

**No. 609,151.**

**Patented Aug. 16, 1898.**

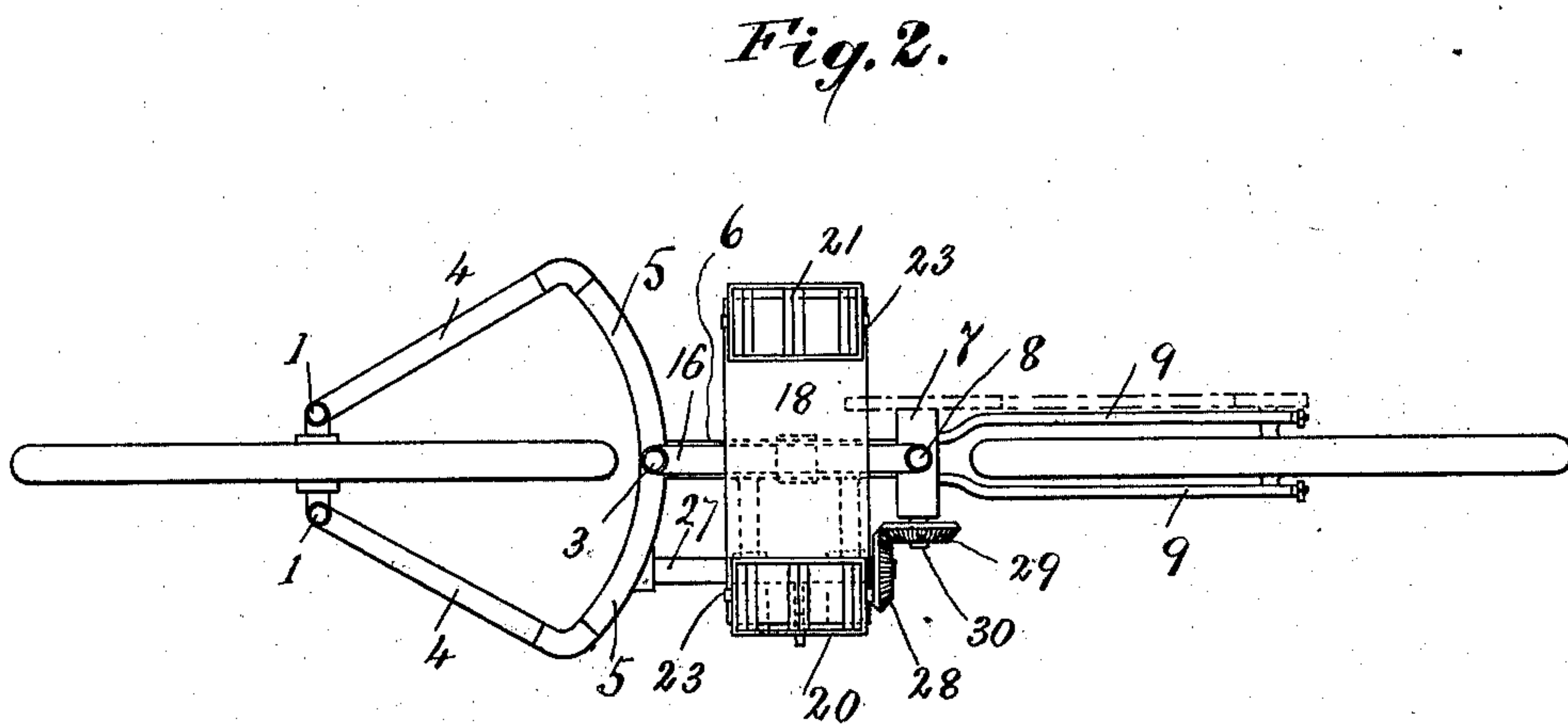
