

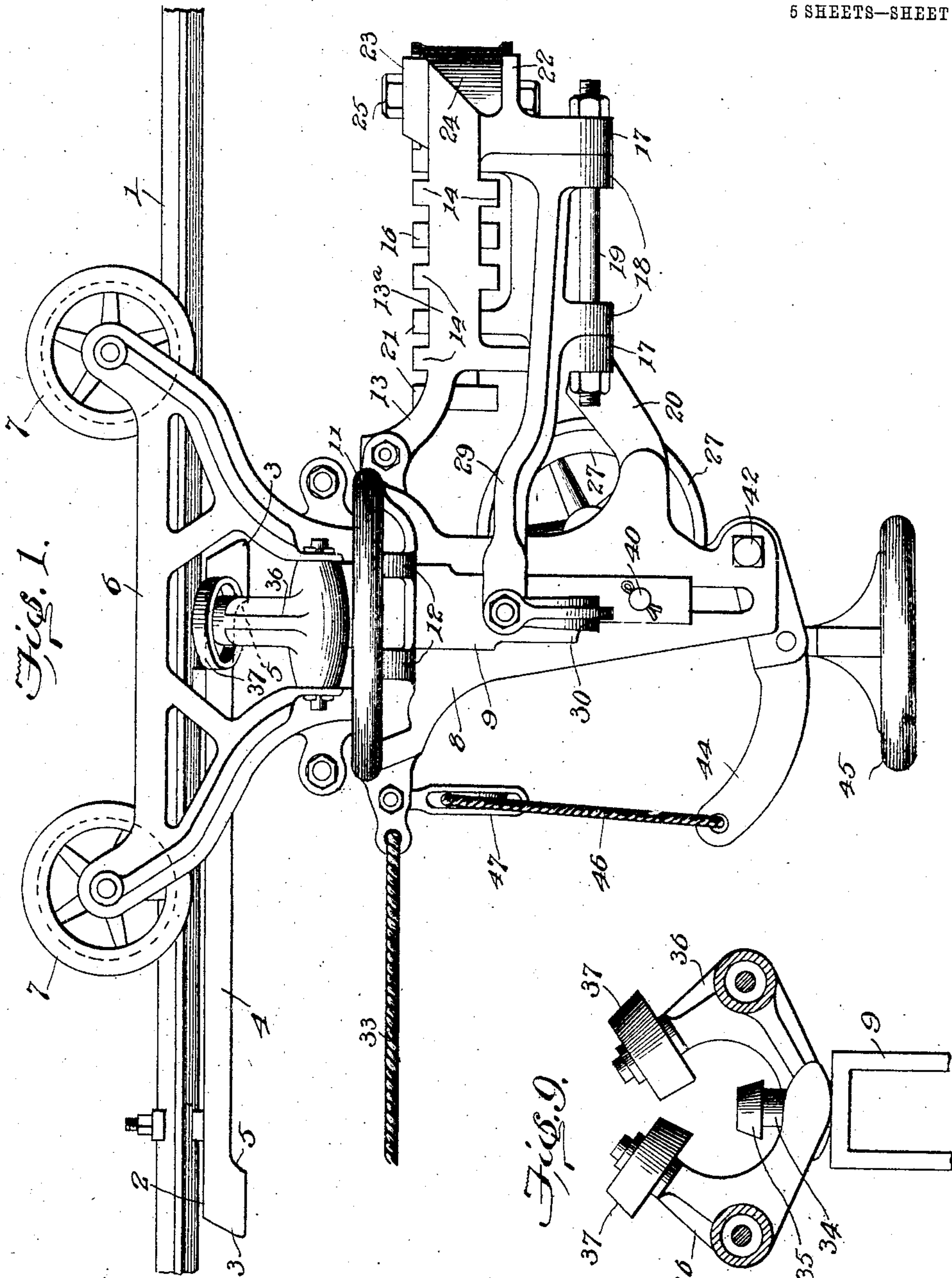
No. 786,456.

PATENTED APR. 4, 1905.

P. A. MYERS.
HAY CARRIER.

APPLICATION FILED OCT. 14, 1904.

