

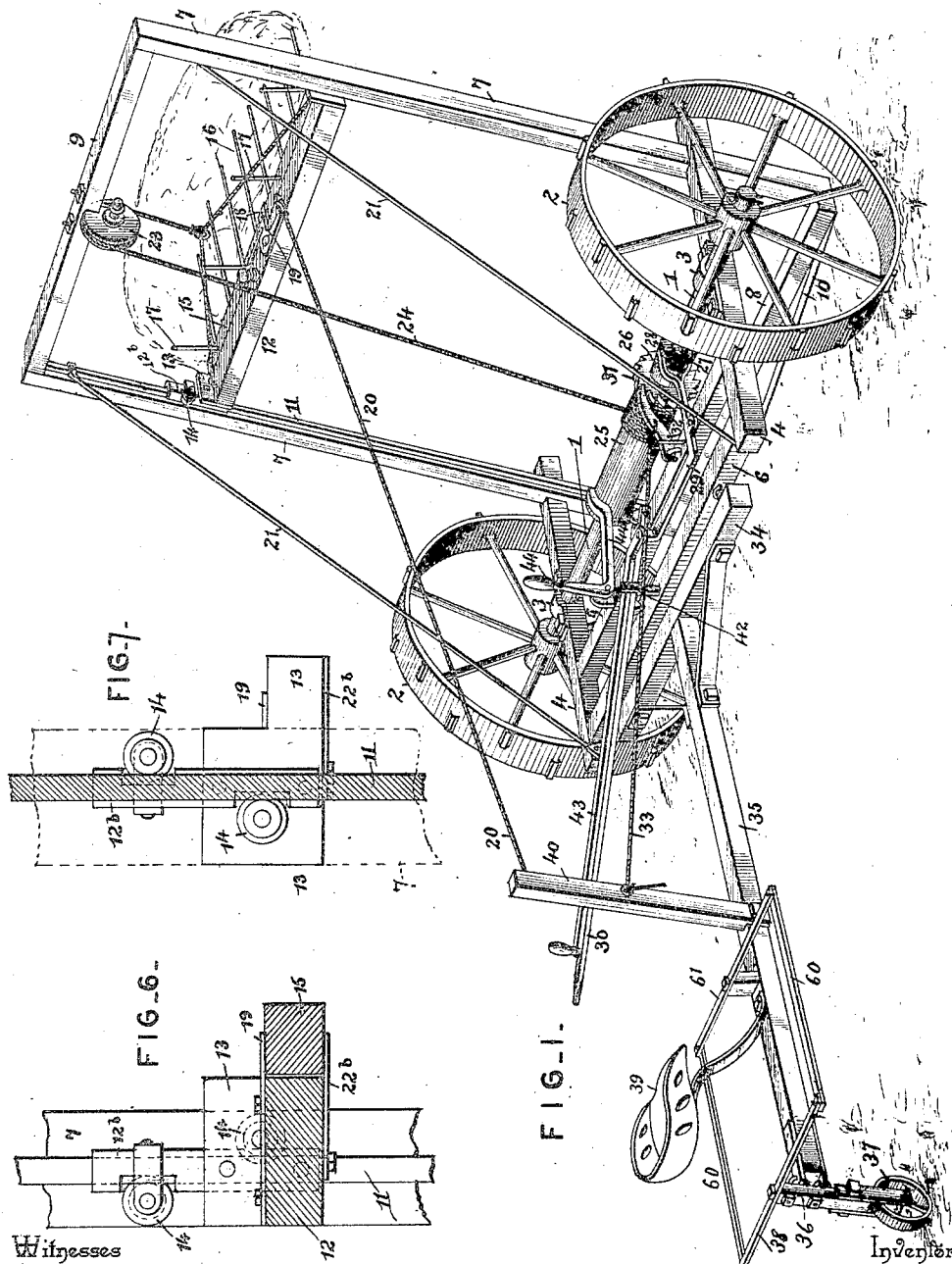
(No Model.)

3 Sheets—Sheet 1.

A. RYAN.  
HAY GATHERER AND STACKER.

No. 453,665.

Patented June 9, 1891.



Witnesses

*Jas. H. McElathran  
 Wm. Rogers*

By his Attorneys,

*Arthur Ryan  
 C. A. Snow & Co.*

(No Model.)

3 Sheets—Sheet 2.

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FIG. 5.

