

No. 867,589.

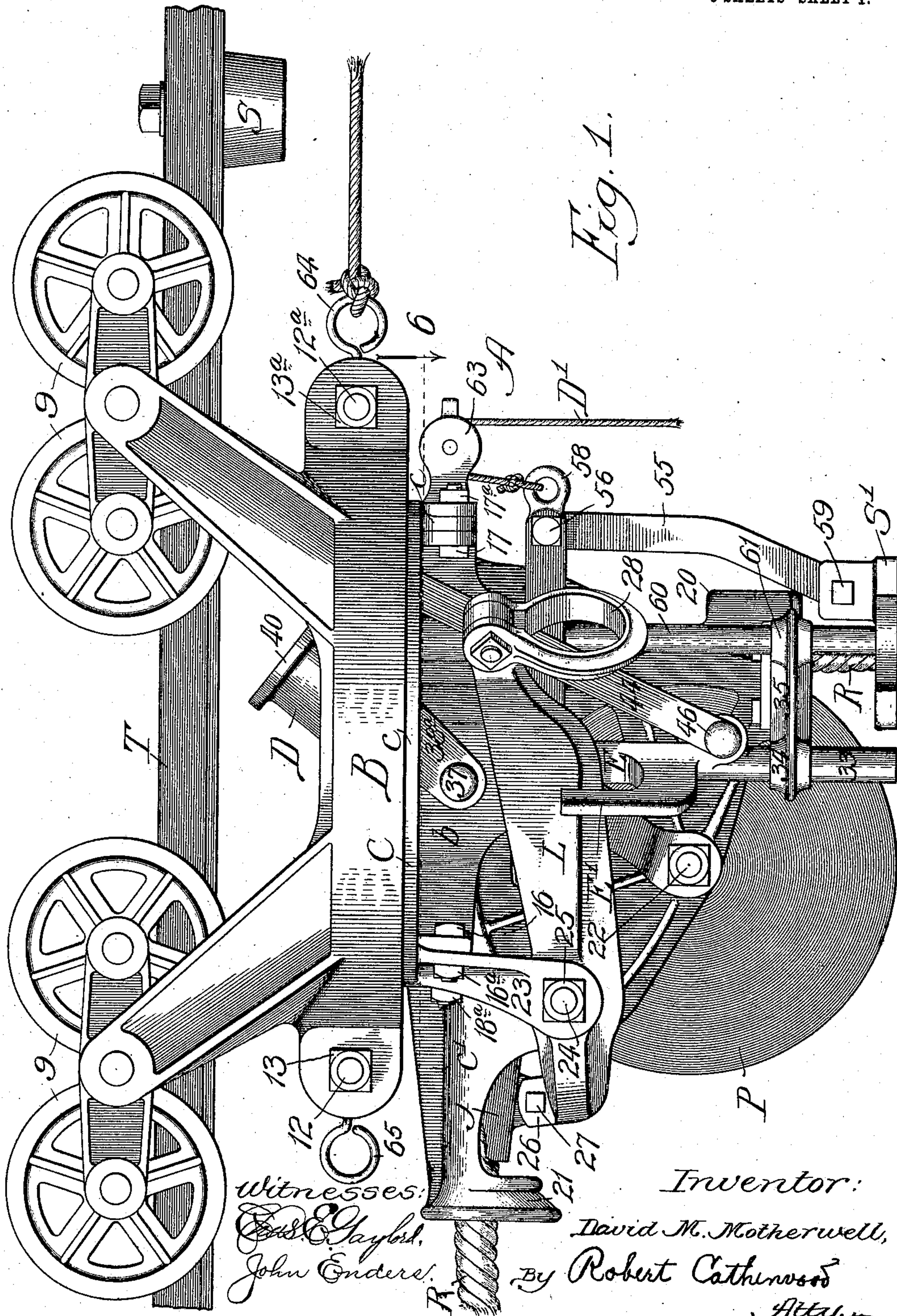
PATENTED OCT. 8, 1907.

D. M. MOTHERWELL.

HAY CARRIER.

APPLICATION FILED JUNE 14, 1907.

6 SHEETS—SHEET 1.









No. 867,589.

