

C. HAMMELMANN.
Velocipede.

No. 225,010.

Patented Mar. 2, 1880.

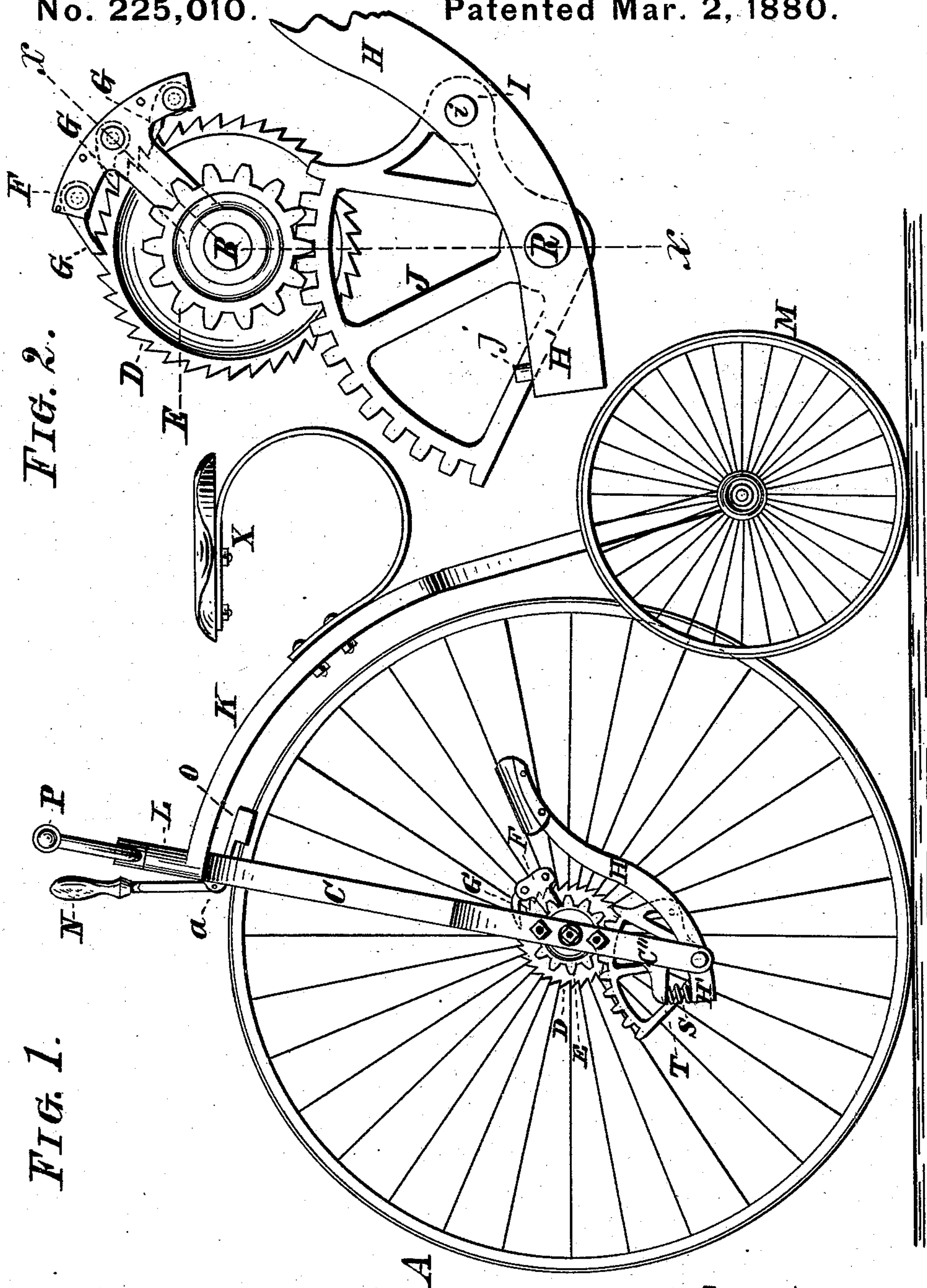


FIG. 2.

