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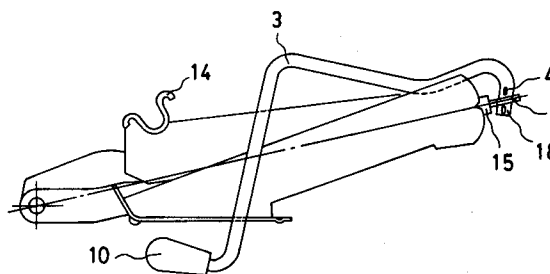
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40 Gran Via St.
E-28013 Madrid (ES)(54) **Winding Handle for car Jack.**

(57) "WINDING HANDLE FOR CAR JACK" relates to a crank or winding handle (3) connected to the spindle (15) of a car jack by means of the loose insertion of its end (18) into a washer (1) secured to the spindle. The end (18) has two swaged or punch-pressed lugs (4) on both sides of the faces of the washer, which prevent the winding handle from being removed. It is a simple, economical unit, which ensures the perfect turning movement of the car jack and prevents the displacement or shifting of the spin or turning axis (6).

Fig.: 4**EP 0 623 548 A1**

This invention relates to a winding handle used for operating car jacks, so as to be able to raise or lower the car, for example, when changing wheels.

Usually, in those car jacks which operate by means of the turning or rotation of a screw-threaded spindle, the use of a crank or winding handle is necessary in order to make the said spindle turn so that the jack, by means of a member that it is equipped with, can be raised or lowered, depending in which direction the winding handle is rotated.

Known devices of this type have winding handles which are independent of the body of the jack and which, at the time of use, are connected to the spindle and then later separated from it. The problem with these winding handles is that they are units which are separate from the jack body, with the resulting risk of loss or mislaying, for example.

Winding handles are also known which are permanently connected with the spindle of the jack, forming a whole with the body of the jack itself. Winding handles of this type which are known have the inconvenience of their bad workability, especially at the start of the operation, when the jack is very close to the ground and space is needed so that the user's hand does not touch or scrape the ground.

Some of these winding handles are equipped with hinged or articulated parts and even telescopic, although they improve the workability, still have the inconvenience of being expensive.

One objective of the invention is a winding handle for car jacks that is connected to the spindle of the jack by means of a floating connection which does not need any kind of mechanism.

Another objective of the invention is a winding handle that is composed of one single body, which in its folded position, adjusts to and fits in with the shape of the jack.

Another objective of the invention is a winding handle which is easily and perfectly workable.

And finally, another objective of the invention is a winding handle which is economical to manufacture, so that its final sales price can be low.

In order to put these objectives into practice, the invention claims a winding handle which is composed of one single body with one elbowed end provided with a sheath so that it can be grasped or held, another section at a right angle to and immediately after the elbowed end, and the opposite end, which is V-shaped. The cross-section of the winding handle is preferably circular.

The more outer wing of the V-shaped end of the winding handle is equipped with two punch-pressed or swaged parts, separated a certain distance from each other, which provide two projections or lugs.

In its turn, the free end of the jack spindle receives, welded to it, a flat washer of a commercial

type, for example, which is connected to the front or forward end of the spindle by means of a section of the side surface of the same, so that the general constitutive plane of the washer coincides with a theoretical plane carried out according to the longitudinal axis of the spindle.

The hole in the washer is of a greater diameter than the diameter of the winding handle, so that the end of the winding handle equipped with the two punch-pressed areas can be housed loosely inside it. The two projections or lugs that are provided by these punch-pressed areas protrude or jut out from the cross-section of the winding handle by such an amount that the cross-sections in these areas are greater than the diameter of the hole in the washer.

The two punch-pressed lugs are situated at a certain distance from each other, with the distance between them being greater than the thickness of the washers so that once that the outer wing of the V-shaped end of the winding handle has been housed in the washer, both press punching operations are carried out, thus preventing the winding handle from being extracted or removed once that it has been inserted into the washer.

The end of the winding handle thus housed inside the washer is therefore provided with sufficient tolerance or play in relation to the washer, that it can adopt any position with regard to it and consequently therefore with regard to the spindle of the jack.

One of the wings of the elbow-shaped centre section of the winding handle, more specifically the one corresponding to the V-shaped end, is aligned with the geometric centre of the washer in the working position. Evidently, this is due to the fact that the said alignment coincides with the centre of the space between the two punch-pressed areas of the winding handle.

