(No Model.) 2 Sheets—Sheet 1.

M. T. SMITH.

BICYCLE.

No. 583,340. Patented May 25, 1897.

Fig. 1.

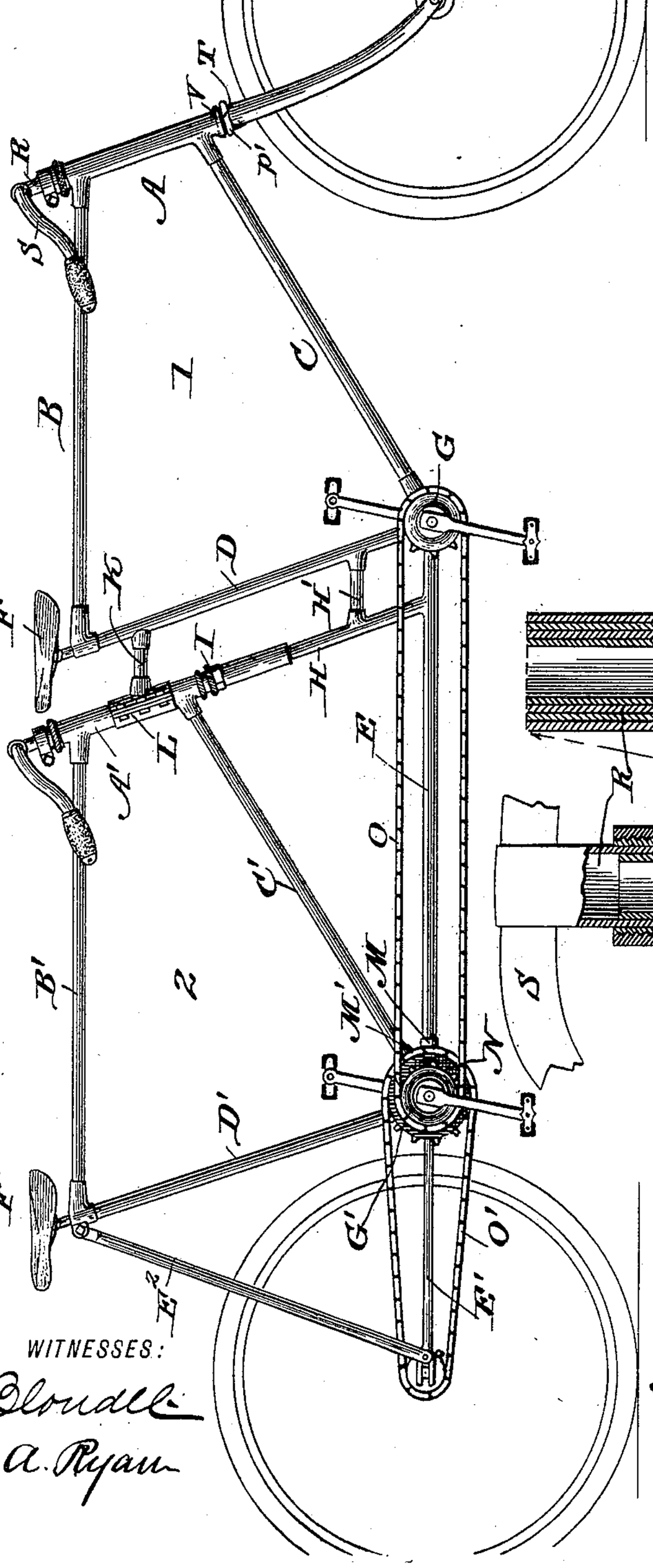


Fig. 5.

