No. 679,082. Patented July 23, 1901.

E. G. LATTA.

VELOCIPEDE FRAME.

(No Model.) (Application filed Feb. 3, 1900.)

2 Sheets—Sheet 1.

Fig. 1.

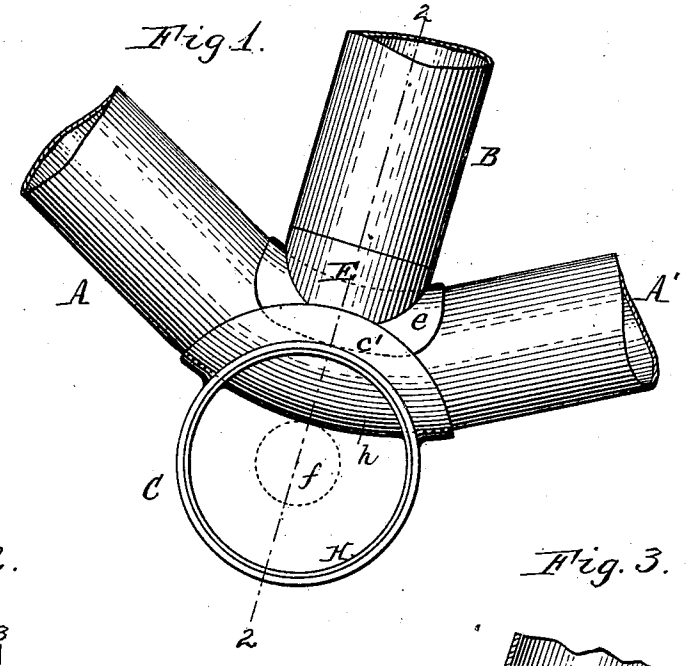


Fig. 2.

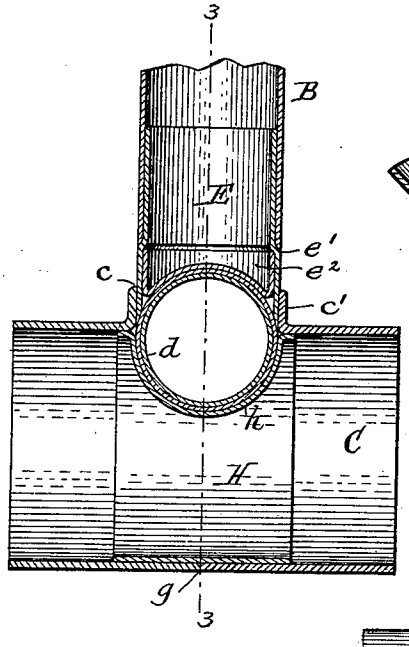


Fig. 3.

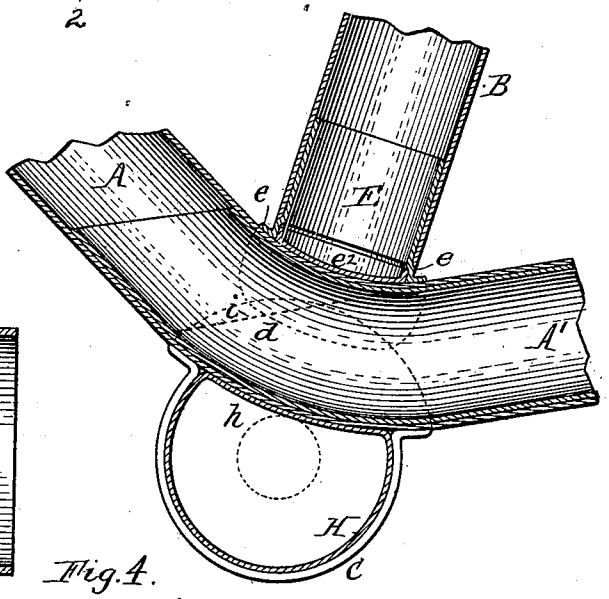
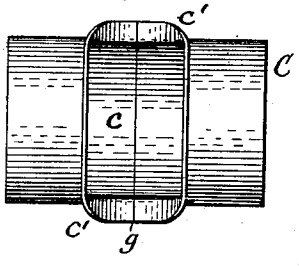


Fig. 4.



