Dec. 31, 1940. W. H. STIFNAGLE 2,226,749

BOLSTER

Filed April 27, 1938

Fig. 1.

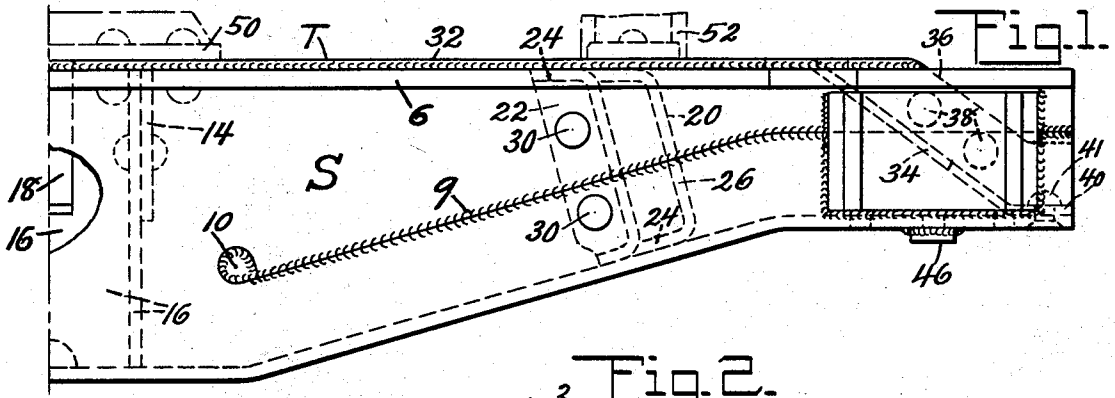


Fig. 2.

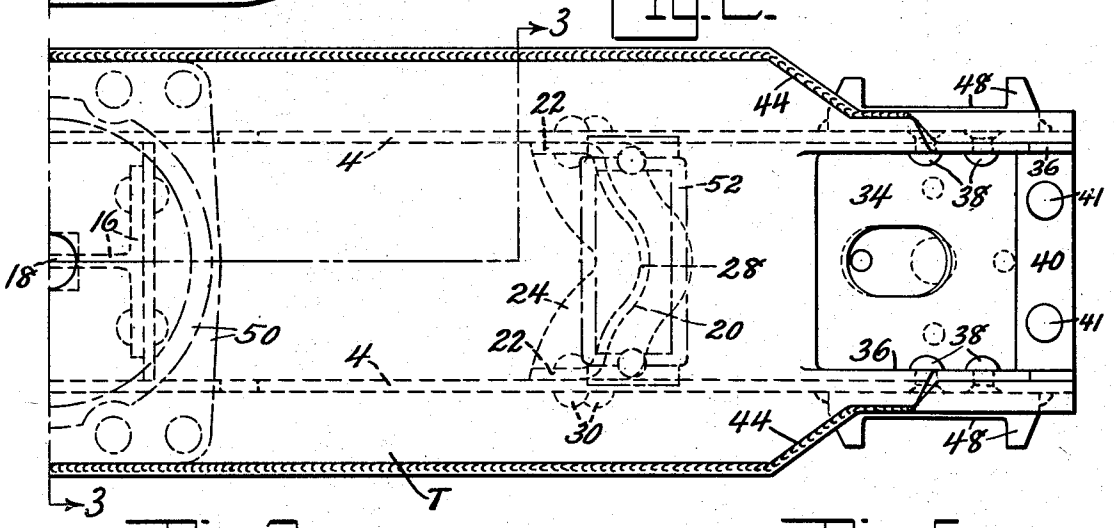


Fig. 3.

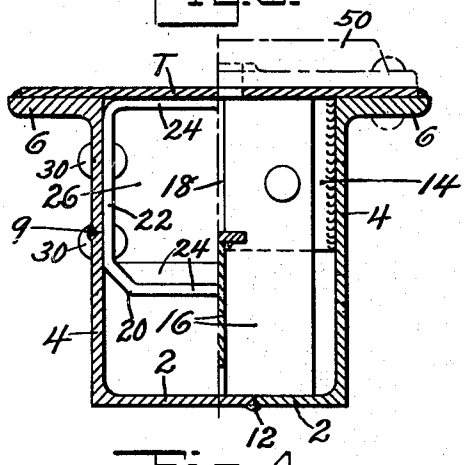


Fig. 6.

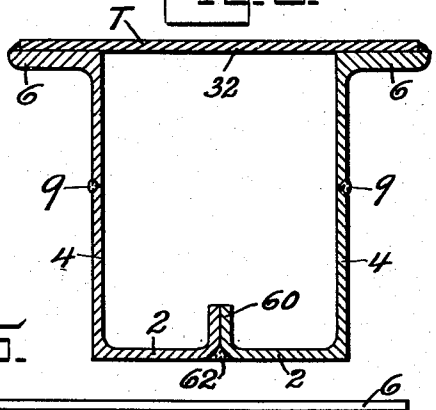


Fig. 5.

