

(No Model.)

2 Sheets—Sheet 1.

J. HARRINGTON.

VELOCIPÈDE.

No. 324,317.

Patented Aug. 11, 1885.

Fig. 1.

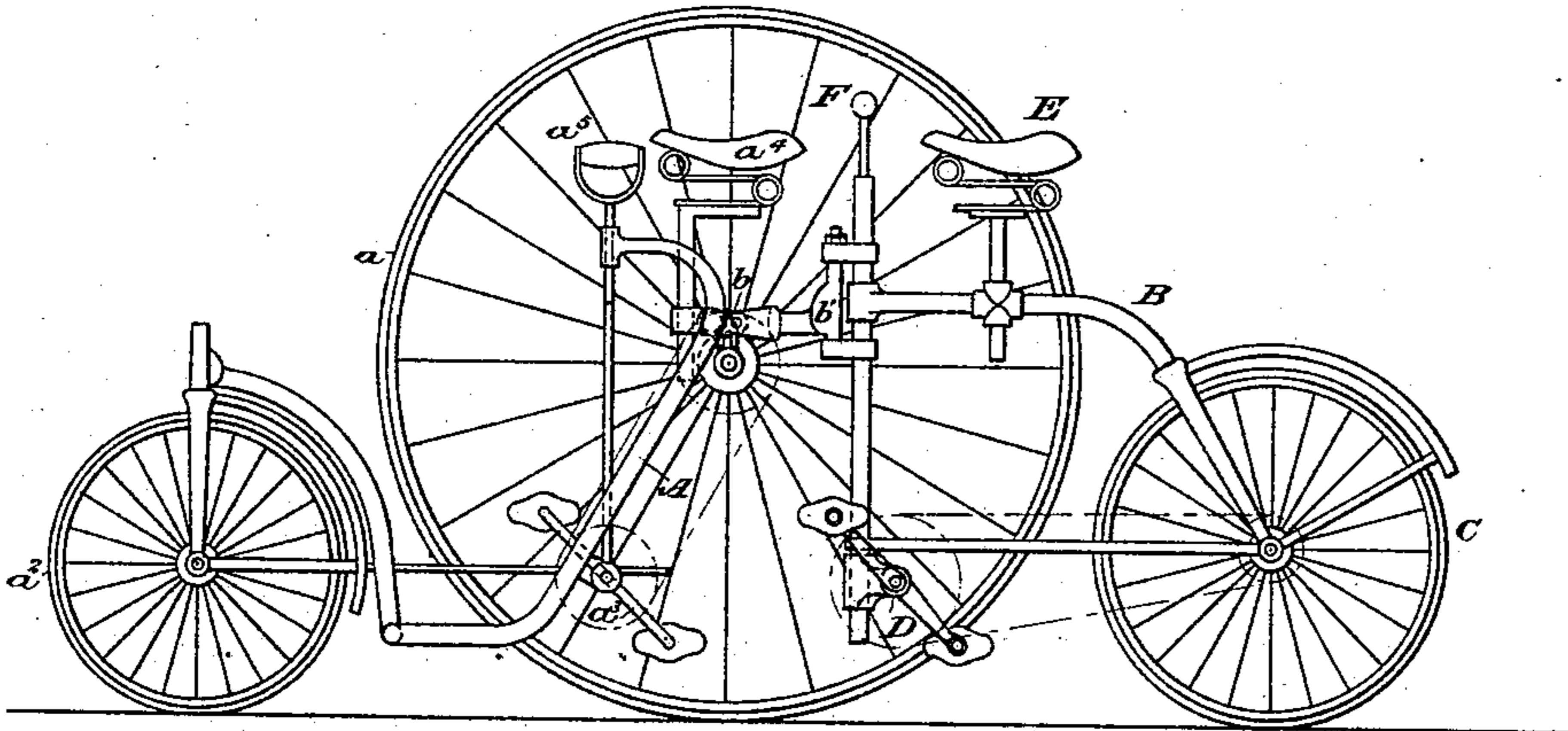


Fig. 2.

