P. H. LAMEY.

Coal-Car Elevators.

No. 135,565. Patented Feb. 4, 1873.

Fig. 1.

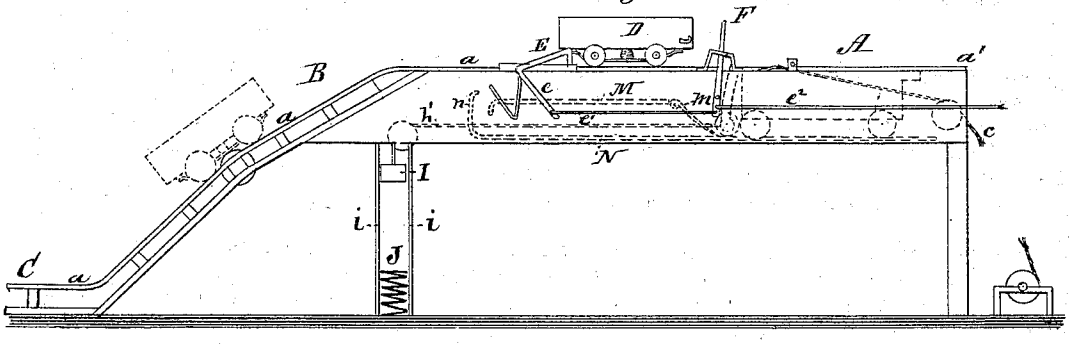


Fig. 2.

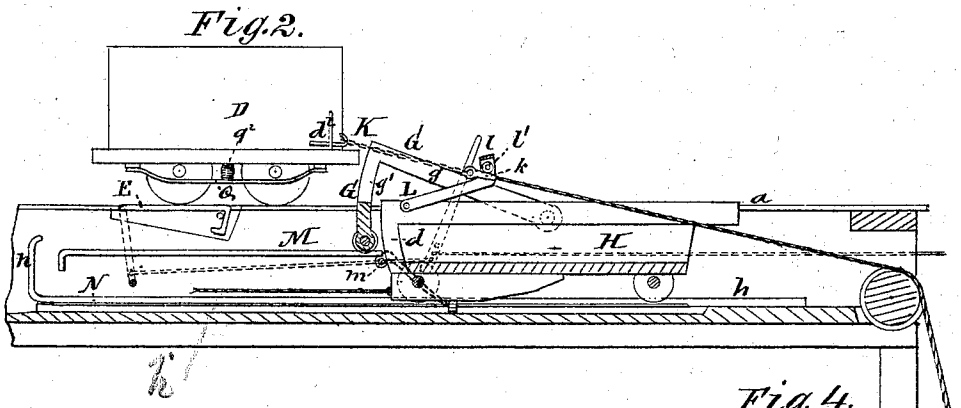


Fig. 4.

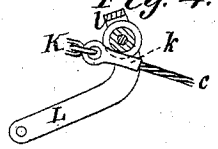


Fig. 3.

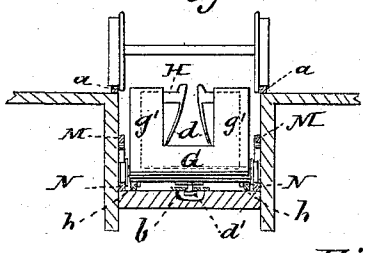
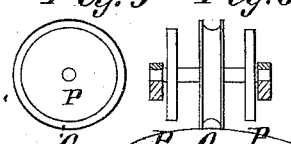


Fig. 5 *Fig. 6.*



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UNITED STATES PATENT OFFICE.

PHILIP H. LAMEY, OF WICONISCO, PENNSYLVANIA.

IMPROVEMENT IN COAL-CAR ELEVATORS.

Specification forming part of Letters Patent No. **135,565**, dated February 4, 1873.

To all whom it may concern:

Be it known that I, PHILIP H. LAMEY, of Wiconisco, in the county of Dauphin and State of Pennsylvania, have invented an Improved Apparatus to be used in Connection with Coal-Car Elevators, of which the following is a specification:

The invention relates to car-elevators generally, but more particularly to such as are employed in transferring coal from the bottom of mines up a slope, and to a landing from whence it is discharged. First, the invention consists in a pivoted stop which is operated, simultaneously with a signal to the engineer, by a single topman who stands on the landing. Second, it also consists in pushers arranged in the rear of car to carry it forward to the beginning of slope after the mules have been removed. Third, it also consists in peculiar means for operating the pusher, consisting of a truck arranged in a pit below the level of car-track. Fourth, it also consists in placing the pushers at an inclination to the car-bumpers, so that the heavy spread-chains may be conveniently handled and brought into connection with car. Fifth, it also consists in making a longitudinal channel through middle of truck to allow the rope to play vertically, according to the position of car, and laterally according to the position of rope on drum. Sixth, it also consists in a novel catch pivoted over the rope-channel, bifurcated and curved to allow the transfer of truck to the discharge-end of landing at the same time with the car. Seventh, it also consists in a rising track, up which the pusher is moved to take its proper position against the bumpers of cars. Eighth, it also consists in pivoting the rising track, which brings the pusher into proper position behind bumpers of car, to the end of upper track and allowing it to take its position on lower track and to rise and fall automatically. Ninth, it also consists in placing a friction-disk on each side of the pulley on which the rope rests, and friction-slides on the bottom of car, to prevent the rapid wear which otherwise takes place on the wire ropes.

In the drawing, Figure 1 is a side elevation of my invention. Fig. 2 is a longitudinal sectional elevation of a portion of the same. Fig. 3 is a transverse section of landing to show the front of pushers, the cavity in truck, and the mode of holding the truck to its track. Fig. 4 is a detail sectional view of catch with stud of rope engaged therein, ready to draw the truck rearward with the car. Fig. 5 is a side view of pulley, and Fig. 6 is a view of the pulley and friction-disks on the same shaft.

