

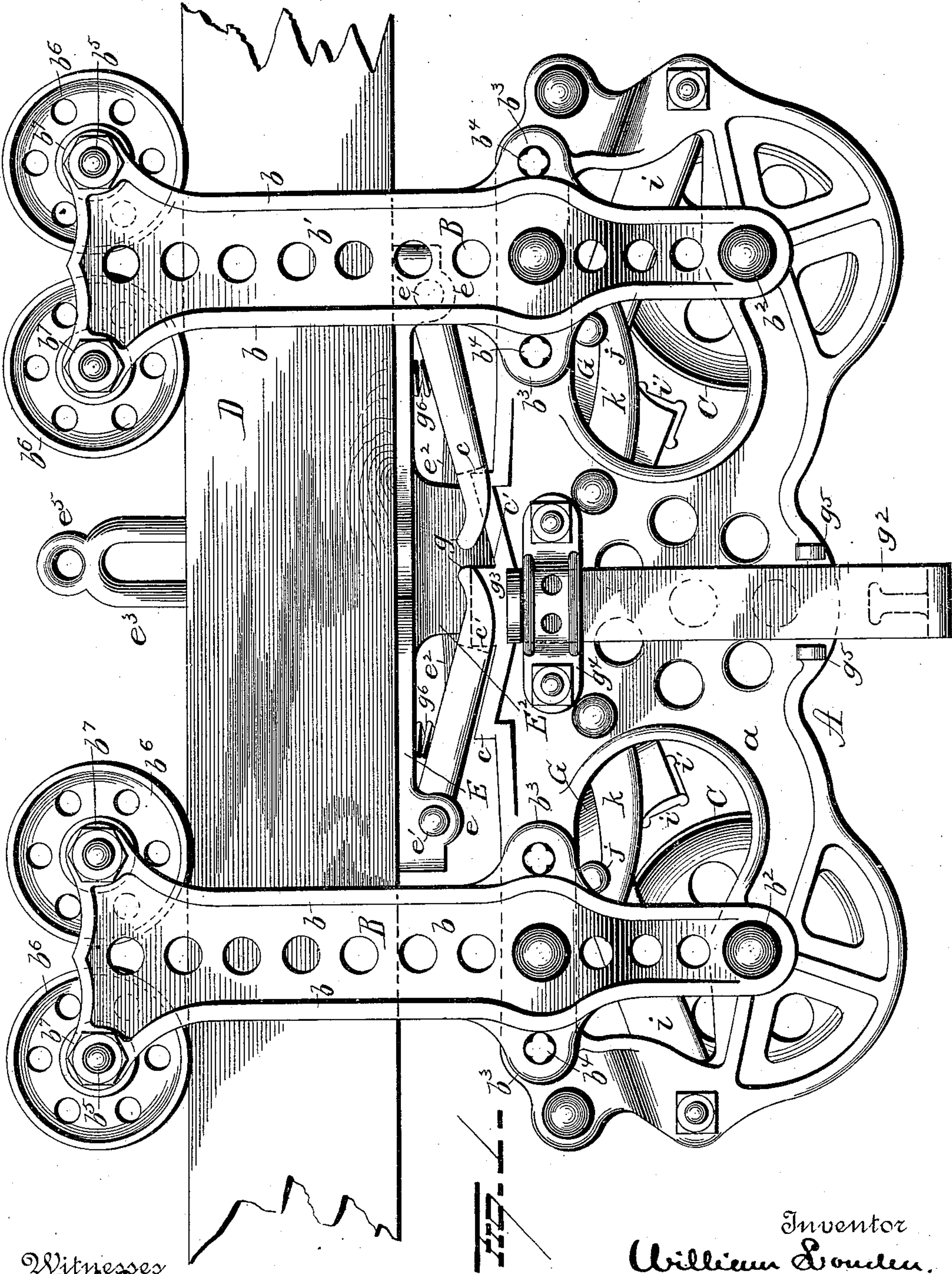
(No Model.)

4 Sheets—Sheet 1.

W. LOUDEN.  
HAY CARRIER.

No. 472,175.

Patented Apr. 5, 1892.



Witnesses  
*G. J. Atkinson*  
*G. F. Downing*

Inventor  
*William Loudon.*  
By *H. A. S. S. S. S.*  
Attorney.



