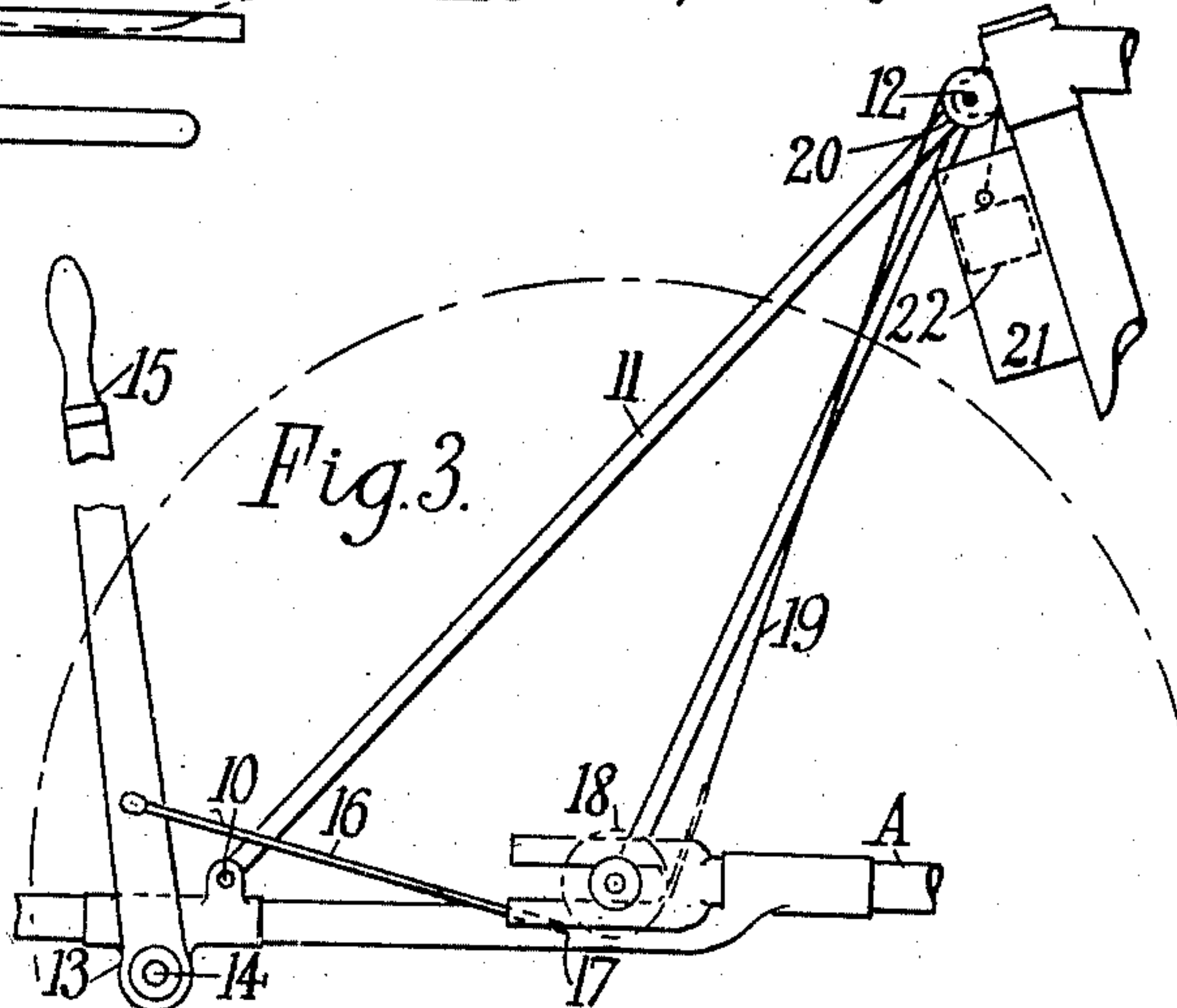
