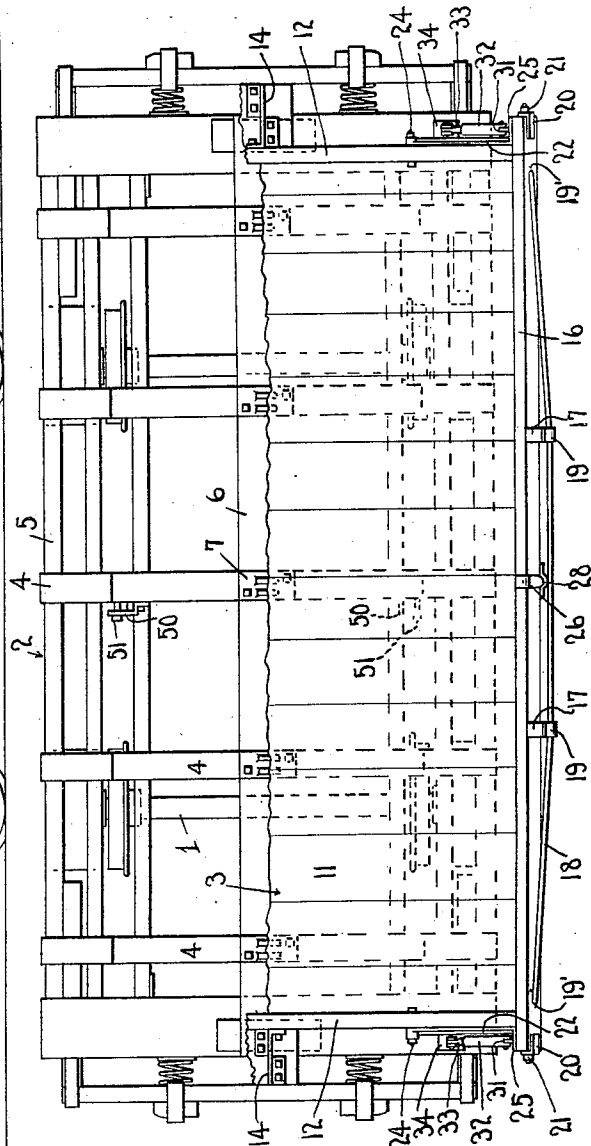
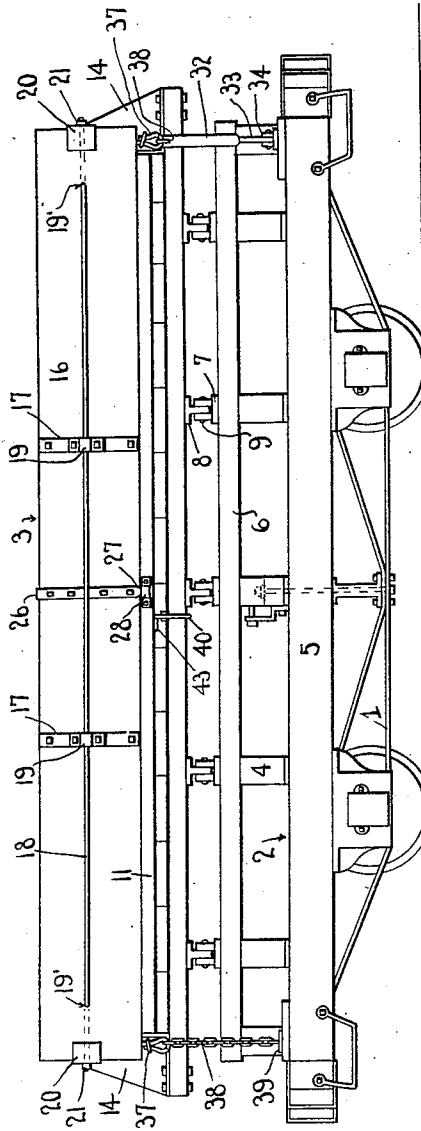


1,046,602.

Patented Dec. 10, 1912.

4 SHEETS—SHEET 1.



Witnesses
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Fig. 1.

Fig. 2.