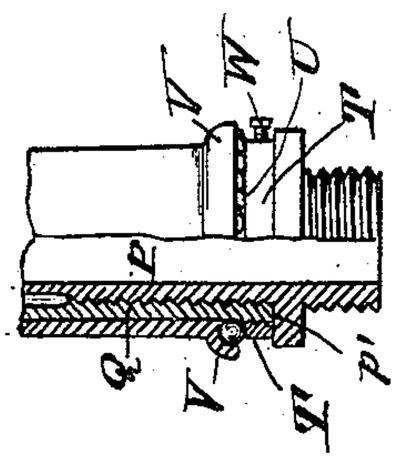
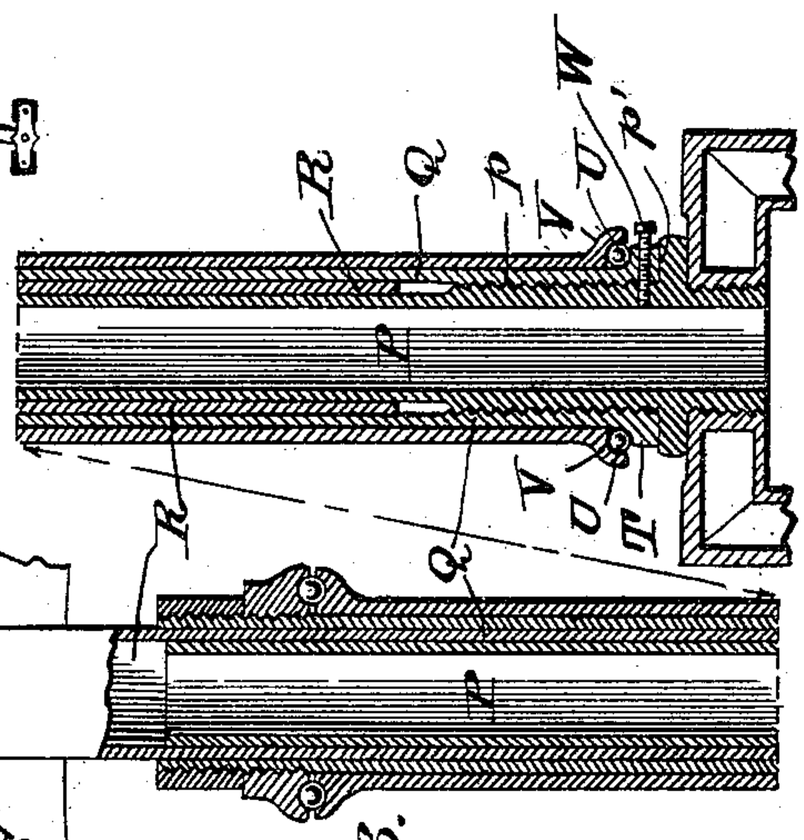


Fig. 3.



WITNESSES:

M. S. Blondell

Jos. A. Ryan

INVENTOR

M. T. Smith

BY Munn & Co.

ATTORNEYS.

(No Model.) 2 Sheets—Sheet 2.

M. T. SMITH.

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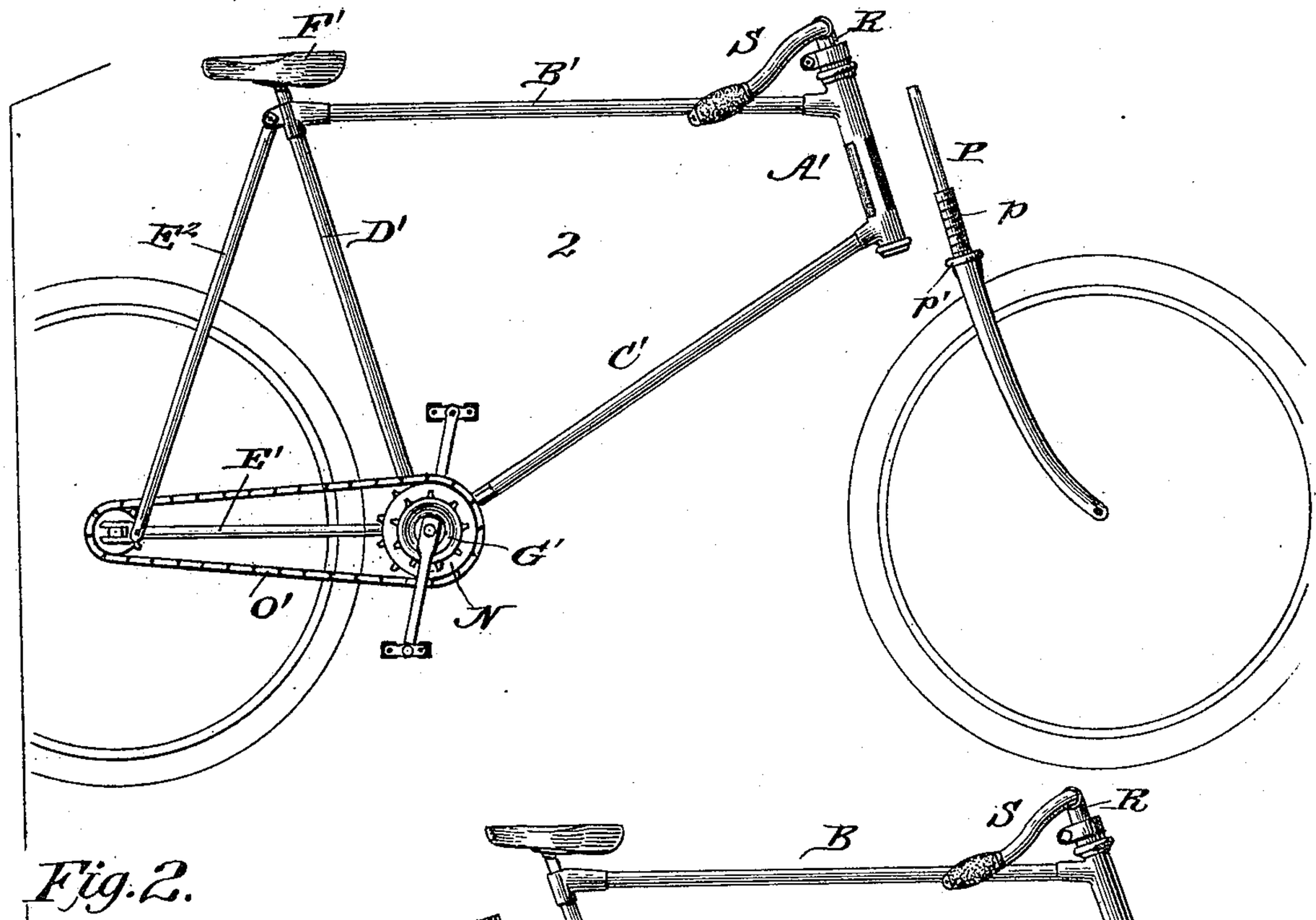

