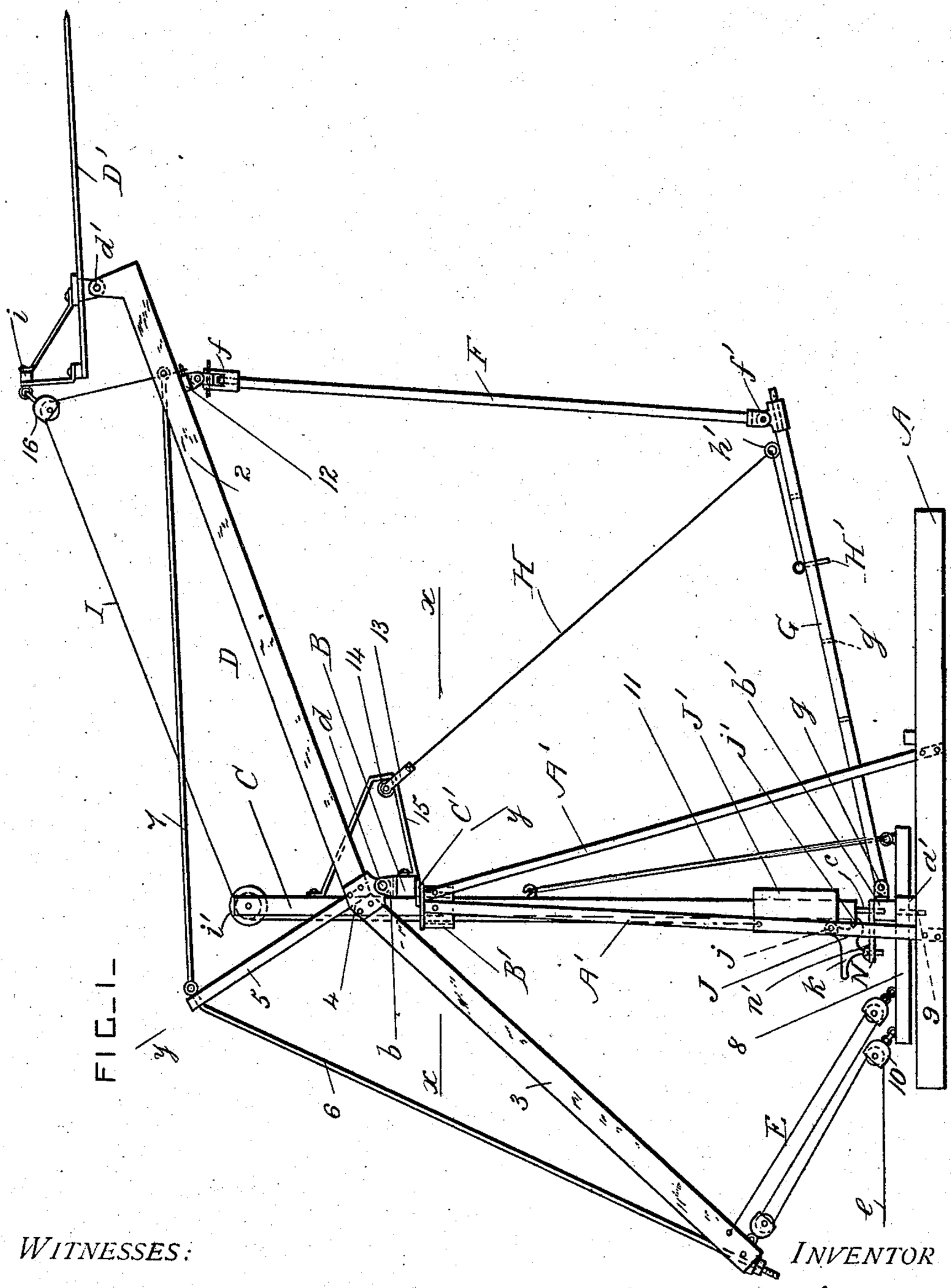
No. 855,005. PATENTED MAY 28, 1907.

M. R. JENKINS.

HAY STACKER.

APPLICATION FILED JAN. 18, 1907.

