March 29, 1932. R. B. OSBOURNE 1,851,644

BRAKE MOUNTING

Filed June 29, 1928 2 Sheets-Sheet 1

Fig.1.

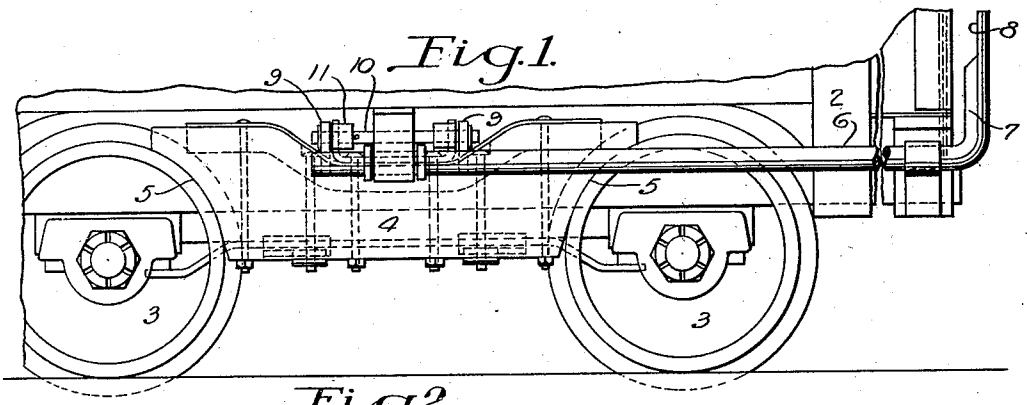


Fig.2.

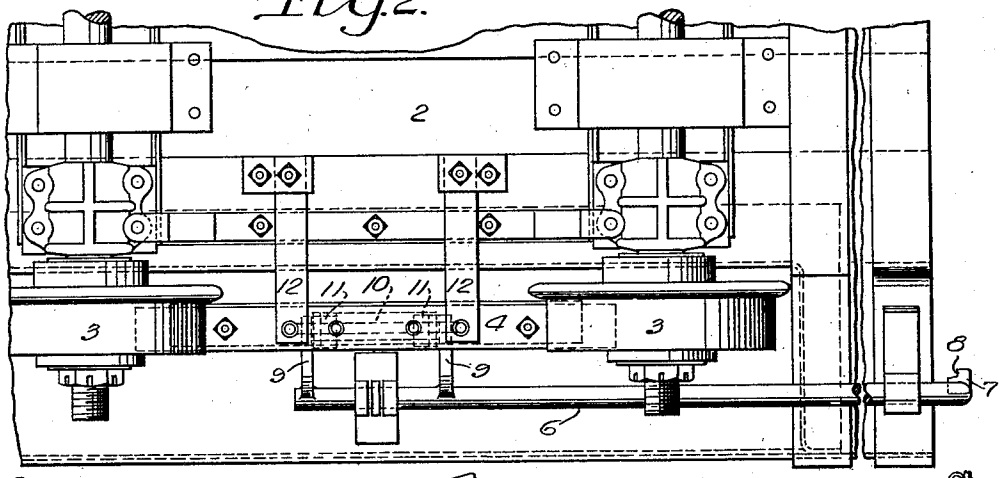
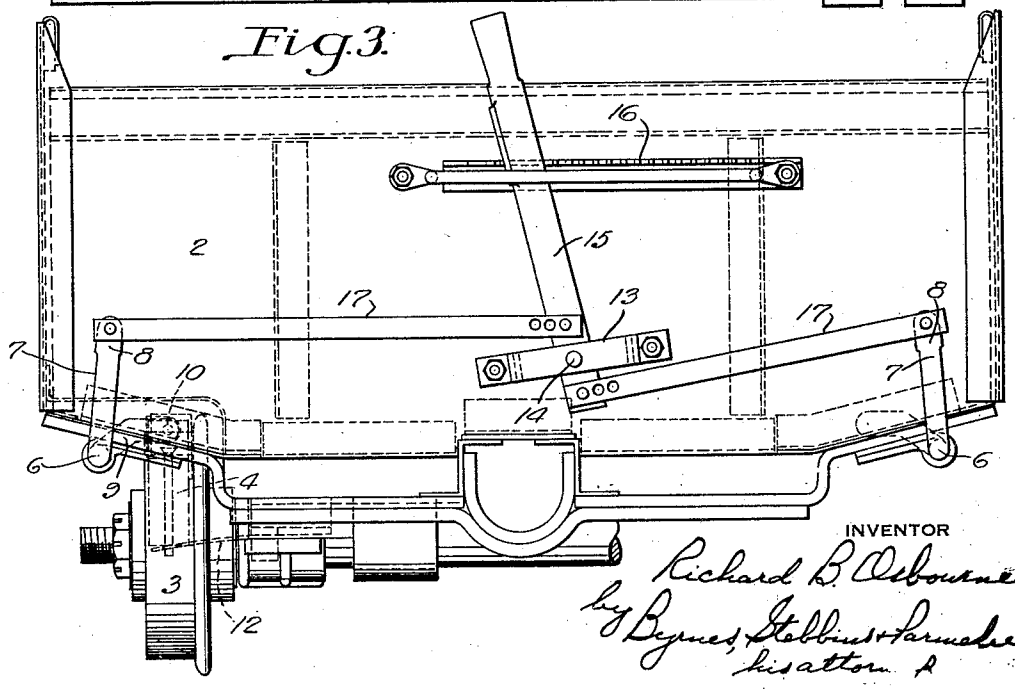


