

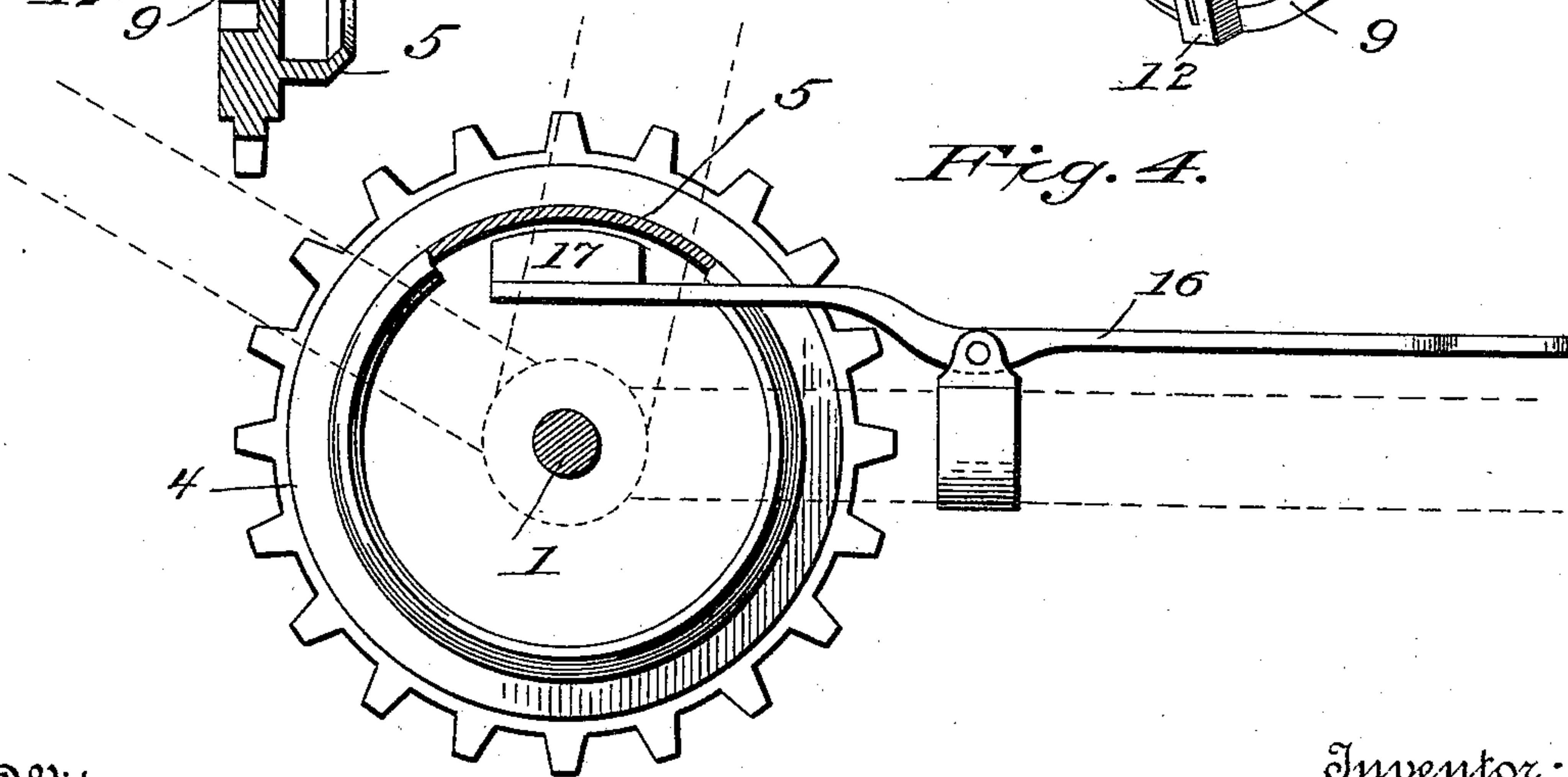
