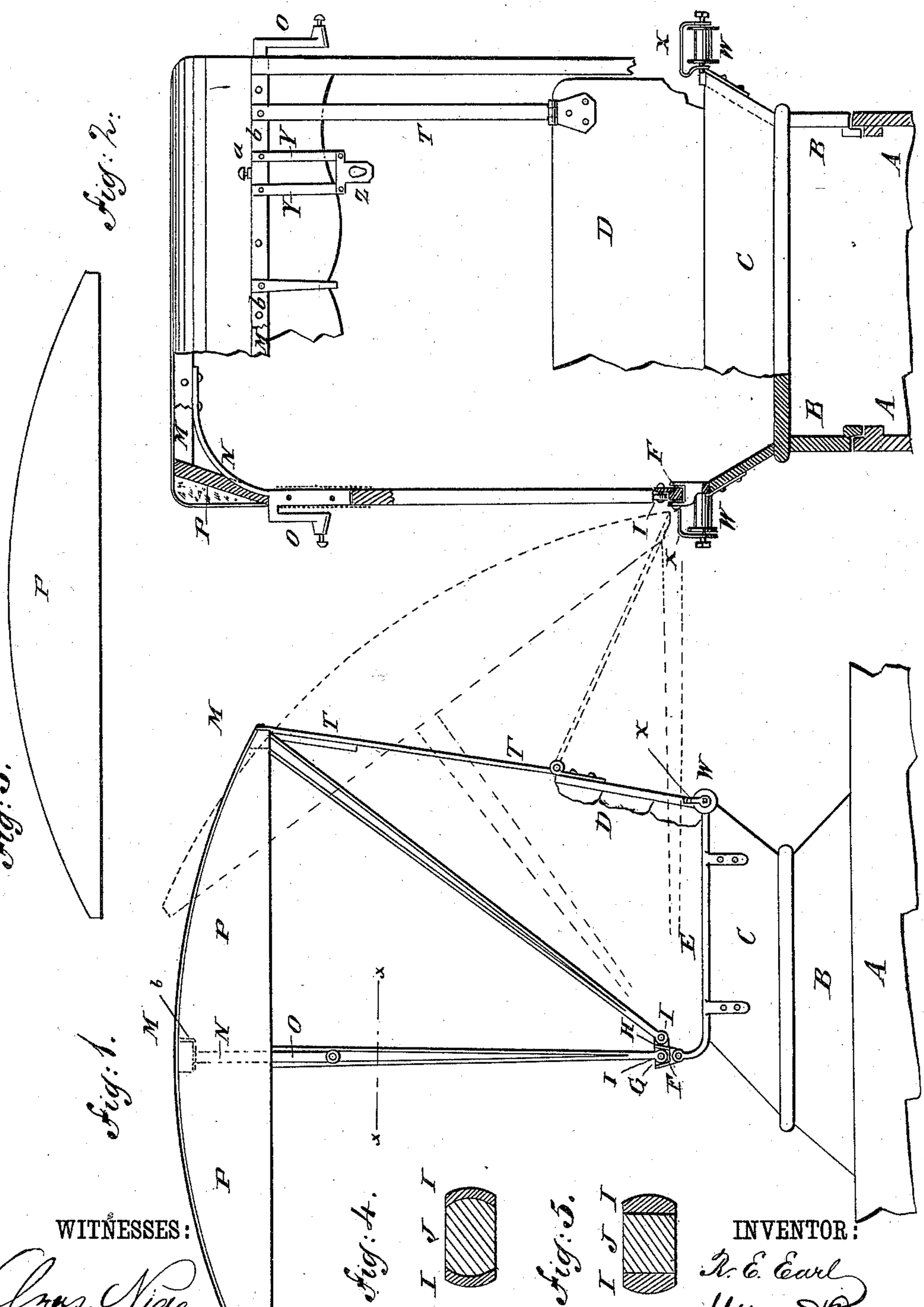
(No Model.) 2 Sheets—Sheet 1.

