

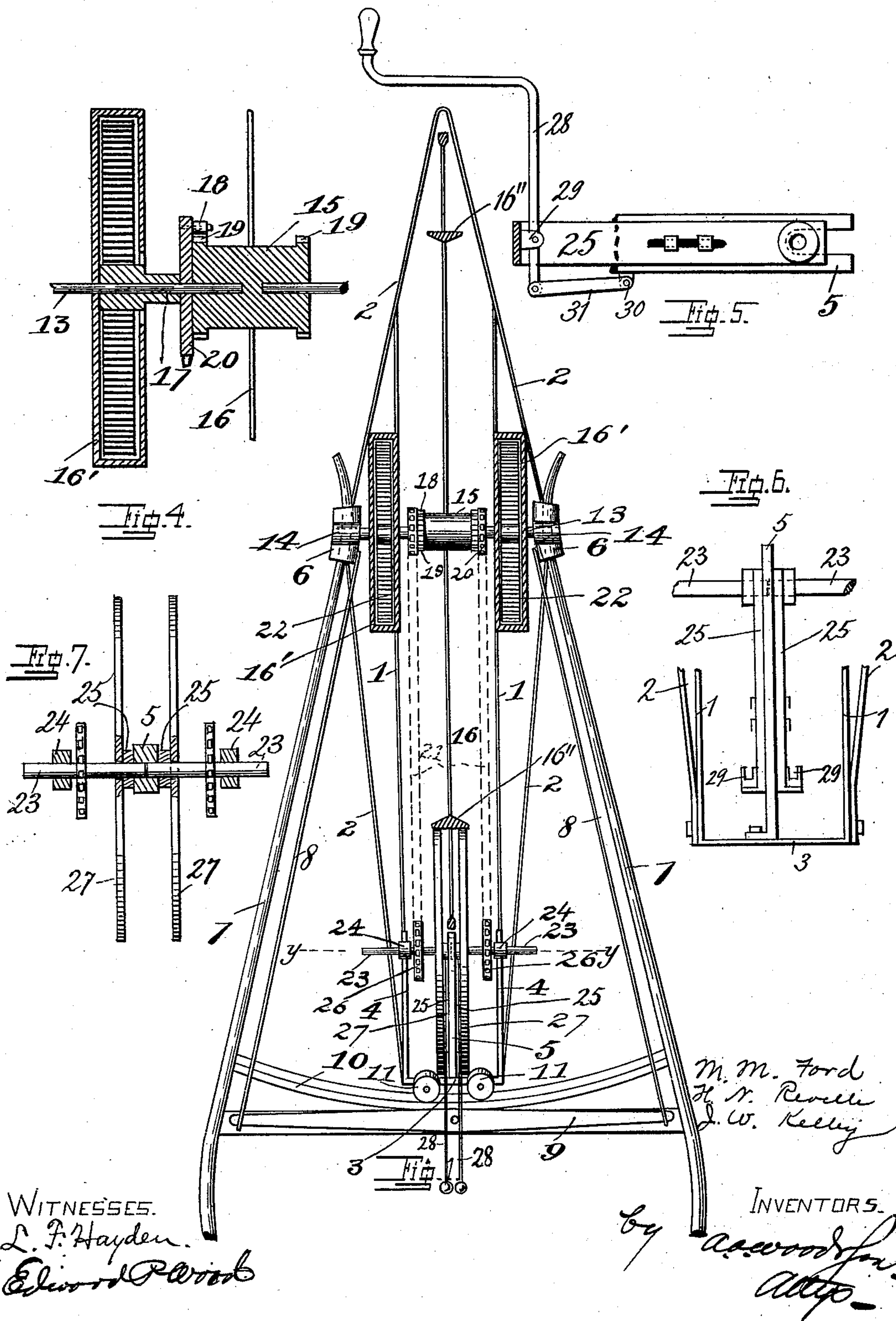
(No Model.)

2 Sheets—Sheet 1.

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TRACTION MOTOR.

No. 572,371.

Patented Dec. 1, 1896.