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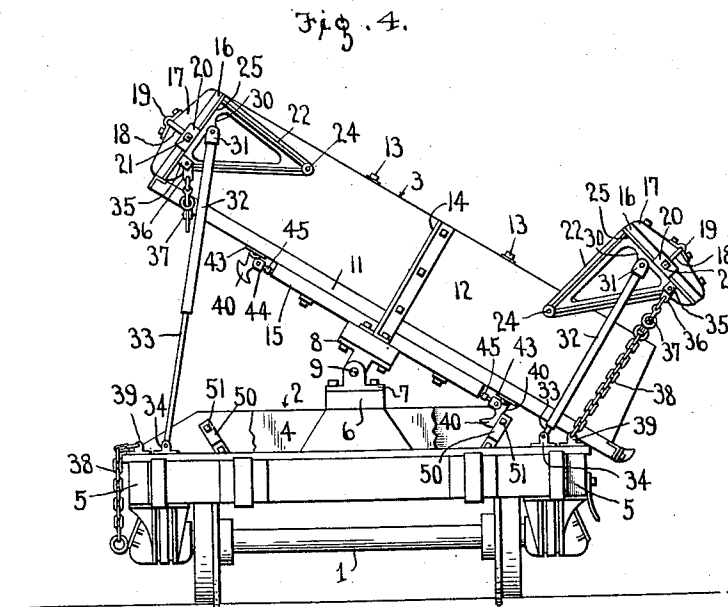
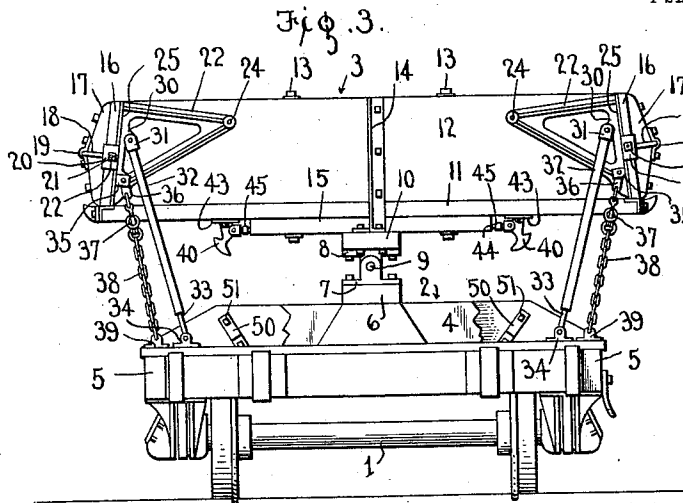
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DUMPING CAR.
APPLICATION FILED JAN. 4, 1912.

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4 SHEETS—SHEET 3.

Fig. 5.

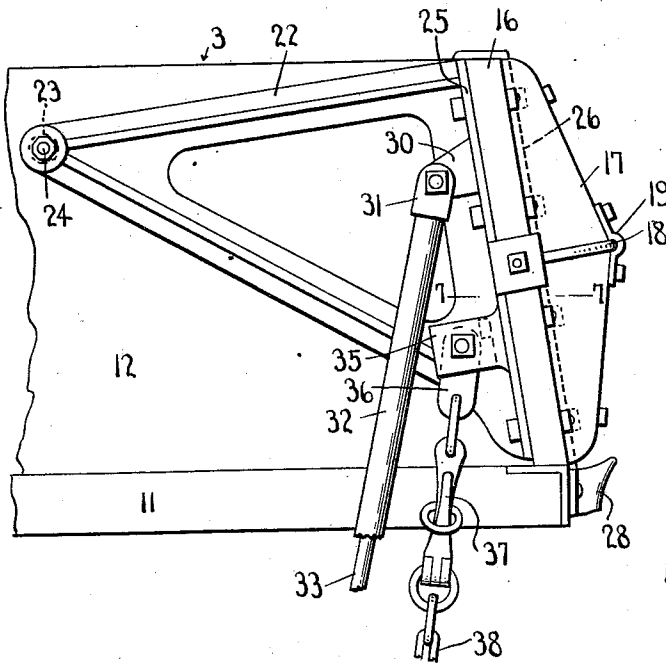


Fig. 8.

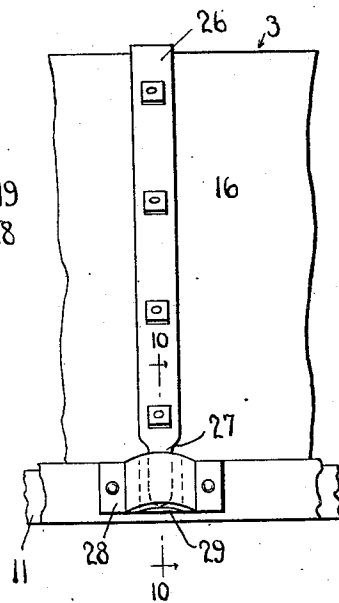


Fig. 6.

