April 27, 1943. E. G. HALLQUIST 2,317,377

RAILWAY TRUCK

Filed Sept. 22, 1939 2 Sheets-Sheet 1

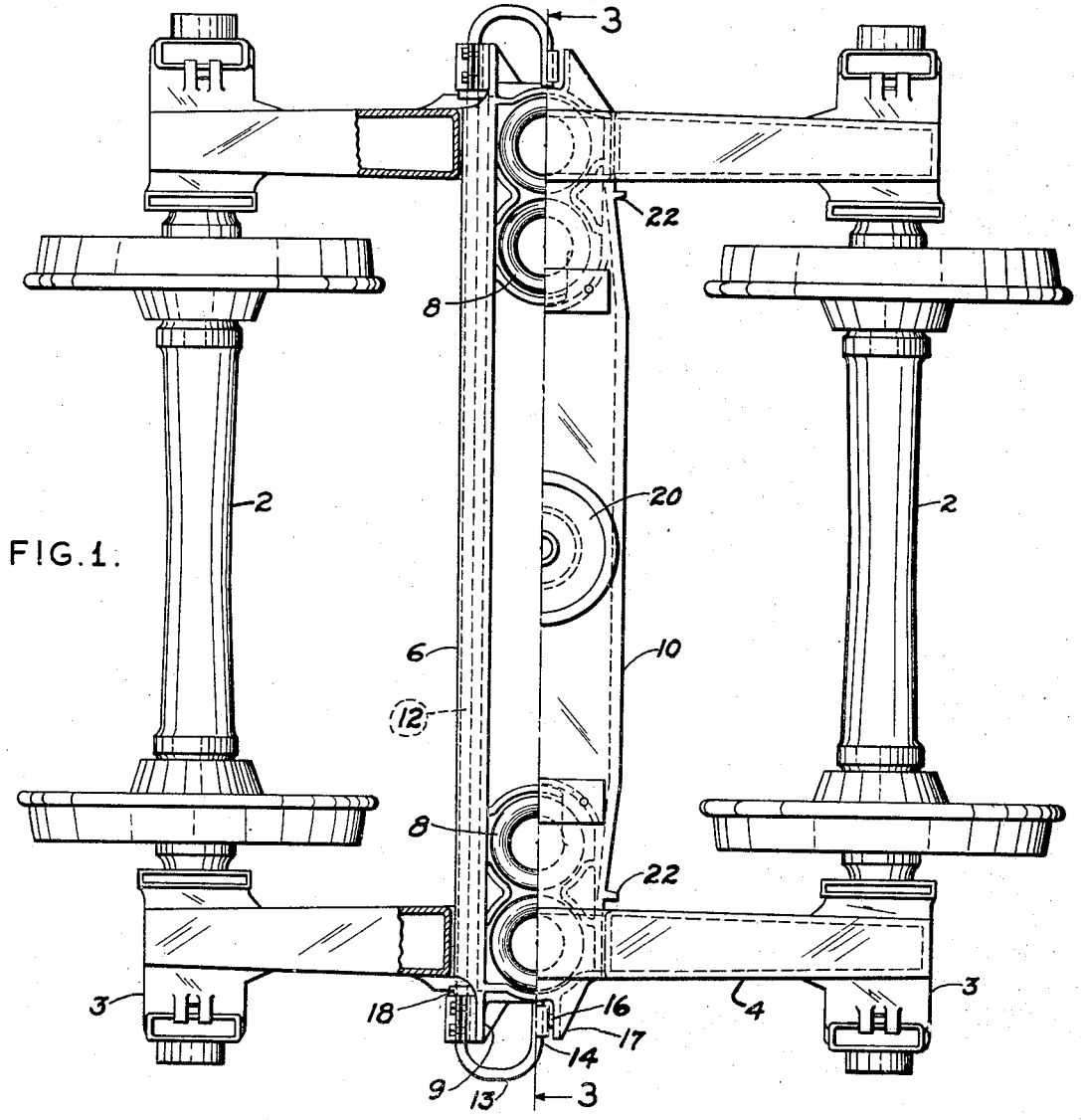


FIG. 1.

