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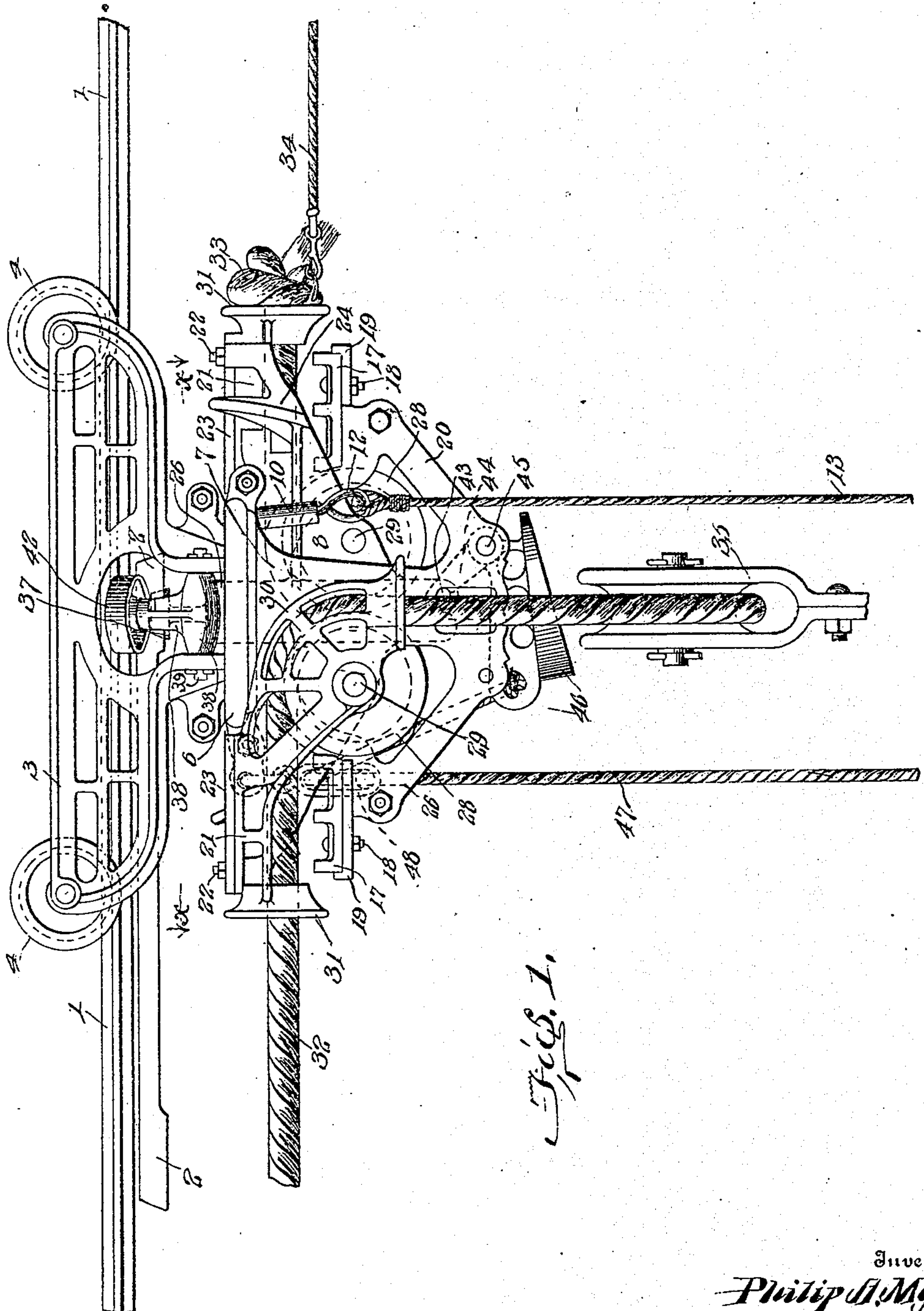
No. 810,498.

PATENTED JAN. 23, 1906.

P. A. MYERS.  
HAY CARRIER.

APPLICATION FILED SEPT. 9, 1905.

