

No. 688,476.

Patented Dec. 10, 1901.

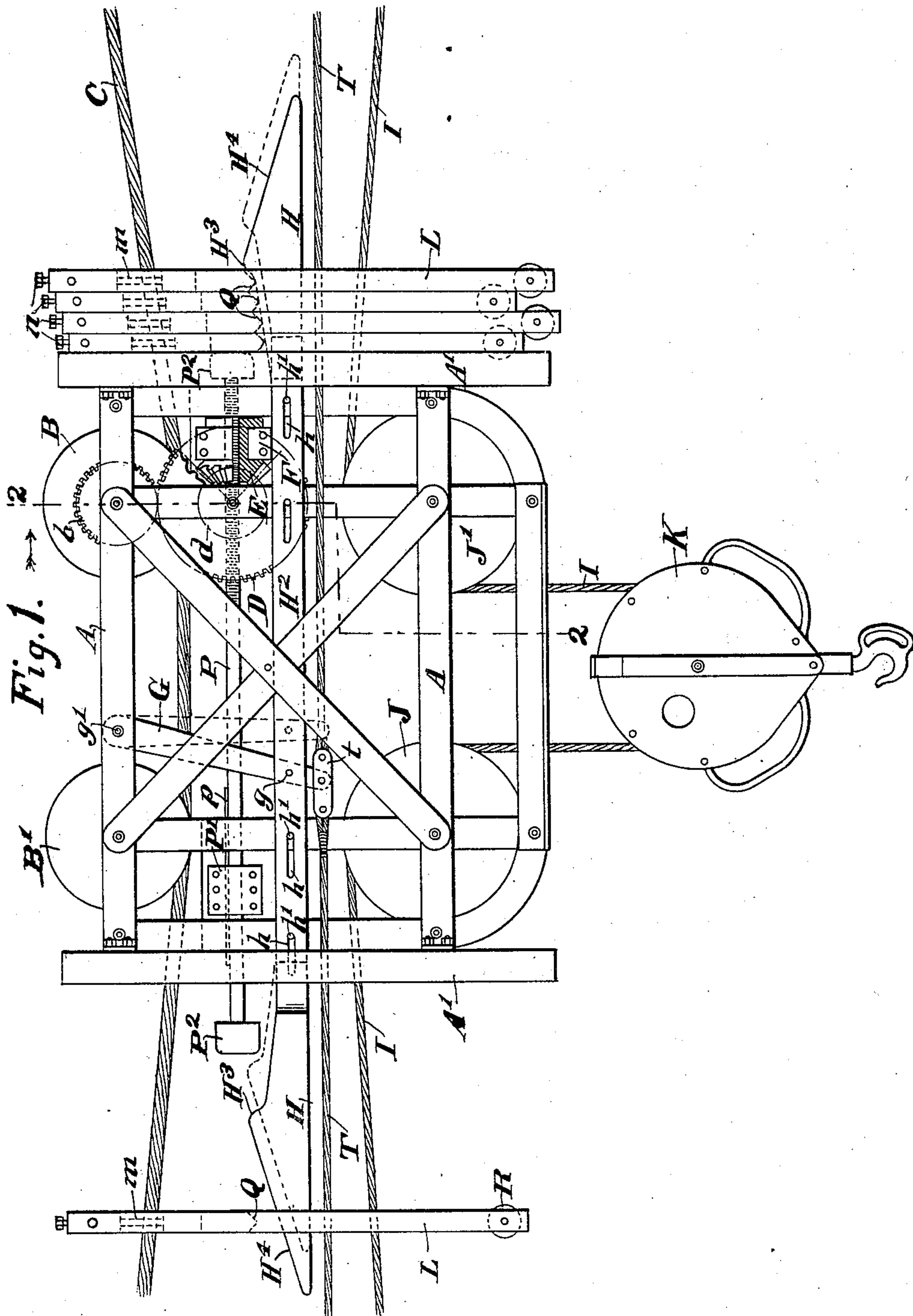
T. S. MILLER.

FALL ROPE CARRIER AND MEANS FOR OPERATING SAME.

(Application filed Apr. 15, 1901.)

(No Model.)

3 Sheets—Sheet 1.



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3 Sheets—Sheet 2.

Fig-5.

