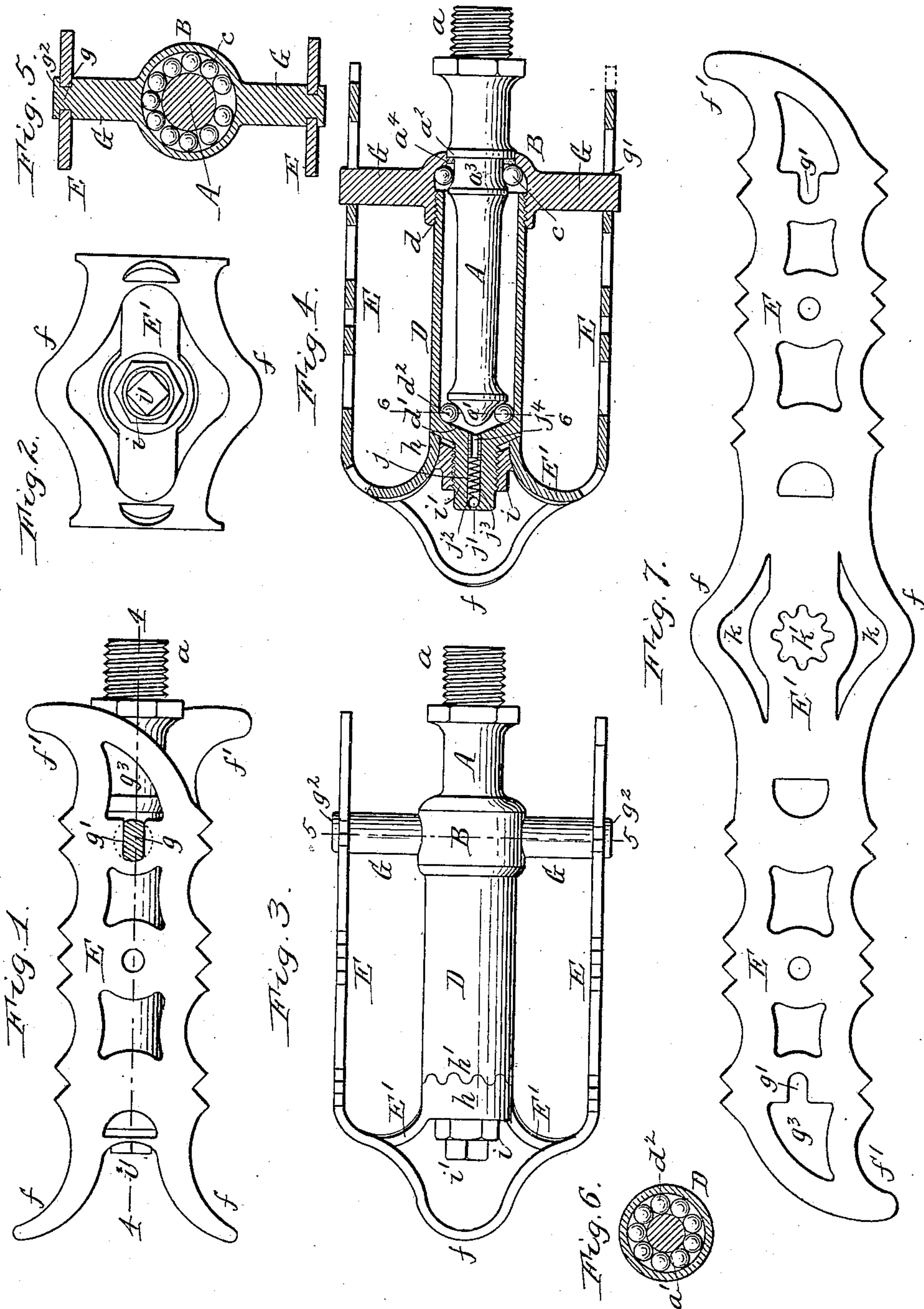


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VELOCIPEDE PEDAL.  
APPLICATION FILED APR. 2, 1900.

914,736.

Patented Mar. 9, 1909.



Witnesses:

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# UNITED STATES PATENT OFFICE.

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## VELOCIPED-PEDAL.

No. 914,736.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed April 2, 1900. Serial No. 11,191.

