

G. A. SCHACHT.
 AUTOMOBILE.
 APPLICATION FILED MAY 20, 1907.

919,779.

Patented Apr. 27, 1909.

2 SHEETS—SHEET 1.

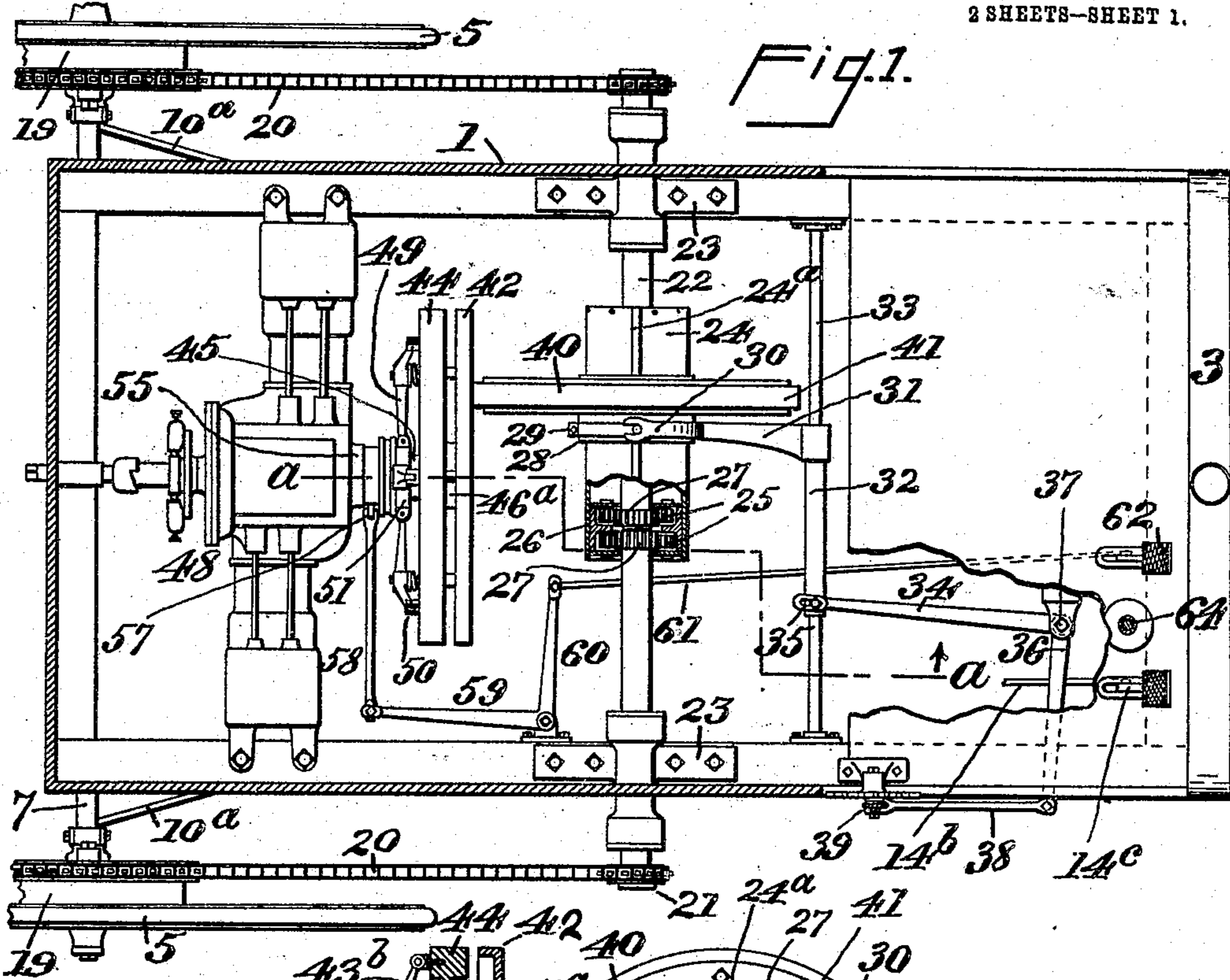


Fig. 2.

