

(No Model.)

G. G. TOWNSEND.
PIN PULLING MACHINE FOR COAL CARS.

No. 423,500.

Patented Mar. 18, 1890.

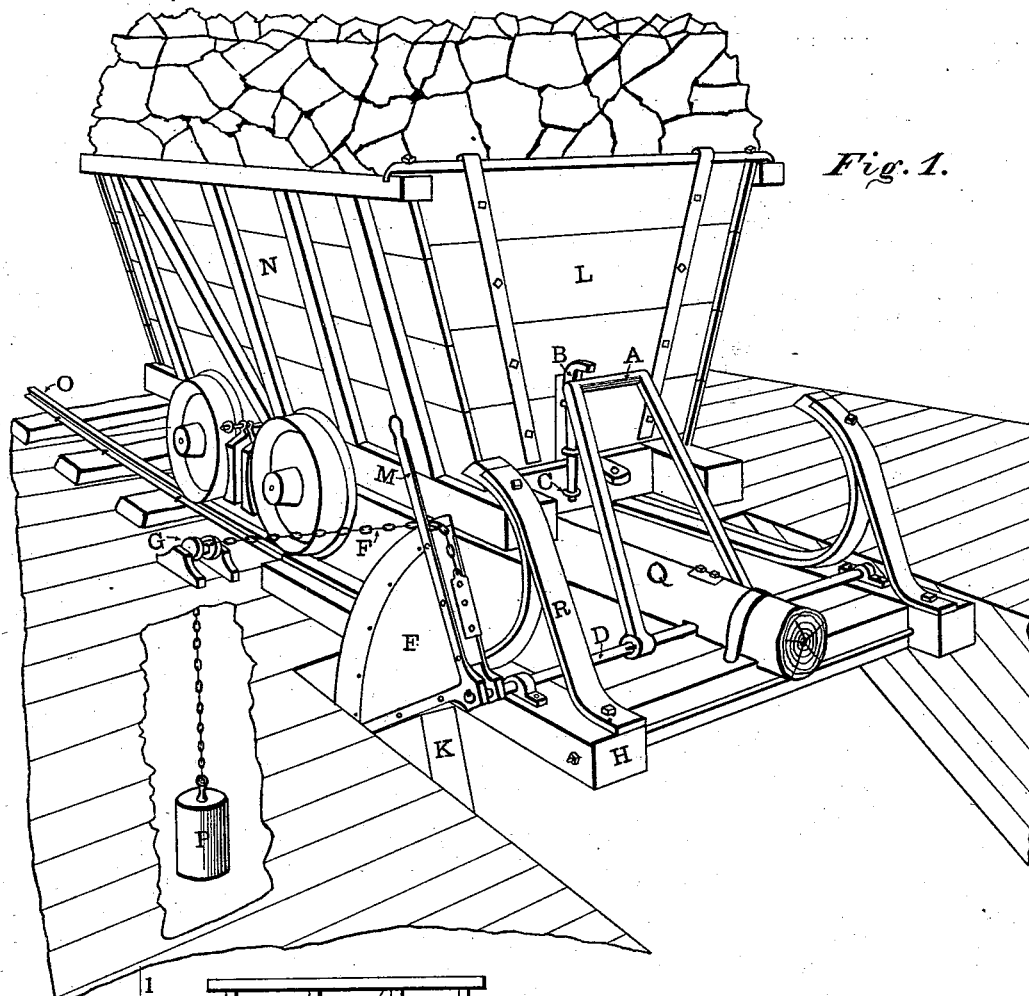


Fig. 1.

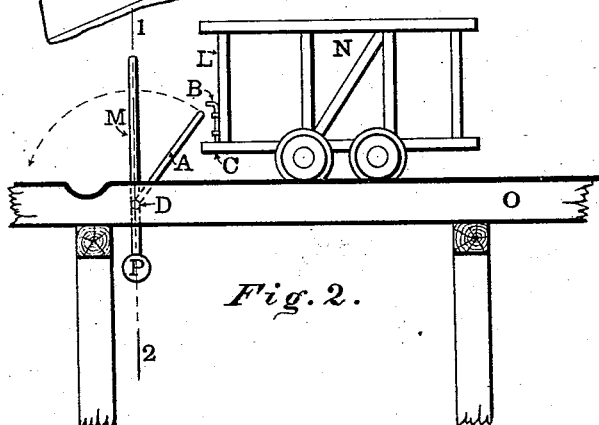


Fig. 2.

