April 17, 1962 D. C. PROBST 3,030,140

CONVERTIBLE TOP

Filed Feb. 29, 1960 2 Sheets-Sheet 1

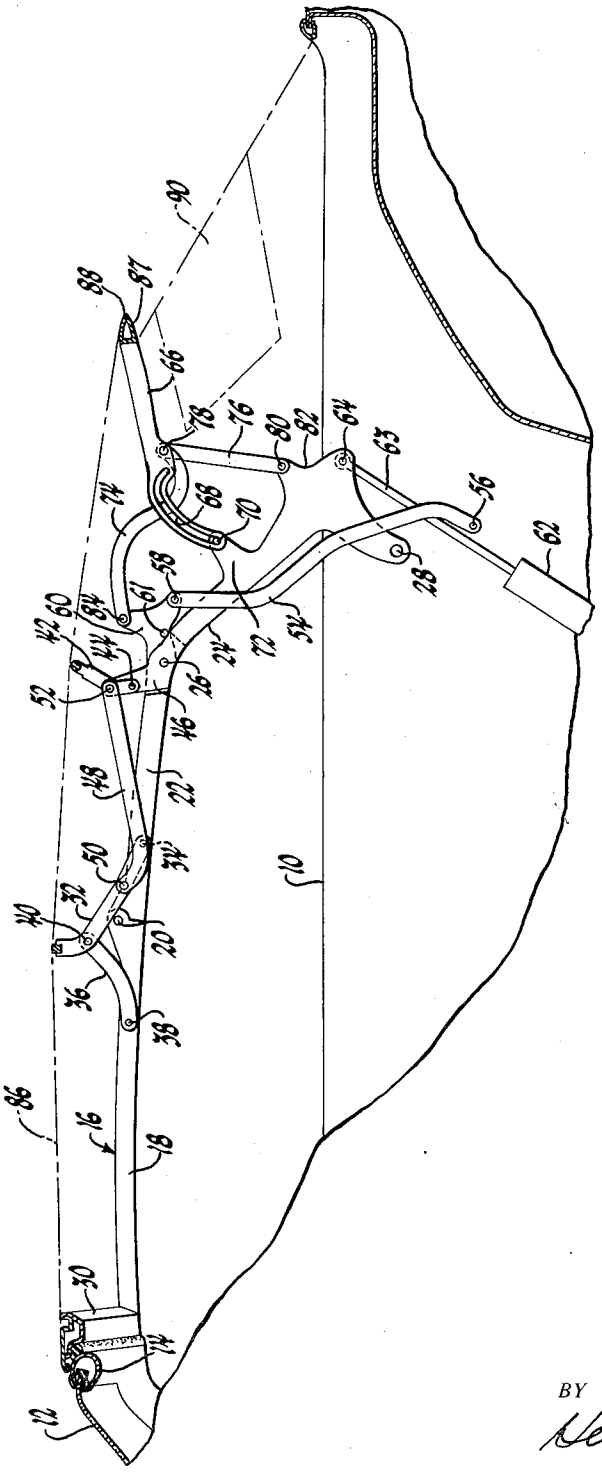

Fig. 1

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Filed Feb. 29, 1960 2 Sheets-Sheet 2

