No. 646,189. Patented Mar. 27, 1900.

N. E. PARISH.

BICYCLE FRAME.

(Application filed Jan. 22, 1900.)

(No Model.) 2 Sheets—Sheet 1.

FIG. I.

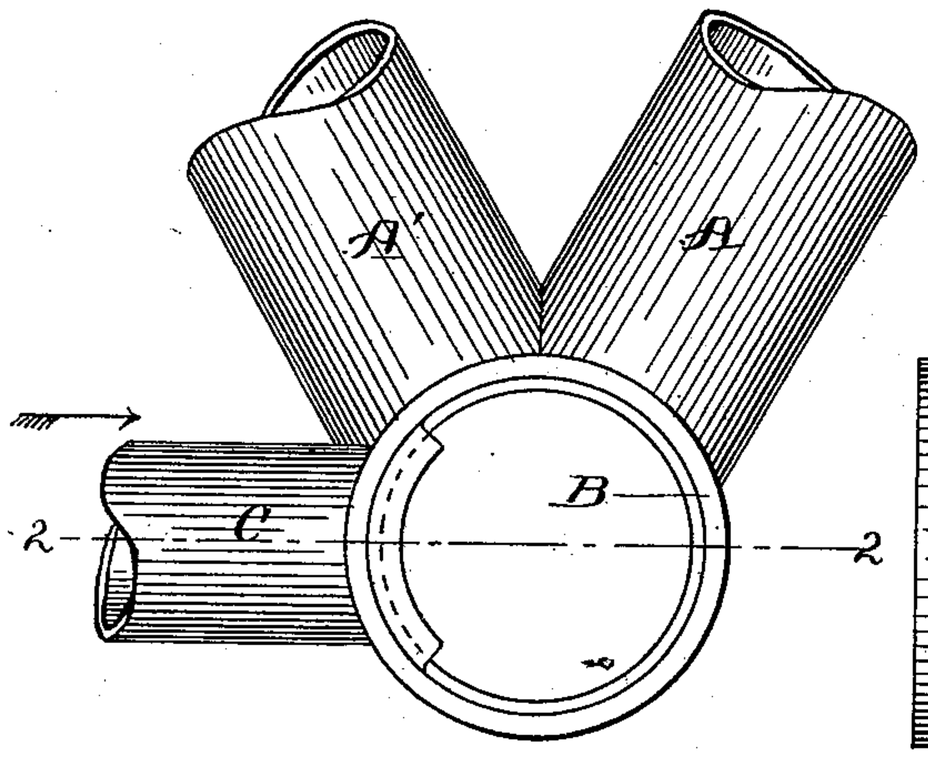


FIG. II.

FIG. IV.