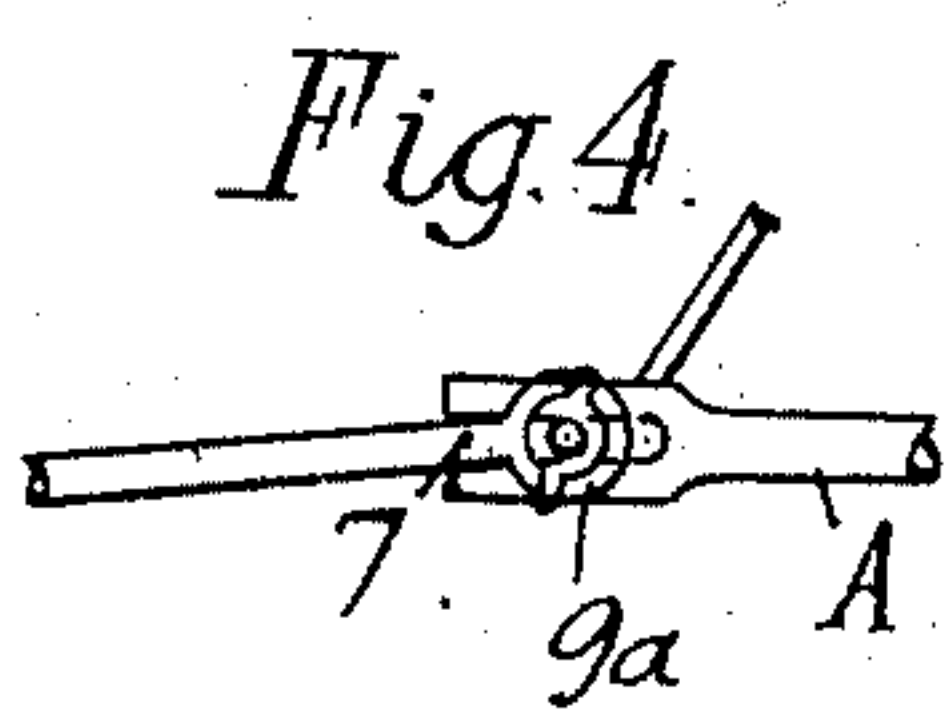
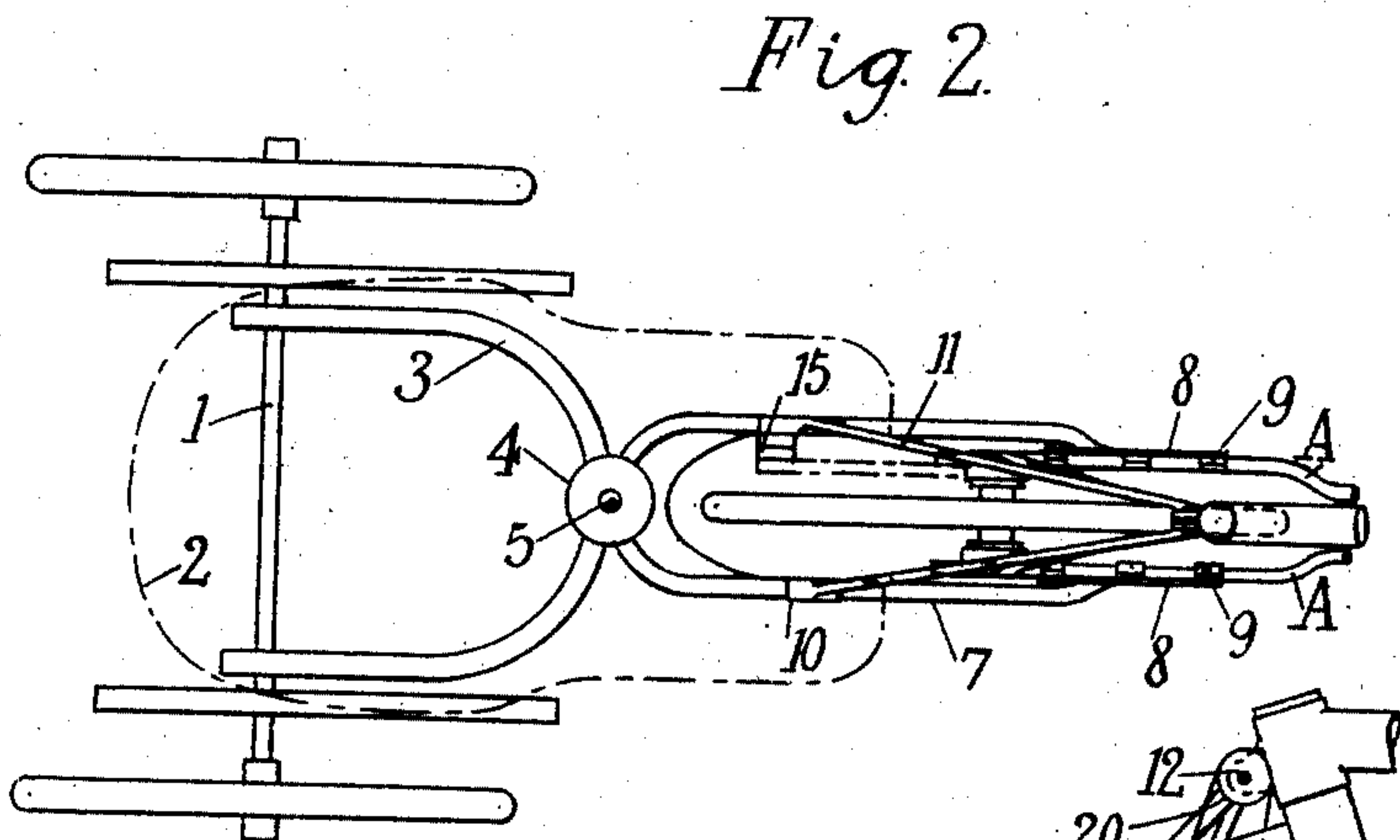