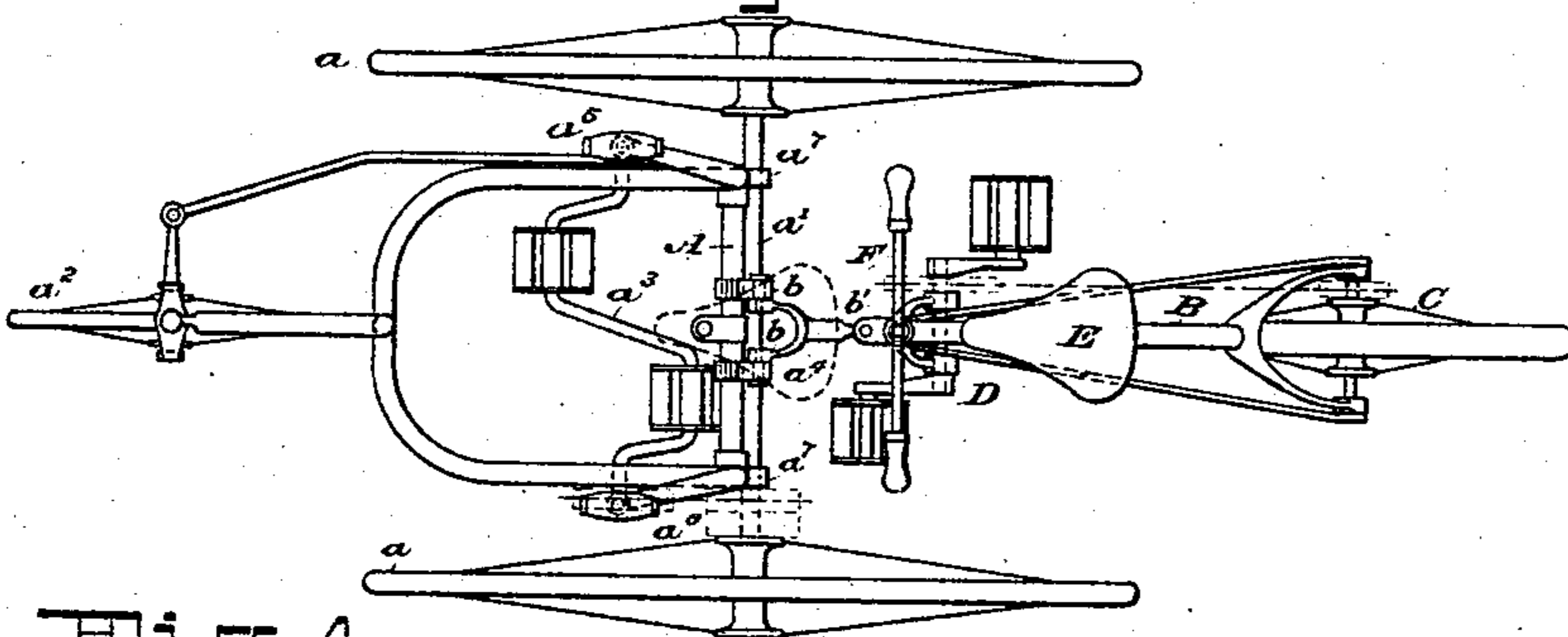


Fig. 4.

