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J. H. BOURGON

1,640,592

TOP CONSTRUCTION

Filed Dec. 13, 1924

FIG. 1

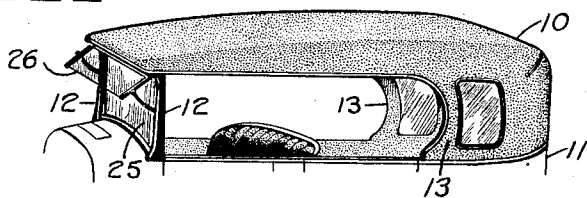


FIG. 2

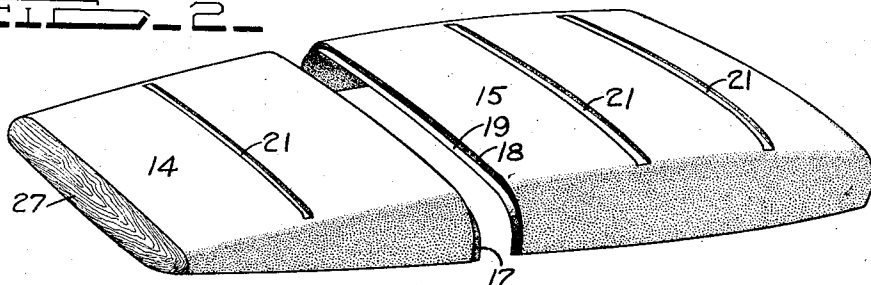


FIG. 3

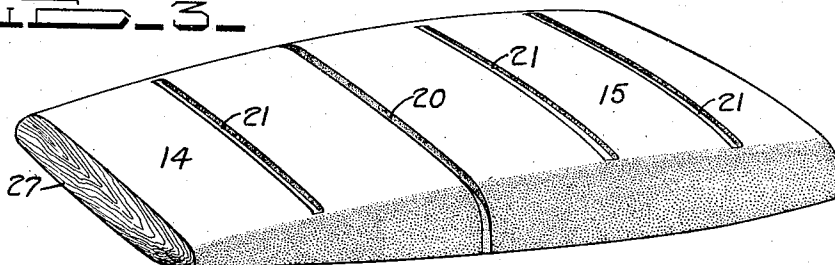


FIG. 4

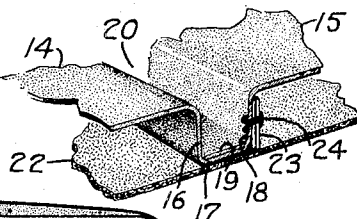


FIG. 5

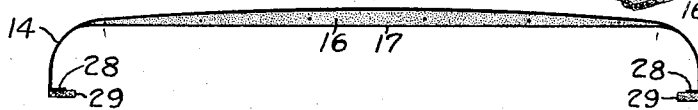


FIG. 6

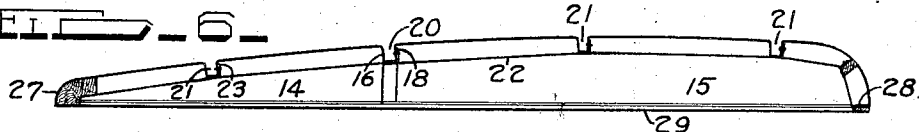
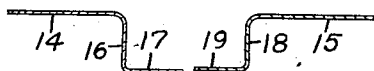


FIG. 7



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TOP CONSTRUCTION.

Application filed December 13, 1924. Serial No. 755,726.

This invention relates to tops for motor vehicles and the like and particularly to tops of the permanent type, and has for one of the objects to provide a top of novel and improved construction, the main portion of which is composed of sheet metal to make a strong and durable structure.

Another object is to provide a permanent top frame shaped from a sheet of metal to which the various other top members and adjuncts may be applied to form a permanent unitary structure and the top of which it forms a part will not be subject to the drumming usually associated with tops of this type.

Another object is to provide a vehicle top frame made up in a plurality of sections, each section of which is formed from a continuous sheet of metal and which pieces are secured together into a unitary permanent structure.

Another object is to provide a vehicle top frame comprised of a plurality of main members formed as independent transversely disposed sections thereof, each member being formed from a single sheet of metal to substantially the shape of that portion of the finished top and being permanently joined to the adjacent member along the meeting edge.

A further object is to provide a top frame comprised of transversely disposed sections as described above, in which the meeting edges of the metal of each section are formed to provide a trough shaped transverse depression at the point of junction of the adjacent sections.

