

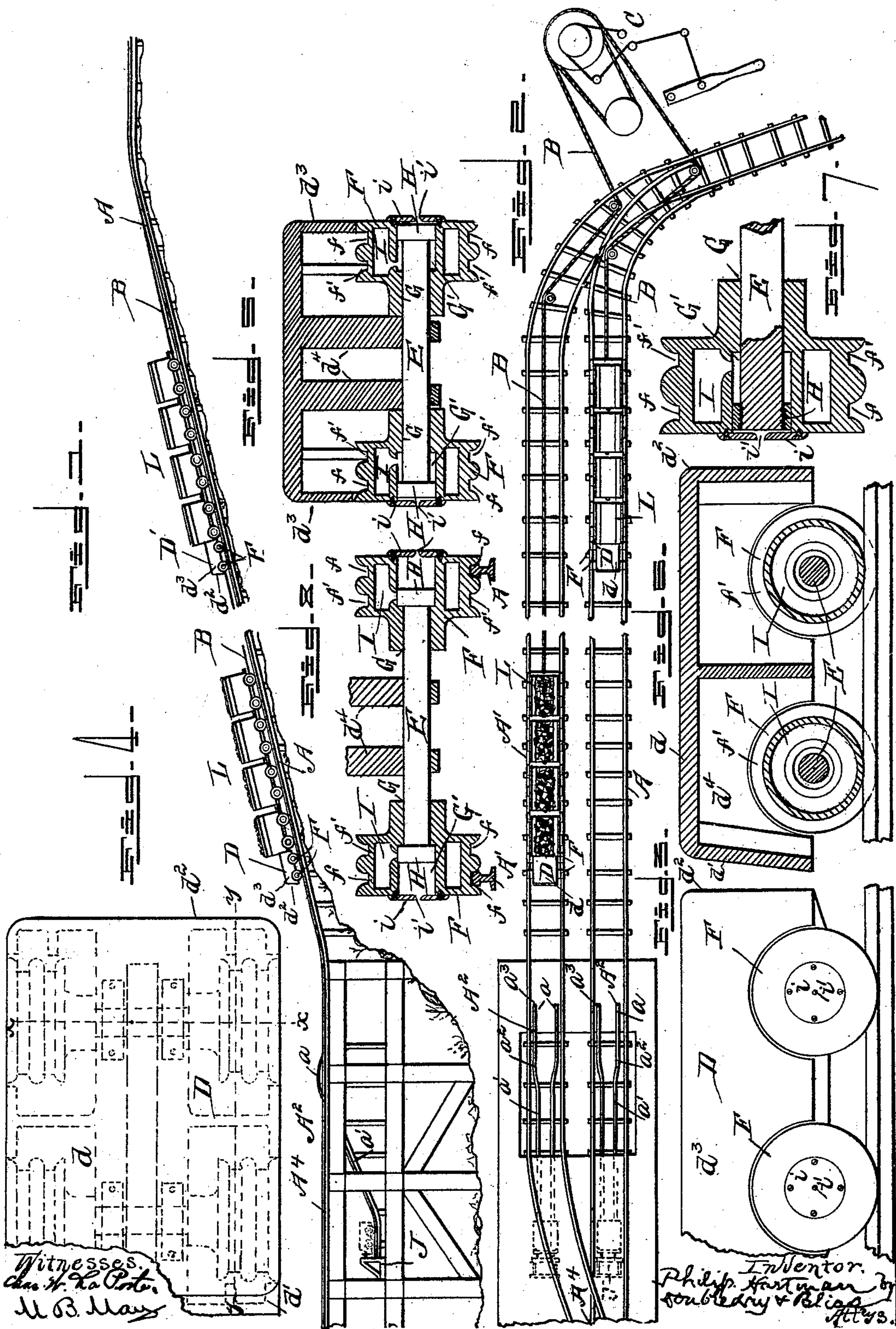
(No Model.)

P. HARTMAN.

## HAULING AND CONTROLLING MECHANISM FOR CARS.

No. 497,661.

Patented May 16, 1893.





# UNITED STATES PATENT OFFICE.

PHILIP HARTMAN, OF EHRENFELD, PENNSYLVANIA.