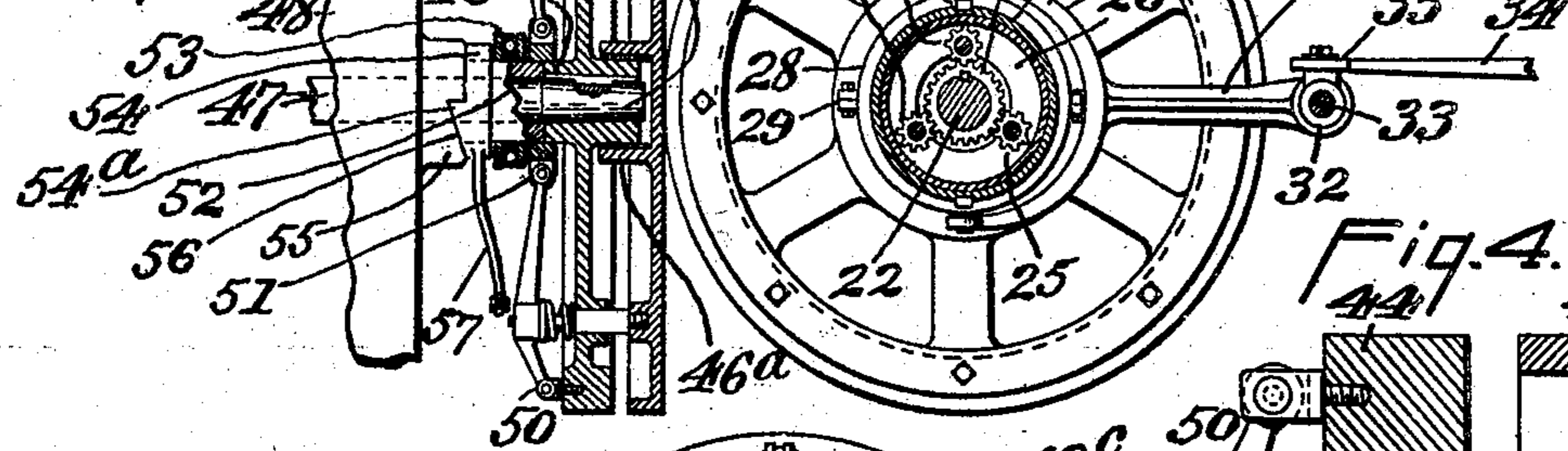


Fig. 3.

