April 27, 1926. 1,582,312

C. D. SENSENICH

MINING CAR

Filed August 19, 1925

Fig. 1.

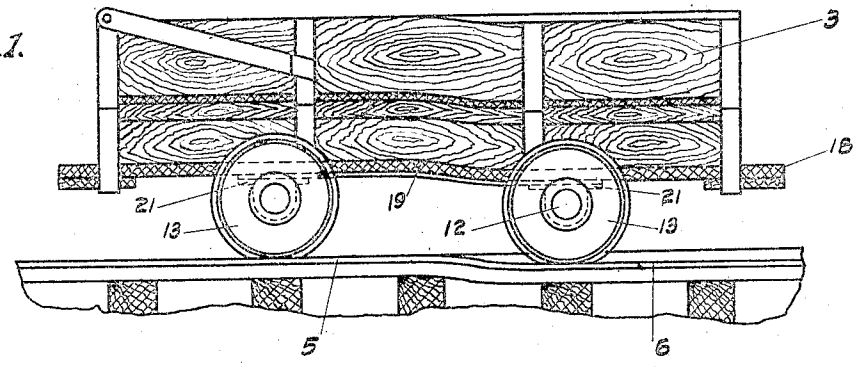


Fig. 2.

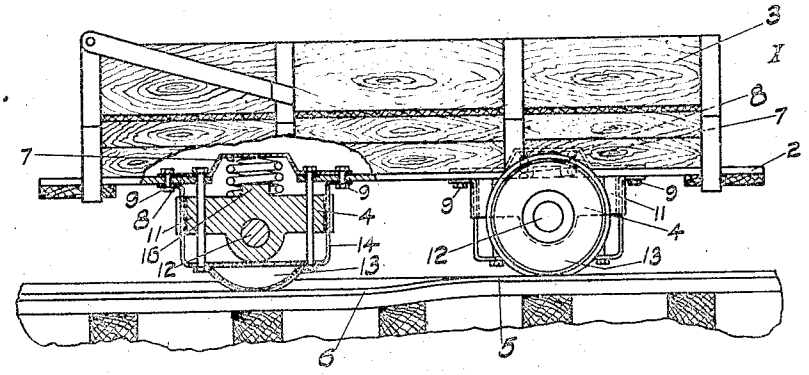


Fig. 3.

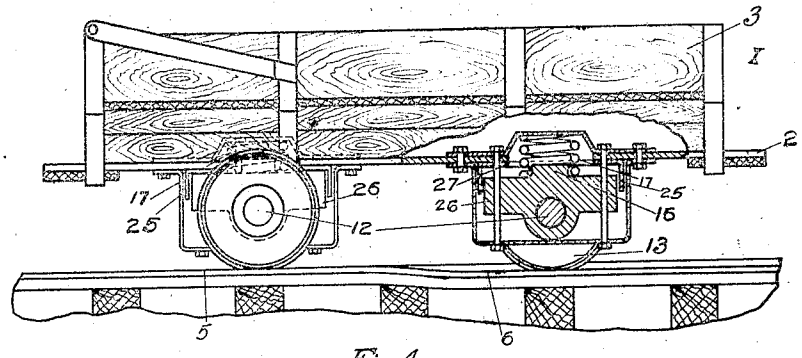
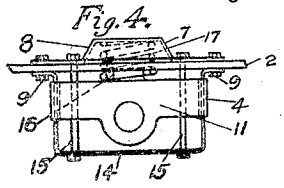


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHESTER D. SENSENICH, OF IRWIN, PENNSYLVANIA.

MINING CAR.

Application filed August 19, 1925. Serial No. 51,114.

To all whom it may concern:

Be it known that I, CHESTER D. SENSENICH, a citizen of the United States, and a resident of Irwin, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Improvement in Mining Cars, of which the following is a specification.

My invention relates to mining machinery and particularly to mining cars.

One object of my invention is to provide a mining car having a metal bottom such that the car wheels shall follow the irregularity of the track over which it operates.

Another object of my invention is to provide a mining car, the trucks of which shall follow the unevenness and irregularities of the track over which it operates, because of the flexibility of the connection between the car bottom and the car trucks.

Another object of my invention is to provide a mining car having a metal bottom that shall positively press the car wheels against the rails regardless of unevenness and irregularities therein.

A further object of my invention is to provide a mining car having a metal bottom that is provided with a plurality of upwardly formed recesses for the reception of springs for positively pressing the wheels against the rails.

Yet another object of my invention is to provide a mining car having a metal bottom provided with upwardly formed recesses that house springs for positively pressing the car wheels against the rails so that the overall height of the car is not increased by reason of the presence of the springs.

Yet another object of my invention is to provide a metal bottomed mining car with springs interposed between the metal bottom and the car journals, such that the metal bottom normally rests directly on the car journals and the springs are compressed within recesses formed at the expense of the cubical contents of the car and without adding any additional height to the car.