## HAULING AND CONTROLLING MECHANISM FOR CARS.

SPECIFICATION forming part of Letters Patent No. 497,661, dated May 16, 1893.

Application filed February 14, 1893. Serial No. 462,279. (No model.)

*To all whom it may concern:*

Be it known that I, PHILIP HARTMAN, a citizen of the United States, residing at Ehrenfeld, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Hauling and Controlling Mechanism for Cars or Vehicles, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an improved mechanism for cars, wagons, vehicles, &c.; it relating more particularly to devices of the sort used in controlling, manipulating, and propelling cars which are arranged to move up and down inclined planes, such as are employed in connection with coal mines for letting loaded cars down from the mouths of the pits to the tippie houses, or weighing scales, and then hauling them, after being emptied, back to the top of the incline and close to the pit mouth again. Heretofore use, has generally been made, for this purpose of ropes or cables hitched directly to the rear end of the train, or "trip," of loaded cars, and at the other end hitched to the front end of the "trip" of empty cars, the intermediate part of the rope or cable passing around the winding drum at the top of the incline which drum is utilized to regulate the escape of the rope downward, and the winding of it as it comes up.

It is well known that dangerous and expensive accidents are constantly occurring where use is made of devices of the sort last referred to. The holder being at the upper end of each "trip," the entire weight of it is of course below the holder, that is below the point where the rope or cable is connected.

One of the objects of the present invention is to overcome this danger and avoid entirely the possibility of the cars at the lower end of the "trip" from becoming detached from those above.

Another object is to provide an automatically acting device for engaging with and disengaging itself from a "trip" of such cars, so that the labor and trouble incident to the operation of fastening at the top of the incline, and the unfastening at the bottom shall be done away with.

There are other objects aimed at, and other features of construction and arrangement

embodied in my apparatus, which will all be readily understood from the following description in connection with the drawings. 55

Figure 1 is a side view of an apparatus embodying my improvements, it showing also, somewhat conventionally, parts of an inclined roadway of the general sort hereinbefore referred to. Fig. 2 is a plan view of the same. 60 Fig. 3 is a side view of the car haul on a larger scale. Fig. 4 is a top view of the same. Fig. 5 is a cross section on line  $x-x$  of Fig. 4. Fig. 6 is a section on line  $y-y$  of Fig. 4. Fig. 7 is a section of one of the wheels and axles 65 enlarged. Fig. 8 is a section similar to that in Fig. 5, but showing the truck when running on the main track rails.

In the drawings A A represent the rails of a track adapted to have cars fitted to it such as my invention can be employed with. 70

I have selected for illustration parts of the apparatus used at the mouth of a coal mine, including parts of the track on the hill side or incline, and parts of those at the tippie house or place where the weighing and unloading are accomplished: but I wish it distinctly understood that I do not limit myself to a use of the invention in connection with such a mine, or with the incline shown or with any particular unloading apparatus, inasmuch as the essential parts of the invention can be applied to any of several uses more or less differing from that mentioned and illustrated. 85

Somewhat near the track rails A A, and substantially parallel therewith there are placed the rails A' A' of another track this being the arrangement generally used in coal mines of this sort, one of the tracks being used for letting down a "trip" of loaded cars, and the other being used at the same time for hauling up a "trip" of "empties."

B indicates, generally, a cable or rope used for letting the loads down, and which may be of any of the sorts now in use. And with it use can be made of any preferred mechanism at C for controlling the movements of the rope, such as a friction drum, &c. 95

To the ends of the rope or cable B I attach two of my car hauls, one of which is represented by D and the other by D'. These are duplicates of each other. Each consists essentially of a body or main frame and a suit- 100



able number (preferably four) wheels. The body or frame may be made of cast metal, wrought metal, or wood, or other suitable material. As shown in the drawings it has a top  $d$ , end walls  $d'$ ,  $d^2$ , side walls  $d^3$ , and one or more central webs or bearing plates  $d^4$ . From the said central parts there extend outward axles E, E, and upon these are mounted four wheels respectively indicated by F. Each wheel is formed with two grooves or guide ways  $f$  and  $f'$  adapted to fit over and ride upon the top of the track rails A or A' and A<sup>2</sup> respectively.

