

No. 793,294.

PATENTED JUNE 27, 1905.

A. L. GIRARD.
BRACE OR STRUT FOR BICYCLE FRAMES.
APPLICATION FILED AUG. 31, 1904.

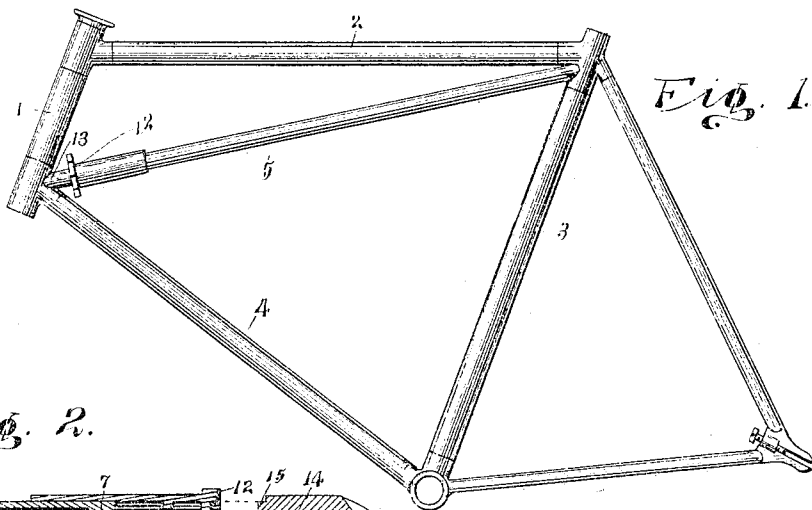


Fig. 2.

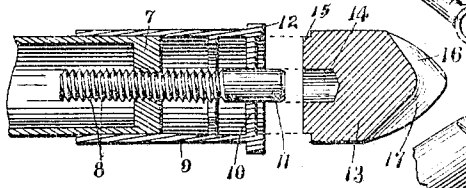


Fig. 3.

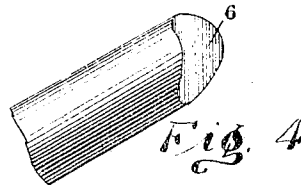
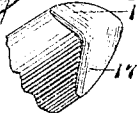
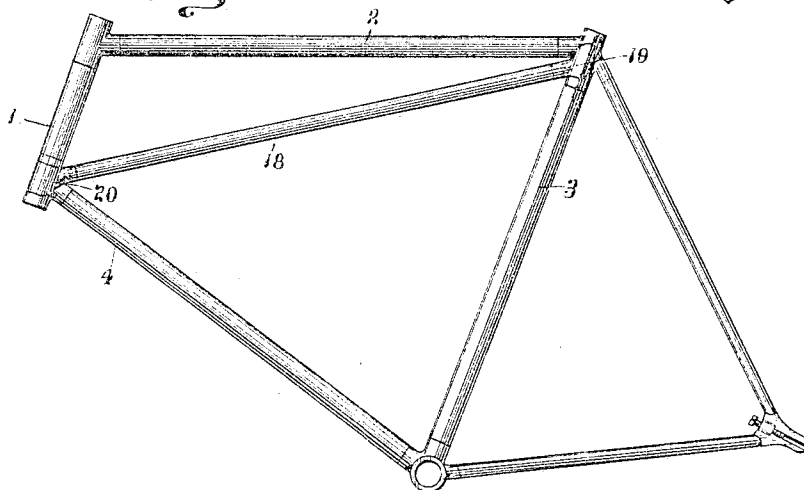


Fig. 5.



Inventor
A. L. Girard

Witnesses
H. A. Robinette.
G. Ayres

BY

Edward M. Weeks

Attorney

UNITED STATES PATENT OFFICE.

ARTHUR L. GIRARD, OF LINCOLN, NEBRASKA.

BRACE OR STRUT FOR BICYCLE-FRAMES.

SPECIFICATION forming part of Letters Patent No. 793,294, dated June 27, 1905.

Application filed August 31, 1904. Serial No. 222,797.

To all whom it may concern:

Be it known that I, ARTHUR L. GIRARD, a citizen of the United States, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented certain new and useful Improvements in Braces or Struts for Bicycle-Frames, of which the following is a specification.

My invention relates to a brace for bicycle-frames; and it consists in the parts, combinations, and arrangements herein described and claimed.

The objects of my invention are to provide a simple, efficient, and inexpensive means for greatly increasing the strength and rigidity of bicycle-frames.

