

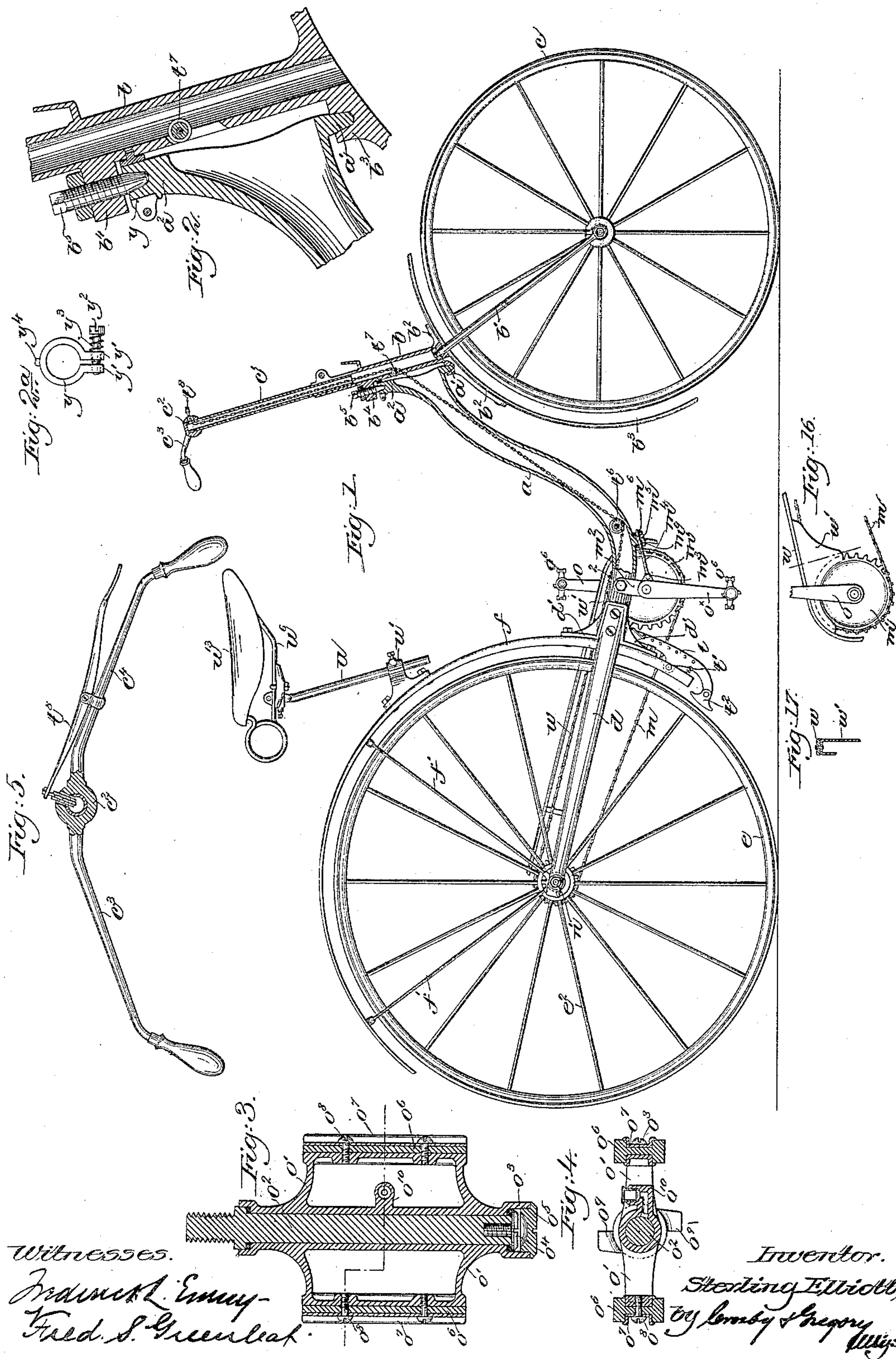
(No Model.)

2 Sheets—Sheet 1.

S. ELLIOTT.
VELOCIPEDÉ.

No. 446,672.