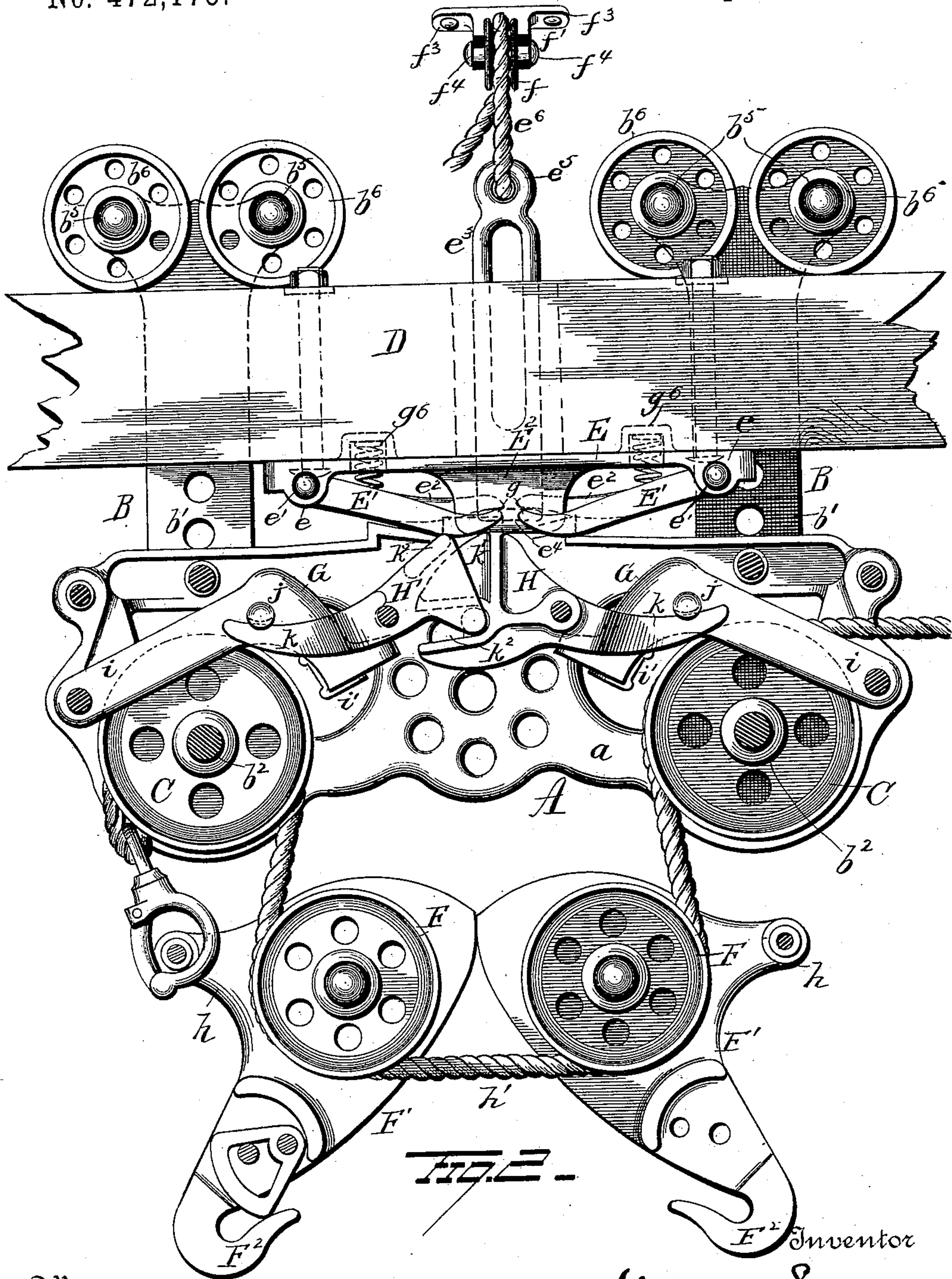
(No Model.)

4 Sheets—Sheet 2.

W. LOUDEN.  
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No. 472,175.

Patented Apr. 5, 1892.



Witnesses.  
E. H. Houghton  
G. F. Downing.

*Inventor*  
William Loudon.  
By H. A. Symmons.  
*Attorney*

(No Model.)

4 Sheets—Sheet 3.

W. LOUDEN.  
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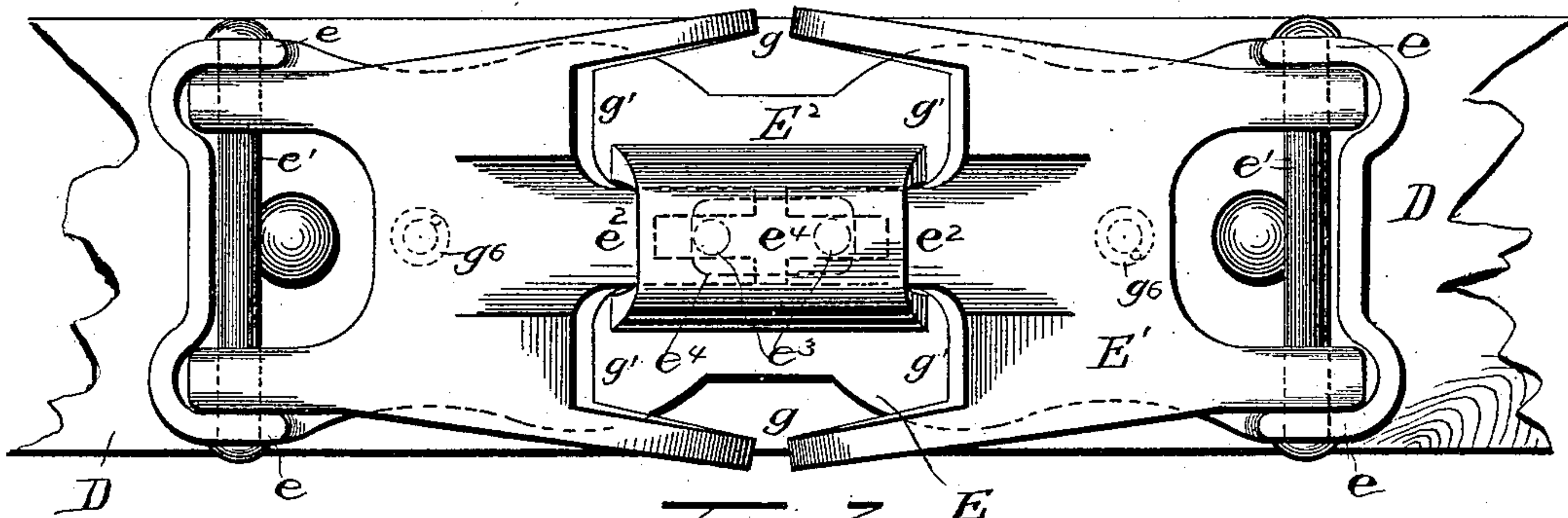


Fig. 3.

