

May 3, 1927.

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N. A. NEWDICK

LOADING MACHINE

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2 Sheets-Sheet 2

Fig. 3.

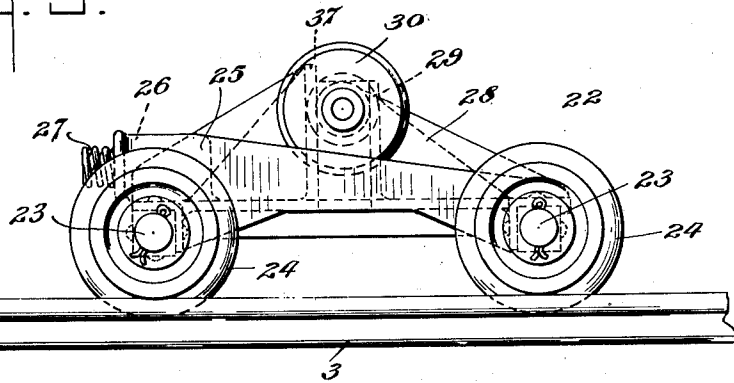
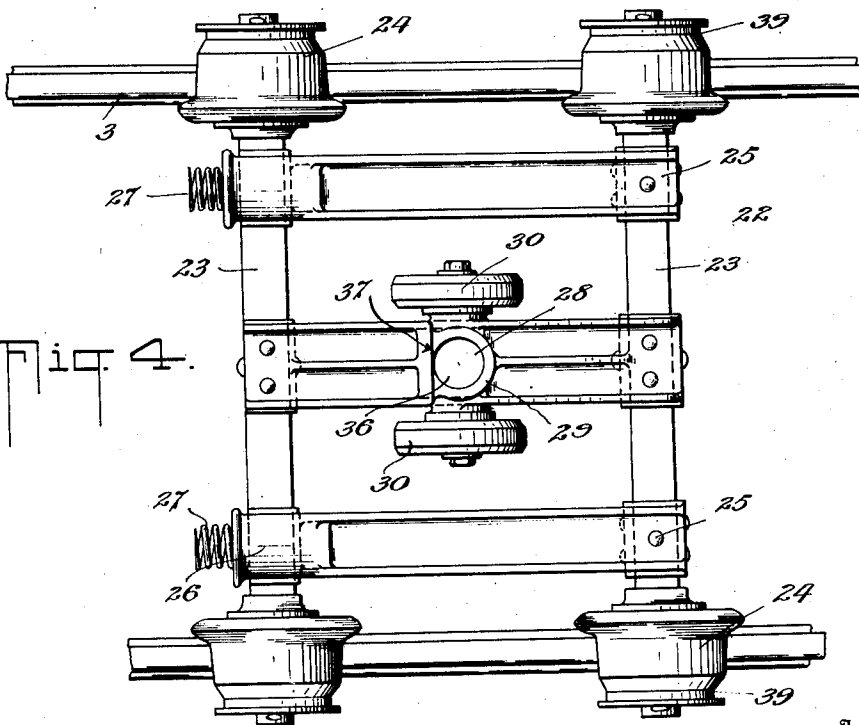


Fig. 4.



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LOADING MACHINE.

Application filed September 6, 1923. Serial No. 661,304.

This invention relates to improvements in loading machines, of the type particularly adapted for use in the mining of coal in underground mines, and has for its primary object the provision of improved means adapted for use in supporting such machines for transportation over the trackways provided therefor in the mines.

Another object of the invention resides in a loading machine wherein is included an inclined gathering conveyor having its upper or rear end pivotally supported so that the frame may rock vertically, the lower or forward end of the conveyor being adapted, when the machine is in operation, to rest upon the floor surface of a mine and to be brought into gathering engagement with the materials to be removed from said surface, and to provide in connection with a machine of this type an improved pony truck structure arranged for co-operation with the forward lower end of the conveyor, so that said lower end may be supported upon a wheeled base during travel over a mine track from one working location to another.

A further object of the invention resides in the provision of a structure which constitutes an improvement upon certain features of construction disclosed in my prior Patent No. 1,413,128, issued April 18, 1922.

For a further understanding of the invention, reference is to be had to the following description and the accompanying drawings, in which:

Figure 1 is a side elevation of a loading machine constructed in accordance with the features of the invention.

