



A. SIMPIER.  
VELOCIPEDE.

No. 601,107.

Patented Mar. 22, 1898.

Fig. 6.

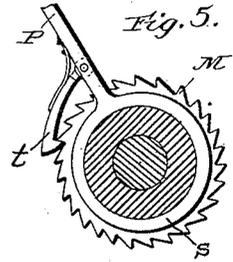
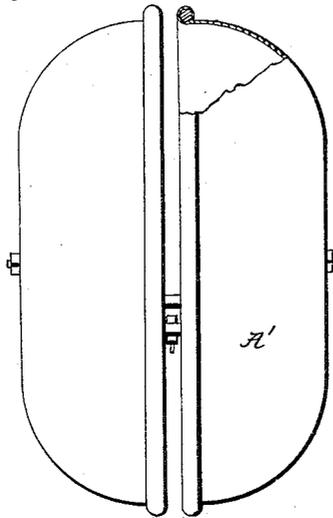


Fig. 4.

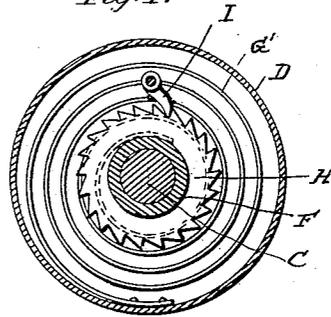
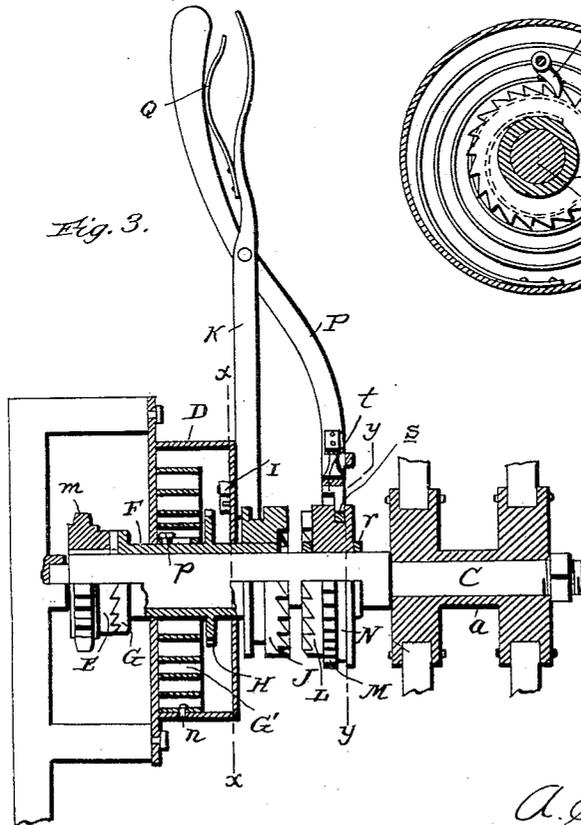


Fig. 3.



Witnesses:  
*[Signature]*  
 J. A. James.

Inventor:  
 A. Simpier  
 By *[Signature]*  
 Attorney

# UNITED STATES PATENT OFFICE.

ALPHONSE SIMPIER, OF ALBUQUERQUE, TERRITORY OF NEW MEXICO.

## VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 601,107, dated March 22, 1898.

Application filed April 6, 1897. Serial No. 631,038. (No model.)

*To all whom it may concern:*

Be it known that I, ALPHONSE SIMPIER, a citizen of the United States, residing at Albuquerque, in the county of Bernalillo and Territory of New Mexico, have invented certain new and useful Improvements in Velocipedes; and I 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.

My invention relates to improvements in velocipedes; and its novelty and many advantages will be fully understood from the following description and claims when taken in conjunction with the annexed drawings, in which—

Figure 1 is a vertical section of my improved velocipede or bicycle, taken in a plane at one side of the saddle and with a portion of the wheel broken away. Fig. 2 is a transverse section taken in a plane in rear of the saddle. Fig. 3 is an enlarged detail section illustrating a portion of the frame and one of the axles, together with the parts mounted thereon. Figs. 4 and 5 are sections taken in the planes indicated by the lines *x x* and *y y*, respectively, of Fig. 3; and Fig. 6 is a front elevation, with parts in section, illustrating a modification of my invention.

