(No Model.)

J. J. REXROTH.

ADJUSTABLE BICYCLE HANDLE BAR.

No. 588,242. Patented Aug. 17, 1897.

Fig. 1.

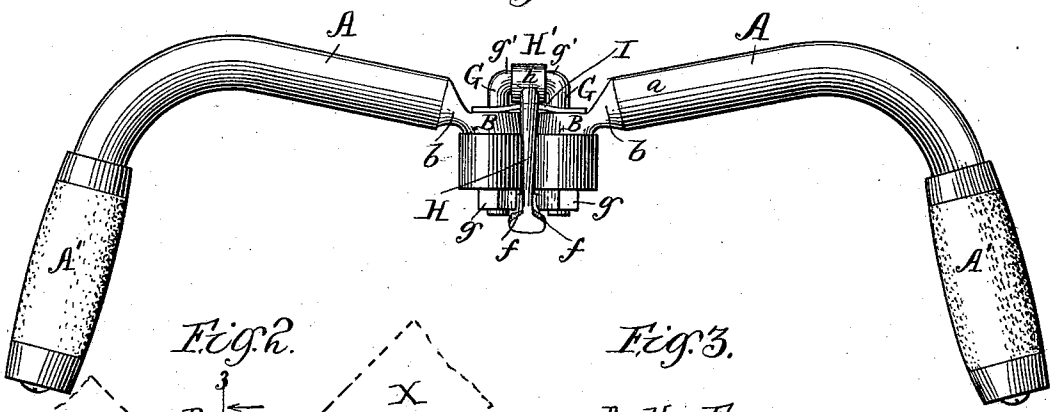


Fig. 2.

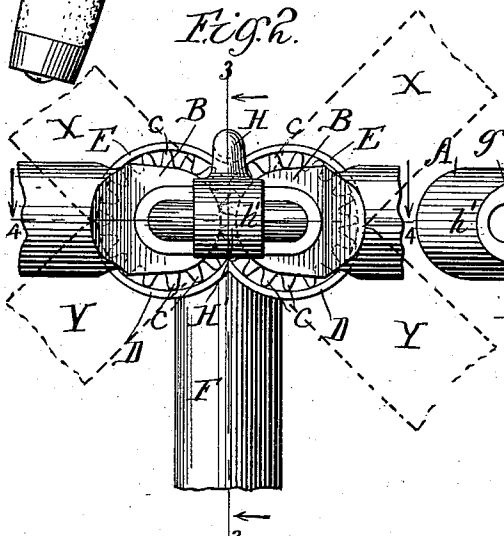


Fig. 3.

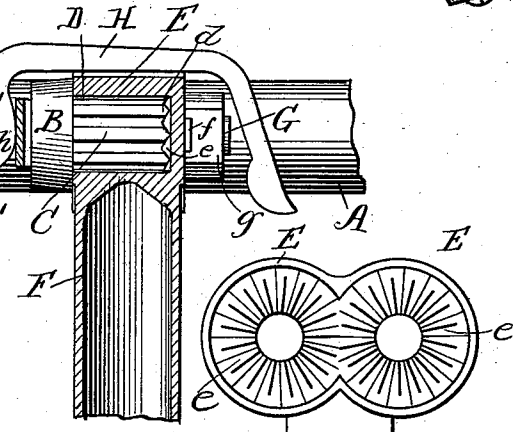


Fig. 4.

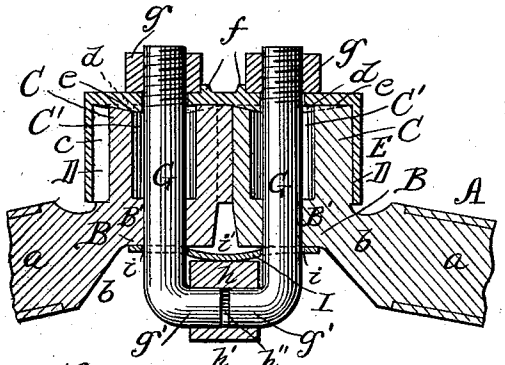
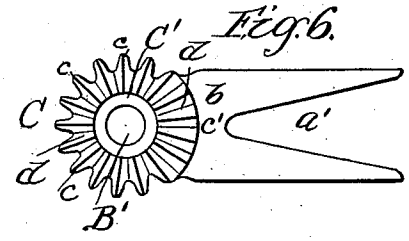


Fig. 5.

