J. GUTMANN, JR.

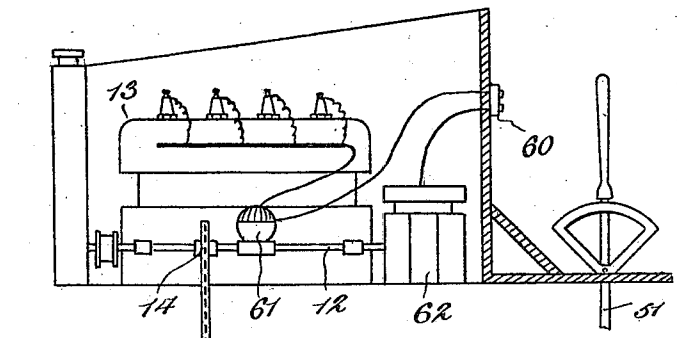
JACKING APPARATUS.

APPLICATION FILED APR. 12, 1921.

1,416,633. Patented May 16, 1922.

2 SHEETS—SHEET 1.

Fig. 1.



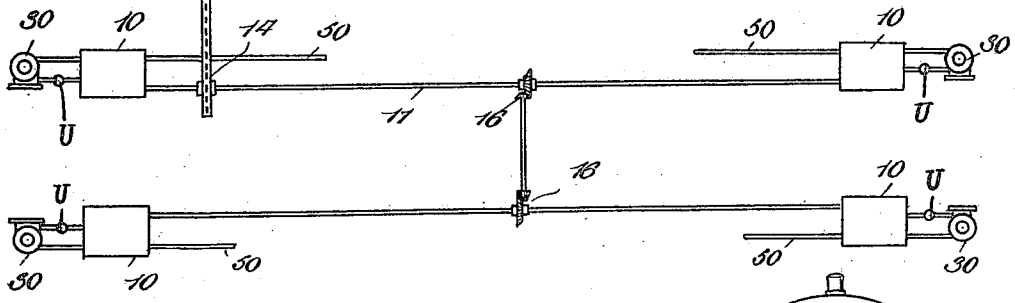
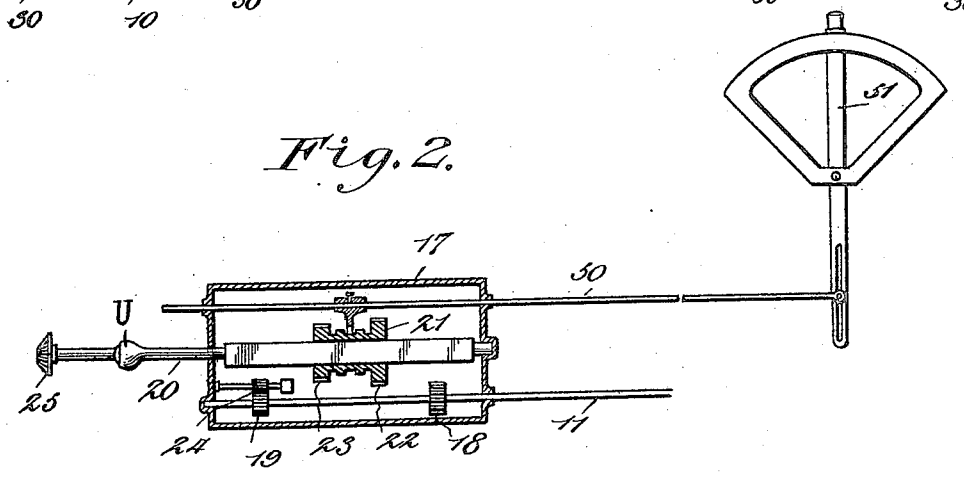


Fig. 2.



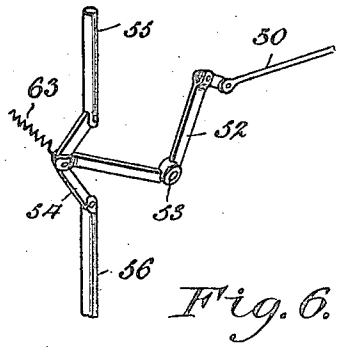


Fig. 6.

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2 SHEETS—SHEET 2.

Fig. 3.