5 SHEETS—SHEET 1.



Witnesses

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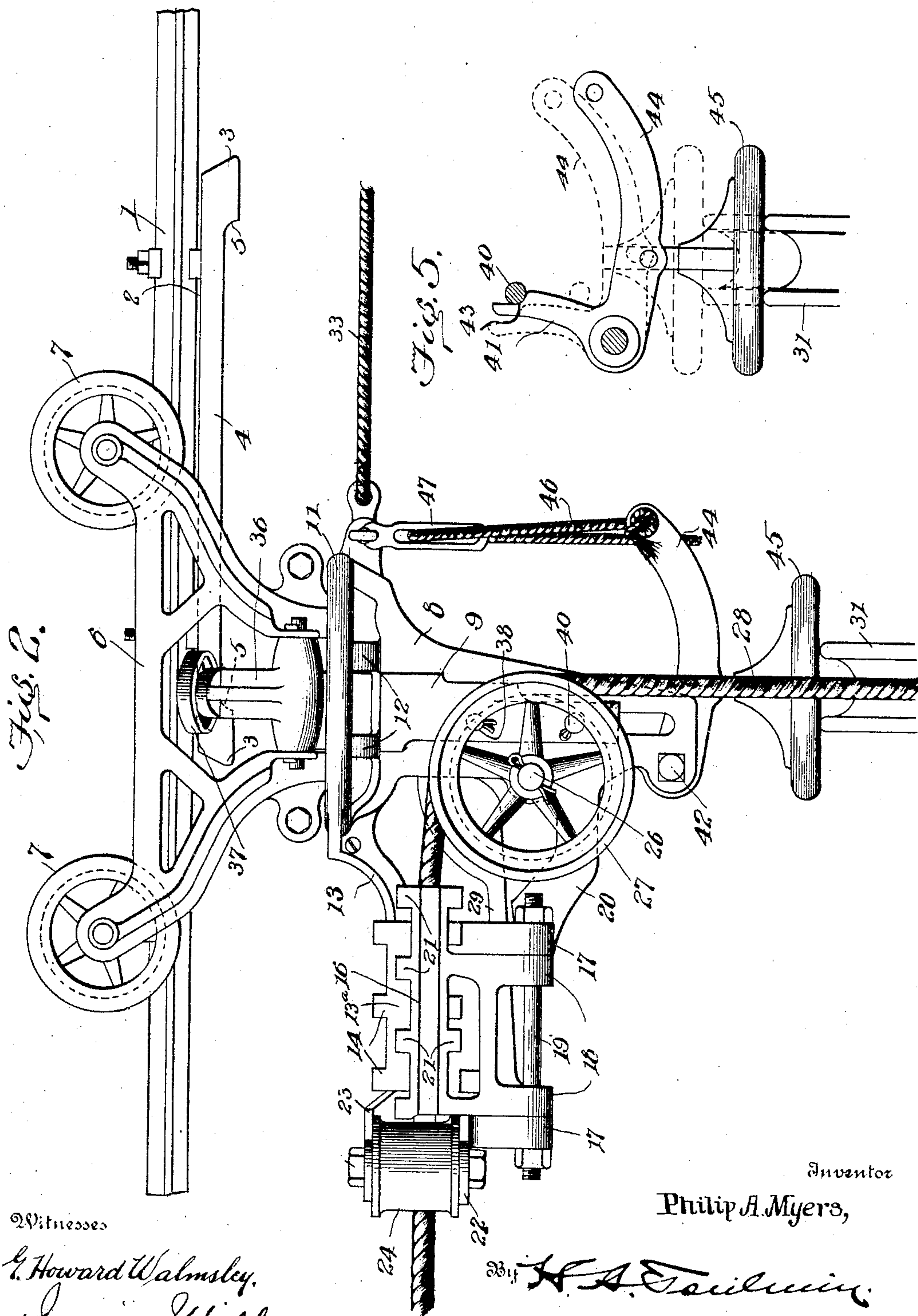
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5 SHEETS—SHEET 2.



Witnesses

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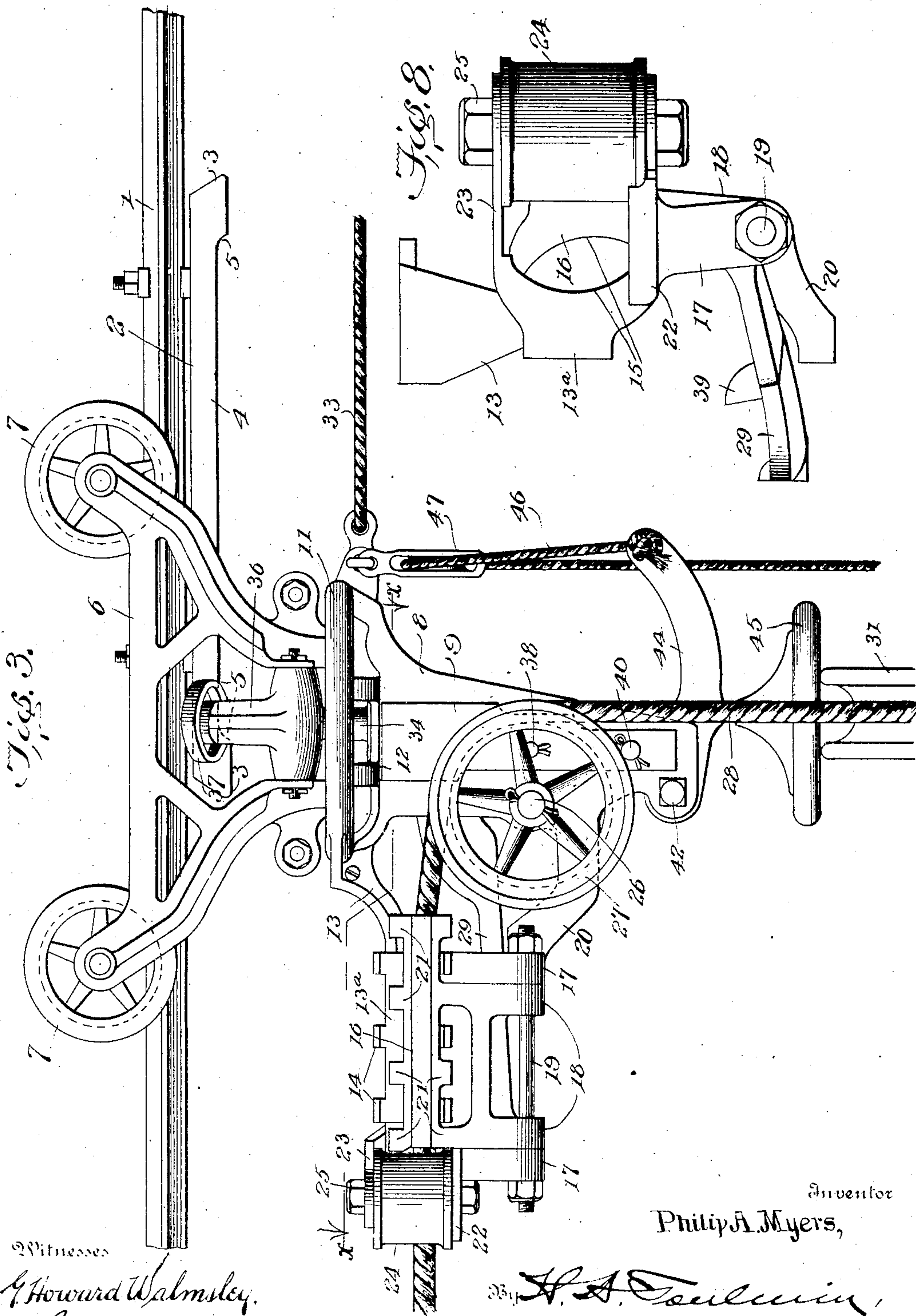
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5 SHEETS—SHEET 3.



