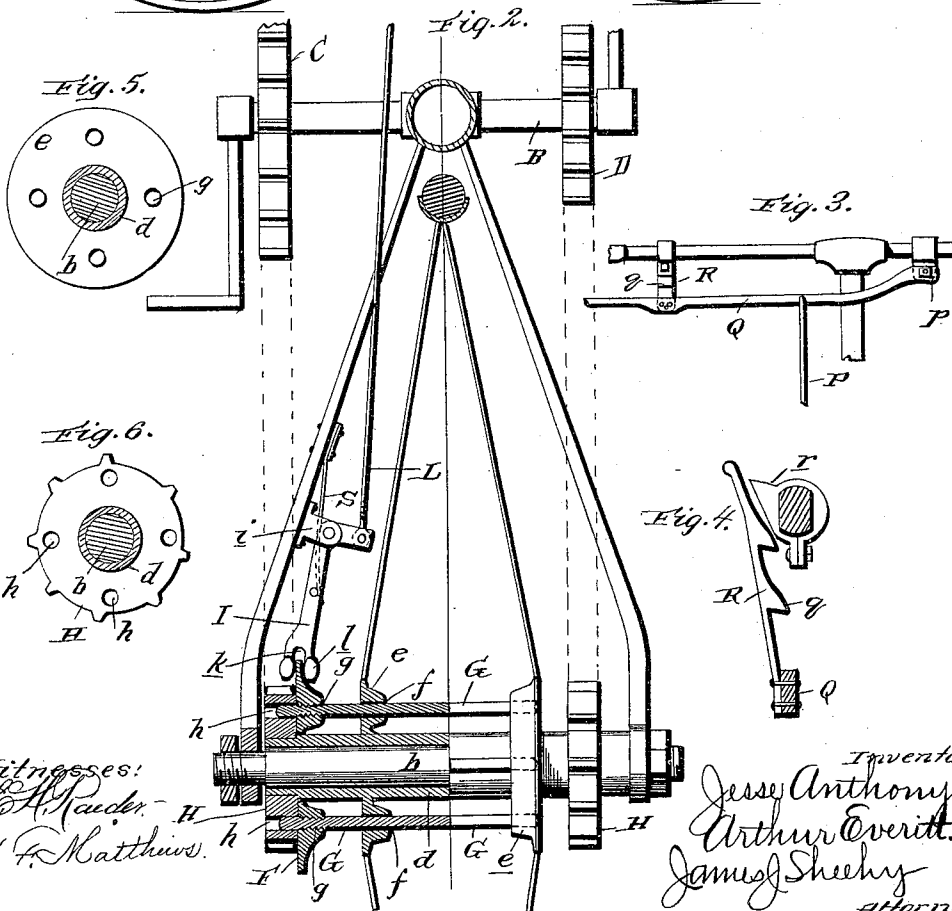
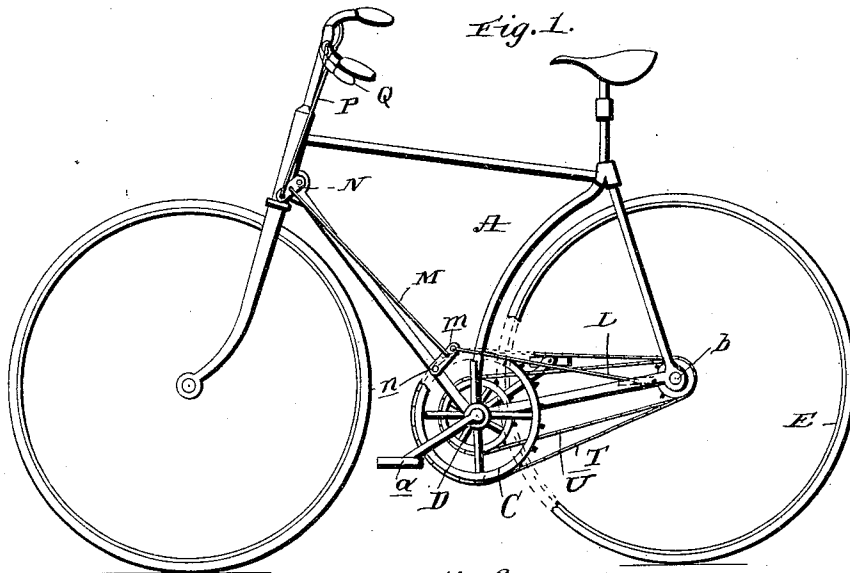


(No Model.)

