

No. 781,679.

PATENTED FEB. 7, 1905.

E. R. RILEY.
HAY STACKER.

APPLICATION FILED FEB. 10, 1904.

2 SHEETS—SHEET 1.

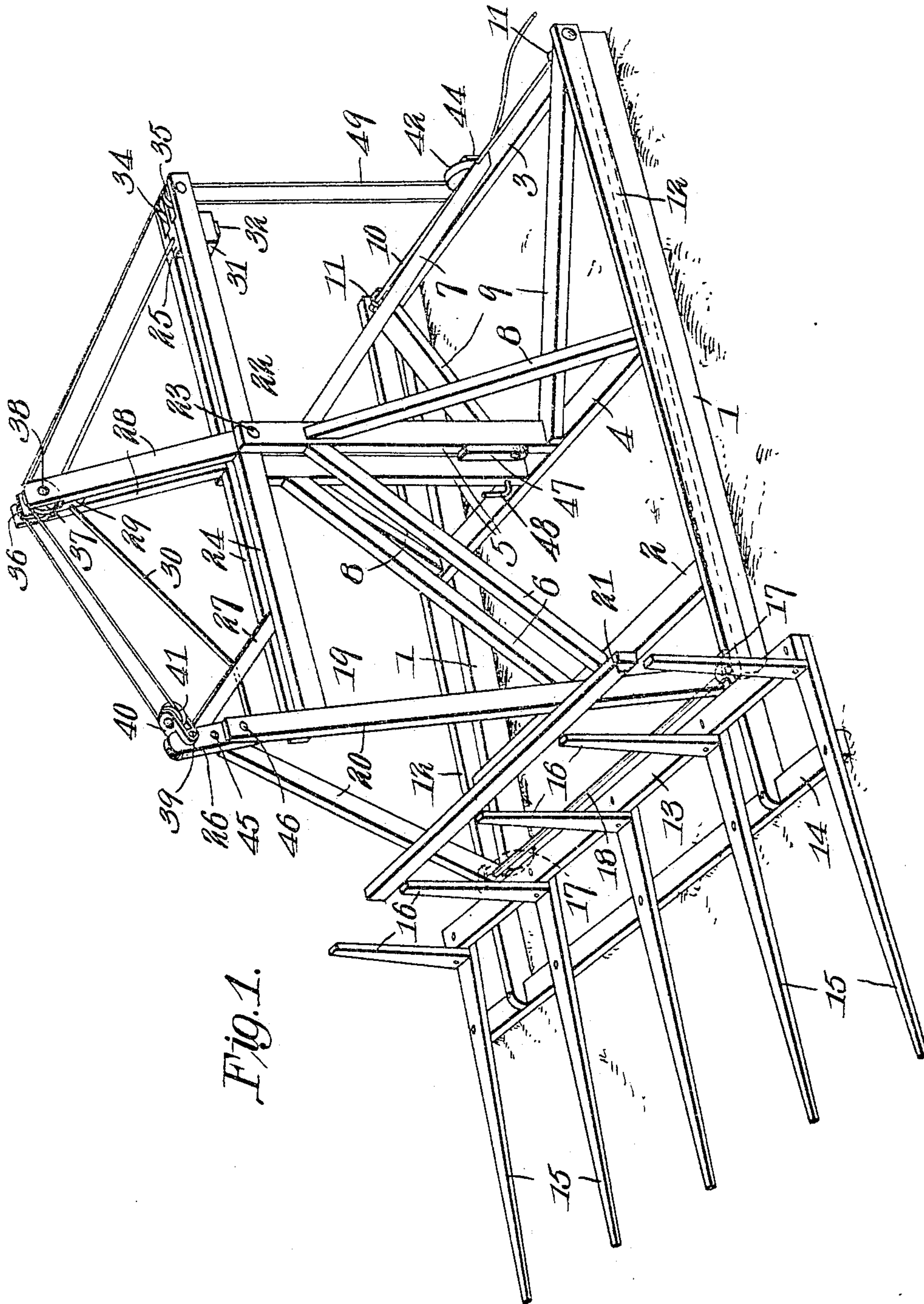


Fig. 1.

