June 9, 1953 A. A. GASSNER 2,641,499

AXLE CONSTRUCTION

Filed March 7, 1947 3 Sheets-Sheet 1

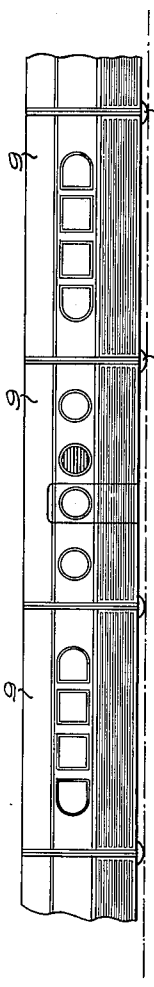

FIG. 1

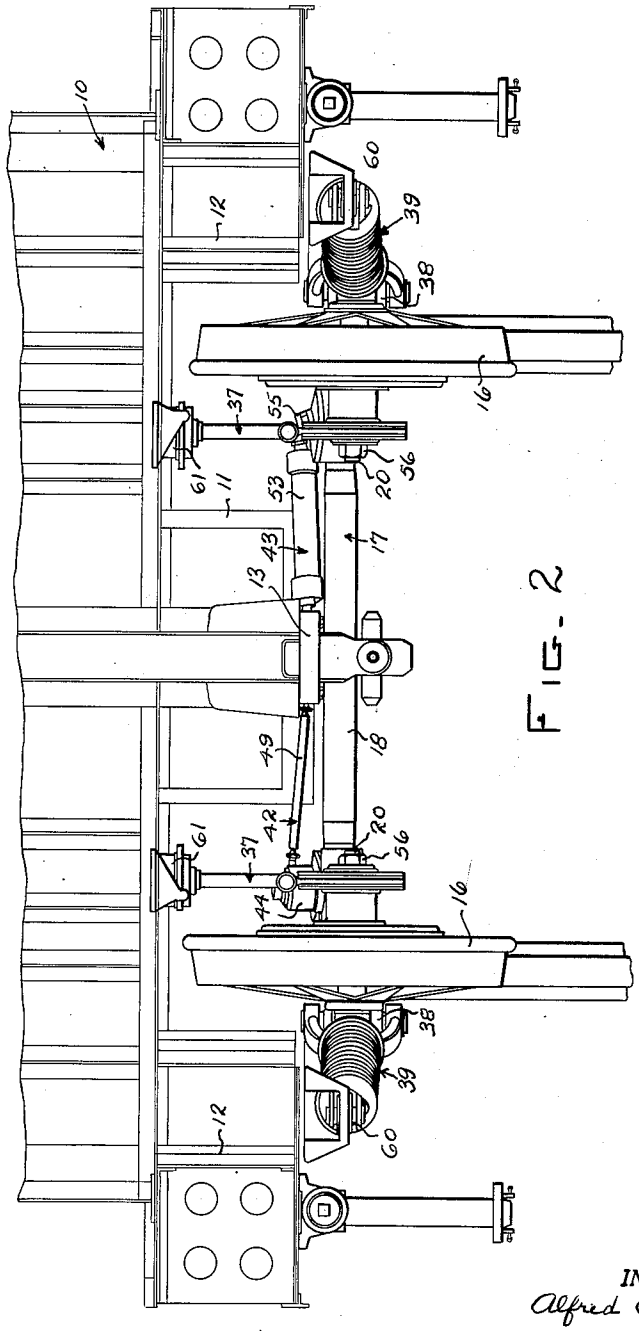

FIG. 2

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AXLE CONSTRUCTION

