No. 796,222. PATENTED AUG. 1, 1905.

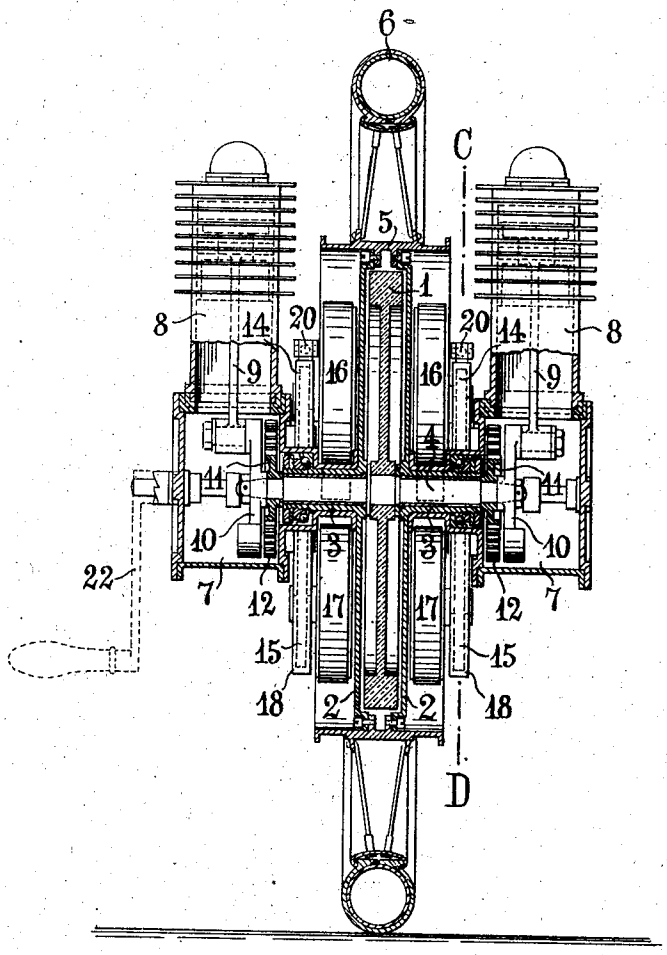
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MOTOR VEHICLE.

APPLICATION FILED JAN. 12, 1905.

4 SHEETS—SHEET 1.

Fig. 1



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4 SHEETS—SHEET 2.