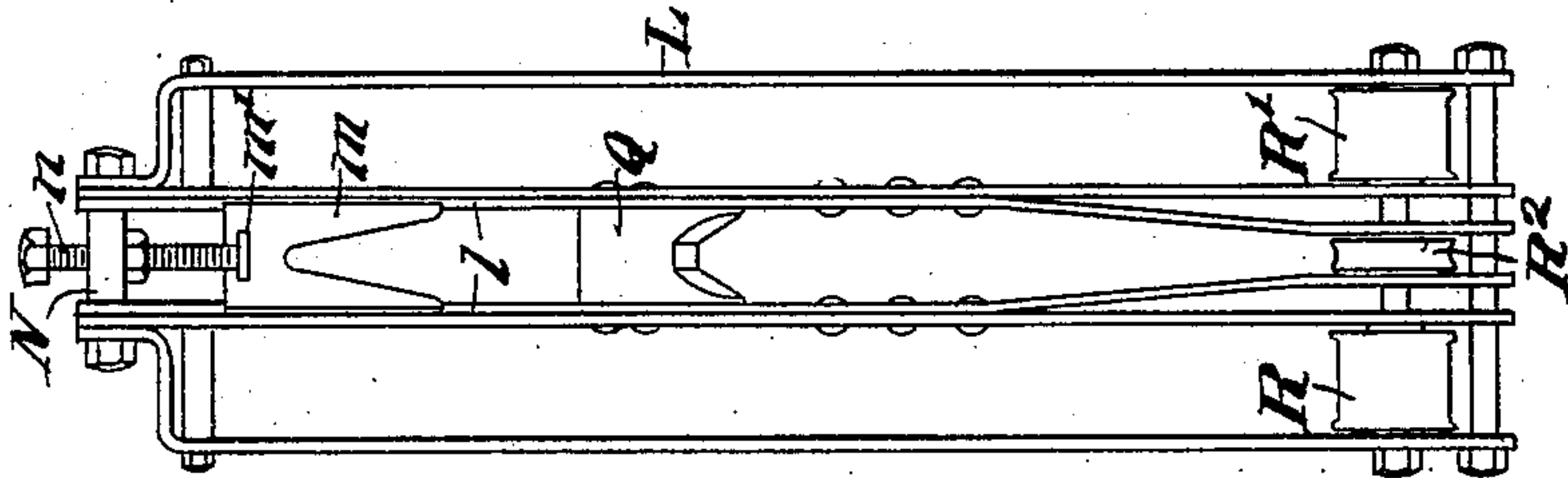


Fig-6.

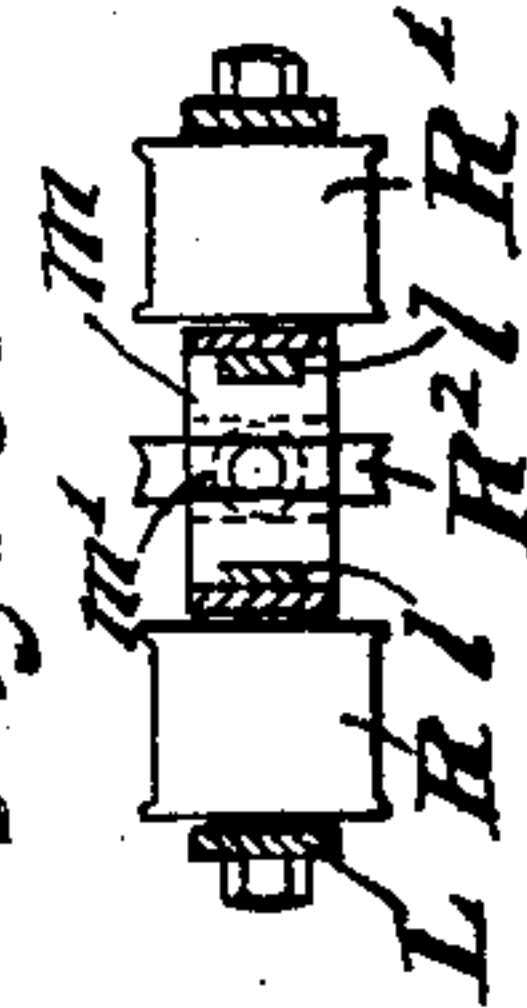


Fig-4.

