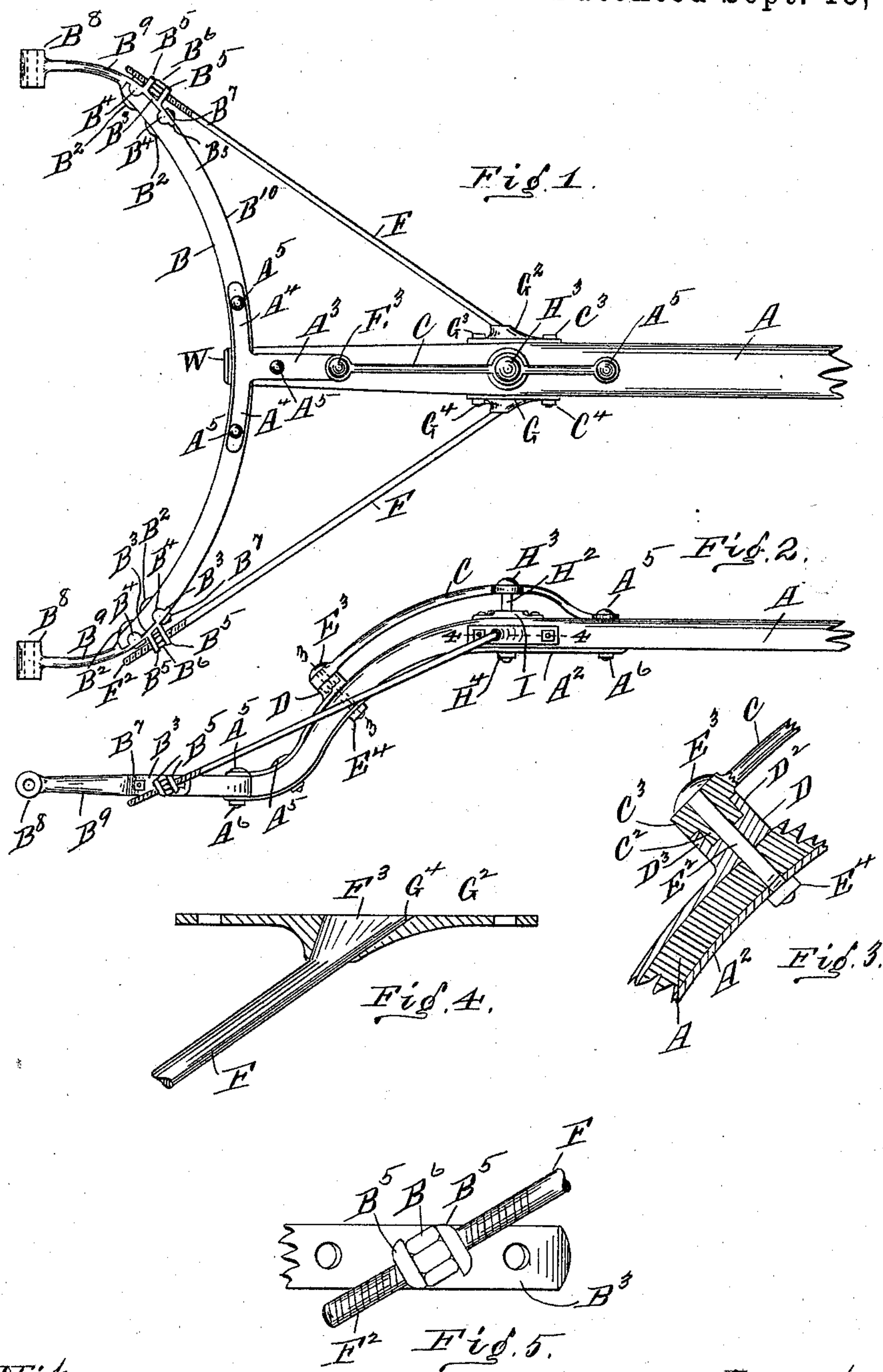


(No Model.)

E. FUNK.
ADJUSTABLE POLE FOR CARRIAGES.

No. 567,707.

Patented Sept. 15, 1896.



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ADJUSTABLE POLE FOR CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 567,707, dated September 15, 1896.

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To all whom it may concern:

Be it known that I, EDWARD FUNK, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Poles for Carriages, of which the following is a specification.

The several features of my invention and the various advantages resulting from their use conjointly or otherwise will be apparent from the following description and claims.

In the accompanying drawings, making a part of this application, and in which similar letters of reference indicate corresponding parts, Figure 1 is a plan view of my invention. Fig. 2 is a side elevation thereof. Fig. 3 is a section through the dotted line 3 3 of Fig. 2. Fig. 4 is a section through the dotted line 4 4 of Fig. 2. Fig. 5 is an enlarged view of the threaded end of the brace, showing how to increase and decrease the length of the brace.