Fig. 2

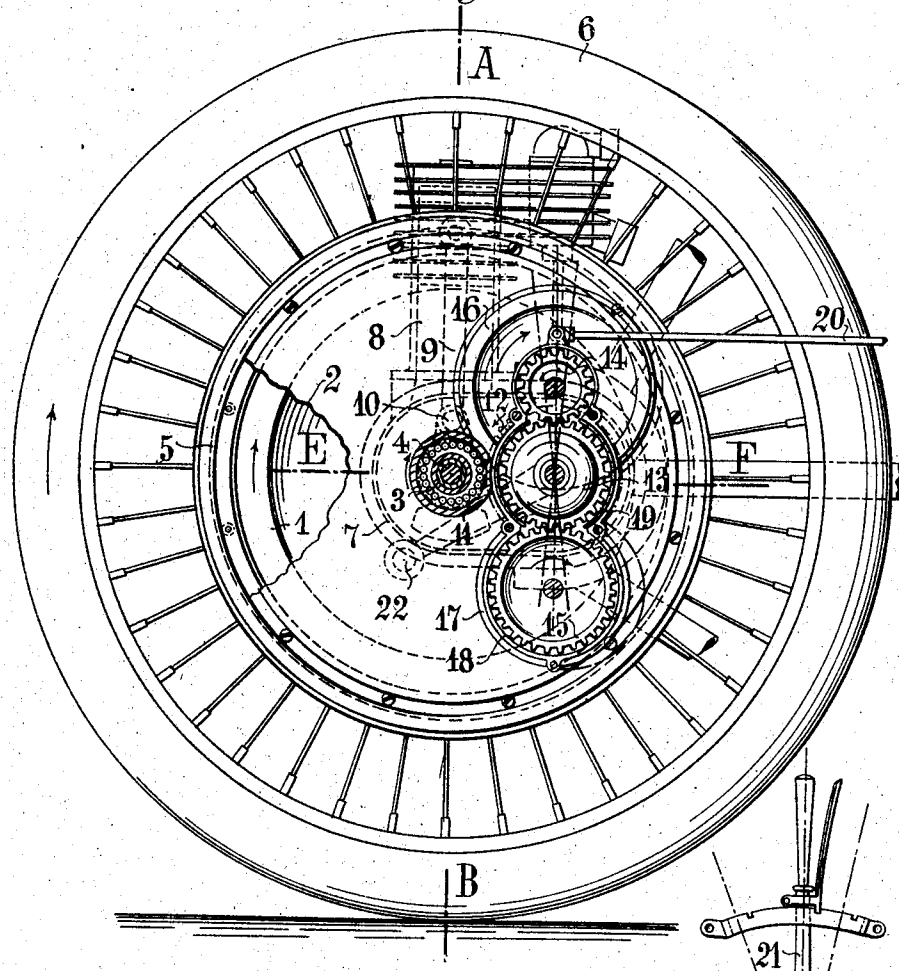
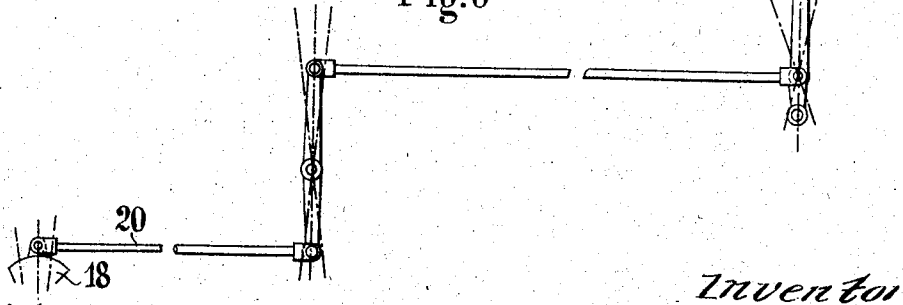


Fig. 6



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4 SHEETS—SHEET 3.

