

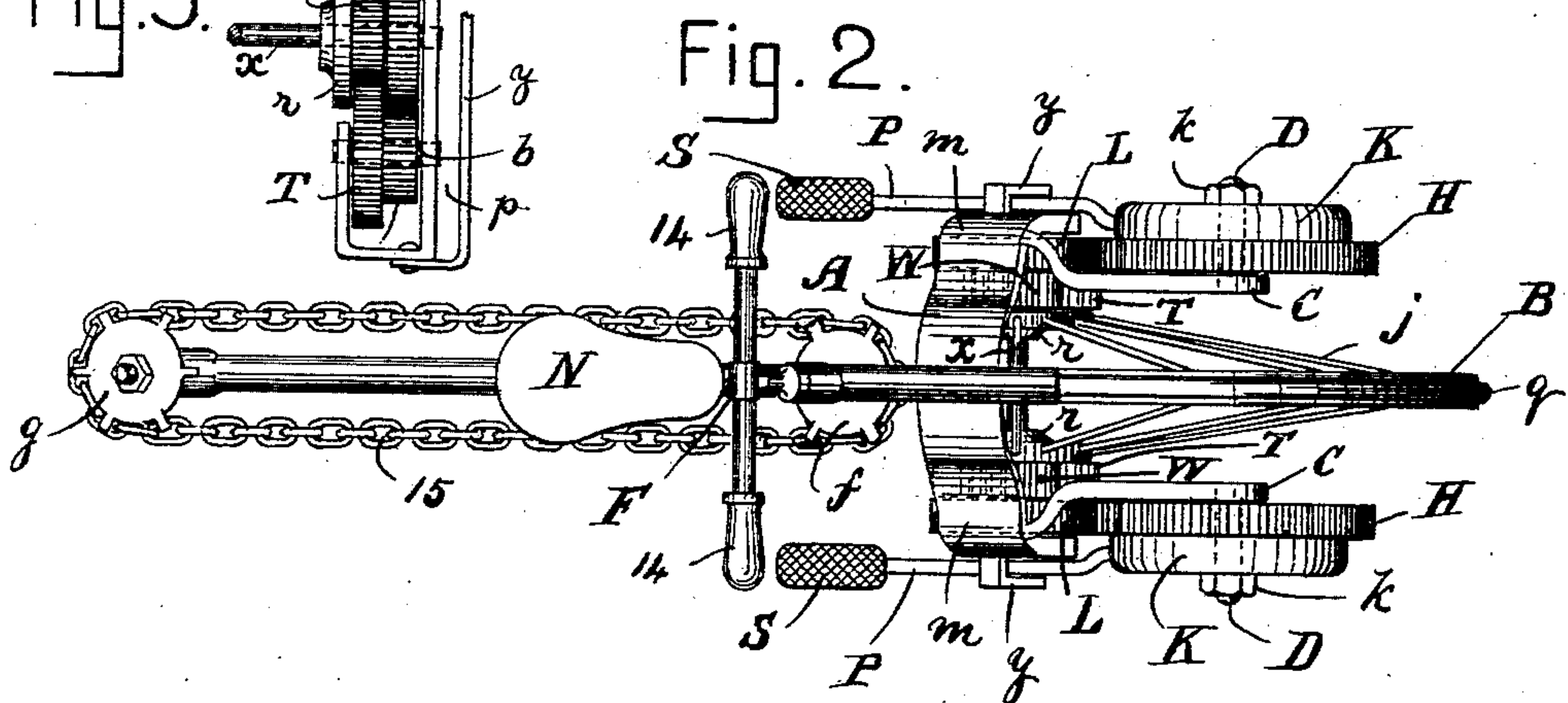