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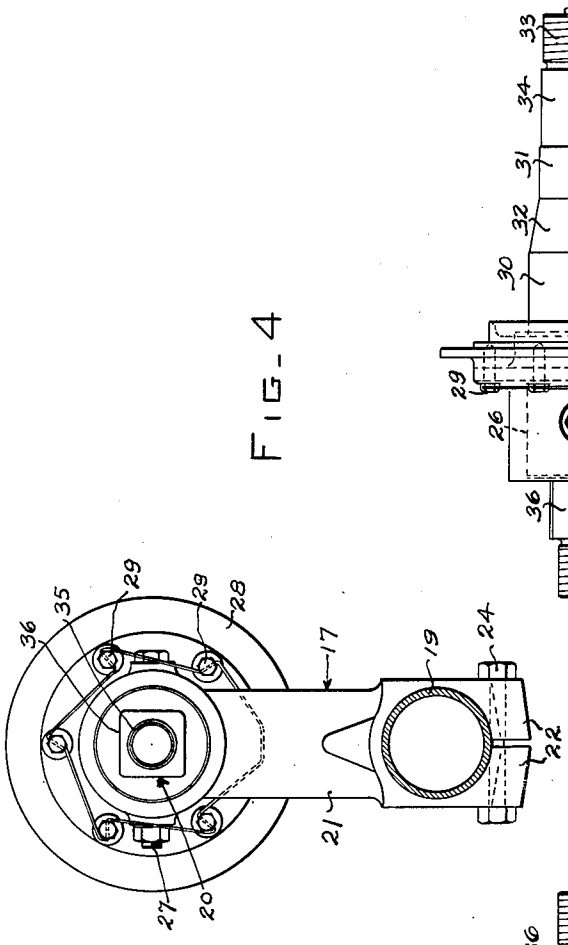

FIG. 4

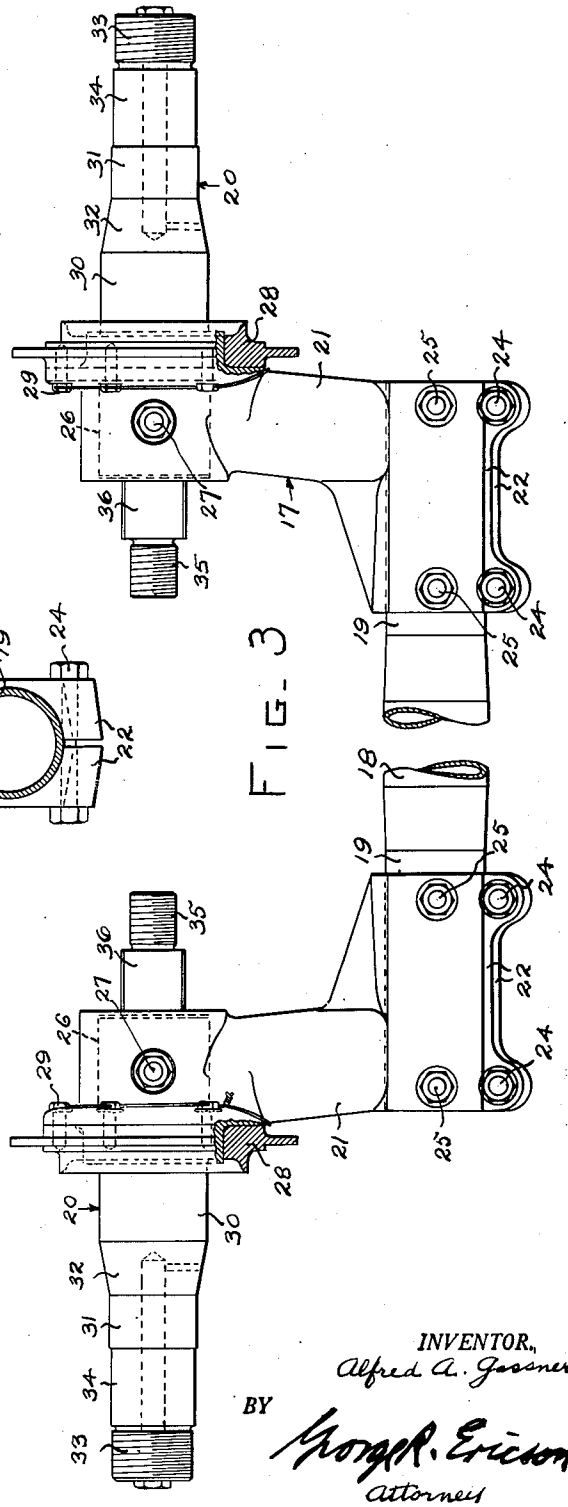

FIG. 3

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AXLE CONSTRUCTION

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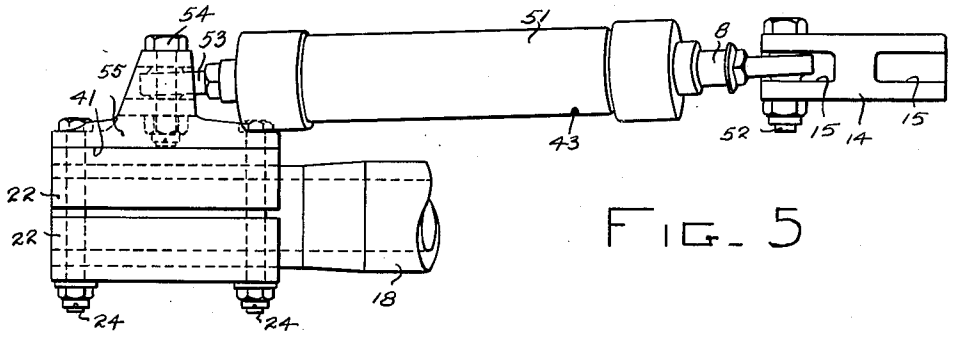

