(No Model.)

A. B. SIMONS.

ADJUSTABLE HANDLE BAR.

No. 590,672. Patented Sept. 28, 1897.

Fig. 1.

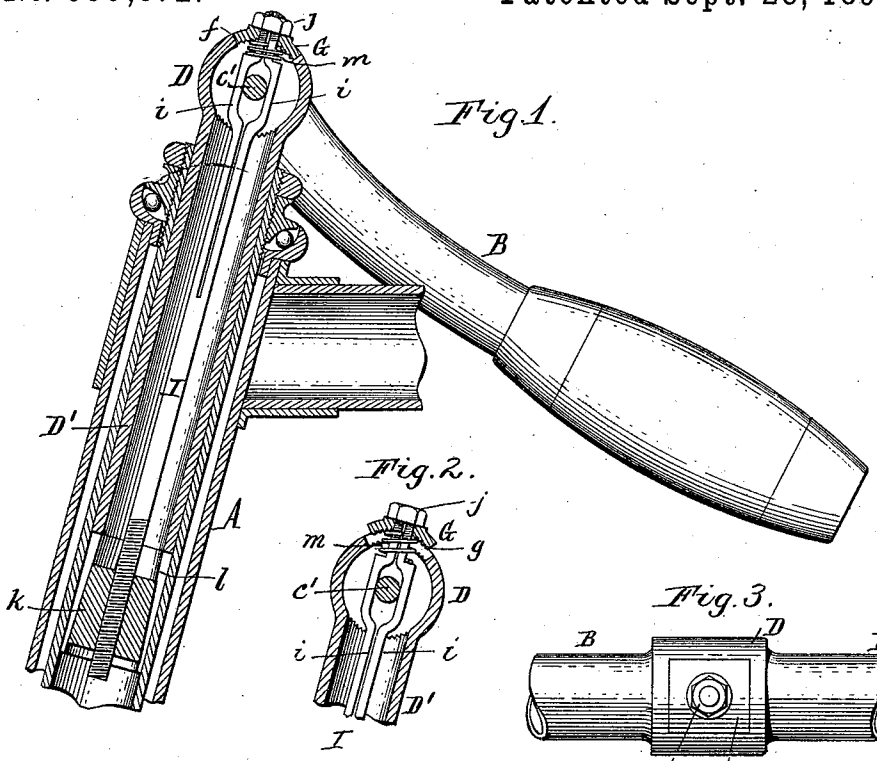


Fig. 2.

Fig. 3.

Fig. 4.

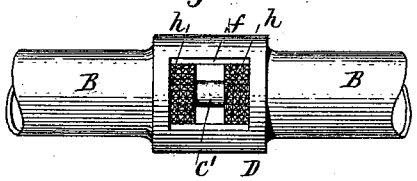


Fig. 5.

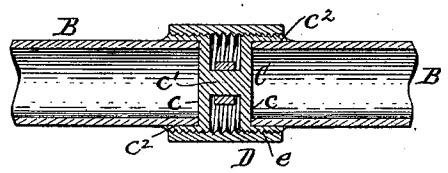


Fig. 6.

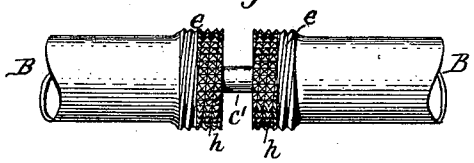


Fig. 7.

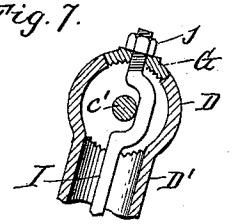


Fig. 8.

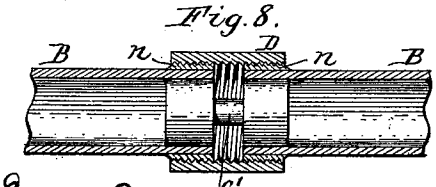
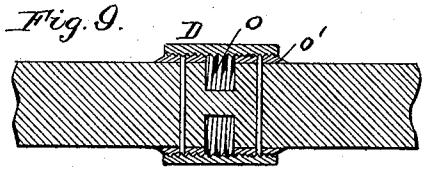


Fig. 9.



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UNITED STATES PATENT OFFICE.

AL BURT SIMONS, OF BUFFALO, NEW YORK.