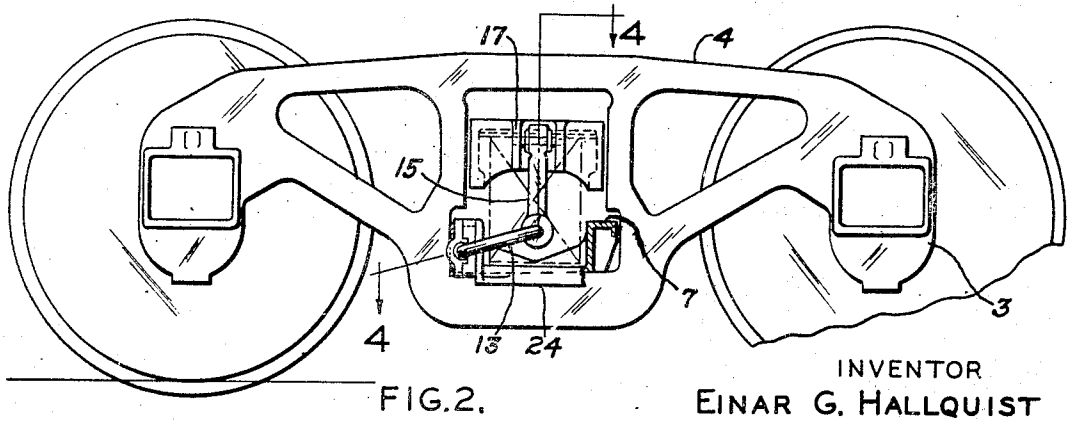


FIG. 2.

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RAILWAY TRUCK

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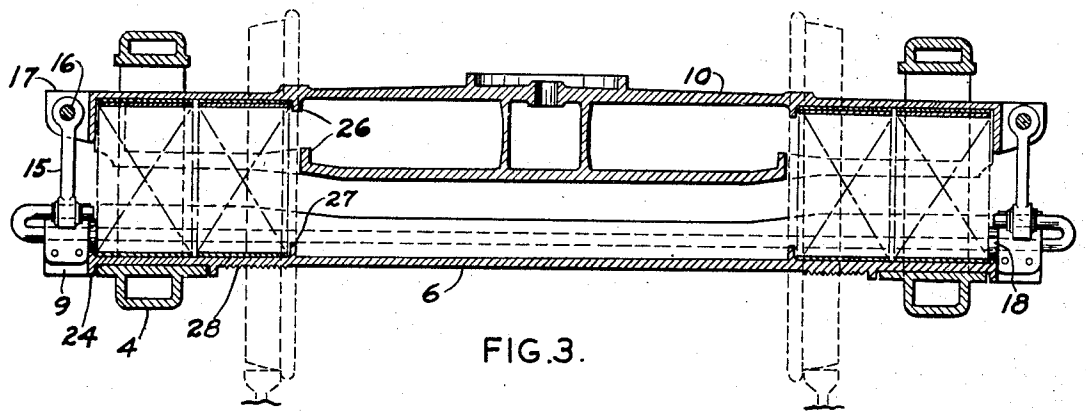


FIG.3.

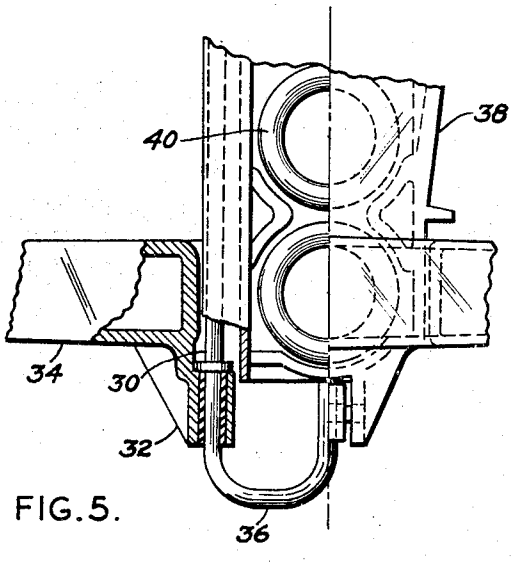


FIG.5.

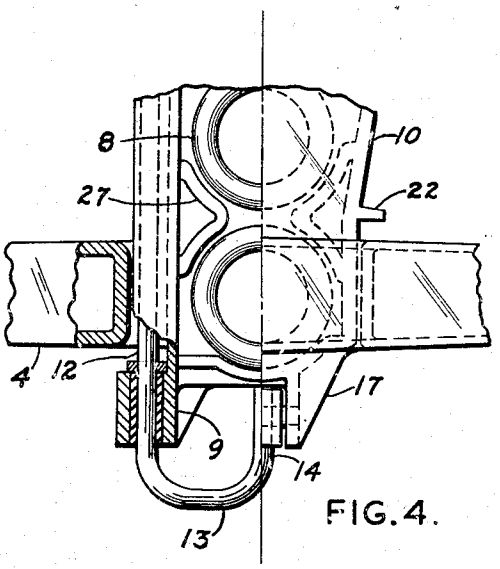


FIG.4.

