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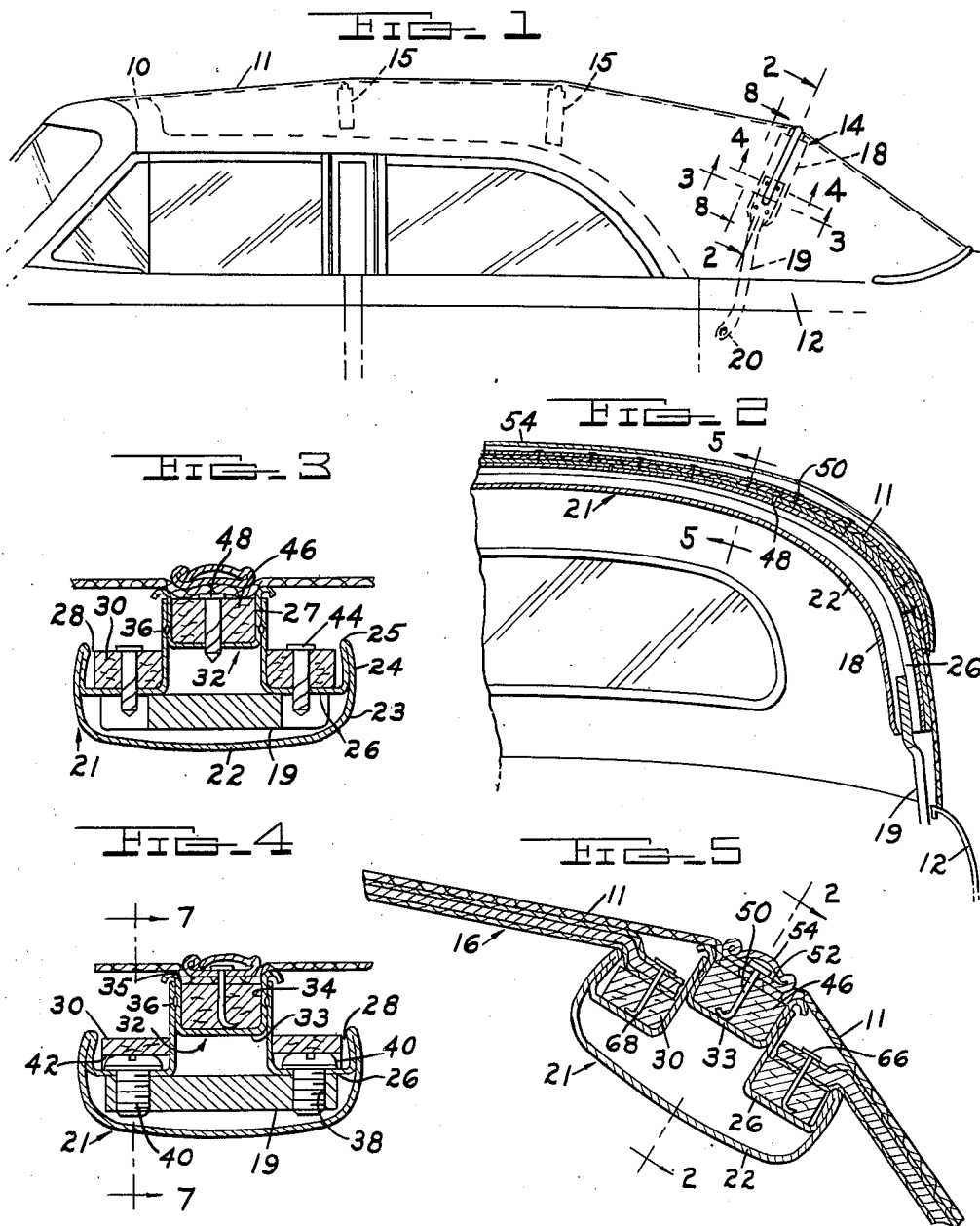
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BOW STRUCTURE FOR FOLDING TOPS

