

No. 618,041.

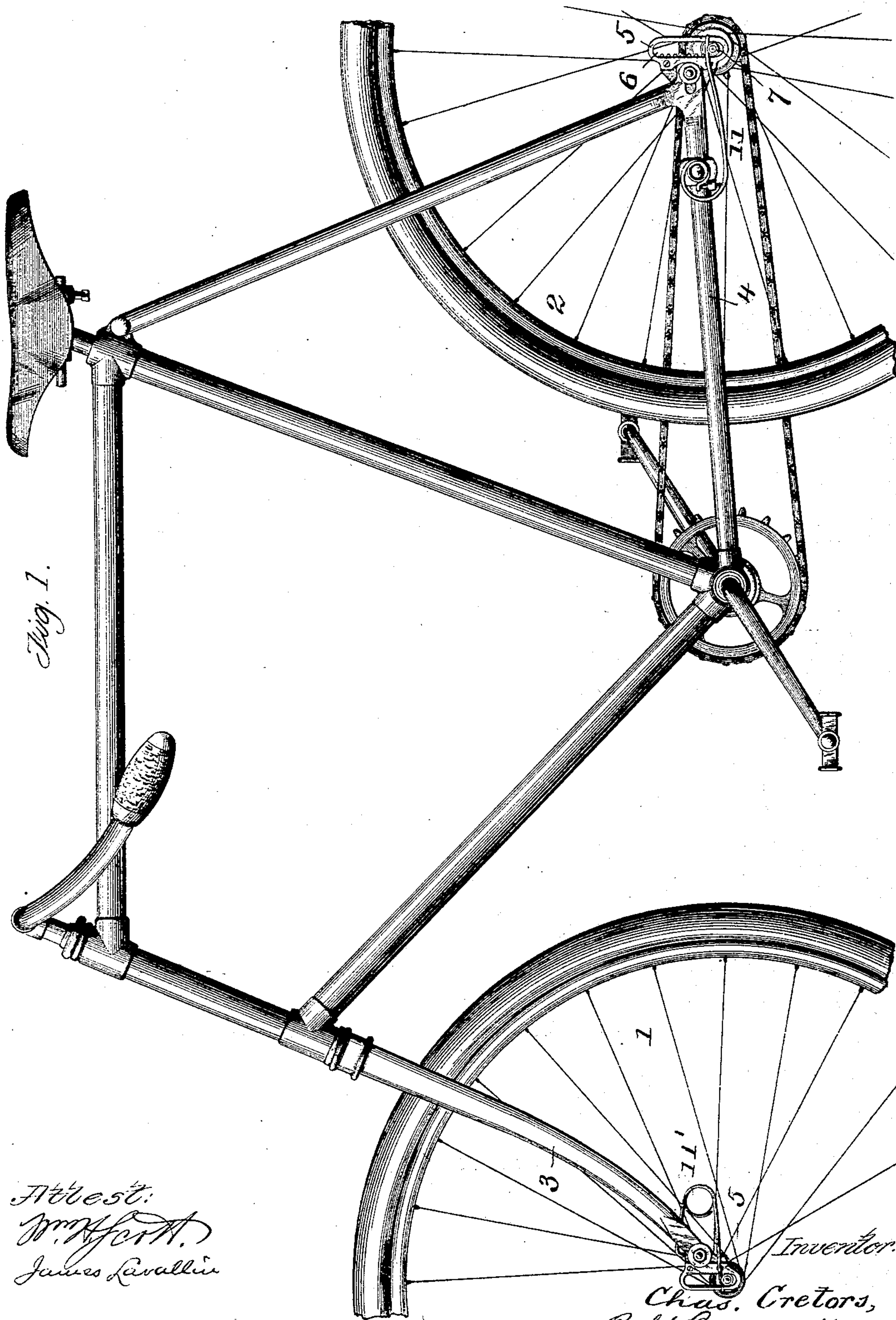
Patented Jan. 17, 1899.

C. CRETORS.
BICYCLE ATTACHMENT.

(Application filed Mar. 5, 1897.)

(No Model.)

