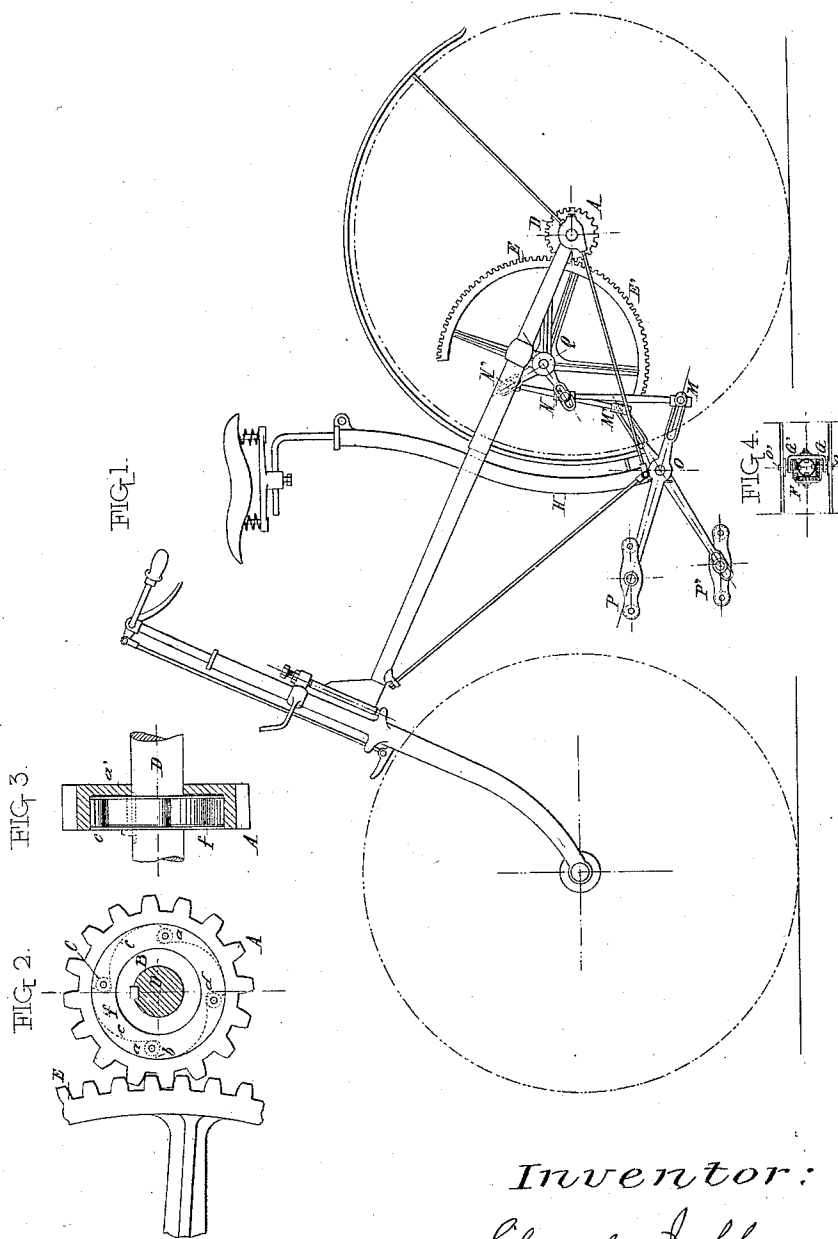


(No Model.)

C. JOLLY.
VELOCIPÈDE.

No. 465,859.

Patented Dec. 29, 1891.



Inventor:

Claude Jolly
Richardson

Witnesses:

E. B. Bolton
E. H. Sturtevant

By

his Attorneys.

UNITED STATES PATENT OFFICE.

CLAUDE JOLLY, OF PARIS, FRANCE.

VELOCIPÈDE.

SPECIFICATION forming part of Letters Patent No. 465,859, dated December 29, 1891.

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To all whom it may concern:

Be it known that I, CLAUDE JOLLY, a citizen of the French Republic, residing at Paris, France, have invented certain new and useful Improvements in Velocipedes, of which the following is a full, clear, and exact description.

The object of my invention is to provide a velocipede in which the chain ordinarily used to communicate the movement of the pedals to the back wheel is suppressed.

In the velocipedes now used the action of the motor-wheel is produced by means of a chain and toothed wheels transmitting the rotary movement of the axles of the pedals to the motor-wheel. This manner of transmission presents drawbacks long since acknowledged, the principal one being the loosening of the chain, which after a certain length of time ends by completely refusing to work. Continual repair of the velocipede is now necessitated. With my new system of transmission (without the use of the chain) this drawback disappears entirely, and, moreover, thanks to the arrangement used, the speed of the velocipede can be augmented quite considerably. In this new mode the pedals, instead of having a continuous rotary movement, only have an alternate movement, and, as will be seen, the dead-point is suppressed. The change of this alternate movement to a circular one is accomplished by means of a sector and a toothed wheel.

To make the working of my apparatus understood, I will describe it in connection with the accompanying drawings.

