F. L. SESSIONS.

CAR AXLE BOX.

APPLICATION FILED DEC. 18, 1906. RENEWED AUG. 23, 1912.

1,074,651.

Patented Oct. 7, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

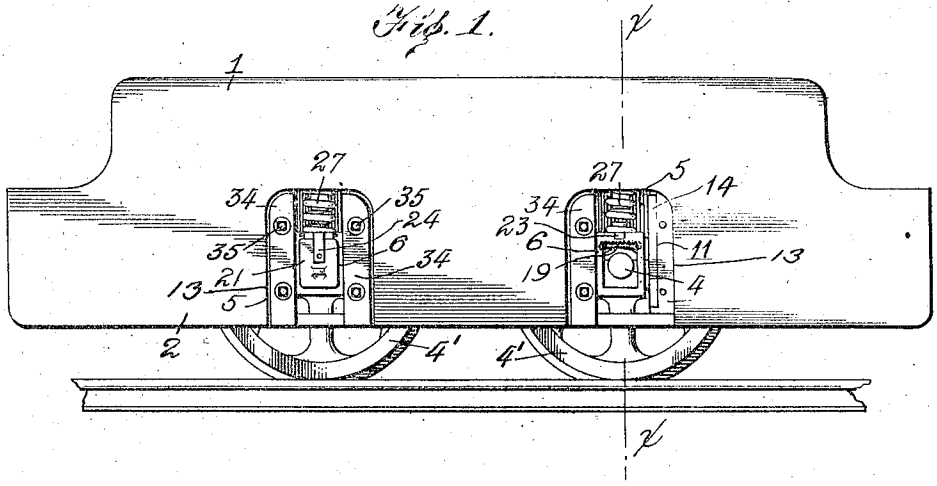
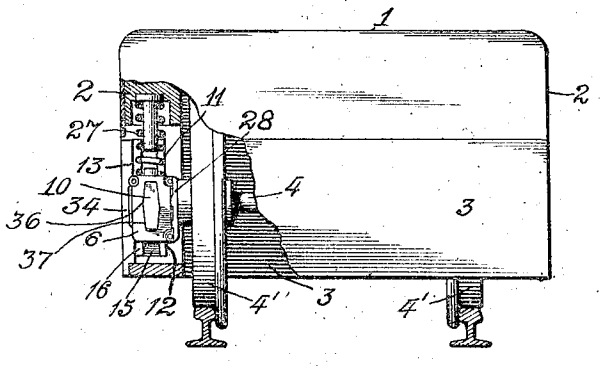


Fig. 2.



WITNESSES

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Fig. 3.

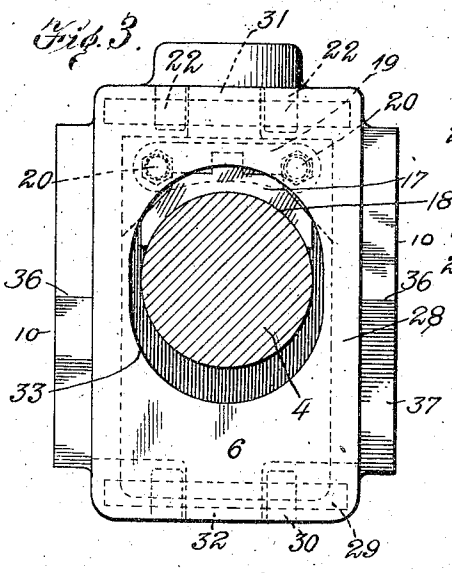


Fig. 4.