Filed Nov. 12, 1948

2 Sheets-Sheet 1



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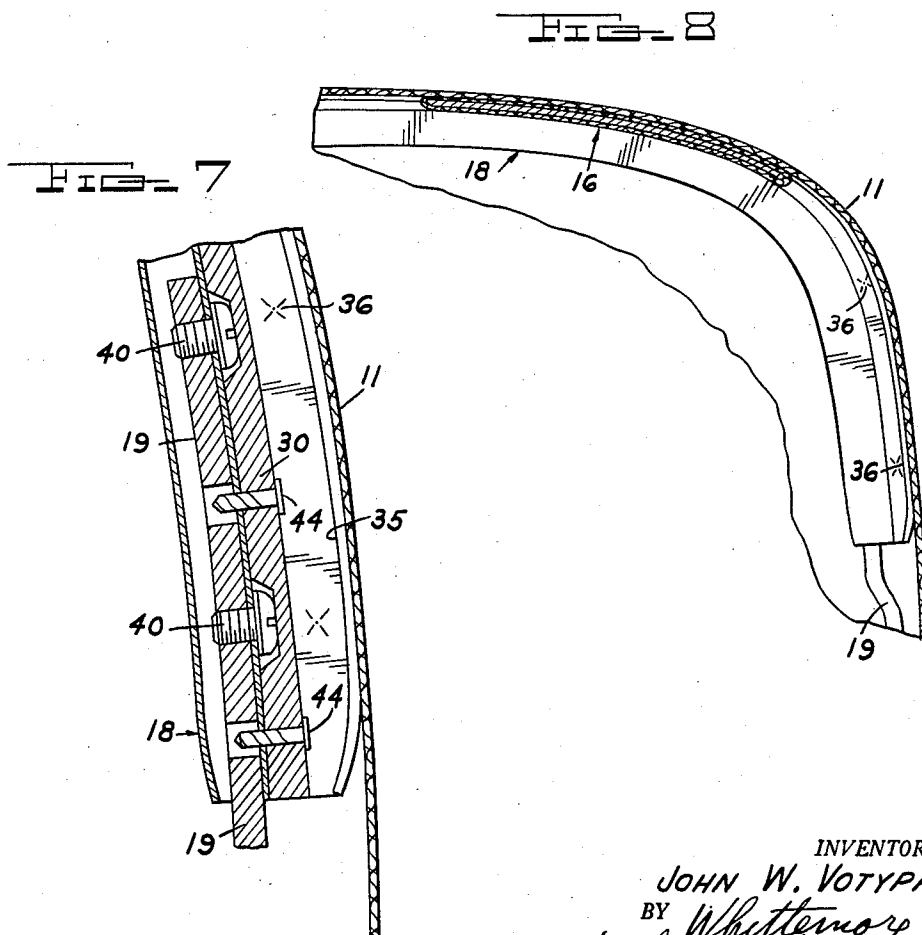
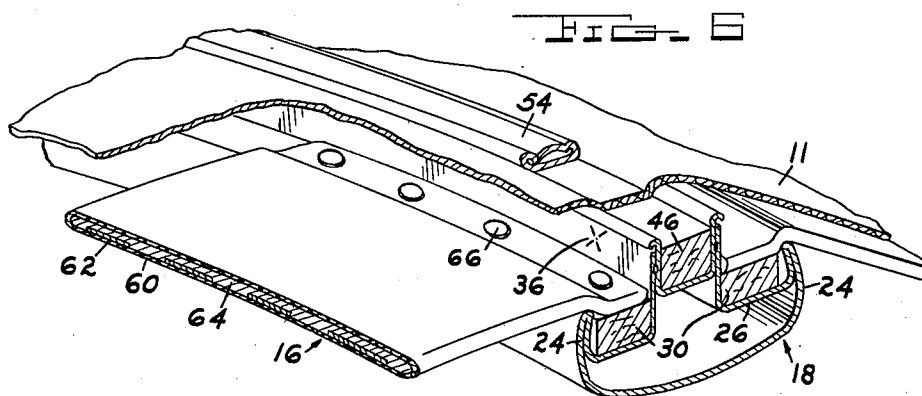
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BOW STRUCTURE FOR FOLDING TOPS

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The present invention relates to bow structure for folding tops.

It is an object of the present invention to provide metal bow structure for folding tops from metal strip, characterized by its strength, rigidity, economy of production, and its cooperation with padding strips and cover material.

It is a feature of the present invention to provide a metal bow structure, preferably of hollow cross section, having a plurality of longitudinally extending, outwardly facing channels which impart rigidity to the structure and serve to position a plurality of tacking strips.

Other objects and features of the invention will become apparent as the description proceeds, especially when taken in conjunction with the accompanying drawings, wherein:

Figure 1 is a fragmentary side elevation of a motor vehicle showing a folding top in extended position;

Figure 2 is an enlarged fragmentary section on the line 2-2, Figure 1;

Figure 3 is an enlarged section on the line 3-3, Figure 1;

Figure 4 is an enlarged section on the line 4-4, Figure 1;

Figure 5 is an enlarged section on the line 5-5, Figure 2;

Figure 6 is a perspective view, with parts broken away, showing the association of the bow, tacking strips, top material and padding strips;

Figure 7 is an enlarged section on the line 7-7, Figure 4; and

Figure 8 is an enlarged section on the line 8-8, Figure 1.

