No. 722,056. PATENTED MAR. 3, 1903.

E. A. THIEM & G. W. WEBER.

TOE CLIP FOR BICYCLES.

APPLICATION FILED AUG. 25, 1897. RENEWED AUG. 23, 1902.

NO MODEL.

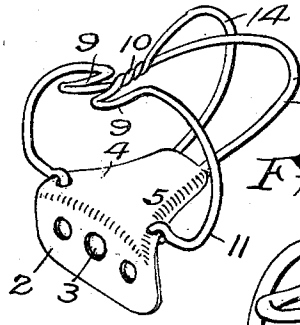


Fig. 9.

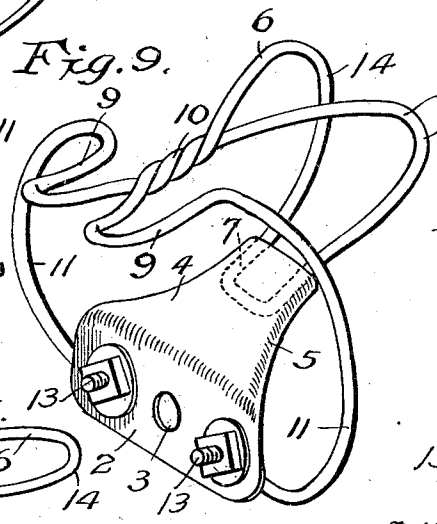


Fig. 1.

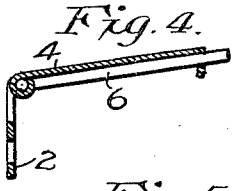


Fig. 4.

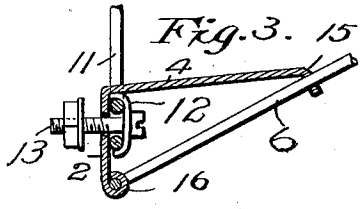


Fig. 3.

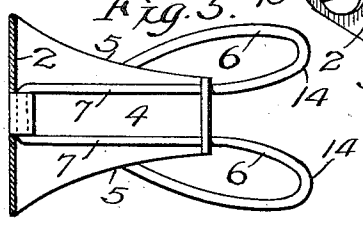


Fig. 5.

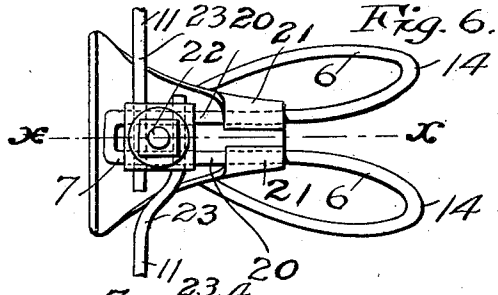


Fig. 6.

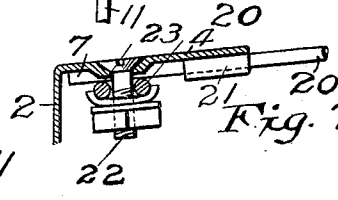


Fig. 7.

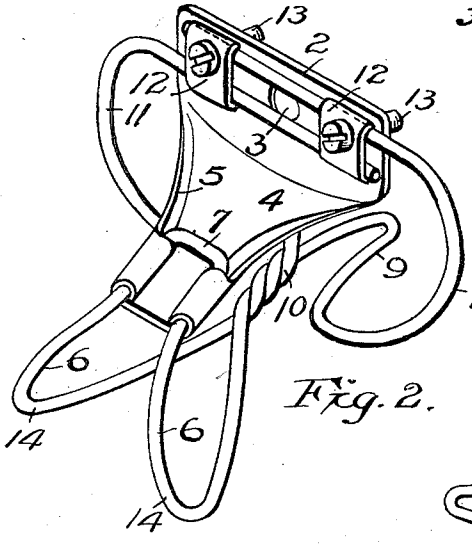


Fig. 2.

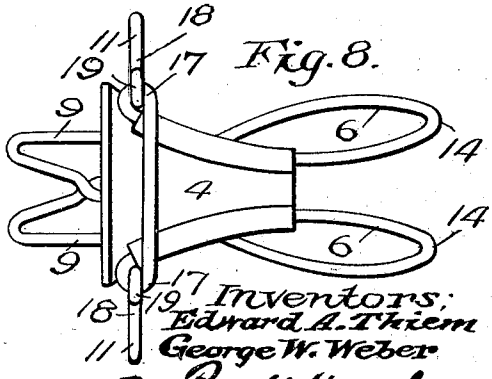


Fig. 8.

Witnesses;
C. E. VanDoren
Richard Paul

Inventors;
Edward A. Thiem
George W. Weber
By Paul & Rawley
their attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

EDWARD A. THIEM AND GEORGE W. WEBER, OF ST. PAUL, MINNESOTA; SAID WEBER ASSIGNOR TO SAID THIEM.

