(No Model.)

J. H. KIRSHAW.

PEDAL FOR BICYCLES.

No. 582,292. Patented May 11, 1897.

Fig. 1.

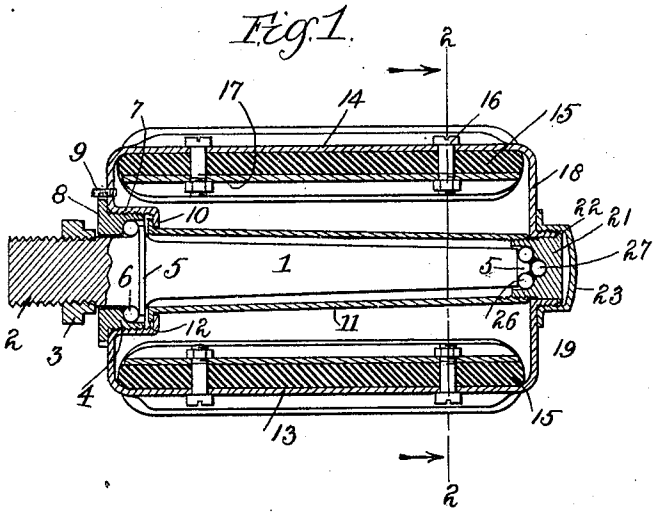


Fig. 2.

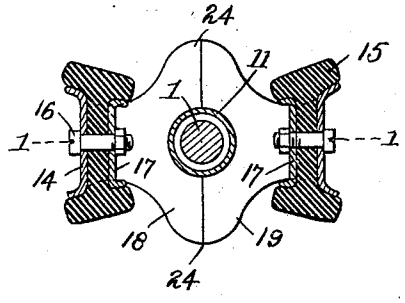
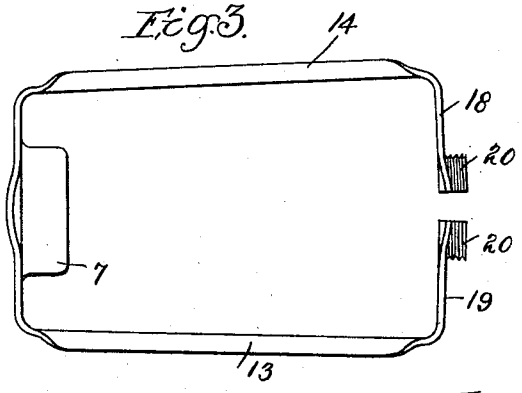


Fig. 3.



Witnesses.

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PEDAL FOR BICYCLES.

SPECIFICATION forming part of Letters Patent No. 582,292, dated May 11, 1897.

Application filed October 12, 1896. Serial No. 608,599. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. KIRSHAW, a citizen of the United States, residing at Belvidere, in the county of Boone and State of Illinois, have invented certain new and useful Improvements in Pedals for Bicycles and other Velocipedes, of which the following is a full, clear, and exact specification.

My invention relates to pedals for the propelling mechanism of bicycles and other velocipides; and it has for one of its objects to provide an improved construction of pedal in which the pedal-frame shall consist of a single piece bent to the proper form and having its ends secured together.

Another object of my invention is to assemble the pedal-pin, its sleeve, and the ball-cups at both ends thereof by screwing the parts together, whereby they may be readily taken apart.

Another object of my invention is to provide an improved construction of pedal in which the pedal-frame shall consist of a single piece bent to the proper form and having its ends secured together and to bind such ends and the outer end of the sleeve together by one and the same means, which shall also assist in supporting and holding the pedal-pin.

With these ends in view my invention consists in certain features of novelty by which the said objects and certain other objects hereinafter appearing are accomplished, all as shown in the accompanying drawings, described in the specification, and more particularly pointed out in the claims.

In the said drawings, Figure 1 is a plan sectional view of my improved pedal, taken on the line 1 1, Fig. 2. Fig. 2 is a transverse sectional view taken on the line 2 2, Fig. 1; and Fig. 3 is a detail plan view of the pedal-frame.

1 represents a pedal-pin having its inner end provided with a threaded portion 2, whereby it may be screwed into the crank (not shown) by means of a square or hexagon shoulder 3, secured thereon, preferably in the form of a nut, swaged against rotation and serving as a shoulder or means for preventing the ball-cup 4 from receding from the cone 5 and permitting the balls 6 to drop out when the pin is removed from the pedal-frame.

The pedal-frame consists of a single strip of thin sheet metal bent to the proper form and having at one end a chamber 7, which is formed in the frame by being struck up from the strip itself in the manner well understood and having its interior threaded, as shown in Fig. 1, for the reception of the threads on the exterior of the adjustable ball-cup 4, which is screwed thereinto and whose outer end is provided with the usual notched flange 8, held against accidental turning by means of a flat-sided screw-stud 9, secured in the pedal-frame and engaging in the notches of the flange 8.

The inner end of the chamber 7 is provided with an aperture forming an annular flange 10, through which passes the pedal-pin sleeve 11, which is itself provided at one end with a peripheral flange 12, which fits within the chamber 7 and engages with the flange 10, and thereby holds the sleeve 11 from displacement at this end.

