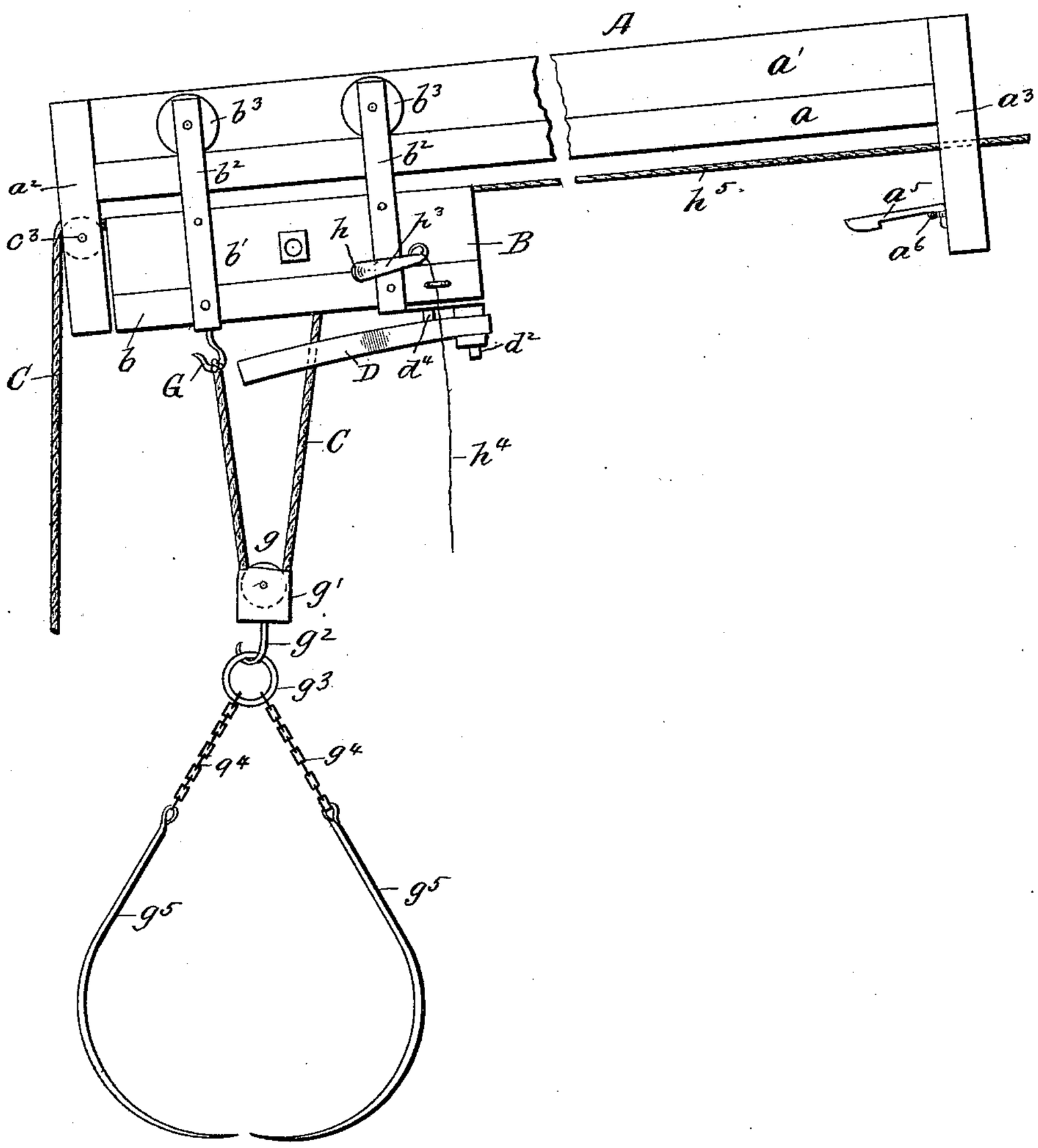
(No Model.) 2 Sheets—Sheet 1.

J. M. HARRIS.

HAY OR STRAW ELEVATOR.

No. 373,526. Patented Nov. 22, 1887.

Fig. 1.