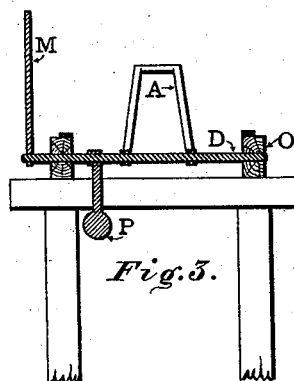


Fig. 3.

Witnesses.

Alexander King
Robert Randolph Hutchison

Inventor.

George Gali Townsend C.E.

UNITED STATES PATENT OFFICE.

GEORGE GALE TOWNSEND, OF FROSTBURG, MARYLAND.

PIN-PULLING MACHINE FOR COAL-CARS.

SPECIFICATION forming part of Letters Patent No. 423,500, dated March 18, 1890.

Application filed October 14, 1889. Serial No. 327,043. (No model.)

To all whom it may concern:

Be it known that I, GEORGE GALE TOWNSEND, a citizen of the United States, residing at Frostburg, in the county of Alleghany and State of Maryland, have invented a new and useful Pin-Pulling Machine for Coal-Cars, of which the following is a specification in such full, clear, concise, and exact terms as will enable any person skilled in the art to which it appertains to manufacture and use the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective projection showing my invention in position for removing the pin from the socket of the car. Fig. 2 is a side elevation of a modified form of my machine; and Fig. 3 is a transverse sectional elevation of the same, taken on the line 1 2 of Fig. 2.

The object of my invention is to provide a simple automatic mechanism, always in position to release the pin which confines the end-gate or door of the ordinary coal-cars, so that the contents of the car may be discharged without manual interference and without straining the car or any of its parts; furthermore, to provide a machine that will pull ordinary pins without the necessity of placing a lever or other auxiliary device on every car for releasing the door, as has heretofore been found necessary.

My invention consists of a weighted tripping-lever placed transversely of the tramway, whereby, upon the forward movement of the car, said lever engages with the pin of the car to remove the same from its socket, thereby releasing the door, whereby the car may be emptied of its contents without manual interference and upon the forward or backward movement of the car; said lever being released automatically assumes a proper position for another car.

Referring to the accompanying drawings, N designates the ordinary construction of coal-cars used for mining purposes, and L the door or end-gate hinged thereto in the usual and well-known manner.

B designates a pin secured to the door by means of staples or equivalent devices, whereby by said pin is given a free vertical movement.

C designates a socket in the cross-sill of the car for the reception of the pin B, whereby

the door may be securely held in a closed position.

O is an ordinary tramway upon which the cars move and to which the tip-frame H is secured by any suitable means.

Within the frame H is journaled by any well-known means an axle D, having firmly but removably secured thereto a yoke or lever A in the form of an inverted U. One end of the axle D extends a slight distance beyond the frame H or tramway, and has secured thereto a segment of a circle or section of an eccentric E, provided with a hand-lever M. Secured to one side of and passing over the circle or rim of the eccentric is a chain F, which passes over a pulley G and is provided with a counter-weight P.

K designates a stop or rest placed in suitable relation to one side of the eccentric E, whereby the rearward rotary movement of the axle D and lever A is limited.

R designates the movable tip-horn.

Referring to the modification shown in Figs. 2 and 3, like letters of reference indicate corresponding parts to those described in connection with the construction shown in Fig. 1. In the construction shown in Figs. 2 and 3, I dispense with the segment of circle or eccentric E and stop K, and attach the counter-weight P rigidly to the axle D, which acts to return the lever A to its normal position and to hold it there, as hereinafter described. In the construction shown in Fig. 1, I have illustrated and described my tripping device as being located in and secured to a frame independent of the tramway. It is apparent, as shown in Figs. 2 and 3, that my invention need not necessarily be so limited; but the tripping device may be journaled in the trestle-work or other structure composing the tramway.

