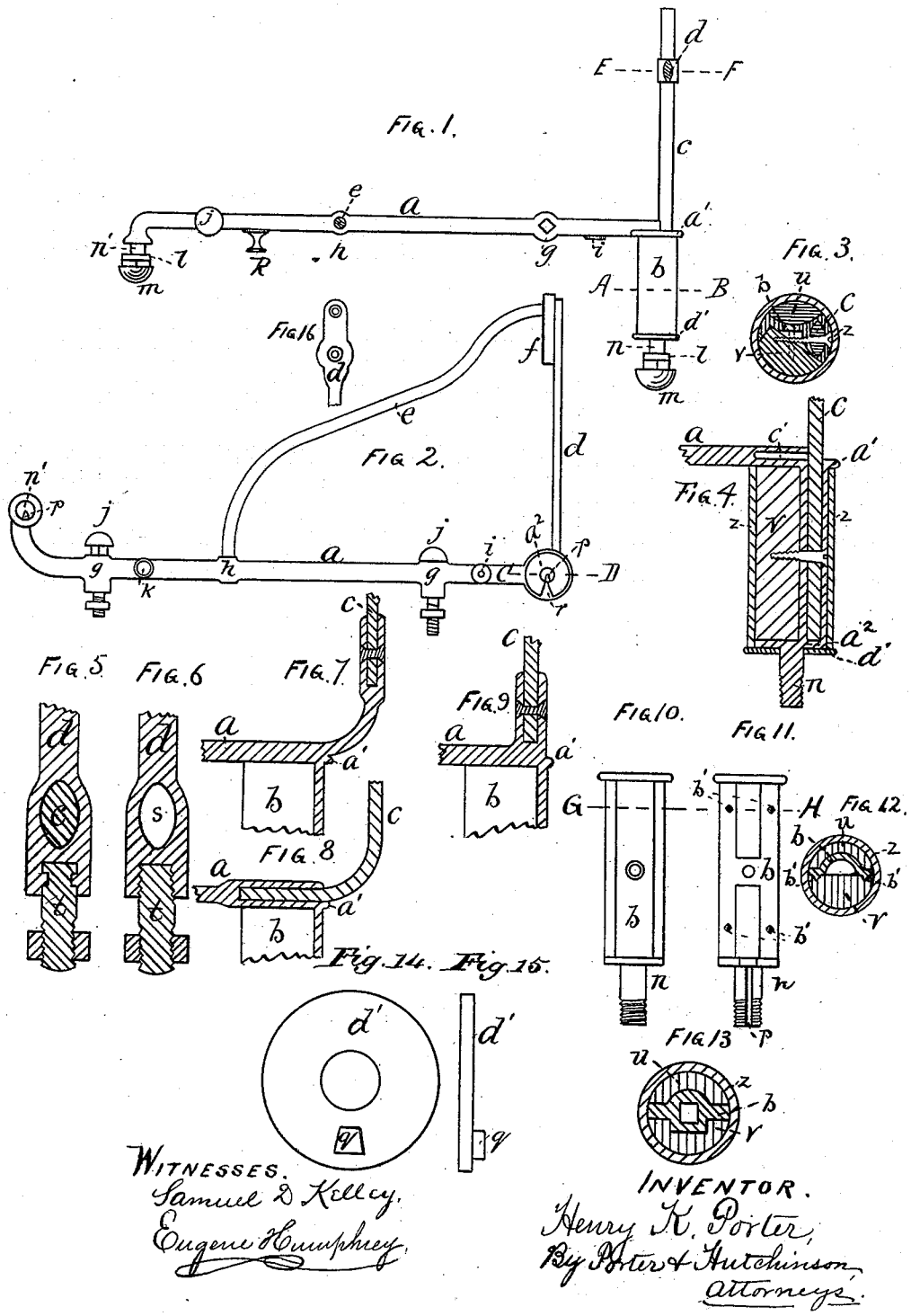
H. K. PORTER.

Carriage Top-Iron.

No. 196,477. Patented Oct. 23, 1877.



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IMPROVEMENT IN CARRIAGE-TOP IRONS.

Specification forming part of Letters Patent No. **196,477**, dated October 23, 1877; application filed March 21, 1877.

