A. W. CURTIS.

FOLDING CARRIAGE TOP.

APPLICATION FILED AUG. 28, 1916.

1,312,836. Patented Aug. 12, 1919.

FIG. 1.

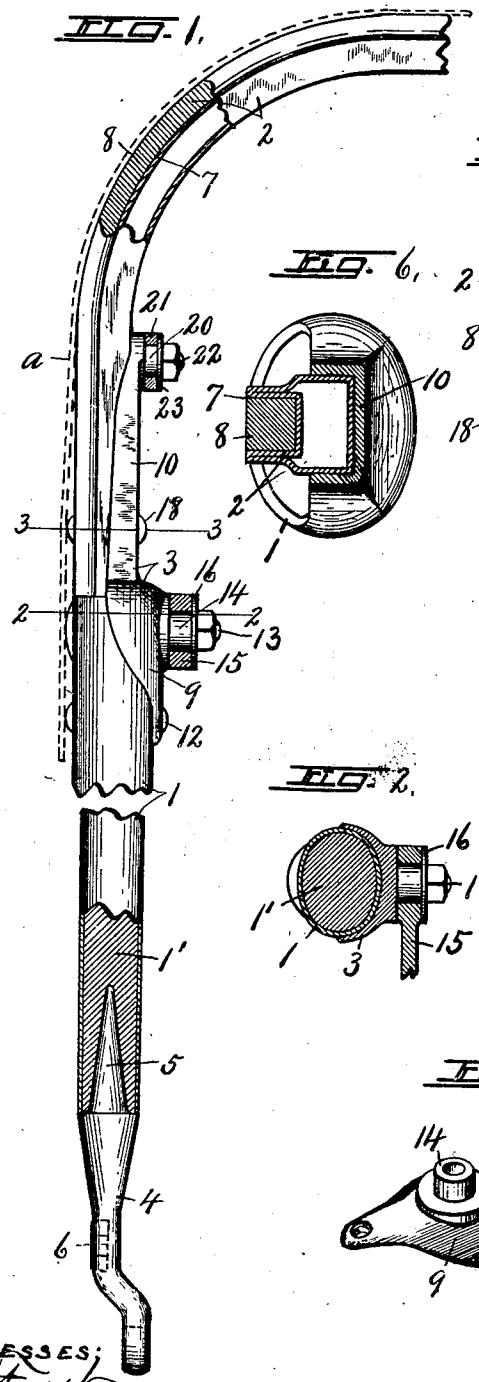


FIG. 6.

FIG. 5.

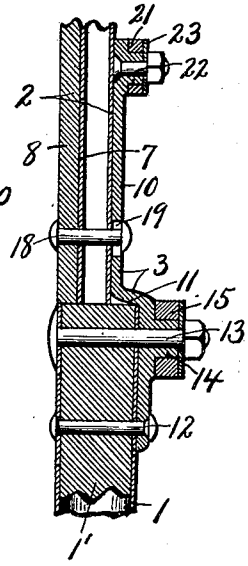


FIG. 7.

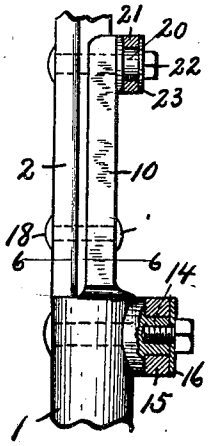


FIG. 2.

FIG. 3.

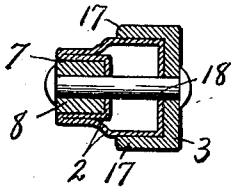
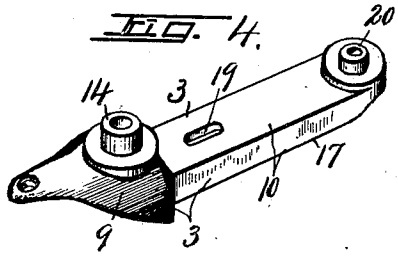


FIG. 4.



