J. M. ROHLFING.

CAR BOLSTER.

APPLICATION FILED JUNE 1, 1911.

1,021,164.

Patented Mar. 26, 1912.

2 SHEETS—SHEET 1.

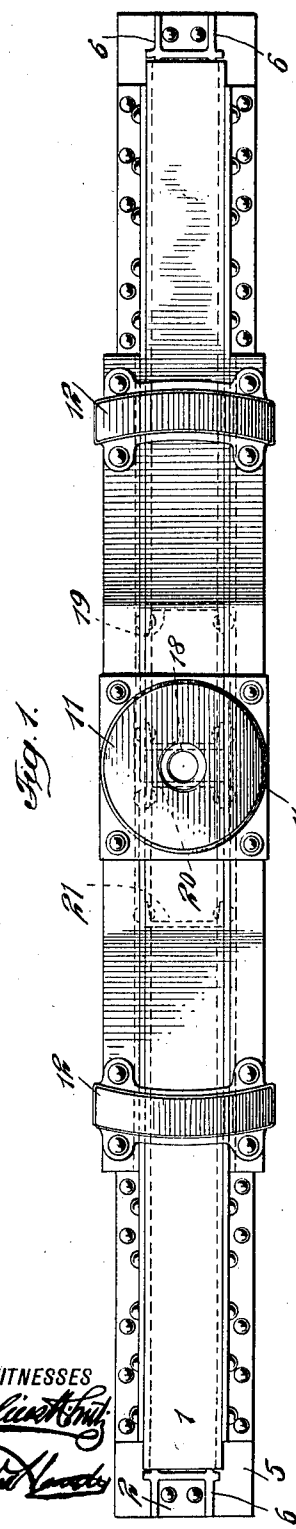

Fig. 1.

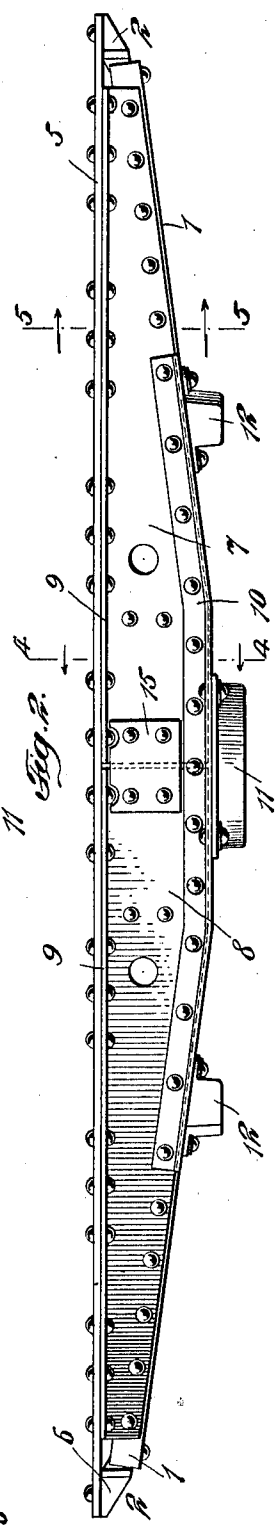

Fig. 2.

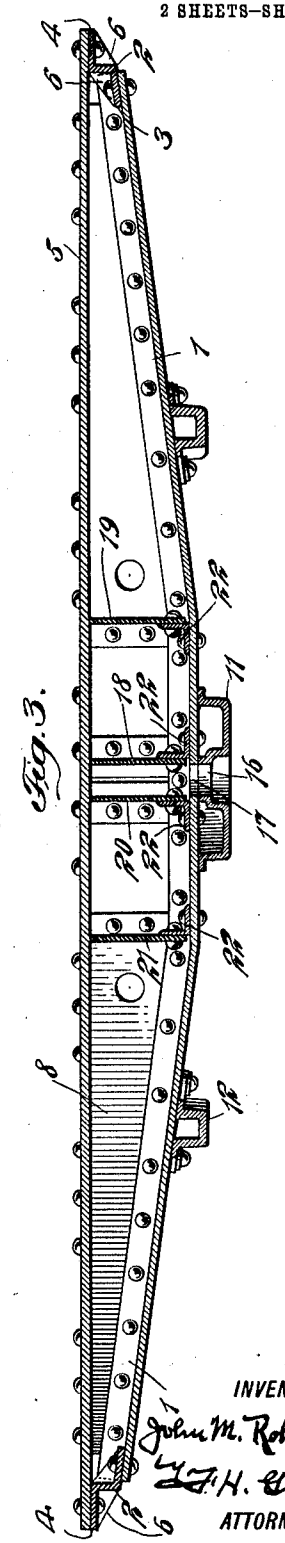

Fig. 3.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 6.

