

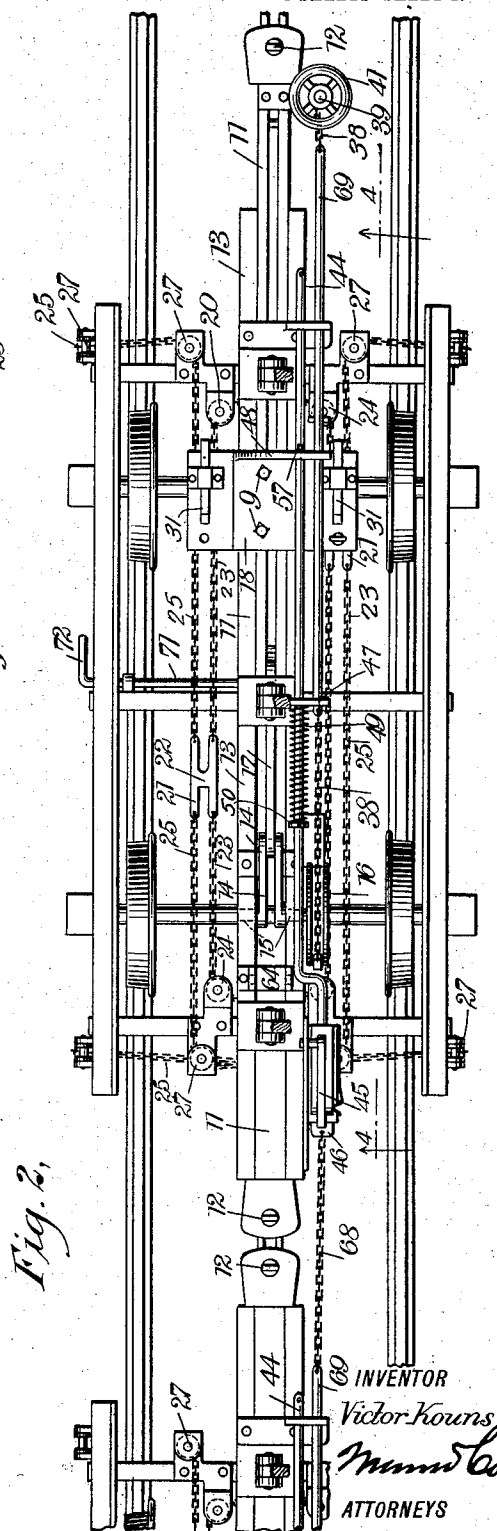
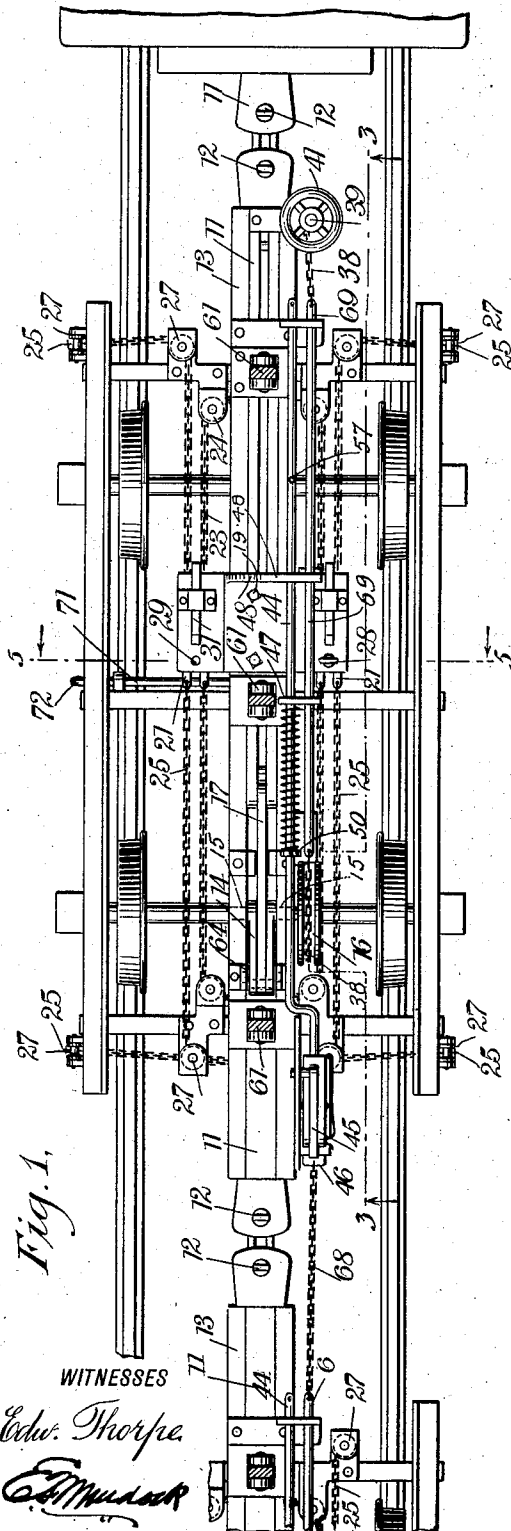
V. KOUNS.
DUMPING CAR.