Referring now to the drawings, the vehicle is provided with a folding top which includes a forward header bar 10, a flexible top material 11, which may be a waterproof canvas or other material, and a folding frame secured to the vehicle body 12 and includes a main bow structure 14 and auxiliary bows 15. The top material is secured at its front end to the header bar 10 and at its rear end to the vehicle body 12. It is also secured as by tacking or the like to the main bow structure 14. Bows 15 are in supporting relation to the top but are not ordinarily secured thereto.

In addition to the parts heretofore described, the top structure includes pads 16 which extend between the header bar 10 and the rear end of the top 11, and are located adjacent the top rounded corners of the cover material. In prior constructions these pads have been continuous for the length of the top. In the present construction, however, the pads at each side con-

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sist of two parts. One part extends from the header bar 10 to the main bow structure 14. The other part extends from the point of connection between the rear end of the cover material and body to the main bow structure 14.

In order to produce a main bow structure which is adapted to be connected to the top material 11 and the intermediate ends of the pads 16, while at the same time producing a strong, light, rigid bow, the present structure is provided. The intermediate portion 18 of the bow 14 is of strip metal formed into a hollow cross section, as will be described subsequently. At either end of the intermediate portion 18 is a slat iron 19 which is provided with a pivot construction 20 at its free or lower end for connection to the body of the vehicle.

The intermediate portion 18 of the bow structure 14 is made up of two pieces of metal strip shaped as illustrated in Figure 3. A relatively wide strip 21 is shaped to provide, at the inner side of the bow, a transversely curved, outwardly convex bottom wall 22. At the edges of the bottom wall, the strip is formed upwardly to provide wide side walls 23 and flanges 24. The flanges are of double thickness of metal, as the result of reversely bending the side walls 23 inwardly as indicated at 25. At the lower edges of the reversely bent portions, the strip extends inwardly of the bow to provide floor portions 26, and then upwardly to provide the spaced parallel flanges 27. Flanges 24 and 27 and floors 26 define channels 28 at the edges of the bow structure for receiving tacking strips 30.

A relatively narrow metal strip is shaped to provide a third channel 32, best illustrated in Figure 4. Channel 32 comprises a bottom wall or floor 33, and side walls 34, the upper edges of which are curved outwardly to provide wide beads 35 which overlie the upper free edges of the flanges 27. The beads 35 are curved on relatively large radii to provide extended areas of contact for the cover material 11.

The side walls 34 of the channel 32 are secured as by spot welding indicated at 36 to the flanges 27. This results in a construction in which four double-walled flanges are provided which extend longitudinally of the bow in position to stiffen the body.

In addition, the interconnection between the channel member 32 and the relatively wide strip 21 is concealed in the assembled article. Thus the smoothly curved rounded bottom 22 of the bow structure is smooth and continuous and is not marred by welding.

The connection between the upper end of the slat irons 19 and the intermediate bow portion 18 is best illustrated in Figure 4. As seen in this figure, it will be noted that the slat iron 19 is provided with threaded openings 38 which receive screws 40 extending downwardly through the floor portions 26 of the channels 28. At the point where the heads of the screws 40 project into the channels 28, the tacking strips 30 may be cut away as indicated at 42 in Figure 4.

The tacking strips 30 are secured in the channels 28 by suitable fastening means, such for example as the tacks or nails 44 best seen in Figure 3. A third tacking strip 46 is located in the channel member 32 and is retained in place therein by suitable tacks or nails 48.

As best seen in Figure 5, the flexible cover material 11 is secured to the tacking strip 46 by tacks 50, these tacks also extending through a lower wall 52 of a concealing strip 54, the cover portion of which may be bent outwardly to expose the head of the tacks. It will be observed in this figure that the tacks 50 are of such length that they extend completely through the tacking strip and engage the bottom wall 33 of the channel, which causes them to be deflected laterally so as to interlock with the bottom of the tacking strip.

The pad 16, best seen in Figures 5 and 6, comprises fabric covers 60 within which are provided non-stretchable webbing 62 and suitable fibrous wadding material 64. The ends of the pads 16 are tacked to the tacking strips 30 as by the tacks indicated at 66 in Figures 5 and 6. Again the tacks 66 are of a length sufficient to extend completely through the tacking strips 30 so that their pointed ends are clinched over as indicated at 68 in Figure 5.

