A. H. STOKES.

ART OF CONSTRUCTING BOWS FOR VEHICLE TOPS.

APPLICATION FILED MAY 7, 1914.

1,149,965.

Patented Aug. 10, 1915.

2 SHEETS—SHEET 1.

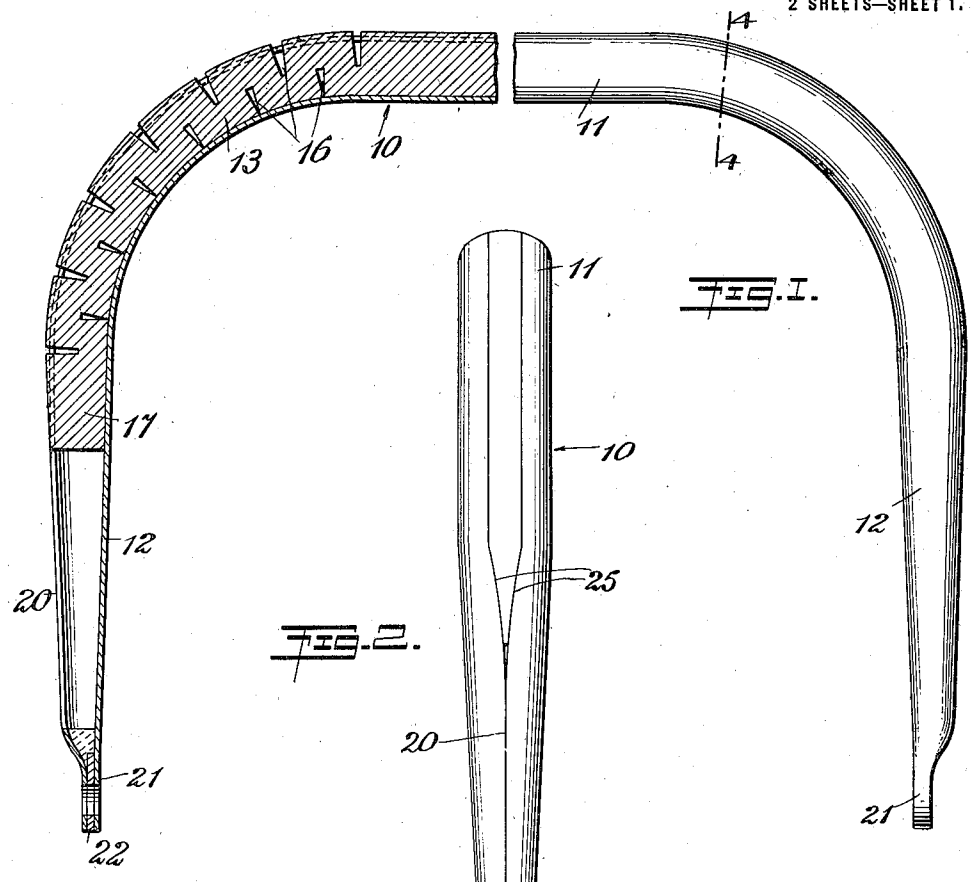


FIG. 1.

FIG. 2.

FIG. 4.

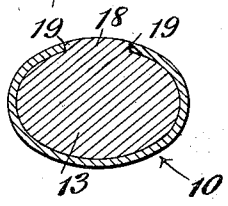
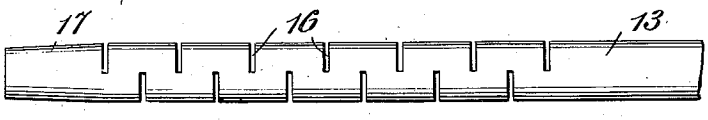


FIG. 3.



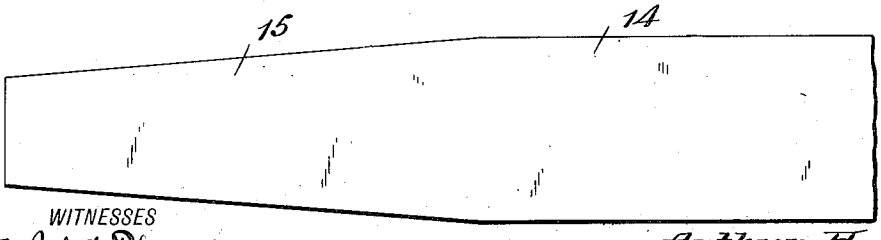


FIG. 5.

WITNESSES

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2 SHEETS—SHEET 2.

