No. 748,506. PATENTED DEC. 29, 1903.

J. E. JORDAN.

SPRING MOTOR.

APPLICATION FILED OCT. 28, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

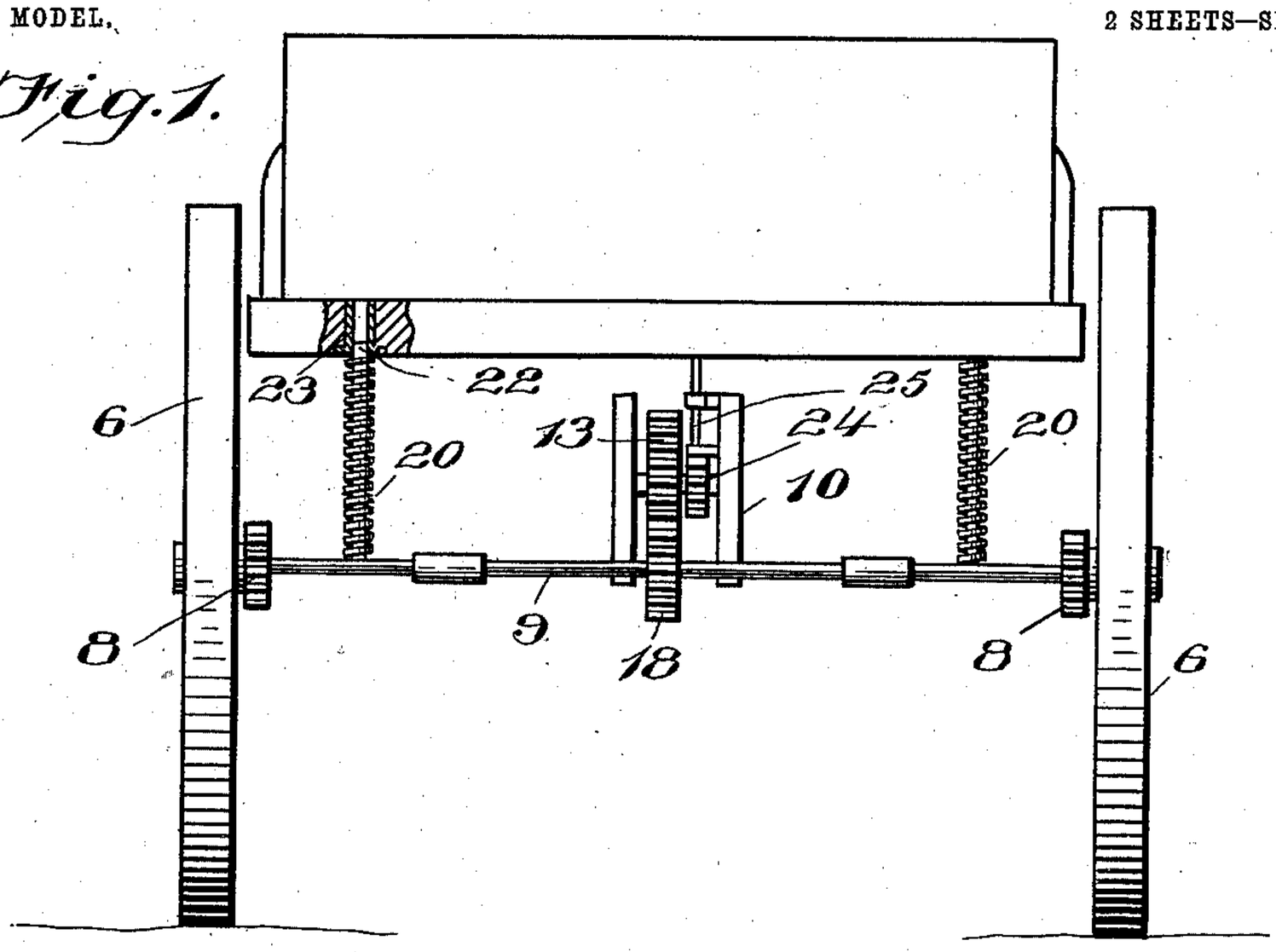
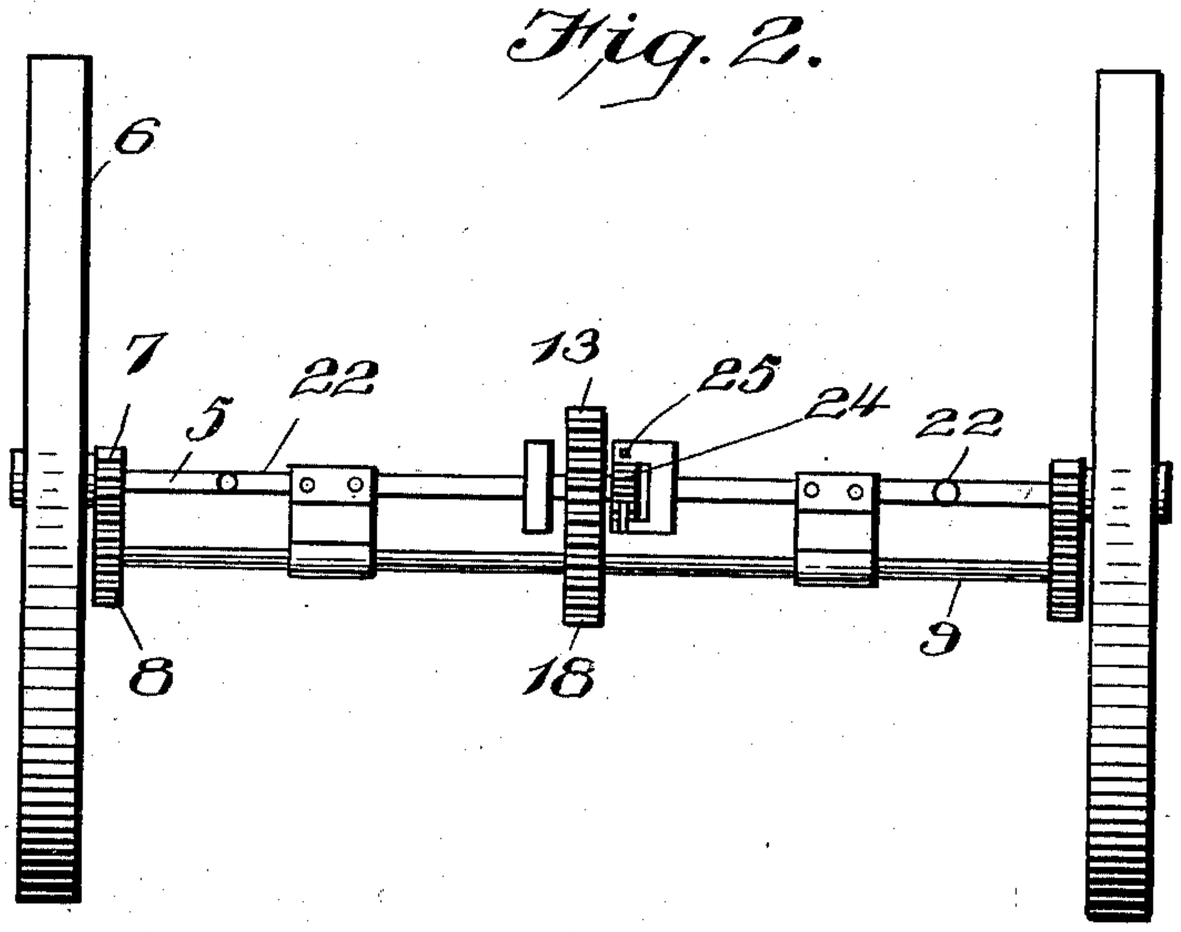


