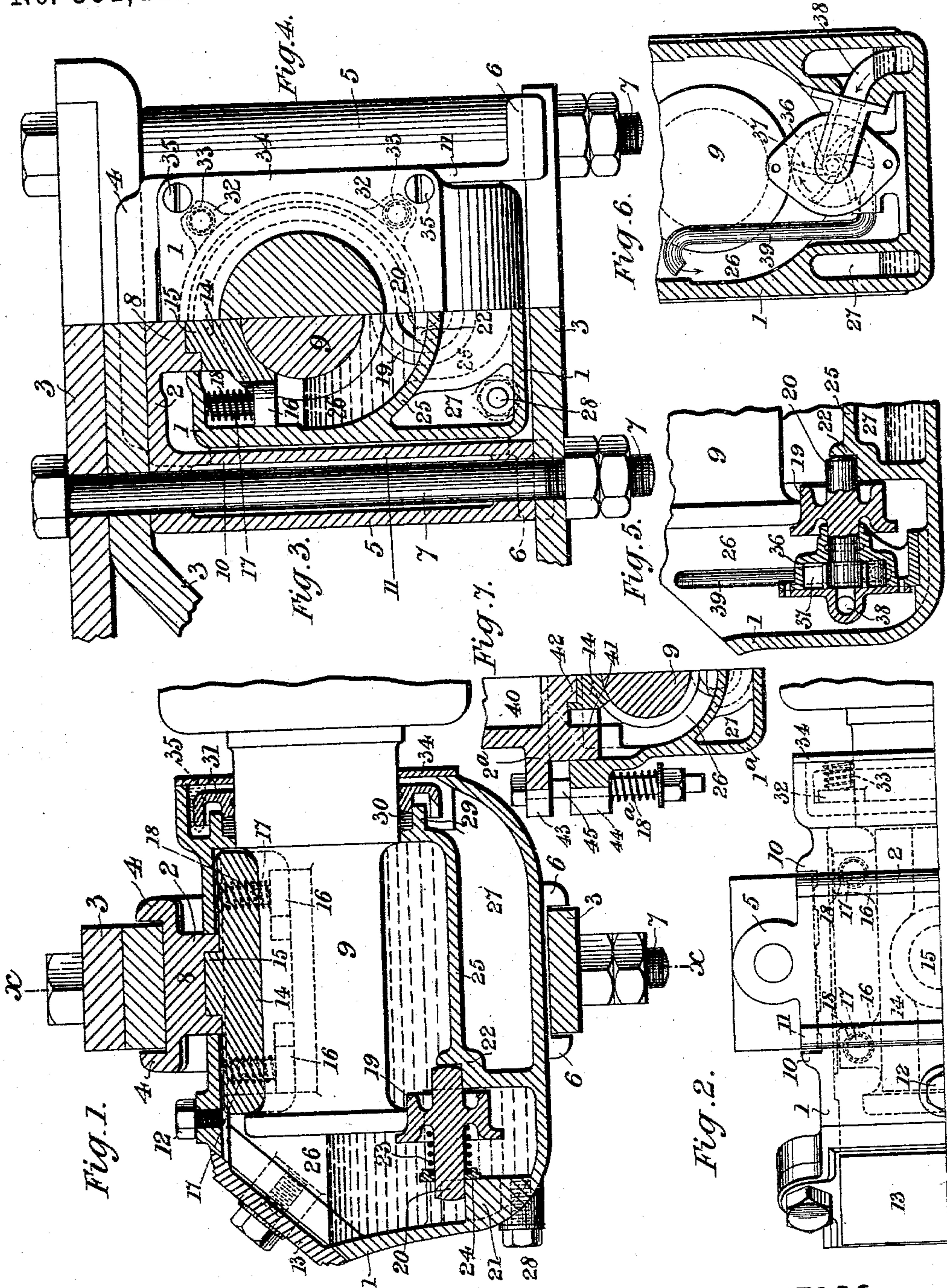


(No Model.)

J. O. LADDS & E. SELBY.
AXLE BOX FOR RAILWAY OR LIKE VEHICLES.

No. 551,443.