WITNESSES:

H. Hitzrot.

H. E. Chase

INVENTOR

A. W. Curtis

BY Howard P. Denison

ATTORNEY

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ALMON W. CURTIS, OF CORTLAND, NEW YORK.

FOLDING CARRIAGE-TOP.

1,312,836. Specification of Letters Patent. Patented Aug. 12, 1919.

Application filed August 28, 1916. Serial No. 117,269.

To all whom it may concern:

Be it known that I, ALMON W. CURTIS, a citizen of the United States of America, and resident of Cortland, in the county of Cortland, in the State of New York, have invented new and useful Improvements in Folding Carriage-Tops, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in folding carriage tops for automobiles and similar vehicles, and refers more particularly to the bow as a whole in which the arched portion or bow proper is made separate from the opposite upright sides or standards commonly known as the "sockets".

These sockets are usually made of thin sheet metal rolled into the form of a tapering tube having its longitudinal edges folded and interlocked with each other, thus producing a seam running the entire length of the tube.

A wood bow section is usually employed to connect the upper ends of the socket sections for supporting the top or hood, and the present practice is to taper the ends of the wood section to correspond approximately to the size and taper of the upper ends of the sockets into which the tapered ends of the wood section are tightly driven which frequently results in opening of the seam to such an extent as to render the socket unfit for use.

In order to obviate these objectionable results, the manufacturers of sockets have sought to reinforce them by introducing an extra metal reinforcing tube within the outer tube, thereby adding considerably to the weight and greatly increasing the cost of production of the sockets without materially reducing the liability of opening of the joints, particularly if the tapered ends of the wood section are slightly oversize or inaccurately fitted.

Furthermore, it is found to be almost impossible to maintain the wood sections in their original form, owing to the tendency to warp, shrink or expand under climatic changes.

Another serious objection to the wood bow is that it is necessarily cumbersome and unsightly in the unfinished state in which it is used and is in almost all instances covered with a sheathing of cloth which is extended slightly over the ends of the sockets to conceal the joint and considerable difficulty and waste results from the use of these sheaths, owing to the fact that they must necessarily be prepared in tubular form before being drawn from one end over the entire length of the wood sections, by which operation they are frequently torn or ripped to such an extent as to necessitate their being thrown aside as waste.

One of the objects as set forth in my divisional application Ser. No. 275,575, filed Feb. 7, 1919, is to produce a lighter, stronger and more durable sheet metal socket without seam or apparent joint so that the interior and exterior thereof will be smooth throughout their respective areas, and at the same time avoiding the use of the usual inner reinforcing tube and preserving the full strength of the metal throughout its area to better resist wedging action of the ends of the bow sections in case the latter are driven into the sockets in the usual manner.

Another object, however, is to avoid the objections and difficulties incidental to the use of wood bow sections by using the metal bow sections similar to that set forth in my pending applications, Serial No. 79,649, filed February 21, 1916, Ser. No. 128,159, filed Oct. 30, 1916, and providing special clamping means for coupling the ends thereof to the ends of the sockets without driving or other endwise pressure, thereby expediting the work of assembling the parts of the bow, materially reducing the size and weight of the bow section, assuring a more

permanent form to the bow, obviating the use of the usual sheath and permitting the metal bow section to be finished by painting or enameling in any color desired.

Other objects and uses relating to specific parts of the bow as a whole will be brought out in the following description.

In the drawings—

Figure 1 is an elevation partly in section and partly broken away of a portion of a bow embodying the features of my invention.

Figs. 2 and 3 are enlarged transverse sectional views taken, respectively, on lines 2—2 and 3—3, Fig. 1.

Fig. 4 is a perspective view of a detached coupling for connecting one end of the bow section to the socket section.

Fig. 5 is a longitudinal vertical sectional view through the adjacent ends of one of the socket sections and bow sections.

Figs. 6 and 7 are sectional views similar to Figs. 5 and 3 of a modified form of my invention.

