

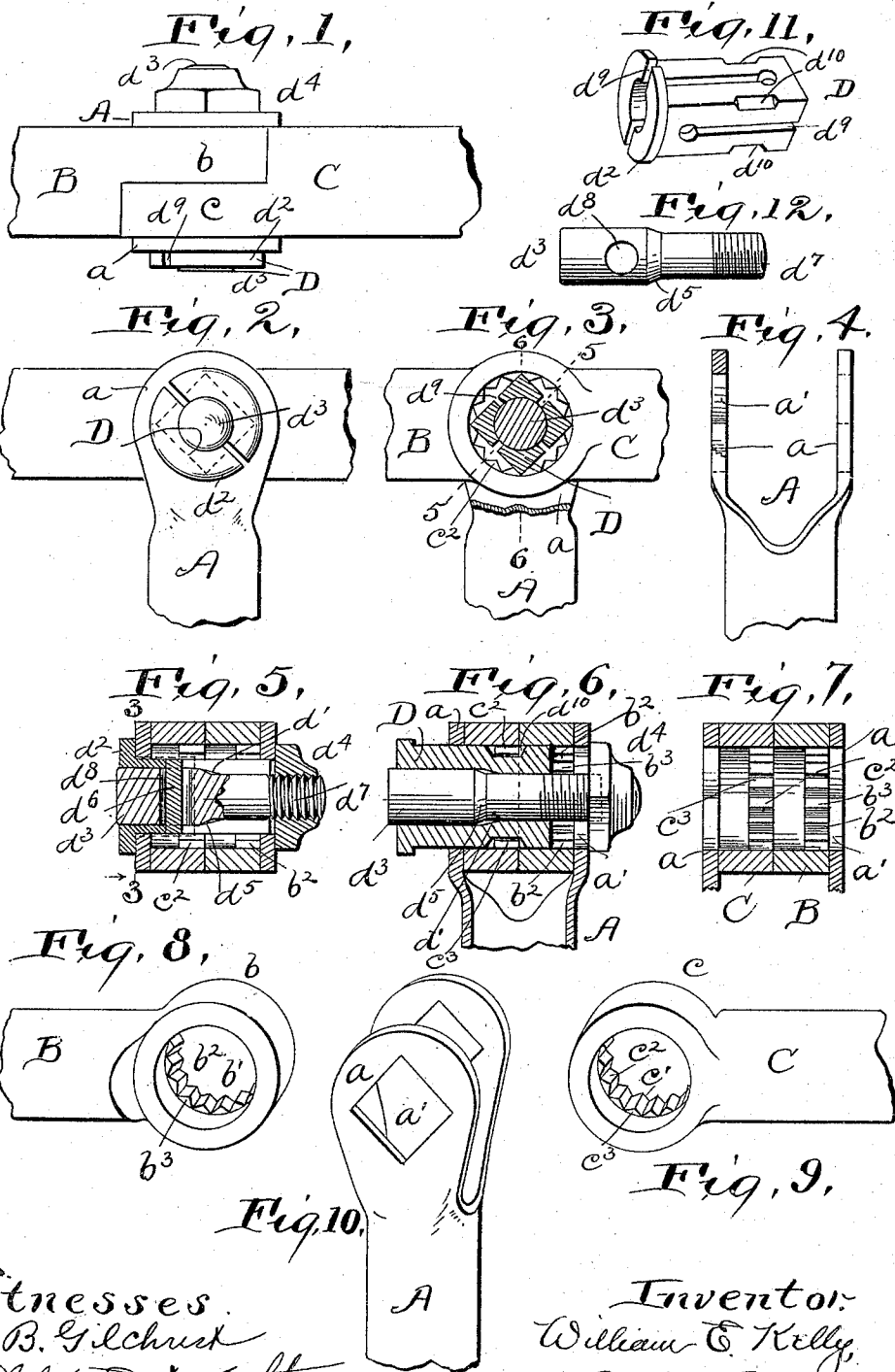
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W. E. KELLY.
HANDLE BAR.

