(No Model.) 3 Sheets—Sheet 1.

L. H. ROBBINS.

HAY LOADER.

No. 336,948. Patented Mar. 2, 1886.

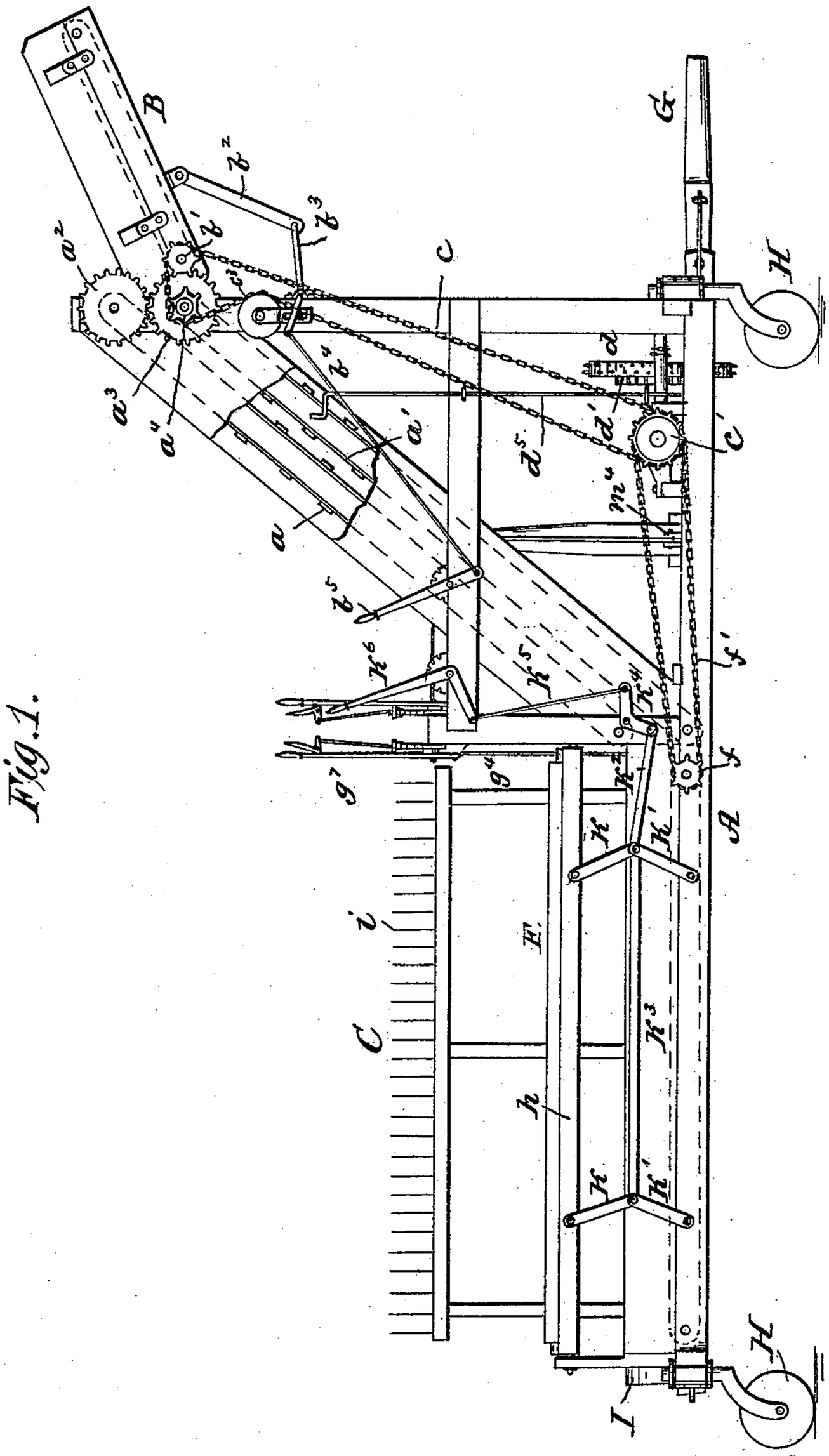

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