R. E. EARL.

CARRIAGE TOP.

No. 335,801. Patented Feb. 9, 1886.



WITNESSES:

Chas. Nida.

C. Sedgwick

INVENTOR:

R. E. Earl

BY Munn & Co

ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

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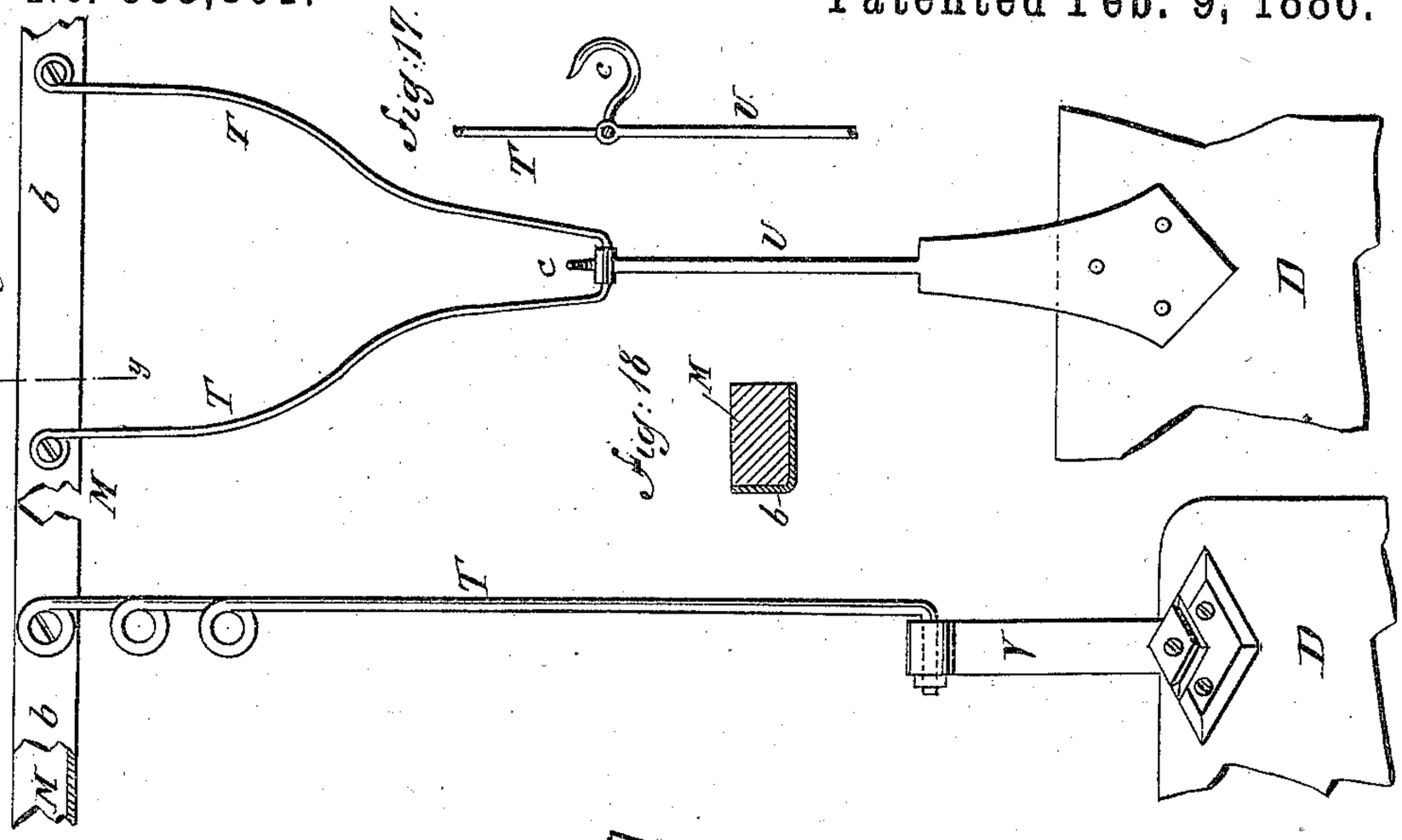

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UNITED STATES PATENT OFFICE.

