Oct. 26, 1943. J. C. TRAVILLA, JR., ET AL 2,333,057

RAILWAY TRUCK

Filed June 26, 1941 2 Sheets-Sheet 1

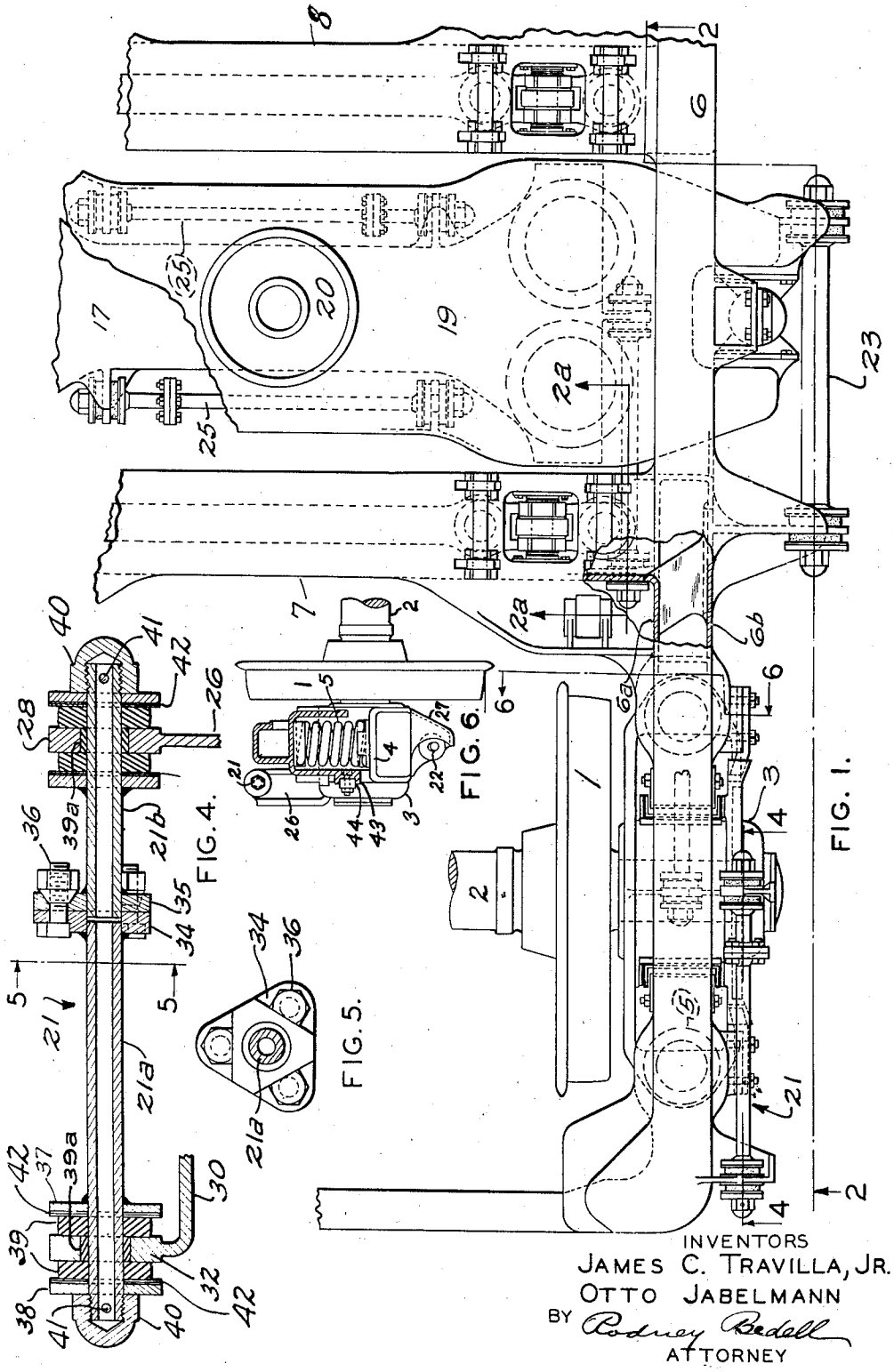


FIG. 1.