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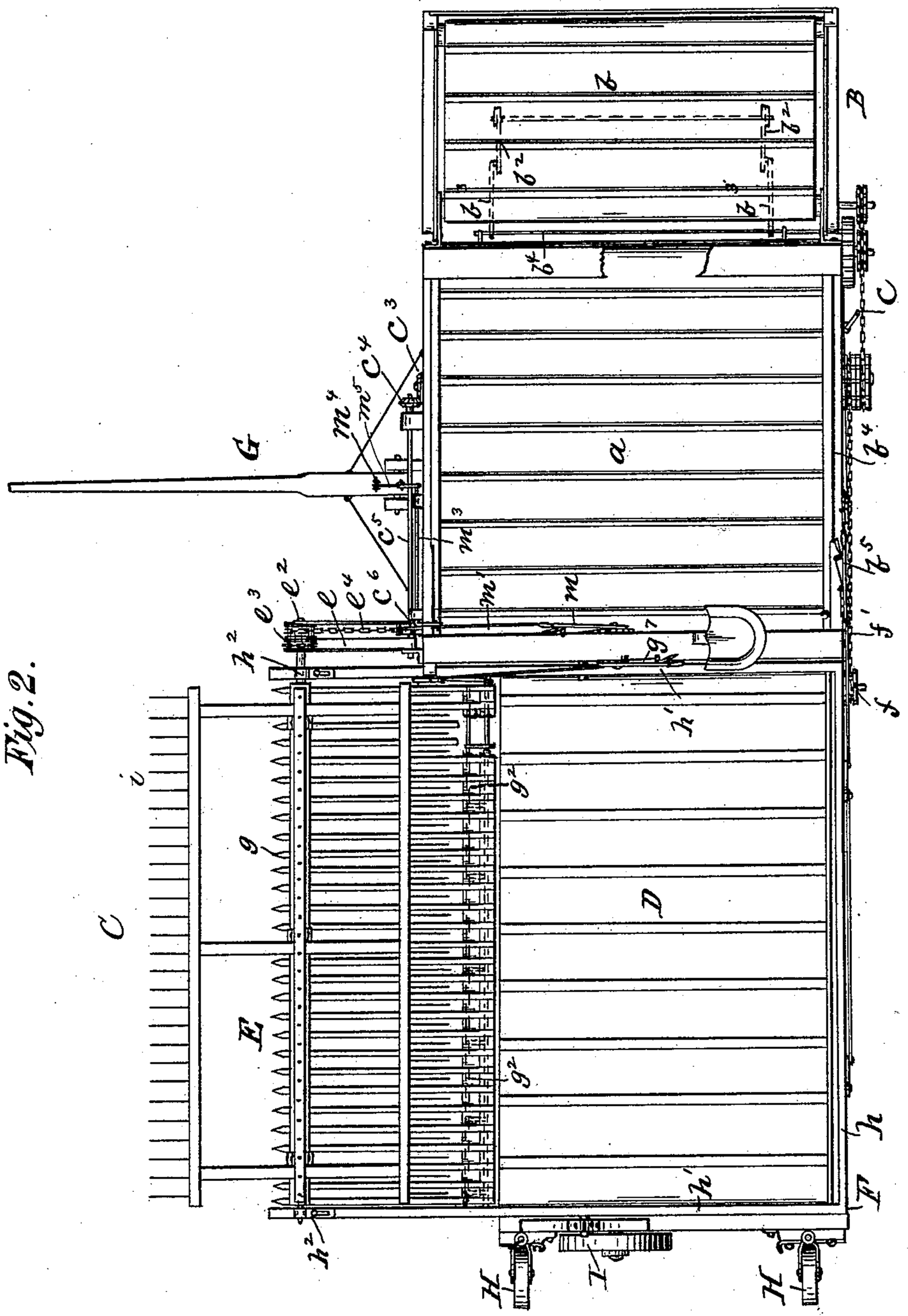

Fig. 2.

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Fig. 3.