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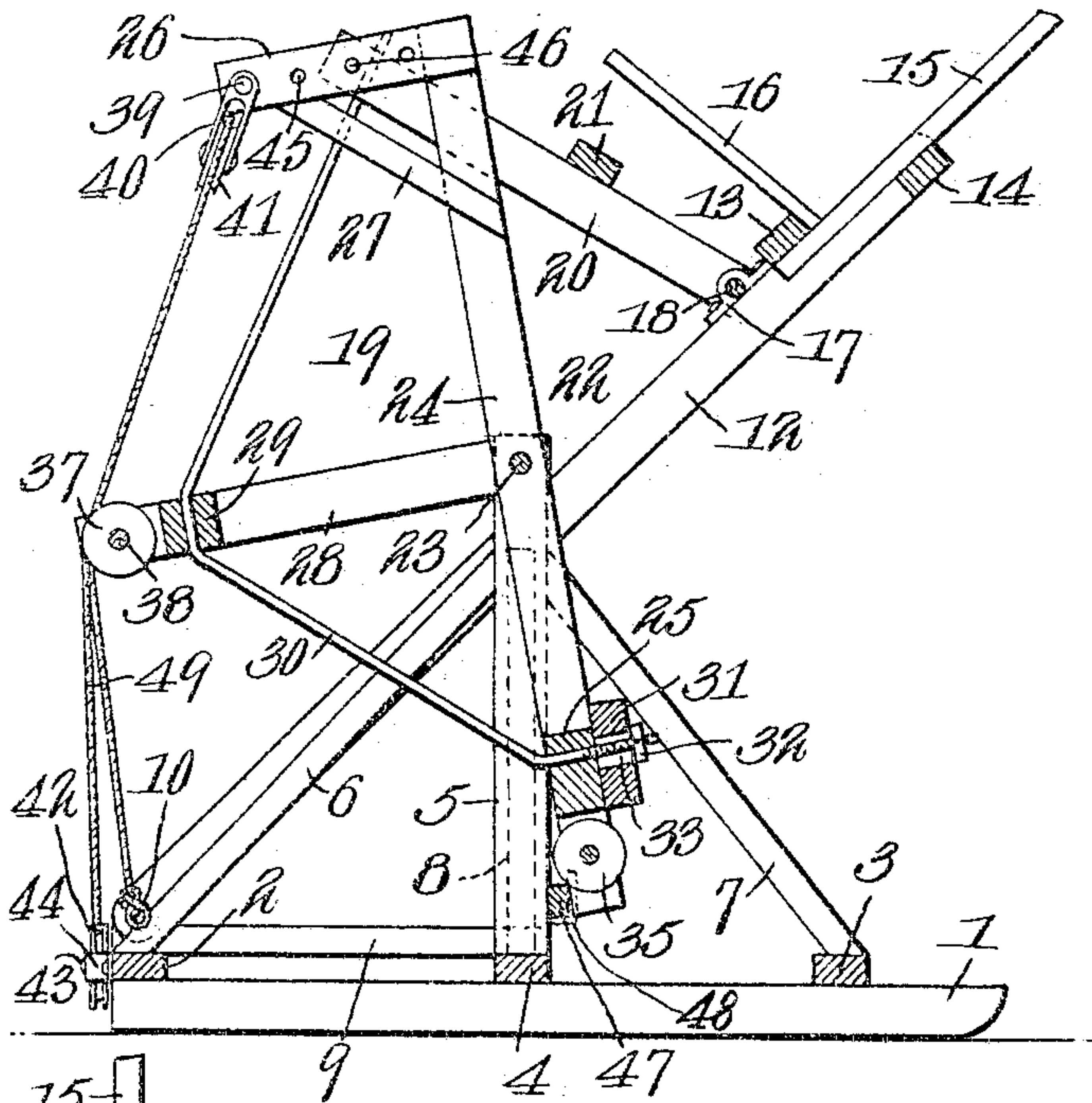


Fig. 2.

