

No. 679,033.

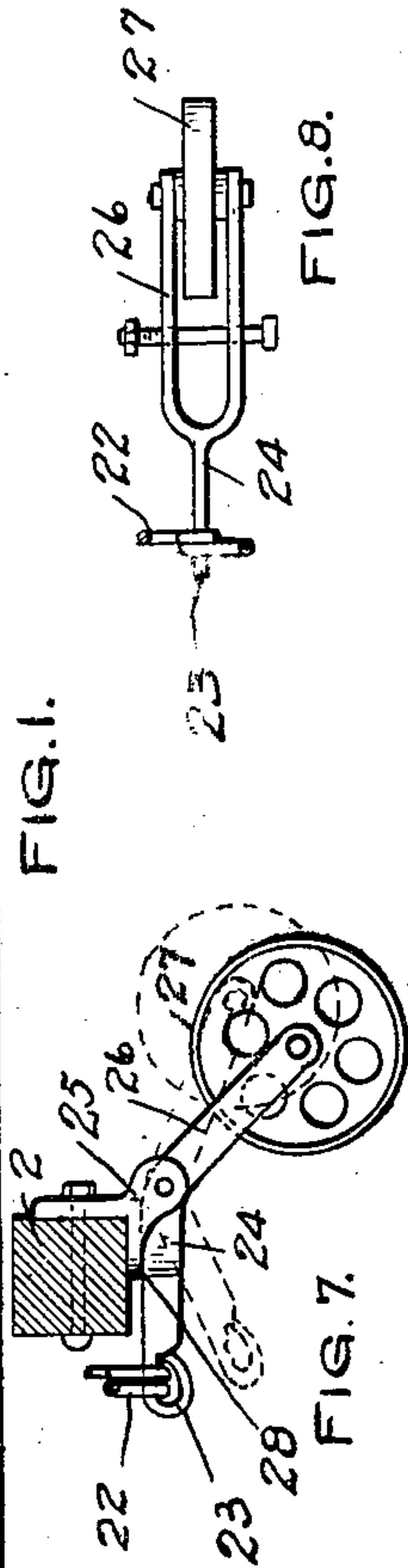
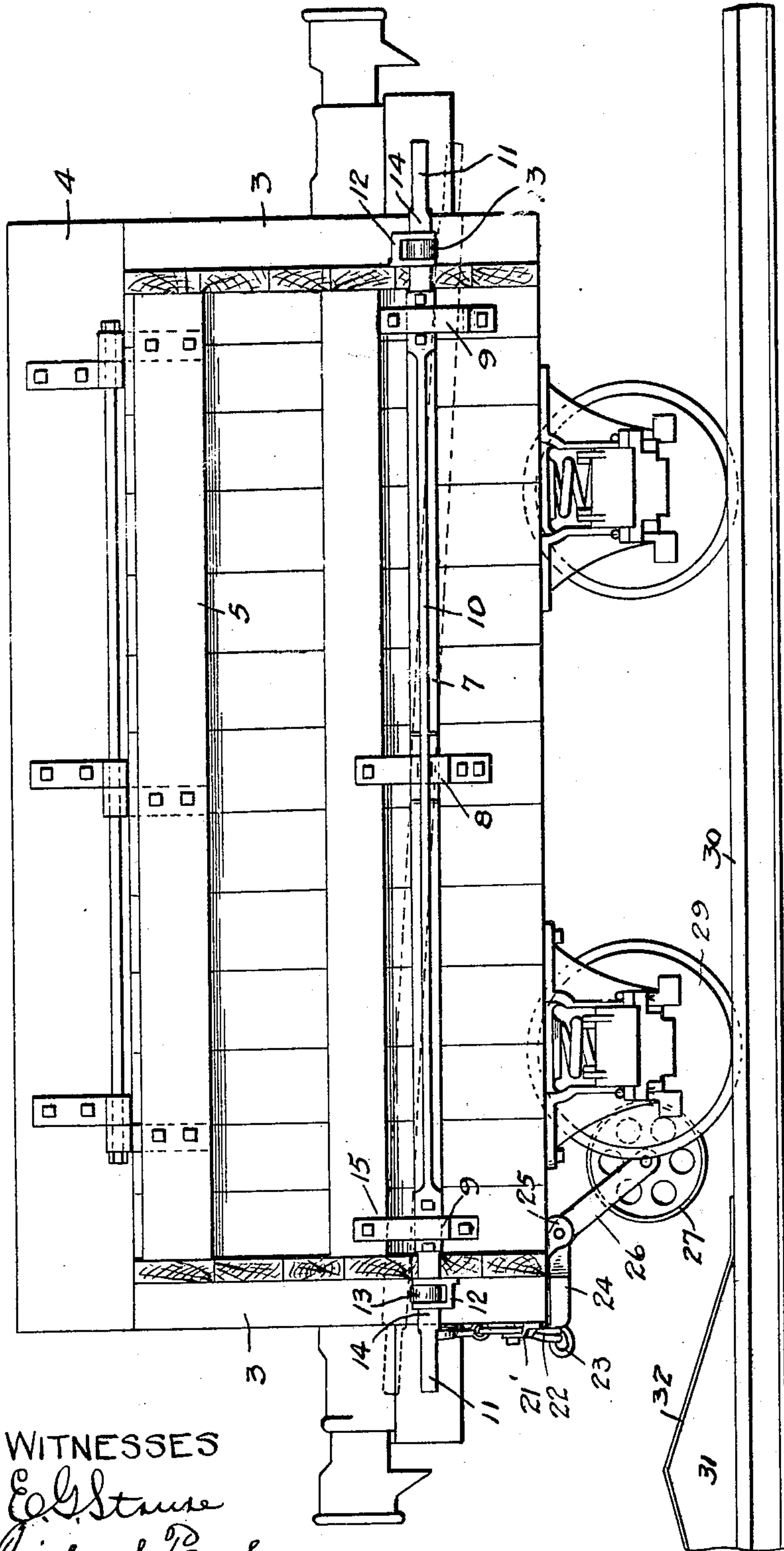
Patented July 23, 1901.