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No. 679,082. Patented July 23, 1901.

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VELOCIPEDE FRAME.

(Application filed Feb. 3, 1900.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 5.

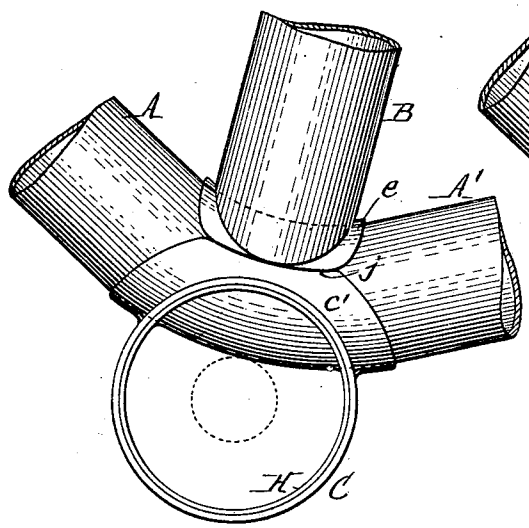


Fig. 6.

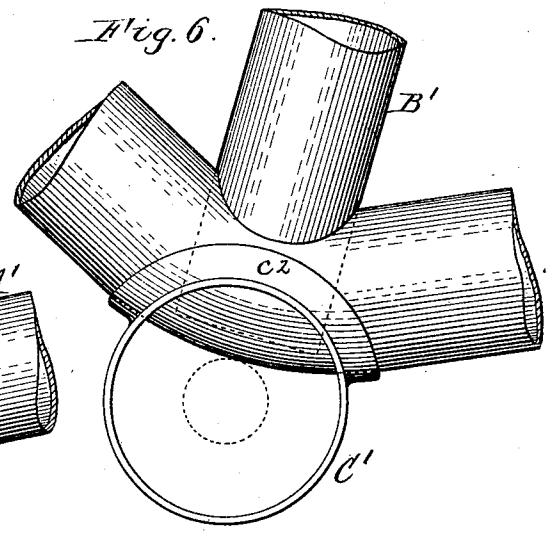


Fig. 8.

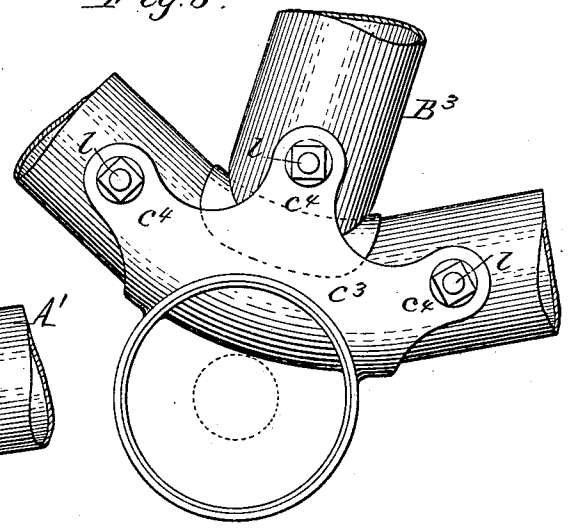
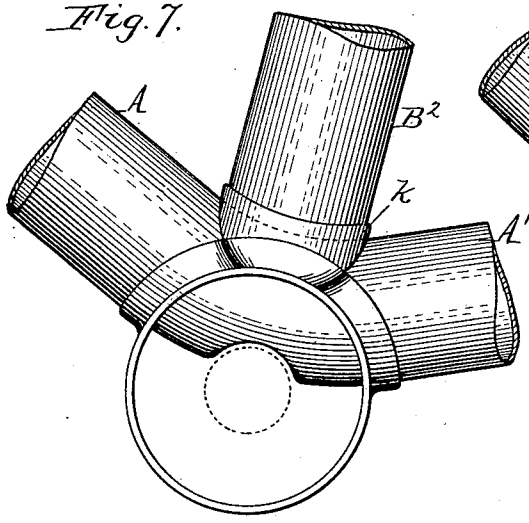


Fig. 7.