With this arrangement, the winding handle can adopt any position, so that it would in any case adopt the most interesting posture or angle, depending on the moment and also the position in which the jack is to be found. Logically, whatever the position, the winding handle can be made to adapt perfectly thanks to the play in the connection between the winding handle and the washer.

All these features and other details of the invention will be better understood by referring to the accompanying sheets of drawings, on which the following are represented:

- Figure 1 is an elevation of a car jack with the winding handle of the invention in the position at the start of raising.
- Figure 2 is an enlarged detail which shows two different positions of the winding handle.
- Figure 3 represents an elevation with the assembly of the car jack and the winding handle in the open position.

- Figures 4 and 5 show two different positions of the closed car jack, with the folded winding handle fitting closely around the body of the jack.

Referring now to Figure 1 of the drawings, we can see a car jack with its support members (11) and (12), as well as the section (14) which is placed below the bodywork of the car and on which the said bodywork is supported so that the car can be raised or lowered. The jack is supported by its base (13) on the ground.

The protruding right end of the spindle (15) receives, welded to it, the washer (1), into which penetrates the section (18) of the winding handle on which the two punch-pressings (4) are carried out, separated a certain distance from each other, with one above the washer and the other below it.

As can be appreciated, the winding handle (3) has an end (9) which is used for operating it, which is occupied by a body or grip (10) and the central elbow-shaped section (7, 8). The opposite end (16) of the winding handle is V-shaped, as shown.

In this position, to start raising the jack, the winding handle is turned upwards, so that its end (10) can be raised from the ground, allowing the user's hand to operate it without any kind of problem.

According to Figure 2, we can understand how the winding handle (3) can be moved in relation to the washer (1), from position (7) to position (7a), while conserving in all positions the alignment of the said portions (7, 7a) with regard to the washer. In this figure it is also possible to appreciate the distance (5) between the two punch-pressed areas, with this distance being slightly greater than the thickness of the washer, as well as the tolerance or play that exists between the cross-section of the body of the winding handle and the hole in the washer.

Referring now to Figure 3, a car jack is illustrated in the open position, according to which the winding handle is found in a different position from that shown in Figure 1, with the section (7) in a horizontal position and aligned with the middle plane of the washer, which guarantees the perfect turning movement, while also preventing the turning or spin axis from being displaced or shifting.

With regard to Figures 4 and 5, we can observe how, when the car jack is folded, the winding handle (3) folds close against it, from the upper part to the side and lower part, so that it adapts perfectly to the outer shape of the car jack and which, like this, occupies the minimum amount of space.

As was mentioned previously, the washer (1) can be like the one illustrated in Figure 5 or any other shape, for example, a commercial washer, provided that it maintains the feature of its play in

relation to the section (18) of the winding handle with the two punch-pressed areas (4), in order that the said winding handle will be able to move freely in the housing in the washer (1).

The same could be said as regards the cross-section of the winding handle, which can take variable shapes, with the condition that the punch-pressed areas (4) prevent the said winding handle from being extracted from the washer, while at the same time providing sufficient tolerance or play.

To summarize all that has been stated regarding the advantages provided by the invention, we will point out that the advantages of the winding handle that is the object of this invention, in relation to other known winding handles, can be specified as follows:

- Integration into the car jack assembly itself.
- Cannot be lost or misplaced.
- No mechanism is needed, neither telescopic nor articulated.
- It is more economical and easier to operate.

