

No. 808,266.

PATENTED DEC. 26, 1905.

J. E. WILL.
HAY STACKER.

APPLICATION FILED SEPT. 25, 1905.

3 SHEETS—SHEET 1.

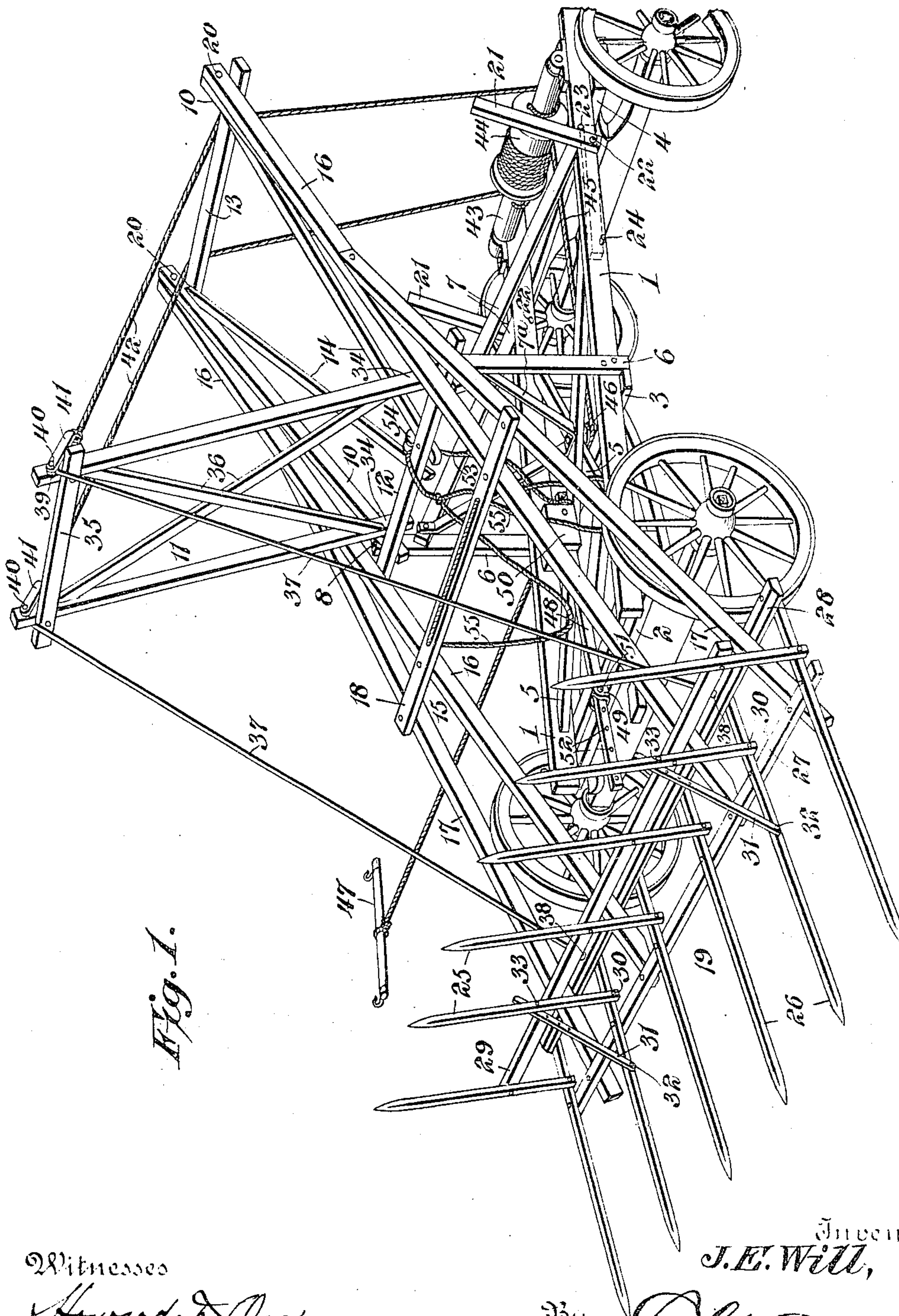


Fig. 1.