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UNITED STATES PATENT OFFICE.

EMMIT G. LATTA, OF FRIENDSHIP, NEW YORK.

VELOCIPEDE-FRAME.

SPECIFICATION forming part of Letters Patent No. 679,082, dated July 23, 1901.

Application filed February 3, 1900. Serial No. 3,780. (No model.)

To all whom it may concern:

Be it known that I, EMMIT G. LATTA, a citizen of the United States, residing at Friendship, in the county of Allegany and State of New York, have invented new and useful Improvements in Velocipede-Frames, of which the following is a specification.

This invention relates to the construction of the crank-shaft hanger and the portion of the velocipede-frame which carries the hanger.

The objects of my invention are to lessen the weight of the frame and the hanger and reduce the number of brazed joints to a minimum, and to so construct these parts that they can be formed of tubing and sheet metal, thereby avoiding the use of more expensive forgings or the less-reliable castings generally employed in crank-shaft hangers.

In the accompanying drawings, consisting of two sheets, Figure 1 is a side elevation of the portion of a bicycle-frame to which the hanger is applied, the usual crank-shaft bearings being omitted and the shaft being indicated by dotted lines. Fig. 2 is a transverse section in line 2 2, Fig. 1. Fig. 3 is a longitudinal section in line 3 3, Fig. 2. Fig. 4 is a detached top plan view of the hanger on a reduced scale. Figs. 5, 6, and 7 are side elevations showing modified constructions of my invention.

Like letters of reference refer to like parts in the several figures.

Referring to the construction shown in Figs. 1, 2, 3, and 4, A is the front portion of the reach member of the velocipede-frame, which extends downwardly and rearwardly from the steering-head, and A′ the rear portion thereof, which extends upwardly and rearwardly from the lower portion of the part A to the crown of the usual rear fork. B is the usual upright tubular member of the frame, connected at its lower end to the lowest portion of the reach, and C is the crank-shaft hanger, located on the frame opposite the upright member B.

The front and rear portions A A′ of the reach preferably consist of a continuous length of tubing which extends from the lower end of the steering-head to the rear-fork crown and which is slightly bent or curved opposite the upright member B. The reach is reinforced at its curved portion and preferably also from that point rearwardly to the rear-fork crown by a tube *d*, fitted closely in the reach, as shown in Figs. 2 and 3. This construction increases the rigidity of those portions of the frame which are subjected to the greatest strains.

The upright member B may be joined to the portion of the reach member by any suitable means or in any desired manner. This connection is preferably effected by a clip, thimble, or nipple E, provided at its lower end with an outwardly-extending flange *e*, which rests upon the reach at the upper or inner side of its curved portion and which is brazed thereto. The lower portion of this thimble is recessed or split to conform to the curved portion of the reach, as shown in Fig. 2. The upright tube member B fits over the thimble E, which latter is provided with an external shoulder *e′*, against which the lower end of said tube member abuts, and the thimble extends upwardly some distance into the tube, so as to serve at the same time as a reinforcement for the same. The joint between this tube and the reach may be still further strengthened by a cup-shaped lining or reinforcement e^2, which fits into the thimble E and rests upon the adjacent portion of the reach. This closed bottom of this lining is indented or curved to fit the reach, and the lining is firmly secured to the reach and the thimble E by brazing at the same time that the other parts are joined.

