R. T. McKEEN.

COAL LOADING DEVICE.

APPLICATION FILED AUG. 18, 1919.

1,362,716.

Patented Dec. 21, 1920.

2 SHEETS—SHEET 1.

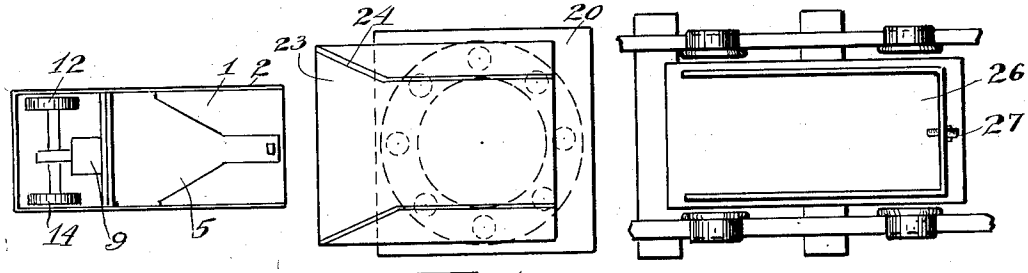


Fig. 1.

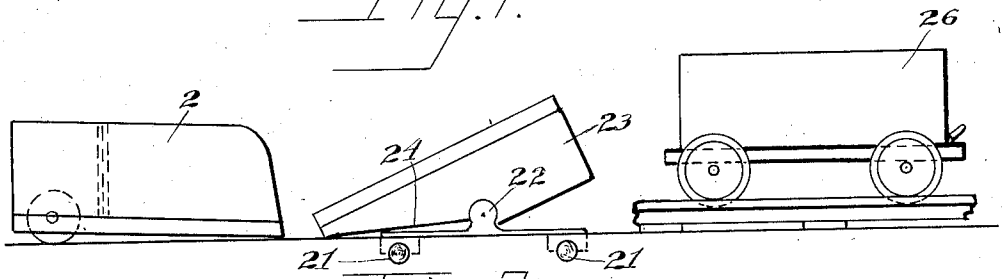


Fig. 2.

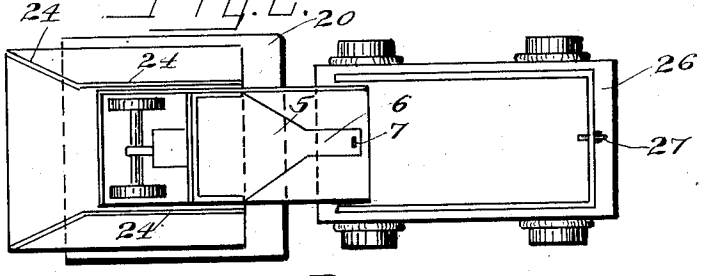


Fig. 3.

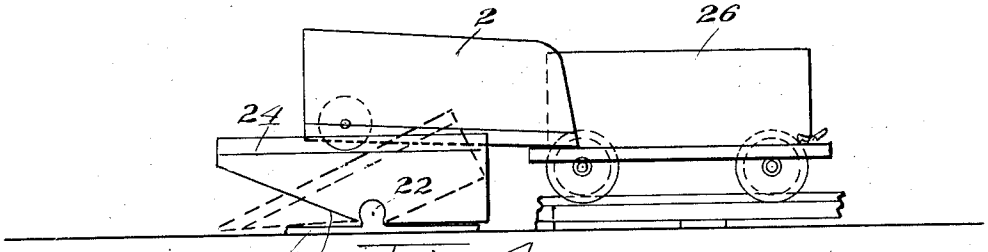


Fig. 4.

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2 SHEETS—SHEET 2.

