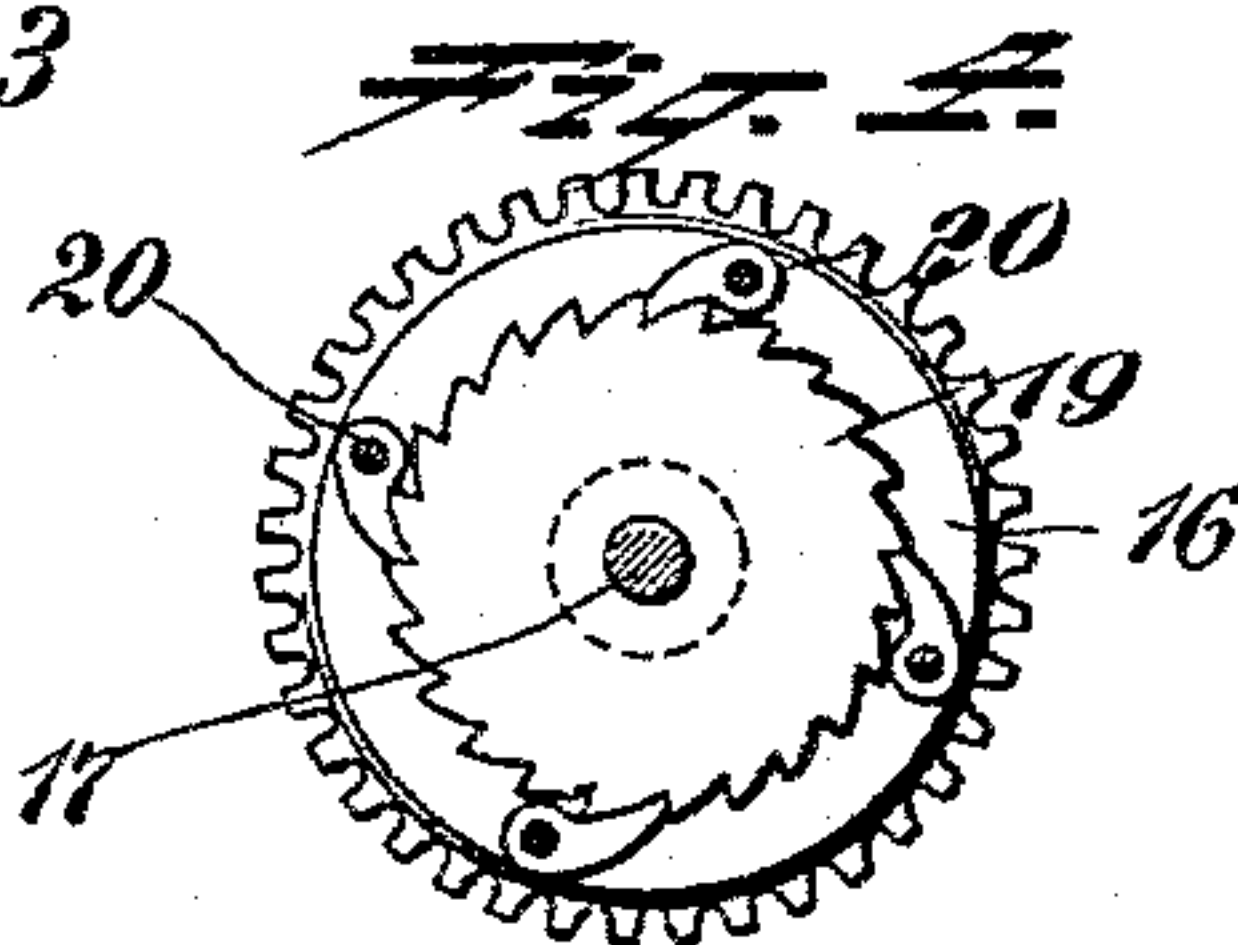
