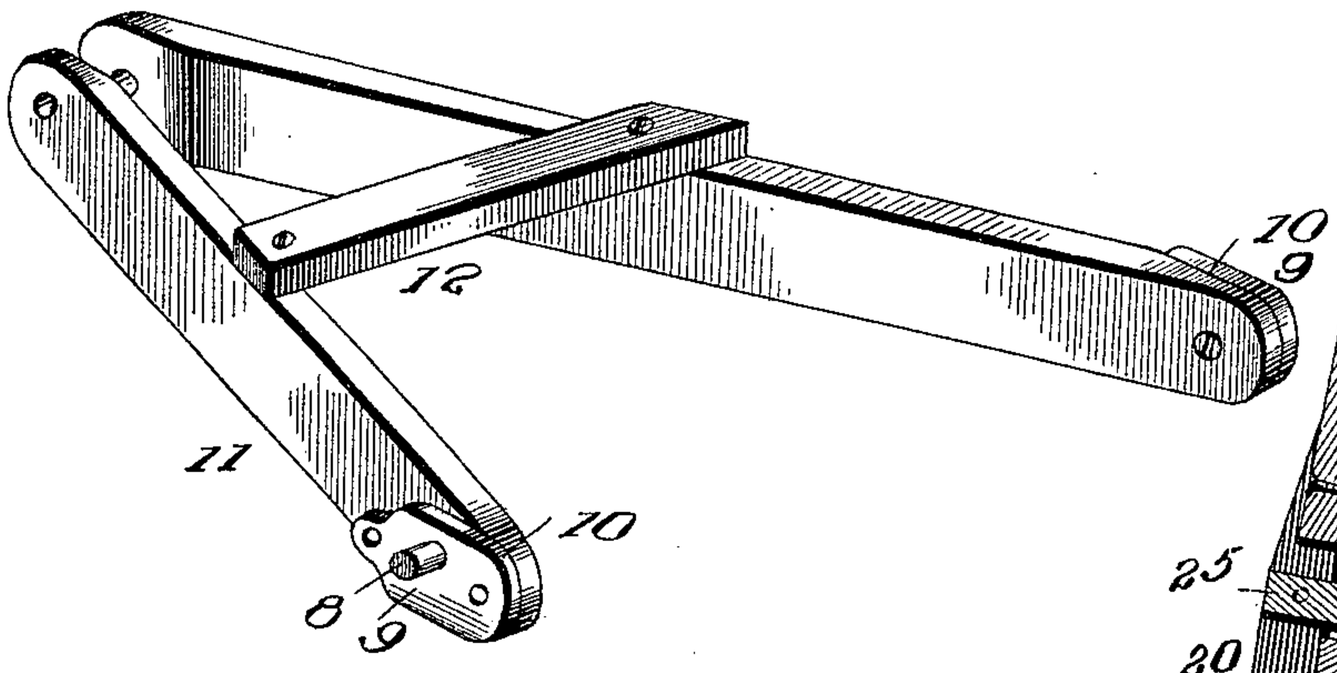

Fig. 3.

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UNITED STATES PATENT OFFICE.

EDWARD J. CANTWELL, OF NEW BOSTON, MISSOURI.

HAY OR STRAW STACKER.

SPECIFICATION forming part of Letters Patent No. 631,199, dated August 15, 1899.

Application filed December 3, 1898. Serial No. 698,203. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. CANTWELL, a citizen of the United States, residing at New Boston, in the county of Linn and State of Missouri, have invented certain new and useful Improvements in Hay or Straw Stackers; 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 appertains to make and use the same.

This invention relates to hay and straw stackers; and the intent and purpose of the present device is to facilitate the operation of stacking hay by positively-operating mechanism of a simple, strong, and durable nature and possessing increased leverage power and which can be reduced to a comparatively small compass for storage.

The invention consists of the construction and arrangement of parts hereinafter more fully described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of the improved stacker. Fig. 2 is an end elevation of the device. Fig. 3 is a longitudinal vertical section of the device, showing the fork or carrier raised. Fig. 4 is a detail perspective view of a part of the device.

Referring to the drawings, wherein similar numerals are utilized to indicate corresponding parts in the several views, the numeral 1 designates opposite longitudinal base-rests having front rounded ends to adapt the same for use as runners in transporting the entire stacker from one point to another. The said base-rests are tied by transverse strips 2 and 3 to provide a rigid base structure for the support and attachment of parts hereinafter referred to.