5 SHEETS—SHEET 1.



Witnesses

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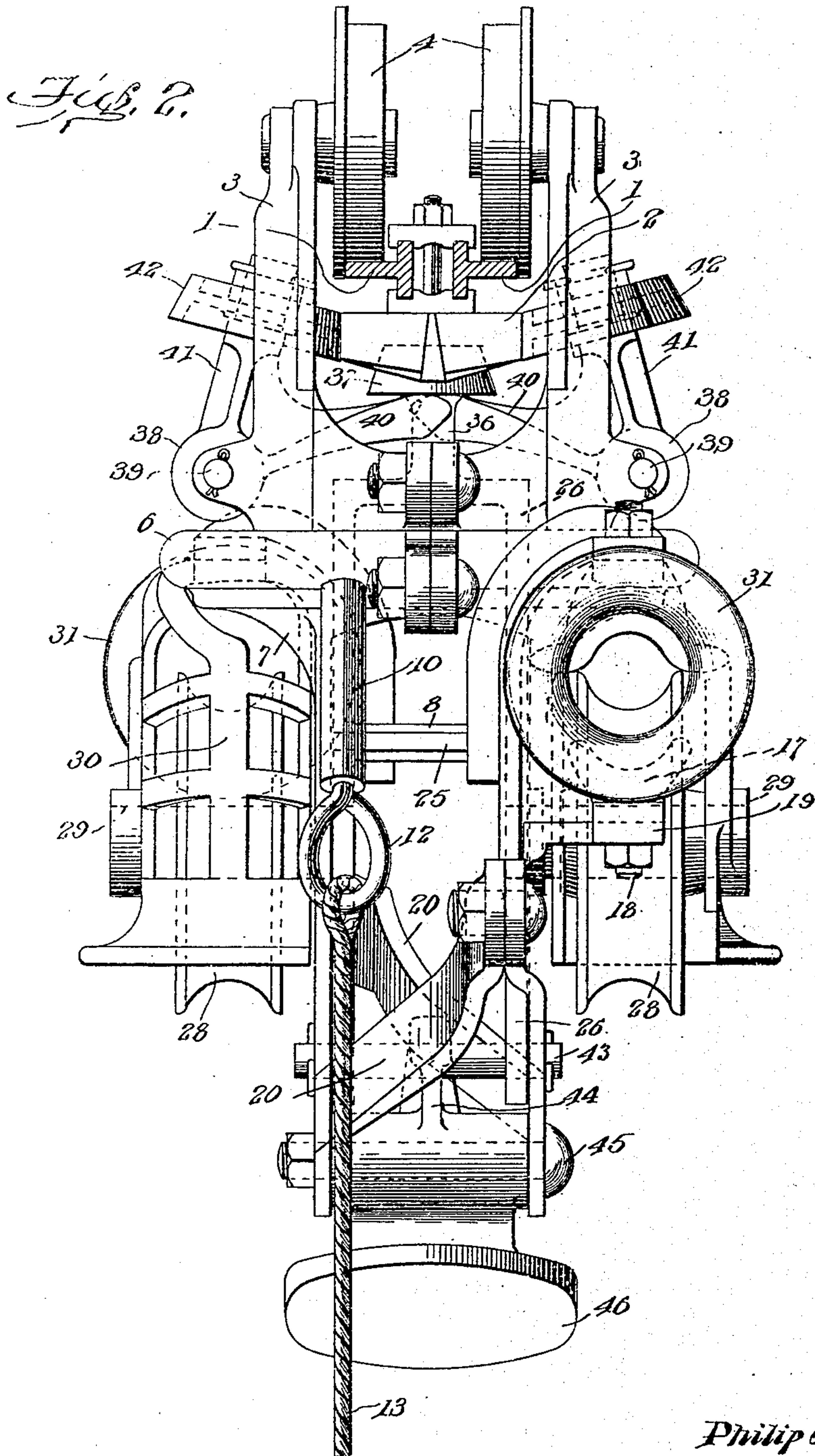
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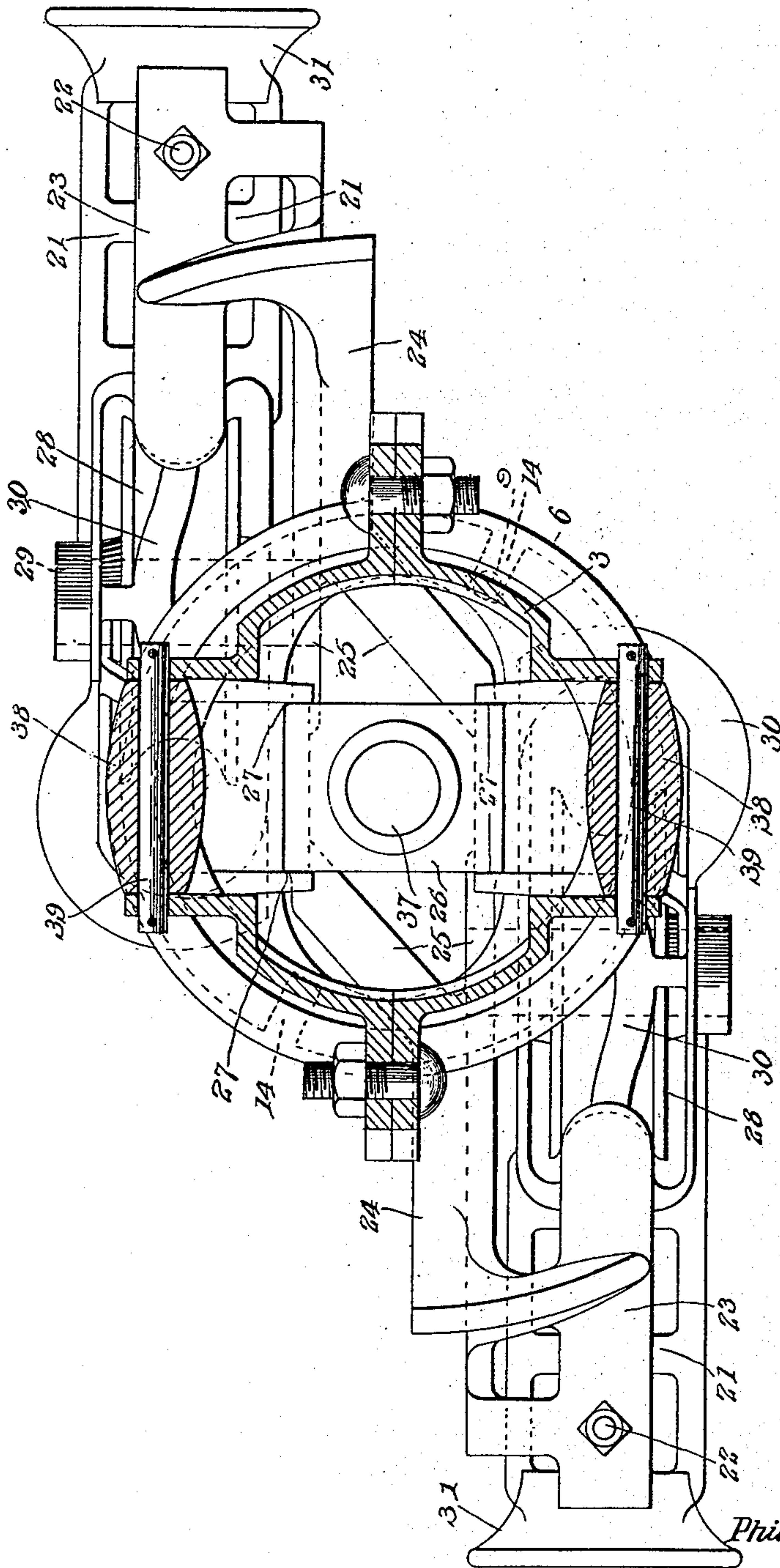
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5 SHEETS—SHEET 3.