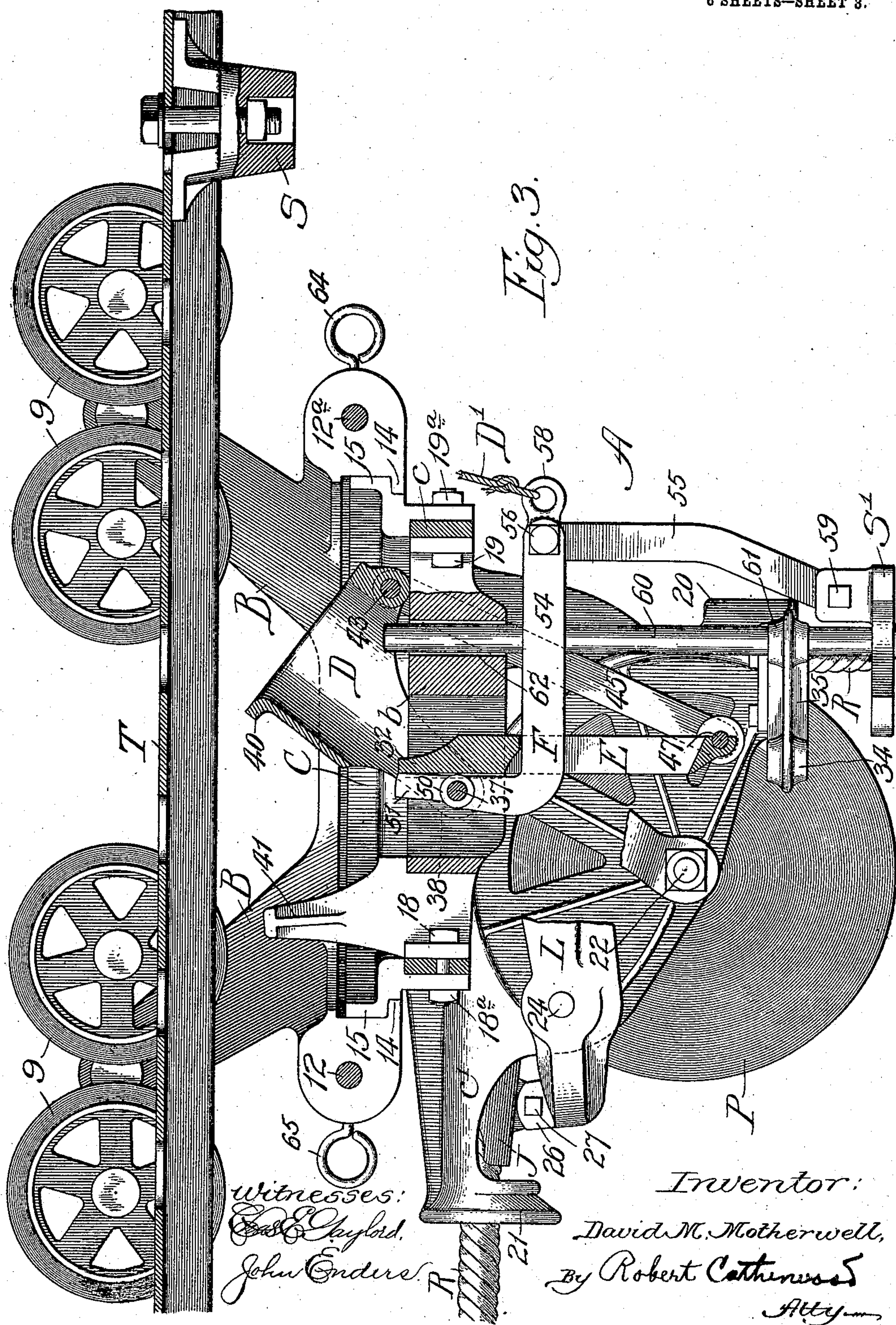
PATENTED OCT. 8, 1907.

D. M. MOTHERWELL.

HAY CARRIER.

APPLICATION FILED JUNE 14, 1907.

6 SHEETS—SHEET 3.





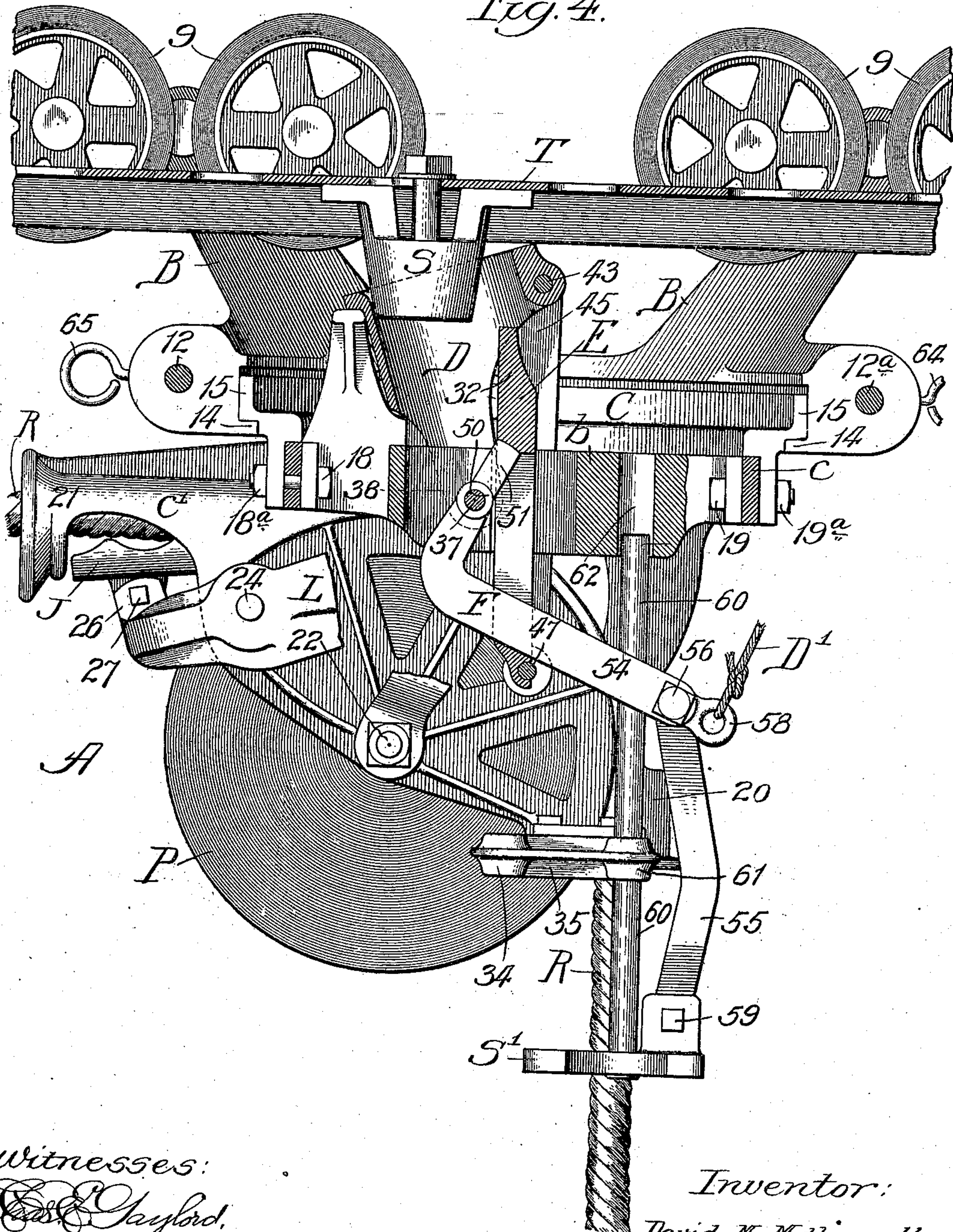
No. 867,589.