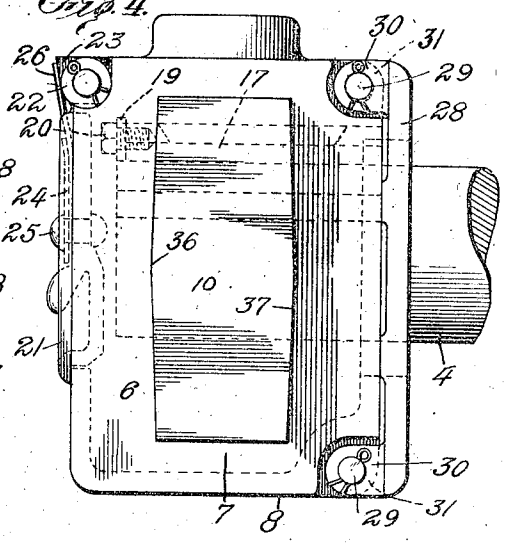


Fig. 5.

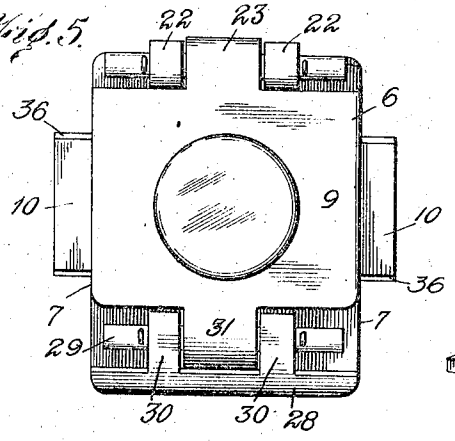


Fig. 6.

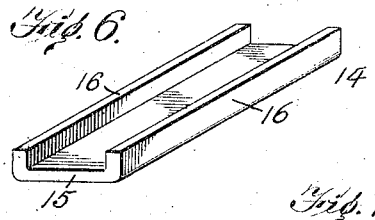
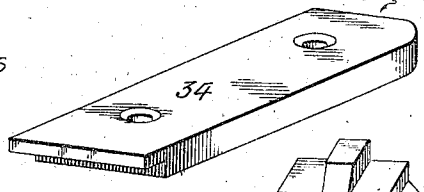


Fig. 7.



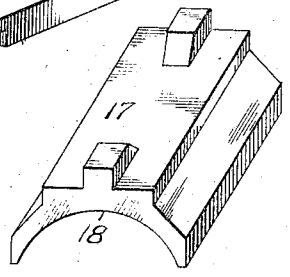


Fig. 8.

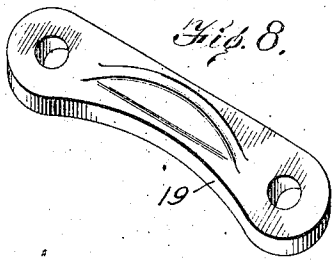


Fig. 9.

WITNESSES

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INVENTOR

Frank L. Sessions

by A. H. Bliss

Atty.

UNITED STATES PATENT OFFICE.

FRANK L. SESSIONS, OF COLUMBUS, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE JEFFREY MANUFACTURING COMPANY, A CORPORATION OF OHIO.

CAR-AXLE BOX.

1,074,651. Specification of Letters Patent. Patented Oct. 7, 1913.

Application filed December 18, 1905, Serial No. 292,346. Renewed August 23, 1912. Serial No. 716,748.

To all whom it may concern:

Be it known that I, FRANK L. SESSIONS, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Car-Axle Boxes, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in the boxes in which are mounted the axles of cars, it pertaining more particularly to the axle mountings of electric locomotive cars such as are now largely used in mines and other places.

The object of the invention is to provide a box or mounting and to so construct the adjacent parts of the vehicle body that the box can be readily removed endwise of the axle without requiring the taking down of any of the heavier parts of the vehicle; and also relates to the combination with a box so removable of wearing plates which can be attached or detached as occasion requires.

In the drawings, Figure 1 is a side view of an electric locomotive having its axle boxes and adjacent parts constructed and related according to my improvements; Fig. 2 is a view partly in end elevation and partly in section of the same. Fig. 3 is a rear or inner view of the axle box. Fig. 4 is a side elevation of the box. Fig. 5 is a plan view of the box detached. Figs. 6 to 9 are details.