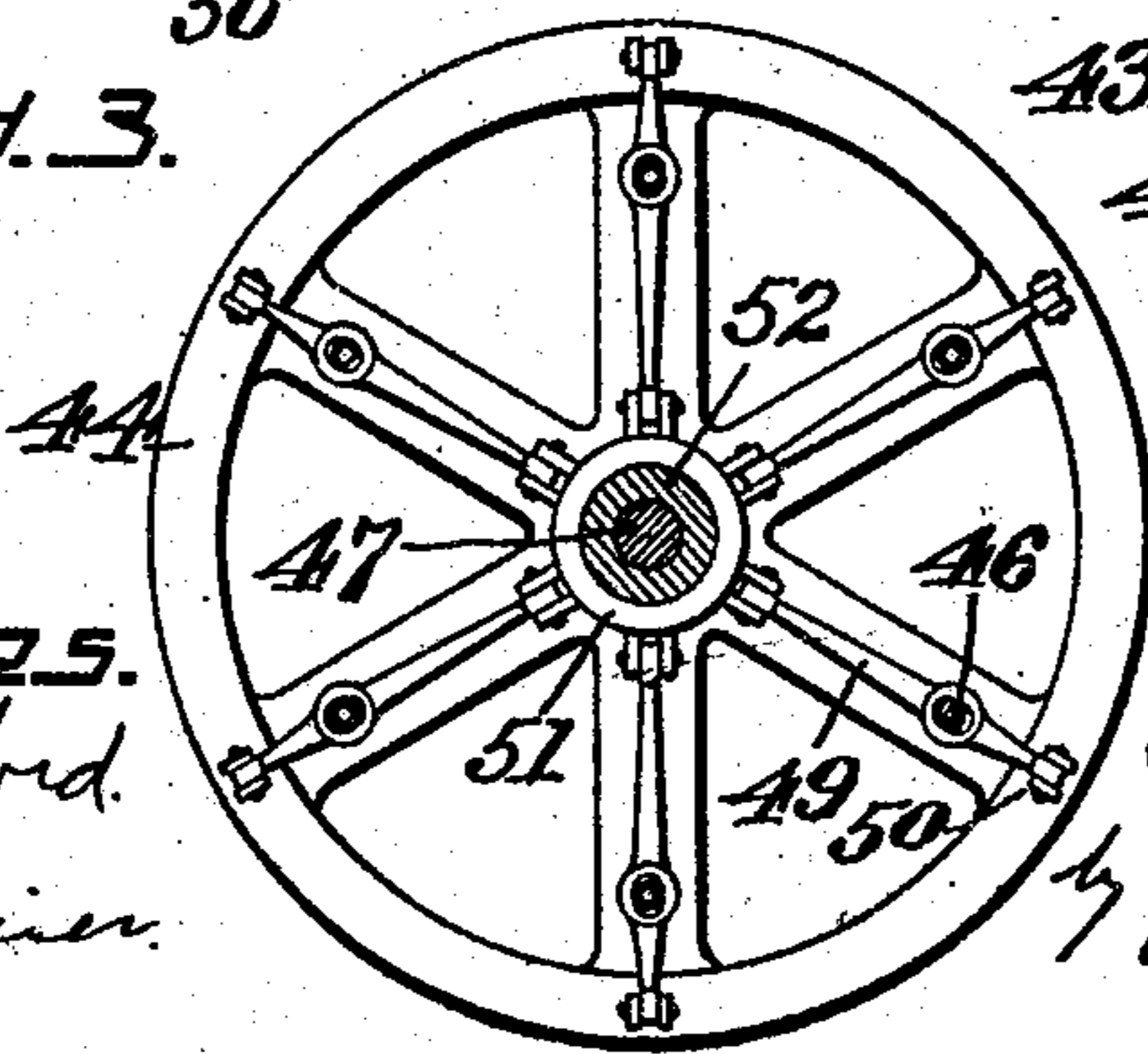
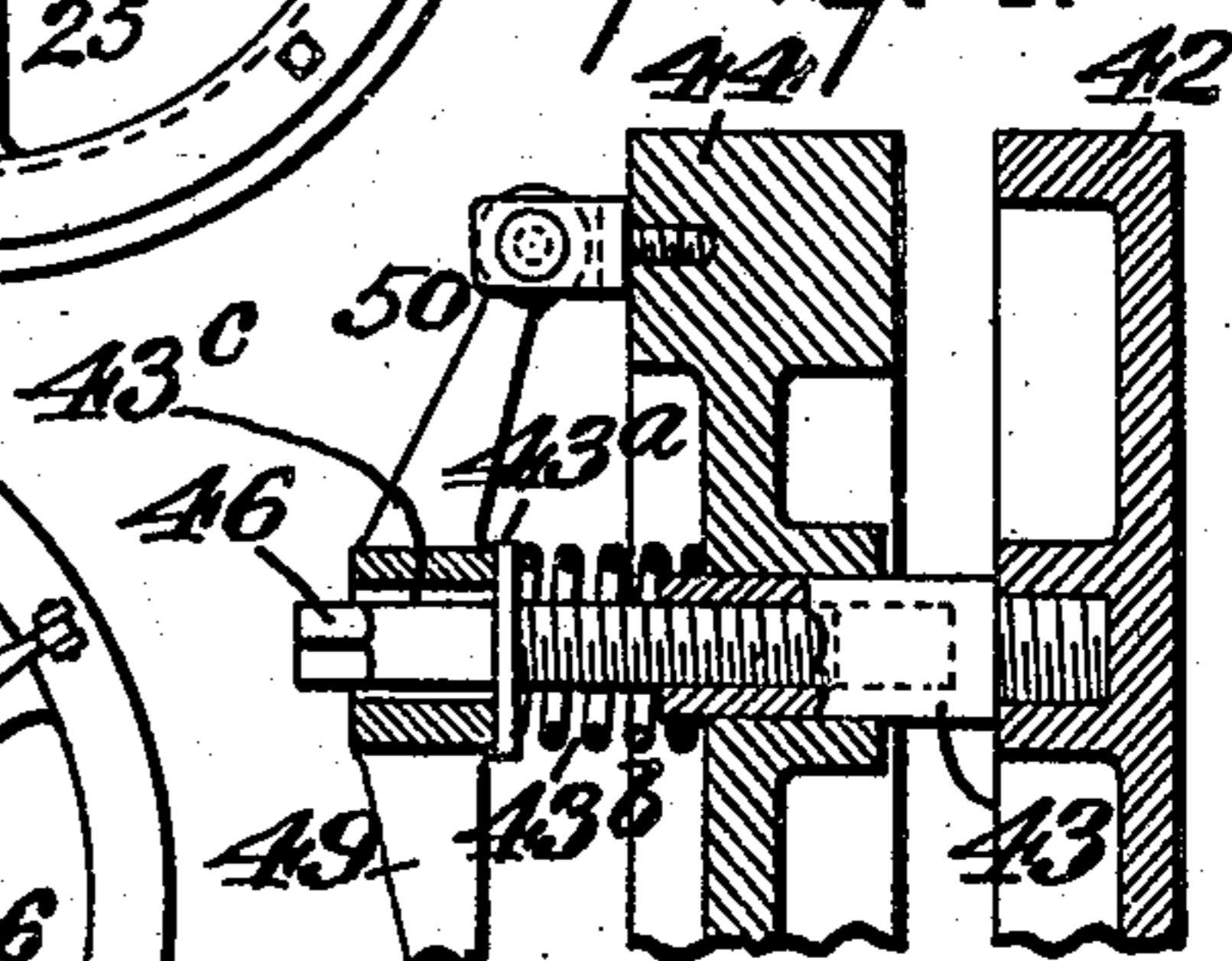