Fig. 4.

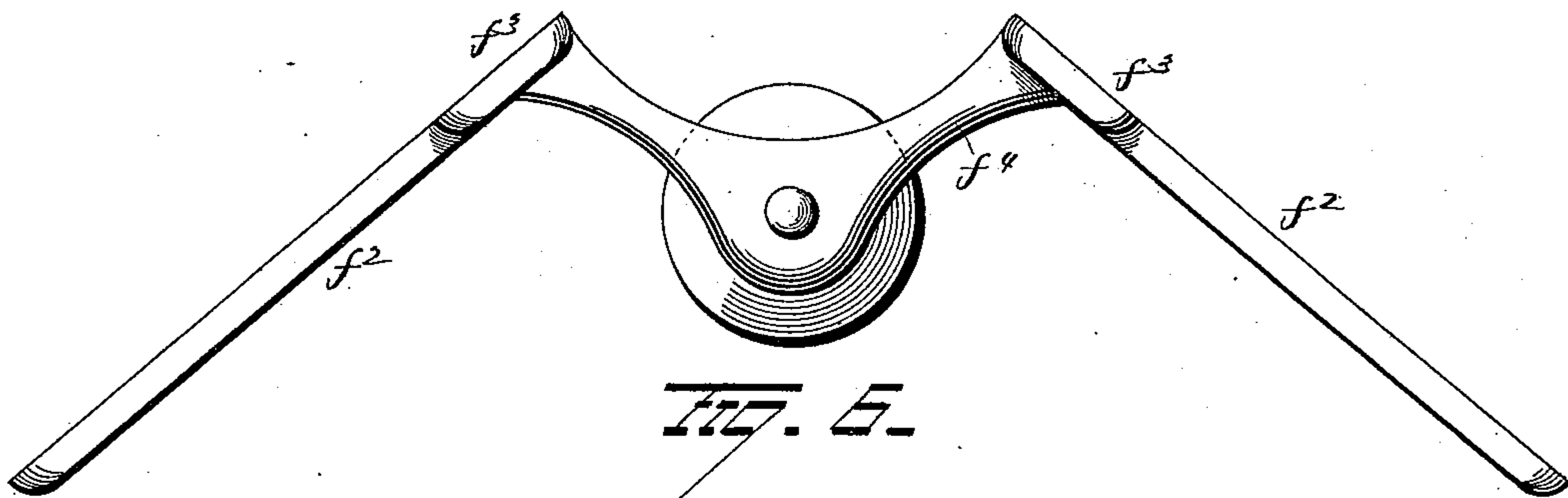
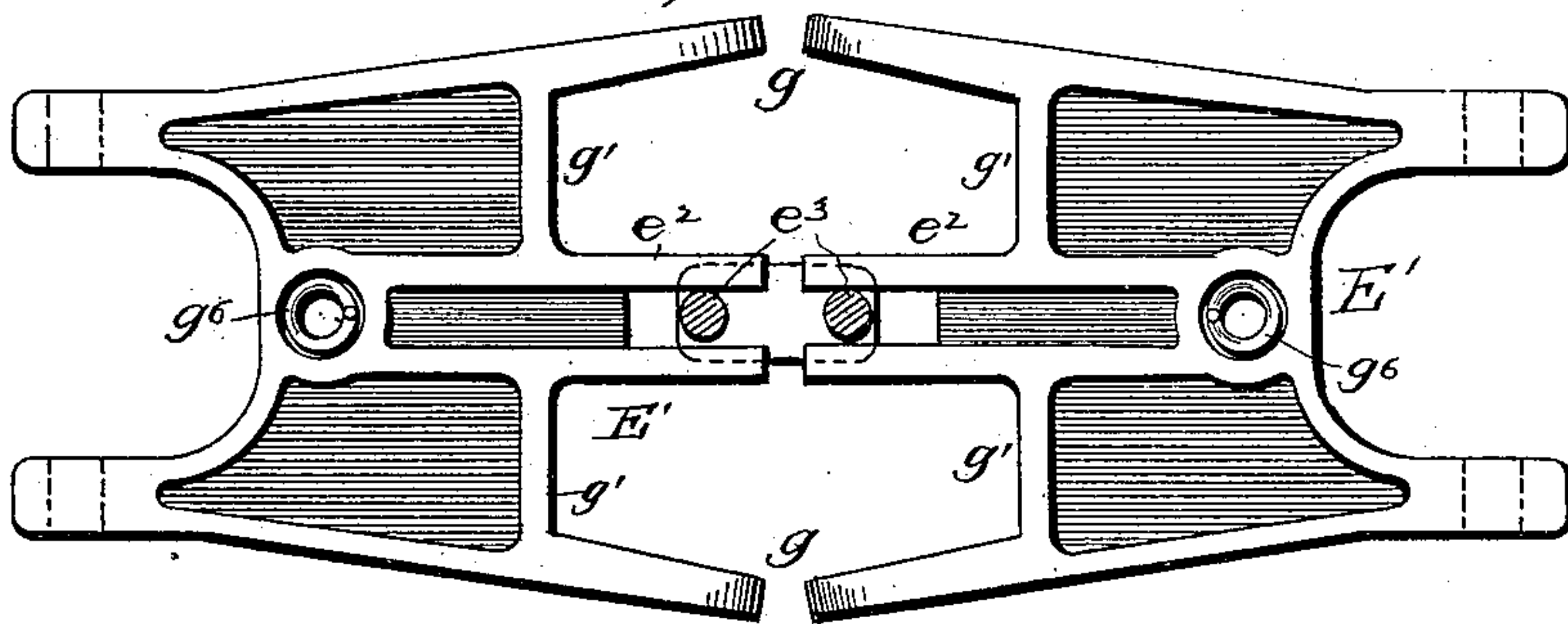


