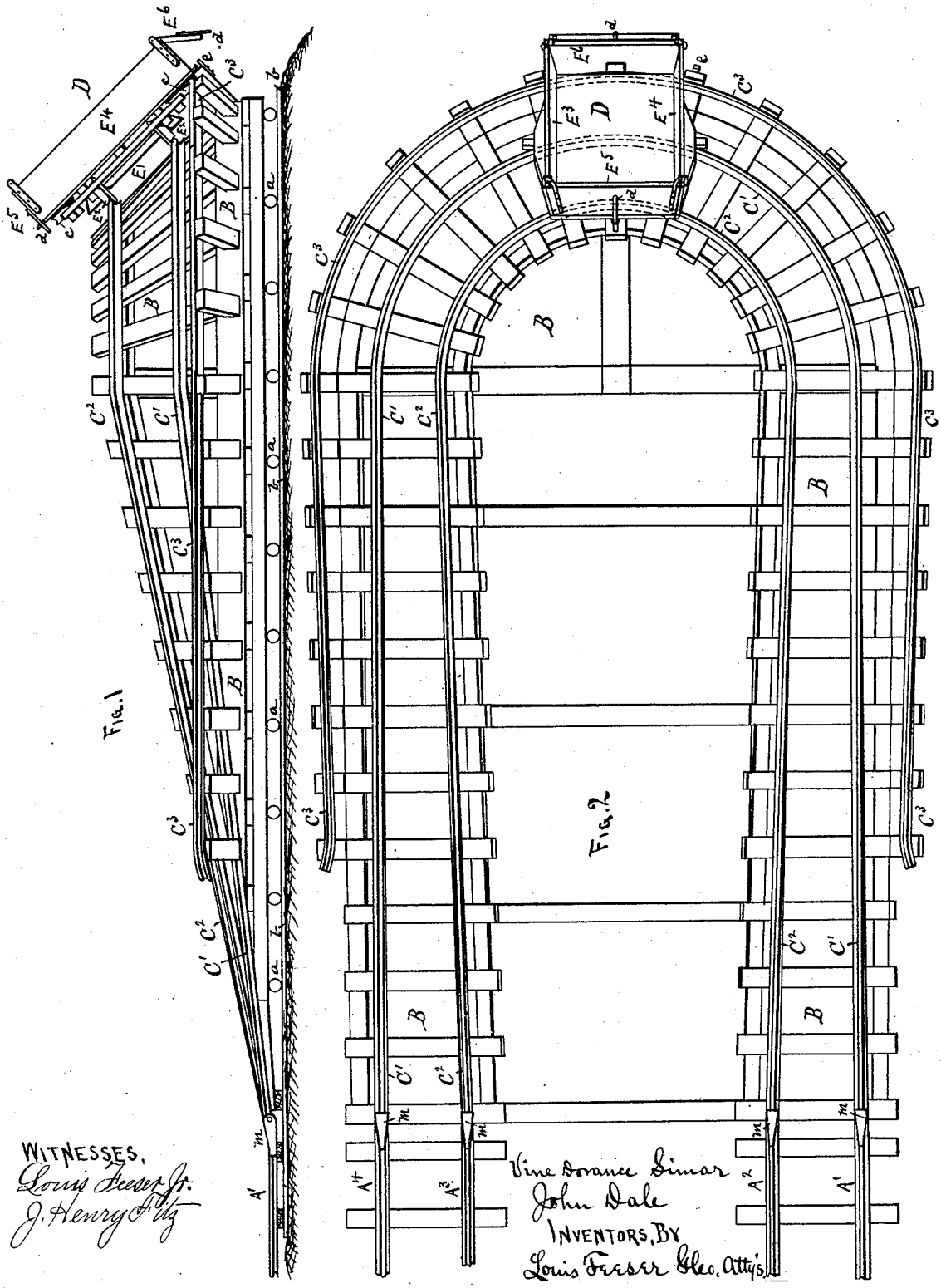
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CAR UNLOADING APPARATUS.

No. 282,125. Patented July 31, 1883.