The operation of my device is as follows: The lever A being held in an inclined position, as shown, by means of the counter-weight P, the loaded car is advanced along the tramway until the lever abuts against the forward end of the car and beneath the pin-head, and as the car advances the axle is turned within its bearings and the lever is forced into an upright position, and in so doing it raises the pin out of its socket. The material in the car settles against the door,

so that when the front of the car strikes the lever and forces it still farther forward the released pin cannot fall back into the socket. By this time the car is in position to dump its cargo, the lever is lying forward almost in a horizontal position, and the top of it is projecting only a few inches in front of the car, but so low down as to be entirely out of the way. When the lever is in this position, the section of the circle or eccentric is in its forward position, with the chain pulling tangent to its longer radius. The eccentric is used to get more lifting-power where it is needed to raise the lever from a horizontal position, and when the lever is in its normal position the chain pulls tangent to the shorter radius of the eccentric, thus reducing the pull, which would tend to retard the forward motion of the car.

The lever and counter-weight shown in Figs. 2 and 3 are suitable for places where cars are to be dumped along a trestle or any place where a movable tip is not used. The lever and eccentric shown in Fig. 1 are more suitable for use on movable tips, as this arrangement does not add so much weight to the front end of the tip.

While I have shown and described my lever as being in the form of an inverted U, it will be readily understood as not a departure from my invention if said lever is constructed in the shape of an inverted L.

I have also described my pin-tripper as specially adapted to coal-cars. While this is the primary object of my invention, it will be readily understood that the tripper may with equal success be applied to all kinds of cars necessitating a device for removing the gate-pin.

In case it is desirable at any time to dump only the portion of the car-load which is above the box of the car, the pin-tripping lever A can be thrown forward by means of the hand-lever M, so that it will not engage the pin B, and the door or end-gate of the car will remain closed. The part R is to prevent the car from running over the end of the tip-frame H, and is movable only as it moves together with the tip-frame when the car is dumped. The tip-frame H is supported by an axle fastened across its bottom and turning in bearings secured to the dump-floor on either side of the frame. The "heavy pole" Q (shown in the drawings) is fastened to the top of the tip-frame H and extends back beyond the same. At its rear end is attached a chain which drops down through the dump-floor and supports a weight. When a loaded car is run

onto the tip, its weight is sufficient to tilt the frame forward and raise the weight at the end of the pole and chain; but as soon as the load is discharged the empty car and tip-frame are returned to their normal position by said weight, chain, and pole.

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

1. A machine for removing the gate-pins of coal-cars, consisting of a counterweighted axle provided with a lever-bar to engage with said pins, in combination with the tramway of the car, substantially as described.

2. A machine for removing the gate-pins of coal-cars, consisting of a counterweighted axle provided with a lever-bar arranged transversely to said axle to engage with said pins, in combination with the tramway of the car, substantially as described.

3. A machine for removing the gate-pins of coal-cars, consisting of a counterweighted axle provided with an inverted-U-shaped lever-bar arranged transversely to said axle to engage with said pins, in combination with the tramway of the car, substantially as described.

4. In a machine for removing the gate-pins of coal-cars, a tripping device for engaging with said pins, consisting of a tramway having a counterbalanced axle-bar provided with a lever-arm arranged transversely to said axle-bar, substantially as described.

5. In a machine for removing the gate-pins of coal-cars, a tripping device for engaging with said pins, consisting of a tramway having a counterbalanced axle-bar provided with a lever-arm arranged transversely to said axle-bar, and a hand-lever, substantially as described.

6. In a machine for removing the gate-pins of coal-cars, a tripping device for engaging with said pins, consisting of a tramway having a counterbalanced axle-bar provided with an inverted-U-shaped lever-bar arranged transversely to the axle-bar, substantially as described.

7. In a machine for removing the gate-pins of coal-cars, in combination with the tramway O, an axle-bar journaled thereto, provided with a lever-bar A, segment E, chain F, and counter-weight, substantially as described.

In testimony that I claim the foregoing as my own I affix my signature in the presence of two witnesses.

GEORGE GALE TOWNSEND.

Witnesses:

ALEXANDER KING,

ROBERT RANDOLPH HENDERSON.