FIG. 4.

FIG. 5.

FIG. 6.

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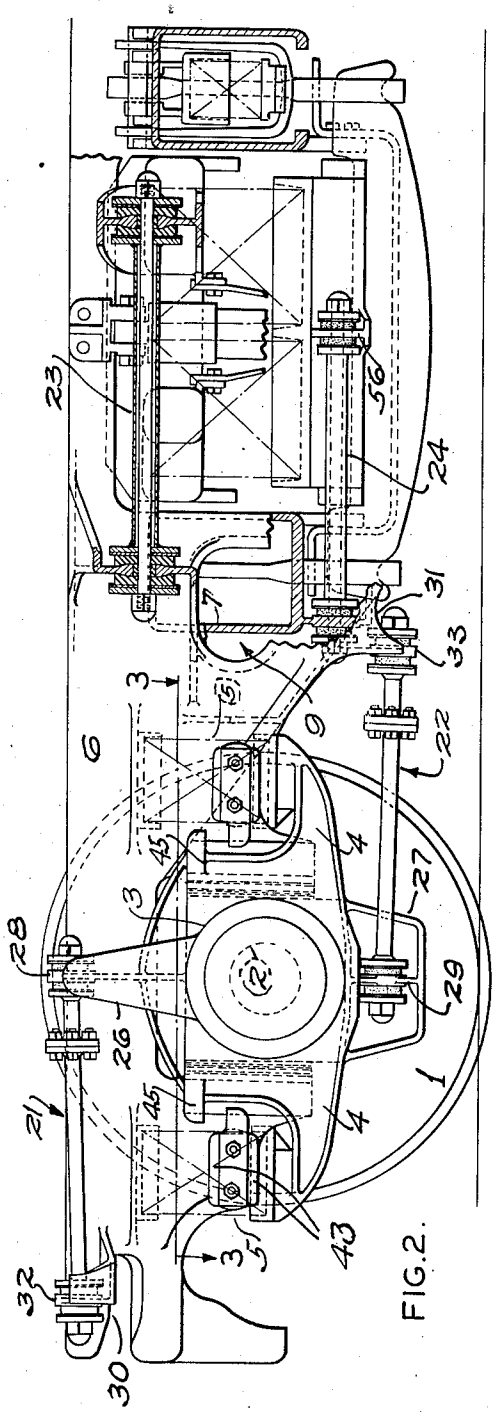


FIG. 2.

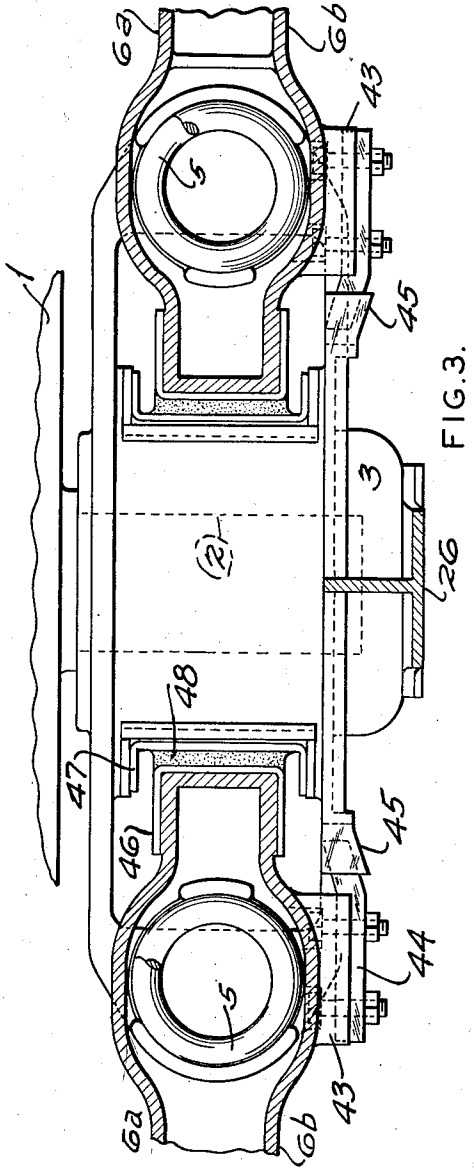


FIG. 3.