ADJUSTABLE HANDLE-BAR.

SPECIFICATION forming part of Letters Patent No. 590,672, dated September 28, 1897.

Application filed May 18, 1897. Serial No. 637,052. (No model.)

To all whom it may concern:

Be it known that I, AL BURT SIMONS, a citizen of the United States, residing at the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Adjustable Handle-Bars, of which the following is a specification.

This invention relates more particularly to that class of adjustable handle-bars in which the clamping devices are arranged principally within the handle-bar lug and its stem.

The object of my invention is the provision of a reliable clamping device whereby the handle-bar can be readily reversed or converted from an upturned bar to a drop-bar, or vice versa, or be adjusted to any intermediate position, as may be desired, and which enables these various adjustments to be effected without the necessity of removing the handle-bar from the lug or of removing the stem of the lug from the steering-post and without wearing off the interlocking surfaces of the bar and the lug.

In the accompanying drawings, Figure 1 is a transverse central section of a handle-bar provided with my improvement, showing the bar clamped in position. Fig. 2 is a similar section showing the position of the parts when the bar is released. Fig. 3 is a fragmentary top plan view of the same. Fig. 4 is a similar view with the locking-plate and the clamping-bolt removed. Fig. 5 is a horizontal section of the central portion of the bar and its supporting-lug. Fig. 6 is a fragmentary side elevation of the handle-bar removed from the supporting-lug. Fig. 7 is a view similar to Fig. 2, showing a modified construction of the clamping-bolt. Fig. 8 is a view similar to Fig. 5, showing a modified construction of the coupling. Fig. 9 is a horizontal section showing my improvement in connection with a wooden handle-bar.

Like letters of reference refer to like parts in the several figures.

A is the steering-head of a bicycle or other velocipede. The handle-bar is preferably composed of two similar sections B B, the end portions of which may be bent downwardly and backwardly below the plane of their body portions in the customary manner. These two sections are rigidly connected together by a connection or coupling C, composed of two similar cylindrical heads *c*, which are rigidly connected by a comparatively narrow neck *c'*, arranged centrally or axially with reference to the heads, thus forming an annular groove or recess in the middle of the handle-bar. These heads are provided in their outer ends with sockets c^2, in which the inner ends of the handle-bar sections are secured by brazing or other suitable means. The coupling C practically renders the handle-bar continuous and compels the sections to turn in unison in adjusting the bar.

D is a transverse cylindrical lug or barrel which is secured to the upper end of the steering-head A and in which the grooved central portion or coupling C of the handle-bar is adjustably seated. The supporting-lug is provided with a hollow downwardly-extending stem or tube D', arranged in line therewith or directly under the same and fitting into the steering-head. The heads of the coupling C are provided with external screw-threads *e*, which engage with corresponding threads formed in the bore of the lug D, the threads of the two heads trending in the same direction. These screw-threads confine the handle-bar coupling against lateral or endwise displacement in the lug.

The lug is provided in its top with an opening *f*, preferably of rectangular form, as shown in Fig. 4, and in this opening is seated a locking plate or cap G, which bears against the upper side of the heads *c* and holds the same and the handle-bar against turning in the lug. This plate is provided on its under side with internal screw-threads *g*, which engage with the screw-threads of the heads *c* and which form continuations of the internal threads of the lug. In addition to these screw-threads the heads are preferably provided with comparatively fine teeth, ribs, or corrugations *h*, extending lengthwise thereof, and the locking-plate is provided with corresponding teeth or corrugations which interlock with those of the lug, whereby the handle-bar is firmly and reliably held against turning in the lug. The teeth or corrugations of the parts preferably do not extend to the outer ends of the heads *c*, but only throughout the length of the locking-plate, as shown in Fig. 6. The screw-threads of

the coupling-heads and the handle-bar lug serve not only to hold the handle-bar against lateral displacement, but also offer an extensive gripping-surface to the locking-plate G.