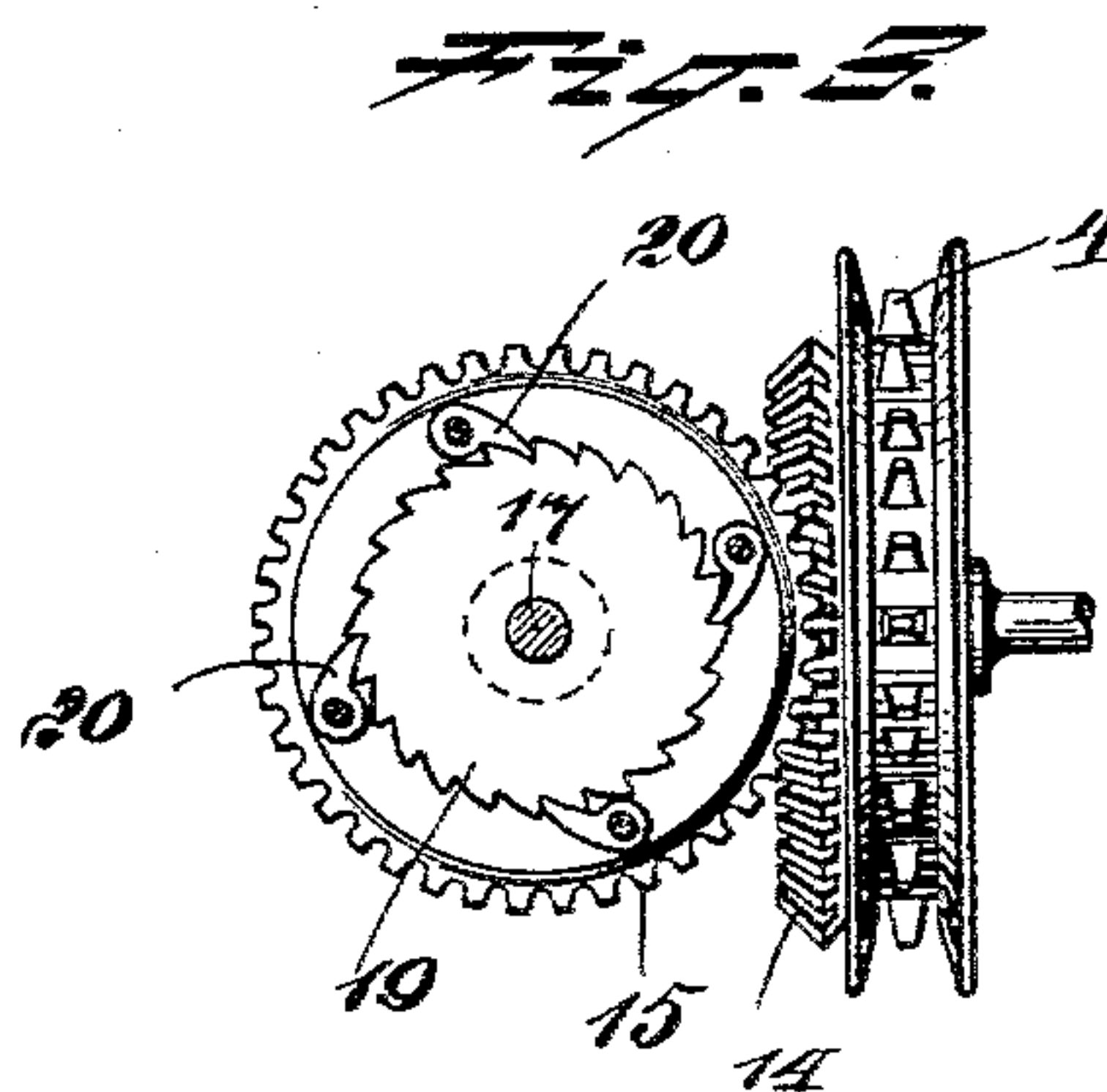
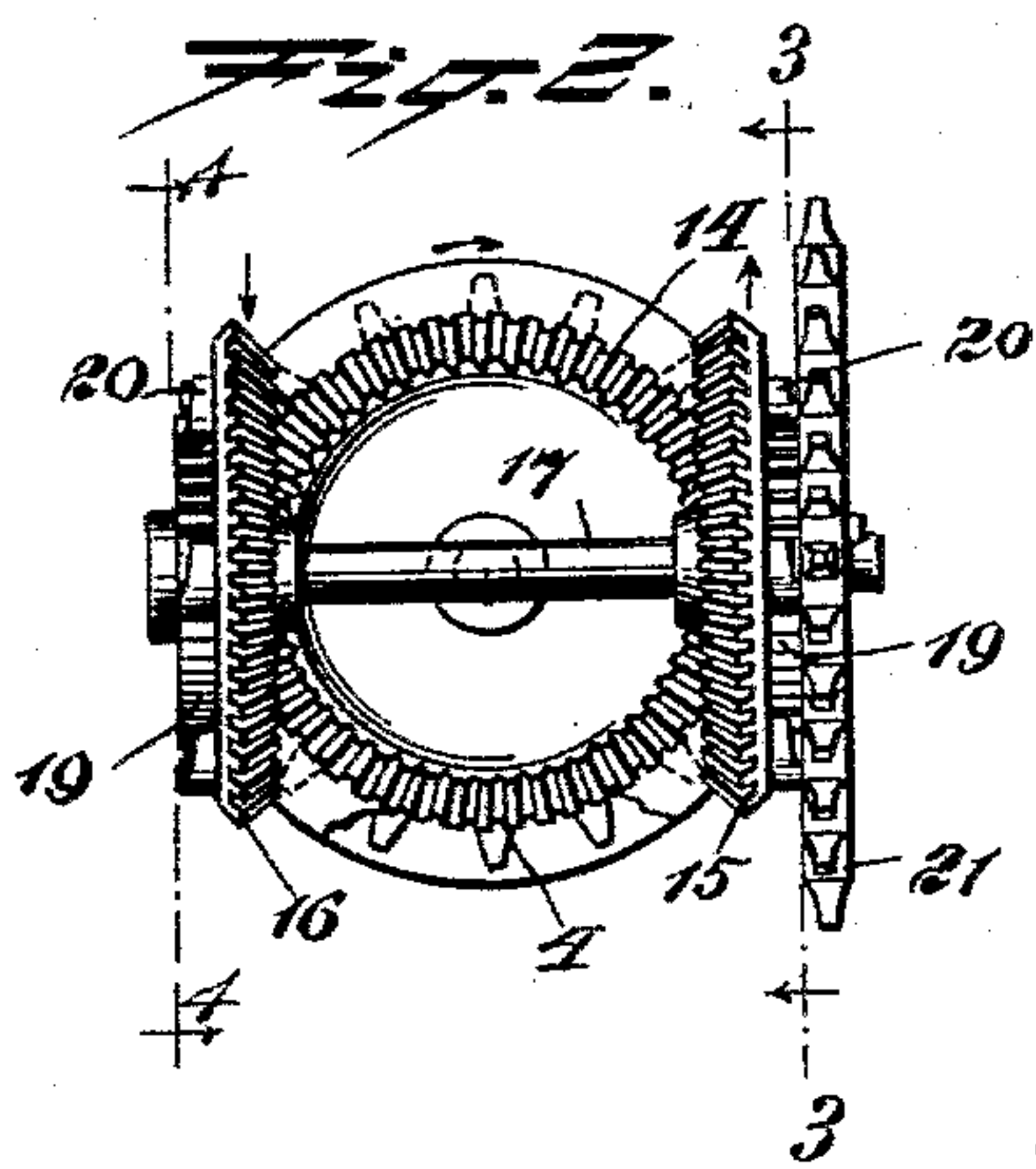