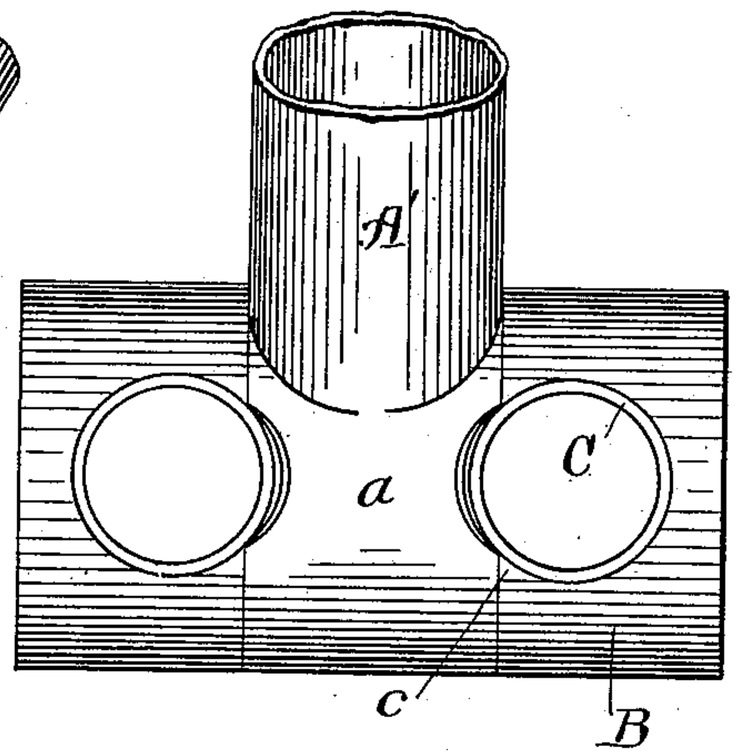
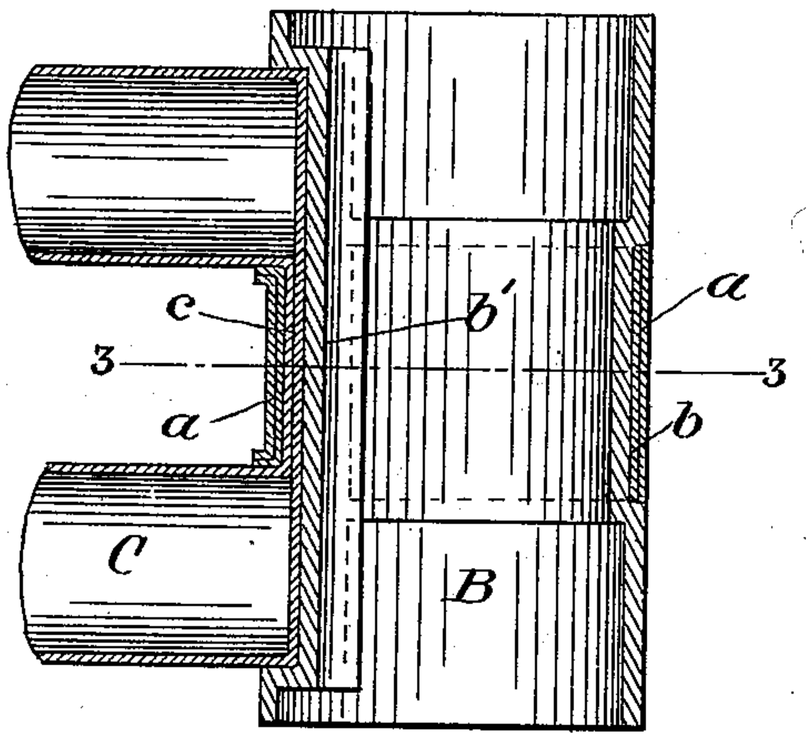
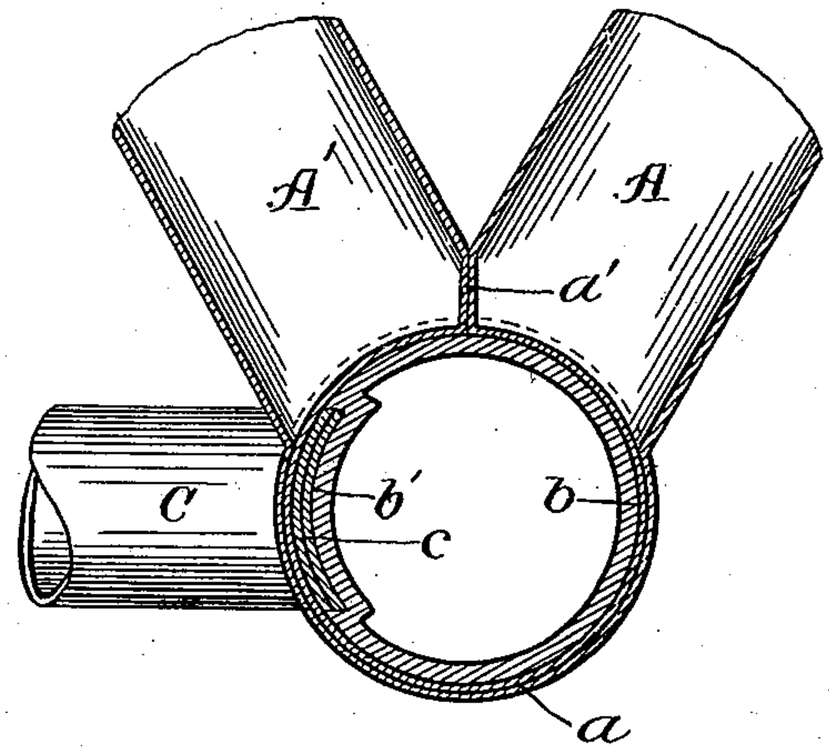


FIG. III.





Witnesses.

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FIG. V.