3 SHEETS—SHEET 1.



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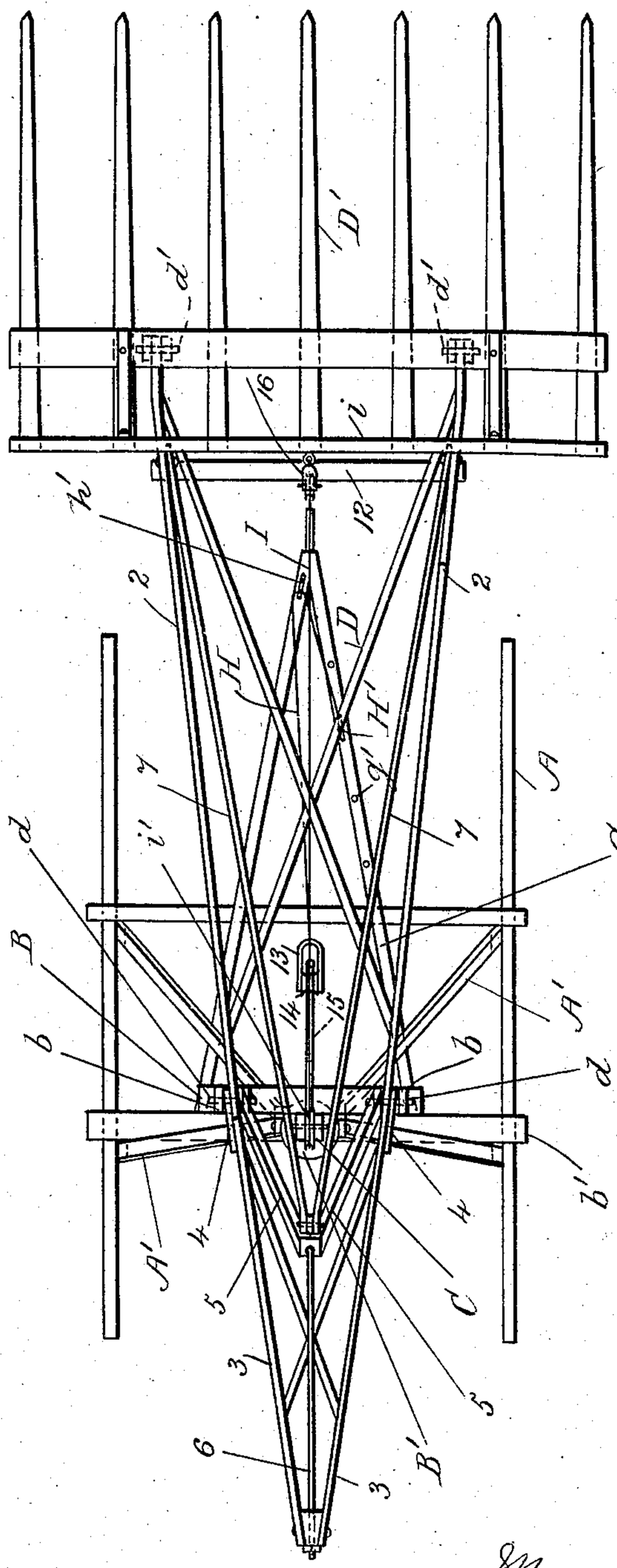
3 SHEETS—SHEET 2.

FIG. 2.



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3 SHEETS—SHEET 3.

FIG. 3.

