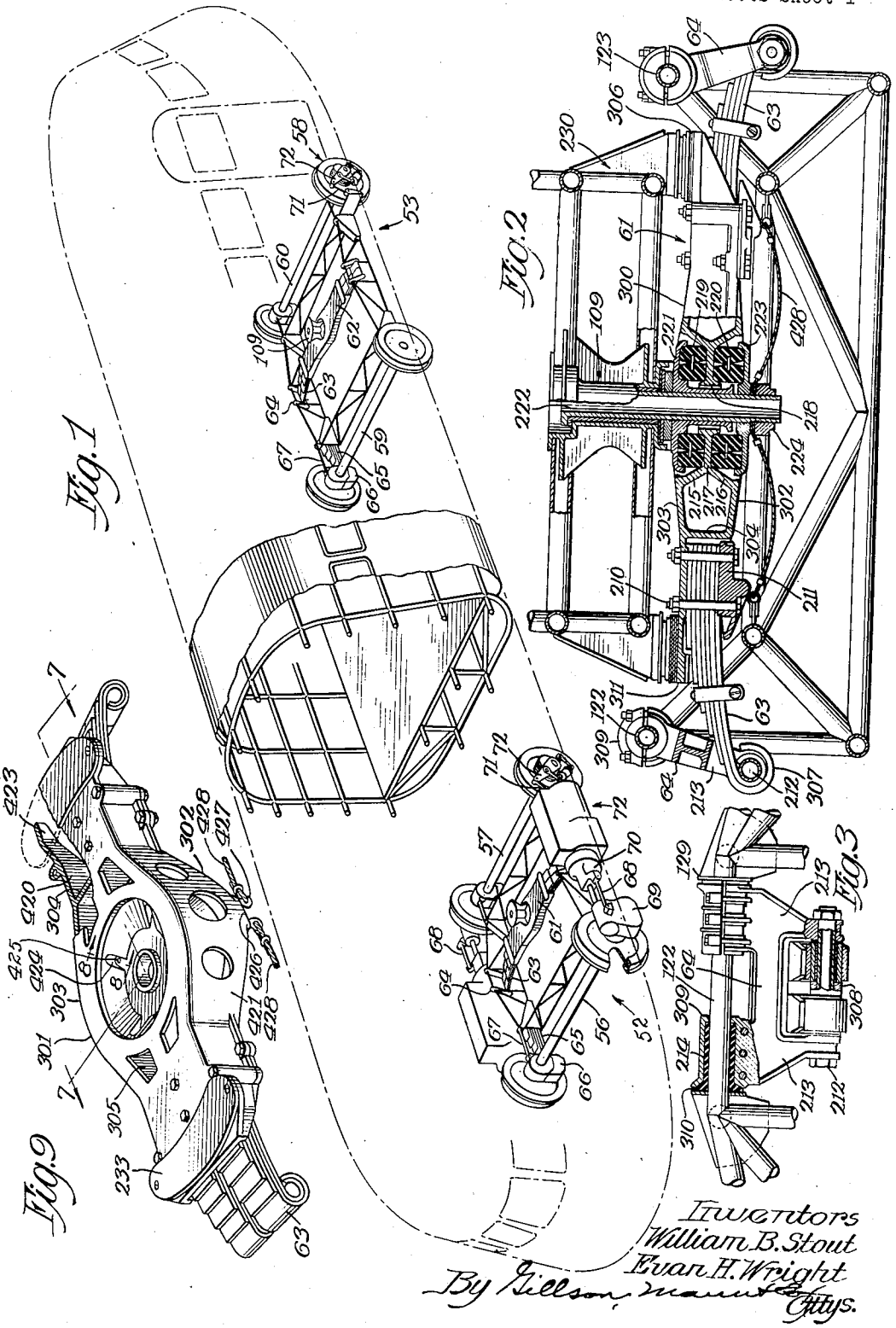
May 31, 1938. W. B. STOUT ET AL 2,119,062

TRUCK BOLSTER FOR RAILWAY CARS

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TRUCK BOLSTER FOR RAILWAY CARS

