

No. 648,937.

Patented May 8, 1900.

W. H. FAUBER.
ECCENTRIC CRANK HANGER.
(Application filed Oct. 17, 1898.)

(No Model.)

Fig 1

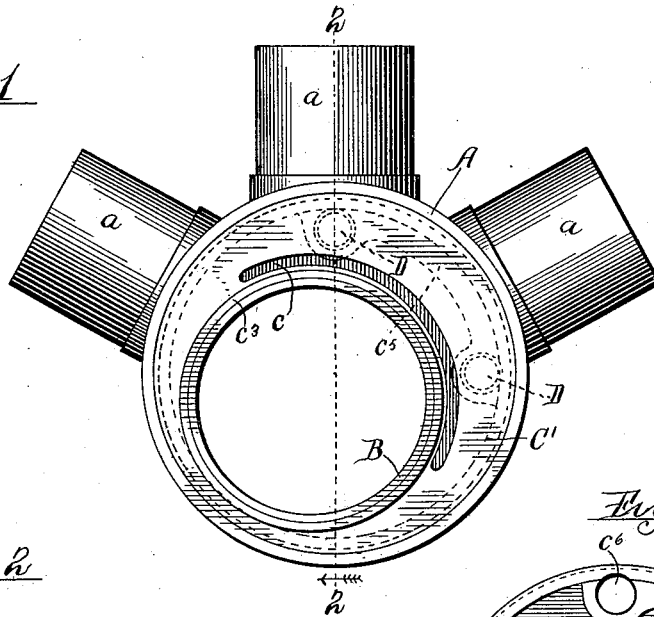


Fig 2

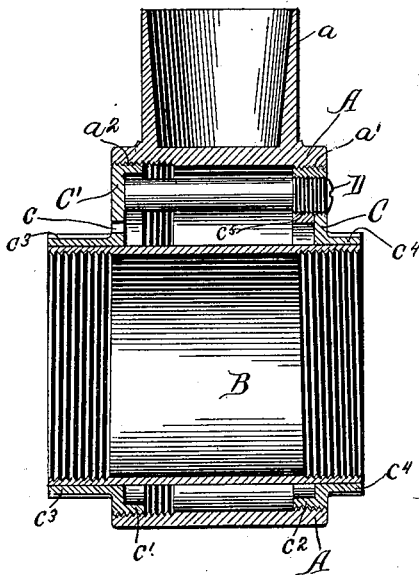


Fig 3

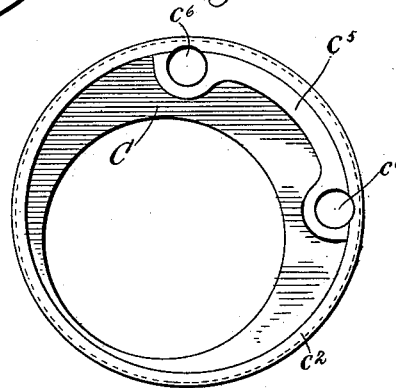
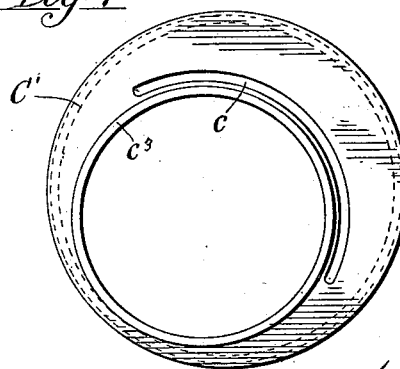


Fig 4



Witnesses
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WILLIAM H. FAUBER, OF CHICAGO, ILLINOIS.

ECCENTRIC CRANK-HANGER.

SPECIFICATION forming part of Letters Patent No. 648,937, dated May 8, 1900.

Application filed October 17, 1898. Serial No. 693,757. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. FAUBER, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Eccentric Crank-Hangers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improved construction in eccentric crank-shaft hangers for bicycle-frames, or those in which an eccentric sleeve or bushing, which supports the outer members of a crank-shaft bearing, is mounted in the crank-hanger sleeve or tube in order to provide means for shifting the crank-shaft with respect to the machine-frame, and to thereby afford adjustment of the driving-chain without disturbing the attachment of the rear wheels to the frame.

