(No Model.) 3 Sheets—Sheet 1.

W. HERRICK.

TOE CLIP FOR VELOCIPEDES.

No. 597,830. Patented Jan. 25, 1898.

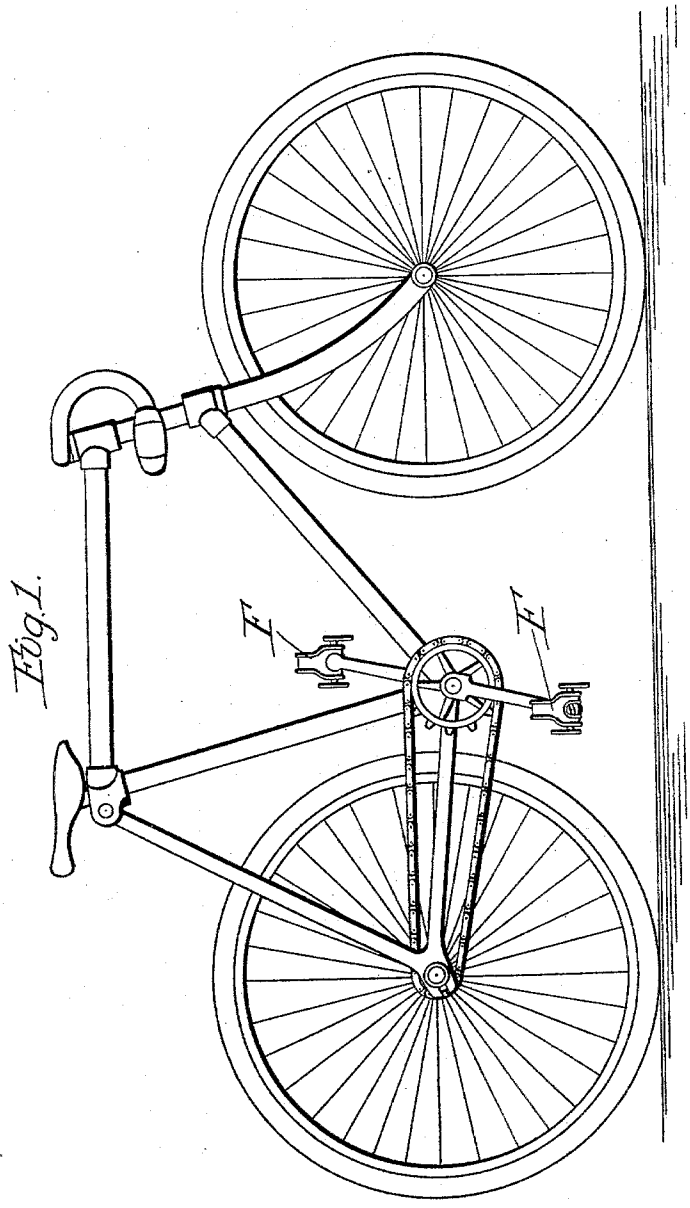


Fig. 1.

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Fig. 2.