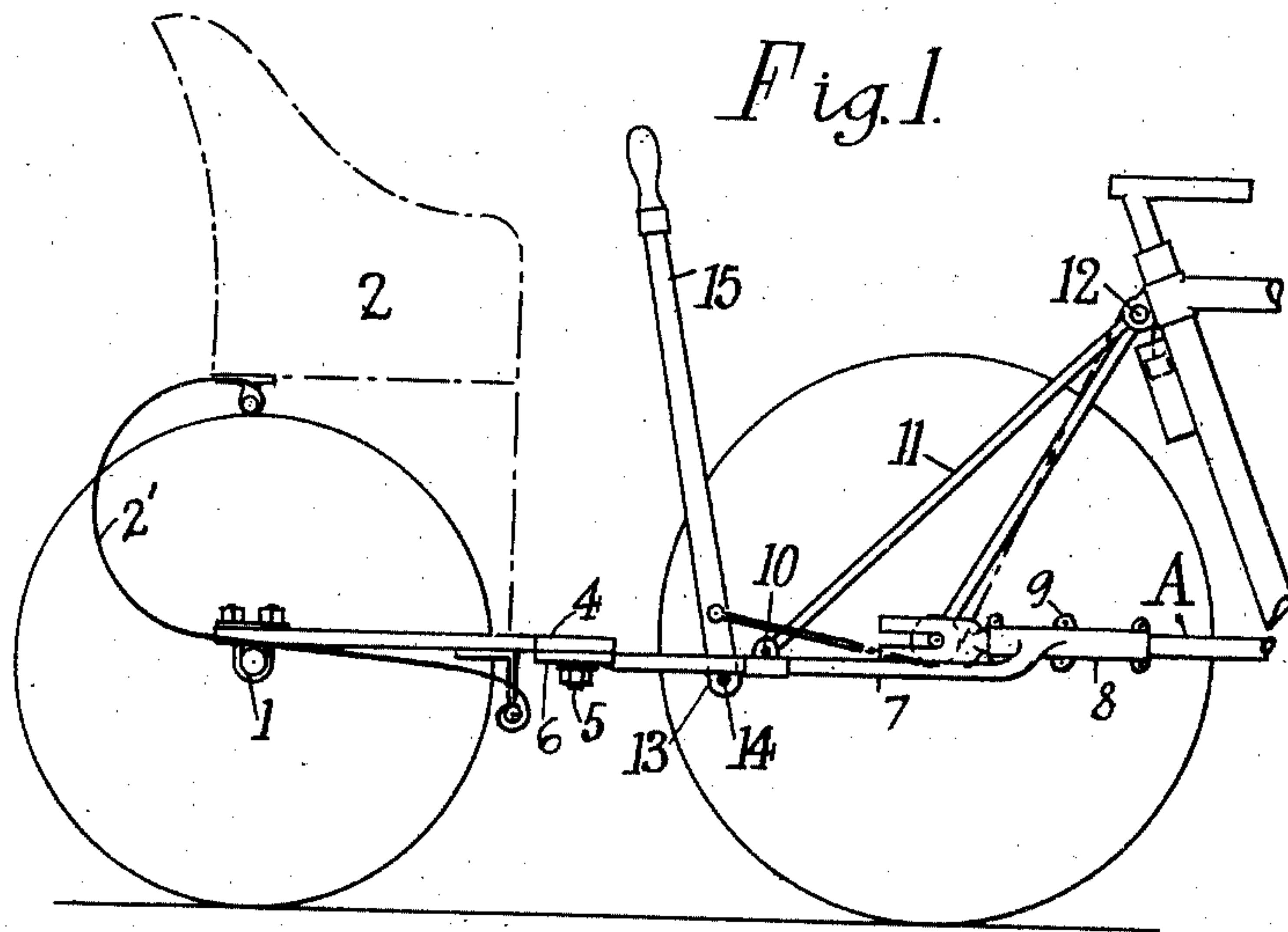


