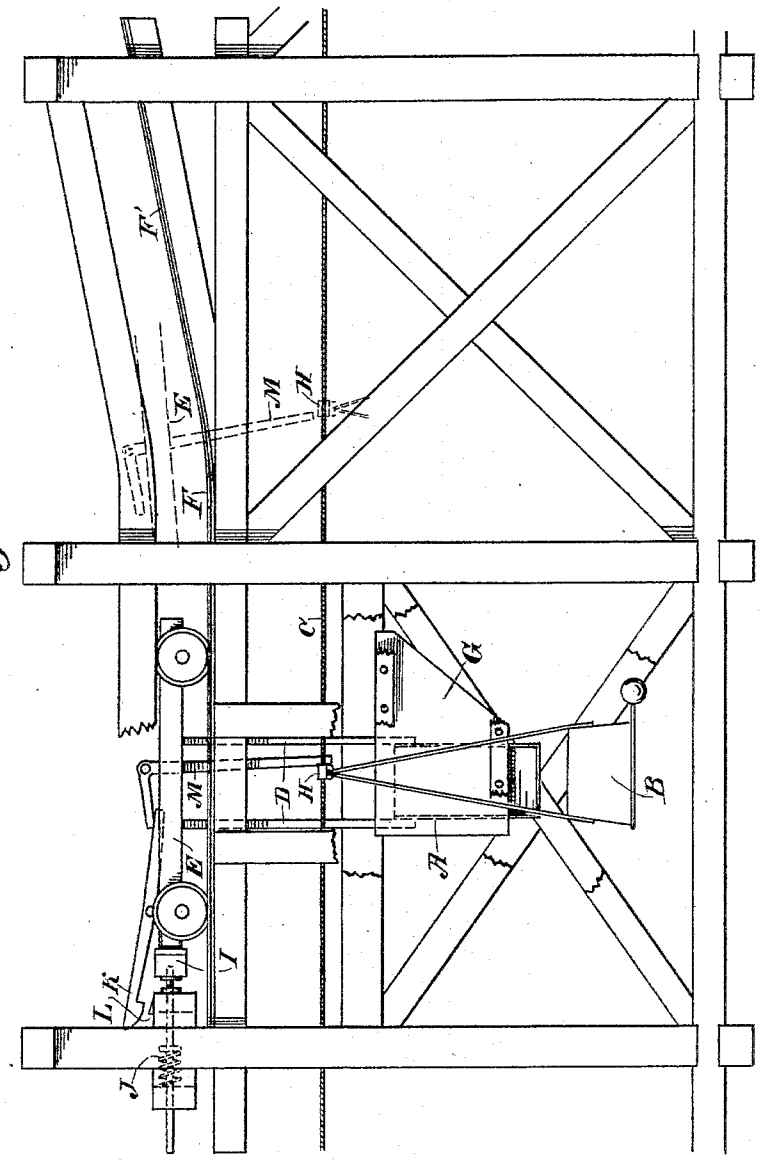
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A. S. HALLIDIE.

MECHANICAL FEEDER FOR ROPEWAY CARRIERS.

No. 589,654. Patented Sept. 7, 1897.

Fig. 1.



