

Title of Patent

A Composite Wheel Spanner

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Abstract

A composite wheel spanner that simultaneously unscrews four wheel nuts/bolts of a Golf 4 Volks Wagon comprises the gear box casing (001) an enclosure of multiple gears and shafts that allows transmission of torque from the handle to the wheel bolts. The gears are located in the gear box and are held by shafts having keys and keyways. The gear shaft is an axle of the gear that provides rotation that allows a gear to engage with another gear while in operation. Spanner socket (002) fixed to the gear casing in a radial path are used in loosening the wheel bolts. The Handle (003) drives the gears by applying a whining force. The stand (004) and Base (005) hold together the gear box, the shafts and other elements.

Description

FIELD OF THE INVENTION

The present invention relates to a machine used for the simultaneous unscrewing of wheel bolts of a Golf 4 Volkswagen and other related vehicle models

BACKGROUND

The conventional wheel spanner basically has some short comings that include: length of time taken to unscrew the wheel nuts one after the other and there after fixing and tightening them in a cross pattern and not in a clockwise or anti-clock pattern; Uneven torque between the various nuts or excessive torque leading to warping of the brake rotor for cars equipped with disc brakes.

The newly designed composite wheel spanner is aimed at reducing the amount of force required to tighten four (4) bolts of a wheel at the same time thereby reducing the amount of time spent in tightening the bolts of a wheel. The device is also aimed at reducing the amount of force required to tighten each bolt of a wheel as the force applied from the handle will be transmitted to each driven gears evenly. Applying the force at the handle reduces the risk of getting injured by the device unlike the conventional wheel spanner which can cause damage if not properly used.

SUMMARY OF THE INVENTION

An object of the invention is to overcome at least some of the drawbacks relating to the existing wheel spanner.

The operation of the composite wheel spanner is different from the conventional wheel spanner from how force is applied to the handle of the spanner to the movement of the gears in the gear casing. To start, the car should be parked in such a way that the sockets of the spanner would align with all the nuts or bolts of the wheel. When wedges have been put at their right places, the composite wheel spanner can then be applied to loosen the bolts of the flat tire with the right amount of force applied to it so that it can generate the required torque to loosen the bolts or nuts. Since it requires the bolts or nuts of a wheel to be rotated in an anti-clockwise manner, the handle of the composite wheel spanner should be rotated in a clockwise manner. The reverse is the case for tightening the wheel nuts.

BRIEF DESCRIPTION OF THE DRAWINGS

Having thus described the invention in general terms, reference will now be made to the accompanying drawings, which are not necessarily drawn to scale, and wherein:

FIG. 1 shows the isometric view of the composite spanner according to one embodiment of the present invention.

FIG. 2 comprises pictures of the composite spanner during testing.

DETAILED DESCRIPTION OF THE INVENTION

The present inventions now will be described more fully hereinafter with reference to the accompanying drawings, in which some examples of the embodiments of the inventions are shown. Indeed, these inventions may be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided by way of example so that this disclosure will satisfy applicable legal requirements. Like numbers refer to like elements throughout.

The component by component description of the composite spanner is given with reference to FIG. 1 and 2.

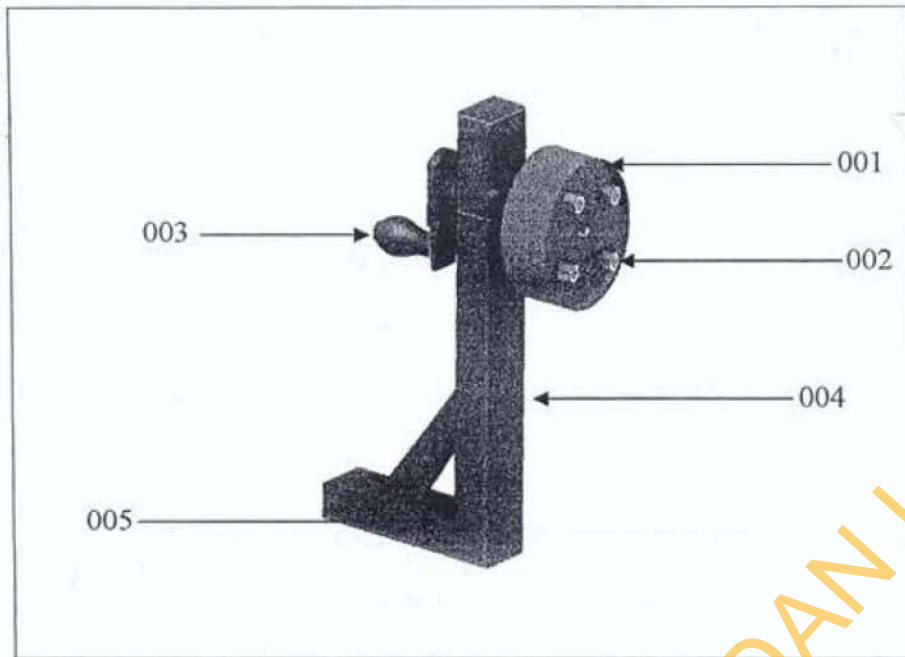
Gear Box Casing (001) is an enclosure of multiple gears and shafts that allows transmission of torque. The gear box is a hollow cylinder designed to the required size and shape. The gear shafts is an axle of the gear which provides rotation that allows one gear to engage with and turn another gear. The Key and Keyway elements connect the gear to the shaft. Through this connection, the key prevents relative rotation between the two parts and allows torque to be transmitted through. The gears of the composite wheel spanner are spur gears located in the gear box and held by shafts having its key and keyway.