Fig.3.



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BRAKE MOUNTING

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Fig.4.

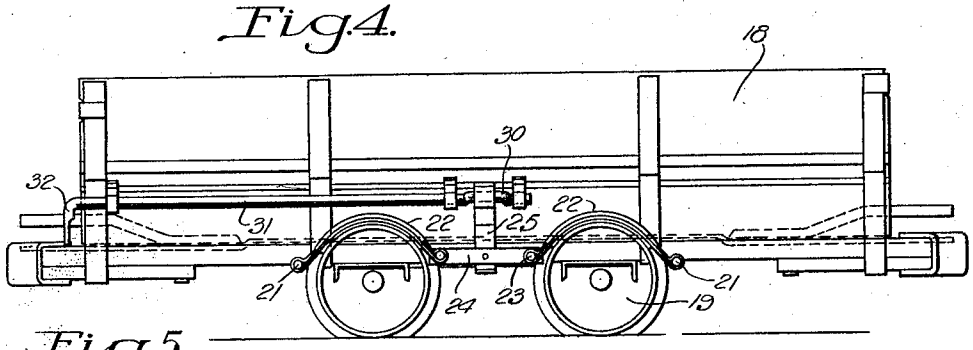


Fig.5.

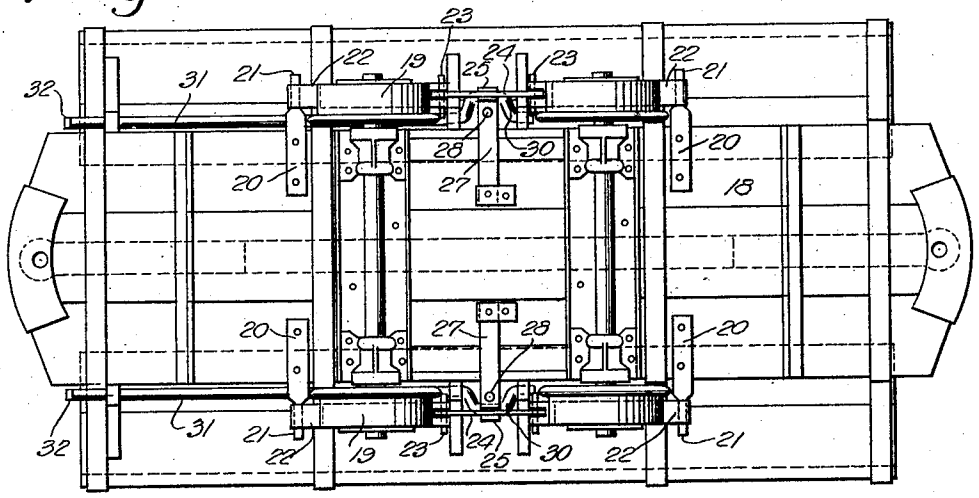
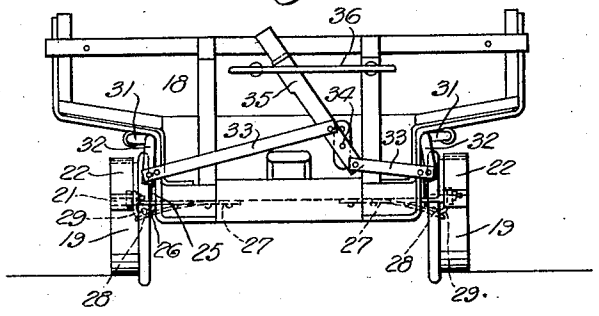


Fig.6.



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UNITED STATES PATENT OFFICE

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BRAKE MOUNTING

Application filed June 29, 1928. Serial No. 289,186.

This invention relates broadly to brake mountings and more particularly to such mountings adapted for vertically movable brake shoes. It relates still more particularly to a brake mounting especially adaptable for mine cars wherein the brake shoes are normally resiliently held up out of braking contact with the car wheels but are adapted to be positively moved downwardly into braking contact therewith.

Brake mountings of the type above mentioned have heretofore comprised a spring, which has usually been in the nature of a vertically extending coil spring, cooperating with the bottom of the brake shoe or with a portion of the brake rigging and with the car for urging the shoe upwardly, suitable brake actuating mechanism being provided for moving the shoe downwardly against the action of the spring into contact with the wheels. Due to the proximity of the bottom of the usual type of mine car to the mine floor or track bed, and due to the small clearance between the body of the car and the track, the use of a coil spring situated below the brake rigging has been attended with certain disadvantages. The spring has necessarily extended down very close to the track or mine floor and due to this fact has often been the cause of damage to the car or to the brake rigging by reason of its coming in contact with obstacles or loose material piled on the mine floor.

