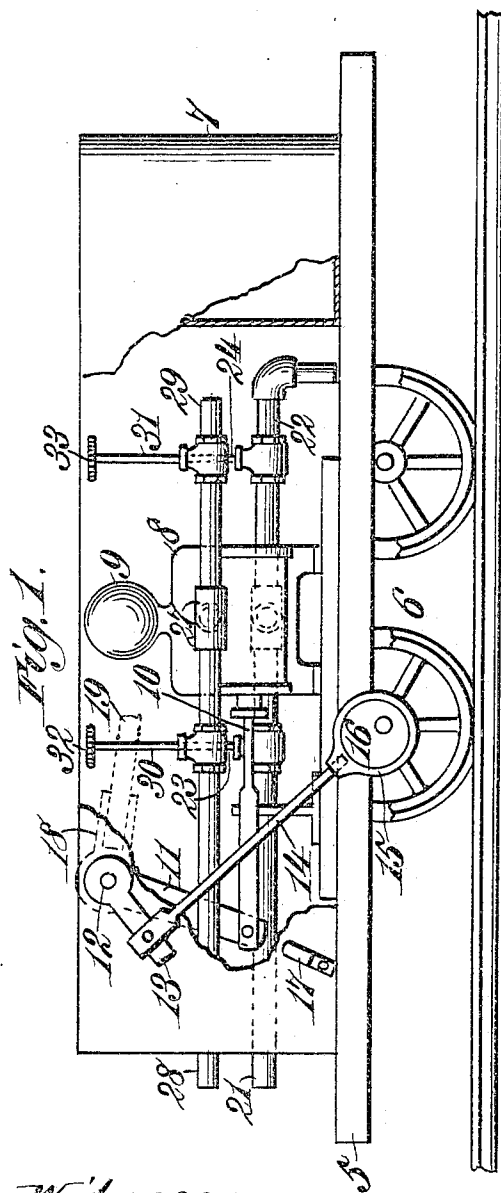


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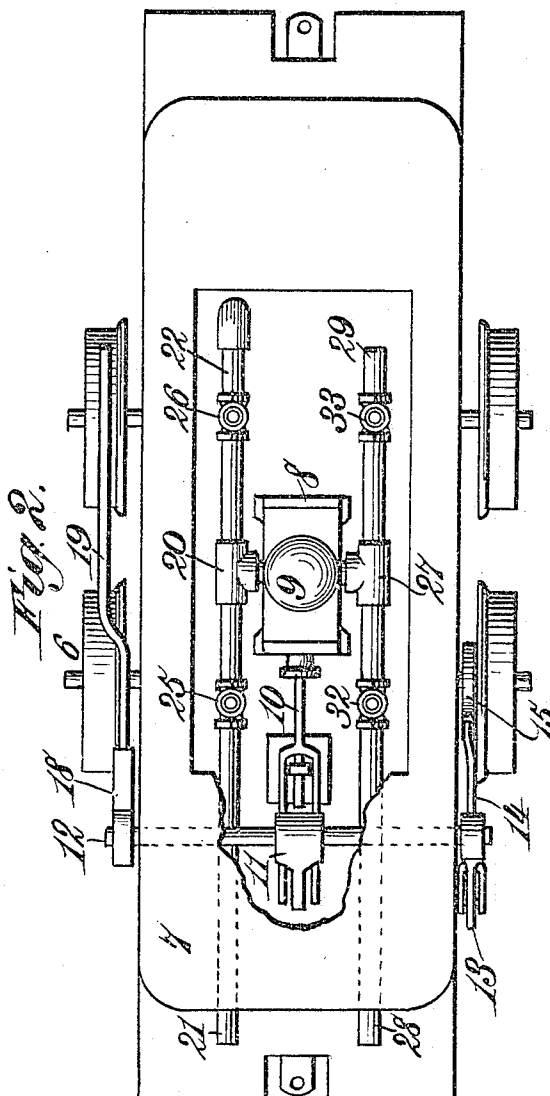
W. J. RICHARDS.  
MINE WATER CAR.

APPLICATION FILED JULY 11, 1904.



Witnesses,  
Robert Everett.

*[Signature]*



*Inventor:*  
*William J. Richards.*  
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# UNITED STATES PATENT OFFICE.

WILLIAM J. RICHARDS, OF ROCKWOOD, TENNESSEE.

## MINE WATER-CAR.

SPECIFICATION forming part of Letters Patent No. 787,112, dated April 11, 1905.

Application filed July 11, 1904. Serial No. 216,147.

*To all whom it may concern:*

Be it known that I, WILLIAM J. RICHARDS, a citizen of the United States, residing at Rockwood, in the county of Roane and State of Tennessee, have invented new and useful Improvements in Mine Water-Cars, of which the following is a specification.

