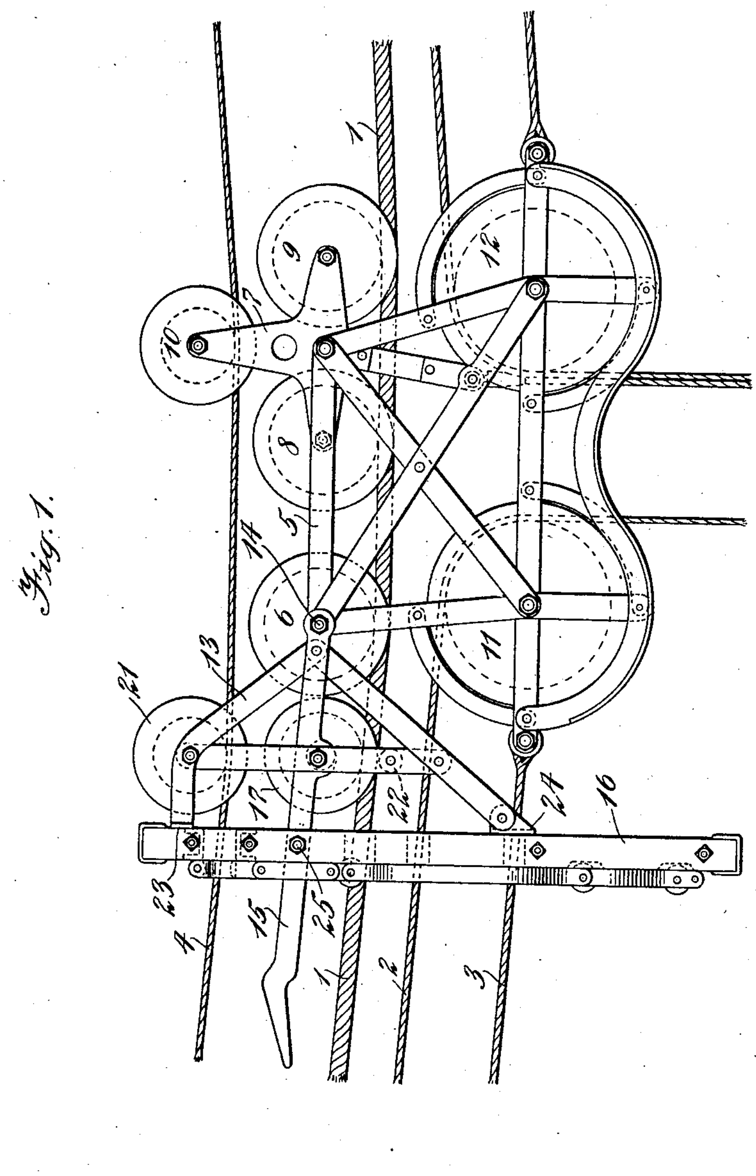
T. S. MILLER.
CABLEWAY.
APPLICATION FILED OCT. 17, 1910.

1,033,436.

Patented July 23, 1912.