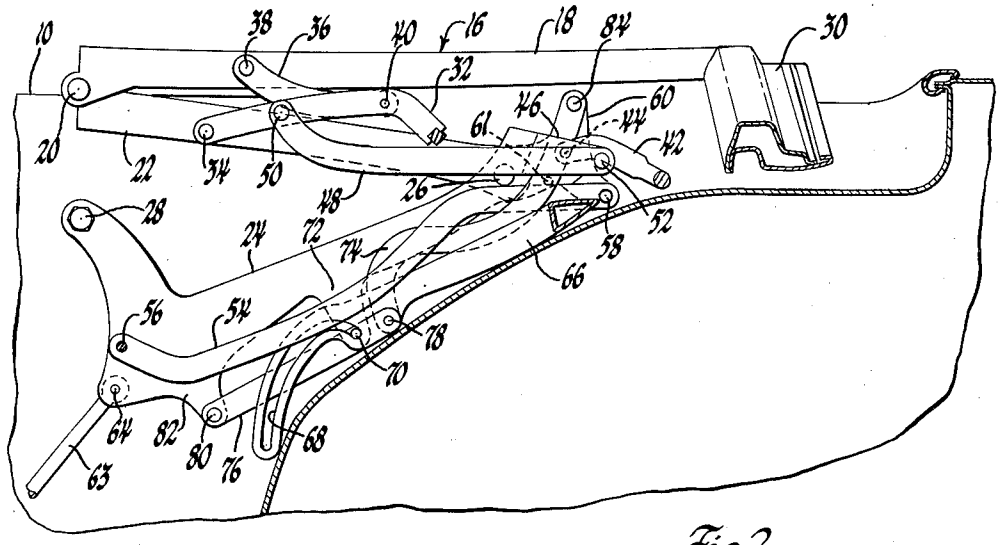

Fig. 2

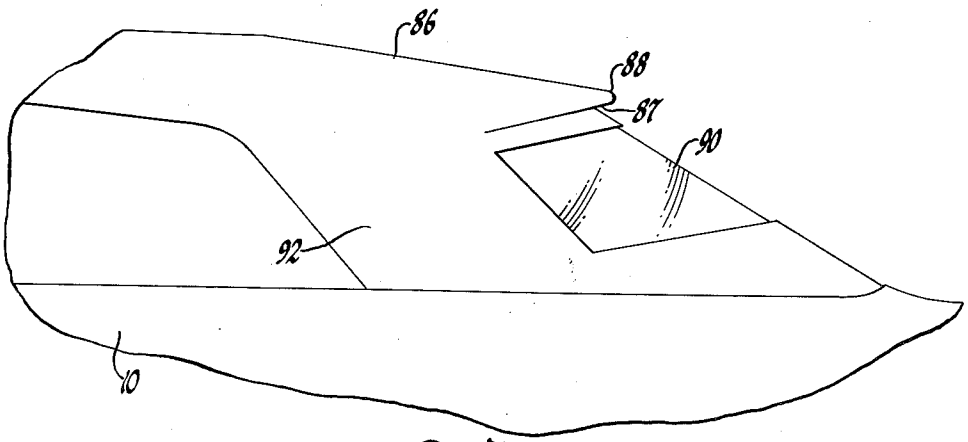

Fig. 3

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CONVERTIBLE TOP

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This invention relates to convertible tops, and more particularly to a convertible top bow arrangement and actuating means therefor.

In conventional convertible top structures, the top fabric is secured at its forward edge to the top header and at its rearward edge to the body and is supported therebetween in the raised position of the top by a number of generally vertically disposed top bows. The top bows are located underneath the top fabric, and extend between the side rails. The bows are usually located by the top fabric in both the raised and lowered positions of the top structure.

The bow arrangement of this invention is particularly directed to the rear top bow and provides such a bow which is located in a generally horizontal position when the top is in raised position and is disposed with respect to the top fabric so as to overlie the rear wrap around window of the top and provide a visor therefor. The portion of the top fabric which extends forwardly of the bow to the top header is secured to the trailing edge of the bow so that the upper surface of the bow is covered by the fabric for aesthetic purposes. The top fabric which extends rearwardly from the bow to the body is secured to the underside of the bow and is displaced forwardly of the leading edge of the bow whereby the bow provides a visor for the rear window. The securement of the top fabric to the underside of the bow is gradually moved rearwardly toward the trailing edge of the bow from the centerline of the top to the sides thereof so that the visor gradually narrows to the sides of the top and disappears approximately at the side edges of the rear window.

The actuating means of this invention positively locates the bow in both the raised and lowered positions of the top frame and controls movement of the bow between a generally horizontal position when the top is in raised position, and a folded position adjacent the rear side rails when the top is in lowered position.

The primary object of this invention is to provide a convertible top bow arrangement and actuating means therefor. Another object of this invention is to provide an improved convertible top including a rear window and having a top bow arranged so as to provide a visor for the rear window in the raised position of the top. A further object of this invention is to provide an improved convertible top having a top bow located in a generally horizontal position and arranged with respect to the top fabric so as to provide a visor for a rear window of the top in the raised position thereof.

These and other objects of the invention will be readily apparent from the following specification and drawings, wherein:

FIGURE 1 is a side elevational view of a convertible top embodying a top bow and actuating means therefor according to this invention, with the top being shown in raised position;

FIGURE 2 is a view similar to FIGURE 1 showing the top in a lowered position; and

FIGURE 3 is an exterior view of a portion of a convertible top embodying a top bow arrangement and actuating means therefor according to this invention.