A indicates the pole of the vehicle, B the cross-piece at the rear end of the pole. This cross-piece is united to the pole in any desired manner. The end of the pole is mortised into the cross-piece at W. The cross-piece is preferably further secured to the pole by the well-known metal T-plates, consisting of the T-head A⁴, bolted to the cross-piece by bolts A⁵, and the shank A³, bolted to the pole A by bolts A⁵ and E². The upper of these T-plates lies upon the cross-piece and pole and the lower immediately under said cross-piece and pole. The same bolts A⁵ and E² secure both the upper and lower T-plates to the tongue and cross-piece together in the well-known manner. The cross-tree brace C is present, and is connected at its forward end to the tongue by a bolt A⁵ and at its rear by the bolt E². The under T-plate A³ A⁴ is connected (preferably integrally) to a strap A², extending along the bottom side of the pole A forward to a point immediately beneath the forward end of the cross-tree brace C. At this point the cross-tree brace C and the strap A² and the pole are secured together by the said forward bolt A⁵. Thus far I have only described what is well known and common in the construction of vehicle-poles.

I have provided a novel device for strengthening the cross-tree brace, to wit: On the forward end of the upper T-plate A⁴ A³, I locate

a raised seat D, having a recess D³ in its upper end. The under side of the rear end of the brace C is provided with a downwardly-extending annular portion C², sufficiently diminished in size to fit accurately within the annular recess D³ of the flanged portion D² of the raised seat D. As preferably constructed, the lower end of this annular portion C² bears against the raised seat D and the form of the recess D³, while the upper ends of the upper edge or face of the annular flange D² bears against the under sides of the enlarged terminal portion C³ of the brace C. The portions C³ C² and seat D are centrally perforated, and through these, as well as through the pole A and the strap A², passes a bolt E², having a head E³, and secured tightly in place by a screw-thread preferably engaging the nut E⁴, substantially as shown in Fig. 3. The cross-tree is connected to the pole at the point H³, (see Fig. 2,) the cross-tree lying below the brace C and upon the pole A, or preferably upon the portion I, secured thereto and provided with an annular recess, receiving an annular ring on the under side of the cross-tree, well known in the art of carriage building and needing no further description. Through the brace C, cross-tree, pole, and strap A² passes the cross-tree bolt H², having head H³ and secured by a screw-thread on the bolt, preferably engaging the nut H⁴, substantially as shown in Fig. 2.

The advantages of the feature of my invention just described are obvious, viz: The junction of the interlocking parts C² C³ and raised seat D operate to hold securely the rear end of the braces C and to provide a positive and efficient means for taking the pull of the cross-tree communicated to the braces C. Inasmuch as the interlocking braces C² C³ and D are secured not only to the under T-plates A³ A⁴, but also to the upper T-plate A³ A⁴, the pull upon the braces C from the cross-tree is communicated to the T-plates, and as these are firmly secured in place, the pull is communicated to the cross-brace B and to the vehicle. Thus in an advantageous manner the twisting strain usually brought upon the cross-tree brace H² when the horses are drawing the vehicle through the medium of the cross-tree is substantially obviated by my invention.

The principal feature of my invention consists as follows: At one side of the pole A in the neighborhood of the cross-tree bolt H^3 , I locate the forward end of the brace F, which latter extends backward to near the end of the cross-tree B, substantially as shown in Fig. 1. The forward end of this brace may be secured to the brace in any desired manner, but I prefer to so connect it thereto as to allow of its oscillation at that point to a slight degree. To this end I provide a socketed securing-plate G^2 , having a socket G^4 of a shape to receive the forward end of the brace F. This socket-space may be formed after the plan of the ball and socket of a universal joint, but to the better effectuating the purposes of my invention I prefer to construct the forward end of the brace F in the shape, generally speaking, of a truncated cone, substantially as shown, the forward side of the cone being in alinement with the forward side of the brace. The recess in the securing-plate G^2 for the reception of this enlargement F^3 is of substantially the same shape, so that the recess and the enlarged portion F^3 may closely interfit. The securing-plate G^2 is bolted or otherwise secured to the pole A. The rear end of the brace F is screw-threaded, and its screw-thread engages the nut B^6 , located between two flanges $B^5 B^5$, secured to the brace or securing-plate B^3 . The latter in turn is suitably secured to the cross-brace B, preferably by bolts B^2 , having nuts B^7 , substantially as more particularly shown in Figs. 1 and 2. Inasmuch as the eyes B^8 , respectively constituting the terminals of the cross-piece B, and the means whereby the said cross-piece and pole are connected to the forward portion of the vehicle, the connection between the said eyes and the remainder of the cross-piece is usually of metal, and for this reason I prefer, on the ground of economy and strength, to form the securing-plates B^3 in one with the adjacent portion or connection B^9 . Thus a pull upon the brace F at its forward end will be communicated through the brace to the securing-plate B^3 , and then through brace $B^8 B^9$ to the vehicle. All that portion of the cross-brace B^{10} which lies between the securing-plates B^3 at either side is elastic and preferably of tough elastic wood.