The drawings and the foregoing specification constitute a description of the improved bow structure for folding tops in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What I claim as my invention is:

1. A bow comprising a longitudinally curved metal strip shaped to provide a transversely curved inner wall, parallel outwardly extending side walls at the edges of said inner wall, channel floor portions extending inwardly from the side walls of said strip toward each other and below the tops of said side walls, spaced parallel intermediate walls between said side walls extending outwardly from the adjacent edges of said floor portions, and a separate channel member received between said intermediate walls, the edges of said separate channel member overlying the edges of said intermediate walls and being curved to provide extended bearing surfaces.

2. In combination, a channel shaped strip, an outwardly opening channel located between the side walls of the channel of said strip, means within said outwardly opening channel for anchoring a flexible top material, means for holding said outwardly opening channel in fixed relation to the side walls of the channel of said strip, including two outwardly opening channels secured respectively to the side walls of the channel of said strip and secured to said first mentioned outwardly opening channel, and means within the last two mentioned outwardly opening channels for anchoring underpadding for said flexible top material.

3. In combination, a channel shaped strip, a pair of laterally spaced outwardly opening chan-

nels within the channel of said strip, the outermost side walls of said spaced channels being secured to the side walls of the channel of said strip, the innermost side walls of said spaced channels projecting outwardly beyond the outermost side walls thereof, an outwardly opening channel between and secured to said outwardly projecting walls, means within the last mentioned outwardly opening channel for anchoring a flexible top material, and means within the spaced outwardly opening channels for anchoring underpadding for said flexible top material.

4. In combination, a channel shaped strip, a pair of laterally spaced outwardly opening channels within the channel of said strip, means securing said spaced outwardly opening channels respectively to the side walls of the channel of said strip, the bases of said spaced channels being spaced outwardly from the base of said channel shaped strip, slat irons extending endwise into the channel of said strip at opposite ends thereof, said slat irons being between the base of the channel of said strip and the bases of the spaced outwardly opening channels, and means securing said slat irons to the bases of the spaced outwardly opening channels.

5. In combination, a channel shaped strip, a pair of laterally spaced outwardly opening channels within the channel of said strip, means securing said spaced outwardly opening channels respectively to the side walls of the channel of said strip, the bases of said spaced channels being spaced outwardly from the base of said channel shaped strip, slat irons extending into opposite ends of the channel of said strip, said slat irons being between the base of the channel of said strip and the bases of said spaced outwardly opening channels, means securing said slat irons to said strip, including headed elements extending through the bases of the spaced outwardly opening channels and threadedly engaging said slat irons, the heads of said elements being within said spaced outwardly opening channels, and means for concealing said heads, including tacking strips anchored within said spaced channels and extending over said heads.

6. A new article of manufacture comprising a channel member, a pair of spaced apart substantially parallel outwardly opening channels located within said channel member, the outer sides of said parallel channels being secured in surface to surface relation to opposite sides of said channel member, and a third channel intermediate said pair of channels, opposite sides of said third channel being secured in surface to surface relation to the inner sides of said parallel channels.

7. An elongated structure formed from metal strip having spaced parallel channels along its edges, the edge portions of said strip being shaped to extend first outwardly from the central portion of the strip at substantially right angles thereto, thence being reversely bent to form outer channel walls of double thickness, thence extending inwardly from the outer channel walls to provide bottom channel walls, and thence extending outwardly in spaced parallel relation generally parallel to said outer channel walls to provide inner channel walls, said inner channel walls extending outwardly at least as far as said inner channel walls.

8. Structure as defined in claim 7 in which the bottom walls of said channels are spaced substantially from the central portion of said strip.

9. Structure as defined in claim 7 in which said

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inner channel walls extend substantially beyond said outer channel walls.

10. Structure as defined in claim 7 comprising a separate outwardly open channel member having side walls disposed within the inner channel walls of said strip, and outwardly turned edges overlying said inner channel walls. 5

11. A top supporting cross bow for a motor vehicle comprising a longitudinally curved channel member, a pair of spaced parallel outwardly opening channels located in said channel member having their bottom walls spaced outwardly from the bottom wall of said channel member, a third channel located between said pair of spaced channels, supporting slat irons having end portions extending into the ends of the cross bow 10 15

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between the bottom wall of said channel member and the bottom walls of said pair of spaced channels, and means connecting said slat irons to the bottom walls of said spaced channels.

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