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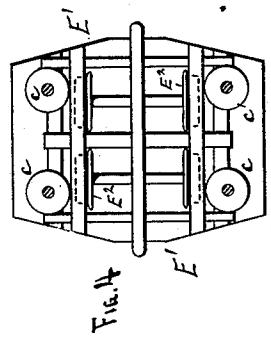


Fig. 4

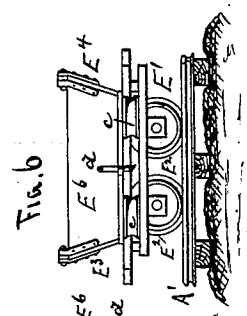


Fig. 6

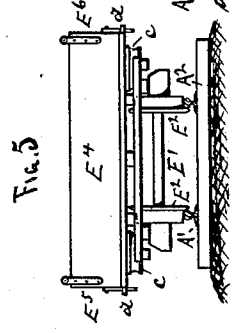


Fig. 5

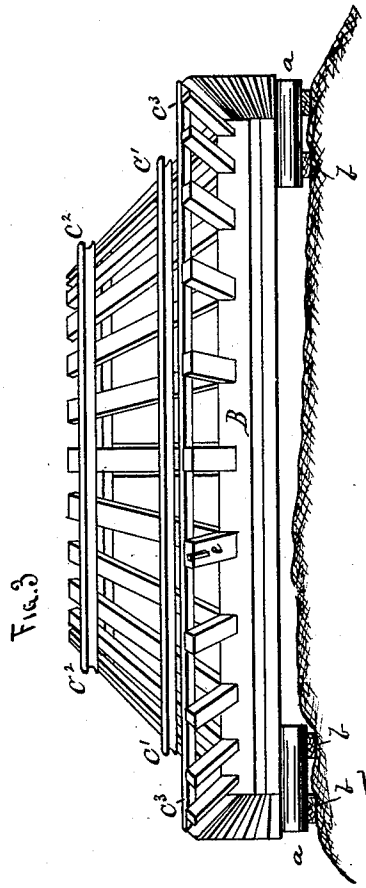


Fig. 3

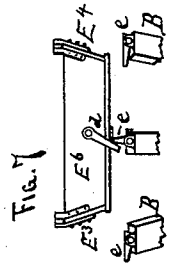


Fig. 7

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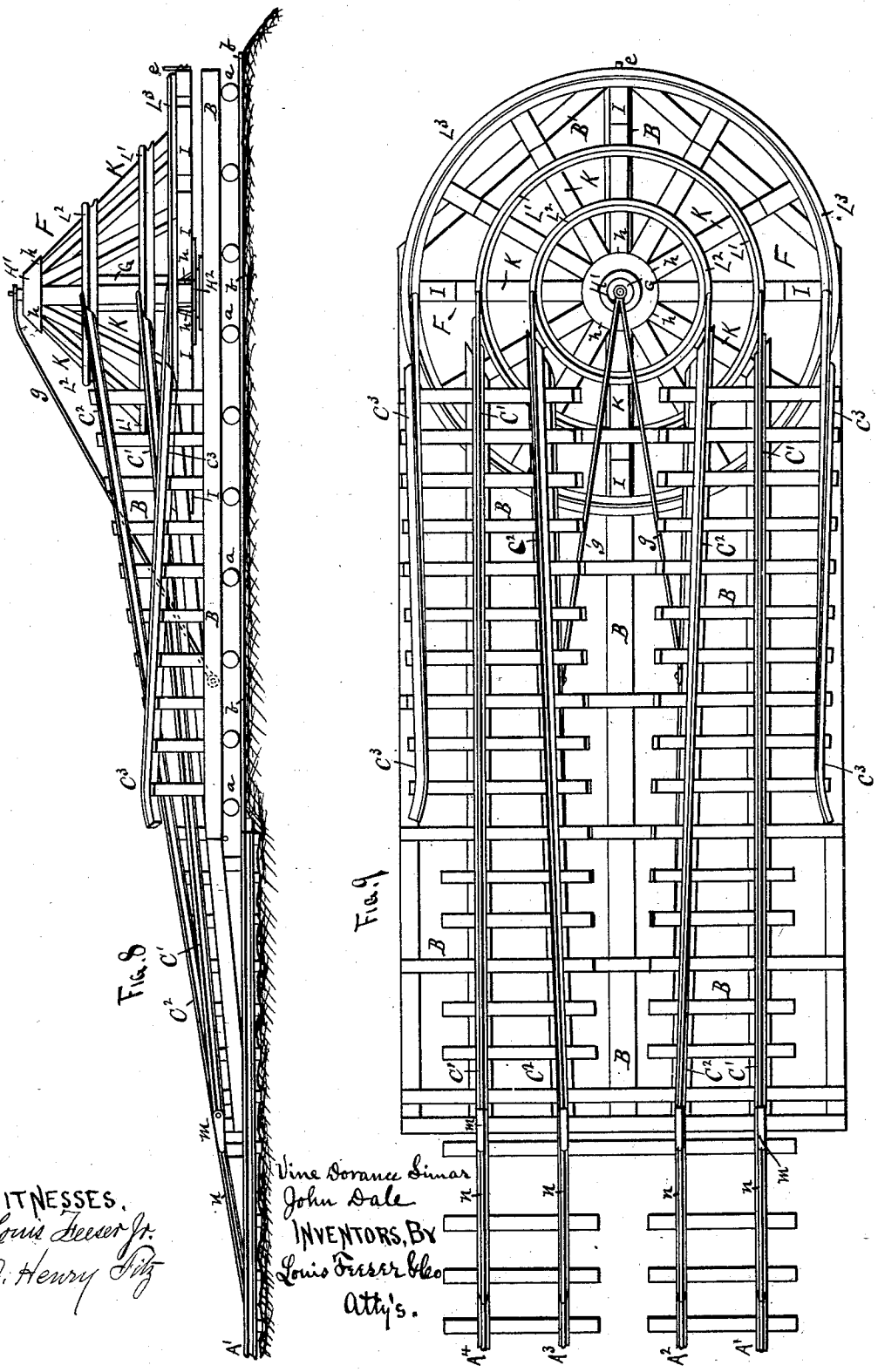


Fig. 8

Fig. 9

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UNITED STATES PATENT OFFICE.

VINE D. SIMAR AND JOHN DALE, OF ST. PAUL, MINNESOTA.

CAR-UNLOADING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 282,125, dated July 31, 1883.

Application filed December 19, 1882. (No model.)

To all whom it may concern:

Be it known that we, VINE DORANCE SIMAR and JOHN DALE, both citizens of the United States, and both residing at St. Paul, in the county of Ramsey, in the State of Minnesota, have jointly invented certain new and useful Improvements in Car-Unloading Apparatus, of which the following specification is a full, clear, and exact description, reference being also had to the accompanying drawings, in which—

Figure 1 is a side elevation. Fig. 2 is a plan view, and Fig. 3 is a front elevation of the inclined tracks and their supporting frame-work, with a car in the act of being unloaded, shown in Figs. 1 and 2. Figs. 4, 5, and 6 are details of the form of car used. Fig. 7 are details of the tripping mechanism for releasing the hinged sides of the cars. Fig. 8 is a side elevation, and Fig. 9 is a plan view illustrating a slight variation in the manner of constructing the apparatus.

This invention relates to devices or apparatus for unloading the small cars used in excavating in railroad-work and the like; and it consists in forming a portion of the track upon which the cars run with one of its rails gradually rising upward and then inclining downward, so that the cars in running over this inclined portion are tilted up on one side at a sufficient angle to cause the earth carried by them to be dumped out or unloaded. The section of the tracks in which this inclined portion occurs may be either straight or on a half-circle, as the work required may determine. The inclined section may be made a part of the main track upon which the cars run, or mounted upon a separate frame-work; and for the purpose of illustration we have shown the inclined portion arranged upon such an independent frame-work, adapted to be moved along as the "fill" progresses, as hereinafter shown.