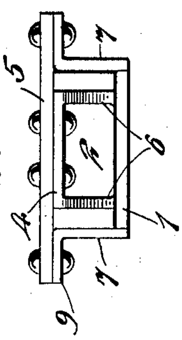


Fig. 5.

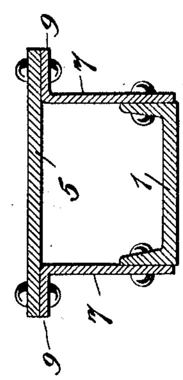


Fig. 4.

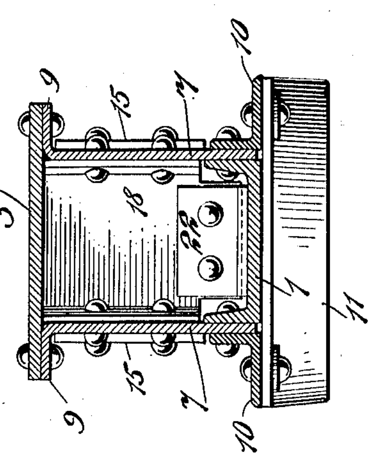
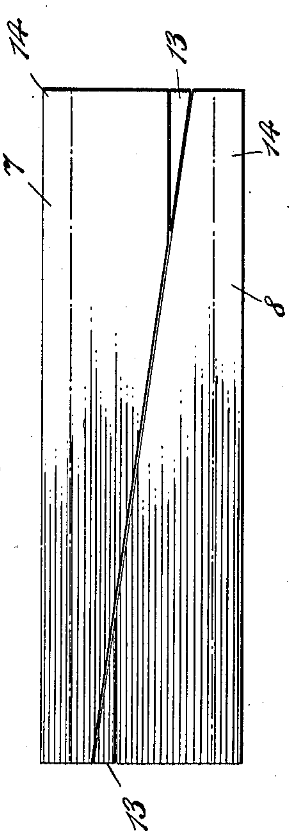


Fig. 7.



WITNESSES

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CAR-BOLSTER.

1,021,164. Specification of Letters Patent. Patented Mar. 26, 1912.

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To all whom it may concern:

Be it known that I, JOHN M. ROHLFING, residing at St. Louis, Missouri, and being a citizen of the United States, have invented certain new and useful Improvements in Car-Bolsters, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and to use the same, reference being had to the accompanying drawings, which illustrate the preferred form of the invention, though it is to be understood that the invention is not limited to the exact details of construction shown and described, as it is obvious that various modifications thereof will occur to persons skilled in the art.

In said drawings: Figure 1 is an inverted plan view of a bolster constructed in accordance with the invention. Fig. 2 is a side elevational view of the structure shown in Fig. 1. Fig. 3 is a central longitudinal vertical sectional view. Fig. 4 is a transverse vertical sectional view taken on the plane of line 4—4 of Fig. 2 looking in the direction of the arrows. Fig. 5 is a transverse vertical sectional view taken on the plane of line 5—5 of Fig. 2. Fig. 6 is an elevational view of the end of the bolster, and, Fig. 7 illustrates the manner in which a single rectangular sheet of metal is cut for the purpose of forming the web plates employed in the bolster structure.

The object of the invention is to provide a thoroughly practical and substantial bolster which may be manufactured at small cost and to this end it includes elements of simple outline and of such form as to be easily and economically assembled, all rivet connections being so placed as to facilitate the employment of a machine riveter.

A further object is to provide for the use of a pair of web plates of a contour such as may be economically cut from a single rectangular sheet of metal, two of such pairs being employed in each bolster constructed and each pair being so formed and placed in the structure as to produce a symmetric outline.