Fig. 3.



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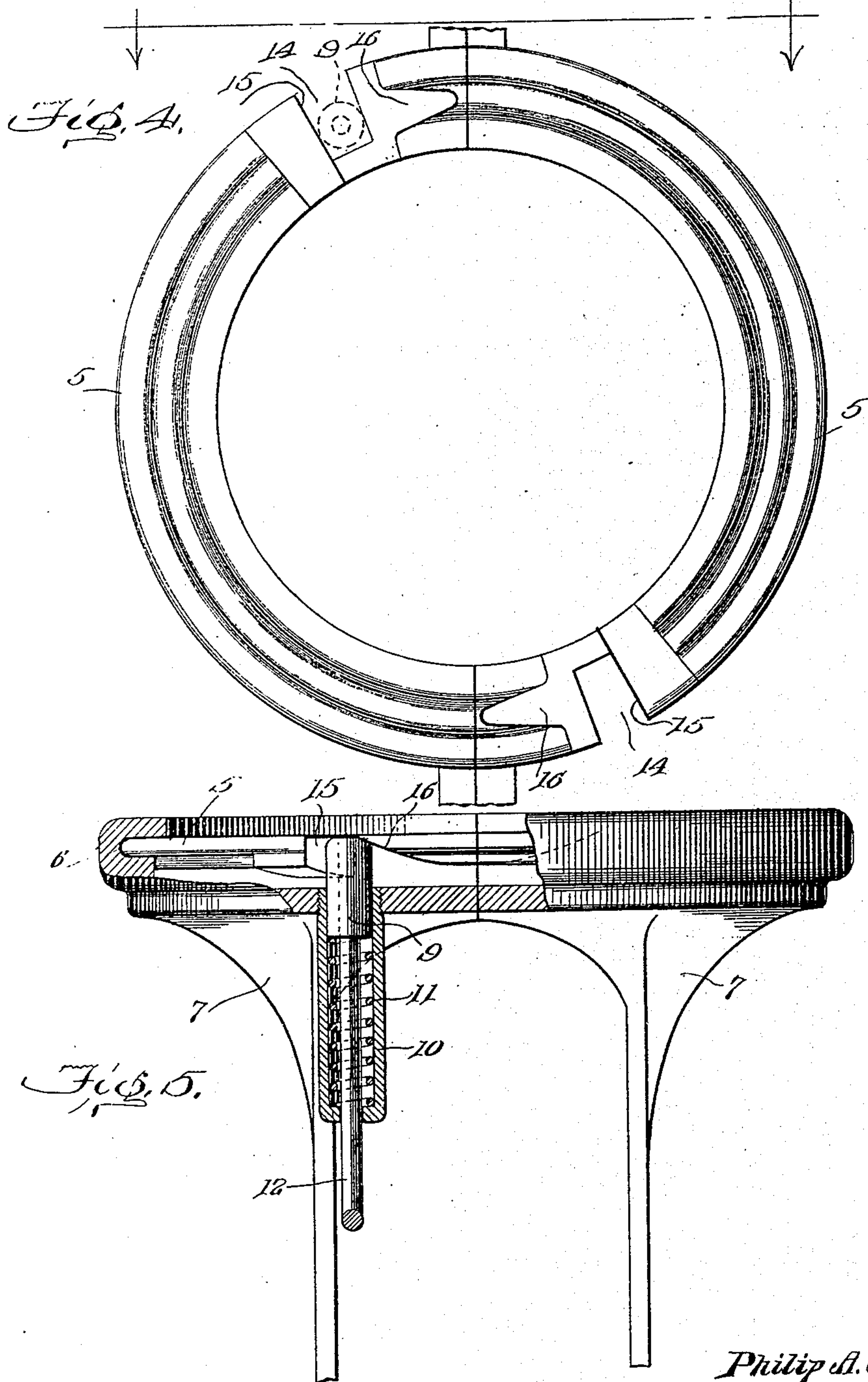
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5 SHEETS—SHEET 4.