Patented Feb. 17, 1891.



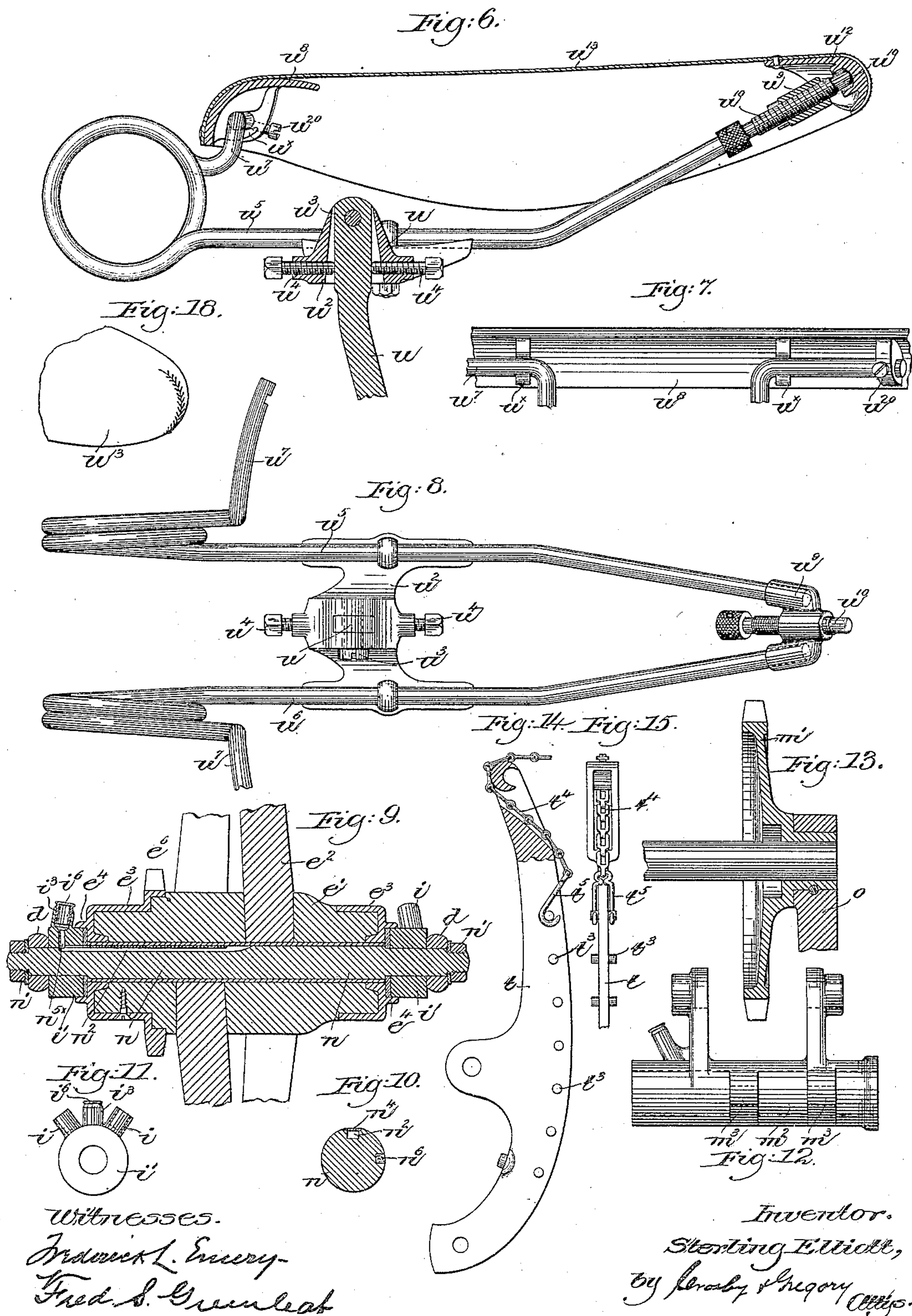
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UNITED STATES PATENT OFFICE.

STERLING ELLIOTT, OF NEWTON, MASSACHUSETTS.

VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 446,672, dated February 17, 1891.