PATENTED OCT. 8, 1907.

D. M. MOTHERWELL.  
HAY CARRIER.  
APPLICATION FILED JUNE 14, 1907.

6 SHEETS—SHEET 4.

Fig. 4.



Witnesses:  
E. C. Gaylord,  
John Enders.

Inventor:  
David M. Motherwell  
By Robert Cathenwood  
Atty.



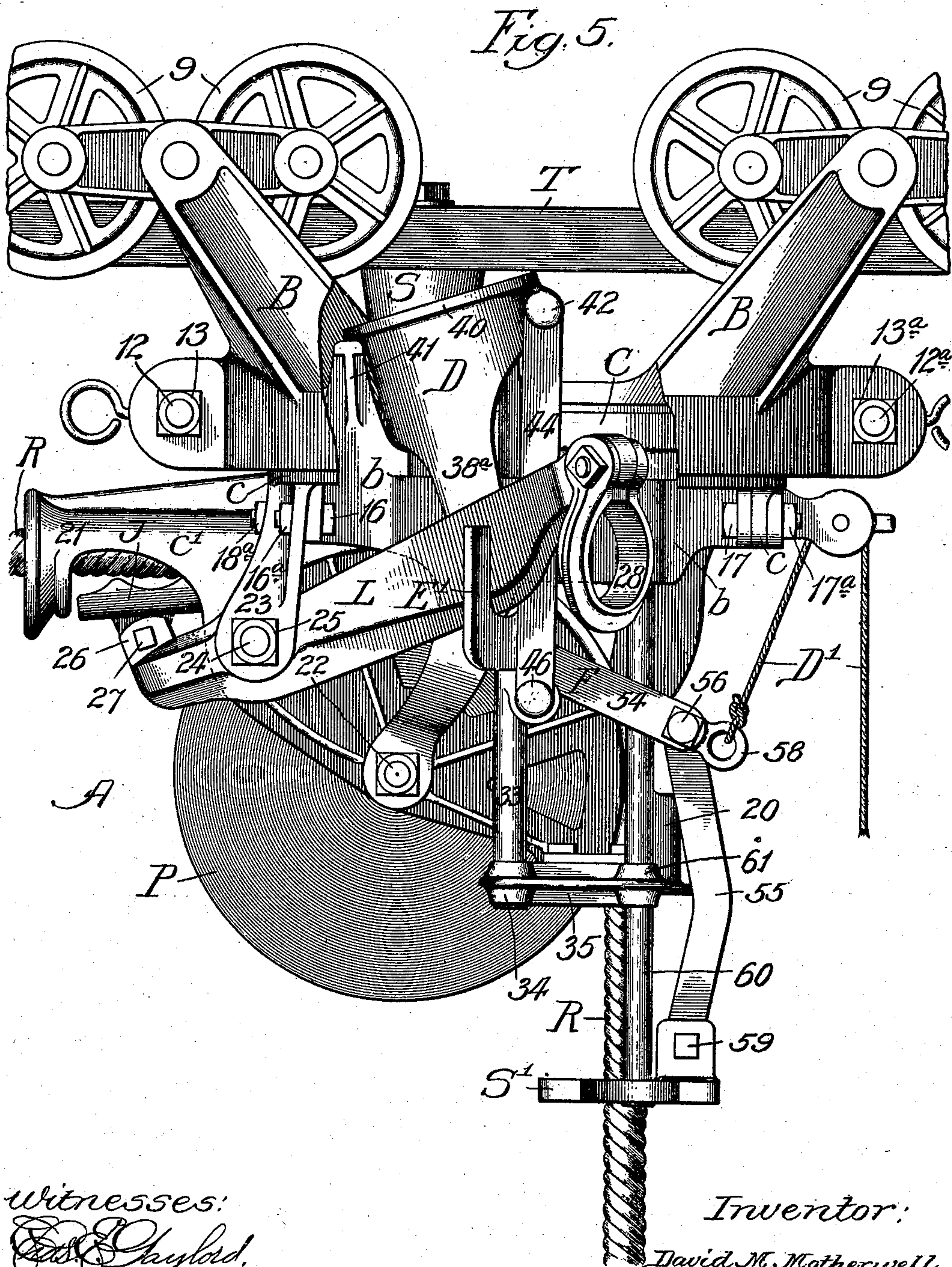
No. 867,589.

PATENTED OCT. 8, 1907.

D. M. MOTHERWELL.  
HAY CARRIER.

APPLICATION FILED JUNE 14, 1907.

6 SHEETS—SHEET 5.



Witnesses:  
*Ed. Gaylord.*  
*John Enders.*

Inventor:  
*David M. Motherwell,*  
By *Robert Cathenwood*  
*Atty.*



No. 867,589.

PATENTED OCT. 8, 1907.

D. M. MOTHERWELL.  
HAY CARRIER.

APPLICATION FILED JUNE 14, 1907.

6 SHEETS—SHEET 6.

Fig. 6.

