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F. K. LEWIS

TOP FOR VEHICLES AND THE LIKE

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INVENTOR.

Fred B. Lewis.

BY

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ATTORNEYS
To all whom it may concern:

Be it known that I, Fred K. Lewis, a citizen of the United States, and a resident of Ashtabula, county of Ashtabula, and State of Ohio, have invented a new and useful Improvement in Tops for Vehicles and the like, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present improvements relate more particularly to tops of the so-called "one-man" type, such as are now extensively used on automobiles, wherein the extreme forward or outrigger bow is carried by means of swinging arms pivotally attached to the upper portion of the main bow, or equivalent support, so that such arms with such outrigger bow extend substantially horizontally in the open position of the top and together constitute what may be termed an articulated auxiliary bow.

The object of the invention is the adaptation of such an articulated auxiliary bow for use with a single rearwardly inclining main bow. In such case it is necessary to carry from such articulated auxiliary bow at least two supplemental bows, if the top is to be of any considerable longitudinal extent, i.e., if it is for use on a so-called phaeton type of body in contradistinction to a roadster type. In conjunction with such supplemental bows I provide at the same time means for interconnecting the same with each other and with the forward portion of the auxiliary bow or outrigger bow proper, so that said bows will move in unison when the top is folded or unfolded; also means for rigidly supporting the outrigger structure from the main bow in the open position of the top.

To the accomplishment of the foregoing and related ends, the invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawing and the following description setting forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:

Fig. 1 is a side elevational view of a top supporting structure embodying my present improvements, such top being shown as mounted on an automobile body or tonneau of conventional form; and Fig. 2 is a similar view showing a modification in construction.

It is of course a matter of indifference whether the top is used on automobile, motor-boat or otherwise, and, depending upon its longitudinal extent, a smaller or larger number of bows, in addition to the outrigger structure of present interest, may be utilized. It will also be understood that the term "bow" is used herein inclusively to designate not merely the wooden bow proper, but also the metallic sockets carrying the same, these parts when regarded in side elevation constituting the equivalent of the so-called "sticks," as they are called, in the old wood structure. It is accordingly a matter of convenience to refer to the parts in the singular, as though the structure all lay in a single vertical plane, since the parts do actually lie in such a plane.

As previously indicated, the top covering 1 is designed to be entirely supported through an appropriate outrigger structure from a single main bow 2. The latter, which is of substantial construction, in view of the weight it is thus designed to carry, is pivotally supported upon or attached to the body at the point 3 in the usual manner, so that it may be laid down and carried in a substantially horizontal plane when the top is not in use. Normally, in the extended or open condition of the top, said main bow 2 inclines rearwardly at an angle of approximately forty-five degrees to the horizontal, being held from rising higher by the top covering or rather by special straps (not shown) or extensions of the longitudinal strainers, which, as is well known, are used to connect the bows together and provide supporting means for the top covering immediately between said bows. For the purpose in hand such straps or strainers may be regarded as a part of the covering material.

The outrigger structure comprises a main articulated auxiliary bow, or, as it is sometimes called, outrigger bow 6, the latter term referring more particularly to the outer portion or bow 7 proper, which is secured to the main bow 2 by means of an arm 8 (one on each side of course) pivotally attached to said main bow and to the rear end of such outrigger bow, and so constituting the inner portion of said articu-
lated auxiliary bow 6. The point of attach-
ment of this arm to the main bow is preferably in line with, or just above, the side edge of the cover, so as to be hidden by the latter, and the joint 9 between said arm and the outrigger bow is a rule or lock joint disposed so as to prevent further bending of the arm in question, when extended in horizontal fashion, as in open condition of the top illustrated in Fig. 1.

Pivotedly attached to the arm 8 are two supplemental bows 10 and 11, whose points of pivotal attachment are so spaced, and whose angular positions in the open condition of the top are so adjusted, by means presently to be described, as to support the top covering 1 at suitably spaced intervals between main bow 2 and outrigger bow 7. The rearmost supplemental bow 11 is provided with an extension or short arm 12 that is connected through the medium of a link 13, with the main bow 2 at a point somewhat below the point of attachment of the side arm 8 to said main bow. A stop 14 on swing arm 8, just forwardly of the point of pivotal attachment of said supplemental bow 11, engages with the latter in the extended or open position of the top so as to prevent further bending of the joint between extension 12 and link 13 and thus constitute a rigid connection of the parts in question under the weight of the arms 8 and parts carried thereby. However, upon breaking the joint between said extension 12 and link 13, the arms 8 can be swung downwardly against the main bow 2 and said link and supplemental bow 11 will at the same time be brought into parallel relation with said main bow.