Witnesses

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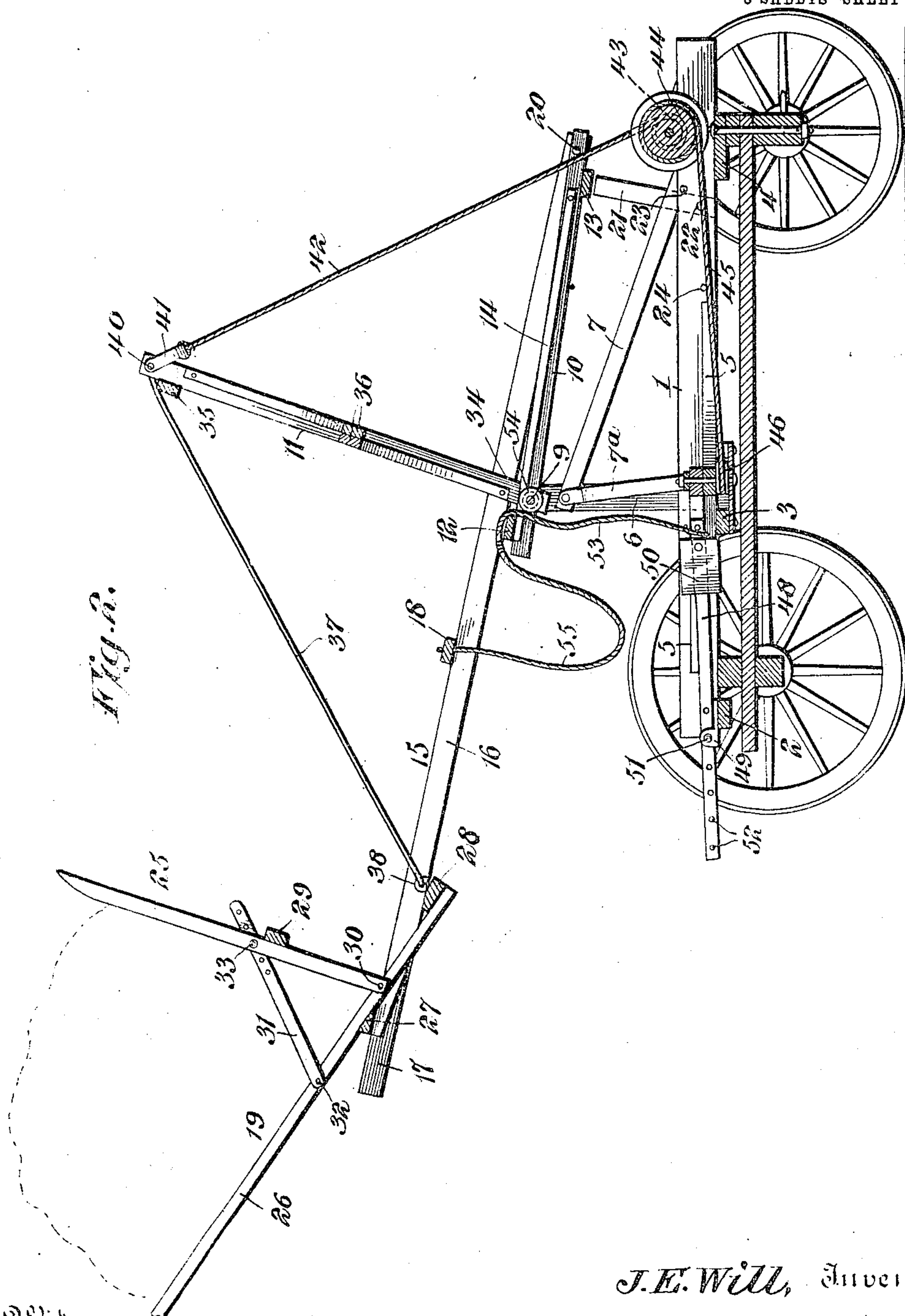
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