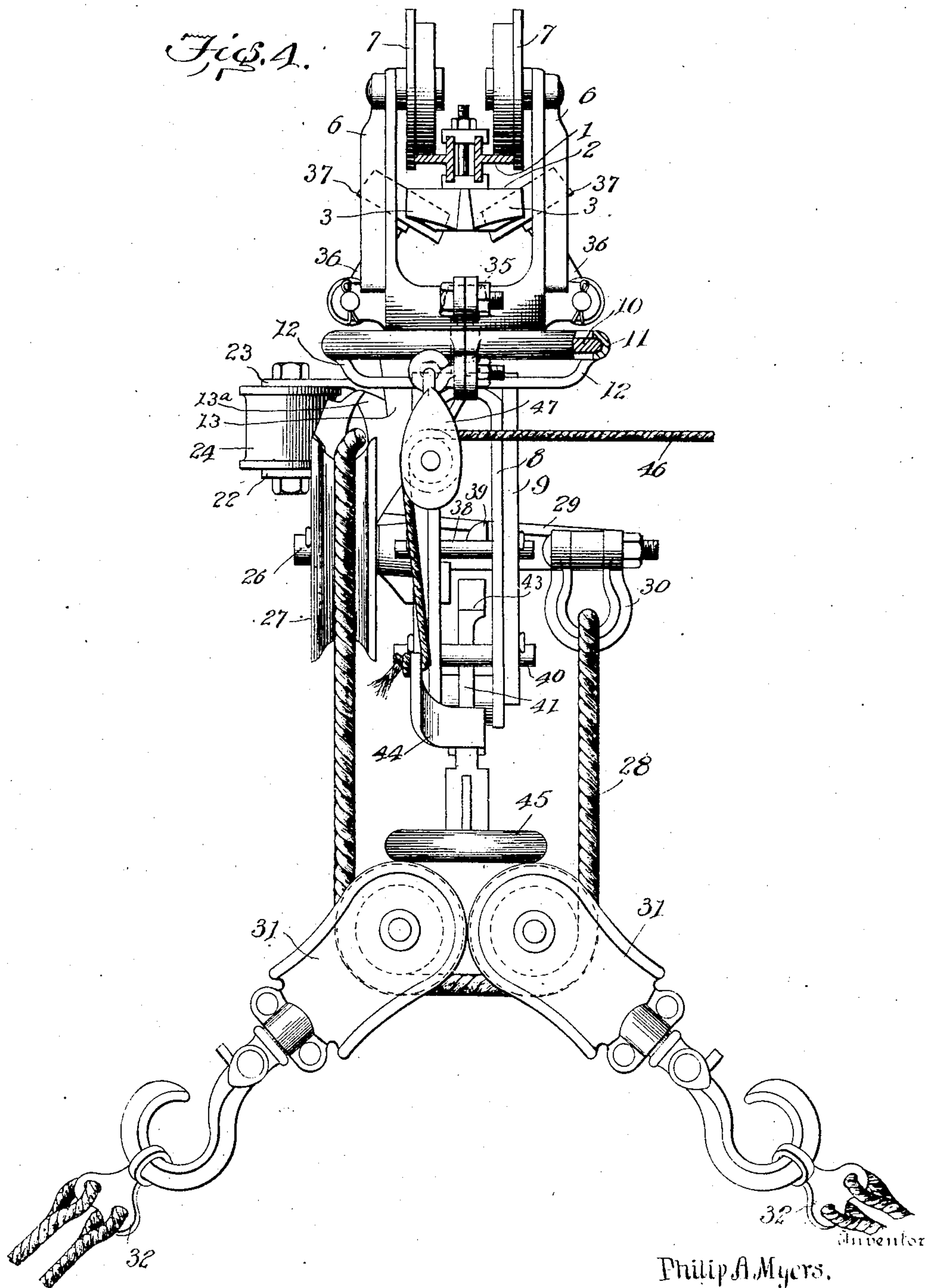
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APPLICATION FILED OCT. 14, 1904.