Fig. 2.



Witnesses

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

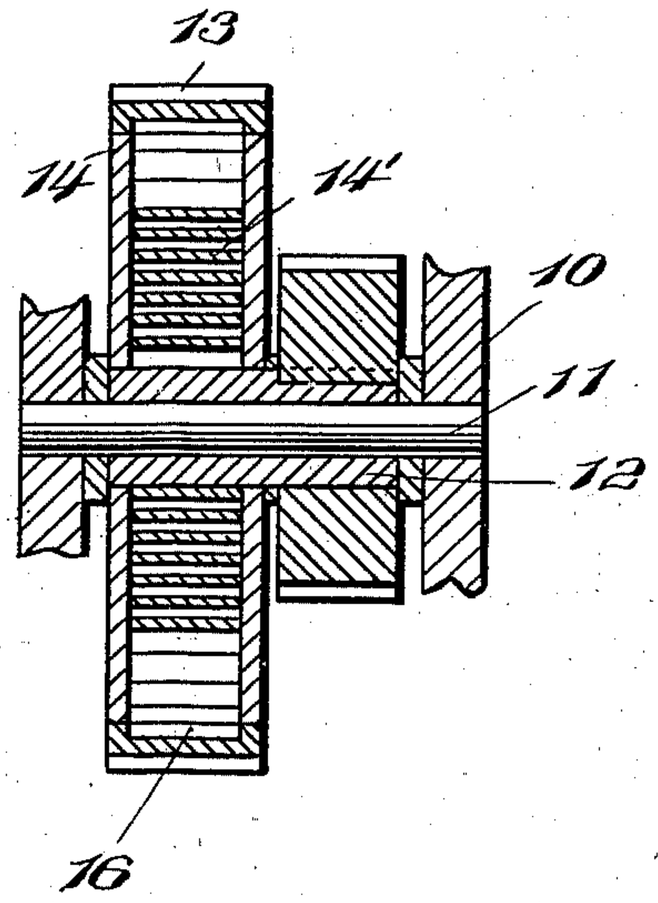


Fig. 5.

