(No Model.)

J. J. NAREGANG.

BICYCLE.

No. 589,743. Patented Sept. 7, 1897.

Fig. 1.

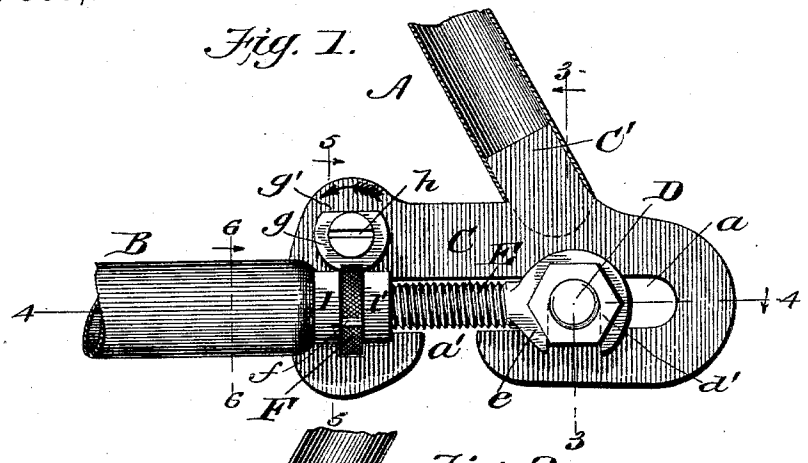


Fig. 2.

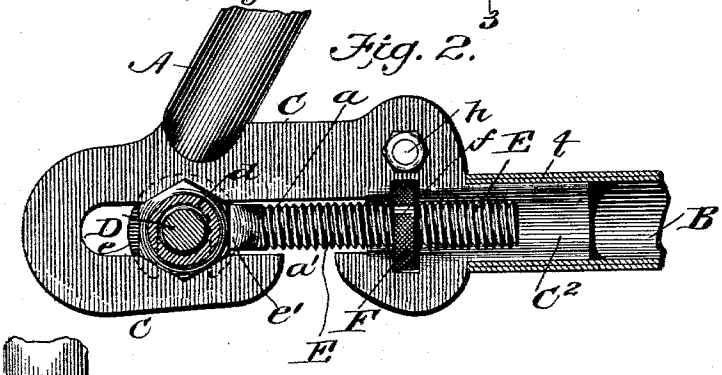


Fig. 3.

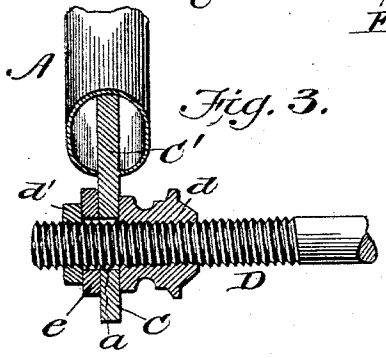


Fig. 5.

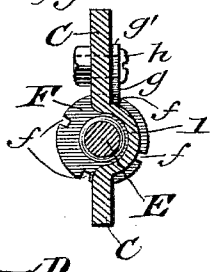


Fig. 4.

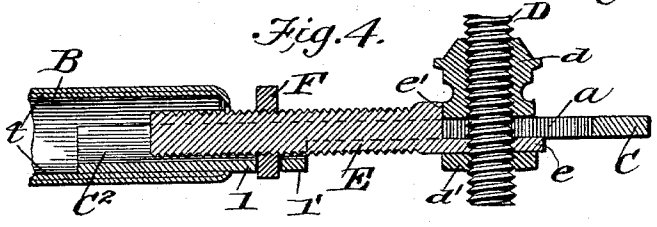
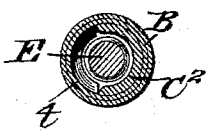


Fig. 6.



WITNESSES:

M. A. Blondell

Edw. W. Byrn.

INVENTOR

John J. Naregang.

BY Munn & Co.

ATTORNEYS.

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

UNITED STATES PATENT OFFICE.

JOHN J. NAREGANG, OF LEESPORT, PENNSYLVANIA.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 589,743, dated September 7, 1897.

Application filed July 30, 1896. Serial No. 601,010. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. NAREGANG, of Leesport, in the county of Berks and State of Pennsylvania, have invented a new and useful Improvement in Bicycles, of which the following is a specification.

My invention is in the nature of an improvement upon that part of the bicycle known as the "rear adjusting-fork," or the coupling at the rear apex of the diamond-shaped trussed frame whereby the rear axle is inserted or removed. Such coupling is now usually made with an open slot to permit easy insertion or removal of the rear axle, which latter is adjusted to tighten or loosen the chain by a set-screw. My invention is of this general character, but comprehends a novel construction and arrangement of parts by which the removal of the axle and its readjustment without breaking or opening the chain is more conveniently effected and a stronger and better construction provided, as will be hereinafter described with reference to the drawings, in which—

Figure 1 is a side elevation of the coupling from the outside, partly in section. Fig. 2 is a side elevation from the inside, also partly in section. Fig. 3 is a transverse vertical section on line 3 3 of Fig. 1. Fig. 4 is a horizontal section on line 4 4 of Fig. 1. Fig. 5 is a cross-section through line 5 5 of Fig. 1, and Fig. 6 a cross-section through line 6 6 of Fig. 1.

