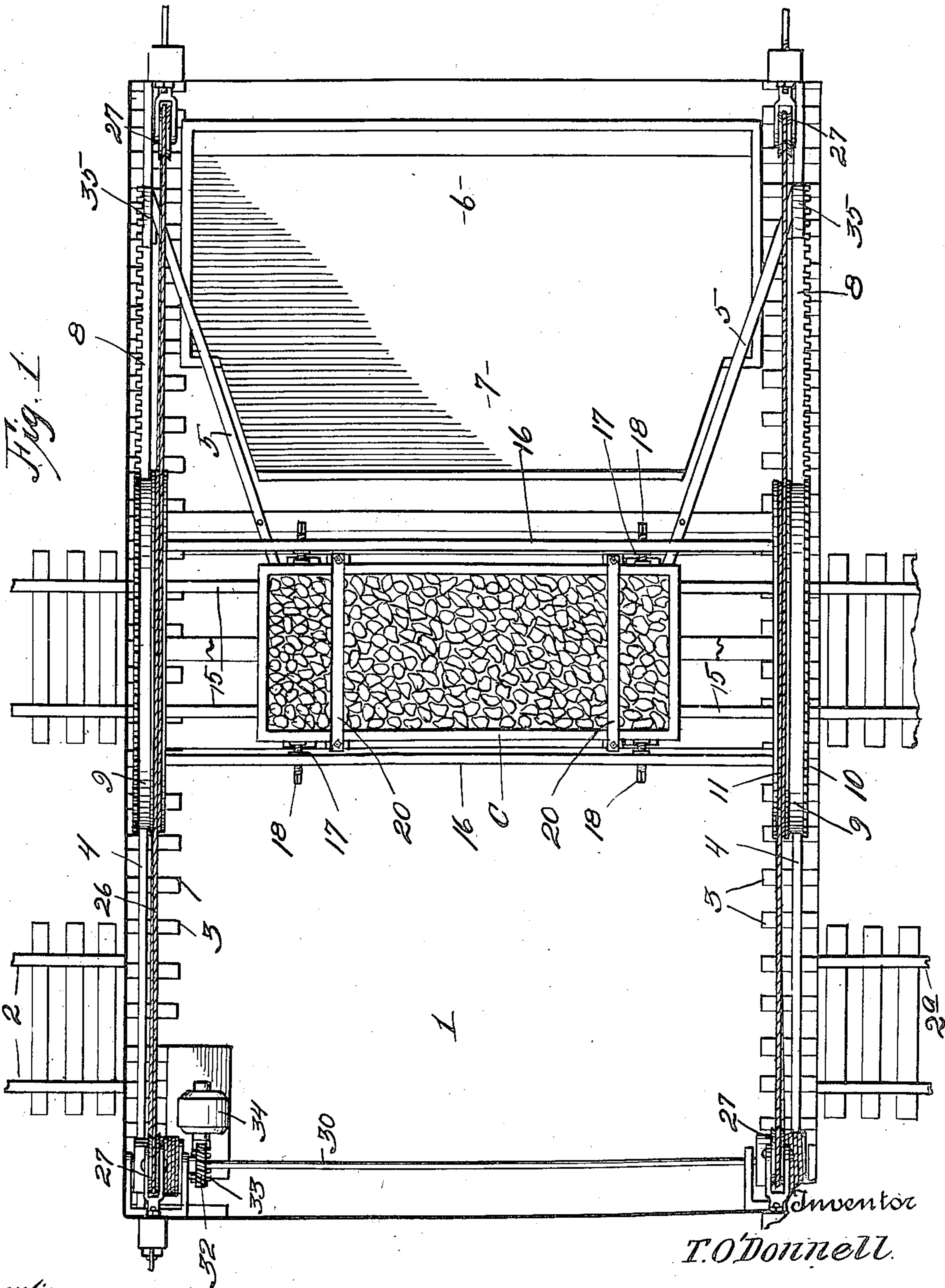


Jan. 2, 1923.