In mining cars heretofore, it was found to be necessary to employ wooden bottoms, preferably of oak, by reason of the fact that the cars operate over very uneven and irregular tracks. It has been customary to fix the car bottoms directly to the car journals and accordingly, as a car moves over an irregular track, the wheels move upwardly and downwardly in an irregular manner, in accordance with the rise and fall of the rails. The presence of timber in the bottom of the car enabled it to warp and twist in order that the weight might be uniformly distributed upon the wheels.

With the use of metal car bottoms, it is necessary to employ metal of sufficient gauge to prevent the warping of the car as a whole. The result of this construction is that, as the car passes over an irregular track, first one, and then another wheel is substantially free from the track with the result that the car frequently tumbles from the rail with the consequent inconvenience incident thereto.

The increase in scarcity of suitable oak timber is compelling manufacturers to adopt a metal car bottom. Also when working thin veins of coal, the economy in the overall height of the car gained by the use of metal bottoms over wooden bottoms is pronounced. A metal bottom of one quarter inch gauge will replace a three inch oak car bottom. The resulting saving of two and three quarters inches in the height of a mining car enables the mine operator to use the car in a much thinner coal vein or to increase the height of the car body and thereby the cubical contents of the car for use in higher coal veins.

By my invention, I propose to employ a metal car bottom that shall have sufficient rigidity to prevent the warping of the car bottom and at the same time provide means, disposed within the outline of the car body, for pressing the wheels against the rails with sufficient force to cause the wheels to follow the unevenness therein without causing the car to tumble from the tracks.

In the accompanying drawings,

Fig. 1 is a view in elevation of a wooden mining car now in use.

Fig. 2 is a view partially in elevation and partially in section of a mining car embodying my invention.

Fig. 3 is a similar view of a modified form of my invention, and

Fig. 4 is a view in elevation of a car truck shown in Fig. 2.

Referring to Fig. 2 my invention comprises in general a mining car 1 that is provided with a metal bottom 2 for supporting a body 3 on suitable trucks 4 for following a track 5 having unevenness and irregularities 6 therein. By the use of the term "mine car," I do not intend to be limited to the use of my invention in mines alone, as such cars

are capable of many industrial uses, such as in clay mines, quarries, etc.

The car bottom 2 is preferably of sheet metal, such as steel plate, that is of such gauge as to support the car body 3 and the load without sagging or twisting. In practice, the metal plate 2 is generally of about one quarter inch gauge, although the exact gauge of the plate varies with the working requirements to be considered with the design of each car. The car bottom 2 is provided with upwardly extending recesses 7 that may be pressed directly in the bottom 2 or formed by securing suitable shaped plates 8 thereto. The recesses 7 are so disposed in the bottom 2 as to be directly over the trucks 4 when the latter are attached. The recesses 7 extend upwardly into the car and detract slightly from the internal volume thereof.

The trucks 4 are secured directly to the car bottom 2 beneath the recesses 7 by bolts 9. Each truck comprises a journal 11 that normally rests against the car bottom 2 for supporting an axle 12 on which are mounted the wheels 13. A strap 14 is slung from the car bottom 2 to cooperate with bolts 15 to serve as a guide-way for the journal 11 in its moving relative to the car bottom 2. A boss 16 is formed on each of the journals 11 to serve as the seat for a coil spring 17 that extends upwardly into the recess 7 and engages the plate 8.

The primary purpose of the coil springs 17 is to expand downwardly, thereby pressing upon the trucks 4 in order that the wheels 13 shall follow the irregularity in the truck 5 without being lifted therefrom when passing over irregularities 6, by reason of the inflexibility of the car bottom 2. Such weight as the spring 17 carries is a secondary consideration, as the main car weight is borne by the direct engagement between the car journals 4 and the car bottom 2.

Referring to Fig. 1, I have shown a car 3 having a wooden car bottom 18 that warps or twists as at 19, when passing over the track irregularities 6, by reason of the inherent flexibility of the wood in the car bottom 18. Such wood is usually three inch oak plank. In this construction, car journals 21 are bolted directly to the car bottom 18.

A comparison of the cars shown in Figs. 1 and 2 will show that they are cars of similar volumes although the car having the metal bottom 2 is two and three quarter inches lower than the wooden car. However, provision must be made with the metal bottomed car for causing the wheels 13 to follow the irregularities 6 in the cars 5. Such is the purpose of the particular construction of the car journals 4, the cooperating springs 17 and the recesses 7.

In the operation of a car embodying my invention, the car bottom 2 moves along in substantially the same horizontal plane, but since one track 5 has the irregularity 6 therein the vertical distances between its plane and the track vary from point to point. When the track 5 is level, the journals 11 bears directly against the car bottom 2 and supports the weight thereof, and when the wheel 13 is rigidly secured to the car bottom 2, there is a tendency to lift certain of the wheels 13 from the track 5 and cause the car to tumble from the track. With my invention, when such conditions arise, the springs 17 expand between the car journals 11 and the plates 8 and exert such a downward pressure on their associated journals 11 as to cause them to move downwardly along the guide-strap 14 and the bolts 15 with such pressure to the affected wheels 13 to follow the track 5. When the track 5 and the plane of the car bottom 2 are again in parallel relation, the springs 17 are compressed within the recesses 7.

