

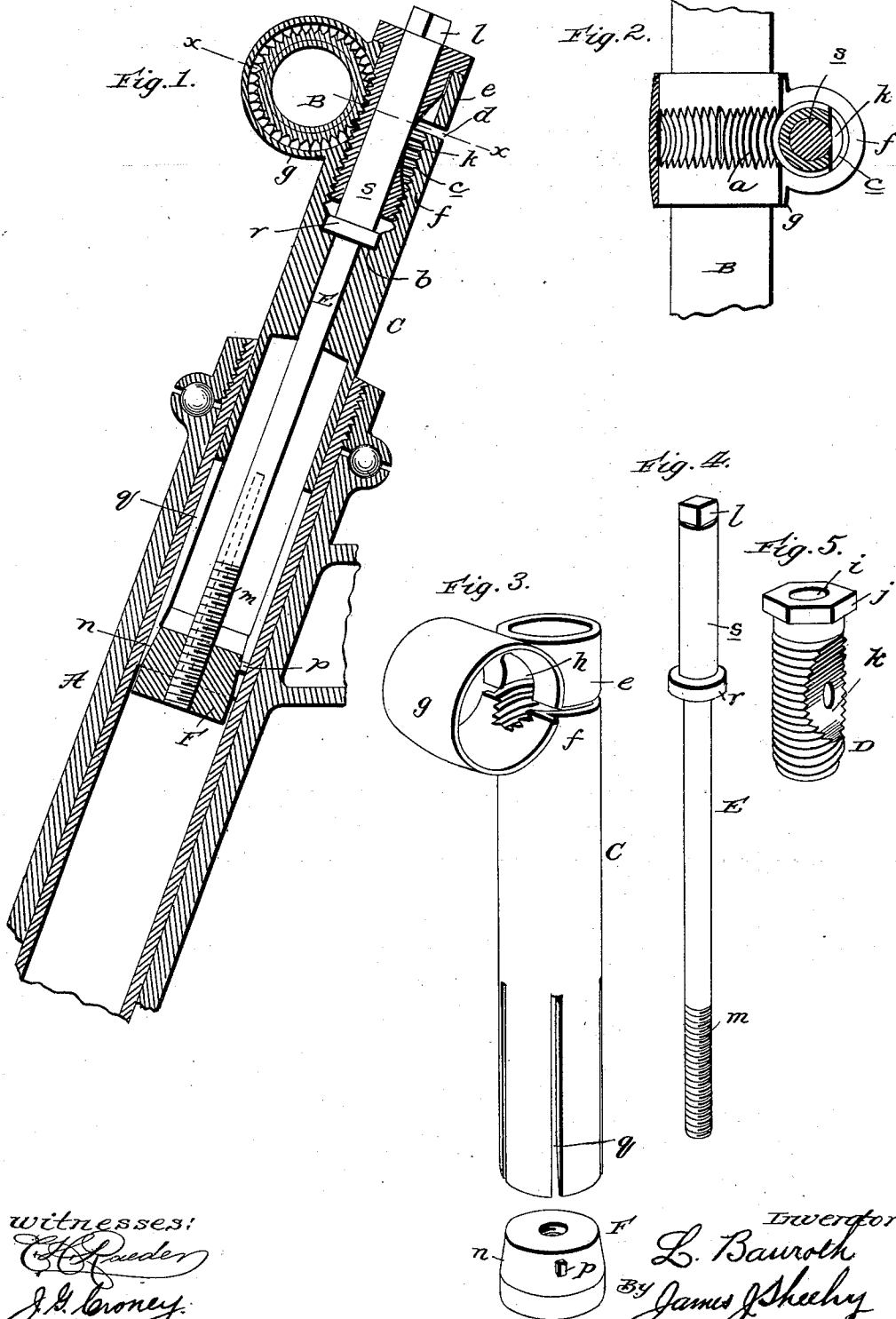
No. 628,383.

Patented July 4, 1899.

L. BAUROTH.
BICYCLE.

(Application filed Feb. 24, 1898.)

(No Model.)



witnesses:
C. H. Gaeder
J. H. Crony

Inventor
L. Bauroth
By *James J. Sheehy*
Attorney

UNITED STATES PATENT OFFICE.

LEONHARD BAUROTH, OF TOLEDO, OHIO, ASSIGNOR TO LEONARD B. GAYLOR.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 628,383, dated July 4, 1899.

Application filed February 24, 1898. Serial No. 671,469. (No model.)

To all whom it may concern:

Be it known that I, LEONHARD BAUROTH, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented new and useful Improvements in Bicycles, of which the following is a specification.

This invention relates to improvements in bicycles, and more particularly to means for adjusting the handle-bars so that they may be raised and lowered, as well as secured at any desired inclination or angular position with respect to the frame.

