

Dec. 19, 1939.

J. W. MEAD

2,183,917

JACK

Filed March 25, 1938

2 Sheets-Sheet 1

Fig. 2.

Fig. 1.

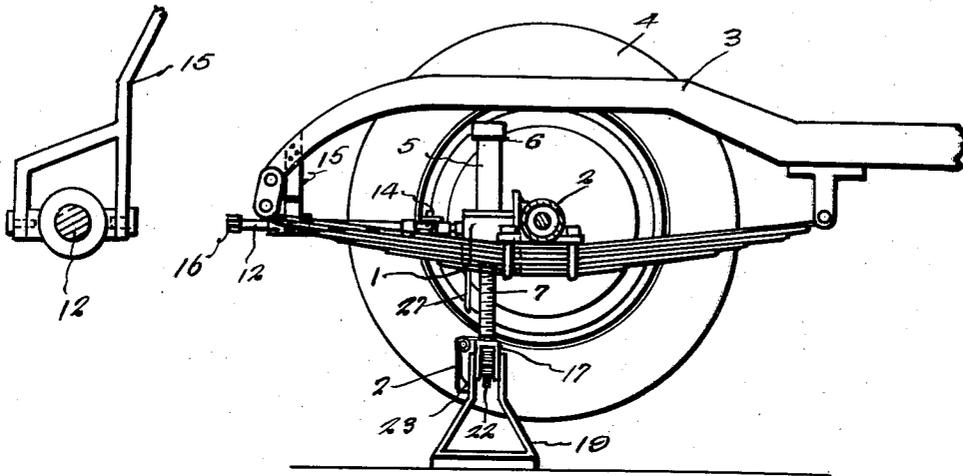
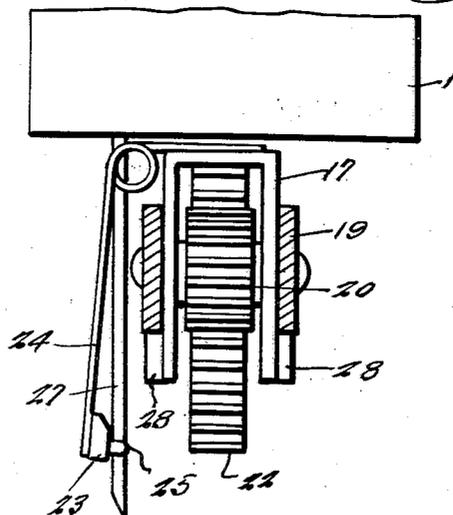
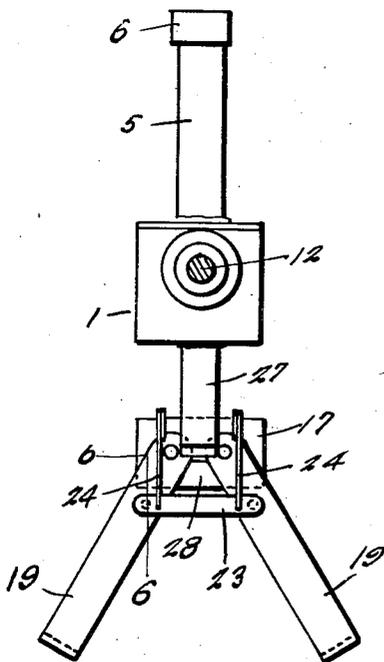


Fig. 2.

Fig. 5.



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Fig. 3.

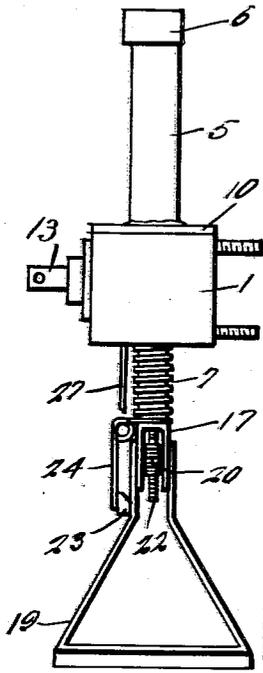


Fig. 4.