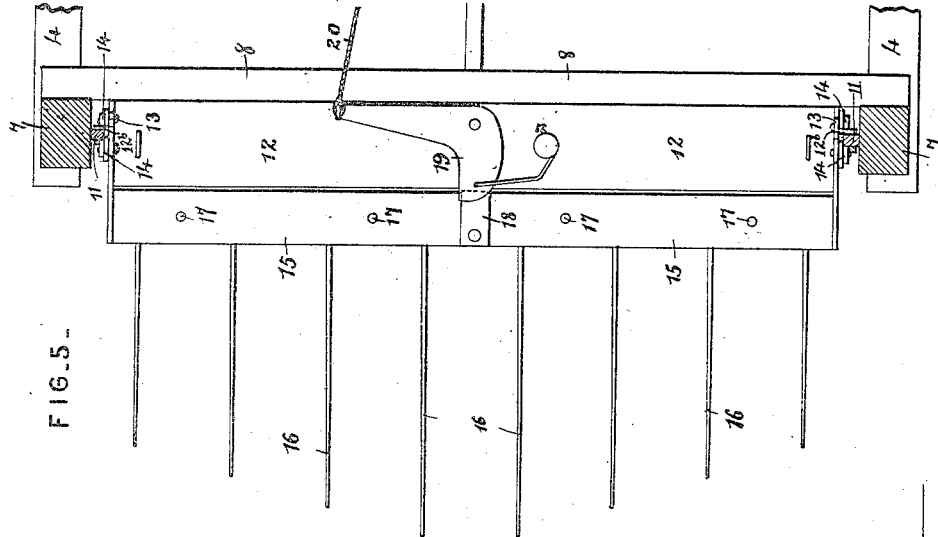
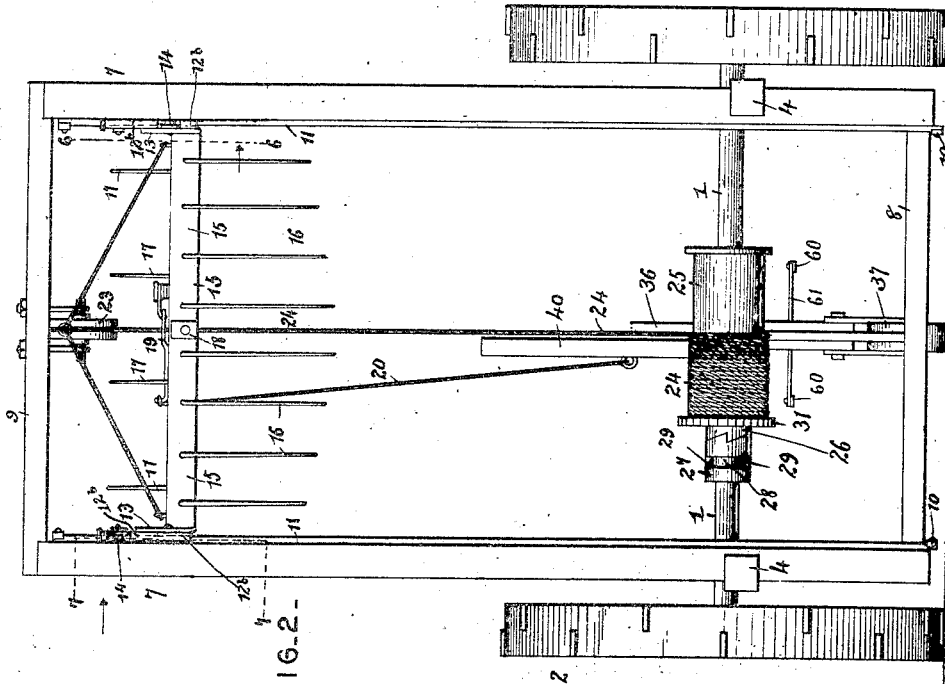


FIG. 2.