F. PETELER.
ORE OR GRAVEL CAR.

(Application filed Feb. 21, 1901.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES
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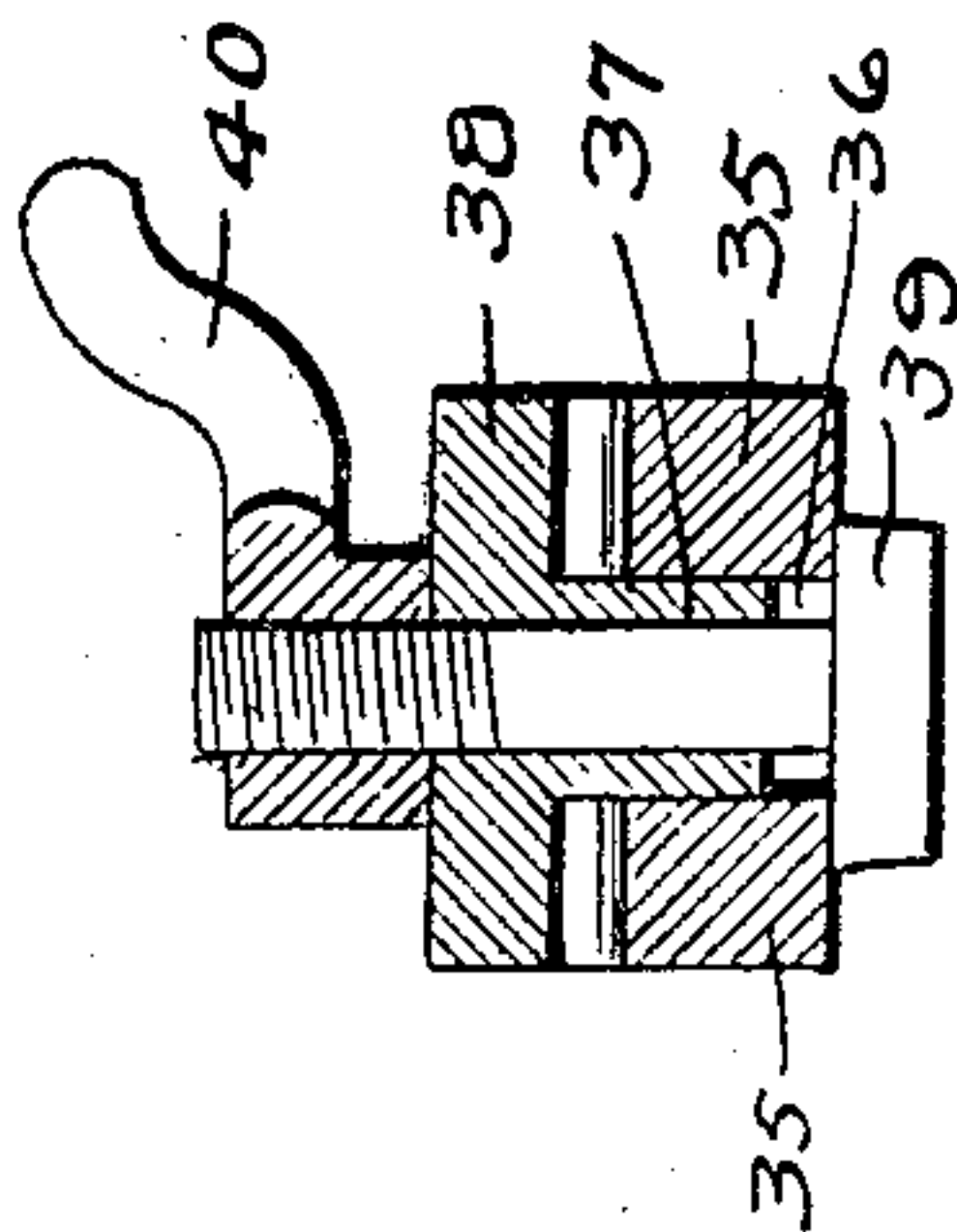
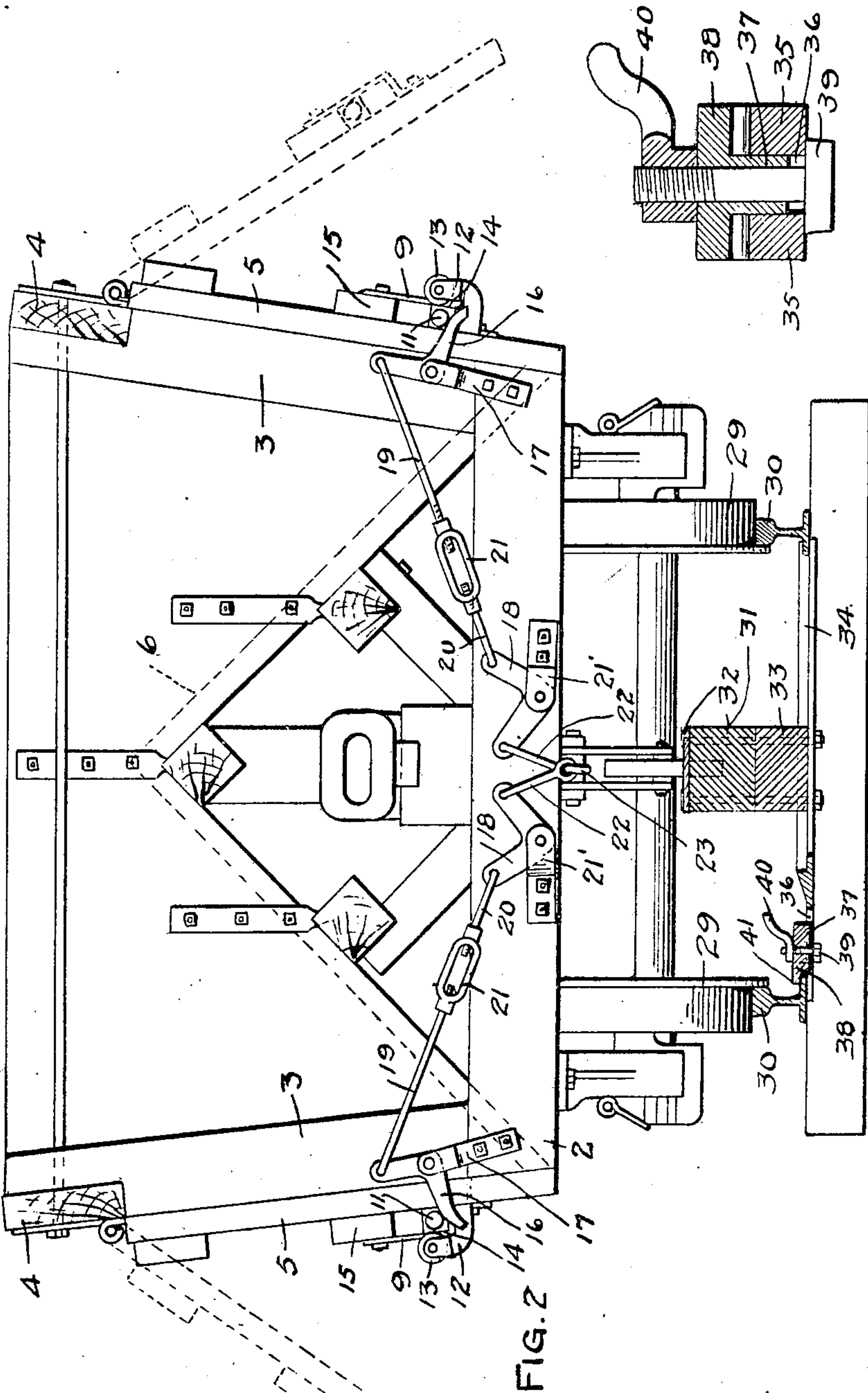