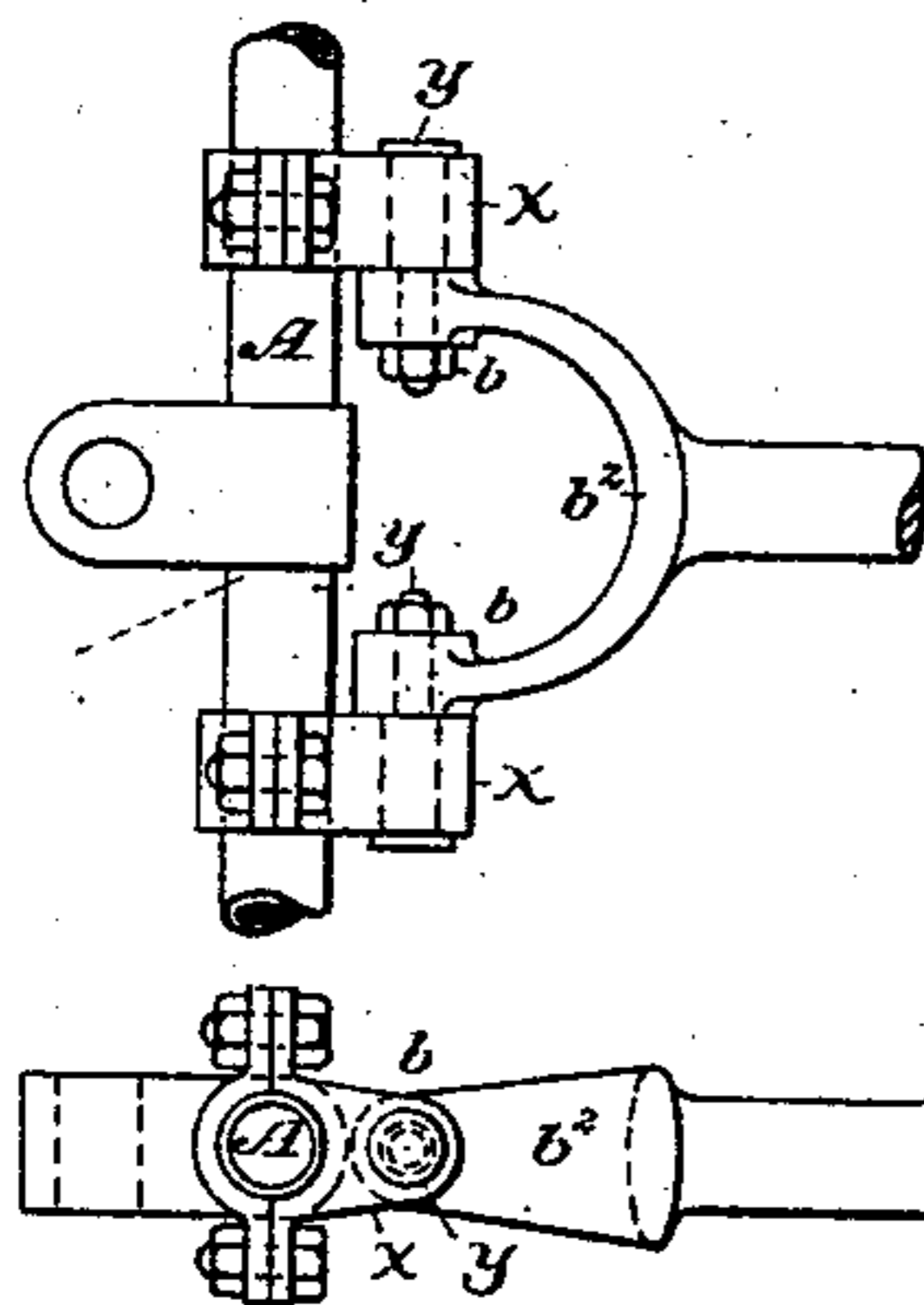
