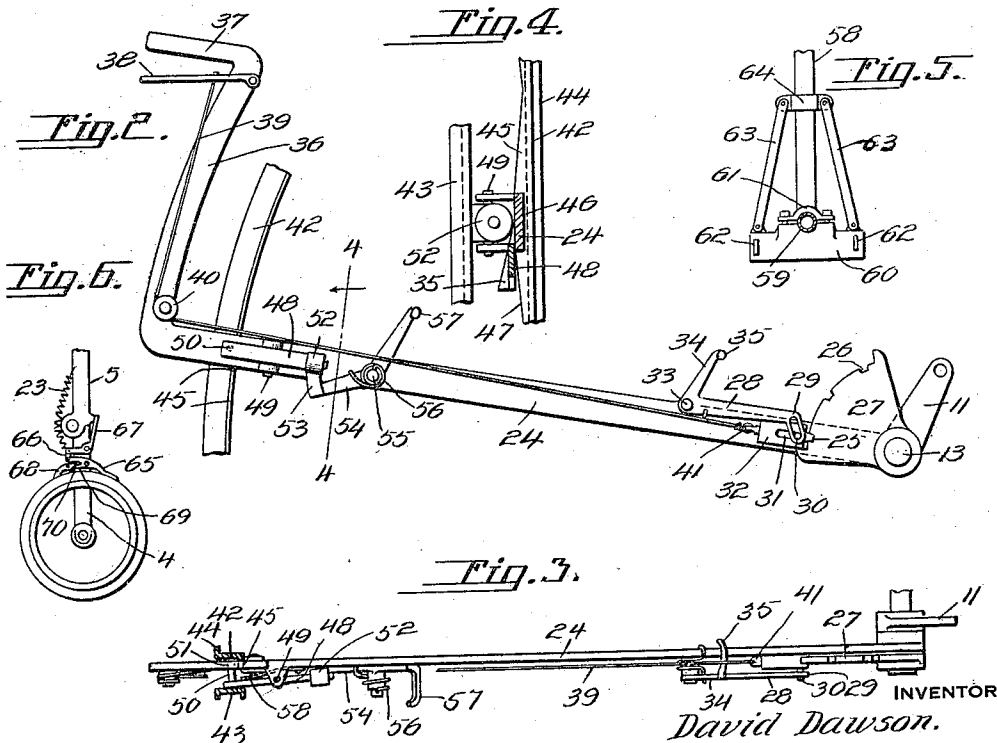
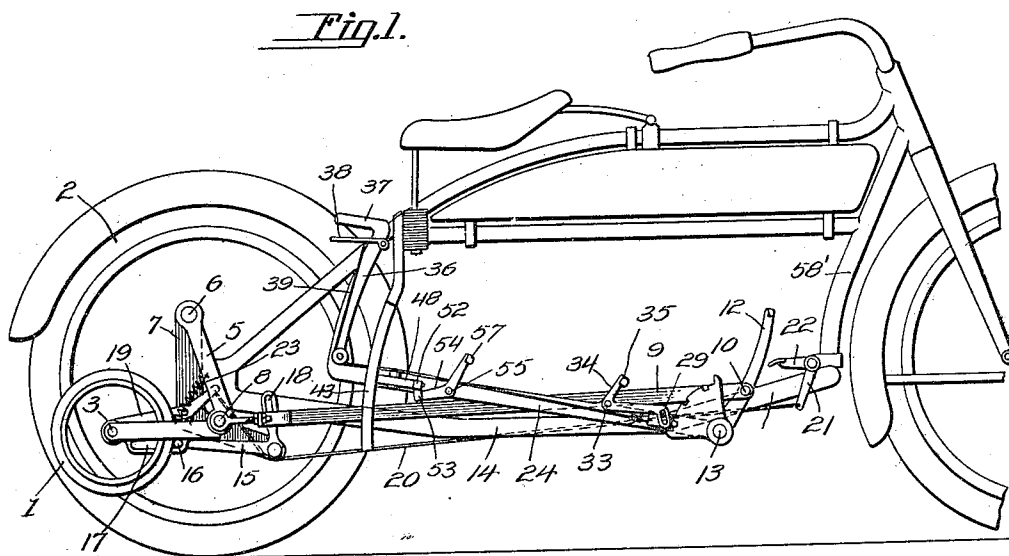


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 MOTOR CYCLE SUPPORTING, BALANCING, AND BRAKING MEANS.
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1,266,418.