FIG. 6

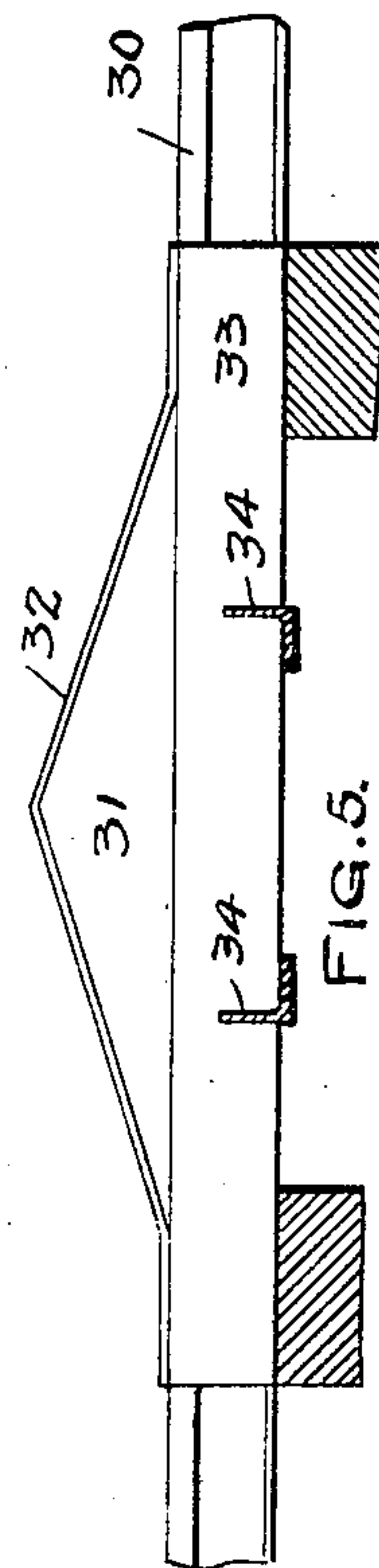


FIG. 5.

WITNESSES

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3 Sheets—Sheet 3.