4 SHEETS—SHEET 1.



Witnesses:
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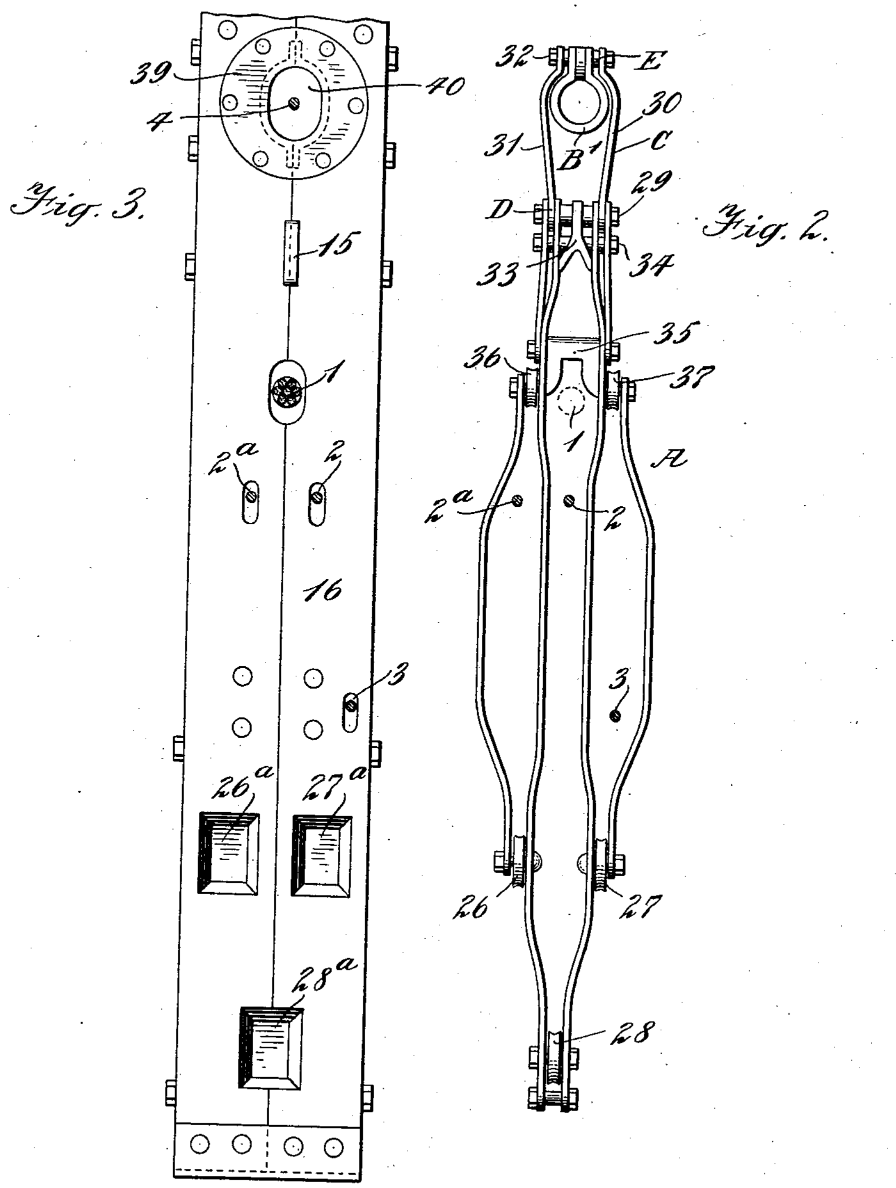
4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. 5.

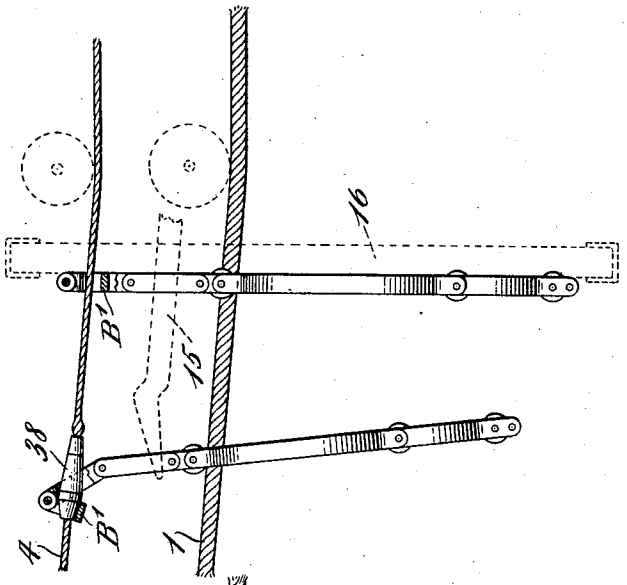
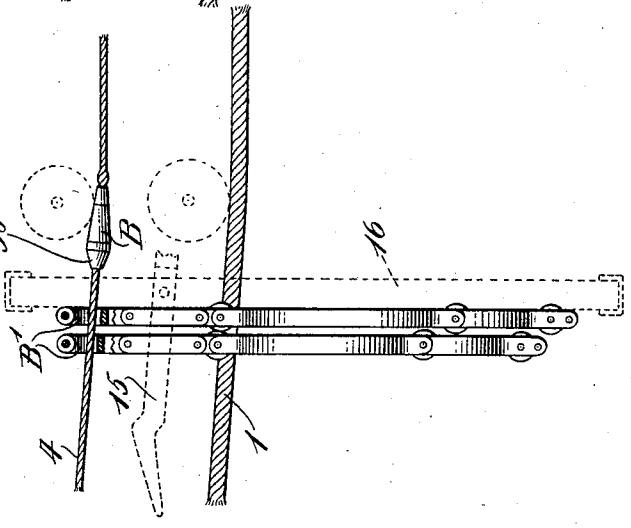


Fig. 4.



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4 SHEETS—SHEET 4.

Fig. 6.