Patented May 14, 1918.



WITNESSES

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DAVID DAWSON, OF ELMIRA, NEW YORK.

MOTOR-CYCLE SUPPORTING, BALANCING, AND BRAKING MEANS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, DAVID DAWSON, a citizen of the United States, residing at Elmira, in the county of Chemung and State of New York, have invented new and useful Improvements in Motor-Cycle Supporting, Balancing, and Braking Means, of which the following is a specification.

This invention relates to motor cycle supporting, balancing and braking means and is in the nature of an improvement and carrying forward of the construction and arrangement disclosed in my prior Patent Number 1,185,381, granted May 30, 1916.

One of the main objects of the present invention is to provide foot controlled means for releasing the lever used for raising and depressing the supporting and balancing wheels, termed in my prior patent and hereinafter referred to as ground wheels, the said means enabling said lever to be controlled entirely by the feet of the operator, while both hands remain on the handle bars, thereby adding materially to the safety of the operator.

Another object of the invention is to provide means whereby the latch which holds the wheel raising and depressing lever in relation to the rock shaft that is connected to the toggle arms, may be operated either by foot or by hand or by both according to the convenience of the operator.

Another object of the invention is to provide in conjunction with the braking means, a wheel scraping member which is automatically shifted to and from its working position simultaneously with and by means of the braking mechanism, which latter mechanism is also automatically controlled or thrown into and out of operation simultaneously with the raising and lowering of the ground wheels.

With the above and other objects in view, the invention consists in the novel construction, combination and arrangement of parts, herein described, illustrated and claimed.

In the accompanying drawings:—

Figure 1 is a side elevation of a motor cycle, omitting the motor and driving connections, showing the present improvements in their applied relation thereto.

Fig. 2 is an enlarged side elevation of the wheel raising and depressing lever, and the parts carried thereby and intimately associated therewith.

Fig. 3 is a top plan view of the same, showing the guiding and holding means for said lever.

Fig. 4 is an enlarged fragmentary section on the line 4—4 of Fig. 2 looking in the direction of the arrow.

Fig. 5 is fragmentary vertical transverse section taken adjacent to the hanger of the rock shaft, showing the manner of mounting said hanger in relation to a motor cycle frame of a different make from that shown in Fig. 1.

Fig. 6 is a fragmentary side elevation, showing the braking mechanism and the scraping member cooperating therewith.

Referring to the drawings 1 designates a pair of supporting and balancing wheels hereinafter designated as ground wheels, there being two of such wheels located one at each side of the driving wheel 2 of the motor cycle. Each of the ground wheels 1 is journaled at 3 in the lower member 4 of a set of toggle arms, the other member 5 of the toggle arms being pivotally supported at its upper end at 6 on a hanger 7 which may either be an integral part of the frame of the motor cycle or formed separately therefrom and fastened in fixed relation thereto. The toggle arms are connected together by a pivot 8 and the joint between the toggle arms 4 and 5 is adapted to break in a forward direction as shown in Fig. 1, the movements of the toggle arms being controlled by pull and thrust bars 9 which extend from the pivots 8 forward to a point near the front of the machine where they are connected by pivots 10 to arms 11 and 12 extending upwardly from a rock shaft 13 mounted in a shaft hanger fastened to the bottom bars 14 of the motor cycle frame. The arm 12 is extended above the pivot 10 and forms a foot lever by means of which the shaft 13 is rocked for the purpose of shifting the toggle arms 4 and 5 into longitudinal alinement with each other for the purpose of depressing the ground wheels 1.