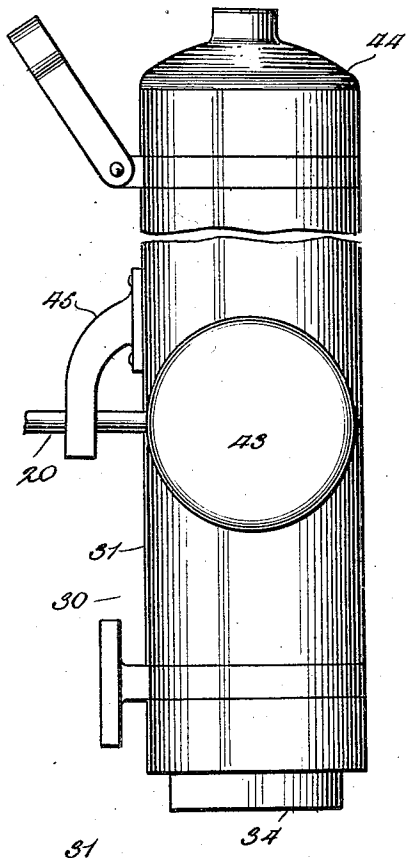
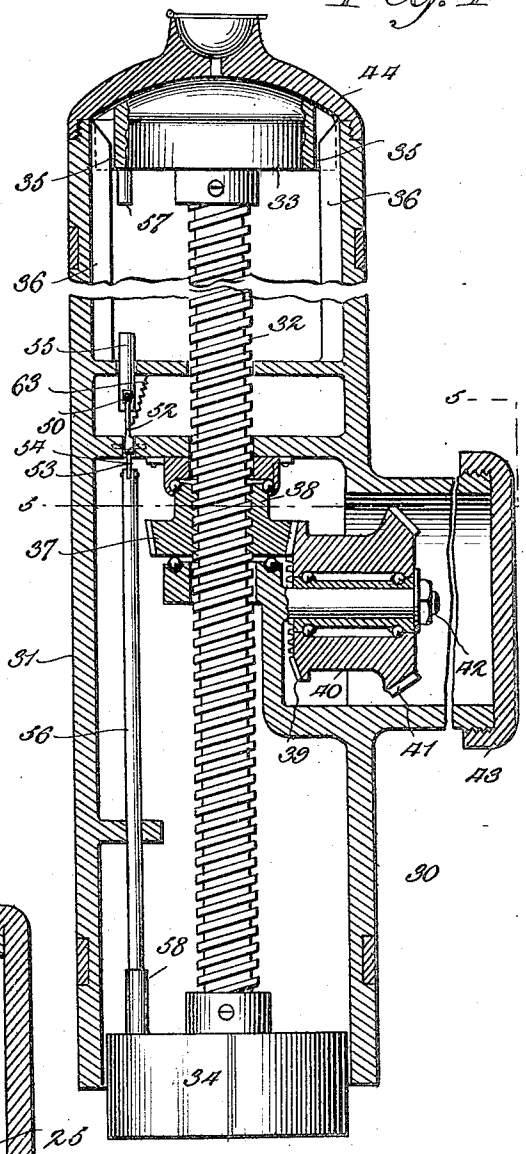


Fig. 4.



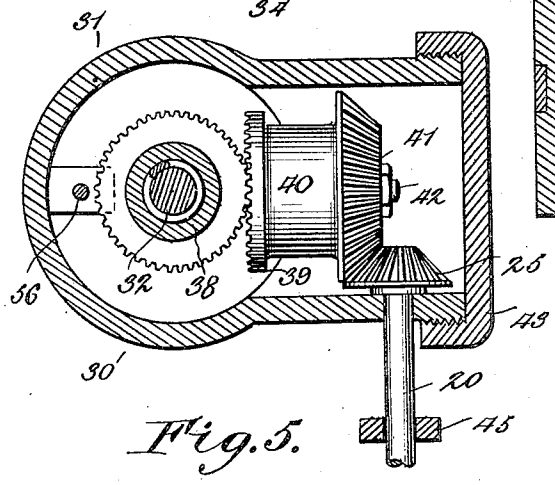


Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN GUTMANN, JR., OF RIDGEWOOD, NEW YORK.

JACKING APPARATUS.

1,416,633. Specification of Letters Patent. Patented May 16, 1922.

Application filed April 12, 1921. Serial No. 460,845.