Referring by letter to the said drawings, and more particularly to Figs. 1 to 5 thereof, A indicates the wheels of my improved velocipede, which are preferably concavo-convex in cross-section, with their concave sides inwardly, and comprise hubs *a*, ribs *b*, spokes *c*, and tires *d*, the latter being preferably of the well-known pneumatic type. The said wheels A are arranged at opposite sides of the main frame B, and they are fixed on axles C, which are journaled in the frame, as shown.

The frame B comprises the two hangers *e*, which depend from the axles and have the journal-boxes *f* at their lower ends, and the cross-bar *g*, which connects the hangers *e* and also serves to support the saddle *h*, as shown. In the journal-boxes *f* at the lower ends of the hangers *e* are arranged crank-axles *i*, which have pedal-cranks *j* at their inner ends and sprocket-wheels *k* at their outer ends. These latter are connected by sprocket-chains

*l* with sprocket-wheels *m*, fixed on axles C, and consequently it will be seen that when the shafts *i* are rotated by the rider through the medium of the pedal-cranks the wheels A will be rotated. When the wheels A are rotated at a corresponding speed, the velocipede will travel in a straight path; but when the speed of one wheel is diminished the velocipede will turn toward the side on which said wheel is arranged. In this way it will be observed that the velocipede may be very easily and conveniently steered, notwithstanding the speed at which it is traveling.

D indicates casings which surround the axle C and are fixedly connected to the hangers *e* of frame B.

E indicates clutch-sections which are fixed to the axles adjacent to the sprocket-wheels *m*.

F indicates sleeves which loosely surround the axles and extend loosely through the casings D, and have clutch-sections G at their outer ends designed to engage the clutch-sections E on axles, and G indicates springs which are arranged in casing D and are connected at their outer ends thereto, as indicated by *n*, and their inner ends to the sleeves F, as indicated by *p*, these latter connections preferably being such as to permit of endwise movement of the sleeves F without moving the springs laterally. The sleeves F are provided within the casings D with ratchets H, designed in one position of the sleeves to be engaged by pawls I, connected to the casings, and said sleeves are also provided at their inner ends with clutch-sections J. These clutch-sections J have a handle K loosely mounted upon them, and they are designed in one position of the sleeves F to engage clutch-sections L, which are loosely mounted on the axles C between collars *r* and are provided with ratchets M. Said clutch-sections L also have peripheral grooves N, in which are loosely arranged annular portions *s* at the lower ends on handles P, which handles have spring-pressed detents *t* to engage the ratchets M, as better shown in Fig. 5. These handles K are provided with springs Q, which bear against the handles P and serve to normally hold the upper portions of the handles K P apart, and consequently serve to normally hold the clutch-sections G in en-

gagement with the clutch-sections E and the clutch-sections J out of engagement with the clutch-sections L.

The mechanism just described is designed and adapted to enable the operator to wind the springs G' and then utilize the power of said springs to assist in the rotation of the axles C and the propulsion of the machine. When it is desired to wind the springs G', it is simply necessary for the rider to grasp the upper portions of handles K and P and draw the same together, so as to disengage clutches G and E, engage clutches J and L, and bring ratchet H into engagement with pawl I and then rock the handles K P to and fro. When this is done, it will be seen that on one movement of the handles the detent *t*, engaging ratchet-wheel M, will rotate the clutch-sections L and the sleeves F and all the parts connected thereto, while on the other movement of the handles the detents *t* will ride over the ratchets M and the pawls I will hold the sleeves F and springs and the other parts against retrograde movement.

When it is desired to use the springs G' to assist in the rotation of the axles C and the propulsion of the machine, it is simply necessary for the operator to permit the upper portions to move apart, when the parts will be caused to assume the position shown in Fig. 3 and the springs will be brought into play. The said springs serve materially in propelling the velocipede, and when they have spent their power they will not interfere with the propulsion of the machine through the medium of the pedal-cranks and gearing described. It will also be seen that the machine may be propelled by the springs and pedal-cranks in concert when desired.