Fig. 5.

Witnesses  
*C. A. Houghton*  
*G. F. Downing*

Inventor  
*William Loudon*  
*B. H. Asmusson*  
Attorney



(No Model.)

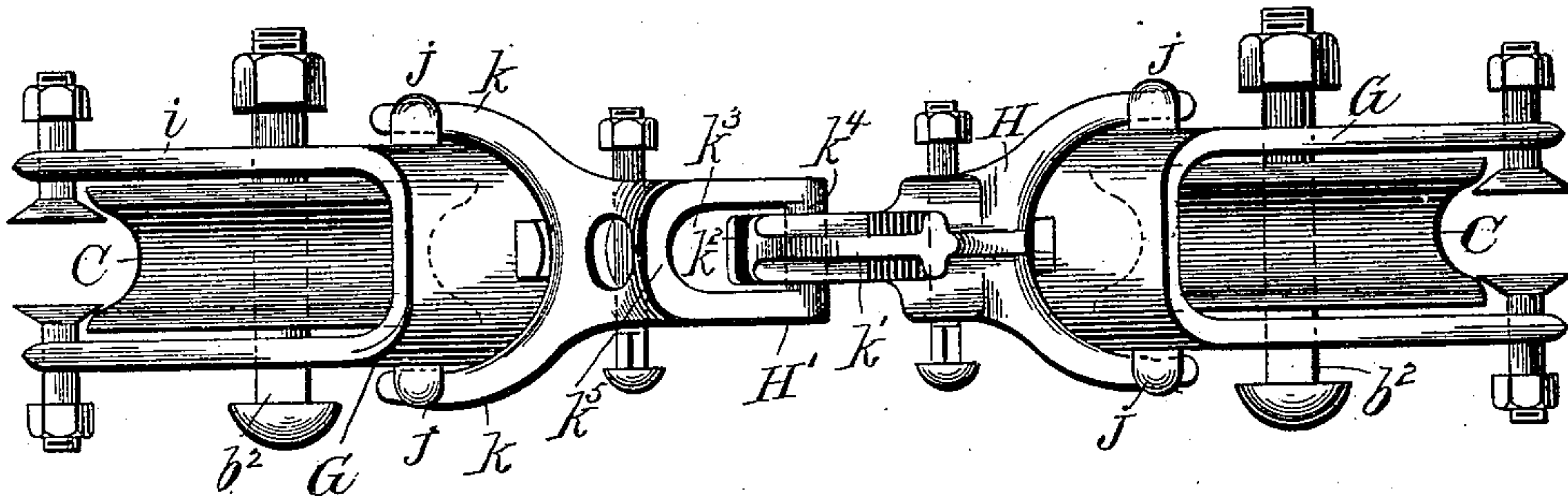
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W. LOUDEN.  
HAY CARRIER.