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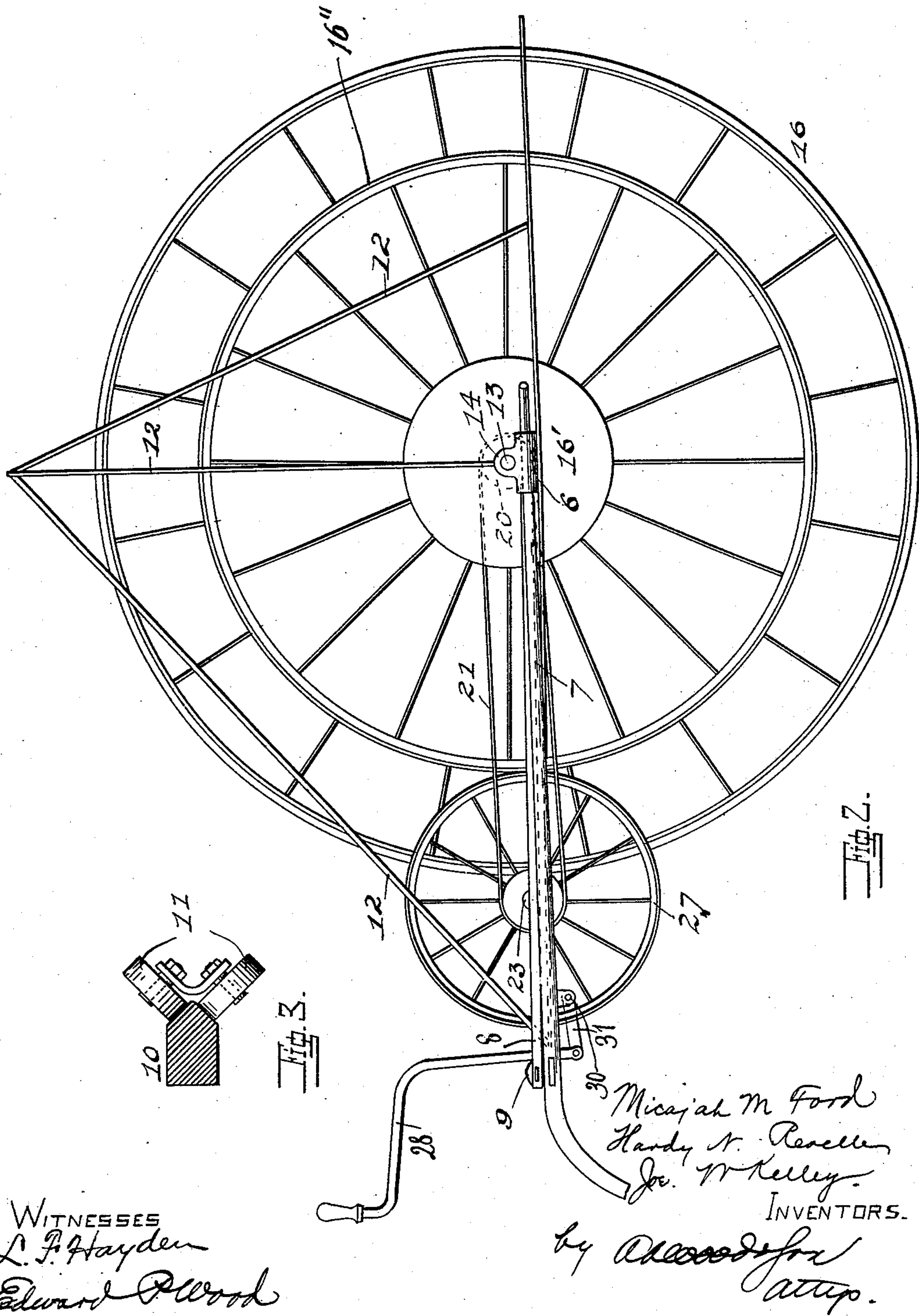
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# UNITED STATES PATENT OFFICE.

HARDY N. REVELLE, MICAJAH M. FORD, AND JOE W. KELLEY, OF  
BUCHANAN, GEORGIA.

## TRACTION-MOTOR.

SPECIFICATION forming part of Letters Patent No. 572,371, dated December 1, 1896.

Application filed September 1, 1894. Renewed November 4, 1896. Serial No. 611,073. (No model.)