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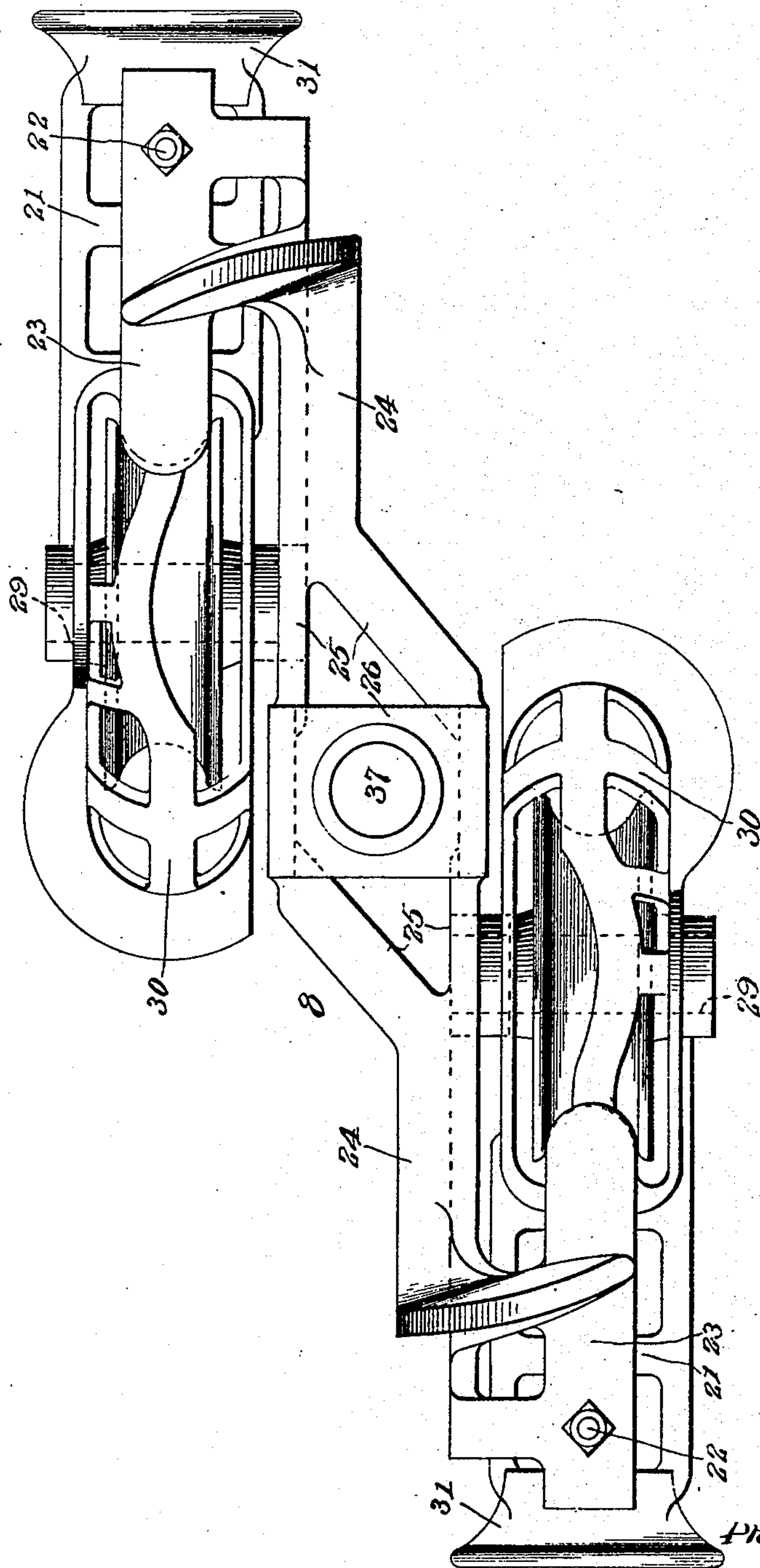
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5 SHEETS—SHEET 5.