1,440,888

T. O'DONNELL.  
CAR UNLOADING APPARATUS.  
FILED JULY 6, 1920.

2 SHEETS-SHEET 1



Witness:

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2 SHEETS-SHEET 2

Fig. 2

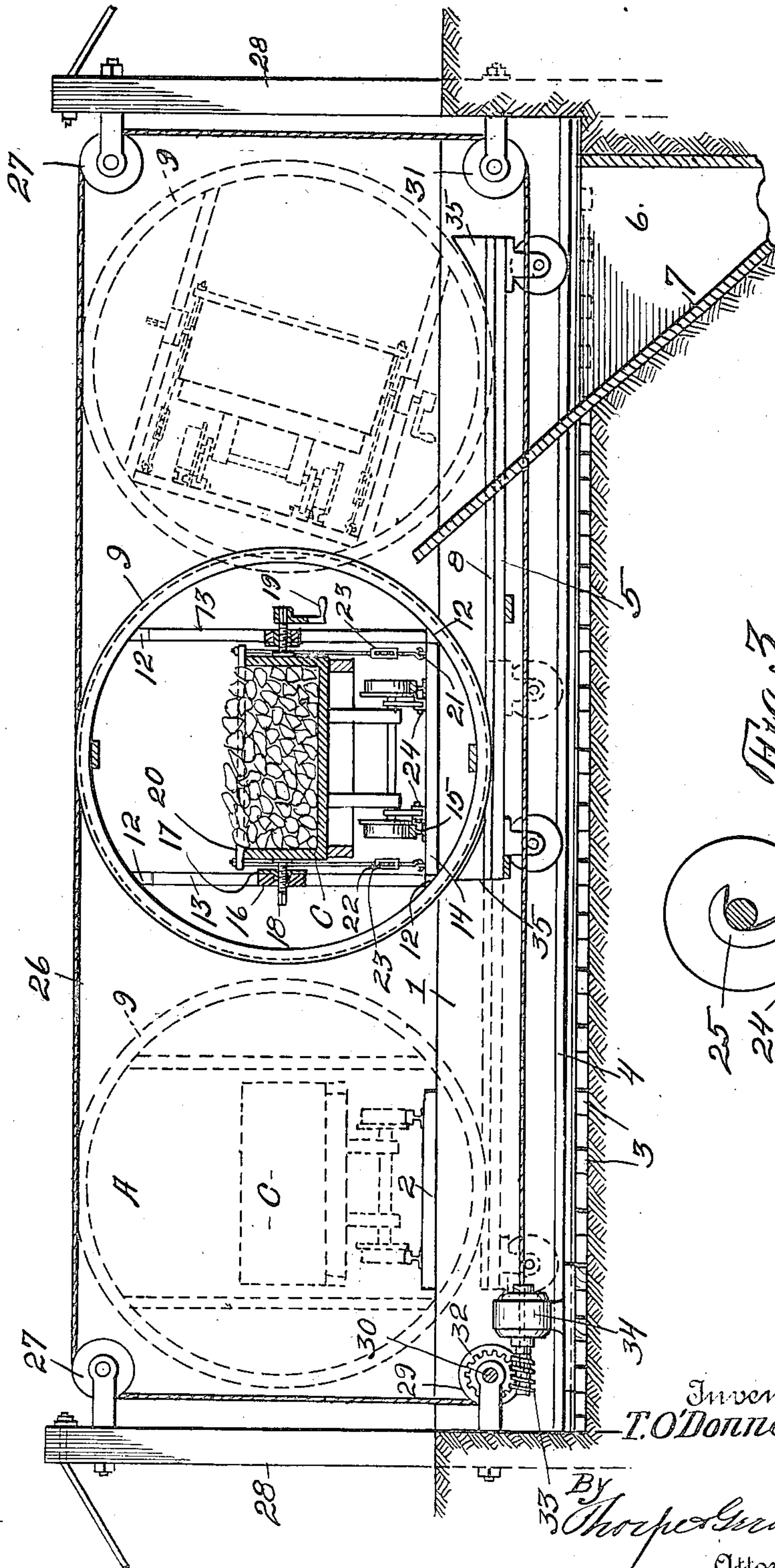
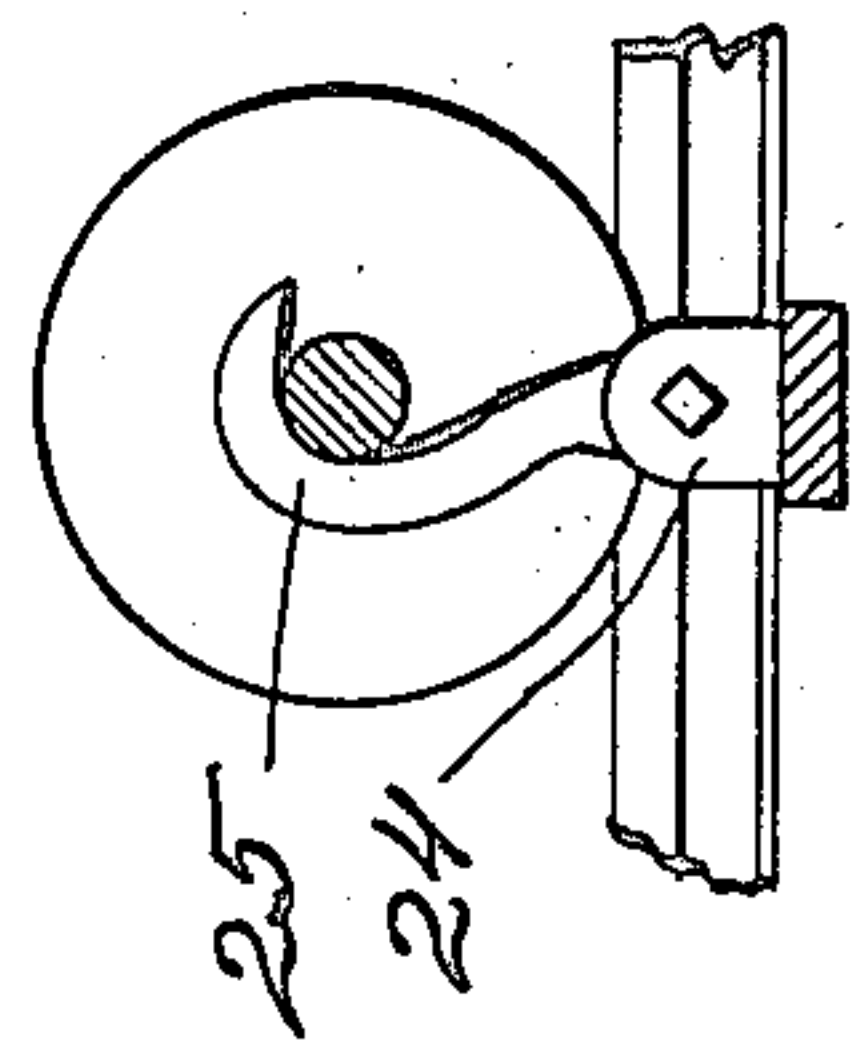