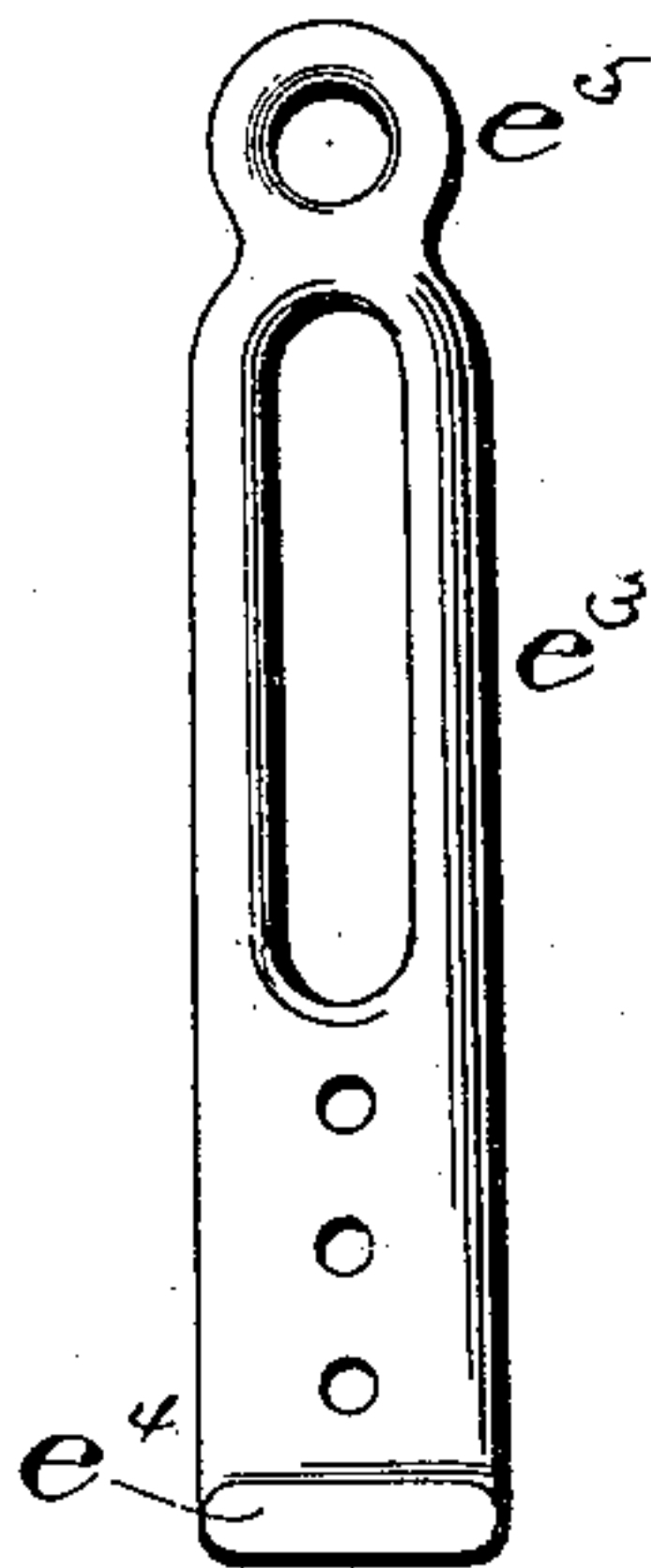
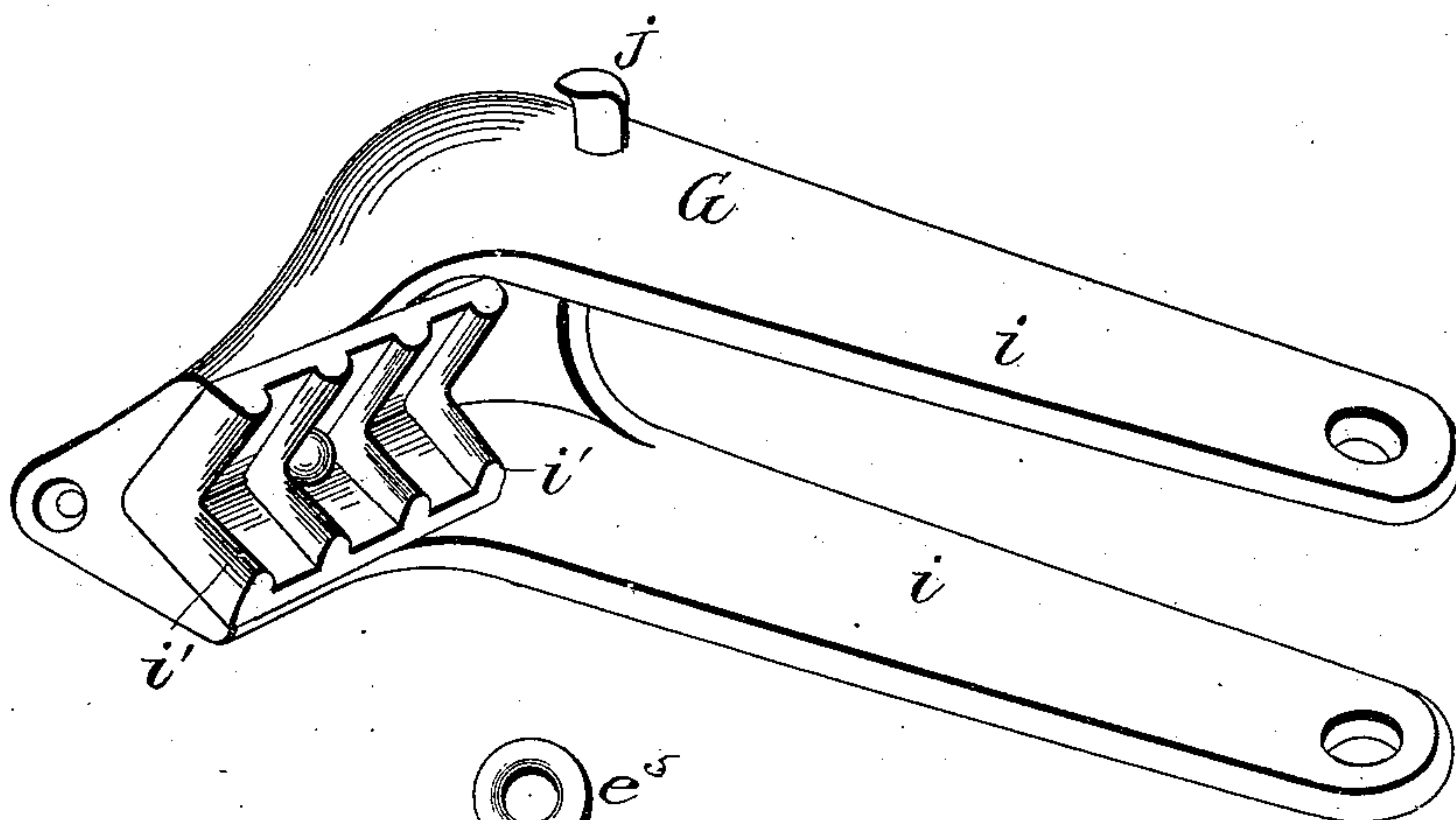
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*Fig. 7.*



*Fig. 5.*



*Fig. 8.*

Witnesses  
*E. J. Nottingham*  
*G. F. Downing*

Inventor  
*William Loudon*  
By *H. A. Symmon*  
Attorney



# UNITED STATES PATENT OFFICE.

WILLIAM LOUDEN, OF FAIRFIELD, IOWA.

