July 8, 1930. A. BERASI 1,769,939

MINE CAR

Filed Oct. 15, 1927 2 Sheets-Sheet 1

Fig. 1.

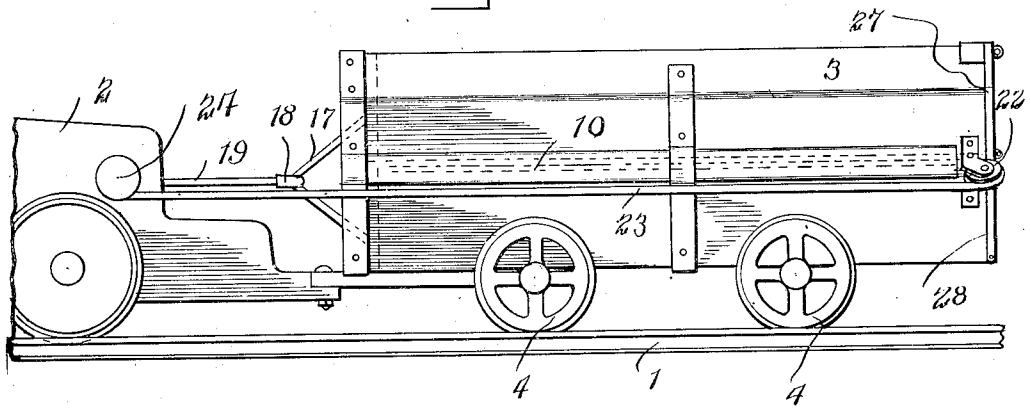
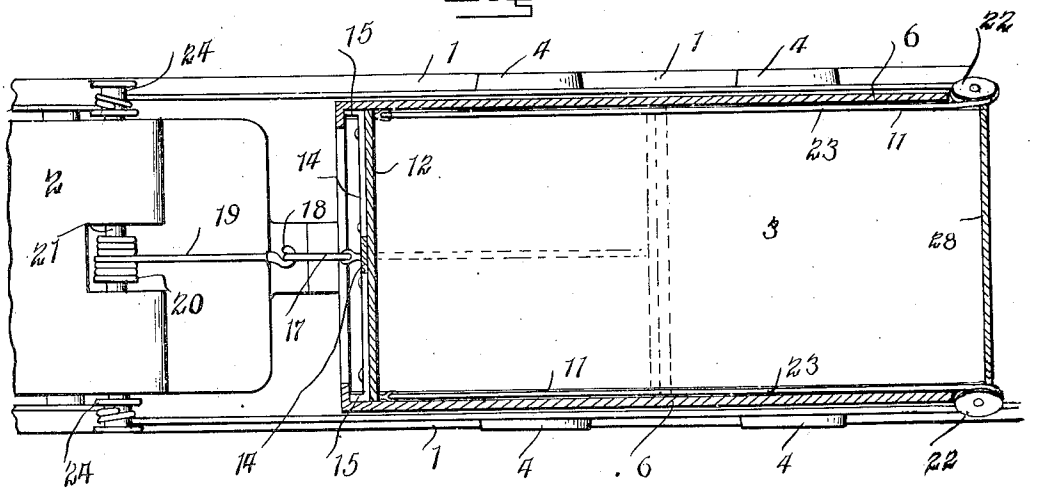


Fig. 2.



Inventor

Abele Berasi

By Lacey & Lacey, Attorneys

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Fig. 3.

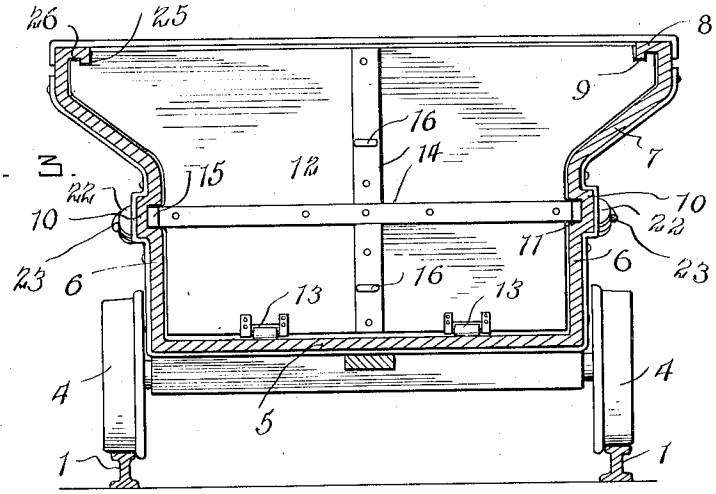


Fig 4

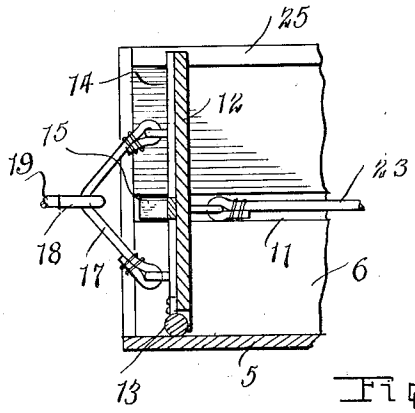


Fig. 5.

