

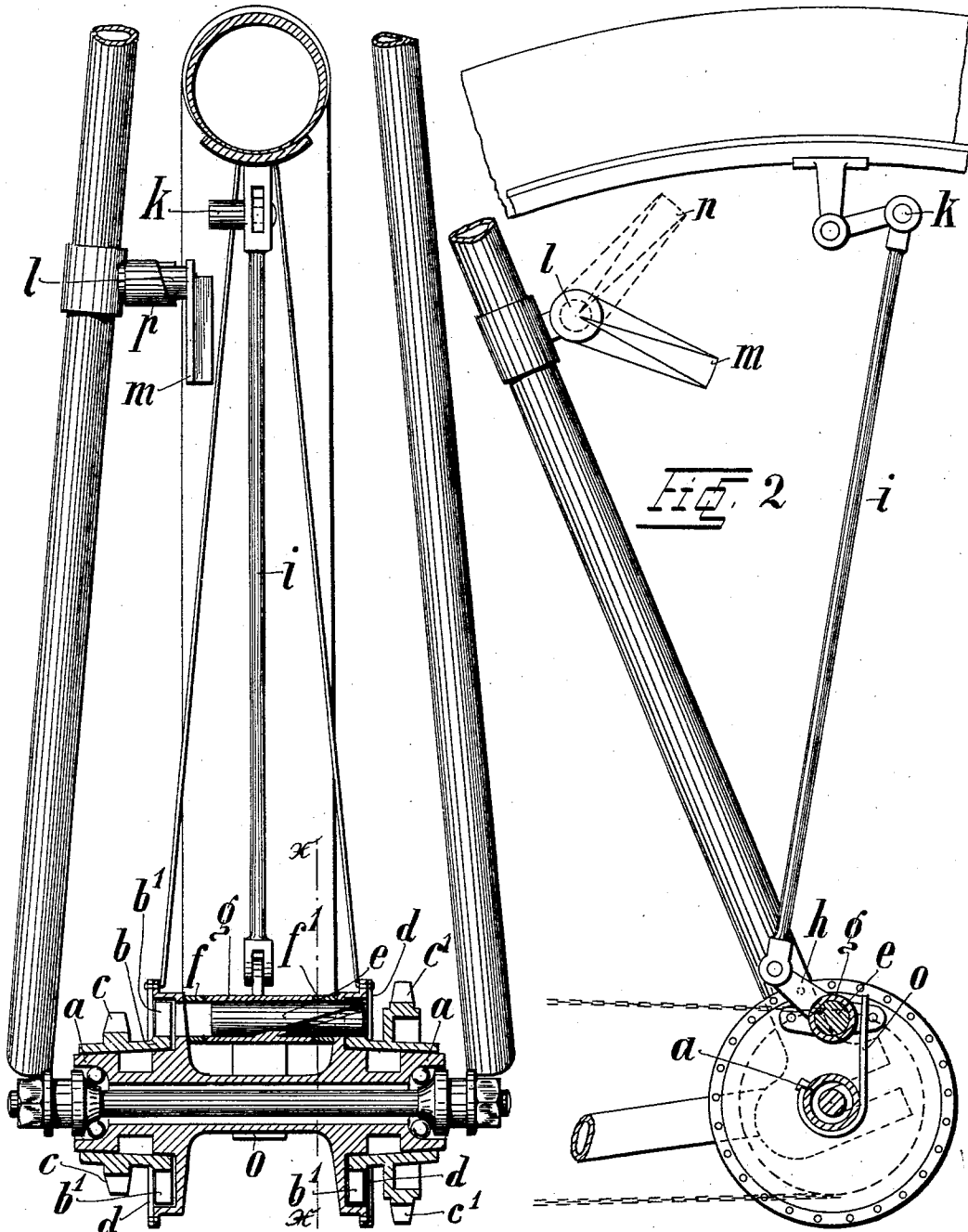
(No Model.)

2 Sheets—Sheet 1.

R. SCHWÉERS.
VELOCIPÈDE.

No. 580,007.

Patented Apr. 6, 1897.



Witnesses: Fig. 1.

