F. E. GILBERT.
BOW COUPLING FOR CARRIAGE TOPS.
APPLICATION FILED MAY 12, 1911.

1,019,711. Patented Mar. 5, 1912.

Fig. 1.

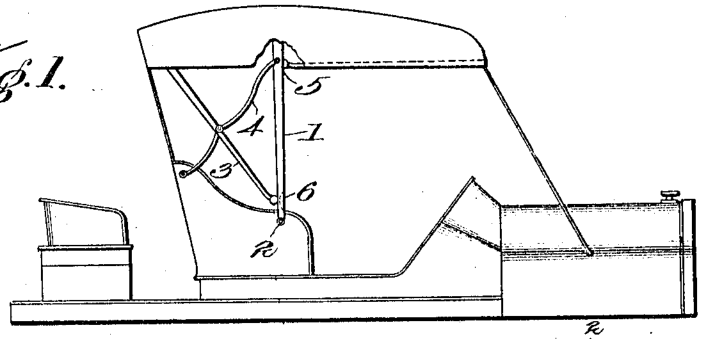


Fig. 2.

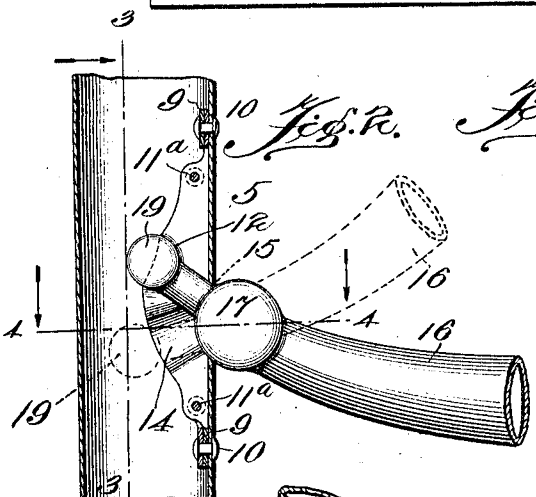
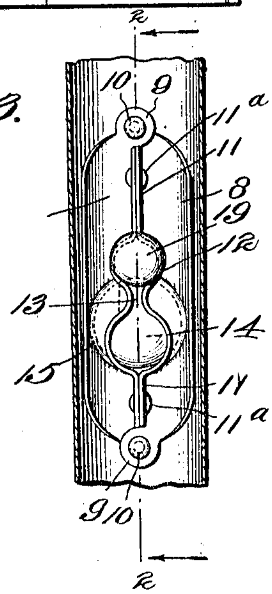


Fig. 3.



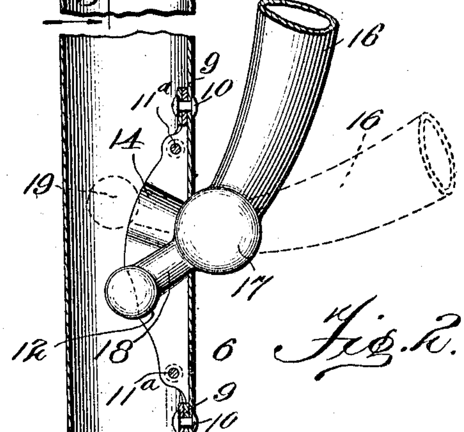
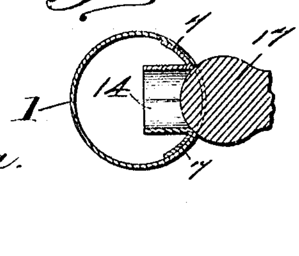


Fig. 2a.

Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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BOW-COUPLING FOR CARRIAGE-TOPS.

1,019,711. Specification of Letters Patent. Patented Mar. 5, 1912.

Application filed May 12, 1911. Serial No. 626,791.

To all whom it may concern:

Be it known that I, FRED E. GILBERT, a citizen of the United States, residing at Jacksonville, in the county of Duval and State of Florida, have invented certain new and useful Improvements in Bow-Couplings for Carriage-Tops; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in couplings for the bows of vehicle tops, and the object of the invention is to provide means for uncoupling a bow from the vehicle frame to allow the frame to be collapsed and folded and recoupling the end of the detached bow in the folded position of the frame so that all of the parts will lie in compact form.

In carrying out the invention the improvements consist broadly in ball and socket couplings and their relation to the carriage frame, in the particular construction shown, the ball and socket coupling consisting of a socket member having a seat of concave formation connected through a slotted neck with a larger opening, adjacent which latter there is a larger concave seat, said opening, restricted neck, and concave seats coöperating with a pair of ball members carried by the end of a bow and separated by a shank, the larger ball member being adapted to seat in the larger concave seat, and the smaller ball member being adapted to be inserted through said opening and sprung into the smaller concave seat for coupling the parts together. The invention is not restricted, however, to the exact details shown and described, still for the purpose of disclosure reference is had to the accompanying drawings illustrating the invention, in which like characters designate the same parts in the several views, and in which—

Figure 1 shows an automobile body with the top in its extended position and the forward bow locked in its upper horizontal position, the position of the upper and lower couplings being illustrated diagrammatically. Fig. 2 is a vertical central sectional view on the line 2—2 of Fig. 3, broken away and showing the position of the forward bow when held locked by its coupling. Fig. 2ª is a similar view taken on the same section line and showing the position of the forward bow when held in its folded position or ready to be detached. Fig. 3 is a vertical sectional view through the top of the standard bow on the line 3—3 of Fig. 2, and Fig. 4 is a cross sectional view on the line 4—4 of Fig. 2.