*Fig. 6.*



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## UNITED STATES PATENT OFFICE.

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## HAY-CARRIER.

No. 810,498.

Specification of Letters Patent.

Patented Jan. 23, 1906.

Application filed September 9, 1905. Serial No. 277,665.

*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 more particularly to that type of carriers known as "sling-carriers," intended primarily for use in connection with a sling for supporting the load or bundle, although capable of use in other connections.

The present invention is in some respects in the nature of an improvement upon the construction set forth in my prior Letters Patent, Nos. 786,455 and 786,456, of April 4, 1905, and No. 795,001, of July 18, 1905, one of the objects of the invention being to do away with the alining guide or pulley employed in the construction set forth in said Letters Patent for the purpose of holding the gripping-jaws in proper alinement, so as to maintain the load in correct longitudinal position.

The invention has for a further object the provision of a carrier which may be reversed either by drawing the rope through the carrier in one direction or the other or by causing the body of the carrier to swivel relatively to the carriage, such carrier having gripping devices which positively grip the rope by reason of the weight of the load, the bight of the rope hanging transversely with respect to the track, so that the load is carried in a position which is longitudinal or parallel to the track.

To these 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 side elevation of a structure embodying my invention in one form. Fig. 2 is an end elevation of the same. Fig. 3 is a plan section taken on the line *x x* of Fig. 1 and looking in the direction of the arrows. Fig. 4 is an inverted plan view showing the under side of the annular flange or track which constitutes the carriage member of the swiveling connection between the carriage and carrier-frame. Fig. 5 is an end view, partly in elevation and partly in section, illustrating the swiveling connection between the carriage and carrier-frame and the locking devices; and Fig. 6 is

a plan view of the movable part or member of the carrier-frame and the parts mounted or supported thereon detached from the rest of the apparatus.

In the said drawings, 1 indicates a suitable track, and 2 a knocker thereon, the same being preferably constructed as set forth in my prior Letters Patent, Nos. 786,455 and 786,456. On this track travels a carriage 3, having wheels 4 to fit the track 1. The carrier proper or carrier-frame is connected to this carriage by means of a swiveling connection, so as to permit the carrier-frame to turn around a vertical axis relatively to the carriage when it is desired to effect the reversal of the carrier in this way. To this end the carriage is provided with an annular flange 5, while the carrier-frame is provided with a grooved annular flange 6 to receive the annular flange or track 5. Preferably the carriage and carrier-frame are made in two parts divided vertically, so as to permit the ready assembling thereof, as is usual in structures of this character.

As in my prior Letters Patent hereinbefore referred to, the carrier-frame is made in two parts, one of which is fixed against vertical movement relatively to the carriage, and is therefore termed the "fixed" part or member, while the other is free to move vertically relatively to the carriage and said fixed part or member and is therefore termed the "movable" part or member. The former is designated as a whole by the reference-numeral 7 and the latter by the reference-numeral 8, the same being shown detached in Fig. 6 of the drawings. The member 6 of the swiveling connection is formed on the fixed member 7 of the frame, and said fixed member 7 is provided with a spring-actuated locking-bolt 9, which is mounted to slide vertically in a casing 10, carried by the fixed member 7.

11 indicates a spring which forces the bolt 9 normally upward, and 12 indicates an eye formed on the projecting lower end of the bolt, to which eye is attached a cord or rope 13, by which the bolt may be operated. The swiveling member or track 5 of the carriage is provided at diametrically opposite points with notches or recesses 14, adapted to receive the end of the bolt 9. On one side of each notch or recess 14 there is formed an abrupt vertical shoulder or stop 15, located in the path of the bolt and preventing any rota-



tion of the carrier in one direction when the bolt is in operative position. On the other side of each of the notches or recesses 14 there is formed an incline 16, so arranged, as indicated in Fig. 5, that it will ride over and press down the bolt when the carrier is turned in the opposite direction, providing sufficient force be applied to the carrier to effect this result. The bolt, however, when in engagement with either one of the notches or recesses 14 will hold the carrier in fixed relation to the carriage against all ordinary strains which tend to rotate the carrier-frame and will absolutely prevent rotation of the carrier-frame in the direction in which the path of the hoisting and hauling rope tends to move it by reason of the offset relation of the gripping-jaws to the central longitudinal plane of the carrier, as hereinafter set forth.