FIG. 1.

Witnesses:

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by Michael J. Stark,
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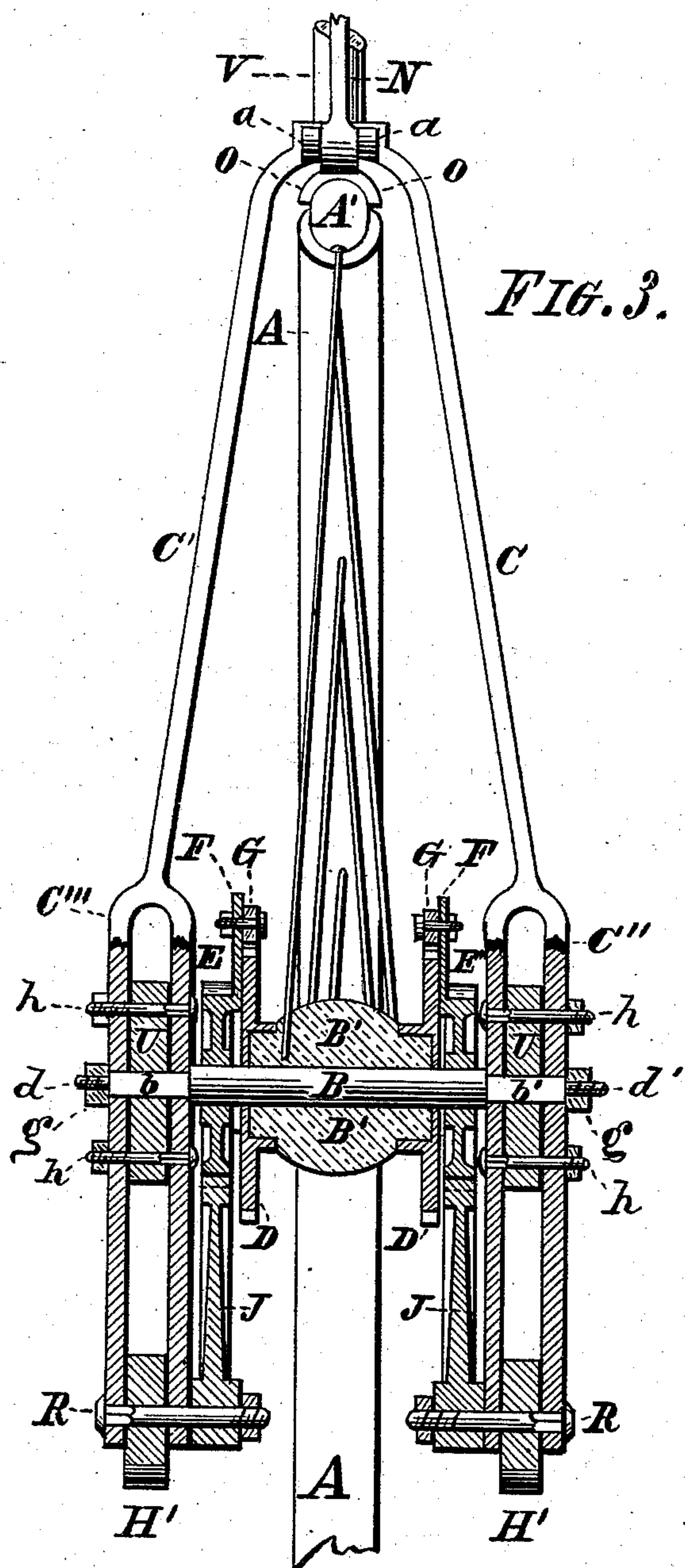


FIG. 4. FIG. 5.