A. E. ABRAHAMSON.
DETACHABLE TRAILING CARRIAGE FOR CYCLES.
APPLICATION FILED MAY 28, 1908.

928,416.

Patented July 20, 1909.



Witnesses:
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UNITED STATES PATENT OFFICE.

ALBERT ELIAS ABRAHAMSON, OF LONDON, ENGLAND.

DETACHABLE TRAILING CARRIAGE FOR CYCLES.

No. 928,416.

Specification of Letters Patent.

Patented July 20, 1909.

Application filed May 28, 1908. Serial No. 435,493.

To all whom it may concern:

Be it known that I, ALBERT ELIAS ABRAHAMSON, a subject of the King of England, residing at London, in the county of Middlesex, in the Kingdom of England, have invented new and useful Improvements in Detachable Trailing Carriages for Cycles, of which the following is a specification.

This invention relates to detachable trailing carriages for cycles and my chief object is to provide a bogie attachment or fore-carriage-motion for the detachable carriage which shall form a firm though flexible connection between the cycle and the carriage, so that very short turns can be run without any liability to overturn the carriage, the latter holding the cycle upright while standing still.

A further object is to provide the carriage with means which will enable the traveler to assist the cyclist in the propulsion of the vehicle.

I obtain these objects by the combined mechanism shown in the annexed drawings which serve to illustrate my invention.

Figure 1 is a side-elevation and Fig. 2 is a plan of the trailing carriage shown in connection with a portion of the rear wheel of a bicycle; the carriage body or basket being outlined by dotted lines. Fig. 3 is a separate view, drawn to a larger scale, of the propelling mechanism and portions of the carriage-frame. Fig. 4 is a side view of a detail.

For my purpose I require a two-wheeled detachable trailing carriage, and I fix at right angles to the axle 1 of the carriage 2 a pair of extended C-springs 2' and a pair of tubular or other longitudinal arms 3 in any approved manner. For example, I may provide a hollow axle and fix the arms 3 thereto by means of a set of straps having screw-threaded ends with nuts bearing upon a clamping or bridge plate after the manner usually adopted for securing axle-springs in position. Or I fix on a solid axle a double lug having its lug portions disposed at right angles to each other, one being rigidly attached to the axle while the other is fast on its longitudinal arm 3. The forward ends of the arms 3 are joined to a centrally disposed horizontal disk or ring 4 fitted with a pivot 5.