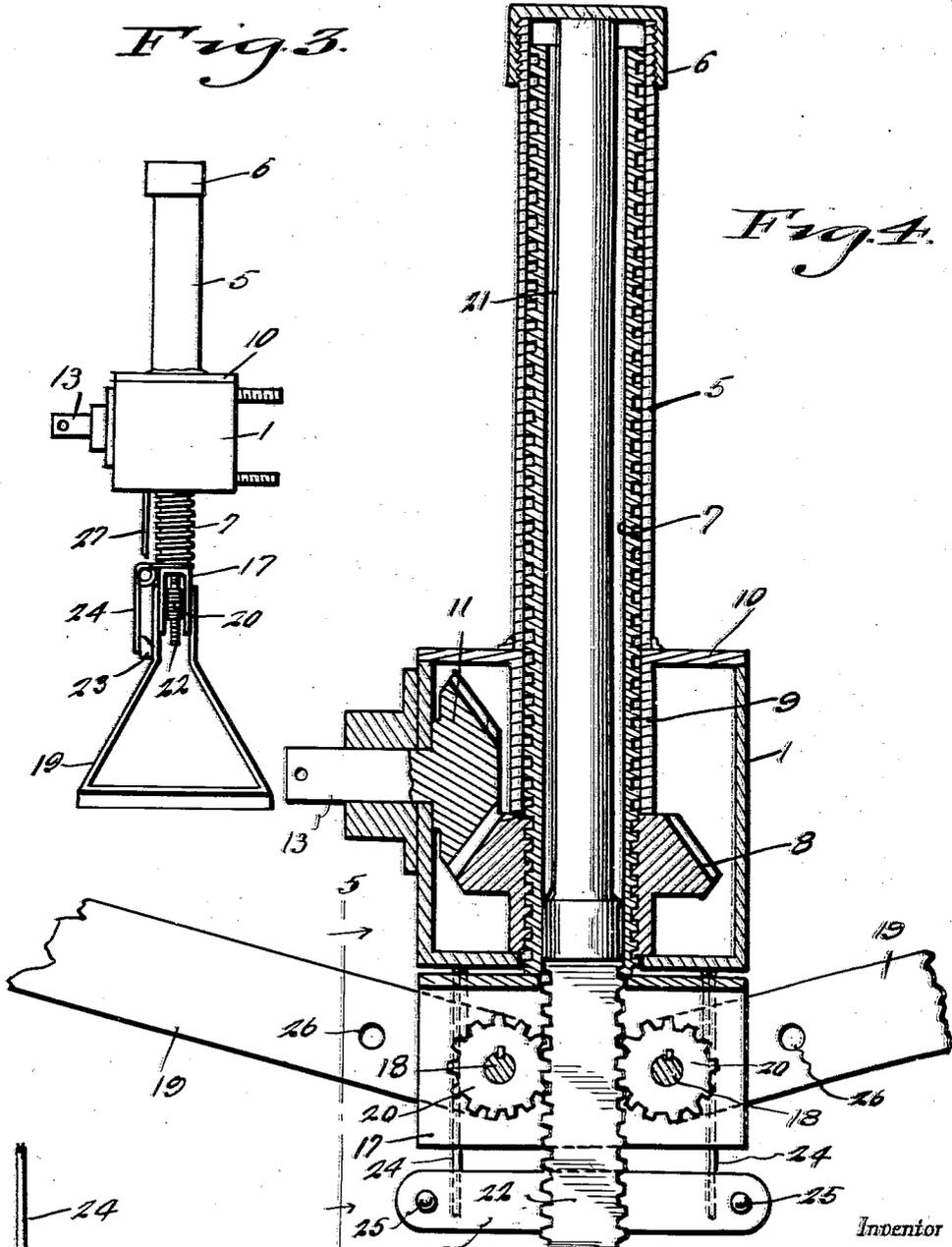
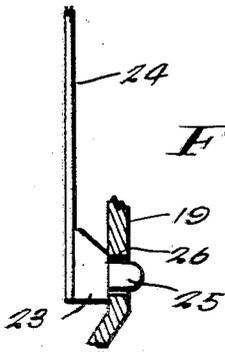


Fig. 6.



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UNITED STATES PATENT OFFICE

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JACK

James Willard Mead, Coleman, Tex.

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5 Claims. (Cl. 254—133)

The present invention relates to new and useful improvements in jacks for vehicles, particularly automobiles, and has for one of its important objects to provide, in a manner as hereinafter set forth, a device of this character which is adapted to be permanently mounted on the vehicle ready for operation at all times.

Another very important object of the invention is to provide a jack of the aforementioned character embodying a mechanism of a novel construction and arrangement for raising the vehicle.