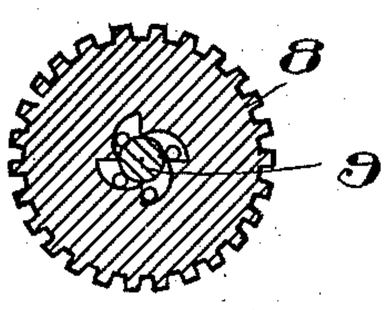
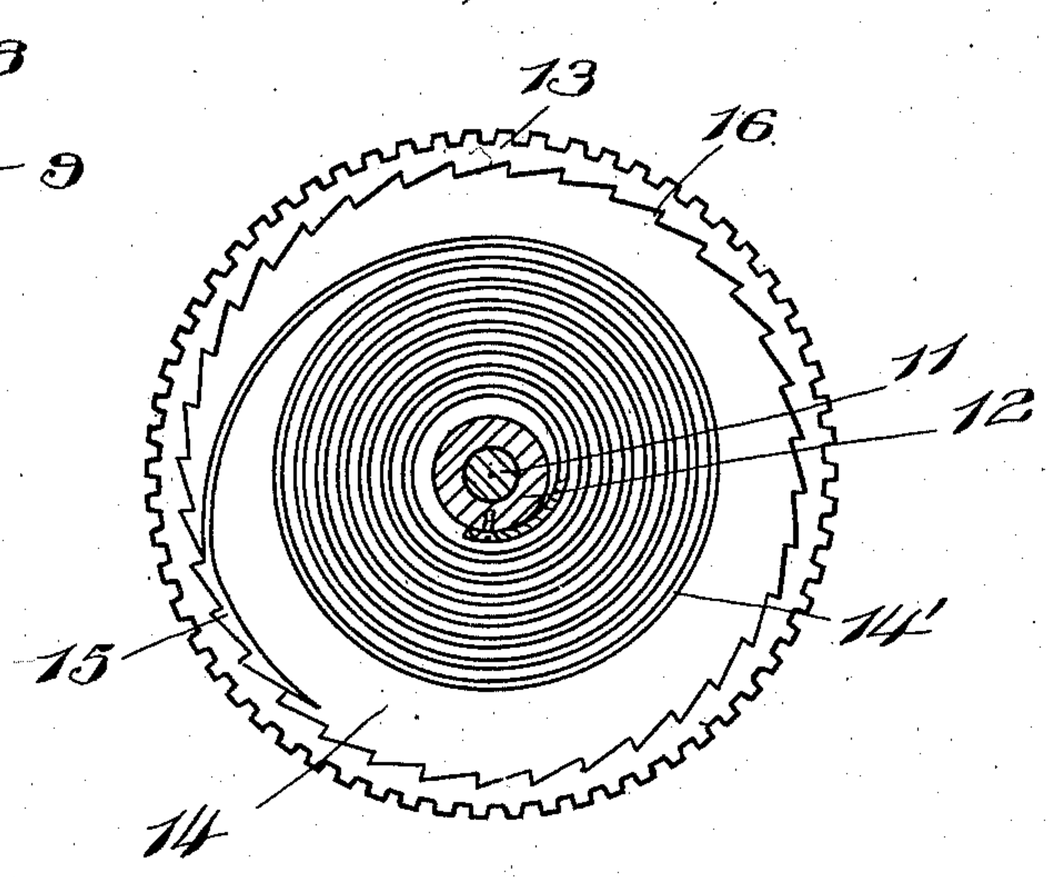


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOSEPH E. JORDAN, OF ANDALUSIA, ALABAMA, ASSIGNOR OF ONE-HALF TO MARCUS M. CHESTNUT, OF ANDALUSIA, ALABAMA.

SPRING-MOTOR.

SPECIFICATION forming part of Letters Patent No. 748,506, dated December 29, 1903.

Application filed October 28, 1902. Serial No. 129,085. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH E. JORDAN, a citizen of the United States, residing at Andalusia, in the county of Covington, State of Alabama, have invented certain new and useful Improvements in Spring-Motors; 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 motors for storing energy developed at certain times by a vehicle for use in the propulsion of the vehicle at other times or at the same time; and it has for its object to provide a construction and arrangement wherein the body of the vehicle will be spring-supported to permit of vertical movement thereof due to jolting of the vehicle and in which said movement will be utilized in the winding of a spring having connections with the driving-wheels of the vehicle to rotate or to assist in the rotation of them.