RASSELAS EXYRIA EARL, OF DUNKIRK, NEW YORK.

CARRIAGE-TOP.

SPECIFICATION forming part of Letters Patent No. 335,801, dated February 9, 1886.

Application filed April 2, 1885. Serial No. 161,023. (No model.)

To all whom it may concern:

Be it known that I, RASSELAS EXYRIA EARL, of Dunkirk, in the county of Chautauqua and State of New York, have invented a new and useful Improvement in Carriage-Tops, of which the following is a full, clear, and exact description.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of a carriage-top to which my improvements have been applied. Fig. 2 is a rear elevation of the same, partly in section and part being broken away. Fig. 3 is a side elevation of the side plate of the top frame. Fig. 4 is a sectional end elevation of one of the bow-arms, taken through the line *x x* of Fig. 1. Fig. 5 is the same section as Fig. 4, but showing a modification in form of the parts. Fig. 6 is a side elevation of a part of one of the bow-arms. Fig. 7 is a side elevation of the lower part of a modified form of one of the bow-arms, the ferrules being shown in section. Fig. 8 is a side elevation of the lower part of a bow-arm, showing a modification. Fig. 9 is a sectional end elevation of a leather bow-cover, showing a coupling for connecting the edges of the said cover. Fig. 10 is the same section as Fig. 9, but showing a modification of the edge-coupling. Fig. 11 is a sectional end elevation of a part of a bow-cover, showing another modification of the edge-coupling. Fig. 12 is a side elevation of the socket-block for the bow-eye. Fig. 13 shows a modification of the hinged top-support. Fig. 14 shows another modification of the hinged top-support. Fig. 15 is a plan view of a clamp for connecting a curtain with a bow. Fig. 16 is a sectional side elevation of the same. Fig. 17 is a side elevation of the rein-holding hook. Fig. 18 is a sectional elevation of the bow and strengthening-plate, taken through the line *y y*, Fig. 14.

The object of this invention is to increase the strength and durability of carriage-tops, and promote convenience in the use of said carriage-tops.

The invention relates to carriage-tops constructed with the bow-arm eyes made of bars bent to form the eyes, and having arms of equal or unequal length. The bow-arms are formed of the eye-bars, having tapered wooden bars inserted between the arms of the said eye-bars and secured in place by wound-wire ferrules. The arms and the tops or middle parts of the bows are connected by braces made in one piece with the drop-prop, and with a space between the lower parts of the said braces and drop-props to receive the bow-arm covers. With the arms, the top parts of the bows, and the braces are connected plates having straight lower edges and curved upper edges, whereby form is given to the top cover and a support is provided for the side stuffing. The curtains are provided with metal clasps for connecting them with their supports. The bow-arm eye is connected with its supporting-bar by a block having a tapered socket to receive the said eye, whereby the bow-arm eye will carry the said socket-block with it as the top is raised and lowered. The lazy-back and the top frame of the carriage-top are connected by a hinged support, whereby the bow-arms, when the carriage-top is turned down, will be supported out of contact with the back prop. With the back prop is connected a spring to support the carriage-top cover out of contact with the said back prop. To the rear end of the top frame of the carriage-top are attached the ends of steel straps, the other ends of which are provided with loops to be passed over knobs attached to the said top frame, when the said straps have been passed around the rolled-up back curtain, whereby the said straps, when released, will be held out of contact with the said back curtain. To the hinged top-support is attached a hook to provide a convenient support for the reins. The edges of the bow-arm covers are securely and neatly connected by a metal coupling. To the top or middle parts of the bows are attached stiffening-plates, whereby the said bows will be held in shape and strengthened, as will be hereinafter fully described and then claimed.

