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E. S. MacPHERSON

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FRAME CONSTRUCTION

Filed March 31, 1930

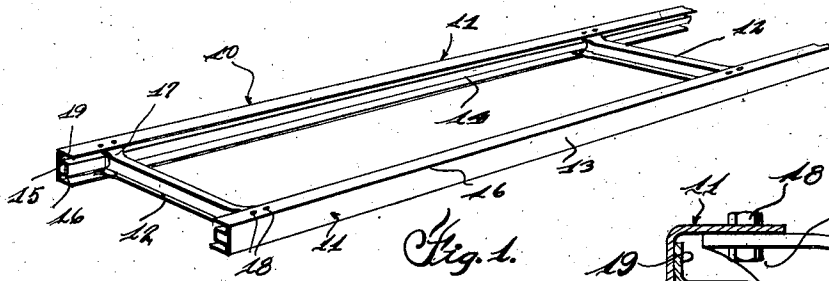


Fig. 1.

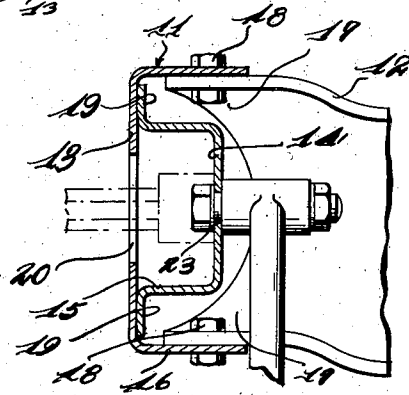


Fig. 2.

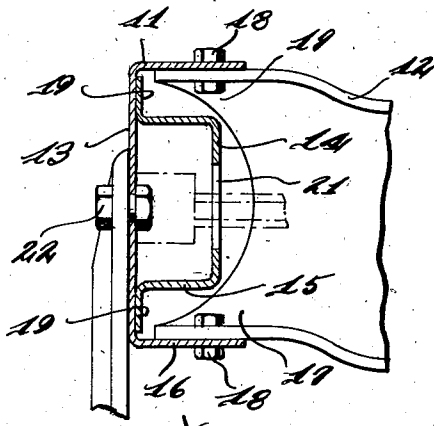


Fig. 3.

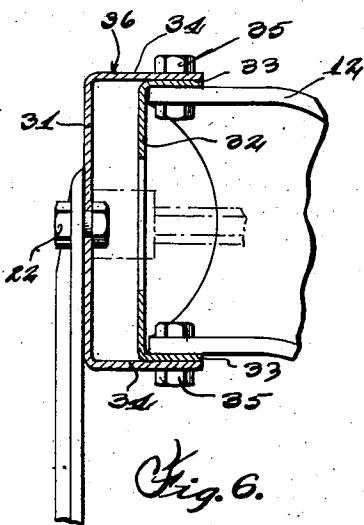


Fig. 4.

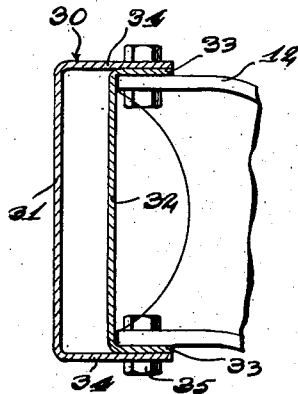


Fig. 5.

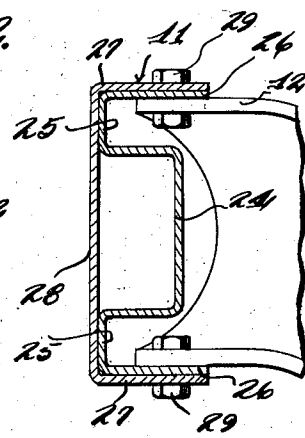


Fig. 6.

INVENTOR

Earle S. MacPherson

BY

Whittemore Hallbut

Whittemore & Bell

ATTORNEYS

UNITED STATES PATENT OFFICE

EARLE S. MACPHERSON, OF DETROIT, MICHIGAN, ASSIGNOR TO HUPP MOTOR CAR CORPORATION, OF DETROIT, MICHIGAN, A CORPORATION OF VIRGINIA

FRAME CONSTRUCTION

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This invention relates generally to motor vehicles and more particularly to an improved chassis frame construction therefor.