Figure 2 is a vertical transverse sectional view taken through the machine on the plane indicated by the line 2-2 of Figure 1.

Figure 3 is an enlarged side elevation of the pony truck.

Figure 4 is a top plan view thereof.

Referring more particularly to the accompanying drawings the letter A designates my improved loading machine in its entirety. This machine consists essentially of a base or truck 2, provided with wheels appropriately gaged for travel over a trackway 3, laid upon the floor surface of a mine. The frame of the truck 2 carries a motor 4 which through the agency of suitable power transmission device 5, imparts power to the wheels of the truck 2, effecting the self propulsion of the machine. Mounted

upon the truck 2 is a base plate 6 which carries upstanding bearings 7, through which passes a horizontal shaft 8. Arranged for oscillation upon the bearings 7 around the axis of the shaft 8 is a swinging pedestal or conveyor support 9, around the upper end of which is swiveled the elongated inclined frame 10 of a gathering conveyor 11.

The frame of the conveyor 11 is constructed to include an inclined intermediate portion 12, a substantially flat horizontally extending upper or discharge end 13, and a depressed forwardly extending nose end 14, which latter, when the machine is in operation, is adapted to engage or rest upon the floor of the mine for horizontal sweep movement thereover, the frame 10 turning about the vertical axis provided by the upper end of the pedestal 9. Arranged upon the upper surfaces of the frame 10 are chain guides 15, through which pass an endless chain 16, the latter being placed around suitable sprockets situated at the opposite ends of the frame, and the chain 16 is provided, as shown in Figure 2, with laterally extending arms or flights 17, which pass through material conveying troughs 18 provided in the frame. By this construction, when movement is imparted to the chain, the flights 17 circulate around or pass around the front end of the frame, gather coal in their path of movement and convey the same upwardly through either of the alternately available troughs 18, finally discharging the coal into the hopper 19 of a delivery conveyor 20, which is mounted upon the base plate 6 and includes an elevated discharge end 21. This end, in practice, is arranged over a mine car so that coal discharged from the conveyor 20 will be deposited within said car and carried to any suitable point of discharge. This construction has been shown, described and claimed in my co-pending application filed January 22, 1921, Serial Number 439,092 and therefore is not claimed herein, the present invention having to do with the construction of an improved pony truck 22, which is employed to receive the lower end of the gathering conveyor during the travel of the machine over the trackway 3.

This pony truck consists of a pair of axles 23, having journaled upon the ends thereof track engaging wheels 24, the axles 23 being united by a pair of longitudinally extending members 25. These members are formed to

include sockets 26 in which are seated coil springs 27, so disposed as to engage with the forward portion of the truck 2 and relieve shock thereon when the pony truck is forced rearwardly along the trackway. Arranged between the longitudinal members 25 is a centrally disposed support 28, which includes an upwardly extending tubular column 29, and upon the upper end of the column 29 there is mounted a pair of rollers or other anti-friction devices 30. Carried upon the under side of the frame 10 is a fixed or rigid guide shoe 31, shown in Figures 1 and 2, and this guide shoe is so disposed as to register with and receive the rollers 30 when the gathering conveyor is loaded on the pony truck.

Thus, assuming that the gathering conveyor is in its lowered position, with its nose end 14 resting upon the floor surface of a mine, and it is desired to elevate the gathering conveyor and lower the same on the pony truck, the said truck is deposited upon the rails of the trackway 3 immediately to the rear of the shoe member 31. The wheels of the pony truck are then blocked in any appropriate manner so as to resist movement of the pony truck along the trackway in the direction of the truck 2. The loading machine A is then moved rearwardly along the track, bringing the inclined surface 32 of the shoe 31 into contact with the upper surfaces of the rollers 30. Continued rearward movement of the machine results in the elevation of the frame 10 by oscillating the same about the axis of the shaft 8, due to the inclination of the surface 32. When the machine has been properly elevated and the weight centrally distributed upon the pony truck, the column 29 is brought into registration with a king pin bearing 33, located on the frame 10 between the chain guides 15. This bearing carries a vertically movable king pin 34, which is arranged to pass through an opening 35 provided in the shoe 31 and have its lower end received within a socket 36 formed in the column 29. A shoulder 37 is provided on the column 29 and engages with the lower end of the king pin 34 when the frame of the loading machine has been sufficiently elevated to register with the socket 36, thereby notifying the operator of the registration and permitting the pin to be dropped, so as to constitute a swivel connection between the pony truck and the gathering conveyor. This enables the pony truck to readily follow the curves of the trackway 3 and to so guide the forward end of the conveyor that the latter will be enabled to negotiate sharp curves with but a minimum of tangential projection, preventing the forward end of the machine from dragging or scraping along the floor surface of a mine and also from striking walls, tim-

bers or other obstructions located adjacent the trackway.

