No. 655,581. Patented Aug. 7, 1900.

G. P. RISHEL.

ADJUSTABLE HANDLE BAR.

(Application filed Aug. 28, 1899.)

(No Model.)

Fig. 1.

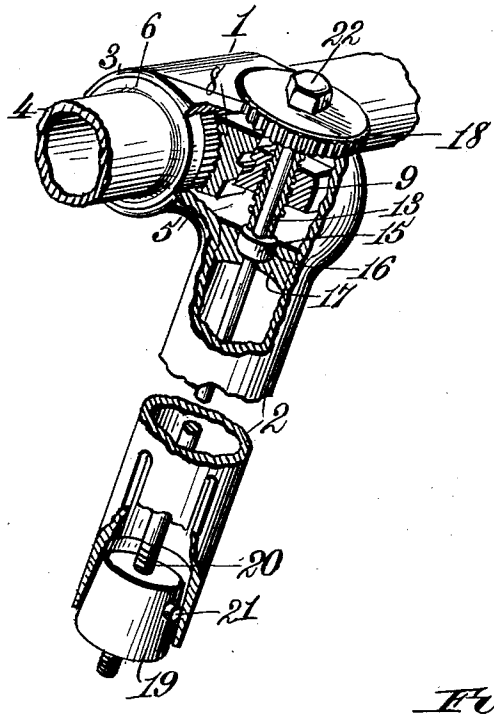


Fig. 3.

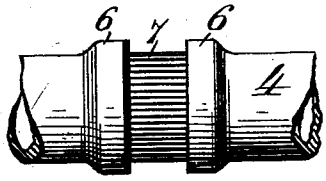
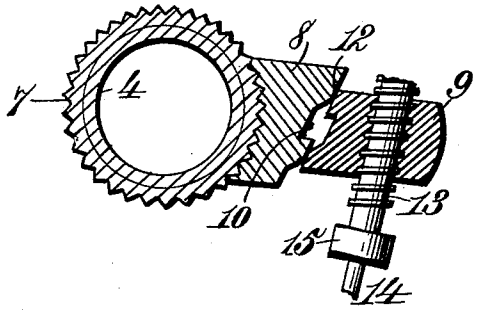


Fig. 2.



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UNITED STATES PATENT OFFICE.

GEORGE P. RISHEL, OF HORNELLSVILLE, NEW YORK, ASSIGNOR TO THE DIRKSEN HANDLE BAR COMPANY, OF SAME PLACE.

ADJUSTABLE HANDLE-BAR.

SPECIFICATION forming part of Letters Patent No. 655,581, dated August 7, 1900.

Application filed August 28, 1899. Serial No. 728,754. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. RISHEL, a citizen of the United States, residing at Hornellsville, in the county of Steuben and State of New York, have invented new and useful Improvements in Adjustable Handle-Bars for Bicycles, of which the following is a specification.

My invention relates to adjustable handle-bars for bicycles, my purpose being to provide simple, novel, and effective means whereby the handle-bar may be clamped to its stem and the stem clamped within the steering-tube at any of the points to which either of said parts may be adjusted, each being wholly independent of the other.

It is my object more particularly to provide new and improved means by which an internal expander may be so operated as to securely clamp the handle-bar stem at any point in the steering-tube and a clamp for the handle-bar by which the latter can, in a moment and without dismounting, be brought into any required position and locked beyond all possibility of slip or displacement, the operating devices having their axes coincident and being mounted one upon the other, but in such manner as to be capable of independent action.

It is one purpose of my invention also to provide a novel and simple construction of handle-bar whereby I make the same in a single piece in such manner that I am enabled to give it the form required by my present invention and at the same time preserve the full strength of said bar.

The invention consists to these ends in certain novel features of construction and new combination of parts fully described hereinafter and then particularly pointed out and defined in the claims.

For the purposes of the following description reference is had to the accompanying drawings, in which—

Figure 1 is a perspective view, part of the handle-bar stem being broken away to show the interior construction, and the locking and operating devices for the handle-bar being shown in section; Fig. 2, a detail section upon a scale somewhat larger than in Fig. 1, showing the operating devices. Fig. 3 is an elevation of a portion of the handle-bar removed from the handle-bar stem.

The reference-numeral 1 in said drawings indicates the head or T-piece of the handle-bar stem, the latter being denoted by the numeral 2. The head 1 is provided with circular ends 3, surrounding the handle-bar 4, which lies directly in front of the upper end of the handle-bar stem, a sharp lateral bend in the latter forming a short nearly-horizontal neck 5 between the handle-bar and stem.

The handle-bar 4 is constructed of the metal or material commonly used for that purpose and has any preferred form. Instead of making it in two separate parts united at the central portion I construct said bar in a single tubular piece upon which two collars 6 are slipped and firmly secured by brazing or in some other equally-efficient manner. They are arranged upon opposite sides of the center of the handle-bar at such distance apart that when the bar is in its place said collars will lie and fit accurately within the circular ends 3 of the head. Between the collars 6 is a corrugated or toothed sleeve 7, which is placed upon the handle-bar and secured to it in the same manner that the collars are applied. This sleeve is somewhat less in outside diameter than the collars at its ends.

Directly behind the corrugated or toothed sleeve 7 and lying in the nearly-horizontal neck 5 is a dog 8, having a concave face which is corrugated or toothed in such manner as to be capable of making a locking engagement with the sleeve. This dog fills the space between the collars 6 and circular ends 3 of the head, and as these ends are thicker than the head 1 and project inward the vertical faces of the dog abut against them and against the inner faces of the collars 6, thereby centering the handle-bar and maintaining its true central position under all the adjustments that may be made.