Fig. 3



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Attorney



# UNITED STATES PATENT OFFICE.

TERENCE O'DONNELL, OF KANSAS CITY, MISSOURI.

CAR-UNLOADING APPARATUS.

Application filed July 6, 1920. Serial No. 394,024.

*To all whom it may concern:*

Be it known that I, TERENCE O'DONNELL, a citizen of the United States, and resident of Kansas City, in the county of Jackson and State of Missouri, have invented a certain new and useful Improvement in Car-Unloading Apparatus, of which the following is a complete specification.

This invention relates to car unloading apparatus, and is designed more especially for use in coal yards and the like.

In the typical coal yard there is a railroad spur of limited capacity, which ends in the yard, and when a car is run into the yard it is usually necessary to unload and withdraw the car promptly to avoid undue congestion in the yard. If there is but a single track, it is blocked until the car can be unloaded and run out of the yard, and if it is not convenient for the railroad company to remove the car promptly, the operator of the coal yard may be seriously inconvenienced. On the other hand conditions may be such that it is impossible for the yard operator to unload when the railroad company is prepared to remove the car.

My object therefore is to produce unloading apparatus for not only avoiding material congestion and delay of operations in such a yard, but also for facilitating the actual unloading operation, and for shunting a loaded car laterally from the track to leave the same open to the passage of other cars into or through the yard, and for returning the car to the track when the yard operator and railroad company are both prepared for its removal.