FIG. 5

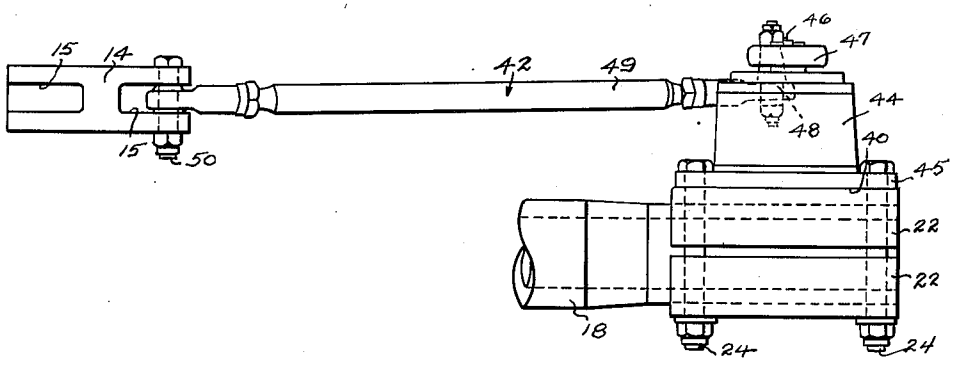

FIG. 6

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UNITED STATES PATENT OFFICE

2,641,499

AXLE CONSTRUCTION

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Application March 7, 1947, Serial No. 733,097

4 Claims. (Cl. 295—36)

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This invention relates to axle structures and more particularly to axle structures for railway cars.

An object of the invention is to provide an axle structure, serving as the support for a railway car of the trailer type, constructed to be connected with and to allow movement of the adjacent end of the car framing without interference.

Another object of the invention is to provide a drop or underslung axle structure composed of a plurality of sections that may be readily assembled or disassembled.

Another object of the invention is to provide a sectional axle structure of the drop type for railway cars in which a lower section of varying lengths may be utilized to suit various track gauges.

These and other objects of the invention will be apparent to those skilled in the art from a study of the following description and accompanying drawings, in which:

Figure 1 is a side elevation of a section of a railway train.

Figure 2 is a plan view of one end of a railway car supported on an axle constructed in accordance with the invention.

Figure 3 is a rear elevational view of the axle structure.

Figure 4 is an end view of the axle structure.

Figure 5 is a bottom view of one end of the axle structure with an anti-side sway device attached thereto.

Figure 6 is a bottom view of another end of the axle structure with an anti-side sway damping device attached thereto.

Referring to the drawings by characters of reference, the framing 10 of a railway car 9 has at one end a central rearwardly extending portion 11 and rearwardly extending side portions 12 forming wheel housings therebetween. Draft coupling 13 is fixed to central portion 11 and has a depending extension 14 formed with bottom side slots 15. Track wheels 16 are journalled on an axle structure 17 and are positioned partially in the wheel housings.

The axle structure is of the drop or underslung type and formed of sections rigidly secured together. A bottom transversely extending section 18 is formed preferably of tubing of reduced diameter at the ends 19. Two stub axles 20 form the upper sections of the axle structure and are carried by the upper end portions of arms 21 and form other sections of the axle structure. The lower end portions of the arms are bifurcated providing flanges 22 for receiving the ends of the tubing section. The flanges are clamped to the

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tubing by bolts 24, and the tubing section is further secured to the arm flanges by bolts 25. Stub axles 20 extend through openings 26 in the upper ends of the arms and are secured thereto by bolts 27.