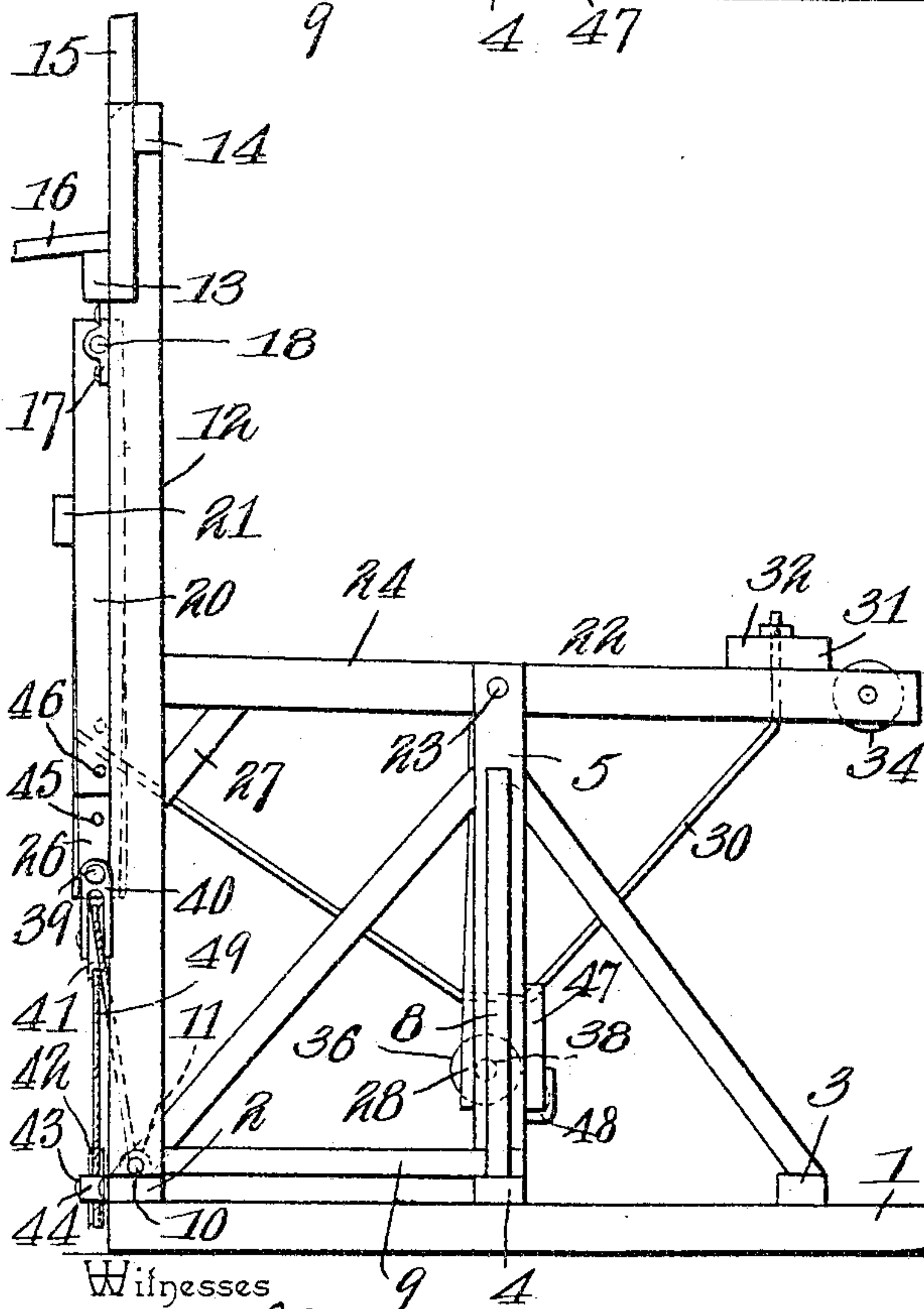


Fig. 3.

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UNITED STATES PATENT OFFICE.

ELLIOTT R. RILEY, OF INMAN, NEBRASKA.

HAY-STACKER.

SPECIFICATION forming part of Letters Patent No. 781,679, dated February 7, 1905.

Application filed February 10, 1904. Serial No. 192,994.

To all whom it may concern:

Be it known that I, ELLIOTT R. RILEY, a citizen of the United States, residing at Inman, in the county of Holt and State of Nebraska, have invented a new and useful Hay-Stacker, of which the following is a specification.