Witnesses,

Inventor

Jas. H. McEachern  
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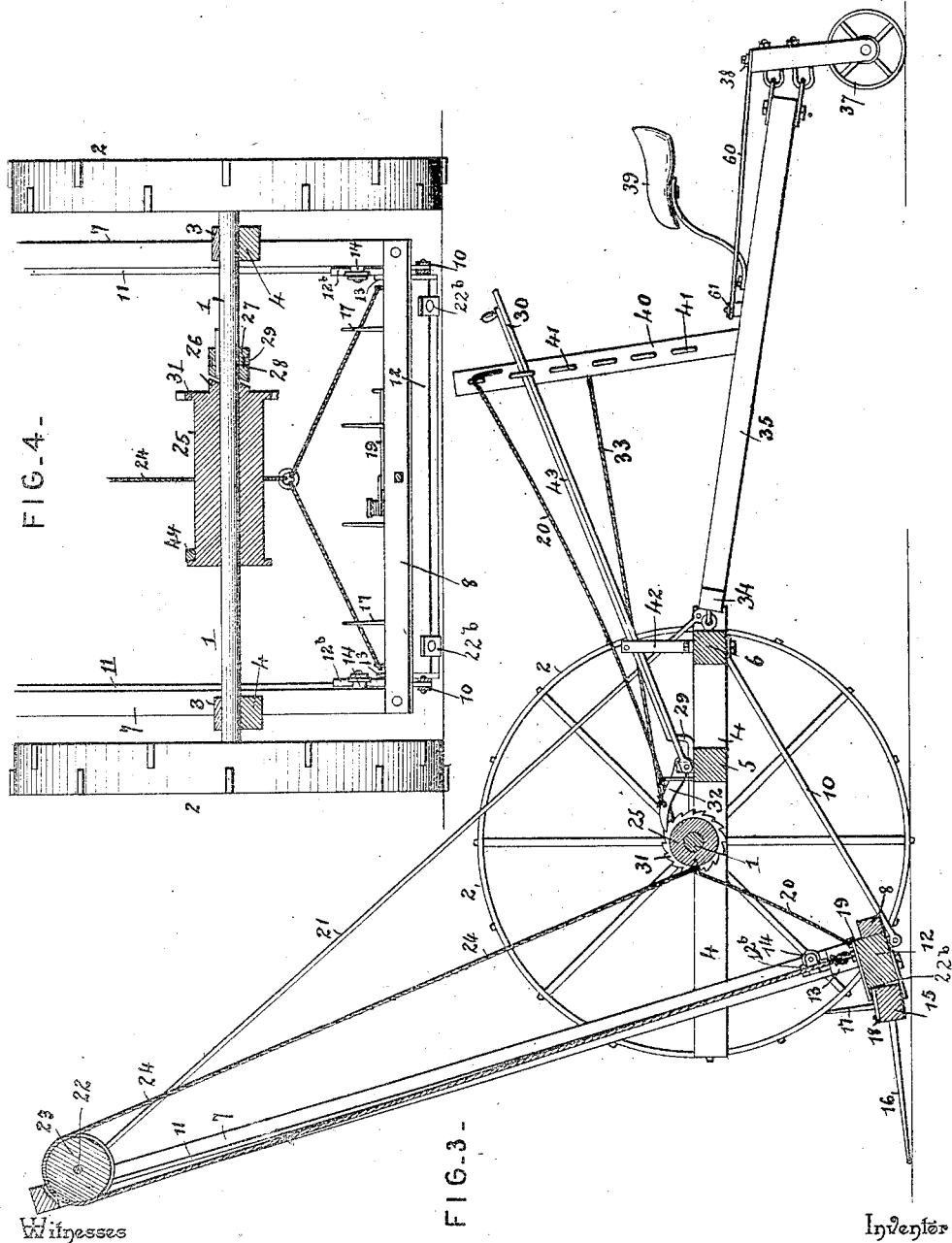
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Witnesses

Inventor

Jas. H. McLaughlin

Arthur Ryan

By his Attorneys,

Wm. P. Rogers

C. A. Snow & Co.

# UNITED STATES PATENT OFFICE.

ARTHUR RYAN, OF PIERCE, NEBRASKA, ASSIGNOR OF ONE-HALF TO BENJAMIN LINDSAY, OF SAME PLACE.

## HAY GATHERER AND STACKER.

SPECIFICATION forming part of Letters Patent No. 453,665, dated June 9, 1891.

Application filed February 20, 1891. Serial No. 382,181. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR RYAN, a citizen of the United States, residing at Pierce, in the county of Pierce and State of Nebraska, have invented a new and useful Hay Gatherer and Stacker, of which the following is a specification.

This invention relates to hay-gatherers and stackers; and it has for its object to provide a machine of this class in which the load when gathered upon the stacking-platform may be elevated to the desired height by the passage of the machine over the field, in which the load when elevated to the desired height may be retained without further strain upon the elevating machinery, and by means of which the load may be conveniently dumped and the stacking-platform restored to its normal position.

The invention consists in the improved construction, combination, and arrangement of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a perspective view of a hay-stacking machine constructed in accordance with my invention. Fig. 2 is a front elevation of the same. Fig. 3 is a longitudinal sectional view. Fig. 4 is a vertical transverse sectional view taken through the axle of the machine. Fig. 5 is a horizontal sectional view taken through the uprights of the frame and showing the stacking-platform in plan view. Figs. 6 and 7 are sectional detail views taken on the lines 6 6 and 7 7 in Fig. 5.

