Sept. 30, 1952 H. JEZLER 2,612,230

MOTORCAR WITH PARKING DEVICE

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Fig.1

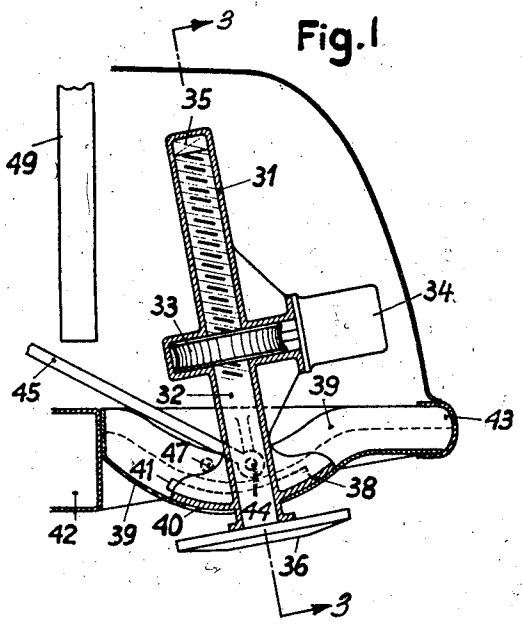


Fig.5

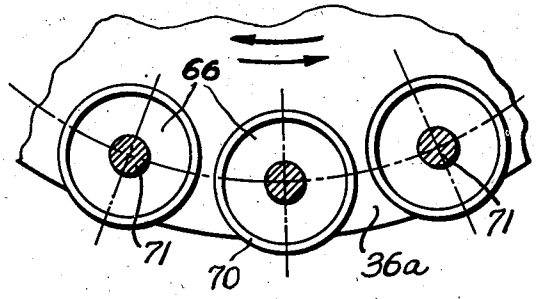
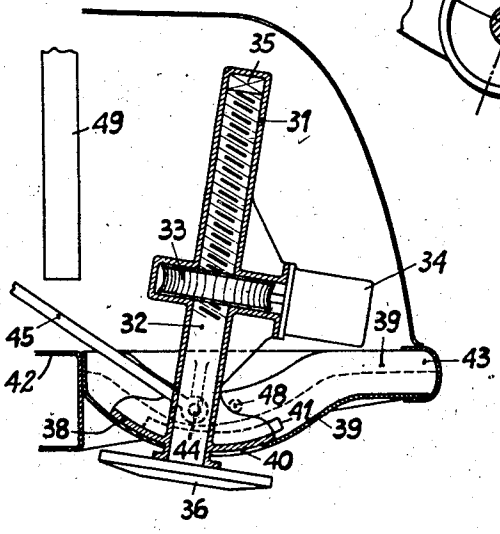


Fig.2



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Fig. 3.

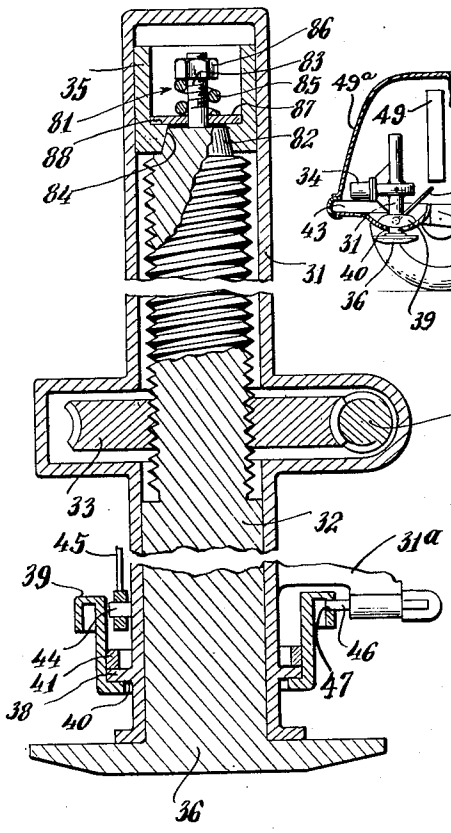
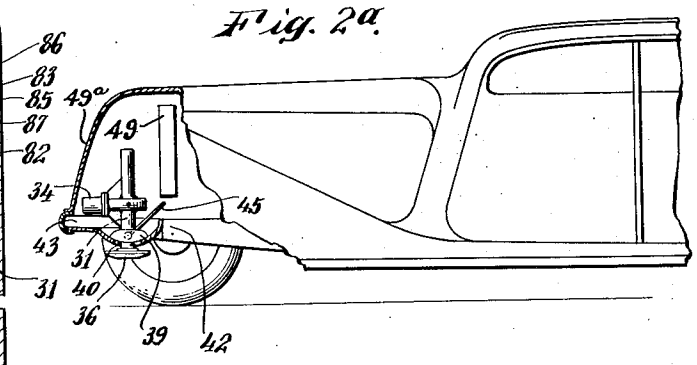