APPLICATION FILED JUNE 15, 1911.

1,021,686.

Patented Mar. 26, 1912.

4 SHEETS-SHEET 1.



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4 SHEETS—SHEET 2.

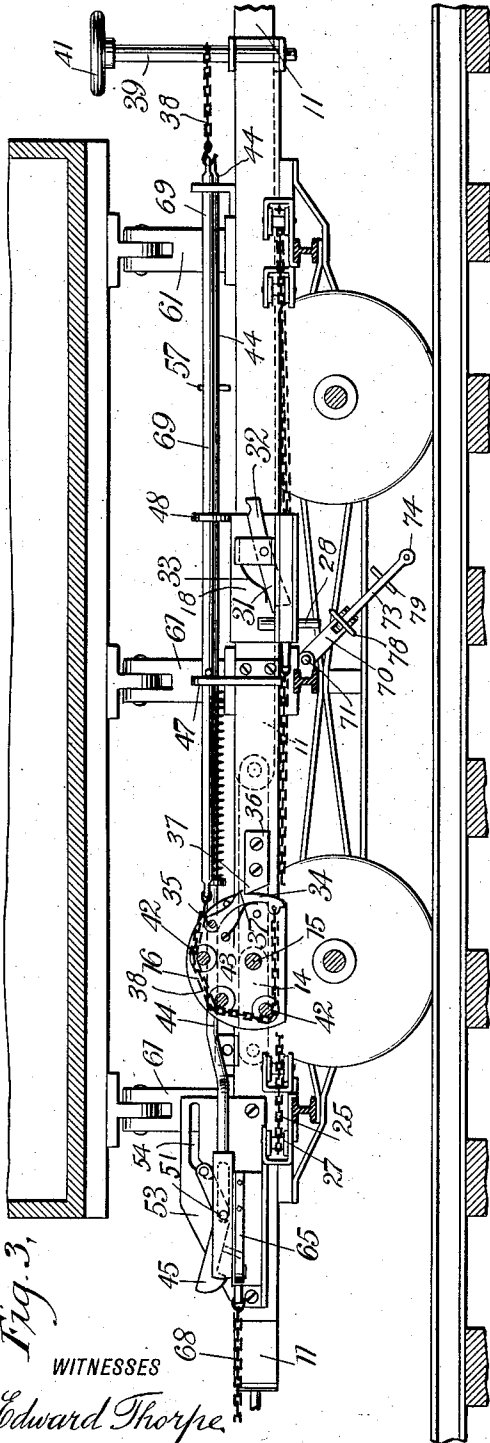
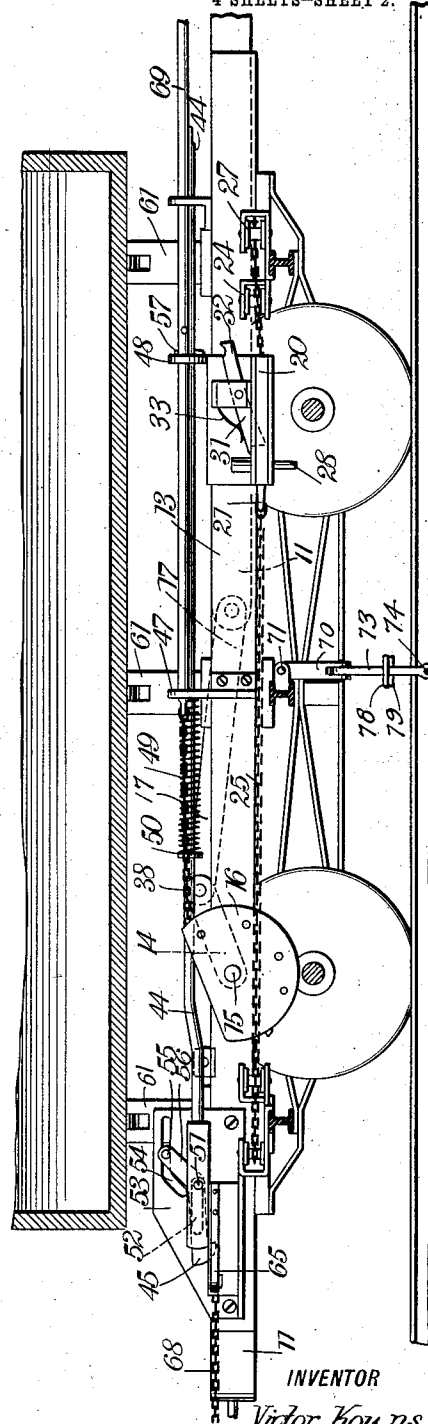


Fig. 3.

WITNESSES

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Fig. 4.