A represents the body, B the seat-riser, C the seat, and D the lazy-back of the seat of an ordinary carriage of any desired style.

To each arm of the seat C is secured a bar or rail, E, the forward end of which is curved upward, and to it is hinged by a bolt or rivet

the lower part of the bow-eye socket-block F.

In the socket-block F is formed a tapered or U-shaped socket, G, to receive the eye of the bow-arm, where it is secured in place by a bolt or rivet, so that the said block will be turned by and with the bow as the top is lowered and raised. When more than one bow are to be used, the eyes of the other bows are inserted in recesses H, formed in the socket-block F, as shown in Fig. 1 and indicated in Fig. 12.

The eye I of each bow-arm can be formed of a bar of iron bent together to form the eye, and welded or otherwise closely connected at the eye. The arms of the eye I can be extended up to the bend or the middle part or section of the bow, and closely connected to form the bow-arm or spread apart, as shown in Fig. 8, to form two bow-arms; or the arms of the eye I can be made of unequal length and inclined from each other to receive the tapered or wedge-shaped end of a wooden bar, J, which forms the body of the bow-arm. In this case the bow-arm at the points where the ends of the eye-arms terminate, or throughout its entire length, is covered with a ferrule, K, made of coiled or plaited wire, as shown in Fig. 6, or of sheet metal, as shown in Fig. 7. The upper end of the bow-arm is connected with the end of the top part, M, of the bow by a curved brace, N, upon which and solid therewith is formed the drop-prop O. The upper end of the brace N is secured to the top part, M, of the bow by nails or screws, and its lower end is secured to the upper end of the bow-arms by nails or rivets, and the connection is strengthened by a ferrule of wound or plaited wire or sheet metal, as hereinbefore described with reference to the eye-arms.

To the upper ends of the bow-arms and the ends of the top parts, M, are attached plates P, of wood, paper, leather, or other suitable material, which plates are made with straight lower edges and with curved upper edges, as shown in Figs. 1 and 3, to give the desired shape to the top. The plates P may be vertical or they may be inclined inward, as shown in Fig. 2, so that when the cover has been drawn over the bows the spaces between the outer sides of the plates P and the said cover can be stuffed with hair or other suitable material, to give the desired fullness to the sides of the top, the said plate forming a support for the said stuffing. The drop-prop O extends downward to the desired point, and is parallel with and at such a distance from the lower part of the brace N as to afford space for applying the covering to the upper part of the bow-arm. The bows are covered with a leather cover, Q, the edges of which are connected by a metal coupling, R. The coupling R can be made in the form of a narrow strip of metal, with its side edges bent inward to receive and clamp the outwardly-bent edges of the cover Q, as shown in Fig. 9; or the coupling R can be made of a strip of metal bent into U shape, so that the edges of the cover Q can be inserted and clamped between its side parts, as shown in Fig. 10; or the coupling can be made of two strips of metal having their inner edges bent, one inward and the other outward, and then hooked upon each other, and their outer edges bent inward to receive and clamp the outwardly-bent edges of the cover Q, as shown in Fig. 11.

If desired, the edges of the curtains C R can be provided with spring-clasps S, to grasp the bow-arms, which clasps can be made of strips of flat metal, as shown in Figs. 15 and 16, or of spring-wire, as may be desired.