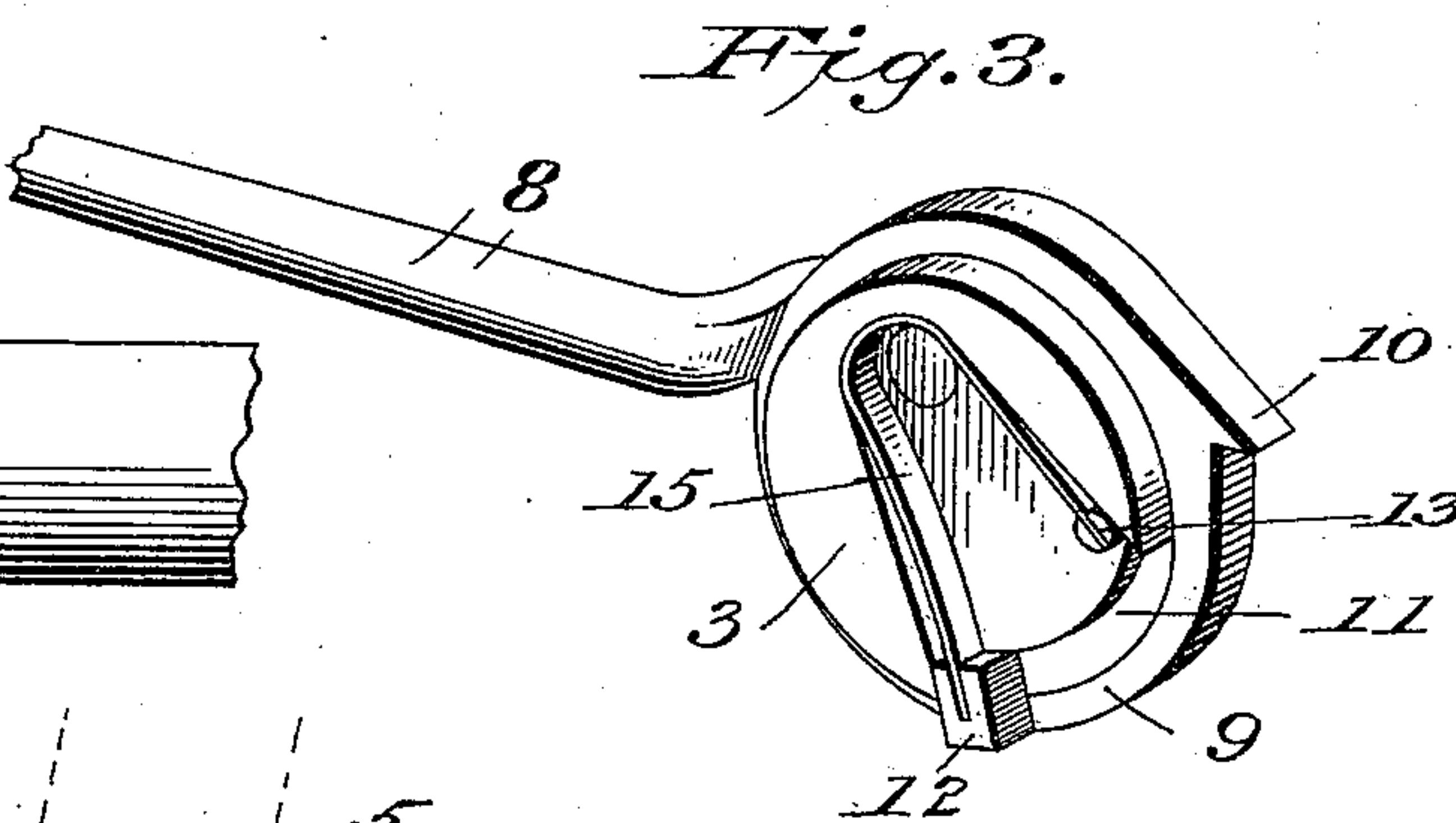
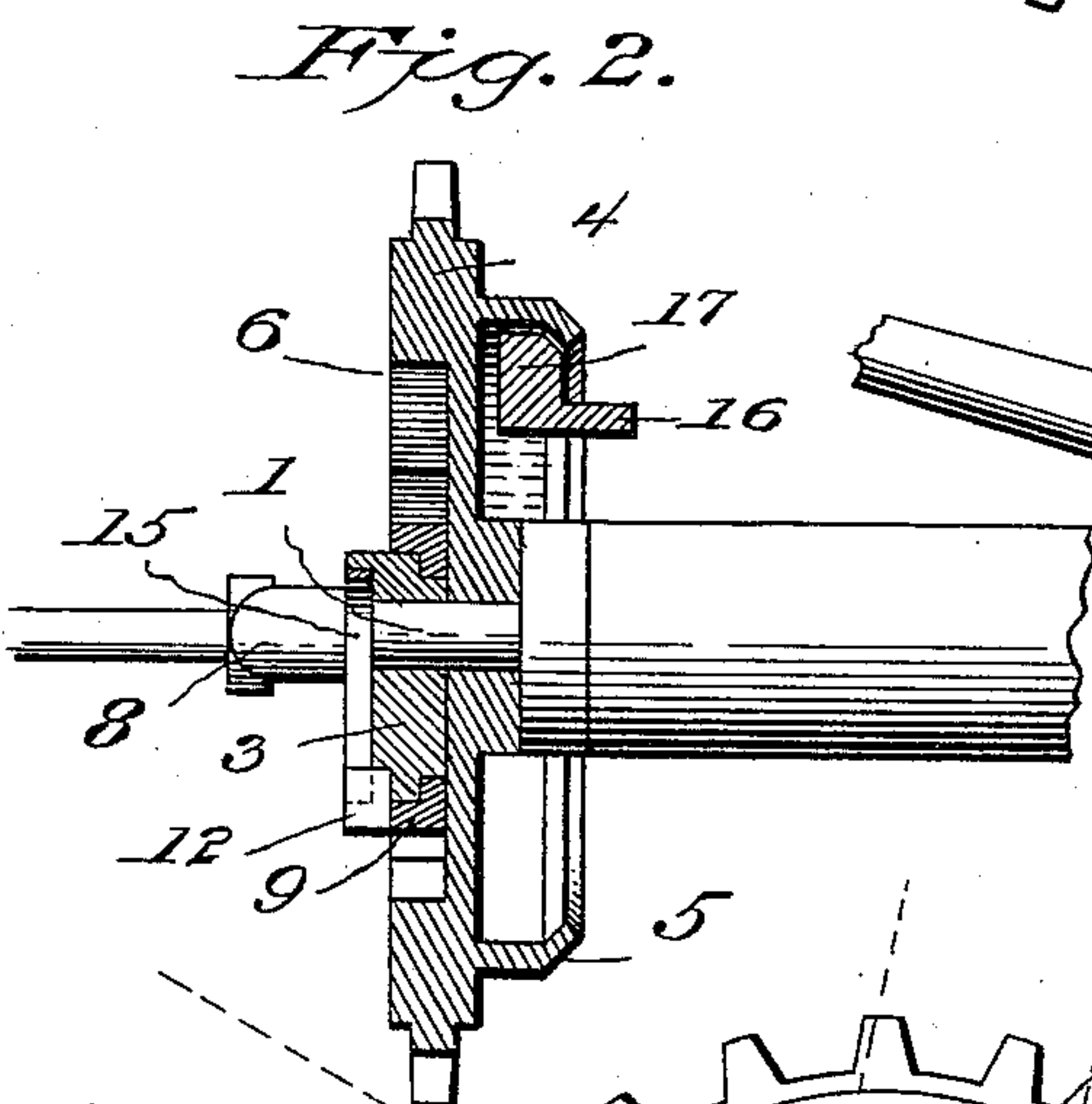