This invention relates to hay-stackers; and it has for its object to provide a machine of this class which shall be simple in construction, easily manipulated, effective in operation, and thoroughly practical as to the details of its construction.

With these and other ends in view the invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings I have shown a simple and preferred form of embodiment of my invention; but I desire it to be understood that I do not thereby limit myself to the precise structural details therein exhibited, but reserve the right to any changes, alterations, and modifications which come fairly within the scope of the invention and which may be resorted to without departing from the spirit or sacrificing the utility of the same.

In said drawings, Figure 1 is a perspective view showing the improved hay-stacker in position to receive a load. Fig. 2 is a side elevation showing the device in the position which it occupies when the carrier-head is partly elevated and secured in position for transportation. Fig. 3 is a sectional view showing the carrier elevated and in position for dumping.

Corresponding parts in the several figures are indicated by similar numerals of reference.

My improved hay-stacker is in practice supported upon a base-frame comprising side pieces or runners 1 1, which are spaced apart and connected by means of cross-pieces 2 and 3, located, respectively, near the front end and at the rear end of the frame, and by an intermediately-disposed cross-piece 4. The latter supports a pair of uprights 5 5, which

are suitably spaced apart and which are connected, by means of inclined braces 6 and 7, with the front and rear cross-pieces 2 and 3, respectively. Inclined braces 8 connect the uprights 5 with the ends of the cross-piece or supporting-sill 4. Additional braces 9 connect the lower ends of the uprights 5 with the ends of the rear cross-piece 3, said braces being supported upon the upper side of the latter, as shown.

In practice the runners, the cross-pieces, the uprights, and the braces which have been just described are strongly framed together and connected where desired by means of bolts or other fastening means, so as to present a structure which without being excessively heavy shall be well fitted to resist any strain to which it may be subjected.

Suitably supported upon the braces 9, near the rear ends of the latter, is a transverse shaft 10, which may be secured in position by means of staples or eyebolts 11. The ends of this shaft project beyond the side edges of the base-frame and serve as pivots for the elevating-arms 12, which latter are extended a suitable distance in front of the front end of the base-frame. Suitably mounted upon and secured to the front ends of the elevating-arms 12 is a carrier-head which in the example shown in the drawings is composed of cross-bars 13 and 14, the former of which is secured across the upper sides of the arms 12 at a suitable distance from the free ends of the latter, while the cross-bar 14 is mortised into the ends of said arms upon the under sides thereof. These cross-bars may be of any desired length, and they serve to support the teeth 15 and 16, which are bolted or otherwise suitably secured thereto and which, together with said cross-bars, constitute the carrier-head.

Upon the upper sides of the elevating-arms 12 in rear of the cross-bar 13 are secured blocks or boxes 17, supporting a transverse shaft 18, upon which is pivotally mounted a frame 19, comprising a pair of side bars 20, the lower ends of which pivotally engage the shaft 18 adjacent to the inner sides of the elevating-arms, and a cross-bar 21, which serves

to connect and space apart the side pieces 20, which latter converge upwardly, as shown. The ends of the cross-bar 21 extend beyond the side pieces 20 of the frame 19 and serve, as will be hereinafter described, as stops to limit the movement of the carrier-frame when the latter is in a raised position.

22 designates a lifting-frame which is mounted pivotally upon a shaft 23, connecting the uprights 5 near their upper ends. This lifting-frame comprises a pair of side beams 24, suitably spaced apart at one end by a block 25 and at the other end by a bracket member 26 and an inclined brace 27. Said lifting-frame also includes a pair of arms 28, extending at right angles to the side beams 24 and spaced apart by a block 29 near their outer ends. A truss-rod 30 extends through the bracket member 26, the brace 27, the spacing-block 29, and the spacing-block 25 and serves to connect the several members and to add strength to the structure, as shown in the drawings. The rear end of the truss member after extending downwardly through the spacing member 25 also extends through a weight which may be secured adjustably upon the end of the truss-rod by means of a nut 32, tapped upon the truss-rod, the weight member 31 being provided with a slot 33 to admit of its adjustment longitudinally with relation to the lifting-frame. The rear ends of the side members 24 and of the spacing-block 25 are recessed to afford bearings for a pair of pulleys 34 and 35, and the free ends of the arms 28 and of the intermediate spacing-block 29 are likewise recessed to afford bearings for a pair of pulleys 36 and 37, the several pulleys being journaled upon transverse shafts or pins 38.

