

No. 641,637.

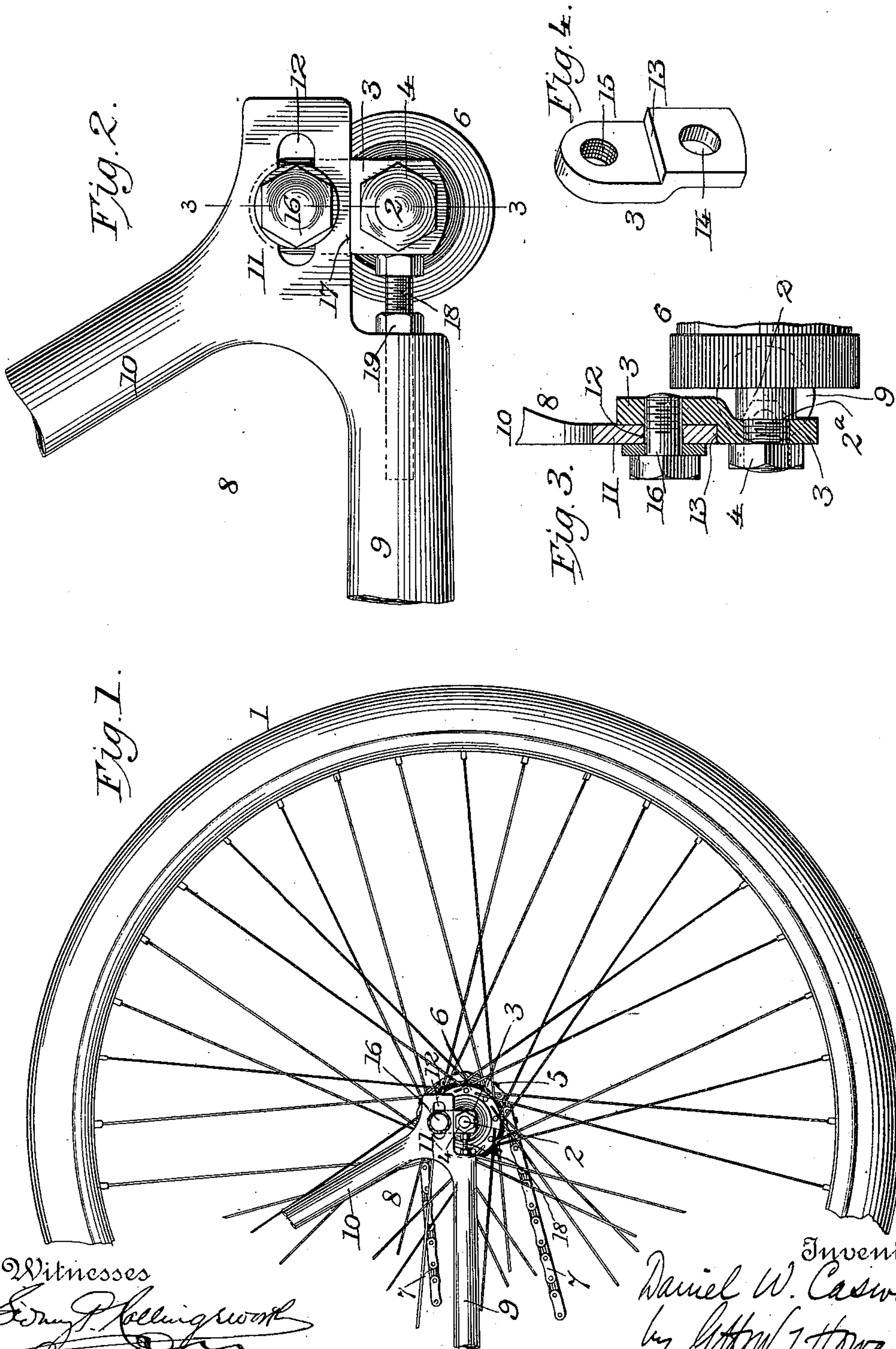
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D. W. CASWELL.

BICYCLE.

(Application filed Dec. 7, 1897.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## BICYCLE.

SPECIFICATION forming part of Letters Patent No. 641,637, dated January 16, 1900.

Application filed December 7, 1897. Serial No. 661,024. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL W. CASWELL, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bicycles, of which the following is a specification, reference being had to the accompanying drawings and to the numerals of reference marked thereon.

My invention has reference to the rear-fork end of a bicycle, more particularly to the means for supporting and adjusting the rear or driving wheel thereon and its ready removal therefrom.

The object of my invention is to support the rear or driving wheel of a bicycle on the rear-fork end in such a simple and efficient manner that it may be readily and quickly removed and replaced without disconnecting the driving-chain, changing its adjustment or tension, or without disturbing the bearing adjustment of the rear wheel.

Referring to the accompanying drawings, Figure 1 is a side elevation of a part of the rear wheel and fork of a bicycle, showing my improvement embodied therewith. Fig. 2 is a similar view, on enlarged scale, of a portion of one rear-fork end, illustrating more clearly the manner of applying my invention thereto. Fig. 3 is a cross-section on the line 3 3 of Fig. 2. Fig. 4 is a perspective view of a detail.

Similar numerals of reference indicate similar parts in the several figures.