A brake backing plate 28 is arranged adjacent the outer face of the upper end of each arm and is secured thereto by bolts 29. The stub axles outside of the back plates are formed with spaced bearing receiving surfaces 30 and 31 and a tapered surface 32 is formed between surfaces 30 and 31 which are of different diameters, the small diameter surface 31 being nearest the outside end of the stub shafts. The outer end 33 of each stub shaft is threaded and between such threaded end and surface 31 is a bearing surface 34. The inner end 35 of each stub shaft is threaded and the shaft surface 36 between the threaded end and the carrier arm is formed out-of-round, preferably substantially square in cross section.

Surfaces 30, 31 and 32 of the stub axles serve as the carrier for bearings on which wheels 16 are mounted. Surfaces 36 serve as a mounting for combined radius rod and torque reaction devices 37. Surfaces 34 serve as journals for hangers 38 to which strut devices 39 are connected. The radius rod and torque reaction devices form the subject matter of copending application Serial Number 729,236, filed February 18, 1947, and the strut devices from the subject matter of copending application Serial Number 733,098, filed March 7, 1947. The strut devices are pivoted at 60 to the framing and the devices 37 are pivoted at 61 to the framing.

The forward faces of the lower portion of arms 21 are formed with flat bearing surfaces 40, 41 for the mounting of the outer end portions of anti-side sway devices 42—43, such devices forming the subject matter of copending application Serial Number 733,096, filed March 7, 1947. Device 42 includes a fluid shock absorber housing 44 having a flanged face 45 secured against arm surface 40 by bolts 25. A vane shaft 46 extends from the housing and has an arm 47 fixed thereto carrying pin 48 on which a rod structure 49 is pivotally mounted. The other end of this rod structure extends into one of the side slots 15 of coupling extension 14 and is mounted on pin 50 extending across the slot.

Device 43 includes a cylinder 51 from which a spring centered piston rod structure 8 extends and projects into the other groove 15 in the coupling extension where it pivots on pin 52 extending across the groove. The cylinder has an extension 53 pivotally mounted on pin 54 carried by hanger 55. The hanger has a flat rear sur-

face that is held against arm bearing surface 41 by bolts 25.

The axle structure, being bolted together, may be readily assembled or disassembled and it provides bearing or retaining surfaces for the various devices for connecting and controlling relative movement of the axle structure and the car framing. Nuts 56 are screwed on axle ends 35 and similar nuts are screwed on axle ends 33 to secure the stub axles and devices 42 and 43 axially with respect to the arms. The lower axle tubing 18 may be of various lengths to suit different track gauges, and thus the other axle structure sections may be utilized for all track gauges.

What is claimed is:

1. A drop axle structure comprising a lower member, upstanding arms fixed at their lower end portions to the end portions of the lower member, a stub axle extending through the upper end portion of each arm, each of said stub axles having a wheel bearing portion on the end projecting beyond the outer side of the associated arm, an out-of-round bearing portion entirely on the end projecting beyond the inner side of the associated arm and radius rod anchor sleeves having interior surfaces complimentary to and mounted on the out-of-round portions of the stub axles, and means fixing the stub axles to the arms.

2. A drop axle structure comprising a lower member, upstanding arms having bifurcated lower end portions through which the ends of the lower member project, means clamping the bifurcated arm ends on the ends of the lower member, stub axles projecting through and carried by the upper end portions of the arms, said stub axles having a wheel bearing portion beyond the outer side of the associated arms and a strut hanger bearing portion outwardly beyond the wheel bearing portion and in axial alignment therewith, and means fixing the stub axles to the arms.

3. A drop axle structure comprising a lower member, upstanding arms having upper carrier heads and bifurcated lower ends fixed on the end portions of the lower member, stub axles projecting through the arm heads, said axles having

a wheel bearing portion and a strut hanger bearing portion on the end projecting beyond the outer side of the associated heads and an out-of-round bearing portion on the end projecting beyond the inner side of the associated heads, radius rod anchor sleeves on the out-of-round bearing portions having internal bearing portions complimentary thereto, and means securing the stub axles to the heads.

4. A drop axle structure comprising a lower member, upstanding arms having upper carrier heads and bifurcated lower ends positioned around the end portions of the lower member, bolt means clamping the bifurcated lower ends of the arms on the ends of the lower axle structure member, stub axles projecting through the arm heads having wheel bearing surfaces outside of the associated heads and radius rod anchor bearing surfaces on the ends beyond the inner sides of the associated heads, said arms having a bearing surface on the lower rear portion thereof, means securing the stub axles to the arm heads, and shock absorber anchor members secured against the bearing surfaces on said arms by said bolt means.

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