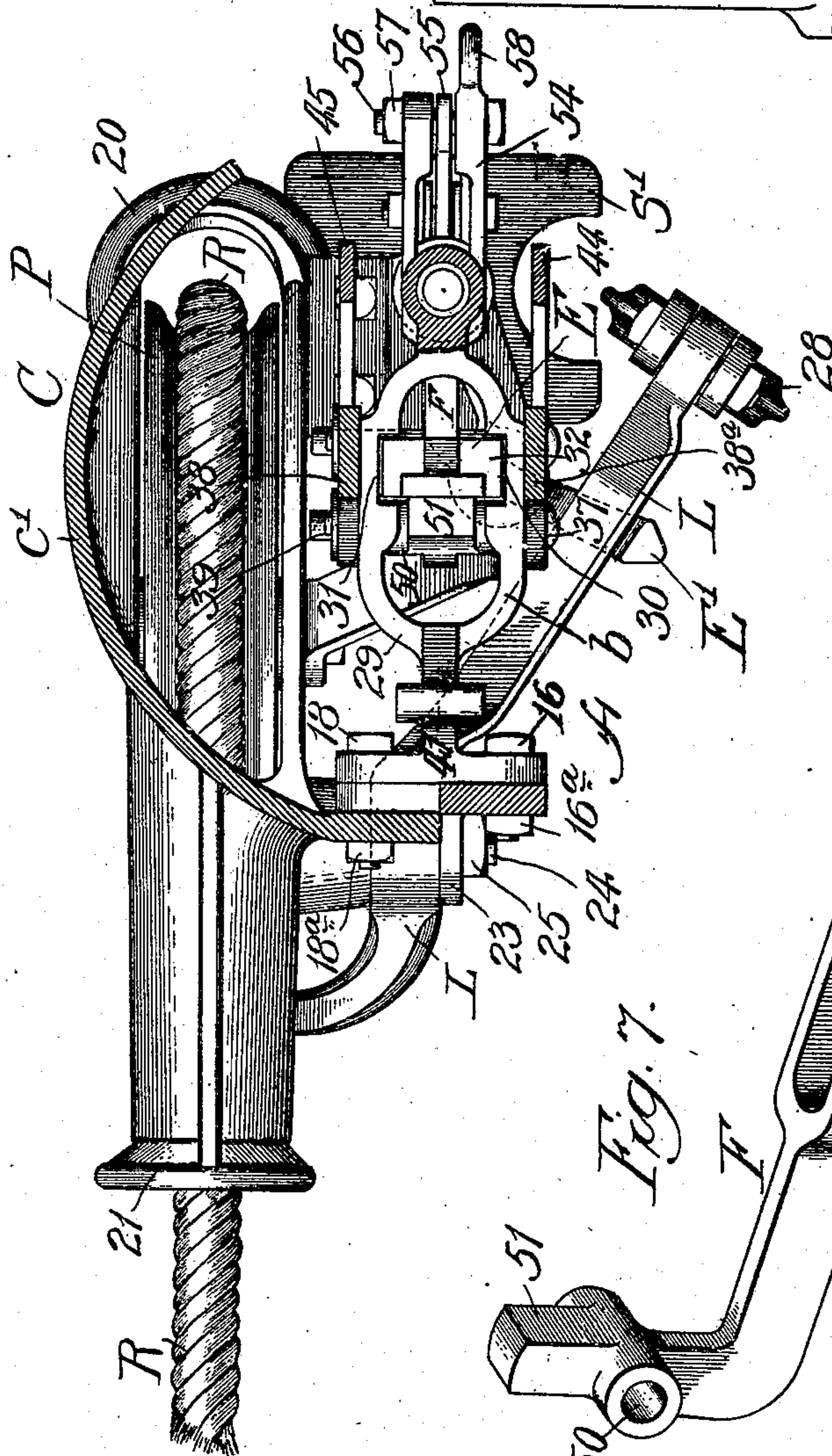


Fig. 8.

