M. D. JONES.

CAR HAULAGE SYSTEM.

APPLICATION FILED JULY 11, 1914.

1,125,110.

Patented Jan. 19, 1915.

2 SHEETS—SHEET 1.

Fig. 4.

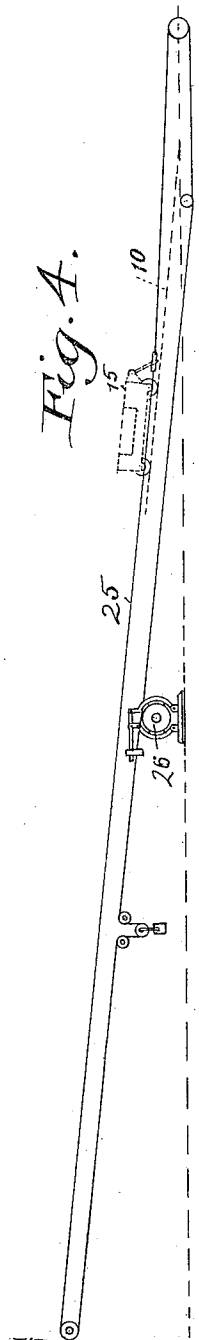


Fig. 1.

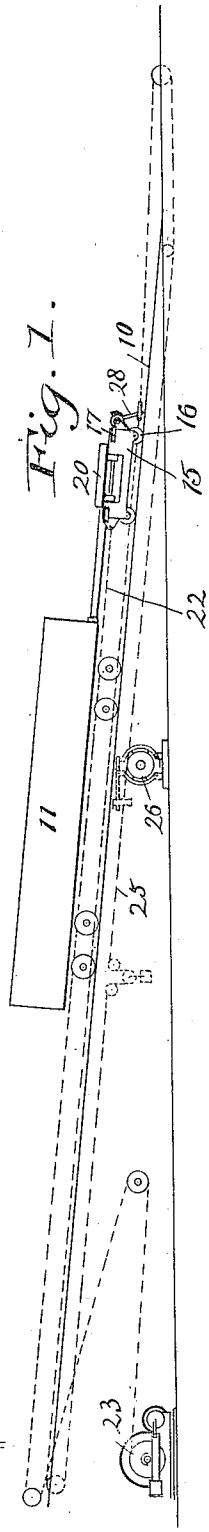


Fig. 2.

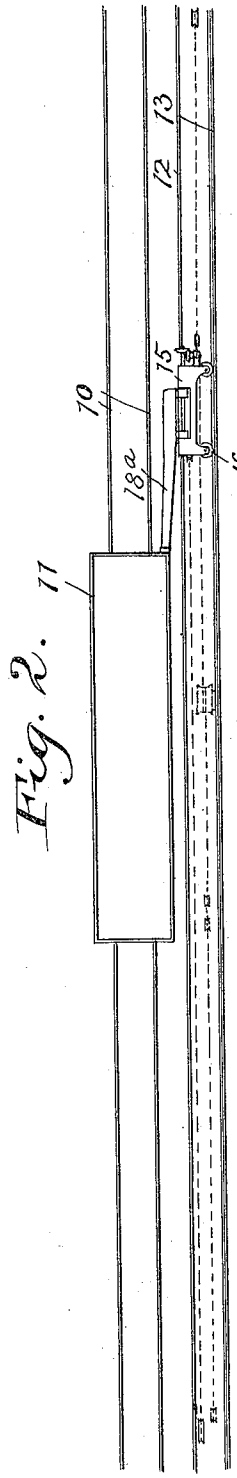


Fig. 6.

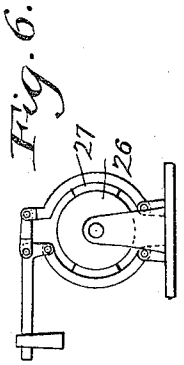


Fig. 3.