TOE-CLIP FOR BICYCLES.

SPECIFICATION forming part of Letters Patent No. 722,056, dated March 3, 1903.

Application filed August 25, 1897. Renewed August 23, 1902. Serial No. 120,855. (No model.)

To all whom it may concern:

Be it known that we, EDWARD A. THIEM and GEORGE W. WEBER, citizens of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have made certain new and useful Improvements in Toe-Clips for Bicycles, of which the following is a specification.

Our invention relates to toe-clips for use upon bicycle-pedals; and the object of our invention is to provide a strong, stiff, and yet light toe-clip adapted to be readily attached to a bicycle-pedal and which will embrace the toe of the rider and be adjustable to the shoe.

The particular object of our invention is to improve the toe-clip shown and described in Letters Patent No. 574,288, granted to Edward A. Thiem December 29, 1896. The toe-clips made in accordance with said patent tend to bend or yield slightly under the pressure of the foot; and one object of this invention is to stiffen the lower part of the clip and, further, to improve the means of attachment to the pedal.

Our invention consists in the combination, with a toe-receiving loop and a foot-embracing loop, of a bracket or base to be secured upon the pedal and whereto said loops are secured; and the invention further consists in various constructions and in combinations of parts, all as hereinafter described, and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of a toe-clip embodying our invention. Fig. 2 is a perspective view of the clip inverted. Fig. 3 is a sectional detail showing a modified form of the bracket portions of the clip. Fig. 4 shows a further modification in the fastening for securing the lower end of the toe-receiving loop. Fig. 5 is a bottom view of the parts shown in Fig. 4. Fig. 6 is a view illustrating a construction wherein both the toe-receiving and foot-embracing loops are made adjustable. Fig. 7 is a sectional view on the line $x\ x$ of Fig. 6. Fig. 8 shows a modified construction of the clip, wherein the foot-embracing loop is non-adjustable. Fig. 9 illustrates a modification of Fig. 8.

The principal novelty of this invention lies in the sheet-metal bracket forming the base of the clip. The vertical plate 2 of the bracket is provided with one, two, or three holes 3 for the bolt or bolts by which the clip is secured to the front plate of the pedal in the well-known way. The upper portion 4 of the bracket or base is arranged at an obtuse angle to the lower part 2 and is arched, its edges 5 being bent downwardly to give the bracket a maximum of strength to resist the downward pressure of the foot and to provide a smooth ball-surface on which the shoe of the rider cannot possibly catch. The toe of the rider's shoe rests upon the top of this base or bracket and extends beyond the same and into the toe-embracing loop 6, which is made up of the two halves of the rearwardly and downwardly extending loop 6 of the wire structure. The forwardly-extending lower end 7 of the toe-receiving loop is of the proper width to enter between the downwardly-bent edges 5 of the plate or bracket 4, and at the forward end of the bracket those edges or flanges are of greater width than at other points and are turned or curled under the side portions of the end 7 of the loop to secure the same firmly to the under side of the bracket, as shown in Fig. 2. This makes an extremely-rigid connection for the toe-receiving loop, which is positively prevented from slipping or loosening when an upward pull is exerted upon the clip, as when climbing hills. The rearwardly-extending bends 9 and the twist 10 are interposed between the toe-receiving loop and the foot-embracing loop 11. The ends of the foot-embracing loop pass back of the plate portion 2 of the arched sheet-metal bracket and are there adjustably secured by means of clamping-plates 12, arranged upon the bolts 13. The bolts 13 are also used to fasten the clip to the bicycle-pedal.

A further feature of the improved toe-clip lies in the outward bend of the two halves of the toe-receiving loop 6, whereby the forward parts 14 thereof are separated so that they will receive the toe-point of the rider's shoe between them, so that the shoe will be held at three points—that is, at the toe and on

each side by the foot-embracing loop. For the sake of strength and appearance the toe-receiving bends are extended in diverging straight lines from the central twist 10 at the top of the clip.

In place of securing the lower end of the toe-receiving loop immediately upon the forward end of the bracket or base we may, as shown in Fig. 3, lengthen the lower end of said loop, carry the same through a depending edge 15, formed on the forward end of the bracket, and secure the lower forward end of the loop in the curl or bend 16, provided upon the lower edge of the vertical part of the bracket. Further, the lower parts of the loops will form a brace for the bracket, as shown, or in place of this construction the forward end of the lower end of the toe-receiving loop may be carried back along the under side of the bracket and secured near the upper edge of the vertical part 2, as shown in Figs. 4 and 5. In this case the material for the fastening is struck from the body of the bracket.