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WITNESSES.
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AXLE-BOX FOR RAILWAY OR LIKE VEHICLES.

SPECIFICATION forming part of Letters Patent No. 551,443, dated December 17, 1895.

Application filed September 27, 1895. Serial No. 563,897. (No model.)

To all whom it may concern:

Be it known that we, JAMES OSWALD LADDS and EDWARD SELBY, subjects of Her Majesty the Queen of Great Britain, residing at Saltley, in the county of Warwick, England, have invented a certain new and useful Improvement in Axle-Boxes for Railway and Like Vehicles, of which the following is a specification.

Our invention relates to improvements in axle-boxes for railway and like vehicles, the object of our invention being to provide an axle-box in which the wear of the bearings will be automatically and effectually taken up and in which the axle-box will be kept concentric (or approximately so) with the axle under all conditions of wear.

In the accompanying drawings, which illustrate one manner of carrying our invention into effect, Figure 1 is a sectional elevation of an axle-box adapted to suit bogie-stock. Fig. 2 is a half plan of same. Fig. 3 is a half section on line xx , Fig. 1. Fig. 4 is a half end or back view of Fig. 1. Fig. 5 is a sectional elevation showing a method of applying an oil-pump to the parts shown above. Fig. 6 is a front elevation of Fig. 5, partly in section, and Fig. 7 is a half-sectional elevation across an axle-box to show a modification of our invention.

In the drawings the axle-box 1 is shown as formed in one piece supported in a saddle 2, which is in turn held between the bogie-bars 3 3 3.

The saddle 2 consists of a casting having ear-pieces 4 4, which embrace one of the upper bogie-bars 3, and hollow distance-pieces 5 5 having webs 11, the latter carrying at their lower ends lugs or ears 6 6, which embrace the lower bogie-bar 3. Through the distance-pieces 5 5 pass bolts 7 provided with the necessary nuts, which secure the upper and lower bogie-bar and the saddle together. The saddle has a lug 8, which passes into the axle-box 1 and takes the longitudinal thrust of the axle 9 on the bearing. The axle-box is provided with ear-pieces 10 10, which embrace the edges of the webs 11, so that the box may be guided thereby in its vertical movement. The box is provided with a screw-plug 12, which closes an opening employed

for filling the box with oil or lubricant, and a door 13 suitably secured by screws, which gives access to the interior.

In the upper part of the box is held the bearing 14, such bearing being provided with a stud 15, which is let into the lug 8 for the purpose of keeping the bearing in position. The sides of the bearing are provided with lugs 16 16 having studs 17 thereon, which serve to retain in place compressed springs 18, the tendency of which is to force upward or lift the axle-box 1. This tendency is counteracted by means of a friction-roller 19, (or it may be rollers,) which is kept pressed against the end of the axle, so that the box is always concentric therewith, said box being gradually raised by the springs 18 as the bearing wears and the bogie-frame, saddle, and bearing fall, the amount of space through which the two former may fall being indicated in Figs. 1 and 3 by the space around the lug 8 between the box and the saddle.

The friction-roller 19 may be formed in one piece with a pin or axle 20, which may rest in lugs or bearing-blocks 21 and 22, respectively, a spring 23 abutting against a loose washer 24 being employed to keep the roller up against the end of the axle. The lug 22 is formed in a partition or wall 25, which is cast with the axle-box, such partition separating the oil-chamber 26 from a waste-oil chamber 27, which is provided with a screw-plug 28 for withdrawing the contents of same. The partition 25 at one end is formed with a flange 29, forming part of a stuffing-box for preventing the escape of oil out of the chamber 26.

Inside the flange is a packing 30 kept in place by the cap or follower 31. This cap is provided with lugs 32, Figs. 2 and 4, carrying pins or studs, on which are springs 33, which keep the cap or follower in place, such springs pressing in turn against a closing-plate 34, which is secured by screws 35. Any oil which may pass the gland will find its way into the waste-oil chamber 27.

