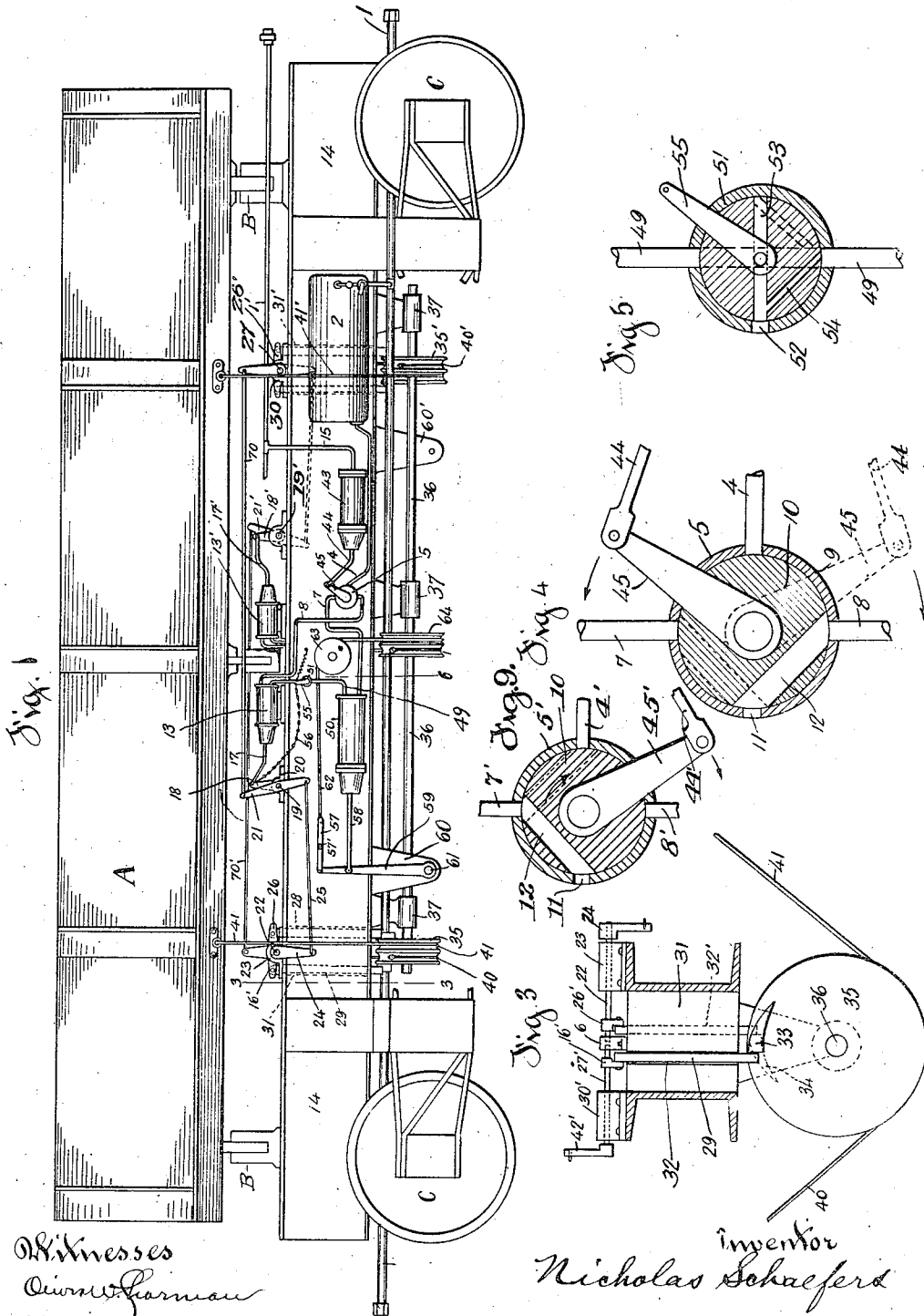


N. SCHAEFERS.
PNEUMATIC CAR DUMPING AND RIGHTING DEVICE.
APPLICATION FILED OCT. 31, 1910.

1,031,875.

Patented July 9, 1912.

2 SHEETS-SHEET 1.



Witnesses
Oscar Harman
Anna Noon.