It will be seen from the foregoing that the rider is not required to balance my improved velocipede, and it will also be seen that in virtue of the rims of the wheels A being brought into close proximity there is but little danger of the rider being injured in the event of a collision.

In Fig. 6 of the drawings I have illustrated an embodiment of my invention, which is similar to that shown in Figs. 1 to 5, with the exception that the wheels A' are formed of imperforate sheet-steel or other suitable metal. This embodiment is designed more particularly for the use of messengers in time of war, the imperforate metallic wheels being designed to protect the rider from the bullets of the enemy. As the modification is shown in Fig. 6, it is necessary to remove one of the wheels A' in order to enable the rider to gain his seat, but it is obvious that when this is undesirable one of the wheels A' might be provided with a door (not illustrated) through which the rider could enter.

Having thus described my invention, what I claim is—

1. A velocipede comprising two parallel wheels of equal diameter and concavo-convex form in cross-section arranged side by side;

the said wheels being imperforate from their centers to their rims and being arranged with their concave sides inwardly and their rims closely adjacent to each other, the axles fixed with respect to the wheels and having the fixed clutches E, and sprocket-wheels *m*, the frame arranged between and hung from the axles, the pedal-cranks having shafts journaled in the frame and provided with sprockets, chains connecting said sprockets and the sprockets on the axles, casings surrounding the axles and connected to the frame and provided with the pawls I, the sleeves loosely mounted on the axle and having the clutch-sections at their opposite ends and also having the ratchet-wheels adapted to be engaged by pawls I, the clutch-sections L, loosely mounted on the axles and having ratchets M, the springs arranged in the casings and connected thereto and also connected to the sleeves, the handles pivotally connected together and connected to the clutch-sections of the sleeves and the clutch-sections L, respectively, and springs interposed between the upper portions of the handles, substantially as specified.

2. The herein-described bicycle comprising two parallel wheels of equal diameter and concavo-convex form in cross-section arranged side by side; the said wheels being formed of sheet-steel and being imperforate from their centers to their rims and arranged with their concave sides inwardly and their rims closely adjacent to each other, independent axles carrying said wheels and extending inwardly from the center thereof, and the main frame connected to and dependent from said axles and resting between the wheels, substantially as specified.

3. In a velocipede, the combination of wheels arranged side by side, the axles fixed with respect to the wheels, and having the fixed clutches E, and sprocket-wheels *m*, the frame arranged between and hung from the axles, the pedal-cranks having shafts journaled in the frame and provided with sprockets, chains connecting said sprockets and sprockets on the axles, the casings surrounding the axles and connected to the frame and provided with pawls I, the sleeves loosely mounted on the axles and having the clutch-sections at their opposite ends, and also having the ratchet-wheel adapted to be engaged by pawls I, the clutch-sections L, loosely mounted on the axles and having ratchets M, the springs arranged in the casings and connected thereto and also connected to the sleeves, the handles pivotally connected together and connected to the clutch-sections of the sleeves and the clutch-sections L, respectively, and springs interposed between the upper portions of the handles, substantially as specified.

4. In a velocipede, the combination of a frame, an axle journaled in the frame and having the fixed clutch-section E, and sprocket-wheel *m*, a wheel fixed on said axle, a pedal-crank having a shaft journaled in the frame

and provided with a sprocket, a chain connecting said sprocket on the axle, the casing surrounding the axle and connected to the frame and provided with a pawl I, the sleeve  
5 loosely mounted on the axle and having the clutch-sections at its opposite ends and also having the ratchet-wheel adapted to be engaged by pawl I, the clutch-section L, loosely  
10 M, the spring arranged in the casing thereto and also connected to the sleeves, the han-

dles pivotally connected together and connected to the clutch-section of the sleeve and the clutch-section L, respectively, and springs interposed between the upper portions of said  
15 handles, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

ALPHONSE SIMPIER.

Witnesses:

GEORGE CHALIFAUX,  
EDWARD DORNEY.