In the drawings, A represents one of the tubular members of the rear fork, and B is one of the members of the horizontal tubes that connect the lower end of tubes A with the bearing of the pedal-shaft.

C is a frame portion of the coupling which rigidly connects these two tubes A and B, it being understood that there is such a coupling and such a pair of tubes A and B on each side of the rear wheel which are connected by the rigid axial shaft upon which the rear wheel revolves.

The coupling-frame C is directly connected to the tube A without a thimble, and for this purpose the said frame is formed with a flat tongue C′, that extends up into the tube A, while the lower end of the latter is slotted longitudinally and is made to embrace or straddle the flat coupling-plate, in which relation the parts are solidly brazed together, with the tongue C′ extending up into the tube A in diametrical position and forming a strong but light reinforce for this joint.

The coupling-frame C has an elongated horizontal slot *a*, which has an outlet *a′* on its bottom side in front of the point of connection between plate C and tube A. In the horizontal slot is adjustably held the end of the axial pin D, upon which the wheel revolves. This axial pin is screw-threaded and upon each end has a cone-bearing *d* and a screw-nut *d′*, which may be tightly clamped together upon opposite sides of the coupling-frame to fix it firmly thereto when the axial pin is adjusted to its proper place. To effect this adjustment, the axial pin is embraced by the forked end *e* of an adjusting-screw E, which is arranged longitudinally to the horizontal slot, and the outlet or open side of this forked end is on the under side, so as to coincide with the outlet *a′* of the slot when adjusted opposite the same in order that the axial pin may be dropped downwardly and taken out.

On the inner side of the adjusting-screw E there is formed a shoulder *e′*, which bears against one of the hexagonal faces on the cone-bearing *d* and locks the latter so that it cannot turn on the screw-threaded end of the axial pin D, so that the binding effect of the screw-nut *d′* on one side and the cone-bearing on the other cannot be accidentally relaxed.

To the inner end of the coupling-frame the horizontal tube B is brazed and its connection is reinforced by a thimble *t* and a tongue C^2 of the frame, which is curved in cross-section to correspond to a semicircumference of the thimble and, with the thimble, is rigidly connected to the tube B. This curved tongue also forms a seat or guideway in which the inner threaded end of the adjusting-screw E plays, always holding the same in a true axial position.

To advance the adjusting-screw E, it is embraced by milled nut F, whose interior screw-thread meshes with the thread of the adjusting-screw and whose outer periphery swivels in a transverse slot of the coupling-frame, which on each side of the nut is curved or bulged out laterally at *l l′* to give passage to the screw-stem. When this nut is turned, it swivels within the transverse slot of the coupling-frame and bearing either against the side

l or *l'* causes the screw-stem E, with its forked head *e*, to move the axial pin back and forth in the horizontal slot to tighten or loosen the chain, as may be desired.

To lock the axial pin to its adjustment, the periphery of the nut F has notches *f* in it to receive a turn-plate *g*, pivoted on a screw or rivet *h* to the coupling-frame and cut away on one side at *g'*, so that when this cut-away side is next to the nut the latter can turn, but when the cut-away side is turned away from the nut the edge of the turn-plate enters one of the several notches in the periphery of the nut and locks it against turning.

With this construction of coupling and adjusting device it will be seen that the axial pin of the rear wheel may be conveniently adjusted to the rear to tighten the chain belt carried by the sprocket of the rear wheel, and when the latter requires to be taken off to remove or repair its tire or for other purpose the axial pin is adjusted forwardly by the nut and set-screw until it is in line with the outlet *a'* of the slot and can then be conveniently removed, and as this movement will slacken the chain belt it will be seen that the links of the latter need not be separated in removing the wheel, but the removal and replacement of the wheel may be quickly and conveniently effected.

I do not claim, broadly, the slackening of the belt and removal of the axial pin by the advance of the latter in its slot, as I am aware that this has been done before.

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

1. A coupling and adjusting device for the rear apex of a bicycle-frame, consisting of a frame-plate having a horizontal slot with an outlet therefrom at the bottom at its front end and a connection for the tube A in rear of said outlet combined with an axial pin arranged transversely in said slot, and a horizontal adjusting-screw having a forked end opening downwardly at its rear end and loosely embracing the axial pin and a swiveling nut arranged in the coupling-frame and meshing with the front part of the screw-stem substantially as and for the purpose described.

2. The combination of the tubes A and B, the rigidly-attached plate C having horizontal slot with bottom outlet *a'* near its front end a connection for tube A in rear of the outlet and rounded projections *l l'*, with transverse slot between them an axial pin arranged in the horizontal slot, a screw-stem E having a forked end in the rear embracing the axial pin and having its front end extending into the lower tube, and a swiveling nut and locking device for the screw substantially as and for the purpose described.

3. The combination with the slotted coupling-plate and the axial pin arranged in the slot and having a screw-threaded end, of the screw-threaded cone-bearing fitting on the axial pin, a clamping-nut on the end of the axial pin, and an adjusting-screw having its end loosely connected to axial pin, and provided with a locking-face engaging the cone-bearing to prevent it from turning substantially as and for the purpose described.

JOHN J. NAREGANG.

Witnesses:
GEO. A. RAHN,
JACOB KERN.