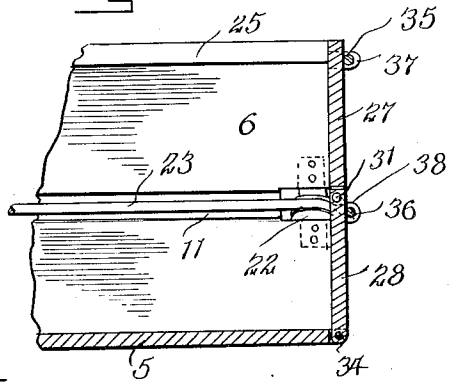
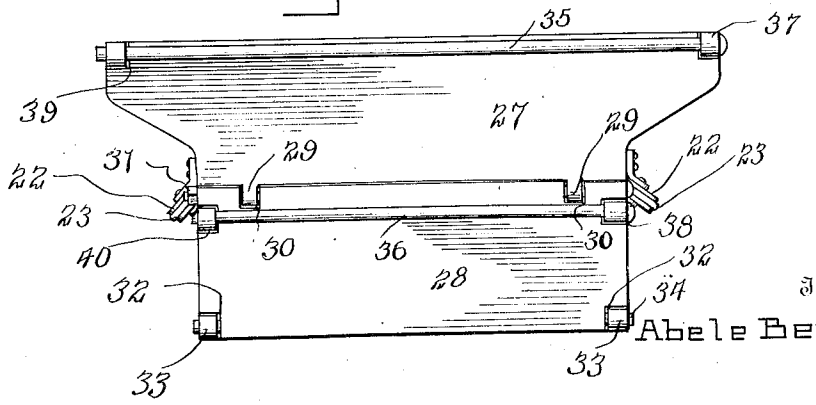


Fig. 6.



Inventor
Abele Berasi

By Lacey & Lacey, Attorneys

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UNITED STATES PATENT OFFICE

ABELE BERASI, OF FREEPORT, PENNSYLVANIA

MINE CAR

Application filed October 15, 1927. Serial No. 226,376.

This invention relates to mine cars and has special reference to the means for dumping the load. While a car embodying my invention may be employed in various fields, it is intended more particularly for use in mines where veins of slate, shale or other matter are encountered which veins must be removed before the coal can be taken out. It is now the usual practice to load a car with the shale, slate and other matter and carry the load from the mine to a tipple where the contents of the car are discharged onto a dump. By the use of my improved car, the load may be carried to a waste room in the mine or other vacant space and there dumped without requiring the car to travel outside the mine and then return to the place of operations. The object of the invention, therefore, is to provide a simple, efficient and inexpensive construction whereby the load may be expeditiously discharged from the car and the car restored to its normal condition ready to receive another load. The invention is illustrated in the accompanying drawings and consists in certain novel features which will be hereinafter fully set forth.

In the drawings:

Figure 1 is a side elevation of a mine car embodying my invention;

Fig. 2 is a horizontal section of the same;

Fig. 3 is an enlarged transverse section taken in advance of the follower;

Fig. 4 is a detail vertical section showing the mounting of the follower;

Fig. 5 is a similar view showing the end gates, and

Fig. 6 is a rear end elevation.

In the drawings, the reference numeral 1 indicates a portion of a track and 2 a portion of a mine locomotive to which is coupled a car 3. The car is mounted upon wheels 4 arranged to run upon the track 1 in the usual manner and comprises a body or hopper having a bottom 5 and side walls 6, the front and rear ends of the body or hopper being open. The sides of the body diverge in their upper portions, as shown at 7, so as to overhang the rails and the wheels and obtain a maximum capacity permitted by the width of the mine passage in which the car is to operate. At the upper edges of the sides are formed inwardly projecting overhanging flanges 8 having ledges 9 on their under sides in spaced relation to the major portions of the side walls whereby a guide groove extending longitudinally of the flange is provided, and substantially midway the height of the side walls are offsets 10 defining longitudinal grooves 11 on the inner sides of the car. A follower 12 consisting of a vertically disposed plate is disposed between the side walls of the car and is equipped at its lower edge with rollers 13 whereby it may move readily over the bottom of the car. On the front side of the follower are secured metal bars or straps 14 which reinforce the follower and are disposed one vertically and one horizontally, as clearly shown in Fig. 3. The ends of the horizontal brace project beyond the edges of the follower to engage within the grooves 11 and thereby guide the follower in its movements and assist in preventing tilting or tipping of the follower, it being noted upon reference to Fig. 2 that the extremities of this brace are bent forwardly, as at 15, so as to obtain a somewhat extended bearing in the grooves. Upon the vertical brace 14 are secured eyes or loops 16 which carry a bail or hitching rope 17 adapted to be engaged by a hook 18 on the free end of a cable 19 which is wound upon a drum 20 secured upon a winding shaft 21 mounted upon the mine locomotive and driven from the power shaft of the same. At the rear end of the car body or hopper are mounted idlers or guide pulleys 22 about which are trained cables 23 which are each secured at one end to the rear side of the follower and fit within the longitudinal grooves 11 of the hopper. From the idlers 22, the cables 23 extend forwardly and are attached to drums 24 secured upon the end portions of the winding shaft 21 upon the locomotive, and it may be here noted that, while, as a matter of convenience, I have illustrated these drums 24 as outside the locomotive frame, in actual practice, they will generally be disposed within the lines of the locomotive frame so as to avoid chance contact with the side walls of the mine passage. It will be understood that normally the follower 12 is at the front end of the car, as shown in Figs. 2 and 4, and, if the motor be driven so as