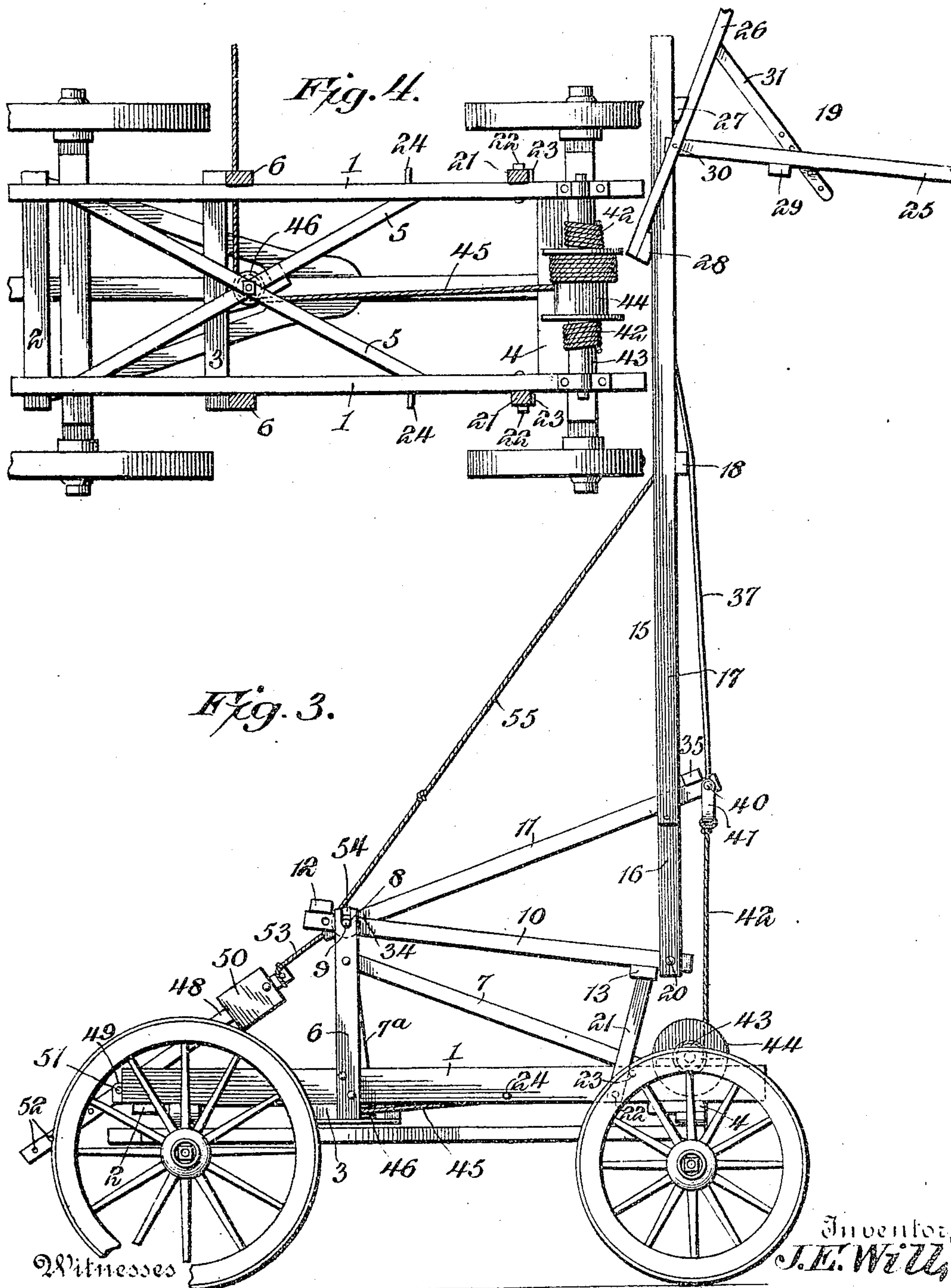
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JULIUS EDWARD WILL, OF BETHEL, MISSOURI.