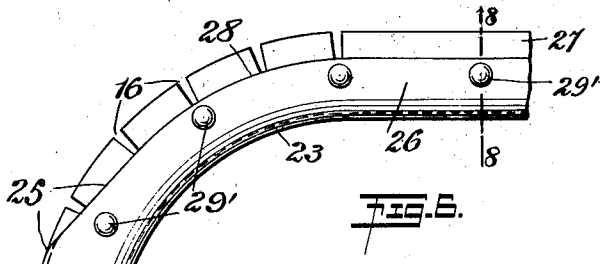


FIG. 6.

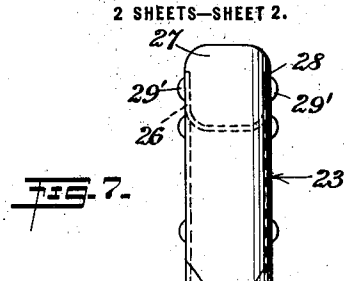


FIG. 7.

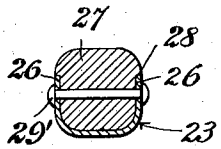


FIG. 8.

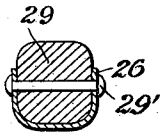
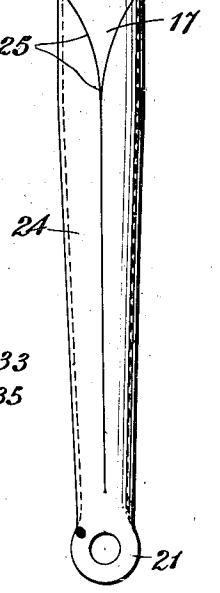


FIG. 9.



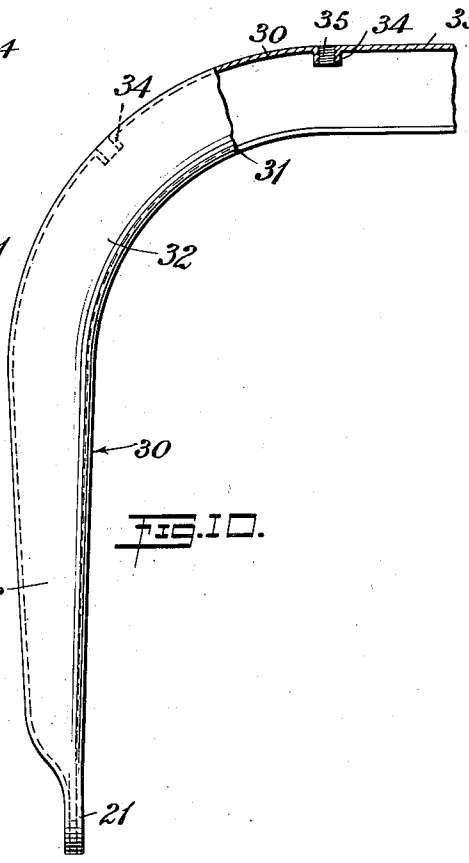


FIG. 10.

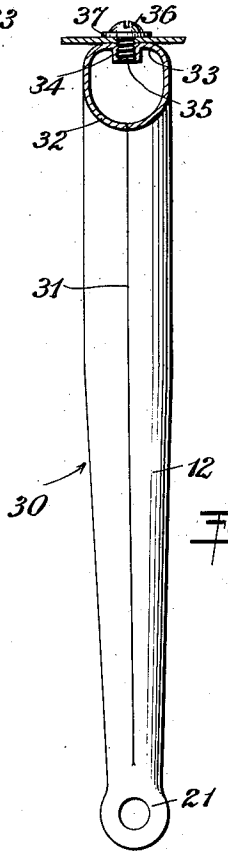


FIG. 11.

WITNESSES

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UNITED STATES PATENT OFFICE.

ARTHUR H. STOKES, OF DETROIT, MICHIGAN.

ART OF CONSTRUCTING BOWS FOR VEHICLE-TOPS.

1,149,965. Specification of Letters Patent. Patented Aug. 10, 1915.

Application filed May 7, 1914. Serial No. 836,975.

To all whom it may concern:

Be it known that I, ARTHUR H. STOKES, a citizen of the United States, and a resident of Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in the Art of Constructing Bows for Vehicle-Tops, of which the following is a full, clear, and exact description.

This invention has special reference to the art of constructing or making bows for vehicle tops and more particularly automobile tops.

The primary object of the invention is to provide an improved bow construction in which instead of making the bows of composite sections consisting of wooden arches which are steamed or otherwise treated in an expensive way to permit them to be bent for engagement in the sockets to which the slat irons are attached, with a resultant objection due to the unstability and heaviness of the bows and liability of the arch portions of the bows to crack under varying weather conditions, I construct them either wholly of metal or metal filled with wood in a novel way, so as to provide extreme lightness, stability and neatness as well as making provision for the economical production of the bows.