Other objects of the invention are to provide a vehicle jack of the character described which will be comparatively simple in construction, strong, durable, highly efficient and reliable in use, compact and which may be manufactured at low cost.

All of the foregoing and still further objects and advantages of the invention will become apparent from a study of the following specification, taken in connection with the accompanying drawings wherein like characters of reference designate corresponding parts throughout the several views, and wherein:

Figure 1 is a view in side elevation, showing a jack constructed in accordance with the present invention in use.

Figure 2 is a view in front elevation of the jack, the drive shaft being shown in cross section.

Figure 3 is a side elevational view, showing the device removed from the vehicle.

Figure 4 is a vertical sectional view through the invention.

Figure 5 is a vertical sectional view, taken substantially on the line 5—5 of Fig. 4.

Figure 6 is a detail view in vertical section, taken substantially on the line 6—6 of Fig. 2.

Figure 7 is a detail view in elevation of the operating shaft support or hanger, showing the shaft in cross section.

Referring now to the drawings in detail, it will be seen that the embodiment of the invention which has been illustrated comprises a metallic housing 1 which is adapted to be rigidly secured in any suitable manner to one of the rear axle housings 2, for example, of an automobile 3. The reference numeral 4 designates one of the rear wheels of the vehicle. Rising from the housing 1 is a tubular casing 5 having threaded on its upper end a removable cap 6. Extending vertically through the housing 1 into the tube 5 is a vertically movable tubular screw 7. A bevel gear 8 is threadedly mounted on the tubular screw 7 in the housing 1. A thrust bearing 9, through which the screw 7 passes, is provided for the bevel

gear 8, said thrust bearing depending from the top plate 10 of the housing 1. Journalled in one of the walls of the housing 1 is a bevelled gear 11 which drives the gear 8. A shaft 12 is connected to the stub shaft 13 of the gear 11 by a universal joint 14 (see Fig. 1). A suitable hanger 15 rotatably supports the other end of the shaft 12. The free end of the shaft 12 is provided with a head 16 which is adapted to receive a conventional lug wrench.

Fixed on the lower end of the tubular screw 7 is a substantially U-shaped metallic bracket 17. Shafts 18 are journalled transversely in the bracket 17. Fixed on the end portions of the shafts 18 are ground engaging legs 19 of substantially the shape shown to advantage in Fig. 3 of the drawing. The reference numeral 20 designates gears which are fixed on the shafts 18 in the U-shaped bracket 17. Mounted for vertical sliding movement in the tubular screw 7 is a metallic rod 21. Depending from the lower end of the rod 21 is a double rack bar 22 with which the gears 20 mesh.

The reference numeral 23 designates a horizontal metallic bar which is mounted adjacent one side of the bracket 17 through the medium of springs 24 on said bracket. Projecting from the bar 23 are pins 25 which are engageable in holes 26, in the adjacent portions of the legs 19 for locking said legs in lowered position. A wedge 27 depends from the housing 1 for engaging the bar 23 and swinging same outwardly when the tubular screw 7 is raised or retracted in a manner to withdraw the pins 25 from the holes 26. Downward swinging movement of the legs 19 is limited through the medium of stops 28 on the sides of the bracket 17.

It is thought that the operation of the device will be readily apparent from a consideration of the foregoing. The legs 19 are normally held in raised or inoperative position, as seen in Fig. 4 of the drawings, by the gears 20, the rack bar 22 and the rod 21 which is engaged beneath the cap 6 on tube 5. When it is desired to raise the vehicle, a suitable wrench or other tool is applied to the head 16 on the shaft 12 and the gear 8 is rotated in a direction to lower the tubular screw 7. As the screw 7 is lowered it carries with it the bracket 17 and the legs 19. The gears 20 travel downwardly on the rack bar 22, thus permitting the legs 19 to swing downwardly toward operative position until arrested by the stops 28. During this movement the weight of the legs 19 maintains the rod 21 in engagement with the cap 6 through the gears 20 and the rack 55

bar 22. Substantially at this point, the bar 23 drops off the free lower end of the wedge 27 and engages the pins 25 in the holes 26 thereby locking the legs 19 in lowered position. During this downward movement of the mechanism, the wedge 27, extending closely adjacent one side of the bracket 17, holds the screw 7 against rotation. After the legs 19 have been locked in lowered or operative position downward movement of the screw 7 is continued and when said legs engage the ground the vehicle is elevated. When it is desired to lower the vehicle, the gear 8 is, of course, rotated in the opposite direction for raising the tubular screw 7. As the housing 1 is lowered with the vehicle, the wedge 27 engages and swings the bar 23 outwardly in a manner to withdraw the pins 25 from the holes 26, thus freeing the legs 19. Then, as the housing 1 with the tube 5 and cap 6 thereon continue downwardly, said cap 6 engages the rod 21 and forces same downwardly, thus swinging the legs 19 upwardly through the medium of the double rack bar 22 and the gears 20.