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Fig. 4

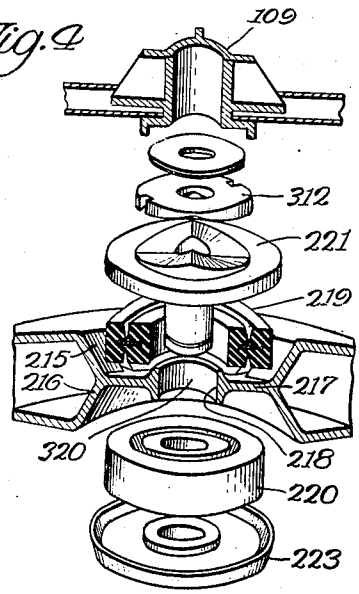
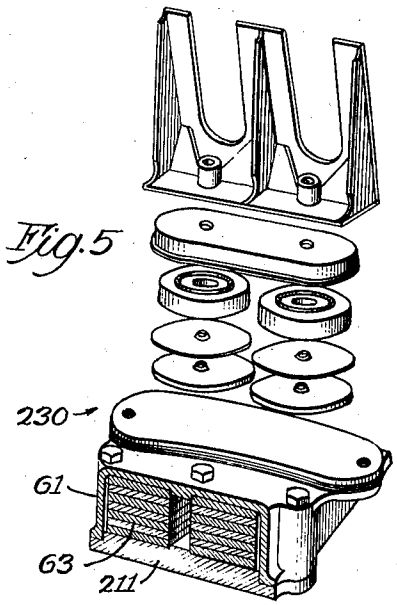



Fig. 5



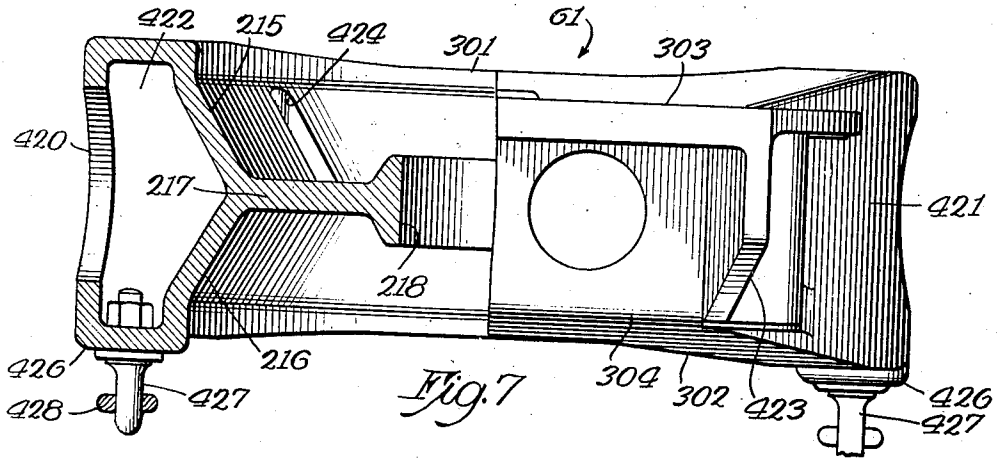




Fig. 7

Fig. 6

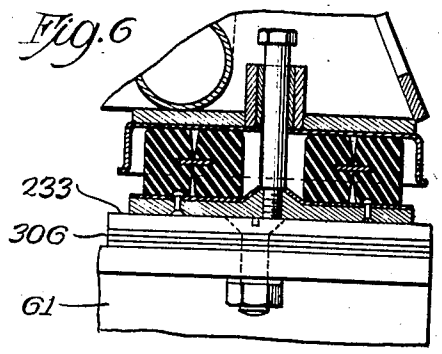
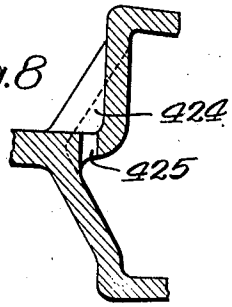



Fig. 8




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# UNITED STATES PATENT OFFICE

2,119,062

## TRUCK BOLSTER FOR RAILWAY CARS

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Application September 2, 1933, Serial No. 688,006

4 Claims. (Cl. 105—226)

The general trend in the fields of air, land and water transportation toward greatly increased speeds has brought about a demand for rail cars which are much faster than those now in use. But to obtain high speeds in railway transportation consistent with safety and economy, the entire organization of the conventional railway car must be altered to meet the new conditions of service.