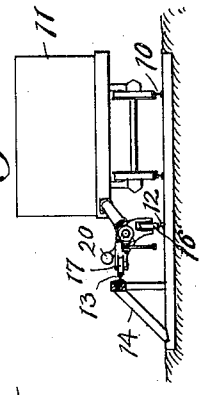
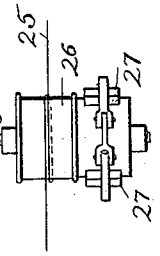


Fig. 5.



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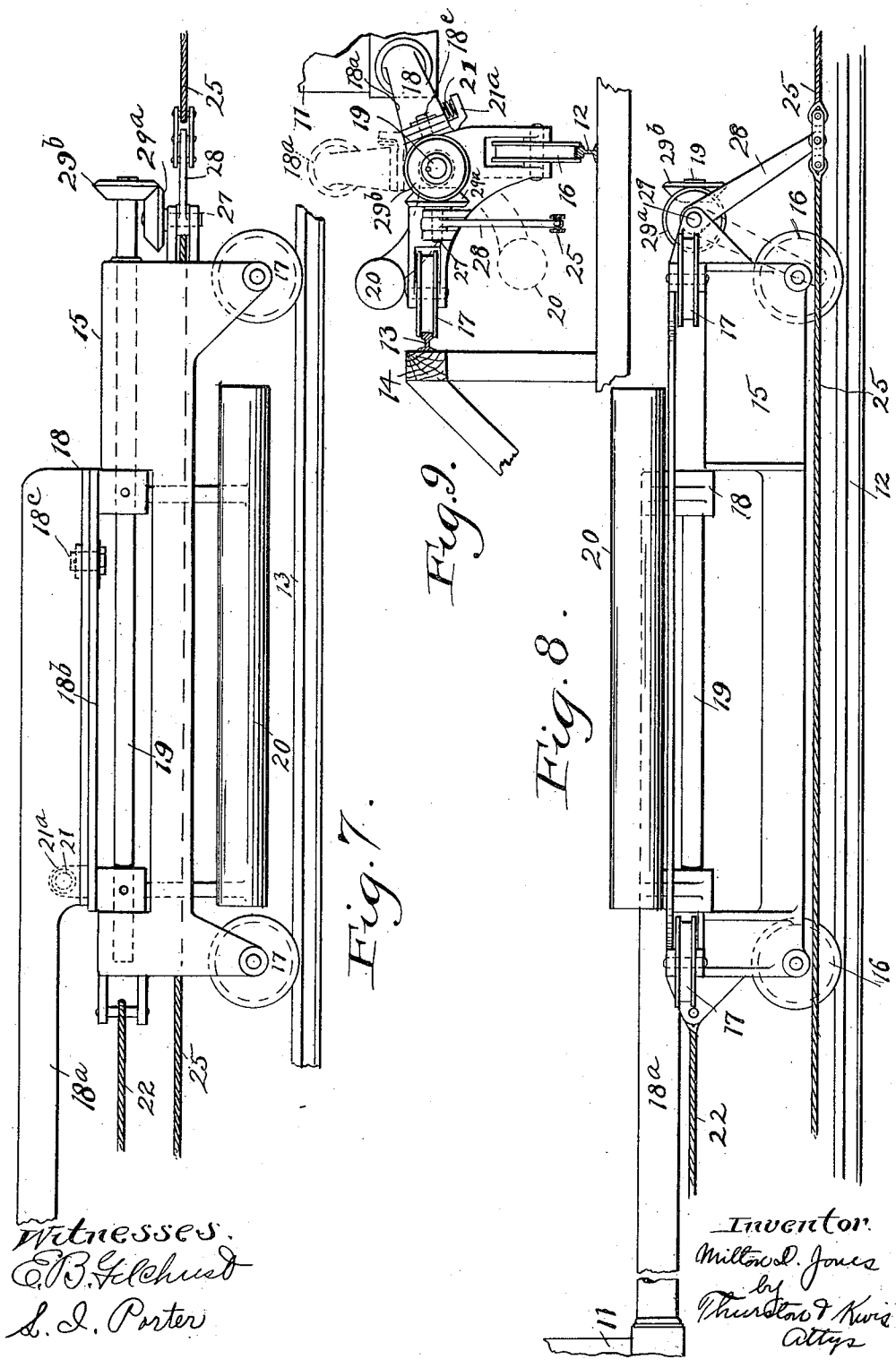

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UNITED STATES PATENT OFFICE.