The crank-shaft hanger C extends across the under side of the curved portion of the reach and is provided centrally in its upper side with a transverse or tangential slot or opening *c*, which is of the proper size to receive the adjacent curved portion of the reach. The hanger is provided along the edge of this opening with a projecting flange *c′*, which laps against the sides and the bottom of the curved portion of the reach and also over the flange of the thimble E and which is secured to these parts by brazing or other suitable means. The opening of the crank-hanger is made of such a depth that the lower side of the reach when seated in the opening is located slightly above the upper side of the crank-shaft *f*, which latter is shown by dotted lines in the drawings. The hanger may be formed of a single piece of tubing; but it preferably consists of two similar sections or short tubes, which are

stamped out of sheet metal and which meet at their inner ends in a transverse joint g, located at the middle of the hanger, as shown in Figs. 3 and 4. Each of these hanger-sections is provided in its upper side at its inner end with one-half of the opening c, so that upon placing the sections against opposite sides of the reach their coinciding half-openings and segmental flanges together form the complete opening c and flange c'. The flanged sections of the divided hanger are identical in construction and require but a single set of dies for their manufacture.

H is a short reinforcing tube or liner arranged in the central portion of the hanger for strengthening the joint between the sections of the hanger and between the hanger and the reach. This liner extends across the transverse joint of the hanger and is provided in its upper side with a transverse depression h, which is shaped to fit the adjacent under side of the reach, as shown in Figs. 2 and 3.

When a long reinforcing-tube d is employed, which extends forwardly beyond the bend or curve of the reach, as shown by full lines in Fig. 3, this tube is inserted in the reach before the latter is curved. If desired, this reinforcing-tube may be shortened by cutting off its front portion upon the oblique dotted line i, (shown in Fig. 3,) in which case the tube can be inserted before bending the reach or at any time before brazing the several parts together. In joining the parts they are placed in position and held in place by pinning or wiring and then brazed in the usual manner. Their connection requires practically but two joints instead of three or four, as in the conventional hanger, and these joints are so near together that they are both heated at the same time, thus effecting an important saving in labor.

The reach is entirely surrounded by the flanged hanger and the upright tube member B, thereby obtaining a large brazing-surface, which forms a strong and rigid joint. As the flanges of the hanger-sections overlap the flange e at the lower end of the upright member B, these parts are rigidly joined by direct contact as well as by the reach to which they are all connected. This construction forms a connection between the reach members A A' and the upright member B which is more rigid than one in which these parts are separately brazed to an ordinary hanger and which is at the same time lighter than such a construction. The two-part hanger, being stamped of sheet metal, is considerably less expensive than the ordinary hanger having projecting lugs for the attachment of the frame-tubes.

The modification of the invention shown in Fig. 5 is substantially like the construction shown in Figs. 1 and 4, the only difference being that the flanges of the hanger and the upright tube member meet in a flush or butt joint j instead of a lap-joint.

In the modified construction shown in Fig. 6 the upright tube member B' has no clip or flange at its lower end, but is simply passed through an opening formed in the upper side of the reach, as indicated by broken lines, and the hanger C' is made of a single piece of tubing provided centrally in its upper side with an oblong slot to receive the reach, and the edges of this slot are turned outwardly to form the attaching-flanges c^2. Fig. 7 shows a similar modification, in which the reach is provided in its upper side with an opening. In this case the opening is bounded by a lip or collar k, forming a socket, which receives the lower end of the upright tube member B^2, and the under side of the reach is indented or notched to clear the crank-shaft and permit a higher location of the shaft and the hanger.

In Fig. 8 is shown another modification similar to Fig. 1. In this case the flanges c^3 of the hanger are extended to form three ears c^4, which are secured to the upright tube member B^3 and the portions of the reach in front and rear of the latter by transverse bolts l, which pass through these frame members and said ears. This construction, although slightly heavier than the foregoing constructions with brazed joints, has the advantage of permitting the frame to be completely finished and enameled before applying the hanger to the same. It also requires less filing to finish the brazed joints and permits the hanger to be fully nickle-plated and completely assembled with the crank-shaft and bearings before going into the hands of the frame-maker.

