(No Model.) 2 Sheets—Sheet 1.

S. ELLIOTT.

TRICYCLE.

No. 379,270. Patented Mar. 13, 1888.

FIG. 1.

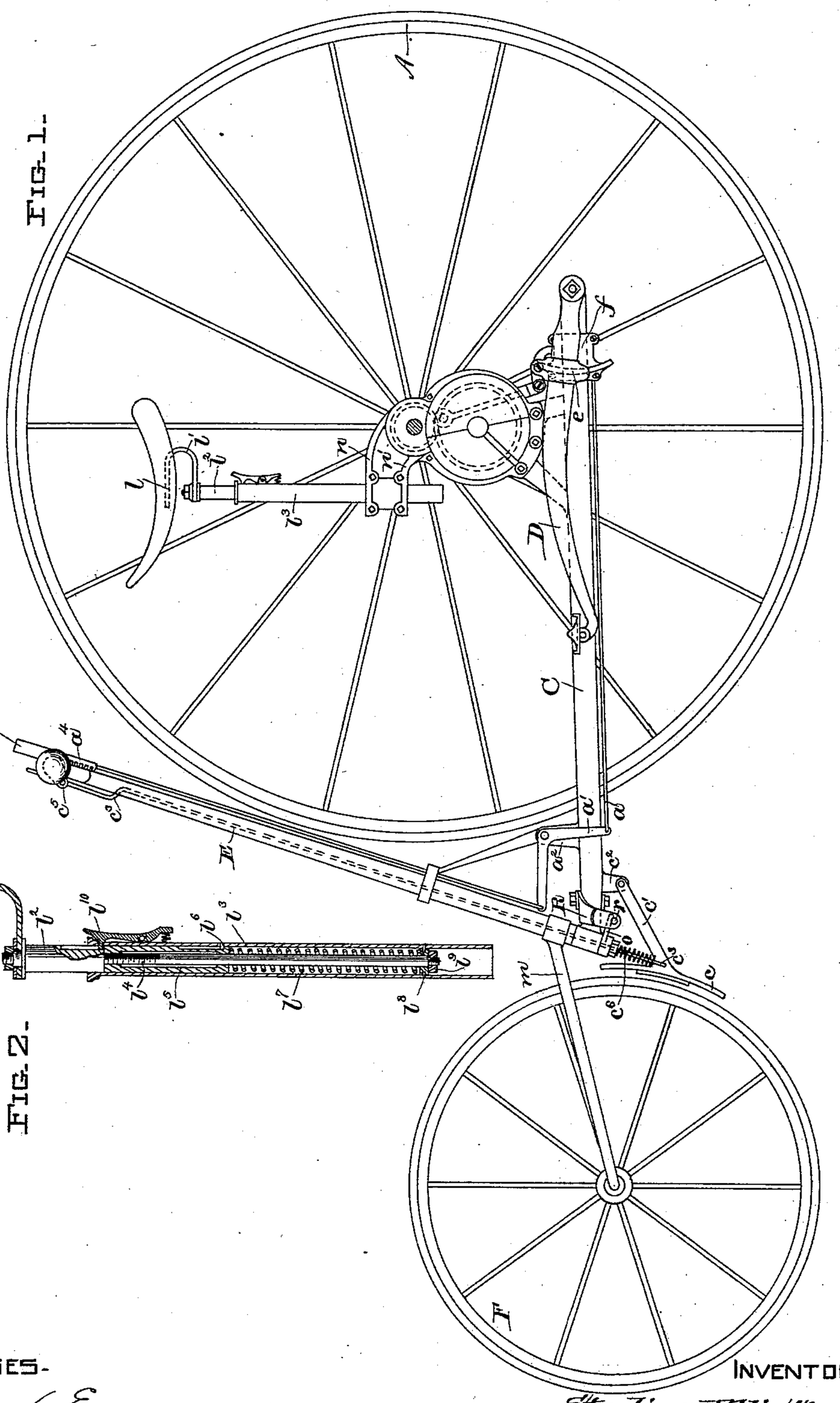

FIG. 2.

WITNESSES-

Fred L. Emery.