In the drawings, $A' A^2$ represent the tracks over which the filled cars are run, and $A^3 A^4$ represent the return-tracks over which the empty cars return to the "cut" or place being excavated, the two tracks lying parallel with each other. Forward of the ends of these tracks $A' A^2$ and $A^3 A^4$ is arranged a frame-work, B, curved in the form of a letter **U**, as shown. Upon this frame B two rails, $C' C^2$, are arranged, the outer rail, C', connecting the ends of the rails $A' A^4$, and the inner rail, C^2, connecting the rails $A^2 A^3$. The frame B is mounted upon rollers *a*, running upon a plank, *b*, laid upon the top of the embankment as the work progresses, so that the frame B can be moved forward as fast as required. When the inclined section is made a fixed part of the system of tracks over which the cars run, the rail C' will be on the same plane as the tracks $A' A^2 A^3 A^4$; but when a movable frame B is used the timbers for supporting the tracks and forming the base of the frame necessarily cause the track C' to be arranged at a slight elevation above the tracks $A' A^4$, and with inclined approaches thereto.

We do not wish to confine ourselves to any particular form of the frame-work B, as any construction that will support the tracks in the position shown may be used.

In Figs. 1 and 2 the rails $C' C^2$ are shown connected to the rails $A' A^2 A^3 A^4$ by shoes *m*, and butting squarely against the ends of the rails $C' C^2$. This arrangement will be used where the frame B and its tracks $C' C^2$ remain for some time in one position, and require to be moved only at long intervals, and for a distance equal to a long rail, (usually from eighteen to twenty-four feet.) In this case the frame B will be run forward on its rollers and the tracks $A' A^2 A^3 A^4$ continued by inserting new rails. When, however, it is required to move the frame B forward—very frequently only a foot or two at a time—the construction shown in Figs. 7 and 8 will be used. This consists in continuing the rails $A' A^2 A^3 A^4$ for some distance beneath the frame B, and providing the lower ends of the rails $C' C^2$ with long "hinged shoes," *n*, which enable the cars to be run from the rails $A' A^2 A^3 A^4$ to the rails $C' C^2$ without a break, and the frame B may be moved along as far as the rails $A' A^2 A^3 A^4$ project beneath the frame without opening the joint between the two sets of rails. When the frame B has been moved along until the lower points of the shoes *n* have nearly reached the ends of the rails $A' A^2 A^3 A^4$, additional sections of rails will be inserted, and so on, as fast as the work progresses.

The inner rail C^2 is arranged, as shown, at

a much greater elevation than the rail C′, but retaining the same relative distance from it, and with its ends connecting the ends of the inner rails A^2 and A^3. By this arrangement a car when run from the track A′ A^2 over the rails C′ C^2 to the track A^3 A^4 will be gradually tilted up at an angle, as shown at D in Figs. 1 and 2, and then back again to its level position upon the track A^3 A^4.

It will thus be readily seen that if the lower hinged side of the car be unlatched when the car is tilted up at its greatest angle the load of earth will be discharged.

Outside of the rail C′ a third rail, C^3, will be arranged, upon which friction-wheels *e*, upon the sides of the car, run to assist in holding the car when running in its inclined position, and remove a portion of the strain from the flanges of the wheels of the cars and prevent the cars being overturned.

The cars may be constructed in any well-known manner, but the form shown in Figs. 1, 2, 4, 5, and 6 will be the most simple, and will operate in a satisfactory manner. They consist of a truck, E′, having the usual flanged wheels, E^2, adapted to fit the rails A′ A^2 A^3 A^4 C′ C^2, and a box for holding the load, the latter consisting of the fixed sides E^3 E^4 and hinged sides E^5 E^6. Each of the sides E^5 E^6 is provided with a latch or catch, *d*, adapted to be tripped, automatically or otherwise, to allow the sides E^5 E^6 to be opened in dumping the load.

Small hinged dogs or trips *e* (see Fig. 7) may be arranged upon the ends of the timbers or ties supporting the rail C^3 to disengage the latches *d* and allow the side E^5 or E^6 to open as the cars pass around the frame B, and thus automatically discharge the load from them. These catches *d* may be made removable, so that they may be set at any point at which it is desired to discharge the load, or a number of them may be employed, and all of them turned down so as not to operate, except the one at the point where the load is to be discharged.