A further disadvantage of the use of a coil spring in a brake mounting of this type is that the only substantially effective force exerted upon the shoe by such a spring is in a substantially vertical direction and consequently the shoe has in many instances been free to vibrate or be displaced laterally,—that is, toward and away from the car. Such displacement interferes with the action of the brake and tends to permit the brake shoe to contact with any obstacles which may be close to the car, whereby damage may be done to the brake rigging. Furthermore, a brake shoe mounting in which a coil spring is used necessitates a more or less complicated rigging having various parts which may easily lose adjustment or become bent or broken.

I provide a brake mounting adapted to obviate the defects above mentioned and to yieldingly support a brake shoe or brake shoes so as to provide ample clearance between the bottom of the brake rigging and the track and also to prevent lateral displacement of the shoe or shoes. I preferably provide a brake rigging cooperating with leaf spring supporting means, which means are relatively thin and consume little space and which are so connected to the car as to substantially eliminate lateral movement of the brake shoe or shoes.

In the accompanying drawings I have shown certain present preferred embodiments of the invention wherein

Figure 1 is a side view of a car, with parts broken away, having my invention applied thereto;

Figure 2 is a bottom plan view of the car shown in Figure 1;

Figure 3 is an end view, also with parts broken away, of the car shown in Figure 1, showing the brake actuating mechanism;

Figure 4 is a side view of a car showing a further embodiment of my invention;

Figure 5 is a bottom plan view of the car shown in Figure 4; and

Figure 6 is an end view of the car shown in Figure 4 showing the brake actuating mechanism.