Like numerals of reference indicate like parts in all the figures.

1 designates the axle, which is provided with the transporting-wheels 2 2, both of which are rigidly mounted thereon. The axle is journaled in suitable boxes or bearings 3 3 in the frame-bars 4 4, which are connected near their rear ends by cross-bars 5 and 6. Near the front ends of the side bars 4 4 of the frame are mounted the uprights 7, which are connected at their lower ends by a cross-brace 8 and at their upper ends by a similar brace or cross-bar 9. Braces 10 connect the lower cross-bar 8 with the rear cross-bar 6 of the frame.

The inner sides of the uprights 7 are provided with vertical strips 11, which serve to guide the vertically-movable cross-head or carrier 12. The latter is provided at its ends with angle-irons 13, the vertical arms of which are provided with guides 12<sup>b</sup> and with rollers 14, adapted to bear against the front and rear sides of the guide-strips 11, so as to avoid undue friction when the cross-head or carrier is to be elevated. Between the forwardly-extending arms or brackets of the angle-irons 13 is pivoted a bar 15, having forwardly-extending teeth or fingers 16 and upwardly-extending fingers 17. The upper side of the pivoted bar 15 has a latch-plate 18, which is adapted to be engaged by a spring-actuated latch 19, pivoted upon the cross-head or carrier 12 and serving to retain the pivoted bar or rake-head 15 normally in a horizontal position, in which it may be additionally supported by means of plates 22<sup>b</sup>, secured to the under side of the cross-head 12 and projecting under the bar 15, so as to take the strain off the pivotal pins, by which the latter is mounted between the arms or brackets of the angle-irons 13. The latch-bar 19 has attached to its outer end a trip-rope 20, which extends within reach of the operator, by whom it may be conveniently manipulated.

The upper ends of the uprights 7 are connected with the rear ends of the frame by braces or guy-rods 21, and the cross-bar 9 at the upper ends of the said uprights supports an annularly-grooved sheave or pulley 23. 24 designates the hoisting-rope, one end of which is suitably connected with the vertically-sliding cross-head or carrier 12 and the other end of which is attached to a drum 25, journaled upon the axle of the machine. One end of the drum 25 has a clutch member 26, adapted to be engaged by a clutch-collar 27, which is feathered or splined and mounted slidably upon the axle. Said clutch-collar has an annular groove 28, engaged by the bifurcated arm of a bell-crank lever 29, which is mounted pivotally in a horizontal position upon the cross-bar 5 of the frame. The other arm of the said bell-crank lever is connected pivotally with a rearwardly-extending operating-rod 30, the handle of which is within convenient reach of the driver or operator.

The winding-drum 25 is provided with a ratchet-wheel 31, engaging a pawl 32, which is pivoted upon the cross-bar 5 adjacent to the bell-crank lever 29. Suitably attached to said pawl is an operating or trip cord 33.

To the rear cross-bar 6 of the frame is hinged a bar 34, having a rearwardly-extending reach-bar 35, to the rear end of which is hinged a vertical bar 36, the lower end of which carries a caster-wheel 37 and the upper end of which has a cross-bar 38, connected by pivoted rods 60 with a bar 61, pivoted upon the reach-bar, and by means of which the machine may be steered by the driver, who places his feet upon said cross-bar, the draft being attached in any convenient manner at the rear end of the reach-bar. The latter also supports a seat 39 for the driver. The reach-bar 35 has an upright 40, provided with laterally-extending hooks 41. The rear cross-bar 6 of the frame has an upright 42, to the upper end of which is pivoted an adjusting-lever 43, the front end of which is also pivotally connected with the cross-bar 5, and the rear end of which may, together with the operating-rod 30, be adjusted under any one of the hooks 41 of the upright 40.

A suitable brake, as 44, may be arranged to retard the rotation of the drum 25 when the cross-head or carrier 12 is to be lowered after the discharge of the load. No means have been shown in the drawings for manipulating the said brake, which may be operated in any suitable well-known manner.