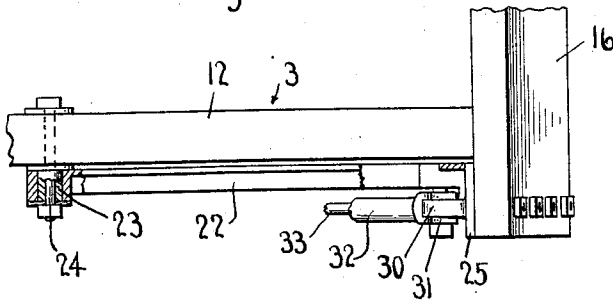


Fig. 9.

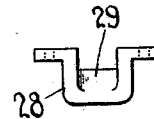


Fig. 10.

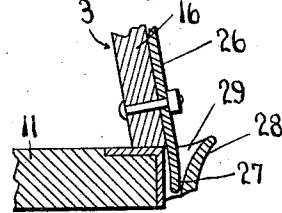
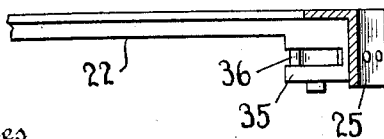


Fig. 7.



Witnesses

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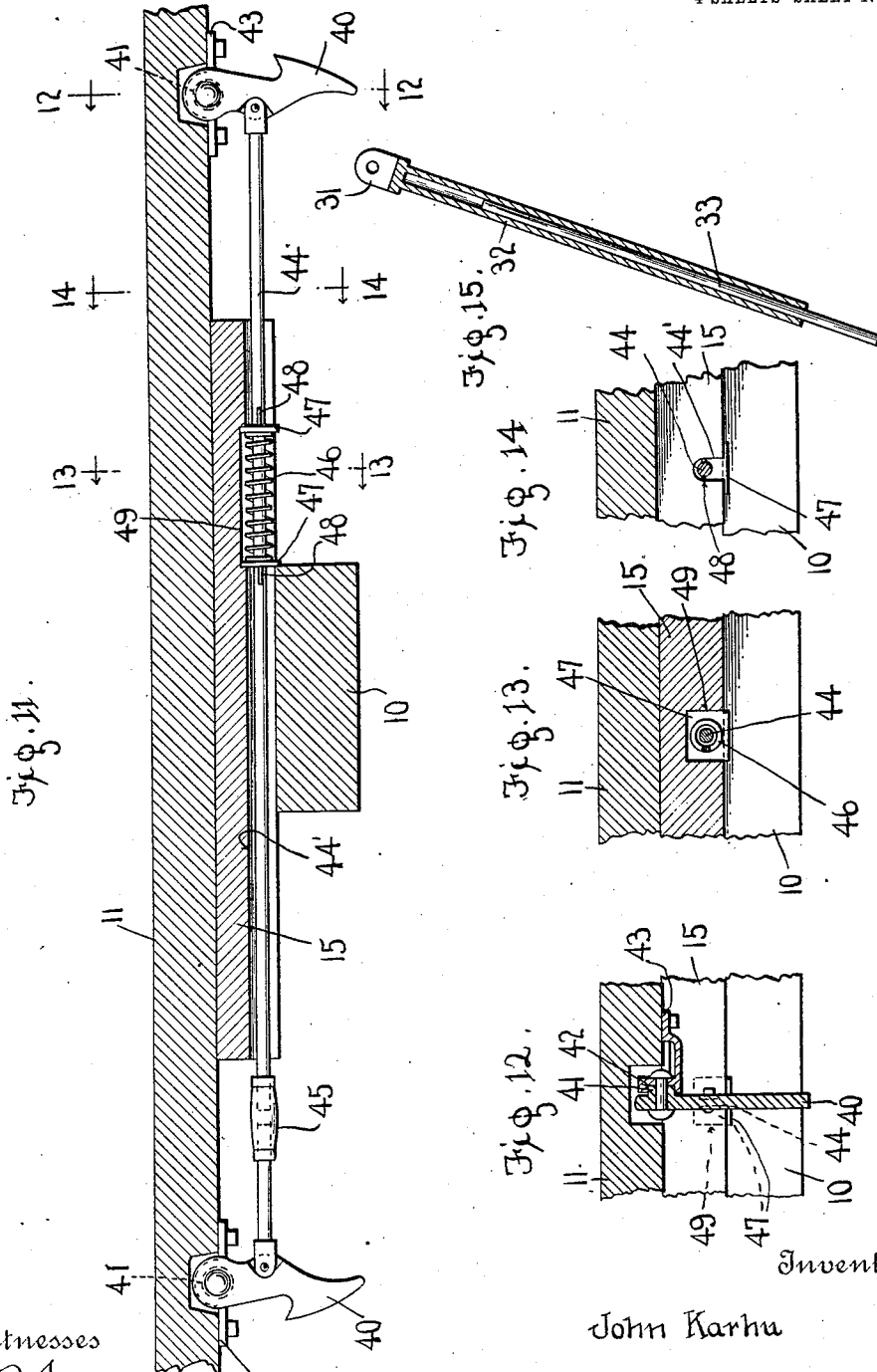
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1,046,602.

