

No. 623,495.

Patented Apr. 18, 1899.

H. L. TREBERT.  
FRAME JOINT.

(Application filed May 9, 1898.)

(No Model.)

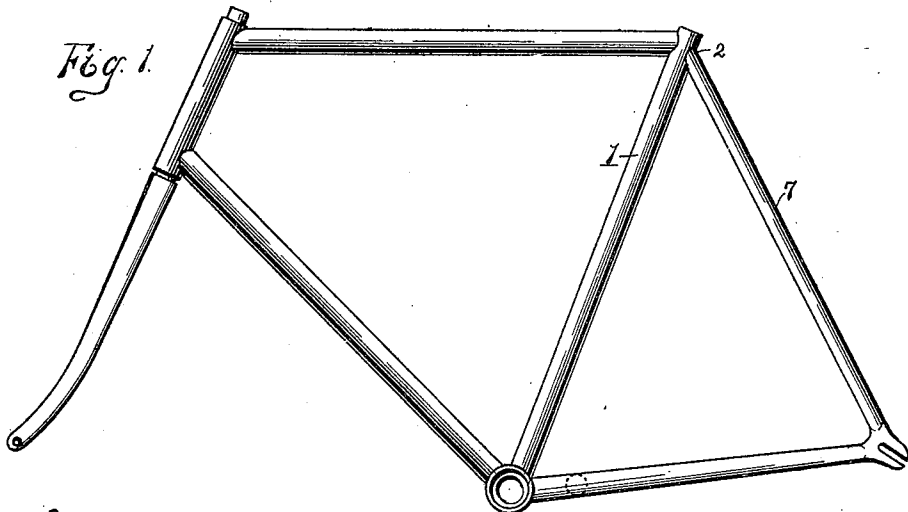


Fig. 2.

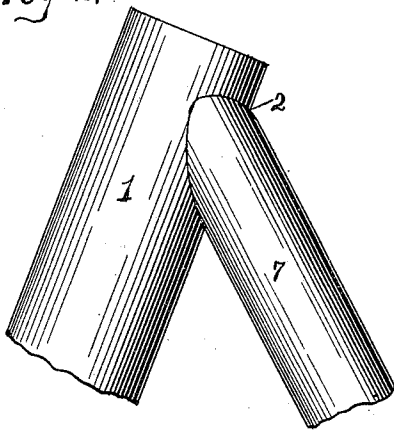


Fig. 6.

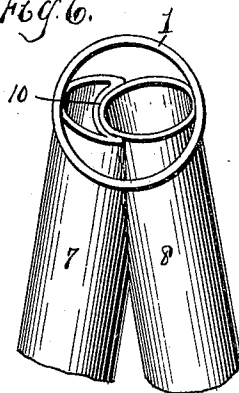


Fig. 3.

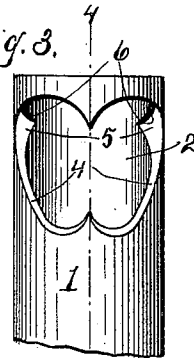


Fig. 7.

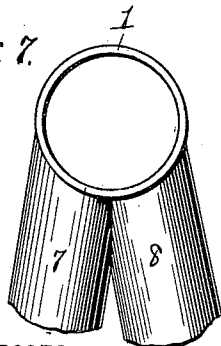


Fig. 4.

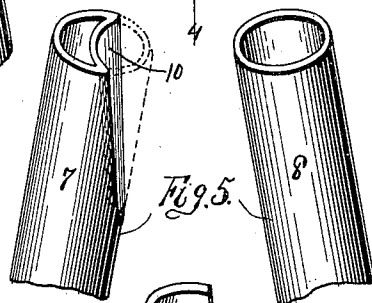
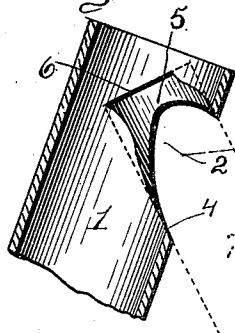


Fig. 8.



WITNESSES:  
*C. Robinson*  
*H. M. Seaman*

INVENTOR.  
*Henry L. Trebert*  
 BY *Alfred Wilkinson*  
 ATTORNEY.

# UNITED STATES PATENT OFFICE.

HENRY L. TREBERT, OF SYRACUSE, NEW YORK, ASSIGNOR TO E. C. STEARNS & CO., OF SAME PLACE.

## FRAME-JOINT.

SPECIFICATION forming part of Letters Patent No. 623,495, dated April 18, 1899.