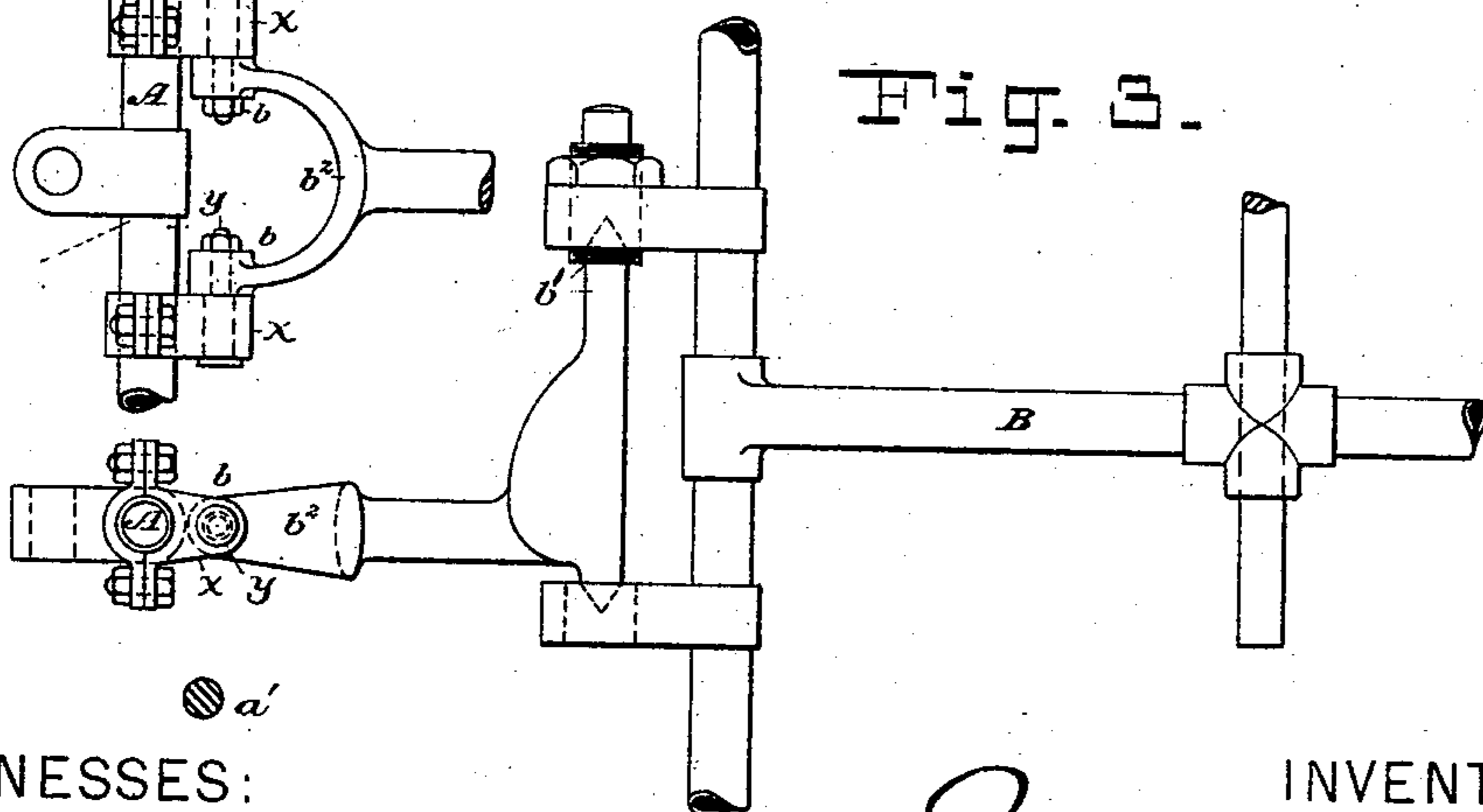