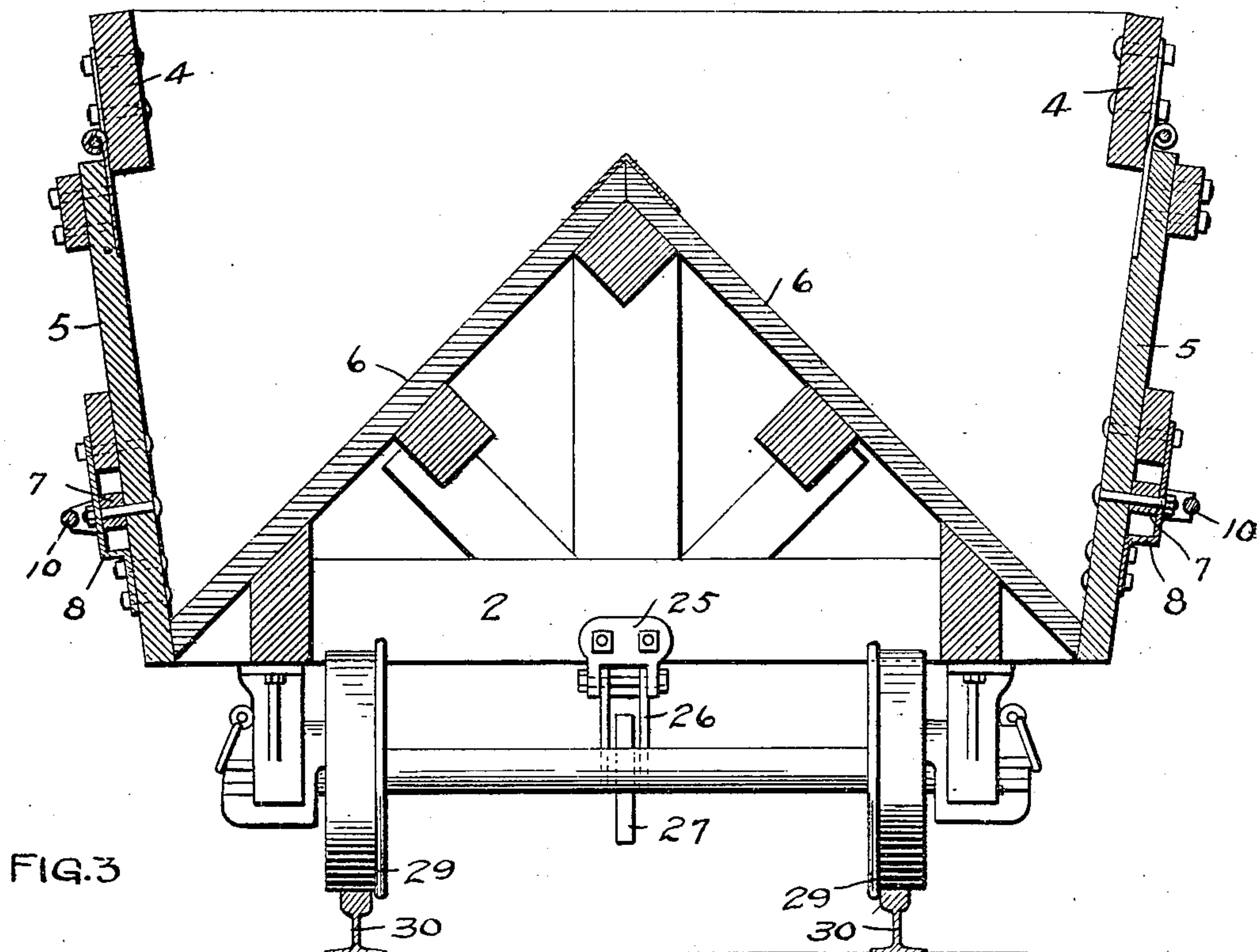


FIG. 3

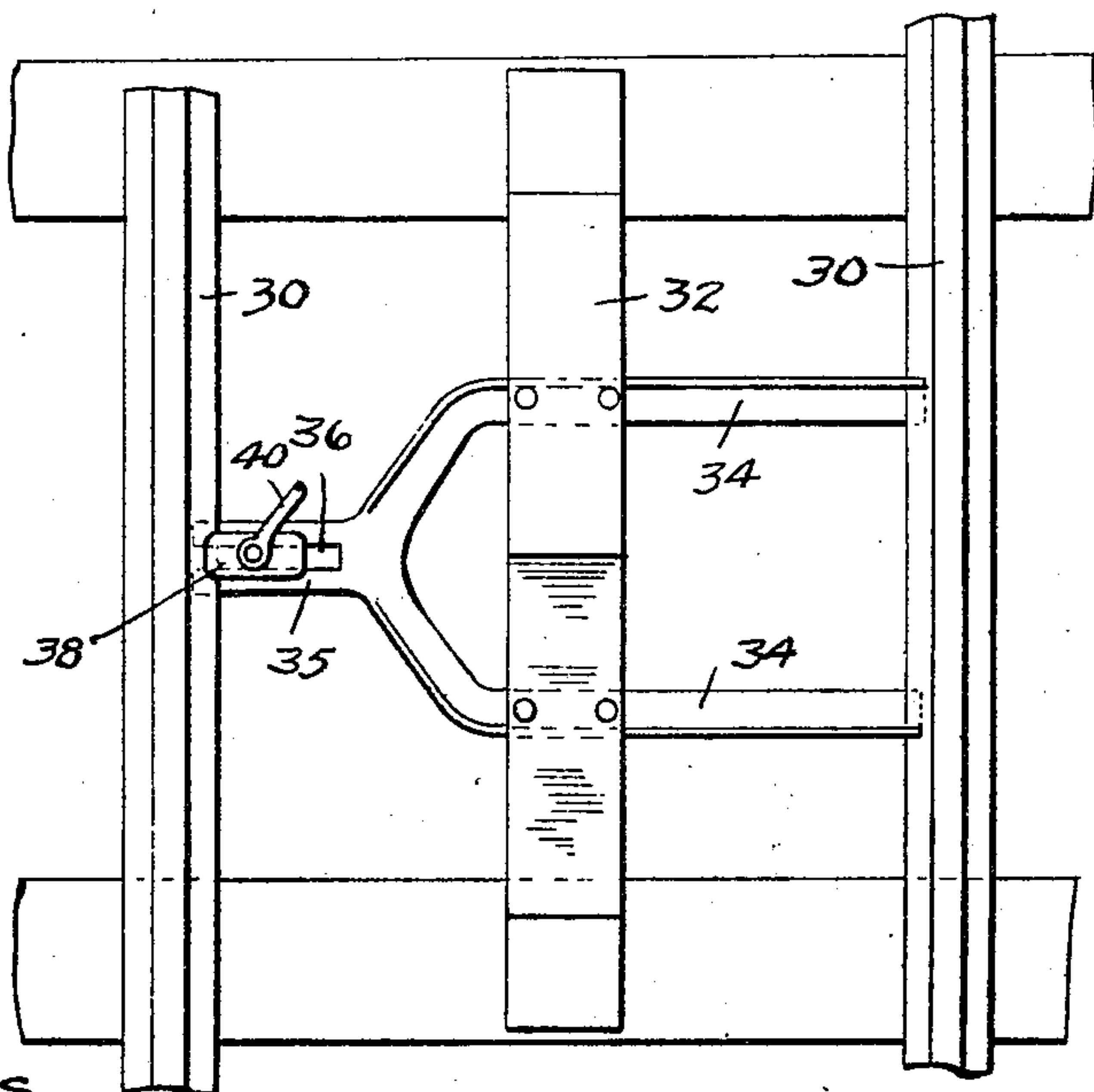


FIG. 4.

