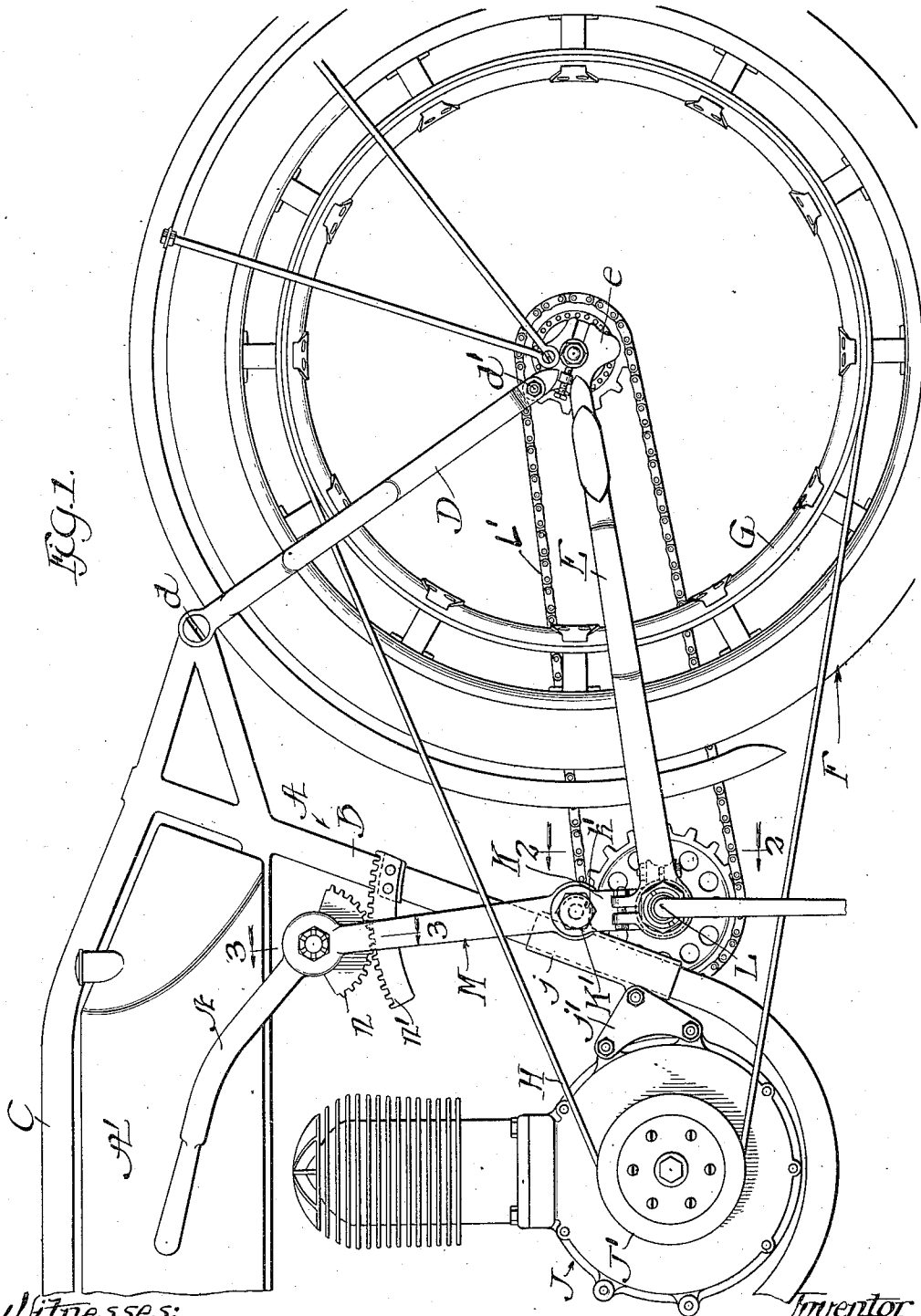


MOTOR CYCLE.