Fig. 2.

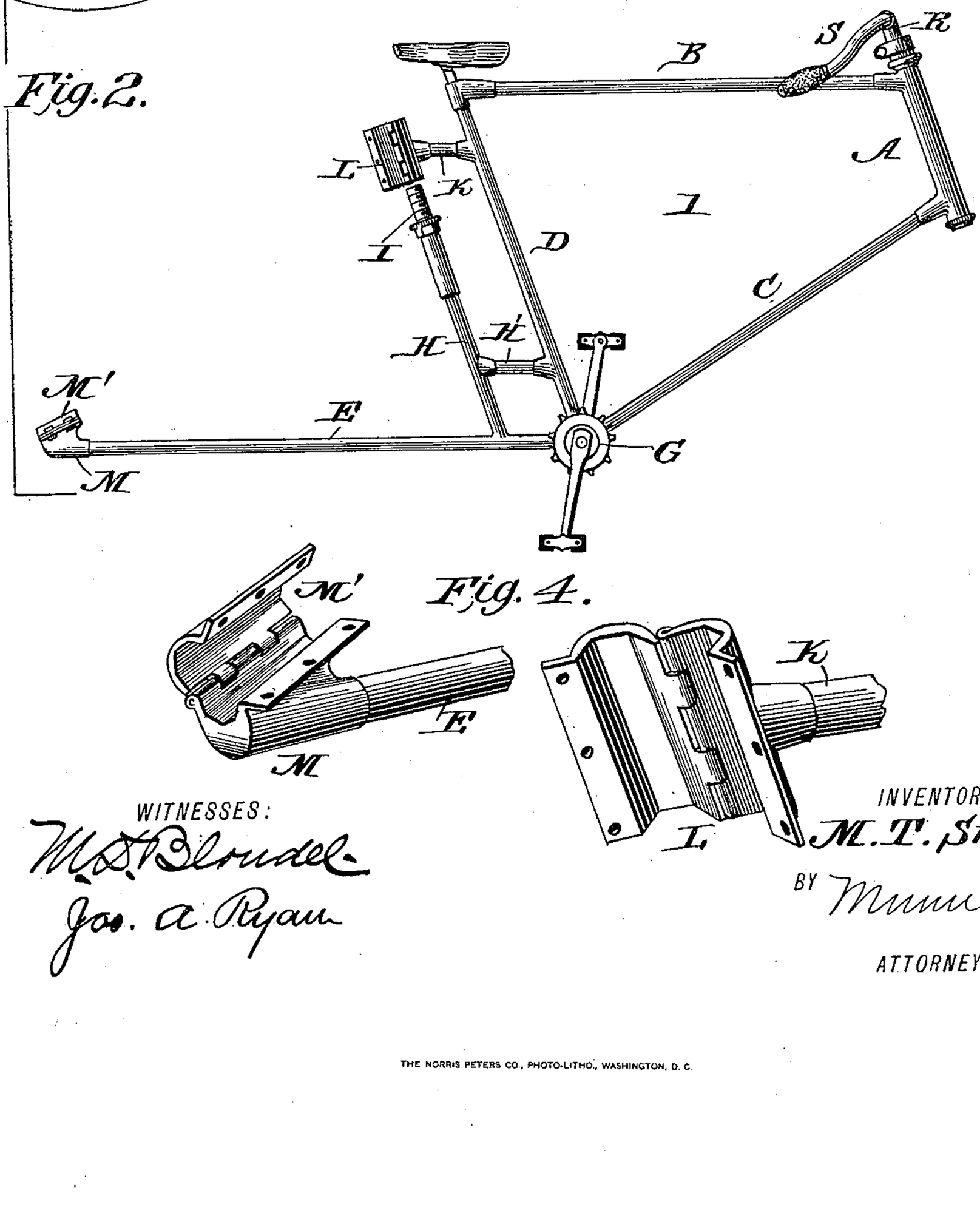

Fig. 4.

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UNITED STATES PATENT OFFICE.

MICHAEL T. SMITH, OF NILES, MICHIGAN.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 583,340, dated May 25, 1897.

Application filed May 16, 1896. Serial No. 591,745. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL T. SMITH, of Niles, in the county of Berrien and State of Michigan, have invented a new and useful Improvement in Bicycles, of which the following is a specification.

This invention is an improved convertible bicycle, the object being to provide a machine which can be quickly and easily transformed from a tandem to a single-seated bicycle, and vice versa.

Another object is to so construct the sections that any one can assemble or detach them, thereby avoiding the necessity of a skilled expert or mechanic.

Another object is to provide a bicycle of this kind either section of which can be sold independent of the others, and a still further object is to provide a front section which can be attached to any of the single-seated machines now in use of this construction.

With these various objects in view my invention consists, broadly, in the employment of a front and rear section, said front section carrying coupling devices adapted to be attached to the rear section, and the invention consists also in providing the front section with a supplemental upright tube carrying a screw-coupling adapted also for connection with the rear section.

The invention consists also in constructing the forward tubes of both the front and rear sections in such a manner that the fork can be removed and replaced without disturbing the ball-bearings of either section or removing the handles.

The invention consists also in certain details of construction and novelties of combination, all of which will be fully described hereinafter, and pointed out in the claims.

