Jan. 10, 1950 A. F. BOCK ET AL 2,494,115

METALLIC FRAME

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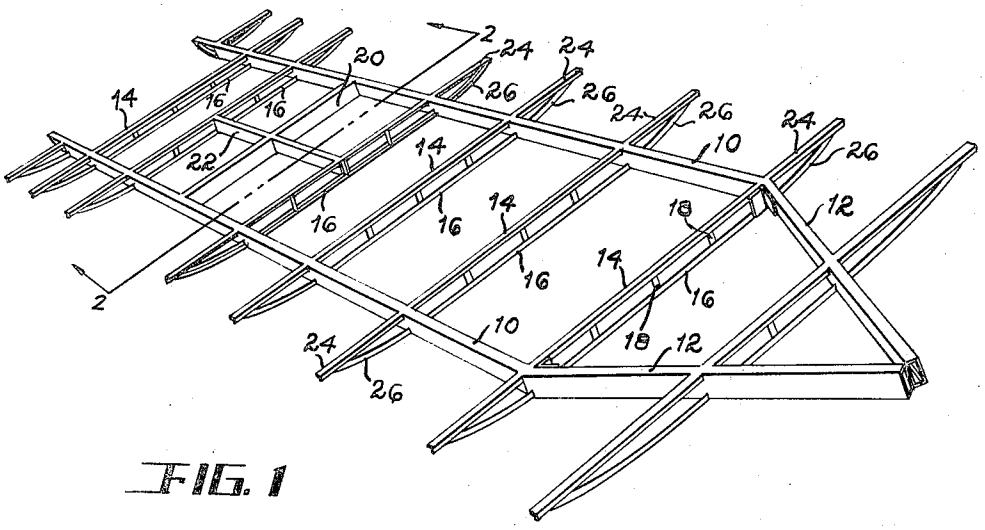


FIG. 1

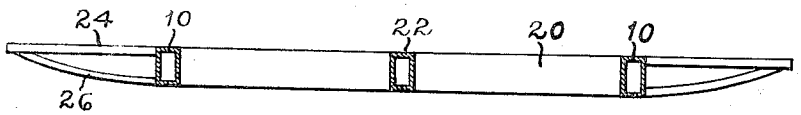


FIG. 2

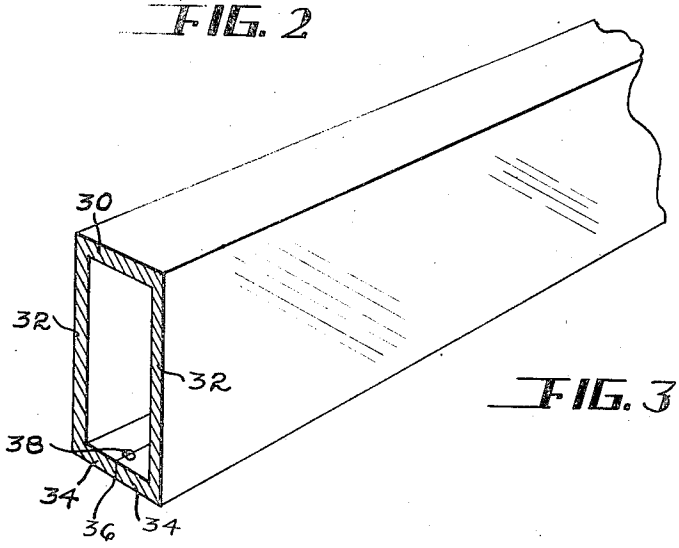


FIG. 3

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METALLIC FRAME

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2 Claims. (Cl. 280—106)

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This invention relates to structural members and more particularly to structural members that may be used in a motor vehicle chassis, but not necessarily limited to such use.

An object of this invention is to utilize a rolled tube in the manufacture of frames, such as a frame member for a chassis used in various types of trailers and motor vehicles, wherein the strength of the frame is considerably increased over the strength of conventional chassis frames used in the past, while the net weight of the vehicle is considerably reduced.

Another object of this invention is to utilize a rolled full box form frame member in the construction of a chassis for a motor vehicle.

Another object of this invention is to provide a rolled full box form frame member that is rolled from sheet metal having the edges abutting each other along a side wherein the stresses are the least.

Another object of this invention is to utilize a rolled full box form frame member wherein the material has been used to the greatest advantage to resist the various stresses that may be set up in the frame member.

Another object of this invention is to provide a rolled full box form frame member having the seam along the bottom of the frame member, so as to provide drainage for moisture, condensation et cetera.

Other objects and advantages reside in the construction of parts, the combination thereof and the mode of operation, as will become more apparent from the following description.

Referring to the drawings, Figure 1 is a perspective view of the chassis frame member incorporating the rolled full box form frame member.

Figure 2 is a cross sectional view taken substantially on the line 2—2 of Figure 1.