15 designates a pair of bell crank levers the longer arms of which have pins, projections or rollers 16 which move in slots 17 extending longitudinally of the lower toggle arms 4, the shorter arms of said bell crank levers being formed with longitudinal slots 18 to engage projections on the pull and thrust bars 9, said bell crank levers thus serving to assist in raising and depressing the

ground wheels 1 by co-acting with the toggle arms, as in my prior patent referred to. 19 represents the pivoted dogs for upholding the ground wheels in the carrying position thereof illustrated in Fig. 1, said dogs being controlled by flexible connections 20 extending to a dog tripping lever 21 having a pedal arm 22. Between the toggle arms 4 and 5, there are placed contractile springs 23 attached at their opposite extremities to said toggle arms and serving to assist in returning the ground wheels 1 to their carrying positions. All of the mechanism hereinabove described is substantially the same as that set forth in my prior patent referred to.

In carrying out the present invention, the ground wheel raising and depressing lever 24 is mounted loosely at one end on the shaft 13 hereinabove referred to and is adapted to be locked to and unlocked from the shaft 13 by means of a latch 25 which is carried by the lever 24 and is slidable into and out of engagement with one or more notches 26 in a segment 27 which is fast on the shaft 13. The latch 25 is controlled either by hand or by foot. 28 designates a foot lever having one end thereof formed with a slot 29 which receives a pin 30 on the latch 25, the pin 30 working in a slot 31 in a latch housing 32 secured to one side of the lever 24. The lever 28 is pivotally mounted on the lever 24 as shown at 33 and comprises an upwardly extending arm 34 with a pedal extension 35 against which the operator presses his foot in order to withdraw the latch 25 from engagement with the rack or segment 27 preparatory to shifting the latch 25 to another notch 26.

At its free end, the lever 24 is shown as provided with an upward extension 36 terminating at the top thereof in a hand grip 37. Pivotaly connected to the extension 36 is a hand latch lever 38 from which a flexible connection 39 such as a wire or cable extends around a guide 40 on the lever 24 to the latch 25 to which it is connected at 41. The latch 25 is of the spring type and is normally pressed toward and held in engagement with the rack or segment 27. It will thus be seen that the latch may be withdrawn from engagement with the rack or segment 27 either by the foot lever 28 or the hand lever 38 and the connections between said hand and foot levers and the latch are such that they do not interfere with one another, enabling either or both to be used according to the convenience of the operator. In some cases the extension 36 of the lever 24 may be omitted, as where the operator does not require the hand latch lever 38 and prefers to always control the latch 25 by means of the foot lever 28. In such event the lever 24 may terminate at the junction between the main body of the lever and the extension 36 thereof.

The lever 24 is movable adjacent to its free end between a pair of arcuate guides 42 and 43 which are fastened in any suitable manner to the frame of the motor cycle. The guide 43 is shown as of channel iron formation. The guide 42 has two flanges 44 and 45 extending from opposite sides of the edges thereof as indicated in Figs. 3 and 4. The flange 45 is formed with one or more notches 46 and the flange 45 is formed with inclined portions or edges 47 which are highest adjacent to the notch or notches 46. The lever 24 is adapted to ride against the inclined edges 47 and snap by its own resiliency into any notch 46 which it reaches in the movement of said lever.