MILTON D. JONES, OF CLEVELAND, OHIO, ASSIGNOR TO McMYLER INTERSTATE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

CAR-HAULAGE SYSTEM.

1,125,110. Specification of Letters Patent. Patented Jan. 19, 1915.

Application filed July 11, 1914. Serial No. 850,291.

To all whom it may concern:

Be it known that I, MILTON D. JONES, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Car-Haulage Systems, of which the following is a full, clear, and exact description.

This invention relates to haulage car plants or systems adapted to be employed in connection with car handling apparatus, such as car dumpers which require a haulage system to bring the loaded cars up on to the dumper cradle and generally up along an inclined approach track leading thereto.

Car dumpers are usually provided with a haulage plant including a small haulage car which runs along a narrow gage track between the rails of the main track. This haulage car track terminates in a pit into which the haulage car is adapted to be lowered so that a loaded car can be "spotted" or brought up to position such that when the haulage car is drawn from the pit by the haulage cables it will be at the rear of the loaded car or in position to pull the same up the inclined approach to the car dumper. A haulage plant of this type has the disadvantage that it is necessary that the haulage car be in the pit before the loaded car is spotted. This is particularly disadvantageous with some track lay-outs associated with car dumpers, because in spotting the loaded cars, they must be brought from some distance and are usually allowed to drift down an inclined track to a point beyond the pit of the haulage plant. To avoid danger of collision with the haulage car, it is generally inadvisable to start the cars from the incline toward the dumper until after the haulage car is in the pit, especially as it is sometimes difficult or not possible to stop the cars in their descent.

The above mentioned disadvantages of the haulage plants generally employed are overcome by my invention, which permits the spotting of the car to be handled regardless of the position or location of the haulage car, or admits of the haulage car being moved down the approach to the dumper or other car handling apparatus regardless of whether or not a loaded car is in position on the track to be shifted by the haulage car.

My improved haulage system includes a haulage car which runs on a track the rails of which are at the side of the main track, this haulage car having a movable arm or shifter member which is adapted to be shifted inwardly so that it may engage the car on the main track or be shifted in the reverse direction, so that the haulage car as a whole may pass a car on the main track.

The invention resides particularly in the type or construction of haulage car, in the arrangement of the rails of the haulage track and manner in which the car is constructed to engage the same, so that the side thrust will be effectively resisted without requiring the use of a very large haulage car, and in the manner in which the arm or shifter member is actuated.

My invention may be further briefly summarized as consisting in certain novel details of constructions and combinations and arrangements of parts which will be described in the specification and set forth in the appended claims.

In the accompanying sheets of drawings, Figure 1 is a side view of my improved haulage system; Fig. 2 is a plan view of the same; Fig. 3 is a transverse sectional view through the main track and haulage car track showing the manner in which the haulage car engages the main car to shift the same; Fig. 4 is a detached somewhat diagrammatic view of mechanism for automatically shifting the arm or car shifter member carried by the haulage car; Figs. 5 and 6 are plan and end views of a friction drum forming a part of the shifting mechanism; Fig. 7 is an enlarged top plan view of the haulage car; Fig. 8 is a side view of the same, and Fig. 9 is an end view with the rails of the haulage track in section, and showing also a portion of the main car which is to be shifted.