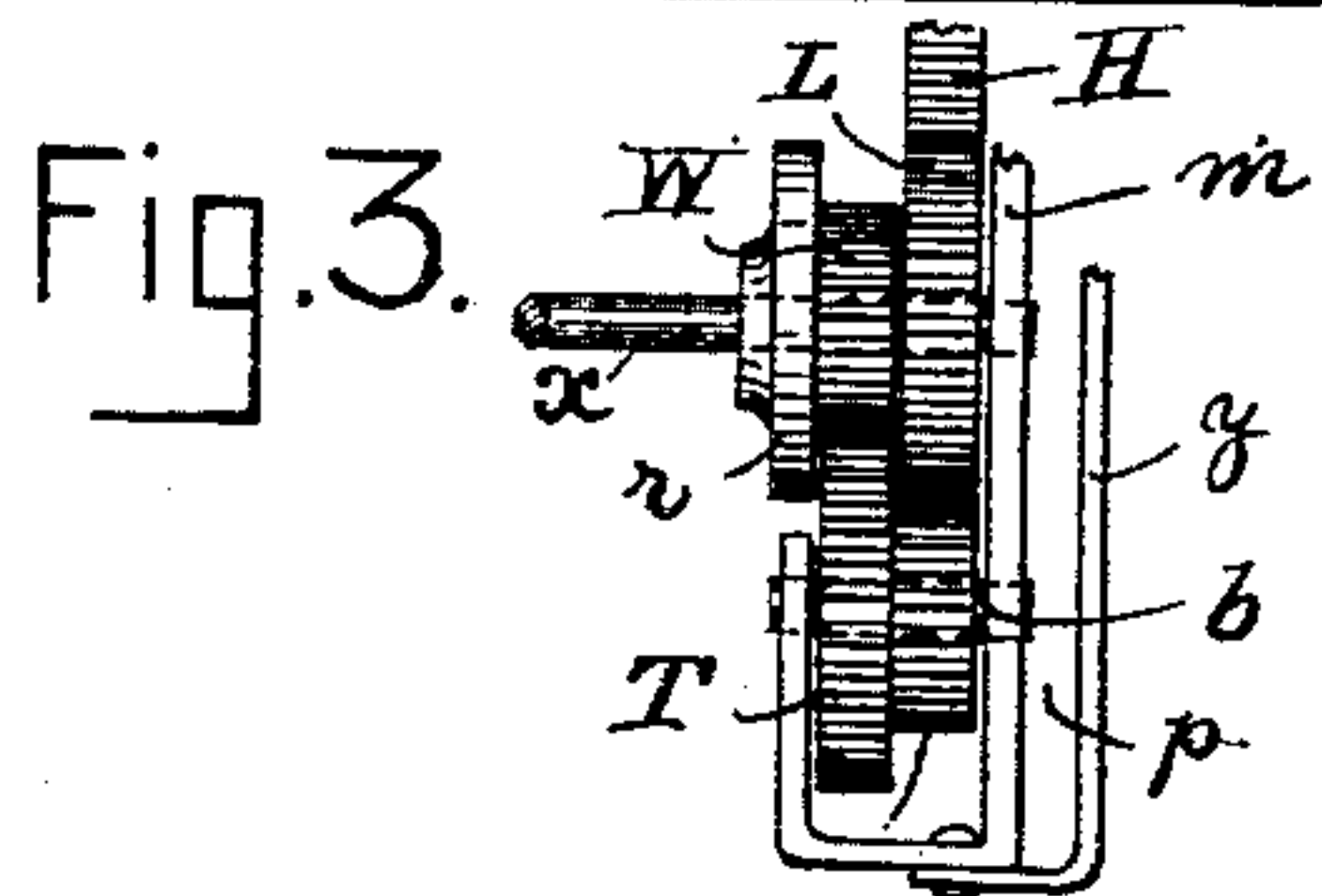