The fixed member of the carrier-frame is provided with the stationary gripping-jaws, which are in duplicate and which are arranged at opposite ends and on opposite sides of the machine. They are indicated by the reference-numeral 17 and are shown as separate parts secured by bolts 18 upon supporting-edges 19, forming part of the fixed portion 7 of the carrier-frame and supported by braces 20. The movable part 8 of the carrier-frame is provided with movable gripping-jaws 21, which correspond in location and number with the fixed jaws 17, above which they are placed. These movable jaws are secured by bolts 22 to plates 23, which are carried by arms 24, forming part of the movable portion 8 of the carrier-frame. The arms 24 are connected by arms 25 with a yoke 26, which slides in vertical guideways 27 in the fixed part 7 of the carrier-frame. The arms 25 also carry the pulleys 28, which are arranged on opposite sides of the machine and also on opposite sides of a transverse plane centrally intersecting the machine. Their pivotal axes are indicated at 29, and the fixed portion 7 of the frame is cut away, so as to permit them to move vertically with respect thereto.

I have shown each pulley as provided with a guard 30, which for convenience of manufacture is made in one piece with the corresponding movable jaw 21. Each pair of gripping-jaws is provided with a funnel-shaped guide or mouth 31, preferably attached to or formed in one piece with the movable jaw and serving to maintain the proper relations between the rope (indicated at 32) and the gripping-jaws. These guides also serve as stops when the carrier is reversed by pulling the rope through it. For this purpose there is formed at each end of the rope 32 an enlargement 33, usually in the form of a knot, as indicated in Fig. 1, said enlargement being of such size that it will not pass through the guide 31. The rope is pulled through the carrier until the enlargement at one end or the other lodges in the guide of the correspond-

ing end of the carrier, as indicated in Fig. 1, and by this well-known operation the rope 32 may be led from the carrier in either direction, according to the direction in which it is desired that the carrier shall travel from its central position. A small rope 34 is connected to each end of the rope 32 and is of sufficient length to reach the ground or barn-floor and enable the operator to grasp the same for the purpose of reversing the carrier by pulling the rope 32 through the same in the manner described.

It will be noted that the pulleys 28 are so arranged that those portions thereof from which the bight of the rope 32 depends are practically in alinement transversely of the machine. It follows from this that the bight of the rope lies in a transverse plane with respect to the machine and track, the sling-blocks 35, supported by this portion of the rope, being so positioned that the bundle is longitudinal, extending with its greatest length in the direction of the track. This is a matter of material importance in the handling of the loads, as it obviates the necessity of swinging the bundle around to this position when it has reached the place where it is to be discharged and also the necessity of providing special devices for effecting this turning of the bundle.

The trip devices are preferably constructed in substantially the same manner as in my prior Letters Patent hereinbefore referred to. The yoke 26 is provided at its upper end with an extension 36, terminating in a head or enlargement 37. The carriage 3 has mounted in it on each side levers 38, pivoted to the carriage at 39 and having arms 40, which extend under the head or enlargement 37. The levers 38 also have arms 41, carrying rollers 42, which cooperate with the cam-surfaces of the knocker 2, so that when said rollers come into contact with the knocker the arms 41 are forced outward and the arms 40 upward, engaging the head or enlargement 37, and thereby lifting the yoke 26 and all of the movable part of the carrier-frame, including the movable gripping-jaws. The yoke carries a transverse pin 43, which is adapted to be engaged by a dog 44, pivoted to the fixed part of the carrier-frame at 45 and having connected to it the tripping-plate 46, which lies in the path of the sling-blocks 35. When the movable frame member is lifted by means of the knocker in the manner already described, the dog 44 engages by gravity the pin 43 and holds the movable frame member in lifted position, with the gripping-jaws open. When the sling-blocks 35 come into contact with the tripping-plate 46, they lift said plate and disengage the dog 44 from the pin 43, permitting the movable frame member to fall. Since the entire weight of the load is supported by the pulleys 28, which are in turn supported by the movable frame member 8, this weight acts to force the movable gripping-jaws 21



downward against the fixed gripping-jaw 17, so that the rope 32 is firmly held by the entire weight of the load, their gripping action increasing as the weight of the load increases.

5 Moreover, since the gripping-jaws are fixed against movement in the direction in which the rope 32 tends to move while the load is being transported along the track, it will be understood that there is no tendency of the  
10 gripping-jaws to slip, such as is present where the supporting-pulleys form an element of the gripping-jaws.

In order to obviate the necessity of hoisting the load to a height such as to cause the  
15 sling-blocks 35 to automatically drop the rope-lock, I provide a rope 47, connected to the tripping-plate 46 and passing over a pulley 48 on the fixed part 7 of the carrier-frame, whence it extends downward, so as to be conveniently  
20 reached by the operator. By means of this rope 47 it is possible to lock the load with respect to the carrier as soon as it has reached any desired height, so that it is not necessary in the earlier stages of the operation of building up the piles of hay to lift the load to the  
25 maximum height in order to automatically operate the tripping mechanism.