Fig. 4.



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 Homer Bradford.
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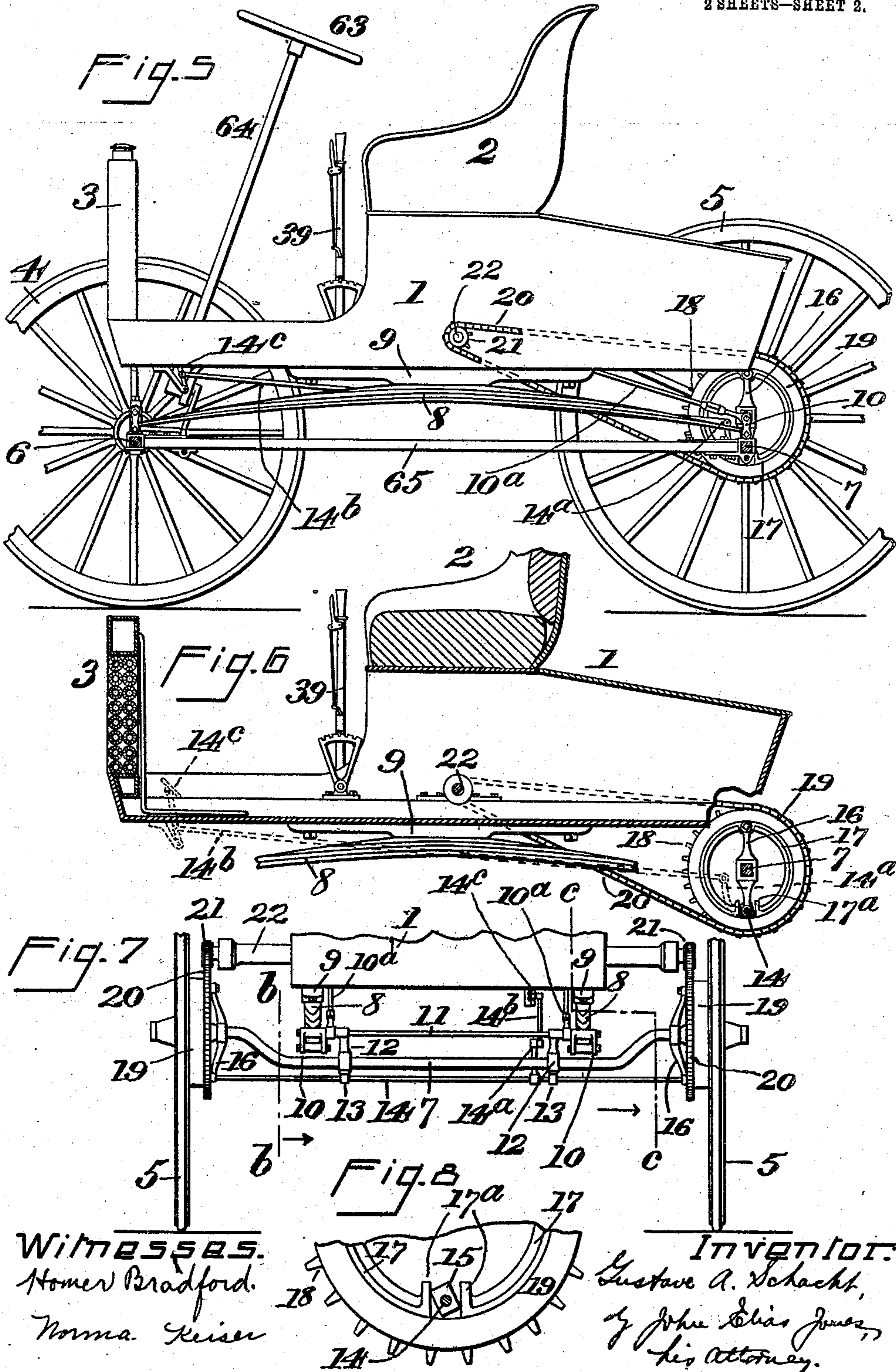
INVENTOR.
 Gustave A. Schacht,
 by John Elias Jones,
 his Attorney.

