

No. 692,914.

Patented Feb. 11, 1902.

R. V. SAGE.
CAR BOLSTER.

(Application filed Dec. 10, 1901.)

(No Model.)

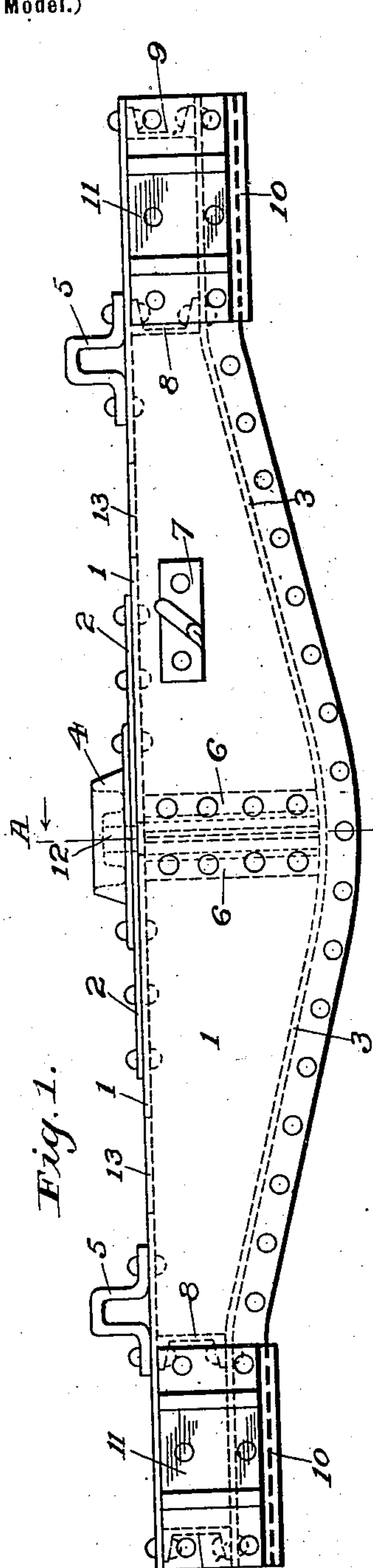


Fig. 1.

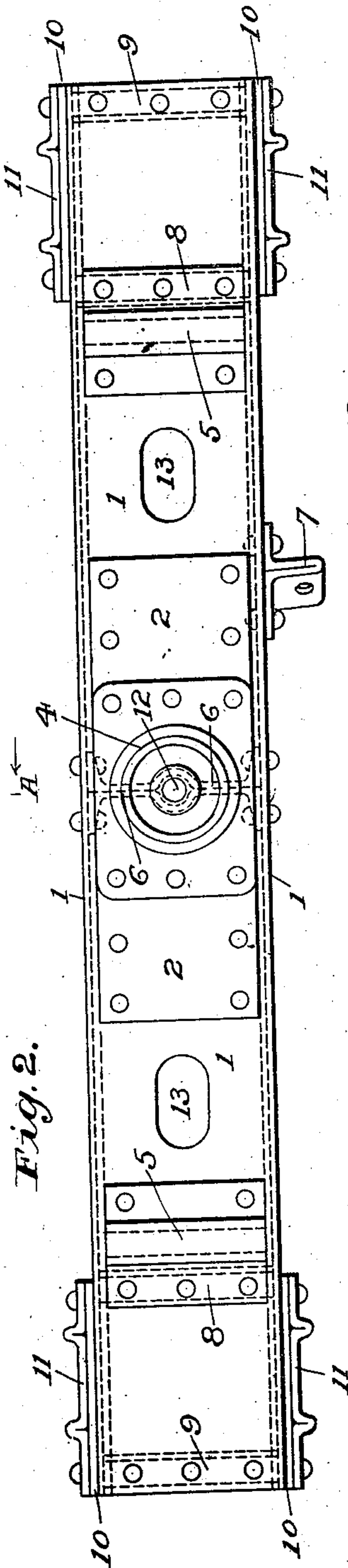


Fig. 2.

