

No. 641,043.

Patented Jan. 9, 1900.

P. J. A. SCHNOOR.

AUTOMOBILE.

(Application filed Sept. 14, 1899.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.

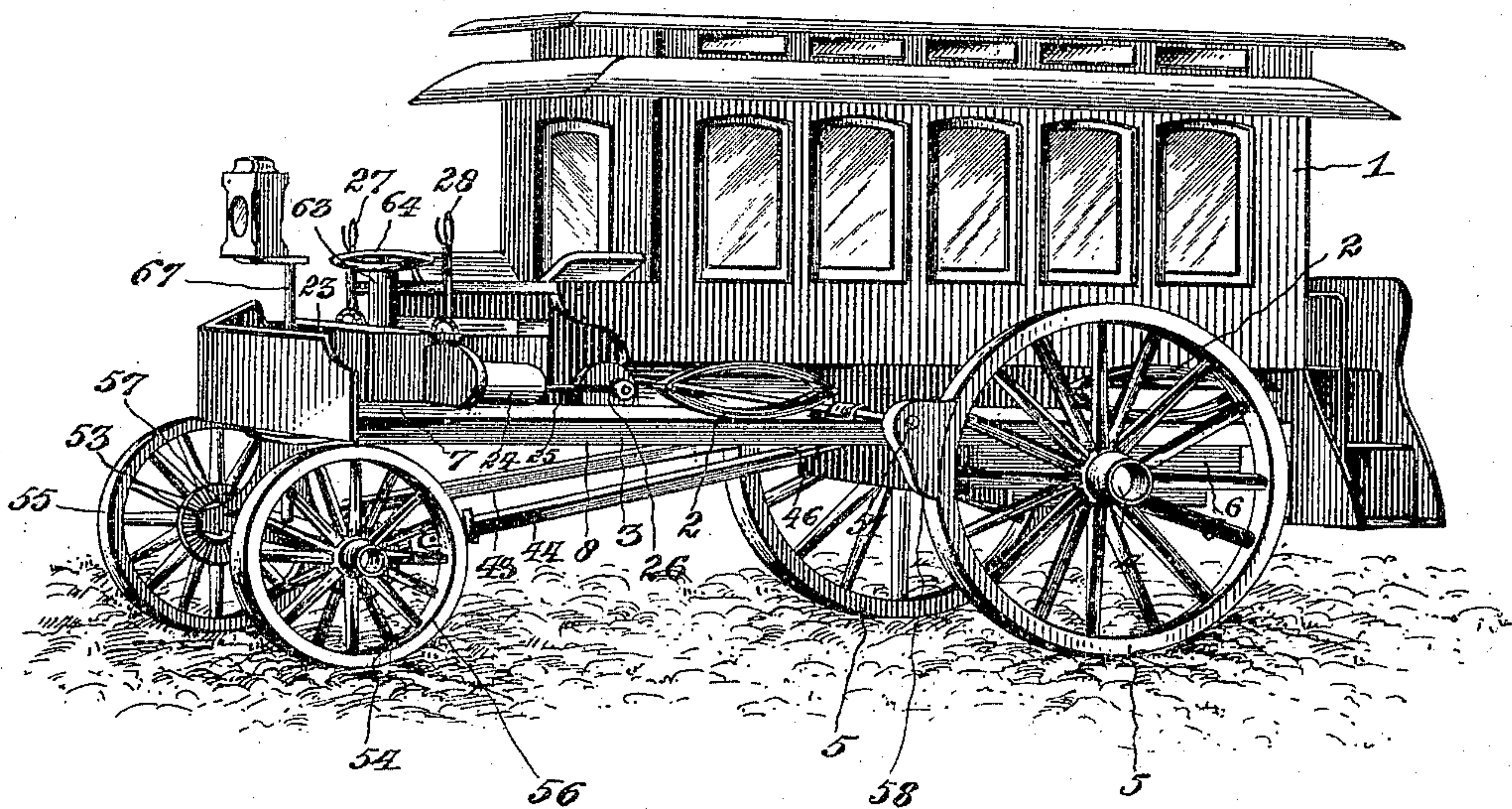


FIG. 4.