Referring now to the drawings, 10 represents an inclined portion of the main track along which is adapted to be shifted cars 11 which may be referred to as the main or loaded cars to distinguish from the haulage car. The portion of the track 10 which is shown may be the inclined approach to the car dumper or other car handling apparatus. The track for the haulage car is at the side of the main track 10, and this haulage car track consists of two rails includ-

ing a lower rail 12 and an elevated side rail 13, which is turned at right angles to the lower rail 12 and faces the main track 10, this rail being carried by a suitable elevated support 14.

The haulage car includes a frame or body 15 having two wheels 16 which engage the lower rail 12 and two upper or side wheels 17 which engage the upper side rail 13, the wheels 17 being in a plane at right angles to the plane of the wheels 16. It may be here stated that with this arrangement of the rails of the haulage track and wheels of the haulage car which engage said rails, a comparatively small haulage car can move very heavy cars up a steep grade without being disadvantageously affected in operation by the side thrust.

The haulage car carries a movable shifter member 18 having a pivotal connection with the body of the haulage car and so arranged as to be capable of swinging to one position such that it may engage and move a car on the main track, and to another position such that the haulage car may pass a loaded car on the main track without engaging the same. This shifter member is composed in this case of two principal parts including an arm 18^a and a base 18^b to which the arm is attached by a pivoting bolt or equivalent connecting device 18^c. The base 18^b is secured to a shaft 19 extending longitudinally with respect to the frame or body of the haulage car and mounted in suitable bearings carried thereby, the rear end of the shaft extending slightly beyond the end of the body of the haulage car, as shown particularly in Fig. 7. The arm 18^a which is adapted to be swung from a substantially vertical position to a substantially horizontal position is counterbalanced by a counterbalance or counterweight 20 attached to the shaft 19 or to the base 18^b of the shifter member. When the arm of the shifter member is in inoperative position, as when the haulage car is passing down the inclined track, the shifter arm 18^a and counterweight 20 occupy the positions shown by dotted lines in Fig. 9, and when the arm of the shifter member is in position to engage a loaded car on the main track 10 this arm and the counterweight occupy the positions shown by full lines in Fig. 9. The shifter member is here shown as composed of the two parts 18^a and 18^b, which are pivoted together, so that the arm 18^a may swing slightly about its pivotal axis and thus may adapt itself to inequalities of the haulage track or of the main track while the free end of the arm engages the desired part of the main car being shifted, *i. e.*, the lower corner of the same, as shown in Fig. 3 or Fig. 9. When the arm is in the position shown in Fig. 9, *i. e.*, car engaging position, it is yieldingly supported or held in operative relationship with respect to the car by a spring 21 carried by a bracket 21^a projecting from the base 18^b of the shifter member. (See Figs. 7 and 9).

The haulage car is shifted by a cable 22, which will pass about suitable sheaves, and is adapted to be wound on and unwound from an engine driven drum 23 (see Fig. 1). The haulage car may run down the inclined haulage track by gravity, but if this will not suffice a tail rope may be utilized to pull the haulage car down the incline, as will be readily understood without illustration or further description.

It will be noted, especially from Figs. 7 and 9, that the cable 22 is so attached to the haulage car that the line of pull of the cable is substantially in line with the pivotal axis of the shifter member. This feature taken in connection with the fact that a rather long arm 18^a is utilized reduces the pressure on the side or elevated rail and results in the car remaining firmly on the haulage track while engaged in pushing a loaded car up the track, and with no tendency for any of the wheels to leave the haulage track. This would not be the case if the line of pull of the haulage cable and the direction of force transmitted through the arm 18^a should intersect at some point beyond the rear of the car, but if they intersect as with the construction here shown at a point between the forward and rear wheels the resultant of the forces sustained by the rails will be such as to hold the wheels firmly on to the rails regardless of the load transmitted or the steepness of the grade.