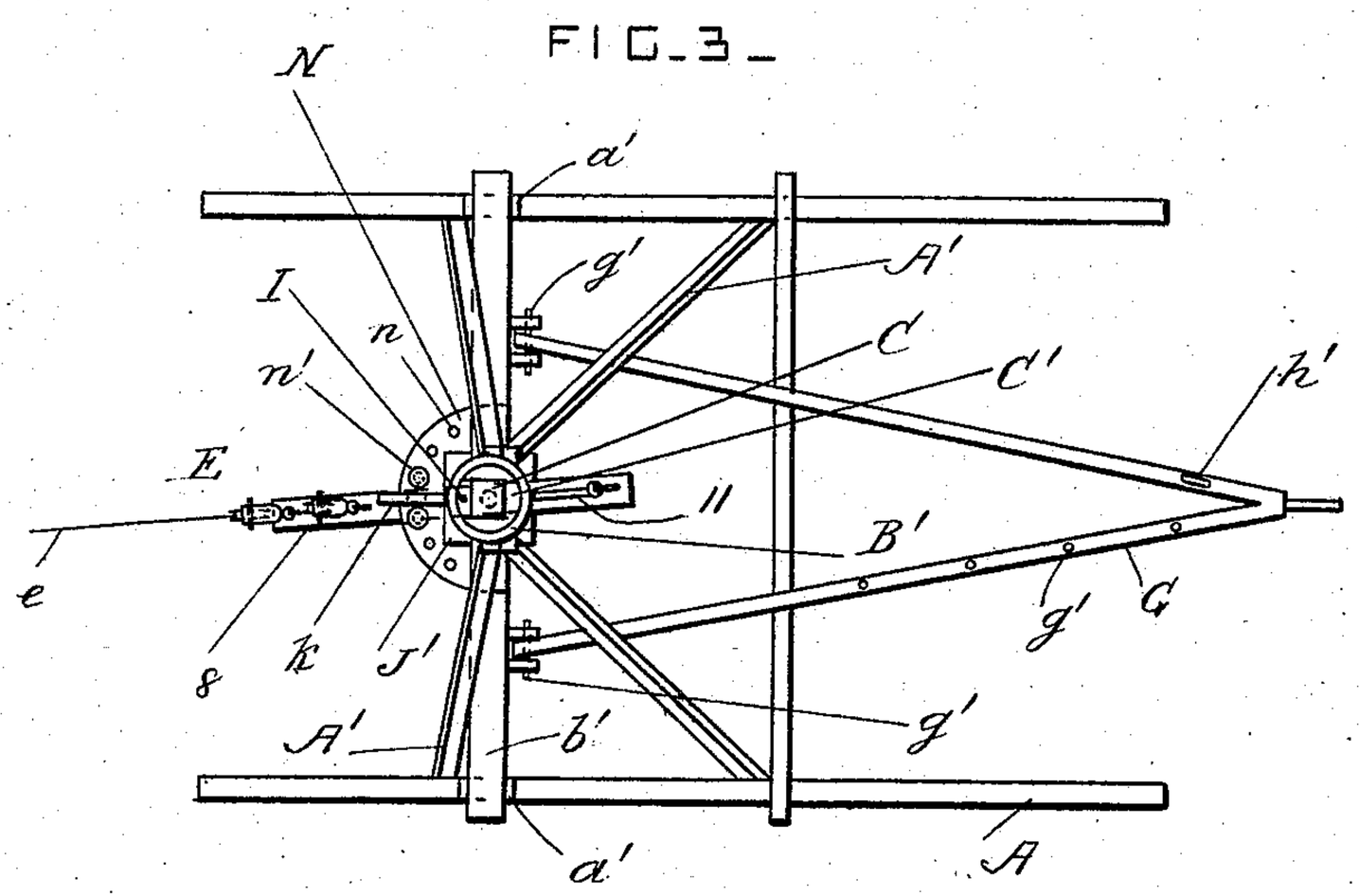
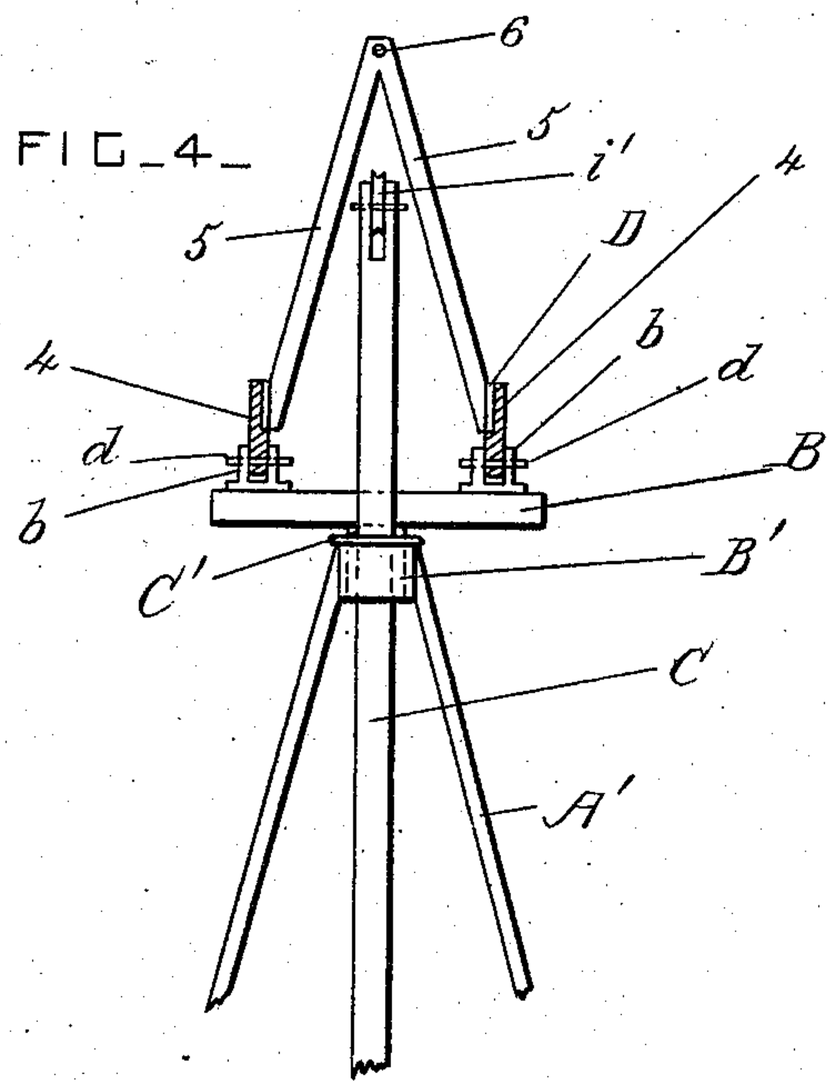