Referring more particularly to the embodiment of Figures 1 to 3, inclusive, reference numeral 2 designates generally the body of a mine car having journalled therein in the usual manner flanged wheels 3. Cooperating with both the front and the rear wheel on each side of the car is a brake shoe 4 having oppositely curved braking surfaces 5. The brake shoe 4 is adapted for movement into and out of operative relation with the wheels in a substantially vertical direction.

Suitably journalled at each side of the frame 2 is a longitudinally extending shaft 6 having one end bent upwardly at one end of the car, as shown at 7, and provided with a portion 8 for the attachment of suitable brake actuating mechanism presently to be described.

Rigidly connected to the shaft 6 is a pair

of levers 9 each having a hole in its opposite end wherein is journalled a short shaft 10. The shaft 10 lies close to and substantially directly above the brake shoe 4. The brake shoe is provided with suitable lugs 11 having holes rotatably receiving the shaft 10. Upon rotation of the shaft 6 the levers 9 will be raised or lowered, depending upon the direction of such rotation, and the shaft 10 and the brake shoe 4 will be correspondingly raised and lowered.

Connected beneath the body or frame of the car is a pair of leaf springs 12. These springs have their shortest dimension vertical so that they will lie flush against the under side of the mine car. The leaf springs 12 extend transversely of the car and at their opposite ends are attached to the brake shoe 4 at its under side. By reason of this construction the leaf springs 12 yieldingly support the brake shoe and urge it upwardly.

The direction of the resilient force of the springs is substantially vertical so that movement of the brake shoes is in an up and down direction. By reason of the thinness of the springs, ample clearance is provided between the bottom surfaces thereof and the track or mine floor. Furthermore, the springs being connected to a fixed point on the body or frame of the car, their ends which are connected to the brake shoe are incapable of transverse or lateral movement and consequently the brake shoe is held in a substantially rigid position with respect to the horizontal. The brake shoe is thus resiliently mounted at a safe distance above the track or floor and is held against lateral displacement whereby damage might be done to the car or brake rigging. It is to be understood, of course, that the above description applies equally well to both sides of the car, and for that reason I have set it forth in detail only once.

Fastened to the end of the car is a U-shaped strap 13 to which is journalled at 14 a brake lever 15. This brake lever cooperates with a rack 16 whereby it may be held in any adjusted position, as is usual.

Connected to the portion 8 of each shaft 6 and to the brake lever 15 is a link 17. The link 17 on one side of the car is pivoted to the brake lever above the pivot 14 and that on the other side of the car is pivoted to the brake lever below the pivot 14.

Movement of the brake lever to the right, viewing Figure 3, causes both of the shafts 6 to be rotated inwardly to actuate the brake shoes downwardly against the action of the springs 12 and into braking relationship with the wheels. Upon release of the brake lever 15 the springs 12 cause the brake shoes to rise out of braking engagement with the wheels and consequently return the brake actuating mechanism to its original position.

Referring now more particularly to Figures 4, 5 and 6, there is shown a car 18 having wheels 19. Fastened to the car bottom are supporting members 20 having rounded extremities 21 to which are dead ended the outer ends of brake bands 22. The inner ends of the brake bands 22 are similarly connected to pins 23 connected to equalizing levers 24, one on each side of the car. Connected to each of the equalizing levers 24 substantially at its center is an upright member 25 having a generally horizontally extending lower portion 26.

Connected beneath the car at each side is a leaf spring 27 which extends out to a point intermediate the wheels. Each of the leaf springs 27 is provided at its outer portion with a circular hole 28 through which a pin 29 formed as a part of the upright member 25 is adapted to pass.

The hole 28 is substantially larger in diameter than the pin 29 so that there is a loose pin and slot connection between the leaf spring 27 and the upright member 25. The leaf spring serves as a support for the upright member and consequently for the equalizing lever 24 and to a certain extent the brake bands 22.