To all whom it may concern:

Be it known that I, JOHN GUTMANN, JR., a citizen of the United States, residing at Ridgewood, in the county of Queens and State of New York, have invented new and useful Improvements in Jacking Apparatus, of which the following is a specification.

This invention relates to jacking apparatus.

More particularly, the invention relates to mechanically operable jacks arranged in operative positions on a motor vehicle for raising and then lowering the same.

Some of the objects of the present invention are: to equip a motor vehicle with a number of jacks which are capable of being operated for the raising and the lowering of the said vehicle by power derived from the motor of the vehicle; to equip a motor vehicle with a mechanically operable jack at each of the four corners thereof and mechanism with which the jacks may be operated selectively or simultaneously in raising and lowering a part of the vehicle or the entire vehicle; to operate the jacks by power derived preferably from the "starting motor" of the vehicle; to provide means for rendering the sparking system of the vehicle inactive thus insuring the inactivity of the engine of the vehicle during the jacking operations. With these and other objects in view the invention resides in the particular provision and combination of parts hereinafter more fully described and illustrated in the accompanying drawings, in which:

Figure 1 is a diagrammatic view and illustrating conventionally the combination of elements constituting the present invention.

Figure 2 is a sectional view through one of the units of the transmission mechanism and connected parts.

Figure 3 is an elevation of one of the jacks.

Figure 4 is a central vertical sectional view through one of the jacks.

Figure 5 is a horizontal sectional view taken on the line 5—5, Figure 4.

Figure 6 is a view of the combination of levers for operating one of the jacks.

Generally, the present apparatus includes preferably four jacks which are identical in construction and operation, identical power transmission units, and identical controlling units for controlling the power transmission units. The jacks are arranged at suitable points of the vehicle. The power transmission units are arranged beneath the vehicle and derive power preferably from the generator shaft of the engine. The controlling units each include a hand operated lever which is within convenient reach of the driver on the dash of the vehicle.

Inasmuch as the jacks, the power transmission units and the controlling units are identical, only one of each will be described for the sake of convenience and clearness in explaining construction and operation of the said elements.

The power transmission units 10 are connected in pairs to the shafts 11. One of the shafts 11 is driven from the generator shaft 12 of the engine 13 through the intervention of sprockets 14 and a chain 15. Motion is transmitted to the other of the shafts 11 through the intervention of gears 16. Each of the units 10 includes a casing 17 which supports an end of the shaft 11 which has secured thereto gears 18 and 19. A shaft 20 is supported for rotation by the casing 17 and has arranged thereon for sliding movement a block 21 which revolubly carries gears 22 and 23 which mesh respectively with the gears 18 and 19. One end of the shaft 20 has secured thereto a bevel gear 24.

Each of the jacks 30 includes a casing 31 in which is arranged for movement a screw 32. The screw 32 carries a head 33 at one end thereof and a head 34 at the opposite end thereof. Each of the heads 33 and 34 are detachable from the screw. The head 33 has grooves 35 which receive ribs 36 of the casing 31 to prevent the rotation of the said head. A gear 37 having a screw threaded hub 38 is held in place by roller bearings. The screw 32 extends through the hub 38 and coacts therewith for the reciprocation thereof. A gear 39 meshes with the gear 37 and the said gear 39 is formed on a member 40 which has also formed thereon a bevel gear 41. The member 40 is arranged for rotation on roller bearings supported by a stub shaft 42 supported by the casing 31. The casing 31 is provided with removable caps 43 and 44. By removing the cap 43 access may be had to the gears 37, 39 and 41, and by removing the cap 44 access may be had to the upper end of the casing 31. The cap 44 has a hole for the oiling of the interior parts of the jack.

The end of the shaft 20 having the gear 25 secured thereto is supported by a bearing 45 secured to the casing 31. The shaft 20 extends through the casing 31 into the interior of the same, and the gear 25 is in mesh with the gear 41. The jacks are arranged at suitable points on the chassis of the vehicle. There are preferably four jacks one at each of the corners or at diagonally opposite points of the chassis. Universal joints U in the shafts 20 operate to permit the proper operation of the jacks 30 in spite of relative movement of the jacks and the power transmission units 10.