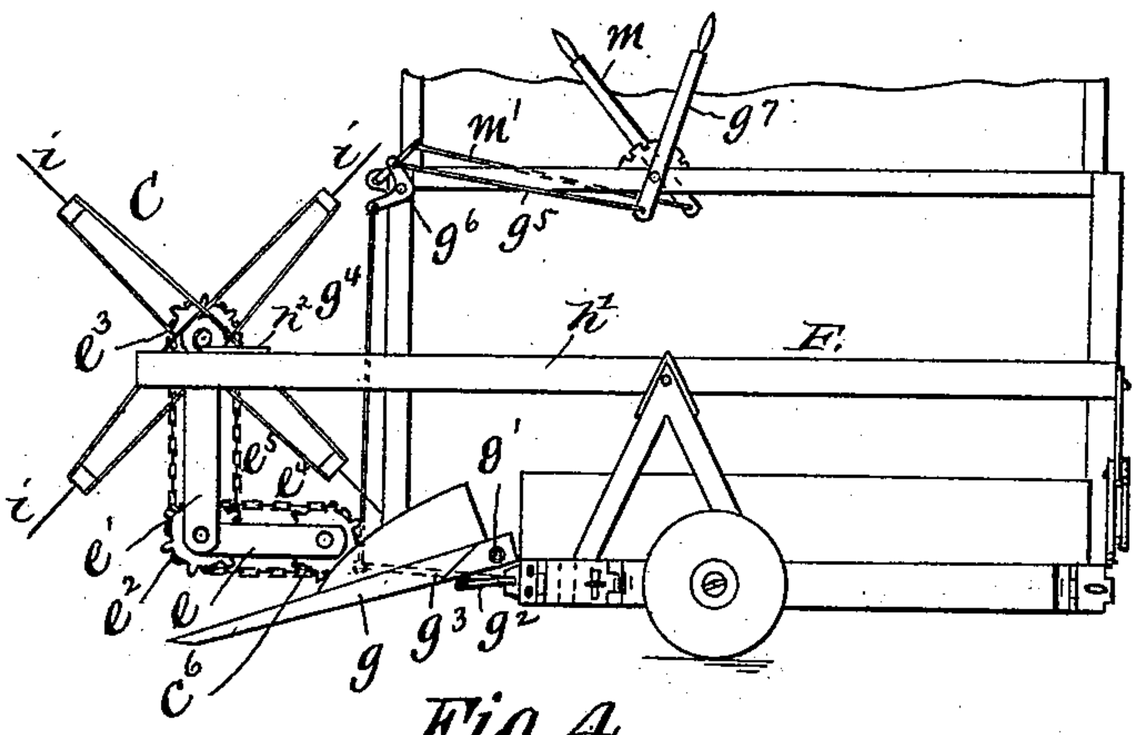


Fig. 4.