*To all whom it may concern:*

Be it known that I, EMMIT G. LATTA, a citizen of the United States, residing at Friendship, in the county of Allegany and State of New York, have invented new and useful Improvements in Velocipede-Pedals, of which the following is a specification.

The object of my invention is to produce a light pedal of simple construction which can be easily oiled and readily and positively adjusted for wear, which is practically dust proof and free from parts liable to become lost in service, and in which the various parts are so constructed and combined that they can be easily replaced by unskilled labor when worn out or broken.

In the accompanying drawing: Figure 1 is a side elevation of my improved pedal, partly in section. Fig. 2 is a view of the outer end of the pedal. Fig. 3 is a plan view thereof. Fig. 4 is a longitudinal section of the pedal in line 4—4, Fig. 1. Fig. 5 is a transverse section in line 5—5, Fig. 3. Fig. 6 is a cross section of the central member of the pedal in line 6—6, Fig. 4. Fig. 7 is a plan view of the sheet metal blank from which the outer portion of the pedal is formed.

Like characters of reference refer to like parts in the several figures.

A is the pedal shaft having the usual screw-threaded shank *a* for attaching it to the crank. This shaft is provided at its outer end with a bearing cone *a'*; at a distance from its inner end with a dust-excluding collar *a<sup>2</sup>*, and on the inner side of said collar with a bearing cone *a<sup>3</sup>*.

*a<sup>4</sup>* is a washer of felt or other suitable material arranged against the inner side of the collar *a<sup>2</sup>*.

B is a hollow head or cup surrounding the portion of the pedal shaft on which the inner bearing cone *a<sup>3</sup>* is formed and *c* are the balls arranged in said cup.

D is a barrel or sleeve which extends outwardly from the head or cup B and incloses the pedal-shaft. The inner end of this barrel engages with the cup B, preferably by a screw-thread *d*, as shown, and the outer end of the barrel is closed and forms a ball-cup *d'* which receives the outer row of balls *d<sup>2</sup>*.

E E are the side or foot plates of the pedal frame arranged on opposite sides of the central barrel D, and E' is a cross bar connecting the outer ends of said side plates.

*f* are guards arranged at the outer end of the pedal frame on opposite sides of the cross

bar E', and *f'* are the usual oppositely turned horns or guards formed at the inner ends of the side plates E. The inner portions of the side plates are connected with the head B of the barrel by radial arms G extending from diametrically opposite sides of said head and provided near their outer ends with contracted flat-sided necks *g* which engage in longitudinal slots or recesses *g'* formed in the side plates E, and at their outer ends with heads *g<sup>2</sup>* which bear against the outer sides of the plates. The slots *g* open rearwardly into enlargements *g<sup>3</sup>* of sufficient size to admit the headed ends of the arms G. The cross bar E' is provided centrally with an inwardly-extending collar *h* which bears against the outer end of the barrel D and is interlocked therewith by serrations or projections *h'* formed on the contiguous edges of these parts, as shown in Fig. 3, whereby the barrel is prevented from turning in the cup B. The collar *h* is firmly held against the end of the barrel D by a screw nut *i* applied to an externally screw-threaded stem *i'* which projects from the closed outer end of the barrel. The collar *h* is slightly conical or flared outwardly and the clamping nut *i* is correspondingly tapered and enters the collar, so that upon tightening the nut, the collar is drawn firmly against the outer end of the barrel, and the headed arms G are securely held in the slots *g* of the side plates E. The portions of the cross bar E' on opposite sides of its collar *h* are curved forwardly and outwardly from the collar and are preferably concavo-convex in cross section to stiffen the cross bar.

The U-shaped pedal frame composed of the side plates E and the cross bar E' is preferably stamped from a single blank of sheet metal of the form shown in Fig. 7. The central portion of this blank which forms the cross bar E' is separated by slots *k* from the adjacent upper and lower portions of the blank, which form the outer guards *f*, and this cross bar is provided with a central opening *k'* having a scalloped or serrated edge which forms the locking projections *h'* of the pedal frame. In forming the pedal frame, the central portion of the cross bar E' is pressed inwardly to form the collar *h*, and the V-shaped portions of the blank which form the outer guards *f* are raised or bent outwardly to the position shown in Figs. 1, 2, 3 and 4. After stamping the cross bar to form the collar *h* and said guards, the portions of the blank forming the side plates are bent at



right angles to the portion forming the cross bar. By bending these plates in one or the other direction, a right or left pedal frame is obtained with but one pattern blank.