A represents the top or landing; B, the slope; and C, the bottom, where the coal or other substance is loaded upon a car, D. These cars are loaded at C and drawn up with wire ropes wound, by suitable power, on a drum until the cars reach the end a', where the load is discharged. This is all done in the usual manner, one car being always drawn up as another is let down, and by the same actuating-shaft. The landing A is sloped on a decline from a to a', in order that the loaded car may be disengaged from the operative mechanism at the upper end of slope and allowed to travel, by its own gravity, down the landing to the place of discharge. After the load has been removed the empty car is transferred, by mule or other animal power, to the upper part of slope B, where the mules are removed and the car let down by rope on windlass. Here I have located a pivoted stop-lever, E, whose arm e is connected, by a rod, e^1, with a hand-lever, F, and this hand-lever, by a rod, e^2, with a bell. A topman vibrates this lever when the car is ready to start, depresses the stop E out of the way of car, and makes a signal on the bell to the engineer, who operates the windlass mechanism. G is a pusher, consisting of the arms g g and open front piece g'. The ends of these arms abut against the bumpers d^2, and, being drawn forward, propel the car to the junction of landing A with slope B. In order to actuate these pushers and cause them to perform their intended function, I pivot the rear ends of the arms g g to the side of a truck, H, which travels on an independent track, h, at the bottom of a pit that is below the level of the car-track. On the front end of this truck is fastened one end of a cord, h', to whose other end is appended an actuating-weight, I. After the topman has operated lever F to depress the stop E and signal the engineer that the car is ready to start, and the signal has also been given from the mine below that the loaded car there is prepared, the engineer reverses his engine. This allows the weight to bring the tension of its gravity to

bear upon the truck, which now moves forward and carries the car to the verge of the slope. When the car is arrested at the stop E and the mules taken therefrom, the spread-chains K K, which are necessarily very heavy and difficult to handle, are seized singly by a topman on each side of car and slided up the inclined arms *g g*. This greatly facilitates the operation, as well as saves a heavy and inconvenient lift to the topmen. The truck H is provided with a longitudinal channel, *d*, which is made sufficiently deep to allow the rope that is attached to car to play freely in a vertical plane, and sufficiently wide to admit of its lateral movement to accommodate it to its own changes of position on the winding-drum. L is a bifurcated catch pivoted to the truck H and placed over the channel *d*, while it is curved on the end at *l* and provided with a friction-roll, *l'*. This allows a link-stud, *k*, to catch therein and draw the truck to the discharge end of the landing, while the catch L freely plays up and down vertically to accommodate itself to the motions of the rope *c*.

In order that the truck may pass forward with the pusher G above the level of car-track, and yet may return with this pusher below the said level, I make two tracks, M N, for the pusher. The first is short, curved downward at one end, and connected to the long track N by a pivoted track, *m*, while the track N is curved upward at its termination *n* to arrest the pusher and truck at the proper time.

As the truck has a tendency to rise from its track *a*, I arrange on the longitudinal middle of its bottom the T-shaped stud d^1 and form in the pit a corresponding groove, *b*, in which the former may conveniently slide.

O is a pulley, situated at the kinkle of slope B and used to retain the rope *c* in its true relative position. When the rope comes against this pulley there is a certain amount of friction required to move it upon its axis, and this friction, on the movement downward, wears out the wire-rope very rapidly. To overcome this difficulty I arrange two disks, P P, one on each side of pulley and upon the pulley-shaft, while on the bottom of car I place two friction-slides, Q Q, made yielding by springs *q q*. As these slides come in contact with the disks before the rope arrives upon the pulley the latter is made to rotate at a velocity very near to that with which the rope is moving, and consequently requires very little if any additional friction from the rope itself. This serves very greatly to increase the durability of the wire-ropes.

In order to prevent the weight I from passing down between its guides *i* with a thump and jar, and also to give it a tendency to rise upon the application of a little additional force, I arrange between the guides *i* and under the weight I a spiral spring, J, which is enabled thus to receive the weight with a gradually-yielding resistance, while its tensional, stored-up power tends to raise the weight as soon as a slight additional force co-operates with it.

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

1. The pivoted stop E connected with a hand-lever, F, and bell mechanism, as described, so that the same movement of lever will depress the stop and notify the engineer that the car is ready to start.

2. The pusher G, arranged, as described, in rear of car and operated by any suitable mechanism against the bumpers of cars to carry them to end of landing and beginning of slope.

3. The means described for operating the pusher G, consisting of the wheeled truck arranged in a pit and moved on its own track by a weight or other suitable mechanism, as set forth.

4. The pusher G, pivoted and arranged to rise at an upward inclination against the truck to enable the heavy spread-chains to be slided upon the arms *q q*, as set forth.

5. The construction of the truck with longitudinal recess *d* through middle, as described, to allow vertical and longitudinal play to the rope, according to the position of the car and to its own position on drum.

6. The pivoted end-curved and bifurcated catch L, arranged, as described, over the channel *d* for the purpose of enabling the truck to be drawn back with the car.

7. A rising track, *m*, connecting the upper and lower pusher-tracks in order to enable pusher to take up its position behind car, as set forth.

8. The rising pivoted track *m* combined with upper and lower tracks N N, as described, so that the pusher may pass over or under the top track without let or hinderance.

9. The friction-disks P P, one on each side of pulley O, and the friction-slides Q Q on bottom of car, combined as described, to rotate pulley O in advance of the rope, so as to avoid friction thereon.

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