At G there is a central passage through the wheel axially, for the reception of an axle or shaft E, and at the outer ends these apertures G terminate in expanded chambers as at G'.

H indicates a collar secured to the outer end of each axle and lying within one of the chambers G'. The chamber is somewhat longer than the thickness of the collar so that the wheel can have a limited play out and in along the axle for a purpose to be described. The wheels are self-oiling, each being formed with a chamber or cavity at I, and there is a cap  $i$  secured to the outer face of the wheel opposite to the chamber G'. The cap has an orifice at  $i'$  through which oil can be readily introduced to the oil cavity, and from this cavity it will distribute itself gradually to the interior of the axle passage and collar chamber at G, G' for the collar H being merely used as a stop for said wheels, it fits loosely enough to allow the oil to readily gain access to the oil cavity.

By examining Fig. 5 it will be seen that the inner part of the wheel is extended inward as far as possible so as to provide a long bearing for it on the axle, the metal at the said end being reduced somewhat. The width of the frame D is such that it can be dropped between the rails of the tracks A or A', that is, the outside width of the frame or body is about equal to or a little less than the inside width of either track. And the wheels are so mounted that they can slip inward till the distance between their outer faces shall be less than that between the inner sides of the track rails, and yet they can when necessary slip outward far enough to have the grooves  $f$  fit on the track rails A or A'.

At the foot of the incline or at other suitable place a mechanism is arranged for throwing the car haul devices D and D' out of the paths of the vehicles which are propelled or controlled thereby.

In the drawings I have shown at A<sup>2</sup> a section of track composed of a wider part  $a$ , a narrower part  $a'$ , and an intermediate tapering part  $a^2$ , the ends of the wider part terminating at  $a^3$ ,  $a^3$ . And by examining Fig. 1 it will be seen that the latter end parts are elevated somewhat above the level of the top surfaces of the main track rails A and A'. The narrower part  $a'$  of this supplemental track may be of any desired length, but ordinarily it will not need to be more than about twice the

length of the car haul D. And at the end of it there can be a stop or bumper as at J if desired. The ends  $a^3$   $a^3$  are at a distance apart equal to the distance between the grooves  $f'$  of two opposite wheels F.

At A<sup>4</sup> is a section of track upon which the cars run to be dumped, after they are disengaged from the truck.

The cable B is secured to the end walls  $d^2$  of the frames.

The manner of operating a mechanism of my improved sort will be readily understood from the drawings, and the description given above. In Figs. 1 and 2 a "trip" of loaded cars is shown as passing down the left hand track A, and a "trip" of "empties" is shown as passing up. The car haul D is situated below the loaded cars and of course prevents them from moving rapidly down. The front car L of the trip rests against the hauling device and pushes it before it as it travels down; and at the same time the haul D' is being drawn toward the drum at the top of the incline and is therefore carrying upward the trip of empties. As soon as the haul D reaches the supplemental track A<sup>2</sup> the wheels E engage with the ends  $a^3$  of that track, the inner grooves  $f'$  fitting it. And as this inner or supplemental track is slightly elevated at the ends  $a^3$  the first result is to lift the haul D up a little so as to get its wheels F F entirely clear of the outer track A. Then, as the cars L continue to move down and push the haul D ahead of them, the wheels F of the latter (after getting free of track A) are drawn in by the tapering part of the track A<sup>2</sup> until said wheels F are entirely inside of track rails A. And a still further forward movement of cars L carries the haul D onward to a narrower and lower part  $a'$  of the track A<sup>2</sup>, and after it is fully on this part of the track the body or frame D has dropped far enough to permit the cars L to move over the haul D, on track A<sup>4</sup> and on to the place for weighing the tipping. After the cars have been emptied they are pushed by hand or otherwise back, to a point such that they shall be ahead of the haul D, ready for ascending the incline. When the movement of the rope or cable B is reversed the haul D is drawn back from the inner or supplemental track A<sup>2</sup>, and as it passes over the ends  $a^2$  of the said track its wheels F F are so adjusted in position automatically that they will again rest upon and move along the track rails A. As they rise up from the depressed part  $a$  of the track A<sup>2</sup> they carry the haul D up far enough to again lie behind the rear car L, and then any further strain upon the rope causes the haul to propel the cars up the incline until the top level is reached, where they are detached and again carried into the mine.