Beneath the disk 4 is revolubly secured a corresponding disk or ring 6 adapted to turn on the pivot 5 and said disk or ring 6 is fixed to a pair of appropriately curved longitudi-

nal bearers 7. These latter are removably secured to the rear forks A of the cycle and to the clip screws of the saddle-pillar socket and they form so to speak a detachable rear extension of the cycle-frame. In this manner I provide a firm structure after the manner of a bogie-carriage which has its pivot almost immediately behind the rear wheel of the cycle and requires only a single axle enabled to turn with the cycle within its own length without overturning.

The front ends of the two bearers 7 are provided with curved extension plates 8 appropriately shaped to fit the rear forks of the cycle and said plates 8 are formed with ears 9 which with corresponding lugs and screws insure a rigid connection for the parts mentioned. Or in lieu of the ears on the plates 8, I may provide separate suitable clips to secure such plates to the rear fork of the cycle; and thereby obviate their entire removal when disconnecting the trailing carriage.

In some instances the bearers 7 are attached by a single eye 9^a to the rear axle of the cycle for which purpose the axle is made sufficiently long to allow of an extra nut preferably a wing-nut to be applied for use in fastening the bearers 7.

The bearers are each furnished with a hinge-socket 10 to which is pin-jointed a stay-bar 11 the upper end of which latter is secured to a double-ended screw 12 inserted in the place of the ordinary screw for the clip of the saddle-pillar.

To the bearer situated at the side opposite to the chain-wheel of the cycle, I secure a lug 13 having a stud 14 to serve as a fulcrum for a hand-lever 15 which is at easy reach of the traveler in the trailer. The said hand-lever has a hinged rod 16 connected with a driving chain 17 which is mounted on an extra free chain-wheel 18 mounted on the rear cycle wheel. The chain 17 is secured to a cable 19 which runs over grooved pulley 20 and then descends into a tubular guide 21 where it is fastened to a weight 22 adapted to move up and down within the tube 21 and keep the cable 19 and chain 17 taut and well applied in the teeth of the chain wheel 18. The free wheel 18 is so constructed as to assist in driving the cycle when the hand-lever 15 is being pulled rearward. During the forward throw of the hand-lever 15, the free wheel 18 moves idle while the chain 17 is kept in position by the pull of the weight

22. In this manner great assistance is given to the cyclist and his work is rendered easy when climbing hills; a feature of this arrangement being that no dead centers have
5 to be overcome.

With the mechanism hereinbefore described, means may be provided for locking the hand lever 15 against movement when the additional power is not required, say on
10 long downward gradients.

By my improved construction I am enabled to place the pivot of the bogie for the rear carriage close to the rear wheel of the bicycle, thereby considerably shortening the
15 total length of the combined cycle and trailer and enabling shorter curves being negotiated without danger of overturning.

The foot-board of the trailing carriage is formed with a longitudinal recess which
20 allows for the movement of the rear wheel of the cycle, while enabling the rider in the carriage to place the feet sidewise of the cycle-wheel.

I claim:—

25 1. In a trailing carriage for attachment to bicycles, the combination with a bicycle, of a carriage-body, a single axle for same, springs between them, longitudinal arms fixed to said axle, a bogie-connection at the
30 forward end of the arms, longitudinal bear-

ers fast on said bogie, connections between said bearers and the cycle-frame, and means for driving the carriage, as set forth.

2. In a trailing carriage for attachment to bicycles, the combination with the bicycle, a
35 carriage body, bogie-connection between the carriage and the cycle, bearers fast to the bogie and the rear fork of the cycle, of pin-jointed stays connected with said bearers, and doubled-ended screws to secure said stays
40 to the lug of the saddle-pillar tube of the cycle, as set forth.

3. In a trailing carriage for attachment to bicycles, the combination with the cycle and an auxiliary free-wheel on the cycle-hub, of
45 the trailing carriage, bogie-connection between the cycle and the carriage, a hand-lever fulcrumed to bearers of the carriage, a hinged rod on the hand-lever, a driving chain in engagement with said free-wheel
50 and connected to the rod, a cable attached to the chain, a guide pulley for the cable, a weight secured to the latter, and a tubular guide for the weight, as and for the purpose set forth.

ALBERT ELIAS ABRAHAMSON.

Witnesses:

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