## HAY-CARRIER.

SPECIFICATION forming part of Letters Patent No. 472,175, dated April 5, 1892.

Application filed October 2, 1891. Serial No. 407,495. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM LOUDEN, of Fairfield, in the county of Jefferson and State of Iowa, have invented certain new and useful Improvements in Hay-Carriers; 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 an improvement in hay-carriers, the object of the invention being to produce a hay-carrier and tripping mechanism therefor, whereby said carrier may be automatically locked and released.

A further object is to construct a hay-carrier and trip mechanism in such manner that the sling will be automatically released when the carrier engages said tripping mechanism.

A further object is to provide means whereby hinged latches may be operated to release a hay-carrier by means of a cord or bar passing through the rail upon which the carrier runs.

A further object is to provide an improved mechanism for carrying and operating the brake-shoes.

A further object is to improve the general construction and the details of a hay-carrier.

A further object is to produce a hay-carrier which shall be simple in construction and effectual in the performance of its functions.

With these objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is an elevation of the device. Fig. 2 is a similar view with part of the frame removed. Fig. 3 is a plan view of the tripping devices. Fig. 4 is a view of the hinged latches of the tripping mechanism. Fig. 5 is a separate view of one of the clevises which carry the brake-shoes. Figs. 6, 7, and 8 are detail views.

A represents a frame or housing composed of two plates *a a*, held together by means of suitable bolts and spaced apart by means of sleeves encircling said bolts. Securely bolted to the plates *a a* of the frame A—one at each end of each plate—are upwardly-extending arms or hangers B. Each arm or hanger B is

made of a single piece of metal having stout flanges *b b*, and said flanges are connected by a light web *b'*, the inner edges of the arms or hangers B being rounded so as to prevent the engagement of the arms with slivers or joints in the track. By this construction an arm or hanger will be produced which is comparatively light in weight, still possessing the requisite amount of strength. The lower ends of the arms or hangers B may be contracted somewhat and secured to the frame A by means of a bolt *b<sup>2</sup>*, said bolt *b<sup>2</sup>* serving to secure the lower ends to two diametrically-opposite arms or hangers B, said bolts *b<sup>2</sup>* also serving as shafts for two pulleys C C, mounted in the ends of the frame A and between the plates *a a* thereof. The arms or hangers B are also secured to the frame A in pairs by means of bolts passing through the arms and frame at points between the ends of said arms or hangers, and said bolts may have collars encircling them which serve to maintain the upper part of the frame A properly spaced apart. Each arm or hanger B is provided with two ears *b<sup>3</sup>*, having perforations for the reception of lugs *b<sup>4</sup>*, projecting from the plates *a a* of the frame A, and thus assist in preventing endwise movement of the arms or hangers. The upper corners of the arms or hangers B are made somewhat flaring, and in said flaring corners perforated bosses *b<sup>7</sup>* are formed. Secured in each perforated boss *b<sup>7</sup>* is a pin *b<sup>5</sup>*, which projects inwardly from the arm B and constitutes a bearing for a roller *b<sup>6</sup>*, adapted to run upon an elevated track D. Thus it will be seen that each arm or hanger B is provided with two rollers *b<sup>6</sup>*, and there being four arms or hangers B the carrier will be supported upon eight rollers *b<sup>6</sup>*, four running near each edge of the track or rail D. The upper edge of each plate *a* of the frame A is made with four shoulders or stops *c c' c'*, with which the latches of the tripping mechanism are adapted to engage to lock the carrier to the track or rail D.

In constructing the tripping or locking mechanism a plate E is secured to the under side of the rail D and provided at each end with perforated bosses *e* for the reception of the journals *e'* of two latches or locks E', whereby said latches or locks will be hinged



to the plate E. The plate E is also provided at its center with a hollow projection or arm  $E^2$ , the function of which will be explained farther on. The latches  $E'$  are each provided with an inwardly-projecting arm  $e^2$ , bifurcated at their inner ends and adapted to embrace loosely a bar  $e^3$ , which extends loosely through a perforation in the rail D, said bar  $e^3$  having a cross-head  $e^4$  adapted to project under the inner ends of the arms  $e^2$ . In order to make the bar  $e^3$  light and to save metal in its formation said bar may be made in the form of a loop or link, and it is provided at its upper end with an eye  $e^5$  for the reception of one end of a cord or rope  $e^6$ , whereby to operate it to lift the latches or locks  $E'$ , for a purpose hereinafter described. The cord or rope  $e^6$  is extended upwardly from its connection with the bar  $e^3$  and passed over a pulley  $f$ , supported in a bracket  $f'$ , secured to the rafters of the barn or other structure. The bracket  $f'$  is preferably made as shown in Fig. 6—that is to say, two arms  $f^2$  are provided and disposed at an obtuse angle relatively to each other and perforated for the reception of fastening devices, whereby to secure the device to the rafters. Ears  $f^3$  project laterally from the arms  $f^2$ , and are also perforated for the accommodation of fastening devices. The two arms  $f^2$  are connected by two curved arms  $f^4 f^4$ , and at the apex of the curved arms  $f^4$  the pulley  $f$  is journaled. This construction produces a light, strong, and cheap bracket for the support of the pulley  $f$ , and one which is adapted to conform to the angle formed by the rafters of the building in which it is located.