*To all whom it may concern:*

Be it known that we, HARDY N. REVELLE, MICAJAH M. FORD, and JOE W. KELLEY, citizens of the United States of America, and residents of Buchanan, in the county of Haralson and State of Georgia, have made certain new and useful Improvements in Traction-Motors; and we 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, reference being had to the accompanying drawings, and to figures of reference marked thereon, which form a part of this specification.

The invention is illustrated in the accompanying drawings, as follows:

Figure 1 is a plan of the device, showing the principal working parts thereof. Fig. 2 is a side elevation thereof, further showing the construction. Fig. 3 is a detail of the device whereby the back end of the device is held in a horizontal plane. Fig. 4 is a sectional detail of the spring-barrel, the clutches, and the hub of the wheel. Fig. 5 is a detail in side elevation of the sliding bearings for one end of each of the shafts of the friction winding-wheels. Fig. 6 is an enlarged plan view of the back end of the frame and the slide-bars on the centrally-extending bar. Fig. 7 is a sectional view horizontally through the longitudinal center of the cross-bar 5.

In the figures like reference-marks are uniformly employed in the designation of corresponding elements of construction.

1 are the side pieces of the frame, which are arranged parallel to each other, and 2 are pieces of flat metal, which form a diamond-shaped frame, all of which is shown in Fig. 1, said frames being joined in some suitable manner and relative position, whereby the greatest amount of strength and rigidity possible is obtained. The back ends of the frames are jointly secured to and both frames completed by a bar 3, which should be of heavier metal than either bars 1 or 2. The bars 2 are stiffened by securing short bars 4 to the top of the same near the bar 3, so as to lie thereon, a second bar 5 being arranged between said bars 4 and parallel thereto and of sufficient length to receive a slide-bar on each

side, as will be hereinafter specified. Cuffs 6 are secured to the sides of the diamond-shaped frame and are provided with a comparatively large longitudinal perforation to receive the thills 7 (of ordinary construction) of a vehicle, said thills fitting very loosely therein. Said cuffs are held on the thills by means of straps or metal rods 8, extending from said cuffs to the singletree 9, pivotally mounted on the cross-bar of the thills, as usual. A segment 10 is secured between the thills just ahead of the singletree and has its front edge beveled to receive the rollers 11, carried at an angle to each other on the back end of the frame, or, more correctly speaking, revolvably secured to the bar 3 of the frame, said angle-rollers engaging, respectively, the upper and lower angles of the said segment and acting in conjunction therewith to guide and sustain the back end of the frame, preventing vertical movement thereof, preventing the sidewise tilting thereof, and at the same time guiding the said frame in its movement laterally in steering the device. The steering may be accomplished in many ways, notably by the use of a tiller.

The frame of the device may be braced in many ways, one of which is shown in Fig. 2, consisting of bars 12, joined to the side pieces of the frame at various places and conjoined at the top. If desired, one or more pairs of rods may be extended so as to be connected in "hitching up" to the thills, so as to brace the motor therein; but were the frame and motor thus held stationary relatively to the thills of the conveyance it is obvious that some other mode of steering than the one described would have to be adopted.

Two short shafts 13 are journaled in suitable bearing-boxes 14 on the cuffs 6 and extend inwardly, the hub 15 of the wheel 16 being mounted on the inner end of each and rigidly secured thereto in any suitable manner. Spring-casings 16' are mounted on the pieces 1 of the frame concentrically of said shafts, and the said shafts pass through and revolve freely in a central aperture therein. On the said shafts 15, at each side of the wheel so mounted as to revolve on said shafts regardless of the revolution of same, are sleeves 17, each of which carries on one end within the



spring-casings mandrels for the springs, and on their other ends are provided with pawls 18 for engagement with the teeth 19 on the ends of the hub 15 and sprocket-wheels 20, adapted to carry the link belt 21, the other end of which passes over the sprocket-wheels 26 on the shafts 23. One end of each of the springs 22 is secured to the inner side of the corresponding spring-casing, and its other end is secured to its mandrel, the clutch composed of the elements 18, 19, and 20 allowing the wheel 16 to revolve freely forwardly when descending a grade without revolving the sleeve 17, except through the wheels 27, shafts 23, and belts 21.