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UNITED STATES PATENT OFFICE.

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ORE OR GRAVEL CAR.

SPECIFICATION forming part of Letters Patent No. 679,033, dated July 23, 1901.

Application filed February 21, 1901. Serial No. 48,232. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS PETELER, of Minneapolis, Hennepin county, Minnesota, have invented certain new and useful Improvements in Ore or Gravel Cars, of which the following is a specification.

My invention relates to that class of cars having stationary bodies, swinging side doors, and floors or bottoms that are arched or inclined from the center toward the sides, to the end that the car will discharge itself by gravity when the doors are opened. These doors are normally locked when closed and when released are swung open by the pressure of the material in the car.

One object of my invention is to provide means for automatically unlocking or releasing the doors when the car has reached a certain predetermined point regardless of the direction in which the car is running.

A further object is to provide an automatic releasing device that will permit either or both of the car-doors to be unlocked by hand whenever desired.

Other objects of the invention will appear from the following detailed description.

The invention consists generally in a car having outwardly-swinging doors and suitable locking devices therefor and means for automatically operating said locking devices at a certain predetermined point when the car is running in either direction.

Further, the invention consists in various constructions and combinations, all as hereinafter described, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a side elevation of a car with my invention attached thereto. Fig. 2 is an end view showing the car in position on the track, the latter being shown in section. Fig. 3 is a vertical section on the line *xx* of Fig. 1. Fig. 4 is a plan view of the movable device for tripping the releasing mechanism. Fig. 5 is a longitudinal section of the same. Fig. 6 is a detail of the lock device provided on the tripping mechanism. Figs. 7 and 8 are details of the device that engages the trip to unlock the doors.

In the drawings, 2 represents cross-timbers forming a portion of the car-frame at its end, 3 upright posts, and 4 longitudinal timbers

whereon the outwardly-swinging doors 5 on each side of the car are hinged.

6 represents the bottom or floor of the car, that is inclined toward the doors upon each side of the center, as is customary in cars of this class, wherein the contents are discharged by gravity when the doors are released. The angle of inclination of the car-bottom may of course be varied according to the purpose for which the car is designed. When the doors are unlocked, the pressure of the load will swing them out away from the car, allowing the material therein to discharge itself at the sides. To lock the doors in their closed position, I prefer to provide levers 7, centrally pivoted between the doors and straps 8 thereon, their ends being vertically movable in guide-straps 9. Truss-rods 10 are provided to strengthen said levers, and handles 11 are provided at the ends of the same, projecting beyond the frame of the car. Secured to the sides of the car are brackets 12, carrying antifriction rollers or wheels 13, that are adapted to bear upon flat faces 14, provided on said levers near the ends thereof. Downward movement of said levers on their pivots is limited by the brackets 12, and stops 15 are provided to limit their vertical movement. The centers of the antifriction-rollers are a sufficient distance above those portions of the brackets that engage the levers to permit said levers to be depressed past the centers of said rollers, and there is sufficient friction between said rollers and said levers to prevent the latter from premature movement and accidental unlocking of the car-doors. At any time, however, an operator may grasp one of the handles 11 at either end and on either side of the car and operate the lever up or down to disengage it from the antifriction-rolls and permit the car to empty itself of a portion of its contents.

The pressure of the material in the car upon the doors is so great, particularly in large cars, that it would be extremely difficult to release the locking-levers without the employment of the antifriction-roll 13, especially when the doors are to be unlocked by hand. I therefore regard this provision that permits the convenient and ready operation of the levers as one of the important features of my invention. Various devices have been em-

played for operating these levers at a certain predetermined point where it is desired that the car should discharge its contents. It has been, however, possible to unlock the doors only when the car was moving in one direction. If the car happened to be moving in the other direction, the doors had to be released by hand, as there was no provision for automatic operation of the levers. To obviate this difficulty, I have provided a mechanism that is adapted to operate the levers and unlock the car-doors at any predetermined point on the road regardless of the direction in which the car is traveling or which end of the car first approaches the point where it is desired to deposit the load.