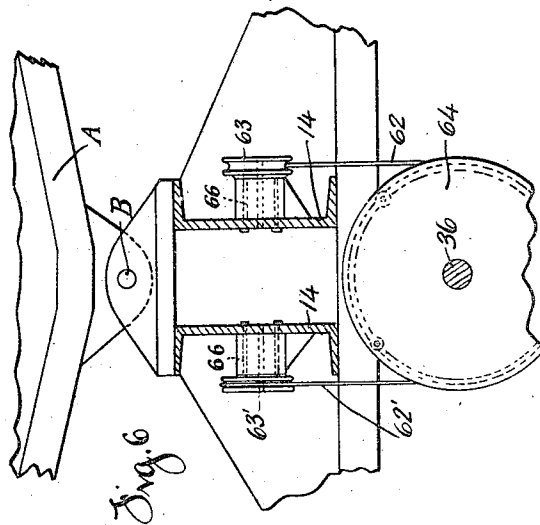
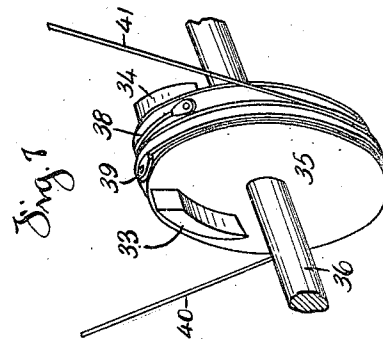
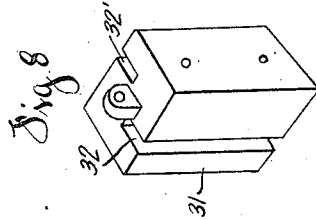
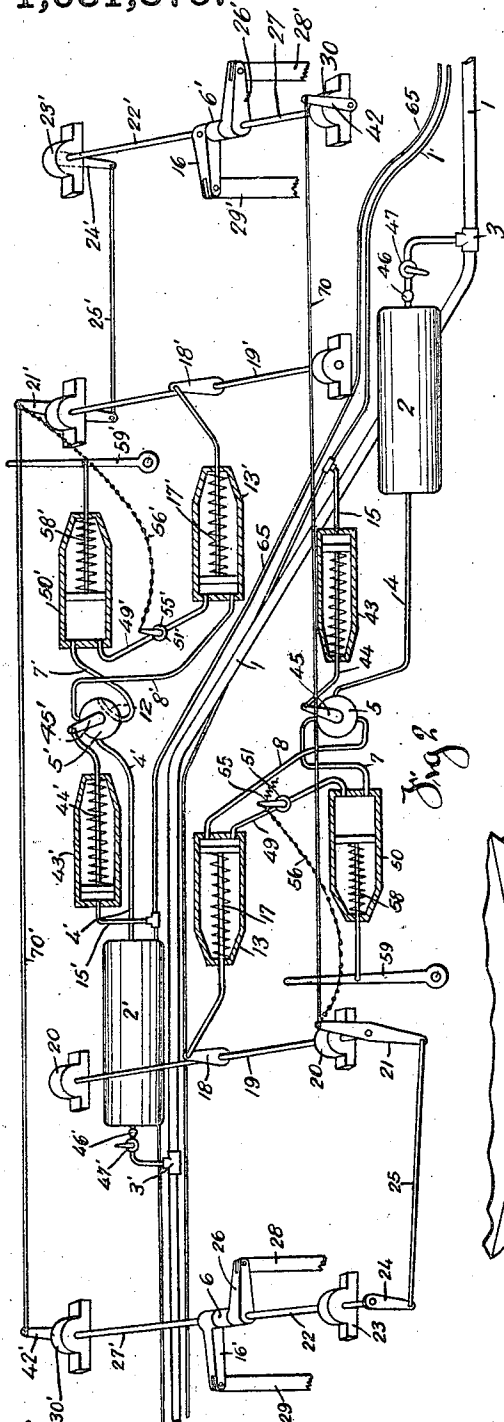
inventor
Nicholas Schaefer
By James H. Ramsey
Attorney

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2 SHEETS—SHEET 2.

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Witnesses
Olivier Hamann
Ammon Han.

Inventor
Nicholas Schaefer
By
James M. Ramsey
Attorney

UNITED STATES PATENT OFFICE.

NICHOLAS SCHAEFERS, OF LUDLOW, KENTUCKY.

PNEUMATIC CAR DUMPING AND RIGHTING DEVICE.

1,031,875.

Specification of Letters Patent.

Patented July 9, 1912.

Application filed October 31, 1910. Serial No. 589,873.

To all whom it may concern:

Be it known that I, NICHOLAS SCHAEFERS, a citizen of the United States, residing at Ludlow, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Pneumatic Car Dumping and Righting Devices, of which the following is a specification.