Fig. 3

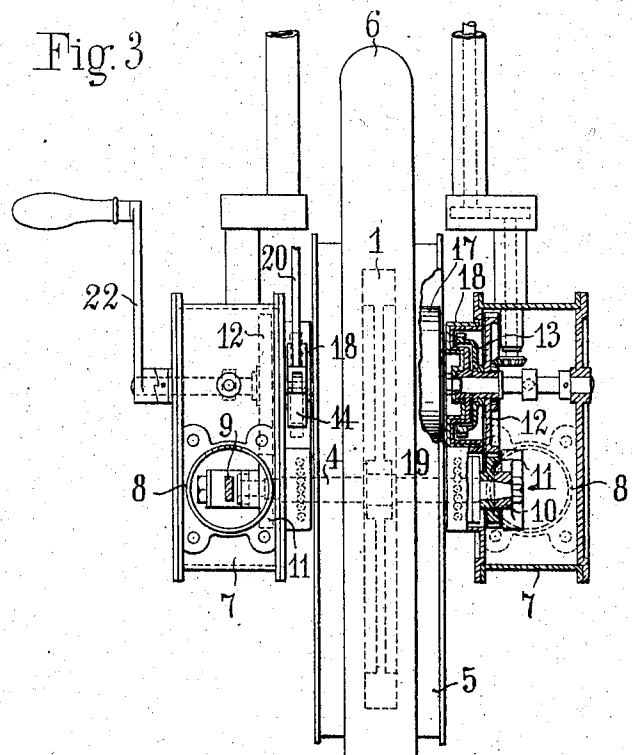


Fig. 4

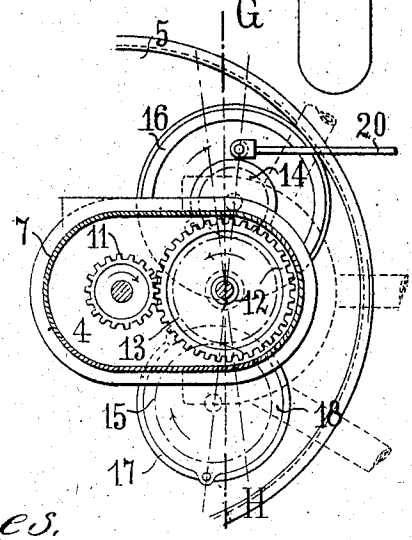
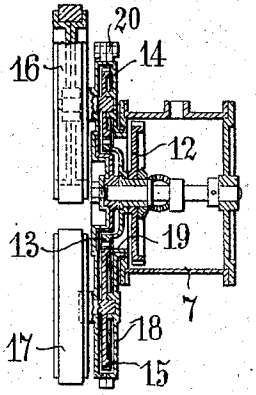


Fig. 5



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4 SHEETS—SHEET 4.

Fig. 7

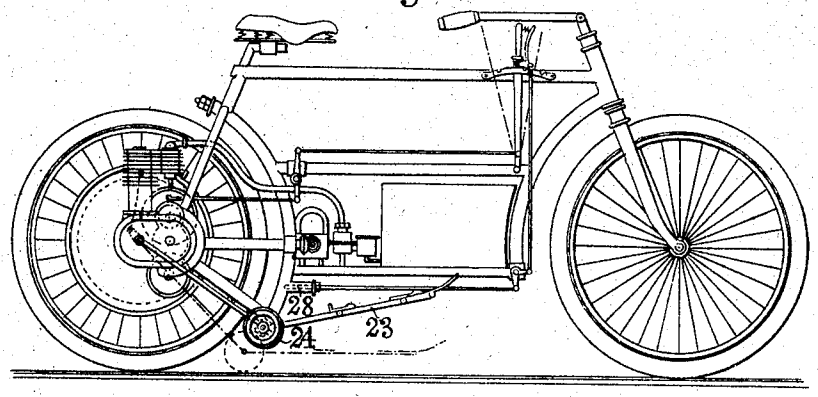


Fig. 8

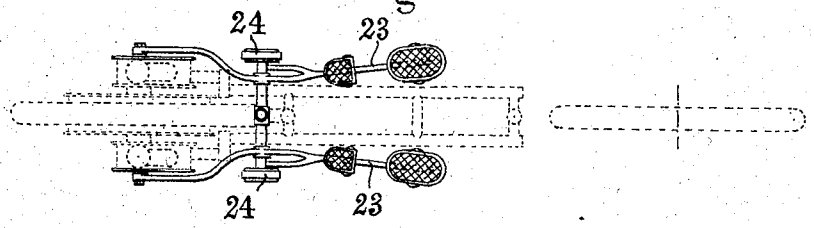
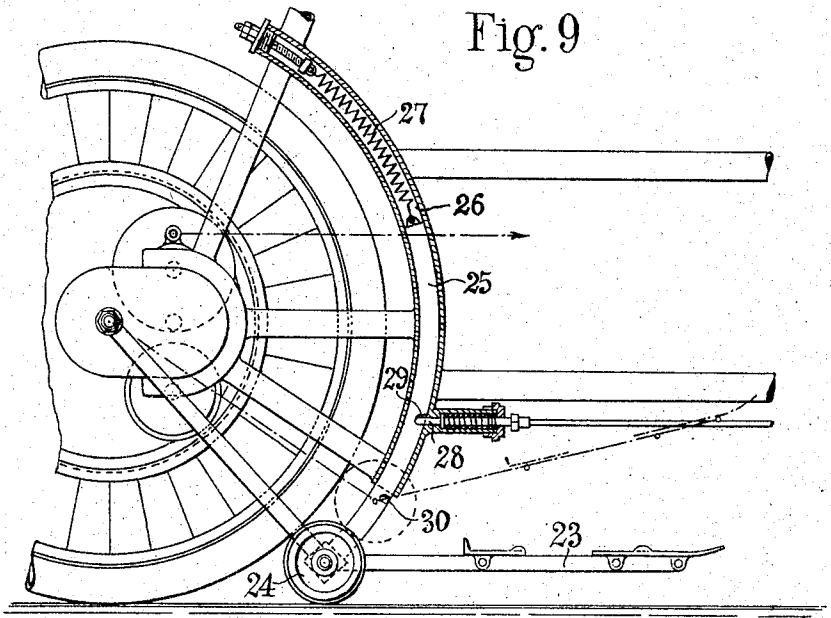