John F. C. Preinkert

INVENTOR

Sterling E. Elliott.

BY Crosby & Gregory

ATT'YS.

(No Model.) 2 Sheets—Sheet 2.

S. ELLIOTT.

TRICYCLE.

No. 379,270. Patented Mar. 13, 1888.

FIG. 3.

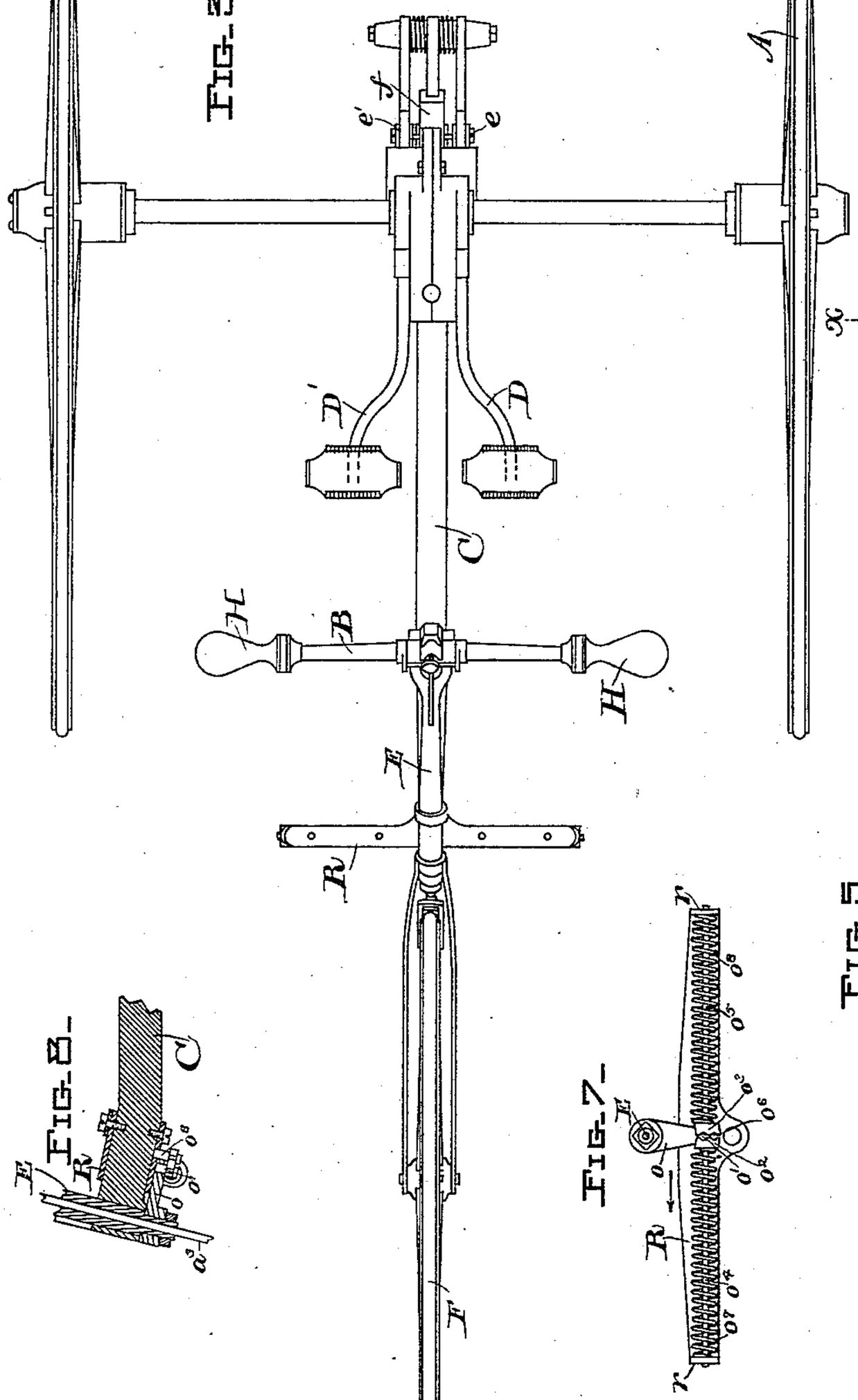

FIG. 4.