To all whom it may concern:

Be it known that I, HENRY K. PORTER, of Boston, State of Massachusetts, have invented Improvements in Carriage-Top Irons, of which the following is a specification:

The object of my invention is to improve the details or constituent parts of top carriage-irons of the kind similar to that for which Letters Patent of the United States were granted to me on the 18th day of November, 1873, and accompanying parts; and the invention consists in the improved arrangement of the hollow bosses by which the rail is bolted in position; in the construction of the rail to receive the arm-stay; in bosses or seats for the curtain-knobs formed upon the rail; in a socketed standard formed to be secured to the rail-holders, to receive the rail through such socket, and to support the backboard; in a socket formed longitudinally in the cast metal, either in the axis of the rail proper, or in the top-joint arm, to receive the wrought-iron extension of the rail; in a seat formed in the top-joint arm, to receive a bow cushion or buffer; in a seat formed in said arm to receive a segment or arc of wood; in forming said arm with two seats therein—one above for an elastic buffer, and one below for a section of wood; in a socketed iron frame removable from said arm, and provided with seats for the wood and buffer; in a stop-washer and slotted collar, by which the washer is held from rotation when acted upon by the top-joints, all as will, by the aid of the accompanying drawings, be herein fully described.

In said drawings, Figure 1 is a top or plan view of the rail, with one knob, *k*, and one bolt, *j*, in position, and one of each omitted, and showing the arm-stay and backboard-prop in section. Fig. 2 is a side elevation, showing the rail with the joint-nuts removed, one knob omitted, and the backboard and one of its supports in position. Fig. 3 is a vertical transverse section of the top-joint arm, taken on line A B, Fig. 1. Fig. 4 is a horizontal longitudinal section of said top-joint arm, taken through the axis thereof on line C D, Fig. 2, and also showing, in section, a recess cored in the axis of the rail. Fig. 5 is a detached vertical section taken on line E F, Fig. 1, showing the back-rail in transverse section, and the lower portion of the backboard-standard in longitudinal section, with the wrought-iron screw-start as secured therein by casting the metal around it. Fig. 6 is a section like Fig. 5, except that it shows said start as secured in the standard by a male and female screw. Fig. 7 is a detached horizontal section taken as on line C D, Fig. 2, but showing the rail formed for a round-corner seat, and the wrought-iron extension inserted in a socket in the axis of that part of the cast-metal rail which extends in the direction of the seat-back. Fig. 8 is a section similar to Fig. 7, except that it shows the wrought-iron extension inserted in a socket formed longitudinally in the cast-metal rail at the junction of the top-joint arm. Fig. 9 is a view similar to Nos. 7 and 8, except that it shows a square-corner rail, and the wrought-iron extension inserted in a socket formed in an extension of the cast rail that extends in the direction and over the seat-back. Fig. 10 is a detached top view of a modification of the metal part of my top-joint arm. Fig. 11 is an under-side view of the same. Fig. 12 is a transverse section of the same, taken on line G H, Figs. 10 and 11, and showing the elastic buffer and wood portion in position. Fig. 13 is also a transverse section of a modification of said arm. Fig. 14 is a side elevation of a modification of my top-iron stop-washer. Fig. 15 is an edge elevation of the same. Fig. 16 is a detached back-side plan view of the upper part of my back-rail and backboard-standard.

Similar letters of reference indicate corresponding parts in the several figures.

In these drawings, *a* represents the rail proper, which is secured to the seat-side by the bolts *j j*, which pass through the hollow bosses *g g*, and also through the irons, which are permanently secured to the seat, and thereby secure the rail in place. *b* is the top-joint arm, which is formed as an integral part of the rail, and upon the pivot *n* of which the lower end of the back top-joint is secured. *c* is a rail of wrought-iron, which is secured in a longitudinal socket formed in the cast metal *a*, as shown, and which extends along the seat-back from side to side of the carriage, uniting the two rails *a*, or it may extend any less desired distance. This back-rail is supported at suitable distances by the standards *d*. Through

the holes *s* (formed in the standards) the rail passes. These standards, formed of malleable iron, have a flattened and widened portion at their upper end, as shown in Fig. 17, which is let into the backboard flush with its back side, and is secured by screws. Its lower end terminates in a wrought-iron stud, *t*, which is secured in the standard by casting the malleable iron around it, as shown in Fig. 5, or by screwing it into the standard, as shown in Fig. 6, or by inserting it in a smooth-bored hole and securing it by a rivet.

e is the arm-stay, the front end of which is secured by riveting, or a screw-nut in the hole in boss *h*, formed in rail *a*, between the bolts *j*, and like the bosses *g*. The upper end of this stay turns inwardly, and is secured to the backboard *f* in the usual manner. The bosses *i* present a circular area in plane, of a size to receive the base of knobs *k*, which thus are assured a firm seat, with greatly-diminished strain upon the pivots—a result unattainable when the rail is formed with an oval cross-section in its entire length, as heretofore.