Referring now particularly to FIGURE 1 of the drawings, a convertible body 10 includes a windshield 12 and a windshield header 14. The convertible top includes a pair of side rails 16 and associated linkage arrangements, each of which is of the same construction, although of different hand, whereby only the ring hand one will be particularly described. The side rail 16 includes a front rail section 18 pivoted at 20 at its rearward end to an intermediate rail section 22. The rearward end of rail section 22 overlaps the forward end of the rear rail section 24 and is pivoted thereto at 26. Rail section 24 is pivotally mounted on the body at 28. The front rail sections 16 rigidly interconnect by a top header 30 which seals against the windshield header 14 in the raised position of the top. Although not shown, suitable latches may be provided to latch the top header to the windshield header.

The top further includes a front or No. 1 U-shaped bow 32 which extends between the rail sections 16 and is pivoted at each leg thereof at 34 to each of the intermediate rail sections 22. A link 36 has one end thereof pivoted at 38 to rail section 16 and the other end thereof pivoted at 40 to the bow 32. The links 36 control folding movement of the front rails 18 with respect to the intermediate rails 22 as will be further described. The intermediate or No. 2 U-shaped bow 42 is pivoted at each leg thereof at 44 to an extension 46 of the rear rail sections 24. An actuating link 48 has the forward end thereof pivoted at 50 to bow 32 and the rearward end thereof pivoted at 52 to extension 46. The power arm 54 has the lower end thereof pivoted on the body at 56 and the upper end thereof pivoted at 58 to an extension 60 of the intermediate rail section 22. Extension 60 also mounts a stud 61 which bears against rail section 24 to more accurately locate rail sections 22 and 24 in the raised position of the top frame. A suitable power cylinder 62 has the piston rod 63 thereof connected at 64 to the rear rail section 24. The power cylinder 62 is pivoted at its lower end to the body and provides the motive force for raising and lowering the top.

The rear or No. 3 U-shaped bow 66 is generally of triangular cross section and is pivotally and slidably supported on the rear rail sections 24 by providing arcuate slots 68 in the legs of the bow which received pins 70 mounted on extensions 72 of the rear rail sections. The movement of the bow is controlled by a pair of links 74 and 76 which are coaxially pivoted at one end thereof at 78 to the bow 66 to one side of the inner end of slot 68. The other end of link 76 is pivoted at 80 to an extension 82 of the rear rail section, and the other end of link 74 is pivoted at 84 to the extension 60 of rail 22.

The top supports a top fabric 86 which extends between the body and the top header 30. The forward edge of the top fabric is secured to the top header 30 and an intermediate edge portion of the top fabric is secured to the trailing edge 88 of the rear bow 66. Bows 32 and 42 are located underneath the top fabric and each is secured to the top fabric, with bow 42 being located by the top fabric in the raised and lowered position of the top. The portion of the top fabric which extends between bow 66 and the body and which includes the rear wrap around window 90 of the top is secured to the under side 87 of bow 66 as far forward as possible at the centerline of the body as shown in FIGURE 1. The securement of the fabric to the underside 87 of the bow is gradually moved rearwardly toward the edge 88 of the bow from the centerline of the body to each side thereof so that the visor provided by the underside of the bow gradually narrows and disappears approximately at the side edges of the window 90 as shown in FIGURE 3. The point of disappearance of the visor provided by the underside of the bow is approximately adjacent each of the pivots 78 so that the rear rail section, the legs of the bow 66, and the links 74 and 76 are hidden from view from the exterior of the body by the rear quarter portions 92 of the top fabric.

When it is desired to move the top from its raised position of FIGURE 1 to its lowered position of FIGURE 2, the power cylinders 62 are actuated to move the piston

rods 63 downwardly and thereby swing the rear rail sections 24 rearwardly or clockwise about their pivots 28 to the body. The reaction of the power arms 54 on rail sections 24 will cause the intermediate rail sections 22 to be swung downwardly or counter clockwise about the pivots 26 of these rail sections to the rail sections 24 to fold the rail sections 22 and 24 with respect to each other. Rail sections 18 will tend to swing with rail sections 22, but the action of links 48 on bow 32 will swing the bow 32 rearwardly or clockwise about the pivots 34 of the bow to the rail sections 22. This will cause links 36 to swing the rail sections 18 rearwardly or clockwise about the pivots 20 to fold rail sections 18 and 22 with respect to each other as rail sections 22 and 24 fold with respect to each other.