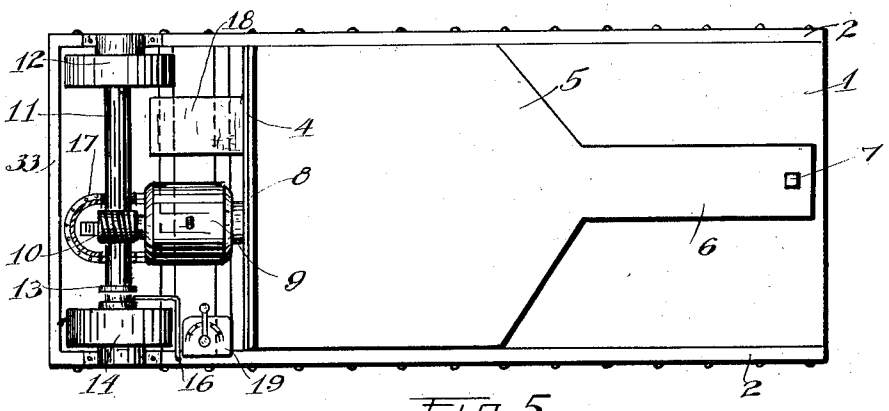


Fig. 5

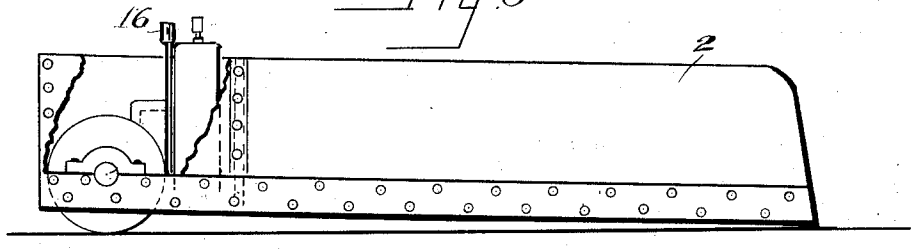


Fig. 6

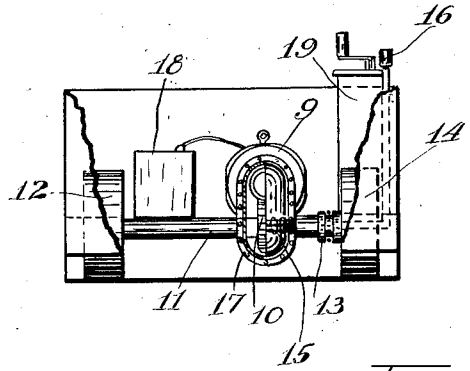


Fig. 7

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RICHARD T. McKEEN, OF CHICAGO, ILLINOIS.

COAL-LOADING DEVICE.

1,362,716. Specification of Letters Patent. Patented Dec. 21, 1920.

Application filed August 18, 1919. Serial No. 318,172.

To all whom it may concern:

Be it known that I, RICHARD T. McKEEN, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Coal-Loading Devices, of which the following is a full, clear, and exact description.

My invention relates to improvements in devices for loading coal, and it consists in the combinations, constructions and arrangements herein described and claimed.

The object of my invention is to provide a device by means of which coal may be economically loaded into cars at the mines. The device is primarily intended for use in coal mines using the room and pillar system and in which the coal is gotten out by undercutting with a chain machine.

A further object in my invention is to provide a device consisting of a shovel, having means for propelling the same so that the shovel may be moved from room to room.

A further object of my invention is to provide a cradle which is adapted to receive the shovel and by means of which the shovel is elevated to a level with the car.

A further object of my invention is to provide a novel form of shovel which may be operated by power in a room having a relatively small height.

Other objects and advantages will appear in the following specification and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings, which form a part of this application and in which—

Figure 1 is a plan view showing the shovel, cradle and the car in position for loading.

Fig. 2 is a side view of the parts shown in Fig. 1.

Fig. 3 is a plan view showing the shovel on the cradle, about to be moved forwardly into the car.

Fig. 4 is a side view of the parts shown in Fig. 3.

Fig. 5 is a plan view of the shovel.

Fig. 6 is a side view of the shovel, a portion being broken away.

Fig. 7 is an end view of the shovel, a portion of the frame being broken away.

Referring now particularly to Figs. 5, 6 and 7, I have shown therein a shovel having a bottom 1, provided with sides 2, and an end 3. A transverse partition 4, is provided near the rear end 3. Disposed on the bottom 1, is a metal plate 5, having a forwardly projecting extension 6, provided with an opening 7. The rear end of the plate is turned upwardly as shown at 8. This plate is designed to normally occupy the position shown in Fig. 5.

In the rear of the partition 4, is disposed a motor 9, which is connected by means of a worm and gear drive 11. The latter bears, at one end, a wheel 12, and at its other end has a clutch member 13, which is slidable on the shaft and which is arranged to engage a clutch member connected with the wheel 14. Normally, the clutch members are in engagement, being held in engagement by means of a spring 15, see Fig. 7. The clutch member 13, may be shifted out of engagement with its companion clutch member by means of a lever 16, so that the wheel 14, may then turn idly on its shaft or axle. The worm and gear drive is preferably inclosed in a housing 17. The motor is designed to be run by any suitable source of current, such as the storage battery 18. The latter is connected with a controller 19.