(Application filed Aug. 12, 1899.)

(No Model.)



Witnesses.
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UNITED STATES PATENT OFFICE.

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HANDLE-BAR.

SPECIFICATION forming part of Letters Patent No. 641,118, dated January 9, 1900.

Application filed August 12, 1899. Serial No. 726,979. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. KELLY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Handle-Bars, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of the invention is to provide a handle-bar construction which will permit the easy adjustment of the handles to any desired height and of so securely locking the handle-bar sections in the positions to which they are moved that the mere loosening of a nut or bolt will not permit them to be moved out of such position.

The invention consists in the construction and combination of parts hereinafter described, and pointed out definitely in the claims.

In the drawings, Figure 1 is a plan view of the middle part of the handle-bar embodying my invention. Fig. 2 is a front elevation thereof. Fig. 3 is a transverse sectional view in the plane indicated by 3 3 of Fig. 5. Fig. 4 is a side view of the upper end of the handle-bar stem. Fig. 5 is a longitudinal sectional view of the invention in the plane indicated by 5 5 of Fig. 3. Fig. 6 is a similar sectional view when the expansible bolt has been moved endwise, so as to permit the handle-bar sections to be turned. Fig. 7 is a similar sectional view when the expansible bolt is removed. Figs. 8 and 9 are perspective views of the inner ends of the two handle-bar sections. Fig. 10 is a perspective view of the upper end of the handle-bar stem. Fig. 11 is a perspective view of the angular sleeve which forms a part of the expansible bolt, and Fig. 12 is the expanding plug of said bolt.

Referring to the parts by letters, A represents the stem which supports the handle-bar sections B and C and through which they may be attached to the bicycle. This stem has two parallel vertical ears *a*, and these ears have the angular apertures *a'*. An angular expansible bolt D passes through and fits both of these apertures, wherefore the turning of the bolt in said apertures is impossible. The inner ends *b* and *c* of the handle-

bar sections are of disk-like form and they lie in contact with each other between said ears *a*. These handle-bar ends have the angular apertures *b'* and *c'*, through which the expansible bolt D passes, the angularity of these apertures being due to the serrations *b² c²*, which are of such shape and depth that any of them may fit over the corners of the angular expansible bolt D. These serrations do not preferably extend entirely across the apertures, but are formed in the inner periphery of the inwardly-projecting flanges *b³ c³*. It is obvious from the foregoing statement that the angular expansible bolt cannot turn in the apertures in the ears and that the handle-bar sections cannot turn on the bolt when the parts are in the relative position shown in Fig. 5, and this is the position in which they will be found when the parts are locked up. In order, however, that the handle-bar sections may be turned up or down without entirely removing the angular bolt, it is necessary that said bolt be movable endwise a short distance. In order that this endwise movement may be easy, the bolt cannot normally fit tightly in the apertures in the ears or in the handle-bar sections. It is therefore made expansible—that is to say, normally its diameter is small enough to permit it to be moved easily in said apertures, but it is capable of being expanded so as to fit them tightly, and thereby take up all lost motion and prevent all rattling of the parts.

The expansible bolt which I employ is one which may be expanded most in those parts which lie in the apertures in the handle-bar sections, and this is desirable because in use these apertures are subject to the most wear and enlarge most rapidly. Since the ends of the handle-bar sections lie between the ears on the stem, the bolt is constructed so its middle part may be expanded most. The expansible bolt, as shown, includes a square sleeve D, having a longitudinally-extended bore, which is tapered and reduced in diameter at *d'* about midway between the ends of the bolt. This sleeve has also a head *d²*, which prevents it from being drawn through the aperture in one of the ears. A plug *d³* passes through this sleeve, and its projecting smaller end *d⁴* is screw-threaded to receive the nut *d⁴*.