3 Sheets—Sheet 1.



Attest:
Wm. H. Smith
James Lavallin

Inventor:
Chas. Cretors,
by Robt. Burns Attorney

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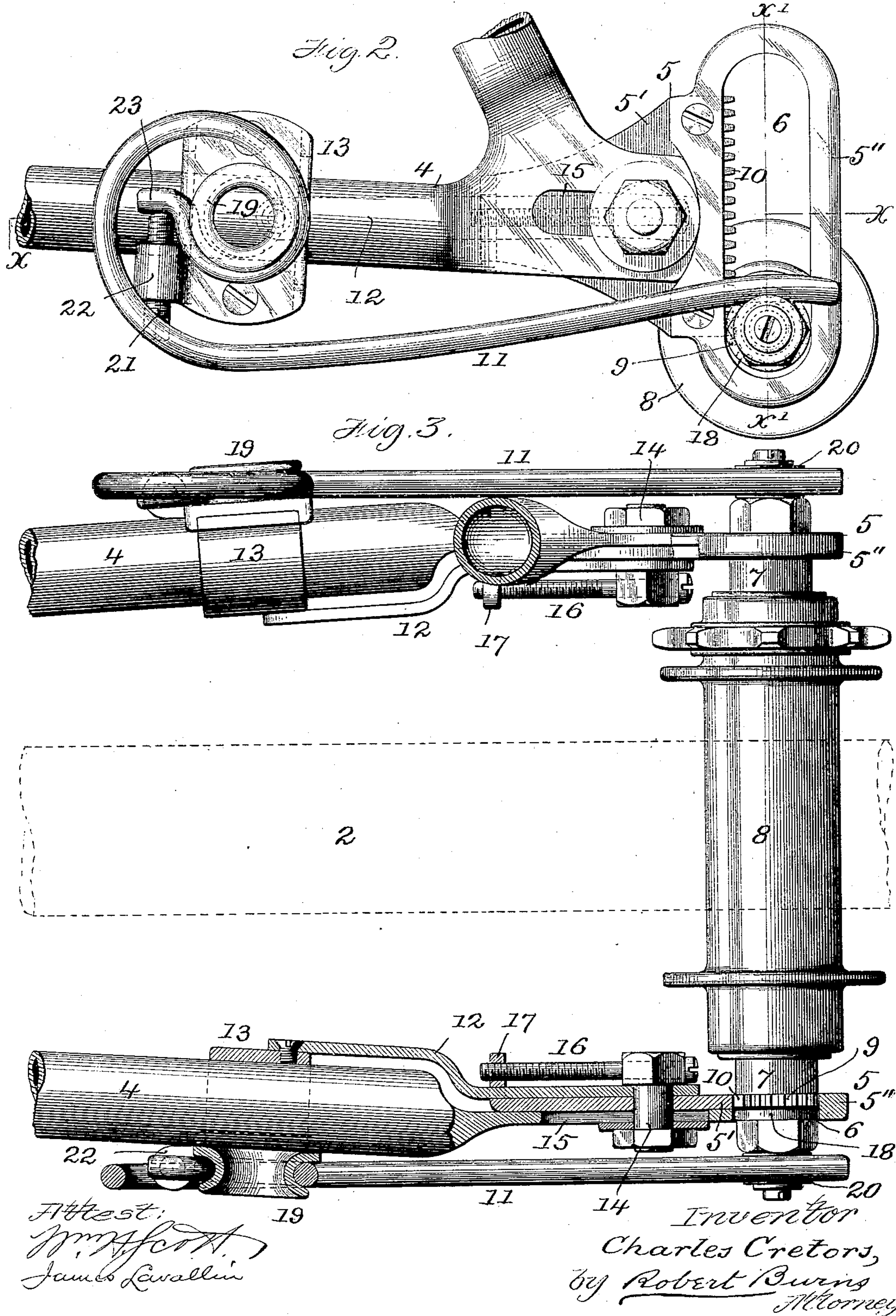