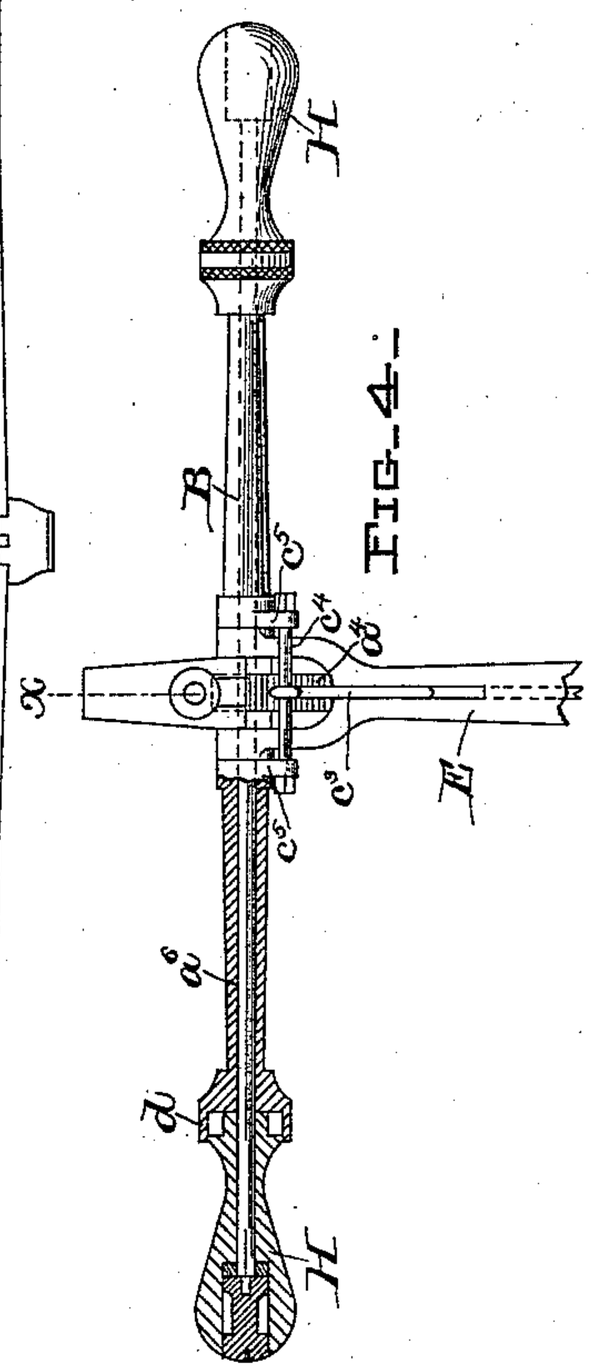

FIG. 8.

FIG. 7.

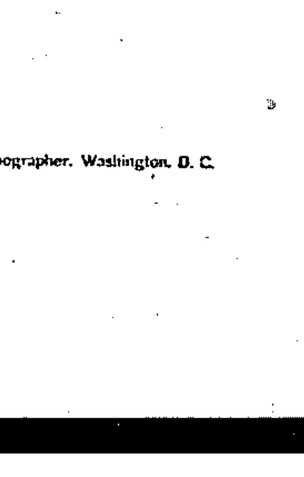

FIG. 5.

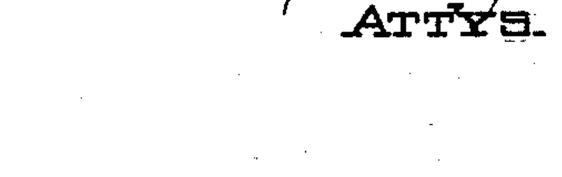

FIG. 6.

WITNESSES.

Fred L. Emery.

John P. C. Priesterbach.

INVENTOR

Sterling Elliott,

BY Crosby & Gregory.

ATTYS.

UNITED STATES PATENT OFFICE.