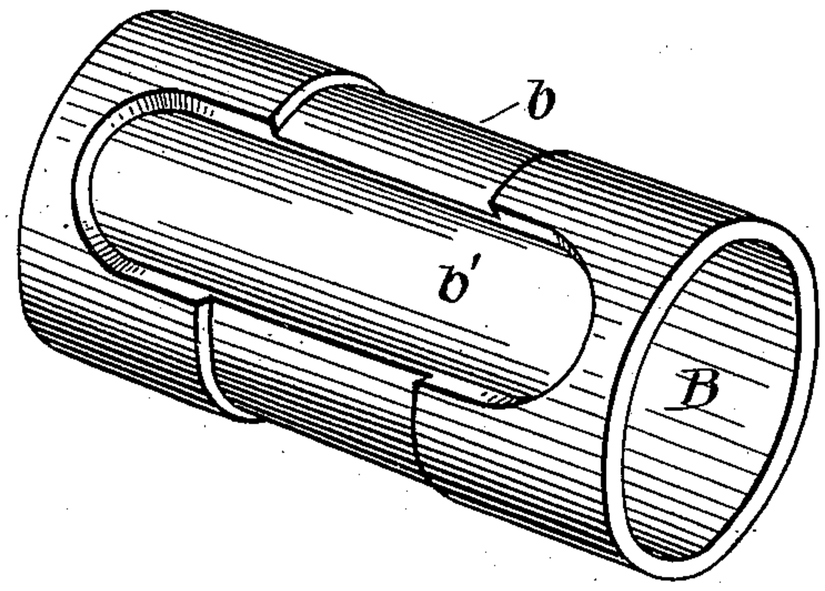
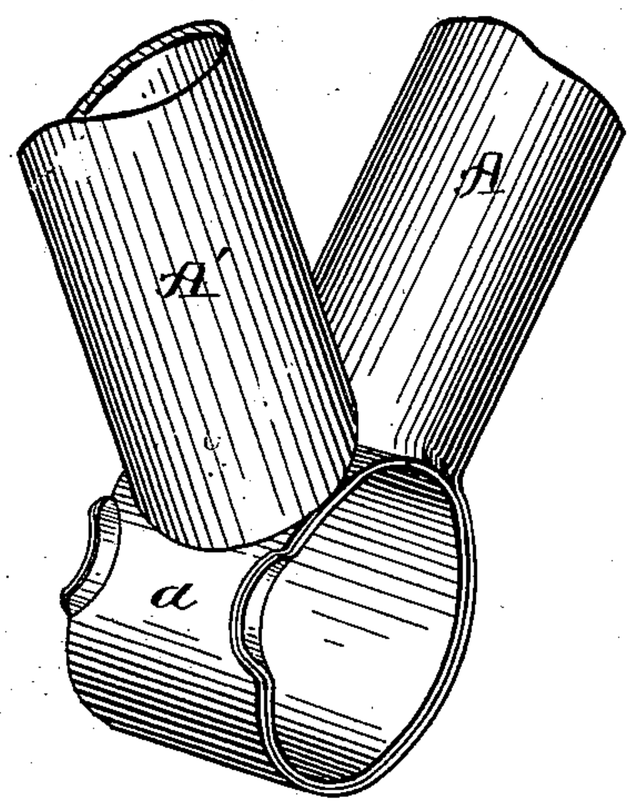


FIG. VI.



Witnesses,
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UNITED STATES PATENT OFFICE.

NEFF E. PARISH, OF CLEVELAND, OHIO.

BICYCLE-FRAME.

SPECIFICATION forming part of Letters Patent No. 646,189, dated March 27, 1900.

Application filed January 22, 1900. Serial No. 2,250. (No model.)

To all whom it may concern:

Be it known that I, NEFF E. PARISH, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Bicycle-Frames, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to bicycle-frames, and has for its object the production of a frame of strength, durability, and economical construction.

Said invention consists of means hereinafter fully described.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawings, Figure I represents a side elevation of a portion of a bicycle-frame embodying my invention. Fig. II represents a section of such portion taken upon line 2 2, Fig. I. Fig. III represents a section of such portion taken upon line 3 3, Fig. II. Fig. IV represents elevation of same viewed as indicated by the arrow shown in Fig. I. Figs. V and VI represent detail perspective views of detailed parts of the frame.

A continuous integral single tube is formed with an intermediate longitudinally-continuous double-walled flattened portion *a* and bent so as to dispose of the two tube portions A and A′, so formed angularly with reference to each other, the one member A constituting the forward reach and the other member A′ the seat-post member of the bicycle-frame. Said flattened portion is bent so as to form a closed loop, Fig. VI, to support the bearing-support at the junction of the two members A and A′ in such a manner that the inner wall of said loop crosses the respective ends of the angular members and the inner walls of the loop meet around the bearing-support. The inner surface of said flattened loop portion is of cylindrical formation, and the inner surface of the loop may coincide with the exterior surface of the bearing-support. The portions *a′* of the outer surfaces of the members A and A′ are caused to be contiguous, being flattened and abutting, as shown in Fig. I.