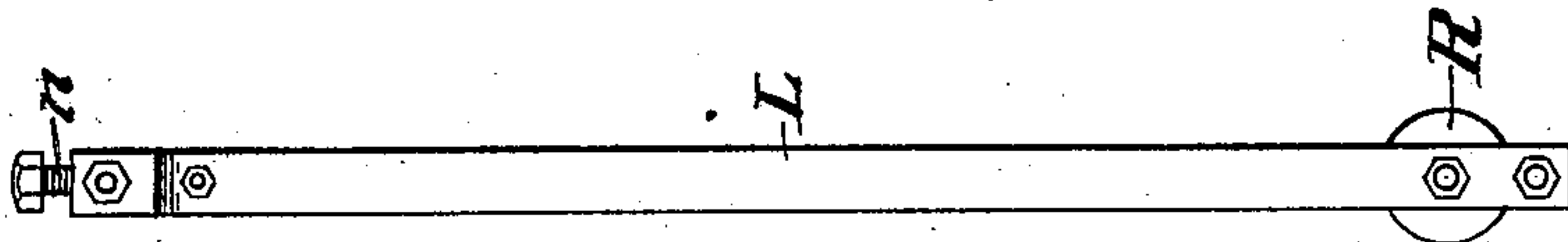


Fig-3.

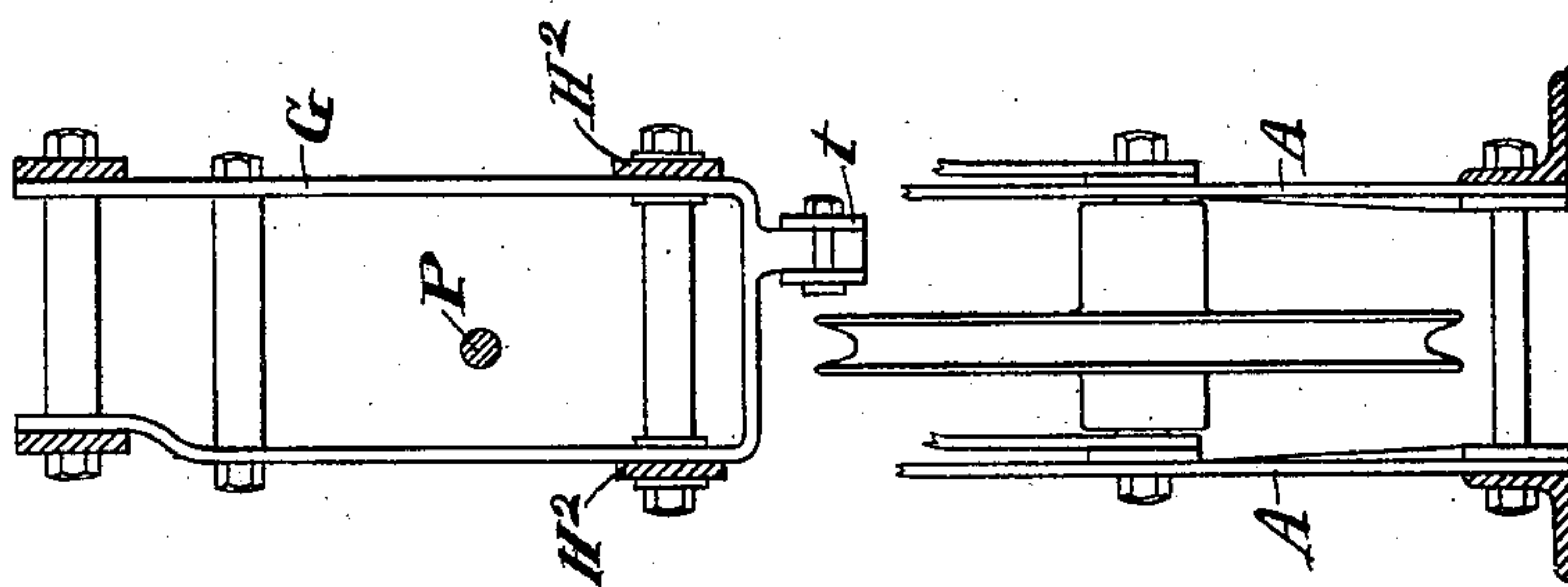
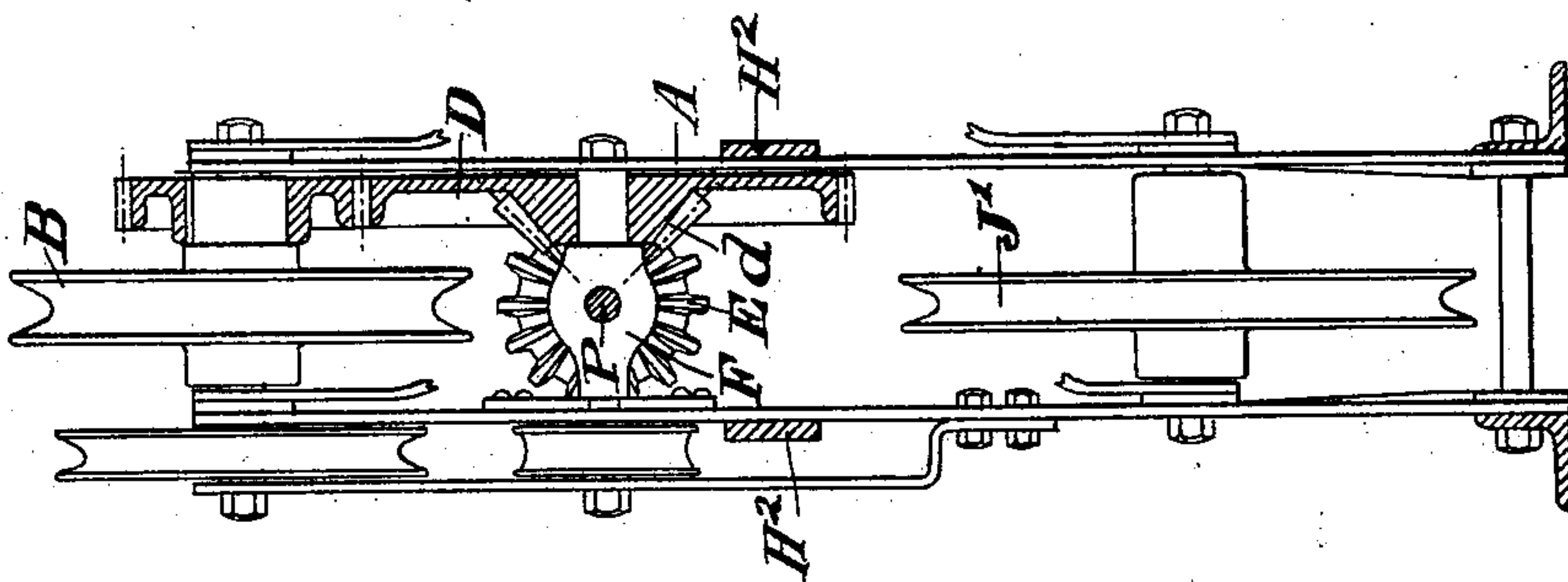