Fig. 3.



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Fig. 5.

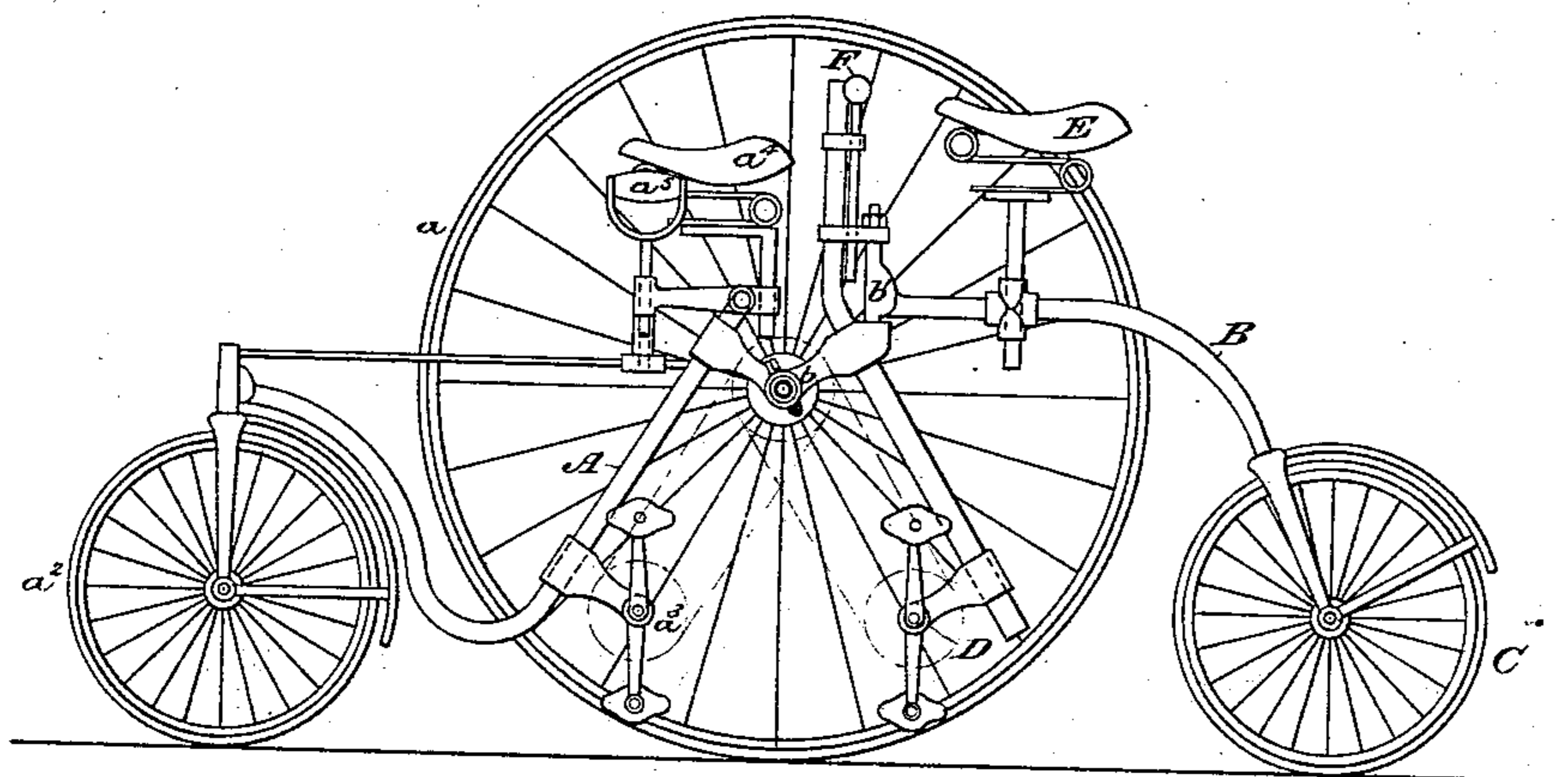


Fig. 6.