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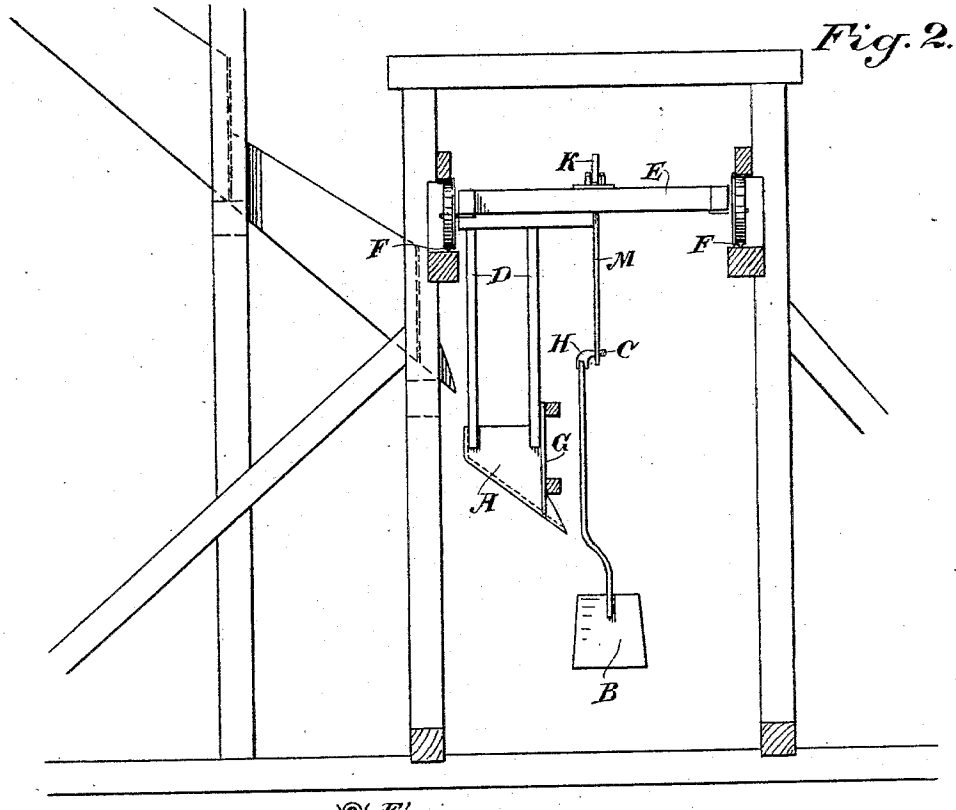
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Fig. 2.



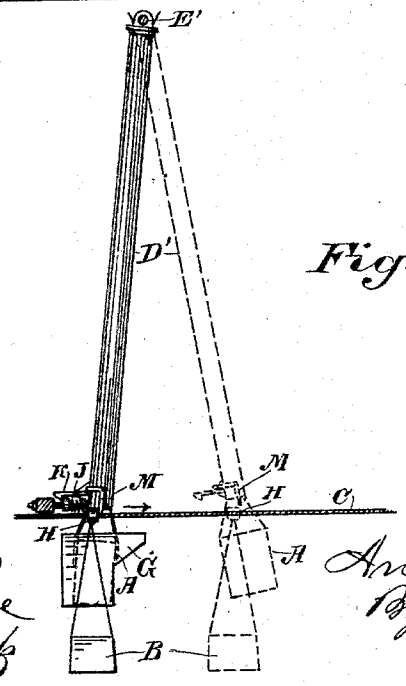


Fig. 3.

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UNITED STATES PATENT OFFICE.

ANDREW S. HALLIDIE, OF SAN FRANCISCO, CALIFORNIA.

MECHANICAL FEEDER FOR ROPEWAY-CARRIERS.

SPECIFICATION forming part of Letters Patent No. 589,654, dated September 7, 1897.

Application filed March 2, 1897. Serial No. 625,774. (No model.)

To all whom it may concern:

Be it known that I, ANDREW S. HALLIDIE, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Mechanical Feeders for Ropeway-Carriers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device for feeding material into moving carriers while they pass the loading-point.

It consists in the employment of a movable loading-box into which the material is delivered from a suitable bin or chute, said box being so disposed with relation to the traveling rope that when the carrier which is suspended from the rope arrives at a point opposite the box the latter is set in motion and continued with the carrier until the load is discharged from the loader to the carrier, after which the loading-box is automatically returned to a position to receive a new load.

It also consists in details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of my apparatus. Fig. 2 is an end view of the same. Fig. 3 illustrates another form.

In transporting material such as ore from the loading-chute to the carrier some intermediate device must be employed to meet the conditions of a stationary and moving receptacle, so that the stationary receptacle being filled with a definite quantity of material sufficient to fill one of the moving receptacles or carriers means must be devised for transferring the load from the receptacle to the carrier. This is the purpose of my present invention. In carrying it out I employ a chute of the character usually employed for receiving ore or material from a mine or elsewhere and provided with the usual delivery-gate at the lower end, discharging by the proper opening and closing in any usual or suitable manner. This enables me to place sufficient material in the intermediate loading-box A to fill one of the carriers B, attached to the moving rope C of the ropeway.

