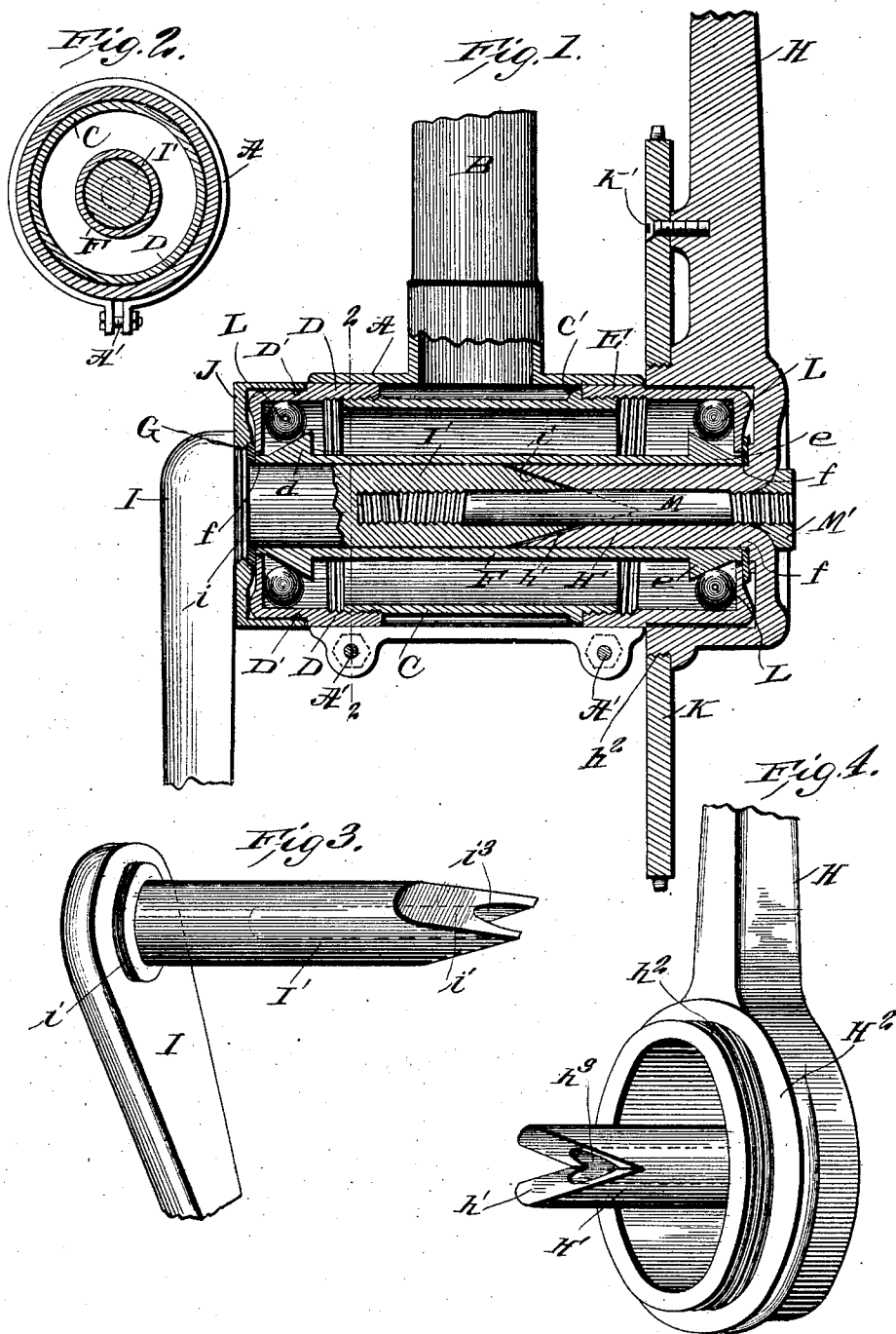


No. 846,239.

PATENTED MAR. 5, 1907.

F. M. OSBORNE.
CRANK HANGER.

APPLICATION FILED DEC. 6, 1906.



WITNESSES
E. M. Callaghan,
Perry B. Furpin.

INVENTOR
FRANK M. OSBORNE
BY *Munn & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

FRANK M. OSBORNE, OF ANACONDA, MONTANA.

CRANK-HANGER.

No. 846,239.

Specification of Letters Patent.

Patented March 5, 1907.

Application filed December 6, 1906. Serial No. 346,572.

To all whom it may concern:

Be it known that I, FRANK M. OSBORNE, a citizen of the United States, and a resident of Anaconda, in the county of Deerlodge and State of Montana, have invented certain new and useful Improvements in Crank-Hangers, of which the following is a specification.

This invention is an improvement in crank-hangers for bicycles, and consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a vertical cross-section of the hanger. Fig. 2 is a transverse section on about the line 2 2 of Fig. 1. Fig. 3 is a detail perspective view of one of the crank-arms and its shaft-section, and Fig. 4 is a detail perspective view of the other crank-arm and its shaft-section.

In carrying out my invention it will be noticed, especially from Fig. 1, that the sprocket-wheel pulls between the bearings, and from the following description it will be noticed that the cranks can be conveniently removed when desired without disturbing all of the parts of the hanger.

