

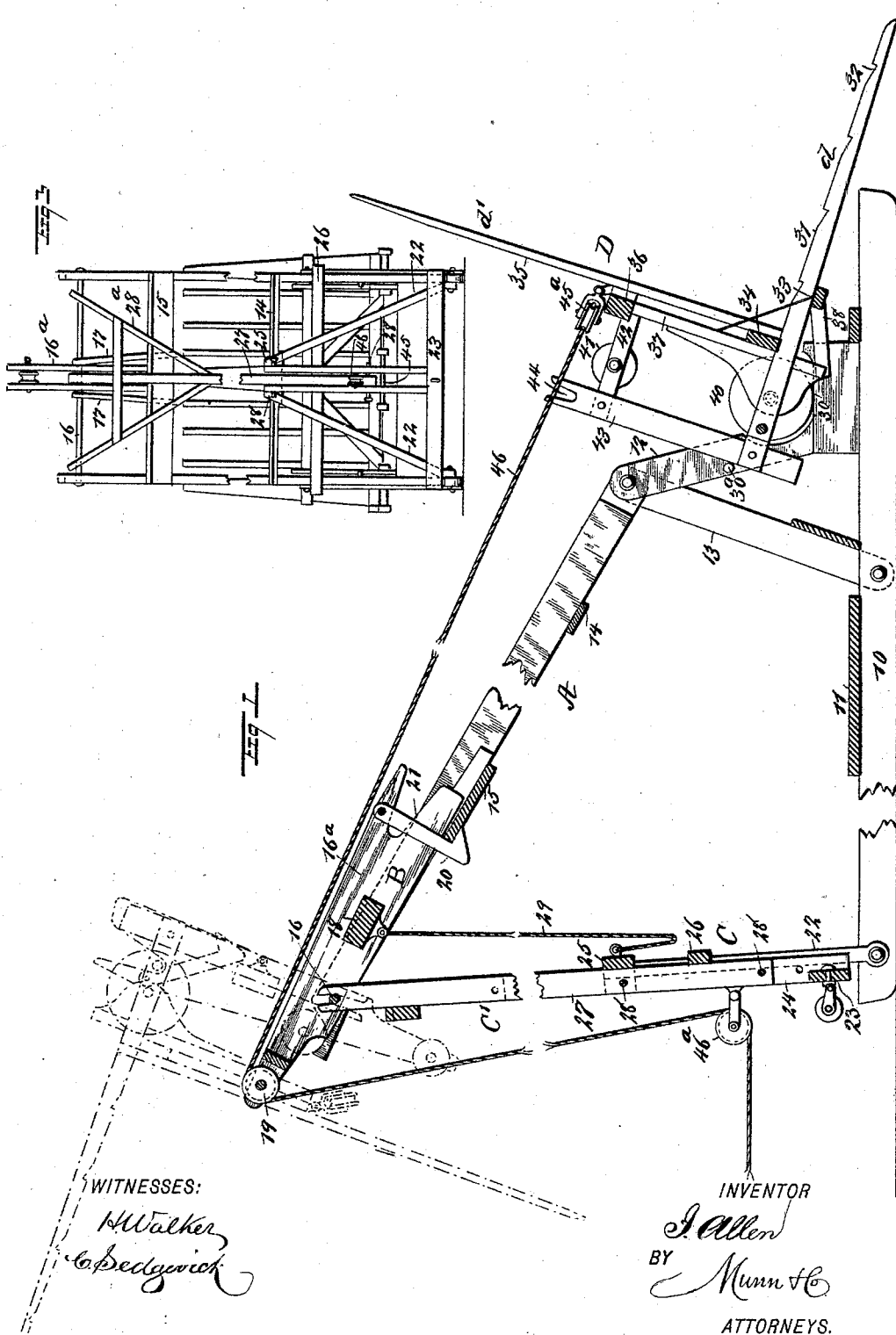
(No Model.)