My invention relates to devices for pneumatically dumping and righting cars.

The object of my invention is to produce a device which dispenses with the inefficient and dangerous chains and holding devices which are in such common use on this style of dump car, and to provide a system or series of compressed air cylinders, which by means of mechanism (which will be described herein) the engineer of a train of cars may put into operation by simply opening a valve or throwing a lever, as the case may be, inside of the engineer's cab.

Another object of my invention is to provide a device which will enable the engineer or conductor to dump a whole train of cars together, either to one side or the other of the track or to dump the cars alternately to one side or the other without the assistance of any one stationed along the side of the cars.

Another object of my invention is to provide a pneumatic dumping device which may be operated to unlock, dump, right and lock while the train is in motion, the pneumatic mechanism being controlled by the engineer of the train, thus enabling a train to be dumped while in motion if it is found necessary or desirable to do so.

A still further object of my invention is to produce a device which is more efficient than the devices now in use, and one which will save a great amount of time, labor and expense.

My invention consists briefly in a series of compressed air cylinders and pistons, which are connected together in such a manner as to operate mechanism, which in turn throws the car into dumping position, to one side or the other and then rights said car, said compressed air cylinders being connected to the main compressed air pipe line of the train and to the separate engineer's train lines, which run parallel with the main supply pipe for the compressed air tanks.

My invention also consists in certain details of construction and in the combina-

tion and arrangement of parts herein set forth and claimed.

In the accompanying drawings, which serve to illustrate my invention: Figure 1 is a side elevation of a dump car equipped with my invention, parts of the trucks being broken away for the sake of clearness. Fig. 2 is a diagrammatic view of my invention, showing the compressed air cylinders in section. Fig. 3 is a detail view showing a section on the line 3-3 of Fig. 1. Fig. 4 is a cross-section taken through one of the valves employed in my invention. Fig. 5 is a cross-section taken through another valve employed in my invention. Fig. 6 is a cross-section taken substantially on the line 6 of Fig. 1. Fig. 7 is a perspective view of the car body propelling wheel. Fig. 8 is a perspective view of the locking block employed in my invention. Fig. 9 is a cross-sectional view similar to that illustrated in Fig. 4 showing the valve and operating arm in the reverse position from that shown in Fig. 4 so that when the valve is operated it will open a different pipe to the compressed air supply.

In the embodiment of my invention as illustrated and which shows a preferred construction, A is the main car-body which is pivoted at B to the channel irons or I-beams 14. The I-beams are mounted in the usual manner on trucks C. The car body is adapted to rock upon bearings or pivots B in the usual manner. The main compressed air line 1 of the train extends from the air pump on the engine all along the train of cars, means being provided as usual for connecting and disconnecting said line between the cars of the train. Each car is provided with a pair of compressed air reservoirs 2 and 2', which are connected to the main train line 1 at 3 and 3' as best shown in Fig. 2. Extending from the air reservoirs 2 and 2' are pipes 4 and 4' which connect to three-way valves 5 and 5', said valves having pipes 7, 8, 7' and 8' respectively connected thereto. The valves 5 and 5' are best illustrated in Figs. 4 and 9 where the pipes 4, 7 and 8 are shown connected thereto. Two devices are required to operate the system properly, one to dump the car and the other to right said car. Valve 5 (shown in Fig. 4) is provided with a casing having four openings or ports therein, three of which are for the pipes which are connected thereto, and also an

opening or port 11. The openings or ports in said valve casings are preferably placed ninety degrees apart, and a passage 12 is provided in the valve 5 connecting the port for pipe 7 and the port 11 or the port for pipe 8 and port 11 together respectively, when the valve is in either one of its normal positions. The valve casing 9 has pipes 4, 7 and 8 attached to suitable ports therein and a revolving valve stem 10 inside of said casing, opens and closes said pipe ports in the casing when operated.

Assuming that the revolving valve stem 10 is in the proper position to allow air to pass therethrough from pipe 4 to pipe 8, as it will be when the arm 45 is moved 90 degrees in the direction of the arrow in Fig. 4, the air then passes from air reservoir 2 through pipe 4 through said valve stem 10 to pipe 8, thence to the releasing cylinder 13 which is suitably mounted on the top of I-beams or channel irons 14, which connect the trucks C of the car together and form a platform for mounting or pivoting the body of the car upon the trucks. The piston rod 17 of said releasing cylinder 13, connects to an upwardly extending arm 18, mounted upon a shaft 19, which in turn is journaled in suitable bearings 20, on the top of the platform formed by the I-beams or channel bars 14. Mounted on one end of the shaft 19 outside of the bearing 20, is a rocker arm 21 disposed vertically thereon and fastened thereto at its middle point.