INVENTOR

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ATTORNEYS

Fig. 5,

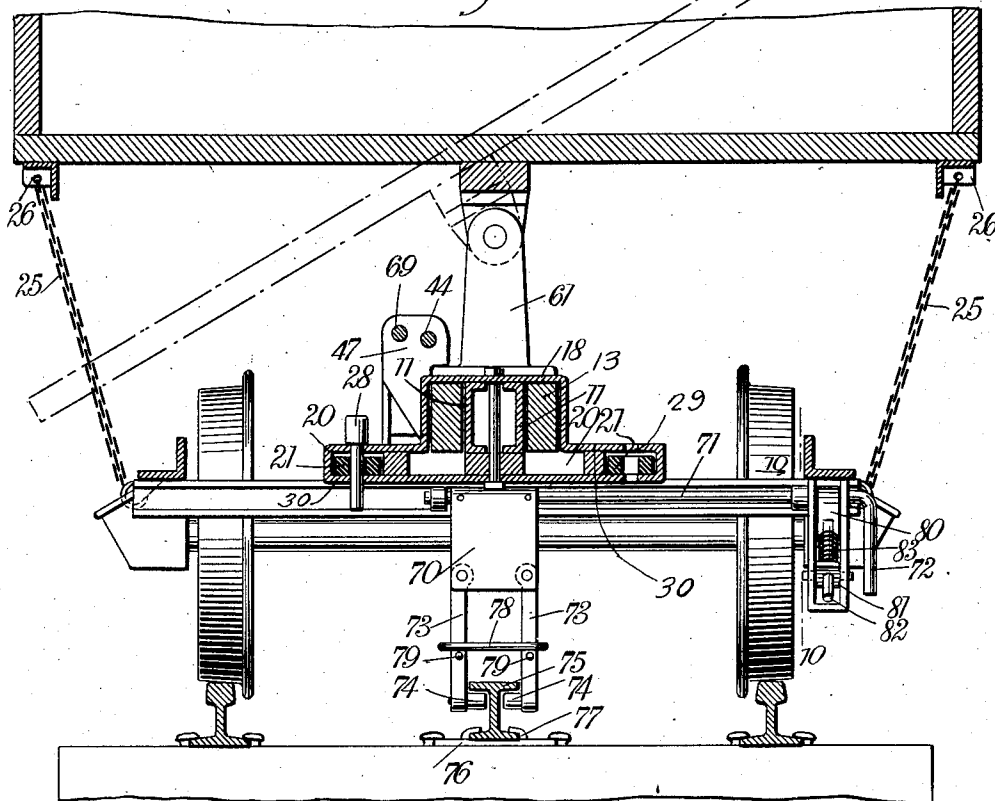


Fig. 6,

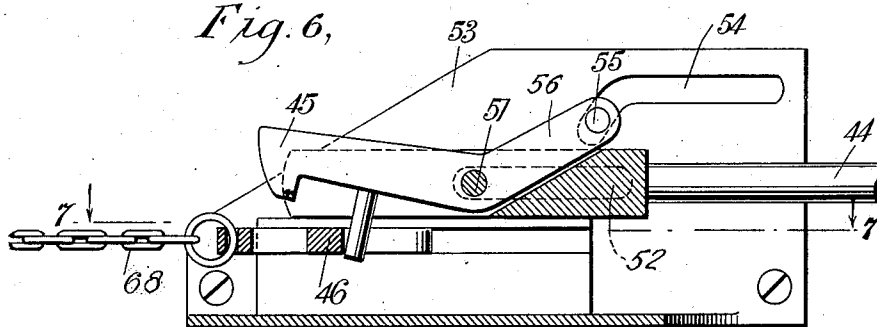
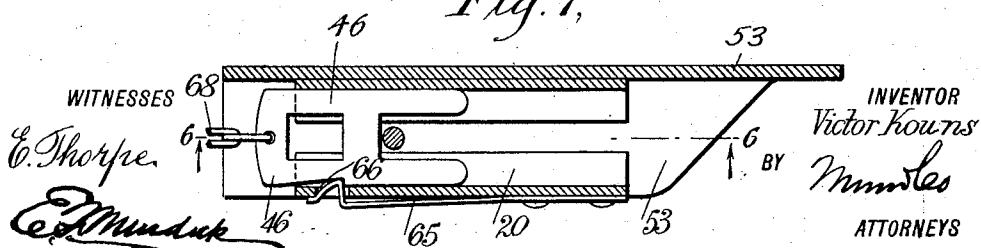