Fig-2.



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UNITED STATES PATENT OFFICE.

THOMAS SPENCER MILLER, OF SOUTH ORANGE, NEW JERSEY.

FALL-ROPE CARRIER AND MEANS FOR OPERATING SAME.

SPECIFICATION forming part of Letters Patent No. 688,476, dated December 10, 1901.

Application filed April 15, 1901. Serial No. 55,861. (No model.)

To all whom it may concern:

Be it known that I, THOMAS SPENCER MILLER, a citizen of the United States, and a resident of South Orange, in the county of Essex and State of New Jersey, have invented a new and Improved Fall-Rope Carrier and Means for Operating the Same, of which the following is a full, clear, and exact description.

My invention relates to improvements in fall-rope carriers and the means for operating the same; and it comprises the novel features which are hereinafter described, and particularly pointed out in the claims.

Figure 1 shows a side elevation of a carriage and carriers constructed in accordance with my invention. Fig. 2 is a section taken on the line 2 2 of Fig. 1. Fig. 3 is a sectional elevation showing the swinging yoke or lever to which the traction-rope is connected. Figs. 4 and 5 are respectively side and front elevations of a fall-rope carrier. Fig. 6 is a section through the upper part of a fall-rope carrier above the saddle or block which rests on the trackway or main cable. Figs. 7 and 8 show modified forms of my device.

In the preferred form of my invention, as illustrated in Fig. 1, and which will be first described, the horn is adapted to have a limited movement lengthwise the carriage and is connected with the traction-rope to be moved thereby when the direction of travel of the carriage is reversed. In other words, the reversal of the carriage is relied upon to decrease the storage-space upon the horn, from which the carriers would be discharged by the further travel of the carriage to the least permissible and retain the carriers thereon, so that their discharge will commence promptly, while at the other end of the carriage the storage-space on the horn is increased by the reversal of the carriage, so that there is ample room to receive and retain the carriers as reached.