Fig. 6.



Witnesses.

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UNITED STATES PATENT OFFICE.

JOHN J. REXROTH, OF CHICAGO, ILLINOIS, ASSIGNOR TO HIMSELF AND LEVI M. SHAW, OF SAME PLACE.

ADJUSTABLE BICYCLE HANDLE-BAR.

SPECIFICATION forming part of Letters Patent No. 588,242, dated August 17, 1897.

Application filed February 19, 1897. Serial No. 624,140. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. REXROTH, a citizen of the United States, and a resident of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Adjustable Bicycle Handle-Bars; and I do hereby declare that the following is a full description and specification of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, forming a part hereof, in which--

Figure 1 is a top or plan view showing the handle-bars extended and in a horizontal plane. Fig. 2 is a side elevation with the parts as in Fig. 1, in full lines, and showing by dotted lines the handle-bars raised and dropped or lowered. Fig. 3 is an edge elevation, partly in section, showing the locking gears and segments with the locking-eccentric when the parts are in a closed or locked position. Fig. 4 is a horizontal central section with the parts as in Fig. 1. Fig. 5 is a face view showing the interior of the boxes or bearings for the gears. Fig. 6 is a detail showing a face view of one of the gears with a straight or plain bearing-face.

Adjustable handle-bars have become almost a necessity in the production of a perfect bicycle, enabling, as they do, a rider to change his position on the wheel and avoid and overcome dangers and ill effects of riding continuously and constantly in one position. Numerous arrangements have been devised and tried for the purpose of perfecting the construction and operation of such adjustable handle-bars; and the object of the present invention is to construct and produce adjustable handle-bars which will be perfect and satisfactory in their operation, and which can be readily and quickly adjusted by the rider without necessity of dismounting from the wheel, and which when adjusted can be securely locked in the adjusted position and be as rigid and firm as if the handle-bars and the attaching-head were united without having the adjustable feature in the handle-bars.

In the drawings, A represents the handle-bars, which may be made of any suitable material and of any desired form or shape, and provided with hand-grips A′ of any suitable construction.

B are heads, one for each handle-bar, each head having a neck or extension *b*, which, when a tubular handle-bar is used, can have a tenon to enter the end of the tube and be united thereto by brazing or otherwise, or such neck can terminate in a socket *a′*, as shown in Fig. 6, for use with a wooden or solid handle-bar.

C are companion gears or segments, one for each head B. They are formed with the head or firmly united therewith in any suitable manner. Each gear can have on its side face cogs or leaves *c*, forming a continuous gear around the periphery, as shown in Fig. 2, or one side can have the leaves or cogs omitted, leaving a plain face *c′*, as shown in Fig. 6, so long as the segment of the gear is one which will permit the necessary raising and lowering of the handle-bars to the full limit of the adjustment required or desired.

D are boxes or bearings, one for each gear C, each box or bearing receiving its gear and the gear having a contact or bearing between its periphery and the entire face of the box, as shown in Figs. 2 and 3, so that the only bearing or support for revolving the gears is had by and through the gears themselves, thus dispensing with the use of independent journals or pins.

E is the head or housing inclosing the boxes or bearings D. The inner end of each gear has a serrated face *d*, formed of teeth or notches, which serrated face engages with a serrated face *e*, formed on the bottom or wall of the head or housing, so that when the two serrated faces *d* and *e* are interlocked any turning or movement of the gears is effectually prevented.

F is a stem for the attachment of the handle-bars to the bicycle-head, which stem may be cast or formed with the box or housing E, as shown in Fig. 3, or the box and housing may have tenon or plug to enter the stem F and be firmly brazed or united thereto.

G are clamping-bolts, one for each gear C, each bolt passing through a hole B′ in the head B and through a chamber C′ in the gear or segment C, but having no bearing on either the head or the gear or segment, as such bearing is had only through the contact of the periphery of the gear with the wall of its box or bearing D. Each bolt G is screw-threaded at one end and receives a nut *g*, and the opposite end

has a turned end g' for entering an eccentric carried by a lever, and the nuts g, when the parts are clamped together, each engages a stop or lug f on the outer face of the head or housing, preventing any loosening of the nuts from jar or otherwise in riding.

