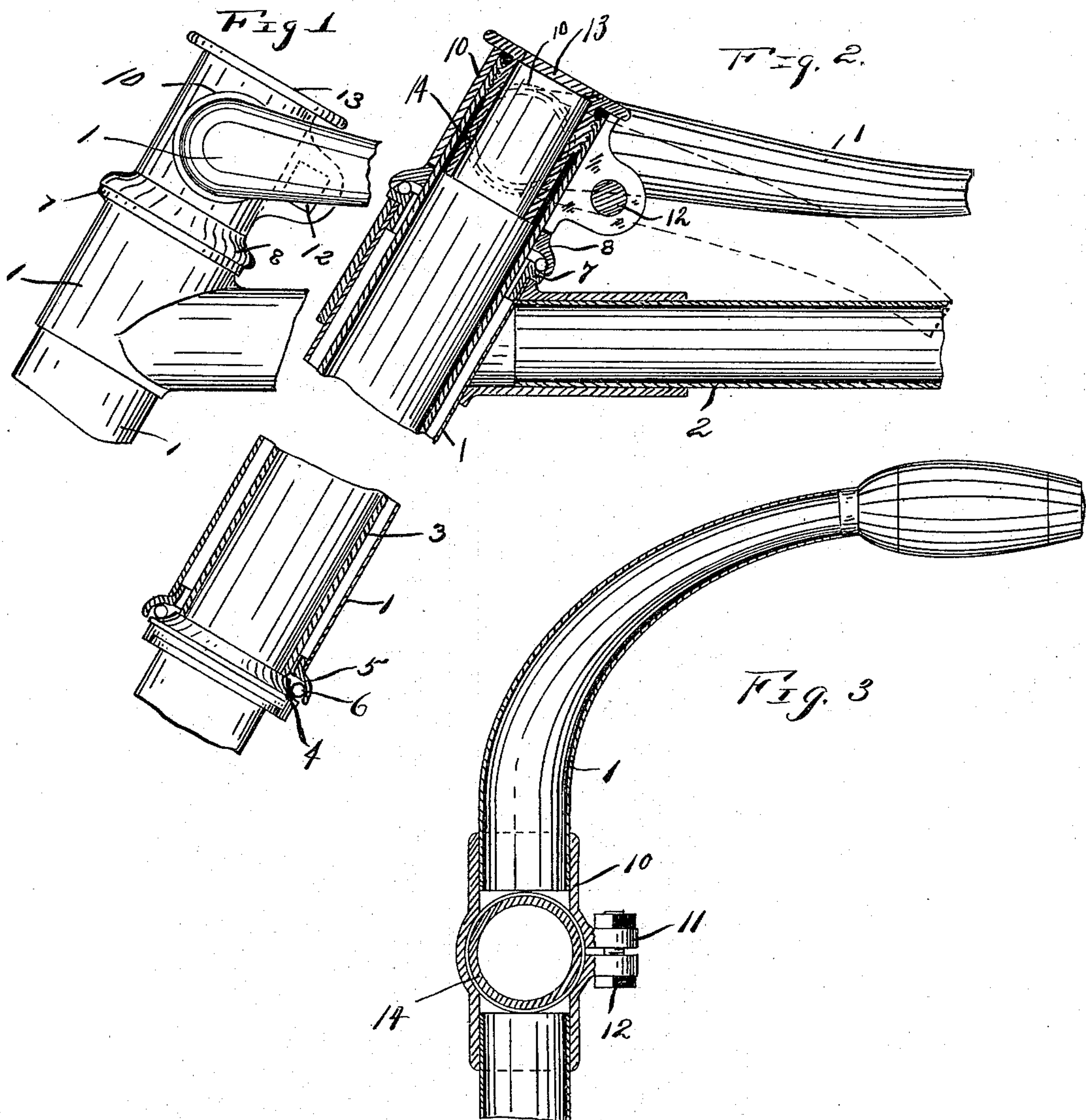


(No Model.)

VAN BURTON WILLITS.  
BICYCLE.

No. 573,316.

Patented Dec. 15, 1896.



WITNESSES:

*A. S. Courtwright.*  
*Jula Green.*

INVENTOR

*Van Burton Willits*

BY

*V. H. Lockwood*

ATTORNEY.



# UNITED STATES PATENT OFFICE.

VAN BURTON WILLITS, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE  
HAY & WILLITS MANUFACTURING COMPANY, OF SAME PLACE.

## BICYCLE.

SPECIFICATION forming part of Letters Patent No. 573,316, dated December 15, 1896.

Application filed December 17, 1895. Serial No. 572,480. (No model.)

*To all whom it may concern:*

Be it known that I, VAN BURTON WILLITS, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and  
5 useful Improvement in Bicycles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like numerals refer to like parts.

10 My invention relates to the construction of the steering apparatus of a bicycle, whereby the parts are simplified, rendered stronger, and more durable.