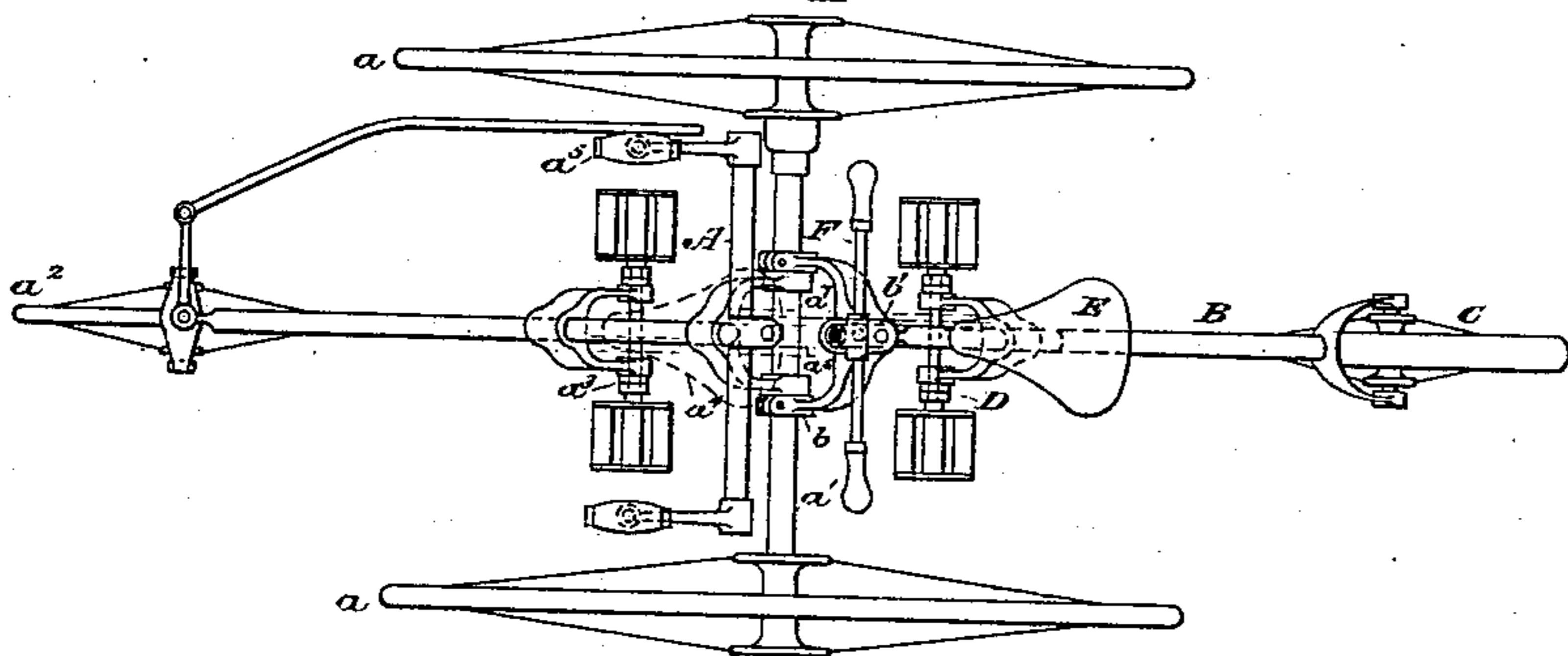
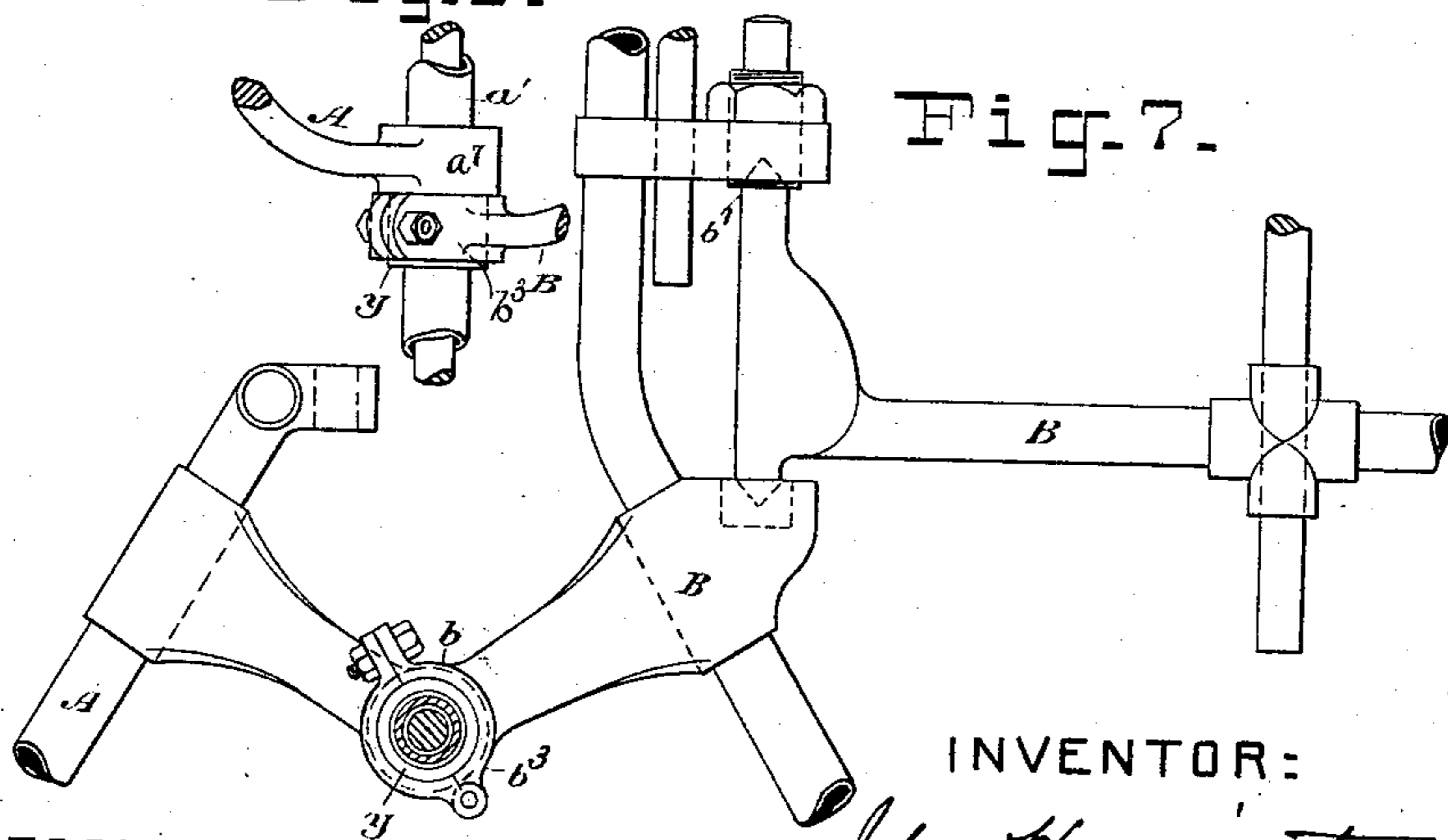