The rear or driving wheel (represented by 1) is supported on and revolves around a shaft 2, which is secured at each end in a hanger 3 by means of a nut 4. The usual sprocket-wheel 5, fixed to the rear-wheel hub 6, is driven in the well-known manner by a chain 7. The rear fork of the bicycle (indicated by 8) is formed on each side of the wheel 1, preferably of a tubular horizontal brace 9 and an upright brace 10, joined to or formed into a flattened end plate 11. These plates 11 extend backwardly and are each provided with a horizontal slot 12. The hangers 3, of which there are two, one for each end of the shaft 2, are each formed with a shoulder 13 and holes 14 15, the former being smooth-bored to receive the shaft 2, while the latter are threaded for screw-bolts 16.

In assembling the parts thus described the hangers 3 are slipped on the ends of the rear shaft 2 and secured thereon by the nuts 4. Shoulders 2<sup>a</sup>, one on each end of the shaft 2, form bearings for the inner sides of the hangers and retain them in proper relation to the frame 8. In securing the hangers to the shaft, if the nuts 4 are tightened, care must be taken that the hangers shall extend in the same radial line from the shaft; otherwise they cannot be made to bear squarely against the frame. The better practice is to leave the tightening of the nuts 4 until later. The hangers 3 being secured on the ends of the shaft 2, as stated, and the driving-chain 7 (the ends of which are assumed to be connected) placed on the sprocket-wheel 5, the free ends of the hangers are then passed upwardly between the flattened end plates 11 until their shoulders 13 bear against the lower edges 17 of the said plates. The openings 15 in the hangers will then be in alinement with the horizontal slots 12 in the flattened plates, through which openings the screw-bolts 16 are passed and tightly screwed into the hangers, thereby securely and firmly attaching them to the frame. Should the hangers not be in the same radial line, they can be rocked on the shaft until their shoulders 13 fit squarely against the lower edges 17 of the flattened plates. This rocking movement cannot be given if the nuts 4 have been tightened on the shaft, as heretofore described, before securing the hangers to the frame.

It will be seen that the sides and the shoulders 13 of the hangers 3 will, when in place and engaged with the inner sides and lower edges, respectively, of the flattened plates and fastened thereto by the screw-bolts 16, form a strong and rigid connection and one that is incapable of moving in any direction.

The tension of the driving-chain is adjusted by loosening the screw-bolts 16 and moving the wheel backward or forward, as desired. When the proper tension is obtained, the bolts are tightened and the wheel fastened in place.

The above arrangement although adapted by careful manipulation to the adjustment of the tension of the driving-chain does not provide for readjusting the chain tension when-



ever the wheel is replaced in the frame after its removal therefrom for any cause. To effect a convenient readjustment, I tap into the rear end of each horizontal brace 9 an  
 5 adjusting-bolt 18, so arranged that its head constantly bears against the forward edge of its hanger 3. When the chain is to be tightened, the screw-bolts 16 are loosened and the  
 10 adjusting-bolts 18 turned in a direction to force the hangers rearwardly far enough to take up the slack. A jam-nut 19 on each bolt locks it against turning. This construction provides ready means for delicately ad-  
 15 justing the tension of the chain and at the same time forms a stop against which the hangers abut when they are returned to the frame.

When the wheel is to be taken from the frame, the screw-bolts 16 may be removed,  
 20 which will disconnect the hangers and permit them, with the wheel, to drop from the frame. The chain may then be easily taken off the sprocket-wheel without disconnecting it.

It will be evident from the above that the  
 25 adjusting-bolts 18 have no connection with the hangers, their heads simply abutting against the forward edges thereof, and that therefore they are not disturbed when the wheel is removed from the frame, but will re-  
 30 main set in the adjusted position. When the wheel is returned to the frame, as above explained, it is only necessary to press the hangers against the adjusting-bolts 18 and tighten the bolts 16, which will secure the wheel in  
 35 its previously and correctly adjusted position.

Having thus described my invention, I claim—

1. In a bicycle, a frame, an adjustable re-  
 40 movable hanger on each side thereof for carrying the rear wheel, said hanger being provided with flat ends lying in different but parallel planes and having a shoulder adapted to fit against the lower edge of a plate of the frame, combined with an adjusting device  
 45 bearing against such hanger substantially in line with the axle, as set forth.

2. In a bicycle, a rear-fork end, a remov-  
 able hanger on each side adapted to carry the rear wheel, said hanger being provided with flat ends lying in different but parallel planes 50 and having a shoulder adapted to rest against the lower edge of a part of the rear-fork end, combined with a device for adjusting the hanger with relation to said rear-fork end, said device bearing against such hanger sub- 55 stantially in line with the axle, as set forth.

3. In a bicycle, a slotted rear-fork end, and a hanger having a shoulder adapted to bear against one side and the lower edge of a part of said rear-fork end, combined with an ad- 60 justing device connected to said part of the rear-fork end and bearing against the hanger substantially in line with the axle, as set forth.

4. In a bicycle, slotted rear-fork ends, a hanger secured to each rear-fork end by 65 means of a bolt passing through the slot, each hanger having a shoulder adapted to fit against its fork end, and an axle supported by the hangers, combined with an adjusting device between each fork end and the hanger 70 attached thereto, and adapted to bear against such hanger substantially in line with the axle, as set forth.

5. In a bicycle, the combination, with flat-  
 75 tened rear-fork ends having each a substantially horizontal slot formed therethrough, of hangers bolted to and horizontally adjustable on the slotted rear-fork ends, said hangers having each a flattened side and a shoulder arranged to bear against one side and the 80 lower edge of its rear-fork end, a fastening device for each hanger, an axle bolted to the hangers, and an adjusting device bearing against each hanger, substantially in line with the axle, substantially as set forth. 85

In testimony whereof I hereunto set my hand and seal.

DANIEL W. CASWELL. [L. S.]

Witnesses:

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