The latches  $E'$  are each provided at each side with prongs  $g$ , each having a curved under face or edge, and adjacent to these prongs shoulders  $g'$  are formed. The shoulders  $g'$  are adapted to engage the stops  $c c c' c'$ , and are maintained normally in engagement with these stops by means of springs  $g^6$  inserted between the latches  $E'$  and the plate E, and it is the purpose of the bar  $e^3$ , hereinbefore described, to release the latches  $E'$  from these stops, said bar serving to release both latches simultaneously. It will be seen that when the carrier-frame is locked by the latches or locks  $E'$  the carrier will be prevented from movement in either direction, the shoulder  $g'$  of one latch engaging the stop  $c'$  on the frame and the shoulder  $g'$  of the other latch engaging the shoulders  $c$  of the plates  $a a$  of the frame. Thus by operating the bar  $e^3$  both latches will be released, as above explained, and the carrier-frame will be permitted to move either way on the rail or track D. A vertically-movable yoke  $g^2$  loosely embraces the frame A and is provided at its free upper ends with lips  $g^3$ . The yoke is guided by loops  $g^4$ , secured to the plates  $a a$  of the frame, and lugs  $g^5$ , projecting from the said plates  $a a$ . With the yoke  $g^2$  thus arranged, when the sling-pulley frames are drawn up close to the carrier and said pulley-frames or casings

made to engage or bear against the yoke  $g^2$  said yoke will be elevated and the ears or lips  $g^3$  made to engage the prongs  $g$  of one of the latches  $E'$ , and thus free the carrier-frame and permit it to travel on the rail D in one direction.

The sling-pulleys F are mounted on frames  $F'$  of pear shape, each having a hook  $F^2$  for the reception of the sling-ropes. The frames  $F'$  are also provided with an arm or projection  $h$  for the attachment thereto of the hoisting-rope  $h'$ , said rope also passing over the pulleys C C within the frame A. In proximity to each pulley C is a clevis G, each clevis having two outwardly-projecting arms  $i$ , which embrace said pulleys, and which are pivotally connected at their free outer ends to the plates  $a a$  of the frame A. The body of each clevis G rests normally in nearly a vertical position in close proximity to the pulleys C, and are concave on their inner faces for the reception of brake-shoes  $i'$ , which latter are maintained normally in contact with the hoisting-rope  $h'$  by the gravity of the clevis.

The advantage of the brake-clevises straddling the pulleys D, as above explained, is that the circle of the brake follows the contour of the pulley, whereas if the brake-shoe were presented to the rope in the reverse position it would engage a smaller amount of the rope and thus be less effective in its operation.

The clevises G are each provided at opposite sides with projections or lugs  $j$ , with which the prongs  $k$  of two levers H H' engage. The levers H H' are pivotally mounted between the plates  $a a$  of the frame A, and each provided at one side of its fulcrum with prongs  $k$  to engage the lugs  $j$ , as above explained. The lever H is provided on the other side of its fulcrum from the prongs  $k$  with a flange  $k'$ , having a curved upper edge, and at the lower end of this flange is a mouth or recess  $k^2$ . The upper arm of the lever H' is made with an opening  $k^3$  for the accommodation of the flange  $k'$  of the lever H, and the cross-bar  $k^4$  at the inner end of this opening is adapted to enter and have a free movement in the mouth or recess  $k^2$  in the upper arm of the lever H. The upper end of the lever H' is also made to produce a nose  $k^5$ . Now it will be seen that if the upper end of either lever H or H' be pressed toward the other said levers will be swung or vibrated on their fulcrums, and the prongs  $k$ , engaging the lugs  $j$  on the clevises, will raise said clevises, and with them the brake-shoes carried by them, and thus release the hoisting-rope  $h'$  and release the sling carrying the hay. It may be here stated that the lugs or projections  $j$  of one clevis may be located somewhat higher than the lugs  $j$  of the other, so that one brake-shoe will be released slightly in advance of the other.

When the carrier having a load of hay connected therewith in traveling over the rail comes in contact with the tripping or locking



mechanism carried by the rail, the arm or projection  $E^2$  of plate E will be engaged by the flange  $k'$  of lever H or the nose  $k^5$  of lever H' (accordingly as to the direction which the carrier is traveling) and cause said levers to be vibrated on their fulcrums and thus release the brake-shoes from the ropes passing over the pulleys C C, as above explained. At the same time the carrier will be locked by the engagement of the latches  $E'$  with the shoulders  $cc'$  on the frame A. In order to reverse the carrier it is simply necessary to pull on cord  $e^6$ , so as to lift bar  $e^3$  and free the latches  $E'$  from the shoulders  $c$  and  $c'$ . The carrier is then moved along the track to the other side of the stop E. The hoisting-rope  $h'$  should then be disconnected from projection  $h$  of the pulley-frame  $F'$ , the opposite end of the rope being attached to the projecting part  $h$  of the other pulley-frame. The carrier is then ready to move in the opposite direction.