Fig. 6.

Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN HARRINGTON, OF COVENTRY, ENGLAND.

VELOCIPED.

SPECIFICATION forming part of Letters Patent No. 324,317, dated August 11, 1885.

Application filed March 27, 1885. (No model.) Patented in England December 29, 1882, No. 6,217.

To all whom it may concern:

Be it known that I, JOHN HARRINGTON, a subject of the Queen of Great Britain, residing at Coventry, England, have invented certain new and useful Improvements in Velocipedes, (for which I have obtained a patent in Great Britain, No. 6,217, bearing date December 29, 1882,) of which the following is a specification.

My invention relates to means for converting an ordinary tricycle of the "front-steering" class—i. e., those which have the small steering-wheel placed in front of the driving-wheels—into a tandem velocipede to carry two riders.

In carrying out my invention I attach to the frame of a tricycle, at any convenient place, a trailing-frame carrying an auxiliary wheel, pedal crank-axle, saddle, and handle-bar for the extra rider. This frame is provided with both a transverse and a vertical joint, the former to allow the auxiliary frame to rise and fall with the inequalities of the road and the latter to allow it to trail as a caster-wheel, so that when the machine moves on a curve it will follow in such a manner as to resist any tendency to overturn the machine.

The power exerted by the extra rider may be transmitted from the pedal crank-axle, which he drives either to the wheel of the trailing-frame or to the axle carrying the driving-wheels of the tricycle. In some machines, especially in "side-geared" ones, the former arrangement is preferable; but in others, more especially in "central-geared" machines, the latter is most convenient.

If the extra rider, through inability or otherwise, cannot assist in the propulsion of the machine, I provide a rest or platform for his feet, instead of the pedal crank-axle.

It will be seen that by attaching this trailing-frame to any tricycle it will be converted into a tandem velocipede, while if the machine is specially built as a tandem it can be arranged for either the rear or the front part to be detachable, so that the machine in its single form may be either a "front steerer" or a "double front-steering loose-back" tricycle of the "Humber" type.

In the accompanying drawings, Figure 1 is a side elevation of a side-geared tricycle fitted with my auxiliary frame. Fig. 2 is a plan

thereof. Fig. 3 is a detail view on a larger scale, showing a side elevation of the transverse and vertical joints. Fig. 4 is another detail view showing a plan of the transverse joint and the method of connecting the auxiliary frame to the frame of the tricycle. Fig. 5 is a side elevation of a central-geared velocipede fitted with my auxiliary frame. Fig. 6 is a plan thereof. Fig. 7 is a detail view on a larger scale, showing a side elevation of the transverse and vertical joints. Fig. 8 is another detail view showing a plan of the transverse joint and the method of connecting the auxiliary frame to the frame of the tricycle.