The crank-shaft bearings, which are not shown in the drawings, form no part of my present invention and may be of any suitable or well-known construction.

I claim as my invention—

1. The combination with a velocipede-reach, of a crank-shaft hanger having in its upper side a transverse opening which receives the lower side of the reach and provided around the entire edge of said opening with an outwardly-extending integral flange which surrounds and incloses the bottom and the sides of the reach, substantially as set forth.

2. In a velocipede-frame, the combination with a crank-shaft hanger provided in its upper side with a central transverse opening arranged tangentially of the hanger, and at the edge of said opening with outwardly-extending integral attaching-flanges, of a reach consisting of a single continuous tube constructed to extend from the steering-head to the rear fork of the frame and having a curved portion which is seated and secured in the tangential opening of the hanger and surrounded by said outwardly-extending flanges, substantially as set forth.

3. The combination with a velocipede-reach, of a crank-shaft hanger applied to the under side of the reach and composed of opposing tubular halves or sections meeting in

a joint arranged transversely of the hanger and each having an opening or recess which receives the under side of the reach and an attaching-flange which laps over the reach, and a reinforcing-lining arranged within the hanger and bearing against the under side of the reach and extending across the meeting edges of the hanger-sections, substantially as set forth.

4. In a velocipede-frame, the combination with a reach consisting of a single central tube having a bent or curved portion, of an upright frame member secured to the upper side of the curved portion of the reach, and a crank-shaft hanger having in its upper side a transverse opening forming a depressed seat in which the lower side of the curved portion of the reach is seated and secured, substantially as set forth.

5. In a velocipede-frame, the combination with a crank-shaft hanger, of a reach which is curved at its junction with the hanger, and an upright frame member connected to the upper side of the curved portion of the reach, the hanger being applied to the under side of said curved portion and provided with attaching-flanges which overlap the sides of the reach and the adjacent lower portion of said upright member, substantially as set forth.

6. In a velocipede-frame, the combination with a reach comprising front and rear members which extend in opposite directions from their junction with the crank-hanger, of an upright member joined to the meeting portions of said reach members and forming with the latter three frame members which radiate from a common center, and a crank-shaft hanger located below said center and provided with an attaching-flange which is connected directly to each of said three frame members, substantially as set forth.

7. The combination with a reach, of an upright frame member, a clip or thimble connecting said tube with the reach and provided at its lower end with an attaching-flange which laps over the upper side of the reach, and a crank-shaft hanger applied to the under side of the reach opposite said upright member and provided with an attaching-flange which overlaps the sides of the reach and the flange of said connecting-thimble, substantially as set forth.

8. In a velocipede-frame, the combination with a reach and an adjoining frame member arranged at an angle thereto, of a clip or thimble connecting said tube with the reach, and a cup-shaped reinforcement arranged in said thimble and provided with a concave bottom which bears against the upper side of the reach, substantially as set forth.

9. In a velocipede-frame, the combination with an upright tube, of a central continuous reach having a curved portion which passes under the lower end of said tube and is united thereto, a crank-shaft hanger provided in its upper side with a tangential opening which receives the curved portion of the reach, a reinforcement arranged in the portion of the reach seated in the hanger-opening, and a second reinforcement arranged in the hanger and bearing against the under side of the reach, said several adjoining parts being united by brazing, substantially as set forth.

10. The combination with a reach consisting of a continuous tube, of a crank-shaft hanger having in its upper side a transverse opening in which the lower side of said reach is seated, a reinforce in said hanger having in its upper side a depressed seat alined with said opening and in which the reach is seated, and a frame-tube secured to the upper side of the reach, substantially as set forth.

Witness my hand this 31st day of January, 1900.

EMMIT G. LATTA.

Witnesses:
CHAS. J. RICE,
H. L. BLOSSOM.