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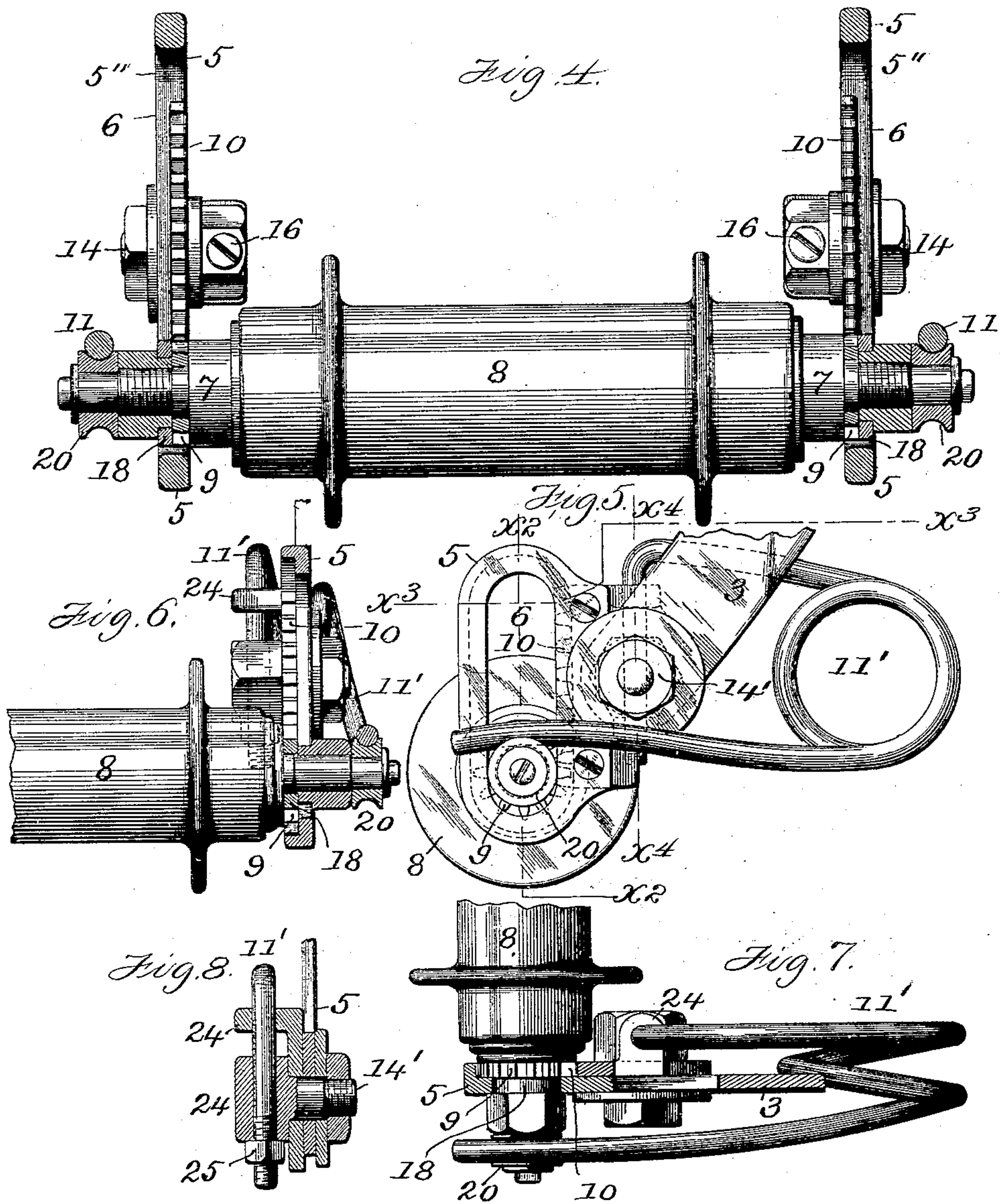
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3 Sheets—Sheet 3.