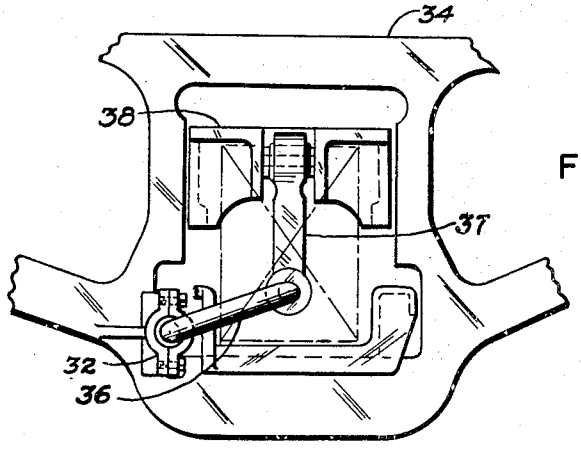


FIG.6.

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2,317,377

RAILWAY TRUCK

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Application September 22, 1939, Serial No. 296,030

8 Claims. (Cl. 105—210)

The invention relates to railway rolling stock and more particularly to car trucks having bolster supporting springs carried by the frame.

Ordinarily trucks of this type are used on freight cars and have relatively stiff coil springs under each end of the bolster rendering the trucks unsatisfactory for passenger trains or high speed freight service, in which it is desirable to have a more flexible truck to absorb the increased shocks arising from the car moving over track irregularities at increased speeds.

It is an object of the present invention to increase the flexibility of a truck of the general type referred to; in other words, to construct a truck for high speed trains which will have a minimum number of parts and be of relatively light weight. This object is attained by using relatively large coil springs under the bolster, which springs will yield vertically more readily than the stiffer springs previously used, and also their upper ends will yield laterally under the side thrust between the truck and body.

It is a further object of the invention to avoid undue rolling of the car body because of the increased flexibility which ordinarily would provide greater play in the springs and permit successive forces tending to produce a downward movement of one side of the car body and an increasing upward movement of the other side of the car body to have a cumulative effect. This object is attained by using a stabilizer bar between opposite sides of the truck.

It is a further object of the invention to facilitate the changing of the truck wheels and axles by providing for ready disassembly of the truck side frame and bolster and spring plank, if a spring plank is used, and this object is attained by arranging for readily moving these parts laterally of each other.

In the accompanying drawings illustrating the invention

Figure 1 is a top view of a four-wheeled truck, a portion of the bolster being removed and a portion of the frame being sectioned to more clearly illustrate the structure.

Figure 2 is a side elevation of the truck with a part of the spring plank sectioned to indicate a detail of its construction.

Figure 3 is a transverse vertical section taken on the line 3—3 of Figure 1.

Figure 4 is a detailed horizontal section and top view taken approximately on the line 4—4 of Figure 2 and showing the torque rod stabilizer journaled in the spring plank.

Figure 5 is a similar section and view showing another form of the invention in which the torque rod stabilizer is journaled in the truck frame.

Figure 6 is a side elevation of the structure shown in Figure 5.

A truck illustrated in Figures 1 to 4 includes wheeled axles 2, journaled in boxes 3 formed integral to the side frames 4 which preferably are connected by a spring plank 6 carrying springs 8 on which bolster 10 is mounted. Preferably springs 8 are of larger diameter than ordinarily used and therefore flex more readily and make for easier riding of the truck.

Spring plank 6 is of channel section with its flanges 7 turned outwardly and downwardly and is provided at its ends with brackets 9 for journaling a stabilizer rod 12 extending transversely of the truck and substantially housed by the out-turned and down-turned portions of one of the spring plank flanges. Stabilizer 12 has crank arms 13 extending longitudinally of the truck and terminating in inturned portions 14 lying in substantially the same vertical plane as the center line of the bolster. Upright links 15 receive the ends 14 and pivotally connect the torque arm to the ends of the bolster through pins 16 extending longitudinally of the truck and seated in a pair of outwardly projecting lugs 17 on the bolster. Collars 18 secured to rod 12 oppose the inner ends of brackets 9 and prevent sliding movement of the torque rod transversely of the truck.

The bolster is provided with the usual center plate 20 and with projecting lugs 22 which limit the lateral movement of the bolster relative to the frame. Each end of the spring plank is provided with a pair of depending key ribs 24 which holds opposite edges of the lower members of the side frames to position the frames transversely of the truck. Bolster 10 and spring plank 6 are provided with spring receiving elements 26 and 27 respectively for spacing and retaining the ends of springs 8 in their respective positions.