Patented Dec. 26, 1911.

3 SHEETS--SHEET 1.

Fig. 1.



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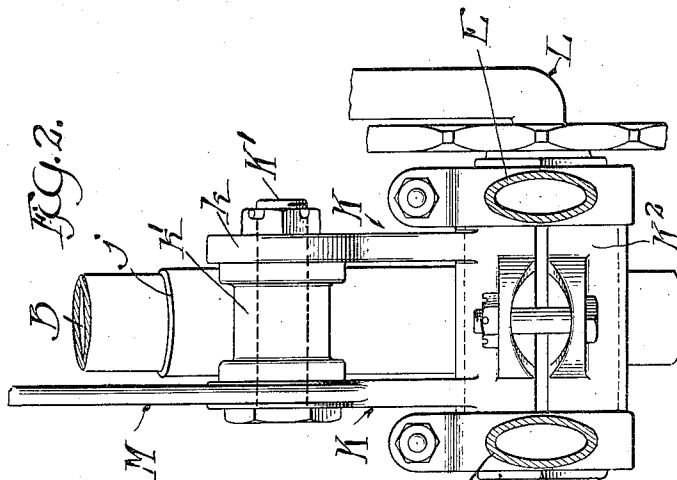
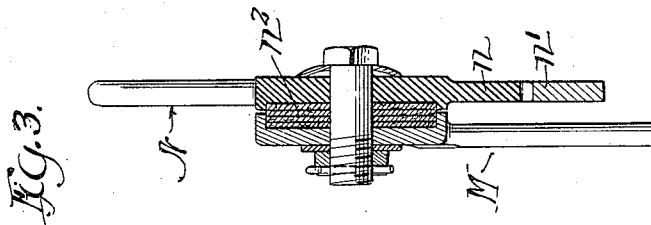
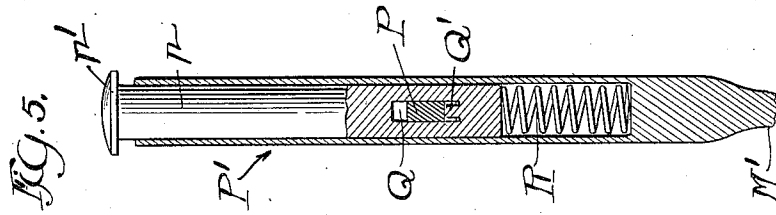
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MOTOR CYCLE.

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3 SHEETS—SHEET 2.

1,012,873.



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MOTOR-CYCLE.

1,012,873.

Specification of Letters Patent.

Patented Dec. 26, 1911.

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To all whom it may concern:

Be it known that I, AXEL LEVEDAHL, a citizen of the United States, and a resident of Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Motor-Cycles; an I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improvement in belt driven motor-cycles, and more particularly to an improved means for loosening and tightening the driving belt of such a motor-cycle.

It consists of the matters hereinafter described and more particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a view in side elevation of a motor-cycle provided with my improvements. Fig. 2 is a partial section on an enlarged scale taken on the line 2—2 of Fig. 1. Fig. 3 is a partial section taken on the line 3—3 of Fig. 1. Fig. 4 is a side elevation similar to Fig. 1 showing a slightly modified form of the device. Fig. 5 is a partial section taken on the line 5—5 of Fig. 4.

In the drawings, A indicates the main frame, as a whole, which includes the seat post B and the horizontal frame member C.

D indicates rear stays and E E the rear fork arms.

F is the rear wheel; G the driven pulley mounted thereon, and J the motor which is mounted on the main frame and has its driving pulley J¹ connected by a belt H with the pulley G. Said motor is shown as connected with the seat post by means of a sleeve *j* on the seat post and a bracket *j*¹ connected to said sleeve.

The rear stays D are pivotally connected at their upper ends to the rear end of the horizontal frame member C by means of a pivot bolt *d* and at their lower ends with the rear end plates *e* of the rear fork arms E by means of pivot bolts *d*¹.