Application filed May 9, 1898. Serial No. 680,093. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY L. TREBERT, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Frame-Joints, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to a new and improved tube-joint to be used where two tubes are inserted in or secured to a third at or about the same point and at different angles, and is particularly adapted for securing the upper rear forks of a bicycle to the main upright of the frame. These are secured to the main upright tube at its upper end and extend outwardly and downwardly therefrom at an angle to each other, so as to receive between them the rear hub and wheel, and in my invention they are secured thereto by a joint constructed as follows: The upper end of one of these fork sides is compressed inwardly or cut out, so as to form a seat fitted to receive the upper end of the other fork side. Into the rear face of the upper end of the upright is then drilled an aperture of proper size and at a proper angle snugly to receive these upper ends. They are then inserted together, brazed in position, and the upright is milled out on its interior, cutting away portions of the fork sides to receive the seat-post. It will be seen that in cutting the aperture to receive together the upper ends of the fork sides the upright must be drilled at two different angles corresponding each to the angle of outward and downward inclination of one of the fork sides. The result of this is a peculiar double hole, in cutting which a considerable surface of contact is formed in the interior of the upright and shoulders for receiving the ends of the fork sides. The joint so formed is strong, simple, and easy to construct. It is a flush joint without any unsightly projections—such as thimbles, ears, lugs, and bolts—but at the same time easy to braze, there being none of the objectionable interior brazing; but this is all practically on the exterior, so that there is little possibility of careless work and imperfect brazing.

My invention will be better understood by

reference to the accompanying drawings, in which the same reference-numerals indicate the same parts in all the figures.

Figure 1 is a side elevation of a bicycle-frame provided with my invention. Fig. 2 is a portion of the same enlarged, showing the connection between the upright and one of the fork sides. Fig. 3 is a rear elevation of the upper end of the upright, showing the peculiar hole. Fig. 4 is a vertical section on line 4 4 of Fig. 3. Fig. 5 shows the upper ends of the two fork sides, one compressed to receive the other. Fig. 6 is a top plan view of the upright, showing the fork sides inserted therein. Fig. 7 is the same after the interior of the tube has been milled out. Fig. 8 is the upper end of one fork side cut away instead of being compressed to receive the other.

In the figures, 1 indicates the main upright or seat-post truss-tube drilled at 2 with the peculiar double hole of such size and at such an angle as to receive snugly the fork sides as they are inserted together in proper position. This is best shown in Figs. 3 and 4. The double hole being drilled at two angles of inclination corresponding to the respective angles at which the fork sides join the upright, there is formed in the interior of the upright the curved contact-surface 4, gradually widening as the drill cuts away the thickness of the metal on the sides to 5, and at the end of the cut is formed the shoulder 6, against which abuts the upper end of the fork side. In Figs. 5 and 6 are shown the upper ends of these fork sides 7 and 8, the upper end of 7 being inwardly compressed on an incline, so as to form a bed or seat 10 for receiving the end of the other tube 8. The two tubes are then inserted in aperture 2 of the upright and there brazed securely in position, the surfaces 4 4 5 5, shoulders 6 6, and the seat 10 affording considerable brazing-surface. The whole joint is easily brazed, there being no interior corners around which the spelter must pass, but it runs straight into the interior of the upright and for only a short distance, and it can be easily seen when it has passed entirely between the upper end of the fork side 8 and seat 10. After the brazing the

interior of the upright is milled out, cutting away the internally-projecting ends of tubes 7 and 8, and as their ends are not cut off flat or plain the strain is carried around the upright on the same principle as with a fish-mouth reinforcing-piece.

In Fig. 8 is shown a slight modification, in which the upper end of fork side 7 is cut away to receive fork side 8 instead of being compressed. This latter construction, however, I consider inferior, as it does not give as much brazing-surface and the springing of the tubes would be more apt to break them apart.

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

1. In combination in a bicycle-frame joint, the main upright having connecting and downwardly-inclined apertures cut in its rear face near the upper end, said apertures being outwardly inclined from each other, and the upper rear-fork sides fitting said aperture snugly, the upper end of one fork side being compressed to form an inclined channel to receive the upper end of the other.

2. In a bicycle-frame joint, the combination of the main upright having upwardly and inwardly extending connecting-apertures cut

in its rear face, forming contact-surfaces in the interior of the upright gradually and inwardly increasing in surface and terminating with a shoulder on each side, and of the upper rear-fork sides, fitted to each other and to fill said apertures snugly.

3. In a bicycle-frame joint, the combination of the upright drilled on its rearward face with connecting-apertures, each formed at an angle corresponding to the angle of inclination of the corresponding upper rear-fork side to said upright, forming a contact-surface gradually increasing toward the interior of the tube terminating with a shoulder on each side, and in combination therewith the fork sides, the upper end one being internally compressed forming a curved seat at an angle to receive the upper end of the other, the two fitting snugly the double aperture and contact-surfaces of the upright, the portions of the fork sides lying within the inner circumference of the upright being cut away to permit the insertion of the seat-post.

In testimony whereof I have hereunto signed my name.

HENRY L. TREBERT. [L. S.]

Witnesses:

ALFRED WILKINSON,  
H. M. SEAMANS.