HAY-STACKER.

No. 808,266.

Specification of Letters Patent.

Patented Dec. 26, 1905.

Application filed September 25, 1905. Serial No. 280,027.

To all whom it may concern:

Be it known that I, JULIUS EDWARD WILL, a citizen of the United States, residing at Bethel, in the county of Shelby and State of Missouri, have invented a new and useful Hay-Stacker, of which the following is a specification.

The invention relates to improvements in hay-stackers.

The object of the present invention is to improve the construction of hay-stackers and to provide a simple and comparatively inexpensive one adapted after a hay-stacker has obtained a considerable height to dump the hay the desired distance upon the same.

A further object of the invention is to enable a heavy load of hay to be conveniently lifted and deposited upon a stack and to provide adjustable means for controlling the movement of the fork for discharging the load on the desired portion of a stack.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a perspective view of a hay-stacker constructed in accordance with this invention, the fork being in position to receive a load. Fig. 2 is a longitudinal sectional view of the same, the fork-carrying frame being at the limit of its upward movement on the intermediate fulcrum. Fig. 3 is a side elevation, the fork-carrying frame being elevated and at the limit of its movement on its end pivots. Fig. 4 is a horizontal sectional view illustrating the arrangement of the intermediate and side cables.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 1 designate side bars or beams of a main frame which may, as illustrated in the accompanying drawings, be mounted on a running-gear for enabling the hay-stacker to be conveniently moved from one point to another, but which may be mounted in any other desired manner, as will be readily under-

stood. The side bars or beams, which are connected by suitable cross-bars 2, 3, and 4, are braced by diagonally-arranged bars 5. Rising from the side bars or beams at a point between their ends are standards 6, which are braced by longitudinal inclined bars 7 and a transversely-disposed substantially V-shaped bar or brace 7^a and which are provided at their upper ends with bearings 8 for the reception of a transverse pintle-rod 9. The V-shaped brace 7^a, which is composed of inclined sides and a short bottom-connecting portion, is secured at the bottom to one of the diagonal bracing-bars 5 and at the upper ends of their sides to the upper ends of the inclined longitudinal braces 7. The transverse pintle-rod forms a pivot for a swinging connecting frame 10, and an oscillatory lifting-frame 11. The swinging connecting-frame 10 is composed of side bars and inner and outer transverse connecting-bars 12 and 13, and the said swinging connecting-frame is also strengthened by a pair of inwardly-converging braces 14, consisting of bars secured at their outer ends to the inner faces of the side bars of the swinging connecting-frame and their inner ends to the lower face of the inner transverse connecting-bar 12. The inner transverse bar 12 is secured to the upper edges of the side bars of the swinging frame, and the outer transverse bar is secured to the lower edges of the said side bars.

Pivoted to the outer ends of the side bars of the swinging connecting-frame is a fork-carrying frame 15, provided with parallel side bars 16 and having diverging side bars or braces 17, which are secured at their inner or proximate ends to the outer faces of the parallel side bars 16, and which are connected with the same at an intermediate point by a transverse bar 18. The outer ends of the side bars 16 and 17 are connected with the intermediate and side portions of the hay-fork 19, which is adapted to be elevated from its lowermost position (illustrated in Fig. 1 of the drawings) to its highest position. (Illustrated in Fig. 3.) The transverse bars 12 and 13 are extended laterally beyond the side bars of the swinging connecting-frame 10, and during the first portion of the upward movement of the hay-fork the fork-carrying frame 15 is fulcrumed at an intermediate point and swings on the pivot of the frame 10, the fork-carrying frame being supported during such movement by the frame 10 and resting upon the extended ends of the transverse

bars 12 and 13. After the fork-carrying frame is raised to the position illustrated in Fig. 2 of the drawings it then swings on the pivots 20, which connect the side bars 16 to the sides of the swinging connecting-frame. By this construction the radius of the arc through which the fork swings is increased during the latter portion of the movement of the fork. The fulcruming of the fork-carrying frame at an intermediate point greatly facilitates the lifting of a heavy load, and the changing of the pivotal or fulcrum point from the inner to the outer end of the swinging connecting-frame enables the fork and its load to be swung over the running-gear in a direction longitudinally of the same to a point beyond the running-gear for depositing the hay in the desired position on the stack.

The swinging of the fork-carrying frame on the intermediate pivot may be continued until the outer end of the swinging connecting-frame comes in contact with and is stopped by the main frame of the hay-stacker; but when it is desired to increase the upward movement of the fork the downward movement of the outer end of the connecting-frame is limited by a pair of pivoted supporting-bars 21, adapted to be folded below the plane of the upper edges of the side bars or beams of the main frame, as illustrated in dotted lines in Fig. 1 of the drawings. The foldable supports 21 are pivoted by bolts 22 or other suitable fastening devices to the outer faces of the side bars or beams of the main frame, and they are supported at a slight inclination when in their operative position by means of suitable stops 23, projecting from the outer faces of the side bars or beams 1, which are also provided with projections 24 for limiting the downward movement of the outer or free ends of the pivoted supporting-bars. Any other suitable means may be provided for supporting the outer end of the swinging connecting-frame at a point above the main frame.