H is a lever the stem of which, when the lever is down and in its locked position, lies, as shown, between the two boxes or bearings outside of the head or housing E, and this lever has at its inner end an eccentric H′, having on one side an engaging face h and on the opposite side an engaging face h', the face h being farther removed from the center or pivot of the eccentric, as shown in Fig. 3, and this eccentric H′ has a hole or opening h'', which receives the turned ends g' of the clamping-bolts G, so that such turned ends form the pivot for the lever and at the same time furnish the means through the turning of the eccentric to tighten or loosen the clamping-bolts.

I′ is a bearing-plate for the eccentric, which bearing-plate at each end has openings or holes i for the passage of the clamping-bolts G, and, as shown, this plate has a curved central portion i', forming a spring for engagement with the faces h and h' on the eccentric H′, by which a firm and secure locking of the clamping parts is had.

The parts are assembled by dropping the gears or segments C in proper mesh into the boxes or bearings D, then placing the bearing-plate I on the heads B and passing the clamping-bolts G, united with the eccentric H′ by entering the ends g' into the holes h'', through the openings B′ and chambers C′ and entering the nuts g onto the screw-threaded end of the bolts and adjusting such nuts at a point which will allow the lever H to be thrown down, forcing the serrated faces d and e into close engagement, locking the handle-bars firmly and rigidly in place, and when so assembled the handle-bars are ready for use.

In use the handle-bars are attached to the head of the bicycle by the stem F, and to adjust the bars in any desired position all that is required is to throw up the lever H, carrying the eccentric-face h out of engagement with the bearing-plate I, loosening the clamping-bolts, and permitting the serrated faces d and e to pass, allowing the handle-bars to be raised or lowered, as desired, and when the proper point of adjustment is reached the throwing of the lever H down again locks the serrated faces, making a connection for the handle-bars rigid and firm. This adjustment of the handle-bars can be had without dismounting from the machine, as the lever H can be thrown up, releasing the engagement of the eccentric, when by taking hold of one handle-bar the movement of such handle-bar simultaneously moves the opposite handle-bar by reason of the engagement of the gears or segments.

It will be seen that the device as a whole is very simple in construction and can be quickly and easily operated, as all that is required to change the adjustment is to release the eccentric, and to lock the parts all that is necessary is to bring the eccentric into engagement with its bearing-plate I, and inasmuch as the only bearing for the gears or segments is around the wall of the boxes or bearings for such gears or segments a broad and continuous bearing for the whole surface of the operating parts is had, giving the handle-bars a substantial bearing in use and at the same time dispensing with the use of additional journals or pins.

The dotted lines in Fig. 2 show the handle-bars raised at X and lowered at Y, the range of movement being to the limit of folding the bars together, and in changing position the wall or face of each box D furnishes the guide and support for the end movement of the gears, thereby insuring a positive straight-line travel and preventing any twisting or displacement of the gears in making an adjustment.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination in adjustable handle-bars for bicycles of two companion interlocking gears or segments, boxes or bearings for such gears or segments having the bearing on the periphery of the gears or segments, a housing or box for the gears or segments, serrated engaging faces between the gears or segments and the box or housing, clamping-bolts, and an eccentric for operating the clamping-bolts and locking and unlocking the handle-bars for adjusting purposes, substantially as specified.

2. The combination in adjustable handle-bars for bicycles of two companion interlocking gears or segments each having a serrated engaging face, boxes or bearings for the periphery of the gears or segments, a housing for the gears or segments having serrated engaging faces coacting with the serrated faces of the gear, clamping-bolts for the segments or gears, an eccentric coacting with the clamping-bolts, a lever for the eccentric and a bearing-plate engaging the eccentric for locking and unlocking the segments or gears, substantially as and for the purposes specified.

3. The combination in adjustable handle-bars for bicycles of two companion interlocking gears or segments each having a serrated locking end face, boxes or bearings for the periphery of the segments or gears, a housing for the segments or gears, a stem for the housing, clamping-bolts for the segments or gears, an eccentric connected with the clamping-bolts, a lever for the eccentric and a bearing-plate for the eccentric for locking and releasing the gears, substantially as and for the purposes specified.

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Witnesses:
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O. W. BOND.