Attest:
James Lavallin
James Lavallin

Inventor:
Charles Cretors,
by *Robert Burns*
Attorney.

UNITED STATES PATENT OFFICE.

CHARLES CRETORS, OF CHICAGO, ILLINOIS.

BICYCLE ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 618,041, dated January 17, 1899.

Application filed March 5, 1897. Serial No. 626,136. (No model.)

To all whom it may concern:

Be it known that I, CHARLES CRETORS, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Bicycle Attachments; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

The present invention relates to that type of bicycle attachments that are intended to afford an elastic or yielding connection between the wheels and the supporting-frame, so that in use upon rough and uneven roads said connection will absorb nearly the whole of the jar and but very little of the same will be imparted to the rider-supporting frame of the bicycle; and the present improvement has for its object to provide a simple and effective means whereby the independent movement of a supporting-wheel with relation to the bicycle-frame is so governed that the same will take place in the proper plane without any possibility of buckling or moving in a lateral or oblique manner, a further object being to provide an attachment to any usual make of safety-bicycle now on the market, all as will hereinafter appear, and be more particularly pointed out in the claims. I attain such objects by the construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a safety-bicycle to which my present invention is applied; Fig. 2, an enlarged detail side elevation illustrating the present attachment and its connection with the rear wheel and the rear end of the bicycle-frame; Fig. 3, a detail plan view of the same with parts in horizontal section at line $x x$, Fig. 2; Fig. 4, a detail transverse sectional elevation of the same at line $x' x'$, Fig. 2; Fig. 5, an enlarged detail side elevation illustrating the present attachment and its connection with the front steering-wheel and the steering-fork of the bicycle; Fig. 6, a detail transverse section of the same at line $x^2 x^2$, Fig. 5; Fig. 7, a sec-

tional plan view of the same, the section being on line $x^3 x^3$, Fig. 5; Fig. 8, a detail transverse section at line $x^4 x^4$, Fig. 5.

Similar numerals of reference indicate like parts in the several views.

Referring to the drawings, 1 represents the front or steering wheel, 2 the rear or driving wheel, 3 the steering-fork, and 4 the rear-wheel-supporting forks, of a safety-bicycle, which parts are of any usual construction.

In the present improvement, 5 5 are counterpart guide-heads on the ends of the wheel-carrying members of a bicycle and which may be either the front-fork sides 3 or the rear-wheel-supporting forks 4 of a bicycle. The heads 5 5 are provided with vertically-arranged guide-openings 6 6, that receive and form guides for the respective ends of the non-revolving axle 7 of the hub 8 of the wheel to properly guide the same in an independent movement of said wheel with relation to the bicycle-frame.

9 9 are spur-pinions secured to the axle 7 of the wheel-hub 8, at or near its respective ends, and which mesh with or engage the toothed racks 10 10, secured to or forming part of the guide-heads 5 5.

With the above provision of counterpart racks and pinions at the opposite sides of the wheel-axle any independent movement of the wheel with relation to its carrying-frame will be in a straight direction in that owing to the engagement of the pinion 9 on the axle with the racks 10 on the frame a positive movement of one end of the axle will insure a corresponding positive movement of the opposite end of such axle.

11 are counterpart springs secured to the bicycle-frame and bearing against the outer portions of the axle 7 in a manner to resist an upward movement of the same.

In my preferred construction, as illustrated in the accompanying drawings, my invention is shown in the form of an attachment adapted to fit any ordinary safety-bicycle frame now on the market.

In the construction illustrated in Figs. 2, 3, and 4 the guide-heads 5 are made adjustable

on supplementary frames 12, attached in a fixed manner to the forks 4 of the bicycle-frame by means of the clip-collars 13, that are clamped around the forks, and bolts 14, that pass through the usual axle-receiving orifices 15 of the bicycle-frame.

16 are adjusting-screws turning in the head of the respective bolts 14 and engaging projections 17 on the guide-heads 5, so as to be capable of imparting a longitudinal adjustment to the same for the purpose of taking up the slack in the ordinary safety-bicycle driving-chain and other like and usual purposes of the chain adjustments heretofore employed on chain-driven bicycles.

In my preferred construction the guide-heads 5 will be formed in two parts 5' 5'', the one, 5', carrying the toothed rack 10 and the other, 5'', the guide-head proper, in which the guide-opening 6 is formed, the two parts being secured together by screws, as clearly illustrated in Figs. 2 and 3.

18 are loose disks or rings on the axle that have bearing within the guide-grooves 6 to properly guide the axle in its movement with but little friction.