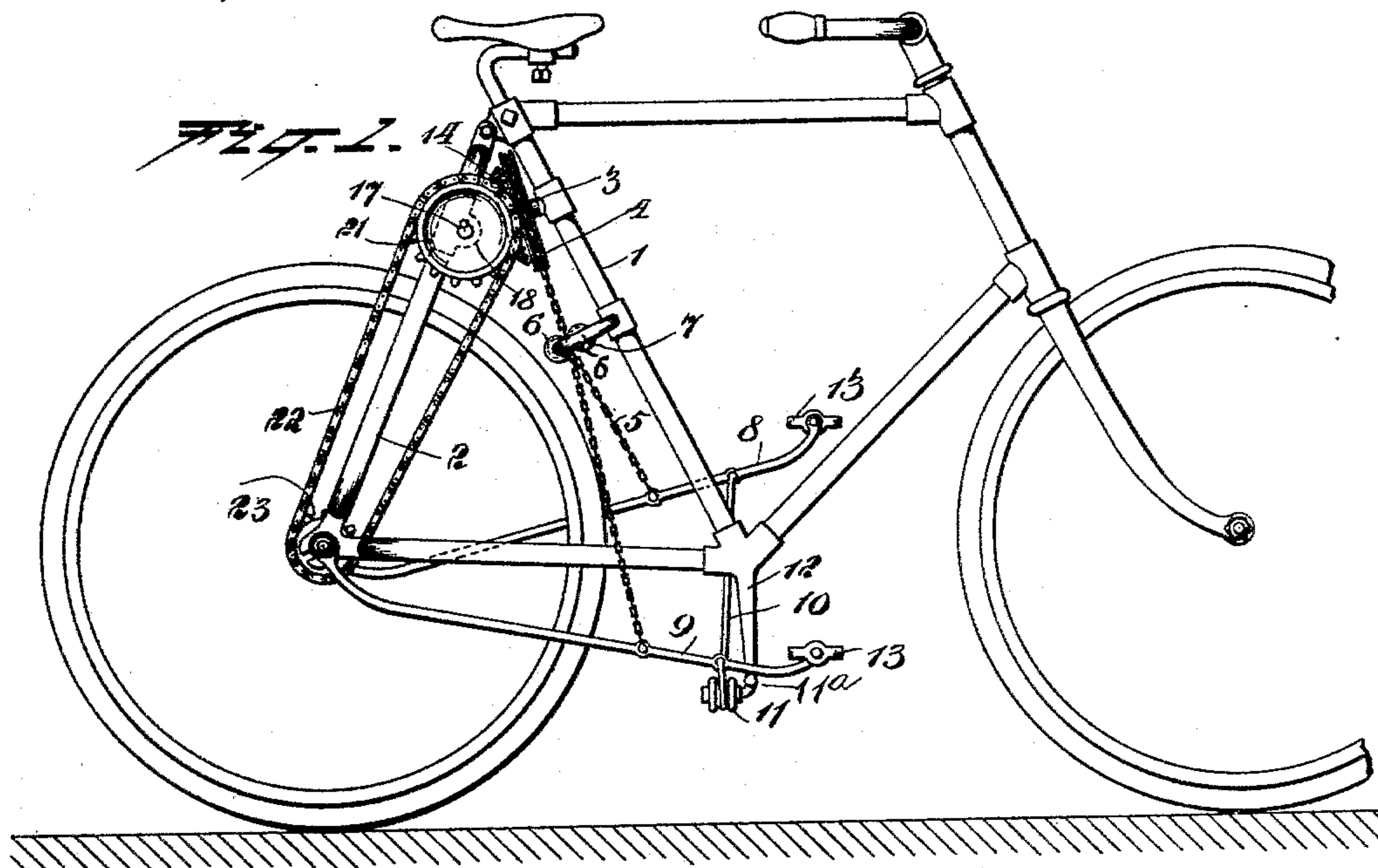