With these objects in view the invention consists in certain novel and useful features of construction and combinations of parts as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawings, in which:—

Fig. 1 is a plan view of unloading apparatus for cars, embodying the invention.

Fig. 2 is a central vertical longitudinal section of the construction shown by Figure 1.

Fig. 3 is a detailed sectional view showing one of the series of devices for securing a car upon its track preliminary to the dumping operation.

Referring to the drawings indicated a

trench of considerable length and greater width than the length of a car, which trench is located within the yard at one end of a spur track 2 therein, though where the track extends completely through the yard, the trench will be located between the spur track 2 and an extension or continuation 2<sup>a</sup> thereof. Provided within the trench and along the sides thereof are ties 3 for a pair of tracks 4 extending at right angles to the spur track 2, and mounted upon the track rails 4 is a skeleton truck 5. This truck can be moved along by means of a pinch-bar or other means may be provided for effecting its travel upon said rails. At the opposite end of the trench from that contiguous to the spur track 2 is a hopper 6, through which coal or the like unloaded from a car, may pass to a weighing machine, not shown, or to a suitable bin, not shown, for discharge onto a weighing mechanism. The hopper will exceed a car in length, and the inner or inclined wall 7 of the hopper on which the contents of the car are dumped, projects to or above the level of spur track 2, the said wall narrowing toward its upper end, where it corresponds substantially to the length of a car.

The truck is provided with parallel track rails 8 each formed with rack-bar teeth along its outer edge, as shown clearly by Figure 1, and mounted to roll upon the truck is a skeleton drum, consisting of a pair of rollers 9 resting on said tracks and provided at their outer edges with teeth 10 meshing with the teeth of the track bars 8. At their inner sides the rollers 9 are flanged to form annular grooves 11, for a purpose which herein after appears. The rollers 9 are rigidly connected together by longitudinal tie bars 12, connected in pairs by vertical struts 13, and the lower pair of tie bars 12 are connected by cross ties 14 which, when the skeleton drum is in operative position, or horizontal, occupies the same horizontal plane as the ties of the spur track 2, and mounted upon said ties 14 are track rails 15, which, when the skeleton drum is in position A, form a continuation of the spur track, so that a car may pass from the spur track into the drum and upon the rails 15 thereof—in fact may pass over the last mentioned rails and onto the extension 2<sup>a</sup> of the spur track. The skeleton drum will be of such



size that a box car may pass through it in the event of the necessity, so that a coal car or the like as indicated at C, shall, when standing within the drum, have its load  
5 about the center of the drum so that the latter can be rolled readily by one or two men with pinch bars.

The rolling of the drum with a car therein is for the purpose of tilting the car side-  
10 wise to dump its contents into the hopper or to restore the car to upright position preliminary to its removal, and during such dumping and return action of the car, the same must be secured rigidly in place. To  
15 accomplish this the struts 13 at corresponding sides, are connected by longitudinal beams 16 provided at two or more points at their inner sides with plates 17 for clamp-  
20 ing screws 18 squared at their outer ends, so that by means of a crank handle 19, the screws may be operated to clamp the body of the car firmly in position to guard against lateral shifting or movements thereof. It is  
25 also necessary to anchor the car against vertical movement, in fact it is necessary to anchor the body and the trucks independently because of the yielding relation between them due to the use of the customary car springs, not shown. To anchor the body  
30 a plurality of cross bars 20 will be used to bridge the top of the body and extending downward from the ends of said bars and hooked as at 21 to the cross ties 14, are ex-  
35 tensible tie rods 22, the same being preferably of that type made extensible by means of turn buckles 23. To anchor the trucks, brackets 24 are mounted on the cross ties 14, are equipped with pivoted hooks 25 to be  
40 hooked over the axles of the trucks. Of course any other suitable mechanism for securing the car firmly and rigidly in position may be employed, as the particular means for secur-  
45 ing it rigidly within the drum may be varied without departing from the principle of construction involved. As here before  
50 stated the drum may be caused to travel upon the truck by the use of pinch bars or otherwise, but some means must be provided for holding the drum firmly against rotation  
55 or rolling action when a car is to be run into the same or out of the same. In the drawings two endless cables 26 are provided, each being formed with a loop or loops consist-  
60 ing of one or more convolutions respectively engaging the groove 11 of one of the rollers of the drum, as shown most clearly by Figure 1. From the top portion of the rollers of the drum the cables extend in both direc-  
65 tions and around suitably supported guide sheaves 27, the supports for said sheaves being numbered 28. From the sheaves 27 at one end of the drum 29 mounted upon a shaft 30, the corresponding parts of the cables extending downward from the other sheaves 27 and then around sheaves 31 in the trench,