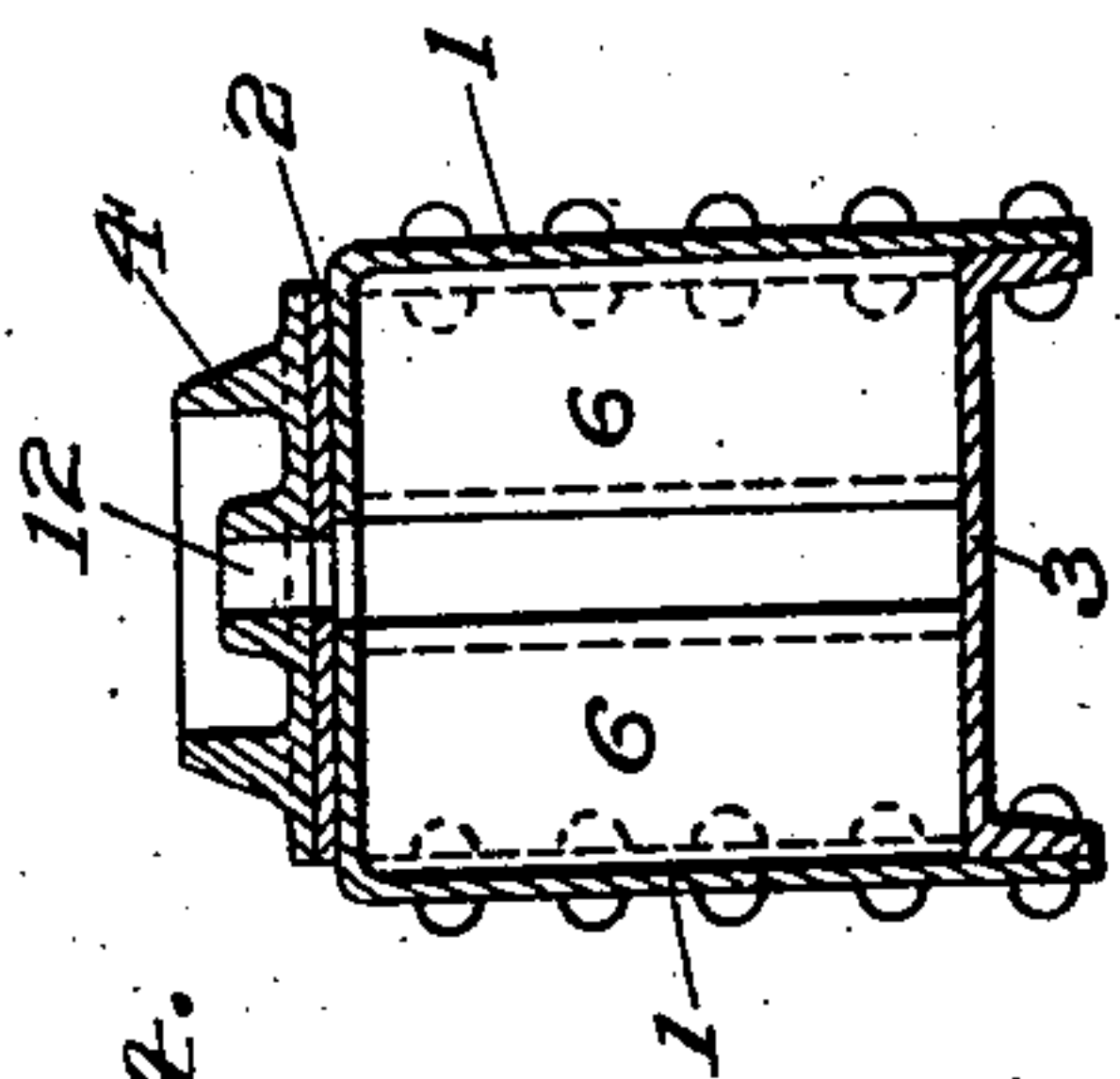


Fig. 3.