Stabilizer 12 insures the equal action of the springs at opposite sides of the truck and hence greatly reduces or eliminates the possibility of a car rolling from side to side due to alternating compression of the opposite springs. Thus the stabilizer holds the bolster in a parallel or horizontal position relative to the truck and frame throughout its vertical and lateral movements.

Removal of the frames and wheels is readily accomplished by placing a jack under one of the pads 28 on the bottom of spring plank 6 and raising the spring plank sufficiently to allow ribs 24 to clear the side frames, whereupon the same

may be moved laterally and the wheeled axles freed for replacement.

Figures 5 and 6 illustrate another form of the invention having the torque rod stabilizer 30 journaled in outwardly extending brackets 32 on the frame 34. The stabilizer arms 36, links 37, bolster 38 and springs 40 correspond to the similar parts previously described.

In this form of the invention the torque action of the stabilizer is between the bolster and the frame independently of the spring plank, and the latter may be omitted if it is desired to use the spring-plankless type of truck in which the bolster springs are seated directly on the side frames.

Although the drawings illustrate the invention embodied in a four-wheeled truck, it is applicable also to a six-wheeled truck, and the details of the structure may be modified in other ways than those shown 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 having wheeled axles, separately formed side frames carried thereon, a spring plank extending between said side frames and holding them in spaced relation, springs carried on said spring plank, a bolster mounted on said springs, and a torque rod extending alongside said spring plank and journaled thereon and having arms extending transversely of said spring plank beyond the ends thereof and pivotally connected to the ends of said bolster independently of said springs to equalize the vertical movement of the ends of said bolster and the springs supporting the same.

2. In a railway truck, wheeled axles, side frames mounted thereon, a sprink plank extending between said frames, springs carried thereby, a bolster mounted on said springs, brackets on the ends of said spring plank projecting outwardly beyond said side frames, brackets on the ends of said bolster projecting outwardly beyond said side frames, a torque rod journaled in said spring plank brackets and having crank arms extending longitudinally of the truck, and links pivotally connecting the ends of said arms and said bolster brackets independently of said springs.

3. In a railway truck having side frames and wheeled axles journaled therein, a spring plank carried by the side frames and comprising an upwardly facing channel section with at least one of its flanges turned outwardly and downwardly, springs on said spring plank, a bolster on said springs, a torque rod stabilizer housed by said flange and having crank arms at its ends pivotally connected to said bolster to equalize the vertical movement of the opposite ends of said bolster and its supporting springs.

4. In a railway truck, side frames, a spring plank carried directly thereby, springs thereon, a bolster on said springs, brackets on the ends of said spring plank, a torque rod extending transversely of the truck and journaled in said brackets and having arms extending longitudinally of the truck, links each pivoted at one end to one of said arms to swing in a vertical plane extending longitudinally of the truck and pivoted at its other end to an end of said bolster to swing thereon in a vertical plane extending transversely of the truck whereby the movement of the ends of the bolster and its supporting springs is equalized and movement of the bolster transversely of the truck relative to the spring plank and torque rod is accommodated.

5. In a railway truck, wheeled axles, side frames mounted thereon, a spring plank extending between said side frames, springs carried thereby, a bolster on said springs, brackets on said side frames projecting outwardly beyond said spring plank and at approximately the same level as said spring plank, a torque rod extending alongside of said spring plank and journaled in said brackets and having crank arms extending abreast of said springs and the ends of said spring plank and links with their lower ends pivotally connected to the ends of said arms and with their upper ends pivotally secured to said bolster independently of said springs to equalize the vertical movement of the end of said bolster and its supporting springs.

6. A truck as described in claim 5 in which the connection between the torque rod and the bolster includes parts pivoted to swing in a plane extending transversely of the truck whereby movement of the bolster laterally of the truck side frames and torque rod is accommodated.

7. In a railway truck, wheeled axles, framing carried thereby, helical springs carried by said framing, a bolster supported on said springs, and means providing uniform action of said springs at opposite sides of the truck comprising a torque rod extending from side to side of the truck and journaled in fixed bearings on said framing and having crank arms at its outer ends pivotally connected to the end portions of the said bolster independently of said springs, the springs being of sufficient length relative to their width and the thickness of their material to accommodate lateral movement of the bolster relative to the spring seats, and the pivotal connections between the bolster and the ends of the torque rod crank arms accommodating such lateral movement of the bolster.

8. In a railway truck, wheeled axles, independent side frames mounted thereon, a spring plank connecting said side frames, springs carried by said spring plank, a bolster on said springs extending beyond said side frames, a torque rod extending transversely across the truck and journaled in each of said separate side frames, and having crank arms outside of said side frames, said arms being connected by links to the ends of said bolster independently of the springs.

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