It is well known to those acquainted with the art of carriage building and to those, such as livery-stable men, who are in the habit of using a large number of vehicles, that the places on the vehicle or front axle at which poles are to be connected to said vehicles are not always the same distance apart, but, on the contrary, the variance is as much as six and not infrequently eight inches. Thus a pole which could be of universal use for all descriptions of vehicles would have to be adjustable to that extent.

The feature of my invention last described enables the eyes $B^8 B^8$ to be drawn together or separated the distance of from one to eight inches or more in a satisfactory, safe, and

efficient manner, without straining the cross-brace in any way, and at the same time keeping the holes through eyes B^8 sufficiently in alinement as to enable the bolt from the adjacent clip or eye of the vehicle to be readily passed through the said eye and clip of the vehicle-axle. The manner in which I operate upon the pole to thus secure the desired adjustment is by rotating the nuts B^6 , lying between the flanges $B^5 B^5$. It will be understood that by turning the nuts B^6 in one direction the braces F are shortened, and by turning the nuts B^6 in the other direction the braces F are lengthened. When the braces F are shortened, the latter draw forward the terminal portions of the elastic part B^{10} of the cross-brace and thereby operating to part the eyes B^8 . When the braces are lengthened, the terminal portions of the elastic part B^{10} of the brace are moved backward in relation to the pole A, and the eyes $B^8 B^8$ are therefore approximated. The socket connection between the braces F and the securing-plate G^2 allows of the necessary oscillation of the braces F, as their rear ends are moved apart or inward as the eyes B^8 are spread apart or moved together.

In place of said socket connection the braces F may be connected to the pole or plates G by screw connections, but such mode of uniting them is not as desirable as the socket connection for the reasons stated. For the purpose of preventing the terminal portions of the elastic part B^{10} when made of wood, as I prefer to make it, from splitting, I provide the securing-plate B^3 with cleats or flanges B^4 , which latter overlap the sides of the ends of the part B^{10} and prevent such splitting.

I have described the mechanism on one side. A like construction is found upon the other side of the pole, as shown in Fig. 1. The securing-plates G^2 on opposite sides are preferably secured together, as shown by common bolts passing through them and through the pole. When desired, the braces may be reversed and the annular flange D^2 be located on the brace, and the projection C^2 and the shoulder C^3 be located on the seat D.

The advantages of the several features of my invention are obvious from the foregoing description.

My invention is simple in construction, economical of manufacture and cost, easy of application, and efficient in use.

The pieces F may be variously located to carry out the purpose of moving apart and drawing together the ends of the cross-brace, but I find that the location of these pieces so as to serve as braces, as well as means for moving apart or together and then retaining the cross-brace in this position, is preferable.

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination of a vehicle-pole, and the T-strap A^3 above having the seat D, having annular flange D^2 , and the cross-tree

brace C, having the annular projection C², interlocking with the parts D², and the bolt E³ therethrough, these parts C², D² and E³ being at the rear of the cross-tree bolt, substantially as and for the purposes specified.

2. The combination of the vehicle-pole, the elastic cross-piece, in one piece bowed, each extremity provided with an eye B⁸, and a connecting-iron B⁹ rigidly united to the cross-piece, a pair of ears B⁵, B⁵, integral with the iron B⁹, and the pole A rigidly united to the central portion of the cross-piece, and the pivoted braces F, each pivotally connected to its adjacent side of the pole at a distance forward of the point of junction of the cross-piece with the pole and at the other end passing through the ears B⁵, B⁵, and an adjusting-nut screwed on to the said brace-rod F and located between the ears, substantially as and for the purposes specified.

3. In a vehicle-gear, the combination of the pole and the elastic cross-piece B made separate therefrom and rigidly united thereto, the cross-piece extending out each side of the pole and nearly to the eyes B⁸ and connected with the said eyes by a coupling-iron rigidly connected to the eye and free adjacent end of said brace, and the brace-irons F, F, each

connected to its respective side of the pole and extended down at a wide angle at or near the free end of the cross-piece, with means at that end of the iron F, which is next the cross-piece, for forcibly moving the adjacent end of the brace forward or backward, and holding it in the desired position, substantially as and for the purposes specified.

4. The combination of the pole cross-piece, adjusting-rods connected at one end to the pole in the vicinity of where the cross or whiffle tree is united to the pole, and at the other end to the cross-piece near the terminal eyes thereof, and devices for lengthening and shortening those adjusting-rods, T-plate A⁴, A³, of the pole and cross-bar, the branch A³ having the annular projection D, and the strap C connected at one end to the pivotal connection of the cross or whiffle tree to the pole, and at the other end provided with the annular flange C², received into the seat D, substantially as and for the purposes specified.

EDWARD FUNK.

Attest:

C. J. McDIARMID,
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