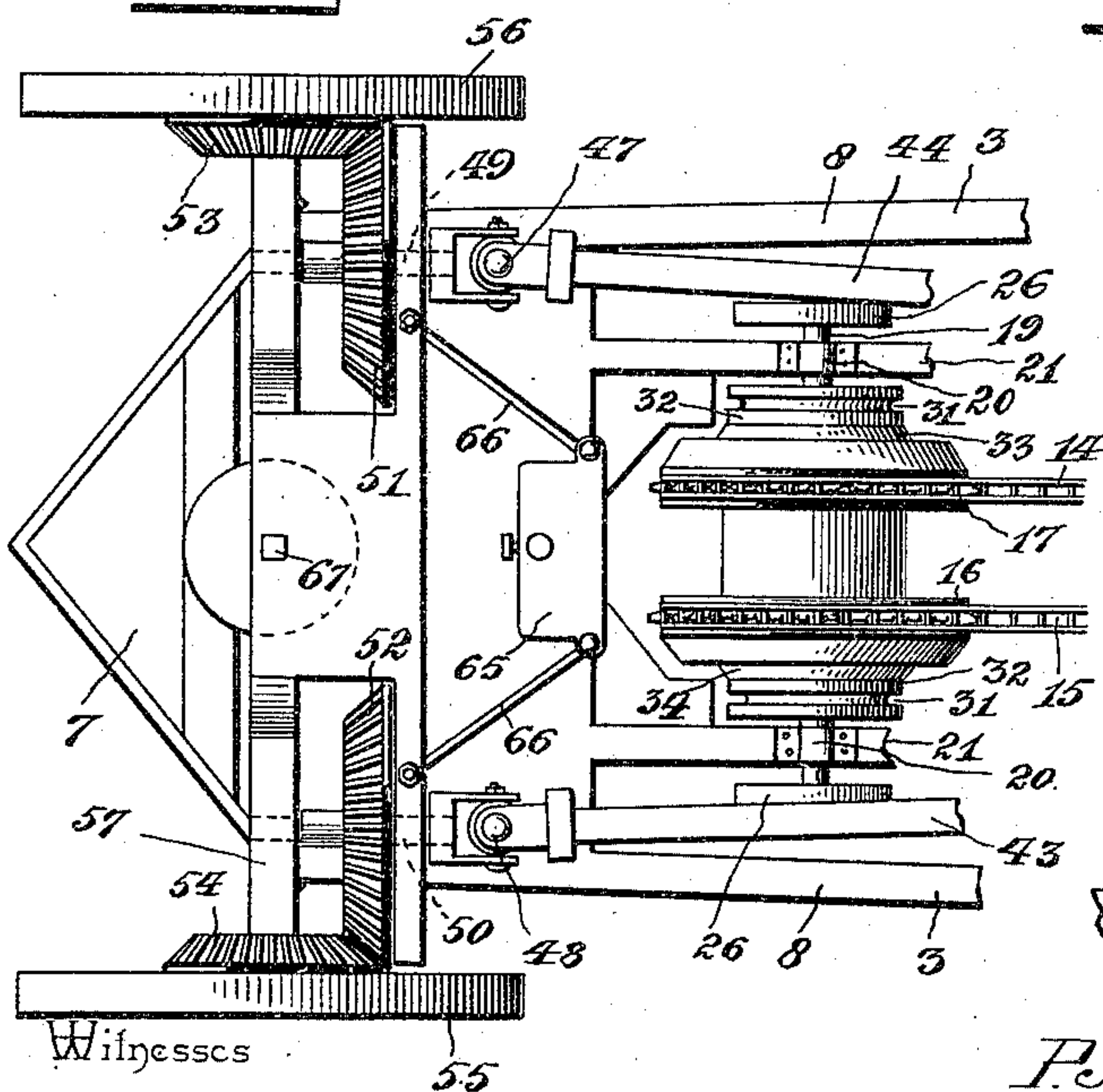


FIG. 5.