Pivotally mounted upon a pin 39 near the upper end of the bracket member 26 is a block 40, carrying a pulley 41, and a draft-pulley 42 is mounted upon a pin 43, projecting rearwardly from the cross-piece 3, said pin having an additional support in a bracket 44.

A bracket member 26 of the lifting-frame is provided with a plurality of transverse perforations 45, adapted for the passage of a transverse pin or pivotal member 46, extending through the converging ends of the side member 20 of the frame 19. The latter, it will thus be seen, forms a link connection between the lifting-frame and the carrier-frame which readily adapts itself to the various positions assumed by the lifting-frame during the operation of the machine.

47 designates a latch member which is pivotally secured upon one of the uprights 5, the other upright 5 being provided with a catch adapted to support the free end of said latch member. Said latch member is simply for the purpose of supporting the lifting-frame when the latter has been partially tilted so as to partially lift the free end of the carrier-frame, thereby sustaining the latter in a partly-raised

position, as is desirable when the machine is to be transported from one place to another, the carrier-head being thereby supported at an elevation which will enable it to pass over fences and gates of ordinary height, thereby enabling the machine to pass through comparatively narrow gates and other passageways.

49 designates the hoisting-rope, one end of which is made fast to the shaft 10, mounted upon the braces 9. Said hoisting-rope is guided over the pulleys 34 and 36 to the pulley 41, being reeved through the block of the latter and guided from thence over the pulleys 37 and 35 and over the draft-pulley 42, from whence it extends a suitable distance for the convenient attachment of the draft.

In the operation of the device the initial position of the carrier-frame is shown in Fig. 1 of the drawings, from which it will be seen that the free ends of the teeth of the carrier-head rest upon the ground. The load is deposited upon the carrier-head in the usual manner by means of a gathering-rake, and draft is then applied to the end of the hoisting-rope. It will be seen that the strain is in an upward direction upon the end of the lifting-frame, which is connected by means of the link-frame 19, with the carrier-frame, the free end of which latter will thus be gradually elevated, while the lifting-frame gradually becomes inverted to the position shown in full lines in Fig. 3. When the lifting-frame has become entirely inverted, the link-frame 19 will likewise have become inverted and the projecting ends of the cross-bar 21 will lie in the path of the side beams or arms of the carrier-frame and will consequently form a stop for the latter. When the carrier-frame assumes this position, the load carried thereby is dumped off to the left of the teeth 16 onto the stack in front of which the machine is placed. The load having been dumped off the carrier-head and the strain of the draft being released, the counterweight 31, carried by the lifting-frame, will start the carrier-frame on its return or downward movement, during which the hoisting-rope, which during the inversion of the lifting-frame has gradually become disengaged from the guide-pulleys 34 35 and 36 37, will be guided into engagement with said guide-pulleys. The counterweight 31, as will be readily understood, may be so disposed as to almost perfectly balance the weight of the carrier-frame, which will thus be permitted to ascend to its initial position without a perceptible shock or jar, which might prove injurious to the frame of the machine.

It is usually desirable that the carrier-frame should be in an approximately vertical position when it engages the stop-bar 21. By the adjustable connection of the lifting-frame 19 with the bracket member 26 the said lifting-

frame may, however, be permitted to pass slightly beyond the vertical, or it may be checked a short distance before it reaches the vertical position, as may be desired, according to circumstances.

When the machine is to be transported from one place to another, the carrier-frame is partly raised until the weighted end of the lifting-frame passes between the uprights 5
10 5. The latch member 47 is then laid down to engage the catch 48, after which the hoisting-rope is permitted to slacken, thus causing the lifting-frame to swing back and rest against the latch member 47, whereby the carrier-frame will be supported in the partly-elevated position shown in Fig. 2 of the drawings.