Patented Dec. 10, 1912.

4 SHEETS-SHEET 4.



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UNITED STATES PATENT OFFICE.

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DUMPING-CAR.

1,046,602.

Specification of Letters Patent.

Patented Dec. 10, 1912.

Application filed January 4, 1912. Serial No. 669,485.

To all whom it may concern:

Be it known that I, JOHN KARHU, a citizen of the United States, residing at Calumet, in the county of Houghton and State of Michigan, have invented certain new and useful Improvements in Dumping-Cars; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in dumping cars.

One object of the invention is to provide a car of this character having an improved construction and arrangement of body and means for pivotally or hingedly supporting the latter whereby the same may be readily dumped to discharge the contents thereof.

Another object is to provide a dumping car body having an improved construction and arrangement of sides and an improved means for hingedly connecting said sides to the ends of the body whereby when the body is in a level or operative position the sides will be swung down and held in operative engagement with the body and when the latter is tilted in either direction the side on the lower portion of the body will be swung upwardly or held in position above the tilted end of the body to permit the contents to freely discharge from the body.

A further object is to provide a dumping car having an improved means for holding the body in an inclined or dumped position and thus preventing the body from being casually tipped back while the load is being discharged therefrom.

With these and other objects in view the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 is a side view of my improved car; Fig. 2 is a top plan view thereof with parts broken away to illustrate more clearly the construction and arrangement of the body supporting mechanism on the truck of the car; Fig. 3 is an end view of the car showing the body in its normal or operative position;

Fig. 4 is a similar view showing the body of the car in dumped position; Fig. 5 is an enlarged view of a portion of one end and side of the car showing more particularly the manner in which the side is hingedly connected to the end of the car; Fig. 6 is a plan view of the parts shown in Fig. 5; Fig. 7 is a detail sectional view on the line 7—7 of Fig. 5; Fig. 8 is a side view of a portion of one of the sides of the car and the adjacent edge of the bottom showing the construction and arrangement of the side bracing bars; Fig. 9 is a plan view of the keeper on the edge of the bottom of the car with which the lower end of the side bracing bar is engaged; Fig. 10 is a cross sectional view through the keeper and the engaging lower end of the brace bar taken on the line 10—10 of Fig. 8; Fig. 11 is an enlarged cross sectional view through a portion of the bottom of the car and its reinforcing member showing more clearly the construction and arrangement of the latches for securing the body of the car in a tilted position while the load is being discharged therefrom; Fig. 12 is a cross sectional view through the attaching and supporting mechanism of one of the latches taken on the line 12—12 of Fig. 11; Fig. 13 is a similar view on the line 13—13 of Fig. 11; Fig. 14 is a similar view on the line 14—14 of Fig. 11; Fig. 15 is a longitudinal sectional view through one of the adjustable stay rods for lifting and supporting the sides of the car in an open position to permit the discharge of the contents of the car.

Referring more particularly to the drawing 1 denotes the car truck which may be of any suitable form and on which is arranged the body supporting mechanism 2 to which is hingedly connected the dumping body 3 of the car. The body supporting mechanism 2 comprises a series of transversely disposed bolsters 4 arranged across the truck and having their ends engaged with and secured to the longitudinal side bars 5 of the truck as shown. The ends of the bolsters 4 are beveled or formed on an angle to provide seats with which the bottom of the car body is engaged when the body is in dumped position as clearly shown in Fig. 4 of the drawings.