and then to the drum 29. The shaft 30 is equipped with a worm-wheel 32 meshing with a worm 33 on the shaft of a motor 34. By this arrangement it will be found that when the motor is operated in one direction, 70 the loops in the cables will cause the skeleton drum to roll upon the track rails of the truck and that reverse operation of the motor will effect reverse rolling travel of the drum upon said track rails. The proper 75 control of the motor will limit the rolling travel of the drum but as a precautionary measure it may be desirable to provide the truck with end top 35, and thus guard against any possibility of the drums rolling 80 off the truck. Assuming that the truck and drum are in the position shown by dotted lines, Figure 2, it will be apparent a car can be run or pushed from track 2 into the drum and upon the track rails 15 thereof, or if 85 track 2 was provided as a means of exit for unloaded cars, and a second or similar track 2<sup>a</sup> was utilized for incoming loaded cars, the truck and drum would occupy the position shown by full lines, Figure 2. In the for- 90 mer case the truck would first be moved to the right to the position shown by full lines, and then the motor would be started to roll the drum to the right from the position shown by full lines to the position shown 95 by dotted lines, in which position it will be noticed the car overlies the hopper and has dumped its load therein. With the truck initially in the position shown by the full lines, no movement of the truck would be 100 necessary, but the drum would simply be rolled to the right as explained, in order to dump its contents into the hopper. The drum would then be rolled backward to its initial position, this operation being suf- 105 ficient in one case to restore its track rails 15 to alignment with the track rail 2<sup>a</sup> so that the car could be run upon the latter, or in the first eventuality, the truck would be moved to the left after the drum was rolled 110 back to dispose the car in upright position, so that the latter could be run off of track 15 onto the track rails 2 or the extension 2<sup>a</sup> thereof.

It will be apparent that by means of un- 115 loading apparatus of the character described, the work of unloading and disposing of cars could be greatly facilitated over present methods and effect not only economy in the cost of handling the cars but a conservation 120 of valuable space within the coal yard and this is true of whether or not the cars have to leave over the same track by which they entered the yard.

From the above description it will be 125 apparent that I have produced car unloading apparatus embodying the features of advantage set forth as desirable in the statement of the object of the invention, and which is susceptible of modification in va- 130



rious particulars without the departing from the principle of construction and mode of operation involved.

I claim:

- 5 1. A car unloading apparatus, comprising an entry track, a track running transversely of said entry track and below the level of the same, a truck adapted for moving on said second track, a rotary car unloading drum adapted for rolling on said truck and transversely of the first-named track, and a third track in said drum adapted to be positioned in alinement with said first-named track.
- 15 2. A car unloading apparatus, comprising an entry track, a track running transversely of said entry track and below the level of the same, a truck adapted for moving on said second track, means for moving said truck, a rotary car unloading drum adapted for rolling on said truck trans-
- 20

versely of said entry track, means for rolling said drum, and a third track in said drum adapted to be positioned in alinement with said entry track.

- 25 3. A car unloading apparatus, comprising an entry track, a track running transversely of said entry track and below the level of the same, a truck adapted for moving on said second track, a rack bar on said truck, means for moving said truck, a rotary car unloading drum adapted for rolling on said truck transversely of said entry track and having teeth in engagement with the rack bar of said truck, means for rolling said drum, and a third track in said drum adapted to be positioned in alinement with said entry track.
- 30 35

In testimony I hereunto affix my signature.

TERENCE O'DONNELL.