Heretofore various constructions have been employed for clamping the handle-bar to the handle-bar stem and also for clamping the stem itself to the steering-tube in various vertical positions; but so far as I am aware in all such prior constructions both of the clamping devices referred to have been operated by a single bolt, and in such constructions one of the clamps has acted as the resistance to the other, and the screwing up or unscrewing of this single bolt necessarily tightened or released both of the clamping devices. Such constructions have not been wholly satisfactory, so far as I am aware, because of the fact that although one adjustment only might be desired nevertheless the loosening of the single bolt would necessarily derange both of the clamps; also, because it was inevitable that the single bolt had to be screwed down with the necessary power to effect the strongest clamping action, and inasmuch as the power required to hold the handle-bar is much greater than that required for clamping the stem to the steering-tube it frequently happened that injury or distortion occurred to the latter by reason of undue strain applied thereto, and it sometimes resulted that the parts when so distorted or injured would not "let go," as it is called, when new adjustment was desired or that the machine was defaced. Under my invention these defects are entirely obviated.

My invention embodies a simple and effective means for adjusting and securely holding the handle-bar in its bearings so that it may be readily lowered or elevated, as desired, and, as above stated, either of the clamping devices may be released or tightened without in any manner affecting the other.

Other objects and advantages will appear from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1 is a vertical sectional view taken through the handle-bar stem and handle-bar and a part of the head or front tube and steering-fork stem therein. Fig. 2 is a cross-sectional view taken at a point and in the plane indicated by the dotted line *x x* on Fig. 1, the handle-bar and worm-gear being shown in plan view. Fig. 3 is a perspective view of the handle-bar stem, showing the clamp or clutch for the handle-bar formed thereon. Fig. 4 is a perspective view of the expansion-rod. Fig. 5 is a perspective view of the handle-bar-adjusting bolt, and Fig. 6 is a perspective view of the tapering or expansion nut.

Referring by letter to said drawings, A indicates the head or front tubular part of the frame of a bicycle, velocipede, or the like and may be of any ordinary or approved construction, as may also the balance of the frame.

B indicates the handle-bar, which may have the drop-handles or straight handles or, in fact, be of any suitable shape and configuration. The handle-bar is provided at or about the middle of its length with a worm-gear *a*, and in forming this gear it is desirable that the bar should be thickened, so as to form a seat for the threads and provide friction parts at opposite ends of the threads, so that the bar may be firmly clamped or grasped in the ring-like elastic clamp or clutch, as will presently appear. While this is the preferred construction, yet I am aware that the worm-gear may be provided in other ways.

C indicates the handle-bar stem. This stem, which is adapted to enter the steering-fork tube, is split or slotted longitudinally from its lower end for a sufficient distance and is provided internally at a sufficient distance above the slits with a shoulder *b*, which is designed to serve as a seat or stop for the expansion-rod in one direction, as will presently appear. Above this shoulder the stem is internally screw-threaded, as shown at *c*, and above the screw-threaded part the stem is separated by a horizontal or transverse slot *d*, so as to form an upper unthreaded section *e* and a lower section *f*, which are connected

yieldingly by a loop *g*, which loop serves as a resilient or elastic ring-like clamp or clutch and seat for the handle-bar. This loop is shown in the present illustration as formed integral with the handle-bar stem, and while for many reasons it is preferable to make it in this way, yet I do not wish to be understood as confining myself to forming the loop and stem integral, as they may be formed in separate parts and suitably connected. In practice there is sufficient resiliency in the loop so that its normal tendency is to keep the upper section *e* of the stem raised from the lower section *f*, which would result in loosening the clamp or clutch upon the handle-bar when the adjusting-bolt, as will be presently described, has been unscrewed to permit the same. The handle-bar stem is provided at a point intersecting the slot *d* with an elliptical slot *h*, which opens into the clamp or clutch.

D indicates the handle-bar adjusting and clamping bolt. This bolt, as better shown in Fig. 5 of the drawings, is threaded externally and bored centrally, as at *i*, and provided at its upper end with a wrench-seat *j* or other convenient means, by which it may be turned into and out of the threaded portion *c* of the handle-bar stem. This bolt is furthermore provided in one side with a cut-out portion *k*, which is of a curvilinear form and breaks or separates the thread of said bolt. By reason of this cut-out portion the interior of the clamp or clutch, including a portion of the bolt, describes a complete circle when said cut-out portion has been brought to the lateral elliptical slot *h* in the handle-bar stem. By reason of this it is obvious that by turning said bolt a quarter-revolution or more the threads thereon will be turned into the threads of the worm *a* on the handle-bar, and thereby lock the handles at as many angles as there are threads in the worm-gear as the threads of the worm-gear enter the elliptical slot *h* of the stem C, as better shown in Fig. 1 of the drawings.

When the handle-bars are fixed in any position and it is desirable to change the same, it is only necessary to unscrew the bolt D in such manner that the cut-out portion *k* will be brought to coincide with the lateral slot *h*. Then the handle-bar will be free to rotate, and when the handles have been brought to the desired position by reversing the movement of the bolt the clamp or clutch will be tightly closed upon the handle-bar, and the threads of said bolt, if turned into engagement with the worm *a* of the handle-bar, will additionally hold the bar firmly in the clamp or clutch.

