

CHARLES W. HUNT.

Improvement in Operating Rail and Tramway Automatically.

No. 127,885.

Patented June 11, 1872.

Fig No 1.

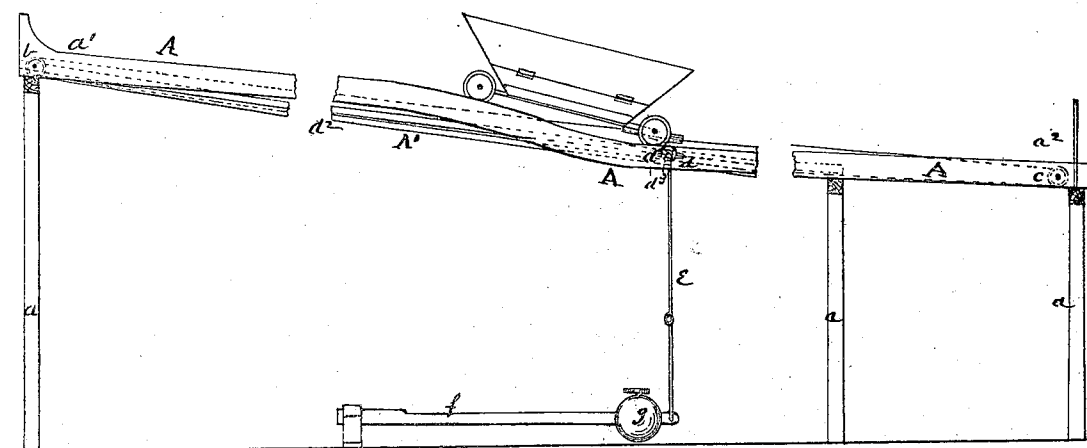
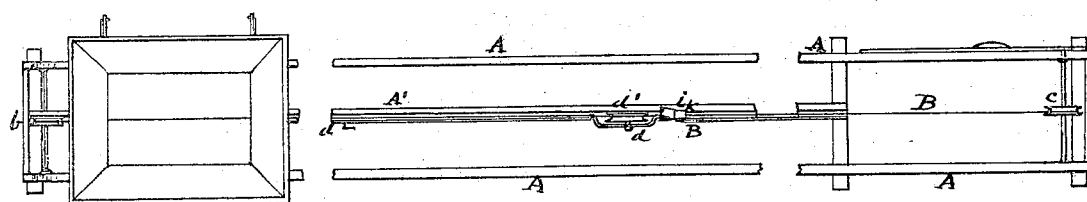


Fig No 2.



WITNESSES

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IMPROVEMENT IN OPERATING RAIL AND TRAMWAYS AUTOMATICALLY.

Specification forming part of Letters Patent No. 127,885, dated June 11, 1872.

I, CHARLES W. HUNT, of West Brighton, in the county of Richmond and State of New York, have invented new and useful Improvements in the Construction and Arrangement and Mode of Operating Automatically Rail or Tramways, and the loaded cars used thereon, from the place of loading to the place of discharge, and returning the empty cars; and the following is a description of my said improvements.

My invention is intended for transferring coal or any other materials, wares, or merchandise from the vessel or wharf where the coal or other material, &c., is landed to any other part of the premises where the coal or other material is to be deposited, by using the momentum received from a descending loaded car to cause the return of the empty car to the place of loading; and my invention consists in constructing the railway and combining the car running thereon with an endless rope and a reacting weight in such a manner and by such means that, in descending, the momentum of the car and load in their passage from the place of loading to the place of discharge or dumping will raise the weight sufficiently to return the empty car, after each discharge of its load, back to the place of loading, automatically.

In the drawing accompanying my specification, Figure I represents a side elevation of my invention; Fig. II, a top view or plan of the same.

In each of the figures similar letters represent similar parts.

A A represent the track of the rail or tramway, supported upon trestles *a a*. The place of loading the car or wagon is at *a*¹, and the place of discharge or dumping is at *a*², the place of discharge being always lower than the place of loading. The railway commences at the beginning *a*¹, and it gradually takes a more rapid descent in order to give a greater momentum of the car and its load as it proceeds to the place of discharge, and this more rapid descent continues to near the part of the road or way where the car is to unload or dump its contents, and this last part of the way may be on a level or nearly so. A continuous or endless rope, B, is carried from one end of the way to the other, passing over the grooved pulley *b* at the place of loading, and the grooved pul-

