

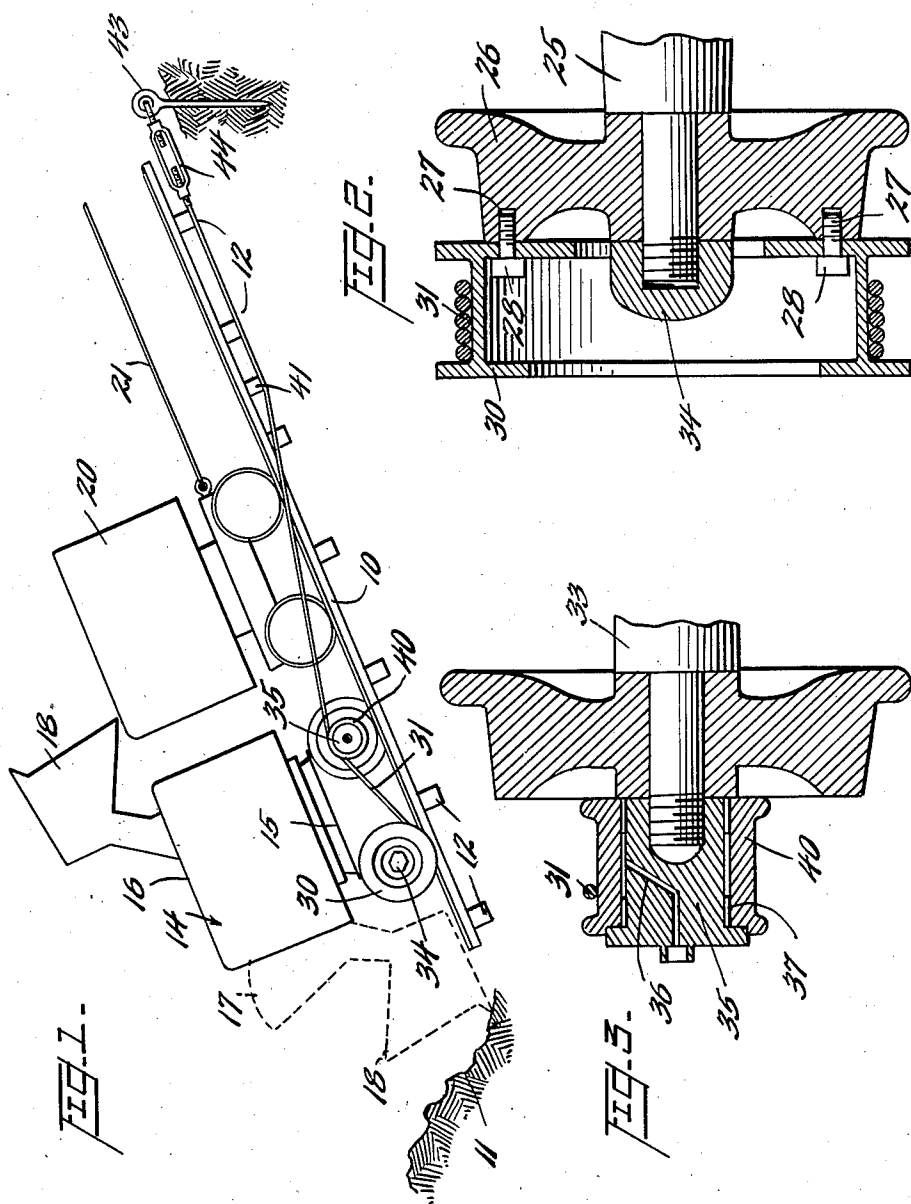
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LOADER

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LOADER

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This invention relates to excavating and particularly to the loading of the material broken down by other mechanism. Its principal object is the provision of means whereby a mucker or loader may be made to operate efficiently at an incline.

A further object of the invention is to provide a simple system whereby a two-axled vehicle running on a track may be steadied against tilting at any point of its travel on its ways in order that a crane or dipper may be operated from the down-hill end of the vehicle, whether it be a mucker or loader or other type of car.

In underground metal mines there is little clearance and hence a special type of shovelling machine or mucker has been designed to load a mine car in the rear of the mucker with minimum overhead clearance. Typical modern embodiments of such cars are illustrated in U. S. patents to Royle, 2,205,732, and Osgood, 2,268,570, but the invention is not limited to this type of vehicle. These mukers work very well on level tracks but many of the mine runways are inclined and my invention allows such shovellers and loaders to be used with perfect safety and with high efficiency on any ordinary inclined track.

In the drawing:

Figure 1 is a side elevation of a loader and mine car using my invention on a 40% grade.

Figure 2 is an axial section thru the drum.

Figure 3 is an axial section thru the roller.