Witnesses:
T. R. Stuart.
L. Seward Bacon

Inventor:
James M. Harris.
By Marble & Macon,
Attys.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

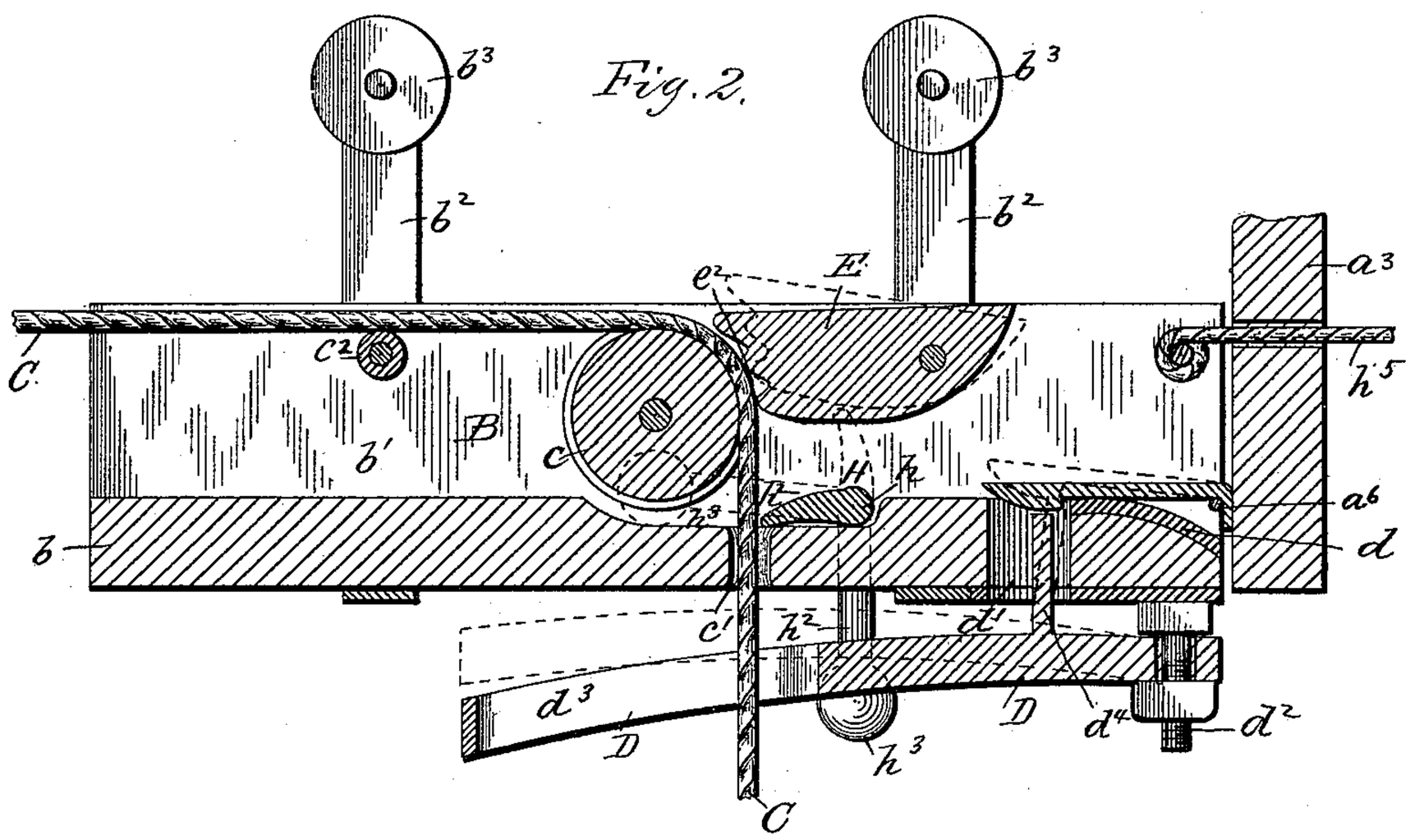
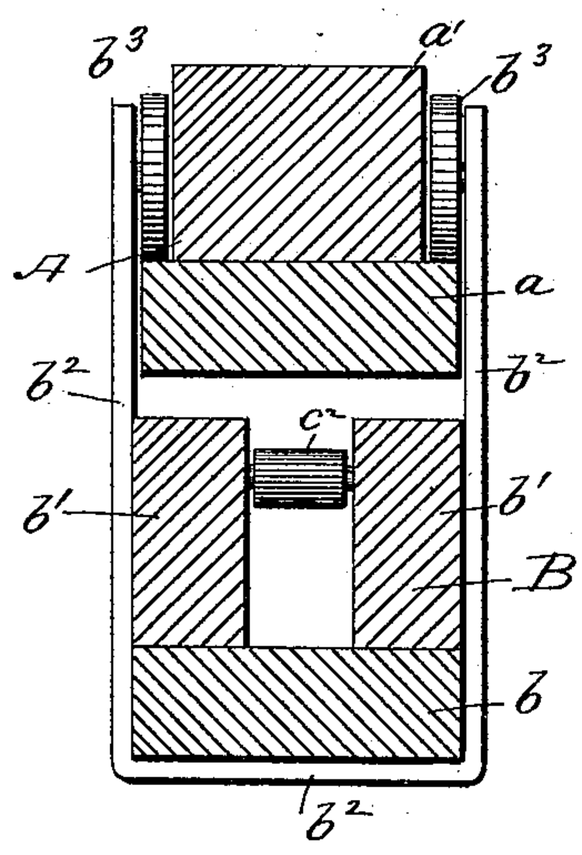