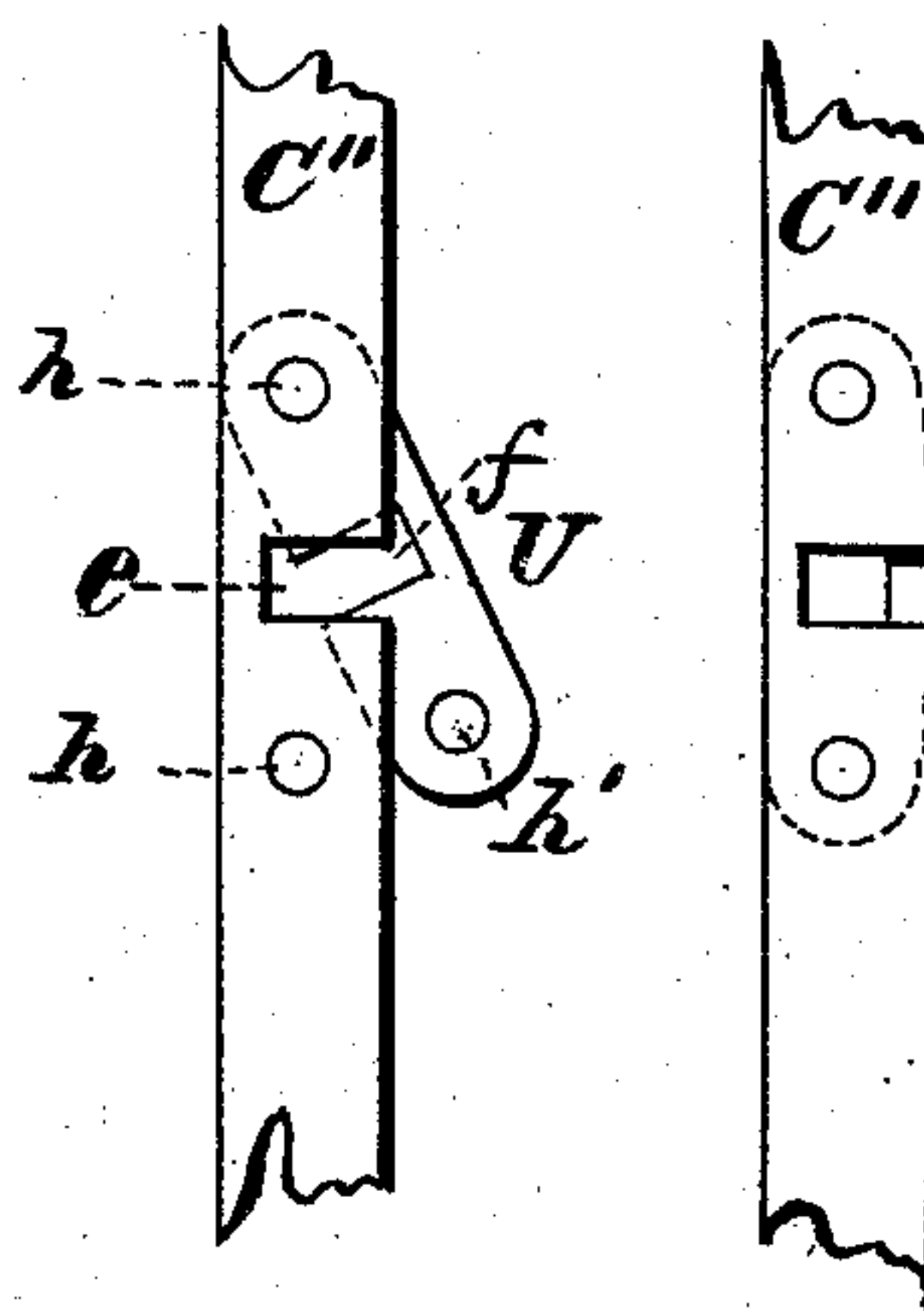


FIG. 6.