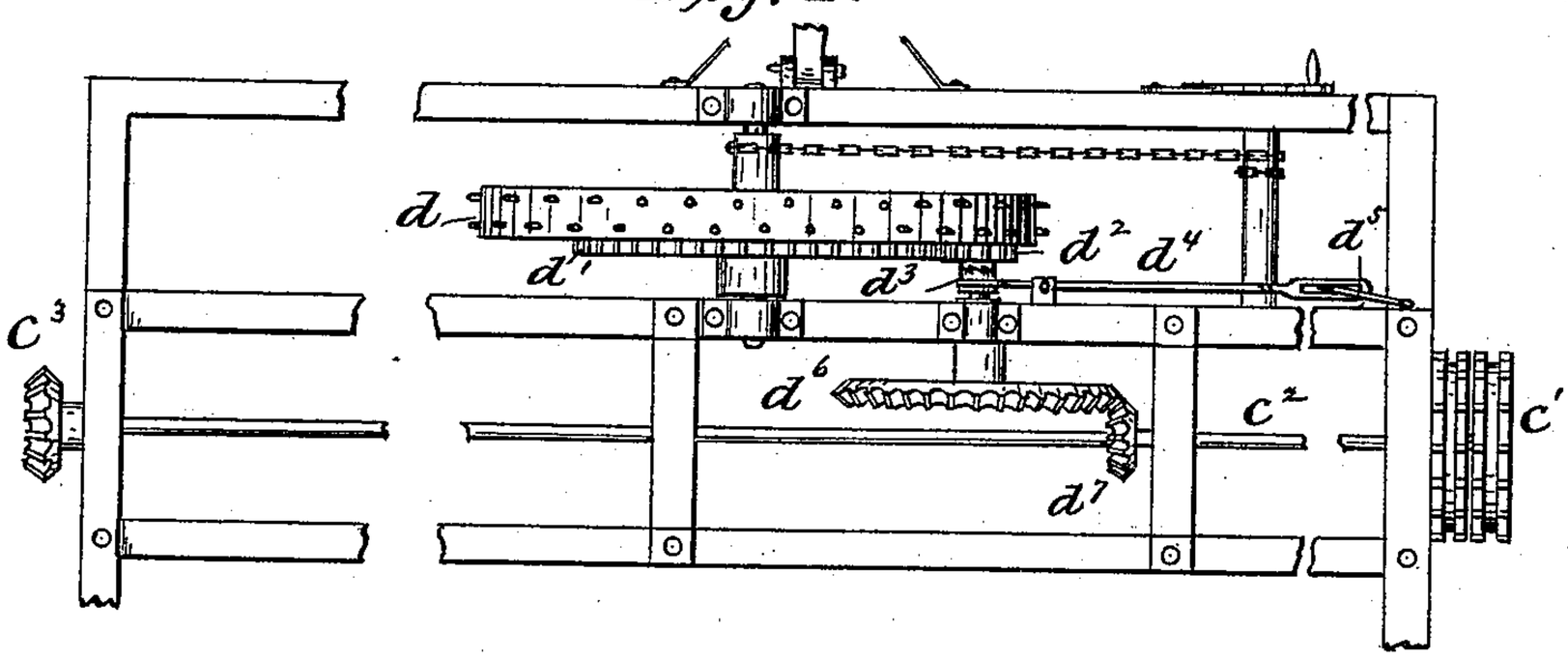


Fig. 5.

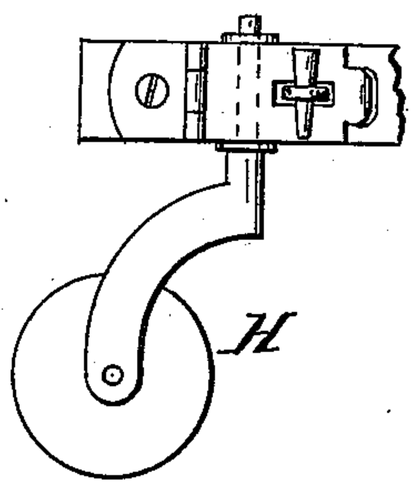
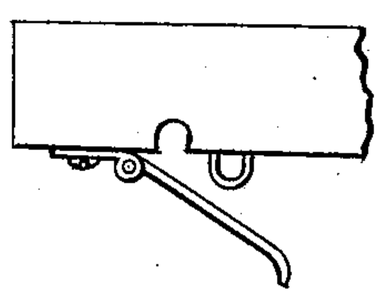


Fig. 6.



Witnesses
Sam'l R. Turner
A. Parker

Inventor
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UNITED STATES PATENT OFFICE.

LEWIS H. ROBBINS, OF McCOOL, INDIANA.

HAY-LOADER.

SPECIFICATION forming part of Letters Patent No. 336,948, dated March 2, 1886.

Application filed April 25, 1885. Serial No. 163,424. (No model.)

To all whom it may concern:

Be it known that I, LEWIS H. ROBBINS, a citizen of the United States, residing at McCool, in the county of Porter and State of Indiana, have invented certain new and useful Improvements in Hay-Loaders; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to hay-loading machines; and it consists in the combination and arrangement of the several parts hereinafter described, and particularly pointed out in the claims.

In the drawings, Figure 1 is a rear elevation, and Fig. 2 is a plan, of my complete machine. Fig. 3 is a detail plan of the driving mechanism. Figs. 4 and 5 are detail views showing the manner of attaching and removing the casters.