A still further object is to provide a top frame comprising a plurality of transversely disposed sections as described above, in which the rear edge of the section or sections forward of the rear section is bent first inwardly and then rearwardly to form a flange, and the front edge of the section or sections rearward of the front section is first bent inwardly and then forwardly to form a flange, which flanges of each adjacent section are secured together in superimposed relation, thereby securing the mating sections together.

Another object is to provide a vehicle top of the class described made up from a plurality of transversely disposed sections as described above formed from a continuous

sheet of metal, in which each section is provided with one or more transversely disposed trough shaped depressions in its upper surface to give such surface added strength in a plane perpendicular thereto and to provide means for attaching the top lining thereto.

Another object is to provide a vehicle top of the class described comprising a plurality of transversely extending sheet metal sections joined and shaped along their adjacent marginal edges to form a groove, the section modulus of said groove varying from the center of the top to the edges thereof to provide a section having a uniform bending strength throughout its length.

Another object is to provide a vehicle top formed from sheet metal provided with a plurality of transversely extending grooves in the surface thereof, said grooves varying in section from adjacent the sides of the top to the center thereof to impart to said top a substantial uniform strength against bending over its entire surface.

The above being among the objects of the present invention, the same consists of certain features of construction and combinations of parts to be hereinafter described with reference to the accompanying drawing, and then claimed, having the above and other objects in view.

In the accompanying drawing, which illustrates a suitable embodiment of the present invention, and in which like numerals refer to like parts throughout the several views,

Figure 1 illustrates a finished top constructed in accordance with the present invention as it may appear when mounted upon an automobile body.

Figure 2 is a perspective view of a top frame constructed in two sections in accordance with the present invention, the two sections being shown slightly separated and in the relative position which they assume when about to be joined.

Figure 3 is a view of the sections shown in Figure 2 as they appear when joined.

Figure 4 is a fragmentary perspective view of a portion of the two sections joined together, showing the manner in which their edges overlap and with the top lining attached thereto.

Figure 5 is a transverse section taken through the mid portion of the top as it

appears in Figure 3, the top lining not being shown, but illustrating the manner of securing the edge tacking strip or rail thereto.

Figure 6 is a longitudinal sectional view taken centrally through the top as shown in Figure 3, the top lining being shown in place.

Figure 7 is a longitudinal sectional view of a portion of the top adjacent to and including the joining edges, in the position they assume just before being joined.

Top frames constructed from a continuous sheet of metal, or from a plurality of sheets of metal which when formed and secured together are the same, in effect, as those constructed from a continuous sheet, have had heretofore but a limited use due to the fact that they have had the tendency to vibrate, or as it is commonly called, to drum, in unison with other vibrations present in the vehicle of which they form a part, in much the same way as a drum head may be made to vibrate in sympathy with independent vibrations. They have also been subject to a snapping or crackling sound caused by changing or reversal of the stresses in the plane of the metal set up by the weaving of the top as the vehicle of which it forms a part passes over rough roadways or the like.

With the above drawbacks and disadvantages of this type of tops heretofore used in mind, this invention provides a means for eliminating such disadvantages and at the same time retains the advantages thereof as will be apparent in the following description.

The top 10 which is shown in Figure 1 mounted on an open type automobile body 11 by means of front supports 12 and covered rear supports 13 is provided with a frame the construction of which is shown in the remaining views and which consists essentially of a main front portion or member 14 and a main rear portion or member 15. These members 14 and 15 each form, in effect, a separate transverse section of the top frame, the front section 14 running from the front of the top to a point adjacent its middle, and the rear section 15 continuing from the rear end of the front section 14 to the rear of the top. Each section is preferably formed from a single continuous sheet of metal into the shape of the corresponding section of the finished top and the respective sections are then joined together. It is particularly in respect to the manner of joining these sections that this invention is concerned and is accomplished in the following manner.

As most clearly shown in Figures 4 and 7 the rear edge of the front section 14 is bent downwardly to form a vertical wall 16 and then rearwardly to form a flange 17 in a plane parallel to the plane of the section 14,

and the front wall of the rear section 15 is bent downwardly to form a vertical wall 18 and then forwardly to form a flange 19 in a plane parallel to the section 15. It is preferable that the vertical walls 16 and 18 terminate at the curved side portions of the sections 14 and 15 so that the flanges 17 and 19 merge into substantially flush relationship with the surface of the sections along the curved side portions thereof, the flange 17 being offset therefrom only an amount equal to the thickness of the metal of the flange 19 for reasons hereinafter apparent. The vertical walls 16 and 18 gradually increase in depth from the sides of the top to the center thereof, thereby increasing the section modulus of the section comprising the walls 16 and 18 and the flanges 17 and 19 respectively, the increase in the section modulus being such as to provide a uniformly strong structure throughout the width of the top, or in other words, a structure subject to substantially equal bending stresses under load throughout its width.