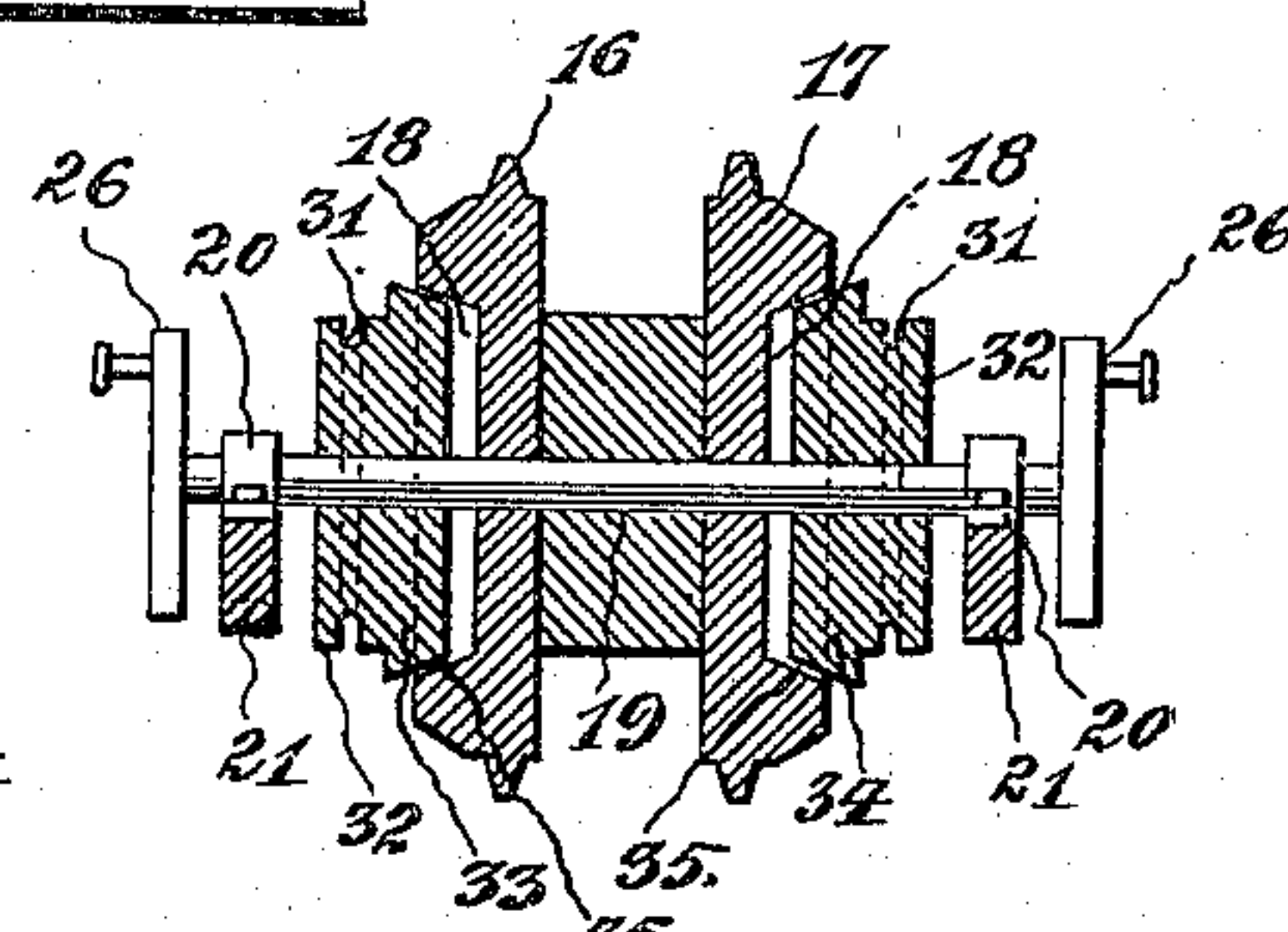
