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LIFTING JACK FOR MOTOR VEHICLES
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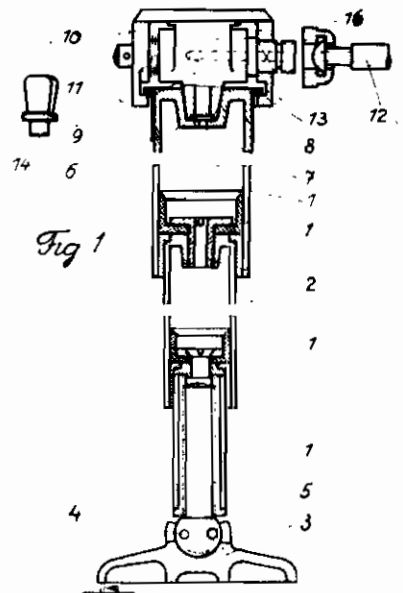


Fig 1

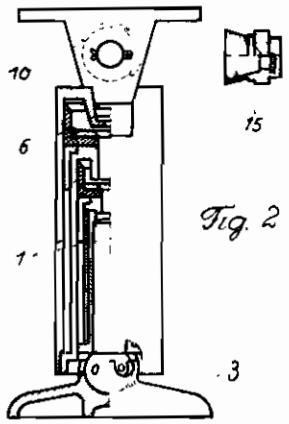


Fig. 2

Fig. 3

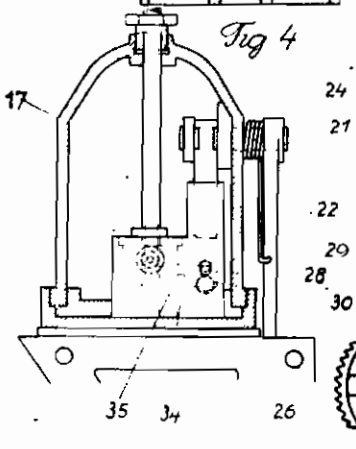
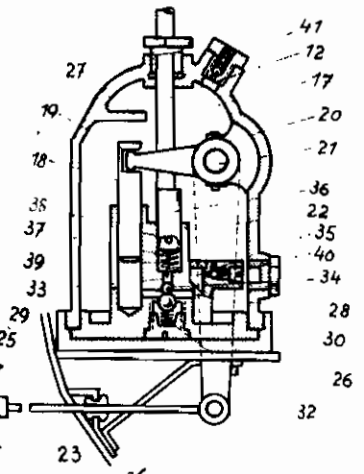


Fig 4



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ALIEN PROPERTY CUSTODIAN

LIFTING JACK FOR MOTOR VEHICLES

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This invention relates to a telescopic and fluid-operated lifting jack for motor vehicles.

According to the invention, the vehicle is provided at a suitable point, preferably under the hood at the dashboard, with a liquid-containing receptacle and a pump, or with a pump for producing compressed air, whence conduits extend to supply points suitably arranged on both sides of the vehicle in the center of the frame or running board and adapted to cooperate with the detachable telescopic lifting jack the filling of which with liquid or air is controlled from the driver's seat.

The invention is illustrated by way of example in the accompanying drawing showing an oil-operated hydraulic jack.

Figure 1 is a longitudinal section of a telescopic jack according to the invention in operating condition;

Fig. 2, a longitudinal section thereof in inoperative position,

Fig. 3, a sectional view of an oil receptacle with pump; and

Fig. 4, a side view of Fig. 3.

The lifting jack comprises telescopic tube members 1 correspondingly sealed relatively to one another and provided with passages 2 for liquid or air. The base member 3 is fitted with a ball and socket joint 4 so as to be universally movable and permit adaptation of the jack to unevennesses of the ground. With the aid of a screw member 5 the base 3 can be screwed into the lowermost tubular member to lengthen or shorten the jack as required. In the example shown holes are provided in the ball of the joint for moving the screw member by means of a pin, though other arrangements may be made of course. The top of the jack possesses a covering in which a conical sleeve 6 having a passage 7 for liquid or air is provided. By means of the sleeve 6 the jack, in fully telescoped condition as shown in Fig. 2, is attached to a conical member 8 of the supply outlet or mouthpiece comprising a valve cock 9 disposed in a casing 10 and held in inoperative position by a spring 11, at which the sleeve 6 occupies a horizontal position. To the valve cock 9 a conduit 12 coming from the pump is connected, and the jack is attached to the sleeve 6 in horizontal position and then swung down 90° to occupy a vertical supporting position. The jack is then fixed between car and ground by the turning out of the base and engages with lateral flanges behind an angular member 13 on the frame 10. The valve cock 9 is so constructed that it is opened when the jack is turned down, and closed during the return motion. The conical mouthpiece 8 and the sleeve 6 are, respectively, closed by a screw cap 15 and a threaded plug 14. The supply mouthpiece 8 and its valve cock 9 are rotatably disposed in a U-shaped support 16 which is directly screwed to a vehicle.

A vessel 17 shown in Fig. 3 holds oil and contains also an in-built pump. At the free end of the pump piston a notch 19 receives a lever arm 20 mounted on a shaft butt 21 supporting a pump lever 22 which is swingable on the outside of the vessel 17 and, by means of a spring 24, Fig. 4, can be actuated by the driver's foot through the medium of a connecting rod 23 projecting through a dashboard 25 into the interior of the vehicle. The vessel 17 is arranged on a bracket 26 secured to the dashboard 25. A stop 27 in the vessel 17 limits the upward stroke of the piston 18.

The pump cylinder is connected with the inside of the vessel 17 by a horizontal channel 28 in which two balls, 29, 30, act as valve, the lower larger ball 30 abutting against a spring 32 and the upper smaller ball 29 against a vertical bore 33 and a horizontal channel 34 which opens into an antechamber 35. Above the vertical bore 33 a control piston 36 abuts against a spring 37 and possesses a locking means 38 permitting fixing of the piston in any desired position. A pin 39 of the control piston 36 engages the bore 33 and thereby the smaller ball 29. Safety valves 40, 41 are provided in the wall of the antechamber 35 as well as on the oil vessel 17.

The mode of operation during pumping and use of the jack is as follows:

When the piston 18 draws, oil passes through the channel 28 and past the valve balls 29, 30 into the pump cylinder, and when pressure is exerted by the piston 18, the control piston 36 will also be forced down and, with its pin, push the valve ball 29 against the larger ball 30, so that the supply channel 34 for the antechamber 35 is freed from the ball closure 29, which now blocks the channel 28 leading to the vessel 17, and oil can flow into the antechamber 35 whence it passes through the conduit 12 and the supply mouthpiece 8, 9 into the telescope jack.

The jack can be rendered inoperative by the weight of the vehicle. For this purpose, the pump piston 18 and the control piston 36 are brought into central position by the connecting rod 23 and the piston 36 is held in position by the locking means 38, whereby the channels 28 and 34 are released by the ball 29 and oil can flow back from the antechamber 35 through the channels 34, 28 into the vessel 17. Excess pressure in the antechamber 35 can be equalized by an excess pressure valve 40, or oil may escape through this valve into the vessel 17.

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