Fig. 2a.



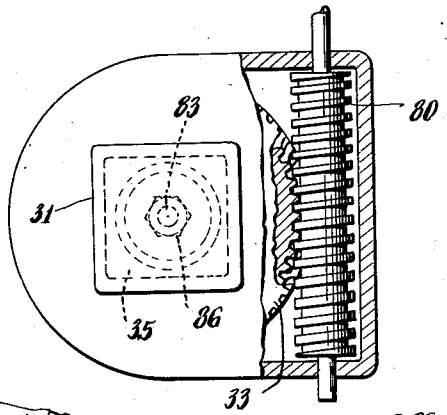


Fig. 3a.

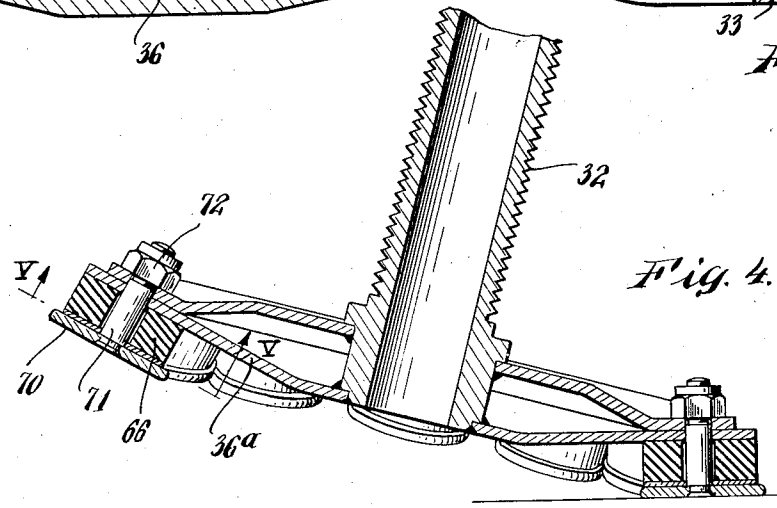


Fig. 4.