Fig. 7,

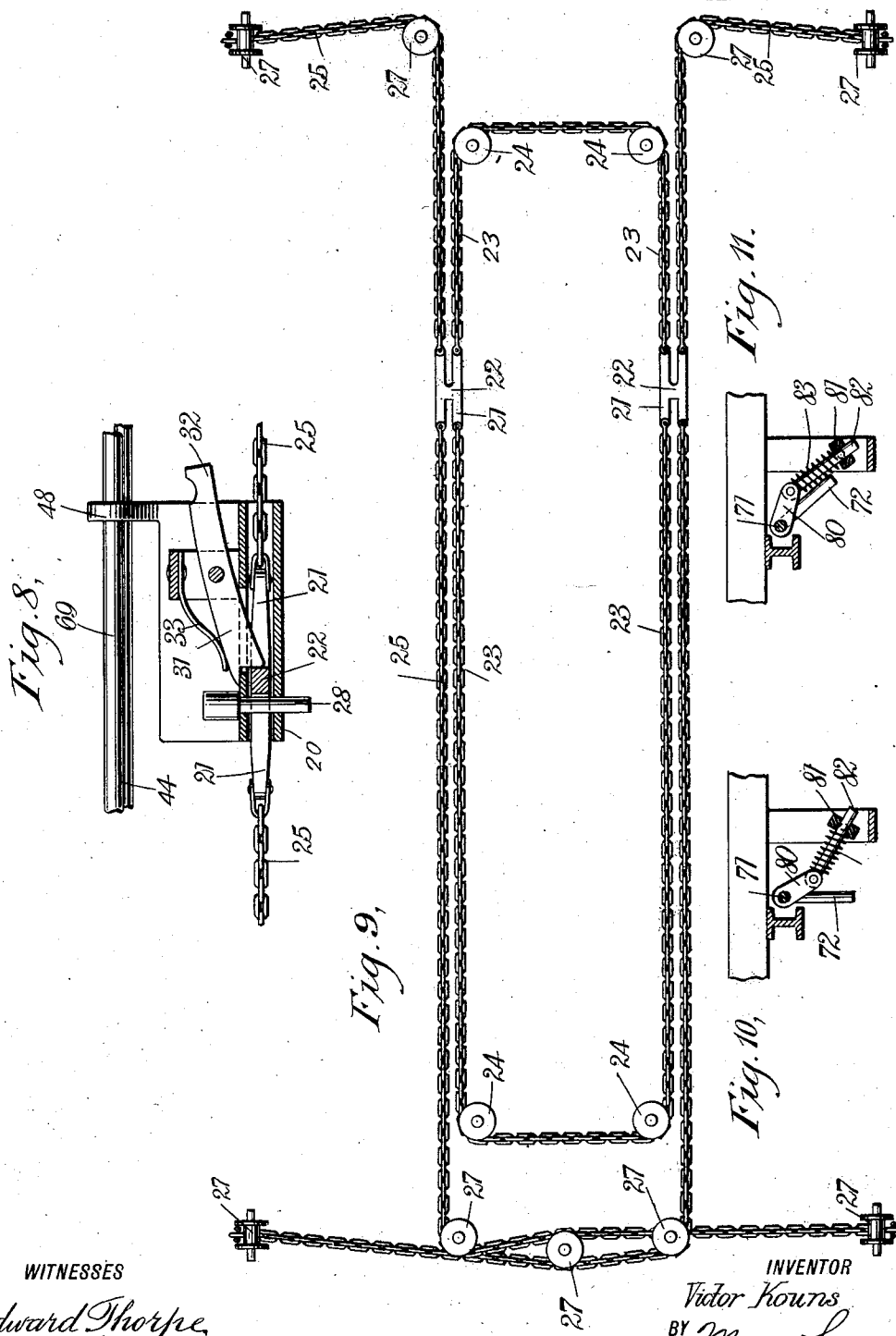


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4 SHEETS-SHEET 4.



WITNESSES
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UNITED STATES PATENT OFFICE.

VICTOR KOUNS, OF ST. LOUIS, MISSOURI.

DUMPING-CAR.

1,021,686.

Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed June 15, 1911. Serial No. 633,275.

To all whom it may concern:

Be it known that I, VICTOR KOUNS, a citizen of the United States, and a resident of St. Louis, State of Missouri, have invented
5 a new and Improved Dumping-Car, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to provide
10 means operable by the traction motor for tilting cars of the character mentioned to dumping position; to provide dumping means of the character set forth which is normally locked, adapted to be released
15 manually; to provide a mechanism of the character mentioned which is operable successively on the cars composing a train subsequent to being released at one station in the said train; to provide means whereby
20 one or more cars of a train may be selected for dumping, or be omitted at any station; and to provide means to prevent the cars from overturning when dumping.

With these objects in view the invention
25 consists in constructing and arranging the draw bars of successive cars in such manner that the draw bar of a leading car will operate, when permitted, the dumping mechanism of the next succeeding car.

30 The invention further consists in holding the draw bar of the leading car in any train against movement by the pull of the engine until manually released.

It further consists in flexibly connecting
35 the operating mechanism of one car with the mechanism of adjacent cars, and in such manner that when the pull exceeds a predetermined force the mechanisms will separate without damage to cars becoming uncoupled.

40 It further consists in constructing and arranging the dumping mechanism in such manner that it may be prearranged to control the direction of the dump.

It further consists in furnishing an anchoring device for each car adapted to engage
45 some fixed portion of the road bed structure to prevent the overbalance of the cars.