STERLING ELLIOTT, OF NEWTON, MASSACHUSETTS.

TRICYCLE.

SPECIFICATION forming part of Letters Patent No. 379,270, dated March 13, 1888.

Application filed April 26, 1887. Serial No. 236,150. (No model.) Patented in England September 15, 1886, No. 11,727, October 18, 1886, No. 13,273, December 17, 1886, No. 16,584, and April 30, 1887, No. 6,304; in France October 22, 1886, No. 179,183; in Belgium October 23, 1886, No. 74,946, and in Germany January 4, 1887, No. 40,387.

To all whom it may concern:

Be it known that I, STERLING ELLIOTT, of Newton, county of Middlesex, and State of Massachusetts, have invented an Improvement in Tricycles, (for which Letters Patent have been granted in the following countries, namely: England, No. 13,273, October 18, 1886, No. 16,584, December 17, 1886, and No. 11,727, September 15, 1886, and No. 6,304, April 30, 1887; Belgium, No. 74,946, October 23, 1886; France, No. 179,183, October 22, 1886, and Germany, No. 40,387, January 4, 1887,) of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention is an improvement upon the machine shown in application, Serial No. 203,216, filed by me May 25, 1886, and has for its object to simplify the construction of the same in many particulars.

In this my present invention a novel spring-supported seat is employed, means being shown for adjusting the tension of the spring holding the seat according to the weight of the rider. Means are also provided, operated by the hands of the rider in proximity to the steering-bar, for adjusting the actuating devices of the driving mechanism, to thereby increase or decrease the power required to operate the machine, or, in other words, to vary the speed of the machine. An indicator is also provided for indicating in a suitable manner the adjustment of the actuating devices. A brake of different construction is also provided, which, while being much simpler than that shown in the application referred to, may be operated by the rotation of a sleeve surrounding the handle-bar. A centering device is also provided for the steering-wheel, which is very effectual in maintaining the steering-wheel in correct position parallel with the drive-wheel, said centering device being so constructed and arranged as to require very little power to turn the steering-wheel against the restoring power of the centering device.

The centering device is located beneath a shield or guard which serves as a foot-rest.

Figure 1 shows in side elevation a velocipede embodying this invention; Fig. 2, a vertical section of the seat, its supporting-spring, and locking device; Fig. 3, a top view of Fig. 1; Fig. 4, a front elevation and partial section of the handle-bar and its connected parts; Fig. 5, a vertical section of Fig. 4, taken on the dotted line *x x;* Fig. 6, a rear side view of a portion of the handle-bar, showing the graduated scale; Fig. 7, an under side view of the foot-rest, showing the centering device applied thereto; and Fig. 8, a longitudinal section of the front end of the main frame, the lower end of the steering-rod, and the centering device.

The main drive-wheels A and axle by which they are joined together, the clutch or driving mechanism for rotating the main axle and the actuating devices comprising pedal-levers D D′, pivoted to the supporting bar or frame C, and suitably connected with and so as to operate the clutch mechanism, the slide-blocks *e e′*, mounted respectively upon the pedal-levers D D′, and the master-block *f*, mounted to slide upon the frame C to determine the position of the slide-blocks *e e′*, the upright rod E, supporting the handle-bar connecting the parts, and also serving as the steering-rod, and the arms *m*, supporting the steering-wheel F, are all as in the application referred to, so need not be herein further described.

The saddle *l*, of any usual shape, is fixed in any suitable manner upon the rod l^2, fitted within a tube, l^3, adjustably connected with the arms *n n′*, projecting from the frame-work. The rod l^2, for a portion of its length within the tube l^3, is reduced in diameter and screw-threaded, as at l^4, to engage a sleeve-like nut, l^5, placed in and made freely movable vertically within the tube l^3. The sleeve l^5 is slotted at one side to receive a pin or stud, l^6, projecting inwardly from the tube l^3, the said slot being of sufficient length to permit the sleeve l^5 to rise and fall to any desired extent, but not to rotate. The sleeve l^5 bears upon a spring, l^7, encircling the lower portion of the rod l^2 within the tube l^3, the lower end of the said spring bearing against a bridge or cross-bar, l^8, near the lower end of said tube, in which the end of the rod l^2 has its bearings. A spring-

controlled latch, l^{10}, is pivoted to the upper end of the tube l^3, the said latch having a projecting point or stud, (see Fig. 2,) which enters a groove cut in the side of the said rod l^2, to thereby prevent the said rod from rotating. The nut l^9 is screwed upon the lower end of the rod l^2 beneath the bridge or cross-bar l^8.

