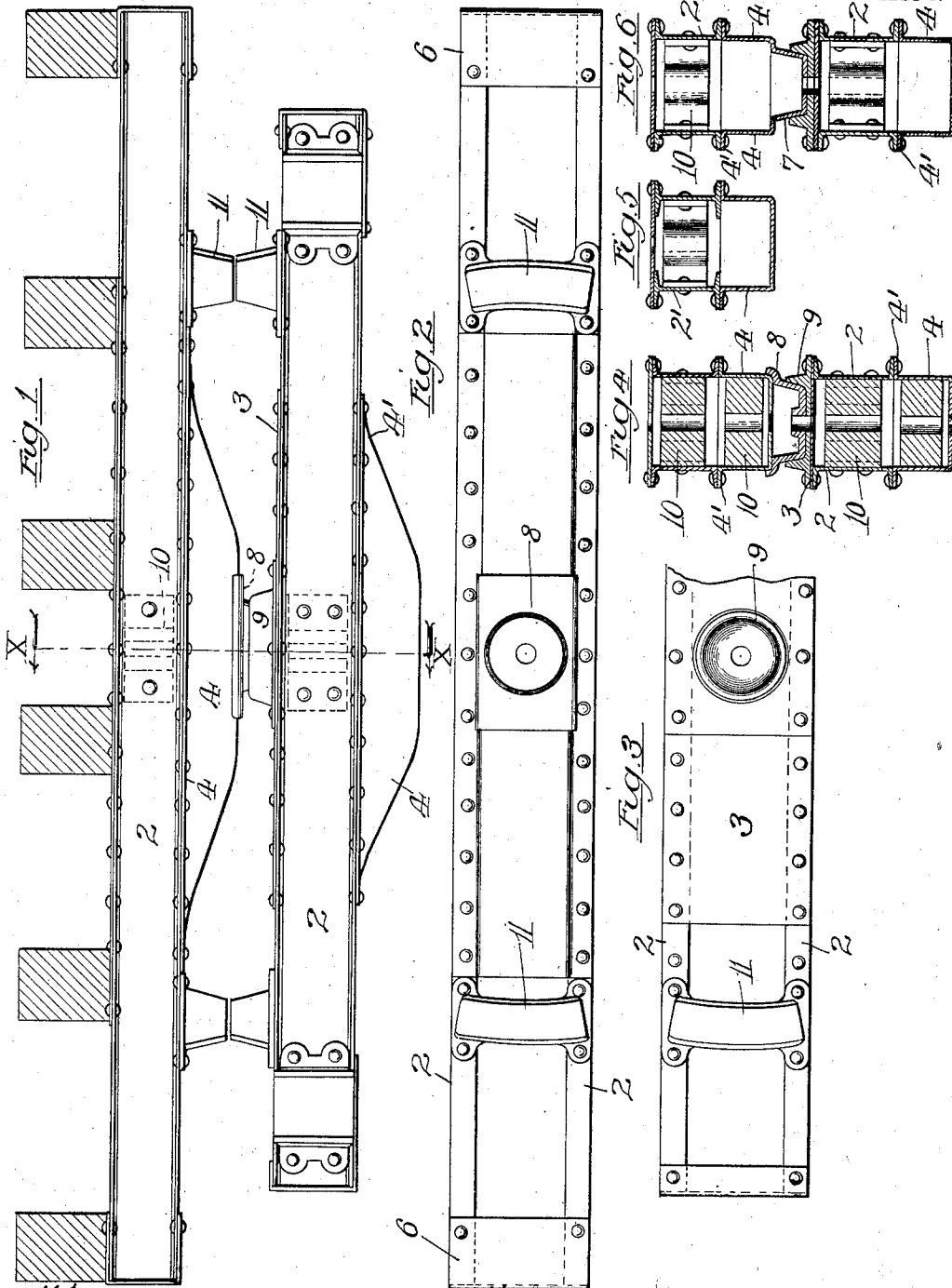


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TRUCK AND BODY BOLSTER.