For convenience of reference, I denominate that the "inner" end of the machine which carries the driving mechanism, and the opposite end, which carries the rake, the "outer" end.

A is a substantial frame, suitably constructed to carry all the parts of my invention.

a and *a'* are two endless belts, arranged to run parallel with and sufficiently near each other to carry the hay upward between them. These belts are arranged in the inclined position shown, having their upper ends supported at a suitable elevation to deliver the hay onto the wagon. The belts run on suitable rollers at their opposite ends.

On the end of the shaft of the upper roller of belt *a* a gear, a^2, is fixed, and a gear, a^3, which meshes with gear a^2, is fixed on the end of the shaft of the upper roller of belt *a'*. A small sprocket or other suitable wheel, a^4, is attached to the shaft next to the face of wheel A^3, as shown. An additional carrier, B, is suitably hinged and provided with a belt, *b*, carried by suitable rollers, and driven by an endless chain passing over the sprocket-wheel a^4. This carrier turns on the shaft of sprocket-wheel *b'*. The sprocket-shaft is supported in bearings in brackets secured to the main framing. The carrier *b* is also supported on two arms, b^2 b^2, having their upper ends pivoted to the under side of said carrier, and having their lower ends pivoted on crank-arms b^3 on a rock-shaft journaled on the main frame, and operated by a connecting-rod, b^4, and lever b^5, arranged within and under the control of the driver, who can thereby raise or lower the outer end of said carrier, as may be needed. The belts are driven by an endless chain, *c*, running over the sprockets a^4 *b'* and under one part or half of a double sprocket, *c'*, on a shaft, hereinafter described. The tension of the chain *c* may be increased or diminished by the adjustable anti-friction roller c^3, journaled on a pin on the main frame.

d is the main driving-wheel, to which is fixed the main driving gear-wheel *d'*, which meshes with the driving-pinion d^2. A clutch, d^3, is arranged on the shaft of the pinion d^2, and it may be thrown into or out of gear by means of the pivoted rod d^4 and a cranked rock-shaft, d^5, which has its upper end extended upward within reach of the driver.

d^6 is a miter-gear fixed on the shaft of the driving-pinion, and it meshes with a miter-pinion, d^7, on the shaft c^2 of the double sprocket *c'*. The shaft c^2 extends from the rear side to the front side of the frame, and has fixed on its forward end a miter-pinion, C^3, which meshes with a pinion, c^4, on a shaft, c^5, which extends sidewise along the frame to a point about opposite the lower rollers, around which run the elevating-belts *a a'*, and has fixed on its rear end the sprocket-wheel c^6. An arm, *e*, pivoted concentrically with the sprocket c^6, is extended forward, and is furnished with a standard, *e'*, in the upper end of which is a bearing for one of the gudgeons of the reel C. A double sprocket-wheel, e^2, is journaled at the base of the standard, and another single sprocket-wheel, e^3, is arranged on the shaft of the reel at the top of said standard. Chains e^4 and e^5 connect the sprocket-wheels c^6, e^2, and e^3, and drive the reel. The bracket or frame *e e'* turns vertically on its pivot-point as the reel is raised or depressed, as hereinafter set forth. The standard *e'* is pivoted by its lower end concentrically with the double sprocket e^2, so

that it will always maintain a proper position relative to the reel-shaft as the latter may be raised or lowered. An endless-belt platform, D, is placed in the outer portion of the main framing, and is arranged to receive and deliver the hay to the elevating-belts *a a'*. It is run by rollers driven by a sprocket-wheel, *f*, and endless chain *f'* and the double sprocket-wheel *c'*.

The rake E is composed of a series of teeth, *g*, pivotally secured on a bar, *g'*, arranged close to and at the front edge of the outer portion of the main frame, and so that they will pick up the hay from the ground and deliver it onto the endless belt D. The teeth are supported by a bail or rod, g^2, journaled slightly in the rear of and lower than the rod *g'*, so that the teeth will have the proper downward pitch. The bail is operated by a crank-arm, g^3, vertically-disposed connecting-rod g^4, horizontal connecting-rod g^5, bell-crank g^6, and lever g^7, the latter being within reach of the driver. By this mechanism the pitch of the teeth is regulated at will.