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

25 1. The combination, with a track or rail and a hay-carrier adapted to run thereon, of a plate secured to the under side of said rail or track, a latch hinged to said plate, an arm projecting from said latch and having a bifurcated end, a bar passing loosely through the rail or track and loosely connected with the bifurcated end of the arm of the latch, and means for operating said bar, substantially as set forth.

35 2. The combination, with a rail or track and a hay-carrier adapted to run thereon, of two latches projecting in opposite directions, shoulders or stops on the frame of the carrier and disposed in opposite directions and adapted to be engaged by the latches, and a slide-bar passing loosely through a hole in the rail or track for operating said latches, substantially as set forth.

45 3. The combination, with a rail and a carrier adapted to run thereon, of two latches hinged to the under side of said rail, an arm projecting from each latch toward each other, and a sliding bar passing through the rail and loosely connected to the arms of the latches, whereby both latches may be operated simultaneously, and fixed stops on the carrier to be engaged by said latches, substantially as set forth.

55 4. The combination, with a rail and a carrier adapted to run thereon, of two independently-hinged latches on the under side of said rail, arms projecting from said latches, a slide-bar passing through the rail and loosely connected with said arms, whereby both latches may be operated simultaneously, and means whereby either of said latches is capable of being operated independently of the other, and stops on the carrier-frame with which said latches are adapted to engage, substantially as set forth.

65 5. The combination, with a rail and a carrier adapted to run thereon, of latches hinged to

the under side of said rail, stops on the carrier-frame adapted to be engaged by said latches, prongs projecting from said latches, a vertically-movable yoke carried by the carrier-frame, said yoke being adapted when moved upwardly to engage the prongs of one of the latches and release said latch from engagement with the carrier-frame, substantially as set forth.

6. The combination, with a track or rail and a hay-carrier adapted to run thereon, of latches hinged on the under side of said track or rail, stops on the carrier-frame with which said latches engage, a yoke embracing the carrier-frame and adapted to have a vertical movement when struck by the load and adapted to engage one or the other of said latches, loops secured to the carrier-frame for guiding said yoke, and lugs projecting from the carrier-frame for guiding the lower portion of said yoke, substantially as set forth.

7. The combination, with a rail and a hay-carrier adapted to run thereon, of latches on the under side of said rail, two corresponding sets of stops on the carrier-frame, one stop of one set being adapted to be engaged by one of said latches, while the other latch is in engagement with the other stop of the corresponding set, and means for automatically releasing one latch when the load of hay shall have been raised to the carrier, substantially as set forth.

8. The combination, with a rail or track and a carrier adapted to run thereon, of a plate secured to the under side of the rail or track and having an opening in its center, a hollow projection in line with this opening, arms projecting from the latches into said hollow projection, stops on the carrier-frame with which the latches engage, and a bar passing loosely through the rail and into the hollow projection and connected with the arms projecting from the latches, substantially as set forth.

9. The combination, with a carrier provided with hoisting-pulleys, of brakes pivoted to the carrier in proximity to the pulleys, and a pair of levers pivoted to the carrier, their inner ends having a loose pivotal connection with each other and their outer ends adapted to operate in connection with the brakes to raise them, substantially as set forth.

10. In a hay-carrier, the combination, with a frame and two pulleys mounted therein for the accommodation of the hoisting-rope, of two brake-clevises hinged in opposite directions, two levers, each adapted to engage one of the clevises, and means for operating said levers to raise both clevises simultaneously, substantially as set forth.

11. In a hay-carrier, the combination, with a frame and two pulleys mounted therein for the accommodation of the hoisting-rope, of two brake-clevises mounted in said frame and adapted to embrace said pulleys, two levers pivoted in the frame and each adapted to engage one of the clevises, said levers be-



ing connected together in such manner that when one is operated they will both be operated to raise the clevises to release the brakes, substantially as set forth.

5 12. In a hay-carrier, the combination, with a frame and two pulleys mounted therein for the accommodation of the hoisting-rope, of two brake-clevises mounted in said frame and adapted to embrace said pulleys, pins pro-  
10 jecting from said clevises, two levers pivoted in the frame and having forks to engage said pins, and means for operating said levers simultaneously, substantially as set forth.

15 13. The combination, with a rail, of a projection on the under side thereof, a hay-carrier having pulleys mounted therein for the accommodation of the hoisting-rope, brake-clevises adapted to embrace said pulleys, levers mounted in the frame and adapted to en-  
20 gage said clevises, said levers being adapted to be engaged and operated by the projec-

tion on the under side of the rail, substantially as set forth.

14. The combination, with a rail, of a pro-  
25 jection on the under side thereof, a hay-carrier having pulleys mounted therein for the accommodation of the hoisting-rope, clevises adapted to embrace said pulleys, brake-shoes carried by said clevises, levers mounted in the frame and adapted to engage said clevises, 30  
and said levers being loosely connected together at their upper ends and adapted to be engaged and operated simultaneously by the projection on the rail, substantially as set forth. 35

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM LOUDEN.

Witnesses:

R. B. LOUDEN,  
FRANK LOVING.