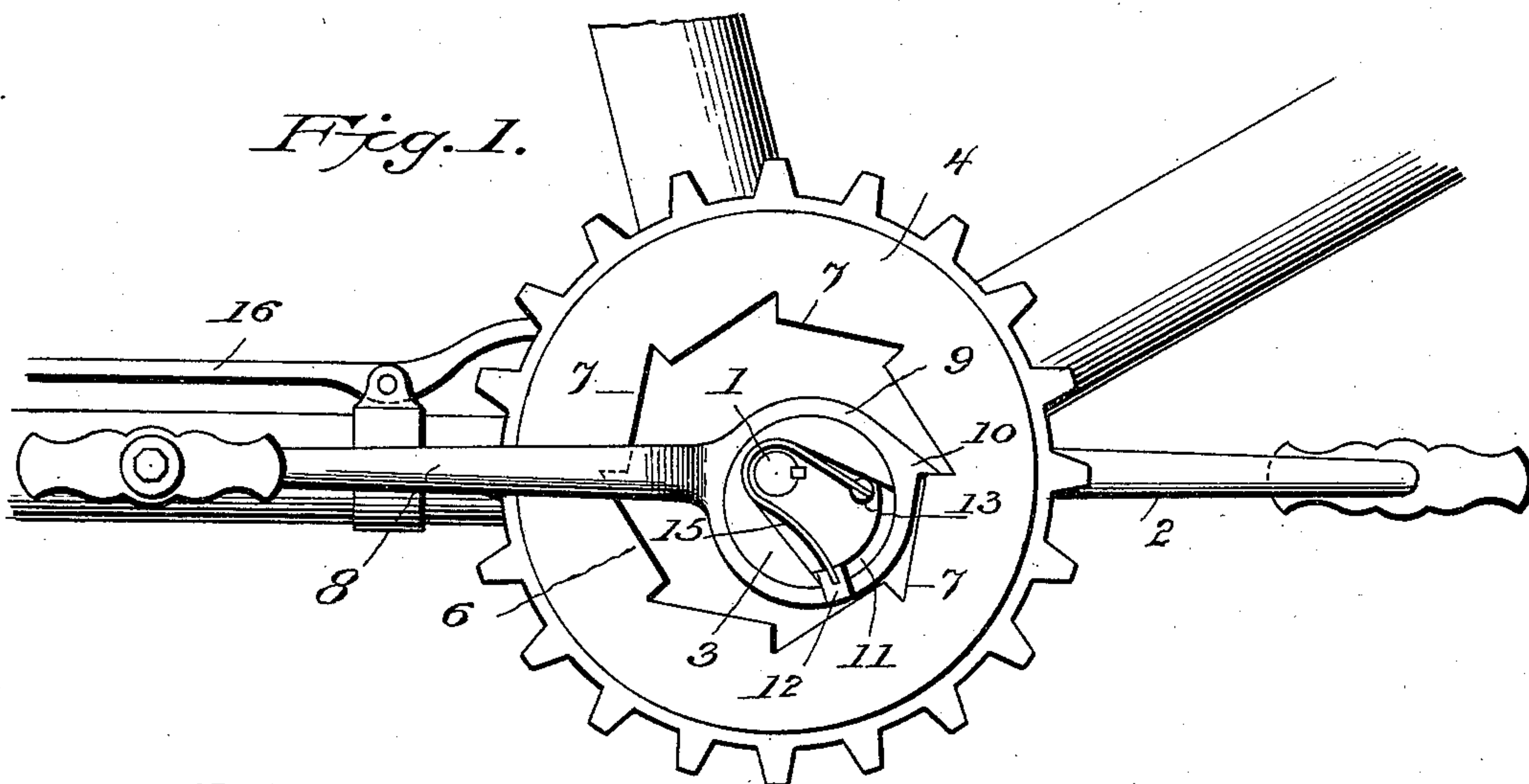
No. 607,658.