A further object of my invention is to provide a single brace arranged to divide a bicycle-frame into triangular truss members throughout, whereby a maximum of rigidity is obtained.

A further object of my invention is to provide a detachable and adjustable brace for bicycle-frames which can be readily and conveniently attached and adjusted in position.

Referring to the accompanying drawings, forming a part of this application, and in which similar reference-numerals indicate corresponding parts in the several views, Figure 1 is a side elevation illustrating one embodiment of my invention applied to a common form of bicycle-frame. Figs. 2, 3, and 4 are detail views, on an enlarged scale, clearly illustrating the construction of the brace shown in Fig. 1. Fig. 5 is a side elevation illustrating a modification in which the brace is permanently secured by brazing to the bicycle-frame.

Referring especially to Figs. 1, 2, 3, and 4, which illustrate one form of my invention applied to a bicycle-frame comprising the usual head-post 1, top bar 2, seat-post mast 3, and lower bar 4, 5 indicates a tube of somewhat less length than the distance between the junctions of the top bar 2 and seat-post mast 3 and the head-post 1 and lower bar 4, respectively. The rear end of the tube 5 is closed and provided with a curved groove 6, which extends at a proper angle to the axis of the tube to closely engage the seat-post

mast 3 when the brace is properly positioned. The other end of the tube 5 is closed by a screw-threaded portion 7, adapted to engage a screw-bolt 8, carried by an adjustable tube-section 9. The tube-section 9 is arranged to telescopically engage the tube 5 and is provided with a closed end 10, which is rigidly secured to an unthreaded portion 11 of the bolt 8. The bolt portion 11 is constructed to extend somewhat beyond the closed end 10, and said end is formed with an annular shoulder 12, concentric with the portion 11. As shown especially in Fig. 1, the outer periphery of the shoulder 12 may be given a polygonal form to provide a convenient means for engagement by a wrench when it is desired to turn the tube-section 9. A cap-piece 13 is shown provided with a central recess 14, adapted to fit over the bolt portion 11, which extends beyond the end 10, and with an annular recess 15, constructed to fit against the inner periphery of the shoulder 12, whereby said cap-piece can be rotatably and securely supported on the end of the tube-section 9. The outer end of the cap-piece is shown provided with two angularly-arranged grooves 16 and 17, which are constructed to engage, respectively, the lower bar 4 and head-post 1 when the brace is in position.

In the operation of the above-described construction the tube portion 9, carrying the bolt 8, is rotated sufficiently to adjust it along the tube 5 until the brace can be inserted within the frame. The tube portion 9 is then rotated to extend the telescoping tube portions 5 and 9 until the grooves 6, 16, and 17 are forced closely and with any desired pressure against the cooperating members of the bicycle-frame.

Referring especially to Fig. 5, 18 indicates a tube extending between the junctions of the top bar and seat-post mast and of the lower bar and head-post and suitably brazed at 19 and 20 to the frame members at said junctions. This affords a very simple and durable construction, which is especially adaptable where the brace is to be applied during the construction of the bicycle-frame.

I have illustrated herein my preferred construction; but obviously other adjusting and

securing means could be employed within the spirit and scope of my invention.

It will be seen that my adjustable construction provides an extensible brace capable of being applied to various types of bicycle-frames of different sizes and proportions.

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

1. In a bicycle-frame, the combination of the usual front post, seat-post, upper and lower bars, and a rigid adjustable brace extending between the junction of said upper bar and seat-post and the junction of said lower bar and front post, whereby said frame is divided into two rigid triangular truss members lying in a common vertical plane, substantially as described.

2. In a bicycle-frame, the combination of the usual front post, seat-post, upper and lower bars, and a rigid brace extending between the junction of said upper bar and seat-

post and the junction of said lower bar and front post, whereby said frame is divided into two rigid triangular truss members lying in a common vertical plane, said brace provided with end recesses constructed to receive the contiguous members of the bicycle-frame, substantially as described.

3. In a bicycle-brace comprising two telescopic tube-sections, means constructed to adjust the relative positions of said tube-sections, a cap-piece pivotally supported on the end of one of said tube-sections, the end of the other of said tube-sections and of said cap-piece constructed with suitable recesses for receiving members of the bicycle-frame, substantially as described.

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

ARTHUR L. GIRARD.

Witnesses:

FLORENCE MARTIN,
GEO. E. TOBEY