In the drawings the car body is shown at 1. The vehicle is of the class of electric locomotives such as are used in mines for haulage purposes and also used in other places. This body is formed of cast iron having two side walls or parts 2 and connecting end parts 3. As shown, it is mounted upon two axles 4, to which are rigidly secured the track wheels 4'.

At 5, 5 there are recesses in each of the side pieces 2, in which recesses are situated, the ends of the axles and the boxes which support them. Each box is indicated as a whole by 6, it having the side walls 7 and bottom 8 and top wall 9. On the side walls there are guide ribs 10.

The side piece 2 of the vehicle body is cast with a recess at 11 in the side edges or wall of the opening 5. At the inner edge of this there is an inwardly projecting flange or wall piece 12, preferably cast integral with the metal of the surrounding part of the body.

At 13 there is a rabbet on each side of each opening 5.

The guide ribs 10 of the box fit in the recesses or chambers at 11. They are allowed to move vertically therein, their vertical length being less than that of the recess. Inasmuch as there is wear caused by the vertical movements of the box and the vehicle body, the one relatively to the other, I combine with the box bushings or wearing plates 14, each of these having a back plate 15 and side flanges 16. Each of these bushings or wearing plates fits snugly in the recess or chamber 11 and in turn receives snugly one of the guide ribs 10.

17 indicates a wearing block which is fitted in the upper part of the chamber in the box 6 proper. It has a concave surface at 18 which fits against and bears upon the axle. It is detachable and when worn it can be withdrawn and another substituted. It is held in place by means of the holding bar 19 which is secured in position by the screws 20.

The front part of the box is closed by the door or cover piece 21, the latter having hinge ears 22 which are pivoted to the ear 23 projecting from the upper part of the front wall of the box. The door or cover piece is held firmly in the closed position by means of the spring 24 bolted at 25 to the front face of the door and having its upper end 26 arranged to bear against the ear 23.

27 is a car spring interposed between the box 6 and the top wall or edge of the opening 5.

On the rear side of the box there is a plate 28 detachably secured by means of pins or bolts 29 passing through lugs 30 on the plate and through an ear 31 at the top of the box and an ear 32 at the bottom. This plate 28 has a vertically elongated aperture 33 through which passes the axle. The plate is situated between the hub of the track wheel 4' and the inner face of the box; consequently it takes all of the wear caused by the friction of the rotating wheel hub. After an appreciable amount of wear has taken place there is a troublesome "play" of the vehicle body longitudinally of the body. This I obviate by removing the wearing plate or washer plate which has become worn and substituting a new one,

If some of the wear has been experienced by the hub of the wheel the new plate can be thicker than the one removed so as to compensate for the gradually increasing distance between the inner surface of the box 6 and the surface of the wheel hub.

The box is held in position in the vehicle frame and upon the axle by means of the removable bars 34, 34. Each of these is separafely removable, being held by the bolts 35, 35. Each bar 34 serves as a companion or counterpart to one of the fixed flanges 12. By the removing of the bars 34 from in front of either box the latter is freed for removal longitudinally of the axle as are also the bushings or wearing plates 14.

The advantages incident to the construction and arrangement of the devices which I have shown will be readily understood. If at any time it is found necessary to withdraw an axle box it is not necessary to elevate the whole vehicle body to a position which will be above the horizontal plane of the axles, as has been heretofore required, in order to allow the boxes to be removed at the bottom of the opening 5. With my construction any box can be quickly removed by supporting the vehicle body upon one or two small jacks, causing them to exert slight lifting action upon it so as to relieve the boxes and springs of the weight. After the jack or jacks have been put in position the bars 34 are removed and thereafter the box and also the bushings or wearing plates 14 can be withdrawn longitudinally from the end of the axle. If the wearing plates 14 are worn new ones can be substituted. If the spring should be broken another can be applied. If the wear of the wheel hub on the inner face piece 28 has become undesirably great the latter can be removed and another of suitable thickness can be substituted; after any of which the box can be quickly restored to its position on the axle, together with its guide bushings 14, and all the parts fastened in place by again securing the face bars 34.