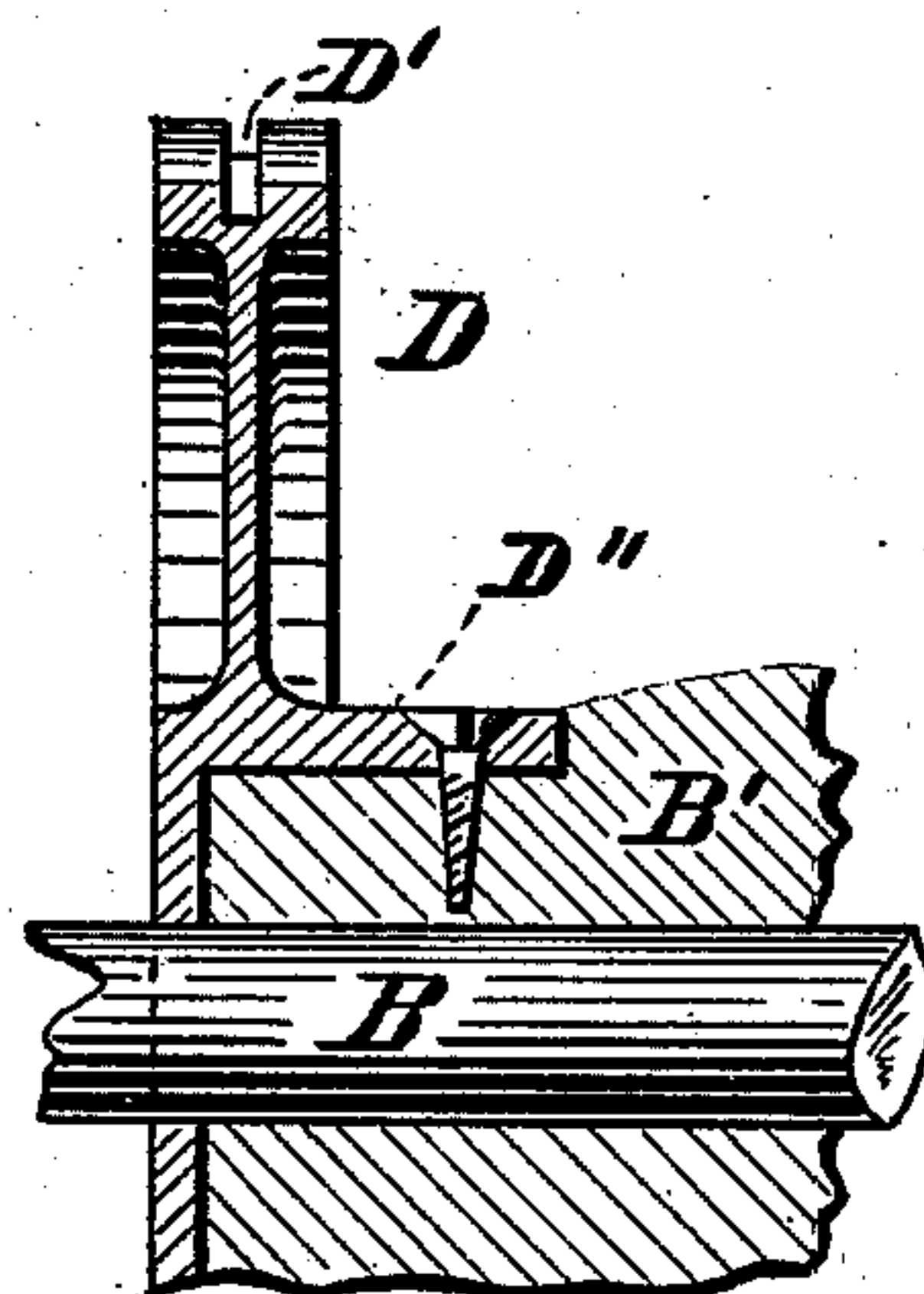