A non-adjustable clip may be made, as shown in Fig. 8. The lower end of the toe-receiving loop is secured about as in Fig. 1, but provided with small loops or curls 17, in which the lower ends 18 of the foot-embracing loop are permanently and rigidly secured by making suitable bends 19 therein.

In Fig. 9 we have illustrated a modification of the construction shown in Fig. 8. The reinforced bracket is provided with holes in which the ends of the foot-embracing loop are secured, and we prefer this construction to that shown in Fig. 8. If, on the other hand, it is desirable to make a toe-receiving loop as well as the foot-embracing loop adjustable, this result may be accomplished, as shown in Fig. 6, by arranging the parallel sides 20 of the lower loop 7 to run freely through the curls or integral sleeves 21 upon the lower side of the bracket, so that the same may be moved in or out with respect to a fixed clamping-bolt 22, depending from the bracket. The head of the bolt 22 is preferably countersunk in the top of the bracket. The bolt 22 may be used to secure the lower adjustable ends 23 of the foot-embracing loop, thereby dispensing with the clamps shown in Figs. 1 and 2 on the plate portion 2 of the bracket.

All of these constructions are possible owing to the employing of the strong arched sheet-metal reinforcement or bracket, which of itself may be easily secured to the pedal and furnishes a foundation or base upon which the rest of the structure may be arranged.

This clip in any of the forms illustrated or in any modification thereof which might suggest itself to one skilled in the art will prove to be of great assistance to bicycle-riders, as an upward force or pull may be thereby exerted upon the pedals through the clip without bending or straightening any portion of the device. Furthermore, the clip is constructed so that the toe of the shoe cannot be caught or held therein in a way to retain the foot when dismounting or in case of a fall.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The combination, in a toe-clip, of a sheet-metal bracket, having the depending part or plate portion 2 provided with means for attachment to a pedal-plate and the convex forwardly-extending portion 4 having its edges bent downwardly and forming strengthening-flanges, with the wire loops 11 extending laterally upon each side of said plate portion and secured thereto, and the forwardly-extending loop 6 having its end bent downwardly and rearwardly and secured beneath the forward end of the convex portion of said bracket, substantially as described.

2. The combination, in a toe-clip, of the sheet-metal bracket, having the comparatively wide depending part or plate portion 2 provided with means for attachment to a pedal-plate and a narrow convex-surfaced forwardly-extending portion 4 having its edges bent downwardly and forming strengthening-flanges, with the wire loops 11 extending laterally upon each side of said plate portion and adjustably secured thereto, and the forwardly-extending loop 6 having its end bent downwardly and rearwardly and secured beneath the forward end of the convex portion of said bracket, substantially as described.

3. A toe-clip, comprising a forwardly-extending sheet-metal bracket having at its rear end a depending portion 2 and means securing the same to a pedal-plate and at its forward end downwardly-turned curls or bends, wire foot-embracing loops 11 provided upon each side of said bracket and having their lower ends adjustably secured to said depending portion and a wire toe-receiving loop 6 integral with the upper portion of said loops 11 and projecting forward from said bracket and having its end downwardly and rearwardly turned and secured by said curls or bends to the forward end of said bracket, substantially as described.

4. A toe-clip, comprising a convex sheet-metal bracket having downwardly-turned curls or loops at its forward end, wire foot-embracing loops provided upon each side of said bracket and having their ends bent downwardly and extending under said bracket, a forwardly-extending toe-receiving loop united at its rear end to said foot-embracing loops and having its forward end turned downwardly and held in position by said loops or curls and means provided on said bracket for adjustably securing the ends of said foot-embracing loops thereon, substantially as described.

5. The combination, in a toe-clip, of a sheet-metal bracket, having at its rear end a depending part or plate portion 2 provided with means for attachment to a pedal-plate and the forwardly-extending portion 4, with the

wire loops 11 extending laterally upon each side of said plate portion and secured thereto and the forwardly-extending toe-receiving loop 6 integral with the upper portion of said loops 11 and having its forward portion bent downwardly and rearwardly and secured beneath the forwardly-extending portion of said bracket, substantially as described.

6. In a toe-clip, the combination, with a base-plate provided with means for attachment to a pedal, of a foot-embracing loop secured to said base-plate, and a flexible toe-receiving loop having the rear end of its upper portion secured to said foot-embracing loop and the rear end of its lower portion adjustably secured to said base-plate, substantially as described.

7. In a toe-clip, the combination, with a base-plate provided with means for attachment to a pedal, of a foot-embracing loop having its ends adjustably secured to said base-plate, and a flexible toe-receiving loop having the rear end of its upper portion secured to said foot-embracing loop and the rear end of its lower portion adjustably secured to said base-plate, substantially as described.

In testimony whereof we have hereunto set our hands this 20th day of August, A. D. 1897.

EDWARD A. THIEM.
GEORGE W. WEBER.

In presence of—
A. C. PAUL,
RICHARD PAUL.