APPLICATION FILED AUG. 28, 1902.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

Howard S. Barnet  
Hillel Bernstein

Inventor:

Arthur Lipschutz

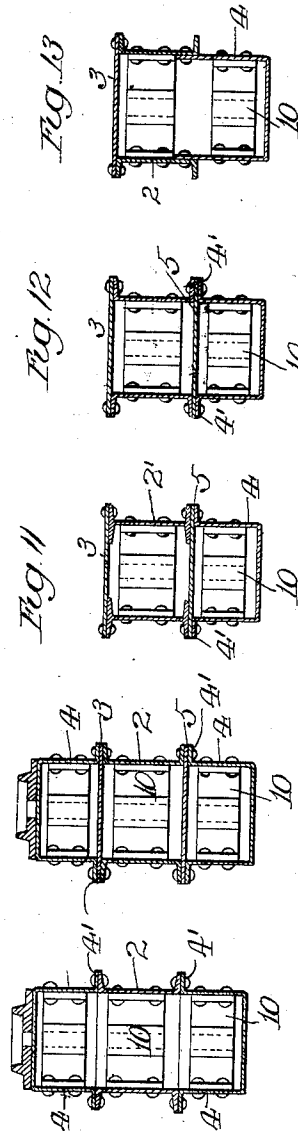
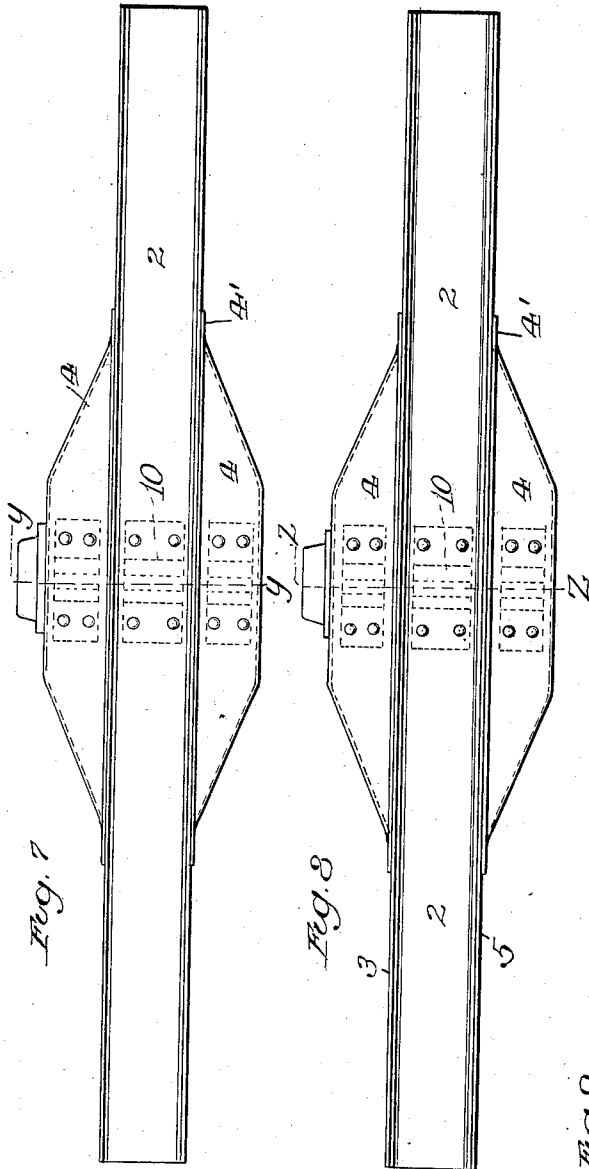
By C. Hawley Atty.

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Howard B. Bant  
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Arthur Lipschutz  
By O. Hawley  
Atty.

# UNITED STATES PATENT OFFICE.

ARTHUR LIPSCHUTZ, OF ST. LOUIS, MISSOURI.

## TRUCK AND BODY BOLSTER.

SPECIFICATION forming part of Letters Patent No. 738,337, dated September 8, 1903.

Application filed August 28, 1902. Serial No. 121,270. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR LIPSCHUTZ, a citizen of the United States, residing at St. Louis, Missouri, have invented a new and Improved Truck and Body Bolster, of which the following is a specification.

My invention relates to truck and body bolsters for railroad-cars; and the object of my invention is to materially lessen the cost of truck-bolsters and body-bolsters.

The particular object of my invention is to provide a combined structural and pressed-steel bolster which shall cost very much less than similar devices now used, which shall be of less weight, and which shall fill all of the requirements as to strength and adaptability of application to either wooden or steel cars.