It will be seen that as a heavy weight is placed upon the seat l the rod l^2 will descend against the tension of the spring l^7. To compensate for different weights the spring-controlled latch l^{10} may be disengaged from the rod l^2 and the latter rotated in one or the other direction by turning the saddle, causing the screw-threaded portion l^4 to turn within the sleeve, thereby causing the latter to rise and fall, the effect of which is to either compress the spring l^7 or to permit the same to distend.

The master-block f (shown in the application referred to) was moved by a lever extending vertically behind the rider; but as the same has been found somewhat inconvenient, I have provided means located in front of the rider for moving the said block. The said means consist, essentially, of a rod, a, (see Fig. 1,) attached to the said master-block f, and extending forward substantially parallel with the supporting-bar C, and attached at its forward end to a bell-crank lever, a', pivoted upon another upright rising from the said frame C.

A rod extending substantially parallel with the steering-rod E is connected at its lower end with the opposite end of the bell-crank-lever a', and at its upper end is provided with a series of rack-teeth, a^4, (see detail, Fig. 5,) which are engaged by the teeth of a wheel, a^5, fixed upon a rod, a^6, passing longitudinally through the sleeve B, said sleeve surrounding the handle bar or rod a^6, it having secured to its ends two handles, H, so that as the latter are rotated in one or the other direction said rod a^3 will be raised or lowered through the said pinion a^5, thereby moving the master-block f backward and forward upon the supporting-frame C.

The rod a^3 and its connected and operative parts constitute the adjusting devices for the actuating devices.

An indicator is provided for showing the adjustment of the actuating devices to enable the operator to be correctly informed as to the increase and decrease of power, that he may ascertain the speed at which the machine is being run. The indicator in this instance is composed of an indicating-point, a^7, secured to the upper end of the rod a^3 and passing through a slot cut in the face of a rectangular casing, a^8, the said point co-operating with a series of graduations marked upon the face of the said casing to visually make known to the rider the exact position of the master-block, the graduations being such as to inform him of the increase or decrease of power, or, in other words, the speed at which the machine is being run, by indicating the diameter of the wheel to which the machine is gaged, so that instantly the rider can tell what is the adjusted or running diameter of his wheel.

When the master-block is placed in any desired position, it may be locked in such position by a spring-controlled stop, s, passing through the casing a^8 at the upper end of the steering-rod E, it engaging one of the teeth of the rack-bar a^4 and holding the same securely in place.

The brake in this my present invention consists of a brake-shoe, c, having an arm, c', by which it is loosely connected with an ear or stud, c^2, secured to the under side of the frame or bar C, the rod c^3, attached to the said brake-shoe. passing upward through the steering-rod E and being connected at its upper end to a cross-bar, c^4, which joins the two short arms c^5, secured to the sleeve B, so that as the said sleeve B is rotated upon the rod a^6 the cross-bar c^4 will be raised or lowered, thereby raising or lowering the brake-rod c^3, said brake-rod being normally retained in its lowermost position with the brake-shoe disengaged from the steering-wheel F by a spring, c^6. The sleeve B is provided at each end with a suitable flange, d, which slightly projects over upon the inner end of the handle H, next to it, so that when the hands of the rider rest upon the handles H but little movement is required to grasp the sleeve B to thereby apply the brake.

The brake-shoe c is so located with relation to the steering-wheel F that when brought into engagement therewith the further movement of the steering-wheel tends to more tightly apply the brake.