This invention relates to a mine water-car, the object of the invention being to provide a simple, strong, and effective device of this character which can be readily moved from place to place in a mine and which is provided with means for wetting down the floor, ceiling, walls, and other ordinarily inaccessible places in mine galleries, chambers, passages, and the like in order to avoid explosions from floating dust.

In that embodiment of the invention which I have selected for illustration in the accompanying drawings, forming a part of this specification, the car involves a wheeled truck carrying a tank, associated with which is a pump arranged to supply the tank with the water which is to be subsequently used in sprinkling and which pump is also adapted to force the water from the tank in order to sprinkle desired areas. Said pump in the present case and certain of its adjunctive parts are housed within the tank, where they are out of the way, so as to avoid injury to the same or the possible striking by them of the projecting parts within a mine. In addition to this compactness is secured.

Referring to said drawings, Figure 1 is a sectional side elevation of a mine water-car including my invention. Fig. 2 is a top plan view of the same with a part thereof removed.

Like characters refer to like parts in both figures.

The car represented in the drawings involves in its construction a deck or platform, as 5, mounted upon a wheeled truck, (denoted in a general way by 6 and illustrated as having four wheels.) A tank of suitable dimensions and material, as 7, is mounted directly upon the platform 5, and it is adapted to contain water to be used in sprinkling exposed surfaces in mine chambers or compartments and other similar places. The water to be

used in sprinkling is supplied to the tank 7 (which latter may be of iron) by the action of a pump, represented as housed in the tank and hereinafter more particularly described. It might be stated at this point that the pump is traction-operated—that is, it is operated by and on the movement of the car from power developed therefrom during the travel of said car—to expel or force the water from the tank 7.

Within the tank 7 and mounted in any desirable way is a force-pump, as 8, of any usual or preferred construction having the customary air-chamber 9, check-valves, and piston, which I do not deem it necessary to describe or illustrate, as the same form no part of the invention. The piston-rod of the pump is denoted by 10, and to a forward extension thereof is pivoted the lower end of a crank arm or lever 11, rigidly fastened in some suitable way to the transversely-disposed rock-shaft 12, supported by the side walls of the tank 7 near the top of the latter. The opposite ends of the rock-shaft 12 extend outward a short distance beyond the sides of the tank, and the projecting end of said shaft in the foreground in Fig. 1 is provided with a crank-arm 13, rigidly connected therewith and detachably connected with a rod or pitman 14, represented as provided at its lower end with a ring 15, embracing the eccentric 16 on the wheel of the truck in the foreground and at the left of said figure. From this it will be apparent that when the car is in motion and when the rod 14 is connected with or coupled to the crank-arm 13 the shaft 12 will be rocked so as to impart through the intervening parts a motion to the piston of the pump. When it is desired to put the rod or pitman 14 out of action or render it ineffective as a power-transmitting medium, the same will be disconnected from the crank-arm 13, and in such an event as this the said rod or pitman will be reciprocated idly back and forth on the motion of the car and during such time will be supported by a bracket, as 17, on the adjacent side of the tank.

That projecting end of the shaft 12 opposite that carrying the crank-arm 13 rigidly carries a crank-arm, as 18, to which I have

represented as detachably connected a hand-lever, as 19, by manipulating which, as will be apparent, the pump 8 through the intermediate parts will be operated. Under ordinary conditions the hand-lever is actuated to operate the pump to supply water to the tank 7, while when it is desired to discharge water from said tank to spray the interior surfaces of a mine the pump will be operated from the eccentric 16 during the travel of the car.

Communicating with the suction side of the pump 8 is a T, as 20, from which the pipes 21 and 22 lead oppositely, each pipe having a valve of some ordinary kind. The stems 23 and 24 of the valves extend upward and are provided with hand-wheels, as 25 and 26, respectively, or similar devices for operating the valves. The terminal end of the pipe 22 opens into the tank 7 near the bottom thereof, while the corresponding portion of the pipe 21 extends in a water-tight manner to the forward end of the tank 7 and in practice is fitted at its extreme forward end with a suitable connection for a suction-hose. A T-coupling, as 27, extends from the discharge side of the pump 8, and from its branches in turn extend oppositely the pipes 28 and 29, respectively, the pipe 29 opening into the interior of the tank, while the pipe 28 extends through the forward end of the said tank in a water-tight manner and is provided with a flexible hose by which a stream of water can be directed as desired by an operator. The pipes 28 and 29 are provided with valves like those in the pipes 21 and 22, the stems of which are denoted by 30 and 31, respectively, and are provided with actuating devices or wheels, as 32 and 33, respectively. The suction tube or hose adapted to be connected to the receiving end of the pipe 21 may be dipped into a sump or any other source of water-supply.