Max Frankham
Herman Herde

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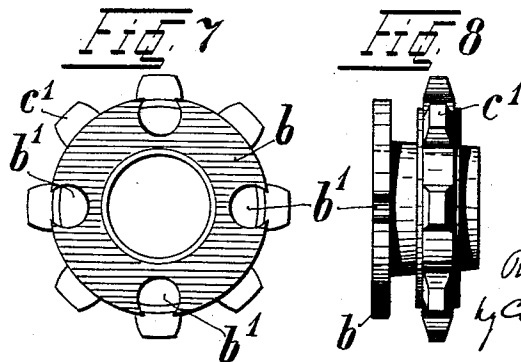
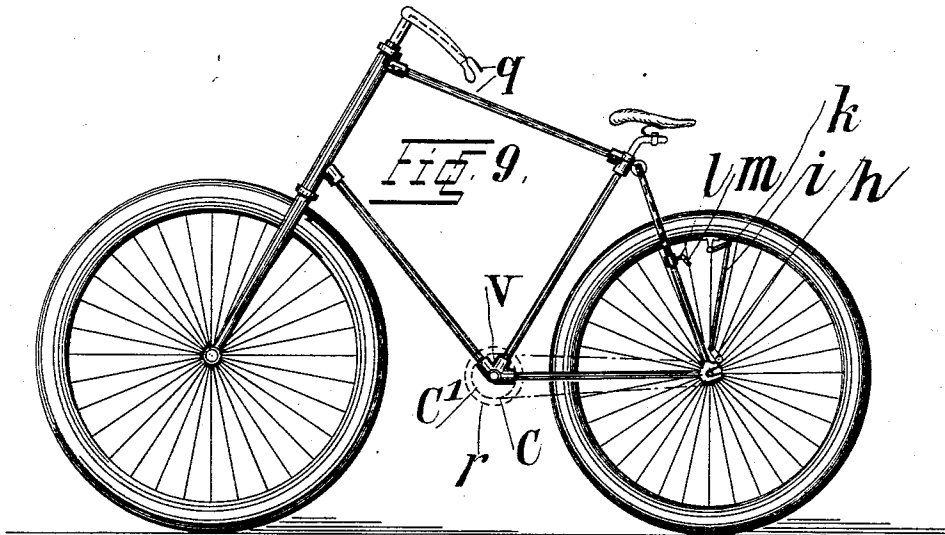
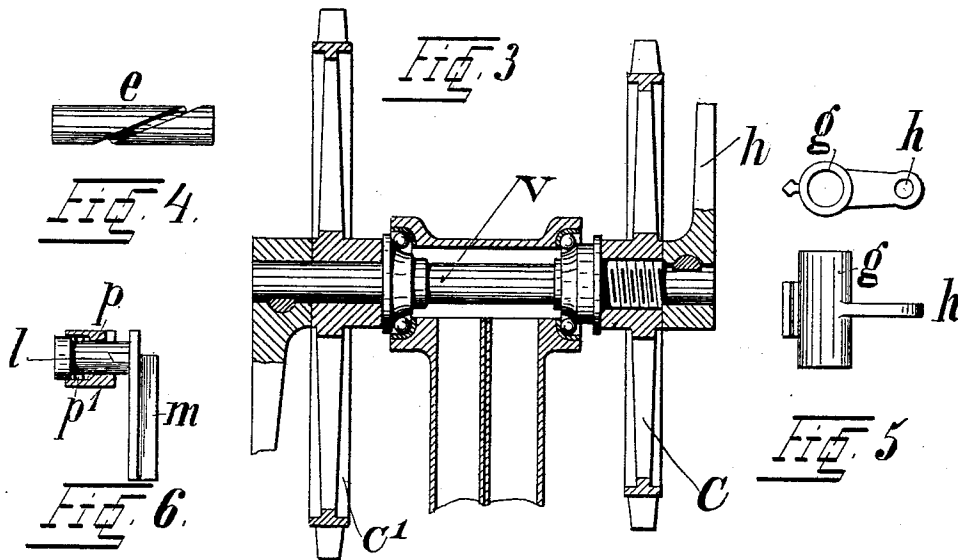
(No Model.)

R. SCHWÉERS.
VELOCIPÈDE.

2 Sheets—Sheet 2.

No. 580,007.

Patented Apr. 6, 1897.



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UNITED STATES PATENT OFFICE.

RAPHAEL SCHWÉERS, OF BERLIN, GERMANY.

VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 580,007, dated April 6, 1897.

Application filed September 24, 1895. Serial No. 563,546. (No model.) Patented in Germany May 17, 1895, No. 86,554; in England July 13, 1895, No. 13,528; in Switzerland August 16, 1895, No. 11,045; in Belgium August 31, 1895, No. 117,006; in France September 18, 1895, No. 247,675; in Italy October 12, 1895, No. 39,733; in Hungary October 22, 1895, No. 3,906, and in Austria January 8, 1896, No. 46/67.

To all whom it may concern:

Be it known that I, RAPHAEL SCHWÉERS, engineer, a citizen of the Kingdom of Prussia, and a resident of Berlin, in the Kingdom of Prussia and German Empire, have invented certain new and useful Improvements in Velocipedes, of which the following is a specification.

This invention has been patented in Germany May 17, 1895, No. 86,554; in France September 18, 1895, No. 247,675; in Belgium August 31, 1895, No. 117,006; in Austria January 8, 1896, No. 46/67; in Hungary October 22, 1895, No. 3,906; in England July 13, 1895, No. 13,528; in Italy October 12, 1895, No. 39,733/38, and in Switzerland August 16, 1895, No. 11,045.