In operation the cross-head or carrier having the pivoted rake-head is lowered to the extreme lower ends of the uprights 7, where it is supported upon the cross-bars 8 while the machine is pushed over the field by the draft attached at the rear end of the reach-bar, the machine being guided by means of the caster 37, so as to gather the hay upon the rake or stacking platform. When a sufficient load has been gathered, the lever 43 is manipulated to tilt the frame of the machine in a rearward direction. The clutch-collar 27 is now thrown into engagement with the clutch member upon the winding-drum, which latter, being thus caused to rotate with the axle, winds the hoisting-rope 24, thus elevating the cross-head or carrier. When the desired elevation has been attained the clutch-collar is thrown out of engagement with the winding-drum, which latter is retained by the action of the pawl 32, engaging the ratchet-wheel 31, thus retaining the load while the machine proceeds to the place of deposit. When this has been reached, the trip-rope 20 is manipulated to release the latch 19 from the rake-head, thus permitting the latter to tilt and to dump the load. The machine may then be backed away from the stack and the pawl 32 disengaged from the ratchet-wheel 31, thus permitting the cross-head or carrier to descend by its own weight.

As will be seen from the foregoing description, the construction of my invention is ex-

ceedingly simple, and it may be readily manipulated by one man to gather and to stack the hay, thus performing work which usually requires the use of several distinct machines, as well as additional help.

The transporting-wheels of the machine are preferably provided with corrugated rims to prevent them from slipping when the machine is in operation.

Having thus described my invention, what I claim is—

1. In a machine of the class described, the combination of the frame, the axle journaled in the side beams of the same and having the transporting-wheels rigidly secured thereon, the uprights at the front ends of the side beams connected by cross-pieces at their upper and lower ends, a cross-head or carrier movable vertically between said uprights, the rake-head connected pivotally with said cross-head at the ends of the same adjacent to the two uprights, a sheave or pulley mounted upon the cross-bar at the upper ends of said uprights, a winding-drum mounted upon the axle and adapted to be rotated therewith, and a hoisting-rope passing over the sheave and having its ends connected with the cross-head or carrier and with the winding-drum, respectively, substantially as set forth.

2. In a machine of the class described, the combination, with the frame having the uprights, of the vertically-movable cross-head or carrier having the rake-head connected pivotally with the ends of said cross-head adjacent to the two uprights and provided with forwardly and upwardly extending teeth or fingers, a spring-actuated latch to retain the said rake-head normally in a horizontal position, and a hoisting-rope passing over a sheave at the upper end of the upright frame and connecting the vertically-sliding cross-head with a winding-drum mounted upon and adapted to revolve with the axle, substantially as set forth.

3. In a machine of the class described, the combination of the uprights having the guide-strips or track-bars upon their inner sides, the vertically-movable cross-head or carrier having angle-irons provided with rollers bearing against the front and rear sides of said cross-bars, the rake-head mounted pivotally between the forwardly-extending arms of said angle-irons and having forwardly and upwardly extending teeth or fingers, and a spring-actuated latch mounted upon the cross-head or carrier and engaging a latch-plate upon the rake-head to retain the latter normally in a horizontal position, substantially as and for the purpose set forth.

4. In a machine of the class described, the combination of the frame, the axle journaled in the side bars of the same, a cross-bar pivoted or hinged to the rear cross-bar of the same, and having the rearwardly-extending reach-bar and supported at its rear end upon a caster-wheel, and having an upright provided with laterally-extending hooks, and an

operating-lever pivoted to an upright upon the rear cross-bar of the main frame, having its front end connected pivotally with a cross-bar of said frame in front of the rear cross-bar and adapted to have its rear end adjusted and under any one of the hooks extending laterally from the upright upon the reach-bar, substantially as set forth.

5. In a machine of the class described, the combination of a tilting frame mounted upon a suitable axle and having uprights at its front end, a cross-head or carrier adapted to slide vertically between said uprights and carrying a pivoted rake head or platform, mechanism for hoisting the said carrier or cross-head and for retaining it at any desired elevation, and means for tilting the frame of the machine, substantially as and for the purpose set forth.

6. In a machine of the class described, the combination of the frame having the uprights, the vertically-slidable cross-head or carrier having the pivoted rake-head, and a spring-

actuated latch for retaining the latter normally in a horizontal position, the hoisting mechanism mounted upon and adapted to be operated by the revolving axle, and mechanism for tilting the frame of the machine and for retaining it at any desired adjustment, substantially as and for the purpose set forth.

7. The combination, with the cross-head or carrier having the angle-irons, of the rake-head mounted pivotally between the arms of the latter, and the plates secured to the under side of the cross-head and projecting under the rake-head to relieve the pivoted pins of the latter from undue strain, substantially as set forth.

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

ARTHUR RYAN.

Witnesses:

JOHN B. ROBERTS,  
B. W. WOOLVERTON.