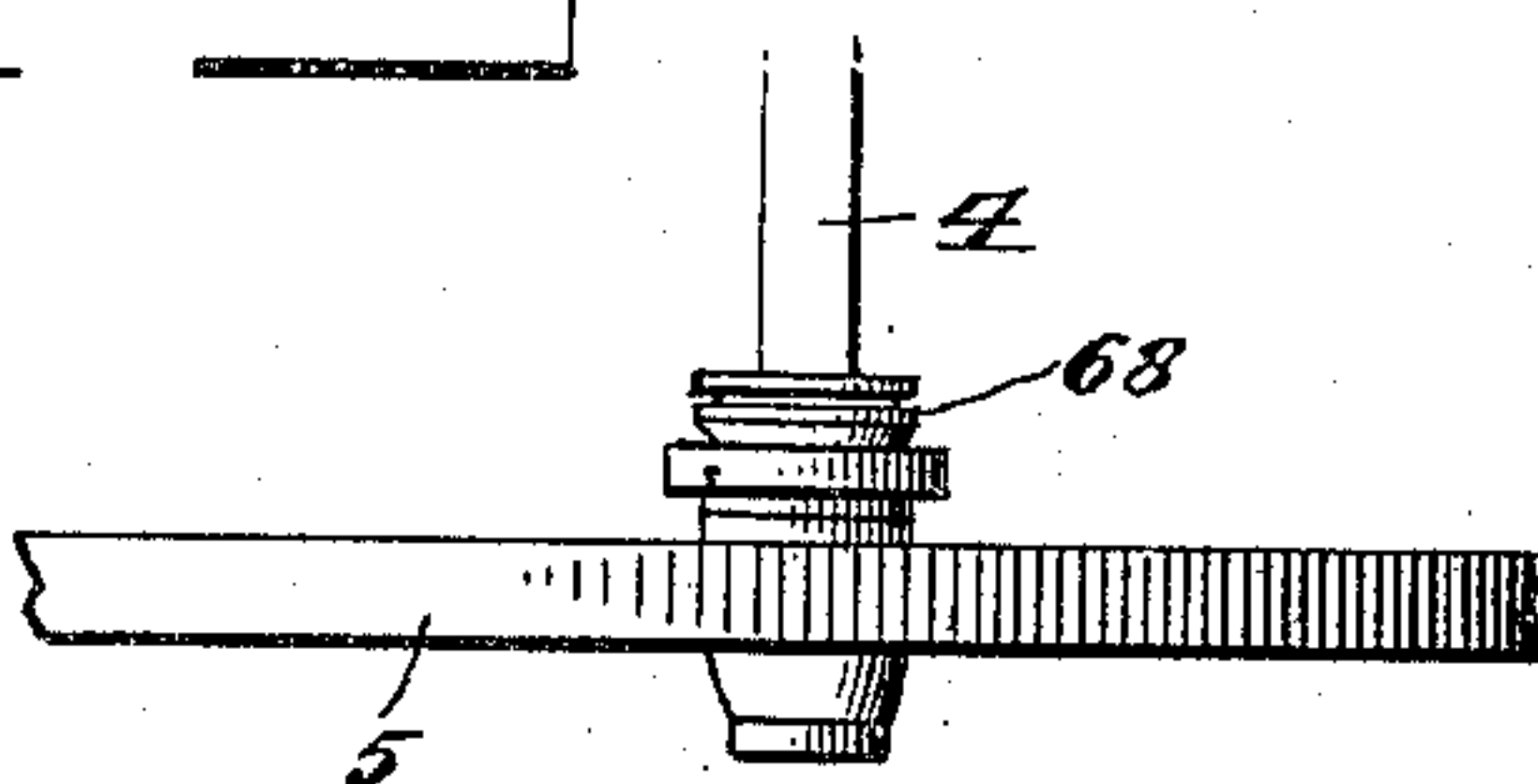