2 Sheets—Sheet 1.

I. ALLEN.
HAY STACKER.

No. 497,160.

Patented May 9, 1893.



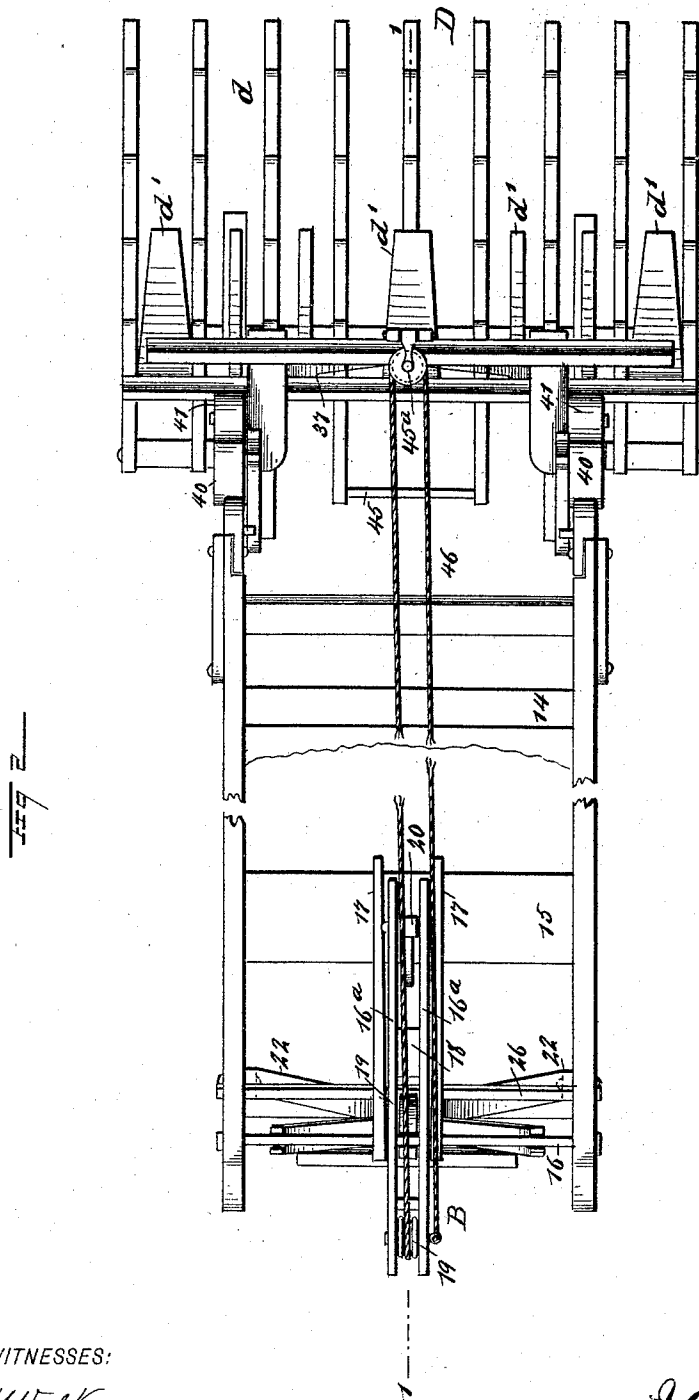
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HAY-STACKER.

SPECIFICATION forming part of Letters Patent No. 497,160, dated May 9, 1893.

Application filed December 21, 1892. Serial No. 455,929. (No model.)

To all whom it may concern:

Be it known that I, ISAAC ALLEN, of La Belle, in the county of Lewis and State of Missouri, have invented a new and useful Improvement in Hay-Stackers, of which the following is a full, clear, and exact description.

My invention relates to an improvement in hay stackers, and has for its object to provide a machine capable of being readily transported about the field, and which is exceedingly simple and light in its construction, yet durable and economic.