My invention consists generally in a bolster comprising parallel beams or girders of structural or rolled shapes in combination with a pressed-steel reinforcement or truss joining the parallel beams; and my invention further consists in a bolster comprising parallel beams joined by transverse plates in combination with one or more truss-shaped pressed-steel reinforcements for the bolster, all comprising a complete article of manufacture; and the invention further consists in various details of construction and in combinations of parts, all as hereinafter more fully described, and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 illustrates a truck and a body bolster embodying my invention. Fig. 2 is a plan view of the bottom of the body-bolster. Fig. 3 is a partial plan view of the top of the truck-bolster. Fig. 4 is a vertical section on the line  $xx$  of Fig. 1. Fig. 5 illustrates a modification of the bolster in which rolled I-beams are employed. Fig. 6 is a view similar to Fig. 4, illustrating a modification in the body-bolster. Fig. 7 is a modification of the bolster. Fig. 8 is a further modification thereof. Fig. 9 is a sectional view on the line  $yy$  of Fig. 7. Fig. 10 is a sectional view

on the line  $zz$  of Fig. 8. Figs. 11, 12, and 13 are cross-sections of still further modifications of my invention.

As shown in the drawings, the truck and body bolsters may be and are preferably identical in construction except as to length. Each bolster comprises two parallel beams 2, which may be rolled-steel channels, as illustrated in Figs. 4 and 6, or may be rolled-steel I-beams, as shown in Fig. 5. In the preferred construction of my device the beams are joined across the top by a flat plate 3, which is riveted to the upper flanges of the beams. Upon the under side this plate is replaced by a hollow pressed or drawn steel truss 4 of considerably less length than the beams 2 and having flaring flanges 4', that are riveted to the lower flanges of the beams. This truss or reinforcement of the bottom of the beam may, if desired, be augmented by a plate 5, similar to the plate 3, as shown in Fig. 12. I prefer also in some cases, as illustrated in Fig. 8, to extend the plate 3 and the plate 5 to the ends of the beams; but as a precaution against crushing force exerted laterally upon the bolster the end clips 6 are usually sufficient, these joining adjacent ends of the parallel beams.

As shown in Fig. 6, the truck-center 7 of the body-bolster may be pressed in the truss portion 4 thereof; but in general practice I prefer to attach a separate center plate 8, as shown in Fig. 4, the same fitting the center socket 9, that is riveted upon the top plate 3 of the truck-bolster.

In Figs. 7 and 8 I have illustrated a truck-bolster that is sometimes employed where it is necessary to increase the height of the bolster or where the bolster is required to possess more than ordinary strength to carry an exceptionally large load. As shown, in such exigencies I employ an extra inverted truss 4 for the top of the bolster. The bolsters shown in Figs. 7 and 8 differ only in the full-length transverse plates 3 and 5 shown in Fig. 10.

It is not essential that the pressed or drawn truss be provided with outwardly-flaring flanges, for quite as strong a structure may be secured if the sides of the truss are made ver-

tical and are slipped up between the parallel beams 2 2 and riveted through the webs of said beam, as shown in Fig. 13.

The center or king bolt bearing for the bolster is found in the diaphragm-blocks 10, which are secured to the inner walls of the beam and also to the trusses, if desired. These blocks being arranged at different points in the bolster afford a sufficiently long bearing to give the body-bolster stability upon the truck-bolster. The forms of my bolster admit of plenty of space between them for the side bearings 11, which may be of any desired type.

My bolster in its various forms conforms almost exactly to the outline of the theoretical stress-curve and cross-section, all of which I am able to secure at a minimum of cost for material and labor. My bolster possesses the further advantage of being easy to repair, and being of much lighter weight than those in present use in steel cars and the like makes a saving in the dead-weight of the car considered as a whole, and, further, my bolster possesses great lateral strength, a feature that is often overlooked in the designing and manufacture of bolsters.

It is obvious that numerous modifications of my invention may be made without departing from the spirit thereof, and I therefore do not confine the invention to the specific construction herein shown and described.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The bolster comprising the parallel rolled beams and the dished truss-shaped reinforcement fastened at its top to the bottoms of said beams and connecting the same, substantially as described.