FIG. 6.



Witnesses

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No. 641,043.

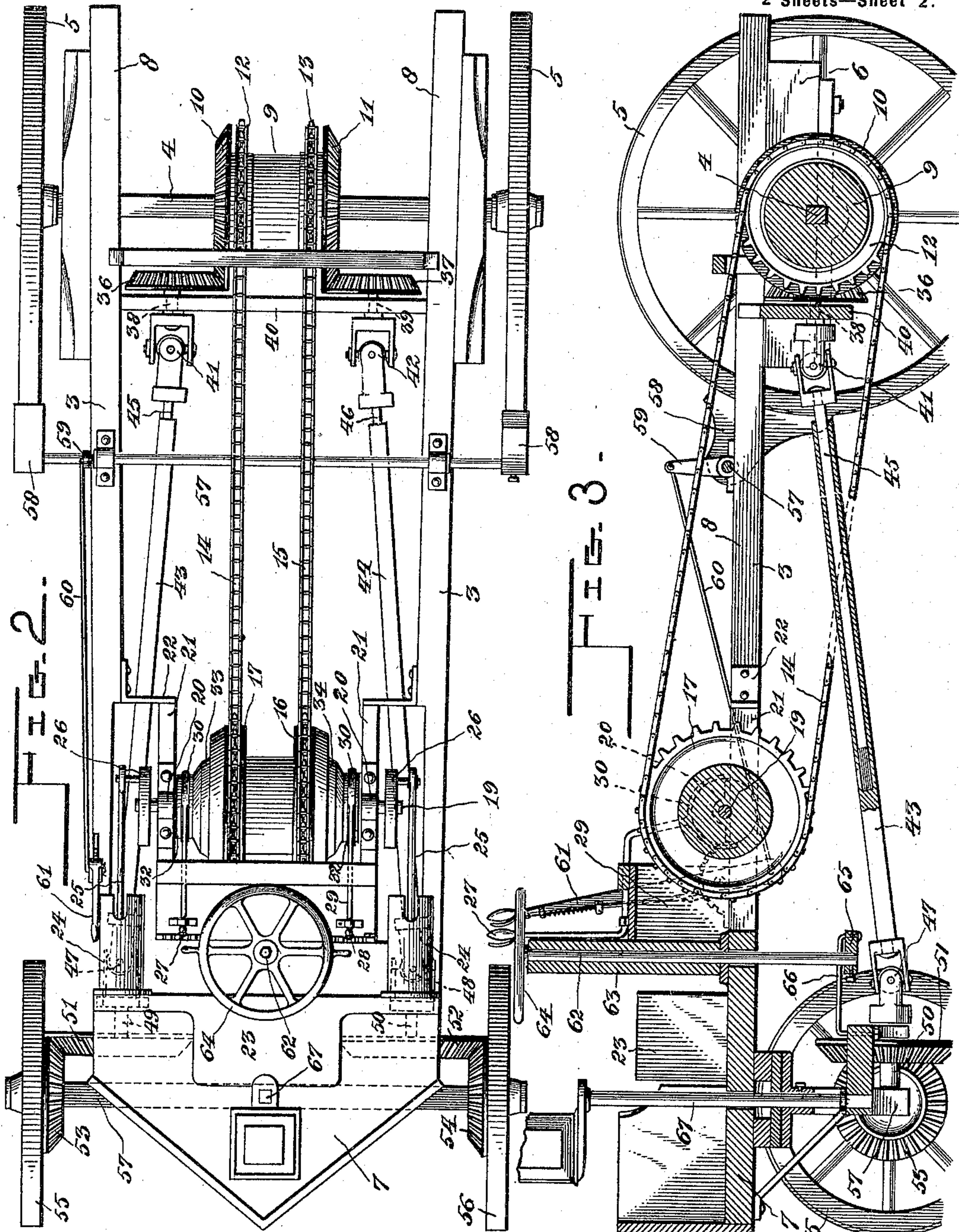
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2 Sheets—Sheet 2.



Witnesses

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UNITED STATES PATENT OFFICE.

PETER J. A. SCHNOOR, OF HOLSTEIN, IOWA, ASSIGNOR OF ONE-HALF TO
HENRY MARTENSEN, OF SAME PLACE.

AUTOMOBILE.

SPECIFICATION forming part of Letters Patent No. 641,043, dated January 9, 1900.

Application filed September 14, 1899. Serial No. 730,440. (No model.)

To all whom it may concern:

Be it known that I, PETER J. A. SCHNOOR, a citizen of the United States, residing at Holstein, in the county of Ida and State of Iowa, have invented a new and useful Automobile, of which the following is a specification.

This invention relates to improvements in automobiles, which designation has come to be applied to that class of vehicles carrying power generating and transmitting mechanisms which serve to effect their propulsion.

The object of my invention is to simplify and render more effective the gearing mechanism intermediate of the wheels and power, and is more particularly directed to the origination of a simple contrivance for communicating power to the front wheels without interfering with the swinging of the forward truck, which is necessary to the proper guiding of the vehicle.

Certain other and subordinate objects will hereinafter more fully appear as the necessity for their accomplishment is developed in the succeeding description.

Referring to the drawings, Figure 1 is a perspective view of my vehicle or automobile complete. Fig. 2 is a plan view of the same with the body removed. Fig. 3 is a central longitudinal section through the subject-matter of Fig. 2. Fig. 4 is a fragmentary plan view of the forward end of my device, with the body and main frame removed. Fig. 5 is a sectional view showing in detail the power-shaft, its sprockets, and clutch mechanism; and Fig. 6 is a detail view showing a clutch by means of which one of the rear wheels may be disconnected from its shaft to facilitate turning.

Referring to the numerals of reference on the drawings, in which like numbers indicate corresponding parts throughout the several views, 1 indicates the body of my vehicle, preferably supported, as usual, upon springs 2, carried by a frame or bed-plate 3, supporting the power generating and transmitting mechanism and in turn supported by the running-gear.

