

(No Model.)

2 Sheets—Sheet 1.

J. A. L. WILSON.
GRAIN ELEVATOR.

No. 485,520.

Patented Nov. 1, 1892.

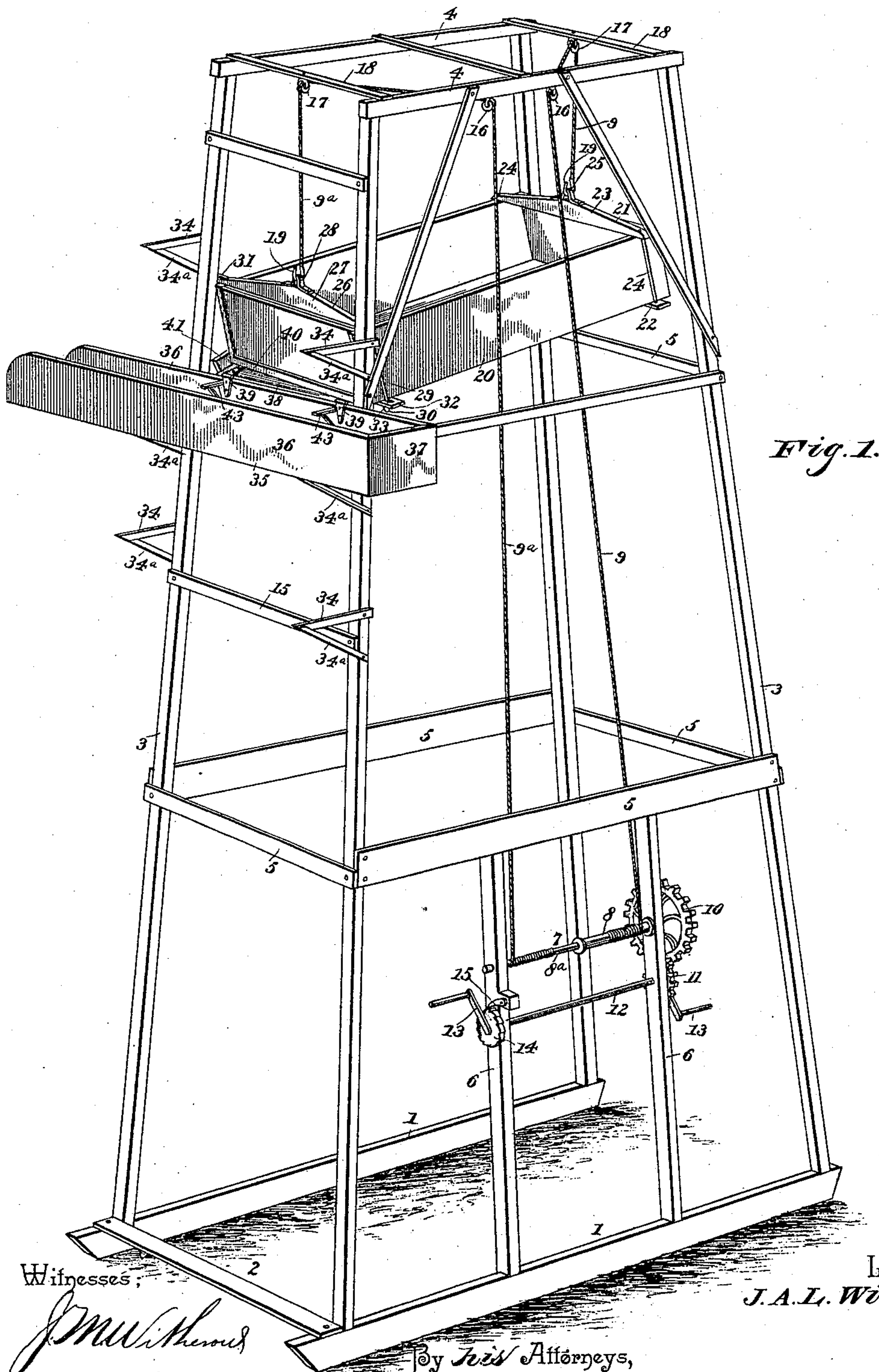


Fig. 1.

Witnesses,

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Inventor
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(No Model.)