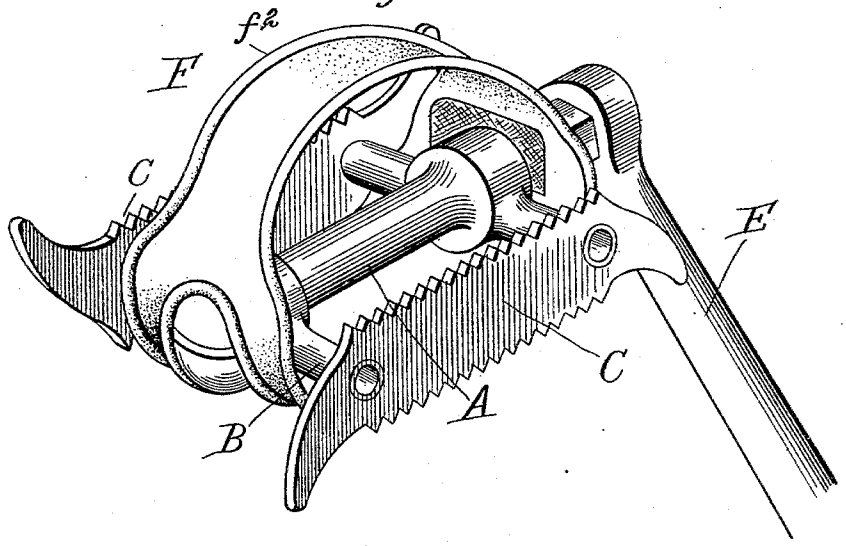
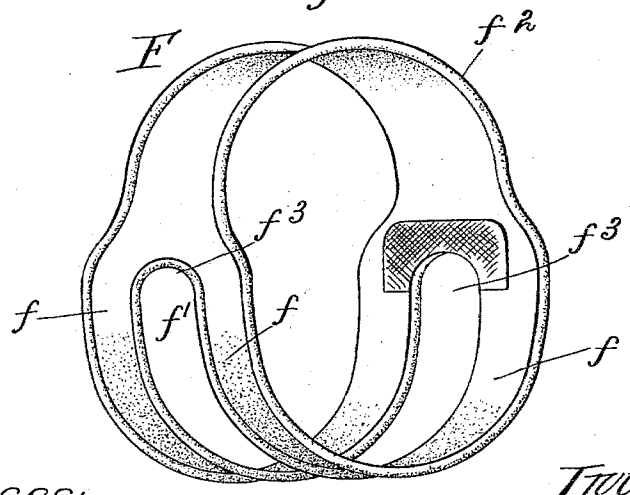


Fig. 3.



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Fig. 4.

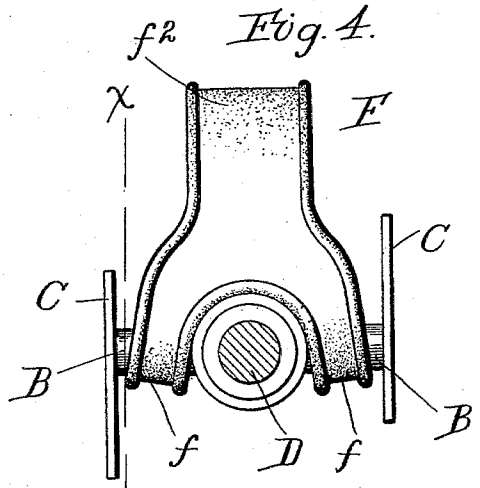


Fig. 5.

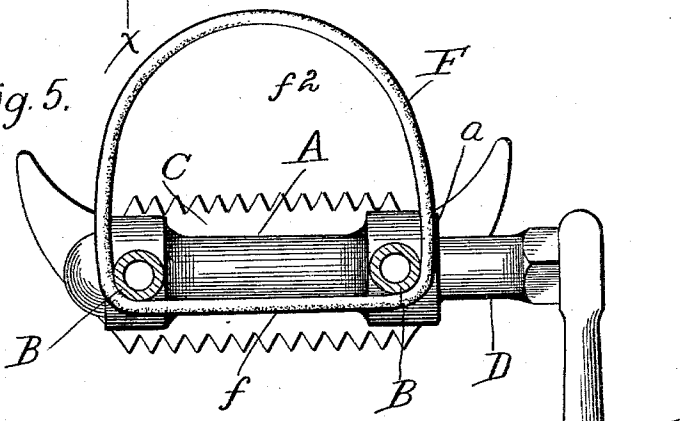
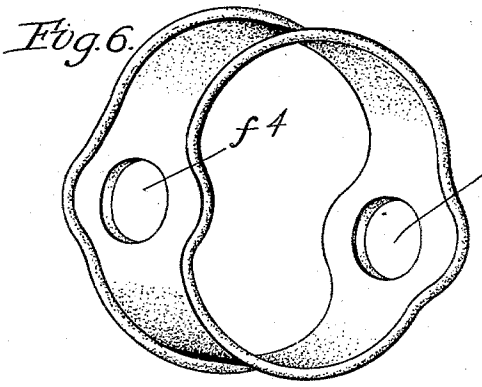


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM HERRICK, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE MORGAN & WRIGHT, OF SAME PLACE.

