(No Model.)

W. R. BELL.

CRANK HANGER FOR BICYCLES.

No. 587,384. Patented Aug. 3, 1897.

Fig. 1.

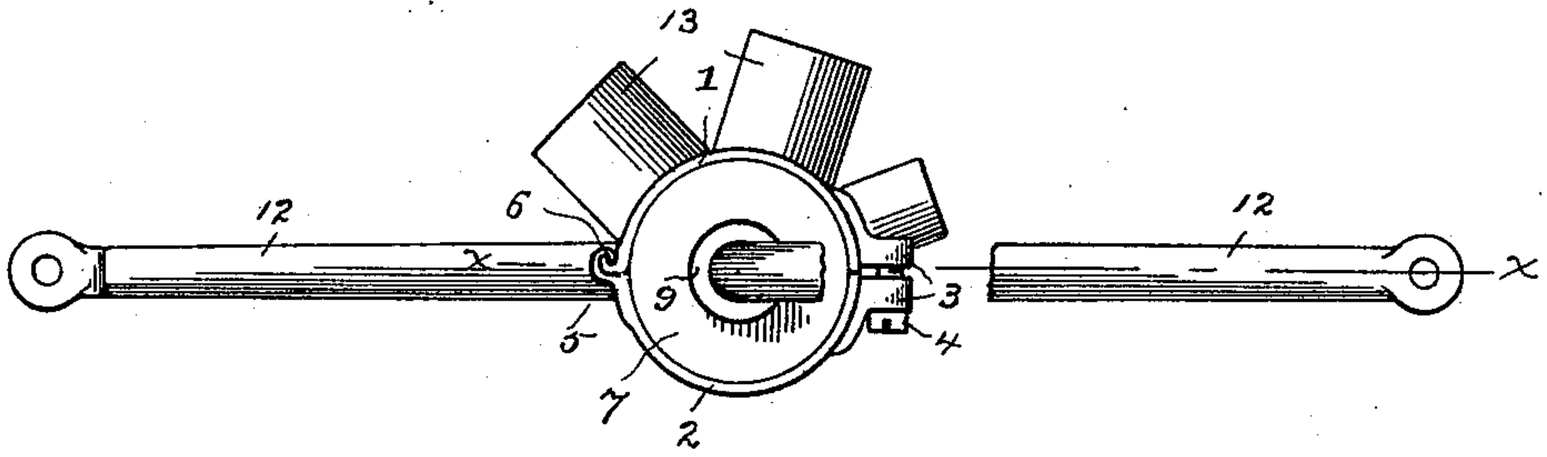
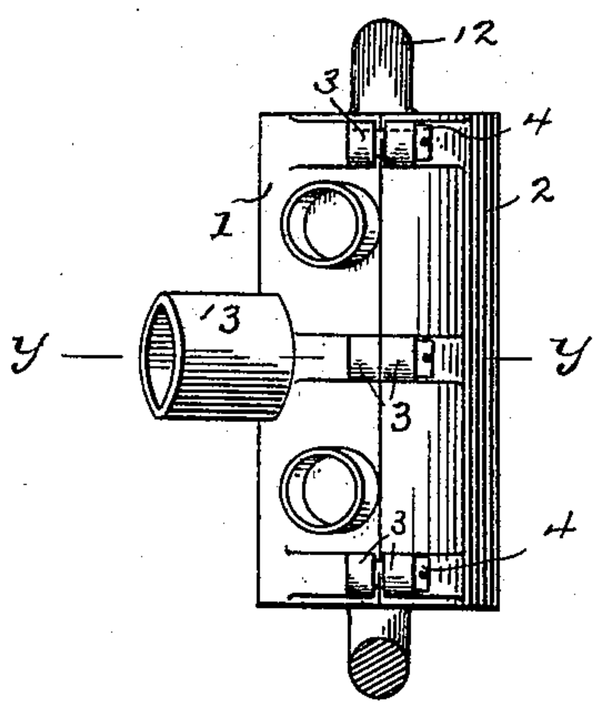


Fig. 2.

Fig. 3.