K is an arm which has pivotal connection at its upper end with the main frame and at its lower end with the forward ends of the rear fork arms. The arm K also carries at its lower end the bearing for the pedal shaft L. Said arm is provided with

bifurcations *k* at its upper end which embrace and are pivotally connected to a lug *k*¹, preferably formed integral with the sleeve *j* which supports the motor. Said parts are connected by means of a pivot bolt K¹. At the lower end of said arm K is formed a transverse bearing sleeve K² through which passes the hanger-sleeve K³, containing the bearings for the pedal-shaft L. The rear fork arms E E are provided at their forward ends with enlarged, apertured parts which surround and are clamped upon the ends of said hanger-sleeve K³. The said sleeve K³ thus forms a rigid connection between the fork-arms, at their forward ends, and by reason of its being adapted to turn in the sleeve K² affords the necessary pivotal connection between the arm M and the said fork-arms.

M is an upwardly projecting operating lever which is made rigid with the arm K. In this instance it is shown as an integral prolongation of one bifurcation *k* of the arm K. To the upper end of said lever is pivotally connected an operating arm N which is provided with a segmental pinion *n* meshing with an arcuate rack *n*¹ rigidly secured to the seat-post B.

As a result of this construction, by swinging the arm N forward or backward, said arm will, through the pinion *n* and the rack *n*¹ move the upper end of the lever M forward or backward to swing the arm K on its pivot and swing its lower end away from or toward the motor pulley J. This movement will be communicated to the rear forks E and the rear wheel F, and thus increase or decrease the distance between the centers of the pulleys J¹ and G. This movement of the rear wheel is made possible by the pivotal connection of the stays D with the rear ends of the fork arms and the main frame, and the pivotal connection of the forward ends of said fork-arms with the arm K. It is apparent that the tension of the belt H may thus be readily controlled by means of the arm N.

In the construction illustrated in Figs. 1 and 3, the operating arm N and the lever M are pivotally connected by friction-inducing means so that the arm N and the lever M will remain fixed in the relative positions in which they are placed. Said friction-inducing means, as illustrated in Fig. 3, consist of friction washers *n*² inserted between

the adjacent parts of the arm N and lever M.

In that form of the device illustrated in Figs. 4 and 5, the operating lever M¹, is extended upward to about the level of the seat or the top of the frame, and is there provided with a spring-controlled pawl which engages a toothed rack P secured to the tank A¹. Said mechanism is constructed as follows: The upper end P¹ of the operating lever is made hollow to receive a plunger *p* provided at its upper end with a thumb-piece *p*¹. A slotted opening is cut through the lever and the plunger, and through said opening extends the toothed rack P. The plunger is provided with an upwardly projecting tooth Q¹ located in the slot Q which tooth is adapted to engage the teeth of the rack P and is normally held in engagement therewith by a helical spring R, located between the lower end of the plunger and the bottom of the bore of the lever. In this construction, the operating lever itself is grasped and directly manipulated to tighten or loosen the belt, the spring-controlled pawl serving to lock said lever in the desired position. By pressing on the thumb-piece *p*¹ at the top of the plunger, the pawl is released so that the lever may be shifted to a new position. The pedal-shaft L has driving connection with the rear wheel by means of sprocket-wheels on the said pedal-shaft and the rear wheel hub, and a chain belt L¹ trained over said sprocket wheels, in the usual manner. The pedal-shaft being mounted in the transverse sleeve K² of the arm K, has fixed relation to the rear wheel and is moved or shifted with the same in the act of loosening or tightening the driving belt.

I claim as my invention:—

1. In a belt driven motor-cycle, the combination of a motor, a main frame on which the motor is mounted, a rear wheel, a driven pulley connected therewith, a driving pulley having fixed relation to said main frame, a driving belt connecting said pulleys, a pedal-shaft having fixed relation to the rear wheel, frame members in which the rear wheel and pedal-shaft are mounted, said frame members having movable connection with the main frame by means permitting shifting movement of the same forwardly and backwardly relatively to the main frame, and means for shifting said frame members and holding them in shifted position.