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Fig. 2.

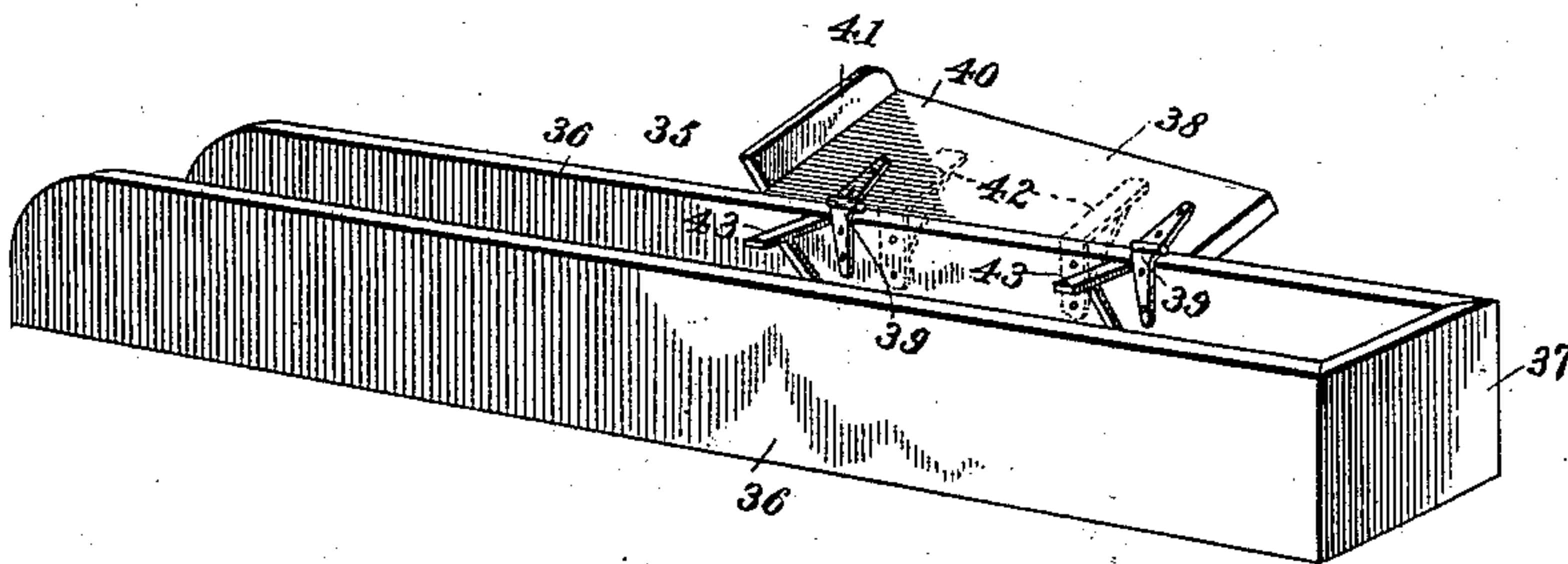
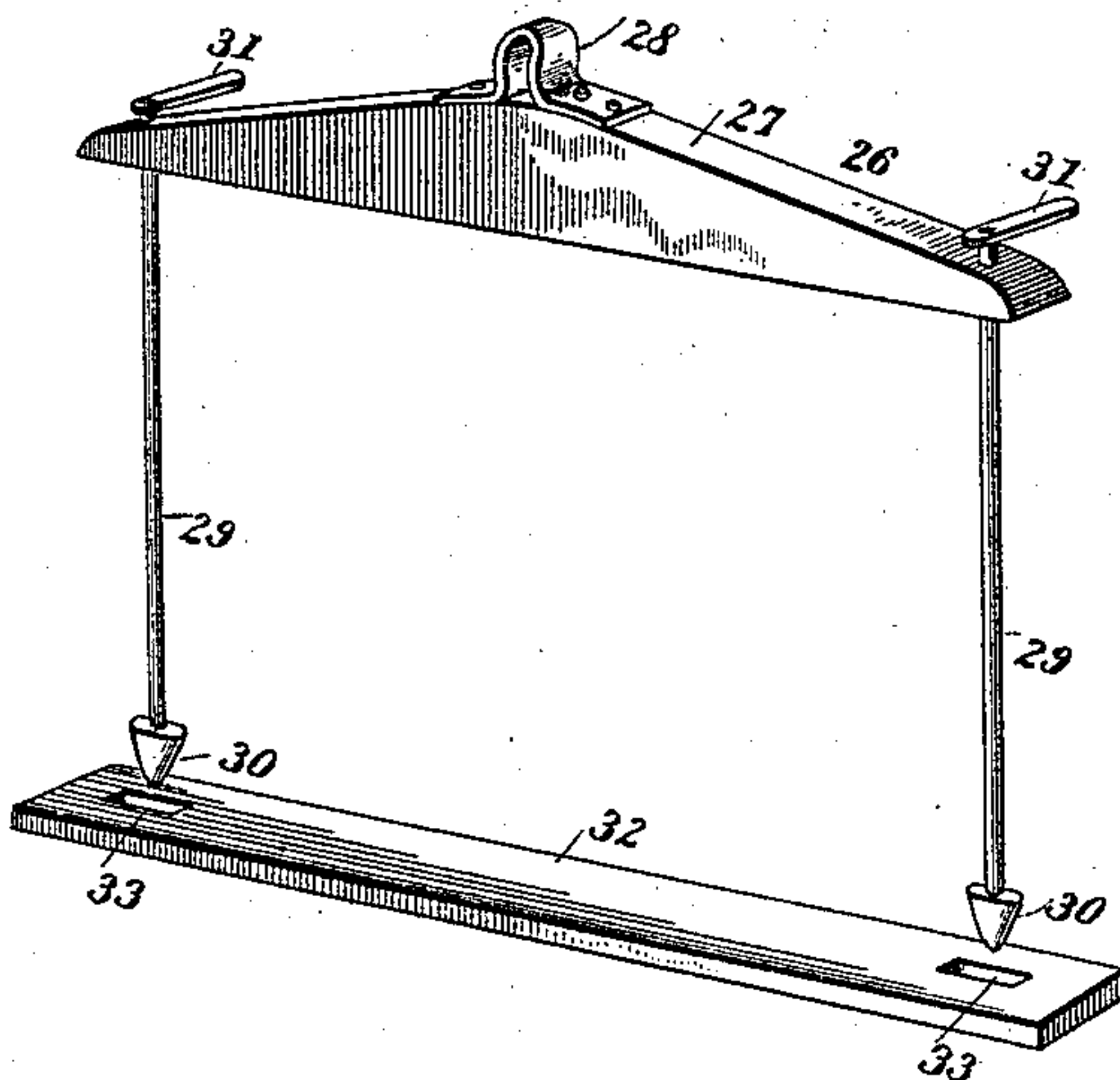