As illustrated, the bow as a whole comprises a pair of similar oppositely disposed tubular standards commonly known as bow sockets —1— and an arched or bow section —2— having its opposite ends abutting upon the upper ends of the bow socket or sections —1— and firmly secured thereto by couplings —3— so that the outer side faces of the ends of the bow section —2— are substantially coincident with the corresponding faces of the sockets, thus producing smooth surfaces over which the side quarters of the top may be drawn and secured if necessary.

Each of the sockets —1— ordinarily consist of a single piece of comparatively light sheet metal, such as steel, rolled into the form of a tapering tube and operatively arranged with its larger end at the top, the longitudinal edges of the tubular piece of sheet metal abutting against each other and acetylene-welded to form a seamless and invisible joint, thus leaving the interior and exterior of the tube smooth and unbroken throughout its entire area, and at the same time assuring a strength equal to or greater than the original stock, the tube being preferably oval or elliptical in cross section to further increase its strength.

Each socket is provided at its lower end with a hinge section —4— having a reduced end —5— inserted therein and firmly held in place by acetylene-welding or equivalent fastening means, each hinge section being provided with means for attachment to the seat or other portion of the body of the vehicle and is also provided with means, as an eye —6—, for receiving another top-supporting member, not shown.

The remaining portion of each tube may be filled with wood or other suitable filling —1'—, the sole purpose of which is to stiffen the tube against buckling, but in some instances, as for example in its use in connection with light tops, may be omitted.

When the wood filling is used it is preferably cut off flush with the top or upper end of the metal tube so as to form a better support for the abutting end of the bow section —2— which, in this instance, is made in the form of a hollow metal tube having a lengthwise channel —7— in its outer face extending from end to end, in which is inserted a wood filling —8— to receive the tacks or other fastening means by which the lining of the top, as —*a*—, may be secured thereto, said top being shown by dotted lines.

Only one side of the bow section —2— is shown, but it is to be understood that the other side is the same, both ends being terminated the same distance from the center of the arch, and preferably at right angles thereto, so as to abut closely against the upper ends of the tubes —1—.

It is also to be understood that two couplings —3— are used, one for each end of the bow section —2—, each coupling consisting of an elongated cast or forged metal bar having a relatively large concavo-convex base —9— and a longitudinally grooved or channeled extension —10— of substantially rectangular cross section which is offset outwardly some distance beyond the inner face of the base —9— with its longitudinal groove or channel opening outwardly to receive and support the adjacent end of the bow section —2—.

The upper portion of the base —9— of the coupling —3— forms what may be termed a substantially semi-circular cap, thus forming an overhanging shoulder —11— which rests upon the upper end of the standard or socket —1— when adjusted for use, while the remaining portions of the base extend downwardly along and against the inner face of the upper portion of the socket, and rigidly secured thereto by suitable fastening means, as bolts or rivets —12— and —13— having flat rounded heads impinging tightly against the outer face of the socket to leave said outer face as smooth as possible or free from unsightly or objectionable projections.

The inner concave face of the base —1— of the coupling is made to conform to the transverse curvature of the inner face of the portion of the socket to which it is applied so that when placed in operative position, the opposite edges of the base extend around the front and rear sides of the socket to additionally hold these parts against relative forward and rearward rocking movement when bolted together.

In like manner, the outer convex face is curved in cross section to correspond approximately to the transverse curvature of the socket, the stock of the base being com-

paratively thin, particularly at the edges so as to produce a neat and desirable finish.

This base portion —9— is provided with an integral boss or journal bearing —14— projecting inwardly from its inner convex face to receive and support one of the braces or struts —15— for another bow, not shown, said brace or strut being held in place by the bolt —13— and a washer —16—, as shown more clearly in Fig. 5, in which the boss is shown as hollow for receiving said bolt.

By placing the strut or brace —16— at the inner side of the socket section of the bow, it is possible to clash this part of the folding top within the space between the front and rear edges of said socket, thus permitting the entire top to clash within a smaller and more compact space.

