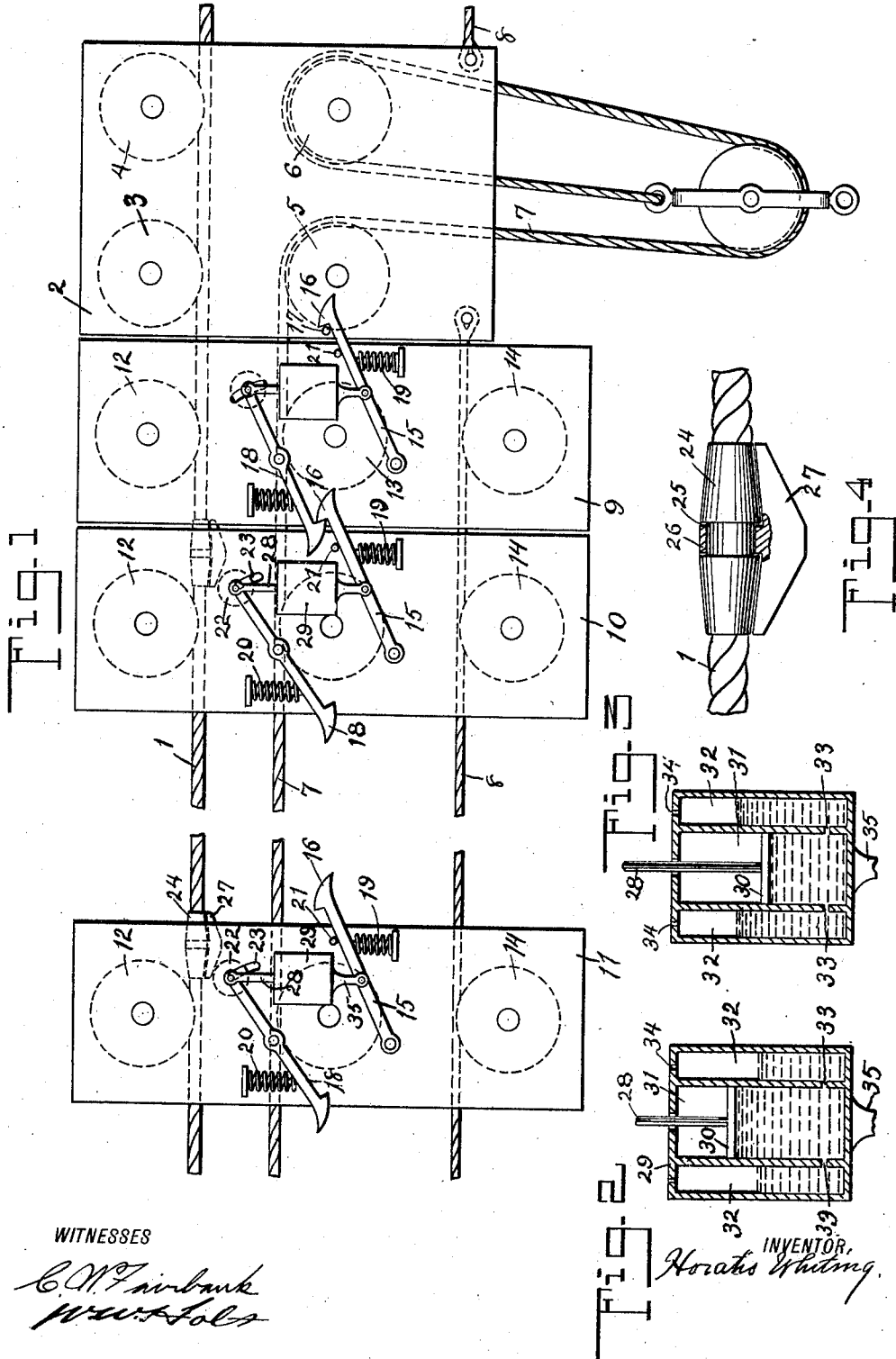


H. WHITING.
FALL ROPE CARRIER.
APPLICATION FILED JUNE 26, 1909.

983,526.

Patented Feb. 7, 1911.



WITNESSES

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FALL-ROPE CARRIER.

983,526.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HORATIO WHITING, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Fall-Rope Carriers, of which the following is a specification.

This invention relates to an improvement in elevated carriers, and particularly to a new type of fall-rope carrier, a plurality of which are adapted to be drawn out by the main carriage and automatically dropped one by one, to form spaced supports for the fall-rope and the traversing rope.

An object of this invention is to provide means whereby the dropping of the tail-end carrier will automatically set the next adjacent carrier so that it will drop when it has arrived at a proper distance from the carrier previously dropped.

A further object of the invention is to provide latches whereby a series of carriers may be joined together and to the main carriage; and also to provide means whereby each of said latches may be set to disengage successively at spaced intervals.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a view in elevation, showing a section of an elevated carrier with one of the fall-rope carriers dropped, and another in the act of dropping; Fig. 2 is a vertical section through the flexible connecting link, showing the part in its raised or set position; Fig. 3 is a view similar to Fig. 2, showing the parts in their opposite relation; and Fig. 4 is an enlarged detail view, partly in section, showing details of the stop.