(No Model.)

J. WHEATLEY.
BICYCLE.

No. 584,200.

Patented June 8, 1897.



WITNESSES :

WITNESSES:
Henry T. Hirsch.
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BY

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ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOSEPH WHEATLEY, OF MEMPHIS, TENNESSEE.

BICYCLE.

SPECIFICATION forming part of Letters Patent No. 584,200, dated June 8, 1897.

Application filed December 22, 1896. Serial No. 616,616. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH WHEATLEY, of Memphis, in the county of Shelby and State of Tennessee, have invented new and useful

5 Improvements in Bicycles, of which the following is a full, clear, and exact description.

This invention relates more particularly to driving-gear for bicycles; and the object is to provide a gear in which there is considerable increase of power in comparison to the driving-gear ordinarily employed, and, further to provide a driving-gear by means of which a high rate of speed may be attained.

I will describe a bicycle embodying my invention and then point the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a bicycle embodying my invention. Fig. 2 is an enlarged view of the driving mechanism. Fig. 3 is a section on the line 3 3 of Fig. 2, and Fig. 4 is a section on the line 4 4 of Fig. 2.

Referring to the drawings, 1 designates the rear brace-bar of a bicycle-frame, and 2 indicates the rear fork. Arranged to rock on a stud 3, extended from the main member 1, is a sprocket-wheel 4, over which the sprocket-chain 5 passes. The sprocket-wheel 4 will preferably be provided with annular beveled flanges on its periphery to form guides for the chain. The chain 5 may engage with guide-rollers 6, mounted on arms 7, extended rearward from the frame member 1.

The lower ends of the chain 5 are connected, respectively, to pedal-levers 8 and 9. These pedal-levers at their rear ends are mounted to swing on the axle of the rear wheel, and in order to steady the pedals I connect them with a strap 10, of flexible material, which extends around a roller 11, mounted on a hanger 12, depending from the bicycle-frame. The forward ends of the pedal-levers are provided with the usual foot-blocks 13.

To prevent the pedals from moving too far downward, I provide stops in the form of pins 11^a, extended laterally from the hanger 12.

Attached to the sprocket-wheel 4 is a bevel-gear 14, meshing with bevel-gears 15 and 16, loosely mounted on a shaft 17, extended at

right angles to the axis of the sprocket-wheel.