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UNITED STATES PATENT OFFICE.

GUSTAVE A. SCHACHT, OF CINCINNATI, OHIO.

AUTOMOBILE.

No. 919,779.

Specification of Letters Patent.

Patented April 27, 1909.

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To all whom it may concern:

Be it known that I, GUSTAVE A. SCHACHT, a citizen of the United States of America, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Automobiles, of which the following is a specification.

This invention relates to improvements in automobiles, especially to those of the runabout type, and one object thereof is to simulate to a great extent an ordinary side-spring buggy having its fore-wheels of lesser diameter than that of its hind-wheels and with a dash at the fore end of its body.

One of the principal objects of the invention is to provide special mechanism for variable speeds at which it is desired the vehicle is to be driven on curves, hills and straight ways; another object is to provide peculiar clutch-mechanism for coupling the driving-engine with the transmitting-mechanism; and still another object is to provide peculiar hand and foot lever and rod mechanism for actuating the engine, clutch, transmitting and brake devices.

The invention consists in certain novel features of the construction, combination and arrangement of the several parts of the improved automobile whereby certain important advantages and the above-named objects are attained and the vehicle is made simpler, cheaper, and otherwise better adapted and more convenient for general use, all as will be hereinafter fully described.

The salient and novel features of the invention will be carefully defined in the claims.

In the drawings accompanying this specification and forming a part thereof, Figure 1 is a plan view, with the fore-wheels removed, the rear upper part of the body broken away and the sides in section, the foot-board partly broken away and the rear traction-wheels partly broken away, all to clearly bring to view the working mechanism, especially the engine, clutch, transmitting and controlling devices; Fig. 2, a longitudinal vertical section, taken on line *a, a*, of Fig. 1, but on a somewhat larger scale, to show the clutch and variable-speed transmitting devices; Fig. 3, an elevation of the lever-carrying side of the clutch-wheel, the shaft and sleeve being in cross-section; Fig. 4, a fragmentary section (on a larger scale) of the clutch-wheel and friction driving-disk, show-

ing the returning-spring and adjusting device for use in connection with the said disk to allow for proper leveling and wear; Fig. 5, a side elevation of the vehicle (taken the reverse of the position seen in Fig. 1) with the wheels and the brake devices removed from the side on which the elevation is taken, a section being taken on line *b, b*, of Fig. 7 in this view to clearly display the side-spring and reach features, the dash, the buggy-body, the two diameter supporting-wheels, the brake device and the steering and other controlling devices; Fig. 6, a fragmentary sectional elevation, taken on the line *c, c*, of Fig. 7, clearly displaying the body, the dash having the fluid-receptacle and ventilator devices and the brake-mechanism, (the supporting-wheels, engine, clutch and transmitting mechanism being omitted in this view;) Fig. 7, a fragmentary rear elevation of the vehicle, to show the link device (for suspending the body,) the brake devices, the rear-wheels and the brake-controlling devices, but omitting the engine, clutch and transmitting devices; and Fig. 8, a fragmentary elevation of the inner face of one of the rear sprocket-wheels showing the internal brake-shoes and the rock-block used for spreading said brake-shoes outward into acting frictional-contact with said sprocket-wheel for suitably braking the vehicle.

In these views, 1 represents the vehicle body having the ordinary buggy-body form with a seat 2 and a dash 3.