5 The stem  $i'$  of the barrel D is provided with a longitudinal oil duct or passage  $j$  which opens into the front end of the barrel. This passage is closed at its outer end by an inwardly-opening valve  $j'$  which is held  
10 against a valve seat  $j^2$  by a spring  $j^3$ . This spring abuts at its inner end against a shoulder which is preferably formed by a short tube  $j^4$  inserted in the inner end of the oil passage, as shown in Fig. 4. The outer end  
15 of the stem  $i'$  is square or of other angular form, as shown in Fig. 2, so that it can be turned with a wrench for screwing the barrel into the cup B.

In assembling the parts of the pedal, the  
20 felt washer  $a^4$  is first placed on the shaft and the latter is then passed through the cup B until the inner cone  $a^3$  passes beyond the outer side of the cup. The balls are then dropped into this cup around the shaft, and  
25 the latter is drawn back to properly locate said cone in the cup, whereby the balls are held in the cup. The balls of the outer pedal-bearing are then placed in the barrel D and the latter is passed over the shaft and  
30 screwed into the cup B, the balls assuming their proper position around the outer cone  $a'$  in pushing the shaft into the barrel. The screw stem  $i'$  of the barrel is next inserted in the collar  $h$  of the pedal frame and the side  
35 plates E of the latter are sprung inwardly, so that the outer ends of the arms G project through the enlargements  $g^3$  of the locking slots  $g'$ . The barrel is then shifted forwardly, so that the contracted necks  $g$  of the arms G  
40 enter said locking slots, and the clamping nut  $i$  is then applied to the screw stem  $i'$  and tightened, whereby said arms are firmly drawn into said slots and the teeth  $h'$  of the collar  $h$  and the barrel are interlocked. The  
45 tightening of the nut tends to move the side plates inwardly or toward the barrel and causes the arms to remain in proper engagement with the side plates.

In order to adjust the bearings of the  
50 pedal for wear, the nut  $i$  is partly unscrewed from the stem  $i'$  of the barrel to permit the toothed collar  $h$  to be sprung out of engagement with the barrel, and the released barrel is then screwed farther into the head to take  
55 up any looseness of the bearings, after which the parts are again locked in position by tightening the nut  $i$ .

This construction produces a pedal having all of the popular requirements and contain-  
60 ing only about one-half the usual number of

parts. The construction of the parts is such that their cost of manufacture is comparatively small, and they can be assembled and renewed by unskilled labor, while they are locked together in such manner that no part  
65 is liable to become detached or lost in service.

I claim as my invention:—

1. The combination of a pedal barrel of reduced diameter at its outer end, and a substantially U-shaped pedal frame provided at  
70 its outer end with an integral collar which encircles the reduced portion of the barrel, with a nut having a conical extension acting to center the reduced end of the barrel within the collar, substantially as set forth. 75

2. The combination with the pedal shaft and a barrel journaled thereon and provided at its outer end with a screw stem and at the junction of the barrel and said stem with locking teeth or projections, of a U-shaped  
80 pedal frame having its cross bar provided centrally with an inwardly-extending collar which surrounds said screw stem and is provided at its inner edge with teeth which inter-  
85 lock with the teeth of the barrel, and a clamping nut applied to said stem and bearing against said collar, substantially as set forth.

3. The combination of a pedal shaft and a pedal frame consisting of a pair of opposable foot plates, and connecting cross arms, one  
90 of said arms having a screw threaded opening, and the other arm a plain conical opening of smaller size, with a barrel of two diameters screwing into said threaded opening in one of the cross arms, and secured in  
95 the other cross arm by a conical nut, substantially as set forth.

4. The combination with the pedal shaft, of a barrel provided at its outer end with a screw stem and with locking teeth or projec-  
100 tions, and at its inner end with outwardly-projecting arms having headed outer ends and reduced necks adjacent to their heads, a U-shaped pedal frame having its cross bar provided with a toothed collar which receives  
105 said screw stem and interlocks with the teeth of the barrel, and having its side bars provided with longitudinal slots which interlock with the reduced necks of said arms, and a clamping nut applied to said screw  
110 stem and operating to hold said collar in engagement with the barrel, substantially as set forth.

Witness my hand this 22d day of March, 1900.

EMMIT G. LATTA.

Witnesses:

CARL P. GEYER,  
JNO. J. BONNER.