Two short shafts 23 are mounted in swivel bearing-boxes 24 on the bars 4, and their other ends are journaled in the sliding bars 25, Figs. 5 and 6. The sliding bars 25 are mounted one on each side of the bar 5, being independently movable longitudinally thereon, and hence it is plain that their movement will apply or retract the wheels 27 to or from the periphery of the flanges 16" on the wheel 16 either separately or simultaneously. In the construction shown these bars are moved by means of levers 28, fulcrumed on links 31, secured at their other ends to a lug on the bar 5 and pivotally connected with the bars 25, correspondingly situated, by means of clips 29. The upper ends of said levers 28 are curved so as to bring their ends within easy reach of the hand of the operator. The shafts 23 each carry a sprocket-wheel 26, adapted to receive the chain belt 21 and friction-wheels 27, which are in the same plane as the flanges 16" on each side of the wheel 16, and by means of the sliding bars 25 either may be brought into contact with the correlative flange at will.

To wind the device, connection by crank or otherwise is made with the outer ends of the shafts 23. This manner of winding is utilized in restoring the balance of power used over that restored by the self-winding elements hereinbefore described.

The operation of this device is as follows: The springs 22 are wound by means of a crank or other suitable connection with one or both of said shafts 23, according to the one of the said springs which it is desired to wind, the revolution of said shafts being communicated, through the wheels 26, belts 21, sprockets 20, and sleeves 17, to the said springs 22, the wheel 16 acting, due to its contact with the ground and through the engagement of the teeth 19 on its hub and the pawls 18, secured to the flanges of the sleeves 17, to prevent unwinding of said springs. Through this engagement the said wheel 16 is caused to revolve forwardly, obedient to the action of the springs, when the vehicle is released. When descending a grade, the revolution forwardly of the wheel 16 is caused to wind upon the springs 22 by pressing forwardly the bars 25 on each whereof is carried the inner end

of the corresponding one of the shafts 23, so that the friction-wheels 27 will contact with the flanges of the wheel 16 and so revolve the shafts 23 in a direction to wind the springs. The cuffs 6 fitting very loosely on the shafts of the vehicle, the rear end of the frame 2 may be swung in a horizontal plane to guide the device to either side of the roadway.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A frame, cuffs on said frame adapted to receive the shafts of vehicle, a traction-wheel, and straps adapted to connect said cuffs to the singletree, for the purpose specified.

2. A frame movably secured between the shafts of a vehicle, angle-rollers on its back end, and a segment secured to said shafts in such a position as to be traversed by said rollers as the frame moves, a traction-wheel mounted in said frame and a motor connected therewith.

3. A frame adapted to be secured to the thills of a vehicle, spring-barrels secured on said frame, two shafts mounted in bearings concentrically of and passing through said barrels, a wheel mounted on the contiguous ends of said shafts, sleeves revolubly mounted on said shafts, a spring thereon within each barrel and intermittent clutch mechanism carried on said sleeves and adapted to engage said hub in a direction applying the power stored in said spring to the wheel and means for winding said springs for the purpose specified.

4. A frame adapted to be secured to the thills of a vehicle, spring-barrels secured on said frame, two shafts mounted in bearings concentrically of and passing through said barrels, a wheel mounted on the contiguous ends of said shafts, sleeves revolubly mounted on said shafts, a spring thereon within each barrel, intermittent clutch mechanism carried on said sleeves and adapted to engage said hub in a direction applying the power stored in said spring to the wheel and means for winding said springs consisting of an annular flange concentrically on the traction-wheel, a friction-wheel adapted to contact with said flange and mounted in a sliding bearing, and a belt connecting said friction-wheel with the aforesaid sleeve, substantially as shown and for the purpose specified.

In testimony whereof we hereunto affix our signatures in presence of two witnesses.

HARDY N. REVELLE.

MICAJAH M. FORD.

JOE W. KELLEY.

Witnesses to the signature of H. N. Revelle:

A. P. WOOD,

M. M. FORD.

Witnesses to the signatures of said M. M. Ford and Joe W. Kelley:

W. D. STEWART,

W. C. KELLEY.