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UNITED STATES PATENT OFFICE

2,333,057

RAILWAY TRUCK

James C. Travilla, Jr., Philadelphia, Pa., and Otto Jabelmann, Omaha, Nebr; Teresa R. Jabelmann administratrix of said Otto Jabelmann, deceased; said Travilla, Jr., assignor to General Steel Castings Corporation, Granite City, Ill., a corporation of Delaware

Application June 26, 1941, Serial No. 399,838

5 Claims. (Cl. 105—224)

The invention relates to railway rolling stock and more particularly to trucks and consists in all of the novel features described and claimed herein.

The invention is particularly adapted for use in trucks having a truck frame and relatively movable journal boxes and trucks bolster, and one of the objects of the invention is to improve the assembly of such relatively movable parts and cushion the forces transmitted between them so that they do not normally have sliding engagement with each other, either directly or through chafing plates, thereby avoiding binding, wear, and replacement of parts, and noise and shocks due to impacts and sliding contact between such relatively movable members, except for lateral sliding engagement between journal box flanges and the adjacent faces of a cushioning or lateral motion device mounted on the pedestal jaws.

This general objective may be obtained by connecting the relatively movable truck parts by anchor or draft rods of the general type illustrated and described in the copending applications of Carl E. Tack, Serial No. 230,175, filed September 16, 1938, and Serial No. 336,172, filed May 20, 1940, and another object of the invention is to facilitate the application and removal of the anchor rod to assembled truck parts where the connections between the rod and the truck parts are inconvenient of access.

Anchor rods of the type referred to include yielding members engaging the truck parts to which the rod is attached and adjustable means for controlling the resistance offered by such members and for properly spacing in the truck, the part to which the rod is connected, and the adjustment of such means may be effected by the disconnection and connection of the rod to the truck parts and may change the effective length of the rod. It is a further object of the present invention to avoid unintentional change in the effective length of the rod.

These objects are attained by providing a separable joint between rigid sections of the anchor rods, whereby the sections may remain attached to the truck parts to which they are respectively connected when the parts themselves are disassembled.

Another object of the invention is to safeguard the truck parts such as the truck and journal box against accidental disassembly, as in case of derailment, for example.

In the accompanying drawings illustrating a selected embodiment of the invention—

Figure 1 is a top view of one corner and the adjacent middle part of a railway truck, a portion of the truck frame being sectioned horizontally to more clearly illustrate the construction.

Figure 2 is a side elevation and longitudinal section of the structure shown in Figure 1 and is taken approximately on the line 2—2 of Figure 1 although a part of the truck frame is broken away and sectioned on the line 2*a*—2*a* of Figure 1 to more clearly illustrate the construction.

Figure 3 is a horizontal detailed section taken on the line 3—3 of Figure 2 and drawn to an enlarged scale.

Figure 4 is a longitudinal vertical section taken on the line 4—4 of Figure 1 and drawn to an enlarged scale.

Figure 5 is a transverse vertical detailed section taken on the line 5—5 of Figure 4.

Figure 6 is a vertical transverse section taken on the line 6—6 of Figure 1.

The truck includes the usual wheels 1 and axles 2, the latter mounting journal boxes 3 having wings 4 extending laterally from the axles and carrying coil springs 5. The truck frame is supported on springs 5 and includes box-shaped wheel pieces 6 having deepened portions at either side of each journal box.