More particularly, this invention provides an improved bow for vehicle tops in which the same is formed from cold rolled sheet steel in such a manner as to provide a bow of the proper cross section gradually tapering toward its ends to form the arch and sides as an integral member, as well as the attaching eyes, and providing means for securely fastening the canvas of the top or cover to the top portion or arch of the bow.

Another object of the invention is to provide an improved means by which the arch portions of the bows may be filled with wood or the like without steaming or treating the wood in any special expensive process which generally necessitates the use of heavy and expensive wood such as oak or hickory, by providing notches at the portions of the fillers which are to be bent so that the same can be readily shaped to conform to the curvatures of the bows and held in position by bending or forming a bow of the proper cross section over it from a section of sheet metal.

With the above and other objects in view, the invention resides in the peculiar combination and arrangement of parts to be hereinafter more fully described, illustrated and claimed, it being also an object to provide a device which is simple in construction, durable and efficient.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is an elevational view partly in section of a bow for vehicle tops constituting one form of my invention, the intermediate portion of the arch of the bow being broken away; Fig. 2 is an end elevation of the bow; Fig. 3 is a plan view of a portion of a filler used with the bow; Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1; Fig. 5 is a plan view of a portion of a blank from which the bow proper is rolled or formed; Fig. 6 is a fragmentary elevational view showing a modified form of construction; Fig. 7 is an end elevation of the form of the invention shown in Fig. 6; Fig. 8 is a sectional view taken on the line 8—8 of Fig. 6; Fig. 9 is a cross sectional view showing a modified construction; Fig. 10 is an elevational view partly in section showing a still further modified construction in which the filler is omitted; Fig. 11 is an end elevation of the form of the invention shown in Fig. 10 looking toward the inside.

In carrying the invention into practice, the improved vehicle bow 10 is made of all metal and in the present instance of a section of cold rolled sheet steel passed between forming rollers to provide an integral arch 11 and sides 12 with or without a filler 13. This blank section of metal which is of cold rolled sheet steel is indicated by the numeral 14 in Fig. 5 of the drawings, and is shown having its end portions 15 tapered, the taper being of the required length depending upon the lengths of the side portions of the bows or particular part of the frame of the top which is to be constructed therefrom. A blank of this design is placed between forming rollers and bent into channel shape, after which a filler 13 of some light flexible wood is inserted in the channel at the intermediate portion of the blank thus rolled so as to extend throughout the length of the arch and down into the side portions the desired degree.

In order to permit the flexing or bending of the filler without the necessity of using

heavy and expensive wood and treating the same by steaming and otherwise, the filler at the points where the same are to be bent are notched, preferably by providing transverse staggered notches 16 in the top and bottom faces thereof, while the ends of the fillers are preferably slightly tapered, as shown at 17, so as to be accommodated in the side portions of the bows when the latter are rolled in a manner to be hereinafter more fully described. The notching of the filler may be produced by cutting or sawing the same so as to form notches or grooves across the grain of the filler, it being understood that the fillers are cut longitudinally of the grain of the wood to facilitate bending thereof on the proper radius required to form the arch portions. In this manner the upper notches will be expanded or the walls thereof spread apart while the lower notches will be contracted so that the walls thereof will be brought together without materially weakening the bow, and the nails for securing the cover in position will be driven between the upper notches or otherwise.

After the filler, which may be of oval shape in cross section, as is more particularly illustrated in Fig. 4 of the drawings but provided with an extension 18 along its top face, is inserted in the channel-shaped member produced as above described, the metal is then formed in the required shape over the filler so that the edge portions 19 thereof which are disposed outward will contact with the shoulders produced by the extension 18 and the filler will thus provide means for the attachment of the usual canvas cover by means of upholstering nails or the like which are driven into the filler. The intermediate portions of the longitudinal edges of the blank, which is of the proper thickness to give the required strength consistent with lightness, are thus spaced apart but the edges of the blank at the tapered extremities 15 will be brought together so as to abut each other as shown at 20 to produce the tapered sides of the bow. When these edges are thus brought together they are brazed or welded as by running a brazing torch along the union thus produced, and in this manner the sides will be considerably strengthened to support the weight thereon so as to stand up under all strains and shocks particularly incident to the travel of the vehicle over uneven rough surfaces. The filler and metallic casing of the bow forming the tube, are bent in the required shape, and in addition the lower extremities of the tapered sides forming the ends of the bow are flattened and stamped with an aperture to produce attaching eyes 21, these parts being made rigid by a steel insert 22 which, together with the opposed sides of the flattened portion, are brazed together in such a manner that the brazing material or brass will fill the interior of the tubing portions at the extremities of the tapered sides to strengthen the same where flattened.