J. ANTHONY & A. EVERITT.
BICYCLE.

No. 461,699.

Patented Oct. 20, 1891.



Witnesses:

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JESSE ANTHONY AND ARTHUR EVERITT, OF ALBUQUERQUE, TERRITORY OF
NEW MEXICO.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 461,699, dated October 20, 1891.

Application filed July 8, 1891. Serial No. 398,812. (No model.)

To all whom it may concern:

Be it known that we, JESSE ANTHONY, a citizen of the United States, and ARTHUR EVERITT, a subject of the Queen of Great Britain, both residing at Albuquerque, in the county of Bernalillo and Territory of New Mexico, have invented certain new and useful Improvements in Bicycles; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a device for varying the speed of bicycles, tricycles, and other machines, and the novelty will be fully understood from the following description and claims when taken in connection with the annexed drawings, in which—

Figure 1 is a side elevation of a bicycle, showing our improvements applied. Fig. 2 is a sectional view of one-half of the drive-wheel, showing one half of the hub in elevation and the other half in section and the speed-varying sprockets in plan. Fig. 3 is an elevation of a portion of the handle-bar, showing the lever and connections for manipulating the sliding disk or clutch-disk. Fig. 4 is a cross-sectional view of the handle-bar and pivoted lever-bar, with the catch carried by the lever-bar and the tooth or lug on the handle-bar to receive the catch. Fig. 5 is a cross-sectional view of the axle and hub of the drive-wheel, showing the slide-disk or clutch-disk in elevation; and Fig. 6 is a similar view of one of the rear speed-ing-sprockets.

Referring by letter to said drawings, A indicates a bicycle, which may be of any ordinary or approved construction, or a tricycle or other wheel machine may be employed instead thereof.

B indicates the pedal or crank shaft, which is arranged in the frame in the usual manner and carries at opposite ends the pedals *a* for turning said shaft. Suitably-secured to this shaft is a high-speed sprocket-wheel C, and secured in a similar manner and near the opposite end thereof is a low-speed sprocket D.

E indicates the rear driving-wheel, which is arranged on an axle *b*, suitably journaled in the frame, as shown. This drive-wheel has a

hub-sleeve *d*, and the hubs *e*, to which the spokes are secured, are provided with a suitable number of transverse holes *f*, there being four shown in each hub in the present illustration.

F indicates a disk, which is arranged loosely upon the hub-sleeve on the outer side of one of the hubs *e*. This disk, which is designed to slide on said sleeve or box, carries a suitable number of clutch-rods G. These rods may be secured to the disk F by means of threads on their outer sides taking into screw-threaded holes *g* or fixed thereto in any suitable manner. These horizontal rods G project from opposite sides of the disk F, so as to enter holes *h* in the speeding-sprockets H, arranged on the hub box or sleeve of the drive-wheel, and said rods play through the holes *f* in the hubs of the drive-wheel. The speeding-sprockets H are arranged on the hub box or sleeve on the outer sides of the drive-wheel, so that they may rotate independently thereof when not engaged by the rods before mentioned. It will be observed that the sprockets H are arranged at such distance apart that when the bolts or rods G are thrown in engagement with one sprocket they will be out of engagement with the other sprocket, and the rods are of such a length that they may be disengaged from both speeding-sprockets when desired.