Secured to the upper sides of the bolsters 4 is a centrally disposed body supporting bar 6 which extends throughout the entire length of the truck and has secured thereto above each of the bolsters 4 a hinge member 7, said hinge members comprising plates having thereon pairs of apertured lugs between which are arranged and to which are pivotally connected the lugs or companion hinge members 8, the lugs of said hinge members being pivotally connected together by hinge pins or bolts 9. The hinge members 8 are secured to the lower side of a centrally disposed body supporting bar 10 which will be hereinafter referred to.

The body 3 of the car comprises a flat bottom 11 to which are secured ends 12, said ends being preferably fastened to the floor by bolts 13 passed through the ends and through the floor as shown. The ends are further fastened and securely braced by centrally disposed triangular bracing plates 14 having on their lower ends and rear edges right angular attaching flanges whereby said bracing plates are secured to the outer sides of the ends 12 and to the extended ends of the body supporting bar 10. The bottoms 11 of the car are reinforced throughout the length of the body by a series of transversely disposed planks 15 which are of sufficient length to project a suitable distance beyond the center of the bottom and the opposite sides of the bar 10 which latter is rigidly secured to said planks. The ends of the end pieces 12 of the body terminate a short distance from the side edges of the bottom and said ends are formed on a slight angle or inclined inwardly from the bottom to the top of the car and with said angular ends of the end pieces 12 and with the projecting side edges of the bottom are engaged the sides 16 of the body. The sides 16 are braced in one direction by a series of transversely disposed brace bars 17 which are bolted or otherwise secured to the sides intermediate of their ends and a short distance in each direction from the center of the sides as shown. The braces 17 also serve as bridge members or bracing blocks for truss rods 18 which are engaged with the brace bars 17 and are secured in position thereto by clips 19 and which have their ends engaged with passages 19' formed in the ends of the sides. The ends of the truss rods extend through the passages 19' and through binding plates 20 arranged on the ends of the sides. On the projecting threaded ends of the truss rods are arranged clamping nuts 21 whereby any slack of the truss rods may be taken up and the sides thus kept rigidly braced.

The sides 16 are hingedly connected to the ends 12 of the body by hinges 22 said hinges being in the form of triangularly shaped frames, the inner ends or apices of which

are pivotally engaged with bushings 23 arranged on pivot bolts 24 inserted through the ends 12 of the body, said bushings having flanged inner ends which are seated in the outer sides of the ends as clearly shown in Fig. 6 of the drawing.

The outer or base portions of the triangular hinge frames 22 have formed thereon angular side attaching flanges 25 to which the sides 16 are bolted or otherwise rigidly secured. By thus constructing and arranging the hinge members 22 the sides 16 will be pivotally connected to the ends of the car body and will also be firmly held in operative engagement with the outer edges of the ends when in a closed or lowered position. The sides when in a lowered position are further braced intermediate of their ends by transversely disposed bracing bars 26 bolted or otherwise rigidly secured to the outer surface of the sides and having their upper ends bent inwardly around the upper edges of the sides as shown. The lower ends of the bars 26 are reduced and extend a short distance below the lower edges of the sides to form tongues 27 which when the sides are in a lowered or operative position are engaged with keepers 28 secured to the outer edges of the bottom or floor of the car body as clearly shown in Figs. 8 and 10 of the drawing. The keepers 28 are in the form of blocks bolted or otherwise secured to the bottom of the body and having therein vertically disposed passages 29 with which the tongues 27 are engaged, said passages being flared outwardly at their upper ends or having the inner surfaces of the outer walls thereof curved slightly so that when the sides are swung downwardly to a closed or operative position the tongues 27 will readily enter the passages in the blocks and when so arranged will form stops for effectually bracing the intermediate portions of the sides 16 against lateral pressure of the load in the body of the car.

On the base portion of the hinge frames 22 near their upper ends are formed inwardly extending bearing lugs 30 to which are pivotally connected the enlarged bifurcated upper ends or heads 31 of stay or side operating rods 32 formed in telescopically engaged upper and lower sections, the lower inner sections 33 of which are pivotally connected to brackets 34 secured to a suitable part of the truck 1 as shown. By thus constructing and arranging the stay rods 32 it will be seen that when the body of the car is tilted downwardly on one side or the other that the sections of the rods on the downwardly moving side of the body will be first pushed together to the limit of their closing engagement, thus forming a rigid rod which upon the further lowering move-

ment of the body will hold the side in a fixed position, while the bottom and ends swing downwardly, thus uncovering this side of the body and permitting the contents thereof to freely discharge therefrom beneath the lower edge of the elevated side. When the body is in dumped position as just described the stay rods 32 on the opposite side of the car will be drawn apart or extended as clearly shown in Fig. 4 of the drawing.