The fork is provided with upper and lower teeth 25 and 26. The lower teeth are rigid with the fork-carrying frame, and the upper teeth are pivotally mounted and are adapted to be arranged at different angles to the lower teeth. The lower teeth are secured to transverse bars 27 and 28, which form the head of the fork and which are suitably secured to the outer portions of the bars 16 and 17 at the upper and lower faces thereof, respectively. The upper teeth, which are connected by a transverse bar 29, are secured by pivots 30 to the inner or rear portions of the lower teeth, and they are secured at the desired adjustment by means of adjusting-bars 31. The adjusting-bars 31, which are located at opposite sides of the center of the fork, are pivotally connected at their lower or outer ends by suitable fastening devices 32 to two of the lower teeth, and they are

provided at their upper portions with a plurality of perforations arranged at intervals and adapted to be engaged by suitable fastening devices 33, mounted on two of the upper teeth. The swinging connecting-frame oscillates with the fork-carrying frame during the first portion of the movement thereof, and the fork-carrying frame is then oscillated independently of the connecting-frame, which is stationary during the latter portion of the movement of the fork-carrying frame. Both of these movements are effected by oscillating the lifting-frame 11, which is composed of side bars mounted at their inner ends 34 on the transverse pintle-rod 9 and connected at their outer ends by a transverse bar 35. The side bars of the lifting-frame are also connected by crossed diagonally-arranged bracing-bars 36, centrally connected together and secured at their terminals to the inner faces of the side bars of the lifting-frame. The outer end of the lifting-frame is connected by rods 37 with the fork-carrying frame, the rods being secured at one end to suitable eyes 38 of the transverse bar 28 and provided at the other end with eyes or hooks 39, which are connected to the outer ends of the side bars of the lifting-frame by means of pivots 40 of a pair of stirrups or loops 41, to which are connected side cables 42 of hoisting mechanism for oscillating the lifting-frame. The side cables are secured to and arranged to be wound around the side portions of a winding shaft or roll 43, which is provided with a centrally-arranged pulley or drum 44 of greater diameter than the side portions on which the side cables are wound. The pulley or drum 44 receives a central operating-cable 45, which extends inward longitudinally of the running-gear to a small guide-pulley 46. The outer end of the operating-cable extends laterally from the running-gear and, as illustrated in Fig. 1 of the drawings, may be provided with a whiffle-tree 47 for the attachment of a draft-animal. By this arrangement draft upon the central operating-cable will not move the running-gear in either direction. Any other form of hoisting mechanism may be employed, and any suitable means may be provided for actuating the central operating-cable.

The outward movement of the fork-carrying frame beyond a perpendicular position is limited by a lever 48, fulcrumed in a bracket 49 and provided at its inner end with a weight 50. The bracket which is secured to the center of the cross-bar 2 of the main or supporting frame is provided with projecting spaced ears located beyond the outer side edge of the bar 2 and provided with perforations for the reception of a pivot 51, which also passes through the weighted lever 48. The pivot is removable, and the weighted lever is provided at its outer portion at intervals with perforations 52, adapted to receive

the pivot 51 for varying the length of the inner portion of the lever 48. The inner end of the lever 48 is connected with a rope or cable 53, which passes over a grooved pulley 54 and which is provided with two branches 55. The branches 55 are connected with the fork-carrying frame preferably by being secured to the transverse bar 18. As the fork-carrying frame reaches the limit of its dumping movement the weighted lever 48 is swung upward and is adapted after the load has been discharged from the fork to swing the fork-carrying frame inward or backward beyond a perpendicular position, so that the fork-carrying frame will descend when the hoisting mechanism is operated for that purpose. By adjusting the weighted lever the outward movement of the fork-carrying frame beyond a perpendicular position is controlled, and the hay may be dumped the desired distance beyond the running-gear, so as to deposit it in the desired position upon a stack. Also by swinging the fork beyond the running-gear the hay may be discharged in the desired position upon the stack even when the latter is nearly completed.

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

30 1. In a device of the class described, the combination of an oscillatory fork-carrying frame, hoisting mechanism, and means for fulcruming the fork-carrying frame at an intermediate point during a portion of its oscillation and for changing the fulcrum or pivotal point to one end of the frame to increase the throw or movement thereof.

40 2. In a device of the class described, the combination of a fork, an oscillatory fork-carrying frame, and means for changing the fulcrum or pivotal point thereof to increase the length of the radius of the arc through which the fork swings during a portion of the movement thereof.