T are the flexible spring-braces or top-supports, which may be made of strips of sheet metal, of wire, or of other suitable material, and which are hinged to the lazy-back D, as shown in Figs. 1 and 2, or to rods U or bars V, attached to the said lazy-back, as shown in Figs. 14 and 13. The upper ends of the top-supports T are attached to the rear end of the top frame or to the rear bow, and may be made single, as shown in Figs. 2 and 13, or double, as shown in Fig. 14, as may be desired. The top-supports T can, for convenience, be made with several eyes in their upper ends, to receive the fastening-screws, and can be cut off to the proper length when being applied to a carriage-top. With this construction the carriage-top, when turned back, will be supported out of contact with the back props, W, to prevent the bow-arms from being bent or broken and the cover being worn by the jolting of the said bow-arms upon the said props. In lowering the top it will be seen that the bow-arms move as rigid radii, while the braces or supports T, which are flexible and springing in character, being pivoted about a different center and of shorter radius, are compelled to bend or partially double up as the bow-arms pass them, and when the bow-arms reach the point at which they are to stop, the supports T straighten out and help to sustain the top in this position.

To the back props, W, are attached springs X, of U shape or other suitable form, to hold the top cover out of contact with the said back props, and thus prevent the said cover from being cut, worn, or otherwise injured.

The back curtain, when rolled up, is confined in place by straps Y, attached at one end to the rear bar or bow of the top, and provided at their other ends with loops Z, to be passed over knobs *a*, attached to the said rear bar or bow.

The straps Y are made of steel or other suitable material having sufficient flexibility to be bent around the rolled-up back curtain, and sufficient elasticity and stiffness to cause it to stand out from the curtain when the said curtain is lowered, to prevent the curtain from being worn or otherwise marred or disfigured by contact with the said strap.

The curtain-straps Y can be made double, as shown in Fig. 2, or single, as may be desired.

The middle parts, M, of the bows are stiff-

ened and strengthened by metal plates *b*, bent at right angles in cross-section, as in Fig. 18, to stiffen them, and attached to the said middle parts to keep them in shape and prevent them from being bent or broken.

To the hinged support T is attached a hook, *c*, to serve as a convenient support for the reins when out of the driver's hands or for the suspension of any desired small article.

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

1. In a carriage-top, a bow-arm eye made substantially as herein shown and described, and consisting of a bar bent to form the eye, and having arms of equal or unequal length, as set forth.

2. In a carriage-top, the bow-arms made substantially as herein shown and described, and consisting of the bar I, bent to form the eye, the tapered wooden bar J, interposed between the arms of the eye-bar, and the wire ferrule K, whereby a strong and light bow-arm is produced, as set forth.

3. In a carriage-top, the combination, with the arm and the top or middle part of a bow, of the brace N and the drop-prop O, made in one piece, with a space between their lower parts, as set forth.

4. In a carriage-top, the combination, with the arm and the top part of a bow and the brace N, of the side plate, P, having straight lower edge and a curved upper edge, substantially as herein shown and described, whereby form is given to the top cover and a support is provided for the side stuffing, as set forth.

5. In a carriage-top, the combination, with a curtain, of the clasp S, secured to the curtain upon the inside and adapted to embrace the top-support, substantially as herein shown and described, whereby the said curtain can be readily connected with its support, as set forth.

6. In a carriage-top, the combination, with the lazy-back D and the top frame of the carriage-top, of the spring or elastic hinged support T, substantially as herein shown and described, whereby the bow-arms, when the top is turned down, are supported out of contact with the back prop, as set forth.

7. In a carriage-top, the combination, with the rear end of the top frame, of the steel strap Y, having loop Z and the knob *a*, substantially as herein shown and described, whereby the said strap, when released, will be held out of contact with the back curtain, as set forth.

8. In a carriage-top, the combination, with the solid filling and the edges of the bow-arm cover Q, of the metal coupling R, placed between the cover and the solid filling, substantially as herein shown and described, and formed in two pieces of metal, as shown in Fig. 11, whereby the said edges are securely and neatly connected, as set forth.

9. In a carriage-top, the combination, with the top or middle parts, M, of the bows, of stiffening-plates *b*, bent at right angles in cross-section, substantially as herein shown and described, whereby the said bows will be held in shape and strengthened, as set forth.

RASSELAS EXYRIA EARL.

Witnesses:
JAMES T. GRAHAM,
C. SEDGWICK.