FIG. 4.



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UNITED STATES PATENT OFFICE.

MARION R. JENKINS, OF BROWNING, MISSOURI.

HAY-STACKER.

No. 855,005. Specification of Letters Patent. Patented May 28, 1907.

Application filed January 18, 1907. Serial No. 352,913.

To all whom it may concern:

Be it known that I, MARION R. JENKINS, a citizen of the United States, residing at Browning, in the county of Linn and State of Missouri, have invented certain new and useful Improvements in Hay-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-stackers which operate intermittently and which deliver to one side; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

This invention consists more particularly in certain improvements in the hay-stacker for which a patent was issued to me on August 28, 1906, No. 829,550.

In the drawings, Figure 1 is a side view of the stacker, showing the fork raised and slued around. Fig. 2 is a plan view of the same. Fig. 3 is a plan view taken in section on the line *x*—*x* in Fig. 1. Fig. 4 is a cross-section through the lifting-beam, taken on the line *y*—*y* in Fig. 1.

A is the base portion of a supporting frame which is provided with uprights A′.

B is a cross-bar secured to a vertical mast C which is pivoted in the frame. A socket B′ is carried by the upper part of the frame close under the cross-bar B, and a cross-bar *b*′ is secured in the lower part of the frame. This cross-bar *b*′ is arranged close above the base A, and rests upon packing-blocks *a*′, but these blocks may be dispensed with. The weight of the cross-bar *b*′ and of all parts secured to it comes directly upon the base A, so that the uprights A′ of the frame are relieved of strain. The mast C is preferably rectangular in cross-section, and it has a pivot *c* at its lower end which is journaled in a step or socket in the cross-bar *b*′.

C′ is a packing-piece on the front side of the upper part of the mast, which is journaled in the socket B′ so as to revolve freely.

D is the lifting-beam of the fork, the middle part of which is pivoted by pins *d* to double-eyes *b* on the said cross-bar B, so that the lifting-beam is movable in a vertical plane.

D′ is the fork which is provided with tines and constructed in any approved manner. This fork is pivoted by pins *d*′ to the longer and front end portion of the beam D.

The lifting-beam D is preferably constructed of two sections 2 and 3, each provided with two diverging side-bars having suitable braces between them. These two beam sections are arranged at an obtuse angle with each other, and they are connected together by pivoted junction plates 4 which engage with the pins *d* of the double-eyes *b*. The side-bars of the front beam section 2 have the fork D′ pivoted to their front or free end portion. The rear end portions of the side-bars of the rear beam section 3 are secured together at an acute angle. Two struts 5 are secured to the said beam at the junction of its two sections, and the upper ends of these two struts are secured together. A tie-bar 6 is arranged between the rear end of the beam and the upper part of the struts 5, and two tie-bars 7 are arranged between the upper parts of the struts 5 and the front end portion of the beam. The two struts converge together, and the tie-bar 6 is preferably inserted in a hole in their upper ends, and the two tie-bars 7 are preferably connected to the projecting front end portion of the tie-bar 6. A cross-bar 12 is also provided at the front end portion of the beam. When the lifting-beam is constructed in this manner it is very light and at the same time strong and rigid.