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Fig.8

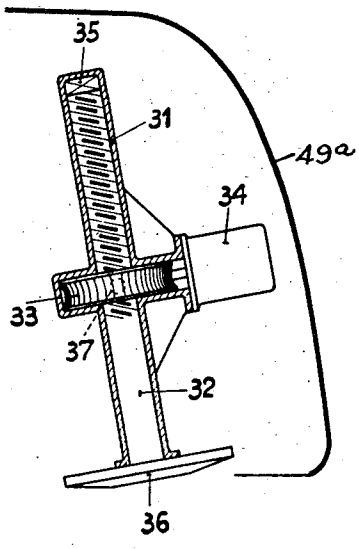


Fig.9

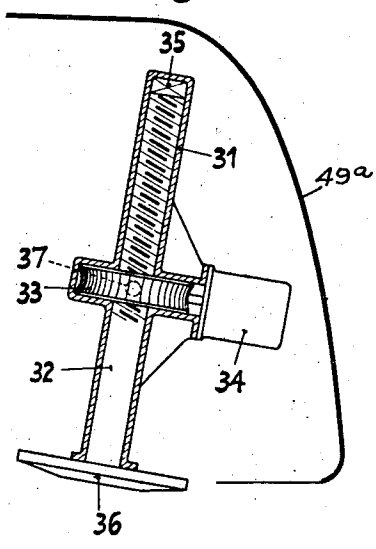


Fig.6

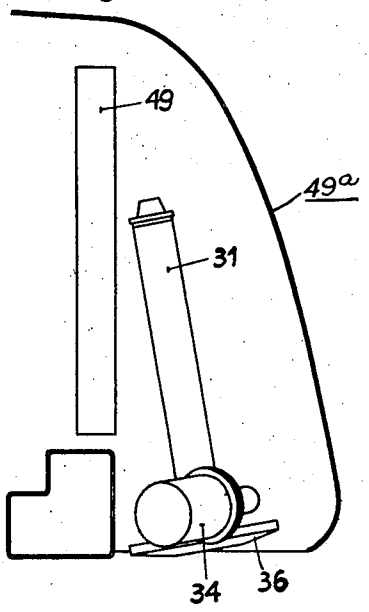
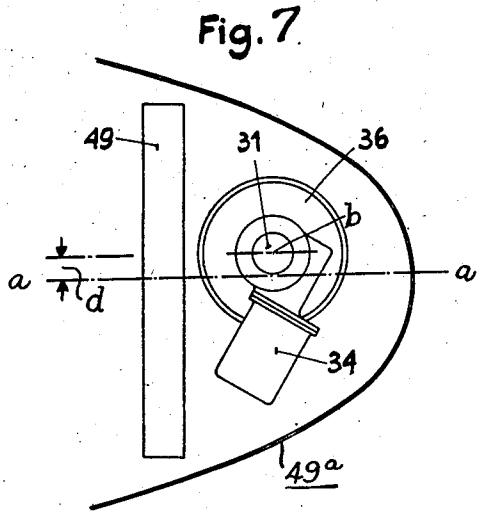


Fig.7



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2,612,230

MOTORCAR WITH PARKING DEVICE

Hubert Jezler, Zurich, Switzerland

Application August 15, 1947, Serial No. 768,893
In Switzerland August 17, 1946

6 Claims. (Cl. 180—1)

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The present invention relates to a new and improved motor car with parking device and the parking device as such.

To park a motor car in a congested street or garage presents some difficulties, even to otherwise excellent drivers. The space available to park a car is mostly very restricted and needs expert steering to get the car in alignment with cars already parked. The same difficulties arise to regain the road when the space left to the parked car is but slightly longer than the car itself.

The main object of the invention consists in the provision of a device adapted to shift the fore part of a car standing in close alignment between other cars sufficiently sideways to either side to get the car clear to drive forwards out to the road and conversely, in parking, when the rear wheels of the car are driven into the free space between two cars in alignment by reversing, to swing the fore end sideways to bring the car into its proper parking position.

It is another object of the invention to provide a parking device which can be operated from the driver's seat by remote control, and which can be retracted when out of operation, so as not to impair the ordinary running of the motor car.

It is still another object of the invention to provide a parking device which is simple in construction and operation.

In the accompanying drawings the invention is shown by way of several examples in a diagrammatical manner.

Fig. 1 illustrates diagrammatically and in section a portion of the front end of a motor vehicle and one example of the parking device of the invention attached thereto,

Fig. 2 shows a similar view as Fig. 1 with the parking device adjusted to a different working position.

Fig. 2*a* is a diagrammatical side elevation on a smaller scale of a part of a motor car, a portion of the hood being broken away, with the parking device in a position of rest.

Fig. 3 is a section along line 3—3 of Fig. 1 on a larger scale.