Fig. 9



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UNITED STATES PATENT OFFICE.

FELIX KARMELI, OF VIENNA, AUSTRIA-HUNGARY, ASSIGNOR TO MANUEL MAHN, OF VIENNA, AUSTRIA-HUNGARY.

MOTOR-VEHICLE.

No. 796,222. Specification of Letters Patent. Patented Aug. 1, 1905.

Application filed January 12, 1905. Serial No. 240,791.

To all whom it may concern:

Be it known that I, FELIX KARMELI, a subject of the Emperor of Austria-Hungary, residing at Vienna, Austria-Hungary, have invented certain new and useful Improvements in Motor-Vehicles, of which the following is a specification.

This invention relates to an improved construction in motor vehicles or cycles in which there is arranged centrally within a running-wheel a fly-wheel surrounded by a casing, the fly-wheel being situated in the middle plane of the running-wheel and free to be rotated independently thereof by means of laterally-arranged motors which act directly upon the axis of the fly-wheel. The rotation of this axis is transmitted through toothed gearing to frictional gears of different diameters and speeds of rotation. The said friction-gears are capable of engagement with the inner surface of a friction-ring which is connected to the running-wheel and the fly-wheel casing and which serves also as brake-wheel. By throwing into engagement the one or the other of the friction-gears the running-wheel whose tubular axis is mounted loose on the fly-wheel axis can be driven at a greater or less speed, while after disengagement of both the friction-gears the running-wheel can be at once brought to a standstill by braking without stopping the motors and the fly-wheel.

The above-described construction can be applied to only one running-wheel of a motor vehicle or cycle or to both or all the running-wheels. With two-wheeled motor-cycles the stability and safety in running are increased by the provision of a shiftable supporting device provided with rollers which in the lowered position come in contact with the ground.

I will describe the said invention with reference to the accompanying drawings, in which—

Figure 1 shows a vertical cross-section of a motor-cycle on line A B, Fig. 2, the cycle being provided, by way of example, with a driving-motor on each side of a running-wheel. Fig. 2 shows a side view of the running-wheel, partly in section, on line C D, Fig. 1. Fig. 3 is a plan view, partly in section, on line E F, Fig. 2. Fig. 4 shows the toothed transmission-gear and frictional gears in side view. Fig. 5 shows a section on line G H, Fig. 4. Fig. 6 shows a construction of the lever mechanism for throwing the friction-gears into or out of engagement. Fig. 7 shows to a smaller scale a complete side view of a two-wheeled motor-cycle constructed according to this invention. Fig. 8 shows a plan of the shiftable supporting device with the running-rollers. Fig. 9 shows a side view of the supporting device to a larger scale.