A further object is to provide reinforcing members for the central portion of the bolster, some of said reinforcing members being so placed as to form a king-pin-receiving pocket between them and having flange portions adapted for reinforcing the connections between the various web plates.

A further object is to provide simple and efficient connecting members for the adjacent ends of the tension and compression elements of the structure.

With these and other objects in view the invention comprises a compression member 1 formed of a rolled channel disposed with its web relatively horizontal and with its opposite longitudinal flanges upstanding. The opposite end portions of the channel are inclined upwardly so as to outline a bolster deepest at its middle portion and at each end, between the flanges thereof, is a Z-shaped reinforcing member 2 adapted for connecting the end of the compression member with the adjacent end of the tension member. The reinforcing member 2 is disposed with its web standing vertical, with its lower flange as 3 projecting inwardly and fixed to the upper surface of the web of the compression member, and with its upper flange as 4 projecting outwardly beyond the end of the compression member and fixed to the under surface of the tension member 5. Suitable integral stiffening webs 6—6 are formed upon the end reinforcing member so as to prevent distortion of the flanges relative to the web. The tension member 5 comprises a flat, level plate extending from the flange 4 of one reinforcing member 2 to the flange 4 of the opposite reinforcing member. A pair of web plates 7 and 8 are fixed, by their lower edges, to each of the flanges of the compression member and at their upper edges are formed each with an outwardly projecting flange 9 to which the intermediate portions of the tension member are secured preferably by rivets.

It will be observed that before the placing into position of the tension member 5 the interior of the structure, that is the space between the two pairs of the web plates, will be easily accessible from above for the purpose of machine riveting the lower edges of the web plates to the upstanding flanges of the compression member.

After the interior riveting is completed the tension member is placed upon the upper surfaces of the outstanding flanges of the web plates and is riveted in position by machine riveters. This disposal of flanges

places the principal compression resisting element of the channel 1, that is the web of said channel at the lowest available plane in the structure and thus produces an increase in the strength of the bolster proportionate to its depth.

A reinforcing angle 10 is riveted to the outer faces of each pair of web plates adjacent the lower edges thereof, each of said angles being formed with inclined portions to correspond with the inclined portions of the channel 1. The ends of the angles terminate short of the ends of the bolster and each of said angles is disposed with one of its flanges projecting outwardly in the plane of the web of the compression member 1 and with its other flange upstanding and fixed to the outer faces of the web plates by some of the rivets which fix the lower edges of said web plates to the upstanding flanges of said tension member.

A center bearing casting 11 is fixed to the under-side of the bolster by rivets through flanges formed upon said casting and through the outstanding flanges of the angles 10—10.

Side bearings 12—12 are fixed to the under-side of the bolster at point equi-distant from the center bearing casting as is common on bolster construction. The side bearings extend from one of the angles 10 to the other, spanning the compression member 1, and are fixed to the outstanding flanges of said angles by rivets through ears formed upon said side bearings. Neither the side bearings nor the center bearing have any direct connection with the compression channel 1 and it will be noted that, by reason of their being fixed only to the outstanding flanges of the angles 10, the attaching rivets may be readily set by a machine riveter, which feature is especially valuable in instances of renewal.

The web plates 7 and 8 of each pair are designed to be cut from a single sheet of metal as is clearly illustrated in Fig. 7 of the drawings. The sheet is first cut along a straight line drawn diagonally from one end of the sheet to the other so as to form two sections of identical shape, wider at one end than at the other. When the sections have been thus formed, a marginal portion 13 is cut from the larger end of each so that the sections will correspond to the central flat portion of the channel 1 when placed in the structure. The flanges 9 are formed of the portions designated by numerals 14 in Fig. 7.

The sections are placed in the structure with their larger ends abutting and with their smaller ends comprising end portions of the bolster. The abutting ends of the respective pairs are secured together by splice plates 15—15 fixed to their outer surfaces. The center bearing member 11 is formed with the usual king-pin-receiving aperture 16 and the compression member 1 is formed with an aperture 17 registering with said aperture 16.