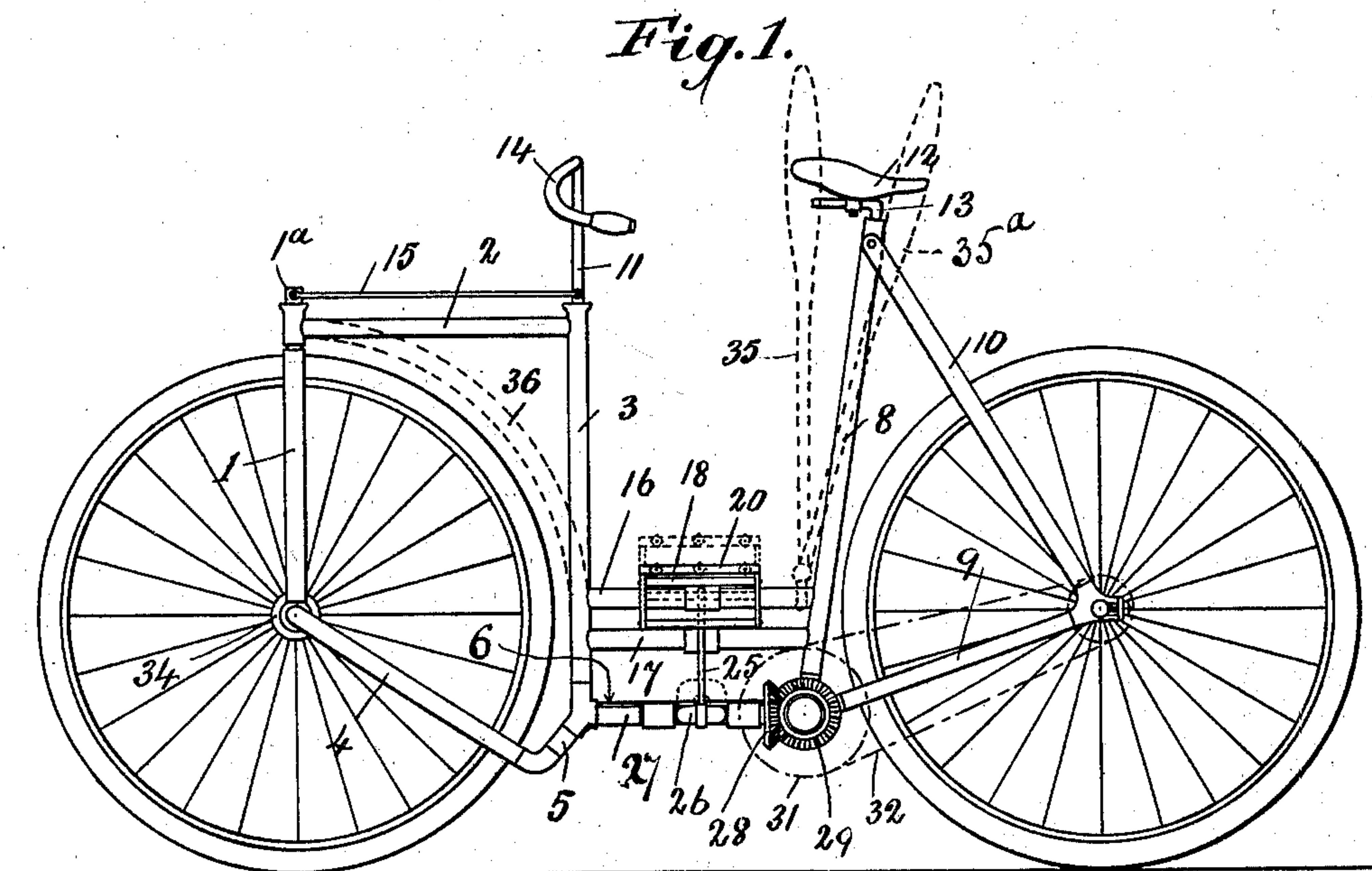
**E. B. KILLEN.**