1 designates the standard bow suitably pivoted to the body of the vehicle, as at 2, and provided with the folding bows 3 and 4 of suitable construction and arrangement and with any preferred means for pivotally connecting the parts together.

5 designates diagrammatically the position for connecting the forward bow with the standard bow when the carriage top is extended, and 6 designates diagrammatically the position for connecting the inner end of the forward bow with the standard bow when the carriage top is to be folded back.

In the following description, while the same refers broadly to the connection between the forward bow and the standard or vertical bow, it will be understood that the coupling hereinafter described may be used with the bows in other positions than forward of the vehicle top, as the invention resides more particularly in the means for connecting the bows of vehicle tops by ball and socket arrangement rather than by a bifurcated attachment with coupling pin.

For simplicity of description the invention is more particularly described with reference to the connection of the inner end of the forward bow with the vertical or standard bow, and at suitable positions at the upper and lower ends of the standard bow 1 are arranged the socket members 5 and 6, respectively. The construction of these socket members being substantially similar the upper socket member only is described, it being understood that the reference characters equally as well apply to the lower socket member, the positions of the socket members, however, being reversed. These socket members are built up of pressed spring steel of proper contour, and in practice it has been found convenient to make them up of two sections consisting of the curved base portions 7 and 8 adapted to fit the inside of the hollow bow and provided with apertured ears 9 for riveting the members securely to the bow, as at 10. Centrally these base portions are bent up to form an inner wall secured face to face at their ends 11 by rivets 11ª, and sprung outwardly and pressed to form the concave seat 12 connected by means of the slotted neck 13 with an enlarged opening 14 of greater diameter than the diameter of the concave seat 12,

and terminating at its outer end in a concave seat 15 of greater diameter than the seat 12 and registering with an opening in the standard bow.

16 designates the bow having the ball member thereon, illustrated in the drawing as the forward bow, and the ball member consists of a large abutment 17 in the form of a ball, of greater diameter than the opening in the bow 1 and seating in the concave seat 15. From this abutment 17 extends the shank 18 on the end of which is the small ball 19 adapted to fit the contour of the concave seat 12.

In operation, assuming that the carriage top is shown in the position in Fig. 1 and it is desired to fold the same back, the inner end of the forward bow is disconnected from the standard bow by elevating the forward bow 16 to the position shown in dotted lines in Fig. 2, the movement causing the slotted neck 13 to enlarge, allowing the ball and shank to pass to the opening 14, when the neck 13 will retract owing to the resiliency of the metal. In this position, shown in dotted lines in Fig. 2 and full lines in Fig. 2ª, the forward bow may be detached, the diameter of the opening 14 being greater than the diameter of the ball 19, and in the folded back position the inner end of the forward bow is passed through the enlarged opening 14, as shown in dotted lines, and is then moved upwardly, the shank 18 passing through the slot, and the ball 19 resting in the concave seat 12.

It will thus be observed that among other advantages there is also provided a coupling which does away with the present cotter pin attachment, which provides an anti-rattle coupling and presents a perfectly smooth surface on the outside with nothing to catch or tear clothing.

Having thus described a practical and preferred embodiment of the invention, the particular features of novelty will now be pointed out more succinctly in the following claims:—

1. In a coupling for carriage bows, the combination of a suitably supported socket member comprising a spaced separable wall of a contour to form a concave seat with a slotted neck leading therefrom to an enlarged opening, and a ball member mounted at the end of a bow, said ball member comprising an abutment, a ball and a shank spacing said ball and abutment apart, and coöperating with said socket member to lock and release the end of the bow, substantially as described.

2. In a coupling for carriage bows, the combination of a suitably supported socket member comprising a wall having a spaced resilient central portion provided on its outer edge with a concave seat, a slotted neck connecting said concave seat with an enlarged opening, said neck and opening extending the depth of said wall, and a ball member mounted at the end of a bow having an abutment, a ball, and a shank spacing said ball and abutment apart, and coöperating with said socket member to lock or release the end of the bow, substantially as described.

3. In a coupling for carriage bows, the combination of a suitably supported socket member comprising a wall having a centrally disposed spaced resilient portion, a concave seat formed on the outer edges of said spaced wall, with a slotted neck portion leading from said concave seat to an enlarged opening, said neck portion and opening extending the full depth of said wall and said opening terminating in a second concave seat of larger diameter than said first seat, and a ball member at the end of a bow comprising an enlarged ball adapted to fit within said second-named seat and provided with a shank member terminating in a smaller ball adapted to fit in said first-named concave seat, whereby the smaller ball may be inserted through said enlarged opening, and the bow swung around causing said spaced wall to spread until said smaller ball is seated and locked in position, substantially as described.

4. In a carriage top, the combination of a hollow standard bow provided with a pair of socket members near its upper and lower ends secured therein in reversed positions, said socket members comprising a centrally spaced resilient wall having concave seats formed at their outer edges and connected by slotted necks with openings having greater diameters than said concave seats, said necks and openings extending the full depth of said walls and said openings registering with apertures in said standard bow, and a detachable bow provided at its end with a ball member comprising a pair of balls of different diameter connected by a shank, the smaller ball being of lesser diameter than said enlarged openings and adapted to fit within said concave seat and the larger ball being of greater diameter than said openings, whereby the smaller ball may be inserted through said openings and the detachable bow swung around for seating said smaller ball and form an interlock between the ball and socket members of the coupling, substantially as described.

In testimony whereof, I affix my signature, in presence of two witnesses.

FRED E. GILBERT.

Witnesses:
W. B. Prevatt,
Margaret Smith