Application filed June 12, 1889. Serial No. 314,040. (No model.) Patented in England September 23, 1889, No. 14,994.

To all whom it may concern:

Be it known that I, STERLING ELLIOTT, of Newton, in the county of Middlesex and State of Massachusetts, have invented an Improvement in Velocipedes, (for which Letters Patent have been granted in England, No. 14,994, dated September 23, 1889,) of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to construct a velocipede of the type commonly called "Safety bicycles;" and the invention consists in various details of construction to be hereinafter described.

Figure 1 shows in side elevation and partial section a velocipede embodying this invention; Fig. 2, an enlarged vertical sectional detail of the steering-wheel support, showing its pivotal connection with the frame; Fig. 2^a, a detail to be referred to; Figs. 3 and 4, sectional details of the pedals to be referred to; Fig. 5, a detail of the handle-bar; Figs. 6, 7, and 8, details of the seat to be referred to; Fig. 9, a longitudinal sectional detail of the hub of the driving-wheel; Fig. 10, an enlarged cross-sectional detail of the axle; Fig. 11, an end view of the seat-supporting collar on the axle; Fig. 12, an enlarged detail of the hanger or carrier for the driving-crank; Fig. 13, a vertical section of the sprocket-wheel and attached pedal-lever; Figs. 14 and 15, details of the brake-lever; Figs. 16 and 17, details of the guard for the sprocket-wheel, and Fig. 18 a detail to be referred to.

The main frame-work of the machine comprises a tubular bent bar *a*, having at its front end a downwardly-extended projection or pintle *a'* and an upwardly-extended projection *a²*, having a socket or recess.

The steering-wheel support consists of the tubular bar *b*, preferably rearwardly inclined and having secured to its lower end a steering-fork *b'*, said tube also having formed on it arms *b²*, to which is secured a guard *b³* for the steering-wheel *c*, which is journaled in the steering-fork. The arm *b²* has a boss *b³* formed on it, (see Fig. 2,) provided with a socket or recess to receive the pintle *a'*. A tube *b* has also a projection *b⁴*, through which a screw *b⁵* passes, the end of which is slightly

tapered to fit the socket or recess in the projection *a²* of the frame. It will be seen that the end of the screw *b⁵* and the pintle *a'* serve as the pivots for the steering-wheel support, and by directing the said pivots downwardly, as shown, affords sockets or recesses open at the top to retain the oil. A tube *c'* is held adjustably in the tube *b*, and to the upper end of said tube *c'* is attached a collar or cap *c²*, from which extend the steering-handles *c³* *c⁴*, or they may be attached to it. A split ring *y* (see Figs. 2 and 2^a) is placed on the projection *a²*, said ring having at one side or at its ends ears *y'*, through one of which ears a screw *y²* passes freely and is turned into and held in the other ear. A spring *y³* is placed on the shank of the screw *y²*, one end of which bears against the head of the screw and the other end bears against that ear *y'* which is free on the screw, the function of said spring being to press said ear toward the other ear, and hence to hold the ring frictionally in place. The ring has on it a lug *y⁴*, which enters a recess formed in the rear side of the tube *b*, so that as the tube is turned the ring *y* will be turned by it, but owing to its friction will serve as a retarding device therefor.

At the rear end of the tubular frame *a* recesses are formed at each side to receive bars *d*, preferably of wood, arranged side by side, and which constitute a fork for the rear or driving wheel *e*. Arms *d'* are also formed on the tubular bar *a* at its rear end, to which is attached a wooden guard *f* for said rear or driving wheel.

The wooden guard *f* (shown as tapering from end to end for flexibility) extends over the rear or driving wheel, so as to inclose substantially one-half of said wheel, and at a point above the wheel brace-rods, as *f'*, are attached, the lower ends of which enter sockets formed in the projections *i* on the collar *i'*, placed on the driving-axle at or near each end. (See Figs. 9 and 11.)

The hub *e'* of the wheel *e* is preferably made of wood and the wheel has wooden spokes *e²*. Metallic caps *e³* are secured to the hub at each end, said caps having flanges *e⁴*, which receive the collars *i'*, a washer being preferably interposed. The collars are held in position on the axle by nuts *n'*, which bear upon suit-

able washers resting against the bars d , which in order bear against the collars.