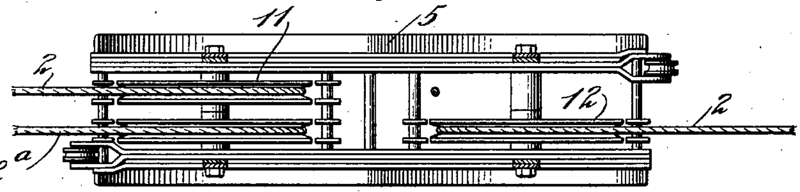
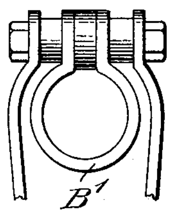
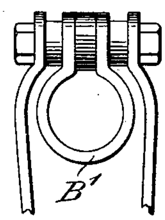


Fig. 8.

Fig. 7.





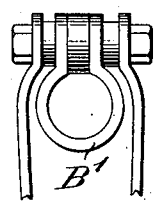
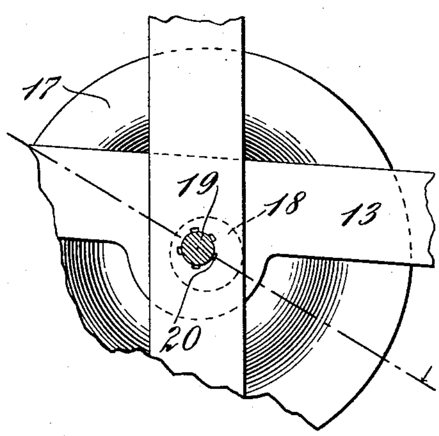


Fig. 9.

Fig. 10.



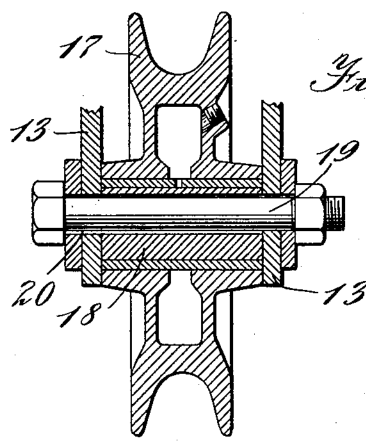


Fig. 11.

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UNITED STATES PATENT OFFICE.

THOMAS SPENCER MILLER, OF SOUTH ORANGE, NEW JERSEY.

CABLEWAY.

1,033,436. Specification of Letters Patent. **Patented July 23, 1912.**

Original application filed March 18, 1909, Serial No. 484,101. Divided and this application filed October 17, 1910. Serial No. 587,449.

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, county of Essex, and State of New Jersey, have invented a new and useful Improvement in Cableways, of which the following is a specification.

My invention relates to new and useful improvements in cableways and more particularly to a load carriage for use in connection with cableways in which fall rope carriers are employed, the object being to provide a carriage with improved means for picking up, discharging and carrying the fall rope carriers.

This application is a division of my prior application filed March 18, 1909 and serially numbered 484,101, in which I have disclosed and claimed a fall rope carrier alone, and a load carriage in combination therewith, the load carriage being the same as that forming the subject matter of this application in which it is intended to claim the carriage without regard to any particular form of fall rope carrier, as said carriage may be readily employed with other carriers not of the particular form shown in said application Serial Number 484,101.

In the accompanying drawings, Figure 1 is a side view of a load carriage constituting my present invention, a fall rope carrier and the coöperating ropes of a cableway of the class above referred to. Fig. 2 is an end view of the fall rope carrier. Fig. 3 is an end view of the buffer of the load carriage against which the fall rope carrier rests. Figs. 4 and 5 represent the fall rope carrier in action. Figs. 6 to 11 are details.

1 is the main cable; 2, 2^a, the hoisting ropes; 3, the traversing or traction rope; 4, the button-stop-rope, all of which are supported and operated in the manner and by the means well known.

5 is the main frame of the load carriage constituting my present invention, the same carrying the wheel 6 and a pivoted equalizing frame 7 carrying the wheels 8, 9 and 10. The wheels 6, 8 and 9 run upon the main cable and the pivoted frame 7 enables the wheels 8 and 9 to adjust themselves to the inclination of the cable. The hoisting rope sheaves 11, 12, are mounted upon the main frame 5. The wheels 10 on the pivoted equalizing frame 7 engage the button-rope, as shown.

13 is a frame movable upon the main frame, being pivotally connected thereto upon a pivot bolt as shown at 14. The function of this frame is to support the horn 15 and the buffer 16. I desire it understood that while I have shown and described the frame 13 as being pivoted on the main frame, I do not limit myself to that construction as any means for mounting the frame or the wheel 21, so as to permit free vertical movement of the same comes within the spirit and scope of my invention.