4, 4 represent the fore-wheels and 5, 5 the hind-wheels, the latter being of greater diameter than that of the fore-wheels, like unto those of an ordinary buggy which my vehicle is designed to simulate just as much as possible, both for convenience and dainty appearance, and in order that I may secure the desired form of runabout adapted to more especially suit the tastes and use of those accustomed to the ordinary buggy and make the change to a horseless vehicle less pronounced and more readily taken up by such user.

6 represents the fore-axle and 7 the rear-axle connecting with the hubs of said sets of wheels 4 and 5 respectively, as customary in automobiles.

8, 8 represent longitudinal side-springs centrally connected to the sills 9, 9 on the bottom of the body 1 (as best seen in Figs. 5, 6 and 7,) and having pivotally-connected vertical double links 10 at their respective

opposite outer ends, such links being pivotally-supported at their upper ends on the outer ends of transverse bars or rods 11, the latter, in turn, being supported by vertical posts 12, 12 secured at a suitable space apart on the axles 6 and 7 and having on the rear-axle only pendent loops or eyes 13, 13 for accommodating a transverse rocker brake-rod 14.

15 represents a block carried by the brake-rod 14 at each of its ends, and 16 is a vertical bar carried by the rear-axle near each of its opposite ends, each such rigid bar having pivotally-attached at its upper end a pair of semicircular brake-shoes 17, 17 whose lower upturned ends 17^a, 17^a are spaced apart to accommodate between them the said blocks 15. The brake-rod 14 passes freely through the lower ends of the bars 16, the latter forming bearings therefor so that the blocks 15 may be worked or rocked by means of the pivotal arm and lever connections 14^a, 14^b with the foot-treadle 14^c on the foot-board, and to thereby throw apart or expand the brake-shoes 17, 17 into frictional-contact with the inner faces of the driving-sprockets 18, 18 mounted on the inner hub-enlargements 19, 19 of the hind-wheels.

10^a, 10^a represent extensible rods connecting the rear rod 11 with the bottom of the body 1, so that the rear links 10, 10 can be rocked at their lower ends on the outer rear ends of the springs 8 and thus provide for the proper tension on the sprocket-chains 20, 20 to prevent their sagging or becoming too loose on their wheels.

20, 20 represent sprocket-chains connecting wheels 18, 18 with the smaller sprockets 21, 21 at the outer ends of the transverse sleeved driving-shaft 22 mounted in bearings 23 on the side-sills about mid-length of the vehicle.

24 represents a drum suitably mounted on the shaft 22 and provided with two triple sets of transmitting pinions 25 internally mounted in channeled rings or boxes 26, (as best seen in Figs. 1 and 2,) such pinions engaging a pair of adjacently-mounted driving-gears 27, 27 on the sleeved shaft 22. The sleeving of the shaft 22 is, as customary, for the usual purpose of allowing for differential speeds of the wheels on curves or in turning around corners.

28 is a grooved sleeve rigidly mounted on the central portion of drum 24, a ring or yoke 29 being freely mounted in the groove of said sleeve and engaged by the fork 30 of a horizontal lever 31 whose outer end has a lateral tubular extension 32 through which passes a transverse supporting-rod 33, the latter, in turn being mounted at its ends on the side-sills of the vehicle-body. (See Fig. 1.) An arm 34 having a slotted pivotal end 35 engaging the outer end of said tubular extension 32 projects rigidly at right-angles

from the inner end of a lever 36, the latter being pivoted at 37 to the vehicle-body and having a link 38 pivotally-connected at its outer end, such link extending rearward for pivotal-connection with the lower end of a vertical speed-controlling hand-lever 39.