As will be seen from Figs. 1 to 3, the fly-wheel 1 is arranged centrally in the middle plane of the running-wheel. It is surrounded by a divided casing 2, in the bosses 3 of which the axis 4 of the fly-wheel is freely rotatable. The fly-wheel casing is fixed to a ring 5, which is connected by the wheel-spokes with the wheel-rim, provided with a pneumatic tire 6 or the like, or the ring 5 might itself be made to constitute the wheel-rim. The running-wheel is mounted upon the bosses of the fly-wheel casing, the ball-bearings thereof being situated in recesses in the sides of the casings 7, mounted on the cycle-frame. Upon the casings 7 are mounted on each side of the running-wheel the motor-cylinders 8, the pistons of which are connected by connecting-rods 9 to cranks 10, keyed upon the fly-wheel axis 4, so as to effect the rotation of the fly-wheel. Toothed pinions 11, fixed on each end of the fly-wheel axis, engage with toothed wheels 12, Figs. 3 to 5, which transmit the motion through toothed wheels 13 to toothed wheels 14 and 15 of different diameters, whereby friction-gears 16 16 and 17 17, fixed on the axes of 14 and 15, are rotated at different speeds. The toothed wheels 14 and 15 on each side are mounted in divided casings 18, which are shiftably mounted on rings 19, Figs. 2 and 5, projecting from the inner side of the casings 7 and surrounding the toothed wheels 13. Each casing 18 is connected, by means of a rod 20, in any suitable manner with a regulating-lever 21, Fig. 6, adjustably mounted on the motor-cycle, by means of which the casings 18 can be shifted on the before-mentioned ring, so as to bring the one or other pair of friction-gears 16 or 17 alternately in engagement with the inner surface of the ring 5. In the position of the friction-gears 16 and 17 shown at Fig. 2 neither of these are in engagement with the

ring 5 of the running-wheel, so that the rotation of the fly-wheel will not impart any motion to the running-wheel; but as soon as either of the friction-gears 16 or 17 is brought into engagement with the ring 5, as shown at Fig. 4, the fly-wheel axis will drive the running-wheel with a corresponding greater or less speed.

The starting of the motors—that is to say, the rotation of the fly-wheel axis—can be effected, as is usual with motor-cars, by the rotation of a crank-handle 22, Figs. 1, 2, and 3, which is temporarily mounted on the axis of one of the toothed wheels 12. The outer circumference of the ring 5 is arranged for the reception of a band-brake or other form of brake in the usual manner, whereby it is rendered possible after throwing the friction-gears out of engagement to bring the running-wheel at once to a standstill, notwithstanding the continued motion of the motors and the fly-wheel.

For increasing the stability and safety in running, the two-wheeled motor of the above-described construction is provided with a supporting device 23, which is preferably arranged to pivot on the axis of the running-wheel and which carries running-rollers 24, situated on each side of the running-wheel, as shown at Figs. 7 to 9. This supporting device can be raised or lowered and is for this purpose provided with an arc-shaped bar 25, Fig. 9, which can slide in the curved rear tubular bar 26 of the motor-frame and which is subject to the action of a spring 27. By means of a movable catch 28, which engages with one or other of the notches 29 and 30 of the bar 25, the supporting device can be fixed either in the raised or the lowered position. If the catch 28 be withdrawn by a suitable lever device when the support is in the raised position shown at Fig. 7, the latter can be pressed down by means of a pedal, as shown at 23, so as to bring the running-rollers on the ground, as at Fig. 9, the spring 27 being then put in tension. In this position the supporting device will be locked by the catch 28 engaging with the notch 29. On withdrawing the catch the supporting device will be brought back into the raised position by means of the spring 27. This arrangement enables the rider to bring the motor-cycle to a standstill with the supporting device lowered and also to start it again without the necessity of dismounting.

I claim—

1. A motor-vehicle comprising a running-wheel, a fly-wheel rotatable in the middle plane of and having its axis loosely supporting the running-wheel, laterally-arranged motors acting directly upon the axis of the fly-wheel, and frictional gearing actuated by the axis of the fly-wheel and adapted to engage the running-wheel for rotating it.