At or about the middle portions of the inner sides of the base-rests 1 short fulcrum-posts 4 rise vertically, and connecting the same are transverse cross-braces 5, attached to opposite sides of said posts. Also rising from the center of said braces 5 is another fulcrum-post 6, and to the lower end of the latter diagonal braces 7 are secured and extending forwardly are fastened to the inner sides of the front ends of the base-rests 1, immediately under the front strip 2.

In the upper ends of the posts 4 stub-pintles 8 of bearing-plates 9 are movably mounted, and said plates are secured to the lower beveled ends 10 of derrick-arms 11, converged toward their opposite ends and connected by a cross-brace 12 to sustain their position toward each other. By this means the derrick-arms are uniformly movable to the front and slightly to the rear of the posts 4, and between the converged ends of the same an elevating-lever 13 is pivotally mounted in rear of its front end by means of a bolt 13^a. To the projecting front end of said lever a link 14 is movably attached, and near the same on the under edge of this part of the lever an eye 15 is located. A pulley 16 is secured to the link 14, and one end of an operating-rope, cable, or analogous device 17 is connected to the eye 15. From said eye the rope, cable, or analogous device passes down through a pulley 18 on the front strip 2, then up through the pulley 16 and down again through another pulley 19 on said strip and out and away from the device any suitable distance for operation by horse or other power. The rear end of the lever 13 is pivotally connected to a bifurcated head 20, centrally positioned on a fork or carrier 21, and to opposite portions of the latter the rear ends of carrier-arms 22 are firmly fastened and have their front ends pivotally secured to the outer sides of the front portions of the base-rests 1. To uniformly distribute the lifting-pull power of the lever 13 on the said fork or carrier and carrier-arms, the two ends of a V-shaped brace 23 are movably attached to the inner rear portions of said carrier-arms and the apex thereof to the said lever.

The fork or carrier 21 is substantially similar to that ordinarily employed, with the exception that one set of tines 24 have a limited pivotal adjustment by attachment of the enlarged ends thereof to the similar ends of the other set by pivot-pins 25, as clearly shown by Fig. 2. To maintain the desired degree of adjustment of said set of tines 24, adjusting-braces 25^a have their rear ends immovably secured to a cross-rail 26 of said tines and the opposite ends formed with slots 27 and movably held on adjacent portions of the carrier-arms 22 by set-bolts and nuts 28. The purpose of this adjustment of the tines 24 is to increase or decrease the sensitiveness of delivery therefrom of the load of hay or straw elevated thereby and in accordance with the

height of the stack and the conditions which particular work may require. By moving the set of tines 24 forwardly to the extreme limit they will assume an obtuse angle to the other set of tines and a slight downwardly-inclined base will be provided when the fork or carrier is raised to its full height. A reverse adjustment to the full limit will change the angle of said set of tines 24, and between the two extreme adjustments intermediate varying adjustments can be made.

To opposite portions of a cross-brace rail 29 at the front of the fork or carrier the ends of pull ropes or cables 30 are attached and converge toward and are secured to an eye 31 on the rear part of a weight-arm 32. The front end of said weight-arm is bifurcated to embrace the upper end of the central fulcrum-post 6, to which it is pivoted. To the eye 31 limiting ropes or cables 33 are also attached and extend to opposite portions of the rear cross-strip 3, where they are made fast, and to the under part of the said arm 32 at a suitable point a weight 34 is movably connected. The weight 34 is heavy enough to overcome the weight of the fork or carrier and the connected parts when elevated and cause them to be drawn back far enough to come within the force of gravitation and drop down to a horizontal position the fork or carrier to receive a load.

In operation horse or other power is connected to the rope or cable 17 and a drawing tension exerted thereon, which, acting through the several pulleys 19, 16, and 18, pulls the front end of the lever 13 and gradually raises the rear end of the latter. This movement of the lever raises the fork or carrier 21 and the carrier-arms 22, and after a certain elevation of said parts is reached the pull ropes or cables 30 are drawn taut and the weight-arm 32 and weight 34 are also gradually elevated by the further movement of the said fork or carrier and carrier-arms and until the limiting ropes or cables 33 stop such movement. At this time the fork or carrier will be elevated to its full extent and the load will be delivered therefrom. By slackening the rope or cable 17 the weight 32 will be free to exert its influence and the carrier-arms and fork or carrier will be pulled back and drop down to receive a new load.