Fig. 3*a* is a top plan view of the device of Fig. 3, a portion of the housing being broken away.

Fig. 4 shows a sectional elevation on a larger scale of another embodiment of the ground engaging disc of the device,

Fig. 5 is a part section on line V—V of Fig. 4.

Figs. 6 to 9 illustrate elements of the parking device in different positions.

The parking device comprises a lifting jack with a rotatable traction member **36** and as shown

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in the drawings is arranged in front of the radiator **49** and within the radiator grill **49***a* of the motor car and is fastened to a cross-stay **42** of the chassis of the car and to the bumper rod **43** as shown in Figs. 1 and 2. The parking device could, however, also be secured to the rear end of a motor car.

In a tubular casing **31** (Figs. 1 to 3*a*) the screw spindle **32** is mounted rotatably and is axially displaceable. A worm wheel **33** mounted in a lateral extension of the casing and forming a nut for said spindle is adapted to be driven through a worm **80** by a reversible electric motor **34**. At the head of the spindle **32**, a square member **35** is connected to the spindle by means of a friction clutch device in general denoted by **81**. Member **35** is non-rotatably guided in the square-bore upper portion of the casing **31**, i. e. in the portion of the casing above its lateral extension housing the worm wheel. Any conventional and suitable friction clutch may be used. In the illustration of Fig. 3, the upper end of the spindle **32** is formed as a cone **82** from which a screw threaded extension **83** projects. The cone **82** is resiliently held in engagement with a conical bore **84** of the member **35** by means of a spring **85** between a nut **86** on extension **83** and a washer **87** bearing on an inner shoulder **88** of member **35**. At the lower end of the spindle **32** a disc **36** is rigidly attached. The casing **31** is tiltable about a horizontal axis transverse to the motor car and may be held in its extreme end position about 10° to rear or to the front from the true vertical position in the fore-and-aft direction of the vehicle. The casing **31** is provided with a curved slide **38** sliding in guides **39**, **41** fixed to the chassis **42** of the motor car. The spindle **32** together with the casing **31** projects through a slot **40** of the fixed guides **39**, **41**.

The jack **31**, **32** is adapted to be moved to and held in either of its end positions by a rod **45** pivoted to a pin **44** of the casing **31**, which rod is displaceable from the seat of the driver of the motor car in such a direction as will be necessary to move the car in the desired direction. In either end position a bolt **46** carried by a bracket **31***a* secured on the casing **31** snaps into a bore **47** or **48** of the guide **39**. Bolt **46** may be operated by any conventional and suitable means (not shown) for which purpose it may be pushed in by spring force and withdrawn by a flexible member extended to the driver's seat.

Operation

As soon as the parking device is thus set into

one of its end positions of either Fig. 1 or Fig. 2 the electric motor is set in action by the driver, whereby the spindle **32** is moved lengthwise downwardly since owing to the member **35** and clutch **81** it is prevented from turning. This causes a lifting of the front end of the vehicle from the ground. As soon as the member **35** reaches and engages the wormwheel **33**, however, the downward movement of the spindle **32** will be stopped. Overcoming the frictional resistance setup in the connection between the spindle and member **35** spindle **32** will start rotating and the disc **36** at its lower end will turn the fore part of the motor car. As soon as the car has reached its desired position the electric motor may be switched by the driver, whereby the rotation of the spindle **32** and that of the disk **36** as a unit is stopped. The rotation of the motor may now be reversed to cause a reversal of the rotation of the worm wheel. Thereby the spindle will be lifted as the member **35** can freely move upward in the casing and frictionally resist a rotation of the spindle. While the spindle thus returns to its original position, the front end of the motor car descends and returns to its position on the ground.

Assuming a clockwise rotation of the disk **36**, when viewed from the top the fore end of the motor car is moved to the right when the parking device is in the position of Fig. 1, and to the left, when in the position of Fig. 2.

In Figs. 4 and 5, a modification of the ground engaging disc of the parking device is shown.