Throughout the figures similar parts are marked with like letters of reference.

Referring to these figures, A designates the general frame of the tricycle, to which the auxiliary frame is attached. As the construction of this part of the machine presents nothing novel or new, I will merely enumerate such important parts of it as are necessary to describe my invention. a a are the driving-wheels; a' , the axle thereof; a^2 , the small steering-wheel; a^3 , the pedal crank-axle; a^4 , the seat or saddle; a^5 , the steering-handle; a^6 , the driving-gear, and a^7 the bearings of the driving-axle.

The auxiliary frame is designated by the letter B. This frame carries a wheel, C, a pedal crank-axle, D, a seat or saddle, E, and a handle-bar, F. The frame B is provided at some convenient part with a transverse joint or hinge, b , to allow it to rise and fall with the inequalities of the road, and a vertical joint, b' , preferably in the form of what is known in the "cycling" trade as a "head," to allow the frame, or the part of it carrying the wheel C, to trail as a caster-wheel, and so run in any course in which the tricycle is driven, the steering being under control of the rider of the tricycle.

In applying the auxiliary frame B to side-geared tricycles, as shown by Figs. 1 and 2, the driving-power has to be transmitted from the pedal crank-axle D to the wheel C, as it is neither convenient nor in some machines possible to mount a chain-wheel on the center of the driving-axle a' so as to be connected with the chain-wheel on the pedal crank-axle D by

a driving-chain; but in applying the auxiliary frame B to central-gear tricycles which have their driving-gear mounted on the center of the axle, as shown by Figs. 5 and 6, the driving-power can be conveniently and is preferably transmitted from the pedal crank-axle D to the driving-axle a' . In the former arrangement, as shown by Figs. 1 and 2, the pedal crank-axle D is mounted on the same part of the auxiliary frame B as the wheel C, and the vertical joint b' is placed between it and the frame A of the tricycle; but in the latter arrangement the vertical joint b' is placed between the part of the frame B carrying the pedal crank-axle D and the part carrying the wheel C.

In attaching the auxiliary frame B to the frame A of the tricycle it is desirable that the transverse joint b should be as near to the center of the axle a' as possible, so that if the pedal crank-axle D is connected with the axle a' , as shown by Figs. 5 and 6, the driving-chain may not be tightened or slackened as the frame rises and falls with the inequalities of the road. In side-gear machines the most convenient part to attach the auxiliary frame to is the transverse tube of the frame, as shown in enlarged views by Figs. 3 and 4. Two "snugs," $x x$, are clamped or otherwise fixed to the tube of the frame A, and to them are hinged, by pins $y y$, the forked ends b'' of the frame B. These pins $y y$ form the fulcrum of the transverse joint b , and also afford a ready means of detaching the auxiliary frame. In central-gear machines the two bearings are placed in close proximity to the driving-gear to prevent the axle sagging when excessive power is exerted, and to form a convenient fulcrum for the auxiliary frame B to be mounted on, as shown in enlarged views by Figs. 7 and 8. The cases of the bearings $a' a'$ of the driving-

axle a' are extended as sleeves, so as to form fulcrum-pins $y y$, on which are mounted loosely, so as to form the transverse joint or hinge b , two clips, b^3 , attached to the auxiliary frame B. The clips b^3 are preferably hinged at one side and drawn together by a nut and bolt at the other, so as to form a ready means of attachment and detachment. By fitting one or two of these auxiliary frames to a "sociable" or double tricycle a sociable tandem velocipede will be formed for either three or four riders.

I am aware that prior to my invention extra parts have been fitted to ordinary single tricycles for the purpose of converting them into tandem tricycles, and I therefore do not claim such a combination, broadly; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

The combination, with a front-steering tricycle or velocipede, of an auxiliary frame coupled thereto and provided with an extra wheel, a pedal crank-axle, a seat or saddle for the rider, and a handle-bar, substantially as described, the said auxiliary frame having both a transverse and a vertical joint or hinge, whereby the frame is allowed to rise and fall with the inequalities of the ground and to trail as a caster, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN HARRINGTON.

Witnesses:

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