In the drawings, A represents the frame of the carriage, which may be made of any desired construction. Journaled in this carriage are wheels B and B', which run upon the main or trackway cable C and support the carriage. One of these wheels, as B, has secured thereto a gear-wheel b, which meshes with a gear-wheel D, mounted on the carriage and provided with a bevel-gear d, which

meshes with a bevel-gear E, mounted to turn in a bar F, secured to the frame and provided with thrust-bearings in said bar, which will prevent its moving from a fixed location. The gear E has an axial hole, which is threaded to receive a threaded section of the pusher-rod P, while the rod P is provided with a feather p, which enters a slot in the guide-bearing P', so that the pusher-rod is prevented from turning, but is caused to move lengthwise by the revolution of the gear E. The pusher-rod projects from each end of the carriage and at its ends is provided with blocks or enlargements P², which form beads to engage the fall-rope carriers.

The horn for the reception of the carriers consists of a central section H², which is mounted to slide lengthwise of the carriage, and the projecting end horns H H', which are provided with inclines H⁴ for raising the carriers into position on the horn and with the knobs or rounded shoulders H³ to prevent the carriers from being removed until pushed off by the pusher. The horn is shown as mounted to have a limited sliding movement upon the carriage by means of the slots h and pins h' therein. Any other means for supporting the horn so that it may have a similar movement may, however, be substituted for this. The central portion of the horn is also shown as being formed of two bars, which lie outside of the main frame of the carriage, (see Fig. 2,) although this is not an essential feature.

A lever G, which is herein shown as double or in the form of a yoke, (see Fig. 3,) is pivoted to the carriage, as at g', and to the horn, as at g. To this lever is secured the traction-rope T, so that the horn is held projected toward the direction in which the carriage is traveling and is shifted when the direction of movement of the carriage is reversed. The traction-rope T is shown as being secured to this lever or yoke by means of a link t. It is evident that the traction-rope instead of being connected with the horn through the intervention of a lever might be secured directly to the horn. The fall-rope I is shown as passing over sheaves J and J' and fall-block K. Any other arrangement may, however, be substituted therefor.

The form of device shown in Fig. 7 differs from that described, as follows: The pusher-

rod P, instead of screwing directly into the bevel-gear E, has a sleeve R, mounted to slide thereon, but limited in this motion and prevented from turning on the rod P by a
 5 pin or key fitting in a keyway or groove *r*. This sleeve screws into the bevel-gear E. The traction-rope is secured to an end of a lever G', the other end thereof being connected with the pusher-rod by any convenient
 10 means. I have shown the lever as having a slot which receives a pin carried by the pusher-rod. The pusher-heads P² are carried by the rod P, while the threaded member is the sleeve R, the two having a relative
 15 sliding movement limited by the length of the keyway *r*. The horns are fixed to the carriage. When the carriage is reversed, the first result is to move the pusher-rod this limited amount and to thus transfer the sur-
 20 plus storage-space on the horns from one end of the carriage to the other. In the form shown in Fig. 8 the pusher-rod and its sleeve are as shown in Fig. 7, but the horns are carried directly on the ends of the pusher-rod,
 25 and the connection of the transit-rope to the lever G² is between its fulcrum and the pusher-rod instead of upon the opposite side, as in Fig. 7.

The fall-rope carriers employed consist of
 30 a frame I, having therein suitable pulleys, as R, R', and R², for the support of the ropes used and blocks *m* and Q for engagement, respectively, with the trackway-cable and horn. The block *m* has a V-shaped notch in its under
 35 surface, adapting it to grip the cable, so as to be held where dropped from the horn until it is picked up by the horn on its return trip. It also has grooves or channels in its edges engaging the guide-bars *l*, so that it is
 40 held against escape, but may be adjusted vertically within the carrier. It also has a T-slot in its upper end face, which receives the head of an adjusting-bolt *n*, which screws through a bar N, forming part of the carrier-
 45 frame. This bolt is provided with a lock-nut, and by its means the saddle or block *m* may be adjusted in accordance with the distance between the upper edge of the horn and the cable C.