One embodiment of the present invention
50 is disclosed in the structure illustrated in the accompanying drawings, in which like characters of reference denote corresponding parts in all the views, and in which—

55 Figure 1 is a top plan view of a car truck provided with a dumping mechanism con-

structed and arranged in accordance with the present invention, the parts being shown in the normal or inoperative position; Fig. 2 is a similar view, showing the parts in the operative position for dumping; Fig. 3 is a
60 vertical longitudinal section taken on the line 3—3 in Fig. 1; Fig. 4 is a vertical longitudinal section taken on the line 4—4 in Fig. 2; Fig. 5 is a vertical cross section taken on the line 5—5 in Fig. 1; Fig. 6 is a detail
65 view in vertical section on an enlarged scale, showing the attaching hook and plate for connecting the dumping mechanism of adjacent cars, the section being taken on the line 6—6 in Fig. 7; Fig. 7 is a horizontal
70 section of the guide box for said hook and plate, taken on the line 7—7 in Fig. 6; Fig. 8 is a detail view in vertical section on an enlarged scale, showing the latch mechanism
75 for the dumping mechanism, the section being taken on the line 8—8 in Fig. 2; Fig. 9 is a detail view in plan, of the dumping chains and guide pulleys therefor; and Figs. 10 and 11 are detail views of the lifting and
80 lowering bar for the anchoring devices for the car, showing the two locking positions.

As shown in the accompanying drawings, the trucks provided for cars of the character mentioned are furnished with draw bars 11, at the outer end of which is provided a coupler 12. The draw bars 11 are slidably
85 mounted between the reach bars 13, which are separated to form a runway therebetween. Between the bars 13 is mounted a crank 14, the pivot shafts 15 thereof being extended
90 through the bars 13. One of the shafts 15 is rigidly connected with a segmental disk 16 to rotate the same in unison with the rock of the crank 14. The crank 14 is provided with a crank pin to pivotally engage a pitman 17, said pitman being pivoted upon the
95 bars 11. The bars 11 have rigidly bolted thereto a metal saddle 18, the same being secured by bolts 19 and extending down over the sides of the bars 13 to there form pockets
100 20 for the guidance of the sliding blocks 21, as best seen in Fig. 5.

The blocks 21 are H-shaped, having parallel side members and a cross bar 22, as best seen in Figs. 8 and 9 of drawings. The cross
105 bar 22 in each block is provided as a stop to limit the movement of the said blocks, and to provide a lock therefor. The two blocks 21 are connected by a cable 23, which cable 23 is reeved over pulleys 24 to form an
110

endless chain in which are incorporated the blocks 21. The said blocks 21 are also connected with the anchored cables 25. Each of the cables 25 is anchored on the car body, secured thereto by eyelets 26, as best seen in Fig. 5 of drawings. The cables 25 are each reeved over and guided by the sheaves 27. At one end of the car the cables 25 are crossed. By crossing the cables in this manner it will be seen that when the blocks 21 are moved in opposite longitudinal directions the pulling strain on the cables 25 will be exerted on one side only of the car body.

It is optional which of the blocks 21 shall be locked to the saddle 18, this being effected by setting the bolt 28 in the perforations 29 provided in the sides 30 forming the pockets 20. The bolts 28 when adjusted pass to one side of the cross bar 22 of the block 21. The opposite side of the said cross bar rests against the head of the latch 31 with which each of the pockets is provided. The latches 31 in each of the pockets are extended in the same direction. The latches are held by the springs 33 in operative position, and are lifted manually from such position when desired. These latches operate to limit the forward movement of both the blocks 21, impinging as they do upon the cross bar 22 of each block when moved into the pockets 20, as seen best in Fig. 8 of the drawings. Thus it will be seen that when each draw bar 11 carrying the saddle 18 is pulled by the engine or adjacent preceding car, one or other of the blocks 21 is moved forward with the said draw bar to operate the cables 25 to tilt the body of the car, as shown in Fig. 5.

Normally the bar 11 is held stationary by the crank 14. In the normal position the car body is horizontal and the crank 14 is rotated to rest upon the brace 64, as shown in Fig. 2 of the drawings. When disposed as shown in Fig. 3, the center of the crank pin and the pivots of the pitman 17 with the draw bar 11, are slightly below the center of the pivot shafts 15 of the crank 14. This disposition of the crank and pitman locks the parts to support the pull of the draw bar 11 to which they are connected.

It is to secure the parts in the position above described that the disk 16 is provided with a latch 34, as seen in Fig. 3. The latch 34 is pivotally mounted at 35, (see Fig. 3) and is provided with a head 36 to engage the spur 37 set out from the side of one of the reach bars 13. The spur 37, when engaged by the head 36, prevents the rotation of the pivot shafts 15 and the crank 14. The above is the normal position of the mechanism while the car or train is being moved to or from the dumping ground.

To release the latch 34 and to rotate the disk 16 there is provided the short cable section 38. The cable section 38 is connected

to the end of an operating rod 69 and is passed about the disk 16, being supported on the small rollers 42. The opposite end of the cable section 38 is secured to the latch 34, as seen best in Figs. 2 and 4 of the drawings. Each of the rods 69 is normally provided with a connection cable section 68 by which each successive rod is attached to the preceding car, or some portion thereof. This section 68, attached to the rod 69 on the first car of a train, is connected to the brake post 39 of the same car. The post 39 is manually rotated by revolving the wheel 41. As the operation of the dumping mechanism on each car follows the operation of the mechanism on the preceding car, the operation of the dumping mechanisms of the train is dependent on the operation of the wheel 41.