E indicates a rod which I denominate the "expansion-rod," as it is designed to expand the handle-bar stem in the steering-fork stem. This rod is preferably provided at its upper end with an angular terminal *l* to receive a wrench or other means by which it may be

manipulated, and it is provided at its lower end with threads *m* to engage with a centrally-screw-tapped tapering nut F. This nut, which is threaded to receive the threaded end of the expansion-rod and has its circumference tapered, as shown at *n*, is preferably provided with a lug *p* to prevent said nut from turning. The lug may enter one of the slots *q* of the handle-bar stem, or other means may be provided to prevent the turning of the nut therein.

The stem of the handle-bar is preferably tapered internally for a sufficient length at its lower end, so as to cooperate with the tapering nut F in forcing the split or slitted branches of said stem against the inner walls of the steering-fork tube.

When it is desirable to raise or lower the handle-bar, it is only necessary to turn the expansion-rod so as to let down the nut F, whereupon the split or slitted part of the handle-bar stem will automatically contract, and consequently the handles carried thereby may be raised or lowered to the desired adjustment and secured in such positions by again screwing up the expansion-rod.

From the foregoing it will be seen that the clamping devices are separate and distinct from each other and that the one which holds the handle-bar is strong and powerful and suitable to fulfil its functions, and, obviously, if it is not desired that the thread of the bolt should engage with a worm upon the handle-bar this feature may be omitted, because then the handle-bar will be effectively held by the mere clamping action of the loop or ring like clutch. In some constructions, however, a more rigid locking of the handle-bar will be desired, in which case both holding devices—*i. e.*, the clamping action of the clutch and the interlocking of the threads of the bolt with the worm on the handle-bar—may be employed. It will also be especially observed that such degree of force as will serve the purpose, and that only, need be applied to each of the clamping devices, so that distortion of the parts or any injury thereto will not arise with proper use of the same.

Having described my invention, what I claim is—

1. The combination of a handle-bar stem slitted longitudinally at its lower end and screw-tapped at its upper portion and divided into sections by a slot *d* and having said sections connected by a bar-receiving loop, and also having its interior in communication with that of the bar-receiving loop, a handle-bar arranged in the loop of the stem and having a worm-gear *a*, an externally-threaded bolt fitted into the screw-tapped stem and having a longitudinal bore, the threads of said bolt engaging the worm-gear *a*, a steering-fork tube receiving the handle-bar stem, an expansion-rod extending through the bore of the externally-threaded bolt and having a threaded portion, and an expansion-nut arranged

on said threaded portion of the rod and adapted to be drawn into the handle-bar stem, substantially as specified.

2. The combination with the head or front 5 tubular part of the frame and a steering-fork tube therein, of a handle-bar stem split longitudinally at one end and having a seat or stop, a threaded rod having a shoulder or collar, a bolt forming an upper stop for said rod 10 and a tapering nut on the threaded end of the rod, substantially as specified.

3. The combination of a handle-bar stem slitted longitudinally at its lower end and screw-tapped at its upper portion and divided 15 into sections by a slot *d* and having said sections connected by a bar-receiving loop and also having a slot *h* connecting its interior and that of the bar-receiving loop, a handle-bar arranged in the loop of the stem and having 20 a worm-gear *a*, an externally-threaded bolt fitted into the screw-tapped stem and having a cut-out portion at one side and also having a longitudinal bore, a steering-fork tube receiving the handle-bar stem, an expansion-rod extending through the bore of the externally-threaded bolt and having a threaded 25 portion, and an expansion-nut arranged on said threaded portion of the rod and adapted to be drawn into the handle-bar stem, substantially as specified. 30

4. A handle-bar stem screw-tapped near its upper end and separated by a transverse slot and having a loop adapted to clamp a handle-bar and connect said separated parts; in combination with a handle-bar having a worm-gear to enter a lateral slot in said stem, and 35

a bolt externally threaded and fitted into the screw-tapped stem and having a cut-out portion on one side to correspond with the lateral slot in the stem, substantially as specified. 40

5. The combination of a handle-bar stem slitted longitudinally at its lower end and screw-tapped at its upper portion and divided into sections by a slot *d* and having said sections 45 connected by a handle-bar-receiving loop, a handle-bar arranged in said loop, an externally-threaded clamping-bolt engaging with the said upper and lower sections of the stem and having a longitudinal bore, a steering-fork tube receiving the handle-bar stem, 50 an expansion-rod extending through the bore of the externally-threaded bolt and having a threaded portion, and an expansion-nut arranged on said threaded portion of the rod 55 and adapted to be drawn into the handle-bar stem, substantially as specified.

6. The combination, in a bicycle, of a split handle-bar clamp mounted on a stem, a tubular bolt which actuates said clamp, clamping- 60 jaws on the lower end of the stem, an expander for said jaws, a bolt which actuates said expander and which extends upwardly through said tubular bolt, for the purposes set forth.

In testimony whereof I have hereunto set 65 my hand in presence of two subscribing witnesses.

LEONHARD BAUROTH.

Witnesses:

H. D. WOOD,

M. A. CONDON.