The inclined track 10 leads from the muck pile 11 upwardly and is supported by the usual ties 12 which may rest upon the ground or on a trestle or other supporting base. The loader of the type cited is given the numeral 14 and has a power driven truck 15 to which is pivoted a superstructure 16 carrying a rocker 17 substantially integral with the bucket or dipper 18 operated by a motor separate from the motor of the truck, both usually being of the compressed air type. The mine car 20 is of ordinary form, being connected to the hoist by a cable 21 which holds the car in loading position fairly close to the loader as shown. All parts mentioned so far are conventional and are used to describe the invention which can be applied to any vehicle that tends to tip when in use.

The forward axle 25 of the loader 14 carries the usual wheel 26 which I have tapped as at 27 to receive bolts 28 by means of which a drum 30 is secured to the wheel and to which one end of a cable 31 is fastened.

The rear axle 33 carries a traction wheel of

usual type but the cap nut 34 is replaced by a false hub nut 35 having a grease way 36 and a bushing 37 on which rotates freely a steel roller 40. The cable 31 from the drum 30 passes over this roller 40 and from there to a point beneath a bar 41 enough wider than the tracks to give convenient clearance, and from thence to an eyebolt 43 set at a clearance outside of the track. The desired tautness of the cable is secured by means of a turnbuckle 44. While a single cable 31 might suffice, I prefer to duplicate the parts, having a drum on each rear axle, a roller on each front axle, two cables, two turnbuckles and two anchoring means such as the eyebolt. The bar, however, preferably a mere rod such as a drill steel, serves both cables and for this purpose may be perhaps eighteen inches wider than the ties.

The operation of the device is as follows:

The length of the cable 31 is sufficient to extend considerably past the muck pile 11, with the loader in any position on the tracks. The cable 31 partly wound on the drum 30 and resting on top of the roller 40 is placed under the bar 41 and its free end secured to the turnbuckle 44, the latter in turn being secured to the eyebolt 43. The cable is now made taut by turning the turnbuckle which does not twist the cable 31 but provides any desired degree of tension. The loader is now propelled to the muck pile and the mine car is lowered into proximity to the mucker. As the scoop or dipper is raised the loader tends to rotate about the forward axle but such movement is resisted by pressure of the roller against the cable which overlies it, and hence the loader may be used on rather severe grades.

Without my device, the friction between the wheels of such a loader, and the rails upon which it runs, is insufficient to keep the loader from sliding down even a slight incline if the rails are moist. Consequently the ordinary traction can not be trusted on inclines to insure the necessary movements of such a loader in its operation and it is extremely unsafe for persons required to work below it. But with my device applied the 40% grade illustrated in the drawing is perfectly safe and I have used cars for some appreciable time on such a grade both efficiently and safely.

What I claim is:

1. The combination with a vehicle having two axes, of a drum on one axle, a roller on the other axle, a cable on the drum and extending above the roller, and means for securing the free

end of the cable at a point below the plane of the axes of the two axles to prevent the roller, and therefore the axle on which the roller is mounted, from rising.

2. In a vehicle having two wheels and tending to tilt from end to end in use, a drum revolving with one wheel of the vehicle, a roller coaxial with the other wheel and revolving independently thereof, a cable resting on the top of the roller and secured at its two ends so as to hold the wheel coaxial with the roller, against its track, one of the said ends of the cable being secured to the drum.

3. A wheeled mucker having a roller coaxial with one of the wheels and freely rotatable with respect thereto, and having a drum revolving with another of the wheels of the mucker and of the same diameter, whereby when a cable is wound on the drum, passed over the roller, and anchored in taut condition at a distance from the mucker, the cable will remain taut as the mucker moves toward or away from the anchored end of the cable, whereby to resist upward movement of the roller as the center of gravity of the mucker load moves toward the axis of said another wheel and away from the axis of said one wheel.

4. A self-propelled wheeled mucker of the type for use on an inclined support, having on one of its driving wheels a drum, a cable secured to the drum and to a fixed position outside of the mucker and means carried by the mucker for engaging the cable between the drum and the anchoring position to prevent tilting of the mucker.

5. In combination an excavating loader, an inclined track on which the loader travels, and means adjacent the track and secured to the loader for resiliently holding the upper end of the loader from tilting as the loader mechanism lifts a load at the forward end.

6. In combination a loading vehicle having four wheels, a drum on each of the coaxial forward wheels, a roller carried by the loader on each end of its rear axle, a cable secured to each drum and passing over the proximate roller, means for anchoring the free ends of the cable and a bar extending beneath the track and engaging each of the cables.

7. In combination, a self propelled vehicle having at least one traction wheel, an inclined surface engaged by said wheel, a drum of the same diameter and revolving with said wheel, a cable secured to the drum to wind the cable on the drum as the vehicle moves up the inclined surface, means for anchoring the free end of the cable in the direction of upward movement of the vehicle, and means secured to the vehicle to engage the cable between its ends to hold the cable above a straight line between the drum and the anchored end of the cable, whereby a tendency of the vehicle to rotate about the axis of its traction wheel is resisted by the engagement of the cable and the means secured to the vehicle, said cable being maintained in taut condition by being wound on the drum as the vehicle approaches the anchored end of the cable.