Fig. 3.



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UNITED STATES PATENT OFFICE

JOHN A. L. WILSON, OF WOODLAND, ILLINOIS.

GRAIN-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 485,520, dated November 1, 1892.

Application filed October 10, 1891. Serial No. 408,305. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. L. WILSON, a citizen of the United States, residing at Woodland, in the county of Iroquois and State of Illinois, have invented a new and useful Grain-Elevator, of which the following is a specification.

My invention relates to hoisting apparatus; and it has for its object to provide a device of this character which is designed to be used particularly for the handling of grain now ordinarily done by the scoop-shovel, having principally for its object to expedite the elevation of the grain into the cribs and granaries and to provide means whereby a higher elevation can be reached than with the ordinary scoop-shovel, thus rendering it possible to store greater quantities of grain under one roof and also facilitating the removal of the grain from the granaries back into the wagon without scooping it out, and lastly by its use obviating the necessity of building cribs too near the ground, where the same is liable to injury from rats, mice, and dampness.

With these and other objects in view, which will be readily apparent as the nature of the invention is better understood, the invention consists in a grain or hoisting derrick having means for elevating the wagon-box and tilting the same and also means for receiving and conducting the elevated grain into the cribs or bins, all of which will be hereinafter more fully described, illustrated in the accompanying drawings, and specifically pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a perspective view of a grain-hoisting apparatus constructed in accordance with my invention, the wagon-box being elevated therein and in a position for discharging its contents. Fig. 2 is a detail in perspective of the grain-chute. Fig. 3 is a similar view of the detachable wagon-box clamp.