5 SHEETS—SHEET 4.



Witnesses

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5 SHEETS—SHEET 5.

Fig. 6.

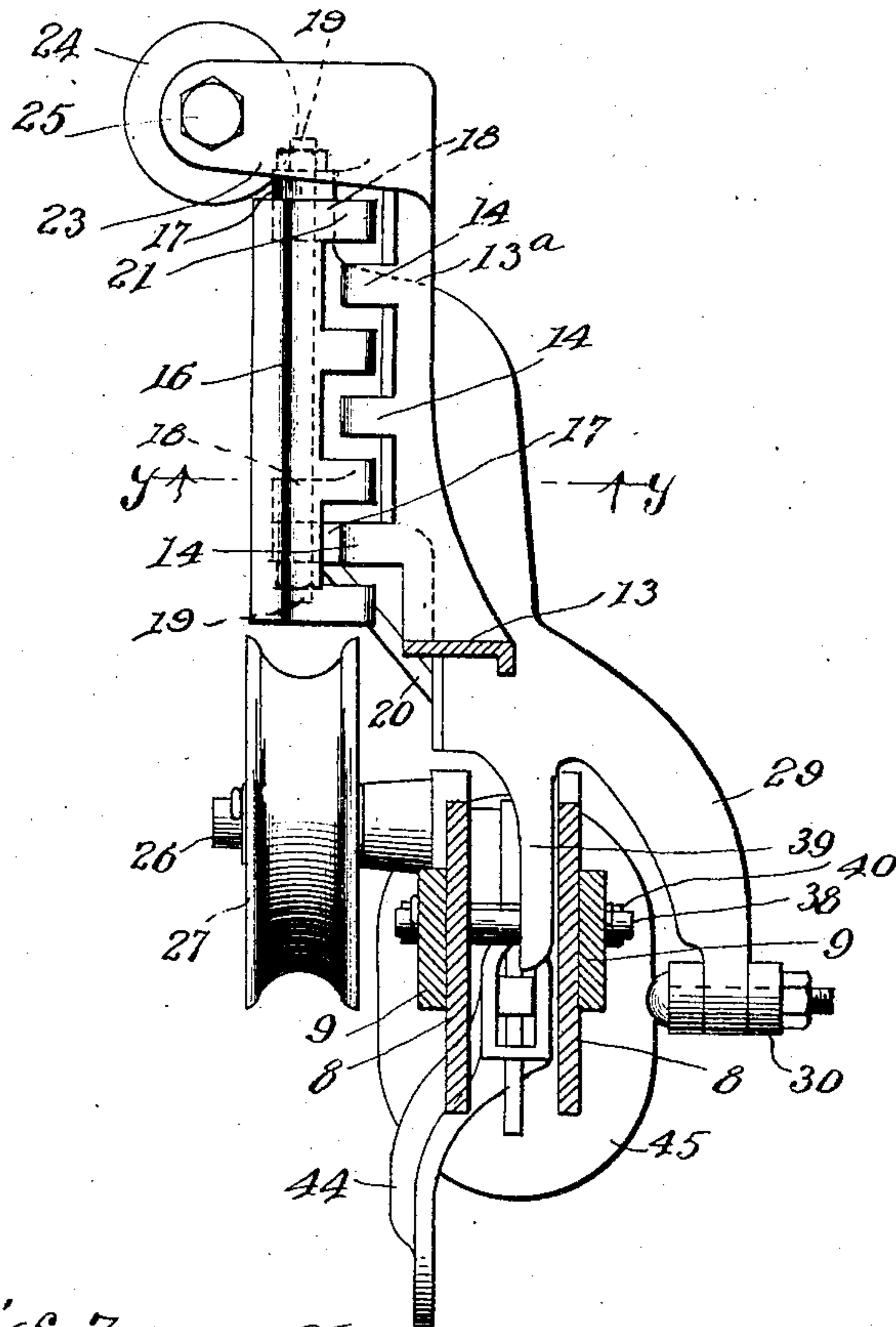
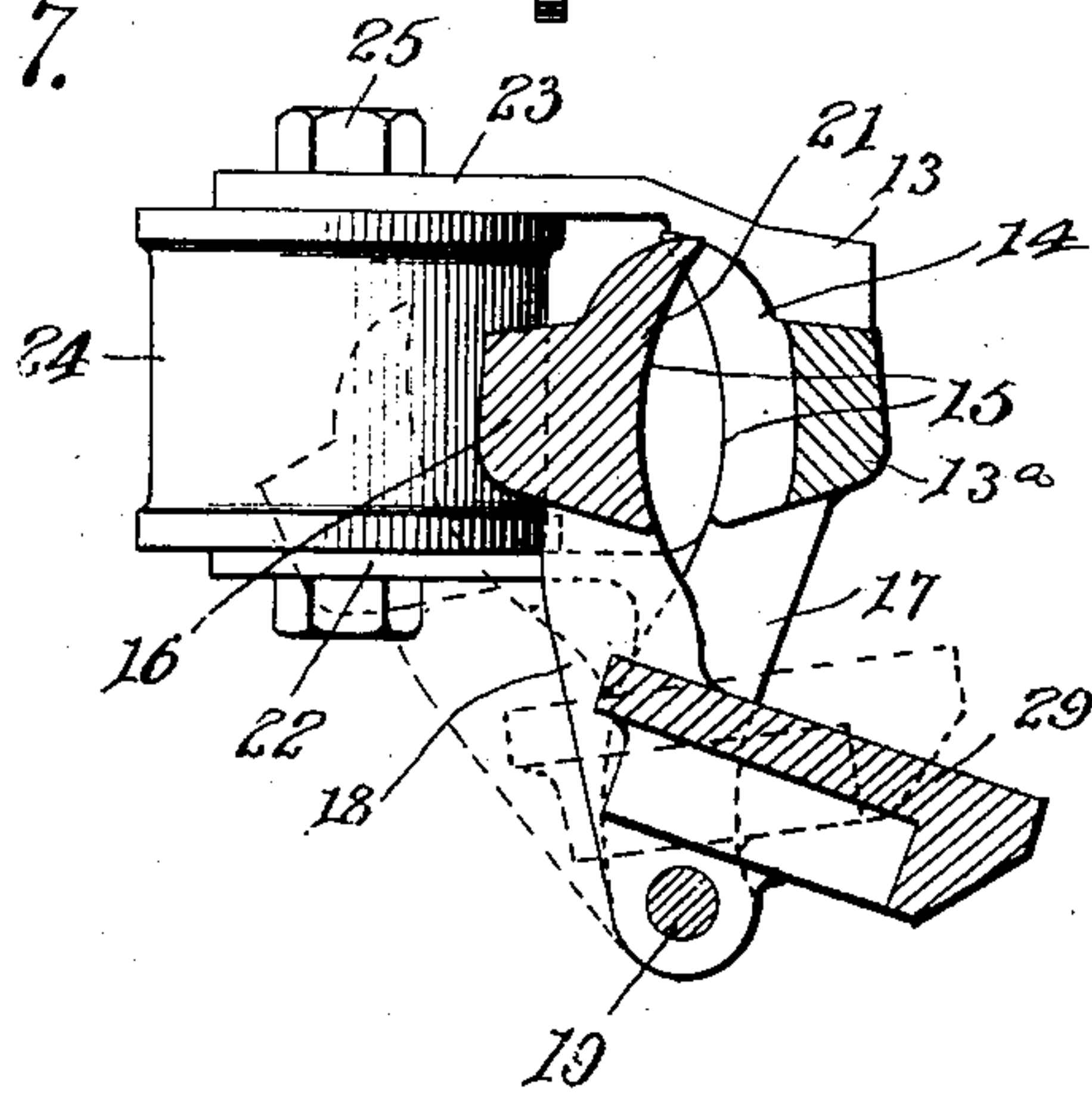