E is a lifting-tackle arranged between the rear end of the lifting-beam and an arm 8 which is pivoted to the base in any approved manner so as to be movable laterally. The free end *e* of the cord of the lifting-tackle is connected to a horse or other approved means for operating the stacker. The arm 8 is preferably pivoted loosely on a pin 9 which projects downwardly from the cross-bar *b*′ directly under the mast. The lower block or blocks 10 of the lifting-tackle E are connected pivotally with the rear end portion of the arm 8. A rod 11, or other suitable connection, is pivoted to the front end portion of the arm 8 and to the mast C. This rod permits the arm 8 to move on its pivot pin to a limited extent in each direction, and it prevents the rear end of the arm from being pulled upward by the lifting tackle so as to make the arm hard to turn on its pivot pin. This pivoted arm 8 enables the direction of the descent of the fork and lifting-beam from their highest position to be controlled positively, by arranging the free end *e* of the lifting cord at an angle so as to change the line of draft as required.

F is a radius-rod, the upper end of which is

pivotally connected with the cross-bar 12 by a universal joint f of any approved construction. The lower end of the rod F is provided with a similar universal joint f', which connects it to a support G. The support G is carried by the cross-bar b', and it preferably consists of two bars arranged at an acute angle with each other and pivoted at one end to the cross-bar b' by pins g. The pivoted support G and the radius-rod F and its universal joints are arranged between the lifting-beam and the supporting frame, and they constitute one form of guide mechanism which constrains the lifting-beam to slue around when it is raised by the operating device or lifting-tackle. In order to adjust the position of the free end of the support G vertically, a cord H or other similar connection is provided. One end of this cord is secured to a double-eye 13 provided with a roller 14 which runs on an upwardly and forwardly inclined guide-track 15 which is suitably secured to the upper part of the mast C. The middle part of the cord is passed through a guide-eye h' at the free end of the support G, and its other end is provided with a pin H' which is inserted in any one of a series of holes g' in the said support.

The position of the free end portion of the support G is adjusted vertically by lengthening or shortening the connection between it and the guide-track. This enables the machine to be set and adjusted from time to time so that the fork will deliver the hay at various heights above the ground as required. The weight of the fork is transmitted through the radius-rod and support G direct to the cross-bar b' of the base A, so that the uprights A' are relieved of strain. The guide-track 15 operates to delay the commencement of the sluing movement of the lifting-beam and fork in the action of lifting the load, and this is found to be a decided advantage in the practical working of the machine.

When the parts are moved from the positions shown in Fig. 1, so that the beam is lowered and slued back to its original position, the guide-track 15 turns around with the mast, but the support G does not turn around as it is pivoted to the stationary crossbar b' below the mast. The roller 14 runs along the track 15 toward the mast before the track arrives at a right-angle to the position shown in Fig. 1, and this inward movement prevents the weight of the support G acting on the cord H from impeding the turning movement of the mast and otherwise interfering with the action of the fork and beam.

I is a flexible connection, such as a cord, which passes over a pulley-block or sheave 16 carried by a bar or bracket i which projects upwardly from the fork. The front end of the cord I is secured to the cross-bar 12 of the lifting-beam, and the pulley-block gives to cord greater power over the fork. If desired, however, the front end of the cord I may be secured direct to the bar i, and the pulley-block may be dispensed with. The main portion of the cord I passes over a guide-sheave i' at the top of the mast C, and its lower end is normally connected to the lower part of the mast by a catch J. The catch J is pivoted by a pin j to a counterbalance-weight J', which is slidable vertically on the lower part of the mast. The catch engages with a notch or shoulder j' on the mast and is held in engagement therewith by the weight of an arm k, which projects rearwardly from the said catch. The counterbalance-weight is secured to the lower end of the cord I, and holds the tines of the fork in a substantially horizontal position when there is no load of hay on them. When there is a load of hay on the tines they are normally prevented from moving downward to let the load slide off them, by the action of the catch J.

N is a trip-plate secured to the cross-bar b', and provided with a series of holes n. A trip-pin n' is provided and may be placed in engagement with any of the holes n. Two trip-pins are preferably furnished, one for each direction in which the stacker may be worked. The head of the trip-pin is arranged in the path of the arm k of the catch for the purpose of disengaging the catch automatically from the mast when the fork is raised and slued around to a prearranged extent.