A modification of the ground-engaging disc of the parking device is shown in Figs. 4 and 5. In this modification, the lower end of the screw spindle **32** carries a disc **36***a* on which a row of round resilient pads **66**, for instance of rubber, is mounted. A rim **70** is attached by means of bolts **71** and nuts **72** to each pad **66**.

In Figs. 6 and 7 another modification is shown. The casing **31** of the jack is mounted in a slanting position of about 10° to the vertical. It is arranged, between the radiator **49** and the grill **49***a*, with its axis *b* some distance *d* laterally of the longitudinal center line *a*—*a* of the vehicle as clearly shown in Fig. 7. This arrangement is more convenient and the lifting action is attained without any drawbacks.

The embodiment shown in Figs. 8 and 9 is very similar to that of Figs. 1 and 2, the only difference being that no slide **38** and guide **39** is provided for. The entire parking device is simply rotatably mounted on a horizontal pivot **37**.

It is to be noted that, in the parking device according to the invention, the jack nut always turns in the same direction to accomplish both the axial, downward movement of the shaft for raising the car end and the rotation of the shaft for the lateral shift of the car end regardless whether the shifting takes place to the left or the right side; secondly, that the nut rotates in the opposite direction only to cause the shaft to move axially upward into its upper end position in order to lower the car after the completion of its shift; and, third, that the side to which the car end will be shifted depends on the tilted position of the shaft and its foot disc, forward or rearward of a vertical plane.

The parking device may of course be mounted to the front or to the rear end of the motor car and it may be actuated by a rack or by hydraulic means instead of the spindle.

What I wish to secure by Letters Patent is:

1. In a parking device for a motor vehicle, including a substantially upright jacking shaft and

means associated with said device to reciprocate said shaft in the direction of its axis between an upper and a lower end position, and to rotate said shaft when in its lower end position, the combination of a substantially circular, disc-like foot coaxial with and fixed to the lower end of said shaft, a housing in which said shaft is telescopically movable and from which said foot projects, a pivot means for said housing having its axis at right angles to said shaft axis, and said pivot means being adapted to be secured to said vehicle with said pivot axis transverse with respect to a longitudinal vertical plane of said vehicle, said housing being free to swing about said pivot axis between two end positions wherein said shaft is tilted at an acute angle to a transverse vertical plane through said pivot axis and with the foot end of said shaft rearward in one off-set position and forward in the other off-set position with respect to said transverse plane, means to adjust said housing selectively to one or the other of said end positions, and locking means adapted to engage said housing with said vehicle to lock said housing in its selected position.

2. A device as claimed in claim 1, said disc-like foot including a plurality of pivots arranged on a circle about said shaft axis and secured to said disc so as to extend downward thereof, and supporting elements mounted on each pivot.

3. A parking device for a motor vehicle comprising a lifting jack adapted to be mounted at one of the ends of the vehicle chassis, said jack including an upright tubular casing having a lateral extension intermediate the ends of said casing, a screw spindle rotatably and axially slidably mounted in said casing, a worm wheel having a threaded center hole in threaded engagement with said screw spindle and arranged in said lateral extension, means including a reversible motor for rotating said worm wheel, a member frictionally coupled with said spindle and engaging said housing, means restraining said member from rotating in said housing whereby to restrain rotation of said spindle while permitting axial movement of said spindle between a topmost and a lowermost end position when said wheel is rotated, abutment means on said member for arresting axial movement of said spindle when said lowermost position of said spindle is reached whereby said spindle overcoming said frictional resistance can turn with said worm wheel, a disc provided with a conical circumferential ground engaging surface fixedly mounted on the lower end of said spindle, and means for securing said tubular casing in angular relationship to the motor vehicle whereby the longitudinal axis of the casing is slightly tilted away from a true vertical axis.