4 indicates the rotary shaft of the rear wheels 5, mounted at the opposite sides of the vehicle, said shaft being journaled in suitable bearings 6, depending from the frame 3. This

frame is preferably cut away to form a platform 7 and side bars 8, between the latter of which, preferably at about its center, the shaft 4 is provided with what I will term a "rear gear-drum" 9, comprising a cylindrical body portion having oppositely-beveled gears 10 and 11 at its opposite end and sprocket-wheels 12 and 13 adjacent to their contiguous faces, the drum comprising the elements 9, 10, 11, 12, and 13 being practically integral and keyed or otherwise secured to the shaft 4.

Power is communicated to the shaft 4 and rear wheels by means of sprocket-chains 14 and 15, passing around the sprocket-wheels 12 and 13 and around similar sprocket-wheels 16 and 17, having concave clutch-recesses 18 and loosely mounted upon a power-shaft 19, journaled in suitable bearings 20, carried by the inner frame 21, projecting rearwardly from the platform 7 and braced by angle-irons 22, bolted to the ends of said bars and to the side bars of the frame 3.

Power is transmitted to the shaft 19 from any suitable motor; but I prefer to employ some form of vapor-motor (indicated diagrammatically at 23) comprising a pair of cylinders 24, from which extend piston-rods 25, connected to the cranks 26 upon the opposite ends of the power-shaft.

Inasmuch as the sprockets 16 and 17 are loosely mounted upon the power-shaft, some means must be provided for operatively connecting them therewith in order that when the shaft is rotated the power will be transmitted to rotate the rear wheels, and thus propel the vehicle. This is effected through the mediums of these loose sprockets 16 and 17, either of which may be clutched to the shaft 19 by the actuation of clutch-levers 27 and 28, suitably mounted upon a frame 29 and having terminal yokes 30 lying in peripheral grooves 31 in the hubs 32 of clutches 33 and 34. These clutches are provided with inclined clutch-faces 35, corresponding with the inclined peripheral faces of the clutch-recesses 18. Thus power may be transmitted through either of the sprocket-wheels, its corresponding chain, and the gear-drum 9 on the rear shaft.

I have found in practice, however, that in order to obtain the greatest efficiency in ve-

hicles of this class it is necessary to transmit power to the front shaft, as well as to the rear, and, as premised, I have therefore invented a simple yet highly-efficient form of gearing
 5 by means of which power may be transmitted from the gear-drum 9 to the front wheels without interfering with the swinging or swiveling movement of the latter, necessary in guiding the vehicle. This portion of my
 10 device is one of the most important features thereof, and it will be noted that I am enabled to not only communicate power to the front wheels without interfering with their movement, but am also enabled to drive them
 15 in a direction corresponding with the direction of movement of the rear axle.

36 and 37 indicate bevel-gears carried by short shafts 38 and 39, journaled in a frame-piece 40. These gears mesh, as illustrated,
 20 with the gears 10 and 11, and their short shafts arranged horizontally, as shown in Fig. 3, are connected by universal joints 41 and 42 to the telescoping sections 43 and 44 of extensible shafts 45 and 46, connected through uni-
 25 versal joints 47 and 48 with horizontal short shafts 49 and 50. Upon these last-named shafts are mounted bevel-gears 51 and 52, meshing with bevel-gears 53 and 54, secured to wheels 55 and 56, carried by a forward axle
 30 57, but independently mounted thereon. It will now be seen that when the power-shaft is actuated the front and rear wheels of the vehicle will be rotated in the same direction, whether forward or backward, and that the
 35 power-drum 9 being located at the center of the rear axle and the front wheels being provided with independent power-transmitting mechanism the power is properly centralized; also, that by means of the clutches 33 and 34
 40 either or both sides of a double-acting motor may be coupled to the power-shaft.

The motor which I employ for the propulsion of the vehicle is preferably of the reversible type, so that it may be driven in one
 45 direction or the other for the propulsion of the vehicle in a forward or backward direction.

The double-sprocket gearing permits either member of the double motor to be thrown out
 50 of operative relation with the power-shaft in order to effect economy in the power required for the propulsion of the vehicle. Telescopic adjustment of the shafts 45 permit the free turning movement of the forward truck with-
 55 out interfering with the operative connection between the front wheels of said truck and the gear-drum on the rear axle.