Light weight is one of the essentials of any car that is capable of traveling at relatively high speeds, for excessive weight requires additional power and there is no power to be wasted if speed is to be obtained.

It is the aim of this invention to provide a truck bolster assembly that is particularly suitable for use with a car having the above characteristics although its use is obviously not limited to such a car.

Other objects are to provide a bolster assembly which distributes the body weight between the center bearing and side bearings; to keep the weight of the bolster assembly at a minimum; to permit the car body to sway slightly with respect to the car trucks, without imposing harmful strain on the parts; to provide a bolster which connects directly with the truck frame without the interposition of a spring plank; to equip the bolster with cantilever springs adapted to be supported by the truck swing hangers; and to provide an assembly which has a minimum number of parts and in which the parts themselves are simple in construction and inexpensive to manufacture.

Further and other objects and advantages will become apparent as the disclosure proceeds and the description is read in conjunction with the accompanying drawings, in which

Fig. 1 is a diagrammatic, perspective view showing the general organization of a car made in accordance with this invention;

Fig. 2 is a view, partly in section and partly in elevation, showing the spring bolster assembly;

Fig. 3 is an end elevational view showing the means for supporting the bolster on the truck frame;

Fig. 4 is an exploded, perspective view of a portion of the center bearing assembly;

Fig. 5 is a fragmentary, sectional view through the side bearing;

Fig. 6 is an exploded, perspective view of the side bearing assembly;

Fig. 7 is an end view, partly in elevation and partly in section of the truck bolster, the section being taken on the line 7—7 of Fig. 9;

Fig. 8 is a sectional view taken on the line 8—8 of Fig. 9; and

Fig. 9 is a perspective view of the bolster.

At the outset, it should be understood that the selection of certain preferred and modified forms of the invention for illustration and description is merely for the purpose of disclosure, for the invention may be variously embodied within the scope of the appended claims. Limitations, therefore, are not to be read into the claims unless required by the prior art.

The invention is shown applied to a special type of car shown in Fig. 1, the details of which are given in full in the patent to W. B. Stout, bearing the No. 2,056,218 and date of October 6, 1936. This car body is mounted on a front truck, generally indicated at **52** and rear truck indicated at **53** having axles **56**, **57** and **59**, **60**, respectively.

The axles of both front and rear trucks are equipped with what may be termed "resilient" wheels, and this term is intended to include all forms of wheels which are inherently resilient either by the interposition of rubber under shear, pneumatic tires, springs, or by any other means.

The car body rests upon spring bolsters **61** and **62** of the front and rear trucks, respectively, and, preferably, the bolsters are equipped with cantilever springs **63** which are shackled to swing hangers **64** pivotally suspended from the truck frames.

The truck frames of each truck are fabricated of metal tubing welded together in such manner as to produce space frameworks of necessary strength, and at the four corners of each frame, a leaf spring **65** projects toward the adjacent axle where it connects to a journal **66**. The point of connection between the projecting spring and the journal, is underslung with respect to the axles.

Driving and braking forces applied to the car axles are transmitted to the truck frames by radius rod **67**. Other radius arms **68** which connect the worm gear casing **69** to a fixed point on the car truck,—in this case, the transmission housing **70**,—take the thrust of the driving worm. Braking forces are resisted by torque arms **71** which connect the brake housing **72** to the truck frame.

### *Swing bolster assembly*

The swing bolster assembly shown in Figs. 2 and 3 is the same for both front and rear trucks, and for convenience, the showing in these figures will be considered as illustrating the bolster assembly of the front truck.

The bolster **61** comprises a hollow casting **300**

having an enlarged central portion **301** provided with circular depressions **215** and **216** on its upper and lower faces, respectively. The dividing wall **217** between the two depressions form an annular ledge which is substantially half way between the top and bottom walls of the bolster. The inner margin of the ledge is enlarged, as indicated at **218** to form a wearing surface for the center bearing assembly.

The bottom wall **302** of the bolster is joined to the top wall **303** by an intermediate vertical wall **304** leaving suitable openings at the bottom of the bolster for inserting the springs **63** at each end thereof.

Two quarter-elliptical springs are mounted in the recesses at the ends of the bolster and are clamped in place by bolts **210** which draw retaining plates **211** tightly against the bottoms of the spring.