4. The combination with a motor vehicle of a parking device comprising a lifting jack mounted at the front end of the vehicle chassis, said jack including an upright tubular casing pivotally mounted on said vehicle and having a lateral extension intermediate the ends of said casing, a screw spindle rotatably and axially slidably mounted in said casing, a worm wheel having a threaded center hole in threaded engagement with said screw spindle and arranged in said lateral extension, means including a reversible motor for rotating said worm wheel, a member frictionally coupled with said spindle and engaging said housing, means restraining said member from rotating in said housing whereby to restrain rotation of said spindle while permitting axial movement of said spindle between a topmost and

a lowermost end position when said wheel is rotated, abutment means on said member for arresting axial movement of said spindle when said lowermost position of said spindle is reached whereby said spindle overcoming said frictional resistance can turn with said worm wheel, a disc provided with a conical circumferential ground engaging surface fixedly mounted on the lower end of said spindle, means for adjustably supporting said tubular casing on said vehicle chassis, said supporting means comprising a guide fixed to and extending lengthwise of the vehicle chassis and a slide member on the lower end of said casing engaging said guide, and manually operable means secured to said tubular casing for adjusting said casing selectively to either one of two positions wherein the longitudinal axis of said tubular casing forms an acute angle in a vertical longitudinal plane of the vehicle, forwardly or rearwardly with respect to a vertical plane extending transverse of the vehicle.

5. The combination with a motor vehicle of a parking device comprising a lifting jack mounted at the front end of the vehicle chassis, said jack including an upright tubular casing pivotally mounted on said vehicle and having a lateral extension intermediate the ends of said casing, a screw spindle rotatably and axially slidably mounted in said casing, a worm wheel having a threaded center hole in threaded engagement with said screw spindle and arranged in said lateral extension, means including a reversible electric motor for rotating said worm wheel, a member frictionally coupled with said spindle and engaging said housing, means restraining said member from rotating in said housing whereby to restrain rotation of said spindle while permitting axial movement of said spindle between a topmost and a lowermost end position when said wheel is rotated, abutment means on said member for arresting axial movement of said spindle when said lowermost position of said spindle is reached whereby said spindle overcoming said frictional resistance can turn with said worm wheel, a disc provided with a conical circumferential ground engaging surface fixedly mounted on the lower end of said spindle, means for adjustably supporting said tubular casing on said vehicle chassis, said supporting means comprising a guide fixed to and extending lengthwise of the vehicle chassis and a slide member on the lower end of said casing engaging said guide, manually operable means secured to said tubular casing for adjusting said casing selectively to either one of two positions wherein the longitudinal axis of said tubular casing forms an acute angle in a vertical longitudinal plane of the vehicle, forwardly or rearwardly with respect to a vertical plane extending transverse of the vehicle, and means for locking said casing in either one of said two positions wherein said casing is slightly tilted with respect to said vertical plane.

6. The combination with a motor vehicle of a parking device comprising a lifting jack mounted at the front end of the vehicle chassis, said jack including an upright tubular casing having a lateral extension intermediate the ends of said casing, a screw spindle rotatably and axially slidably mounted in said casing, a worm wheel having a threaded center hole in threaded engagement with said screw spindle and arranged in said lateral extension, means including a reversible electric motor for rotating said worm wheel, a member frictionally coupled with said spindle and engaging said housing, means restraining said member from rotating in said housing whereby to restrain rotation of said spindle while permitting axial movement of said spindle between a topmost and a lowermost end position when said wheel is rotated, abutment means on said member for arresting axial movement of said spindle when said lowermost position of said spindle is reached whereby said spindle overcoming said frictional resistance can turn with said worm wheel, a disc provided with a conical circumferential ground engaging surface fixedly mounted on the lower end of said spindle, and means for adjusting said tubular casing selectively to either one of two positions to the vehicle chassis wherein the longitudinal axis of said tubular casing is slightly tilted either forwardly or rearwardly with respect to a vertical plane extending transverse to the vehicle, said last mentioned means including a horizontal pivot pin supporting said casing between the ends thereof on said vehicle chassis.

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