In the drawings forming a part of this specification, Figure 1 shows the parts connected to form a tandem machine. Fig. 2 shows the parts disconnected. Fig. 3 is a vertical longitudinal section of the forward tube, fork, &c. Fig. 4 shows the couplings in detail. Fig. 5 shows a slight modification.

In carrying out my invention I employ a front section 1 and a rear section 2, each made entirely independent of the other and capable of being sold at different times. The front section consists of the front tube A, upper tube or bar B, lower tube or bar C, upright tube or bar D, and rear horizontal tube or bar E, all of which may be made and connected in any well-known manner. The upright tube or bar carries the saddle or seat F and at the lower end is arranged the usual form of drive mechanism G.

A supplemental upright tube or post H projects upward from the rear horizontal tube or bar and is united intermediate its ends with the main upright by means of a brace-rod H′, and upon the upper end of the supplemental tube is an internally and externally threaded coupling-tube I, adapted to screw into the front tube A′ of the section 2. A horizontal arm K is brazed to the main upright member near the upper end, which arm carries a hinge-clamp L, adapted to be fastened about the front tube A′, and it will be noted that the tube is polygonal in shape at the point of attachment, and the interior of the clamp is correspondingly shaped in order to provide a tight coupling and prevent turning.

At the rear end of the rear horizontal member is another coupling, which comprises the portion M, brazed to the horizontal tube, and the hinged clamp M′, adapted to engage the inclined tube or bar of the rear section, and this clamp and bar are polygonal also, in order to prevent turning. The rear section, it will be seen, comprises the front tube A′, upper tube B′, inclined tube C′, upright tube D′, rear brace-rod E^2, and horizontal tube or bar E′. It also has a seat F′ and a drive-gear G′, said drive-gear having a compound sprocket N, which connects with the drive-gear G by a chain O and with the drive-wheel by a chain O′, the chain O′ being arranged upon the large sprocket.