The latch 34 is held in position to engage the spur 37 by the spring 43 on the disk 16. The latch is drawn from engagement with the said spur when the post 39 is rotated. The pull on the cable section 68, the rod 69 and the cable 38 being transferred about the disk 16, primarily retracts the latch 34 and lifts the head 36 thereof from engagement with the spur 37. When the latch is thus disengaged a further pull on the cable 38 rotates the disk 16 and the pivot shaft 15 connected therewith. The rotation of the shaft 15 lifts the crank 14 from the locked position above referred to. The draw bar is now permitted to move toward the front of the car, carrying with it the saddle 18 and the block 21 which has been secured in one of the pockets 20.

As above described, the movement of the saddle 18 toward the front of the car effects the dumping of the body of the car to the one or other side of the longitudinal center thereof. The car may be righted from the dumping position either manually or by backing the engine and the preceding cars upon the dumping car, thereby forcing the draw bars 11 carrying the saddles 18 inward. This movement of the said draw bars 11 would rock backward the cranks 14 and pivot shafts 15 connected therewith. This movement of the shafts 15 results in locking the latch 34 upon the spur 37, restoring the car and dumping mechanism herein described to their initial position.

As above stated, the release of the disk 16 to permit the dumping action is manually effected, and only upon the leading car of the train, the release of the various latches of the subsequent cars being operated by a mechanism connecting the said cars. This mechanism consists primarily in a pull rod 44, which is provided with a hook latch 45 pivotally connected therewith, and adapted to engage a plate 46 mounted at the end of the cable sections 68 of the next succeeding car. The pull rod 44 is guidably mounted in a bracket 47 which is fixedly mounted on

the bar 13. The rod is also inserted through a perforation provided in the bracket arm 48 which is rigidly secured to the saddle plate 18. The rod 44 is normally moved toward the rear end of the car by a spiral spring 49 which bears upon the bracket 47 and the disk 50 fixedly mounted on the rod 44. The following end of the rod 44 is supported on pintles 51 extended from the pivot shaft of the hook latch 45, and guided in the slots 52 provided in the sides of the box 53. The box 53 is rigidly mounted on the reach bar 13, and is provided with a second set of slots 54, the forward ends whereof are depressed, and said slots operating as guides for the movement of pintles 55 formed in the end of the tail bar 56 of the hook latch 45. See Fig. 4.

By the arrangement of the hook latch 45, the head of the latch is caused to sink into the opening of the plate 46 to engage the same when the rod 44 is drawn toward the forward end of the car. It will be noticed that when this movement occurs the tail bar 56 and the pintles 55 thereof are raised to the horizontal level of the slots 54, which rocks the latch 45 to sink the head, as shown in Fig. 4 of the drawings. When, however, the rod 44 is released to permit the spring 49 to retract the same, the reverse action occurs, the inclined portion of the slots 54 lifting the latch 45, in which position the succeeding car may be disconnected from the operating mechanism of the preceding car. The bracket arm 48 is provided to move the rod 44 forward. To engage the bracket arm 48 the rod 44 is provided with a pin 57. The pin 57 is placed at any convenient position on the rod 44 to insure the late or early action of the said rod.

The operation of cars when thus equipped is as follows: The dumping mechanism of the leading car of the train having been manually placed in operative position, by manipulating the hand wheel 41 the draw bar 11 of the said leading car is drawn forward while the said leading car is in arrested position. By this movement of the said draw bar, and mechanism connected therewith, the said leading car is dumped. The bracket arm 48 on the saddles 18, when moved by the draw bar 11, engages the pin 57 and carries the rod 44 forward. The rod 44 moves the hook latch 45 and the tail bar 56 connected therewith toward the front of the car. The pintles 55 on the said tail bar pass into the slot 54 and depress the hook 45 which engages the plate 46 at the end of the cable section 68 belonging to the next succeeding car. The cable section of the second car being directly connected with the disk 16 and latch 34 of the said second car, releases the dumping mechanism thereof, which is operated by the movement of the draw bar 11 of said succeeding car, and the

cables 25 connected therewith. In the movement of the draw bar 11 of the second car the bracket arm 48 connected thereon engages the pin 57 on the rod 44 thereof and releases the dumping mechanism of the third car. And so on, each car operating to release the dumping mechanism of the next succeeding car.

Any suitable means for mounting the car bodies 60 upon the trucks may be employed. That shown in the accompanying drawings consists of a number of standards 61 fixedly supported on the reach bars 13, and providing bearings for the trunnions 62 of the brackets 63.

It is to provide a safety attachment to prevent the wrecking of the dumping mechanism, herein described and shown, that there is provided the latch 65 which is extended through the side of the bar 63. The latch 65 is normally seated in a recess 66 formed in the plate 46, which, as above stated, is connected with the cable section 68 of the following car. When thus connected it is evident that in the event of the coupler pins 12 opening; the car being overturned; or other accident; the pull of the cable 68, when directed upon the plate 46 alone, will draw the same from engagement with the latch 65 prior to exerting a wrecking strain upon the mechanism connected therewith.