40 is a wheel feathered to the drum 24, the feather being shown at 24^a, whereby said wheel may be reciprocated along the drum by means of the forked-lever 31. The rim of wheel 40 is spaced or grooved and carries in such groove a suitable friction surface or tire 41, (Figs. 1 and 2), for engagement with the face of a disk 42 mounted at a right-angle to the wheel 40 on the shouldered screw-threaded ends of a circular series of horizontal sliding bolts or pins 43 of a clutch-wheel 44. Clutch-wheel 44 has a hub 45 encircling a longitudinal, short driving-shaft 47 that forms part of the engine 48, the latter being of any suitable type and construction, and mounted in the vehicle to the rear of said clutch-wheel 44. Each radial arm or spoke of the clutch-wheel 44 carries a lever 49 pivoted at its outer end 50 and pivotally-coupled at its inner end to a sliding ring 51 encircling both a sleeve 52 on shaft 47 and one end of the hub 45 on the clutch-wheel 44. The bolts or pins 43 are hollow a part of their lengths and also internally-threaded to receive shanks of screws 46, the latter, in turn, having flanges 43^a against which bear spiral springs 43^b encircling said screws 46 and bearing at their opposite ends against the wheel-spokes. The outer squared ends of the screws 46 pass through enlarged openings 43^c (best shown in Fig. 4) whereby due allowance is made for the pivotal movement of the levers 49 in contact with said springs 43^b, as hereinafter more particularly referred to in the operation of the device. The threaded shanks of the screws 46 are adapted to be turned to and from the hollow portions or sockets of the bolts or pins 43 that carry the disk 42, for the purpose of providing for suitable adjustment of the disk in relation to the wheel 40, and, also, allowing or wear occasioned by the frictional-contact of the disk and the wheel 40. An annular extension or hub 46^a is constructed on the inner face of the disk 42, such annular extension having an inner wearing surface or lining-brass freely encircling the outer hub-extension of the clutch-wheel 44 (Fig. 2) and thereby permitting said disk to move to and from the adjacent outer face of said clutch-wheel. The outer end 47^a of the engine-shaft 47 is tapered (see Fig. 2) and the center bore of the clutch-wheel 44 tapers to correspond thereto, a suitable connecting-key being provided between the wheel and shaft.

53 is a tripartite thrust-ring freely mounted on the sleeve 52 and provided with balls in its central disk to form a ball-bearing for the outer disks thereof.

54 is a ring having a pair of shouldered inclines or cam faces 54^a (one only being shown in Fig. 2) and encircling the outer end of said sleeve 52 adjacent the thrust-ring 53.

55 is a ring mounted on the engine-shaft 47 and provided with a pair of shouldered and inclined notches 56 corresponding to and engaged by the said shouldered cam-faces 54^a of the ring 54. An arm 57 projects downward from the ring 54 and has pivotal rod and lever connections 58, 59, 60 and 61 with a presser foot-treadle 62 mounted on the foot-board convenient to the operator.

63 represents the customary hand-wheel mounted at the upper outer end of the starting-shaft 64 convenient to the operator's seat. A suitable longitudinal reach 65 extends along the center of the vehicle beneath the body thereof and is connected at its opposite ends to the fore and rear axles as customary in ordinary buggies or carriages.

In operating the device the hand-lever 39 is drawn toward the operator to begin with, so as to slide the wheel 40 along the drum 24 and bring its driving-face 41 into engagement with the face of disk 42 nearest its central portion or part of least diameter, thus providing for slow speed which is gradually accelerated by simply moving the said hand-lever forward and thereby sliding the wheel 40 in a reverse direction toward the other end of drum 24 and causing its driving-face 41 to engage the face of disk 42 nearer its rim or portion of greater diameter. The hand-wheel 63 is turned as usual to start the engine, and then the foot-treadle 62 is depressed, thereby causing the arm 57 to move laterally and partially rotate the ring 54, such rotation, in turn, causing the inclined cam-faces 54^a to bear against and ride upward on the corresponding inclined faces of the notches 56 in the ring 55 on the engine-shaft 47. A thrust-motion is now imparted to the roller-bearing ring or washer 53, which, in turn, forces the ring 51 toward the clutch-wheel 44 against the pressure of springs 43^b. The bolts 43 carried by the levers 49 then slide outward in their bearings in the arms of the clutch-wheel 44 and said levers exert the desired pressure on the disk 42 carried by said bolts 43. The pressure on the disk 42 is then, in turn, transmitted by the outer face thereof to the frictionally-contacting rim 41 of the transversely-slidable wheel 40, the latter causing drum 24 to revolve by its feathered connection therewith. Foot-treadle 62 is held down by means of any suitable device that may be readily released by the operator when it is desired to lessen or increase his speed. The springs 43^b on the clutch-wheel 44, in expanding, readily return the bolts 43 to normal position with the friction-disk 42 retreated from active-contact with the rim of wheel 40, when it is desired to slow up or stop the vehicle. The

drum 24 in rotating, carries with it the two sets of pinions 25, 25 that engage the gears 27, 27, keyed on the two part sleeved-shaft 22, the latter being thus differentially operated to convey or transmit motion to the driving sprocket-wheels so that the latter can turn at variable speeds on curves or corners when turning or swerving to the right or left, as customary in the running of vehicles, especially of this character.