17 is a wheel shown in detail in Figs. 10 and 11 and which runs upon the main cable 1. This wheel carries the frame 13 and has an adjustable bearing therein. This wheel 17 maintains approximate parallelism between the horn 15 and the main cable; the variation from such parallelism at various points on the cable being so limited as not to interfere with the proper operation of the horn. Whether the cable is loaded lightly or heavily, and whether the load carriage is at the middle or the end of the span, the horn is thus self-adjusting in position which I regard as of great importance particularly in a high speed cableway.

In order to provide for adjustment between the wheel 17 and the frame 13, which adjustment is essential to compensate for wear of the wheel 6 or wheel 17, I provide an eccentric bearing 18 for the wheel 17, as clearly indicated in Figs. 10 and 11. This eccentric bearing is mounted upon the pin 19 passing through the frame 13, and the wheel 17 turns freely upon the eccentric bearing in whatever position it may be adjusted. The eccentric bearing is keyed to the frame 13 by a key 20. There are several notches in the frame at various points of the periphery of the pin 19 to receive this key, as shown in Fig. 10, and by removing the key, turning the eccentric bearing 18, and inserting the key in another notch, the eccentric bearing may be adjusted and fixed in any position desired.

21 is a wheel mounted on the frame 13 and bearing upon the top of the button-rope 4.

The purpose of the wheels 21 and 10 is to maintain parallelism between the button-rope and the cable.

22 is a safety wheel that may be employed to prevent accident due to the abnormal lifting of the frame 13 by an undue strain on the button-rope 4.

The buffer 16 in the form shown in the drawing, is constructed of wood or other soft material. It is fixed to the pivotal frame 13 at 23 above the button-rope and at 24. It is fixed to the horn at 25. It is provided with openings to permit the passage of the horn 15 and the cable 1. It is also provided with the holes to permit the passage of the hoisting ropes 2, 2^a and traction rope 3; also, with the hole 40 reinforced by a plate 39 to admit the passage of the button-rope 4; also, with pockets 26^a, 27^a and 28^a to receive the fall rope carrier sheaves 26, 27 and 28 lying against it, as shown in Fig. 1.

In order that the operation of the carriage will be fully understood I will now describe one form of fall rope carrier in connection with which it may operate, the same being the form claimed in my said prior application, although I desire it understood that the carriage may be used with other forms of fall rope carriers with satisfactory results.

Between the body A of each fall rope carrier and the body B of its coöperating button, is introduced an impact member C, being the member which is to receive primarily the impact of the collision between the fall rope carrier and the button. This impact member is provided with a lost-motion-connection with the part upon which it is mounted. The lost motion thus introduced at the moment of impact between the body of the carrier and the body of the button or stop relieves the force of the blow by giving the body of the carrier time within which to lose its momentum.

In the form of construction shown in the drawings, the impact member C is shown as mounted upon the fall-rope carrier itself but it might be mounted upon the bottom or stop or on the button-rope. In the form shown in the drawing, the lost-motion-connection is between the impact member and the body of the fall rope carrier and it consists, as there shown, of a vibrative connection capable of bowing under the force of the impact and thus affording the requisite lost motion. More specifically, still, it consists of a pivotal connection between the impact member C and the carrier body A. More specifically, still, it consists of the two pivotal connections D and E between the body of the carrier body A and the impact member C. These two pivotal connections are afforded by pivoting upon the pin 29 the uprights 30 and 31 connected at the top by the pin 32 and hanging the impact member C pivotally upon said pin 32 between said uprights 30 and 31. In the particular form of construction shown in the drawings, the lost-motion-return, or, in other words, the return of the impact member to its normal position, is produced automatically by the tension (generally produced by a counterweight) on the button-rope 4, and is completed by the impact of the buffer 16 against the carrier as it is picked up on the horn by the return of the load carriage.

33 is the horn-block in the form of a saddle adapted to rest on the horn. It is fixed to the body of the carrier by the bolts 29 and 34.

35 is the main cable block also in the form of a saddle adapted to rest on the main cable.

26 is the sheave by which the rope 2^a is carried when slack.

27 is the sheave by which the rope 3 is carried when slack.

28 is the sheave by which the rope 2 is carried when slack.

It will be understood that the pulleys or sheaves 26, 27 and 28 serve to support the ropes 2^a, 3 and 2 respectively when the fall rope carriers are detached from the frame and distributed along the cableway.