Spaced transverse transoms 7 and 8 extend between wheel pieces 6 at opposite sides of the truck. Preferably wheel pieces 6 and transoms 7 and 8 are of box-shaped section, the ends of the transoms merging with the inner walls 6*a* of the wheel pieces, and the outer walls 6*b* of the wheel pieces are provided with substantial openings 9 opposite to the ends of transoms 7 and 8 to lighten the structure and facilitate casting of the truck frame and to avoid undue strains in the latter due to the shrinkage of large masses of material in the cooling of the casting.

The bolster 19, having a center plate 20, is suspended from the frame by swinging links and is held against undesirable movement relative to the frame by anchor devices 23, 24 and 25 previously detailed in this application but cancelled in view of the office requirement for division, and now disclosed in applicants' copending application, Serial No. 429,194, filed February 2, 1942.

Each journal box 3 is held against undesirable movement longitudinally of the truck frame and against excessive rotational movement about its axle by rods 21 and 22, each having its ends connected respectively to brackets on the box and frame. The box brackets 26 and 27 extend upwardly and downwardly respectively from the

central portion of the box and include lugs 28 and 29 respectively extending transversely of the truck. Brackets 30 and 31 project from the truck frame wheel piece and include lugs 32 and 33 respectively extending transversely of the truck.

Rod 21 is detailed in Figures 4 and 5 and it will be understood that rods 22 and 25 correspond in detail to this construction.

The rod comprises two tubular sections 21*a* and 21*b* with their adjacent ends having individual flanges 34 and 35 respectively normally secured together by bolts 36 to provide a rigid joint between the two sections. The flanges are welded to the sections and flange 34 may project beyond the end of section 21*a* to receive the adjacent end of section 21*b* and thereby align the two sections axially.

Flanges 37 and 38 and yielding pads 39 of rubber or similar material are secured to the outer ends of the sections, the rubber pads 39 gripping the lugs 28 and 32 respectively between them. A rubber bushing 39*a* is provided between pads 39 and the lugs 28 and 32. Each flange 37 is welded to the rod, and nuts 40 are threaded onto the ends of the rod to provide for the adjustment of flange 38 along the rod to vary the pressure on rubber pads 39 which determines the extent to which the rod unit may yield and also determines the resistance which the rod may offer to relative lateral movement of the truck parts to which it is attached, and pins 41 serve to lock nuts 40 in adjusted position. Washers 42 between each pad 39 and the adjacent flange provide means for adjusting the effective length of the rod unit.

The outer wall 6b of the wheel piece has projecting lugs 43 arranged in pairs to form seats for detachable stops 44 projecting longitudinally of the truck beneath cooperating lugs 45 on the adjacent journal box. Stops 44 and lugs 45 have upwardly and downwardly facing opposing surfaces which engage if the pedestal is lifted or the wheels, axles and boxes are dropped and prevents the separation of these members and undue angular movement of rods 21 and 22 about their connections to the box and frame. The stops are located on the outer face of the frame which facilitates their application and inspection and avoids interference with journal box springs 5.

Between the boxes and frame there are provided yielding lateral motion devices including U-shaped plates 46 and 47 having a rubber pad 48 between them and bonded to the opposing faces extending transversely of the truck. One of the U-shaped plates is attached to the corresponding truck part and the other U-shaped plate opposes laterally facing surfaces on the corresponding journal box part. These lateral motion devices are constructed in accordance with those covered by patent to one of the present applicants, James C. Travilla, Jr., No. 2,229,429, issued January 21, 1941.

With the use of a journal box of the wing type with springs on each side of the box to support the truck frame, it is advisable to provide only a small amount of longitudinal play between the box and the pedestal so that if there is a variation in the spring pressures on each side of the box, the likelihood of a wedging action of the box in the pedestal during vertical movement of the box and pedestal is reduced as much as possible.