45 3. In a device of the class described, the combination of a main frame, a swinging connecting-frame pivotally mounted thereon, a fork-carrying frame pivotally connected with the swinging frame beyond the pivotal point thereof, and means for swinging the fork-carrying frame on the pivot of the swinging frame during a portion of its movement and for oscillating it independently of the movement of the swinging frame during the completion of its movement.

50 4. In a device of the class described, the combination of a main frame, a swinging connecting frame pivotally mounted at its inner end on the main frame, an oscillatory fork-carrying frame pivotally connected with the swinging frame at the outer end thereof, said swinging frame being provided with means for supporting the fork-carrying frame during a portion of its movement, and means
65 for oscillating the fork-carrying frame inde-

pendently of the movement of the swinging frame while the former is completing its movement.

5. In a device of the class described, the combination of a main frame, a swinging connecting-frame pivotally mounted on the main frame, an oscillatory fork-carrying frame pivotally connected with the swinging frame beyond the pivotal point thereof, said swinging frame being provided with means for supporting the fork-carrying frame during a portion of the movement of the latter, a lifting-frame connected with the fork-carrying frame, and means for oscillating the lifting-frame.

6. In a device of the class described, the combination of a main frame, a swinging connecting-frame pivotally mounted on the main frame, an oscillatory fork-carrying frame pivoted to the swinging frame beyond the pivotal point thereof, said swinging frame being provided adjacent to its pivotal joint with means for supporting the fork-carrying frame, and means for swinging the connecting-frame and the fork-carrying frame together during a portion of the movement of the latter and for swinging the fork-carrying frame independently of the movement of the connecting-frame while the said fork-carrying frame is completing its movement.

7. In a device of the class described, the combination of a main frame, a swinging connecting-frame mounted on the main frame, an oscillatory fork-carrying frame connected with the swinging frame beyond the pivotal point thereof, means for oscillating the swinging frame and the fork-carrying frame, and means for limiting the movement of the connecting-frame.

8. In a device of the class described, the combination of a main frame, a swinging connecting-frame mounted on the main frame, an oscillatory fork-carrying frame connected with the swinging frame beyond the pivotal point thereof, means for oscillating the swinging frame and the fork-carrying frame, and means for supporting the connecting-frame at different elevations at the completion of its swinging movement.

9. In a device of the class described, the combination of a main frame, a swinging connecting-frame mounted on the main frame, an oscillatory fork-carrying frame connected with the swinging frame beyond the pivotal point thereof, means for oscillating the swinging frame and the fork-carrying frame, and foldable supporting-bars mounted on the main frame and arranged to receive the swinging frame for limiting the movement thereof.

10. In a device of the class described, the combination of a main frame, a swinging connecting-frame mounted on the main frame, an oscillatory fork-carrying frame connected with the swinging frame beyond the pivotal

point thereof, means for oscillating the swinging frame and the fork-carrying frame, foldable supporting-bars pivoted to the main frame and arranged to receive the connecting-frame, and means for limiting the movement of the pivoted supporting-bars.

11. In a device of the class described, the combination of an oscillatory fork-carrying frame, hoisting mechanism therefor, a lever provided at one end with a weight, means for adjustably fulcruming the lever, and means for connecting the lever with the fork-carrying frame for limiting the movement thereof and for swinging the same backward.

12. In a device of the class described, the combination of a main frame, a swinging connecting-frame, mounted on the main frame, an oscillatory fork-carrying frame pivoted to the connecting-frame, hoisting mechanism, a weighted lever fulcrumed on the main frame, and flexible means for connecting the weighted lever with the fork-carrying frame for limiting the movement thereof and for swinging the same backward.

13. In a device of the class described, the

combination of a main frame having a pivot, a swinging connecting-frame mounted on the pivot, an oscillatory fork-carrying frame pivoted to the connecting-frame, a pulley mounted on the pivot of the main frame, a weighted lever, and a flexible connection arranged on the said pulley and extending from the weighted lever to the fork-carrying frame.

14. In a device of the class described, the combination of a main frame having a transverse pivot, a swinging connecting-frame mounted on the pivot, a fork-carrying frame pivoted to the connecting-frame, a lifting-frame also mounted on the said pivot, means for connecting the lifting-frame with the fork-carrying frame, and hoisting mechanism for oscillating the lifting-frame.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JULIUS EDWARD WILL.

Witnesses:

FRED. ERICH,

J. T. CLAGGETT.