In place of or in addition to the screw 28 the box may be provided with a small centrifugal pump for removing the waste oil from the chamber 27 and passing it back to the chamber 26. A construction of pump

suited for this purpose is illustrated in Figs. 5 and 6, in which it will be seen that the pin or axle 20 of the roller 19 is extended into the body of a pump 36 and carries the arms 37 of same, the inlet-pipe 38 of the pump passing into the waste-oil chamber 27, while the outlet-pipe 39 delivers into the chamber 26, the pump being operated by the movement of the roller caused by the friction of the axle 9 thereon.

In Fig. 7 is shown the arrangement employed when the axle-box is formed in top and bottom parts 1^a 2^a instead of in one piece. In this case the top part 2^a is provided with a recess 40 for the vehicle-spring and spring-buckle and a recess 41, in which is fitted the bearing 14. It is also provided with a projection 42, which fits into a recess in the bearing 14 in order to take the longitudinal thrust. On the side of the part 2^a are projections 43 corresponding to projections 44 on the bottom part 1^a, and through these projections pass bolts 45, said bolts being provided with the necessary nuts and with springs 18^a, which act to raise the bottom portion 1^a as the bearing wears, or, in other words, keeps it concentric with the axle as the upper part 2^a falls with the wear of the bearing.

What we claim is—

1. In combination, the axle, a bearing above same, a box inclosing said bearing, means for supporting the bearing, springs exercising a pressure between a fixed part and the box, so that the box is lifted and kept concentric with the axle as the bearing wears, means for carrying the springs and means for counteracting the upward tendency of the springs, substantially as described.

2. In combination, the axle, a bearing above same, a box inclosing said bearing, springs between the bearing and the box so that the box is lifted and kept concentric with the axle as the bearing wears, means for guiding the box, means for supporting the bearing, and a friction roller carried by the box on which the axle bears and adapted to counteract the upward tendency of the springs, substantially as described.

3. In combination, the axle, a bearing above same, a box adapted to hold oil, inclosing said bearing, means for carrying said box, springs adapted to raise said box and keep it concentric with the axle as the bearing wears, a friction roller carried by the box on which the axle bears, for counteracting the upward tendency of the springs, means for carrying and guiding the springs, and means for guiding the box and supporting the bearing, substantially as described.

4. In combination, the axle, a bearing above same, a box adapted to hold oil inclosing said bearing, springs between the bearing and the box so that the box is lifted and kept concentric with the axle, a saddle in which the box is guided, means for supporting the saddle, a lug carried by the saddle and passing into the box for supporting the bearing a friction roller carried by the box on which the axle bears, and adapted to counteract the upward tendency of the springs, a partition in the box for forming a waste oil chamber beneath same, and a stuffing box for preventing the escape of oil from the axle box, substantially as described.

5. In combination, the axle, a bearing above same, a box adapted to hold oil, inclosing said bearing, springs between the bearing and the box so that the box is lifted and kept concentric with the axle, a saddle in which the box is guided, means for supporting the saddle, a lug carried by the saddle and passing into the box for supporting the bearing and taking the longitudinal thrust, means carried by the bearing and engaging with said lug for keeping the bearing in position, a friction roller carried by the box on which the axle bears and adapted to counteract the upward tendency of the springs, lugs for supporting the friction roller, a spring for keeping same in contact with the end of the axle, a partition in the box for forming a waste oil chamber beneath same, a stuffing box for preventing the escape of oil from the axle box, and a plate for covering the stuffing box substantially as described.

6. In combination, the axle, a bearing above same, a box adapted to hold oil inclosing said bearing, springs exercising a pressure between a fixed part and the box so that the box is lifted and kept concentric with the axle as the bearing wears, a friction roller carried by the box on which the axle bears for counteracting the upward tendency of the springs, a partition in the box for forming a waste oil chamber beneath same, a stuffing box for preventing the escape of oil from the axle box, and a centrifugal pump operated by the revolving axle for lifting the waste oil from its chamber back to the axle box, substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

JAMES OSWALD LADDS.
EDWD. SELBY.

Witnesses:

CHAS. HARRISON,
GEO. H. PRUE.