It is believed that the many advantages of a jack constructed in accordance with the present invention will be readily understood and although a preferred embodiment of the device is as illustrated and described, it is to be understood that changes in the details of construction and in the combination and arrangement of parts may be resorted to which will fall within the scope of the invention as claimed.

What is claimed is:

1. A jack of the class described comprising a housing structure adapted to be mounted on a vehicle, a tubular screw mounted in the housing structure and movable downwardly therefrom, a rack bar supported on the housing structure and retained against upward movement thereby, legs mounted for swinging movement on the lower end of the screw, and gears on the pivoted ends of said legs engaged with the rack bar for swinging said legs when the screw is raised or lowered, said legs being of sufficient weight to overbalance the rack bar and, through the gears, constituting means for supporting said rack bar against downward movement in the housing structure.

2. A jack of the class described comprising a housing structure adapted to be mounted on a vehicle, a vertically movable tubular screw operable in the housing structure and extending therebelow, means for raising and lowering said screw, a stationary rack bar mounted in the screw, ground engaging legs pivotally mounted on the lower end of the screw, and gears fixed to the legs and engaged with the rack bar for raising and lowering said legs when the screw is moved vertically, said legs being of sufficient weight to overbalance the rack bar and, through the gears, constituting means for supporting said rack bar against downward movement in the housing structure.

3. A jack of the class described comprising a housing structure adapted to be mounted on a vehicle, a tubular screw operable vertically in

the housing structure and extending therebelow, a stationary rack bar mounted in the tubular screw, means for actuating the tubular screw, a bracket fixed on the lower end of the tubular screw, ground engaging legs pivotally mounted on said bracket, gears fixed to the pivoted ends of the legs and engaged with the rack bar for swinging said legs when the screw is raised or lowered, and means for releasably locking the legs in lowered position, said legs being of sufficient weight to overbalance the rack bar and, through the gears, constituting means for supporting said rack bar against downward movement in the housing structure.

4. A jack of the class described comprising a housing structure adapted to be mounted on a vehicle, a tubular screw operable vertically in the housing structure and extending therebelow, a stationary rack bar mounted in the tubular screw, means for actuating the tubular screw, a bracket fixed in the lower end of the tubular screw, ground engaging legs pivotally mounted on said bracket, gears fixed to the pivoted ends of the legs and engaged with the rack bar for swinging said legs when the screw is raised or lowered, and means for releasably locking the legs in lowered position, said legs having holes therein, the last named means comprising a horizontal bar mounted for swinging movement on the bracket, and pins on said bar engageable in the holes, said legs being of sufficient weight to overbalance the rack bar and, through the gears, constituting means for supporting said rack bar against downward movement in the housing structure.

5. A jack of the class described comprising a housing adapted to be mounted on a vehicle, a tube rising from said housing and communicating therewith, a cap on the upper end of said tube, a tubular screw operable vertically in the tube and the housing and extending below the latter, means for actuating said screw, a rod slidably mounted in the tubular screw and engageable beneath the cap, a rack bar depending from the lower end of said rod, a substantially U-shaped bracket fixed on the lower end of the tubular screw, ground engaging legs pivotally mounted for swinging movement on said bracket, said legs having holes therein, gears fixed on the pivoted ends of the legs and engaged with the rack bar for swinging said legs on their pivots when the screw is moved vertically, a bar mounted for swinging movement on the bracket, pins on said bar engageable in the holes for locking the legs in lowered position, means on the bracket for limiting the downward swinging movement of the legs, and a member on the housing engageable with the bar for withdrawing the pins from the holes when the screw is moved upwardly, said legs being of sufficient weight to overbalance the rod and the rack bar and constituting means for supporting said rod and said rack bar against downward movement in the housing.

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