A crank-hanger tube B is formed with a depression or groove *b*, Fig. V, extending circumferentially upon the outer surface of said tube and located centrally with reference to the extremities thereof. Said groove is of a width equal to that of the loop, of a depth equal to the thickness thereof, and is preferably formed by stamping in a manner such as to avoid reducing the thickness of the tube-shell at the groove. Upon the rear surface of the said tube is formed a transverse depression or groove *b′*, having a cylindrical bottom surface, which terminates within the extremities thereof, as is shown in Fig. II, is depressed below the groove *b*, and has its ends of semicircular contour, as shown in Fig. IV. Said groove *b′* is of a width equal to that of the end of a rear bicycle-fork C, which is shown constructed from a single tube bent to form the two fork members, the joined ends of which are flattened and joined by a flattened portion *c*, Fig. II, consisting of a double thickness of the tube-shell, the end surface of the fork being given a curvature corresponding to that of groove *b′*. The depth of said groove *b′* is made equal to the thickness of said portion *c*, and the semicircular ends given a curvature equal to that of the joined end of the fork members. As is the case of groove *b*, groove *b′* is preferably formed by stamping and in a manner such as to avoid reducing the thickness of the tube-shell.

In assembling the above-described parts to form the crank-hanger joint of the frame, the end of fork C is placed in groove *b′* and securely brazed therein, the outer surface of the joining portion *c* thereby lying flush with the bottom surface of groove *b*. The loop *a* is then passed around the hanger-tube and securely brazed in the groove *b*, thereby securing the portion *c* of the rear fork intermediately of said tube and loop, as shown in Fig. II.

The diameter of groove *b* is such as to permit the two flattened surfaces *a'* to just meet, said two surfaces being also joined by brazing.

It is thus seen that the crank-hanger tube is securely located in the junction of the two members A and A' and the rear fork firmly secured to the joint so formed.

In case the width of the loop is greater than the distance between the two rear-fork members segmental portions are removed from said loop at the portion crossing groove *b'*, as shown in Fig. IV.

The rear fork being formed from a continuous piece of metal tubing it is seen that the construction in such case embodies, as in the case of the forward reach and seat-post members, the combination of two members formed from one continuous piece of integral tubing and a bearing-support located at the junction of said members.

By the phrase "double-walled flattened portion" I do not mean to limit myself to an absolute flat or even surface, as the outer wall need not necessarily be flat nor need the two walls be contiguous or even in juxtaposition.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means covered by any one of the following claims be employed.

I therefore particularly point out and distinctly claim as my invention—

1. In a bicycle-frame, the combination of a bearing-support, with a single tube, said tube consisting of two angularly-arranged portions and an intermediate flattened portion forming a loop to support the bearing-support, in such a manner that the inner wall of said loop crosses the ends of the angular members, substantially as set forth.

2. In a bicycle-frame, the combination of a single tube consisting of two members angularly located relatively to each other, and having an intermediate double-walled flattened portion forming a loop, the inner wall of said loop crossing the ends of the angular members, and a bearing-support located in said loop, substantially as set forth.

3. In a bicycle-frame, the combination of a single tube consisting of two members angularly located relatively to each other, and having an intermediate double-walled flattened portion forming a loop, said double-walled portion longitudinally continuous, the inner wall of said loop crossing the ends of the angular member, and a bearing-support located in said loop, substantially as set forth.

4. In a bicycle-frame, the combination of a bearing-support with a single tube, said tube consisting of two angularly-arranged portions and an intermediate double-walled flattened portion forming a loop, the inner surface of said loop coinciding with the exterior surface of the bearing-support, substantially as set forth.

5. In a bicycle-frame, the combination of a single tube, said tube consisting of two angularly-arranged portions, and an intermediate portion forming a loop to support the bearing-support in such a manner that the inner wall of said loop crosses the ends of the angular members, said inner walls meeting around the bearing-support, and a bearing-support located in said loop, substantially as set forth.

6. In a bicycle-frame, the combination of a continuous tube consisting of two members angularly located relatively to each other, their joining portion forming a bearing-support, a crank-hanger tube located in said support, and a fork secured to said tube intermediately of the latter and said support, substantially as set forth.

7. In a bicycle-frame, the combination of a continuous tube consisting of two members angularly located relatively to each other, having a flattened intermediate portion forming a loop, a crank-hanger tube secured in said loop, and a fork having a flattened portion joining the two members thereof and secured to said tube intermediately of the latter and said loop, substantially as set forth.

8. In a bicycle-frame, the combination of a continuous tube consisting of two members angularly located relatively to each other, having a flattened intermediate portion forming a loop, a crank-hanger formed with a circumferential and a longitudinal depression upon its outer surface, and a fork consisting of two members which are joined by a flattened portion, said loop secured in said circumferential depression and said flattened fork portion secured in said longitudinal depression intermediately of said tube and loop, substantially as set forth.

Signed by me this 20th day of January, 1900.

NEFF E. PARISH.

Attest:

D. T. DAVIES,

A. E. MERKEL.