A shaft 22 is mounted in a manner similar to shaft 19 near the end of the car in bearings 6 and 23 respectively and does not extend entirely across the car as does shaft 19, but only extends from bearings 6 to a point just beyond bearing 23. At the end of said shaft beyond the bearing 23 is a downwardly extending arm 24 tightly mounted thereon which is connected to the downwardly extending portion of the rocker arm 21 by means of a rod 25. The shaft 22 also has a laterally extending arm 26 adjacent the bearing 6 which carries a hanging locking bar 28 at the end thereof. A shaft 27 is mounted at the opposite end of the car in bearings 6' and 30 and also has an upwardly extending arm 42 which is connected to the upwardly extending portion of the rocker arm 21 by connection 70 made of any suitable material. An arm 26' is also mounted on said shaft 27 adjacent the bearing 6' to which is attached the hanging locking bar 28'. Thus shafts 22 and 27 are operated together by means of connecting rod 70, thereby operating the hanging locking bars 28 and 28' at the same time. Locking blocks 31 and 31' are mounted between the channel bars 14, as best shown in Figs. 3 and 8 and are each provided with vertical slots 32 and 32' which are adapted to receive the hanging locking bars 28 and 29, and 28' and

29' respectively. One of these locking blocks is located at each end of the car directly above the two car body propelling wheels 35 and 35' respectively. These car body propelling wheels 35 and 35' are fixed upon the propelling shaft 36 one at each end thereof, the propelling shaft being suitably mounted in bearings 37 fastened in any suitable manner to the channel irons or I-beams 14 and just underneath same so that the hanging locking bars fall adjacent the propelling wheels. The locking bars 28 and 28' extend or hang below the lower surface of the locking blocks 31 and are adapted to hang in the path of a cam 34 on the propelling wheel 35 and the corresponding cam on propelling wheel 35'.

The car body propelling wheels 35 and 35' are each provided with two cams 33 and 34, which are adapted to engage with the locking bars which hang down through the locking blocks 31 and 31'. Each of the car body propelling wheels 35 and 35' are provided with grooves 38 and 39 in the rim thereof, in which are placed cables 40 and 41 respectively which are fastened to said wheel and which extend therefrom to the side of the car body to which they are securely fastened. One of the car body propelling wheels with the cams mounted thereon is best illustrated in Fig. 7. The cams 33 and 34 one on each side of the propelling wheels 35 and 35' point in opposite directions and each engage their respective hanging locking bar 28 and 29, 28' and 29'. By means of the hanging locking bars hanging in the path of said cams the propelling wheels are prevented from turning in either direction as best shown in Fig. 3.

The car body propelling wheels which are provided with the cams 33 having a cam surface at the top thereof do not make a complete revolution when operated, as is readily seen by the position in which the cables 40 and 41' are fastened upon the car body propelling wheels in Fig. 1. If it were not for the cam surface on the top of said cams 33, they would immediately become blocked from returning to their normal position as soon as they engaged the locking bar 29, which falls to its normal position after the cams 33 have passed same, and before the propelling wheel returns to its normal position. For this reason I provide the cam surface so that it will cam the locking bar 29 upwardly, thereby allowing the propelling wheel to assume its proper normal position and automatically lock itself from forward movement again until the locking bars are properly operated.

An engineer's train line 1' extends parallel to the main pipe line 1, to which is connected a small pipe 15, which in turn connects to a compressed air valve operating cylinder 43, and the piston rod 44 of said

cylinder 43 connects to the arm 45 of the valve 5. When the engineer in the engineer's cab or the conductor in the caboose charges the cylinder 43 thereby forcing the piston rod 44 outwardly and operating the valve 5 a sufficient distance to bring the passage 12 in the valve stem 10 in connection with the ports for pipes 4 and 8, the air passes up through pipe 8 and enters the cylinder 13 forcing the piston rod 17 outwardly. The piston rod 17 is connected to an upwardly extending arm 18 tightly mounted upon a shaft 19. As the releasing cylinder 13 is filled with air and the piston rod thereby forced outwardly, the arm 18 is operated, thereby operating the shaft 19. Shaft 19 in turn operates rocker arm 21, and said rocker arm operates the downwardly extending arm 24 on shaft 22 by means of the connection 25 therebetween. Arm 24 being tightly mounted on shaft 22 operates said shaft, thereby operating arm 26, which in turn lifts hanging bar 28, and raises it out of the path of the cam 33 on the car body propelling wheel 35. The rocker arm 21 being connected by means of connection 70 to arm 42 at the other end of the car, operates the hanging locking bar 28' and raises it out of the path of the cam on the car body propelling wheel 35' corresponding to the cam 34 on the propelling wheel 35. Thus the car body is unlocked to move freely in one direction. Now another force is required to operate said propelling shaft 36 and thereby operate the propelling wheels to start the car body moving in the direction in which it is free to move, if it happens that the car is not loaded favorably to dump to the side desired of its own accord. The means for accomplishing this will now be described.