The general operation of the carrier is the same as that of the carrier described in my  
30 prior Letters Patent hereinbefore referred to. When the carrier returns to the loading-place, where the knocker 2 is located, the movable portion of the frame will be lifted through the medium of the levers 38 and the gripping-jaws will be opened, so as to permit the  
35 bight of the rope 32 to be lowered to a position such that the sling-blocks 35 may be connected to the sling which carries the load. The head or enlargement 37 engages with the  
40 knocker in such a way as to prevent the carrier from moving along the track, so that when the rope 32 is pulled the load will be hoisted to an elevated position. This hoisting operation continues until the tripping  
45 mechanism is actuated either through the rope 47 or by reason of the contact of the sling-blocks 35 with the contact-plate 46. When the tripping mechanism is thus operated, the dog 44 is disengaged from the pin 43 and the  
50 movable member of the carrier-frame falls. Drawn down by the weight of the load the gripping-jaws 21 firmly clamp the rope 32 against the gripping-jaws 17, so that the rope cannot move relatively to the carrier. At  
55 the same time the head 37 drops below the knocker, so as to permit the carrier to move along the track, and the load is drawn along the track by means of the rope 32 to the point where it is to be discharged, being conveyed  
60 with its longer axis in the direction of the track, so that it is ready to be discharged in the position in which it arrives at the place of

In case it is desired to reverse the direction of travel of the carrier from the position in which it arrives at the place of  
may be accomplished either

by drawing the rope 32 through the carrier or by turning the body of the carrier around relatively to the carriage from which it is suspended. In the former case the reversal is effected by pulling the rope through by means  
70 of either one of the smaller ropes 34, connected to its ends, until the knot or enlargement 33 at the farther end of the rope lodges in the guide 31. In the latter case it is only  
75 necessary to exert a pull in the proper direction upon the rope 32, whereupon the bolt 9 will yield, sliding upon the incline 16, and the carrier proper will make a half-revolution  
80 relatively to the carriage, being automatically stopped by the contact of the bolt 9 with the stop-shoulder 15 on the opposite side of the turn-table or swiveling connection between the carrier proper and carriage. If desired, the bolt 9 may be released at any time by a  
85 downward pull upon the rope 13.

It will be noted that in order that the bight of the rope shall hang transversely with respect to the carrier the pulleys 28 must be laterally offset with respect to the central longitudinal plane of the carrier, and since  
90 the gripping-jaws are arranged in alinement with the pulleys said gripping-jaws are also laterally offset with respect to said central longitudinal plane. It therefore follows that when traction is exerted upon the lead of the  
95 hoisting and hauling rope 32 to cause the carrier to travel along the track the pull of said rope is not central and there is a tendency for the body of the carrier to turn relatively to the carriage, the guide 31 tending to move  
100 into the plane of the track. This turning tendency is effectually resisted by the locking mechanism which I have provided between the body of the carrier and the carriage.

It will be noted that the offset stop-shoulders 15 are so located that the pull of the rope  
105 32 tends to bring the bolt 9 against the shoulder 15 of the particular notch or recess 14 with which the bolt is engaged, so that no movement of rotation of the body of the carrier is caused by the hauling on the rope 32.  
110 At the same time it is possible to reverse the body of the carrier by turning it in the opposite direction, although the bolt 9 effectually prevents accidental displacement of the body  
115 of the carrier relatively to the carriage. This feature of my invention is applicable not only to the particular type of carrier here shown, but also to the other types of carrier set forth in my three prior Letters Patent hereinbefore  
120 referred to and to other carriers of the swiveling class. It will be noted that this locking mechanism is entirely independent of the hoisting and tripping mechanism, so that the carrier may be turned to reverse the direction of travel irrespective of whether the load  
125 is hoisted or not and irrespective of the position of the tripping mechanism.

I do not wish to be understood as limiting myself to the precise details of construction  
130



hereinbefore described, and shown in the accompanying drawings, as it is obvious that these details may be modified without departing from the principle of my invention.

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

1. In a hay-carrier, the combination, with a track-carriage, and a carrier proper having a swiveled connection therewith, of means for locking the carrier proper and carriage against swiveling motion, said locking means acting to positively prevent rotation of the carrier proper in one direction and yielding to permit rotation in the opposite direction, substantially as described.

2. In a hay-carrier, the combination, with a track-carriage, and a carriage proper having a swiveled connection therewith, of means for locking the carrier proper and carriage against swiveling motion, said locking means comprising an automatically-acting bolt on one of said members and diametrically opposite recesses on the other member, said locking devices acting to positively prevent rotation of the carrier proper in one direction and yielding to permit rotation in the opposite direction, substantially as described.