The channeled extension —10— of the coupling member —3— extends a sufficient distance along and against the inner face of the adjacent end of the bow section —2— to properly support the same against forward and rearward rocking movement relatively to said coupling and socket —1—, the channel in the outer face of the extension —10— being of substantially the same width as that of the end of the bow section —2— which it receives, thus forming outwardly projecting ribs —17— which fit closely against the front and rear faces of the bow section.

The channeled extension —10— is additionally secured to the bow section —2— by a bolt or rivet —18— which passes through an aperture in the adjacent end of the bow section and also through a vertically elongated slot —19— in the inner side of the extension —10— to allow the bow section to be adjusted vertically in case the length of the ends of different bows should vary slightly, thereby assuring a positive abutting of the ends of the bow section against the upper ends of the socket sections.

The particular bow shown constitutes the main support for what is commonly known as a "one-man top," and the extension —10— is, therefore, provided with an additional apertured boss —20— for receiving the adjacent end of another brace or strut —21—, the boss —20— being also positioned at the inner side of the adjacent end of the bow section —2— and in a different plane from that of the boss —14— so that the struts or braces —16— and —20— may clash in different planes wholly within the bow as a whole, thereby allowing the top-supporting bows to clash within a smaller and more compact space, the strut or brace —21— being held in position by a bolt —22— and washer —23—, as shown more clearly in Fig. 5.

In assembling the parts of the bow as a whole, the couplings —3— are simply placed against the inner face of the upper end of the socket section —1— with the shoulder —11— seated against the end face of said socket section where it is bolted in place by the bolts —12— and —13—, whereupon the bow section —2— is placed in operative position with its ends in the channels of the extension —10— and its end faces abutting against the adjacent end faces of the socket sections —1— where it is secured in place by the bolts —18—.

The struts or braces —15— and —21— may then be placed in operative position upon their respective bosses —14— and —20— and held in place by the tightening of the nuts of the bolts —13— and —22—, all of which operations may be carried out without any liability of overstraining either the socket sections or bow section, and in fact by overlapping the sides of the base —9— of the coupling —3— around the front and rear sides of the socket section —1— tends to reinforce rather than to weaken the socket section, the same being also true of the overlapping sides of the extension —10— upon the sides of the bow section.

Furthermore, by making the bow section of metal with the wood filling therein, it may be bent to an exact form with the assurance that it will retain such form under all climatic conditions ready for use at any time, and avoids the necessity for the usual cloth sheathing because it may be enameled or painted to any desired color to harmonize with the lining of the top.

Instead of making the coupling on the socket section separate, it may be made integral with said socket section, as shown in Figs. 6 and 7, in which the upper end of substantially one-half of the metal tube is extended beyond the remaining portions and reduced in size to form an abutting shoulder similar to the shoulder —11—, Fig. 5, and channeled extension —10—, in which case the bolts —13— and —22— may be provided with the journal bearings —14— and —20— for receiving the parts —15— and —21—, respectively, the main body of the tube being made of somewhat heavier gage stock and the non-metallic filling —1'— omitted.

What I claim is:

1. In a folding carriage top, the combination with tapered bow-sockets having wood inserts terminating flush with the open ends of the sockets, couplings secured to the inner faces of the sockets and extended beyond the ends thereof, the extensions being offset outwardly partly across the ends of the wood inserts, and provided with inwardly projecting strut-supports, a bow having its ends terminating against the upper ends of the sockets and inserts, and means for clamping said bow-ends to said extensions.

2. A cover support for folding automobile

tops comprising a pair of bow-sockets, couplings secured to the inner faces of the bow-sockets and extending beyond the open ends thereof, the extensions of the couplings being offset outwardly over the ends of the bow-sockets and provided with lengthwise channels in their outer faces, a bow having its ends seated in said channels, their outer faces substantially flush with the corresponding outer faces of the bow-sockets, and devices for clamping the ends of the bow to said extensions.

In witness whereof I have hereunto set my hand this 23d day of August, 1916.

ALMON W. CURTIS.

Witnesses:
H. E. CHASE,
ALICE M. CANNON.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."