The guide ribs 10 have their bearing edges shaped so as to taper upward from the central part 36 and also so as to taper downward therefrom as shown at 37. The result being that a vertical oscillation of the box is made possible around the central parts of the rib.

What I claim is:

1. In a vehicle of the sort described the combination with the body having the opening 5 in the side thereof and having at each edge of the opening the chamber or recess with an inner wall and a removable outer wall, of the box movable on and off from the end of the axle, and having the laterally projecting guides fitted in the said recesses at the edges of the opening, and the car spring interposed between the box and the upper edge wall of the opening, substantially as set forth.

2. The combination with the body having the opening 5 in its side wherein is positioned the end of the axle and having vertical guideways in the side edges of the said opening, of the axle box having the guide ribs fitted in the said vertical guideways, the front side walls of the guide-ways being removable independently of the rear vertical walls of the guideways, and the spring interposed between the box and the body.

3. The vehicle body having an opening for an outward extension of the axle, said opening being surrounded by an integral mass of metal forming part of the car body and formed with the vertical walls 12 and the recesses 11 alongside of said walls, and having rabbets or recesses 13 in the metal surrounding the said opening, in combination with the axle box having guides fitted in said recess 11 and the bars 34 adapted to be detachably fastened in the recesses 13, substantially as set forth.

4. The vehicle body formed with the aperture 5 in its side walls and having the guide receses 11 at the edges of the said aperture, in combination with the axle box having upward and downward tapered guides fitted in the said recesses, said box being removable from the axle while the latter is in the said aperture, and means for securing the box against detachment, substantially as set forth.

5. The vehicle body having the aperture 5 with the inner guide walls 12, and the outer removable guide and retaining bars 34, there being guide recesses 11 between the said walls and the said bars, in combination with the axle box having guides 10, and removable wearing plates 14 in the said recesses 11, and fitted around said box guides.

6. The combination with the vehicle body having an opening 5 and the axle having its end positioned therein, of the axle box slidable vertically with respect to the vehicle body and removable end-wise from the axle while the latter is in the said opening, means for holding the box upon the axle, and the removable wearing plates for the wheel hub secured to the inner side of the box, substantially as set forth.

7. A vehicle body having an aperture in its body formed with vertically disposed recesses in its edges, in combination with an axle box having on its edges guides arranged to enter the said recesses, removable channel-shaped wearing bushings or plates seated in the said recesses with which the guides on the axle box have engagement, and a detachable retaining plate adapted to hold each of the said wearing bushings in place, substantially as set forth.

8. A vehicle body having an aperture formed with vertically-disposed channel-shaped recesses in its edges, in combination with the axle box having on its edges horizontally projecting guides arranged to enter the said recesses and of decreasing width upward and downward from their vertically central part.

9. In a locomotive, the combination of a frame having two parallel side sections provided with oppositely disposed axle openings, axles extending through the openings, track wheels on the axles betwen the frame sections, axle boxes in the axle openings, and wear plates for the inner ends of the boxes, each plate having a detachable hinged engagement with the top of the box.

10. In a locomotive, the combination of a frame having two parallel side sections provided with oppositely disposed axle openings, axles extending through the openings, track wheels on the axles between the frame sections, axle boxes in the axle openings and movable outward longitudinally of the axles, and disengageable means for securing the boxes against such outward movement, substantially as set forth.

11. In a locomotive, the combination of a frame comprising side sections having axle openings each with vertically disposed recesses at its edges, each recess being closed at its upper and lower ends, vertically movable axle boxes having guides arranged to enter the recesses, and movable wearing bushings seated in the recesses in engagement with the upper and lower ends thereof, substantially as set forth.

In testimony whereof I affix my signature, in presence of two witnesses.

FRANK L. SESSIONS.

Witnesses:
C. F. McCONKEY,
F. E. VAN SLYKE.