Heretofore considerable difficulty has been experienced in constructing a chassis frame capable of resisting torsional or twisting movements when the same is moved over irregular roads. The foregoing is due not only to the uneven distribution of weight on the chassis frame, but also to the design of the sill members which are usually channel-shaped in cross-section. Many manufacturers in an effort to overcome twisting of the frame, as pointed out above, brace the frame at a plurality of spaced points by cross members of numerous shapes and designs. While cross bracing the frame is essential for various reasons, nevertheless, it has been found in actual practice to be ineffective for preventing torsional movement of the sill members. Another method devised for resisting twisting movement of the sill members is to form the same tubular or box-shaped. This latter method has proved satisfactory for preventing twisting of the frame, but is extremely objectionable owing to the difficulty encountered in securing the cross braces and other members to the sills.

The present invention contemplates overcoming the above disadvantages by constructing the sill members of the frame in such a manner that the same resist torsional movements and at the same time provide for conveniently securing the cross members and other parts upon the frame.

With the foregoing as well as other objects in view, the invention resides in the peculiar construction of the sill members which will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawings, wherein:

Figure 1 is a fragmentary perspective view of a chassis frame.

Figure 2 is a cross-sectional view taken through one of the sill members shown in Figure 1.

Figure 3 is a view similar to Figure 2 showing the manner in which various devices may be secured to the sill member.

Figure 4 is a cross-sectional view through a sill member of slightly modified construction.

Figure 5 is a view similar to Figure 4 showing another modified form of the invention.

Figure 6 is a view similar to Figure 5 showing the manner in which various parts may be secured to the sill member.

Referring now to the drawings, it will be noted that there is illustrated fragmentarily in Figure 1 a vehicle chassis frame 10 comprising sill members 11 normally held in proper spaced relation to each other by means of the cross braces 12 having the opposite ends thereof rigidly secured to the sill members. As pointed out in the preceding description, the sill members are constructed to resist torsional or twisting movement and are so designed as to permit the attachment of various parts thereto with facility.

As shown in Figure 2, the sill members 11 are formed of a pair of inter-fitting substantially channel-shaped members 13 and 14 having the base portions thereof spaced from each other and cooperating to form a box-like construction. The cross-sectional area of the channel-shaped member 14 is preferably substantially less than the cross-sectional area of the channel-shaped member 13 and the leg portions 15 of the former channel-shaped member are spaced inwardly a substantial distance from the corresponding leg portions 16 of the channel-shaped member 13 providing ample space for receiving the end portions 17 of the cross brace members 12 and the securing means therefor, designated by the reference character 18. The leg portions 15 of the channel 14 terminate in laterally projecting foot flanges 19 adapted to be secured to the base portion of the channel-shaped member 13 in any suitable manner.

In order to permit securing members to the base portions or webs of either of the channel-shaped members 13 and 14, suitable openings 20 and 21, shown in Figures 2 and 3, respectively, may be formed in the web portions for receiving a wrench or other suitable tool. The construction is such that in the event it is desired to secure a bracket, for example, to the web portion of the channel

member 13, a bolt or other suitable securing element, designated by the reference character 22, is extended through an opening in the web portion of the channel 13 and engaged by extending a suitable tool through the opening 21 in the base of the channel 14. On the other hand, if it is desired to secure a member to the web of the channel 14, the securing element is extended through a suitable opening in the latter web portion, as indicated at 23 in Figure 2, and engaged by extending the tool through the aperture 20 formed in the web of the channel 13. Thus from the above arrangement it will be observed that the sill members 11 are not only constructed to resist torsional or twisting movements, but are also designed to permit securing various parts to the flanges and base portions of the sill with facility.

