(No Model.)

T. BENFIELD.

BICYCLE STEP.

No. 374,287. Patented Dec. 6, 1887.

Fig. 1

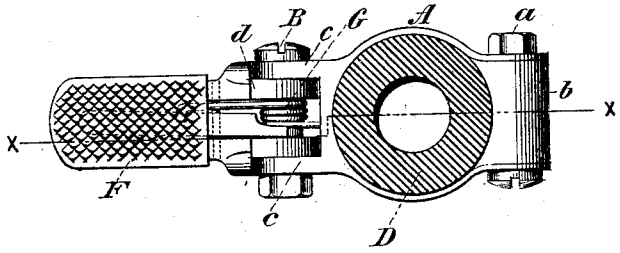


Fig. 2.

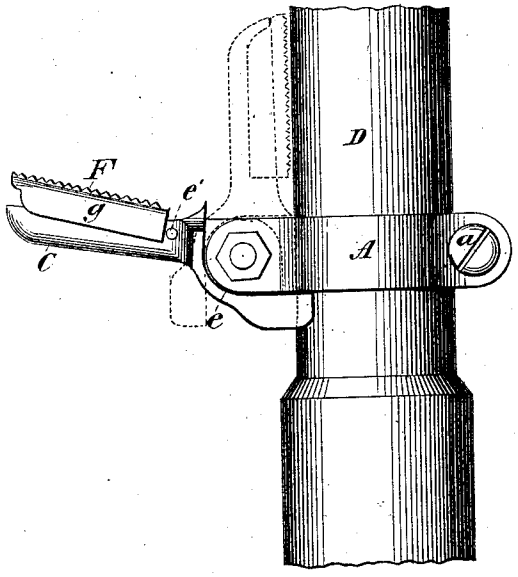
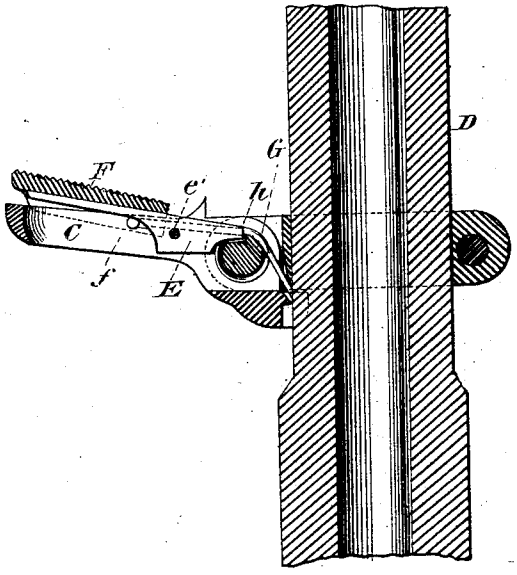


Fig. 3.



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BICYCLE-STEP.

SPECIFICATION forming part of Letters Patent No. 374,287, dated December 6, 1887.

Application filed September 3, 1887. Serial No. 248,743. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BENFIELD, a subject of Her Majesty the Queen of Great Britain, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Bicycle-Steps, of which the following is a specification.

My invention relates to an improvement in bicycle-steps, the object of the same being to provide a device of this character which, after the rider has seated himself in the saddle and removed his foot from the step, shall automatically adjust itself to an upright position against the "backbone" of the machine, and retain this position out of the way of the rider when dismounting, and overcoming all danger of injury therefrom in case of accidental falling.

With this end in view my invention consists in certain novel features of construction and combinations of parts, as will be hereinafter fully described, and set forth in the claims.

In the accompanying drawings, Figure 1 is a plan view of my improved bicycle-step in position for the rider to mount therefrom. Fig. 2 is a similar view thereof in side elevation, showing in dotted lines the position of the step when adjusted against the backbone of the machine. Fig. 3 is a sectional view thereof, taken on the line *x x* of Fig. 1.

Referring to the drawings, A represents a collar encircling the backbone and adapted to hold the step in proper position thereon, the bolt *a* passing through the free ends of said collar and through the piece *b*, inserted between said ends, holding said collar in its proper position. The collar A is formed with outwardly-projecting lugs or bearings *c*, through which is passed a pintle or bolt, B. On the pintle or bolt B is hinged the step C, the rear end of which is formed with the lugs or projections *d*, fitting in between the lugs *c*, and through which passes the pintle or bolt B, the sides of the rear portion of the step extending out beyond said lugs *d* and flush with the sides of the lugs *c*, forming shoulders *e*, bearing against the outer ends of said lugs *c*. The rear end of the step is curved downwardly and rearwardly, as shown in Figs. 2 and 3 of the drawings, and when in its horizontal position bears against the backbone of the machine, the extreme end of said step being hollowed out to conform to the cylindrical shape of the backbone D.