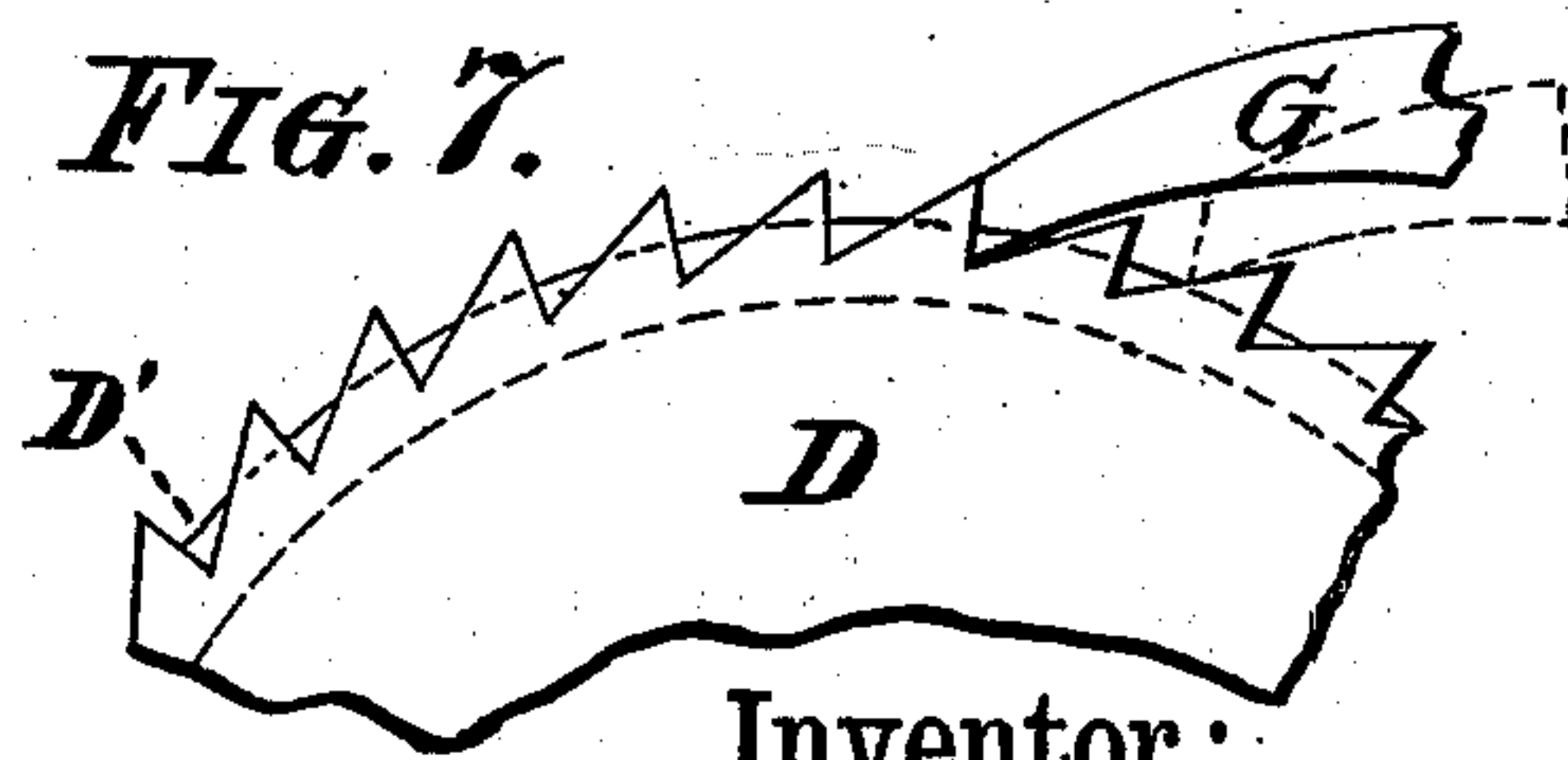