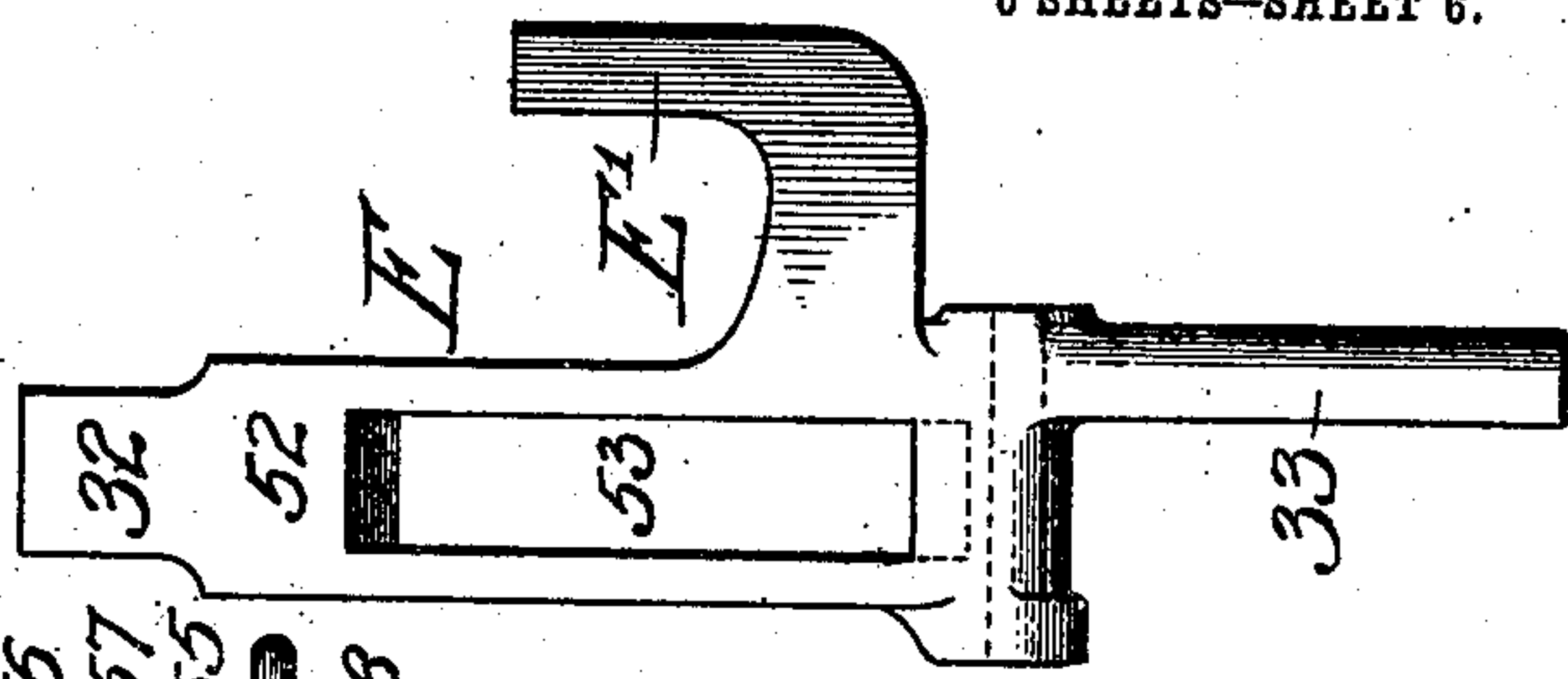
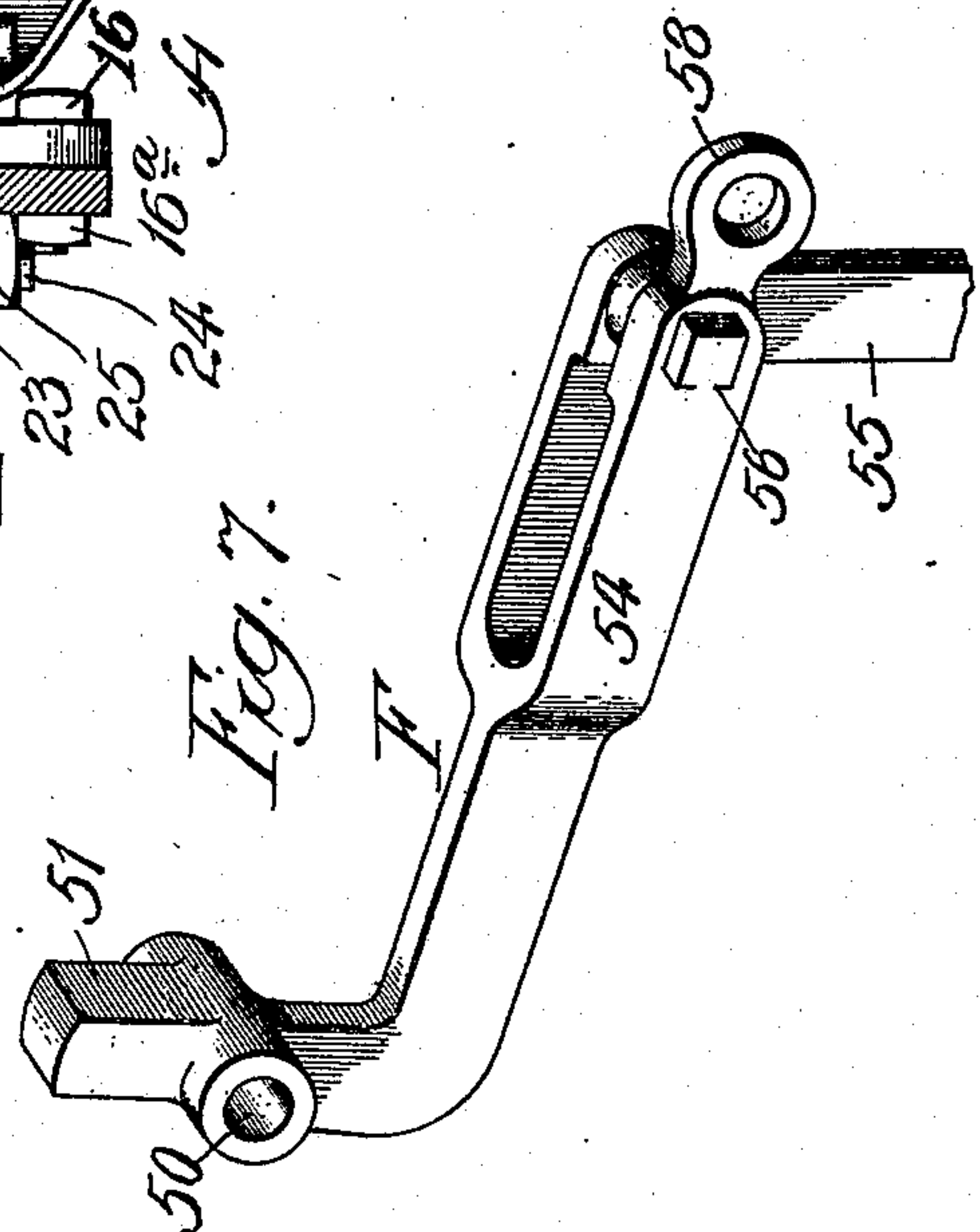


Fig. 7.



Witnesses:  
E. L. Gaylord.  
John Enders

Inventor:  
David M. Motherwell,  
By Robert Catherswood  
Attorney



# UNITED STATES PATENT OFFICE.

DAVID M. MOTHERWELL, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WHITMAN & BARNES MANUFACTURING COMPANY, OF AKRON, OHIO, A CORPORATION OF OHIO.

## HAY-CARRIER.

No. 867,589.

Specification of Letters Patent.

Patented Oct. 8, 1907.

Application filed June 14, 1907. Serial No. 379,039.