I is a vertical clamping-bolt whereby the locking-plate G is drawn tightly against the serrated and screw-threaded coupling-heads *c* of the handle-bar. As shown in Fig. 1, this bolt is arranged within the hollow stem D′ of the lug and extends upwardly through the space or annular groove between the coupling-heads and through a smooth opening formed in the locking-plate G, and to the projecting upper end of the bolt a nut *j* is applied which bears upon the locking-plate. The bolt may be anchored or confined against upward displacement within the stem by any suitable means, but the same is preferably provided on its lower portion with a tapering nut or conical plug *k*, which enters the lower end of the hollow stem D′ and is wedged into the same upon tightening the screw-nut *j*. The lower portion of the stem D′ is preferably split or slitted, as shown at *l* in Fig. 1, so that upon drawing up the clamping-bolt by means of its screw-nut the tongues formed between the slits *l* are spread and firmly clamped against the surrounding wall of the steering-head, thereby simultaneously clamping the handle-bar in the lug and the stem in the steering-head by a single bolt.

In order to allow the clamping-bolt to clear the axial neck *c′* of the coupling, the adjacent portion of the bolt is offset. In the construction shown in Figs. 1 to 6 the bolt is offset on both sides of the neck, and for this purpose the same is split or divided lengthwise from its upper end downward to a point below the neck, and the branches *i* of the split portion are spread apart on opposite sides of the neck to form a vertically-elongated loop or strap which embraces the neck. Above the neck the branches are brought against each other to form the cylindrical upper portion of the bolt, which portion is screw-threaded, as shown, to receive the screw-nut *j*.

It is obvious that the clamping-bolt might be offset only on one side of the neck, as shown in Fig. 7, in which case it is unnecessary to split the bolt.

m is a spring applied to the clamping-bolt between the shoulder formed by its offset portions and the under side of the locking-plate G. This spring is compressed in the normal position of the locking-plate, as shown in Fig. 1, and as soon as the screw-nut *j* is loosened for changing the adjustment of the handle-bar the spring reacts and lifts the plate clear of the teeth and screw-threads of the coupling-heads *c*, thereby preventing the teeth of the plate and the heads from grinding against each other in turning the handle-bar in the lug and avoiding the wear which results from such grinding. When the locking or gripping parts of handle-bars of this type are so constructed that they cannot entirely clear each other in adjusting the bar, they are liable to wear smooth by repeated adjustments. It has been the experience of dealers and manufacturers that unscrupulous wheelmen who desire a new or a different style of bar are apt to take advantage of this feature and grind off the teeth by oscillating the bar in the lug, so as to render the same unserviceable and furnish an excuse for obtaining a new bar from the dealer or manufacturer. By providing the locking-plate with the lifting-spring *m* this cannot be practiced without detection.

When it is desired to adjust the handle-bar, it is only necessary to loosen the screw-nut on top of the lug, when the locking-plate will be automatically raised out of engagement with the handle-bar by the spring *m*, thus releasing the bar and permitting the same to be turned in the lug for raising or lowering the handles. When it is desired to convert the handle-bar from an upturned bar to a drop-bar, the same is reversed or swung upwardly and forwardly to the front side of the lug, and the stem of the lug is then given a half-turn in the steering-head to bring the bar on the rear side of the head, and after making the adjustment the bar is firmly clamped in place by simply tightening the screw-nut *j*. By performing these operations in the reverse order the bar is changed from a drop-bar to an upturned bar. As the clamping-bolt is offset or passes around one or both sides of the connecting-neck *c′* of the coupling it affords the requisite range of movement of the handle-bar to effect these extreme adjustments without requiring the removal of the bar from the lug or the withdrawal of the stem of the lug from the steering-head, the only part requiring manipulation for clamping and releasing the bar being the screw-nut *j*, which, from its position on top of the lug, is easily accessible. The stem of the lug is readily loosened for turning it in the steering-head by striking the upper end of the clamping-bolt with a wrench or other tool after loosening the screw-nut *j*.

In assembling the parts the handle-bar sections are first united by the coupling C, and one end of the bar is then passed through the lug, and the heads *c* are screwed into the lug. The clamping-bolt is then passed into the stem D′, through the lower end of the latter, and its split portions are sprung over the neck *c′* of the connection, after which the spring *m* is passed over the upper end of the bolt, the locking-plate is put in place, and the screw-nut applied to the bolt.

My improved clamping device is not only convenient in use; but permits the use of a supporting-lug arranged directly above its attaching-stem, producing a sightly construction. The attachment can, moreover, be cheaply manufactured, as it involves but few parts.