Referring to the accompanying drawings, 1 represent parallel sills or runners, upon which the derrick or hoisting-frame is mounted, and are spaced apart a suitable distance to permit the passage of an ordinary grain-wagon therebetween, and when designed to remove the apparatus from one crib to another the said sills or runners are connected

at one end by the reach or cross bar 2, which not only prevents the derrick from spreading, but provides means whereby a team may be readily hitched to the same for the removal. Extending vertically from near each end of the runners 1 are the uprights or standards 3, connected in pairs at their upper ends by the braces 4, parallel with the runners and each other, and are adapted to hold the two uprights extending up from each runner suitably spaced apart, while all of the posts or uprights are braced together by the horizontal side and end braces 5, which are of any suitable number, according to the strength with which it is desired to construct the frame, which is made of a height sufficient to reach the highest cribs or bins. Supported upon one of the sills or runners 1 and between the lowermost brace 5 from that side of the frame are the opposite parallel bars or posts 6, in which is journaled the horizontal winding-drum or shaft 7, having the forward half 8 of greater diameter than the inner or rear half 8^a in order that the hoisting-ropes 9 and 9^a, respectively, will be wound at different velocities, so that the front rope 9 will hoist or elevate more rapidly than the rear hoisting-rope 9^a. The shaft or winding-drum 7 carries upon one end outside of one of the bars 6 a large spur-wheel 10, meshing with the smaller pinion 11 directly therebeneath and carried by the horizontal shaft 12, journaled in said bars or posts beneath the winding-drum 7. Crank-handles 13 are carried upon each end of said shaft 12 and are adapted to revolve the pinion 11 in order to revolve or rotate the winding-drum, said shaft 12 being kept from turning backward by means of a ratchet-wheel 14, secured upon one end thereof outside of one of the journal-posts 6 and engaged by the pawl or dog 15.

Each of the hoisting-ropes 9 and 9^a extend up one side of the frame or derrick and pass over the guide-pulleys 16, secured centrally to one of the connecting-bars 4 at the top of said frame and from said guide-pulleys are passed over the supporting-pulleys 17, secured upon the cross-bars 18, resting across the parallel bars 4 near each end thereof, so that the hoisting-ropes extend from the center of said cross

beams or bars 18 down within the frame near each end thereof and are provided at their ends with the engaging-hooks 19, that are adapted to engage the clamp encircling the front and rear ends of the grain-wagon box 20, that is carried within the frame or derrick between the runners and the opposite parallel uprights and directly beneath said hoisting-ropes. Upon one end of the wagon-box 20 is secured the stationary clamp or yoke 21, which comprises the parallel plates or blocks 22 and 23, taking under and over the box-body, respectively, and bolted together at the sides thereof by the connecting bolt-rods 24, while the upper or top plate or block 23 is provided with an eye 25, secured thereto, that is adapted to be engaged by one of the hooks 19 at the lower ends of the hoisting-ropes; said clamp, as said, being designed to be stationary upon the front end of the grain-wagon box, where it will be out of the way of loading and unloading the same. Upon the rear end of the box-body is designed to be attached a detachable or removable clamp 26, which is designed to be connected to the box-body after the wagon has been driven within the frame and detached from the same after the grain has been removed and discharged. The removable clamp 26 is provided with a top block or cross-bar 27, that is adapted to rest upon the top of the box-body, and has secured by means of bolts or other securing means to the top thereof the eye 28, from which said block is supported by the hook 19 at the lower end of the rear hoisting-rope 9^a. Loosely secured in perforations in each end of said cross-bar 27 are the side-securing rods 29, provided with lower arrow-head or shouldered portions or ends 30, while their upper ends, extending above said cross-bars, are squared to receive the operating-levers 31, suitably keyed thereon and adapted to revolve said rod. A bottom-supporting bar 32 is adapted to be placed beneath the wagon-bed and is secured thereto by means of the upper portion of the detachable clamp 26 being connected thereto, said bar 32 being provided with longitudinal slots 33, through which the arrow-heads 30 of the securing-rods 29 pass and engage beneath said bar on either side of the slots therein by being turned after insertion by means of the turning-levers 31, secured upon the upper ends of said rods.