The construction shown in Figure 4 is substantially identical to the one hereinbefore set forth except that the inner member 24 is of a slightly different configuration. As will be apparent from the above figure, the inner member 24 differs from the channel-shaped member 14 in that the foot flanges 25 are provided with extensions 26 arranged substantially parallel to the leg portions 27 of the outer channel member 28 and in engagement therewith. With the latter construction the cross braces 12 are secured not only to the leg portions 27 of the outer channel-shaped member, but are also secured to the extensions 26 of the inner member as clearly illustrated by the reference character 29. With this construction it will be apparent that the securing elements 29 also serve to secure the inner member 24 to the outer member 28. The manner in which various accessories such as brackets and the like are secured to the inner and outer members 24 and 28, respectively, is preferably accomplished in the same manner as in the first described form of the invention.

In Figure 5 of the drawings I have shown a sill member 30 formed of inter-fitting channel-shaped members 31 and 32 differing from the constructions hereinbefore described in that both of the channels open inwardly. The inner channel-shaped member 32 is secured within the channel 31 with the base portion thereof spaced a substantial distance from the base portion of the channel 31 with the result that a box-like construction is obtained. As shown in the above figure, the legs 33 of the inner channel member 32 engage the corresponding legs 34 of the outer channel member 31 and form a support to which the cross braces 12 are secured as indicated at 35. In this construction the securing elements 35 for the cross brace members also function to secure the channel-shaped members 31 and 32 together. As shown in Figure 6, provision is made for securing various accessories to the web or

base portions of the channels 31 and 32. The arrangement provided is substantially the same as hereinbefore set forth and accordingly a detailed description of the same is believed unnecessary.

In each of the modifications set forth above, the sill is formed of flanged members having portions cooperating with each other to form a box-like construction for resisting torsional stresses and having other portions permitting the attachment of various accessories to the sill member.

While several embodiments of the invention are illustrated herein somewhat in detail, it will be obvious that numerous modifications may be resorted to without departing from the spirit and scope of this invention and accordingly reservation is made to make such changes as may come within the purview of the accompanying claims.

What I claim as my invention is:

1. A chassis frame having a sill comprising a channel-shaped member having a base and flanges projecting transversely from the base, and a second similar channel-shaped member extending for substantially the full length of the channel-shaped member aforesaid and located within the latter with the base portion thereof spaced laterally from the base portion of said first-mentioned channel and with the flanges thereof projecting toward the latter base portion and spaced inwardly from the flanges of said first-named channel.

2. A chassis frame having a sill comprising a channel-shaped member having a base and flanges projecting transversely from the base, and a second similar channel-shaped member extending for substantially the full length of the member aforesaid and located within the channel of the latter with the flanges thereof extending toward the base portion of said first-mentioned channel in spaced and substantially parallel relation to the flanges of the latter channel.

3. A chassis frame having a sill comprising a channel-shaped member having a base and flanges projecting transversely from the base, a second similar channel-shaped member extending for substantially the full length of the member aforesaid and located within the channel of the latter with the flanges thereof extending toward the base portion of said first-mentioned channel in spaced and substantially parallel relation to the flanges of the latter channel, and foot flanges projecting laterally outwardly from the ends of the flanges on said second channel and abutting the inner surface of the base portion of said first-named channel.

4. A chassis frame having a sill comprising a channel-shaped member having a base and flanges projecting transversely from the base, a second similar channel-shaped member located within the channel of the mem-

ber aforesaid with the flanges thereof extending toward the base portion of said first-mentioned channel in spaced and substantially parallel relation to the flanges of the latter channel, foot flanges projecting laterally outwardly from the ends of the flanges on said second channel and abutting the inner surface of the base portion of said first-named channel, and flanges forming a continuation of said foot flanges projecting in the direction of the flanges on said first-mentioned channel in contacting relation with the inner surfaces of the latter.

5. A chassis frame having a sill comprising a channel-shaped member having a base and flanges projecting transversely from the base, a second channel-shaped member located within the channel of the member aforesaid with the base portion thereof spaced laterally from the base portion of the first named channel and with the flanges thereof projecting toward the latter base portion and spaced inwardly from the flanges of said first named channel, and a cross brace for the chassis frame having portions extending into the first named channel-shaped member between the flanges on the latter and the flanges on the second named channel-shaped member.

In testimony whereof I affix my signature.
EARLE S. MacPHERSON.