2. A motor-vehicle comprising a running-wheel, a fly-wheel rotatable in the middle plane of and having its axis loosely supporting the running-wheel, laterally-arranged motors acting directly upon the axis of the fly-wheel, a plurality of sets of shiftable differential frictional gearing actuated by the axis of the fly-wheel and adapted when shifted in one direction to engage the running-wheel for rotating it, and means for suitably shifting the said sets of gearing to engage the running-wheel.

3. A motor-vehicle comprising a running-wheel, a casing arranged within said wheel and provided with a pair of bosses, a fly-wheel within said casing and having its axis loosely journaled in said bosses, a ring connected with said casing, frictional gearing actuated by the axis of the fly-wheel and adapted to engage the said ring, thereby rotating the wheel, and ball-bearings for the said bosses.

4. A motor-vehicle comprising a running-wheel, a casing arranged within said wheel and provided with a pair of bosses, a fly-wheel within said casing and having its axis loosely journaled in said bosses, a ring connected with said casing, a plurality of sets of shiftable differential gearing actuated by the axis of the fly-wheel and adapted when shifted in one direction to engage the said ring, thereby rotating the wheel, means for suitably shifting said sets of gearing to engage the ring, and ball-bearings for the said bosses.

5. A motor-vehicle comprising a running-wheel, a fly-wheel rotatable in the middle plane of and having its axis loosely supporting the running-wheel, means acting upon the axis of the fly-wheel for rotating it, a plurality of sets of shiftable differential frictional gearing actuated by the axis of the fly-wheel and adapted when shifted in one direction to engage with the running-wheel for rotating it, and means for suitably shifting the said sets of gearing to engage with the running-wheel.

6. A motor-vehicle comprising a running-wheel, a casing arranged within said wheel and provided with a pair of bosses, a fly-wheel within said casing and having the axis thereof loosely journaled in said bosses, means acting upon the axis of the fly-wheel for rotating it, a ring connected with said casing, a plurality of sets of differential gearing actuated by the axis of the fly-wheel and adapted when shifted in one direction to engage said ring, thereby rotating the running-wheel, and means for suitably shifting said sets of gearing to engage the ring.

7. A motor-vehicle comprising a running-wheel, a casing arranged within said wheel and provided with a pair of bosses, a fly-wheel within said casing and having the axis thereof loosely journaled in said bosses, means acting upon the axis of the fly-wheel for rotating it, a ring connected with said casing, a plurality of sets of differential gearing actuated by the

axis of the fly-wheel and adapted when shifted in one direction to engage said ring, thereby rotating the running-wheel, means for suitably shifting said sets of gearing to engage the ring, and ball-bearings for said bosses.

8. A motor-vehicle comprising a running-wheel, a fly-wheel rotatable in the middle plane of and having its axis loosely supporting the running-wheel, shiftable frictional gear-wheels of different diameter actuated by the axis of the fly-wheel at different speeds, and means for alternately shifting said gear-wheels to engage with the running-wheel, thereby imparting motion to the latter.

9. In a motor-vehicle, the combination with a running-wheel, a fly-wheel rotatable in the middle plane of and having its axis loosely supporting the running-wheel, means engaging with the axis of the fly-wheel for rotating the latter, and frictional gearing actuated from the axis of the fly-wheel and engaging the running-wheel for rotating it, of an adjustable supporting device for said running-wheel, for the purpose set forth.

10. In a motor-vehicle, the combination with a running-wheel, a fly-wheel rotatable in the middle plane of and having its axis loosely supporting the running-wheel, means engaging with the axis of the fly-wheel for rotating the latter, and frictional gearing actuated from the axis of the fly-wheel and engaging the running-wheel for rotating it, of running-rollers suspended from the running-wheel, a spring-controlled guide-bar for said rollers, and means engaging said bar for retaining the running-rollers in their adjusted positions.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FELIX KARMELI.

Witnesses:
JOSEF RUBARCH,
ALVESTO S. HOGUE.