With the above described construction, the anchor rods transmit longitudinal forces between the journal box and truck frame and by having one rod on top and one rod on the bottom there would be very little, if any, rotation of the journal box on the axle when the box moves vertically in the pedestal and the journal box would not engage the transverse face of the pedestal, and consequently there would be no wear due to sliding action or binding action due to rotation of the box on the journal. The pedestals hold the journal boxes in transverse relation with the truck by means of the fit between the pedestal liner and the journal box flanges.

In truck maintenance the journal boxes may be removed frequently for adjustments or repairs and usually such adjustments or repairs should be made quickly so that there will be no unnecessary delay in putting the truck back into service. By disconnecting the coupling on the anchor rods, the boxes can be removed from the pedestal without disturbing the connections between the anchor rod and the box and between the anchor rod and the frame, and when the boxes are reapplied and both parts of each rod again bolted together, there would be no change in the adjustment of the rod and the journal boxes would again have the proper fit in the pedestal.

Another advantage of the two part anchor rod is that a new box can be applied without any unnecessary delay caused by making adjustments in the anchor rods. The new box is provided with the rod portions already applied and adjusted by gauge so that it is interchangeable with the old journal box without any difference in the clearance between the pedestal and the truck frame.

The details of construction may be varied substantially without departing from the spirit of the invention, and the exclusive use of such modifications as come within the scope of the claims is contemplated.

What is claimed is:

1. In a railway truck, a frame including a pedestal jaw, an axle box movable vertically in said jaw, an anchor rod extending longitudinally of the truck, there being connections between the ends of the rod and the box and frame respectively, each of said connections including yielding elements and means for placing said elements under initial distortion and thereby positioning said box relative to said leg, said means being adjustable to vary said positioning, said rod including two parts coupled together between said connections whereby the frame and box may be disassembled by uncoupling the parts without affecting the assembly of said connections and the frame and box.

2. In a railway truck, a frame including a pedestal jaw, an axle box movable vertically therein, anchor rods extending longitudinally of the truck and located at the top and bottom of said box respectively, a connection between each end of each rod and the frame and box respectively to hold said box and frame in desired relation longitudinally of the truck and to hold said box against rotation in said pedestal, each of said connections including means for adjusting the effective length of the corresponding rod, each rod including a separable joint between the adjustable connection at one end of the rod and the adjustable connection at the other end of the rod whereby the box and one portion of each rod may be removed from the frame and the other portions of the rods and reapplied to the frame without affecting the adjustment between the box and frame.

3. In a railway truck, a wheeled axle, a journal box thereon having a wing extending laterally of the axle, a truck frame supported from

said wing and having a downwardly opening pedestal jaw slidably receiving said box between its legs, said box extending downwardly below the lower ends of said legs, an anchor rod extending longitudinally of the truck beneath one of said pedestal legs and connecting said frame and the bottom of said box, said frame and box having vertically opposing elements above the level of said rod to prevent the dropping of the box and axle from the frame.

4. In a railway truck, a frame including a pedestal leg, an axle box movable vertically alongside of said leg, an anchor rod extending longitudinally of the truck and having separable portions with adjacent ends abutting each other, and means detachably securing said abutting ends to each other, the outer ends of said rod being provided with connections to said frame and box respectively, whereby said frame and box are positioned relative to each other longitudinally of the truck, said connections including yielding elements for cushioning the thrust between said frame and box and said connections also including devices for adjusting the distortion of said elements and the effective length of said rod, said means providing for the maintenance of a desired adjustment of said connections and for a desired relative positioning of said box and leg irrespective of disassembly and reassembly of said box and frame.

5. A truck as described in claim 4 which includes a pad of rubber-like material between the box and pedestal leg, there being elements attached to said pad and opposing the pedestal leg and box transversely of the truck and yieldingly resisting their lateral motion, the anchor rod holding the pedestal leg and box in spaced relation and relieving said pad of compression forces exerted longitudinally of the truck.

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