Since the weight of the gathering conveyor is concentrated on the rollers 30, the latter because of their anti-friction properties, facilitate the loading and unloading of the conveyor on the pony truck. The rollers also permit the pony truck to rotate about the axis of the king pin 34. To unload the machine from the pony truck, the king pin 34 is elevated, and the machine moved forwardly a sufficient distance to remove the rollers from the flat portion 38 of the surface 32. When striking the inclined portion of said surface the pony truck is automatically forced rearwardly and the nose end of the machine drops by gravity upon the floor surface of a mine. It is because of this fact that the springs 27 are provided since when the forward end of the loading conveyor falls, the pony truck is forced sharply and vigorously rearwardly, the springs serve as shock absorbers between the pony truck and the main truck 2.

As in my aforesaid patent, the wheels of the pony truck are provided with grooves 39, which receive the chains 40 carried by the under portion of the conveyor 11. These chains have certain of their ends connected as at 41 with the frame 10 and the other ends wrapped around a windlass 42. This construction is used to maintain the pony truck in an elevated position beneath the frame 10 when the gathering conveyor is in operation, loading coal.

What is claimed is:

1. In a loading machine, a gathering conveyor, including an elongated inclined frame, pivotally mounted at its rear end to swing vertically, a pony truck for supporting the forward lower end of said frame for transportation, comprising a frame having wheeled axles, a centrally disposed support carried by said pony truck frame, anti-friction devices carried by said support, a guide shoe having an inclined surface co-operative with said anti-friction devices to lift said conveyor vertically, and a removable pivotal connection uniting said pony truck with the forward end of the gathering conveyor.
2. In a loading machine, an elongated inclined gathering conveyor, pivotally mounted at its rear end for rocking movement in a vertical plane, a portable base upon which the rear end of the gathering conveyor is pivotally mounted, a pony truck for supporting the forward end of said conveyor for movement over a trackway, said pony truck comprising a frame carrying track engaging wheels, a rigid support arising substantially centrally from the frame of said pony truck, rollers mounted upon the upper end of said support, a shoe member having an inclined surface mounted upon the under side of the inclined portion of said conveyor,

the inclined surface of said shoe member being arranged for co-operation with said rollers, and a removable king pin arranged to be seated in registering sockets provided in said conveyor and centrally disposed support.

3. In a loading machine, an inclined gathering conveyor pivotally mounted at its rear end to swing vertically and having a forward lower floor engaging end, a pony truck upon which the forward end of said conveyor is mounted for transportation over a trackway, said pony truck comprising a frame, track engaging wheels carried by said frame, a centrally disposed support rising from said frame, a shoe member mounted upon the under side of the forward portion of said gathering conveyor, said shoe member having an inclined bottom face adapted to ride over and be received upon the support, and a removable pivotal connection between said shoe member and said support.

4. In combination with a pivoted conveyor having an inclined shoe member connected thereto, a pony truck for supporting the end of the conveyor, said pony truck including a wheeled frame, a supporting column

rising vertically and centrally from said frame, and anti-friction devices mounted on said supporting column for engagement with the inclined shoe.

5. In combination with a pivoted conveyor having an inclined shoe member connected thereto, a pony truck for supporting the end of the conveyor, said pony truck including a wheeled frame, a supporting column rising vertically and centrally from said frame, and anti-friction rollers mounted on opposite sides of the supporting column.

6. In combination with a pivoted conveyor having an inclined shoe member connected thereto, a pony truck for supporting the end of the conveyor, said pony truck including a wheeled frame, a supporting column rising vertically and centrally from said frame and formed rigidly therewith, and anti-friction devices mounted on said supporting column for engagement with the inclined shoe.

In testimony whereof I have signed my name to this specification.

NORTON A. NEWDICK.