Fig. 7.



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UNITED STATES PATENT OFFICE.

PHILIP A. MYERS, OF ASHLAND, OHIO, ASSIGNOR TO F. E. MYERS AND BROTHER, OF ASHLAND, OHIO.

HAY-CARRIER.

SPECIFICATION forming part of Letters Patent No. 786,456, dated April 4, 1905.

Application filed October 14, 1904. Serial No. 228,425.

To all whom it may concern:

Be it known that I, PHILIP A. MYERS, a citizen of the United States, residing at Ashland, in the county of Ashland and State of Ohio, have invented certain new and useful Improvements in Hay-Carriers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to hay-carriers, and has for its object to provide a simple and efficient device of this character adapted for use with either forks or slings and so constructed as to lift and firmly hold a load or bundle contained in a sling in such a way that the bundle will be lifted, transported, and delivered in the same position as on the wagon, the bundle being at all times with its axis in a direction longitudinal of the track, the bight of the combined hoisting and traction rope lying in a plane transverse to the track.

A further object of my present invention is to provide means for more firmly gripping and securely holding the rope which supports the bundle during the travel of the carriage, at the same time avoiding undue wear of the rope by dragging it over the gripping devices during the hoisting and lowering operations.

To these and other ends my invention consists in certain novel features, which I will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is a view of one side of a carrier embodying my invention in one form, the parts being shown in the position assumed by them during the operation of hoisting the bundle. Fig. 2 is a view of the opposite side of the carrier with the parts in the same position as in Fig. 1. Fig. 3 is a view similar to Fig. 2, but showing the position of the parts after they have been tripped to grip the rope and free the carrier to permit it to travel along the track. Fig. 4 is a rear elevation of the carrier with the parts in the position shown in Fig. 3. Fig. 5 is a detail view of the tripping-dog and its associated parts, illustrating different positions thereof. Fig. 6 is a plan section taken on the line $x x$ of Fig. 3 and looking in the direction of the arrows. Fig. 7 is a detail sectional

view taken on the line $y y$ of Fig. 6 and looking in the direction of the arrows. Fig. 8 is a partial front elevation showing the gripping-jaws open, and Fig. 9 is a detail view of the movable member and the bell-crank levers for lifting the same.