Referring more particularly to the separate parts of the device, 1 indicates a track-way or cable, which may be of any suitable form and material, and which is adapted to support a carriage 2 by means of suitable track-rollers 3 and 4. The carriage 2 may be of any suitable form, and has a plurality of sheaves 5 and 6 thereon, over which is adapted to pass a hoisting or fall-rope 7.

Connected in any suitable manner to the carriage 2, there is provided the usual traversing-rope 8, which is adapted to reciprocate the carriage on the track 1. In order to sustain the fall-rope and traversing-rope,

there are provided a plurality of fall-rope carriers 9, 10 and 11, which consist of a suitable casing, which may be formed of a plurality of parallel plates, and which has pivoted therein in any well-known manner a supporting roller 12, which is adapted to sustain the carrier on the track 1. There are also provided a plurality of supporting rollers 13 and 14, which are adapted to support the fall-rope and the traversing-rope.

In order that the fall-rope carriers may be secured to each other and to the carriage, so that they may be traversed with the carriage, there is provided a suitable latch 15, which is pivoted in any well-known manner to the carrier, and has a latch-engaging portion 16, which in the case of the first carrier 9 engages a suitable pin or other locking device 17 on the carriage 2. In the case of the connection of the carriers 10 and 11 to the preceding carriers 9, 10, etc., there are provided latches 18, which are adapted to engage the latches 15 to lock each carrier to the preceding carrier.

Each of the latches 15 and 18 are spring-pressed into engagement by any suitable means, such as springs 19 and 20, the springs 19, however, being stronger than the springs 20, and are adapted to force the latch 18 slightly upward when in engagement. The upward movement of the latch 15 is limited by means of a suitable stop 21. In order to disengage the latch 18 from the latch 15, there is provided a suitable trip having a suitable roller 22, which is secured to a pin extending through a slot 23 in the carrier. This roller 22 extends beneath the supporting roller 12, and is so located that when in its upper position, it is adapted to engage a stop 24, secured in any well-known manner to the track cable 1. This stop consists preferably of a member having double conical ends, between which there is provided a slot 25, in which a suitable hanger 26 is adapted to rotate. This hanger 26 has secured thereto in any well-known manner a member 27 having a double beveled face. This peculiar arrangement is for the purpose of always having the largest portion of the stop suspended by gravity beneath the cable, where it will readily engage with the rollers 22, and at the same time provide no great obstruction on the track 1 to the supporting roller 12.

In order to form a connection between the latches 15 and 18, which will at times be

rigid and at other times be flexible, there is provided a suitable rod 28, which is pivotally connected to the latch 18 in any well-known manner, and extends down through an opening in a casing 29, and has a piston 30 of any suitable form secured on its end, which is adapted to reciprocate in a compartment 31 in the casing 29. This casing compartment may be of any suitable form, but is preferably flat, so as to lie close to the surface of the carrier. There is provided in the compartment 31 a suitable fluid, such as air, water or oil, which is adapted to act against the piston, and prevent the sudden movement of said piston. There is provided a suitable compartment or compartments 32, juxtaposed to the compartment 31 and having small openings 33 communicating with the compartment 31. There are also provided small openings 34, which permit excessive pressure in the compartment 32 to be vented in the outside air.

The casing 29 has a suitable arm 35 connected thereto in any suitable manner, and which is pivotally connected to the latch 15 in any well-known manner. The slot 23 may form a limit in the travel of the latch 18, or there may be provided some other suitable form of stop mechanism.

The operation of the device will be readily understood from the above description. The carriage 2 may have a plurality of carriers 9, 10 and 11, secured to either or both sides thereof, so that, in whichever direction it travels, it will drop a carrier when a suitable space has intervened between it and the last support for the fall-rope and the traversing-rope. It is to be noted that the strongest spring on the next adjacent rearward carrier presses upwardly on one end of the latch on the next forward carrier, so that the rollers on all the carriers, except the tail-end one, are kept out of engagement with the supporting cable and the stops thereon.

The carriage travels a certain distance when the tail end carrier, which is illustrated at 11, reaches a stop 24 and the roller 22 comes in contact with the stop 24, then by reason of the fact that the fluid in the compartment 31 cannot travel rapidly through the very small openings 33, communicating with the compartment 32, there will be formed a vertically rigid connection between the end of the latch 18 and the latch 15, whereby the sloping surface of the stop 24 will force the latch 15 downwardly against the tension of its spring, and out of engagement with the latch 18 on the next preceding carriage. When this has been accomplished, the carrier 11 will remain behind, and support the fall-rope and traversing-rope at this point. By reason of the fact that the latch 15 on the carrier 11 no longer presses upwardly with its stronger spring on the latch 18 on the carrier 10, said

latch 18 will be depressed at one end, and raised at its opposite or roller-bearing end. This action will be gradual, because the fluid in the compartments 30 and 32 will travel slowly from one to the other. However, it will take place in sufficient time for the roller 22 to be in its set or engaged position when the carrier 10 reaches the succeeding stop. When the carrier 10 reaches the succeeding stop, the latch 15 thereon will be jolted out suddenly, and the operation will be repeated as before. On the return of the carriage in this reverse travel, it will gradually take up the successive carriers, and the latches 15 and 18 will snap into engagement with each other, so as to set for another travel in the first-mentioned direction.