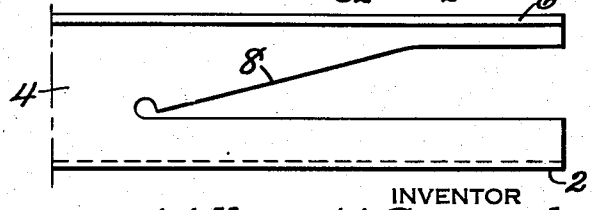
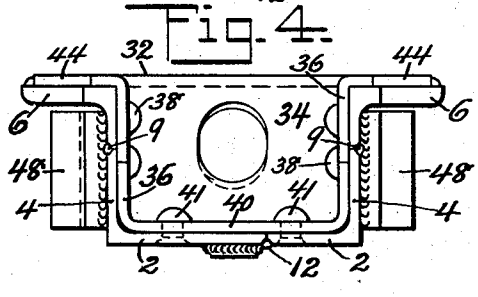


Fig. 4.



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2,226,749

BOLSTER

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Application April 27, 1938, Serial No. 204,547

8 Claims. (Cl. 105—226)

This invention relates to bolsters in general and in particular to truck bolsters fabricated from standard sections so joined as to form a unitary structure.

Bolsters as constructed in the past have been generally cast in one piece with a few attempts made to form welded bolsters following the design of the cast bolster. Such welded bolsters, since they have followed more or less the cast design, have necessitated the use of expensive dies and formers and an excessive amount of welding. It is an object, therefore, of the present invention to provide a cheap, simply constructed bolster in the building of which expensive dies and formers are avoided.

A further object of the invention is the provision of a fabricated bolster in which standard rolled sections and plate are used.

A still further object of the invention is the provision of a bolster in which the major portion thereof is formed by modified AAR center sill sections welded together.

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

Figure 1 is an elevational view of substantially one-half the completed bolster;

Fig. 2 is a plan view of substantially one-half the bolster;

Fig. 3 is a sectional view taken substantially on line 3—3 of Fig. 2;

Fig. 4 is an end view of the bolster;

Fig. 5 is an elevational view of a portion of the AAR center sill as cut out prior to bending to form the bolster side element, and

Fig. 6 is a sectional view very similar to Fig. 3 but showing a slightly modified treatment of the center sill sections.

Referring now to the drawing in detail, it is seen that the bolster is formed mainly of two standard rolled sections S and a top cover plate T suitably joined together to form a bolster of the so-called bathtub type. The center sill sections S are of standard AAR design having a relatively long flange 2, web 4 and a relatively short flange 6. In order to reduce the depth of the bolster adjacent its ends a generally triangular shaped piece of metal is removed from the web at each end of by cutting the web as at 8 (Fig. 5). With this portion of the web removed the flange 2 and lower portion of the web 4 may be deflected upwardly to bring the cut edges of the web into abutment after which they may be securely welded as at 9 and the extreme ends of the bolster trimmed in order to eliminate the excess projection of flange 6 and upper portion of web 4. It is to be noted that in order to relieve the metal at the apex of the triangle a circular portion has been removed which will be closed by a plug 10 securely welded in position (Fig. 1). With the center sill sections so modified it will be next necessary to trim at least one of the flanges 2 in order that the proper width of the bolster may be obtained. After trimming of the one flange the necessary amount the flanges 2 are brought into abutment and welded together as at 12, thus forming the entire lower portion of the bolster, which will be in the form of an upwardly directed reflanged channel with the reflanges 6 directed outwardly away from each other. It is thus seen that the standard AAR center sill sections when modified and secured together form the side web plates, bottom cover plate and a substantial portion, insofar as strength is concerned, of the top cover plate.

In order to reinforce the center portion of the bolster and provide additional support for the center plate, metal plates 14, preferably cut from the waste portion of the web, are welded to the webs 4 and have secured thereto a center member 16 of standard I-beam section with a portion of the web removed as at 18 to permit entrance of the king pin while at the same time providing a support therefor. The bolster is preferably reinforced adjacent the side bearings by roughly pan shaped members 20 having side flanges 22 and top and bottom flanges 24 all joined together by a web portion 26 preferably arched as at 28 to give added strength to the member. This side bearing support and bolster brace is securely riveted or otherwise secured to the bolster webs as at 30, and to the flanges 2 thus stiffening the bolster and strengthening the welds 9 in the web section as well as weld 12 joining the flanges.

The bolster is now ready for application of the cover plate T which consists of a piece of metal with the central portion 32 substantially horizontal and pressed downwardly as at 34 to provide a bracing and stiffening portion at the ends of the bolster which bear upon the supporting springs. This bracing portion of the top cover plate is substantially channel form in cross section with the flanges 36 directed upwardly for attachment to the webs of the bolster side web plates as at 38 and with the web inclined downwardly to terminate in a substantially horizontal portion 40 which is secured as at 41 to the end portions of the bottom bolster element. The edges of the top cover plate are welded or otherwise secured to the outwardly directed reflanges 6 of the center sill sections forming the main portion of the bolster and this cover plate is substantially coextensive with the reflanges which have been cut as at 44 in order that the total width of the bolster at its ends may be reduced to permit of its insertion between the truck column guides (not shown). The customary spring cap positioning lug 46 may be welded or otherwise secured to the bolster between the customary column

guide members 48 likewise welded or secured to the bolster side web plates. The usual center bearing plate 50 and side bearings 52, indicated by line and dash, are suitably secured to the bolster to complete the same.