When the rocker arm 21 is rocked as described it operates a valve by means of a flexible connection shown as a chain 56 connected thereto and connected at the other end to the valve 51. The valve 51 is situated in the pipe 49 which connects the releasing cylinder with the cylinder 50. The cylinder 50 is also connected with the valve 5 by means of pipe 7 the port of which in valve 5 is now closed. The valve 51 is shown in detail in Fig. 5 and has a casing with three ports therein, two ports for connecting the pipe 49 thereto and the other port 52 adapted to act as an exhaust port. The valve 51 is provided with passages in the stem thereof, one passage 53 extending straight through same, and the other passage 54 extending from said passage 53 to the outside of the stem forming a port in said stem 90 degrees from the passage 54 as shown in Fig. 5. In its normal position (Fig. 5) the passage 54 connects the pipe 49 with the exhaust port 52 thereby exhausting any air which might be in the cylinder 50.

The chain 56 is fastened to the operating arm 55 of the valve 51 and when operated the passage 53 assumes the position shown in dotted lines in Fig. 5 and thereby opens the pipe 49. The connection 56 is shown with a certain amount of slack therein in order that the rocker arm 21 may move in its proper direction far enough for the piston 17 of the releasing cylinder 13 to move almost its entire stroke before the chain or connection 56 tightens and thereby pulls the arm 55 of the valve 51 over and opens said valve. As soon as said pipe 49 is opened the air which has filled the releasing cylinder 13 immediately passes therethrough into the dumping and righting cylinder 50, and fills said cylinder 50, thereby forcing its piston rod 58 outwardly. The piston rod 58 is fastened to an operating arm 59, which is pivoted upon a bracket 60 at 61 and said bracket is fastened to the bottom of the channel irons 14. As the arm 59 is rocked on its pivot it operates the propelling shaft 36 by means of a flexible connection 62, which may be provided with a take up device 57 to shorten the connection if desired. This flexible connection passes over a roller 63 pivoted on the channel iron 14, and then down around propelling wheel 64, fixed on the propelling shaft 36. The rollers or sheaves 63 and 63' are mounted on the sides of the channel irons of support 14 as shown in Fig. 6, and spacing members 66 are bolted to the channel irons or supports 14 to allow the sheaves or rollers 63 to be mounted in a vertical line, which is tangent with the periphery of the propelling wheel 64, so that the flexible connection 62 will extend vertically and pass over the roller 63 without interfering with the flanges of the channel irons forming the support 14. The flexible connection 62 is fastened tightly to the propelling wheel 64 thereby rotating said propelling wheel when said flexible connection is being operated. It is readily seen that in this manner the car is dumped, inasmuch as the propelling shaft 36 has the car body propelling wheels 35 and 35' mounted thereon, to which is attached the flexible connections 40 and 41. The car body propelling wheel 35' which is mounted at the other end of the propelling shaft 36 is connected to the car body with suitable flexible connections, 40' and 41'. The car now being in dumping position must be righted again, and this is accomplished by means of an entirely separate device which is a duplicate of the device just described, and which is placed substantially on the opposite side of channel bars 14. Thus when it is desired to right the car the engineer opens the valve in another engineer's train line 65, thereby charging the valve operating cylinder 43' through pipe 15', and forcing the piston rod 44' outwardly. The valve 5' is provided with the

arm 45' which is placed in a position reverse to the position of the arm 45' of the valve 5, in order that when the piston rod 44' is operated the valve 5' as shown in Fig. 9 will be operated to connect the pipes 4' and 7' as shown in dotted lines in Fig. 9, thereby charging the dumping and righting cylinder 50' direct through pipe 7', instead of the cylinder 13' through pipe 8 and forcing the piston 58' of the cylinder 50' outwardly and immediately operating the operating arm 59' which is connected by means of the flexible connection 62' around the roller 63' to the propelling wheel 64 mounted tightly on the propelling shaft 36 and thereby operating the propelling shaft in the proper direction to right the car. Of course when it is desired to dump the car in opposite directions, the valves 5 and 5' respectively must be changed or reversed to operate either the releasing cylinders 13 and 13' first, or the dumping and righting cylinders 50 and 50' first, as desired.