The full nature of my invention will appear from the accompanying drawings and the description and claims following.

Figure 1 is a side elevation of the upper part of the steering apparatus with the lower part and upper brace and the handle-bars  
20 broken away. Fig. 2 is a longitudinal section of the steering apparatus with the middle portion, the upper brace, and the handle-bars broken away. Fig. 3 is a longitudinal section of the handle-bars and their connection with the steering-post with one handle-  
25 bar broken away.

Connected up with the steering-head 1 is the upper brace 2. Their connection, as shown here, is the usual one, and my inven-  
30 tion does not relate to such construction. The steering-post 3 extends through the steering-head and has on its lower portion the cone-bearing 4. The bearing-collar 5 is secured in the lower end of the steering-head to correspond with the cone-bearing 4, between  
35 which suitable balls 6 are placed to form a ball-bearing. Within the upper end of the steering-head I place another cone-bearing 7. Above it on the steering-post I place a bearing-collar 8, and between them suitable balls  
40 are carried to form an upper ball-bearing for the steering-post. The bearing-collar 8 is loosely mounted on the steering-post 3. Heretofore this bearing-collar has been interiorly  
45 threaded and the steering-post exteriorly threaded within such bearing-collar. Then the bearing-collar has been screwed down for purposes of adjustment. This construction weakens the steering-post too much, so that  
50 frequently it is broken in two at that point.

I overcome the difficulty above mentioned

by brazing my handle-bars 9 into a sleeve 10, that is opened on one side and provided with a pair of ears 11, through which the bolt 12 extends. This clamping-sleeve 10 I slip over  
55 the steering-post, as seen in Fig. 2, and slip it down against the bearing-collar 8. I then provide a cap 13 with the interior sleeve 14, that extends into the upper end of the steering-post for a short distance. The sleeve 14 is ex-  
60 teriorly threaded, preferably near its upper end, and the steering-post is interiorly threaded near its upper end, so that the sleeve 14 screws down into place within the steering-post, and the cap 13, when it is drawn down-  
65 ward, engages the clamping-sleeve 10, forcing it downward against the bearing-collar 8 until the bearing is sufficiently adjusted. Not only does this process adjust the upper bearing, but it also adjusts the lower bearing, as the cap 13,  
70 with the sleeve 14, tends to draw the steering-post upward through the steering-head. Thus the two ball-bearings are simultaneously and equally adjusted by the same means. At this stage I tighten the nut on the bolt 12,  
75 clamping the sleeve 10 about the steering-post, so that the handle-bars will not slip on it, and the sleeve 14 is bound so tight in the steering-post that the cap cannot become  
80 loose. With this arrangement I not only secure the simple adjustment above referred to, but I in no manner weaken my steering-post, as it is of full thickness throughout, and the cap 13 effectually protects and holds  
85 in place the various parts. The clamping-sleeve 10 also holds the bearings rigidly in place after they have been adjusted. Furthermore, I attain these results with a very simple construction that can be readily taken  
90 apart by removing the cap 13 and loosening the nut on the bolt 12. This also enables me to readily remove my handle-bars and turn them over to make them low or high, as I may desire.

What I claim as my invention, and desire 95 to secure by Letters Patent, is—

1. In a bicycle, the combination of a steering-head, a steering-post extending through such head, a bearing-collar loosely mounted on the steering-post at the upper end of the  
100 head, a clamp-sleeve carrying the handle-bars placed above the bearing-collar, and a



cap that is screwed in the upper end of the steering-post and which engages the sleeve and thereby, when screwed down, adjusts the bearing-collar, substantially as set forth.

5 2. In a bicycle, the combination of a steering-head, a steering-post therethrough, a bearing-collar rigidly mounted on the steering-post at the lower end of the steering-head, a bearing-collar loosely mounted on the steering-post at the upper end of the steering-head, a clamp-sleeve carrying the handle-bars placed above the bearing-collar, and a cap that is screwed in the upper end of the steering-post and which engages the sleeve  
10 and thereby, when screwed down, adjusts both bearings, substantially as set forth.

3. In a bicycle, the combination of a steering-head, a steering-post therethrough, a bearing-collar loosely mounted on the steering-  
20 post at the upper end of the steering-head,

a cap with a depending sleeve that screws into the upper end of the steering-post, and a clamp-sleeve above the bearing-collar and engaged by the cap.

4. In a bicycle, the combination of a steering-head, a steering-post therethrough, a bearing-collar loosely mounted on the steering-post at the upper end of the steering-head, a clamp-sleeve above the bearing-collar, the handle-bars carried by such sleeve, and a cap  
30 with a depending sleeve that screws into the upper end of the steering-head, such cap engaging the clamp-sleeve of the handle-bars, substantially as set forth.

In witness whereof I have hereunto set my hand this 9th day of December, 1895.

VAN BURTON WILLITS.

Witnesses:

ANGELENE CULLITY,  
ZULA GREEN.