The discharge from the loading-box to the carrier must take place while the loading-box is being actuated by the moving rope of the ropeway, the motion of the rope, the carrier, and the box during the time of transfer being synchronous.

The mode of operation is as follows: The ore or material being delivered at the chute, the quantity to be delivered is controlled by a gate at its lower end in the usual manner. Below the gate of the chute is placed a loading-box A, suspended by suitable hangers D either from a fixed point E′ in Fig. 3 or from a car E, which runs upon a track F overhead, the operation being essentially similar in both cases. The box A is of proper size to receive sufficient material to fill one of the ropeway-carriers B. This box is here shown as having three sides and a sloping bottom. It is open at the top and upon the longer side which terminates with the bottom of the sloping sides. In front of this long open side is fixed a wall or partition G, firmly supported by any suitable part of the framework, so that when the loading-box A is in its normal position the open vertical side is in contact with this fixed partition, which thus forms, primarily, a closure for this side of the loading-box. When the material is dropped from the chute into the box through its opening on top, it will fill the box, the stationary wall preventing any escape of the ore from that side while the box is in contact with the partition.

In order to discharge the contents of the box into the moving carrier, the box is pushed away from the wall G, moving parallel with the face of the wall, so as to expose the open side. This movement, being in the line in which the traveling rope moves, is effected by means of the clip H, from which the carrier B is suspended, which comes in contact with a stop upon the hanger of the box, so that when the carrier is in front of and below the loading-box A the latter will be released and commence to move simultaneously with the carrier, maintaining its position relative thereto as it moves out beyond the wall or partition G, so that the contents of the box A will slide down the inclined bottom, and passing out through the now open side of the box A it will fall by gravitation into the carrier which is thus loaded. I have shown two methods of operating this mechanism. As

shown in Figs. 1 and 2, the box is suspended, as before stated, by hangers D from the car E, traveling upon the track F. This track is made horizontal and essentially parallel with the line of travel of the rope for a distance sufficient to allow the loading-box A to clear the stationary wall or side G and allow the charge to fall from the loading-box into the carrier. Beyond this the track inclines upward, as shown at F', and the car will travel up this incline until it reaches a point where the stop on the car is disengaged from the clip on the rope, thus allowing the rope and carrier to pass, when the car and loading-box will be free to return, the car returning by gravitation to its normal position and the loading-box passing into position between the chute and the stationary wall, where it will be ready to receive another charge. The return of the car is checked by means of a bumper I, striking against and compressing a spring J of suitable stiffness, and when the car has reached its proper position it is retained and prevented from returning by means of a latch K, which hooks over or engages any suitable catch, as shown at L. This latch K is here shown as formed upon the end of a lever-arm suitably pivoted to the car, and its opposite end is adapted to engage with one arm of a bell-crank lever M. The opposite end of this bell-crank lever in the present case forms the stop against which the clip on the rope makes contact when the carrier B has arrived at the proper position with relation to the loading-box, and the first action is to move the lever M, so that, acting through the pivoted latch-lever, it disengages the latch K to allow the car and loading-box to start. This disengagement allows the spring to act with whatever pressure may have been stored by its compression on the return of the car, and this assists in moving the car and box promptly and overcoming the inertia.

As the car moves along the horizontal portion of the track, the load will be discharged from the box into the carrier, as previously described, and by the time this transfer is completed the car begins to run up the inclined portion of the track F', and this carries the stop M upward until it is disengaged from the clip H, thus allowing the latter to pass with the cable, while the car being released from its contact with the clip returns by gravitation to its normal position, the return compressing the spring J and causing the latch K to engage and retain the car and loading-box in their normal position.

It will be understood that any device may be employed which will allow the loading-box to be moved with the carrier to such a distance as to deliver the load from one to the other and to then return the loading-box to its normal position.