My improved hay-stacking apparatus, as will be seen from the foregoing description, is simple in construction, easily operated and manipulated, free from unnecessary complications, and capable of being readily transported, all of which qualifications are desirable in a machine of this class.

If preferred, the draft may be applied by means of a single draft-rope suitably guided over the pulley 42 and over the tilting frame, the end of said rope being made fast to the bracket member 26, as will be readily understood.

30 Having thus described my invention, I claim—

1. In a device of the class described, a base-frame, a carrier-frame hingedly connected with the rear end of said base-frame, a lifting-frame supported pivotally above the base-frame, and a link-frame connected pivotally with the carrier-frame and having adjustable and pivotal connection with a bracket member of the lifting-frame.

40 2. In a device of the class described, a base-frame, a carrier-frame hingedly connected with the rear end of said base-frame, a lifting-frame supported pivotally above the base-frame, a link connection between the front end of the lifting-frame and the carrier-frame, and a cross-bar connected with the link connection and extended laterally in the path of the side members of the carrier-frame.

50 3. In a device of the class described, a base-frame, a carrier-frame hingedly connected with the said base-frame, uprights supported upon the latter, a lifting-frame mounted pivotally between said uprights and adapted to swing between the latter, a link connection between the front end of the lifting-frame and the carrier-frame, and a counterweight adjustably connected with the lifting-frame to counterbalance the weight of the carrier-frame.

60 4. In a device of the class described, a base-frame, a carrier-frame connected hingedly with said base-frame, a lifting-frame supported pivotally above the latter, a link connection between the front end of the lifting-frame

and the carrier-frame, a sheave connected pivotally with a bracket member of the lifting-frame, guide-pulleys upon the latter, a draft-pulley connected with the base-frame, and a hoisting-rope attached to the latter, guided over the pulleys connected with the lifting-frame and reeved through the pulley in the sheave connected pivotally with the latter and over the draft-pulley.

5. In a device of the class described, a base-frame, a carrier-frame hingedly connected with the same, a lifting-frame supported hingedly above the base-frame, a link connection between the front end of the lifting-frame and the carrier-frame, a counterweight connected adjustably with the lifting-frame to counterbalance the weight of the carrier-frame, means for applying draft to the front end of the lifting-frame, said means being guided over suitably-disposed pulleys upon the said lifting-frame, and means connected with the link connecting the lifting-frame with the carrier-frame to check the movement of the latter at a predetermined point.

6. In a device of the class described, a base-frame, a carrier-frame connected hingedly with the same, uprights upon the base-frame, a lifting-frame mounted pivotally between said uprights, a link-frame connecting the front end of the lifting-frame with the carrier-frame, means for applying draft to the front end of the lifting-frame to tilt and gradually invert the latter, and means connected with the supporting apparatus to prevent the return of the lifting-frame and related parts to their initial position.

7. In a device of the class described, a base-frame, a carrier-frame hingedly connected with the same, uprights rising from the base-frame, a lifting-frame mounted pivotally between said uprights, a link-frame connecting the front end of said lifting-frame with a carrier-frame, means for applying draft to the front end of the lifting-frame to tilt and to gradually invert the latter, and a latch member connected pivotally with one of the uprights and adapted to engage upon the other upright so as to lie in the path of and prevent the return of the lifting-frame and related parts to their initial position.

8. In a device of the class described, a base-frame, a carrier-frame connected hingedly with the same, suitably-braced uprights rising from the base-frame, a lifting-frame mounted pivotally between said uprights, said lifting-frame including side members, arms extending from said side members, and a bracket member, a link-frame having adjustable and pivotal connection with said bracket member and connected pivotally with the carrier-frame, guide-pulleys at the rear end of the lifting-frame, guide-pulleys at the outer ends of the arms extending from said frame, a sheave connected pivotally with the bracket

member, a draft-pulley upon the rear end of
the base-frame, and a flexible hoisting element
attached to said base-frame, guided over the
guide-pulleys of the lifting-frame and reeved
5 over the pulley connected with the bracket
member of the latter and over the draft-pul-
ley upon the base-frame.

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

ELLIOTT R. RILEY.

Witnesses:

C. D. KEYES,

J. H. LOGEMAN.