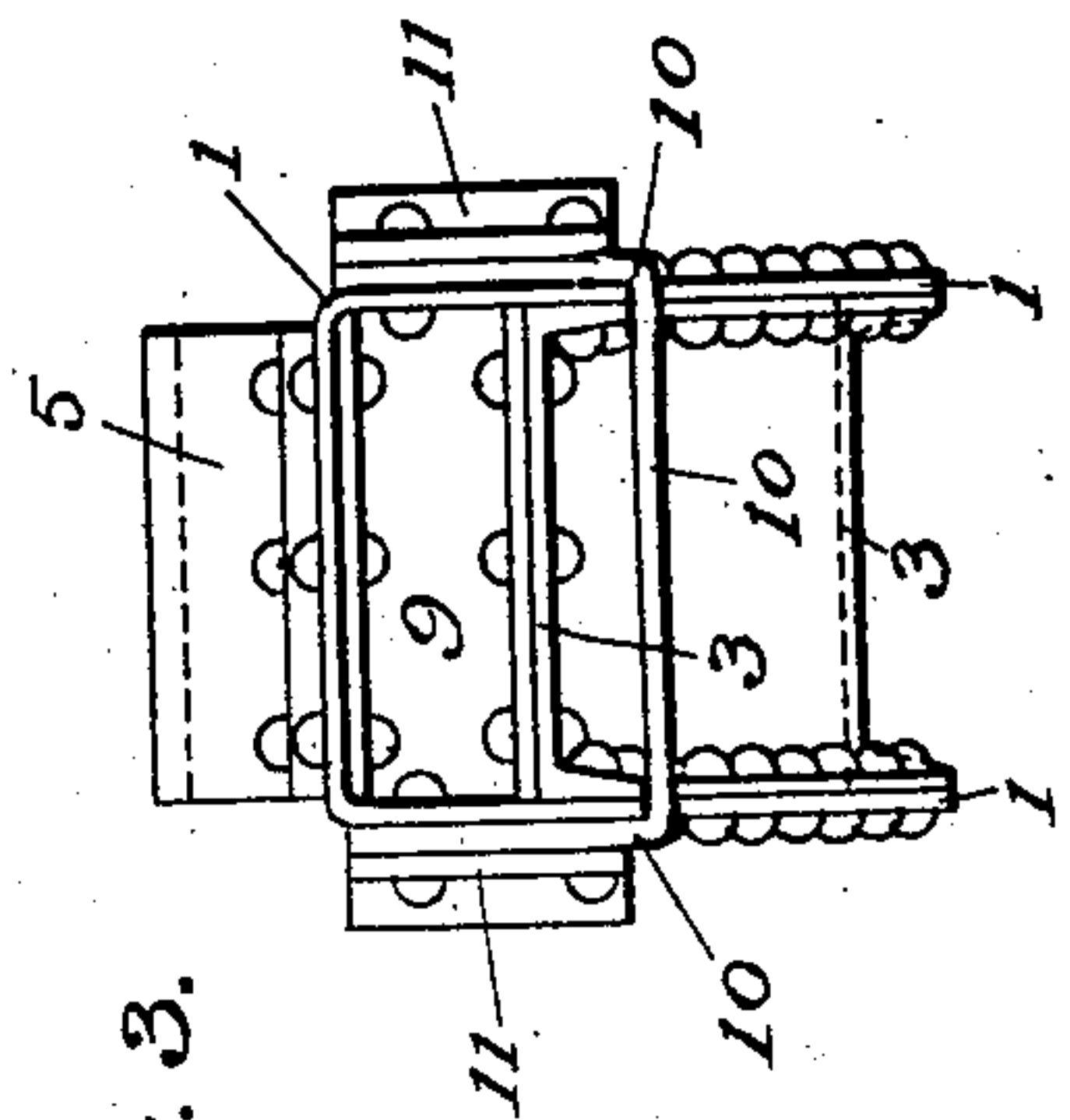


Fig. 4.