In some instances it may be desirable to strengthen the bolster by retaining the excess metal in the flanges 2 in which case the excess metal may be flanged upwardly as at 60 (see Fig. 6) and these flanges brought into abutment and welded together as at 62, thus giving a bolster materially stronger than that previously described.

While the bolster has been described more or less in detail, it is obvious that various modifications, rearrangements of parts and materials will be apparent to persons skilled in the art and all such modifications, rearrangements of parts and materials are contemplated as fall within the scope of the following claims:

What is claimed is:

1. A bolster for railway and like vehicles comprising in part, a pair of Z section structural elements having inwardly directed lower flanges welded together at their edges and outwardly directed flanges spaced upwardly therefrom thereby forming an upwardly open reflanged channel member, and a cover plate secured to the outwardly directed flanges to form a substantially box section bolster, said cover plate being deflected at its ends into contact with said lower flanges thereby closing said box section bolster.

2. A bolster for railway and like vehicles comprising in part, a pair of Z section elements of substantially equal lengths each having upper and lower flanges and a connecting web, each of said elements having a triangular shaped portion of the web adjacent either end cut away and each merging into substantially circular cut away portions, the cut edges of the web portion remaining adjacent either end after removal of the triangular spaced portion being forced substantially into contact and welded together to provide a Z section of varying web depth, means welded to said web and closing said substantially circular cut away portions, said lower flanges being directed inwardly and secured together and said upper flanges being directed outwardly thereby forming a reflanged channel member of diminished depth outwardly of the transverse center thereof, and a cover plate secured to said outwardly directed flanges and having its ends deflected downwardly into contact with said lower flanges of the bolster to which they are secured thereby forming a substantially closed box-section bolster.

3. A bolster for railway and like vehicles comprising in part, a pair of Z section elements of substantially equal lengths each having upper and lower flanges and a connecting web, each of said elements having a portion of the web adjacent either end cut away and having the cut edges of the web portion remaining adjacent either end forced substantially into contact and welded together to provide a Z section of varying web depth, said lower flanges being directed inwardly and secured together and said upper flanges being directed outwardly thereby forming a reflanged channel member of diminished depth outwardly of the transverse center thereof, and a cover plate secured to said outwardly directed flanges to form a substantially box-section bolster, said cover plate having the ends thereof bent inwardly and secured to the lower flanges of the Z section element thereby substantially closing the box-section bolster and bracing the same adjacent its ends.

4. A bolster for railway and like vehicles comprising in part, a pair of Z section elements each having upper and lower flanges and a connecting web, said lower flanges having their edges reflanged substantially parallel to the connecting webs and secured together, said upper flanges being directed outwardly in upwardly spaced relation to the lower flanges, and a cover plate secured to said outwardly directed flanges to form a substantially box-section bolster reenforced by said reflanges.

5. A bolster for railway and like vehicles comprising in part, a pair of Z section elements each having upper and lower flanges and a connecting web, said lower flanges having their edges reflanged substantially parallel to the connecting webs and secured together, said upper flanges being directed outwardly in upwardly spaced relation to the lower flanges, and a cover plate secured to said outwardly directed flanges to form a substantially box-section bolster reenforced by said reflanges, said cover plate having the ends thereof reduced in width and bent inwardly and secured to the lower flanges of the Z section elements thereby closing the box-section bolster and strengthening the same adjacent its ends.

6. A bolster for railway and like vehicles, comprising in part, a pair of Z section elements of substantially equal lengths each having upper and lower flanges and a connecting web, each of said elements having a portion of the web adjacent either end cut away and having the cut edges of the web portion remaining adjacent either end forced substantially into contact and welded together to provide a Z section of varying web depth, said lower flanges being directed inwardly and having their edges reflanged substantially parallel to the connecting webs, the lower flanges being secured together and said upper flanges being directed outwardly thereby forming a reenforced reflanged channel member of diminished depth outwardly of the transverse center thereof, and a cover plate secured to said outwardly directed flanges to form a substantially box-section bolster.

7. A bolster for railway and like vehicles comprising in part, a pair of Z section elements each having upper and lower flanges and a connecting web, said lower flanges having their edges reflanged upwardly substantially parallel to the connecting webs and secured together, said upper flanges being directed outwardly in upwardly spaced relation to the lower flanges, and a cover plate secured to said outwardly directed flanges to form a substantially box-section bolster reenforced internally by said reflanges.

8. A bolster for railway and like vehicles comprising in part, a pair of Z section elements each having upper and lower flanges and a connecting web, said lower flanges being directed inwardly and directly secured together and the upper flanges being directed outwardly thereby forming a reflanged channel section member, center and side bearing bracing means located within the channel section member and secured to the webs and to the lower flanges, and a cover plate secured to said outwardly directed flanges and having its ends deflected downwardly into contact with said lower flanges to which they are secured thereby forming a closed box-section bolster internally reenforced by said bracing means.

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