As rail sections 24 swing clockwise about pivots 28 and rail sections 22 swing counter clockwise about pivots 26, links 76 will swing counter clockwise about pivots 80 and links 74 will swing clockwise about pivots 84 so as to shift bow 66 generally forwardly and downwardly as slots 68 move relative to the pin 70 to thereby move the bow 66 from its position as shown in FIGURE 1 to its folded position as shown in FIGURE 2 wherein the bow is located immediately adjacent to the rail sections 24 in the lowered position of the top. Pins 70 engage the outer ends of slot 68 in the raised position of the top as shown in FIGURE 1, and engage the inner ends of the slots 68 in the lowered position of the top as shown in FIGURE 2 to thereby accurately locate the bow 66 in both positions of the top.

When it is desired to move the top from its lowered position of FIGURE 2 to its raised position of FIGURE 1, the rear rail sections 24 will swing in an opposite direction about pivots 28 and the other rail sections, links, and bow 32, swing in an opposite direction than previously described to thereby unfold the top as it moves to raised position. Links 74 and 76 will likewise swing in an opposite direction about their respective pivots 80 and 84, so as to move the bow 66 rearwardly and upwardly as slot 68 slides relative to pins 70 to thereby locate the bow as shown in FIGURE 1. It is believed that no further description need be given for this movement of the top.

Thus, this invention provides a new and improved convertible top bow and actuating means therefor, wherein the top bow is located in a generally horizontal position and arranged with respect to the top fabric so as to provide a visor for the rear window of the top when the top is in raised position.

I claim:

1. In a convertible vehicle body, the combination comprising, a foldable top frame including a pair of foldable side rails, means mounting said top frame on said body for movement between raised and lowered positions, a top header interconnecting the forward ends of said rails, a top bow including upper and lower sides joining to define the trailing edge thereof, means mounting said bow on said side rails and locating said bow in a generally horizontal position when said top frame is in raised position, a top fabric covering said top frame, one portion of said fabric extending between the upper side of said bow and said top header, the other portion of said top fabric extending between the lower side of said bow and said body and including a window, and means securing said other portion of said fabric to said under side of said bow forwardly of the trailing edge thereof whereby the under side of said bow provides a visor over said window, said securing means being gradually moved rearwardly toward the trailing edge of said bow from the center of said top fabric to the sides thereof whereby said visor gradually narrows and disappears approximately at the side edges of said window.

2. In a convertible vehicle body, the combination comprising, a foldable top frame including a pair of side rails having foldable intermediate and rear rail sections, means mounting said top frame on said body for movement between raised and lowered positions, a top header interconnecting the forward ends of said rail sections, a top bow including upper and lower sides joining to define the trailing edge thereof, means pivotally and slidably mounting said bow on said rear rail sections for bodily movement between a generally horizontally disposed position when said top frame is in raised position and a folded position adjacent said rear rail sections when said top frame is in a lowered position, means interconnecting said bow and said rail sections to control bodily movement of said bow as said top frame is raised and lowered, a top fabric covering said top frame, one portion of said fabric extending between the upper side of said bow and said top header, the other portion of said top fabric extending between the lower side of said bow and said body and including a window, and means securing said other portion of said fabric to said under side of said bow forwardly of the trailing edge thereof whereby the under side of said bow provides a visor over said window, said securing means being gradually moved rearwardly toward the trailing edge of said bow from the center of said top fabric to the sides thereof whereby said visor gradually narrows and disappears approximately at the side edges of said window.

3. In a convertible vehicle body, the combination comprising, a foldable top frame including a pair of foldable intermediate and rear rail sections, means mounting said rear rail sections on said body for movement between raised and lowered positions, a generally U shaped top bow having upper and lower sides joining to define the trailing edge thereof, means pivotally and slidably mounting said bow on said rear rail sections for bodily movement between a generally horizontal disposed position when said top frame is in raised position and a folded position wherein the legs of said bow are located in adjacent juxtaposed position to said rear rail sections when said top frame is in a lowered position, and means interconnecting said bow and each of said rail sections to control bodily movement thereof.

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