2. The bolster comprising the parallel metal beams, in combination with the pressed or drawn metal U-shaped truss of less length than said beams, fastened to the same and connecting them, and the diaphragm-blocks secured between the sides of said beams and said truss, for the center bolt, substantially as described.

3. The bolster comprising the parallel rolled metal beams, the top of each being parallel with its bottom, in combination with the horizontal plate extending across the flanges of said beams and the rolled or pressed metal trough-shaped truss of less length than said beams and secured thereto substantially as described.

4. The bolster comprising the parallel rolled beams, in combination with the depending hollow metal truss joining said beams and provided with an integral depending truck-center, substantially as described.

5. The bolster comprising the parallel rolled metal beams, in combination with the hollow truss-shaped reinforcement depending from and having flanges extending across the bottoms of said beams, substantially as described.

6. The bolster comprising the vertically-arranged parallel rolled metal beams, in combination with the pressed or drawn metal truss U-shaped in cross-section and having flanges riveted to the lower flanges of said beams, substantially as described.

7. A car-bolster composed of two channel-shaped members placed with their flanges projecting outwardly, a cover-plate riveted to the upper flanges thereof, and a lower connecting member comprising a pressed truss-plate of varying U shape in cross-section and having outwardly-projecting edges riveted to the lower flanges of the channel members, substantially as described.

8. A car-bolster composed of two channel-shaped members placed with their flanges projecting outwardly, a cover-plate riveted to the upper flanges of said channel member, and a trough-shaped lower member having outwardly-projecting flanges riveted to the lower flanges of the channel members, substantially as described.

9. A car-bolster composed of two channel-shaped members placed with their flanges projecting outwardly, a cover-plate riveted to the upper flanges of said channel members, a trough-shaped lower member of varying depth provided with outwardly-projecting flanges which are riveted to the lower flanges of the channel members, substantially as described.

10. A car-bolster comprising a trough-shaped member, in combination with parallel flanged beams of uniform cross-section of greater length than said member secured to the edges thereof with flanges projecting laterally, and a cover-plate secured to said flanges, substantially as described.

11. A car-bolster comprising a trough-shaped member of varying depth, flanged parallel beams resting upon and secured to the edges thereof with flanges projecting laterally, and a cover-plate secured to said flanges, substantially as described.

12. The bolster comprising the parallel flanged beams joined by a truss-shaped reinforcement that is U-shaped in cross-section and is provided with top flanges whereon the beam-flanges are secured, substantially as described.

13. The bolster comprising the rolled beams having parallel top and bottom flanges, in combination with the pressed or drawn metal reinforcement, truss-shaped in longitudinal elevation and U-shaped in cross-section, and the upper longitudinal edges of said reinforcement being riveted to said beams, substantially as described.

14. The bolster comprising the rolled metal beams parallel one to the other and having parallel top and bottom flanges, in combination with a horizontal plate extending across the top flanges of said beams and the depending pressed or drawn metal reinforcement truss-shaped in longitudinal elevation and having its upper longitudinal edges riveted

to the bottoms of the parallel beams, substantially as described.

15. A car-bolster composed of two channel-shaped members, placed with their flanges projecting outwardly, a lower connecting member having outwardly-projecting edges riveted to the lower flanges of said channel members, and U-shaped plates inclosing the ends of said channel members and riveted to the upper and lower flanges thereof, substantially as described.

16. The bolster comprising the parallel metal beams, vertically arranged, in combination with the pressed or drawn metal U-shaped truss fastened to the same and connecting them, and the diaphragm-block secured between the sides of said beams, for the center bolt, substantially as described.

17. The bolster comprising the parallel metal beams, vertically arranged, in combination with the pressed or drawn metal U-shaped truss fastened to the same and con-

necting them, the diaphragm-block secured between the sides of said beams, for the center bolt, and the U-shaped plates inclosing the ends of said beams and riveted to the tops and bottoms thereof, substantially as described.

18. The bolster comprising the parallel flanged beams, vertically arranged, in combination with the horizontal plates extending across the tops and bottoms of said beams, respectively, and the pressed metal truss U-shaped in cross-section having longitudinal flanges riveted to the lower horizontal plate and the lower flanges of said beams, substantially as described.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses, this 22d day of August, 1902.

ARTHUR LIPSCHUTZ.

In presence of—

O. J. MCCAWLEY,  
WM. STEVENSON.