50 By making the pusher rod or bar P and the horn H relatively movable and causing this movement through the action of the traction-rope I secure ample storage-space upon the end of the horn which is taking up the car-
 55 riers, while reducing the space upon the opposite end to only sufficient to hold the carriers, so that the discharge of the carriers begins as soon as the carriage is reversed.

It will be noticed that the horn is herein
 60 placed beneath the trackway instead of above it, as is shown in my Patent No. 458,183, thus maintaining the center of gravity well below the supporting or trackway cable.

It will be evident to any mechanic that the
 65 means shown for accomplishing the results herein secured may be widely varied without changing the essential character of the in-

vention or departing from the principles disclosed. I do not, therefore, wish to be limited to the exact mechanism shown, but to claim
 70 any and all mechanisms which are substantial equivalents of those shown.

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

1. The combination with a cableway-carriage and a horn thereon for the reception of fall-rope carriers, of means for shifting the
 75 horn by the reversal of the carriage.

2. The combination with a cableway-carriage, a horn for the reception of fall-rope carriers, and means actuated by the travel of the carriage to push the fall-rope carriers from the horn, of means for shifting the horn actuated by the reversal of motion of the car-
 80 riage.

3. The combination with a cableway-carriage, a horn thereon for the reception of fall-rope carriers, and a push-bar for removing the carriers from said horn, of means for shifting
 85 the relative position of horn and push-bar by the reversal of the carriage.

4. In a cableway-carriage the combination with a horn for the reception of rope-carriers, a pusher for disengaging the carriers and
 90 means for causing relative movement of horn and pusher by the travel of the carriage, and means for causing an additional relative movement by the reversal of the carriage.

5. In a cableway-carriage the combination
 100 with a horn for the reception of rope-carriers, a pusher for the disengagement of said carriers, and means for causing a relative movement of horn and pusher, of means for causing an additional relative movement of horn
 105 and pusher by the reversal of the carriage.

6. In a cableway-carriage the combination with a horn for the reception of rope-carriers, a pusher for the disengagement of said carriers, and means for causing a relative move-
 110 ment of horn and pusher, proportioned to the travel of the carriage, of means for causing an additional relative movement of horn and pusher by the reversal of the carriage.

7. A cableway-carriage having a horn for
 115 the reception of rope-carriers, mounted to be movable lengthwise the carriage, and a draft connection to said horn.

8. In a cableway-carriage, the combination with a horn for the reception of rope-carriers
 120 and a pusher for disengaging said carriers, of means for moving one of said members relatively to the other by the travel of the carriage, and means for moving the other by the reversal of the carriage.

9. In a cableway-carriage, the combination with a horn for the reception of rope-carriers and a pusher for the removal of said carriers, said horn and pusher being mounted to have
 125 lengthwise movement, of means for moving one of said members by the travel of the carriage and the other by the reversal of the carriage.

10. In a cableway-carriage, the combination

with a horn for the reception of rope-carriers and a pusher for the removal of said carriers, said horn and pusher being mounted to have lengthwise movement, of means for giving
5 one of said members a gradual movement proportioned to the travel of the carriage, and for giving the other a definite movement by the reversal of the carriage.

10 11. In a cableway-carriage, the combination with a horn adapted to receive rope-carriers, and a pusher for removing said rope-carriers, of means for gradually changing the relative longitudinal position of pusher and horn during the travel of the carriage, and means for
15 causing a definite relative longitudinal movement of horn and pusher by the reversal of the carriage.

20 12. In a cableway, the combination with two members one adapted to receive and support rope-carriers and the other to remove the carriers therefrom, of means for causing relative movement of said members to successively disengage the carriers, one of said members having a limited free movement in the

carriage and being adapted to receive the 25 draft connection for the carriage.

13. In a cableway, the combination with a horn for the reception of rope-carriers having a limited longitudinal movement in the carriage, a lever pivoted to the carriage and 30 to said horn, and a draft connection to said lever.

14. A fall-rope carrier having a cable-engaging block or saddle vertically adjustable thereon. 35

15. A fall-rope carrier having vertical guides thereon, a saddle slidably engaging said guides, and means for adjusting the saddle upon the guides.

16. A fall-rope carrier having a cable-en- 40 gaging block or saddle, guides upon carrier-frame and saddle permitting vertical movement of saddle, and an adjusting and securing screw connecting frame and saddle.

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