Behind the dog 8 is arranged a clamping-block 9, its forward surface bearing against the rearward face of the dog. These bearing-faces are inclined at a small angle to the axis of the handle-bar stem 2, and one of said surfaces is provided with one or more re-

cesses or depressions 10, the other surface being formed with one or more projections 12, so formed as to fit within said recess or recesses. The form of the latter is such that if one surface be moved longitudinally upon the other, even under considerable pressure, the projections 12 will enter said recesses without any shock or noise and may be withdrawn from the same and caused to pass to the higher portions of the surface adjacent to said recesses without material resistance.

The clamping-block 9 is operated by a screw-threaded sleeve 13, passing through and engaging a threaded opening in said block. The sleeve is mounted upon a spindle 14, the axis of which is substantially coincident with that of the handle-bar stem 2, and the sleeve 13 is free to turn on said spindle between the top of the stem 2 and a collar 15 upon the spindle 14, said collar being provided with a bearing or seat 16, formed in a thick diaphragm 17 in the stem 2 at a point just below the lateral neck 5. The upper end of the sleeve is provided with a finger-piece in the form of a disk-shaped collar 18, having a milled edge by which said sleeve may be turned in either direction. The finger-piece is flush or nearly so with the flat nearly-horizontal upper surface of the head or T-piece 1, in which a suitable recess or opening is formed to receive it. The milled edge is exposed, however, upon both sides, and the rear of the finger-piece, which lies over the end or open top of the stem 2, projects beyond the exterior of the latter and affords a convenient and easy means of operating the clamping-block 9.

The spindle 14 extends downward in the handle-bar stem 2 a little beyond the longitudinally-slitted and expansible lower end of the same, in which is placed an expander-block 19, through which the spindle is tapped, its threaded portion 20 being of such length as to provide for the greatest possible movements of the expander-block. The latter is prevented from turning by a lug 21, which moves in a longitudinal slot in the lower end of the stem.

The spindle 14 passes through the sleeve 13 and through the finger-piece 18, its upwardly-projecting end having a hexagonal or any other suitable form of head 22 by which it may be turned. Longitudinal displacement of the spindle is prevented by the collar 15, which turns between the diaphragm 17 and the end of the sleeve 13.

It will be seen that by the construction described and shown I provide a simple and effective adjustment for the handle-bar both as to height and as to its particular angle or position due to rotation upon its own axis, the devices for holding it at both points being entirely independent one of the other. The action of the threaded sleeve 13 in forcing the clamping-block 9 downward tends to press the sleeve itself upward, and if the pressure upon the latter were exerted upon the spindle 14 it would merely draw the spindle up and wedge the expander-block more closely into the end of the handle-bar stem. As a matter of fact, however, the force required to release the clamping-block is so small that little, if any, thrust is exerted on the sleeve 13. It is in restoring it to its clamping engagement with the dog 8 that the screw-threaded sleeve 13 is required to exert some force and the downward thrust it receives is taken up by the collar 15, which lies in its seat 16 in the fixed diaphragm 17.

The handle-bar, being in a single integral piece, has the maximum strength and rigidity and can readily be removed from the head 1, if necessary.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a bicycle, the combination of a handle-bar stem having an expansible lower end, a forwardly-projecting head at its upper end and a neck joining the head to the stem, a handle-bar extending through the head and having a toothed portion lying within the latter, a toothed dog lying within said neck for locking the handle-bar, a clamping-block having a screw-threaded orifice and arranged to advance the dog into engagement with the toothed portion of the handle-bar, a spindle extending through the stem and clamping-block and having means at its upper end block on the lower end of the spindle, a screw-threaded sleeve mounted on the spindle and for turning the same, a tapering expander engaging the screw-threaded orifice in the clamping-block, a finger-piece on the upper end of the sleeve for turning the same on the spindle, and means for holding the sleeve from lengthwise movement, substantially as described.

2. In a bicycle, the combination of a stem having an internal fixed diaphragm, expansible lower end and a head at its upper end constructed with a recess for a finger-piece, a handle-bar extending through the head and constructed with rigid collars and a toothed portion between the collars lying within said head, a toothed dog for engaging the toothed portion between said collars, a clamping-block having a vertically-extending screw-threaded orifice and arranged in the upper end of the stem to move the dog forwardly, and a vertically-arranged screw passing through the clamping-dog and having a disk-shaped finger-piece at its upper end seated in said recess in the upper end of the handle-bar stem, for turning the screw to raise the clamping-block and advance the dog, substantially as described.

3. In a bicycle, the combination with a handle-bar stem having a head, or T-piece, lying in front of its upper end, of a handle-bar lying in said head and having a corrugated or toothed portion between collars which fit the circular ends of the head, a dog lying in a short neck between the head and the end of the stem and provided with a corrugated or

toothed face to engage the handle-bar, a clamping-block in the upper end of the stem having an inclined face bearing on the dog, a threaded sleeve passing through a threaded opening in the clamping-block, a spindle lying in the sleeve and having a threaded lower end tapped through an expander-block, the end of the sleeve resting on a collar on the spindle which has bearing in a seat in a diaphragm in the stem, and means for turning said spindle and sleeve independently, substantially as described.

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

GEORGE P. RISHEL.

Witnesses:
L. E. HALSEY,
A. E. BROWN.