Another object of the invention is to construct the stacker in such manner that a carriage may be manipulated upon an inclined track in an expeditious and convenient manner, the carriage being adapted to receive the hay practically on a level with the ground and to deliver the hay at an elevation suitable to varying heights of the stack while being built, and upon the spot where the stack is to be formed.

A further feature of the invention is to provide a means whereby the carriage may be readily dumped without danger of its leaving its track, and restored to a position to receive another load, the dumping mechanism as well as the tripping mechanism for the same being centrally located with respect to the machine.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a vertical section taken through the machine practically on the line 1—1 of Fig. 2, the carriage being shown in positive lines in a receiving position and in dotted lines in a dumping position. Fig. 2 is a plan view of the machine; and Fig. 3 is a rear elevation of the stacker.

The frame or base of the machine may be said to consist of two side bars or runners 10, preferably connected at or near their central portions by a platform 11; and an inclined track A, supported by the runners. Two tracks are extended in parallel lines at a

proper distance apart, and the tracks are connected at their lower ends with the runners by means of rearwardly-inclined standards 12, and the standards are preferably braced by forwardly inclined uprights 13, the uprights or standards being both secured to the runners 10 in any approved manner.

The connection between the tracks and the uprights and the standards 12 and 13 is a pivotal one, and the tracks are held at a suitable distance apart through the medium of cross bars 14 and 15, located at predetermined intervals apart. The tracks A, at their upper ends, are connected by a rod 16, and upon this rod a dumping arm B, is pivoted, the pivotal point of the arm being preferably at one side of the center. The inner end of the dumping arm rests upon the upper transverse connecting bar 15 of the track, and the arm is prevented from having lateral motion by placing two guide bars 17, one at each side of the arm, which guide bars are secured to the upper cross bar 15 and likewise to the rod 16.

The dumping arm preferably consists of two bars 16^a, located at a predetermined distance apart, the bars being connected by a block 18, or its equivalent. In the outer end of the arm a friction pulley 19, is adjustably journaled in any approved manner, while near the inner end of the arm a latch 20, is pivoted, and when the arm is down to an engagement with the cross bar 15 the latch is in engagement with that bar, as shown in Fig. 1. The pulley 19, is made adjustable to increase the dumping power when required. The tripping of the latch is adapted to be effected through the medium of a carriage to be hereinafter described, and to that end the inner end of the arm is provided with a longitudinal slot 21, best shown in Fig. 1, whereby access may be had to the latch 20, and it may be pushed out of engagement with the cross bar 15, which serves as a keeper.

The extreme upper end of each track is beveled downward or is inclined; and the tracks are held at their upper ends in an elevated position through the medium of a standard C, which standard is pivotally connected at its lower end to the rear ends of the runners 10. This standard is made in two sections, a lower truss section of practically A-shape, comprising side arms 22, which are piv-

oted to the runners 10, a bottom bar 23, connecting the side arms, and two vertical intermediate and spaced bars 24, the upright bars and the side arms being connected at the top by a cross bar 25, and below the top by a lengthy cross bar 26, the latter bar being of greater width than the space between the tracks, as when the tracks are carried to a low position, that is, for transportation or storage, the tracks are adapted to rest upon this bar 26, which may be termed a supporting bar or arm. The upper section of the standard is designated as C', and embraces a central bar 27, which extends downward through the center bars 22 of the lower standard section, having movement between these bars; and the center bar 27 of the upper section may be held at any desired elevation within the lower section by passing pins 28 through the body bar of the upper section and the center bars of the lower section, as shown in Fig. 3, and the foot of the said upper section may be entirely removed from the lower section and set in the ground when commencing a stack.

The upper end of the body bar 27 of the upper section is provided with a recess to receive the rod 16, connecting the tracks near their upper ends, as shown in Fig. 1; and at each side of the body bar 27 of the upper section an arm 28^a, is located, the arms extending in opposite directions upward and outward, giving thereby a V-shape to the upper portion of the upper section of the standard. The side arms 28^a, are provided with recesses also adapted to receive the cross rod 16.