In assembling the section 14 and 15 together, the same are placed in operative position in respect to each other with the flanges 17 and 19 overlapping, and these flanges are then secured together by spot welding, riveting or other suitable means, thereby permanently securing the section 14 to the section 15 to form, in effect, a top made from a continuous sheet of metal.

In so joining the sections 14 and 15 together, it is apparent that a trough-shaped reinforced depression 20 is formed transversely of the top across the horizontal portion thereof. This depression 20 acts as a rib to impart added strength to the top in a direction perpendicular to its upper surface, thereby stiffening the same against vibration and resulting drumming. At the same time it makes the frame more flexible in the plane of its surface by reason of the ability of the vertical sides 16 and 18 to give under stresses set up in the top longitudinal of its length. This acts to eliminate the snapping or crackling sounds previously referred to.

In order to further guard against drumming and crackling and to further strengthen the top, particularly where the individual sections are as large as those illustrated in the drawings, it is preferable to form transverse depressions such as 21 in the upper surface thereof. These depressions are trough-shaped and are formed in and from the metal of the section itself to much the same shape as the depression 20 and preferably extend across the flat upper surface of the sections to a point adjacent the curved quarters thereof. The depressions 21 are provided with side walls of varying depth, as in the case of the depression 20, to provide a section whose section modulus in-

creases to the center of the top to provide a uniformly strong structure throughout its length.

Advantage may be taken of the depressions 20 and 21 for holding the top lining 22 in place by spacing the listing 23 against the adjacent sides of the depressions 20 and 21 and securing the listing 23 thereto by split rivets 24 or the like as shown in Figure 4.

If it is desired to secure the windshield 25 and visor 26 to the top 10 instead of securing the same to the front supports 12 as is often done, it is preferable to provide a wooden member 27 to act as a front cross member for the top frame to which the same may be readily secured by wood screws.

The lower edge of the metal of the sections 14 and 15 is preferably bent inwardly in a horizontal plane to form a flange 28 to which may be attached a longitudinally extending tacking strip 29 (see Figures 5 and 6) for use in securing the top covering in place.

Although the present invention is shown in the drawing as being made up of only two sections, it will be readily understood that the top frame may be made up, and in some cases it will be preferable to make it up, of more than two sections, joined in the same manner, and if necessary, reinforced in the same manner as the sections shown in the drawing. The advantages gained thereby will be the same as hereinbefore described and in addition, if smaller sections are employed, the size and consequent cost of the dies for each section will be relatively smaller.

Formal changes may be made in the specific embodiment of the invention described without departing from the spirit and substance of the broad invention, the scope of which is commensurate with the appended claims.

What I claim is:—

1. A continuous sheet metal top frame composed of a plurality of transverse sections permanently secured together along their joining edges, the joining edge of each section being bent to form in conjunction

with the corresponding edge of the adjacent section a transverse trough-shaped strengthening rib, and trough-shaped transverse strengthening ribs formed in and from the metal of each section remote from the joining edges thereof, all of said ribs increasing in depth from the sides of said top to the center thereof to impart to said top structure relatively equal transverse strength against bending throughout the full width thereof.

2. An automobile top frame formed from a plurality of transverse sections, each section having a substantially flat deck portion and curved side quarters at each side thereof, the adjoining edge of each section being bent downwardly and then horizontally to provide a flange for securing the same to a correspondingly formed flange on the adjacent section to form a trough-shaped depression when said sections are joined together, the trough-shaped depressions fading out at said side quarters, said depression increasing in depth from the ends thereof to the center thereof to provide a structure subject to substantially uniform bending stresses under load throughout the length of said depression.

3. An automobile top provided with an approximately flat upper surface and curved side quarters, said top comprising a frame formed from a plurality of sheet metal sections, the adjoining edge of each section being bent downwardly and then horizontally to provide a flange for securing the same to a correspondingly formed flange on the adjacent section to provide a trough-shaped strengthening rib, each section being further provided with transverse depressions forming strengthening ribs independent of said first-named strengthening rib, the section modulus of said first named ribs increasing from said side quarters to the center of said top to form a uniformly strong structure against bending throughout the width of said top.

Signed by me at Detroit, Michigan,
U. S. A., this 5th day of December, 1924.

JOSEPH H. BOURGON.