In carrying out this invention I provide bell-cranks 16, pivotally supported on brackets 17, secured to the timber 2 on each side of the car, one arm of each bell-crank being adapted to engage the adjoining lever and its other arm being pivotally connected with one arm of a bell-crank 18 through the medium of links 19 and 20 and turnbuckles 21. The links 19 are considerably longer than the links 20, so that the turnbuckles will be near the bell-cranks 18 and as far as possible protected from injury. By means of these turnbuckles the distance between the bell-cranks may be regulated according to the throw or stroke desired. The bell-cranks 18 are pivotally supported in brackets 21, provided on the timbers 2, and their free arms are connected by links 22 with a loop or eye 23, formed on the outer end of a curved lever 24, that is centrally pivoted on a hanger or casting 25, secured by bolts or other suitable means to the timber 2. The lever 24 has a fork 26, wherein a wheel 27 is mounted, and said lever is adapted to engage the flat face of a plate 28, provided on the hanger 25. When in its normal position, the lever 24 is in engagement with the face of the plate 28, and raising or tilting of the wheel 27 will depress the opposite end of the lever a corresponding distance away from the plate 28 whichever direction the car is moving. If toward the left hand of Fig. 1, the wheel will be elevated to the position indicated by dotted lines in Fig. 7, and the outer end of the lever will be depressed a corresponding distance and through the medium of the links and bell-cranks connected therewith will actuate the bell-cranks 16 to swing the locking-levers on their pivots, disengage them from the wheels 13, and permit the pressure of the contents of the car to swing the door open. From an examination of Figs. 1 and 7 it will be noted that it is immaterial whether the car is moving toward the left or toward the right, as in either case the wheel will be elevated, the outer end of the lever 24 depressed, and the car-doors released. As shown in Fig. 2, the tilting wheel is suspended on the frame of the car at a point midway between the wheels 29 and a sufficient distance above the rails 30 to clear any

obstruction that may accidentally be left on the track. To tilt the wheel when the car has reached the point where it is desired to discharge the contents of the same, I prefer to provide a portable triangular block 31, having a face-plate 32, with which the wheel engages. This block will be furnished with the car, together with instructions to mount the same upon a base-block 33, which when resting upon the ties will be on the same level as the rails of the track. The base-block will raise the block 31 sufficiently high above the track-rails to insure its making a positive contact with the tilting wheel. I prefer to designate the part 31 of this device as a "dumping-block," and the same will be placed upon the ties between the rails of the track directly in the path of the tilting wheel opposite the point where it is desired to discharge the contents of the car, and to hold the block securely in this position I provide a locking device consisting of a fork composed, preferably, of angle-iron. The arms 34 of this fork have V-shaped recesses in their ends to engage the flange at the base of the rail on one side of the track, and the vertical flanges of said arms fit within recesses in the under side of the base-block 33, and their horizontal flanges are bolted securely to said block, so that the bottom of the block is flush with said horizontal flanges, and there will be no projecting points to catch on the track and interfere with the rapid and convenient handling of the device. A flat extension or shank 35 is provided on the fork, that is adapted to slip under the opposite rail-base, and this plate is provided with a longitudinal slot 36, wherein a wing or rib 37 on a casting 38 is slidable. A bolt 39 is provided having a head to engage the under side of the plate 35 and a threaded shank whereon a small clamping-lever 40 is mounted, by means of which the casting 38 may be locked in any desired position in the slot 36. The casting 38 has a lip 41, adapted to extend over the flange of the rail-base and engage the web of the rail, so that when the device is adjusted and clamped the dumping-block will be securely locked against lateral movement and will be firmly held until such time as the operator releases the clamp to move the block to another position.

The car shown herein will deposit material on each side of the track outside of the ties. By means of my improved automatic releasing device the cars may be quickly emptied and will be found especially adapted for use in filling trestles on old roads or where temporary trestles are employed in building a road. The position of the dumping-block can be changed very quickly and the gravel or other material dumped wherever desired and without regard to which end of the car first approaches the unloading-point. At any point along the road where it is desired to raise the track to grade either one or both of the doors may be unlocked by hand and one or more of the cars emptied while the

train is in motion. At any point along the line where it is desired to deposit the material the dumping-block may be adjusted, and as the train approaches the contents of each car will be automatically discharged and the entire train unloaded without stopping.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

10 1. The combination, with a car having swinging doors adapted to be opened by the pressure of the material in the car, of vertically-operating means extending lengthwise of said doors for locking them in their closed position, and a device adapted to be automatically actuated when the car is moving in either direction to operate said locking means and release said doors, substantially as described.

20 2. The combination, with a car and the outwardly - swinging doors provided thereon adapted to be opened by the pressure of the material in the car, of means for normally locking said doors in a closed position, and tilting means suspended between the wheels and adapted to be actuated by an obstruction on the track to automatically operate said locking means and release said doors, substantially as described.