The opposite ends of the rails A′ A^2 and A^3 A^4 may be curved around and connected to each other at the point where the cars are to be loaded, so that the cars may be run around in a complete circuit, and thus no time be lost in changing the cars by switching.

If a sufficient power can be applied, a complete chain of cars can be kept running around the tracks and frame, and by using an excavator to fill the cars, and by dumping by this apparatus, the cars may be operated continuously.

In Figs. 8 and 9 a turn-table, F, is shown arranged in the curved end of the frame B, around which the cars run to render their action more easy. This turn-table may be made in any desired form; but in the drawings a fixed central post, G, is shown mounted upon the base-frame B and held rigidly by braces *g*. Encircling the upper and lower ends of this post are metal collars, over which metal rings H′ H^2 fit, and are adapted to be revolved easily. Each of the rings H′ H^2 is provided with sockets *h*.

Into the sockets on the collar H^2 the ends of arms I are fixed, and branching outward radially from the post G and into the sockets *h* in the upper ring, H′, the upper ends of angular braces or ties K′ are fixed, while their lower ends are fixed upon the upper sides of the arms I, as shown.

Around the outer ends of the arms I and around the outer surfaces of the ties K are fixed circular tracks L′ L^2 L^3, corresponding to the three tracks C′ C^2 C^3 in Figs. 1, 2, and 3. The tracks C′ C^2 C^3 in this construction end at the points where they come in contact with the tracks L′ L^2 L^3, and having their ends chamfered off and lapping over the upper surfaces of the rails L′ L^2 L^3, so that the cars will run from the tracks C′ C^2 C^3 upon the tracks L′ L^2 L^3, and by the ability of the arms I and ties K to revolve about the post G the turn-table acts in the same manner as a chain-pulley when the chain of cars are drawn around them, and thereby greatly reduce the friction.

Friction-rollers may be placed on the frame B beneath the outer ends of the arms I, if required.

Having described our invention and set forth its merits, what we claim is—

1. The combination of a traveling-car and a track for the same to run over, inclined longitudinally and transversely, so as to elevate one side of the car as it ascends the track, and lower the same side as it descends the track, whereby the load can be discharged from the car, substantially as and for the purpose set forth.

2. The movable frame provided with a track inclined longitudinally and transversely, so as to be adapted to raise and then lower one side of a car that may be run thereover, whereby the load can be discharged from the car, substantially as and for the purpose set forth.

3. The combination of a traveling car, a movable frame, and a track for the car to run over, laid on a curve upon the frame, with one rail of the track inclined in the same direction on both sides of the curve, whereby one side of the car will be elevated and then lowered in traveling around the curve, substantially as and for the purposes specified.

4. The combination of a traveling car, a track for the same to run over, inclined longitudinally and transversely, so as to elevate and then lower one side of the car as it travels over the track, and a supplemental track connecting with the car to aid in holding the car on the track, substantially as and for the purpose set forth.

5. The combination of a traveling car provided with a hinged side, a track for the car to run over, inclined longitudinally and transversely, so as to elevate and then lower one side of the car as it travels over the track, and

means for automatically unfastening the hinged sides of the car at the unloading-point, substantially as and for the purpose specified.

6. The combination of the movable frame, the track thereon, inclined longitudinally and transversely, so as to elevate and then lower one side of a car that may be run thereover, the immovable track, and a shoe for connecting the movable and immovable tracks, substantially as and for the purpose set forth.

7. The combination of the traveling car provided with a hinged side and supplemental side rollers or wheels, the track for the car to run over, inclined longitudinally and transversely, so as to elevate and then lower one side of the car as it travels over the track, and the supplemental track for the supplemental side wheels to bear against, substantially as and for the purpose set forth.

8. The combination of a traveling car, a track for the same to run over, inclined longitudinally and transversely, so as to elevate and then lower one side of the car as it travels over the track, and a turn-table located between the opposite inclines of the track, and provided with a track corresponding to the inclined track, substantially as and for the purpose specified.

9. The car provided with hinged sides and supplemental side wheels, substantially as and for the purpose set forth.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

VINE D. SIMAR.
JOHN DALE.

Witnesses:
C. N. WOODWARD,
LOUIS FEESER, Sr.