I indicates an angle-lever or finger-lever. This lever is journaled at its angle in a bracket or bearing *i*, which is secured in turn to one of the bars of the machine-frame. This lever is forked or bifurcated at its lower end, as shown at *k*, and is provided with friction-rollers *l* to embrace the sliding disk F. Said lever is connected at its opposite end with the lower end of a rod L, which rod is connected at its opposite end to a lever *m*, which is pivoted to one of the bars of the frame, as shown at *n*. This lever *m* is connected midway of its length with one end of a rod M, which is in turn connected at an intermediate point with a lever N. The lever N is pivoted at one end to the main frame and its opposite end is connected with a rod P, which is connected in turn at an intermediate point to a hand manipulating-lever Q. This hand-lever is piv-

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oted at one end to the handle-bar, as shown at *p*, and its opposite end carries a vertically-disposed catch *R*. This catch has two or more engaging shoulders or lugs *q*, and the bar carrying them is preferably of a yielding nature, so that the shoulders or lugs which are beveled on their upper sides may ride over and engage with a tooth or shoulder *r*, which is beveled on one side, as shown.

10 *S* indicates a leaf or flat spring which is secured at one end to one of the bars of the main frame and the opposite end bears against the forked branch of the angle *I*, so as to keep the bolts or rods *G* normally in engagement with the left-hand speeding-sprocket *H*.

15 *T* indicates a sprocket-chain, which connects the high-speed sprocket on the pedal or crank shaft with one of the sprockets on the hub of the drive-wheel, and *U* indicates a similar sprocket-chain, which connects the slow sprocket *D* with the opposite speeding-sprocket of the drive-wheel. The tooth *R* being secured to the handle-bar, as better shown in Fig. 4, when it is desirable to engage the teeth or lugs *q* with the tooth *r* it is simply necessary to press upwardly on the hand-lever *Q* by grasping both said lever and the handle-bar. When the first shoulder or tooth of the yielding catch *R* is brought in engagement with the tooth *r* on the handle-bar, the bolts will be drawn from engagement with both sprocket-wheels *H*, and in this position the machine may descend a grade or run without the movement of the pedals; but when the next tooth or shoulder of the catch is engaged the bolts or rods *G* will be drawn from engagement with the left-hand sprocket *H* and thrown into engagement with the right-hand sprocket *H*, thereby changing from high to low speed, and vice versa. It will thus be observed that the speed of the machine can be changed from fast to slow while in motion at the will of the rider without causing any change in the movements of the pedals.

45 While we have described specifically and in detail all of the devices herein shown, yet we do not wish to limit ourselves to such construction of parts, as we reserve the right to make such changes as fairly fall within the spirit of our invention, and while we have

shown our improvements as applied to a bicycle, yet it is obvious that such improvements might be applied to tricycles or such machinery in which it is desirable to change the speed while the machine is in motion. 55

Having described this invention, what we claim is—

1. The combination, with a drive-wheel of a bicycle, of two sprocket-wheels arranged to turn on the hub thereof, a crank or pedal shaft, a large sprocket-wheel and a small sprocket-wheel respectively secured to said shaft, sprocket-chains connecting the sprocket-wheels in pairs, and a clutch for fixing either of the sprocket-wheels on the drive-wheel shaft or hub with said drive-wheel, substantially as specified. 60 65

2. The combination, with the frame of a bicycle, of forked angle-lever pivoted thereto, rods pivotally connecting the angle-lever with a hand-lever pivoted to the handle-bar of the machine, a disk adapted to slide on the hub-box of the drive-wheel, bolts or rods carried by said disk, and speeding-gears arranged on the hub of said wheel, substantially as specified. 70 75

3. The combination, with the drive-wheel of a bicycle, of the disk adapted to slide thereon and carrying the rods or bolts, the speeding-sprockets arranged loosely on the hub or sleeve of said wheel and having holes to receive the bolts or rods, the pivoted angle-lever having one end forked to embrace the sliding disk, a spring pressing against said lever, a hand-lever carrying a catch and pivoted at one end to the handle-bar, and rods and levers pivotally connecting the handle-lever with the forked angle-lever, whereby the clutch bolt or rod may be engaged and disengaged from one or both of the speeding-sprockets on the drive-wheel, substantially as specified. 80 85 90

In testimony whereof we affix our signatures in presence of two witnesses.

JESSE ANTHONY.
ARTHUR EVERITT.

Witnesses:

N. C. COLLIER,
MEYLERT BRUNER.