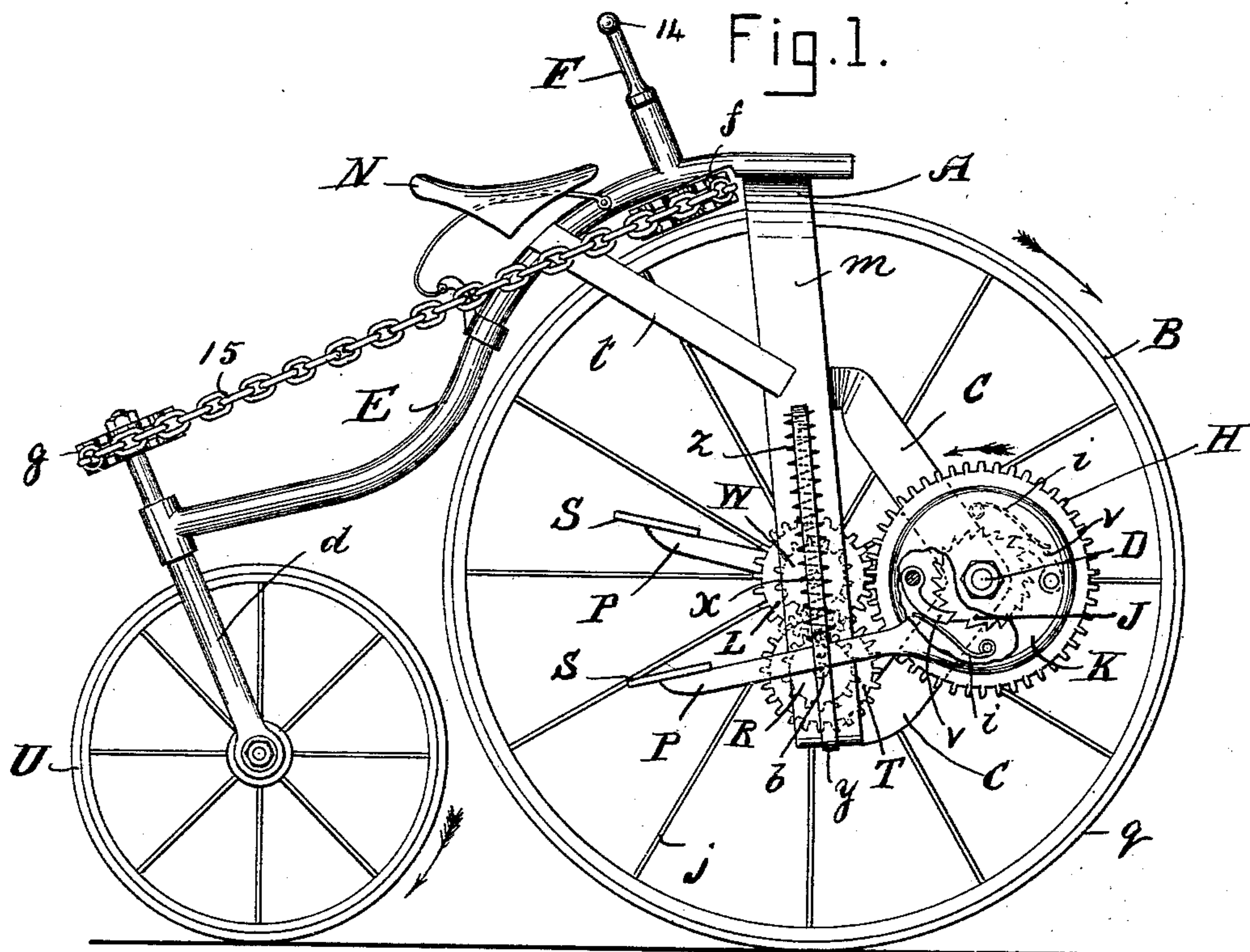
(No Model.)