The front wheel is mounted in a fork, as usual, which fork has a post P, enlarged and threaded at *p* and having a shoulder at *p′*, said post being screwed into a tube Q, turning freely in the front tube of the frame and in which is secured the steering-head R, to which the handle-bars S are attached. The lower end of the tube Q has a shoulder or flange T formed thereon, or such part T may be in the form of a collar and screwed upon the tube, it being arranged at the end and has

its upper surface shaped to receive the ball-bearings U, which are held between said shoulder or collar T, and an overlapping shoulder or collar V, arranged upon the lower end of the front tube. It will thus be seen that the balls for the fork-bearings are held entirely independent of said fork, so that it can be attached and detached quickly and easily without danger of disturbing or loosing the balls, and it will be understood that the construction just described is the same in both tubes A and A′, so that the fork can be removed from tube A and screwed into tube A′, and vice versa.

After the fork has been screwed in place it is prevented from turning by means of a set-screw W, which passes through collar T, tube Q, and into the post P, thereby preventing rotation.

It will thus be seen that I provide a convertible bicycle which is cheap and simple in construction, durable in all its parts, and one that can be quickly and easily converted from a single to a double machine without the aid of a skilled mechanic, for in order to transform the single into a tandem it is only necessary to remove the front wheel from bicycle and connect the front section 1, the clamp-couplings being clamped about the front and inclined tubes and the screw-coupling connected with the front tube A′. The fork of the front wheel is then screwed into the tube A and locked. The drive-chains are then attached, and the conversion is complete. To reduce to the single, the front wheel is removed, the front section uncoupled, and the front wheel attached to tube A′, and all without disturbing the balls in the bearings.

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

1. In a convertible bicycle the combination with the rear section, having a tube Q in its front tube arranged to retain the balls therein when the front fork is detached, of the front section consisting of the front tube A, provided with the tube Q, upper tube B, lower tube C, main upright tube D and rear horizontal tube E, a supplemental upright tube on the rear horizontal tube E, united intermediate its ends with the main upright by a brace-rod and provided at its upper end with a coupling-tube adapted to screw in the front tube of said rear section, a horizontal arm secured to said main upright D and carrying a hinged clamp arranged to engage the front tube of said rear section above said coupling-tube, and a second hinged clamp secured on the rear end of the horizontal tube E and adapted to engage the inclined tube of said rear section, substantially as shown and described.

2. In a bicycle, the front fork having a threaded post and a shoulder therebelow, a tube Q turning freely in the front tube of the frame and in which the steering-head is attached, said tube Q being provided with a flange or collar at its lower end and arranged to form a lower bearing for the balls, a flange or collar arranged upon the lower end of the front tube of the frame and adapted to form the upper bearing for the balls, and means for securing the fork-post in the tube Q, substantially as shown and described.

3. In a convertible bicycle, the combination of the front and rear sections, the hinged clamp-couplings and supplemental tube carried by said front section, the screw-coupling on said supplemental tube arranged to screw in the front tube of said rear section and the tube Q in the front tube of said section and arranged to hold the balls when the front fork is detached, substantially as shown and described.

4. In a convertible bicycle, the combination of the front and rear sections, said front section having a supplemental upright tube, a screw-coupling secured on the upper end of said supplemental tube and arranged to enter the front tube of the rear section, hinged clamp members adapted to engage the inclined bar of the rear section and the front tube of the same above its connection with said screw-coupling, the front tubes of both sections being provided with inner tubes by which the balls for the front-fork bearings are held entirely independently thereof as and for the purpose specified.

5. In a bicycle the combination with the front tube and fork, of the handle-bars and tube and a tube Q, having a shoulder or collar, a shoulder or collar upon the lower end of the front tube and the balls held between said collars and means for securing the fork-post in the tube Q, substantially as shown and described.

6. In a convertible bicycle the combination with a front tube having a flange or collar at the lower end of the fork having a threaded post, the handle-bars and steering-tube, the tube Q, within which the fork screws, the collar or shoulder on the lower end of said tube, the balls held between the collars and the set-screw for holding the fork-post against rotation, substantially as shown and described.

MICHAEL T. SMITH.

Witnesses:
DAVID BACON,
HENRY JORDAN.