For convenience in transportation and to prevent the weight 34 from dragging a hook 35 is secured to the rear end of the arm 32 and adapted to engage an eye 36 at a proper point on the lever 13. By coupling the hook 35 with the eye 36 the arm 32 is raised and also the weight thereon.

In storing the device the carrier-arms 22 are down in horizontal position, and the bolt and nuts 28 may be removed entirely to release the front ends of the braces 25^a and permit the tines 24 to be lowered toward the other set of tines as far as possible.

In storing the device a still greater compactness can be obtained by removing the bolt 13^a from the derrick-arms 11 and the lever 13, thereby permitting said arms and lever to be depressed to a greater extent.

The pulleys 18 and 19 are attached to upper looped or stapled ends 37 of the truss-rods 38, which pass down through the transverse strip 2 and then down and outwardly to the opposite base-rests 1, where they are fastened. By this means the strain is equally distributed on opposite parts of the base-support and disadvantage of separation of parts avoided.

All the parts are of a durable nature, and changes in the proportions, dimensions, and minor details can be made without departing from the scope of the invention.

Having thus described the invention, what is claimed as new is—

1. In a device of the character set forth, the combination of base-rests, derrick-arms pivotally supported by said base-rests and converged toward their free ends, a lever pivotally held between said converged free ends of the derrick-arms, a fork or carrier to which the rear end of the lever is pivoted, carrier-arms attached to the fork or carrier and pivoted to the base-rests, a pivoted weight-arm connected to the fork or carrier and supporting a weight, and an operating rope or cable attached to the lever.

2. In a device of the character set forth, the combination of base-rests, derrick-arms pivotally supported by said base-rests and converged toward their free ends, a weight-arm having one end pivotally connected and supporting a weight, limiting ropes or cables connected to a part of the base-rests and also attached to the rear end of the weight-arm, a fork or carrier, carrier-arms pivoted at their front ends to the base-rests and secured at their rear ends to the fork or carrier, a lever pivotally mounted between the free ends of the derrick-arms and also movably attached to the fork or carrier, pull ropes or cables attached to the rear ends of the weight-arm and the fork or carrier, and an operating rope or cable attached to the front end of the lever.

3. In a device of the character set forth, the combination with base-rests, of carrier-arms pivoted thereto, a fork or carrier supported by said arms, a weight-arm pivotally supported at its front end between said rests and having a weight on the rear, a flexible connecting device between the weight-arm and fork or carrier, and an operating device for said lever.

4. In a device of the character set forth, the combination with a base-support, carrier-arms pivoted thereto, a fork or carrier attached to said arms, a pivoted weight-arm flexibly connected to the said fork or carrier and having a weight thereon, and means for fully elevating said carrier-arms and fork or carrier against the resistance of the weight on the weight-arm.

5. In a device of the character set forth, the combination of base-rests, transverse strips connected to said rests, outer fulcrum-posts

rising from the inner portions of said rests, a central fulcrum-post between said outer posts, bearing-plates having outwardly-extending pivot-stubs mounted in the upper ends of the outer fulcrum-posts, derrick-arms having the said bearing-plates secured to the lower ends thereof and converged toward their opposite ends, carrier-arms pivoted at their front ends to the outer front portions of the base-rests, a fork or carrier fastened to the rear ends of said carrier-arms and having a portion of the tines adjustable, adjusting-braces between the adjustable tines and carrier-arms, a lever pivoted between the converged ends of the derrick-arms and also to the fork or carrier, a brace connected to the lever and carrier-arms, a weight-arm having its front end pivoted to the central fulcrum-post and carrying a weight on the rear portion, limiting ropes or cables attached to the rear transverse strip of the base-rests and the rear end of the weight-arm, pull ropes or cables between the rear end of the lever and the fork or carrier, and an operating-rope attached to the front end of the lever.

6. In a device of the character set forth, the combination with a base-rest, fork or carrier and swinging carrier-arms, of a lever pivotally supported by said base-rest and movably attached to the fork or carrier and having an eye on the under side, a weight-arm pivoted to a part of the base-rest and having a weight thereon and a rear hook to engage the eye on the lever, and means for operating the device.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD J. CANTWELL.

Witnesses:

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F. G. FORREST.