At its upper end the upright member 25 extends around a crank portion 30 of a shaft 31 running generally longitudinally of the car. Each shaft 31 has a downturned portion 32 at its outer extremity to which is connected a link 33. Pivoted on the end of the car at 34 and connecting the links 33 is an operating lever 35 cooperating with a rack 36 whereby it may be locked in adjusted positions.

Upon operation of the lever 35 the respective shafts 31 are rotated, thereby rotating the respective crank portions 30 thereof and forcing downward the members 25 and consequently the equalizing levers 24 and the brake bands 22 against the resilient action of the springs 27.

I thus provide a brake mounting comprising a brake shoe and transversely extending leaf spring means for supporting the shoe. The leaf spring means, as above described, prevents lateral displacement of the brake shoe. Ample clearance is provided between the bottom of the brake rigging and the track or floor.

While I have shown and described certain present preferred embodiments of the invention, it is to be distinctly understood that the same is not limited thereto, but may be otherwise embodied within the scope of the following claims.

I claim:

1. In a brake mounting, a brake shoe and transversely extending leaf spring means for vertically supporting the shoe.

2. In a brake mounting, a brake shoe and common transversely extending means for

resiliently vertically supporting the shoe and preventing lateral displacement thereof.

3. In a brake mounting, a brake shoe and a plurality of horizontally and longitudinally spaced leaf spring supporting means for the shoe, such means cooperating to prevent lateral displacement of the shoe.

4. In a brake mounting, a brake shoe and leaf spring supporting means lying adjacent the under side of the shoe for resiliently holding it against lateral displacement.

5. In a brake mounting, a vertically movable brake shoe, leaf spring supporting means lying adjacent the under side of the shoe urging it upward and means for moving the shoe downward.

6. In combination, a vehicle and a brake mounting comprising a brake shoe and leaf spring supporting means for supporting the same vertically and cooperating with the under side of the vehicle.

7. In combination, a vehicle and a brake mounting comprising a brake shoe and a plurality of horizontally spaced leaf spring supporting means therefor cooperating with the under side of the vehicle and extending transversely thereof.

8. In combination, a vehicle and a brake mounting comprising a vertically movable brake shoe and leaf spring supporting means therefor cooperating with the under side of the vehicle and urging the shoe upward and means for moving the shoe downward.

9. In combination, a vehicle and a brake mounting comprising a brake shoe and a plurality of horizontally spaced leaf spring supporting means therefor cooperating with the under sides of the vehicle and shoe, respectively, to urge the shoe upward, and means for moving the shoe downward.

10. In combination, a vehicle and a brake mounting comprising a brake shoe and leaf spring supporting means for supporting the same vertically and extending under the vehicle and connected to a fixed point, whereby the shoe is prevented from being laterally displaced.

11. In combination, a vehicle having wheels, braking means for the wheels, and flat resilient means extending generally parallel to the ground and transversely of the vehicle for supporting the braking means.

12. In a brake mounting, a plurality of separate braking members, connecting means therefor, and leaf spring means cooperating with the connecting means for supporting the braking members.

13. In combination, a vehicle having a plurality of wheels on one side, separate braking members for the respective wheels, a lever joining the braking members, and leaf spring supporting means therefor.

14. In combination, a vehicle having a plurality of wheels on one side, braking means for the respective wheels, a lever joining the braking means and pivoted therebetween, and leaf spring supporting means therefor.

15. In combination, a vehicle having a plurality of wheels on one side, braking means for the respective wheels, equalizing means therebetween, and leaf spring supporting means therefor, the equalizing means being connected to the supporting means through a loose pin and slot connection.

16. In combination, a vehicle having a plurality of wheels on one side, braking means for the respective wheels, an equalizing lever connecting the braking means, leaf spring supporting means and a pivotal connection between the supporting means and the braking means.

In testimony whereof I have hereunto set my hand.

RICHARD B. OSBOURNE.