The invention consists in the matters hereinafter described, and pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a view in side elevation of an eccentric bicycle-hanger embodying my invention. Fig. 2 is a cross-sectional view thereof, taken on line 2 2 of Fig. 1. Fig. 3 is a view in elevation of one of the eccentric heads or flanges, showing the inner face thereof. Fig. 4 is a view of the other one of said heads or flanges, showing the exterior face thereof.

As illustrated in said drawings, A indicates a tubular bracket or hanger-sleeve which is provided with the usual lugs or thimbles *a a a* for the attachment of the hanger to the converging frame members of a bicycle.

B indicates an inner eccentric sleeve or bushing in which the external annular bearing members or cups of the shaft-bearings are secured, and C C' indicate two heads or flanges attached to the eccentric sleeve B and engaged at their outer edges with the hanger-sleeve A.

When the sleeve B, with its attached eccentric heads or flanges, is turned within the hanger-sleeve A, the said sleeve B, together with the bearing and shaft supported therein, are moved backwardly or forwardly, thereby

affording a means of shifting the position of the crank-shaft with respect to the wheel-axle and giving the desired adjustment of the tension of the driving-chain.

For the purpose of adjustably securing the eccentric sleeve B and its flanges within the hanger-sleeve A devices are provided as follows: The said hanger-sleeve A is provided at its opposite ends with screw-threaded portions *a' a'*, both of which are screw threaded and of which the part *a'* is smaller in diameter than the part *a*. The heads C C' are made of different sizes to correspond with the screw-threaded portions of the hanger-sleeve and are externally screw-threaded to engage the screw-threaded parts *a' a'* of the said hanger-sleeve. The smaller flange or head—in this instance the head C—is of such external diameter as to easily pass through the hanger-sleeve, the result of this construction being that the eccentric sleeve B, with both flanges thereon, may be thrust through the hanger-sleeve and engage therewith by turning the eccentric sleeve and flanges until both flanges are in engagement with the screw-threaded portions *a' a'* of the hanger-sleeve and the eccentric sleeve is brought into proper position within the hanger-sleeve.

As an improved means of constructing the eccentric sleeve B and its flanges or heads, the latter are provided with openings to receive the ends of said eccentric sleeve, which are inserted through said openings and fit closely therein. The eccentric sleeve is preferably made longer than the hanger-sleeve and extends at its ends past the outer faces of the heads. The heads C C' thus constructed are secured to the eccentric sleeve in any suitable manner, preferably by brazing.

As a means of clamping the eccentric sleeve and its heads or flanges within the hanger-sleeve, so as to prevent rotation of the eccentric sleeve after the same has been properly adjusted, I provide one or more set-screws D in position to act upon the opposite flanges, and thereby force the same apart or draw them together with the result of binding them within the screw-threaded parts of the hanger-sleeve, and thereby holding the eccentric sleeve from rotation. As herein shown, two set-screws D are employed, and said set-

screws are provided with screw-threaded parts which engage screw-threaded apertures in the head C and are adapted to bear against the inner face of the head C'. When the set-screws D thus constructed are tightened within the heads C, their opposite ends are forced against the head C', and the heads are thereby forced apart in a manner to clamp them rigidly within the hanger-sleeve. To facilitate this clamping action of the parts, I provide in one or both the heads, preferably the head C', a curved slot c^3 , which is located adjacent to the eccentric sleeve and has the effect of giving greater flexibility to the part of the head C' exterior to said slot and which is engaged or acted upon by the set-screws D.

The heads C C' are preferably formed of drawn sheet metal and consist of flat main parts having oppositely-directed flanges which are formed thereon by the drawing operation. The external flanges c^2 c^3 engage the hanger-sleeve, while the inner flanges c^4 c^5 , which surround the openings in the heads, extend outwardly to the ends of the eccentric sleeve, the extended area of contact between the said flanges and the sleeve affording means for securing strong brazed joints between the parts. When constructed of sheet metal, it will usually be desirable to reinforce the metal head C in its parts through which the set-screws D are inserted. Such reinforcement of the metal of the head may be conveniently provided by the employment of a segmental piece of metal c^4 , which is secured by brazing to the inner face of the head in contact with the outer flange c^2 thereof and through which are bored two holes c^5 to receive the said set-screws. The latter are shown as made without heads and without any projection outside of their screw-threaded parts, so that their outer surfaces are flush, or nearly so, with the face of the head through which they are inserted.