Fig. 3.



Witnesses:
F. R. Strait
L. Seward Bacon

Inventor.
James M. Harris.
By
Marble & Mason,
Attys.

UNITED STATES PATENT OFFICE.

JAMES M. HARRIS, OF MEMPHIS, TENNESSEE.

HAY OR STRAW ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 373,526, dated November 22, 1887.

Application filed July 5, 1887. Serial No. 243,377. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. HARRIS, a citizen of the United States, residing at Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in Hay and Straw Elevators; 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.

My invention relates to certain improvements in hay or straw elevators; and it consists in the construction, combination, and arrangement of the parts of the same, which will be fully hereinafter described, and definitely pointed out in the claims.

The objects of my invention are, first, to provide improved means for expediting the unloading of hay, straw, and like material and transporting the same to the desired place of deposit, and, second, to so construct the same that it will be simple in its parts, readily understood and operated, strong, durable, and cheaply manufactured. I attain these objects by the mechanism illustrated in the accompanying drawings, wherein the same letters of reference indicate the same parts in the several views, and in which—

Figure 1 is a side elevation of my improved elevator in position for operation. Fig. 2 is a longitudinal sectional view of the carriage, and Fig. 3 is a transverse vertical section of the same.

In the drawings, A represents a track or carriage-way, which, as shown, is constructed of two strips or pieces of timber, a and a', the lower piece, a, being somewhat wider than the upper piece, a', so as to extend out on both sides of the same. This track, if desired, may be made of three pieces of timber, another piece corresponding in width to the lower piece, a, being secured on top of the upper piece, a'. Secured to each end of said track are blocks or cross-pieces a^2 and a^3, which are placed transversely thereon and extend down from the same for a short distance. The block a^2 has a slot formed therein, in which a pulley, c^3, is mounted, and the block a^3 has mounted on its inner lower portion a metallic catch, a^5, which is pivotally held in place and allowed to tilt vertically by the strip a^6, secured to said block a^3. This track is to be fastened to the ceiling or braces of a barn or other building or support, as the case may be, by means of iron bolts and taps or other suitable devices. If said track be arranged in a barn or other building, a portion thereof will project out through an opening or door for a suitable distance and be arranged with a slight inclination from its upper to its lower end.

Close to and beneath the track A is mounted the carriage B, which is of a width equal to that of the said track, and consists, as shown, of three pieces—viz., the bottom piece, b, and the two side pieces, b' b'—and is provided with the supporting-straps b^2 b^2, which extend horizontally beneath it and upwardly on both sides thereof. These straps are made of metal and extend across the sides and bottom of the track, to which they are bolted, and are provided at their upper ends with the wheels b^3 b^3, said wheels being journaled on the inner faces of their upper ends, so as to run upon the projecting parts of the lower piece, a, of the track.

Secured to a suitable axle situated near the center of the carriage B is a pulley, c, over which the hoisting-rope C passes after entering through a slot, c', formed in the bottom of the carriage. Said rope thence passes over the anti-friction roller c^2, out over the guide-pulley c^3, arranged in an opening in the end block, a^2, and is thence carried down and attached to any suitable power medium.

The upper or forward end of the bottom portion of the carriage B is beveled off and capped by a rigidly-secured curved plate, d, upon which the catch a^5 is adapted to engage. The plate d at one end terminates flush with an opening, d', formed in the bottom of the carriage.