The tapered end 47^a of the engine-shaft prevents the clutch-wheel riding or forcing backward on such shaft, and provides a firm backing for the clutch-wheel when the disk 42 is forced into driving-contact with the driven-wheel 40 that transmits power to the vehicle traction-wheels.

The brake device is readily actuated, when desired, by simply depressing the foot-treadle 14^c, thereby causing the rocking of the blocks 15, 15, on their common rod 14, into active contact with the upturned ends 17^a, 17^a of the internal pivotal brake-shoes 17, 17 and spreading the latter outward into frictional-contact with the inner face of the several sprocket-wheel extension hubs or drums 19 on the rear driving-wheels 5, 5 of the vehicle. Any suitable spring-actuated returning device on the foot-treadle 14^c may be used for releasing the operating-blocks 15 of the brake-shoes.

The narrowness of the wheel treads or rims and the weight and style of vehicle herein shown and described, readily enable the use of narrow solid tires, not well adapted to the heavier type of automobile having sets of wheels of the same shallow diameter and a broad tread necessitating pneumatic tires of corresponding broad tread and at many times greater cost.

I claim:—

1. In a device or vehicle of the character described, a motor, a clutch-wheel keyed to the motor driving-shaft, a friction disk on the clutch-wheel, means on the clutch-wheel and engine-shaft for moving said disk to and from the face of the clutch-wheel, a transverse shaft, a drum mounted on the transverse shaft and carrying transmitting gears engaging gears keyed on the transverse shaft, a friction-wheel feathered to said drum and with its rim differentially or variably engageable by said friction-disk, means for moving said friction-wheel along said drum and driving means for connecting the transverse shaft to the rear traction-wheels of the vehicle.

2. In an automobile, a motor having a driving-shaft whose outer end is tapered, a clutch-wheel carried by said shaft and having a tapered central bore engaging said tapered end of the shaft, a disk mounted on said clutch-wheel, cam and lever mechanism controlling the movement of said disk to and from the adjacent outer face of the clutch-wheel, a transverse shaft having suitable

gears, a drum mounted on the transverse shaft and having pinions differentially engaging said gears, a wheel feathered to said drum and adapted to have frictional engagement along the outer face of the said disk at varying diameters to suit the desired speed to be attained, means for sliding the said wheel along the drum and transmitting means between the transverse shaft and the rear traction and supporting wheels of the vehicle.

3. In an automobile of the type described, a motor having a driving-shaft, a clutch-wheel keyed to the driving-shaft and having a series of spring-controlled levers pivotally-mounted on the spokes thereof, bolts or pins longitudinally - extensible and mounted to slide in said wheel-spokes, returning-springs on said bolts or pins, a disk carried by said bolts or pins and adapted to be thrust forward from the face of the clutch-wheel, means on the motor driving-shaft for thrusting said disk forward, a friction-wheel mounted on a transverse shaft, means to reciprocate the friction-wheel along said transverse shaft with its rim in driving-contact with the face of the disk, and transmitting devices between the transverse shaft and the rear traction-wheels of the vehicle.

4. In an automobile of the type described,

a motor having a driving-shaft, a clutch-wheel keyed to the driving shaft and having a series of spring-controlled levers pivotally-mounted on the spokes thereof, bolts or pins longitudinally - extensible and mounted to slide in said wheel-spokes, returning-springs on said bolts or pins, a disk carried by said bolts or pins and adapted to be thrust forward from the face of the clutch-wheel, means on the motor driving-shaft for thrusting said disk forward and comprising a series of pivotally-connected levers and rods operated by a foot-treadle at the fore end of the machine, a friction-wheel mounted on a transverse shaft, means comprising a forked arm mounted on a transversely-sliding sleeve that is pivotally-connected by levers with a hand-lever and adapted to reciprocate the friction-wheel along said transverse shaft with its rim in driving-contact with the face of the disk and transmitting devices between the transverse shaft and the rear traction-wheels of the vehicle.

Signed at Cincinnati, Ohio, this 18th day of May 1907.

GUSTAVE A. SCHACHT.

Witnesses:

JOHN ELIAS JONES,
NORMA KEISER.