The strip of which the pedal-frame is formed is bent substantially at right angles to itself on each side of the chamber 7 and extends outwardly in two substantially parallel portions 13 14, which constitute the sides of the pedal-frame and to which the pedal-rubbers 15, if the same are to be used, are secured by means of the screws 16 and inner plates 17, as usual or in any other suitable way. The extremities of the strip constituting the pedal-frame are then bent toward each other, as shown at 18 19, and each of their extreme ends is struck up in the form of or has formed upon it one member 20 of a divided flange or collar which projects outwardly from the pedal-frame and is arranged concentrically with the pedal-pin 1. When these two members 20 are pressed together, they constitute a complete annular flange or collar which embraces a plug 21, in the inner end of which is formed the cup for the outer set of balls, upon which the outer end of the pedal-pin 1 bears. The inner end of the extremity of this plug 21 is screw-threaded, as clearly shown in Fig. 1, and engages in complementary threads formed in the outer end of the sleeve 11, and the outer extremity of the plug 21 is provided with a flange or shoulder 22, which engages with the end of the flange 20 and thus serves to hold the sleeve 11 from slipping inward toward the chamber 7 and

becoming displaced when the pedal-pin is removed. This flange 22 also serves to prevent the portions 18 19 of the frame from being bent outwardly, while the outer extremity of the sleeve 11 serves as an abutment-shoulder for preventing such portions 18 19 from being forced inwardly.

The two-part collar or flange 20 is exteriorly screw-threaded, and secured over it is an interiorly-screw-threaded cap 23, which completely incloses the plug 21 and firmly binds the members 20 of the two-part flange or collar together, thus at once serving as means for securing the meeting ends of the frame, as well as assisting in binding and supporting the outer end of the sleeve and ball-cup located therein. After the parts have been thus assembled the meeting ends of the members 18 19 may, if desired, be brazed along their line of juncture 24, as shown in Fig. 2, though ordinarily the cap 23 will be found sufficient.

The outer end of the pedal-pin 1 is tapered so as to form a cone 25, which forces the balls 26 against the outer walls of the cup in the block 21, and it is of such a construction that the balls 26 may be automatically assembled around the cone 25 and the walls of the cup 21 by simply inserting the pin after the balls have been dropped into the sleeve. The inner end of the cup in the block 21 may, if desired, be provided with a countersink or cup in which is located a single ball 27 for the impingement of the end of the cone 25.

By the rotation of the adjusting ball-cup 4 it will be seen that the bearings at both ends of the pedal-pin may be simultaneously adjusted, inasmuch as the rotation of such cup 4 in one direction forces the pedal-frame outward, carrying the outer set of balls with it and increasing the distance between the inner set of balls 6 and the flange 5, thereby loosening the bearings, while rotation in the opposite direction pulls the frame inward and shortens the distance between the cone 5 and the balls 6, as well as pulling the plug 21 toward the end of the pedal-pin.

With a pedal thus constructed it will be seen that the ball-cups and the sleeve are assembled by being screwed together and that the single cap 23 serves to bind the ends of the pedal-frame, the sleeve, and the cup for the outer set of balls firmly together and in such a manner that they may be readily taken apart for repairs or cleaning.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a pedal the combination of a pedal-frame having its ends brought together at the end of the pedal-pin, a two-part collar or flange having one part formed on each end of said frame, a cap secured over said collar or flange and binding said ends of the frame together, and a pedal-pin journaled in said frame, substantially as set forth.

2. In a pedal the combination of a pedal-frame formed of a continuous piece having its ends brought together at the end of the pedal-pin, a two-part flange having one part formed on each end of said piece, a block provided with a bearing-cup embraced by said flange, said flange being secured around and holding said block, a cap fitting over and inclosing both said flange and block, and the pedal-pin journaled in said cup and frame, substantially as set forth.

3. A pedal having in combination a pedal-frame provided at one end with a collar or flange and at its opposite end with an aperture, a block embraced by said collar or flange and being provided with the flange 22, a sleeve passing through said aperture and having at one end a flange engaging with said frame and its other end provided with screw-threaded connection with said block, a pedal-pin passing through said sleeve and having its end supported in said block, and means for preventing the withdrawal of said pin from said sleeve, substantially as set forth.

4. A pedal having in combination a pedal-frame composed of a single strip having its ends bent toward each other and each end being provided with one member of a split collar, a block embraced by said collar and being provided with the flange 22 engaging with the end thereof, a sleeve held at one end to said frame and having its other end interiorly screw-threaded and screwed over the inner end of said block so as to form an abutment for limiting the movement of the ends of said frame in one direction while said flange 22 limits the movement in the other direction, means secured around said collar for clamping it upon said block, and the pedal-pin journaled in said sleeve, substantially as set forth.

5. A pedal having in combination a pedal-frame formed of a continuous strip having each of its ends provided with one part of a divided collar or flange which parts are adapted to fit together in line with the pedal-axis on one end of the frame, the other end of said frame being provided with an inwardly-struck-up chamber having an aperture, a sleeve passing through said aperture and being held at one end by the inner edge of said chamber and having its other end threaded, a block embraced by said collar or flange and having a threaded end engaging in said sleeve, means for clamping said collar and block together, a pedal-pin passing through said sleeve and having one end journaled in said block, the other end of said pin being formed with a cone located in said chamber, a cup screwed into said chamber and balls located between said cup and cone, substantially as set forth.

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