Operative connections are in turn provided between said supplemental bow 11 and the forward supplemental bow 10, as well as with outrigger bow 7. Such connections preferably take the form of two links, viz., one link 15 connecting said supplemental bows 10 and 11, and a separate link 16 connecting said supplemental bow 10 and the outrigger bow 7, being attached to said supplemental bow at a point beyond the point of attachment thereto of the first link 15, as clearly shown in Fig. 1.

The result of the foregoing construction is that when joint 9 is broken, the joint between extension 12 and link 13 will be simultaneously broken, or vice versa, and the two supplemental bows will be folded up in unison as the outrigger bow 7 is swung back in parallel relation with the main bow, the reverse operation occurring when the top is being unfolded or opened.

In place of a stop 14 on the swing arm 8, wherewith supplemental bow 11 contacts, in the open position of the top, the joint between extension 12 and link 13 may be provided with a stop 17, as shown in Fig. 2, such stop constituting a lock joint which will function in exactly the same way as said previously described stop 14.

In either of the two forms of construction just described, an unusually rigid and stable support for the folded outrigger structure is provided, and yet, owing to the relative fewness of parts and their disposition, the structure folds up in very compact form when it is desired to have the top out of the way. Operation either in opening or closing is simple, rendering the top capable of manipulation by one person.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:

1. In a top for vehicles and the like, the combination of a main bow; a two-part articulated auxiliary bow adapted to have its two sections in substantially horizontal alignment when in open position, and having its rear portion pivotally attached to said main bow; a supplemental bow pivotally attached to the rear portion of such auxiliary bow and having an extension; a link connecting such extension with said main bow below the point of attachment of said auxiliary bow thereto; means adapted to prevent further bending of the joint between such extension and said link in the open position of the top; a second supplemental bow pivotally attached to the rear portion of said auxiliary bow forwardly of said first-named supplemental bow; and two links, one connecting said supplemental bows and the other connecting said second supplemental bow with said auxiliary bow and the point of attachment of said second link to said second supplemental bow lying above the point of attachment of said first link thereto, whereby said bows may be brought into substantially parallel relation when the top is folded.

2. In a top for vehicles and the like, the combination of a main bow; a two-part articulated auxiliary bow adapted to have its two sections in substantially horizontal alignment when in open position, and having its rear portion pivotally attached to said main bow; a supplemental bow pivotally attached to the rear portion of such auxiliary bow and having an extension; a link connecting such extension with said main bow below the point of attachment to said auxiliary bow thereto; the joint between such extension and said link being formed to lock in open position of the top; a second supplemental bow pivotally attached to the rear portion of said auxiliary bow forwardly of said first-named supplemental.
bow; and two links, one connecting said supplemental bows and the other connecting said second supplemental bow with said auxiliary bow and the point of attachment of said second link to said second supplemental bow lying above the point of attachment of said first link thereto, whereby said bows may be brought into substantially parallel relation when the top is folded.

3. In a top for vehicles and the like, the combination of a single main bow arranged to incline rearwardly in the open position of the top; a two-part articulated auxiliary bow adapted to have its two sections in substantially horizontal alinement when in open position, and having its rear portion pivotally attached to said main bow; a supplemental bow carried by the rear portion of said auxiliary bow and having an extension; a link connecting such extension with said main bow below the point of attachment of said auxiliary bow thereto, said link lying at approximately right angles to said main bow when the top is open; means adapted to prevent further bending of the joint between such extension and said link in such open position to the top; a second supplemental bow pivotally attached to the rear portion of said auxiliary bow forwardly of said first-named supplemental bow; and two links, one connecting said supplemental bows and the other connecting said second supplemental bow with said auxiliary bow and the point of attachment of said second link to said second supplemental bow lying above the point of attachment of said first link thereto, whereby said bows may be brought into substantially parallel relation when the top is folded.

Signed by me, this 28 day of January, 1922.

FRED K. LEWIS.