It will thus be observed that through the medium of the standard C any desired inclination may be given to the tracks, and that when the stacker is not in use the upper section C' of the standard may be carried through the space between the keeper bar 15 and the cross bar 14, and at that time the tracks will rest upon the supporting arm 26 of the standards and the tracks will be virtually in a horizontal position.

The connecting block 18 of the dumping arm B, is connected with the lower section of the standard C by means of a rope or chain 29, in order that when that arm is in a vertical position, as shown in dotted lines in Fig. 1, it may be returned to its normal or horizontal position. The rope 29, is intended to be so adjusted as to prevent the dumping arm B and carriage from tilting too far, which if tilted only sufficiently to dump will automatically resume their normal positions.

The forward standards 12, upon which the tracks are pivoted, are enlarged or widened at their lower ends, forming platforms 30, and the platforms are preferably given a somewhat semi-circular or concaved upper face, and the forward faces of the standards adjacent to the platforms are likewise semi-circularly recessed, as shown in Fig. 1. The object of the said recess is to hold the heel of the carriage in position while it is being tilted to begin its ascent up the track; and the stand-

ards 12, are provided with pins 30^a, designed as fulcrums to throw the wheels 40 out of said recesses as the carrier is being tilted to ascend.

In connection with the inclined track a carriage D, is employed, receiving and conveying the hay upward to be stacked. This carriage is preferably L-shaped or angular in cross section, and consists of a lower section *d*, adapted when receiving its load to assume a horizontal or inclined position, and an upper section *d'*, adapted at the same time to assume a vertical position. These two sections are adapted to be connected in any suitable or approved manner. The lower section *d*, consists of a series of teeth 31, arranged in parallel order, the teeth being inclined in direction of their outer ends, and the upper surfaces of the teeth are preferably provided with notches 32. The teeth are connected by a cross bar 33, extending across their back or under surfaces, and the teeth have secured upon their inner or rear upper surfaces a head bar 34, and upon this head bar fingers 35, constituting the upper section *d'*, are secured, the fingers being arranged side by side, and the said fingers have preferably smooth outer and forward faces. The fingers of the upper section are connected at or near their centers by a cross bar 36, and from this bar an A-frame 37, is downwardly and outwardly projected beneath and beyond the under face of the lower section *d*, the ends of the A-frame being attached to a lower cross bar 33 of the lower section by brackets 38; thus the entire structure is rendered exceedingly strong. The outer teeth of the lower section *d*, are carried rearward beyond the upper section *d'*; and between these rearwardly-extending teeth wheels 40, are journaled, the wheels being so located that they are adapted to rest upon the platforms 30, or to travel upon the tracks A; and over the lower wheels 40 smaller wheels 41, are journaled in brackets 42, projected from the cross bar 36 of the upper carriage section. These smaller wheels are likewise adapted to travel upon the track, and the rear teeth, between which the lower wheels 40, are journaled, and the brackets 42, are connected by sills 43, the sills being parallel with the fingers 35 of the upper carriage section; the upper ends of the sills are provided with recesses 44, as is best shown in Fig. 1.

The central teeth of the lower section of the carriage, that is, two teeth, one located at each side of the center and between the A-frame, extend somewhat beyond the rear face of the upper or finger section, and the rearwardly-extending ends of these teeth are connected by a rod 45, as best shown in Fig. 2.

At the central portion of the central cross bar of the upper section *d'* of the carriage, a pulley 45^a is located; and a rope or chain 46, is attached at one end to one side surface of the dumping arm B, near the outer end of said arm B, as shown in Fig. 2. This rope or chain is then passed around the pulley 45 and over the pulley 19 in the rear extremity of

the dumping arm; from this pulley the rope or chain is continued downward and passed over a third pulley 46^a, located upon the stand-
ard C, from whence the rope may be carried
5 to any portion of the field.