The bolster is cored out wherever possible as, for example at **305**, to reduce weight. The ends of the bolster are slightly enlarged to receive arcuate chrome-plated steel plates **233**, which cooperate with the side bearings **230** on the car body. The plates **233** are suitably spaced from the bolsters by shims **306**.

The ends of the spring **63** are provided with double eyelets **307** adapted to engage a bolt **212** which joins adjacent arms **213** of the spring hanger **64**. In case the bottom leaf of the spring breaks, the adjacent leaf will support the spring on the spring hanger.

Each of the swing hangers **64** consists of a casting having depending arms **213** through the ends of which the bolt **212** is adapted to pass. The two springs suspended from each hanger are separated by a spacer **308** telescoped on the bolt.

The upper ends of the swing hangers **64** are bifurcated and are adapted to be pivotally clamped to the bearings **122** and **123** by bearing caps **309**. Rubber bushings **214** interposed between the swing hanger bearings and the tubular bearing supports **122** and **123** resist side sway of the car body by being placed in shearing strain. The bushings are enlarged as indicated at **310** to bear against the disks **129** and cushion the truck frame from side thrusts.

The extreme ends **311** of the bolster are so spaced with reference to the springs **63** that when the car body tilts one way or the other beyond a given angle, the end of the bolster forms a new fulcrum for the springs with shorter leverage. This arrangement assists in preserving the life of the springs.

*Center bearing*

In conventional center bearing constructions, the car truck is swiveled to the body by a center pin which passes through the body bolster and the truck bolster, and the weight of the body is carried by some kind of an anti-friction device that is interposed between the truck and body center plates. In the present invention there is no body bolster, but instead, the center pin passes through a collar **109**, welded into the understructure of the car body, and through a semi-floating truck center plate which is adapted to absorb much of the vibration and noise that is ordinarily transmitted from the truck to the car body.

The center bearing assembly is best shown in Figs. 2 and 4, and comprises essentially a body center plate **312**, a truck center plate **221**, two rubber annuli **219** and **220**, a retaining cap **223**, and a center pin **222** which receives a nut **224** on its lower end.

The bolsters **61** and **62** are each equipped at their ends with side bearings, generally designated **230**, which cooperate with the bolsters to limit side sway of the car body with respect to the car trucks.

*Truck bolster details*

In Figs. 7, 8 and 9 further details of the truck bolster are shown. It will be observed that the intermediate vertical wall **304**, which connects the top and bottom walls **303** and **302**, respectively, and the side walls **420** and **421**, forms an annular channel **422** in the enlarged central portion **301** of the bolster. Beyond the vertical walls **304** the side walls extend for a distance parallel to the longitudinal axis of the bolster and then flare outwardly, as indicated at **423**, to provide suitable reinforcement for the side bearings.

In order to prevent rain water from collecting in the depression **215**, recesses **424** are provided (Figs. 7 and 8) which permit any water that has found its way into the depression to escape through drilled holes **425**, communicating with the annular channel **422**. Suitable openings in the bottom wall **302** of the bolster allow the water to drain from the channel **422**.

The bottom wall of the bolster is reinforced on opposite sides, as indicated at **426**, and then drilled to receive a cable-anchoring device **427**, to which cables **428** are fastened connecting the truck bolster to the car truck for the purpose of limiting swinging movement of the bolster.

We claim as our invention:

1. A truck bolster for railway cars comprising a casting having side, top and bottom walls, the latter two tapering toward each other and merging to form a flat annular web substantially midway between the top and bottom planes of the bolster.

2. A truck bolster for railway cars comprising a casting having side, top and bottom walls, the latter two tapering toward each other and merging to form a flat annular web substantially midway between the top and bottom planes of the bolster, and the inner margins of the annular web having an expanded vertical bearing surface.

3. A truck bolster for railway cars comprising a casting having a circular, horizontal, web portion substantially midway between the top and bottom planes of the bolster and the two ends thereof, said web having a central aperture therethrough and resilient material above and below said web and in engagement therewith.

4. A truck bolster for railway cars comprising a casting having crater-shaped depressions on the top and bottom midway between the two ends, a web between said depressions, said bolster having an aperture through the central portion of said web, and a flange on each side of said web extending about said aperture.

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EVAN H. WRIGHT.