Other objects and advantages of the invention have reference to details of structure and will be understood from the following description.

In the drawings forming a portion of this specification, and in which like numerals of reference indicate similar parts in the several views, Figure 1 is a rear elevation of a wagon equipped with the present invention. Fig. 2 is a top plan view of the motor removed from the wagon. Fig. 3 is a vertical section in the plane of the axis of the spring-drum. Fig. 4 is a vertical section through the spring-drum at right angles to its axis. Fig. 5 is a section through the counter-shaft and one of the gears thereon.

Referring now to the drawings, there is shown a wagon including the rear axle 5, on which are rotatably mounted the wheels 6, said wheels having gears 7 at the inner ends of their hubs, with which are engaged gears 8 at the ends of a counter-shaft 9, said gears 8 having ratchet connections, as illustrated, with the counter-shaft, so that when the counter-shaft is rotated in one direction the wheels 6 of the wagon, which may be known as the "drive-wheels," are rotated to propel the wagon and when the drive-shaft is rotated in the opposite direction it will move independently of its gear-wheel. Thus the counter-shaft may be rotated to operate the drive-wheels; but when the counter-shaft remains stationary it will not preclude the rotation of the drive-wheel.

Mounted upon the axle of the wagon and held thereon by means of suitable clips is a frame 10, in which is fixed the shaft 11, having mounted thereon rotatably a drum 12, which at one end has mounted thereon a gear-wheel, including the web 13, which is provided with teeth, and the sides 14, which support the annular web and which sides engage the drum rotatably. Mounted upon the drum and fixed at its inner ends thereto is a spiral spring 14, at the outer end of which is a segmental pawl 15, having teeth which project outwardly and in the direction of unwinding of the spring. On the inner face of the web 13 of the gear-wheel are ratchet-teeth 16, so arranged that the movement of the pawl in the direction of unwinding of the spring will engage the teeth of the pawl with the teeth of the ratchet, so that the gear will be rotated by the spring; but when the spring is unwound and is no longer able to give motion to the gear said spring will not interfere with independent rotation of the gear. The teeth on the exterior of the web 13 engage a gear 18 on the counter-shaft, the parts being so arranged that when the spring is wound up the energy thereof will be imparted through the counter-shaft and the connected gearing to the drive-wheels.

The body of the wagon is mounted upon very resilient springs 20, which permit of maximum vertical movement of the body during the progress of the vehicle, the springs being disposed between the body-bolster 21 and the axle 5 and carried by the uprights 22, which engage suitable guides 23 in the bolster.

To utilize the vertical movement of the body of the wagon in the winding of the spring, the drum that carries the spring has at one end a ratchet-wheel 24, coöperating with which is a pawl 25, which is connected with the body-bolster, said pawl operating in a suitable guide in the frame 10, so positioned that when the free end of the pawl moves downwardly with the body it will engage the ratchet and

give it a partial rotation, the continued reciprocation of the pawl, as when the vehicle is passing over a rough road or rapidly over a smoother road, serving to rotate the drum to wind up the spring, which in its unwinding serves to rotate the driving-wheels of the vehicle. Return rotation of the ratchet-wheel when released by the pawl 25 is prevented by the retaining-pawl 26.

In practice modifications of the specific construction shown may be made, and any suitable materials or proportions may be used for the various parts without departing from the spirit of the invention.

What is claimed is—

1. A motor comprising a shaft, a drum fixed upon the shaft and having a spiral spring mounted thereon and fixed at its inner end thereto, said spring having a pawl at its outer end, a gear encircling the spring and having an internal ratchet with which the pawl cooperates to move the gear in the direction of unwinding of the spring, said gear being loosely mounted upon the shaft, a ratchet carried by the drum, a reciprocatory pawl in operative relation to the ratchet to rotate it, a retaining-pawl engaged with the ratchet, and a drive-shaft with which the gear is operatively connected.

2. The combination with a vehicle comprising driving-wheels having an axle and a body yieldably supported from the axle, of a spring-motor supported by the axle and operatively connected with the wheels and having a ratchet-wheel, of a spring-arm having a pawl at one end in operative relation to the ratchet and disposed in the path of movement of the body when its supporting-springs are compressed for movement thereby to operate the pawl.

In testimony whereof I affix my signature in presence of two witnesses.

JOSEPH E. JORDAN.

Witnesses:

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HENRY J. LAW.