Preferably, the shifter member is actuated automatically, and preferably the movement of this member is controlled by the movement of the haulage car, so that the shifter member will be automatically swung to its upper inoperative position when the car starts down the track or away from the car handling apparatus, and will be swung downwardly to car engaging or operative position when the haulage car is moved forwardly or toward the car handling apparatus. While various instrumentalities may be utilized to accomplish this result, in the embodiment of my invention here shown I utilize an endless rope or cable 25, which is substantially co-extensive with the length of travel of the haulage car, and is adapted to be moved back and forth by the haulage car. This friction cable passes about suitable sheaves, and at one point it takes a turn about a drum 26 engaged by suitable friction members 27 so as to impose a suitable resistance to the movement of the cable, and so that the movement of the cable will be retarded when the car first starts either forwardly or rearwardly. This cable is

connected to the haulage car by a pivoted arm 28 which is carried by the haulage car and in this instance is mounted on a shaft 29 at the rear of the car. The shaft 29 is provided with a bevel gear 29^a which engages a second bevel gear 29^b on the end of shaft 19 to which the shifter member 18 is attached. This arm has a range of annular movement illustrated by the full and dotted lines in Fig. 8, and this range of movement is such as to cause the shifter member to be swung from operative position to inoperative position and vice versa.

The operation may be briefly described as follows:—When the haulage car travels down the incline or away from the car handling apparatus, the friction device including the drum 26 and the brake or friction members engaging the same will cause sufficient resistance to the actuation of the cable 25 that there will be a slight lost motion between the haulage car and the cable when the haulage car starts. The arm 28 will therefore at the start of the haulage car down the incline swing from the position shown by full lines to the position shown by dotted lines. This elevates the shifter member to its inoperative position shown by dotted lines in Fig. 9. Thereupon the haulage car may move down the track and may pass a car on the main track if one happens to be spotted or in position on the main track when the haulage car moves down the incline or away from the car haulage apparatus. It will be understood that after the arm 28 has reached the dotted line position, the cable will be shifted with the haulage car, and the resistance to movement imposed on the cable will hold the shifter member in the position stated until the direction of movement of the haulage car is reversed. When the haulage car reaches the end of its travel it will be at the rear of the car on the main track or beyond the position in which the car on the main track will be spotted. Thereupon, when the haulage car is moved forwardly, the cable will first shift the arm to the full line position, and this turns the shaft 19 so as to swing the shifter member to its lower operative position, so that the free end of the arm 18^a will be in position to engage the corner of the car on the main track. The shifter member remains in this position until the direction of movement of the haulage car is again reversed.

Having thus described my invention, what I claim is:—

1. In a car haulage system, in combination with a main track for cars to be shifted, a haulage track at the side of the main track having an elevated rail and a lower rail, and a haulage car on said haulage track, having a member adapted to engage a car on the main track, and having one or more elevated wheels adapted to transmit side thrust to the elevated rail.

2. In a car haulage system, in combination with a main track for cars to be handled, a haulage track at the side of the main track, comprising a lower inner rail and an elevated outer rail turned inwardly toward the main track, a haulage car on the haulage track, and provided with means adapted to engage the car on the main track to shift the same, and having wheels which engage the lower rail and a wheel or wheels adapted to engage the elevated rail.

3. In a car haulage system, in combination with a main track for cars to be handled, a haulage track at the side of the main track, comprising a lower inner rail and an elevated outer rail turned inwardly toward the main track, a haulage car on the haulage track, and provided with means adapted to engage the car on the main track to shift the same, and having wheels which engage the lower rail and a wheel or wheels adapted to engage the elevated rail, and arranged in a plane at substantially right angles to the plane of the wheels which engage the lower rail.

4. In a car haulage system, in combination with a main track for cars to be handled, a haulage track at the side of the main track, and including an elevated rail adapted to receive side thrust on the haulage car, a haulage car on said track, and having wheels which engage the rails thereof, and a car shifter member carried by said haulage car and adapted to be moved to one position such that it will engage a car on the main track or to another position such that the haulage car may pass a car on the main track.

