(No Model.)

G. T. WARWICK.

STEP FOR BICYCLES.

No. 416,696. Patented Dec. 3, 1889.

Fig. 4.

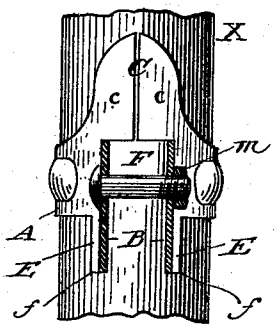


Fig. 1.

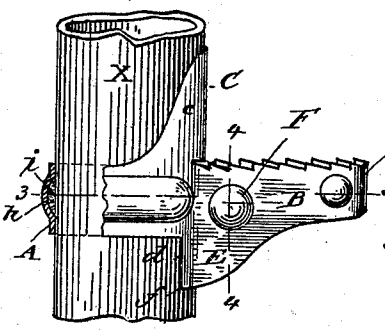


Fig. 5.

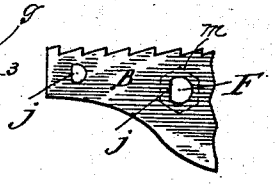


Fig. 2.

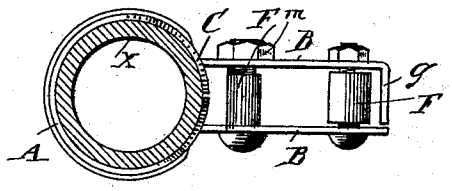
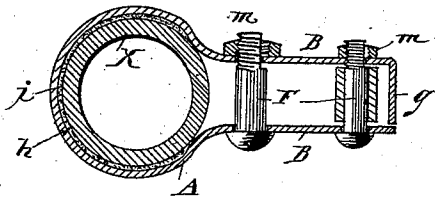


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE T. WARWICK, OF SPRINGFIELD, MASSACHUSETTS, ASSIGNOR TO THE WARWICK CYCLE MANUFACTURING COMPANY, OF SAME PLACE.

STEP FOR BICYCLES.

SPECIFICATION forming part of Letters Patent No. 416,696, dated December 3, 1889.

Application filed March 29, 1889. Serial No. 305,321. (No model.)

To all whom it may concern:

Be it known that I, GEORGE T. WARWICK, a subject of the Queen of Great Britain, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Mounting-Steps for Bicycles, of which the following is a specification.

This invention relates to improvements in mounting-steps for bicycle-backbones, the object thereof being to provide in or for the step a shield to protect the surface of the backbone adjacent thereto from abrasion or marring, to provide in the step means whereby its connection to the backbone may be the more securely retained, and also in minor details of construction, the features of invention consisting in the construction and combination of parts, all substantially as will be hereinafter fully set forth and identified by the claims.

In the accompanying drawings, Figure 1 is a side view of a portion of a bicycle-backbone, and showing as applied thereon a mounting-step constructed in accordance with this invention, a portion of the encircling strap portion thereof being broken away and in transverse section for better illustration. Fig. 2 is a horizontal or cross section of the backbone and a plan view of the mounting-step. Fig. 3 is a horizontal sectional view taken on the line 3 3, Fig. 1. Fig. 4 is a view of a portion of the backbone and the mounting-step thereon as seen at right angles to Fig. 1, a part of the step portion thereof being shown in vertical section on the line 4 4, Fig. 1. Fig. 5 is a view of a part of the step from the opposite side to that seen in Fig. 1, illustrative of features of construction hereinafter referred to.

This mounting-step is of the class comprising a clip or strap A, to encircle and bind on the backbone X, having its outwardly-extended terminal portions B B, constituting the step, held together by bolts and nuts, and, as shown, the clip, by its portion at and just above the junction of the step-extensions B B with the strap, is formed with an upward shield-extension *c*, of any suitable form and area to cover the portion of the backbone just above the said step and likely to be abraded or marred by the shoes of the rider in mounting. The backbone being more or less downwardly tapering and the pressure on the step of course being downward, there is an annoying tendency of the clip to settle, moving out of adjustment, and leaving scratches or seams on the finish of the backbone, and to prevent such actions and effects the clip is provided with one or more leverage or bracing extensions E, suitably placed thereon, to bear and act against the backbone in a plane substantially coincident with the line or direction in which the clip is liable to swing or shift on the backbone when the step thereof is under the weight of a rider. The most practical and effective manner of applying said bracing-extensions of the clip is to form them as downward projections of the inner portions of the step-extensions to lie by their forward ends *d* against the more or less nearly vertical wall of the backbone, and the said extended brace portions of the step-extensions are formed with sharp corners *f*. Pressure applied on the step to swing it downwardly will be resisted by said brace-extensions, the angular ends thereof being caused to bite or take into the surface of the backbone. Should the brace-extensions be formed on the opposite side of the clip, projecting upwardly from the strap, as may be carried out under this invention, more or less advantageous results in the direction indicated may be attained; but the location of the said extensions under the rear portion of the step-extension is clearly to be preferred.

One of the outwardly-ranging step-extensions B has its outer end portion *g* turned inwardly at right angles thereto and extended to abut against the other step-extension on its inside adjacent to its end, forming an even end wall for the step, whereby sharp projections are avoided to catch on the clothing or injure the person, said step-extensions being braced and held against separating from each other by one or more bolts F, passing laterally through them, and the nuts *m*.

The perforation in one of the step-extensions through which the outer portion of the bolt F passes is formed with a flat side *j*, the bolt being correspondingly formed at its end, whereby on the turning up of the nut upon

the bolt the same will not rotate, and thus round-headed bolts may be employed, it having been heretofore necessary to employ a bolt having a polygonal head, whereby to hold it with a wrench against rotation while applying the nut.

As seen in vertical cross-section in Fig. 1 and in horizontal section in Fig. 3, the strap on its inner side is formed with a depression *h*, in which is placed a bushing-strip *i*, of flexible or elastic material, as rubber or felt, and when the strap is confined against the backbone by the said bushing a better frictional bind will be insured.

What I claim as my invention is—

1. As an improved mounting-step for the backbone of a bicycle, a single piece of sheet metal by its intermediate portion formed into a strap to nearly encircle the backbone, and thence by its terminal portions projected in proximity outwardly from said strap portion to form the step-extensions, said metal piece near the junction of the step-extensions and the circular strap-portion being formed with the upward and inward extensions *c c* to form a shield for the backbone above the step, and means, substantially as described, for confining said step-extensions in proximity and contracting said strap portion on the backbone, substantially as described.

2. As an improved mounting-step for the backbone of a bicycle, a single piece of sheet metal by its intermediate portion formed into a strap to nearly encircle the backbone and having a depression in its inner side, and thence by its terminal portions projected in proximity outwardly from said strap portion a sufficient distance to form a step, a bushing of rubber or other flexible material in said depression, and means, substantially as described, for confining said step-extensions in proximity and for contracting said strap portion on the backbone, substantially as described.

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