Figure 3 is an enlarged cross sectional view of the rolled full box form frame member shown in perspective.

The reference character 10 indicates the main frame members of a chassis. The front end of members 10 may be deflected inwardly, so as to form a V-portion consisting of the portions 12. The frame members 10 are held in spaced relation by a plurality of truss members 14 and 16. The truss member 14 is somewhat larger than the truss member 16. These truss members are held parallel by spacer bars 18. Near the rear axle the frame members 10 are reenforced by a transverse bar 20, having a cross section identical to the frame member 10 and a longitudinal

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center bar 22, also identical in cross section to member 10. Each of the longitudinal frame members 10 is provided with a plurality of outwardly directed supporting members 24, reenforced by braces 26. Each of the longitudinal frame members 10, the cross bars 20 and the center bar 22 constitute rolled full box form, made from sheet metal, providing a horizontal portion 30, as best seen in Figure 3, a pair of vertical wall portions 32, extending at right angles to the portion 30, the wall portions 32 terminating in reentrant flange portions 34 contacting each other along a center line 36, welded at spaced intervals, as shown at 38. The horizontal portion 30 has a width less than the height of the wall portions 32.

It has been found that by using the rolled full box form members, much lighter weight material may be used for the frame structure than has been the customary practice in the past. This results in a light weight frame member. The side wall portions 32 are homogeneous throughout the height of the wall, so that the maximum strength is obtained from this metal. Furthermore, the top portion 30 is homogeneous throughout, in that it has no seams and therefore it withstands horizontal loads.

The truss members 14 and 16, in addition to holding the frame members 10 in spaced relation, give strength to the inside walls 32, so as to prevent buckling. The supporting members 24 and the braces 26 strengthen the outside walls 32, so as to prevent buckling.

The seam 36, extending along the bottom, is in a portion of the frame member where the stresses are the least and therefore strength is not as essential in this portion of the bar as elsewhere. Furthermore, the seam extending along the bottom provides drainage for the rolled full box form frame member, so that in the event moisture accumulates within the frame member, it readily drains through the seam.

Throughout the specification and claims, the portion 30 has been referred to as a top portion, the walls 32 as downwardly directed vertically disposed walls and the flanges 34 as reentrant flanges along the bottom. Obviously, for numerous purposes the portions 30 need not be at the top and the side walls need not necessarily be downwardly directed, the choice of locations being dependent entirely upon the use to which the frame members are to be put. The designations used in the specification and claims as far as top, side and bottom are concerned, are

not to be construed as a limitation; but merely for convenience in expression.

Although the preferred embodiment of the device has been described, it will be understood that within the purview of this invention various changes may be made in the form, details, proportion and arrangement of parts, the combination thereof and mode of operation, which generally stated consist in a device capable of carrying out the objects set forth, as disclosed and defined in the appended claims.

Having thus described our invention, we claim:

1. A frame structure for a chassis of a vehicle, said chassis including a pair of rolled full box form frame members, each of said frame members including a horizontal homogeneous top portion merging into a pair of vertically disposed side walls homogeneous throughout the side walls, the depth of the side walls being greater than the width of the top portion, the side walls merging into a pair of reentrant flanges abutting each other to form a longitudinal seam in the bottom of the rolled frame members, said flanges being welded together at spaced intervals, a plurality of members spanning the distance between the frame members for holding the frame members in fixed spaced relation from each other, said spanning members reenforcing the adjacent side walls of the frame members so as to prevent buckling thereof, each of said spanning members including a top portion and a bottom portion held in fixed spaced relation by spacer members so as to form a truss-like structure, extensions projecting outwardly from the box frame members and aligned with the spanning members, each of said extensions including a horizontally disposed top member and an inclined bottom member merging with the outer end of the top member to form a substantially triangular shaped structure, a transverse bar member having a cross section substantially identical to the cross section of the box frame members, said transverse member extending between the frame members and between two of the spanning members, and a longitudinally extending center bar connecting two of the spanning members and intersecting the transverse bar.

2. A frame structure for a chassis of a vehicle, said chassis including a pair of rolled full box form frame members, each of said frame members including a horizontal homogeneous top portion merging into a pair of vertically disposed side walls homogeneous throughout the side walls, the depth of the side walls being greater than the width of the top portion, the side walls merging into a pair of reentrant flanges abutting each other to form a longitudinal seam in the bottom of the rolled frame members, said flanges being welded together at spaced intervals, a plurality of members spanning the distance between the frame members for holding the frame members in fixed spaced relation from each other, said spanning members reenforcing the adjacent side walls of the frame members so as to prevent buckling thereof, each of said spanning members including a top portion and a bottom portion held in fixed spaced relation by spacer members so as to form a truss-like structure, a transverse bar member having a cross section substantially identical to the cross section of the box frame members, said transverse member extending between the frame members and between two of the spanning members, and a longitudinally extending center bar connecting two of the spanning members and intersecting the transverse bar.

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