In the operation of the machine, the carriage is placed with its notched teeth inclined downward to receive its load of hay, its lower wheels 40, resting upon the platforms 30.
10 When the load of hay has been received, tension is applied to the draft rope 46, whereupon the carriage is first rolled or tilted on the wheels 40 as a fulcrum, until the wheels 41 rest upon the track, thereby rolling the hay to the center or angle of the carrier, and then the carrier is drawn up the track, both the larger and smaller wheels 40 and 41 resting thereon. During the upward movement of the loaded carriage the rear extension rod 45
20 of the carriage will enter the recess 21 in the lower or forward end of the dumping arm and will release the latch 20 from its keeper. At that time the smaller wheels 41 of the carriage will be at the upper end of the track, and the recesses 44 in the sills 43 of the carriage will have received the rod 16 at the top of the track. By exerting further tension upon the rope or chain 46, the carriage will be turned as upon a fulcrum upon the rod 16, the sills
30 being in engagement with said rod, and the dumping arm B acts as a further fulcrum, since the carriage is in locking engagement with it; as the dumping arm is carried upward to assume the vertical position shown in dotted lines in Fig. 1, the carriage is carried upward also, and the load is dumped at the rear of the machine, this operation being continued until the stack is completed, more or less elevation being given to the rear ends
40 of the tracks as the work of building the stack continues.

I desire it to be understood that the runners 10 may be of any approved construction, and that the said runners may simply serve
45 the function of sills for the base, or that they may be provided with wheels, rollers, or any equivalents thereof.

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

1. In a stacker, the combination, with the inclined track A, of the standards 12, pivoted to the part A, but inclined at a different angle and having recesses as shown, and the carriage
55 having side wheels adapted to enter said recesses, substantially as shown and described.

2. In a stacker, the combination, with the inclined track A, of the standards 12, pivoted

to the part, A, but inclined at a different angle, and the carriage having side wheels adapted
60 to run on said track, substantially as shown and described.

3. In a stacker, the combination, with an inclined track, comprising a foot and a body section, the foot section having a steeper grade
65 than the body section, of a carriage of angular construction, movably seated upon the foot section and adapted to travel upon the body section of the track, said carriage having its fulcrum upon its sides, and an elevating mechanism connected with the carriage, substan-
70 tially as shown and described.

4. In a hay stacker, the combination, with inclined tracks, and a dumping arm fulcrumed between the tracks and provided with a latch
75 adapted for engagement with a keeper on the tracks, of a carriage adapted to travel upon the tracks, provided with a trip extension adapted for engagement with the latch of the dumping arm, and a draft device connected
80 with the carriage and engaging with the dumping arm, as and for the purpose set forth.

5. In a hay stacker, the combination, with inclined tracks, and a dumping arm fulcrumed between the tracks and provided with a latch
85 engaging with a keeper on the tracks, of a carriage provided with wheels adapted to travel upon the tracks, sills projected from the carriage, having recesses to receive the fulcrum pin of the dumping arm, a trip arm projected
90 from the rear portion of the carriage and adapted to engage with the latch of the dumping arm when the sills engage with the fulcrum pin of said arm, and a draft device connected with the carriage and having engage-
95 ment with the dumping arm, as and for the purpose set forth.

6. In a hay stacker, the combination, with inclined tracks, a dumping arm located between the tracks, and a latch mechanism carried by the arm, of a carriage adapted to
100 travel upon the tracks and provided with fingers arranged at angles to each other, wheels located at the rear of one set of fingers, beams adapted to act as fulcrums of the carriage lo-
105 cated adjacent to the wheels, and a trip arm projected from the rear set of fingers and adapted for engagement with the latch mechanism of the dumping arm when the sills of the carriage receive a fulcrum, as and for the
110 purpose set forth.

ISAAC ALLEN.

Witnesses:

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JOHN R. HIGH.