The valve 5 of the device is normally in the position shown in solid lines in Fig. 4 and the valve 5' on the opposite side of the device is normally in the position shown in dotted lines in Fig. 4, the arm 45 in each case moving in the direction of the arrow. Thus it is seen that in the valve 5 the passageway 12 will be moved with the arm 45 to connect the pipes 4 and 8 together, while in the valve 5' the passageway 12 will connect the pipes 4' and 7' together when the arm 45' is operated. For instance the device as shown in Figs. 1 and 2 is properly connected so as to dump the car to one side and when it is desired to dump the car to the other side, the engineer's train line 65 is charged to operate the piston rod 44' in the valve operating cylinder 43', thereby operating the arm 45' of the arm 45' or valve 5'. The valve 5' is placed in a position corresponding to the position of the arms 45 shown in Fig. 4 so that when the piston rod 44' operates the arm 45' of the valve 5' the pipes 4' and 8' are connected together through said valve 5', thereby charging the compressed air releasing cylinder 13', and operating its piston rod 17', which operates the arm 18', which in turn operates the shaft 19', thereby operating the rocker arm 21'. The rocker arm 21' operates the connecting rod 25' connected between the lower extending portion of the rocker arm 21' and the downwardly extending arm 24' mounted on shaft 22', supported in a bearing 23'. The shaft 22' is journaled at the other end in a bearing 6' and is an entirely separate shaft from that shown at 27 and has mounted adjacent bearing 6 an arm 16. The hanging locking bar 29' is attached to said arm 16 and when said arm 16 is operated said hanging bar 29' is raised out of engagement with its engaging cam on the propel-

ling wheel 35'. A connection 70' is connected between the upwardly extending portion of the rocker arm, 21' and the upwardly extending arm 42' which is mounted on the shaft 27' journaled in bearings 6 and 30'. The shaft 27' is an entirely separate shaft from that shown at 22. An arm 16' corresponding to the arm 16 at the other end of the car is mounted on the shaft 27' adjacent the bearing 6. Thus when the rocker arm 21' is operated the shafts 27' and 22' are operated together, thereby operating the locking hanging bars 29 and 29' at the same time, and thereby unlocking the propelling wheels to rotate in the proper direction. Upon the return of the car body to its normal position it is readily seen how it is stopped at the proper point by the propelling wheel cams 33 and 34 coming into contact with the hanging locking bars which are placed in the path of the forward movement of the cams.

When the device just described is used to dump the car the opposite device must be connected properly to right the car, which simply means the connection of the valve 5 to operate the arm 45 and the piston rod 44 of the compressed air valve operating cylinder 43:

It is readily seen that I have simply taken the device which was first described as dumping the car, and placed another similar device on the opposite side of the car, either device, to be used for dumping according to the side it is desired to dump the car. Either device may of course be connected to right the car.

In loading a train of cars, certain cars may be loaded unequally, thereby being unequally balanced and tending to cause one car to dump quicker than another. This being the case, if one car, for instance, is dumped before the car preceding it in the train, the car dumping first would rob the following car of its air, and thereby delay the following car from dumping. To prevent this unequal distribution of air in the cars, I provide check valves 46 in the supply pipes leading to the reservoirs 2 and 2' respectively. The check valves allow the air to enter the tank freely, but prevent the air from backing out. Cut-out valves 47 and 47' are also provided in the supply pipe for the reservoirs 2 and 2', respectively, to prevent said reservoirs from being charged when it is desired to cut out the device in any car which for some reason or other is disabled or is not intended to be dumped.

When a certain car is loaded more favorably for dumping to a particular side than other cars, after the engineer's operating valve cylinder has been charged, and the air has passed up into the releasing cylinder, and the releasing cylinder has been operated to unlock the car body in order that it may

dump, the car will dump immediately, due to its favorable load, before the air in the releasing cylinder has had a chance to fill up the dumping cylinder through the pipe 49 and by means of the car dumping, the piston 58 of the dumping cylinder 50 has been carried outwardly instead of being forced outwardly by the air, and forms a vacuum as it were, for the air to rush in and fill said cylinder. This air which suddenly rushes in will come from the point of highest pressure in the system, and as part of the pressure has been used up in the air reservoirs of this particular car, thereby reducing the pressure therein, and this car having dumped before the car preceding it, it is natural that this air which rushes in would be taken from the reservoirs 2 and 2' of the undumped preceding car. The check valves 46 and 46' serve to retain the normal high pressure in the reservoirs of such preceding car.