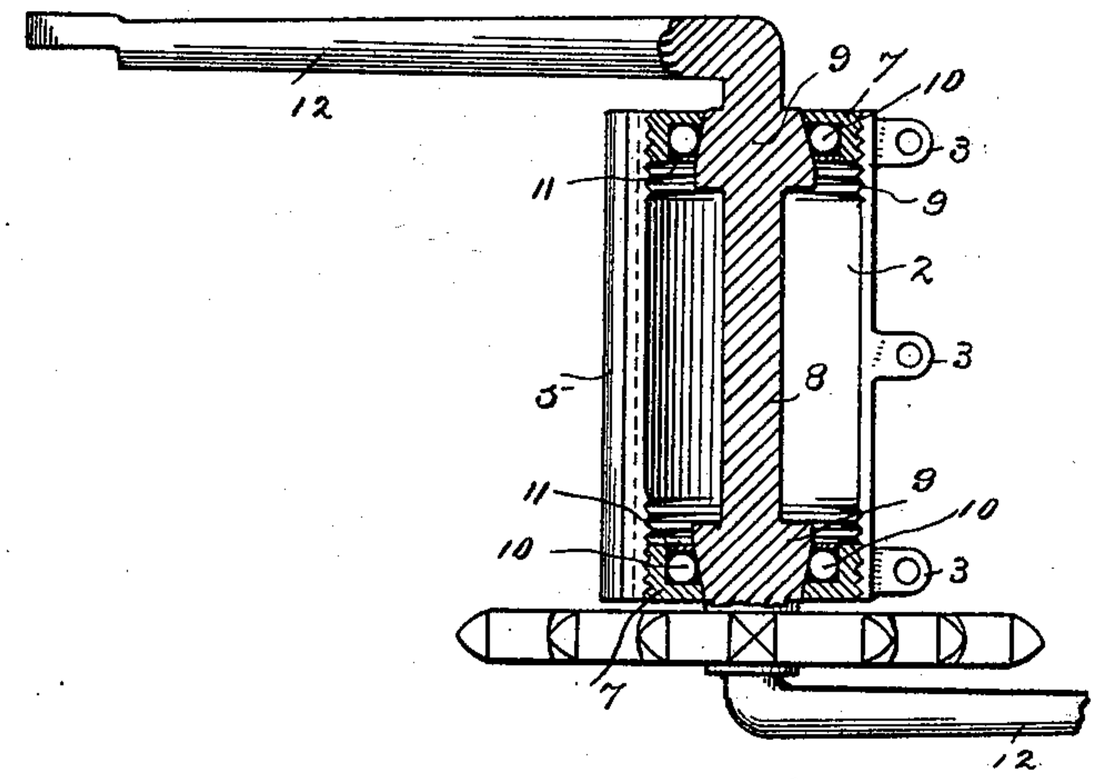
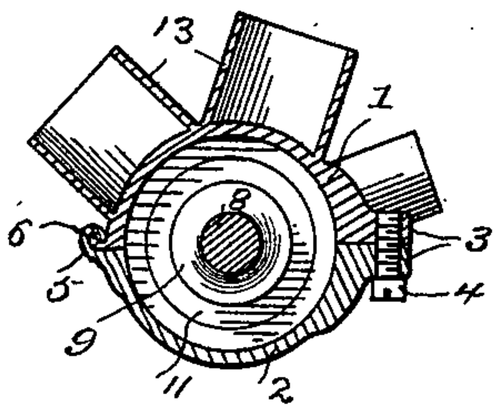
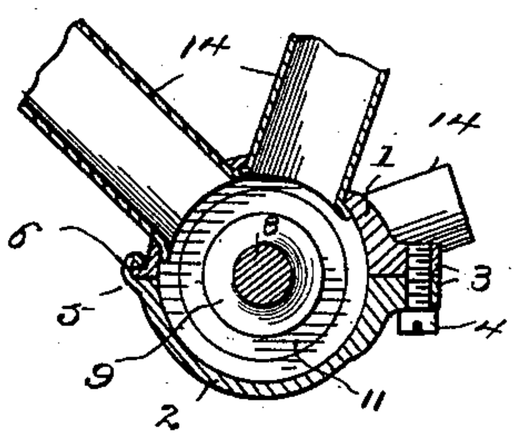


Fig. 4.

Fig. 5.





WITNESSES

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WILLIAM R. BELL, OF DANBURY, CONNECTICUT, ASSIGNOR OF ONE-HALF TO EUGENE C. DEMPSEY, THEODORE H. BENEDICT, AND JOHN R. BOOTH, OF SAME PLACE.

CRANK-HANGER FOR BICYCLES.

SPECIFICATION forming part of Letters Patent No. 587,384, dated August 3, 1897.

Application filed May 12, 1896. Serial No. 591,215. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. BELL, a subject of the Queen of Great Britain, residing at Danbury, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Crank-Hangers for Bicycles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to crank-shaft bearings of bicycles or other forms of velocipedes, and has particular reference to the construction of the crank-hanger, or "bottom bracket," as it is sometimes called.

The object of the invention is the production of a strong, light, dust-proof hanger which will permit of the easy removal of the shaft and ball-bearings without disturbing the adjustment of the latter or opening the chain.