WITNESSES,

C. M. Newman
Byrus C. Hubbard.

INVENTOR.
Ralph V. Sage
by Geo. E. Thackeray.
his ATTORNEY.

UNITED STATES PATENT OFFICE.

RALPH V. SAGE, OF WESTMONT, PENNSYLVANIA.

CAR-BOLSTER.

SPECIFICATION forming part of Letters Patent No. 692,914, dated February 11, 1902.

Application filed December 10, 1901. Serial No. 85,411. (No model.)

To all whom it may concern:

Be it known that I, RALPH V. SAGE, a citizen of the United States, residing in the borough of Westmont, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Car-Bolsters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention consists of various improved constructions of car-bolsters and the details thereof, with particular reference to those known as "truck-bolsters," certain of the objects of my invention being to produce a structure which is well adapted to withstand the various stresses to which it is subjected in use, simple, cheap, and formed of materials that may be readily and economically procured and fabricated.

My improved bolster has the general form of a box-girder, deeper at the center than at the ends, the top and side members of said girder being combined and formed from one plate by bending or flanging it in straight lines, the lower portions of said plate forming the sides or webs of the bolster being cut tapering from the center to the ends in each direction, so as to form a girder of greater depth at the center than at the ends, as heretofore stated. The manufacture of a plate of this description is a very simple matter, as it only has to be sheared to shape and then bent or flanged in straight lines without any distortion or buckling of the metal. Between the lower edges of the webs so formed I place a bottom member, preferably of channel or trough section, the flanges of which project outwardly, adjoining and parallel to the said webs, whereby the bottom member may be connected to the webs by machine-riveting in the customary manner, which is a very efficient and cheap method of manufacture. On the top of the bolster I rivet a cover-plate for adding strength and stiffness to this portion of the structure and to serve as a support for the center plate, which may be of any usual form, attached thereto. At the ends of my bolster I provide end yokes formed of plates bent in trough or channel form, on the outer sides of which I place the

column-guides, formed of crimped plates, the end yokes and column-guides being securely attached by through rivets or bolts to the web-plates of the structure.

At the center of the bolster I provide a diaphragm composed of two channels, the central portion of the webs of which are pressed in the form of semicircles, so that when these two channels are placed back to back and riveted in position they form a brace for the main structure, a support for the load transmitted through the center plate, and a hole for the king-pin, which rests in the opening formed between the channel-webs.

In order to further stiffen and adapt the structure for the use intended, I also provide end braces or diaphragms, preferably formed of channels riveted to the web of the bottom channel and to the top member of the main construction. I also further provide side bearings on the top of the bolster, which may be of any usual form, and brackets for attaching the brake-rigging.

Having thus given a general description of my invention, I will now in order to make the matter more clear refer to the annexed sheet of drawings, which form part of this specification and in which like figures refer to like parts.

Figure 1 is a side elevation of my bolster. Fig. 2 is a plan thereof. Fig. 3 is an end elevation, and Fig. 4 is a central vertical sectional elevation on the line A A of Fig. 1.

Referring now to the various characters of reference upon the drawings, 1 is the combined web and top member or U-plate, of trough or channel form, deeper at the center than at the ends.

2 is a cover-plate secured to the central portion of the top of the bolster, as shown.

3 is the bottom member, shown as a channel, bent to conform with the lower outline of the structure and secured between the web or side plates 1 by means of rivets, which may be driven from the exterior, as clearly indicated.

4 is a center bearing, and 5 represents the side bearings, both of which may be of any usual form or construction.