It is evident that when the car body is in its normal position, the piston rod 58 is in the central position, or just half way between the limits of its stroke, this being necessary to allow the car to dump over to the far side, which would carry the piston its full length, or would allow it to dump to the near side, which would carry the piston back to the beginning of its stroke. A great saving of air may be gained when it is known that cars are to be dumped to one side for a certain length of time, by shortening the cable 62, thereby allowing the piston rod 58 to operate the arm 59 to dump the car, when it is traveling the first half of its stroke; instead of traveling the second half of the stroke, thus eliminating the necessity of filling up half of the cylinder 50 before the cable 62 begins to dump the car body. To accomplish this purpose, I provide the take up device 57 which is connected at one end to the pivoted arm 59 and which is provided with another connecting point 57' to which said arm 59 may be attached if desired, thereby shortening the length of throw of the cable 62, the other end of the take up device 57 being attached to the end of the cable 62. A great amount of air can thus be saved when it is known that the cars are to be dumped long enough to justify of this change of connection between the cable 62 and the arm 59.

By means of my device the car body may be unlocked for tilting, dumped, righted and locked in carrying position, either while the car is running or standing still, without any assistance from any man except the engineer or conductor, the cars being operated entirely from the engineer's cab or caboose. This is absolutely impossible in any other make of car without being unlocked by men upon the ground before the engineer or conductor can dump the car. Other cars can-

not be locked by the engineer or conductor without going on the ground to do so, and it is impossible to lock other makes of cars to keep them from dumping while moving at any rate of speed.

Many modifications of my invention may be made without departing from its spirit and scope, as for instance, the device may be operated by the conductor at the rear of the train if desired, and I do not wish to be confined to the exact details shown.

What I claim as new and desire to secure by Letter Patent is:

1. A dumping and righting device to be placed on cars the bodies of which are adapted to tilt, said device consisting of a series of cylinders adapted to be filled with compressed air, a shaft extending underneath said car, propelling wheels mounted thereon and means whereby said propelling wheels are prevented from rotating, except when operated by mechanism connected to piston rods of said compressed air cylinders, substantially as and for the purposes set forth.

2. In a car the body of which is adapted to tilt, the combination of a shaft extending underneath said car, propelling wheels on said shaft, blocks mounted above said propelling wheels, shafts mounted above said blocks, arms on said shafts carrying hanging locking bars, cams on said propelling wheels, said hanging locking bars adapted to hang in the path of said cams, and engage therewith, thereby preventing said propelling wheels from turning.

3. In a dumping car, the combination of a compressed air reservoir, a main compressed air supply pipe therefor, a compressed air cylinder, a piston rod in said compressed air cylinder, a pivoted arm, a flexible connection fastened at the end of said pivoted arm, said piston rod being connected to said pivoted arm, whereby it is adapted to operate same, a shaft, a propelling wheel on said shaft, to which said flexible connection is fastened, additional propelling wheels on the ends of said shaft having connections therefrom to the car, whereby said car body is tilted when said propelling wheels are operated.

4. In a dumping car, the combination of compressed air reservoirs, a main compressed air supply pipe supplying said reservoirs with compressed air, compressed air cylinders, pistons in said compressed air cylinders, a shaft rotatably mounted on the under side of said car, propelling wheels on said shaft, operating means for said propelling wheels connected to said pistons, locking means to prevent said propelling wheels from rotating, mechanism whereby one of said pistons when operated is adapted to unlock said locking means, air supply pipes connected to each compressed air cylinder,

one compressed air cylinder being adapted to control a valve, said air supply pipes of the other compressed air cylinder being connected to said valve, and an engineer's air supply train line to which said valve controlling cylinder is connected, substantially as set forth and for the purposes specified.

5. A dumping car adapted to dump to either side, a shaft pivotally supported on the under side of said dumping car, propelling wheels on said shaft, compressed air cylinders mounted on said car, operating means for said wheels connected to said compressed air cylinders, means whereby said dumping car is dumped when said propelling wheels are operated, and means whereby said propelling wheels are locked and unlocked pneumatically by means of compressed air cylinders, substantially as and for the purposes specified.