G. M. COLLICUTT.

BICYCLE.

No. 370,450.

Patented Sept. 27, 1887.



Witnesses.

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# UNITED STATES PATENT OFFICE.

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## BICYCLE.

SPECIFICATION forming part of Letters Patent No. 370,450, dated September 27, 1887.

Application filed January 22, 1887. Serial No. 225,206. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE M. COLLICUTT, of the parish of Elgin, in the county of Albert, Province of New Brunswick, Canada, have invented a certain new and useful Improvement in Bicycles, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of my improved bicycle, a portion of the disk being represented as broken away to show the ratchet mechanism; Fig. 2, a top plan view of the same, and Fig. 3 a diagram showing the arrangement of the gears.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates more especially to that class of bicycles which are designed for racing purposes, being provided with means for greatly accelerating the speed; and it consists in a novel construction and arrangement of parts, as hereinafter more fully set forth and claimed, the object being to produce a more desirable and effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the body; B, the main or driving wheel; U, the steering-wheel, and E the backbone.

The body is composed of steel or similar material, and is provided with a downwardly-projecting leg, *m*, at either side of the wheel B, said legs being preferably formed integral with the body.

Projecting forward from each of the legs *m*, and rigidly attached thereto, there is a V-shaped bracket, C, and journaled on an outwardly-extending stub-shaft, D, at the apex of said bracket, there is a large gear-wheel, H.

As the ratchet mechanism, gears, and treadle on the right of the machine are precisely the same as those on the left, I will describe but one set, or that on the right, as shown in Fig. 1 of the drawings.

Journaled on the stub-shaft D, and secured rigidly to the outer face of the gear H, there is a ratchet-wheel, J. A dish-shaped disk, K, is also journaled on the shaft D, said disk, and also the gear H and wheel J, being kept in position on said shaft by a nut, *k*.

Pivoted on the inner face of the disk K, there are two actuating-pawls, *v*, provided with springs *i*, for holding them in engagement with the ratchet-wheel J. A horizontally-arranged arm, P, projects rearward from the disk K, said arm being formed integral with said disk, and provided at its outer or free end with a foot-piece, S, the arm and its foot-piece constituting the pedal.

The wheel B is constructed with hubs *r*, spokes *j*, and a rubber tire or band, *q*, in the usual manner, and is journaled on a horizontally-arranged axle, *x*, in the legs *m*, nearly opposite the stub-shaft D. Disposed on the outer end of said axle, between the hub *r* and leg *m*, there is a pinion, W, which is securely attached to said hub, and a gear, L, which is loose on the axle, said gear intermeshing with the larger gear, H.

Attached to the lower portion of the leg *m* there is a guard, *y*, between which and said leg the arm P works.

A horizontally-arranged inwardly-projecting stub-shaft, *b*, is disposed in the lower end of the leg *m*, said shaft being elongated or extended outwardly into the guard *y* to form a stop, *p*, for the arm P.

Journaled on the stub-shaft *b* there is a pinion, R, and gear T, which are securely fastened together, the pinion R intermeshing with the gear L on the axle *x* and the gear T with the pinion W, attached to the hub *r*.

The backbone E of the machine is secured at its forward end to the body A, and provided with lateral braces *t*, connected with the legs *m*.

Journaled in a nearly-vertical position in the rear end of the backbone there is a shaft, *d*, bifurcated at its lower end and provided at its upper end with a sprocket-wheel, *g*, the steering-wheel U being journaled in the forks of said shaft in the usual manner.

A bar, F, is journaled in a nearly-vertical position in the forward portion of the backbone, said shaft being provided at its upper end with handles 14, and its lower end being



elongated and provided beneath the backbone with a sprocket-wheel, *f*, corresponding with the wheel *g*, said wheels being connected by an endless chain-belt, 15. A seat, *N*, is disposed on the backbone at the rear of the handle.