On the base of the hinge frame 22 near the lower ends of the members are formed chain attaching brackets 35 to which are connected by links 36, guarded or safety guy hooks 37. To the hooks 37 are connected the upper ends of guy chains 38 the lower ends of which are connected to brackets 39 engaged with a suitable part of the truck as clearly shown in the drawings. When thus arranged the chains 38 and the hooks 37 hold the body of the car in a horizontal or operative position and when it is desired to dump the car the chains on the opposite side from that on which the car is dumped are disengaged from their guy hooks as clearly shown in Fig. 4 of the drawings. By providing guarded guy hooks as herein shown and described the possibility of the guide chains becoming casually disengaged therefrom is obviated, at the same time the hooks may be readily released to permit the disengagement of the chains therefrom when the car is dumped.

In order to hold the body of the car in dumped position to prevent any possibility of the body from tipping back from any cause while the load is being discharged therefrom, I provide a holding mechanism comprising a pair of catch hooks 40 having on their upper ends annular bosses 41 which project from the side of the hook and are pivotally engaged with sockets 42 formed in bearing brackets 43 secured to the lower side of the bottom of the car body as clearly shown in Fig. 12 of the drawings. The catch hooks 40 are operatively connected together by a connecting rod 44. The rod 44 is preferably formed in sections which are connected together by a turn buckle 45 whereby the length of the rod may be adjusted if necessary. The rod 44 is slidably engaged with a groove 44' formed in the reinforcing planks 15 of the bottom and arranged on the rod is a coiled hook projecting spring 46, said spring being confined between washers 47 which are held in position on the rod by keys 48 inserted there-through. The spring 46 is disposed in a recess 49 formed in the planks 15 and the washers 47 engage the ends of the recess 49, said ends of the recess thus forming stops.

Secured to one of the bolsters 4 on the car truck in the same vertical plane as the

hooks 40 are keepers 50 said keepers comprising brackets which are bolted to one side of the bolster and with the outer ends of which and the adjacent portion of the bolster are engaged bolts 51 with which one or the other of the catch hooks 40 are adapted to be engaged when the body of the car is swung downwardly to a dumping position as clearly shown in Fig. 4 of the drawing, said engagement of the catch hook with the keeper on the dumped side of the car, holding the body in inclined or dumped position. When the catch hooks 40 are brought into engagement with the bolts 51 of the keepers by the tipping of the car body, the connecting rod will be pushed back against the resistance of the spring 46 which is held at the opposite end by the engagement of the washer 47 with the end of the recess 49 as will be readily understood. When the catch hooks are thus engaged the car will be securely held in tilted position and when it is desired to swing the body back to its normal position the catch hook 40 on the opposite end of the rod 44 from the engaged catch hook is pulled back by the operator thus releasing the engaged catch hook from its keeper and permitting the body of the car to be swung back to its normal or operative position. After the body of the car has thus been restored to its normal position the guy chains 38 which had been disengaged from their hooks 37 are again engaged therewith thereby securely holding the body of the car in a horizontal position.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as claimed.

Having thus described my invention, what I claim is;

1. In a dumping car, a pivotally supported body, sides hingedly connected to the ends of the car and adapted to be swung upwardly and held in an elevated position on the dumped side of the car when the body is tilted to a dumping position, and automatically operating catch hooks adapted to hold the body of the car in a tilted position.

2. In a dumping car, a pivotally supported body, sides hingedly connected to the ends of the car and adapted to be swung upwardly and held in an elevated position on the dumped side of the car when the body is tilted to a dumping position, catch hooks pivotally connected to the car body, keepers arranged on a fixed portion of the car and adapted to receive said catch hooks when

the body of the car is tilted to a dumping
position, an operating rod to connect said
catch hooks, and a spring arranged on said
rod and adapted to yieldingly hold the catch
5 hooks in position to engage their keepers
when brought into engagement therewith by
the tilting of the car body.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

JOHN KARHU.

Witnesses:

JAMES D. LOONEY,
MARGARET HARRINGTON.

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