By compressing the springs 17 within the outline of the car bottom, an economy in the height of the car is obtained since the advantages of springs 17 are obtained while the car rides directly upon the journals 11 without increasing the overall height of the car.

Referring to Fig. 3, I have shown channel-irons 25 secured to the car bottom 2 in parallel position to the axles 12, for the purpose of stiffening the car bottom. In this form of my invention the journals 26 move within the flanges 27 of the channel-irons 26. The channel-irons 25 are provided with openings 27 through which the springs 17 pass. In other details, this form of my invention is similar to the modifications shown and described in connection with Fig. 2.

It will thus be seen that I have devised a metal bottomed mining car in which provision is made for causing the wheels to follow the irregularities and unevenness of the track, while the car bottom itself remains in a horizontal plane. The wheels are caused to follow the car track because of the downward directed pressure exerted upon them by springs extending upwardly into recesses in the car body.

It is to be understood that such changes may be made in the shape, disposition and arrangement of the several parts as fall within the scope of the annexed claims.

I claim as my invention:—

1. In a mine car, a metal bottom, a plurality of wheels, connecting axles, journals for the axles normally in direct contact with the car bottom, a supporting track, and means for pressing each of the wheels against the track regardless of unevenness therein.

2. In a mine car, a metal bottom, a plurality of wheels, connecting axles, journals for the axles normally in direct contact with the

car bottom, a supporting track, and means disposed between the journals and car bottom for pressing the wheels against the track regardless of unevenness thereof.

3. In a mine car, a metal bottom, a plurality of wheels, connecting axles, journals for the axles normally in direct contact with the car bottom, a supporting track, and means disposed between the journals and car bottom for holding the wheels against the track regardless of variations in the distances between the car bottom and the track by reason of unevenness therein.

4. In a mine car, a metal bottom, a plurality of wheels, connecting axles, journals for the axles normally in direct contact with the car bottom, a supporting track and means engaging the journals and nested in the bottom of the car for pressing the wheels against the track.

5. In a mine car, a metal bottom, a plurality of wheels, connecting axles, journals for the axles normally in direct contact with the car bottom, a supporting track, and means disposed above each journal and nested in the car bottom for pressing the wheels against the track.

6. In a mine car, a metal bottom, a plurality of wheels, connecting axles, journals for the axles normally in direct contact with the car bottom, a supporting track, and means disposed above the journals in recesses formed in the car bottom for pressing the wheels against the track.

7. In a mine car, a metal bottom, a plurality of wheels, connecting axles, journals for the axles normally in direct contact with the car bottom, a supporting track, and means disposed above the journals in recesses formed in the car bottom and projecting into the interior thereof for pressing the wheels against the track.

8. In a mine car, a metal bottom, a plurality of wheels, connecting axles, journals for the axles normally in direct contact with the car bottom, a supporting track, and springs disposed above the journals in recesses formed in the car bottom and projecting into the interior of the car for pressing the wheels against the track.

9. In a mine car, a metal bottom, a plurality of wheels, connecting axles, journals for the axles normally in direct contact with the car bottom, a supporting track and springs disposed above the journals in recesses formed in the car bottom and projecting into the interior of the car for pressing the wheels against the track without adding to the height of the car.

10. In a car structure, a plurality of journals, a metal car bottom directly engaging and supported by the journals, the car bottom having a plurality of recesses formed in the under surface thereof, and pressure compensating means disposed in the recesses between the car bottom and the several journals.

11. In a car structure, a plurality of journals, a metal car bottom directly engaging and supported by the journals, the car bottom having a plurality of recesses formed in the under surface thereof, and pressure compensating means disposed in the recesses between the car bottom and the several journals, the recesses being of such a depth as to extend into the interior of the car.

12. In a car structure, a plurality of journals, a metal car bottom directly engaging and supported by the journals, the car bottom having a plurality of recesses formed in the under surface thereof, and pressure compensating means disposed in the recesses between the car bottom and the several journals, the recesses being of such a depth that substantially their entire volume is taken from the volume of the car.

13. In a car structure, a metal car bottom having a recess therein, a car journal normally engaging the car bottom, and a spring disposed in the recess between the car bottom and the journal.

14. In a car structure, a metal car bottom, a car journal normally directly engaging the car bottom, and space compensating means disposed between the journal and car bottom at the expense of the car volume.

15. In a car structure, a metal car bottom, a car journal normally directly engaging the car bottom, and space compensating means disposed between the journal and car bottom at the expense of the car volume, without influencing the height of the car.

16. In a car structure, a metal bottom, a journal member normally directly engaging the bottom and a spring interposed between the bottom and journal and disposed in a recess in one of them.

In testimony whereof, I have hereunto subscribed my name this 12th day of August 1925.

CHESTER D. SENSENICH.