30 3. The combination, with a car and swinging side doors thereon, of locking means provided on said doors, a tilting device suspended above the track between the rails and adapted to be actuated by an obstruction thereon when the car is moving, in either direction, and suitable means interposed between said tilting device and said locking means, whereby movement of the former will operate the latter to release said doors simultaneously, substantially as described.

40 4. The combination, with a car and the swinging side doors thereon, of means for locking said doors in a closed position, a tilting device suspended between the rails beneath the car, an adjustable block also provided between the rails and adapted to engage said tilting device to actuate the same when the car is moving in either direction, and suitable means interposed between said tilting device and said locking means, whereby the movement of the former will operate the latter to release said doors simultaneously.

50 5. The combination, with a car and the swinging doors thereon, of means for locking said doors in a closed position, a tilting device suspended beneath the car, an adjustable block provided between the track-rails, means for locking said block in any desired position on the track, and suitable means interposed between said tilting device and said locking means, whereby movement of said tilting device upon its engagement with said block will operate said locking means.

60 6. The combination, with a car and the swinging doors thereon, of levers 7 pivoted on said doors and having a vertical swinging movement thereon, brackets 12 provided on

said car and antifriction-rollers mounted in said brackets and adapted to engage said levers, and between which and said car said levers are held when the doors are locked, substantially as described.

7. The combination, with a car and the swinging doors thereon, of locking-levers 7 pivoted on said doors, antifriction - rollers mounted on said car between which and the car-frame said levers are vertically movable, and said levers being adapted to move past the centers of said rollers when in their locked position, for the purpose specified.

8. The combination, with a car and the swinging doors thereon, of pivoted locking-levers provided on said doors, antifriction-rolls between which and the car said levers are adapted to move vertically, bell-crank levers provided on said car and adapted to engage said locking-levers and move the same vertically past said antifriction-rolls, a tilting device provided beneath the car, a block or obstruction adjustably arranged on the track in position to engage and actuate said tilting device, and operative connections provided between said tilting device and said bell-crank levers, whereby movement of the former will actuate the latter to operate said levers and release said doors.

9. The combination, with a car and the outwardly-swinging side doors thereon, of means for locking said doors in their closed position, a lever 24 pivotally suspended near its center beneath said car, a wheel 27 pivoted near one end of said lever, an adjustable block provided between the track-rails in position to be engaged by said wheel to tilt said lever when the car is moving in either direction, and operative connections interposed between the opposite end of said tilting lever and said locking means, whereby when said lever is actuated said locking means will be operated to unlock the car-doors, substantially as described.

10. The combination, with a car and the swinging doors thereon, of means for locking said doors in a closed position, a tilting device for operating said locking means provided on the car between the wheels, operative connections provided between said tilting device and said locking means, an adjustable obstacle having a double incline provided between the track-rails, means for locking said obstacle in any desired position, and said obstacle being adapted to engage said tilting device and actuate the same to operate said locking means and release said doors, substantially as described.

11. The combination, with a car and an outwardly-swinging door thereon, of an oscillating locking-lever for said door, and an antifriction-roller mounted on the car and between which and the car said lever is held when in its locked position.

12. The combination, with a car and the swinging doors thereon, of oscillating locking-levers for said doors, antifriction-rollers

between which and the car-frame said levers are movable and said levers being adapted to move past the centers of said rollers to assume their locked position, for the purpose 5 specified.

13. The combination, with a car having swinging doors adapted to be opened by the pressure of the material in the car, of means for locking said doors when closed, an oscillating lever device, a wheel carried thereby, 10 operative connections provided between said lever device and said locking means and an obstacle having a double incline adapted to be placed in the path of said wheel to oscillate said lever when the car is moving in 15 either direction.

14. The combination, with a block having a double incline, of bars having end notches to engage the rail-base on one side of the 20 track, and a clamp device provided on said bars and adapted to engage the base of the opposite rail, for the purpose specified.

15. The combination, with a block having a double incline, the angle-bars 34 secured thereon and engaging the rail-base on one 25 side of the track, an extension 35 provided on said bars and having a slot 36, and a clamp device adjustable in said slot and between which and said extension 35 the base of the opposite rail is held, for the purpose 30 specified.

16. The combination, with a block having a double incline, of bars engaging the rail-base on one side of the track, and an adjustable device provided on said bars to engage 35 the base of the opposite rail whereby said block is rendered laterally adjustable, for the purpose specified.

In witness whereof I have hereunto set my hand this 16th day of February, 1901.

FRANCIS PETELER.

In presence of—

RICHARD PAUL,
M. C. NOONAN.