The centering device for the steering device herein shown consists of a short arm, o, secured to the lower end of the steering-rod E, (see Figs. 7 and 8,) said short arm o having a projecting pin or stud, o', which strikes against the heads o^2 o^3 of rods o^4 o^5, located upon the under side of the foot-rest R and having their bearings in the downwardly-turned ends r thereof. The heads o^2 o^3 of the said rods are normally pressed against the said pin or stud o^6, fixed to the center of the foot-rest R, by springs o^7 o^8, one end of each spring bearing respectively against the heads and the other bearing against the downwardly-turned end r of the foot-rest. By this construction it will be seen that as the short arm is turned in one or the other direction by the steering-rod—as, for instance, that indicated by the arrow—its pin or stud o' will strike against the block o^2, moving the rod o^4 against the tension of the spring o^7, while the block o^3 at such time bears against the stud o^6, so that only one spring is pressed at a time by the movement of the steering-rod in one or the other direction to thereby supply the power required to turn the steering-wheel into its normal position. While such form of centering device for the steering devices is, I consider, preferable, yet it is obvious that the same may be somewhat modified and still accomplish the desired end.

I claim—

1. In a velocipede, the combination, substantially as described, of the driving mechan-

ism and actuating devices therefor, with means operated by the rotation of the handle-bar for adjusting the actuating devices for the driving mechanism.

2. In a velocipede, the main axles and driving mechanism, and pedal-levers having slide-blocks for operating the driving mechanism, and the master-block, substantially as described, for moving the slide-blocks, combined with means, substantially as described, operated by the rotation of the handles H, for moving said master-block, as set forth.

3. In a velocipede, the main axle and driving mechanism, and pedal-levers having slide-blocks thereon for operating the driving mechanism, and master-block, substantially as described, for moving the slide-blocks, combined with the rod a^3, connected with the master-block, and means, substantially as described, for raising and lowering the said rod a^3, as set forth.

4. In a velocipede, the combination, substantially as described, of the driving mechanism and adjustable actuating devices for the same, with an indicator for the said adjustable actuating devices.

5. In a velocipede, the main axle and driving mechanism, and pedal-levers having slide-blocks thereon for operating the driving mechanism, and the master-block, substantially as described, for moving the slide blocks, combined with a rod, a^3, having the indicating-point a^7, connected with the master-block, as described, and the graduated casing with which the said indicating-point co-operates, and means, substantially as described, for raising and lowering the said rod a^3, as set forth.

6. In a velocipede, the main shaft and driving mechanism, and pedal-levers having slide-blocks thereon for operating the driving mechanism at different speeds, dependent upon the position of the slide-blocks, combined with means, substantially as described, for moving the slide-blocks, and the graduated casing and indicating-point for indicating the position of the slide-blocks, substantially as set forth.

7. In a velocipede, the main shaft and drive-wheels and steering-wheel and sleeve B, combined with a pivoted brake-shoe, and means, substantially as described, operated by the rotation of the said sleeve, for moving said brake-shoe on its pivot, as set forth.

8. In a velocipede, the main shaft and driving mechanism, and actuating devices for the driving mechanism, the steering-wheel, and steering-rod, combined with a centering device for the steering-rod, and the foot-rest, which serves as a guard or shield for the centering devices, substantially as described.

9. In a velocipede, the main shaft and drive-wheels, the steering-wheel and steering-rod, combined with a centering device composed of a short arm, o, and spring o^7 o^8, for normally retaining the said short arm in line parallel with the drive-wheels, and with means, substantially as described, for preventing either one of the said springs from distending beyond the normal position of the short arm o, as set forth.

10. In a velocipede, the steering-rod E, provided with bearings, a rotating handle bar mounted in said bearings, and a rod, as a^3, and means to reciprocate it by the rotation of the handle-bar, the said rod a^3 being instrumental in actuating devices for varying at will the leverage used in actuating the machine.

11. In a velocipede, the tubular upright l^3 and spring within it, and saddle supported by the spring, combined with means operable by rotation of the saddle for varying the tension of the supporting-spring, substantially as described.

12. In a velocipede, the tubular upright l^3 and spring within it, and saddle supported by the spring, combined with means operable by rotation of the saddle for varying the tension of the supporting-spring, and a locking device for preventing rotation of the saddle, 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,

F. L. EMERY.