## DRIVING APPARATUS FOR CYCLES.

(Application filed Dec. 30, 1897.)

(No Model.)

**2 Sheets—Sheet 1.**




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2 Sheets—Sheet 2.

Fig. 3.

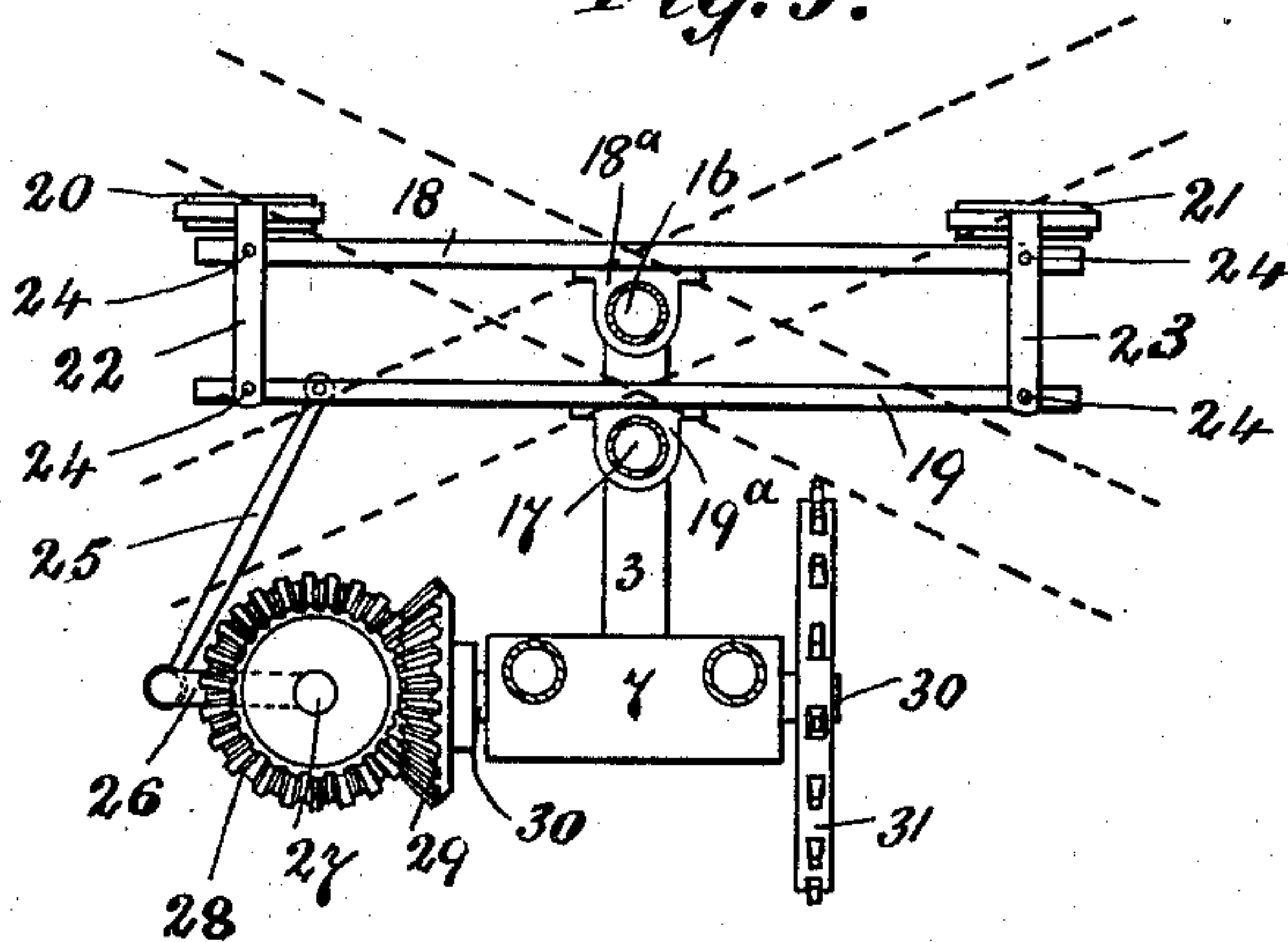
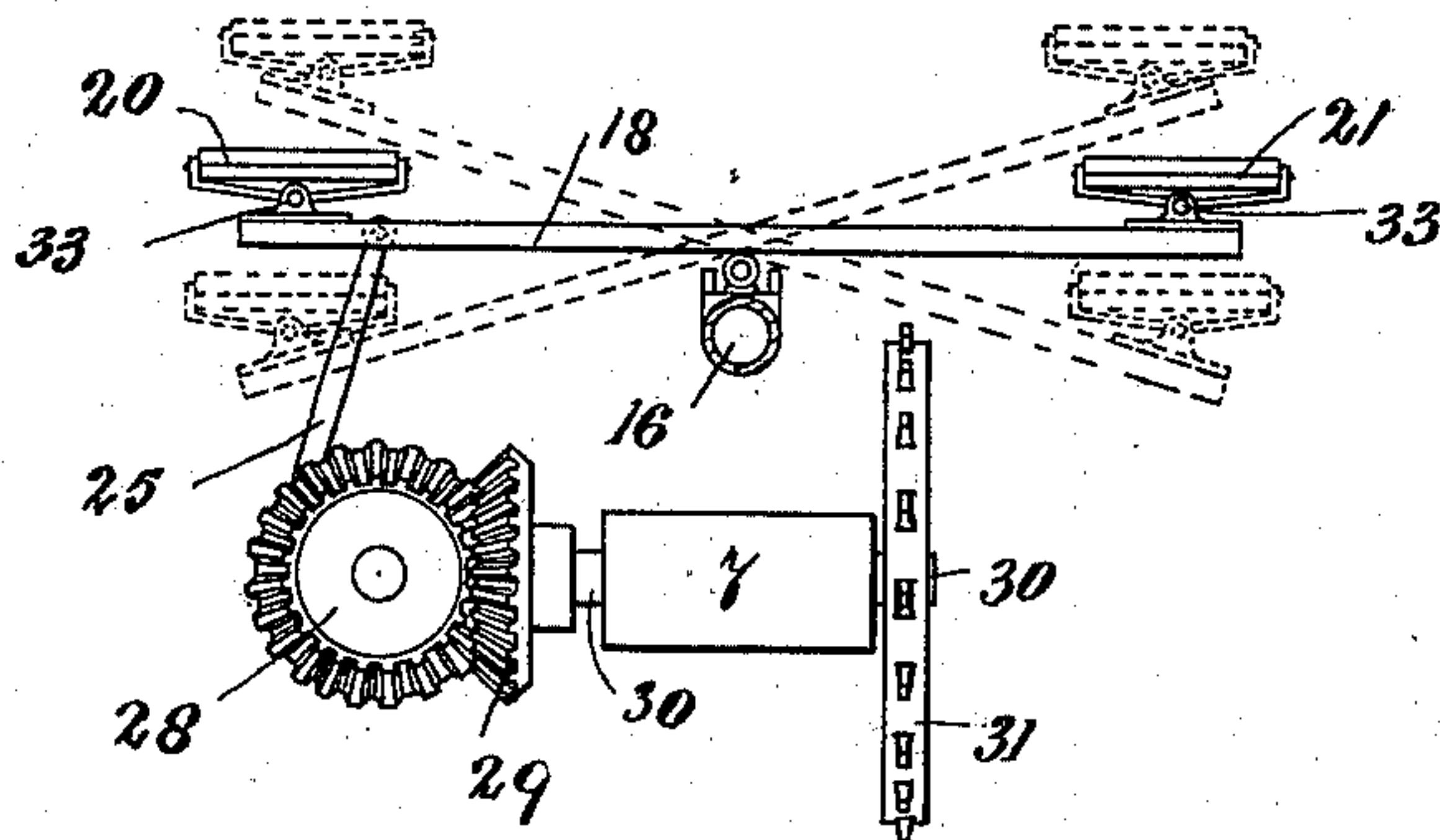