6. In combination with a car body adapted to tilt to either side, and mounted upon a frame secured to trucks, of locking blocks mounted on said frame, hanging locking bars vertically disposed in said locking blocks, a shaft thereunder, means for connecting said shaft to said car body; wheels tightly mounted on said shaft, cams on said wheels adapted to engage the end of said hanging locking bars, cables fastened to said wheels, a series of compressed air cylinders adapted to operate said hanging locking bars, said cylinders connected to engineer's train compressed air lines, compressed air reservoirs, a main supply pipe therefor, compressed air cylinders the pistons of which are adapted to operate said cables fastened to said wheels, substantially as set forth.

7. A car the body of which is adapted to tilt in either direction, a compressed air supply pipe mounted thereon, a shaft mounted thereunder, propelling wheels mounted on said shaft, flexible connections connecting said propelling wheels with the car body, mechanism for preventing said propelling wheels from turning, pneumatic means for operating said mechanism to allow said propelling wheels to rotate, and pneumatic means for rotating said propelling wheels.

8. A pneumatic car dumping and righting device, comprising a main compressed air supply pipe, an engineer's operating compressed air pipe, compressed air tanks supplied by said main compressed air supply pipe, a valve, three pipes connected to said valve, a valve-operating compressed-air cylinder, connected to said engineer's compressed air pipe, one of the three pipes of said valve connected to said air reservoir, a releasing compressed air cylinder, to which another pipe of said valve is connected, a dumping compressed air cylinder to which the other pipe of said valve is connected, said valve when operated adapted to connect

the pipe leading from the reservoir, either to the pipe leading to the releasing cylinder or to the pipe leading to the dumping cylinder, a car body adapted to tilt to either side, trucks therefor, a connecting support between said trucks, upon which the car body is pivoted, locking means whereby said car body is positively locked in its upright position, and mechanism connecting said locking means with said releasing compressed air cylinders, whereby said locking means is controlled and operated by said compressed air releasing cylinders, substantially as and for the purposes set forth.

9. A device for pneumatically dumping and righting cars, comprising a main compressed air supply pipe, operating compressed-air pipes, compressed air-reservoirs, connected to said main supply pipe, valves having three pipes connected thereto, valve-operating compressed-air cylinders connected to said operating compressed-air pipes and adapted to operate said valves, releasing compressed-air cylinders connected to said valves, dumping cylinders connected to said valves, connecting pipes between said releasing cylinders and said dumping cylinders, valves in said pipes whereby said pipes are normally closed, a car body adapted to tilt to either side, trucks for said car body, a platform connecting said trucks upon which the car body is pivoted, locking means on said platform for locking the car body in its normal position, lock operating mechanism connected to said locking means, said lock operating mechanism being adapted to be operated by said releasing cylinders, said lock operating mechanism being adapted to operate the valves in said connecting pipes between said releasing cylinders and said dumping cylinders to open said valves and allow the dumping cylinders to be charged and escape ports in said connecting pipes adapted to allow the air in said dumping cylinders to escape therethrough when said valves are in their normal position, substantially as and for the purposes set forth.

10. In a device for righting and dumping cars, a main compressed air line, compressed air tanks connected thereto, check valves and cut out valves for said compressed air tanks, engineers' train lines adapted to carry compressed air, compressed air cylinders connected to said train lines and adapted to operate three way valves, compressed air cylinders connected by means of pipes to said three way valves and adapted to operate locking mechanism, another pair of cylinders connected to said three way valves and adapted to operate car dumping mechanism, said cylinders also connected by means of a pipe to the said compressed air cylinders which are adapted to operate the locking mechanism, valves in said pipe connections adapted when in their normal position

to form an exhaust for the cylinders which
operate the car dumping mechanism, means
whereby the locking mechanism operates
said valves, to open the pipe connections be-
5 tween said cylinders, said car dumping
mechanism comprising a propelling shaft
carrying propelling wheels thereon, one of
said propelling wheels having cables fas-
tened thereto, said cables passing around
10 sheave wheels suitably mounted, said cables
being fastened to a pivoted operating lever
which in turn is fastened to the piston of
said cylinders adapted to operate said dump-
ing mechanism and cables fastened to the
other propelling wheels and to said car body, 15
substantially as and for the purposes set
forth.

NICHOLAS SCHAEFERS.

Witnesses:

JAMES N. RAMSEY,
WINONA DOAN.

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