In Fig. 3 I have shown the loading-box A as suspended from a pendulum D', this pendulum being of sufficient length and having a fixed fulcrum-point E' at the upper end in place of the traveling car E shown in the first construction.

It will be seen that the mechanism and operation are essentially the same in this case, the pendulum being retained upon its swing a little to one side of the vertical position by means of the latch K, previously described, and when it is released its own tendency to return to the center in addition to the pressure of the spring L serves to start it and allow it to move with the loading-box A in unison with the carrier-box B, which is suspended from the rope.

The swing of the pendulum finally carries its lower end upward until the lever M is disengaged from the clip H and the latter passes on, allowing the pendulum to return by gravitation to the point where it is latched.

The operation in either case is the same, and various equivalent mechanisms may be substituted without materially altering the character of my invention.

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

1. A mechanical feeder for traveling carriers consisting of a loading-box having an inclined bottom and one open side, a stationary wall against which the open side of the box normally rests, a means for suspending the loading-box whereby it is movable in a plane parallel with the fixed partition, and stops by which the loading-box is moved away from the wall and in unison with the movement of the carrier when the latter has reached a point below and opposite the loading-box, whereby the contents of the loading-box are transferred to the carrier.

2. A mechanical feeder for continuously-traveling carriers consisting of a chute, an open-topped loading-box supplied thereby, said box having an inclined bottom and an open discharge side meeting the lower edge of the bottom, a stationary wall opposite which the loading-box normally stands whereby the wall serves to close the open side of the loading-box, a suspending device to which the loading-box is connected and by which it is allowed to move in a plane parallel with the face of the stationary wall so as to uncover its open side, stops fixed respectively to the moving parts and to the loading-box connections, whereby the loading-box is caused to move in unison with the movement of the carrier when the latter has arrived at a point opposite to and below the loading-box.

3. In a mechanical feeder for ropeways, a loading-box and a means for supplying it with material, said box having an inclined bottom and one open side, a stationary wall lying parallel with the open side and serving to close it while the box is in its normal position, an endless traveling rope and carriers suspended therefrom, a means for suspending the loading-box and allowing it to travel parallel with the traveling rope, a stop fixed to the supports of the loading-box and a cor-

responding clip upon the rope whereby contact of the latter with the loading-box stop, causes the box to move in unison with the movement of the carrier after the latter has arrived in position beneath and in line with the loading-box, and means for disengaging the stop from the clip and returning the loading-box to its normal position.

4. In a mechanical feeder for ropeways, a loading-box having an inclined bottom and one open side, a stationary wall against which the open side of the box lies when in its normal position, a stop connected with the box-carrier, a means whereby the box may be filled with material to be transferred, a ropeway and carriers movable in line parallel with the face of the stationary wall, a clip fixed upon the rope, a latch adapted to be operated by the stop, said latch normally holding the loading-box in position and being disengaged by contact of the clip with the stop, whereby the loading-box is moved in unison with the carrier, a means for returning the box automatically to its normal position, a spring whereby the recoil of the loading-box is received, the spring compressed and the latch caused to engage with a holding-catch.

5. In a mechanical feeder for ropeways, a loading-box having an inclined bottom and one open side, a stationary wall opposite which the open side of the box normally stands, means for charging the box, a traveling rope and carriers suspended therefrom, clips upon the rope and a latch and stop upon the loading-box whereby when the clip makes contact with the stop the loading-box is unlatched and impelled forward in the line of travel of the rope, the open side is moved beyond the stationary wall, and the contents of the loading-box delivered into the carrier beneath, a suspending device for the loading-box whereby it is carried above the line of travel of the clip and rope and is disengaged from the stop and the latter is released and allowed to return by gravitation to its normal position.

6. In a mechanical feeder for ropeways, a movable loading-box having an inclined bottom and an open side, and a stationary wall to form a closure for the open side when the box is in position to be charged.

In witness whereof I have hereunto set my hand.

ANDREW S. HALLIDIE.

Witnesses:
C. C. SHERLING,
S. FLETCHER.