The means for releasing the lever 24 from the notched flange 45 which in reality constitutes a holding rack for the lever 24, embodies a rocker arm 48 which is mounted on a pivot 49 extending transversely of the lever 24. One end of the rocker arm 48 carries a pin 50 which passes through a hole 51 in the lever 24 and rests against the guide 42. The other end of the rocker arm 48 carries a roller 52 with which coöperates a wedge 53 on one end of a two-armed trip lever 54 mounted upon a pivot 55 carried by the lever 24 and yieldingly held in the position shown in Fig. 2 by means of a spring 56. The lever 54 is provided with a pedal extension 57 upon which the operator presses his foot. The rocker arm 48 is held in the position shown in Fig. 3 by means of a spring 58, said rocker arm being shown in its inoperative position in Fig. 3. It will now be seen that by pressing upon the pedal extension 57, the wedge 53 is forced upwardly between the lever 24 and the roller 52, pressing said roller away from the lever 24 and pressing the pin 50 hard against the guide 42. As said guide 42 cannot move, the pivot 49 is moved away from said guide 42 but as said pivot 49 is carried by the lever 24, said lever is thereby pressed away from the guide 42, carrying the lever 24 out of the notch 46 in which it has been held locked. The lever 24 may now be raised or lowered, turning on the shaft 13 as a center. When the lever 24 is locked to the shaft 13 by means of the latch 25, as said lever 24 is raised or depressed, the shaft 13 will be turned in a corresponding direction thereby pulling or pushing on the bars 9 which in turn coöperate with the toggle arms 4 and 5 to raise or lower the ground wheels 1, the operation being the same as in my prior patent referred to.

In the type of motor cycle shown in Fig. 1, there are two bottom frame bars 14 which extend forwardly and are united to the head bar 58'. In other types of motor cycles there is only a single central bottom bar 59 (see Fig. 5). In such case, the shaft hanger 60 for the rock shaft 13 will be extended to op-

posite sides of said bottom frame bar 59 and may be secured thereto by any suitable means such as a clamp or clip. Braces 62 will be extended from the hanger 60 rearwardly to the bottom frame bar 59 in rear of the hanger 60, and other braces 63 will be extended from the opposite end portions of the hanger 60 upwardly to another clip 64 secured in fixed relation to the head bar 58. The hanger 60 for the shaft 13 may be formed either separately from the frame as shown in Fig. 5 or may be made a part of said frame at the time of manufacture of the motor cycle. The entire apparatus hereinabove described and shown has been illustrated with a view to the application thereof to motor cycles already in use.

In connection with the brake 65 employed in my said prior patent and operated by the link 66 and lever 67 cooperating with the toggle arms 4 and 5 and automatically thrown into operation when said toggle arms are brought into substantially vertical alinement with each other as shown in Fig. 6 I employ a scraper 68, one of the members 65 or 68 being formed with a recess 69 and the other member being formed with a tongue 70 working in said recess, so that as the brake 65 is brought into engagement with the tire of the adjacent ground wheel 1, the scraper 68 is simultaneously brought into working engagement with the tire of said wheel, thereby removing or scraping from the tire any adhering matter in advance of the operation of the brake 65. By thus cleaning the tire, the brake is adapted to operate with better effect thereon and is enabled to bring the machine to a quicker stop.

The construction hereinabove described has been found very convenient in actual practice and enables motor cycles to be operated by ladies as well as gentlemen. The operator may release the latch 25 either by foot or by hand or by both foot and hand and may trip the lever 24 or in other words release the same from its locked position by foot pressure applied to the lever 54. While it is preferred to provide a sufficient number of notches 26 to admit of the ground wheels 1 being adjusted to three different positions as described in my said prior patent, I do not desire to be limited to any number of notches as the member 27 may be provided with one or more of said notches. Likewise one or more notches 26 may be provided for holding the wheel raising and depressing lever 24 in one or several positions. Neither do I desire to be limited to the particular types or kinds of springs 56 and 58 herein shown. Such changes as those just referred to, and others, may be made without departing from the principle or sacrificing any of the advantages of the invention. It is also to be understood that the improved features hereinabove described may be applied to a bi-

cycle or in other words a machine not equipped with a motor, as well as a motor cycle.