Attached by its lower end to the treadle-arm *P* there is a coiled spring, *z*, the upper end of which is secured to the upper portion of the guard *y*, said spring acting contractively to elevate the treadle-arm after being depressed by the foot of the rider. Any suitable spring for this purpose may, however, be employed. The pawls *v* being engaged with the ratchet-wheel *J* and said wheel secured to the gear *H*, it will be obvious that, in the use of the vehicle, when the treadle-arm *P* is depressed the gear *H* will be partially revolved on the stub-shaft *D* in the direction of its arrow, and that when said treadle-arm is released and drawn upward by the spring *z* the disk will be partially revolved in the reverse direction of said arrow, dragging the pawls *v* over the teeth of the ratchet-wheel *J*, and enabling them to engage said wheel in a new position preparatory to repeating the operation.

The gear *H* being larger than the gear *L*, with which it intermeshes, the gear *L* larger than the pinion *R*, with which it intermeshes, and the gear *T* larger than the pinion *W*, with which it intermeshes, it will be obvious that the speed throughout the train will be multiplied in proportion to the difference in the diameters of the gears and pinions, thus greatly accelerating the speed of the bicycle. The pedal-arm *P*, being arranged to project beyond the rear of the legs *m*, enables the seat *N* to be placed in a lower position on the backbone than is possible in bicycles of the ordinary construction, thereby preventing the accidents which so frequently result from "headers" in the machines now in use.

I do not confine myself to placing the steering-wheel *U* at the rear of the main driving-wheel *B*, as it may be placed in front of the driving-wheel, if desired; neither do I confine myself to placing the main gear-wheel *H* in front of the body *A*, as it may be placed at the rear of the same, if preferred, the pedal-arms *P* being arranged to project to the front of the legs *m*, instead of to the rear of said legs, as shown. The disk *K* and arm *P*, being formed integral or cast in one piece, may be very cheaply constructed, said disk also covering the pawls and ratchet-wheel and preventing

the same from coming into contact with the clothing of the rider.

Having thus explained my invention, what I claim is—

1. In a bicycle, the gear-wheel *H*, with ratchet-wheel *J*, rigidly secured thereto, the dish-shaped disk *K*, having the pedal-arm *P* formed integral therewith, said disk also provided with a spring-pawl, and the said gear-wheel *H* and disk *K* mounted on shaft *d*, and the nut *k*, securing said gear-wheel and disk on said shaft, in combination with the bracket *C* and leg *m*.

2. The combination, with the body *A*, the bracket *C*, with shaft *D*, having mounted thereon gear-wheel *H*, and disk *K*, said gear having a rigid ratchet-wheel, *J*, and said disk provided with a spring-pawl, and also having the pedal-arm *P* formed integral therewith, of the leg *m*, having shafts *x b*, said shaft *x* having hub *r*, with pinion *W* secured thereto and gear-wheel *L* loosely mounted thereon, and said shaft *b*, having gear *T* and pinion *R* secured together, substantially as described.

3. In a bicycle, the combination, with the arm *C*, the shaft *D*, with dish-shaped disk *K*, having the spring-pawl, the pedal-arm *P*, integral with said disk, and the gear-wheel *H*, having rigid ratchet-wheel *J*, also mounted on shaft *D*, of the arm *m*, having shafts *x b*, with gears and pinions *L T R W*, and the guard *y*, having coiled retracting-spring *z* secured at its upper end, the lower end of said spring connected to the pedal-arm *P*, substantially as described.

4. The combination, with the arm *m*, the bracket *C*, the shaft *D*, journaled in said bracket and having mounted thereon the gear *H* and disk *K*, the said gear having the rigid ratchet-wheel *J* and said disk having the spring-pawl, and the pedal-arm *P*, integral with said disk, of the guard *y*, secured to the arm *m*, and the coiled spring *z*, connected at its upper end to said arm, its lower end connected to the pedal-arm *P*, as shown and described, and for the purpose set forth.

5. In a bicycle of the character described, the stub-shaft *b*, carrying the gear *T* and pinion *R*, said shaft being elongated to form a stop, *p*, for the treadle-bar *P*, substantially as set forth.

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Witnesses:

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