Referring to the accompanying drawings, in which a construction embodying my invention in one form is shown, 1 indicates a suitable track, which may be of any approved construction. To this track there is secured at a point above the position of the wagon which is to be unloaded a part 2, known as a "knocker" and constituting, in effect, a combined lifting-cam and stop. In the particular form shown, which is adapted for use with a track extending in both directions from the location of the knocker, said knocker is in duplicate, being made of symmetrical parts, shown as integral, oppositely disposed, one part being operative for travel of the carrier in one direction and the other part being operative in connection with the travel of the carrier in the opposite direction. Each part comprises two diverging cam-surfaces 3, which serve to lift the movable frame member hereinafter referred to, two parallel portions 4, on which the lifting-levers bear by means of their rollers, and a stop-shoulder 5, which coöperates with a stop projection on the carrier. On this track there travels a carriage 6, supported on wheels 7, said carriage in turn supporting the frame of the carrier. This carrier-frame is indicated as a whole by the reference-numeral 8 and has mounted thereon, so as to move relatively thereto, preferably by sliding vertically in suitable guideways, a movable member 9, preferably of a yoke-like form. In the present instance the type of carrier in which my invention is shown as embodied being what is known as a "swiveling carrier," the frame 8 has a swiveling connection with the carriage 6, the latter being provided with an annular flange or track 10, embraced by a grooved annular flange 11, forming part of the frame 8, to which it is connected by arms 12. Preferably both the carriage 6 and frame 8 are divided vertically into two parts secured to-

gether by suitable bolts, so as to facilitate their construction and assembling.

The carrier-frame 8 has extending in front of it the rope-gripping jaws, by means of which the hoisting-rope is clamped or gripped to hold the load in elevated position during its transit from the wagon to the mow. These jaws extend longitudinally of the carrier in the direction of its travel at the front thereof, and their meeting plane is a vertical plane coincident or parallel with the line of travel. In the particular form shown, which is preferred, one of these jaws is fixed, while the other is movable toward and from it around a pivotal axis, which extends longitudinally of the carrier in the direction of the travel thereof and parallel with the direction in which said jaws extend, so as to give the pivoted jaw a firm and extended bearing. Referring to the drawings, 13 indicates an arm extending forward or in the direction of advance from the frame 8, said arm having formed thereon a fixed jaw 13^a, which preferably comprises a plurality of gripping-teeth 14, the working surfaces of which are curved or hollowed out to receive the rope, as indicated at 15. The arm 13 also supports a movable jaw 16, being provided to that end with downwardly-extending lugs 17, between which the pivotal lugs 18 of the movable jaw are mounted, being supported on a pivot-bolt 19, passing through both pairs of lugs, said pivot-bolt extending parallel with the jaws and with the line of travel of the carrier longitudinally with respect to the carrier. 20 indicates a brace-arm extending forward from the lower part of frame 8 to support and strengthen the rear lug 17. The movable jaw also preferably comprises a plurality of gripping-teeth 21, having recessed faces 15, corresponding to those of the teeth 14, the teeth of the two jaws being alternately arranged, so that the teeth of one jaw may pass between the teeth of the other jaw, thus gripping the rope in such a way as to bend it repeatedly in reversed directions and in short bends, thereby holding it with great firmness. The arm 13 is provided at its forward extremity with two laterally-extending arms 22 and 23, of which the former, which is the lower one of said two arms, forms a support for the rope at the extreme front of the carrier. The two arms 22 and 23 jointly support an alining device located at one side of the rope and consisting, preferably, of a pulley or guiding-sheave 24, mounted on a vertical pivot-bolt 25, which passes downward through the arms 22 and 23.

Upon one side of the carrier-frame 8 there is mounted upon a bearing-stud 26 a pulley 27, over which the hoisting-rope (indicated at 28) passes. This pulley rotates in a vertical plane parallel to the line of travel and in substantial alinement with the meeting plane of the clamping-jaws and with the

front rope-support, so that when the clamping-jaws are open said rope travels over the pulley and front support without being strained over the clamping-jaws or either of them. In this way excessive friction and wear on the rope are avoided. The movable jaw 16 is provided with an operating-arm 29, which extends laterally and rearwardly therefrom to a point lying on the opposite side of the carrier from that on which the pulley 27 is mounted and in substantially the same transverse plane as the rear portion of the face of said pulley from which the rope 28 depends. Said rope 28 has one of its extremities attached to the rear end of said arm 29 in any suitable manner—as, for instance, by means of a pivoted loop or clevis 30—and extends to the pulley 27, with its bight in a plane transverse to the carrier to the line of travel thereof, as best indicated in Fig. 4. This bight of the rope receives the fork-block when the fork is employed, but in the present instance is shown as carrying sling-blocks 31, to which the ends of a sling 32 are shown as connected in Fig. 4. It will be seen that by reason of this construction the bundle is lifted from the wagon in the same position as it lies thereon and is carried in the same position to the mow without requiring any shifting thereof or any means of giving the parts a quarter-turn, as is usually the case. It will also be seen that the weight of the bundle is supported partly on the pulley 27 and partly on the arm or lever 29, which carries the movable gripping-jaw, so that said gripping-jaw when free to act is actuated by the weight of the load acting through the leverage due to the length of the arm 29. Hence the heavier the load the greater is the force with which the gripping-jaw acts.

It will be noted that since the pulley 27 and the gripping-jaws are in substantial alinement and said pulley is located on one side of the carrier-frame instead of centrally thereof, when the rope 28 is used as a traction-rope the pull on the carrier-frame is not central, so that when a swiveling carrier is employed, as is preferred, the pull of the rope tends to turn the carrier-frame 8 relatively to the carriage 6. This, however, is prevented by means of the alining device at the forward end of the arm 13, which being forced against the side of the rope by this turning tendency serves to prevent such turning by the resistance of the same tension which causes it, maintaining the carrier-frame in proper alinement with the carriage and track while the rope 28 is being used as a traction-rope to draw the bundle to its point of discharge.