The cross-section of arm *b*, between collars a^1, or shoulders, and a^2, is shown in Fig. 3. In this arm is formed the seat for the elastic buffer *u*, (shown in said figure,) and the circle is completed by the wood *v*, to which the leather covering *z* may be nailed. A circular collar or shoulders, a^1, is formed upon the rail, and from it the arm *b* extends to the circular collar or shoulders a^2, formed upon the arm, from which the pivot *n* extends, and upon which it is formed. In Figs. 10, 11, 12, this arm is shown with a cross-section varied from that in Fig. 3, the cross-section of the wood *v* being an arc of a circle, and the buffer *u* of such form as may be readily cut from a sheet of proper material, the short spurs, *b'*, formed on the arm serving to hold the wood in position. Fig. 13 also shows a modification of this arm, in that a central passage through the metal admits a small rail-arm to extend through it, while the buffer *u* has the same form as in Fig. 12; but the wood has a longitudinal groove formed in its plane, to receive the projection of the socket, as also to hold the wood in place. In Fig. 4, a cored hole, *c'*, is shown, which is arranged longitudinally in rail *a*, and at right angles to the hole cored in arm *b*, for the reception of back-rail *c*. This hole *c'* is for the purpose of strengthening the rail at this point by preventing "shrinks" in the metal. The collar a^2, or shoulder, which is formed upon arm *b* has a space cut away from its lower edge, as shown in Fig. 2, and marked *r*. The cutting away of this space serves the double purpose of rendering the pivot *n* stronger, and serves as a recess in which the stud or stop *q*, formed on the washer *d'*, (shown in Figs. 1, 15, 16,) engages, and thereby prevents the rotation of this washer by the action of the top-joint eyes, when the top is raised or lowered.

This washer protects the leather covering *z* from wear and abrasion by the action of the top-joints. The cap-nuts *m m* are threaded upon the ends or pivots *n n'* of the rail, in the usual manner.

By forming the bosses *g g* and *h* centrally in relation to the axis of the rail *a*, and also with the diagonal line of the square holes coincident with the axial line of the rail, the strength of the rail is largely increased, as the liability of "shrinks," so called, is avoided, as a greater uniformity of the bulk of metal is thereby secured, and a longer line of subdivision is obtained.

The chamber or passage through the arm *b*, as shown in Figs. 3, 4, and 13, is formed in the act of casting the rail, and by the process known by the term "coring," and the collars or shoulders a^1 and a^2 are in like manner formed by casting, and are integral parts of the casting, and not removable therefrom.

I do not claim, broadly, a top-prop block, for I am aware that various kinds have been patented and used; nor do I claim removable washers or collars, broadly or in the abstract, either of metal or of wood; nor do I claim certain knobs formed as an integral part of the rail; nor do I claim, broadly, a prop-block having a seat for an elastic buffer formed therein.

I claim as my invention—

1. In a cast-metal seat-rail, a chamber or passage formed longitudinally therein, either in the direction of the axis of the rail proper, or in the arm *b*, for the insertion and securing of the rail *c*, substantially in manner as described and shown.

2. In a seat-rail, an arm, *b*, formed as an integral part of such rail, and also formed with a seat or recess in the top side thereof for the reception of an elastic buffer, substantially as described and shown.

3. In a seat-rail, an arm, *b*, formed as an integral part of such rail, and also formed with a seat or recess in the under side thereof, for the reception of a section of wood, substantially as described and shown.

4. In a seat-rail, an arm, *b*, formed as an integral part of such rail, and also formed with a seat or recess in both the upper and under side thereof, for the reception and securing of both an elastic buffer and a section of wood in said recesses, respectively, substantially as described and shown.

5. In a seat-rail having the arm *b* formed as an integral part thereof, a collar or shoulder, a^1, formed at the intersection of such rail and arm, and as a constituent part thereof, substantially as described and shown.

6. In a seat-rail, arm *b*, formed with seats or recesses, substantially as described, the fixed shoulder a^2, formed as a part of said arm, and as a boundary to said recesses or seats, substantially as described and shown.

7. A seat-rail arm or sleeve formed with a metallic frame having a seat therein for an elastic buffer and a section of wood, and also formed with a central passage and the fixed

shoulder a^2, for a boundary of such seats, and through or from which the pivot n extends, all substantially as described and shown.

8. In a seat-rail, the hollow bosses g g, when arranged centrally in relation to the vertical axis of the rail, and having the diagonal line of the square holes in the line of such axis.

9. In a seat-rail, the circular planes or bases i, formed as a constituent part of the rail, and to serve both as a base for the knobs k and a re-enforcement of the rail when the hole for the knob-shank passes through it.

10. The arm-stay boss h, formed centrally in the line of the vertical axis of the rail, and with the diagonal line of the square hole in the line of such axis, substantially as and for the purposes specified.

11. In carriage-top irons, the collar a^2, having a space, r, cut from the periphery thereof, and the washer d', formed with the stop q, to interlock in such space, substantially as described and shown.

12. The back-standard d, formed with a passage or aperture, s, for the back-rail c, a screw-stud, t, and also formed to be attached to the backboard f, substantially as described and shown.

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Witnesses:
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