The sheave 36 is provided above the sheave 26 so that if the rope 2^a should be raised by extreme tension as high as the main cable, it will not carry the carrier along with it. The same function is performed by the friction sheave 37 with respect to the rope 3. The eyes B′ of the successive rope-carriers of a series will be graduated in size, as shown in Figs. 7, 8 and 9, so as to coöperate with the corresponding graduation in the size of the buttons by which they are respectively to be stopped.

The operation is as follows: In Fig. 4, I have shown two fall rope carriers in the position which they occupy when being carried on the horn of the load carriage; the carriage receding so that the eyes of the fall rope carriers are approaching the button-stop B. In Fig. 5 the load carriage has receded about the length of the horn; the result being that the button 38 has passed through the eye of the first carrier (such eye being large enough to permit its passage) and has collided with the eye of the second carrier (such eye being too small to admit of its passage). The shock of the collision has caused the head to vibrate upon the body A and the eye to vibrate upon the head into the position shown in Fig. 5. During the movement of the carriage along the main cable the horn 15, is at all times maintained in proper position to support and carry the fall rope carriers so that the latter will not be dislodged from the horn

except when they strike a stop on the stop rope, or to pick up and hold the carriers, according to the direction in which the carriage is moving, the wheel 17 preventing the dropping of the horn below proper position and the safety wheel 22 preventing the horn becoming elevated too high.

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

1. In combination, a load carriage adapted to travel on a cable, a frame, means for mounting said frame on the carriage whereby it is capable of free movement relative to the carriage, a horn mounted on the frame, and a support on the frame adapted to travel on the cable.

2. In combination, a load carriage adapted to travel on a cable, a frame, means for pivoting the frame on the carriage whereby the frame has a free movement relative to the carriage, a horn mounted on the frame, and a wheel journaled on said frame and adapted to run on a cable.

3. In combination, a load carriage adapted to travel on a cable, a frame, means for movably connecting the frame to the carriage whereby the frame has free movement relative to the carriage, a horn mounted on the frame, and a wheel journaled on said movable frame and adapted to run on a cable.

4. In combination, a load carriage adapted to travel on a cable, a frame, means for movably connecting the frame and carriage whereby the frame is capable of free movement relative to the carriage, a horn and a buffer mounted on the frame, and a support for the frame adapted to travel on a cable.

5. In combination, a load carriage adapted to travel on a cable, a frame pivoted on the carriage for free movement relative to the carriage, a horn and a buffer on the frame, and a wheel journaled on the frame and adapted to run on a cable.

6. In a cableway, in combination, a cable, a load carriage, a horn pivoted thereto, and means whereby the approximate parallelism of said horn and said cable is automatically maintained.

7. In combination with a load carriage, a horn movably connected to the carriage and having a support independent of the carriage adapted to travel on a cable.

8. In combination with a load carriage, a frame movably mounted thereon, a horn on the frame, and a support for said frame independent of the carriage to travel on a cable, said support consisting of a wheel journaled in said frame.

9. In combination with a load carriage, a frame movably mounted thereon, a horn on the frame, and a support for said frame independent of the carriage to travel on a cable, said support consisting of a wheel journaled in said frame, and means for regulating the elevation of the horn.

10. In combination with a load carriage, a frame movably mounted thereon, a horn on the frame, and a support for said frame independent of the carriage to travel on a cable, said support consisting of a wheel journaled in said frame, and means for regulating the position of said wheel relative to the horn to regulate the elevation of the latter.

11. In a cableway, the combination with a load carriage, a main cable and a stop rope, of a frame movably connected to the carriage and carrying a horn, and wheels on the frame adapted to run on the main cable and the stop rope.

12. In combination with a load carriage, a horn on the carriage, a support for the horn independent of the carriage to travel on a cable, and means for adjusting the horn and support relative to each other to regulate the position of the horn.

13. In a cableway, in combination, a cable, a load carriage, a horn, means whereby the horn is capable of free movement relative to the carriage, and means whereby the approximate parallelism of said horn and cable is automatically maintained.

14. In a cableway, in combination, a cable, a load carriage, a horn, means whereby the horn is capable of free movement relative to the carriage, and means whereby a determined relation between the horn and said cable is automatically maintained.

15. In combination, a load carriage adapted to travel on a cable, a horn, means whereby the horn is capable of free movement relative to the carriage, and a support for the horn independent of the carriage adapted to travel on a cable.

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

THOMAS SPENCER MILLER.

Witnesses:
ERNST PULSFORD,
LOUIS G. RUGGLES.