The object of the present invention is to provide means by which the gearing between the pedal crank-shaft and the hind wheel may be altered at any time during the running of the wheel without necessitating a decrease of the speed.

The invention is an improvement of the mechanism made known by the Patent No. 525,030, where onto the pedal crank-shaft are keyed two chain-wheels of different diameter, each of which is geared with a corresponding chain-wheel fitted loosely on the nave of the hind wheel, that is to say, separate chains pass over said wheels and those on the hind wheel, either of which latter is adapted to be securely fastened onto the nave of the driving-wheel by a coupling operated by a rod and a lever mechanism, so that either the one or the other of the two gearings may be employed.

The object of this new invention concerns the mechanism provided for coupling and uncoupling one of the driving-wheels, respectively.

In the annexed drawings, Figure 1 is a section through the driving-wheel nave parallel to the axle. Fig. 2 is a vertical section thereof on the line xx . Fig. 3 is a section through the pedal crank-shaft. Figs. 4 to 8 represent details. Fig. 9 is a full view of the improved bicycle.

On each end of the nave a of the driving-wheel (see Fig. 1) is loosely attached a toothed

wheel c c' , respectively, each having a flange b with circular coupling-openings b' , as clearly shown by Figs. 7 and 8, said wheels being prevented from sliding off their bed by circular disks d , secured to the nave by means of the spokes of the wheel. From said toothed wheels c and c' pass chains to two toothed wheels C and C' , (see Fig. 3,) secured to the pedal crank-shaft. When it is desired to actuate the driving-wheel by means of one of said chains, it is necessary to couple the respective toothed wheel on the hind wheel onto the nave a . To effect this, a coupling-bolt e is adapted to be slid to one of the end positions to the coupling-slot of the wheel to be coupled. This bolt e , of cylindrical form, is provided with a screw-groove, as shown in Fig. 4, into which locks a corresponding screw-thread of the nut g , as hereinafter described. As soon as the bolt e has passed into one of the coupling-slots the respective wheel is securely connected with the nave. While the gearing is employed the other is disengaged. By turning the coupling-bolt it is bound to be longitudinally displaced, as the latter, as well as the beds f and f' of the coupling-bolt, which are riveted onto the nave, are provided with an Archimedean screw. The turning of the coupling-bolt is effected by the cylinder g , which is provided with screw-thread, and as the beds f have also such a one the coupling-bolt will also be given a longitudinal displacement when turning.

To the crank-arm h of the cylinder g is attached a bar i , which is fastened to the rim or spokes in such manner that it may freely move in a radial direction—that is to say, to and from the axle. At the outer extremity said bar carries a pin k , perpendicular to the plane of the wheel, said pin being adapted to freely rotate with the wheel as long as one of the slide-dogs l m or l n , (see Fig. 6,) which converge to a common fulcrum, does not interfere. Should this happen, the pin k strikes one of the sliding-surfaces, thereby sliding along to the point l . The radial displacement which is thus imparted to the pin k is transferred to the coupling-bolt e by means of the rod i and the nut g . At the moment when pin k arrives at point l the said bolt e

has been moved to the coupling-slot b' , where-
upon the coupling is accomplished by the
spring o , which, attached to the nave, con-
stantly presses against a projection of the nut
5 g , thereby preventing the coupling from be-
coming loosened. The fulcrum-pin of the
slide-dogs is located within a casing p , con-
taining a small spiral spring p' , (see Fig. 6,) 10
which urges the slide-dogs into one end posi-
tion by displacing the bolt on an oblique sur-
face. Said mechanism is brought into the
other end position by pulling the cord g ,
(see Fig. 3,) which is attached to the slide-
dogs and adapted to be manipulated from 15
near the handle-bar while the velocipede is
running.

What I claim is—

In a velocipede admitting of a variable-
speed transmission by two loose chain-wheels 20
attachable to the driving-wheel and geared

by means of chains, with corresponding chain-
wheels fixed onto the pedal crank-shaft, the
means for coupling and uncoupling one of the
chain-wheels cc' consisting in a bolt e having
a screw-groove, said bolt being journaled in 25
a nut g between lateral collars b of the chain-
wheels cc' said collars having coupling-open-
ings b' ; the nut g being provided with a lever-
arm h attached to a rod i suspended with its
other end to an angle-lever fulcrumed on the 30
tire of the wheel, said angle-lever having a
lateral projection k , substantially as set forth.

In testimony that I claim the foregoing as
my invention I have signed my name in pres-
ence of two subscribing witnesses.

RAPHAEL SCHWÉERS.

Witnesses:

WM. HAUPT,
HERMANN GERNHARDT.