As shown in the various views, 6 represents the center braces, formed of channels, the webs of which are formed so that when the channels are placed back to back, as indi-

cated, a cylindrical opening 12 remains for the reception of the king-pin, said channels 6 serving as a brace for the structure at the center, to the sides of which it is riveted, as shown, also serving as a support for the load which comes upon the center-plate. The dead-lever guide-fulcrum for the brake-rigging is indicated at 7.

8 represents inside end braces or diaphragms, shown as channels, riveted to the top member and to the web of the bottom member, as shown, while 9 represents similar braces or diaphragms secured in like manner at the ends of the bolster. Both of these diaphragms or braces 8 and 9 serve to strengthen the ends of the structure and assist in carrying the loads to the springs, while the diaphragm 9 also forms a finish and closure for the end of the bolster.

10 represents the end yokes, preferably formed of plates, bent in U shape, as shown, the flat bottoms of which serve as bearings for transmitting the load to the truck through the customary springs or their equivalents.

11 represents column-guides formed of crimped plates, as shown, these end yokes and column-guides being secured to the webs 1 by through bolts or rivets, as indicated on the drawings.

13 represents hand-holes formed in the top member for convenience in inserting rivets or bolts when repairing or assembling the structure, although it will be noted from the drawings that the whole design is such that most of the work of riveting or securing the various parts together can be accomplished from the outside, thus conducing to ease and economy of manufacture and repair.

Although I have shown my improvements in considerable detail, I do not limit myself to the exact and specific particulars of the arrangement of sections shown and described, but may use such substitutions, modifications, or equivalents thereof as are embraced within the scope of my invention and as pointed out in the claims.

Having thus given a description of my invention, what I desire to secure by Letters Patent is—

1. In a bolster, a combined top and side member consisting of a plate bent in channel or trough form, the sides being deeper at the center than at the ends, a bottom member of channel-section secured to the lower portion of the side members by its externally-projecting flanges.

2. In a bolster, a combined web and top member composed of a plate bent on straight lines to form a flat top and two sides, said sides being deeper at the center than at the ends, a bottom member of channel-section, said side members and bottom member being secured together by their externally-projecting portions.

3. In a bolster, a plate bent in trough shape, having a flat top and two depending sides, said sides being deeper at the center than at

their ends, a bottom member of channel-section bent to conform to the outline of the lower edges of said sides and secured thereto by its exteriorly-projecting flanges.

4. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges.

5. In a box-bolster, a center brace comprising a pair of channels placed back to back, the central portions of the webs of said channels being pressed to form a cylindrical opening, said channels being attached by their flanges to the bolster sides.

6. A center brace for a box-bolster, comprising a pair of rolled channels placed back to back and secured by their flanges to the bolster sides, the central portion of the web of each channel being pressed in semicylindrical shape, thus together forming a cylindrical hole for the king-pin.

7. In a bolster, a flat top member, two parallel web members deepest at the center formed integral therewith, a bottom member of channel-section bent to conform to the lower outline of, secured to and between the lower edges of said web members by means of its downwardly-projecting flanges, end yokes comprising plates of trough form with flat bottoms, said end yokes being attached by their sides to the said bolster-webs.

8. In a bolster, a flat top member, two parallel web members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured to and between the lower edges of said web members by means of its downwardly-projecting flanges, end yokes comprising plates of trough form with flat bottoms, said end yokes being attached by their sides to the said bolster-webs, and end diaphragms composed of short pieces of rolled channels placed between and secured to the top and bottom members by means of the flanges of said channels.

9. In a box-bolster provided with a flat top and depending web members formed integral therewith, end yokes comprising plates of trough form with flat bottoms, said end yokes being attached to said bolster-webs by their sides.

10. In a box-bolster provided with a flat top and web members formed integral therewith, end yokes comprising plates of trough form with flat bottoms, crimped-plate column-guides, said end yokes and crimped plates being attached to the bolster-webs by bolts or rivets passing therethrough.

11. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith, a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its down-

wardly-projecting flanges, a cover-plate and center bearing attached to the central portion of said flat top member.

12. In a bolster, a flat top member, two parallel side members, deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, end yokes comprising plates of trough form with flat bottoms attached to said bolster-webs by their sides.

13. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, end yokes comprising plates of trough form with flat bottoms, column-guides of crimped plates, said end yokes and column-guides being secured to the bolster-webs by rivets or bolts passing there-through.

14. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, end yokes comprising plates of trough form with flat bottoms, crimped-plate column-guides, said end yokes being attached to said bolster sides by rivets passing therethrough, end diaphragms composed of short pieces of channels secured by their flanges to the top and bottom members of said bolster, near their ends.

15. In a box-bolster, end diaphragms composed of short pieces of rolled channels secured by their flanges to the top and bottom members of said bolster.

16. In a bolster, a flat top member, two parallel side members, deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, end diaphragms composed of short pieces of rolled channels secured by their flanges to and between the top and bottom members, near the ends of said bolster.

17. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, a cover-plate attached to the central portion of said flat top member, a center bearing mounted on said cover-plate, end yokes comprising plates of trough form with flat bottoms, said end yokes being attached by their sides to said bolster sides.

18. In a bolster, a flat top member, two paral-

lel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, a center brace comprising a pair of rolled channels placed back to back and secured by their flanges to the bolster-webs, the central portion of the web of each channel being pressed in a semicylindrical shape.

19. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, a center brace comprising a pair of rolled channels placed back to back and secured by their flanges to the bolster-webs, the central portion of the web of each channel being pressed in a semicylindrical shape, end yokes comprising plates of trough form with flat bottoms secured by their sides to said bolster sides.

20. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, a center brace comprising a pair of rolled channels placed back to back and secured by their flanges to the bolster-webs, the central portion of the web of each channel being pressed in semicylindrical shape, end yokes comprising plates of trough form with flat bottoms, crimped-plate column-guides, said end yokes and column-guides being secured to said bolster sides by rivets passing therethrough.

21. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, a center brace comprising a pair of rolled channels placed back to back and secured by their flanges to the bolster-webs, the central portion of the web of each channel being pressed in semicylindrical shape; end yokes comprising plates of trough form with flat bottoms, crimped-plate column-guides, said end yokes and column-guides being secured to said bolster-webs by rivets passing therethrough; end diaphragms composed of short pieces of rolled channels secured by their flanges to the top and bottom members of said bolster.

22. A bolster comprising a flat top member, two parallel web members deepest at the center formed integral therewith, a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, a cen-

ter brace comprising a pair of rolled channels placed back to back and secured by their flanges to the bolster-webs, the central portion of the web of each center brace being in
5 semicylindrical shape, a cover-plate secured to the central portion of said flat top member, end yokes comprising plates of trough form with flat bottoms, crimped-plate column-guides, said end yokes and end column-guides
10 being secured to the bolster-webs by rivets or

bolts passing therethrough, end diaphragms composed of short pieces of channel-section secured by their flanges to the top and bottom members of said bolster.

In testimony whereof I hereto affix my signature in the presence of two witnesses.

RALPH V. SAGE.

Witnesses:

J. R. WEMLINGER,

HERBERT LUEBBERT.

It is hereby certified that in Letters Patent No. 692,914, granted February 11, 1902, upon the application of Ralph V. Sage, of Westmont, Pennsylvania, for an improvement in "Car-Bolsters," errors appear in the printed specification requiring correction, as follows: In line 79, page 1, the word "form" should read *forms*, and in line 42, page 2, the word "of" should read *or*; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 25th day of February, A. D., 1902.

[SEAL.]

F. L. CAMPBELL,
Assistant Secretary of the Interior.

Countersigned:

F. I. ALLEN,
Commissioner of Patents.