to wind the cables 23 upon the drums 24, the follower will be drawn to the rear of the car, the cable 19 unwinding, and the load will thereby be forced from the car. If the motor shaft be actuated so as to wind the cable 19, the follower will be drawn to the front end of the car and the cables 23 will be simultaneously unwound.

The upper edge of the follower is constructed with notches 25 adjacent its side edges and with upstanding tongues 26 at the outer sides of said notches so that the upper edge of the follower will conform to and slidably engage the overhanging flange 8 and the rib or ledge 9 thereon so as to aid in guiding the follower in its travel and prevent tilting and consequent binding of the same.

At the rear end of the car, I provide an end gate including an upper section 27 and a lower section 28, the two sections being hingedly or pivotally connected at their meeting edges. To effect the desired pivotal or hinged connection between the end gate sections, I have shown the upper section as provided with depending lugs 29 fitting within 30 in the upper edge of the lower section, and a hinge rod 31 is inserted through the said lugs and through a bead or other form of passage provided therefor through the upper edge of the lower section. The lower section is constructed with notches 32 in its lower corners fitting around lugs or eyes 33 on the car body and a hinge rod 34 is inserted through the said lugs and through a passage provided therefor along the lower edge of the gate section, as will be understood upon reference to Figs. 5 and 6. To retain the end gate in its upright closed position, holding rods 35 and 36 are provided to pass across the upper edges of the respective gate sections at the rear of the same and thereby hold them against dropping action. These rods are inserted through lugs 37 and 38 formed on the rear end of the car body at the top and at intermediate points in the height of the same, as shown in Fig. 6, and the gate sections are constructed with notches 39 and 40, respectively, to accommodate the said lug. If the load is to be removed, the rods are withdrawn and the entire end gate swung downwardly about the hinge rod 34 in an obvious manner. The motor of the locomotive is then driven in such direction as to wind the cables 23 and unwind the cable 19 so that the follower will be carried to the rear of the car and the load discharged, the motor being then reversed so as to wind the cable 19 and unwind the cabes 23 so that the follower will be returned to its normal position at the front end of the car. The sectional construction of the end gate is convenient when filling the hopper or car body, as a part load may be thrown into the body and the lower section raised into position, the upper section being in folded position against the lower section. When the load has reached the full height of the lower section, the upper section is raised and secured and the loading then proceeds until the full capacity of the car has been reached. The labor involved in loading the car is thus materially lightened.

The hook 18 may be readily detached from the draft bail 17 and the cables 23 are, of course, detached from the respective drums 24 so that, if a number of cars are to be unloaded, they may be successively uncoupled from and coupled to the locomotive so that an empty car may be run out of the way and a loaded car then actuated to dump its load. Long waits of an idle locomotive while loading cars is thus avoided inasmuch as the locomotive may run an empty car to the place of operation and then return to the dumping point unload a loaded car and then carry the second empty car to the place of operation. The grooves 11 in the sides of the car body not only furnish guides to maintain the follower in its proper position while traveling but also provide spaces within which the cables 23 are housed so that they will not interfere with the loading or unloading and will not be embedded in the load so that the movement of the cables will be difficult. The apparatus is exceedingly simple and may be produced at a low cost while it is easily operated and is highly efficient in operation.

Having thus described the invention, I claim:

Apparatus for the purpose set forth comprising a portable hopper provided with longitudinal grooves in its side walls, guide pulleys at the rear end of the hopper in alinement with said grooves, a follower mounted in the hopper, guides on the follower engaging in said grooves, a winding shaft in advance of the hopper, a cable wound on said shaft and connected with the front side of the follower, and other cables wound upon the shaft reversely to the first-mentioned cable and extending rearwardly from the shaft to and around the guide pulleys and then forwardly within the grooves in the hopper and attached to the rear side of the follower.

In testimony whereof I affix my signature.

ABELE BERASI.