In operation the car is moved to a place in adjacency to a sump or other place of water-supply, and the entering end of the suction-hose is put into the sump or other source of water-supply. The valves in the pipes 28 and 22 are then closed, while the valves in the pipes 21 and 29 are opened. The rod or pitman 14 is then disconnected from the crank-arm 13, should it be connected therewith, following which the hand-lever 19 is connected to the crank 18 in order to operate the pump 8 through the intermediate parts. Upon the operation of the pump water is drawn into the pipe 21 and, passing the pump, is delivered thereby, through the agency of the pipe 29, into the tank 7. When the tank is filled to the proper height, the operation of the pump under the action of the hand-lever 19 is stopped. The car is then moved along a track to a position ready for use. When it is necessary to spray any surface, the rod or pitman 14 is connected with the crank 13 and the valves in the pipes 28 and 22 are opened,

while the valves in the pipes 21 and 29 are closed. When, therefore, the car is drawn along the track, the pump will be operated from the eccentric 16 and other coöperating power-transmitting parts in order to pump water from the tank 7 by way of the pipe 22 through and by the pump 8 and from thence into the pipe 28, from which pipe 28 the water flows into the flexible hose, by manipulating which latter the water can be directed as desired by the operator.

In practice I provide at one end of the bottom of the tank a valve by which said tank can at desired intervals be drained. Instead of supplying the tank with water by the action of the pump 8 I may do so by pouring water into the tank through the top thereof. In fact, there are other ways in which the necessary water may be delivered to the tank.

It will be apparent from the foregoing description that the car is adapted to convey water from one place in a mine to another and that it has means for wetting down and washing off the sides, top, and floor of dusty mine-chambers in order to render the same absolutely safe from dust explosions. I use the same pump for both filling and discharging the tank and can take water from any point within the limit of the suction of the pump and can discharge the water from the tank while the car is in motion by the tractive power of said car. By the action of the pump I can discharge from the tank a stream of sufficient size and force to thoroughly wet dry and dusty mine entries or rooms.

The car is sufficiently strong to stand the rough usages to which it will be subjected in a mine, and practically all of the operating parts are contained within the tank. The car can be propelled without discharging water even when full and when the rod 14 is connected with the crank 13 by closing the valves in the pipes 21 and 28 and opening the valves in the pipes 22 and 29.

I do not limit myself to the exact construction hereinbefore described nor to the particular use set forth, for as to the construction a number of changes may be adopted within the scope of my claims.

Having thus described my invention, what I claim is—

1. In a mine water-car, a tank, a wheeled truck for carrying the tank, a pump in the tank, valved suction and delivery pipes connected with the pump, the receiving end of the suction-pipe being located outside the tank and the remainder thereof and the delivery-pipe being situated in the tank, a second pair of suction and delivery pipes connected with the pump, the discharge end of the second delivery-pipe being located outside the tank and the remainder thereof and the second suction-pipe being situated within the tank, a rock-shaft supported by the tank, a hand-lever connected with one end of the rock-shaft, a crank-

arm connected with the other end of said rock-shaft, wheel-operated means detachably connected with said crank-arm, and means in the tank, and operated by the shaft, for actuating the pump.

2. In a mine water-car, a tank, a wheeled truck for carrying the tank, a pump in the tank, valved suction and delivery pipes connected with the pump, the receiving end of the suction-pipe being located outside the tank and the remainder thereof and the delivery-pipe being situated in the tank, a second pair of suction and delivery pipes connected with the pump, the discharge end of the second delivery-pipe being located outside the tank and the remainder thereof and the second suction-pipe being situated within the tank, a rock-shaft supported by the tank, having a crank-arm at one end thereof outside the tank, a wheel-operated rod detachably connected with said crank-arm, means for supporting said rod for reciprocation on the motion of the car and when the rod is disconnected from said crank-arm, manually-actuated means for turning said shaft, and means for transferring the power of the shaft to the pump.

3. In a mine water-car, a tank, a wheeled truck for carrying the tank, a pump in the

tank, valved suction and delivery pipes connected with the pump, the receiving end of the suction-pipe being located outside the tank and the remainder thereof and the delivery-pipe being situated in the tank, a second pair of suction and delivery pipes connected with the pump, the discharge end of the second delivery-pipe being located outside the tank and the remainder thereof and the second suction-pipe being situated within the tank, a rock-shaft supported by the tank, a hand-lever connected with one end of the rock-shaft, a crank-arm connected with the other end of said rock-shaft, an eccentric arranged to be operated by one of the wheels, a rod operable by said eccentric and detachably connected with said crank-arm, a bracket on the side of the tank for supporting said rod for reciprocation when it is disconnected from said crank-arm, and means in the tank, and operated by the shaft, for actuating the pump.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM J. RICHARDS.

Witnesses:

W. D. KELLY,

W. S. SCARBROUGH.