Upon the rear uprights 3 are secured the series of rearwardly-extending chute-rests 34, secured in pairs along said rear end on the frame, according to the various heights to which it is designed to elevate the wagon-bed; but said rests are not secured to the frame parallel with each other, but are alternately disposed, or at least arranged in different oblique planes, so that the grain-chute 35, which is secured thereon upon the outside and at the rear end of the frame, will have a sufficient incline to conduct the grain into the cribs or bins which are desired to be filled. Said rests 34 are suitably braced by the braces

34^a, and, as said, are designed to accommodate the elongated chute 35, which is securely bolted to the same. Said chute 35 is placed upon the pair of rests, which are at the height of the bin or crib to be filled, and are provided with inclosing side walls 36 and the rear end wall 37, while the top and one end of the same are open for the receiving and discharging of the grain. A folding leaf 38 is hinged to one side at 39 to the top edge of one of the inclosing sides 36 of said chute and when open is designed to take beneath the rear end of the elevated wagon-bed within the derrick and conduct the grain within said chute. The folding leaf 38 is provided with an enlarged end 40, that compensates for the slant of the chute and from which turns up the upwardly-extending end flange 41, projecting up one side of the wagon-bed and preventing the grain from wasting over the edge of said leaf, the same being supported beneath the end of the wagon-bed by the braced rests or seats 42, secured to the outside of the side 36, to which the leaf is hinged, while the same is supported within the chute when not in use upon similar rests or seats 43, secured upon the inner face of said side.

It is thought that the operation of the device is now apparent. The bed of the wagon, which has been previously drawn within the frame or derrick, is hoisted by means of the hoisting devices described, and owing to the different diameters of the hoisting-drum or shaft the front end of said bed is elevated by the hoisting-rope 9 more rapidly than the rear end of the same is hoisted by the rope 9^a. Thus as the bed is elevated up to the desired height the same is also tilted, so that when the end-gate is open the grain will readily pass over the leaf 38 of the grain-chute into said chute and from thence into the bin or crib in the manner to be readily seen.

Relative to the use of the stationary and detachable clamps herein described it may be stated that in actual practice the stationary clamp or yoke is designed to be secured on both ends of the wagon-box and remain there, while the detachable clamp is particularly designed for the use of grain-buyers and are in such cases also applied to both ends of the wagon-box in the same manner as the stationary clamps; but their use is optional, and the same may be employed interchangeably with each other.

In order that access may be readily had to the grain-chute and the elevated wagon-box for the purpose of removing the end-gate from said box, a ladder is generally fastened to the derrick-frame for this purpose, and, further, to provide against the wagon-box swinging backward or forward while the grain is being discharged therefrom suitable guide-strips may be located within the frame, as well as other minor details of construction, which may advantageously be employed without in any way altering or departing from the spirit of my invention.

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

1. In a grain-elevator, the combination, with the frame and the hoisting devices mounted within said frame, of a series of chute-rests secured upon one end of the frame in pairs in different inclined planes with respect to each other and a chute adapted to removably rest upon any one of the pairs of said chute-rests at one end of the frame, substantially as set forth.

2. The combination of a clamp detachably connected to the wagon body or bed, the same comprising an upper cross bar or head having an eye adapted to be engaged by said hoisting-rope and perforations at each end, clamping-rods journaled in said perforations and provided with lower arrow-head or shouldered ends and upper squared portions, operating-levers keyed upon said squared ends, and a lower parallel supporting-bar adapted to rest beneath the bottom of the bed or body and provided at each end with slots adapted to be en-

gaged by the shouldered ends of said clamping-rods, substantially as set forth.

3. In a grain-elevator, the combination, with the frame and hoisting devices within said frame, of an elongated grain-chute removably supported upon one end of said frame and provided with an inclosing end and sides, a table or leaf hinged to the upper edge of one side of said chute and provided with an enlarged flanged end, said leaf being designed to take beneath the tilted end of the elevated grain-receptacle, and braced rests secured upon the outer and inner faces of one side of said chute and adapted to support said leaf or table in its open or closed position, substantially as set forth.

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

JOHN A. L. WILSON.

Witnesses:

H. A. WARREN,
I. W. HOLLAND.