TOE-CLIP FOR VELOCIPEDES.

SPECIFICATION forming part of Letters Patent No. 597,830, dated January 25, 1898.

Application filed August 13, 1897. Serial No. 648,105. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HERRICK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Toe-Clips for Velocipedes, of which the following is a specification.

The object of my invention is to provide an exceedingly simple, economical, and reliable construction of flexible elastic toe-clips which can be readily and conveniently applied to and detached from a velocipede-pedal without removing the latter from the crank and which when in place upon the pedal will normally arch over the same, so as to be in readiness for use, as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 shows in side elevation a bicycle having its pedals provided with toe-clips in accordance with my invention. Fig. 2 represents one of the pedals in perspective and on a larger scale with the toe-clip applied. Fig. 3 is a perspective view of the toe-clip having a longitudinally-divided portion. Fig. 4 represents the pedal of Fig. 2 in end elevation with the clip applied. Fig. 5 is a section through the same on line $x\ x$. Fig. 6 shows the toe-clip which is partially divided by a couple of openings.

A common construction of velocipede or bicycle pedal involves an arbor, which is secured to one end of the crank-arm, and a pedal-frame, which is arranged to turn upon the arbor and which forms a rest for the rider's foot. In such construction projections are formed at each end of the pedal, the most common being the end portions of a hub or sleeve which forms a part of the pedal-frame and which is arranged to revolve upon the arbor or spindle.

The construction of pedal illustrated comprises a tubular hub or bearing-sleeve A, having radially-extending arms B, upon which the serrated foot-plates C C are secured, and an arbor D, which extends within the tubular hub or bearing-sleeve A and which is attached to one end of the crank-arm E.

The toe clip or strap F consists of a broad endless band, which is preferably made of rubber, vulcanized, so as to normally assume substantially the form illustrated in Fig. 3, in which the band may be said to be substantially circular, although, more strictly considered, it is oval in form. In the first five figures this endless band is divided longitudinally between its marginal portions for a part of its length, so as to provide it with the two separated portions f and f, between which a slot or gap f' occurs, as illustrated in said Fig. 3.

The divided part of the clip forms its lower portion, which lies under the pedal, while its undivided part f^2 forms its upper portion, which embraces the foot of the rider. By stretching the elastic clip it can be readily applied to the pedal, and when applied its divided portion will lie in a flattened condition under the pedal, while its top portion f^2 will arch over the pedal, whereby the toe of the rider can be readily inserted and forced under the same. It will be seen that the portions f^3 of the clip at the ends of the slot or longitudinally-formed gap constitute stops or shoulders which will impinge upon such projections at the ends of the pedals as the divided portion of the clip may straddle. For example, with the construction of pedal illustrated one of such stop portions f^3 bears upon a projecting end portion a of the tubular bearing A at one end of the pedal, while the other corresponding stop portion f^3 bears upon the head of a cap-screw which is employed to close the opposite end of the tubular bearing A and which revolves with and practically forms an end portion of said hub or bearing A. It is, however, well known that in other common constructions of pedals both ends of the hub A extend beyond the arms B, and that in such case the clip can receive and engage upon such ends of the hub. For the purpose of this application, therefore, it is understood that the cap-screw is to be considered as a part of the pedal upon which the clip can engage. With such construction and application of elastic toe-clip the lower divided portion of the clip can be held in a stretched and consequently taut condition upon the pedal, since when stretched it will simply draw and hold the stop portions f^3 down upon such projections as may be at the ends of the pedal without stretching the upper portion of the clip, it being seen that by slotting or aperturing the clip, as hereinbe-

fore set forth, the stops or shoulders formed by the ends of the slot can be positioned at points to leave between them a portion of the band, which, while forming the part which lies under the pedal-frame, will be of such length that when the clip is applied it will lie taut and under tension. Such arrangements will also serve to maintain the upper portion of the clip in a raised position, and since the tension to which the lower part of the band is subject will not extend beyond the points at which said band engages the end projections of the pedal-frame the upper part of the band will be free to normally arch over the pedal. The separated portions *f f* of the lower portion of the elastic clip bear against the arms B at opposite sides of the axis of the pedal, whereby the clip will have broad bearing-surfaces engaging the pedal and arranged to maintain steady and proper balance and position during use.