The socket (002) attached to the gear casing is an opening or hollow into which the wheel nuts fit in to be loosened or tightened. In this case, a 17mm socket is used to be able to lose the desired bolts.

The Handle (003) enables the operator to transfer the force needed to produce the required torque to drive the gears.

The Stand (004) and Base (005) hold the gear box containing the gears and the shafts and other elements to produce the desired effect. The stand has been designed to in such a way that it carries the gear box and its contents without tipping forward.

DRAWING



Part No.	Part Material	No. of Items
001	Gear Box	1
002	Socket	4
003	Handle	1
004	Stand	1
005	Base	1

Figure 1: Isometric View of Composite Spanner

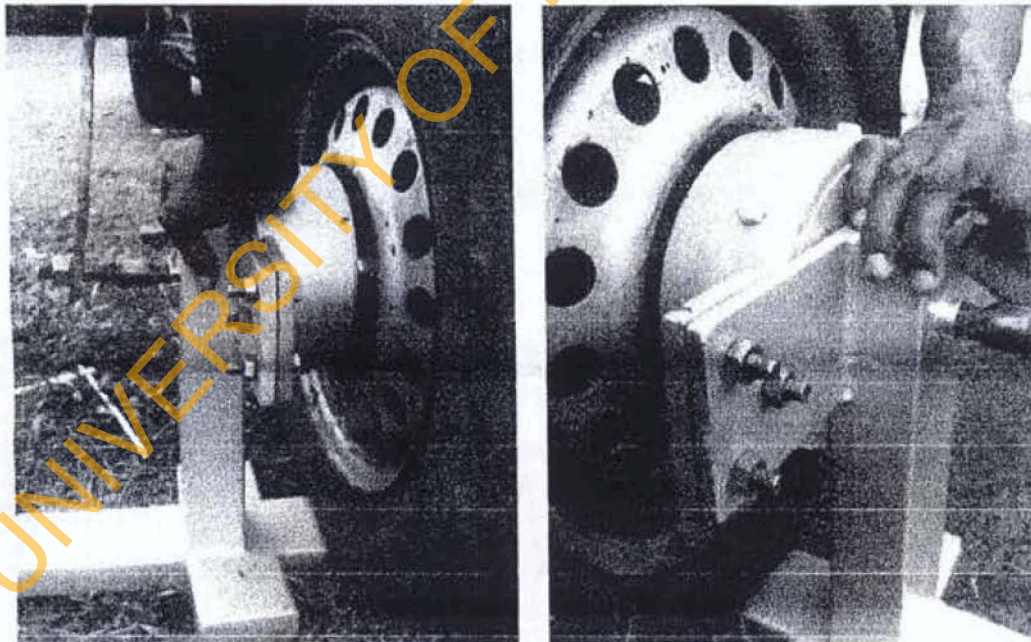


Figure 2: Composite Spanner during testing.

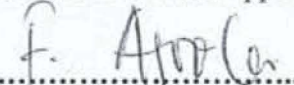
Claims

What we claim are as follows:

A machine for tightening and loosening four wheel nuts simultaneously, said machine comprising:

1. a gear box casing which is an enclosure of multiple gears and shafts that allows transmission of torque.
2. an axle of the gear which provides rotation that allows one gear to engage with and turn another gear.
3. keys and keyway elements which connect the gears to the shaft. Through this connection, the key prevents relative rotation between the two parts and allows torque to be transmitted through.
4. gears of the composite wheel spanner which are spur gears located in the gear box and held by shafts having its key and keyway.
5. four sockets attached to the gear casing into which the wheel nuts fit in to be loosened or tightened.
6. a handle enables the operator to transfer the force needed to produce the required torque to drive the gears.
7. a stand and base that hold the gear box containing the gears and the shafts and other elements to produce the desired effect. The stand has been designed to in such a way that it carries the gear box and its contents without tipping forward.


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