The step C is provided with an elongated opening, *f*, for the reception of the lever E, pivoted to said step and preferably of the shape as shown in Fig. 3 of the drawings. To this lever is rigidly secured the plate F, the sides *g* of which are bent downwardly to embrace the sides of the step C, as shown in Fig. 2 of the drawings, thereby giving to the device a neat and finished appearance, the upper surface of the plate F being corrugated to prevent the foot from slipping therefrom.

Around the bolt or pintle B is coiled the spring G, one end of which bears against the collar A, and the opposite end passing into the opening *f* in the step and fitting against the under side of the lever E and forward of the bolt *i*, which pivots said lever to the step. It will therefore be seen that the tendency of this spring is to raise the forward end of the lever E and plate F, and to depress the rear end of said lever, which latter, when the step is in its horizontal adjustment, fits against the shoulder *h*, formed in the bolt or pintle B. When the plate F and lever E are depressed against the step C, the rear end of the lever will be raised out of engagement with the shoulder *h*, formed on the pintle B. The spring G immediately raises the step and its connecting parts to the upright position shown in dotted lines in Fig. 2, the rear end of said lever E riding on and around the said bolt or pintle B. When the step is lowered, which is accomplished by pressing downwardly and rearwardly the rear curved end of the step, the lever E rides on and around the bolt B until the extreme end of said lever registers with the shoulder *h* thereon, whereupon the spring G, acting on the forward portion of the lever, lowers the rear end of the lever into engagement with said shoulder and retains said step in its horizontal position. It will be understood that the rider in placing his foot upon the plate F lowers the same, and at the same time raises the rear end of the lever out of engagement with the shoulder *h* on the bolt B, and after seating himself on the saddle and removing his foot from the step the latter immediately adjusts itself against the backbone, as before described, the weight of the rider,

when standing on the step, being distributed between the bolt and the rear curved end of the step bearing against the backbone.

My invention is exceedingly simple in its construction, is durable and effectual in use, can be manufactured at a small cost, and automatic in its operations.

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

1. An automatically-folding bicycle-step.

2. A horizontal bicycle-step adapted to adjust itself to a vertical position when the foot is removed therefrom.

3. A step adapted to be secured to the backbone of a bicycle and constructed with a spring for automatically adjusting itself against said backbone, substantially as set forth.

4. A step for a bicycle, hinged to the backbone of the machine and constructed with a spring for holding it in its horizontal position and automatically adjusting it to a vertical position, substantially as set forth.

5. A step hinged to the backbone of a bicycle and constructed with a spring-actuated lever adapted to hold the step in horizontal position, substantially as set forth.

6. A step hinged to the backbone of a bicycle and constructed with a lever pivoted to said step and adapted to engage with the pintle of the hinge for holding the step in a horizontal position, and a spring for automatically throwing the step into a vertical position when the foot is removed therefrom, substantially as set forth.

7. A step hinged to a collar encircling the backbone of a bicycle and constructed with a lever pivoted to the step, a plate secured to said lever, and a spring engaging with said lever, substantially as and for the purposes set forth.

8. A step hinged to the backbone of a bicycle and constructed with a lever pivoted to said step and adapted to engage with the pintle of the hinge for holding said step in a horizontal position, substantially as set forth.

9. A step hinged to the backbone of a bicycle and constructed with a lever pivoted to said step and adapted to engage with the pintle of the hinge, a plate secured to the lever, and a spring coiled around said pintle and engaging with said lever and collar, substantially as and for the purposes set forth.

10. A step for a bicycle, consisting of a collar encircling the backbone of the machine, a step hinged thereto, the pintle of said hinge being provided with a shoulder, a lever pivoted to the step and adapted to engage with said shoulder and having a plate secured thereto, and a spring-wrapper around said pintle and engaging with the lever for automatically throwing the step into a vertical position when the foot is removed therefrom, substantially as set forth.

11. A bicycle-step hinged to a collar encircling the backbone of a machine and constructed with the step A, the lever E, pivoted thereto, engaging with the pintle B and having the plate *g* secured thereto, and the spring G, wrapped around said pintle and engaging with said lever E, substantially as set forth.

12. In a bicycle-step, the collar A, step C, hinged thereto, lever E, pivoted to said step and engaging with a shoulder formed on the pintle B, spring G, wrapped around the latter and engaging with said lever E, and plate *g*, the above parts being combined and adapted to operate substantially in the manner and for the purposes set forth.

Signed at New York, in the county of New York and State of New York, this 30th day of August, A. D. 1887.

THOMAS BENFIELD.

Witnesses:
GEORGE COOK,
FRED. C. RIECKERS.