One advantage of a device made as described is that it may be very easily and cheaply constructed, the two flanges or heads C C' being of such simple form as to be easily made, while the brazed joints between the said heads or flanges and the eccentric sleeve are easily and cheaply made and are at the same time very light in weight. A special advantage is gained by making the two flanges or heads C C' of different sizes or diameters and providing the hanger-sleeve with screw-threaded parts of corresponding diameter, for the reason that this construction not only affords a secure means of holding the eccentric sleeve within the hanger, but greatly facilitates the assembling of the parts, for the reason that both heads may be engaged at once with the screw-threaded parts of the hanger-sleeve in the act of inserting the eccentric sleeve, while liability of crossing the threads in inserting the eccentric sleeve is entirely avoided.

A further important advantage arising from the making of the hanger-sleeve with

screw-threads at both ends to engage the heads of the eccentric sleeve arises from the fact that employment of such screw-threads greatly lessens liability of imperfect fitting of the parts by the workman who does the final assembling of the machine. This will be better understood by the consideration of the fact that when a hanger-sleeve furnished by a manufacturer in readiness to receive the shaft-bearings is heated for the purpose of brazing the frame-tubes thereto the sleeve is often warped, while the spelter used in brazing is liable to find its way into the interior of the sleeve. After the brazing operation, therefore, the sleeve must be cleaned out before the parts can be assembled, and if the hanger be made with a smooth interior surface or without screw-threads a careless or unskilful workman will frequently attempt to remove the spelter or restore the interior surface to its cylindric form by the use of a file, with the result usually that the sleeve is filed out of true and the bearing members when inserted therein are thrown out of line or inaccurately located. When the sleeve is screw-threaded, however, a tap is necessarily used to make true the screw-threads and to remove the spelter therefrom, in which case accurate fitting of the bearing members must necessarily result. A special advantage arises from the making of the screw-threads of different diameters at opposite ends of the sleeve, for the reason that in this construction not only is the use of a tap necessary in finishing the parts for the brazing operation, but liability of crossing the threads in inserting the tap is avoided, by reason of the fact that the tap is engaged by the threads at both ends of the hanger and the threads cannot be crossed even if the work be done by workmen of little skill and experience.

The holding or clamping device illustrated also constitutes an important improvement from the fact that it is exceedingly simple in character and is therefore cheap to construct, while at the same time it affords a means of strongly securing and rigidly clamping or holding in place the eccentric sleeve and its attached parts. The set-screws arranged to engage one of the heads and to bear at their inner ends against the other head have the advantage of leaving entirely smooth one of the heads and of having no projecting parts at the opposite head.

I claim as my invention—

1. The combination with a hanger-sleeve attached to the frame members of an eccentric sleeve having two heads which have screw-threaded engagement with the hanger-sleeve, said heads being made separate from the eccentric sleeve, and secured thereto by means of apertures in which the ends of the eccentric sleeve are inserted and secured.

2. The combination with a hanger-sleeve provided at its ends with screw-threaded parts of different diameters, of an eccentric sleeve to receive the shaft-bearings, said eccentric

sleeve being provided with heads which are made of different diameters to fit the screw-threaded parts of the said hanger-sleeve.

3. The combination with a hanger-sleeve
5 having screw-threaded parts of different diameters at its ends, of two eccentric apertured heads, one of which is smaller than the other and which are provided with screw-threads to engage those in the sleeve, and an
10 eccentric sleeve fitting at its ends in openings in the heads.

4. The combination with a hanger-sleeve, provided at its ends with screw-threaded parts, of an eccentric sleeve to receive the
15 shaft-bearings, said eccentric sleeve being provided with heads to engage the said screw-threaded parts of the hanger-sleeve, and one or more set-screws engaging both heads for clamping the latter within the hanger-sleeve.

20 5. The combination with a hanger-sleeve provided with screw-threads, of an eccentric

sleeve to receive the shaft-bearings, provided with heads which are screw-threaded to engage the hanger-sleeve, one of said heads being provided with a slot, and a set screw or
25 screws engaging the heads and acting on the slotted head at a point or points exterior to the slot therein.

6. The combination with a hanger-sleeve provided with screw-threads, of an eccentric
30 sleeve provided with heads which are screw-threaded to engage the hanger-sleeve, and a set screw or screws passing through one of said heads and bearing against the other head.

In testimony that I claim the foregoing as
35 my invention I affix my signature, in presence of two witnesses, this 24th day of September, A. D. 1898.

WILLIAM H. FAUBER.

Witnesses:

WILLIAM L. HALL,
CHARLES W. HILLS.