In the type of carrier under consideration the rope 28 is used both as a hoisting-rope to lift the bundle and as a traction-rope to carry the bundle to its destination, the car-

rier being drawn back after the discharge of the bundle in any suitable manner, usually by a return-rope 33, attached to the rear of the carrier.

5 In order to provide for the automatic opening and closing of the gripping-jaws and the holding and releasing of the carrier, the movable member 9 is provided to cooperate with the knocker 2. This may be effected in a number of well-known ways; but I prefer the construction shown, in which the member 9 is provided with an upwardly-extending pin or projection 34, terminating in a head or enlargement 35. On the carriage 6 are mounted bell-crank levers 36, one arm of each lever extending under the member 35, while the other arm carries a roller 37 to cooperate with the surfaces 3 and 4 of the knocker 2. The member 9 is adapted to engage the arm 29 of the movable gripping-jaw in any suitable manner, preferably by the provision of a transverse pin 38, carried by the member 9 and working in vertical slots in the side pieces of the frame 8. The arm 29 is provided with a finger or extension 39, which extends rearward between the side members of the frame 8 and above the pin 38, in the path of which it lies. The member 9 is provided with a second transverse pin 40, also extending through slots in the side members of the frame 8 and cooperating with a pivoted dog 41, carried by the frame 8, between the side members of which it is located, being supported on a pivot-bolt 42, connecting said side members. Said dog 41 is provided with a shoulder 43, which is adapted to engage the pin 40 when the parts are in the position shown in full lines in Fig. 5, and thereby hold the member 9 in raised position. The dog 41 is provided with an arm 44, to which is pivotally connected a tripping-plate 45, which hangs below the carrier in the path of the sling-blocks 31. Said arm 44 is also provided with a tripping-rope 46, connected to its extremity and passing over a block or pulley 47 on the frame 8 to the operator's position.

Assuming that the carrier has delivered its load and has been drawn back along the track to the knocker to receive the next load, the rollers 37 of the bell-crank levers 36 first come into contact with the inclined cam-surfaces 3 of the knocker, forcing said rollers outward away from each other and causing the arms of said bell-crank levers which extend under the head 35 to lift said head and the movable member 9 to their raised positions. This upward motion of the member 9 causes the pin 38 to engage with and lift the finger 39, thereby moving the arm or lever 29 upward and moving the movable jaw 16 away from the fixed jaw, thereby releasing the rope. When the bundle has been formed and connected to the rope, the power applied to the rope first causes the carriage to move

forward until the head 35 comes into contact with the stop 5 on the knocker, thus preventing further movement of the arriage. The carriage being thus held stationary, the rope moves freely over the pulley 27 and support 22, lifting the bundle until the sling-blocks 31 come into contact with the tripping-plate 45. When this occurs, said plate and the arm 44 are moved upward, disengaging the dog 41 from the pin 40 and permitting the movable member 9 to fall, whereupon the finger 39 being no longer supported by the pin 38 the arm 29 is free to move downward by reason of the pull of the load thereon, and the movable jaw 16 moves toward the fixed jaw and firmly grips the rope against the same by reason of the pull of the load on the said movable jaw. As soon as the member 9 falls the head 35 drops below the stop 5 and the carrier is free to move forward along the track under the pull of the rope 28, to which it is firmly connected by the gripping-jaws. If for any reason it is not desired to lift the load to the full height possible, the load may be held at any desired elevation and the carrier simultaneously released by disengaging the dog through the medium of the rope 46.

It will be understood, of course, that by turning the frame of the carrier around through an arc of one hundred and eighty degrees relatively to the carriage 6 the carrier can be used to deliver loads along the track in the opposite direction from the knocker 2 to that shown in the drawings.

It will be seen that the structure is comparatively simple and strong and correspondingly durable, dispensing with a large number of moving parts. The movable jaw, its pivot-lugs, and operating-arm form, in effect, a lever, of which the movable jaw is a part, and in the construction illustrated an integral part, said lever having a fulcrum extending longitudinally of the machine in the line of travel of the carrier and parallel with the gripping-jaws, the arrangement being such that the lever has its bearing-supports at widely-separated points without in any way increasing with the width of the carrier.

Obviously various modifications may be made in the details of the construction described without departing from the principle of my invention. For instance, instead of fastening the end of the rope 28 directly to the end of the arm or lever 29 the machine is equally well adapted for use with the well-known "triple hoist" by attaching a pulley to the end of the arm and passing the rope over the pulley and down to a connection with one of the sling-blocks.

While the gripping-jaws extend longitudinally of the frame in the direction of travel of the carrier, as hereinbefore set forth, it is not essential to my invention that they should extend in the exact line of travel, as they may be given or assume a position

slightly inclined to the line of travel and to the track, maintaining, however, their general longitudinal arrangement and extending in the general direction of travel of the carrier.

Various other modifications will readily suggest themselves to those skilled in the art, and I therefore do not wish to be understood as limiting myself strictly to the precise details of construction hereinbefore described, and shown in the accompanying drawings.

I make no claim in the present application to the matter disclosed and claimed in application, Serial No. 202,005, filed by me April 7, 1904, for improvement in hay-carriers.

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

1. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, one of said gripping-jaws being movable toward and from the other around a pivotal axis extending longitudinally of the frame and parallel with the gripping-jaws, substantially as described.

2. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, the plane of meeting of said jaws being vertical, and one of said jaws being movable toward and from the other, substantially as described.

3. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, the plane of meeting of said jaws being vertical, and one of said jaws being movable toward and from the other around a pivotal axis also longitudinal of the frame in the direction of travel of the carrier, substantially as described.

4. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, and a lever pivotally mounted on said frame and operated to grip the rope by the weight of the load, one of the gripping-jaws being movable toward and from the other and forming a part of said lever, substantially as described.

5. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, and a lever pivotally mounted on said frame and operated to grip the rope by the weight of the load, the pivotal axis of said lever being longitudinal with respect to the frame, one of the gripping-jaws being movable toward and from the other and forming a part of said lever, substantially as described.

6. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direc-

tion of travel of the carrier, their plane of meeting being vertical, and a lever pivotally mounted on said frame and operated to grip the rope by the weight of the load, one of the gripping-jaws being movable toward and from the other and actuated by said lever, substantially as described.

7. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, their plane of meeting being vertical, and a lever pivotally mounted on said frame and operated to grip the rope by the weight of the load, the pivotal axis of said lever being also longitudinal of the frame, one of the gripping-jaws being movable toward and from the other by means of said lever, substantially as described.

8. In a hay-carrier, a frame provided with a rope-lock comprising gripping-jaws extending longitudinally of the frame in the direction of travel of the carrier, their plane of meeting being vertical, and a lever operated to grip the rope by the weight of the load and mounted on said frame on a pivotal axis extending longitudinally of the frame and parallel with the gripping-jaws, one of said jaws forming a part of said lever and being movable thereby toward and from the other, substantially as described.

9. In a hay-carrier, a frame provided with a longitudinal arm extending forward therefrom and having thereon a longitudinally-extending gripping-jaw, in combination with a lever operated to grip the rope by the weight of the load, said lever being pivotally supported on said arm by a longitudinal pivot and being provided with a longitudinal gripping-jaw to cooperate with the gripping-jaw on the arm, substantially as described.

10. In a hay-carrier, a frame provided with a longitudinal arm extending forward therefrom and having thereon a longitudinally-extending gripping-jaw, in combination with a lever operated to grip the rope by the weight of the load, said lever being pivotally supported on said arm by a longitudinal pivot and being provided with a longitudinal gripping-jaw to cooperate with the gripping-jaw on the arm, the plane of meeting of said jaws being vertical, substantially as described.

11. In a hay-carrier, a frame provided with a longitudinal arm extending forward therefrom and having thereon a longitudinally-extending gripping-jaw, in combination with a lever operated to grip the rope by the weight of the load, said lever being pivotally supported on said arm by a longitudinal pivot and being provided with a longitudinal gripping-jaw to cooperate with the gripping-jaw on the arm, the plane of meeting of said jaws being vertical, and the pivotal axis of the lever being located below the jaws, substantially as described.

12. In a hay-carrier, a frame having a forwardly-extending arm provided with a longitudinal gripping-jaw and depending pivot-lugs, in combination with a lever operated to grip the rope by the weight of the load, said lever being provided with a gripping-jaw to cooperate with that of the arm, and with depending pivot-lugs to cooperate with the pivot-lugs of the arm, and a pivot-bolt passing through both pairs of pivot-lugs, substantially as described.

13. In a hay-carrier, the combination, with a frame having a hoisting-rope pulley mounted on one side thereof with its axis of rotation fixed relatively to the frame and transverse to the direction of travel of the carrier, of rope-gripping jaws carried by said frame and located in front of said pulley on that side thereof toward which the carrier travels to deliver its load, and an arm or lever for operating said gripping-jaws, said arm or lever being pivotally mounted on the frame and extending to the side of the frame opposite to that on which the hoisting-pulley is mounted, said arm or lever having the hoisting-rope connected therewith, and the bight of said rope between said arm and pulley lying in a plane transverse to the line of travel of the carrier, substantially as described.

14. In a hay-carrier, a frame having a hoisting-rope pulley mounted on one side thereof, said frame having a forwardly-extending arm provided with a fixed and a pivoted gripping-jaw extending longitudinally in front of the pulley, said pivoted jaw having an arm extending to the side of the frame

opposite that on which the pulley is mounted, and a combined hoisting and traction rope supported by said pulley and arm with its bight in a plane transverse to the line of travel of the carrier, substantially as described.

15. A hay-carrier comprising a carriage, and a frame swiveled thereto and having a forwardly-extending arm provided with a fixed and a pivoted gripping-jaw, a hoisting-rope pulley mounted on one side of said frame behind and in alinement with said gripping-jaws, said pivoted jaw having an arm extending to the opposite side of the frame from that on which the pulley is located, a hoisting-rope supported from said arm and pulley with its bight in a plane transverse to the line of travel of the carrier, and an alining device supported from said arm in front of the gripping-jaws and arranged to bear upon the side of the hoisting-rope to prevent the frame from rotating relatively to the carriage, substantially as described.

16. In a hay-carrier, a frame provided with a hoisting-rope pulley and having a forward extension provided with a rope-support, in combination with rope-gripping jaws extending longitudinally between said pulley and support, the plane of meeting of said jaws being vertical, substantially as described.

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

PHILIP A. MYERS.

Witnesses:

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JNO. C. FRENTZ.