The action of the stacker is similar to that fully described in the hereinbefore mentioned patent. The hay is placed on the fork when the fork is in its lowest position, and at a right angle to the position shown in Fig. 2. The cord e is then pulled upon. This tilts the beam and partially raises the fork, and the guide mechanism then causes the beam and fork to slue around one quarter of a revolution to the position shown in Fig. 2, or to any prearranged point short of that position. During the sluing movement the beam and fork are raised to the full extent required. The arm of the locking catch strikes the trip-pin so that the fork is released and is tilted downward by the weight of the hay on it, the counterbalance-weight being at the same time raised by the weight of the hay. The hay slides off the fork, and the tines of the fork are restored to their normal position by the counterbalance-weight J' which slides downward on the mast. The rope or cord e is then slackened, and the lifting-beam and fork descend to their original position by gravity. The fork is caused to descend on the opposite side of the base from its original position, by changing the lead of the cord e so as to turn the arm 8 laterally on its pivot to a suitable position. When the

fork works from the left side of the frame, when facing from the mast toward the front, or right hand side of the drawing, the arm 8 is inclined as shown in the drawing, but when the fork is to work from the right side of the frame, the arm 8 is inclined in the reverse position. The arm moves on its pivot to limited extent as the beam is slued around.

What I claim is:

1. In a hay-stacker, the combination, with a support, of a lifting-beam formed of two sections provided with side-bars which are arranged at an obtuse angle with each other, a pivot joint arranged in the apex of the said angle below the said beam and connecting it to the said support, struts projecting from the said beam on the opposite side thereof from its said pivot joint, tie-bars arranged between the upper parts of the said struts and the end portions of the beam and inclined in the same directions as the said side-bars but at a less obtuse angle, and a fork carried by the said beam.

2. In a hay-stacker, the combination, with a support, of a lifting-beam formed of two sections provided with side-bars which are arranged at an obtuse angle with each other, junction-plates secured to the adjacent ends of the said side-bars, a pivot-joint arranged in the apex of the said angle below the said beam and connecting the said junction-plates to the said support, struts projecting from the said beam on the opposite side thereof from the said pivot joint, tie-bars arranged between the upper parts of the said struts and the end portions of the said beam and inclined in the same directions as the said side-bars but at a less obtuse angle, and a fork carried by the said beam.

3. In a hay-stacker, the combination, with a supporting frame, and a mast pivoted in the said frame, of a lifting-beam pivotally supported by the said mast and provided with a fork at one end, an arm pivoted in the said frame under the said mast and movable laterally independent of the said mast and beam, and a lifting-tackle between the other end of the said beam and the said arm.

4. In a hay-stacker, the combination, with a supporting frame, and a mast pivoted in the said frame, of a lifting-beam pivotally supported by the said mast and provided with a fork at one end, an arm pivoted in the said frame under the said mast and movable laterally independent of the said mast and beam, a connection pivoted between one end of the said arm and the said mast, and a lifting-tackle arranged between the other end of the said arm and the other end of the said beam.

5. In a hay-stacker, the combination, with a base, of uprights secured to the base and having a socket at their upper parts, a cross-bar supported by the said base independent of the said uprights, a mast pivotally supported by the said cross-bar and journaled in the said socket, a lifting-beam pivotally supported by the said mast and having a fork at one end, a support also pivoted to the said cross-bar, a radius-rod pivotally connected with the said supports and the said beam, and a lifting-device connected to the other end of the said beam.

6. In a hay-stacker, the combination, with a supporting frame, of a mast pivoted in the said frame, a lifting-beam pivotally supported by the said mast and having a fork at one end, a radius-rod having its upper end pivoted to the said lifting-beam, a support pivoted to the said frame and having the lower end of the said radius-rod pivoted to it, a guide-track projecting from the upper part of the said mast, a connection attached to the said support and having a sliding piece at its upper end which runs on the said guide-track, and a lifting-device connected to the other end of the said beam.

7. In a hay-stacker, the combination, with a supporting-frame, of a mast pivoted in the said frame and provided with a guide at its upper part; a lifting-beam pivotally supported by the said mast, a fork pivoted to the front end of the said beam, a catch normally engaging with the said mast, a pulley-block carried by the said fork, and a connection passing over the said pulley-block and having its ends connected with the said catch and with the front end portion of the said beam respectively.

8. In a hay-stacker, the combination, with a frame, of a mast pivoted in the said frame, a lifting-beam supported by the said mast, a fork pivoted to the said beam, a slidable weight guided by the said mast, a connection between the said fork and weight, and a catch pivoted to the said weight and normally preventing it from sliding upwardly on the said mast.

In testimony whereof I have affixed my signature in the presence of two witnesses.

MARION R. JENKINS.

Witnesses:

JAMES P. BOLLING,

C. E. MURPHY.