19 are peripherally-grooved circular projections on the sides of the collars 13, that receive the curved inner ends of the springs 11 to form an attachment or holder for the same.

20 are grooved rings loosely mounted on the ends of the axle 7 to form a bearing for the free ends of the springs 11, which are adapted to turn with but very little friction as the springs move longitudinally in the operation of the mechanism.

21 are adjusting-screws passing through lugs 22 on the collars 13 in a tangential manner with relation to the circular projections 19, the ends of such screws engaging against the bent ends 23 of the springs 11, as shown in Fig. 2, so as to afford a ready and convenient means for effecting an adjustment of the tension of such springs.

In the arrangement of my improved mechanism for use in connection with the fork sides 3 of the front or steering wheel of a bicycle some slight modification of the construction heretofore described will be necessary and will be substantially as follows: The attachment of the guide-frames 5 will be by a single clamping-bolt 14', and the springs 11' will have a vertical adjustment in guide-lugs 24 on the back of the guide-heads by means of adjusting-nuts 25, screwing upon the screw-threaded ends of the springs, all as clearly illustrated in Figs. 5, 6, 7, and 8.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a bicycle, the combination of a wheel-supporting fork, provided on its ends with counterpart toothed racks, a wheel-axle provided with toothed pinions at or near its re-

spective ends, that mesh with the toothed racks, means for guiding the axle with relation to the forks, and interposed springs between the forks and the axle, substantially as set forth.

2. In a bicycle, the combination of a wheel-supporting fork provided on its ends with counterpart toothed racks, and vertically-slotted guide-heads, a wheel-axle provided with toothed pinions at or near its respective ends that mesh with the toothed racks, and interposed springs between the fork and the axle, substantially as set forth.

3. In a bicycle, the combination of a wheel-supporting fork provided on its ends with counterpart toothed racks, a wheel-axle provided with counterpart toothed pinions at or near its respective ends that mesh with the toothed racks, means for guiding the axle with relation to the fork, interposed springs between the fork and the axle, and means for adjusting the tension of such springs, substantially as set forth.

4. In a bicycle, the combination of a wheel-supporting fork provided on its ends with counterpart toothed racks, and vertically-slotted guide-heads, a wheel-axle provided with toothed pinions at or near its respective ends that mesh with the toothed racks, interposed springs between the fork and the axle, and means for adjusting the tension of such springs, substantially as set forth.

5. In a bicycle, the combination of a wheel-supporting fork provided on its ends with counterpart toothed racks, and vertically-slotted guide-heads, that are made in two parts 5', 5'', fastened together as described, a wheel-axle provided with toothed pinions at or near its respective ends that mesh with the toothed racks, and interposed springs between the fork and the axle, substantially as set forth.

6. In a bicycle, the combination of a wheel-supporting fork provided on its ends with counterpart toothed racks, and vertically-slotted guide-heads, a wheel-axle provided with counterpart toothed pinions, and friction-rings, at or near its respective ends, and interposed springs between the fork and the axle, substantially as set forth.

7. In a bicycle, the combination of a wheel-supporting fork provided on its ends with counterpart toothed racks and vertically-slotted guide-heads, a wheel-axle provided with counterpart toothed pinions, friction-rings, and grooved rollers, at or near its respective ends, and interposed springs between the fork and the axle, substantially as set forth.

8. In an attachment for bicycles, the combination of the supplementary frame 12, clip-collar 13, clamping-bolt 14, the guide-head 5, adjustable on the frame 12, adjusting-screw 16, a toothed rack 10, on the head 5, that is

adapted to mesh with a pinion fixed on the wheel-axle, and an interposed spring 11, substantially as set forth.

9. In an attachment for bicycles, the combination of the supplementary frame 12, clip-collars 13, provided with peripherally-grooved projections 19, and lugs 22, the adjusting-screw 21, the spring 11, having bent head 23, the guide-head 5, means for adjusting the same on the frame 12, and a toothed rack 10

on the head 5 that is adapted to mesh with a pinion fixed on the wheel-axle, substantially as set forth.

In testimony whereof witness my hand this 17th day of February, 1897.

CHARLES CRETORS.

In presence of—

ROBERT BURNS,

JAMES LAVALLIN.