FIG. 7.



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UNITED STATES PATENT OFFICE.

CHARLES HAMMELMANN, OF BUFFALO, NEW YORK.

VELOCIPEDÉ.

SPECIFICATION forming part of Letters Patent No. 225,010, dated March 2, 1880.

Application filed August 13, 1879

To all whom it may concern :

Be it known that I, CHARLES HAMMELMANN, of Buffalo, in the county of Erie and State of New York, have invented certain
5 new and useful Improvements on a Velocipede; and I do hereby declare that the following description of my said invention, taken in connection with the accompanying sheets of drawings, forms a full, clear, and exact specification, which will enable others skilled in
10 the art to which it appertains to make and use the same.

This invention has general reference to velocipedes; and it consists in the peculiar combination of parts and details of construction,
15 as hereinafter first fully set forth and described, and then pointed out in the claims.

In the drawings already referred to, Figure 1 is a side elevation of my improved velocipede. Fig. 2 is a similar view of the operating mechanism. Fig. 3 is a longitudinal sectional elevation in line *xx* of Fig. 2. Figs. 4
20 and 5 are detail views of the clamping device for the main axle. Figs. 6 and 7 are detail views of the ratchet-wheel.

In these drawings, A designates the main wheel. It is loosely revolving upon an axle, B, fixed between the bifurcated bars C' C'', and carries upon its hub B' two ratchet-wheels,
30 D, one upon each side of said hub. Upon the said axle B, and on both sides of the hub, are loosely fixed two pinions, E E', respectively having a projection, F, provided with a number of pivoted pawls, G, engaging the ratchet-wheels D, as hereinafter to be referred to.
35

The standard or bifurcated bar C C' is bifurcated in each member, as shown in Fig. 3, so as to form a double fork, and between the members of these forks are pivoted the treadles
40 H, connecting with segmental gear-wheels J at I, said segmental wheels meshing with the pinions E, heretofore referred to.

K is the backbone, having on its front end the usual socket, L, for the passage of the stem
45 of the fork, and its rear end bifurcated to embrace the axle for the pair of rear wheels, M.

To the fork C C' are fixed lugs *a*, within which is pivoted the brake-lever N, having the spoon O engaging the main or driving wheel
50 A in a manner readily understood by inspection of the drawings.

The shank V of the double-forked part C C' is provided with the usual double handle P, by means of which the machine is guided in the usual manner. Upon the backbone K is
55 fixed the spring-seat X in such a position that the party riding upon this tricycle can readily reach the treadles H with his feet.

The treadles H are, as heretofore stated, pivoted to the forks of the parts C' C'' at R,
60 and they are carried beyond their point of oscillation a sufficient distance to engage a spiral spring, S, Fig. 1, interposed between the end H' of said treadles H and a projection, T, on each of the forks C' C''. By means of these
65 springs S the treadles H are retained in an elevated position unless interfered with by the rider of this machine.

The rim or felly of this wheel is preferably rubber-cushioned—that is to say, the groove
70 in the rim is fitted with an endless belt of rubber, A', stretched into said groove; but it may also be simply bound with an iron band, in the usual manner.

The projection or arm F on the pinions E is preferably provided with a number of pawls,
75 G, arranged in such a manner that when one is resting against a tooth in the ratchet-wheel D the next one will be a short distance away from its respective tooth, &c., whereby but
80 little if any lost motion will occur when operating this machine. One pawl may, however, in general be found ample for all practical purposes.

In operation, the rider, straddling the backbone K, places his feet upon the treadles and
85 depresses them the same as he would actuate the common crank of the usual velocipedes. This vibrating motion of said treadles causes the segmental wheels J, fixed to said treadles, to partake of this motion, and thereby to actuate the pinions E. These pinions, being in
90 connection with the ratchet-wheels D through the pawls G, cause the main wheel to be continuously rotated—in one direction only, however, owing to the fact that the vibrating motion of the pinions E is converted into a continuous rotating movement of the main wheel
95 A through the intervention of the pawls and ratchet-wheels. For this reason the main wheel cannot well be revolved backward, which, with
100 beginners, is a very desirable feature, because