*To all whom it may concern:*

Be it known that DAVID M. MOTHERWELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, has invented certain new and useful Improvements in Hay-Carriers, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to that class of hay carriers which operate to hoist a load, convey it suspended at any desired height along an overhead way, and deposit it transversely of the path of travel at a desired point.

The object of my invention is to construct a very strong, cheap and compact carrier, in which the weight of the suspended load is applied with increase of power upon a rope clutch, giving a most powerful hold upon the load supporting rope, and in which the working parts are all secured upon the lower swivel frame, there being no drop frame parts, and having tripping mechanism which is easily operated, either, by a very simple and inexpensive form of stop upon the overhead track, or by contact of sling devices with a tripping bumper, or by a hand cord, whenever it is desired to trip the carrier without elevating the load to the full height.

In general, my device comprises two frames swiveled together, the upper provided with trucks adapted to travel upon an overhead way and the lower having secured to it a pulley, a rope clutch, formed by a projection on the frame and a gripping jaw carried upon the short arm of a lever, pivoted at an angle to the path of travel, to the end of the long arm of which is secured one end of the rope which supports the load, the other end of this rope being passed over the pulley and through the rope clutch and connected to the power which draws the carrier; a bar moving in a vertical plane near the middle of the carrier, having an arm, extending under the long arm of the lever, adapted to grasp it so that when this bar and arm is raised the lever is rocked to unlock the clutch, and when dropped the weight of the load automatically locks the clutch; a tilting dog carried upon a longitudinal bolster near the top of the lower frame having a mouth adapted to strike a stop on the overhead track which tilts it into vertical position; links connecting the upper part of the dog and the lower part of the vertical bar and arm, whereby lifting the dog into upright position lifts the bar and arm and the lever and unlocks the clutch, and tilting the dog from such vertical position drops the bar and arm to release the lever and to permit the load to lock the clutch; and a curved tripping bar which holds the bar in its elevated position and which is operated either by a cord or by a bumper which projects beneath the carrier and contacts with the sling or load pulleys to drop the bar and start the carrier off the stop.

In the accompanying drawings, wherein like letters

and numbers refer to similar parts throughout the several figures, I have shown a device embodying my invention in one of its preferred forms.

Figure 1 is a side view of the carrier showing the parts in the position occupied during transit along the track, the load supporting rope R being locked to the carrier; Fig. 2 is an end view of the carrier with the parts in the position shown in Fig. 1; Fig. 3 is a view taken on line 3 of Fig. 2, through the center of the carrier; Fig. 4 is a similar view showing the position occupied by the parts when the rope R is released during the raising or lowering of the load; Fig. 5 is a side view of the carrier illustrating the position assumed by the parts when the rope R is released during the raising or lowering of the load; Fig. 6 is a top view of the parts taken on line 6 of Fig. 1; Fig. 7 is a view in perspective of the tripping bar F showing the upper part of the bracket to which the bumper S' is attached, and Fig. 8 is an end view of the vertical bar E and arm E'.

In the drawings, A represents a hay carrier, embodying my invention in its preferred form, mounted on the usual overhead trucks 9, from which is suspended the main frame of the carrier, the trucks 9 traveling on oppositely disposed flanges of a raised web track or overhead way T.

B indicates the upper main frame of the carrier, conveniently constructed in two similar halves united at 12 and 12<sup>a</sup> by suitably threaded bolts and nuts 13 and 13<sup>a</sup> so that it may be readily taken apart when desired. The mouth or bottom of B is provided with a circular flange or guideway 14, embraced by continuous intermeshing lugs 15 on the top of the lever frame C, so as to form a turntable about which frame C may be swiveled. On frame C are secured the tripping, locking and load supporting mechanisms. This frame is composed of two sections c, c'; c is bolted to the bridge block or longitudinal bolster b by suitably threaded nuts and bolts 16, and 16<sup>a</sup> and 17, 17<sup>a</sup> and c' to bolster b by similar nuts and bolts 18, 18<sup>a</sup> and 19, 19<sup>a</sup>, the two parts c and c' being thus united, so that they may be readily taken apart when desired by removing these nuts and bolts.

I prefer to mount the draft pulley P on the frame c' on shaft 22 and to cast this frame with bell mouth or taper rope guides to hold the rope in position on the pulley with the least possible friction wear, 20 indicating the rope guide on the rear of the pulley sheave and 21 the forward rope guide adjacent to the rope clutch.

I prefer to extend and channel the inner surface of the frame c' to form the stationary member of the rope clutch and provide the jaw J carried on the end of the short arm of the lever L as the movable member. This lever is fulcrumed or pivotally mounted near its forward end between c and c'. To the end of the long arm



of lever L is attached the load supporting rope R, so that the weight of the load itself operates through this lever arm directly upon the rope clutch and gives a leverage grip of the clutch upon the rope R. To unlock the clutch, I provide near the middle of the carrier an upright bar E with capacity for a short vertical movement having an arm which extends beneath the long arm of lever L to lift it and release the load. This bar is operated either by the tripping dog D and stop S, the cord D' or the bumper S' contacting with P<sup>2</sup> and P<sup>3</sup>, as hereinafter more fully described.

In mounting the lever upon the carrier, I prefer to provide on frame c a downward-projecting ear or support 23 terminating at a point below and at a short distance in the rear of the rope guide 21. In the end of 23 is mounted a shaft or pivot 24, supported at its opposite end in the frame c' and removably secured by the threaded nut 25 on the threaded end of 24. On this shaft 24 is mounted my independent gripping lever L which turns on 24 as a fulcrum. The forward or short arm of L is bent at right angles to the path of travel of the carrier and recessed or cut away at 26 to provide a bearing or support for the rocking rope jaw J removably and tiltably carried thereon by threaded bolt and nut 27, and having a channeled and corrugated upper surface. The jaw J is so positioned with respect to the inner surface of the channeled extension of frame c' that when L is locked so as to raise the jaw it forms with this portion of c' a rope lock, the jaw and lever being the movable member and the channeled inner surface of the extension of c' the stationary member. The long arm of the lever L to the rear of its fulcrum is bent away from the carrier at an angle to the line of travel and provided upon its rear end with a rope ring or other rope attaching device 28 to which the load supporting rope R is secured. The weight of the load thus bears upon the extreme end of the long arm of lever L and gives a very powerful hold to the rope clutch when the parts are in locked position.