2. In a belt driven motor-cycle, the combination of a motor, a main frame on which said motor is mounted, rear stays, rear fork arms, said rear stays being pivoted at their upper ends to the upper part of the main frame and at their lower ends to the rear ends of said fork arms, a rear wheel, a driven pulley connected with the same, a

driving pulley having fixed relation to said main frame, a belt connecting said pulleys and means connecting the forward ends of the rear fork arms with the main frame, affording backward and forward shifting movement of said fork-arms, and means for holding said fork arms in a desired position.

3. In a belt driven motor-cycle, the combination of a motor, a main frame on which the same is mounted, rear stays, rear fork arms, said stays being pivotally connected at their upper ends with the upper part of the main frame and at their lower ends to the rear ends of the rear fork arms, a rear wheel, a driven pulley connected therewith, a driving pulley having fixed relation with said main frame, a belt connecting said pulleys, an arm pivotally connected with the main frame and with the forward end of the rear fork, and means for swinging said arm to shift the rear fork arms forward or backward and for securing said arm in any desired position.

4. In a belt driven motor-cycle, the combination of a motor, a main frame on which said motor is mounted, rear stays, rear fork arms, said stays being pivotally connected at their upper ends to the upper part of the main frame and at their lower ends to the rear ends of the rear fork-arms, a rear wheel, a driven pulley connected with the same, a driving pulley having fixed relation with said main frame, a belt connecting said pulleys, an arm pivotally connected with the main frame and with the forward ends of the rear fork arms, an operating lever rigid with said arm, and means for holding said operating lever in any desired position.

5. In a belt driven motor-cycle, the combination of a motor, a main frame on which the motor is mounted, rear stays, rear fork arms, said stays being pivotally connected at their upper ends with the upper part of the frame and at their lower ends with the rear ends of the rear fork arms, a rear wheel, a driven pulley connected with the same, a driving pulley having fixed relation with said main frame, a belt connecting said pulleys, an arm pivotally connected at its upper end with the main frame, said arm being provided at its lower end with a transverse bearing sleeve, a hanger sleeve engaged with said bearing sleeve and with the forward ends of the rear fork arms, said hanger sleeve affording a pivotal connection between the said arm and the rear fork arms, and means for swinging said arm to tighten or loosen the belt, said means including means for retaining said arm in a desired position.

6. In a belt-driven motor-cycle, the combination of a motor, a main frame on which the motor is mounted, rear stays, rear fork arms, said stays being pivotally connected at their upper ends with the upper part of

the main frame and at their lower ends with the rear ends of the rear fork arms, a rear wheel, a driven pulley connected with the same, a driving pulley having fixed relation with said main frame, a belt connecting said pulleys, an arm pivoted at its upper end to the main frame and provided at its lower end with a transverse bearing sleeve, a hanger sleeve which extends through and is adapted to turn in said transverse bearing sleeve, said rear fork arms being provided at their forward ends with parts which surround and are secured to the ends of said hanger sleeve, and means for swinging said arm to tighten or loosen the belt, including means for holding said arm in a desired position.

7. In a belt driven motor-cycle, the combination of a motor, a main frame on which the motor is mounted, a rear wheel, a driven pulley connected therewith, a driving pulley having fixed relation to said main frame, a driving belt connecting said pulleys, a

pedal shaft having fixed relation to the rear wheel, frame members in which the rear wheel and pedal shaft are mounted, said frame members having movable connection with the main frame by means permitting shifting movement of the same forwardly and backwardly relatively to the main frame, and means for shifting said frame members, embracing an operating lever, an operating arm pivoted to said operating lever and engaging the main frame, and friction-producing means adapted to hold said operating arm in any position with relation to the operating lever in which it may be placed.

In testimony, that I, claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 20th day of July A. D. 1910.

AXEL LEVEDAHL.

Witnesses:

R. A. NORLING,
F. E. SPERRY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."