D is a slotted lever, which is arranged beneath the carriage B and loosely secured thereto by a nutted bolt, d^2, at its front or upper end. The opening in the lever through which the bolt d^2 passes is enlarged, so as to permit a tilting or an up-and-down motion of said lever, as shown by dotted lines in Fig. 2. An elongated slot, d^3, is formed in the free or rear end of the lever D, and through the same the rope C passes, the said slot being of sufficient length to allow of free movement of the rope therein. d^4 is a stud or pin upon the

upper side of the lever D, and is arranged to extend up into the slot d' in the bottom of the carriage B. A clamp or brake, E, is arranged within the carriage in close proximity to the pulley c, over which the rope C passes, and is mounted on a suitable journal having bearing in the sides of said carriage. Said clamp or brake is provided with a series of biting-surfaces or teeth, e^2, formed on the free end thereof, which bear against the rope C on the pulley c, and thus prevent a backward or downward movement of said rope, but permit a free and easy forward movement thereof.

Under the construction and arrangement of the parts just named it will be evident that should the rope C break while being elevated, or other accident happen thereto, the said rope and its attached load will be prevented from running backward, that a free and unobstructed forward movement of said rope over the pulley c and past the clamp or brake E is permitted, and that the load and rope, when drawn up, will be retained in elevated position. To permit of the descent of the rope C, a dog, H, is mounted on a rod, h, in the lower portion of the carriage, beneath the brake. This rod has bearing in the sides of the carriage, and is provided at one end with an arm, h^2, having a weight, h^3, on its outer end, as shown in full and dotted lines in Fig. 2. In order to raise the dog H, which of course raises the brake off the rope C, the rod h is provided at its other end with an arm, h^3, which extends out from said rod in an opposite direction from the weighted arm h^2, and has secured to its end a cord, h^4, extending down within reach of the operator.

A hook, G, is secured to the lower portion of the rear supporting-strap, b^2, of the carriage B, and to said hook one end of the rope C is secured, which passes thence down under the pulley g, mounted in the block g', up through opening c' in the bottom of the carriage, over pulleys c, c^2, and c^3, and then downward to the source of power. The pulley-block g' has a hook, g^2, secured to its bottom, in which is placed a ring, g^3, and from the latter hang the chains g^4 g^4, which support the curved grappling forks or tongs g^5 g^5.

The operation is as follows: The hay or straw being beneath the upper or outer end of the track A, in position for elevating or unloading, the carriage B is drawn up the inclined track to the end block a^3 by the cord h^4, attached to the arm h^3 of the dog H, or a cord, h^5, may be attached to the upper end of the carriage and extend through an opening in the end block, a^3, and thence down to the person on the load, for drawing said carriage up the track. As the carriage approaches the upper end block, a^3, its beveled or curved plate d passes beneath the pivoted catch a^5, which slides over the same, engages with its rear vertical edge, and thus locks the carriage at the upper end of the track. While the carriage is held in this position the forks g^5 g^5 are inserted into and loaded with the material to be raised. Then the power attached to the free end of the rope C is applied and the load raised until the pulley-block g' strikes the lever D and forces it up, which in turn forces up the pin d^4 into the slot d', where it comes in contact with the catch a^5 and raises it, thereby releasing or unlocking the carriage. Then the latter moves by gravity down the inclined track into the barn or elsewhere, carrying the loaded forks with it, until it reaches the end block a^2, which prevents its going farther. Then the arm h^3 is drawn down by the cord h^4, thus raising the dog H, and also the brake E, and permitting the rope to run downward, the load to descend, and the forks to be withdrawn from their load.

It will be evident that, owing to the uniform width of the carriage and track, the wheels secured to the inner sides of the upper ends of the supporting-straps are prevented from running off said track, as they occupy the entire space caused by the difference in width of the strips a and a'.

It is obvious that minor changes in the construction and arrangement of the parts of my improved elevator may be made without departing from the nature or principle of my invention.

Having thus described my invention, what I claim as new is—

1. In a hay and straw elevator, the combination of the track A, consisting of the timbers a a' and the end blocks, a^2 a^3, the block a^3 having the catch a^5, the wheeled carriage suspended from said track by the straps b^2 b^2 and provided with the curved plate d at one end, the opening d', the bolt d^2, the slotted lever D, having a stud, d^4, on its upper side, the elevating-rope C, and pulley-block g', substantially as described.

2. In a hay and straw elevator, the combination of the track A, the carriage B, provided with the pulleys c and c^2, the elevating-rope C, the brake E, the dog H, the shaft h, provided with the weighted arm h^2 and the arm h^3, and the cord h^5, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES M. HARRIS.

Witnesses:
JOS. THIERS,
JNO. E. KELLY.