In the drawings forming a part of this specification, Figure 1 shows a general elevation of a velocipede embodying my invention. Fig. 2 is a face view of the toothed wheel and the clutching and loosening device. Fig. 3 is a section of the same. Fig. 4 is a plan view of the mechanism for raising one pedal by the descent of the other.

By referring to the drawings it will be seen that the rods $M N M' N'$ are jointed on the opposite ends of the levers $P O M P' O' M'$, bearing the pedals $P P'$. These rods, which transmit the movement of the pedals to the levers $N Q E N' Q' E'$, whose longest arms terminate in the form of toothed sectors, can slide in the pieces they join.

The mechanism of the two pedals being identical, I will only describe the working of one of them—the pedal P , for example. When pressing on the pedal P , placed at the end of the lever $P O M$, the lever is made to turn around its axle O , and the lever system $M N Q$ makes the toothed sector E describe a circular arch. The toothed wheel A , placed at the extremity of the motor-wheel R of the velocipede, engaging with the sector E , describes itself a circular arch. It is easy to see that if the toothed wheel A is fixed in an invariable way on the axle D the wheel R will be put in movement and the advancing will be done in a forward direction; but it is also evident that in raising the same pedal P the sector E , actuated by the same lever system, will describe a circular arch similar to the preceding one, but in a contrary direction. Therefore for the toothed wheel and the wheel R , a movement in the opposite direction equal to the preceding forward movement, one would therefore come back to the starting-point. This last movement was therefore to be suppressed only to utilize the first—that is, the downward—movement of the pedal—the only one which could be used.

To suppress the action of the toothed sector during the ascending movement of the pedal P , I leave the toothed wheel loose on the axle of the motor-wheel R , and I only make it solid with this axle at the moment the said pedal descends. The piece B , placed in the hollow of the toothed wheel A , Fig. 2, permits of this. This piece B is placed, with its system of small rollers C into the circular hollow of the toothed wheel A . The teeth b of the piece B , as well as the rollers C , can turn, gliding slightly in the hollow a of the wheel A . The two pieces, placed one in the other, are then mounted on the axle D . They are represented in Fig. 1 as following the face a' of C , Fig. 3—that is to say, turned over face to face. These four rollers C are connected together by a thin band of steel f . The piece B is tight on the axle D of the wheel R . It is this piece which, by means of the rollers C , makes the wheel A solid with the axle D or loose on this same axle. In fact, when lowering the pedal P I have seen the wheel A , by engaging with the sector E , describe a circular arch, tending to make the wheel R take a circular movement in the same

direction; but the wheel A being loose on the axle D alone takes part in this movement, drawing with it by friction the rollers C, which, in gliding on the descents *c* of the piece B, form corners between A and B, making them solid one with the other, and permitting the wheel A to draw piece B along, and consequently the axle D, on which this latter is fixed. The motor-wheel then moves in a forward direction.

10 When the pedal P is raised, we have seen that the toothed wheel A describes a circular arch in opposite direction to the preceding one. The rollers C are then drawn along in the opposite direction. Through friction they come

15 to lie in the hollows *d* of the piece B. The catching is done no more. The wheel A becomes loose on the axle and does not produce an opposite movement of the wheel R.

20 The mechanism just described is repeated for the second pedal. To raise one pedal while the other descends I use a system of two-toothed half-pinions G G', Fig. 4, mounted rigidly on the axles O O' of the levers of the pedals P P', and a small toothed wheel F,

25 loose on an axle borne by the piece H, which supports the seat. These three small toothed pieces engage one another. When one of the pedals P, for instance, goes down describing a circular arch around the axle O of its lever,

30 the half-pinion G, fixed to this axle, is drawn in the same movement. This pinion then makes the toothed wheel F turn, which itself then makes the second pinion G' turn in an opposite direction to that of pinion G. The

35 pinion G', which is invariably united to the axle of the second pedal P', makes this latter remount to a distance equal to the descent of the other. These pedals working alternately, it is evident that the movement will be con-

tinuous and the advancement will take place 40 in the same direction.

One perceives that by the arrangement described above, which permits of the suppression of the dead-point existing with pedals with continuous rotary movement, one can 45 augment within certain limits the speed of the velocipede. Besides this advantage and the other coming from the suppression of the chains usually used, it must be noted that this system presents the facility of being ap- 50 plicable without large alterations to the existing velocipedes.

I claim—

1. In a velocipede, the combination, with the pedal-levers P O M P' O' M' and the 55 toothed wheel A, mounted on the rear axle, of the toothed wheel E, gearing with said wheel A and operated by the levers connected with the pedal-levers and spur-wheels F G G', substantially as set forth. 60

2. In a velocipede, the combination, with the toothed wheels A and E, levers P O M P' O' M' and N Q E N' Q' E', of means for preventing retrogression of the motor-wheels, 65 substantially as set forth.

3. In a velocipede, the combination, with the pedal-levers P O M P' O' M', mounted at the base of the seat-supporting rod, of intermeshing spur-wheels F G G', substantially as 70 and for the purpose specified.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CLAUDE JOLLY.

Witnesses:

ROBT. M. HOOPER,
JOSEPH TOURNIVE.