ley *c* at the opposite end, both of which pulleys have suitable bearings in the ends of the railway or track. This rope has its two ends connected and fastened to the opposite ends of a link, *d*. Upon the link *d* is placed the grooved pulley *d*¹, which is supported by and runs upon the grooved strip *d*² upon the side of the intermediate horizontal rail A¹. The link has a flat projecting arm, *d*³, which presses and slides against the side of the intermediate rail, and prevents the pulley from coming out of the groove or channel made by the grooved strip *d*². The rope also slides over this grooved strip. This pulley is so arranged that when the weight hereafter described is at rest and not operating the pulley is in the same line vertically with the weight. To the link *d* is hinged the lifting-rod or rope or chain *e*, which, at its opposite end, is hinged to a vibrating bar, *f*, upon which the weight is suspended; and at its lower end the vibrating bar *f* is hinged to a bearing firmly secured in the ground. Upon the vibrating bar *f* is placed the sliding adjustable counterpoise or weight *g*, which is made to carry the empty car back to its place of starting by the means and in the manner now to be described.

The rope B passes under the car or wagon, and is conducted and slides through a block or guide, *h*, firmly secured to the forward end of the fixed central timber or floor-piece of the car, and projects forward from the car. Upon the rope is placed the block *i*, which is slotted longitudinally on one side into the center, so as to readily admit of being placed upon the rope and moved along it as desired; and it is made to closely adhere to the rope at any desired point by means of the metallic ferrule *k* upon the end of the block, which is made slightly tapering, so that when the ferrule is pressed toward the larger part of the taper it will compress the block sufficiently tight upon the rope to hold it there immovably. This block may, however, be made and attached to the rope in any other suitable manner. The block must be placed in such position upon the rope that the loaded car in descending will come in contact with the block and thus set the rope in motion at such a point as that when the car reaches the dumping place the weight will have been raised to its highest elevation. The block, at the instant that it is put

in motion by the car, carries with it the connecting rope and begins to raise the weight; and thus, when the loaded car has reached the end of its journey and is at the dumping-spot, and the weight is at its highest point, it acts with its least force, and affords time for the swinging bottom pieces of the car to open and the load to be discharged from the car before the weight begins to carry the car back. As soon as the car is discharged and empty the weight, falling back to its lowest position, reverses the movement of the rope, and draws the car with sufficient force to carry it up the incline and back to the place of loading. The opening of the movable bottom pieces of the car is made automatical by the projecting arm C on the side of the car coming in contact with the cam *m* on the exterior of the rail. This cam is made adjustable to any required point by being placed between two parallel grooved strips, *n n*.

From the manner in which the lever and weight are arranged, as above described, a very slow and easy motion is given to the weight when it receives the shock from the car striking upon the block and putting the connecting-rope in motion, and this must be arranged and adjusted with great accuracy and attention, for if the shock upon the rope is too great at first the sudden strain will break the rope.

The pulleys *b c* at each end of the track may either or both of them be made adjustable by having their bearings placed so as to be held by springs, weights, or other suitable device.

When the car has received its load it commences to descend by its own weight, and it descends to the dumping place, discharges its load, and returns to the place for loading automatically, as hereinbefore described.

The counterpoise-weight *g* must approximate to the amount of the resistance of the empty car and its connections in returning up the incline; and, by adjusting the weight up-

on the vibrating lever the force required may be ascertained and fixed with sufficient exactness. The precise manner herein described of arranging the weight upon a bar so as to increase or diminish the power need not be always adopted. Various ways of arranging the weight may be used, but it is necessary always to arrange the weight in such a manner that it will not effect too great and sudden a strain upon the rope.

Having thus described my improvements and the manner of constructing the same and their operation, what I claim therein as my invention, and for which I desire Letters Patent, is—

1. In combination with a track of suitable gradient and car thereon, the rope B, pulleys *b c*, and grooved pulley *d'*, constructed, arranged, and operating substantially as described.

2. The adjustable regulating block or cam *i*, or its equivalent, upon the rope B for communicating the motion of the car to the rope and reversing the movement of the car and rope, as required, constructed, applied, and operating substantially as and for the purposes described.

3. In combination with the horizontally-moving pulley *d'*, the vibrating lever *f* and weight *g*, constructed, arranged, and operating in the manner and for the purposes substantially as described.

4. The compound link *d* and pulley *d'* and arm, in combination with the lifting-rod or chain *e* and weight *g*, constructed and operating substantially as described.

5. The intermediate horizontal rail and groove thereon, in combination with the pulley *d'* and the weight *g*, constructed and operating substantially as described.

CHAS. W. HUNT.

Witnesses:

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W. V. CLUTE.