In Fig. 6 I have illustrated a simple form of clutch 68, connecting the rear wheels to the
 60 rear shaft and by means of which one of these wheels may be disconnected from its shaft to prevent the dragging of the rear wheels as the vehicle turns a corner. Any suitable means may be employed in connection with
 65 each clutch 58 for the purpose of adjusting the latter to make its rear wheel fast with or loose on the rear axle; but as such clutch-

adjusting means can be readily supplied by a skilled mechanic I have not thought it necessary to illustrate the adjusting means. 70

Any suitable brake mechanism may be provided—as, for instance, a brake-shaft 57, provided with brake-shoes 58, engaging the rear wheels, projecting levers 59 upon the brake-shaft being connected, through connecting-
 75 rods 60, to the lower extremities of brake-levers 61, as illustrated.

62 indicates a vertical steering-shaft journaled in a vertical bearing-sleeve 63 and provided at its upper end with a steering-wheel 64. 80

65 indicates a yoke carried at the lower end of the shaft 62 and to the opposite ends of which are pivoted rings 66, likewise pivoted at their opposite extremities to a part of the forward truck-frame. By this means the
 85 front axle may be turned as desired upon a king-bolt 67 to effect the guiding of the vehicle.

From the foregoing it will be observed that I have invented an automobile of simple, du-
 90 rable, and efficient construction and embodying novel mechanism for transmitting power from the motor to the driving-wheels and for facilitating the manipulation of the vehicle without affecting the proper relations of the
 95 parts. But while the foregoing appears at this time to be the preferable embodiment of my invention, I do not desire to limit myself to the structural details defined, but reserve the right to change, modify, and vary such
 100 details within the scope of the protection prayed.

What I claim is—

1. In a motor-vehicle; the combination of a pivotal truck movable on a vertical axis, a
 105 wheeled axle supported thereby, independent shafts geared to said wheeled axle, a single driving element, means for rotating the driving element, another pair of independent shafts likewise geared individually to the driv-
 110 ing element, and compensating shafts, each connected at its opposite ends by universal joints with the short shafts which are geared respectively to the wheeled axle and to the driving element, substantially as described. 115

2. In a motor-vehicle, the combination of a driving-axle, a compound gear element fast with said axle, a motor-driven shaft, clutch-controlled gear elements mounted idly on the shaft and adapted to be independently made
 120 fast therewith, and transmission-gearing between the compound axle-gear element and the idle-gear elements of the motor-driven shaft, substantially as described.

3. In a motor-vehicle, the combination of a
 125 pivotal truck capable of turning freely on a vertical axis and carrying a wheeled axle, a driving-axle having the carrying-wheels, a compound gear-drum fast with said driving-axle, compensating-gear connections between
 130 said gear-drum and the wheels on the axle carried by the pivotal truck, a motor-driven shaft, and clutch-controlled gearing between said motor-driven shaft and the compound

gear-drum, for the purpose described, substantially as set forth.

4. In an automobile, the combination with a frame, rear shaft and wheels, a swiveled forward truck and wheels independently revoluble thereon, of means for transmitting power to the rear shaft, gears carried by said shaft and by the front wheels, gears meshing with said first-named gears and mounted on longitudinal shafts, and extensible shafts intermediate of the short shafts and connected thereto by universal joints.

5. In an automobile, the combination with a frame, rear shaft and wheels, a swiveled forward truck and wheels independently mounted thereon, of telescoping shafts intermediate of the rear axle and each of the front wheels, gearing connecting the opposite ends of said extensible shafts with the rear shaft and with the front wheels, and means for throwing either of the rear wheels out of engagement with the rear axle.

6. In an automobile, the combination with a power-shaft provided with a pair of sprock-

ets loosely mounted thereon, of clutches designed to connect said sprockets with the shaft, a rear shaft provided with wheels, a gear-drum on said shaft operatively connected through intermediate chains with the sprocket-wheels on the power-shaft, gear-wheels in operative relation with a rear shaft and mounted on short horizontal shafts, extensible shafts composed of telescoping sections connected to the short horizontal shafts by universal joints, a swiveled forward truck, wheels independently mounted thereon, gear-wheels carried by said wheels, gears mounted upon short shafts and meshing with the gears on the front wheels, and universal joints connecting said last-named shafts with the extensible shafts.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

PETER J. A. SCHNOOR.

Witnesses:

CHARLES MUMA,
HEINRY MARTENSEN.