What I claim is—

1. A hauling or propelling device for cars or vehicles adapted to move on a track, it consisting of a frame narrower than the inside width of the track, in combination with the



centrally supported axles and the wheel longitudinally movable thereon, substantially as set forth.

2. A hauling or propelling device for cars or vehicles, adapted to move on a track, it consisting of a frame narrower than the inside width of the track, in combination with the laterally projecting axles, and the wheels longitudinally movable on said axles and having elongated hubs, substantially as set forth.

3. A hauling or propelling device for cars or vehicles adapted to move upon a track, said propelling device consisting of a frame or wheel support narrower than the inside width of said track, in combination with wheels adapted to be moved toward and from the said track, substantially as set forth.

4. A hauling or propelling device for cars or vehicles, consisting of a frame, in combination with axles having free outer ends, wheels longitudinally movable of said axles and stops to limit the movement of said wheels, said wheels being adapted to move in planes outside the vertical longitudinal planes of the said frame, substantially as set forth.

5. In a system of haulage, the combination with a track of uniform width and unbroken at points intermediate of its ends, and having cars or vehicles traveling thereon of a supplemental track or guide, and a wheeled hauling device adapted to be detachably connected to said cars, and having wheels adapted to engage with either of said tracks, substantially as set forth.

6. The combination with the continuous and unbroken track A of a uniform width or gage adapted to receive cars or vehicles, and the supplemental track A<sup>2</sup> of a gage or width differing from that of track A of the car hauling or controlling device having wheels adapted to fit either of said tracks, substantially as set forth.

7. The combination of a track A, adapted to receive cars or vehicles, a hauling device having wheels adapted to run upon said track, a track section A<sup>4</sup> for the cars or vehicles after they are detached from the hauling device, and the supplemental track A<sup>2</sup>, adapted to engage with the wheels of the hauling device and to cause their disengagement from track A, substantially as set forth.

8. In a system of haulage, the combination with the continuous main track of a uniform gage or width, and upon which cars or vehicles travel, of the track of a relatively narrow gage, lying inside the rails of the main track, and having a portion raised above the upper plane of the main track rails, and the hauling device having wheels as described adapted to run on said main track, and be engaged by the rails of the supplemental track, whereby the said wheels are caused to be disengaged from the rails of the said main track, substantially as set forth.

9. In a system of haulage, the combination with the main track rails, and the rails of

the supplemental track, of the hauling device, consisting of a supporting frame narrower than the distance between the main track rails, and having movable wheels thereon adapted to run on the rails of either of said tracks, substantially as set forth.

10. In a system of haulage, the combination with the unbroken main track of a uniform gage or width, and the supplemental track inside of, and narrower than, said main track, and having a varying gage or width, of a hauling device having movable wheels adapted to run on either of said rails, substantially as set forth.

11. In a system of haulage, the combination with the main track for the cars and the relatively short track having a part raised higher than the main track, of a hauling device narrower than the inside width of the main track, and having wheels adapted to run on said main track and then on said relatively shorter track, substantially as and for the purposes set forth.

12. In a system of haulage, the combination with the main track of uniform width and the cars traveling continuously on said track, of a relatively shorter and narrower track, and a hauling device having wheels as described and traveling first on said main track and then on said relatively shorter and narrower track, substantially as and for the purposes set forth.

13. In a system of haulage, the combination with the main track of a uniform width, and the relatively narrow track inside said main track and descending to a plane below that of said main track, of a hauling device of a width less than the distance between the main track rails, and having wheels, adapted to run on either of said tracks, substantially as and for the purposes set forth.

14. The combination with the hauling device for vehicles fitted to an unbroken or continuous track or guide-way to which track the wheels of said hauling device can fit, of a supplemental track having a wider portion and a narrower portion, substantially as set forth.

15. The combination with the continuous main track section, and the cars traveling continuously thereon, of a supplemental track section narrower than said main track section and of a varying gage or width, and having a portion of its length lying in the plane of the main track section, and a portion extending to a plane directly below that aforesaid, and a hauling device having movable wheels fitted to either of said track sections, substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

PHILIP HARTMAN.

Witnesses:

SAMUEL B. WATERS,  
J. Z. REPLOGLE.