This shaft 17 is mounted to rotate in a bearing or bearings 18 on the rear fork 2. Rigidly mounted on the shaft 17, at the outer side of each bevel-gear 15 and 16, is a ratchet-wheel 19, and pivotally connected to each wheel 15 and 16 is a series of dogs 20, adapted for engagement with the ratchet-wheels.

Rigidly secured to the shaft 17 is a sprocket-wheel 21, from which a sprocket-chain 22 extends to the sprocket-wheel 23 on the rear-wheel axle. By this construction it will be seen that when the pedal-levers are alternately moved up and down the sprocket-wheel 4 will be rocked or oscillated and cause the wheels 15 and 16 to alternately operate the shaft 17—that is, when the said sprocket-wheel 4 is rocked in one direction it will rotate the bevel-wheel 15, and as this bevel-wheel 15 has a clutch engagement with the shaft 17, consisting of the dogs and ratchet-wheel, the shaft 17 will be rotated. At this time the wheel 16 will of course be rotated, but in a direction to draw its dogs 20 over the ratchet-teeth, and of course when the wheel 4 is rocked in the opposite direction the wheel 16, being in clutch engagement with the shaft 17, will rotate said shaft. It will be noted that there will be no intermission of the rotary movement of the shaft.

The bevel-gear 14 may be termed a “curved rack,” and it is obvious that this rack need not extend entirely around the wheel or make a complete circle, as the same result would obtain if curved racks at the opposite sides engaged, respectively, with the wheels 15 and 16; and, further, it is to be understood that a segment provided with sprocket-teeth may be employed in lieu of the wheel 4, as the same has only a limited rocking movement.

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

1. A driving-gear for bicycles, comprising a sprocket-wheel mounted to rock or oscillate on a stud carried by the bicycle-frame, a sprocket-chain engaging said sprocket-wheel, fulcrumed pedal-levers to which the lower ends of the chain are attached, a curved rack on the sprocket-wheel, a shaft mounted to rotate on the bicycle-frame and arranged at right angles to the axis of said sprocket-wheel,

bevel-gears loosely mounted on said shaft and meshing with the curved rack, clutch devices between the shaft and gear-wheels, a sprocket-wheel rigidly secured on one end of the said shaft, and a sprocket-chain connecting said sprocket-wheel with a sprocket-wheel on the axle of the rear wheel of the bicycle, substantially as specified.

2. A driving mechanism for bicycles, comprising a sprocket-wheel mounted to rock on the bicycle-frame, the said sprocket-wheel being provided with annular beveled flanges on its periphery, a sprocket-chain extending over said sprocket-wheel, pedal-levers mounted to rock on the rear axle of the bicycle, and to which the lower ends of the sprocket-chain are attached, a hanger depending from the bicycle-frame, a roller mounted on the lower end of the said hanger, a flexible strap extending around the said roller and having its ends connected with the pedal-levers, a curved rack on the sprocket-wheel, bevel-gears meshing with said rack, a driving-shaft upon which said bevel-gears are loosely mounted, ratchet-wheels fixed to the said driving-shaft, dogs pivoted to the bevel-gears and engaging with said ratchet-wheels, a sprocket-wheel rigidly secured on the said driving-shaft, and a sprocket-chain extending therefrom to a

sprocket-wheel on the rear axle of the bicycle, substantially as specified.

3. A driving-gear for bicycles, comprising a sprocket-wheel mounted to rock on a stud extended from the rear brace of the bicycle-frame, a bevel-rack on said sprocket-wheel, a driving-shaft extended at right angles to the axis of the sprocket-wheel, bevel-gears loosely mounted on said shaft and engaging with the rack, ratchet-wheels rigidly secured to the shaft, dogs pivoted to the bevel-gears and engaging with said ratchet-wheels, a sprocket-wheel on the driving-shaft, a chain extended therefrom to a sprocket-wheel on the axle of the rear wheel of the bicycle, a sprocket-chain extended over the rocking sprocket-wheel, pedal-levers mounted to swing on the rear axle and to which the ends of said chain are attached, a flexible connection between the pedal-levers, a roller around which said connection passes, and guide-rollers mounted on arms extended rearward from the rear brace of the bicycle-frame and with which said sprocket-chain engages, substantially as specified.

JOSEPH WHEATLEY.

Witnesses:

ALFRED D. MASON,
CARRINGTON MASON.