In the construction of the coupling C shown in Figs. 1 to 6 the handle-bar sections are fit-

ted into the ends of the heads, but, if desired, they may be secured upon the heads *c*, as shown in Fig. 8, in which case externally screw-threaded and serrated collars *n* are brazed or otherwise secured upon the inner ends of the sections, which collars engage with the lug D.

My improved clamping device, although especially desirable for metallic handle-bars, is also applicable to wooden bars, as shown, for instance, in Fig. 9. In this case the bar may be made in sections, as shown in the first-described constructions, or it may be formed in a single piece and provided in its middle with an annular groove *o* for the passage of the clamping-bolt, as illustrated in Fig. 9. The bar is provided on opposite sides of its groove with screw-threaded collars *o'*, which engage with the supporting-lug.

I claim as my invention—

1. The combination with a supporting lug or barrel, of a handle-bar adjustably seated in said lug and provided within the same with an annular groove or recess, a locking plate or cap arranged on the upper side of the lug and bearing against the handle-bar, and a clamping-bolt confined or anchored at its lower end and extending upwardly through the groove or recess of the handle-bar and through said locking-plate, substantially as set forth.

2. The combination with a handle-bar lug or barrel provided in its top with an opening and on its under side with a depending stem adapted to enter a steering-head, of a handle-bar adjustably seated in said lug and provided within the same with a transverse groove or recess, a locking plate or cap arranged in the opening of the lug and bearing against the handle-bar, a wedge arranged in the stem of the lug and adapted to expand the same against the surrounding steering-head, and a clamping-bolt connected with said wedge and extending upwardly through the stem, the groove of the handle-bar and said locking plate or cap, substantially as set forth.

3. The combination with a handle-bar lug or barrel provided in its top with an opening, of a handle-bar adjustably seated in said lug and provided within the same with an annular groove forming an axial neck or reduced portion, a locking-plate arranged in the opening of the lug, and a clamping-bolt confined at its lower end and extending upwardly through the groove of the handle-bar and through said locking-plate and having an offset portion whereby the bolt clears said axial neck, substantially as set forth.

4. The combination with a handle-bar lug or barrel provided in its top with an opening, of a handle-bar adjustably seated in said lug and provided within the same with an annular groove forming an axial neck or reduced portion, a locking-plate arranged in the opening of the lug, a split clamping-bolt confined at its lower end and having its branches arranged on opposite sides of said axial neck and extending upwardly through said locking-plate, and a screw-nut applied to the projecting ends of said branches, and bearing upon said locking-plate, substantially as set forth.

5. The combination with a handle-bar lug or barrel provided in its wall with an opening, of a handle-bar seated adjustably in the lug, a locking-plate arranged in the opening of the lug and bearing against the handle-bar, a clamping device for said plate, and a spring whereby said plate is automatically raised out of engagement with the handle-bar upon releasing the plate, substantially as set forth.

6. The combination with a handle-bar lug or barrel provided in its top with an opening, of a handle-bar adjustably seated in said lug and provided within the same with an annular groove, a clamping-plate arranged in the opening of the lug and bearing against the handle-bar, a clamping-bolt confined at its lower end and extending upwardly through the groove of the handle-bar and said locking-plate, and provided below the plate with an offset or shoulder, and a spring applied to the bolt between its offset and the locking-plate, substantially as set forth.

7. The combination with a supporting-lug having an opening in its top, and an adjustable handle-bar seated therein and composed of two sections, of a coupling connecting said sections and consisting of a pair of cylindrical heads secured to the ends of the sections and connected by an axial neck, leaving an annular groove between the heads, a locking-plate arranged in the opening of the lug, and a clamping-bolt confined at its lower end and extending upwardly through said groove and said locking-plate and having an offset whereby it clears said axial neck, substantially as set forth.

8. The combination with a cylindrical supporting-lug having an internal screw-thread and provided in its top with an opening, of a handle-bar seated in said lug and composed of two sections, a coupling for said sections consisting of a pair of cylindrical heads having external screw-threads engaging with said lug and an axial neck connecting said heads, a locking-plate arranged in the opening of said lug and provided on its under side with screw-threads engaging with the threads of said coupling, and a clamping-bolt confined at its lower end and extending upwardly around said axial neck and through said locking-plate, substantially as set forth.

Witness my hand this 15th day of May, 1897.

AL BURT SIMONS.

Witnesses:
CARL F. GEYER,
KATHRYN ELMORE.