The mechanism herein shown provides for the "cutting out" of a car of the train from the operation of dumping, thus providing for the dumping of certain of the cars of the train without dumping other cars of the train, whereby, if it be desired, certain cars carrying certain material may be dumped at one station, and other cars carrying different material could be dumped at other stations. To accomplish this the end of the connecting cable 68 is provided with any suitable means for alternately engaging the cables with the rod 44 or with the rod 69. The rods 69, as shown in the drawings, are each connected with the cable sections 38 on each car, whereby the disk 16 is moved to throw the crank arms 14. It will be seen that if the connecting cable 68 be extended from one car to the rod 44 of the succeeding car, the rod 69, cable section 38, and disk 16 of the said succeeding car will remain inactive; and that the pull on the rod 44, plate 46 and cable 68 is transferred direct to the car following the said succeeding car. In other words, the intermediate car is thereby cut off. It will be understood that this rigging may be continued to cut out any number of the cars of the train successively or alternately. It will further be understood that after having dumped certain of the cars, and without dumping the others, by shifting the connection of the cables 68 from the rods 44

to the rods 69, the remaining cars may be dumped individually and collectively. In this instance the empty cars would be arranged to be not effected by the dumping mechanism.

In the operation of cars of this character, under certain conditions, such as handling sticky earth, boulders, or frozen earth, where the load does not quickly slide, the cars have a tendency to overturn. It is to avoid this effect that I have provided the cars with a swinging plate 70, which is fixedly mounted on a shaft 71 transverse the cars, and having extended at the side thereof an operating handle 72, as shown in Fig. 5 of the drawings. Pivottally connected at the free end of the plate 70 are hooks 73. The hooks 73 are provided at the lower end with pins 74, which pins extend below the upper flanges of the I-beam 75. The I-beam 75 is auxiliary to the road bed over which the cars are operated, and is placed on the trestle from which the filling is being effected. For this purpose holding chairs 76 are provided from which are upset the hooks 77 to hold the I-beam in position. The hooks 73 are drawn together when pendent by a link 78. The links 78 are stopped by pins 79 which are extended from the side of the links, as shown in Fig. 5 of the drawings. In the operation of this feature of the invention the hooks 73 are released from the I-beam 75 by lifting the link 78 and spreading the hooks 73 until the pins 74 thereof are disengaged from the flange of the said I-beam. The handle 72 is then manipulated to rock the shaft 71 until the crank arm 80 is carried past the line drawn through the center of the shaft 71 and the rocking block 81. The rocking block 81 is pivottally mounted in the structural frame of the car, and is perforated to receive a plunger bolt 82. The bolt 82 is surrounded by a spiral spring 83 which bears against the block 81 and the end of the arm 80 to normally expand and hold the said arm in either of the positions shown in Figs. 10 and 11 of the drawings. In the position shown in Fig. 10 the operation of the spring 83 is to hold the plate 70 and hooks 73 in the position shown in Figs. 4 and 5 of the drawings. When the arm 80 is disposed in the position shown in Fig. 11 the effect is to hold the plate 70 and hooks 73 in the positions shown in Fig. 3 of the drawings.

When the hooks 73 are engaged, as shown in Fig. 5 of the drawings, with the I-beam 75, it will be seen that a car, when dumped, cannot be overturned. It will also be seen that the pins 74 extend sufficiently below the upper flange of the I-beam 75 to avoid holding engagement therewith, so that the car to which the said hooks are attached may be moved lengthwise of the track.

Having thus described my invention,

what I claim as new and desire to secure by Letters Patent is:—

1. A dumping car, comprising a wheel supported truck; a body pivottally mounted to rock on said truck; a draft member movably mounted on said truck; a plurality of flexible members operatively connecting said body and said draft member to depress the opposite sides of said body alternately; and means for arranging said flexible members to depress the side of said body as selected.

2. A dumping car, comprising a wheel supported truck; a body pivottally mounted to rock on said truck; a draft member movably mounted on said truck; an endless belt member longitudinally disposed and movably mounted on said truck; a plurality of flexible members arranged in pairs, both members of each pair being connected with said belt member at one side of the longitudinal center of said body and with said body at the opposite sides thereof; and means for selectively and alternately connecting the opposite sides of said belt member to said draft member.

3. A dumping car, comprising a wheel supported truck; a body pivottally mounted to rock on said truck; a draft member movably mounted on said truck; an endless belt member longitudinally disposed and movably mounted on said truck; an engaging block fixedly mounted on said draft member and extended laterally therefrom adjacent opposite sides of said belt member; a plurality of flexible members arranged in pairs, both members of each pair being connected with said belt member at one side of the longitudinal center of said body and with said body and at the opposite sides thereof; and locking devices mounted on said engaging block for selectively and alternately engaging the opposite sides of said belt member.

4. A dumping car, comprising a wheel supported truck; a body pivottally mounted to rock on said truck; a draft member movably mounted on said truck; a plurality of flexible members operatively connecting said body and said draft member to press the opposite sides of said body alternately; means for arranging said flexible members to depress the side of said body as selected; a pitman pivottally connected with said draft member; a rocking lock for said pitman; and means for rocking said lock at will to release said draft member.

5. A dumping car, comprising a wheel supported truck; a body pivottally mounted on said truck; a draft member movably mounted on said truck; a plurality of flexible members operatively connecting said body and said draft member to press the opposite sides of said body alternately; means for arranging said flexible members to de-

press the side of said body as selected; means for locking said draft member; and means for releasing said draft member at will.