Preferably the top portion of the elastic clip is made somewhat narrower than its lower divided portion, which engages the pedal, by which arrangement, in addition to the provision of a detachable elastic toe-clip, which can be easily and rapidly applied and removed, I also provide the clip with a broad lower engaging portion which connects with the pedal, and also provide the clip with a lighter and more flexible and elastic upper portion for holding the toe of the rider upon the pedal.

While the entire clip or portions thereof could be made of flexible or inelastic material, I prefer, as a matter of further improvement, to form the clip throughout of rubber.

At the points where the gap or slot terminates the clip can be reinforced by fabric or other suitable reinforcing material, as illustrated.

In Fig. 6 the band which forms the clip is partially divided by short slots or openings f^4 f^4, and with such construction the screw-head at one end of the pedal-frame could project through one of such openings and the arbor which projects from the opposite side of the frame could extend through the other opening. This arrangement, however, will, as in the case where the band is divided by a longer single slot, as in preceding figures, permit the portion of the band which lies under the pedal to be held in tension, whereby opposite side portions of the clip will be drawn down against such projections as may be at opposite ends of the pedal, and hence the clip will be held in place whether in use or otherwise, and its upper portion will be free to rise and normally arch over the pedal. It will be observed, however, that the construction of clip shown in the first five figures has the further advantage that it can be applied to the pedal without detaching the latter from the arbor or crank-arm, while with the construction shown in Fig. 6 the pedal must be detached, so as to permit the arbor to be received through one of the holes f^4. In both cases it will also be seen that the upper portion of the clip will lie over the axis of the pedal, and hence that proper, steady, and comfortable connection between the foot and pedal will be insured.

It will also be seen that in both of the constructions hereinbefore described the strap or band which is employed in forming the toe-clip is apertured to receive and engage upon projections at opposite ends of the pedal, and that it can be thus apertured either by a single slot or by a couple of slots or openings, so as to leave between the points at which it receives and engages such projections a length of elastic band portion which, when the clip is applied, will lie taut and under tension under the pedal; also, that while such lower part of the clip can be under tension its upper part will be relieved from such tension, and hence will be free to arch over the pedal, while at the same time the tension to which its lower part is subjected will draw and hold the engaging portions of the clip firmly down upon the projections at opposite ends of the pedal.

What I claim as my invention is—

1. A toe-clip for velocipede-pedals, comprising a flexible band adapted to extend and arch over the pedal and to extend under the same, the part of the band which extends under the pedal being divided longitudinally between its marginal portions to permit it to receive and engage upon suitable portions of the pedal, and to permit it to be applied to the pedal without detaching the latter from the crank, substantially as described.

2. The within-described toe-clip for velocipede-pedals consisting of a rubber band adapted to encircle the pedal, as set forth, and having its portion which extends under the pedal widened and slotted, substantially as described.

3. A toe-clip for velocipede-pedals comprising a band adapted to extend and arch over the pedal, and to extend and lie in a flattened condition under the same, the said band being apertured to receive and engage upon projections at opposite ends of the pedal, and having its lower portion which extends between the points at which it engages said projections, and which lies under the pedal, made elastic and of a length to lie taut and under tension when the clip is applied to the pedal, whereby, while the lower part of the clip will be under tension, its upper portion will be free to arch over the pedal, substantially as described.

4. The combination with the pedal of a velocipede, of a flexible band extending over and under the pedal, the portion of the band which extends under the pedal being divided longitudinally and straddling end portions of the pedal, substantially as described.

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