The axle, which is stationary, is grooved at its upper side, as at n^2 , from at or near one end to a point substantially at the center of the hub, and a thin bar or strip n^4 (see Fig. 10) is rabbeted in said groove, so as to leave or present a chamber beneath it, said bar or strip terminating near the inner end of the groove to leave an opening through which oil placed in said groove may escape. A passage n^{5x} is formed in the collar i' , which communicates with the groove n^2 , the entrance to said passage being at the projection i^3 , formed on the collar i' , for the admission of oil. The axle n has also a longitudinal groove n^6 extending substantially its entire length and at one side of the groove n^2 . A felt, wicking, or other absorbent material is placed in said groove and the oil from the groove n^2 works around the axle and is taken up by the absorbent material. A cap i^6 is fitted into the oil hole or passage.

One of the metallic caps or end pieces e^3 has sprocket-teeth e^6 , over which passes a sprocket-chain m , which chain also passes over a sprocket-wheel m' , journaled in a hanger, carrier, or loop-like bracket m^2 , connected to the tubular frame a by a pin 2. The loop-like bracket or carrier m^2 (see Fig. 12) has two projections m^3 , to which is loosely connected a screw-threaded rod m^4 , which passes through a projection m^5 on the under side of the frame a , said rod receiving upon its screw-threaded portion nuts m^6 , by which the loop-like hanger or carrier is held in position and adjusted for the purpose of tightening the driving-chain.

One of the pedal bars or arms, as o , is attached to the hub of the sprocket-wheel m' , (see Fig. 13,) and the other pedal-bar, as o^x , is attached to the shaft carrying the sprocket-wheel, and the pedals are loosely connected to the pedal levers or arms o or o^x , each pedal consisting of a frame o' , (see Figs. 3 and 4,) suitably recessed to receive a bolt o^2 , which serves as a bearing for pedal. The frame o' has at one end a flange o^3 , which receives within it a screw o^4 , by which the pedal is held on the arm or bolt, and to effectually exclude dust a disk or screw o^5 is screwed into the said flange o^3 . The frame o' has secured to it at each edge a rubber plate o^6 by means of metallic plates o^7 and screws or bolts o^8 . The frame o' has on it projections o^9 , and also a projection o^{10} , having an oil-passage through it.

The brake mechanism consists of the lever t , (see Figs. 1, 14, and 15,) pivoted at t' to the guard f , and having at its lower end a brake-shoe t^2 . The said lever t has at its edge a series of pins t^3 , and also has at its upper end a hole through it for the brake-chain t^4 , which has one or more hooks t^5 , which engage one or more of the pins t^3 . The brake-chain t^4 passes through the tubular frame a over the pulley t^6 , thence through the steering-wheel

support b over the pulley t^7 , thence up through the tubular support c' , and at its upper end is connected at one end to the handle-lever t^8 , pivoted to the handle-bar c^4 . As the lever t^8 is depressed, the brake-chain will be drawn and the lever t moved.

The seat-post u (see Figs. 1, 6, 7, and 8) is adjustably held in a socket or holder u' , secured to the frame f . A plate or carrier u^2 is placed on the post u and held by a pin u^3 , passing through it. Two screws u^4 pass through the plate u^2 at each side of the post and bear against the post at each side, as shown in Fig. 6. By turning one or the other screw the plate or carrier u is tilted. Two springs u^5 u^6 are attached to the plate or holder, one at each side, said springs each having outwardly-extended arms u^7 , which arms pass over hooks u^8 and enter ears formed on the saddle-frame u^9 , being held in place by set-screws u^{10} . The opposite ends of the springs u^5 u^6 enter a block u^{11} , supported on a screw u^{12} , having its bearing in the frame u^{13} . By means of the screw u^{10} the two frames u^8 and u^{12} are moved toward or from each other to stretch the material of the seat u^{14} . The socket in the frame u^{13} , which receives the end of the screw u^{10} , is made considerably larger than the cross-sectional area of the screw to thereby afford considerable play for the seat.