The central portion of the stationary longitudinal block or bolster b is cut away to form a ring 29, which is provided on its inner surfaces with oppositely disposed guideways or channels 30, 31, in which the shank 32 (Fig. 8) of the upright bar E is guided. On the lower end of E is a similar guide shank 33, passing through an eye or guideway 34 in extension piece 35 bolted to frame c' at 36 (Fig. 2). These guideways are adapted to prevent the bar E from moving sidewise, allowing it vertical movement only. Bar E is provided with a curved arm E' extending beneath the lever L so positioned with respect to the fulcrum of lever L that when the latter is in lowered position the side arm E' will not interfere with it, but when lifted by the mechanism hereinafter described it will lift the lever and unlock the rope clutch. Tripping dog D is tiltably mounted on a pivot or shaft 37, the ends of which project through opposite sides of the ring 29 and carry, outside of the ring, the legs 38, 38<sup>a</sup> of tripping dog D. Shaft 37 is removably attached to ring 29 by means of threads on one of its ends and the threaded nut 39. I prefer to construct the dog D with a curved or ring shaped top 40. Through one of the web perforations of the track T, at the loading and unlocking points are bolted the round stops S, which extend beneath the track and which are adapted to strike the dog D and

tilt or rock it into upright position. The tilting movement of the dog is limited in its forward movement in the direction of draft by the vertical bumper 41 and in its rearward movement by the upper surface of the bolster b. On the upper rear portion of D is pivotally attached at 42 and 43 the upper end of a pair of links 44 and 45, their lower ends being pivotally attached to E at the points 46, 47. These links determine the play of the vertical bar E and are of sufficient length to allow it to drop far enough to clear the lever L when dog D is in lowered position and to raise it to lift lever L when the dog is in elevated position.

Within ring 29, on shaft 37, is pivotally mounted tripping bar F more particularly shown in Fig. 7. 50 indicates the bearing which embraces shaft 37, 51 the short rocking arm of F which rests against the surface 52 of bar E is in lowered position, but which drops under bar E through recess or slot 53 to support the bar when in elevated position. Beneath its fulcrum or pivot on shaft 37, the tripping bar F is bent at right angles and carried through the slot or recess 53 out to the rear of the carrier. This long arm 54 is forked and a bracket arm 55 removably suspended between the forks by means of the threaded bolt and nut 56 and 57. Removably secured to the lower end of bracket arm 55 by the threaded bolt and nut 59 is the bumper S', which is guided in its vertical movement by shank 60 in eyelet or guideway 61 through extension piece 35 and a similar eyelet or guideway 62 through bolster b. At the end of arm 54 is an eyelet 58 to which the cord D' is attached, and carried over a roller 63 secured to the frame c above the end of the tripping bar F. Eyelets 64 and 65 for ropes may be provided on the carrier for drawing it backward and forwards along the track T.

When the parts occupy the position shown in Fig. 5, the load carried by the rope R rests upon the ground. One end of this rope is secured to the ring 28 and the other drawn, in the usual manner through rope or tackle pulleys P<sup>2</sup> and P<sup>3</sup> (Fig. 2), over pulley P between jaws J and out through the ring 21, where it is connected with power which is applied to draw it from right to left, as shown in Fig. 1. It will be understood, of course, that the frame of the carrier may be swiveled around so that the carrier can be drawn from left to right. Power being applied to the rope, the load is elevated until the pulleys P<sup>2</sup> and P<sup>3</sup> strike the stop S', when the parts are locked and the carrier is drawn on track T the rope R locked in the clutch J. Movement of the bar E to lift the lever L will unlock the clutch while the weight of the load locks it. The bar E may be tripped by the tilting dog D, the arrangement of the levers and dogs being such that lifting the dog into upright position lifts the bar, arm and lever and unlocks the clutch, while dropping the dog from said vertical position lowers the bar and arm to release the lever and permit the weight of the load to lock the clutch. The bar E is also tripped by means of the curved tripping bar which normally holds it in elevated position and which is thrown by the cord D' or by the bumper S' to drop the bar and permit the weight of the load to lock the clutch. The bar E is also operated through the tilting dog by contact with the stop S on track T.

I am aware that many modifications of my invention



will suggest themselves to those skilled in the art, and I do not wish to be understood as limiting myself to the preferred device herein described, but

What I claim is:

- 5 1. In a hay carrier, the combination of upper and lower frames swiveled together, a stationary rope clutch member on said lower frame, a lever pivoted to said frame, having its short arm curved beneath said stationary member and provided with a rocking clutch jaw to form the
- 10 movable member of a rope clutch and its long arm extended towards the rear of the carrier at an angle to the plane in which said carrier travels, and means for lifting the long arm of said lever to unlock said clutch for the purposes described:
- 15 2. In a hay carrier, the combination of upper and lower frames swiveled together, a stationary rope clutch member on said lower frame, a lever pivoted to said frame, having its short arm curved beneath said stationary member and provided with a rocking clutch jaw to form the movable
- 20 member of said rope clutch and its long arm extended towards the rear of the carrier at an angle to the plane in which said carrier travels, a pulley on said lower frame in alignment with and to the rear of said rope clutch, a load supporting rope secured to the end of the long arm of
- 25 said lever, passed over said pulley and through said clutch, means for alternately lifting and releasing the long arm of said lever, and means for suspending a load beneath the carrier from said rope, whereby the weight of said load automatically locks said clutch and lifting said long arm
- 30 unlocks it for the purposes described.
- 3 3. In a hay carrier, in combination with upper and lower frames swiveled together, a lever, pivoted near its forward end to said lower frame and adapted to support a load upon its rear end and a rope clutch comprising a stationary member on said lower frame extending forward in the direction of travel of the carrier and a movable member pivoted on the forward end of said lever, whereby the weight of the load is applied through said lever to lock
- 40 said clutch.
- 4 4. In a hay carrier, upper and lower frames swiveled together, a lever, pivoted near its forward end to said lower frame, a rope clutch, the movable member of which is pivoted on the short arm of said lever while its stationary member is secured to the forward end of said lower frame, means for securing a load to the rear end of said lever
- 45 and means for alternately lifting and dropping said lever to unlock and lock said rope clutch.
- 5 5. In a hay carrier, in combination with upper and lower frames swiveled together, a rope clutch, a lever adapted to operate said clutch, a vertical bar having an arm adapted to lift an end of said lever to unlock said
- 50 clutch, a dog adapted to lift said vertical bar, and a tripping lever adapted to lock said bar in elevated position, all of said parts being secured upon said lower frame.
- 55 6. In a hay carrier, a lever, the short arm of which carries one member of a rope clutch and the long arm, a load suspending device, a tilting dog, a vertical bar having a projection beneath the long arm of said lever, links connecting the upper part of said dog and the lower portion
- 60 of said bar, whereby rocking said dog into vertical position lifts said lever and lowering said dog permits said lever to drop, substantially as described.
- 7 7. In a hay carrier, in combination with upper and lower frames having a swiveling connection, a stationary rope clutch member secured to said lower frame, a lever, pivoted to said lower frame, its short arm carrying the movable member of said rope clutch and its long arm one end of a load supporting rope, the other end of said rope being drawn between the members of said rope clutch, a
- 70 tilting dog mounted in said lower frame, a vertical bar having an arm extended beneath the long arm of said lever, links connecting the lower part of said bar and the upper part of said dog, whereby tilting said dog into upright position raises said bar to lift said lever and unlock
- 75 said rope clutch and lowering said dog lowers said bar, releases said lever and permits the weight of the load to lock said clutch.

8. In a hay carrier, a frame having a lever pivoted thereon, the long arm of which is adapted to support a hay sling, a pulley, a rope clutch operated by said lever, a vertical bar having a side arm extending beneath the long arm of said lever, a tilting dog supported on said frame having links connecting the upper portion of said dog and the lower part of said bar and adapted when rocked into upright position to draw said side arm into contact with said lever and elevate the long arm thereof to unlock said clutch, a central vertical slot in said bar, a trip lever, fulcrumed on said frame having its long arm extended through said slot, its short arm being adapted to rock into said slot to support said bar when in elevated position and a bumper carried on a bracket attached to the end of the long arm of said trip lever, adapted to contact with said hay sling when the latter is hoisted to said carrier, whereby said trip lever is rocked out of said slot, said bar drops and the weight of said hay sling locks said clutch.

9. In a hay carrier, mechanism adapted alternately to lock and unlock a load thereto, a vertical bar mounted therein, a tilting dog having angle links whereby tilting said dog alternately raises and lowers said bar, a trip lever, adapted alternately to rock under said bar to support it and away therefrom to allow it to drop, and a stop adapted to tilt said dog, said bar having a side arm adapted to unlock said load when said bar is in elevated position.

10. In a hay carrier, a vertical bar having an arm adapted to raise one end of a lever, a vertical central slot and guides adapted to limit it to a short vertical movement, a tilting dog adapted to lift said bar on contact with an overhead stop, an overhead stop, and a tripping lever, one arm of which is adapted to support said bar in elevated position, the other is passed through said slot to the rear of said carrier, whereby operation of said tripping lever simultaneously starts said carrier off said stop, and releases said lever end, for the purposes described.

11. In a hay carrier, a lever adapted to operate a rope clutch, a vertical bar having an arm adapted to lift the free end of said lever when in elevated position and to release it when in lowered position, a central vertical slot in said bar, a tilting dog, adapted to lift said bar when thrown in upright position, a tripping lever fulcrumed forward of said vertical bar, its long arm extending to the rear of the carrier through the lower portion of said slot, its short arm being curved to drop into said slot to support said bar when lifted by said dog and means for rocking said tripping lever out of said slot to drop said vertical bar.

12. In a hay carrier, a tilting dog provided with a ring top and connections adapted to operate rope grasping and releasing mechanism when tilted or rocked, and a stop supported above said carrier and having a curved knocking surface adapted to strike within said ring top and tilt said dog.

13. In a hay carrier, an upper and lower frame swiveled together, a horizontal bridge secured near the top of said lower frame having a vertical bumper, a dog pivoted on said bridge and adapted to tilt above it from said bumper to the top surface of the bridge, a ring top on said dog, a stop supported above said carrier having a knocker projecting into the plane in which said ring lies upon said bridge, and connections on said dog adapted to operate rope grasping and releasing mechanism.

14. In a hay carrier, a lever L adapted to operate a rope clutch, a dog D above said lever adapted to tilt in a short arc, a bar E secured to said dog and moving up and down as said dog is tilted, an arm E' adapted to lift said lever as said bar is raised and drop it when lowered, a trip lever F adapted to be rocked to support said bar in elevated position and to release it, means for rocking said trip lever, and means for tilting said dog substantially as described.

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

DAVID M. MOTHERWELL.

Witnesses:

W. A. STANSFIELD,  
A. J. KILGORE.