5. In a car haulage system, in combination with a main track for cars to be handled, a haulage track at the side of the main track, and including an elevated rail, a haulage car on said track, and having wheels which engage the rails thereof, and a car shifter member carried by said haulage car and adapted to be moved to one position such that it will engage a car on the main track or to another position such that the haulage car may pass a car on the main track, and means for automatically shifting said member.

6. In a car haulage system, in combination with a main track for cars to be handled, a haulage track at the side of the main track, and including an elevated rail, a haulage car on said track, and having wheels which engage the rails thereof, and a car shifter member carried by said haulage car and adapted to be moved to one position such that it will engage a car on the main track, or to another position such that the haulage car may pass a car on the main

track, and means controlled by the movement of the haulage car for shifting said member.

7. In a car haulage system, in combination with a main track for cars to be handled, a haulage track at the side of the main track, and including an elevated rail, a haulage car on said track, and having wheels which engage the rails thereof, and a car shifter member carried by said haulage car and adapted to be moved to one position such that it will engage a car on the main track or to another position such that the haulage car may pass a car on the main track, and friction means controlled by the movement of the car for automatically shifting said member.

8. In a car haulage system, in combination with a main track for cars to be handled, a haulage track adjacent the main track, a haulage car on said track, a movable shifter member carried by said haulage car, and adapted to be shifted to one position to engage a car on the main track or to another position such that the haulage car may pass a car on the main track, and means comprising a lost motion device operatively connected to said shifter member for actuating the same.

9. In a car haulage system, in combination with a main track for cars to be handled, a haulage track at the side of the main track, a haulage car on said track, a movable shifter member carried by said haulage car, and adapted to be shifted to one position to engage a car on the main track or to another position such that the haulage car may pass a car on the main track, and means comprising a cable operatively connected to said shifter member for actuating the latter.

10. In a car haulage system, in combination with a main track for cars to be handled, a haulage track adjacent the main track, a haulage car on said track, a movable shifter member carried by said haulage car, and adapted to be shifted to one position to engage a car on the main track and to another position such that the haulage car may pass a car on the main track, and means comprising a friction retarded cable operatively connected to the shifter member for actuating the same.

11. In a car haulage system, in combination with a main track for cars to be handled, a haulage track adjacent the main track, a haulage car on said track, a movable shifter member carried by said haulage car, and adapted to be shifted to one position to engage a car on the main track, and to another position such that the haulage car may pass a car on the main track, and means comprising a friction retarded endless cable operatively connected to said shifter member for actuating the same.

12. In a car haulage system, a haulage car comprising a wheeled body, and a movable shifter member adapted to engage a car to be handled and comprising a pivoted base member and an arm movably attached to said base member.

13. In a car haulage system, a haulage car comprising a wheeled body, a car shifter member carried thereby and comprising a pivoted base and an arm pivotally connected to the base.

14. In a car haulage system, a haulage car comprising a wheeled body, a movable shifter member carried by said body, and comprising a base and an arm connected to and yieldingly supported by said base, said arm being adapted to engage the car to be shifted.

15. In a car haulage system, a haulage car comprising a wheeled body, a rotatable shaft carried thereby, a movable shifter member carried by said shaft, and comprising a base member secured to the shaft and an arm connected to and yieldingly supported thereby.

16. In a car haulage system, a haulage car comprising a wheeled body, a pivoted shifter member carried by said member and adapted to engage the car to be handled, and means for attaching a car haulage cable to said body substantially in line with the pivotal axis of the shifter member.

17. In a car haulage system, a haulage car comprising a wheeled body, having lower and side wheels and a movable shifter member adapted to swing to upright position or laterally in a direction away from said side wheels.

18. In a car haulage system, a haulage car comprising a wheeled body, a shaft rotatably supported by said body, and extending longitudinally thereof, a movable shifter member attached to said shaft, and a haulage cable attached to the body substantially in line with the shaft.

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

MILTON D. JONES.

Witnesses:
A. F. KWIS,
T. A. BARCO.