The cover for the seat is formed of leather or other suitable material, it being riveted to the frame u^8 , and having a gore removed at the front to enable the end to be contracted, said end being carried over the frame u^{12} and secured by joining the edges of the recess by stitches, as shown in Fig. 18.

It will be seen that the seat-post is vertically adjustable, the seat-plate or carrier u^2 yields, and the spring-arms u^5 u^6 , by means of the eyebolts by which they are attached, may be moved back and forth.

A guard w is secured to the frame, inclosing or concealing the sprocket wheel and chain, and another guard w' is attached to the guard w , (see Figs. 16 and 17,) which partially covers or incloses the sprocket-wheel.

The tubular frame a is so bent or curved as to be touched interiorly by the brake-chain to thereby prevent the said brake-chain from rattling.

I do not herein claim the brake shown and described, as it forms the subject-matter of another application, Serial No. 319,071.

I claim—

1. In a velocipede, the combination, with a metallic main frame or connecting-bar for torsional strength, of wooden bars at its rear end to constitute a fork for the rear or driving wheel, and a wooden guard also attached to its rear end, supporting the seat, said wooden bars and guard affording elasticity, substantially as described.

2. In a velocipede, the tubular frame a , wooden guard f , bars d , and brace-rods f' , combined with the bar or axle n and the col-

lars v' for said axle, substantially as and for the purposes specified.

3. In a velocipede, the pedal composed of the frame recessed for the arm or wrist-pin o^2 and having an annular flange o^3 , a screw o^4 , entering the pin o^2 , the head of which is concealed in the annular flange, and a dust-protector o^5 , secured to the said annular flange, substantially as described.

4. In a velocipede, a seat-post and frame-support for the seat and pivotally connected with the post, combined with adjusting-screws u^4 , passing through the frame and bearing against the post at opposite sides for tilting said seat on its pivot and holding it in tilted position, substantially as described.

5. In a velocipede, the seat-post and tilting seat-frame, combined with two independent spring-arms $u^5 u^6$, each of which has at its rear end an outwardly-extended arm, as u^7 , a frame or holder u^8 , supported by said arms, a block u^9 , supported by the springs $u^5 u^6$ at the forward end, a projection u^{10} , and a holder u^{12} , held on said projection u^{10} , and the cover, substantially as described.

6. In a velocipede, a seat-post, a tilting seat-frame, horizontally-adjustable springs $u^5 u^6$ on said tilting seat-frame, a holder u^8 , supported on the rear ends of said springs $u^5 u^6$, a block u^9 , supported on the forward ends of said springs $u^5 u^6$, an adjusting-screw u^{10} , passing through it to present a projection at its forward end, and a socketed block u^{12} , held on said adjusting-screw u^{10} , and the cover, substantially as described.

7. In a velocipede, a seat-post, a tilting seat-frame thereon, seat-supporting springs, a block at the forward end having a projecting portion, as u^{10} , and a socketed holder u^{12} on said projection capable of universal move-

ment thereon, and a cover, substantially as described.

8. The seat-frame and cover or seat secured to its rear end by fastenings, said cover or seat being contracted at its front end by the removal of a gore, so that as the edges of said contracted portions are united a pocket is formed to receive the front end of the frame, substantially as described.

9. In a velocipede, the frame and steering-wheel, combined with a collar or ring turning frictionally on the frame and engaging the steering frame or wheel, substantially as described.

10. In a velocipede, the frame and steering-wheel, combined with a collar or ring turning frictionally on the frame and engaging the steering frame or wheel, and means, substantially as described, for adjusting the tension of said ring on the frame, substantially as described.

11. In a velocipede, the main frame and steering-frame, combined with a movable or adjustable friction device for the steering-frame, comprising a collar the tension of which on the frame is adjusted by means of a spring, substantially as described.

12. In a velocipede, the main frame and steering-frame, combined with a movable or adjustable friction device for the steering-frame, and means for preventing its rotation with relation to the main frame, substantially as described.

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

STERLING ELLIOTT.

Witnesses:

BERNICE J. NOYES,
MABEL RAY.