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

1. In an elevated carrier, the combination with a carriage, of a plurality of carriers connected to said carriage, and a plurality of identical stops adapted to successively disengage the carriers at spaced intervals.

2. In an elevated carrier, the combination with a support, of a carriage, a plurality of carriers connected to said carriage, a plurality of identical stops on said support, a latch on each carrier adapted to join each carrier to the succeeding carrier, and means whereby said identical stops successively disengage said latches on said carriers.

3. In an elevated carrier, the combination with a support, of a plurality of stops on said support, a carriage, a plurality of carriers connected to said carriage, a plurality of latches on each of said carriers adapted to lock said carriers together, and mechanism whereby each successive stop disengages the tail-end carrier.

4. In an elevated carrier, the combination with a support, of a plurality of stops on said support, a carriage adapted to run on said support, a plurality of carriers connected to said carriage, a plurality of latches on each carrier adapted to interlock with latches on the adjacent carrier, and means whereby each successive stop disengages the latch on the tail-end carrier.

5. In an elevated carrier, the combination with a support, of a plurality of stops on said support, a carriage on said support, a plurality of carriers for said carriage, a latch on each carrier adapted to connect each carrier with the succeeding carrier, a trip connected to each of said latches, and means for automatically bringing said trips successively into tripping relation with said stops.

6. A carrier, comprising a frame, a plurality of latches on said frame, and a member joining said latches, adapted to form a yielding connection under steady pressure,

and also adapted to form a firm connection when under a sudden jolt.

7. A carrier, comprising a frame, a plurality of spring-pressed latches on said frame, and a member joining said latches, adapted to form a yielding connection under steady pressure, and also adapted to form a firm connection under sudden pressure.

8. A carrier, comprising a frame, a plurality of pivotal spring-pressed latches on said frame, and a member joining said latches together, to form a yielding connection under steady pressure, and also adapted to form a firm connection under a sudden pressure.

9. A carrier, comprising a frame, a plurality of latches on said frame, a member joining said latches, adapted to form a yielding connection under steady pressure, and also adapted to form a firm connection under sudden pressure, and a trip-roller connected to one of said latches.

10. A carrier, comprising a frame, a latch on said frame, a trip for said latch, and an alternately rigid or flexible connection joining said trip with said latch.

11. A carrier, comprising a frame, a plurality of supporting rollers on said frame, a latch on said frame, a trip for said latch, and a fluid connection between said trip and said latch.

12. A carrier, comprising a frame, a plurality of supporting rollers on said frame, a plurality of latches on said frame, and a fluid connection between said latches.

13. A carrier, comprising a frame, a plurality of supporting rollers on said frame, a plurality of latches on said frame, a fluid connection between said latches, and a trip connected to one of said latches.

14. A carrier, comprising a frame, a plurality of latches on said frame, means for connecting said latches, and springs for pressing each of said latches, one of said springs being stronger than the other.

15. A stop, comprising a stationary member, and a pivotal member adapted to automatically adjust itself on said stationary member.

16. A stop, comprising a stationary member, and a rotatable member adapted to auto-

matically adjust itself on said stationary member.

17. In a carrier, the combination with a frame, of a plurality of rollers on said frame, a pair of differential spring-pressed latches, and a fluid connection between said latches.

18. In a carrier, the combination with a frame, of a plurality of rollers on said frame, a pair of differential spring-pressed latches, and a yielding firm oil connection between said latches.

19. In a carrier, the combination with a frame, of a plurality of rollers on said frame, a pair of differential spring-pressed latches on said frame, a piston connected to one of said latches, and a fluid-containing casing connected to the other of said latches.

20. In a carrier, the combination with a frame, of a plurality of rollers on said frame, a pair of differential spring-pressed latches on said frame, a casing having communicating compartments connected to one of said latches, and a piston co-acting with said casing connected to the other of said latches.

21. In an elevated carrier, the combination with a carriage, of a plurality of carriers connected to said carriage, normally inoperative trips on said carriers, and mechanism automatically brought in play by the dropping of each carrier, for setting the trip on the next succeeding carrier to drop said next succeeding carrier, so as to be operative.

22. In an elevated carrier, the combination with a carriage, of a plurality of carriers connected to said carriage, latches adapted to lock said carriers together, normally inoperative trips for said latches, and mechanism automatically brought in play by the dropping of each carrier, for setting the trip on the next succeeding carrier, to drop said next succeeding carrier, so as to be operative.

Signed at New York city in the county of New York and State of New York this 17th day of June A. D. 1909.

HORATIO WHITING.

Witnesses:

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PHILIP D. ROLLHAUS.