Fig. 4.



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# UNITED STATES PATENT OFFICE.

EDWARD BRICE KILLEN, OF BELFAST, IRELAND.

## DRIVING APPARATUS FOR CYCLES.

SPECIFICATION forming part of Letters Patent No. 609,151, dated August 16, 1898.

Application filed December 30, 1897. Serial No. 664,503. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD BRICE KILLEN, a subject of the Queen of Great Britain, residing at Belfast, in the county of Antrim, Ireland, have invented certain new and useful Improvements in Driving Apparatus for Cycles, Vehicles, and Machines, of which the following is a specification.

The improved driving apparatus for cycles is designed to utilize in a novel manner the weight of the rider (or driver) in driving the machine.

The apparatus consists, essentially, of a rocking platform which is suitably balanced and attached to the machine and upon which the driver can stand. The platform is rocked up and down by the driver, and this rocking motion is converted into a rotary motion which is transmitted by means of gearing to the driving wheel or wheels, so as to urge the machine forward.

In order that my said invention may be properly understood, I have hereunto appended two explanatory sheets of drawings which show, by way of example, a bicycle constructed in accordance with my invention.

Figure 1 is a side view, and Fig. 2 a sectional plan view, of the bicycle. Fig. 3 is an enlarged view showing the rocking platform. Fig. 4 shows a modification of the rocking platform.

The frame of the machine, instead of being of the usual diamond shape, is made up of a vertical fork 1, a cross-stay 2, a vertical tube 3, a bottom fork 4 4, inclined tubes 5, a bottom tube 6, a bottom bracket 7, an inclined tube 8, springing up from the bottom bracket, the back stays 9, the back fork 10, and steering-pillar 11.

12 is the seat; 13, an elongated L-pin; 14, the handle-bar; 15, two wires or chains extending from arms on the steering-pillar 11 to arms on the steering-fork pillar 1<sup>a</sup>; 16 17, two extra stays connecting the tubes 3 8.

The rocking platform consists of two boards or bars 18 19, (see Fig. 3,) which are capable of rocking seesawwise on the stays 16 and 17. The dotted lines at Fig. 3 indicate the amount of the rocking movement.

20 21 are two treadles fitted at each end of the platform and secured thereto by vertical supports 22 23 and pivot-pins 24, so as to al-

ways remain in a horizontal position as the platform rocks up and down.

The stays 16 17 may pass through the boards 18 19, or, if desired, collars 18<sup>a</sup> 19<sup>a</sup> may be provided for movably attaching the boards to the stays.

Pinned to the lower board 19 is a connecting-rod 25, which drives a crank 26 on a short shaft 27. At the rear end of this shaft is a bevel-wheel 28, which drives a bevel-wheel 29 on the shaft 30 in the bottom bracket. The usual chain-wheel 31 is fitted on the shaft 30. 32, Fig. 1, is the driving-chain for the back wheel.

The rider stands upon the platform 18 19, with one foot on each treadle, (facing the front of his machine,) and moves the platform up and down seesawwise by simply transferring his own weight from one foot onto the other foot. The movement of the platform sets the gearing in motion and drives the machine. When standing, the rider grips the handles of the handle-bar and leans against a movable back, such as indicated in dotted lines at 35. This back is attached to either of the tubes 16, 17, or 6 and extends upward, as shown. It is held in position by suitable catches attached to the tubes 8 or 10; but on said catches being unfastened the back assumes the position 35<sup>a</sup> and lies at the back of the fixed saddle.

If desired, as shown at Fig. 4, a single board 18 may be used, and in this case the treadles 20 21 would be jointed at 33 to the board 18, so that they could, as indicated in dotted lines, remain in a horizontal position during the movements of the platform.

The frame is made of the construction shown not only for the purpose of strength, but to enable the rider to be close to the ground, no matter how large the two wheels are made. In order that the steering-wheel may move from side to side when steering, it is made with a special axle 34, which forms the subject-matter of another application filed by me at the United States Patent Office, Serial No. 665,568, dated January 4, 1898. When this special axle 34 is used, the wheels of this cycle can be enlarged without raising the rider's position from the ground.

When driving the machine, the rider can stand or remain in any more suitable posi-

tion, so long as his weight is resting properly on the rocking platform and giving the required power to drive his machine.

5 The gearing for driving the back wheel may be of any well-known construction, and instead of using bevel-wheels 28 29 other gearing arrangements may be employed.

10 If the special axle 34 is not desired, the frame can be constructed as indicated in dotted lines at 36, the lower fork 4 4 being dispensed with.

Having now fully described my invention, what I claim, and desire to secure by Letters Patent, is—

15 In combination, the frame having a depressed portion formed by the vertical tubes

3 and 8 connected by tubes 16 and 6 at the lower portion and having the transverse inclined tubes 5, the rocking treadle mounted on the bar 16, the crank-shaft arranged beneath one end of the treadle and having one end journaled in one of the bars 5 and the other journaled in a bracket extending from the bar 6, and operating connections from said crank-shaft to the rear wheel of the bicycle, 25 substantially as described.

Signed at Glasgow, Scotland, this 10th day of August, A. D. 1897.

EDWARD BRICE KILLEN.

Witnesses:

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WILLIAM FLEMING.