it will not irritate them, while in the ordinary course of travel no backing of the machine is necessary. Such, however, may be readily accomplished by either constructing the pawls
 5 G in such manner that they may be prevented from engaging the ratchet-wheels, or, which is yet simpler, by revolving the handle P a half-turn, so that the treadles H, instead of pointing backward, project forward, and then act-
 10 uating the machine the same as when going forward, the treadles being, when in such a position, still within reach of the rider's feet. The treadles, after being depressed, return to their normal position on account of the spiral
 15 spring S, interposed between the ends H' of said treadles and the projection T on the bifurcated standard C'' C'''.

In order to enable me to readily and securely fix the axle B between the double forks C'' C'''
 20 so that it will not revolve, (the wheel A being constructed to revolve upon the said axle,) I provide the latter, near both its extremities, with angular sections *b b'*, respectively, and screw-threaded parts *a d'* on both ends, while
 25 the members C'' C''' of the standard are slotted or notched at *e*, Figs. 4 and 5.

Between the two members C'' C''', I place a clamping-piece, U, also notched at *f*, and provided with apertures *h'* for the passage of bolts
 30 *h*, by means of which the parts are retained in proper position. These clamping-pieces, when placed between the members C'' C''', securely embrace the angular part *b* of the axle B, and the nuts *g*, after being drawn tight, prevent
 35 the forks of the standard from spreading.

In a device of the kind described, where pawls are constructed to engage ratchet-wheels, there is an objection to the clicking sound produced by said pawls striking the
 40 teeth of said ratchet-wheels in their backward movement. To avoid this objection I have constructed the said ratchet-wheels as shown in Figs. 6 and 7, where the exterior serrated surface of said wheels is provided with a groove,
 45 into which is placed an elastic band, D', projecting somewhat over the bottom of the teeth of said wheels. By thus placing the elastic band the pawl or pawls G, when moving backward and dropping from a tooth, will strike
 50 said elastic band D', and thus move noiselessly

upon the next succeeding tooth. These ratchet-wheels D are provided with collars D'', forming bands, by means of which the hub B of the wheel A is bound and the said ratchet-wheels secured to said hub.

In velocipedes having a driving-wheel of comparatively large diameter, so that a rider cannot readily reach the treadles H when placed in the position shown, I may modify
 60 this construction by placing said treadles and also the segmental wheels J above the axle B, (instead of below, as illustrated in Figs. 1, 2, and 3,) in a manner readily understood, such a construction bringing said treadles within
 65 easy reach of the driver's feet.

Having thus fully described my invention, I claim as new and desire to secure to me by Letters Patent of the United States—

1. In a velocipede, the mechanism for operating the driving-wheel, consisting, essentially,
 70 of the double-forked standard, having near its lower end the fixed shaft B, the driving-wheel A, loosely revolving upon said shaft, together with two pinions, E, each having an arm, F,
 75 provided with pawls G, engaging ratchet-wheels D, placed upon the hub of said wheel A, segmental wheels J, engaging said pinions, and the two treadles H, pivoted within the forks of the standard and connected with said
 80 segmental wheels, whereby the main wheel can be operated with either one or both treadles.

2. In velocipedes, the forks C'' C''', having the notches *e*, in combination with the clamping-pieces U, having the notches *f*, said clamping-pieces being interposed between the mem-
 85 bers of said forks C'' C''', as and for the purpose of clamping the main axle B by its angular parts *b b'*, as stated.

3. The ratchet-wheels D, having grooves fitted with elastic bands D', for the purpose of
 90 avoiding the clicking sound of the pawls G when moving backward, as specified.

In testimony that I claim the foregoing as my invention I have hereto set my hand and affixed my seal in the presence of two sub-
 95 scribing witnesses.

CHARLES HAMMELMANN. [L. S.]

Attest:

MICHAEL J. STARK,
 EMMA A. S. DOPP.