Each power transmission unit controlling unit includes a rod 50 which is connected to block 21. One end of the rod 50 is connected to a hand lever 51 arranged on the dash of the vehicle. The opposite end of the rod 50 is connected to a bell-crank lever 52 pivoted as at 53 within the casing 31 of the jack. The lever 52 is connected to a toggle 54 which toggle has connected thereto rods 55 and 56. A member 57 on the head 33 is disposed to engage the rod 55, and a member 58 on the head 34 is disposed to engage the rod 56 in the reciprocation of the screw 32 for stopping the movement of the screw.

To operate one of the jacks the hand lever 51 is manipulated to shift the gear 22 into meshing relation with the gear 18. The hand lever 51 is manipulated after the sparking system of the engine has been rendered inactive by opening the switch 60 which will open the circuit between the distributor 61 and the magneto 62. When the gears 22 and 18 are thrown into meshing relation, motion will be transmitted to the shaft 20 and through the intervention of gears 24, 41, 39 and 37 downward movement will be imparted to the screw 32 for the raising of the part of the vehicle to which the jack is attached. During the downward movement of the screw 32 the member 57 on the head 33 will engage the rod 55 and move the same downwardly. The downward movement of the rod 55 causes the lever 52 to move thus causing a pull on the rod 50 and as a consequence the gear 22 will be moved to a neutral position, thus stopping the movement of the screw 32. By manipulating the hand lever 51 so as to throw the gear 23 into mesh with the gear 19 the reverse rotation of the gear 37 will take place and as a consequence the screw 32 will be raised for the lowering of the part of the vehicle to which the jack is attached. During the upward movement of the screw 32 the member 58 of the head 34 will engage the rod 56 and move the same upwardly aided by a spring 63 which has one end attached to the casing 31 and its opposite end attached to the central pivot of the toggle 54. The upward movement of the rod 56 causes the movement of the lever 52 and rod 50 and as a consequence the gear 23 will be moved out of mesh with the gear 19 to a neutral position inasmuch as the gear is carried by the block 22 which is connected to the said rod 50.

It should be manifest from the foregoing that, all four of the jacks may be operated at once or any particular one of the jacks may be operated alone at will. It should also be manifest that it is impossible for the vehicle to move during the jacking operations due to the provision of means for rendering the sparking system of the engine inactive.

What is claimed is:

1. The combination of a mechanically operable jack, motor driven mechanism for operating said jack, and manually and automatically operable mechanism for controlling the operation of said first mentioned mechanism.

2. Jacking apparatus for a motor vehicle including a plurality of mechanically operable jacks each including a movable screw, mechanism for effecting the movement of the screw in opposite directions, and mechanism for manually and for automatically controlling the operation of the first mentioned mechanism.

3. Jacking apparatus for a motor vehicle including a plurality of mechanically operable jacks attached to relatively remote parts of the vehicle, each of said jacks having a movable lifting screw; mechanism for effecting the movement of each screw in opposite directions, said mechanism including power transmission means including gears certain of which are shiftable; and mechanism for manually and for automatically shifting the said shiftable gears.

4. Jacking apparatus including a plurality of mechanically operable jacks each having a movable lifting screw with a head on either end thereof and an actuating member carried by each head; mechanism for effecting the movement of said screws in opposite directions, said mechanism including power transmission means including gears certain of which are shiftable with relation to the other gears which are driven; and mechanism for shifting said shiftable gears including manually operable means, and automatically operable means including a pair of movable rods connected to said shiftable gears, the said rods being disposed to be actuated by said actuating members.

5. Jacking apparatus including a plurality of jacks each including a casing having attaching means, a movable lifting screw, a gear mounted within the casing, said gear having a screw threaded hub which surrounds said screw, a head on each end of said screw, and an actuating member carried by each head; mechanism for transmitting movement to each ear including shift-

able gears; and mechanism for controlling the operation of the first mentioned mechanism, said last mentioned mechanism including, manually operable means, and automatically operable means including spring actuated rods which are connected to said shiftable gears, the said rods being disposed to be actuated by said members.

6. Jacking apparatus for a motor vehicle including a plurality of operable jacks for raising and lowering said vehicle, and mechanism including manually operable means for operating said jacks singly or in unison.

7. The combination with an internal combustion engine including an ignition system and a driven generator shaft, of a vehicle which supports said engine and which is driven thereby; jacks attached to parts of said vehicle and operable by virtue of the operation of said shaft to which they are connected by operating means, and means for rendering said ignition system inactive during the operation of said shaft in the jacking operations.

In testimony whereof I have affixed my signature.

JOHN GUTMANN, JR.