Patented July 19, 1898.

D. W. GUILLES,
BICYCLE GEAR.

(Application filed July 12, 1897.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

DANIEL W. GUILLES, OF PORTLAND, OREGON.

BICYCLE-GEAR.

SPECIFICATION forming part of Letters Patent No. 607,658, dated July 19, 1898.

Application filed July 12, 1897. Serial No. 644,204. (No model.)

To all whom it may concern:

Be it known that I, DANIEL W. GUILLES, of Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Bicycle-Gears; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to bicycle-gear, the object in view being to provide, in connection with the driving mechanism of a bicycle or other foot-propelled vehicle, means whereby the pedals may be disconnected from the front driving sprocket-wheel, so as to allow the machine to continue its progress, at the same time enabling the pedals to be used as foot-rests or coasters.

It is also the object of the invention to provide, in connection with such an arrangement, a brake adapted to be applied by foot-pressure.

The detailed objects and advantages of the invention will appear in the course of the subjoined description.

The invention consists in certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and incorporated in the claims hereto appended.

In the accompanying drawings, Figure 1 is a side elevation of a sufficient portion of a bicycle to illustrate the application of the improved gear thereto. Fig. 2 is a cross-section through the machine, taken in line with the crank-axle. Fig. 3 is a detail perspective view showing the eccentric, pedal-crank, and spring between said parts. Fig. 4 is a side elevation, partly in section, of the brake.

Similar numerals of reference designate corresponding parts in the several views.

Referring to the drawings, 1 designates the crank-axle of an ordinary safety-bicycle to which the pedal-cranks and improved gear is applied, although it will be understood that the gear may be applied to any foot-propelled vehicle without departing from the principle or sacrificing any of the advantages of the improvement herein described.

Secured to one end of the crank-axle 1 is an ordinary pedal-crank 2, and at the opposite

end of the crank-axle is a cam or eccentric 3. Mounted loosely upon the crank-axle adjacent to the eccentric 3 is the front driving sprocket-wheel 4, having projecting from its inner side a friction-rim or annular flange 5 and having on its outer side a ratchet-disk 6, provided with internally-arranged ratchet-teeth 7. The remaining pedal-crank 8 is enlarged at its inner end to form a collar 9, which fits snugly, but loosely, around the eccentric 3, said collar being provided upon that side opposite the crank 8 proper with a projecting tooth or lip 10 for engagement with the ratchet-teeth 7 of the sprocket-wheel.