A tilting reel-frame, F, composed of the arms *h' h'* and rear bar, *h*, is provided to carry the reel. It is suitably supported in place upon journals so that it tilts easily. The rear bar, *h*, is arranged approximately in the same vertical plane with the rear side of the framing, and its arms are arranged at the ends of the receiving-platform D and extend forward sufficiently far to support the reel in proper position over the rake. The reel is journaled in movable boxes h^2, so that it may be adjusted along the arms as may be desired to bring the teeth nearer to or farther away from the receiving-platform. Ordinarily the reel is arranged with its shaft in a plane approximately vertical to the ends of the rake-teeth. If the grass is very heavy or is slightly damp, the reel is placed nearer the platform D, so that the fingers *i* will push the said grass onto the platform. The pivoted standard *e'* readily adjusts itself to the adjustment of the reel-shaft. The frame F is tilted by the arms *k k'*, having their ends pivoted together and to the pitman k^2. The arms *k'* are also pivoted at their lower ends to the framing, while the upper ends of arms *k* are pivoted to the rear bar of the tilting frame. I employ two sets of arms *k k'*, connected by a coupler, k^3. This is done as a matter of preference; but a single set arranged at or near the middle on the bar *h* would give about as good results. The pitman k^2 is connected by a bell-crank, k^4, and rod k^5 with the operating-lever k^6. By pushing the connected ends of the arms toward the outer ends of the machine they will extend and push the rear bar, *h*, upward, and thus lower the front ends of the arms *h'* and let the reel down toward the rake, so that the teeth *i* will take deeper hold in the hay. By drawing the connected ends of these levers *k k'* toward the inner end of the machine they will be contracted, and the frame F will be tilted, so as to raise the reel.

Instead of using the arms *k k'* and connecting them with the lever k^6 as hereinbefore described, they could be dispensed with, and the rod k^5 could be connected directly to the tilting frame, and the latter be tilted thereby. I prefer to use the arms *k k'*, for thereby I not only have a tilting means, but a support or brace for the frame. I attach the tongue G on the front side, as shown in Fig. 2, when the machine is gathering and loading hay.

When in use, the casters H (of which there are preferably four—one at each corner) are removed and the weight of the machine rests on the driving-wheel *d* and the wheel I on the outer end of the machine.

The casters are held by a hasp-fastening, as shown in Figs. 5 and 6, so that they can be easily removed or be put in position.

The weight of the tongue can be taken off the horses by means of a lever, *m*, arranged within reach of the driver and suitably connected by rods *m' m*^{5}, connected by a rock-shaft, m^3, with a staple or hook, m^4, on the said tongue.

When the machine is not in use and is to be moved to another field, the casters are put in place and the tongue is tranferred to the inner end, as shown in Fig. 1.

The operation of my machine will be fully understood by the description hereinbefore given. It does efficient work, and is so compact in form as to be easily handled. Its various operating-levers, g^7, *m*, k^6, and b^5, have each the usual hand-operating latch and a toothed segment engaged by the latch to lock them in their various adjusted positions. As this construction is common and well known, the operation of the parts will be readily understood.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the receiving-platform, a rake pivoted to its front edge, and an adjusting-lever connected therewith, of a tilting frame extending over the rake and supported by the platform, a reel mounted on the outer ends of the tilting frame directly above the rake, and a lever connected with the frame to adjust it independent of the rake correspondingly with the position of the latter, substantially as set forth.

2. The combination, with the endless belts *a* and *a'*, gears a^2 a^3, sprocket-wheel a^4, carrier-belt *b*, supported upon rollers and having a driving-sprocket, *b'*, of the shaft c^2, provided with sprocket-wheel *c'*, and gear d^7, connected by intermediate gearing with the driving-wheel, the driving-chain *c*, and the interposed anti-friction tension-pulley, substantially as set forth.

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

LEWIS H. ROBBINS.

Witnesses:
A. D. BARTHOLOMEW,
W. L. WILSON.