I claim:—

1. In a motor cycle, ground wheels arranged at opposite sides thereof, means permitting said wheels to be raised and lowered, means controlled from the driver's seat for raising and depressing said wheels, the last named means comprising a wheel raising and depressing lever, a guide for said lever having a notch therein for said lever, foot operable means carried by said lever for pressing the same out of said notch, said foot operable means comprising a rocker arm pivotally mounted on said lever, a wedge cooperating with one end of said rocker arm, a projection on the other end of said rocker arm working through an opening in said lever and engaging said guide, and yieldable means for holding said rocker arm in a non-releasing position.

2. In a motor cycle, ground wheels arranged at opposite sides thereof, means permitting said wheels to be raised and lowered, means controlled from the driver's seat for raising and depressing said wheels, the last named means comprising a wheel raising and depressing lever, a guide for said lever having a notch therein for said lever, foot operable means carried by said lever for pressing the same out of engagement with said notch, said foot operable means comprising a rocker arm pivotally mounted on said lever, a trip lever having a wedge cooperating with one end of said rocker arm, a projection on the other end of said rocker arm working through an opening in said lever and engaging said guide, and yieldable means for holding said trip lever in a non-releasing position.

3. In a motor cycle, ground wheels arranged at opposite sides thereof, means permitting said wheels to be raised and lowered, means controlled from the driver's seat for raising and depressing said wheels, the last named means comprising a laterally flexible wheel raising and depressing lever, a fixed guide for said lever having a notch therein into and out of which said lever is movable, and means carried by said lever for pressing the same out of said notch, a rock shaft, connecting means between said wheel raising and depressing lever and said rock shaft comprising a notched segment fast on said rock shaft, a latch carried by said lever, and foot controlled means on said lever for withdrawing said latch from the segment with which it cooperates.

4. In a motor cycle, ground wheels arranged at opposite sides thereof, means permitting said wheels to be raised and lowered, means controlled from the driver's seat for raising and depressing said wheels, the last named means comprising a wheel raising

and depressing lever, a guide for said lever having a notch therein for said lever, means carried by said lever for pressing the same out of engagement with said notch, connecting means between said wheel raising and depressing lever and said rock shaft, comprising a notched segment fast on said rock shaft, a latch carried by said lever, foot controlled means on said lever for withdrawing said latch from the segment with which it coöperates, a hand latch lever, and flexible connecting means between said hand latch lever and the latch.

5. In a motor cycle, ground wheels arranged at opposite sides thereof, means permitting said wheels to be raised and lowered, means controlled from the driver's seat for raising and depressing said wheels, the last named means comprising a wheel raising and depressing lever, a guide for said lever having a notch therein for said lever, means carried by said lever for pressing the same out of engagement with said notch, connecting means between said wheel raising and depressing lever and said rock shaft, comprising a notched segment fast on said rock shaft, a latch carried by said lever, foot controlled means on said lever for withdrawing said latch from the segment with which it coöperates, a hand latch lever, and flexible connecting means between said hand latch lever and the latch, the hand controlled and

foot controlled means for operating said latch being operable independently and selectively.

6. In a motor cycle, ground wheels arranged at opposite sides thereof, means permitting said wheels to be raised and lowered, means controlled from the driver's seat for raising and depressing said wheels, the last named means comprising a wheel raising and depressing lever, a guide for said lever having a notch therein for said lever, means carried by said lever for pressing the same out of engagement with said notch, and another guide arranged opposite and in spaced relation to the first named guide.

7. In a motor cycle, ground wheels arranged at opposite sides thereof, means permitting said wheels to be raised and lowered, means controlled from the driver's seat for raising and depressing said wheels including a wheel raising and depressing lever, toggle arms connecting said wheels with the frame and controlled by said lever, ground wheel brake members moved automatically into and out of engagement with the respective ground wheels by the movements of said toggle arms, and scraping members actuated by said brake members and also movable automatically into and out of contact with the respective ground wheels.

In testimony whereof I affix my signature.
DAVID DAWSON.

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