The eccentric 3 is provided with a segmental peripheral recess 11, in which works a tooth 12 on the inner surface of the collar 9, said tooth serving to limit the relative rotative movement between the eccentric 3 and collar 9. The eccentric 3 is provided at one point with a pin or lateral projection 13, to which is secured a bow or heart shaped spring 15, the other end of the spring being attached to the projection or tooth 12, which is integral or attached to the collar and is adapted to engage the ends of the recess 11, the tension of which is exerted by the spring 15 to hold the two cranks 2 and 8 in alinement with each other for propelling the machine. The spring 15 will, however, yield to allow the tooth or projection 12 to move to the opposite end of the recess 11, and in this manner one of the cranks may be rocked into a position at an angle to the other crank. The arrangement is preferably such that by exerting a backward pressure on the right-hand crank and a forward pressure on the left-hand crank both cranks may be depressed below a horizontal line, and in this operation the tooth or projection 12 will travel to the opposite end of the recess 11, thereby allowing a sufficient movement of the eccentric 3 to withdraw the tooth or lip 10 from engagement with the teeth 7 of the disk 6. This permits the sprocket-wheel and driving-chain, together with the driving-wheel of the machine, to continue their forward rotation while the cranks remain stationary, the latter being used as foot-rests or coasters. Upon releasing the pressure from the rearwardly-extending crank the spring 15 acts to uplift said crank, and by reason of the eccentric 3

acting on the collar 9 the tooth or lip 10 is again moved into engagement with the ratchet-teeth 7, thus enabling both cranks to be used for propelling the machine. At the same time this does not interfere with the rigidity of the left-hand crank when the rider dismounts from the machine on that side.

Fulcrumed upon the crank-hanger or adjacent part of the machine close to the inner side of the sprocket-wheel and next to the friction-rim 5 is a brake-lever 16, one end of which is extended in such manner as to be engaged by the heel of the rider when exerting backward pressure on the right-hand crank. This brake-lever is provided with one or more shoes 17, which may be brought into frictional engagement with the rim 5 when said lever is depressed by the heel. The fulcrum of the brake-lever is eccentric to the crank-axle, so that the coöperation of the brake-shoes and friction-rim is insured when the brake-lever is vibrated. The inner surface of the friction-rim 5 is preferably beveled and the brake-shoes are correspondingly and reversely beveled, so that there will be no tendency of the brake-shoes and rim to separate when applying the brake.

A single wire will preferably be fastened on the frame in a vertical position to prevent the heel from coming in contact with the wheel while the brake is being used.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a bicycle gear or propulsion mechanism, the combination with a shaft, a pedal-crank and eccentric in rigid engagement with each other, of a driving-wheel mounted loosely on the shaft, a pedal-crank movable upon the eccentric and means operated by the movement of the crank on the eccentric for effecting an engagement of said pedal-crank with the driving-wheel.

2. In a bicycle gear or propulsion mechanism, the combination with a shaft, a pedal-crank on one end of the same and an eccen-

tric on the other end, a driving-wheel loosely mounted on the shaft and provided with ratchet-teeth, a pedal-crank having a tooth or projecting portion for engagement with the ratchet-teeth of the driving-wheel said pedal-crank being loosely mounted on the eccentric.

3. In a bicycle gear or propulsion mechanism, the combination with a shaft, a pedal-crank on one end of the same and an eccentric on the other, a driving-wheel having a flange or recess said wheel being rotatably mounted on the shaft, of a pedal-crank in movable engagement with the eccentric said pedal-crank having a projecting portion which is adapted to be brought into engagement with the flange or recess of the driving-wheel.

4. The combination with a crank-axle of a foot-propelled vehicle, of a crank fast thereon, an eccentric fast thereon, a sprocket-wheel with internal ratchet-teeth loose on the crank-axle, a second crank having a collar loosely surrounding said eccentric and provided with a toothed lip to engage the ratchet-teeth, and means for limiting the relative movement between said eccentric and loose crank, substantially as described.

5. The combination with a crank-axle of a foot-propelled vehicle, of two cranks one fast and the other loose thereon, an eccentric fast on said crank-axle, a collar on the loose crank loosely surrounding said eccentric and provided with a tooth or lip, means for limiting the relative rotative movement between said eccentric and collar, a spring for returning said parts to their normal operative positions, and a driving sprocket-wheel having an internal ratchet-tooth disk, all arranged for joint operation, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

DANIEL W. GUILLES.

Witnesses:

JOHN POOLE,
E. A. RANKIN.