In Figs. 1 and 2 I have shown a cradle which comprises a turn table 20, having roller bearings 21. This turn table is provided with a pivot member 22, about which the cradle body 23, turns. The cradle body 23 is provided with upwardly extending guide flanges 24, which, as seen from Fig. 3, extend inwardly from one corner and thence parallel to the major dimension of the cradle. The forward end of the cradle is provided with an inclined bottom 25, see Fig. 4, which is arranged to swing downwardly so as to bring the floor of the cradle in position to receive the shovel.

The pit car 26, has one end open. The opposite end is provided with a dog or catch 27. In the drawings the shovel and the pit car are shown substantially the same length, but it will be understood that in actual practice the shovel is longer.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. The shovel is moved to the room where the coal is being cut and shot down, by means of the power device carried by the shovel. The

motor is operated by means of the controller in the usual manner. The controller is one of the ordinary type, which is adapted to give different speeds and reverse. In order to steer the shovel one has only to shift the clutch lever 16, thereby throwing the wheel 14, out of engagement with the drive shaft 11, whereupon the power which is supplied through the wheel 12 will turn the rear end of the device toward the side upon which the wheel 14 is mounted, which the shovel is moving rearwardly. The shovel is turned around to face the coal which has just been shot down. Very large pieces of coal in the center of the room are moved to one side, leaving only moderately sized pieces and any coal of smaller size, down to slack, in the front of the shovel. Power is then applied to both wheels and the shovel is forced into the coal, the latter accumulating upon the plate 5, and also on the floor 1 of the shovel. The shovel is then manipulated to bring it to the cradle 23. It is then backed up the inclined cradle platform. When the greater weight of the shovel passes the center of gravity of the cradle, the latter is tilted about its pivot 22 to a horizontal position, level with the bottom of the mine or pit car. The cradle, with the loaded shovel, is now turned to face the open end of the car, the motor 9 is started and the shovel proceeds forward onto the car until the opening 7, in the extension 6, is engaged by the catch 27. The shovel is now backed out onto the cradle, the plate 5, however, which is retained by the catch 27 remains on the car with its load of coal. Any coal on the bottom of the shovel will be forced off during the rearward movement of the shovel onto the cradle. The pit car then proceeds to the tipple and is unloaded in the usual way.

It will be seen that this means of loading coal onto the pit car is simple, and yet it may be accomplished very rapidly. Moreover, the shovel may work in a room which is of relatively little height so that the use of the shovel may be had on seams of coal of relatively narrow depth.

I claim:

1. A coal loading device comprising a shovel, power means for propelling the shovel, a mine or pit car, means carried by the shovel for supporting coal and means carried by the car for engaging the coal supporting means for retaining the latter on the car when the shovel is withdrawn.

2. In a coal loading device the combination of a shovel having power means for propelling the same, a slidable plate carried by the shovel, a pit car having an open end arranged to receive the shovel, and means carried by the pit car and arranged to engage the slidable plate for retaining the latter when the shovel is withdrawn.

3. In a coal loading device the combination of a self propelled shovel, a slidable plate carried by said shovel and being provided with an opening, a pit car having an open end arranged to receive the shovel, a catch carried by said pit car arranged to enter the opening in the plate for retaining the latter when the shovel is moved, and means for elevating the shovel to the level of the car floor.

4. In a coal loading device the combination of a self propelled shovel, a slidable plate carried by said shovel and being provided with an opening, a pit car having an open end arranged to receive the shovel, a catch carried by said pit car arranged to enter the opening in the plate for retaining the latter when the shovel is moved, and means for elevating the shovel to the level of the car floor, said elevating means comprising a cradle having a normally inclined platform arranged to receive said shovel and adapted to swing to a horizontal position when the shovel has reached a given position on said platform.

5. In a coal loading device the combination of a self propelled shovel having driving wheels at one end, the front end of the shovel normally resting on the ground, a cradle having a pivot and being provided with a normally inclined platform adapted to receive the shovel, the movement of the shovel and its load on said platform causing the cradle to tilt about its pivot to bring the shovel into a horizontal position.

6. In a coal loading device the combination of a self propelled shovel having driving wheels at one end, the front end of the shovel normally resting on the ground, a cradle having a pivot and being provided with a normally inclined platform adapted to receive the shovel, the movement of the shovel and its load on said platform causing the cradle to tilt about its pivot to bring the shovel into a horizontal position and means carried by the cradle for guiding the shovel.

7. In a coal loading device the combination of a self propelled shovel having driving wheels at one end, the front end of the shovel normally resting on the ground, a cradle having a pivot and being provided with a normally inclined platform adapted to receive the shovel, the movement of the shovel and its load on said platform causing the cradle to tilt about its pivot to bring the shovel into a horizontal position and a turn table for supporting the pivot of the cradle.

RICHARD T. McKEEN.