Further objects and advantages will be explained hereinafter.

The invention consists in the construction and combination of parts, substantially as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a crank-hanger embodying my invention, said figure also showing so much of the frame of a bicycle as is necessary to illustrate the application of the invention to practical use and omitting the usual sprocket-wheel. Fig. 2 is a front elevation from the right of Fig. 1. Fig. 3 is a section on line $x\,x$ of Fig. 1 and showing also a sprocket-wheel on the crank-shaft. Fig. 4 is a section on the line $y\,y$ of Fig. 2. Fig. 5 is a section similar to Fig. 4, but illustrating a different means of connecting the frame-tubes with the hanger or shaft-casing.

Similar reference-figures indicate the same parts throughout the several views.

The casing is formed of two sections, which are preferably drop-forgings or rolled bars, the upper section 1 having the frame-tubes connected with it, as herewith described, and the lower section 2 being removably secured to the upper section by means of interengaging projections at the meeting edges of the sections on one side and lugs and screws on the other side. The said lugs and screws are indicated at 3 and 4, respectively, and the interengaging projections are indicated at 5 and 6, one being on the edge of the upper section and the other being on the edge of the lower section. In the form illustrated in the drawings these interlocking projections consist of a rib 5 along the edge of the lower section and having a groove which receives a lip 6 projecting from the edge of the upper section, but it will readily be understood that the relative arrangement of the grooved rib and coacting lip may be reversed without departing from the spirit of the invention.

The two sections together form the shaft-bearing casing, which is internally screw-threaded at each end to receive the cups 7 of the ball-bearing, said cups having central openings for the crank-shaft 8, having cones 9, between which and the cups are the balls 10.

The two bearing-cups 7 are independent of each other, and therefore one or both may be adjusted relatively to the shaft and its cones, and when so adjusted will be retained in position by their engagement with the screw-threads of the lower part of the casing when it is removed with said cups, as hereinafter described.

Each cup is represented as provided with a washer 11, which may be sprung into place or otherwise held to retain the balls in position when the shaft and bearings are removed from the casing.

The shaft is provided with cranks 12, to the ends of which the usual pedals (not shown) may be secured in the usual manner. These cranks, owing to the construction of the shaft hanger or casing in sections, may be integral with the shaft, as indicated in Fig. 3; but I do not restrict myself to such integral construction. In Figs. 1, 2, and 4 the upper section is shown as provided with short tubular projections or lugs 13 13, which may be brazed or otherwise secured thereon and in which the tubular frame-bars may be brazed or otherwise secured; but this construction results in leaving a shoulder at the end of each lug that is visible in the finished machine. Owing to the construction of the hanger or casing in

sections, as above described, I am able to dispense with these lugs or projections and to connect the frame-tubes 14 14 with the upper sections 1, as shown in Fig. 5. The said upper section is provided with holes, through which the ends of the frame-tubes themselves are passed, flanged, and brazed on the inside of the section, thus providing a cheaper construction and leaving the portions of the frame-tubes that are visible smoother and finished in appearance.

Prior to the inserting of the ends of the tubes, as just described, the sections can be thoroughly "machined" over their entire surface and handwork dispensed with, and since the sections can be practically produced by drop-forging or rolled bars there is no liability of having spongy metal in the hanger, and the sections can be made true to size.

To open the crank-hanger, it is only necessary to remove the screws 4 and then turn the lower section down and to one side to disengage the interlocking members 5 6 from each other. By lowering the crank-shaft at the same time and keeping the threaded cups 7 in engagement with the threaded ends of the lower section the interior of the casing can be cleaned and the parts returned to operative position without disarrangement of the adjustment of the two ball-bearings relatively to each other and the shaft.

Among further advantages of the invention are the easy accessibility of the bearings, the removability of the crank-shaft and its attached parts without separating the chain and without the use of a wrench or hammer or the exercise of any extra amount of labor, and the fact that even if detachable cranks are used there is no necessity of detaching the cranks before removing the shaft.

Having now described my invention, what I claim is—

A bicycle crank-hanger comprising in its construction the casing formed of two substantially semicylindrical sections, the upper section 1 being connected to the frame and having a lip 6 projecting from one edge and lugs at the other edge, the lower section 2 having a grooved rib 5 at one edge and lugs at the other edge, both of the sections being interiorly threaded at their ends, screws 4 connecting the lugs, the two independent threaded cups 7, the crank-shaft having cones, and the balls 10 between the cones and the cups, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM R. BELL.

Witnesses:
S. V. RICHARDSON,
A. M. WOOSTER.