3. In a hay-carrier, the combination, with a track-carriage, and a carrier proper having a swiveled connection therewith, of means for locking the carrier proper against swiveling movement relatively to the carriage, said means comprising an automatically-acting bolt carried by one of said members and engaging the other of said members, the engaged member being provided with diametrically opposite recesses, each having a positive stop-shoulder on one side and an inclined surface on the other side adapted to press back the bolt, substantially as described.

4. In a hay-carrier, the combination, with a track, a track-carriage, a carrier proper having a swiveling connection therewith, and a combined hoisting and traction rope supported by said carrier proper, of a spring-actuated locking-bolt mounted to slide vertically in one of said members and acting to engage the other member to lock it against swiveling, and an independent operating-rope connected to and depending from said bolt to permit its manual operation to disengage the same, substantially as described.

5. In a hay-carrier, the combination, with a track-carriage, and a carrier proper, the two connected by a swiveling connection comprising an annular flange on one of said members and a grooved flange to receive the same on the other member, said annular flange being provided at diametrically opposite points with locking-recesses, of a spring-actuated locking-bolt mounted on the other member and adapted to engage either one of said recesses, each of said recesses being provided on one side with a positive stop-shoulder and on the other side

with an incline adapted to press back the bolt, substantially as described.

6. In a hay-carrier, the combination, with a track-carriage, and a carrier proper having a swiveling connection therewith, said carrier proper having rope connections which are laterally offset, of means for locking the carrier proper and carriage against swiveling motion, substantially as described.

7. In a hay-carrier, the combination, with a track-carriage, and a carrier proper having a swiveling connection therewith, said carrier proper having rope connections which are laterally offset, of means for locking the carrier proper and carriage against swiveling motion, said locking means acting to positively prevent rotation of the carrier proper in one direction and yielding to permit rotation in the opposite direction, substantially as described.

8. In a hay-carrier, the combination, with a track-carriage, and a carrier proper having rope connections which are laterally offset, of means for locking the carrier proper and carriage against swiveling motion, said locking means serving to positively prevent rotation of the carrier proper in the direction in which traction on the rope tends to rotate the same, substantially as described.

9. In a hay-carrier, the combination, with a track-carriage, and a carriage proper having a swiveling connection therewith, said carrier proper having rope connections which are laterally offset, of means for locking the carrier proper and carriage against swiveling motion, and means for manually disengaging said locking means, substantially as described.

10. In a hay-carrier, the combination, with a track-carriage, and a carrier proper having a swiveling connection therewith, said carrier proper having rope connections which are laterally offset, of means for locking the carrier proper and carriage against swiveling motion, said locking means comprising an automatically-actuated engaging bolt on one of said members and diametrically opposite engaging recesses on the other member, each recess provided with a positive stop-shoulder on one side and an incline on the opposite side adapted to press back the bolt, substantially as described.

11. In a hay-carrier, a frame provided with rope-supporting pulleys mounted on opposite sides thereof and located on opposite sides of a plane transverse to the body of the carrier, substantially as described.

12. In a hay-carrier, a frame provided with rope-supporting pulleys mounted on opposite sides thereof and located on opposite sides of a plane transverse to the body of the carrier, said carrier being provided with two sets of rope-gripping jaws aligned with the respective pulleys, substantially as described.

13. In a hay-carrier, a frame fixed part and a movable part



tripping mechanism for holding in raised position and releasing said movable part, rope guiding and supporting pulleys mounted on opposite sides of said movable part and arranged on opposite sides of a plane transverse thereto, and two sets of rope-gripping jaws alined with the respective pulleys, one jaw of each set being fixed and carried by the fixed part of the frame, the other jaw being movable and actuated by the movable part of the frame, substantially as described.

14. In a hay-carrier, a frame comprising a fixed part and a movable part, and locking and tripping mechanism for holding in raised position and releasing the movable part, rope guiding and supporting pulleys mounted on the movable part on opposite sides thereof and also on opposite sides of a plane transverse thereto, and two sets of rope-gripping jaws alined with the respective pulleys, each set comprising a fixed jaw carried by the fixed part and a movable jaw carried by and moving with the movable part, substantially as described.

15. In a hay-carrier, the combination with a track-carriage, of a carrier proper having a swiveling connection therewith, and means for locking the parts against swiveling move-

ment, said carrier proper comprising two rope guiding and supporting pulleys provided with alined gripping-jaws, located on opposite sides of said carrier proper and extending from the central portion thereof in opposite directions, substantially as described.

16. In a hay-carrier, the combination, with a track-carriage, of a carriage proper having a swiveling connection therewith, and means for locking said parts against swiveling movement, said carrier proper having a frame comprising a fixed and a movable part, rope guiding and supporting pulleys mounted on opposite sides of said movable part and lying on opposite sides of a plane transverse thereto, rope-gripping jaws alined with the respective pulleys and operated by the movement of the movable part of the carrier-frame, and means for lifting, holding in raised position and tripping said movable part of the carrier-frame, substantially as described.

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

PHILIP A. MYERS.

Witnesses:

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F. B. KELLOGG.