It has a tapered portion d^5 , which engages with the tapered part of the bore of the sleeve. The removal of this plug from the sleeve is prevented, but its endwise movement is permitted by means of a pin d^6 , which is driven through holes in the sleeve and through a large hole d^8 extending across the plug. The sleeve is rendered expansible by the two longitudinal slits d^9 , which extend from opposite ends some distance past the middle of said sleeve. It is obvious, therefore, that by tightening up the nut and drawing the expansion-plug into the sleeve the diameter of said sleeve is expanded and made to fit tightly in the apertures through which it passes. In Figs. 11 and 6 it will be noticed that the corners or angles of the square sleeve are cut away in an annular row by the grooves d^{10} , said grooves being of such a depth that the diameter of the sleeve measured diagonally through the sleeve is less than the internal diameter of the notched flanges on the handle-bar sections.

When it is desired to change the position of the handle-bar sections, the nut d^4 is loosened, the plug d^3 is pushed endwise in the sleeve, thereby permitting the sleeve to contract, and then the sleeve is pushed endwise into the position substantially as shown in Fig. 6, where it will be seen that the notched flange c^3 on the handle-bar section C is in the same plane with the annular row of grooves d^{10} in the sleeve D, and that therefore this handle-bar section may be turned about the axis of the expansion-bolt and raised or lowered as desired. It will also be seen that the end of the square sleeve D has been moved past the serrated flange b^3 in the other handle-bar section B, and that therefore it may in like manner be turned to raise or lower it as desired. When these handle-bar sections have been placed at the desired elevation, the sleeve is pushed into the position shown in Fig. 5, its corners engaging with the serrations $b^2 c^2$. When in this position, any substantial movement of the handle-bar sections up or down is prevented, although there will be a slight jarring movement of said parts and a rattling of all the parts together. To prevent this, the nut is now tightened up, thereby drawing the expansion-plug into the sleeve D, which is thereby expanded so as to tightly fit the apertures in the ears and in the handle-bar sections.

One of the chief merits of this invention as compared with others belonging to the same class is that the mere loosening of the tightening-nut does not render the handle-bar capable of being moved up or down. On the contrary, the bodily endwise movement of the sleeve in the apertures must take place before any such movement of the handle-bar

sections is possible. This removes an element of danger to the riders of bicycles to which this handle-bar may be connected.

Having described my invention, I claim—

1. In an adjustable handle-bar, the combination of the stem having the angularly-apertured ears, with two handle-bar sections having angularly-apertured inner ends, an angularly-expansible bolt which passes through the apertures in said ears and ends of the handle-bar sections, and means whereby said bolt may be expanded most in those parts which lie in the apertures in the handle-bar sections, substantially as specified.

2. In an adjustable handle-bar, the combination of the stem having the angularly-apertured ears, and two handle-bar sections having disk-shaped inner ends which are provided with angular apertures, with an expansible bolt passing through said apertures and consisting of an angular sleeve which is longitudinally slitted and has a bore which is reduced in diameter near its middle, a plug passing through said sleeve and having a cooperating tapered part, and means for moving said plug endwise to expand said sleeve, substantially as specified.

3. In a handle-bar, the combination of a stem having angularly-apertured ears, two handle-bar sections each having a disk-shaped inner end which is provided with an aperture having an inwardly-projecting serrated flange, with an angular expansible bolt which passes through the apertures in said ears and handle-bar ends, and is capable of endwise movement therein—said angular expansible bolt having an annular row of grooves in its corners, substantially as specified.

4. In an adjustable handle-bar, the combination of the stem having angularly-apertured ears, and two handle-bar sections having disk-shaped inner ends which are provided with apertures and have in said apertures projecting serrated flanges, with an expansible locking-bolt which consists of an angular sleeve which is slitted longitudinally and has a head at one end and has a bore with a tapered part near its middle, a plug in said sleeve having a cooperating tapered part, its smaller end being projected beyond the sleeve and screw-threaded, a pin passing through a hole of large diameter in the plug and being secured to the sleeve, and a nut which screws onto the threaded end of said plug, substantially as specified.

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

WILLIAM E. KELLY.

Witnesses:

E. L. THURSTON,
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