In Figs. 6, 7 and 8 of the drawings the bow is shown of channel shape in cross section when complete, which is the same cross section as the bow in the heretofore described construction for the insertion of the filler and prior to the forming of the blank around the filler. In this instance the metal portion of the bow is indicated by the numeral 23 and the tapered side portions by the numeral 24, the edges of the blank in either instance being gradually brought together to produce the side portions, as shown at 25, while in the last described form, which is of channel shape in cross section, the flanges 26 of the bow proper receive a filler 27 therebetween, and by forming the filler with a reduced bottom portion providing shoulders the edge portions 28 of the flanges will engage the shoulders so that the outer faces of the flanges will be flush with the face of the filler, the same as in the construction heretofore described and more particularly shown in Fig. 4 of the drawings. While in the aforesaid form the bow and filler are shown of substantially oval cross section, they may be of any other cross section, as for instance, substantially square with rounded edges as shown in the last described form of the invention and gradually rounding to a circular or ovel cross section at the sides. In Fig. 9 of the drawings a filler 29 is shown in which the flanges 26 have their edges exposed but terminate below the top face of the filler so as not to cut or mutilate the cover which is nailed thereto. The filler in either instance is held in the channel-shaped casing of the bow and retained therein while the bow is bent and permanently held thereafter, by securing means passed through the filler and casing, such means in the present instance being shown in the form of rivets 29′ passing transversely through the filler and flanges or sides 26.

In Figs. 10 and 11 of the drawings the blank is shown rolled so that the bow 30 thus produced has its edge portions disposed inward instead of outward as heretofore described. In this manner the edges at the inner side of the bow will be brought together, as shown at 31, and brazed or welded to form a convex bottom portion 32. The filler in this instance is omitted and the top wall 33 of the bow is pierced or stamped in at suitable intervals from the outside to produce lips or burs 34 extending inwardly so that by threading the interior faces of said lips or burs, as shown at 35, the cover can be attached by large headed screws 36, preferably by means of interposed washers 37 to prevent mutilation of the cover.

From the foregoing description in connection with the accompanying drawings it will be seen that I have provided an extremely light but durable bow construction for vehicle tops which, owing to the fact that the same can be enameled or painted at the top portion to accord with the shade of the lining of the cover, will obviate the wrapping of the arch portion of the bow which is now commonly done in connection with bows having wooden arch portions and metallic sockets into which the extremities of the arch portions are fitted, while the side portions of the bows can be painted or enameled in any other desired shade to harmonize with the particular shade or style of body.

It is also here explained that the blanks of cold rolled steel from which the bows are made are of such length as to complete an entire bow so that the same will be formed of one section or piece with a great facility in their manufacture and cost of production, it being understood that the metallic portion or casing of the bow bent to form a tube or otherwise, may vary in cross section to accord with any particular style desired and produced by passing the tubes through forming dies or rolls. Great facility is also attained owing to the fact that cold rolled sheet steel when formed into tubing can be bent or brazed in any desired manner without splitting or cracking, so that the bows will not change their shape after being bent and will stand considerable rough usage.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. An improvement in bow construction comprising a hollow section of metal bent to form an arch portion and vertical sides and open along its outer surface, and a filler adapted to receive fasteners for a covering for the vehicle partially inclosed within said metal section, the edges of said metal overlying said filler.

2. An improvement in bow construction comprising a hollow section of metal bent to form an arch portion and vertical sides and open along its outer surface, and a filler adapted to receive fasteners for a covering for the vehicle partially inclosed within said metal section, and projecting beyond the edges at the open face of said metal section.

3. An improvement in bow construction, comprising a blank section of material formed to provide a continuous all metal bow casing including an arch portion and tapered sides with a filler secured in the casing and bent therewith, said filler extending over the arch portion and partly down into the side portions of the bow and being partly exposed to constitute means for receiving top securing means.

4. An improvement in bow construction, comprising a blank section of material formed to provide a continuous all metal bow casing including an arch portion and tapered sides with a filler held in the casing and bent therewith, said filler being provided with notches cut across the grain thereof at the points of bending whereby steaming or other special process treatment of the filler is obviated, and so secured to the casing of the bow as to constitute anchoring means for top securing tacks.

5. An improvement in bow construction, comprising a blank section of material formed to provide a continuous all metal bow casing including an arch portion and tapered sides with a filler held in the casing and bent therewith, portions of the casing at its edges overlying the filler.

6. As an improved article of manufacture, a bow or like member for vehicle tops constructed of a single blank section of metal with tapered extremities, said blank being rolled to the required cross section and having the edge portions of its tapered extremities brought together and joined, the extremities of the tapered portions being flattened and apertured and having a metallic insert brazed therein to provide a reinforcement.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARTHUR H. STOKES.

Witnesses:

JOHN E. BURCH,

PHILIP D. ROLLHAUS.