The web plates comprising the pair at one end of the bolster are connected together adjacent their inner ends by a reinforcing channel section 18 extending from the inner surface of one of said web plates to the inner surface of the other and being fixed by its opposite flanges to said plates by the rivets which hold the splice plates 15—15 to the outer surfaces of said web plates. A second reinforcing member 19, similar to the member 18, is fitted between said web plates at a point spaced farther from the inner ends of said plates. The web plates comprising the pair at the opposite end of the bolster are connected together by reinforcing members 20 and 21 similar to the reinforcing members 18 and 19 and the rivets which fix the flange of the reinforcing member 20 to the inner surface of the latter pair of web plates are the same which fix the splice plates 15—15 to the outer surfaces of said plates. This arrangement provides that the rivets which fix the splice plates 15—15 in position are extended through an increased thickness of metal and said extra metal is, in each instance, a portion of a reinforcing member of the structure. The reinforcing members are thus held securely in position by flanges which serve the additional purpose of strengthening the connection between the splice plates and the adjacent web plates.

The flanges of each of the reinforcing members 18, 19 and 20 and 21 are cut away at their lower ends and the web of each is extended downwardly between the upstanding flanges of the compression member and are fixed to the web of said compression member by short angled brackets 22—22. The opposing faces of the web of the reinforcing members 18 and 20 are spaced apart a distance approximately equal to the diameter of the apertures 16 and 17 and said faces are arranged to coincide with the opposite sides of said apertures so as to assist in retaining the king-pin.

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

1. In a car bolster, a compression member comprising a channel section disposed with its flanges upstanding, a pair of web plates fixed to each of the flanges of said compression member, splice plates connecting the respective pairs of web plates, reinforcing members connected to said splice plates and to said web plates, and a tension member fixed to and connecting all of said web plates.

2. In a car bolster, a compression member

comprising a channel section disposed with its flanges upstanding, a pair of web plates fixed to each of the flanges of said compression member, splice plates connecting the respective pairs of web plates, reinforcing members extending transversely of the bolster and connected to said splice plates, and to both pairs of web plates, and a tension member fixed to and connecting all of said web plates.

3. In a car bolster, a compression member comprising a channel section disposed with its flanges upstanding, a pair of web plates fixed to each of the flanges of said compression member, splice plates connecting the respective pairs of web plates, reinforcing members connected to said splice plates and to said web plates and to said compression member, and a tension member fixed to and connecting all of said web plates.

4. In a car bolster, a compression member comprising a channel section disposed with its flanges upstanding, a pair of web plates fixed to each of the flanges of said compression member, splice plates connecting the respective pairs of web plates, reinforcing members connected to said splice plates and to said web plates, other reinforcing members connected to said web plates adjacent said first mentioned reinforcing members and a tension member fixed to and connecting all of said web plates.

5. A car bolster comprising a compression member and a tension member, and a Z-section disposed between end portions of said members having its opposite flanges fixed to said members.

6. A car bolster comprising a compression member and a tension member, one of said members comprising a channel section, and a Z-section disposed between end portions of said members having one of its flanges fixed to the web of said channel section and its other flange fixed to said other member.

7. In a car bolster, a compression member comprising a channel section disposed with its flanges upstanding, a pair of web plates fixed to each of the flanges of said compression member, reinforcing members connecting the respective pairs of web plates, a center-bearing member fixed to said reinforcing members and splice plates lapping and riveted to the contiguous edge portions of said pairs of web plates, thereby forming a reinforce therefor in vertical alinement with said center bearing.

8. In a car bolster, a compression member comprising a channel section disposed with its flanges upstanding, a pair of web plates fixed to each of the flanges of said compression member, reinforcing members connecting the respective pairs of web plates, side bearing members fixed to said reinforcing members a center bearing member and splice plates lapping and riveted to the contiguous edge portions of said pairs of web plates, thereby forming a reinforce therefor in vertical alinement with said center bearing member.

9. In a car bolster, a compression member comprising a channel section disposed with its flanges upstanding, a pair of web plates fixed to each of the flanges of said compression member, reinforcing members connecting the respective pairs of web plates, a center-bearing member fixed to said reinforcing members, side bearing members fixed to said reinforcing members and splice plates lapping and riveted to the contiguous edge portions of said pairs of web plates, thereby forming a reinforce therefor in vertical alinement with said center bearing.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

JOHN M. ROHLFING.

Witnesses:
OSCAR HOCHBERG,
JAMES J. COOPER.