As shown, I employ a bracket A in the form of a split sleeve connected at its upper side with the seat-post B and split at its lower side and connected at such side by binding-bolts A'. This sleeve A embraces the opposite ball-cups, and when the bolts A' are tightened the bracket will clamp the said cups and secure them from turning movement. The ball-cups D and E screw at their inner ends upon the opposite ends of the adjusting-tube C, said tube being threaded externally at its opposite ends and provided with a limiting-shoulder C' at the inner end of one of its threaded portions. This shoulder C' is abutted by the ball-cup E when the latter is screwed home and limits the movement of the said cup along the tube C. The other cup D may be turned upon the tube C in securing the desired adjustment of the cups to hold the balls in proper relation to the cones d and e at the opposite ends of the cone-sleeve F, as shown in Fig. 1. The cone-sleeve F is provided at its ends with short cylindrical portions f, projecting beyond the cones d and e, the inwardly-projecting end flanges of the cups D and E fitting over the cylindrical portions, so that the joint between the cone-sleeve and the end flanges of the cups will be covered by the washers G when the latter are applied, as

shown in Fig. 1 of the drawings. These washers G turn with the cranks H and I, fitting at their inner edges snugly around the shaft-sections H' and I' and overlapping at their inner sides the joints between the cups and the cone-sleeve, thus operating to prevent the ingress of dust and making the hanger practically dustproof. These washers G may be preferably of felt; but other suitable well-known packing material may be used when desired, and when the washers are arranged as shown they will be durable and efficient and may be conveniently renewed whenever worn, because of the ease with which the cranks can be removed, as presently described.

The crank I has a shaft-section I', and at the outer end of said shaft-section I provide the threaded portion i, receiving the dust-cap J, which is screwed on with a left-hand thread, so that its revolution with the crank I upon the ball-cup D will not have a tendency to loosen the threaded connection of the cap J with its crank-arm. This dust-cap J encircles the outer end of the ball-cup D and operates to protect such cup. This ball-cup D is provided in its outer side with sockets D' to receive a spanner-wrench in screwing the cup on and off. The crank H is provided, surrounding its shaft-section H', with a dust-cap H², which fits over the ball-cup E and projects at its inner end to a point inside of the right bearing, and is provided at its inner end with right-hand threads at h², receiving the sprocket-wheel K, as shown in Fig. 1, so the turning of the crank H in operating the bicycle will not tend to loosen the said sprocket-wheel K, which latter is secured by the lock-screw K', as shown in Fig. 1. Suitable balls L are provided within their cups and bear on the cones of the cone-sleeve, as shown.

The shaft-sections H' and I' project inwardly toward each other within the cone-sleeve and interlock at their inner ends by means of the tapered ends i' of one section fitting in the tapered recess h' of the other section, and such ends of the sections are bored longitudinally at i³ and h³, the bore i³ receiving the connecting-bolt M, whose inner end is threaded into the bore or socket i³ and whose outer end projecting beyond the outer end of the crank H is threaded to receive the nut M', by which the shaft-sections H' and I' are securely held together. This construction forms a very simple crank-hanger, from which dust will be excluded and in which the

cranks can be readily removed by simply turning off the nut M' and pulling the shaft-sections of the cranks apart, as will be understood from Fig. 1 of the drawing.

5 I claim—

1. The combination substantially as herein described, of the cranks having inwardly-projecting shaft-sections, one of which has its end tapered, and the other of which has a
10 tapered recess to receive said end, such shaft-sections being bored longitudinally and one of the sections having its bore threaded, and the bore of the other section extending entirely through the same to the outer side of
15 its crank, and one of the cranks having at the outer end of its shaft-section a threaded portion and a dust-cap screwed thereon, and the other crank having a dust-cap encircling its shaft-section, and a sprocket-wheel on the
20 inner end thereof, the bolt connecting the shaft-sections and screwed at one end into the threaded socket of one of said sections and projecting at its other end outwardly beyond the outer side of the other shaft-section, and
25 threaded at said end, a nut on such end of the bolt, a cone-sleeve encircling the shaft-sections, and provided at its ends with cones and with cylindrical portions projecting outwardly beyond the same, the adjusting-tube
30 encircling the cone-sleeve, the ball-cups

threaded at their inner ends on the adjusting-sleeve and provided at their outer ends with the inwardly-projecting end flanges fitting around the cylindrical end portions of the cone-sleeve, the balls within said cup 35 bearing on the cones of the sleeve, packing-washers turning with the cranks and fitting on the shaft-sections thereon and lapping the joints between the end flanges of the ball-cups and the cylindrical portions of the cone-sleeve, and the bracket consisting of a split 40 sleeve encircling the opposite ball-cups, and provided with binding-bolts whereby to be tightened thereon, substantially as and for the purposes set forth.

2. The combination in a crank-hanger, of the cone-sleeve having the cones and the end portions projecting beyond the same, the ball-cups with the end flanges fitting at their inner edges on said end extensions, the cranks 50 having the shaft-sections, and the packing-washers fitting over the shaft-sections and overlapping the joints between the ends of the cups and the end extensions of the cone-sleeve, substantially as and for the purposes 55 set forth.

FRANK M. OSBORNE.

Witnesses:

JOHN W. JAMES,
SUSIE STEWART.