5 6. A dumping car, comprising a wheel supported truck; a body pivotally mounted to rock on said truck; a draft member movably mounted on said truck; a plurality of flexible members operatively connecting
10 said body and said draft member to press the opposite sides of said body alternately; means for arranging said flexible members to depress the side of said body as selected; means for locking said draft member;
15 means for at will releasing said draft member; and a connecting mechanism operatively connecting the draft member of one car with the means for releasing the draft member of an adjacent car.

20 7. A dumping car, comprising a wheel supported truck; a body pivotally mounted to rock on said truck; a draft member movably mounted on said truck; a plurality of flexible members operatively connecting
25 said body and said draft member to press the opposite sides of said body alternately; means for arranging said flexible members to depress the side of said body as selected; a crank rotatively mounted in line with said
30 draft member; a pitman operatively connecting said crank and said draft member; and means for rotating said crank, said means being operable by the draft members of one car upon the crank of the following
35 car.

8. A dumping car, comprising a wheel supported truck; a body pivotally mounted to rock on said truck; a draft member movably mounted on said truck; a plurality of
40 flexible members operatively connecting said body and said draft member to press the opposite sides of said body alternately; means for arranging said flexible members to depress the side of said body as selected; a
45 crank rotatively mounted in line with said draft member; a pitman operatively connecting said crank and said draft member; a rotary disk operatively connected with said crank; and a flexible connection between
50 each of said disks and the draft member of a preceding car.

9. A dumping car, comprising a wheel supported truck, a body pivotally mounted to rock on said truck; a draft member movably mounted on said truck; a plurality of
55 flexible members operatively connecting said body and said draft member to press the opposite sides of said body alternately; means for arranging said flexible members to depress the side of said body as selected; a
60 crank rotatively mounted in line with said draft member; a pitman operatively connecting said crank and said draft member; a rotary disk operatively connected with said crank; a flexible connection between

each of said disks and the draft member of a preceding car; and manually operative means for rocking the crank on the leading car.

10. A dumping car, comprising a wheel
70 supported truck; a body pivotally mounted to rock on said truck; a draft member movably mounted on said truck; a plurality of flexible members operatively connecting said body and said draft member to press
75 the opposite sides of said body alternately; means for arranging said flexible members to depress the side of said body as selected; a crank rotatively mounted in line with said draft member; a pitman operatively connecting
80 said crank and said draft member; a rotary disk operatively connected with said crank; a flexible connection between each of said disks and the draft members of the preceding cars; and a manually operative
85 locking mechanism for the draft member of the leading car.

11. A dumping car, comprising a wheel supported truck; a body pivotally mounted to rock on said truck; a draft member movably mounted on said truck; a plurality of
90 flexible members operatively connecting said body and said draft member to press the opposite sides of said body alternately; means for arranging said flexible members to depress the side of said body as selected;
95 a crank rotatably mounted in line with said draft member; a pitman operatively connecting said crank and said draft member; a rotary disk operatively connected with said crank; a flexible connection between each of said disks and the draft member of the preceding car; and an engaging device for said flexible connection to permit the lost
100 motion requisite for dumping one body prior to dumping a succeeding body.
105

12. A dumping car, comprising a wheel supported truck; a body pivotally mounted to rock on said truck; a draft member movably mounted on said truck; a plurality of
110 flexible members operatively connecting said body and said draft member to press the opposite sides of said body alternately; means for arranging said flexible members to depress the side of said body as selected;
115 a crank rotatably mounted in line with said draft member; a pitman operatively connecting said crank and said draft member; a rotary disk operatively connected with said crank; a pull rod for rotating said disk; and a hook operatively connecting
120 said draft member and said pull rod.

13. A dumping car, having a pivoted body and means operable by moving the draw head of said car to dump said body;
125 locking means for holding the draw head of each car immovable; and means connecting the draw head of each car with the locking mechanism of the next succeeding car whereby the dumping of a leading car re-
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leases the dumping mechanism of the succeeding car.

14. A dumping car, having a body operatively connected with the draw bar of said car to be rocked thereby; a movable draw head; means for locking said draw head; and a device carried by said draw head to releasably engage the locking mechanism of the draw head of the next succeeding car only when the first mentioned draw head is moved to dump said body.

15. A plurality of dumping cars having each a rocking body operative by moving the draw head thereof; a plurality of devices for locking the draw heads of said cars; releasing means for said draw heads each operatively connected with the draw head of a leading car to release the draw head of the succeeding car; and manually operative means provided on the leading car for re-

leasing the lock of the draw head on said leading car.

16. In a dumping car, a rockable body; and a draw bar movable under said body to rock the same.

17. In a dumping car, the combination of a rockable body; a truck; a stationary draw head at one end of said truck; a draw bar slidably mounted on said truck and having a draw head; and means operatively connecting said body and said bar to rock the said body when said bar is moved under said body.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

VICTOR KOUNS.

Witnesses:

HAZEL WOOD,
GEO. M. SALLWASSER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."