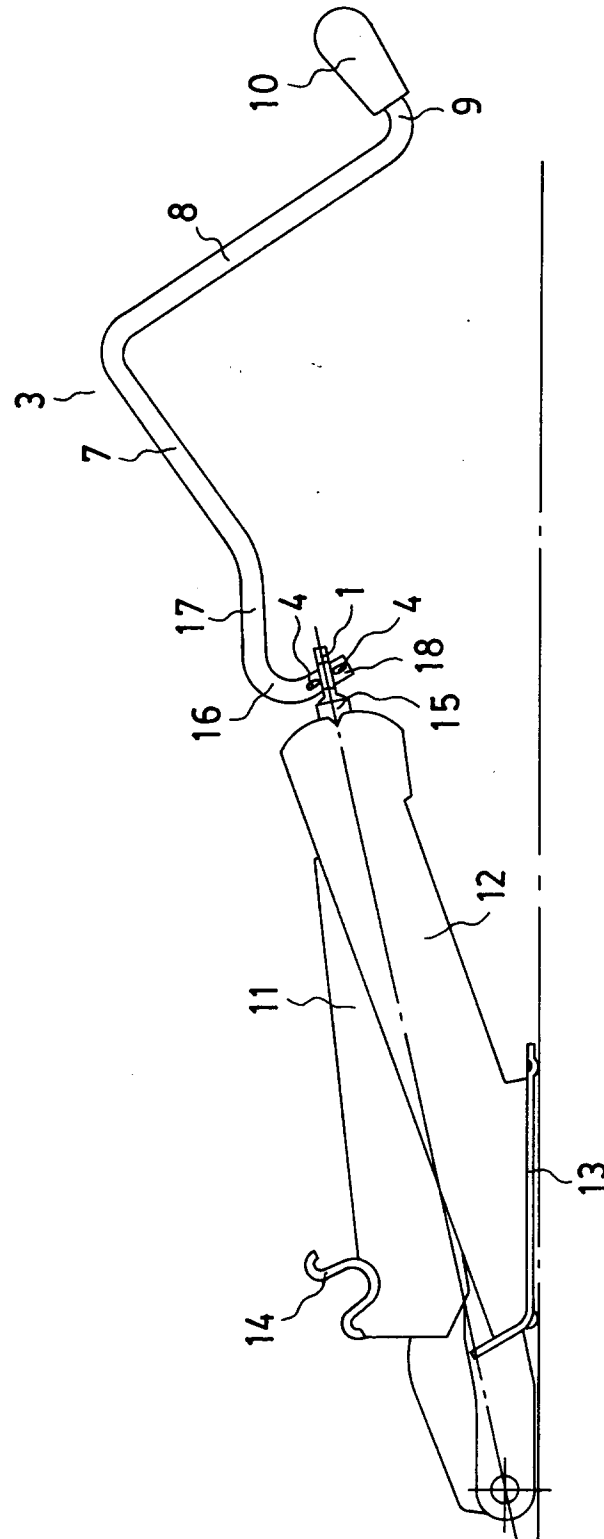
It is important to emphasize, once having described the nature and advantages of this invention, its non-restrictive character, inasmuch as changes in the shape, material or dimensions of its constituent parts will not in any way alter its essence, as long as they do not mean a substantial variation of the whole.

Claims

1. Winding handle for car jack, applicable to car jacks which are equipped with support members (11, 12) operated by the rotation of a screw-threaded spindle (15) which is connected to them, in which the winding handle provides the said rotation of the spindle by its being connected to it, which is characterized in that a flat washer (1) is connected to the free end of the spindle (15) by means of a section of the side surface of the same, in such a way that the continent plane of the washer coincides with a theoretical axial plane of the spindle, in that the end (18) of the winding handle (3) moves with sufficient play inside the hole in the washer, with two areas of this end having been punch-pressed (4) to provide lugs which are of a greater cross-section than the dimensions of the hole in the washer (1), in that the lugs formed by the punch-press are spaced at a certain distance from each other and this distance is somewhat greater than the thickness of the washer, with the lugs being arranged one on each side of the hole in the said washer, in that the end (18) of the winding handle (3) is one of the wings of a V-shaped section in which the winding handle finishes on the side towards the spindle, with this end (16)

of the winding handle being followed by a straight section (7), whose alignment coincides with the centre of the space between the punch-pressed lugs (4) of the section (18).

- 5
2. Winding handle for car jack, in accordance with claim 1, characterized in that the section (7) of the winding handle aligned with the centre of the space between the punch-pressed lugs (4) forms an angle, preferably of 90°, with another section (8) of the same winding handle, with this section finishing in an elbow-shaped section (10, 11), which is used to operate the winding handle when turning. 10
- 15
3. Winding handle for car jack, in accordance with claims 1 and 2, characterized in that the cross-section of the winding handle (3) is circular in shape. 20
- 25
4. Winding handle for car jack, in accordance with claims 1 and 2, characterized in that the cross section of the winding handle (3) is of a geometrical, and preferable regular, shape. 30
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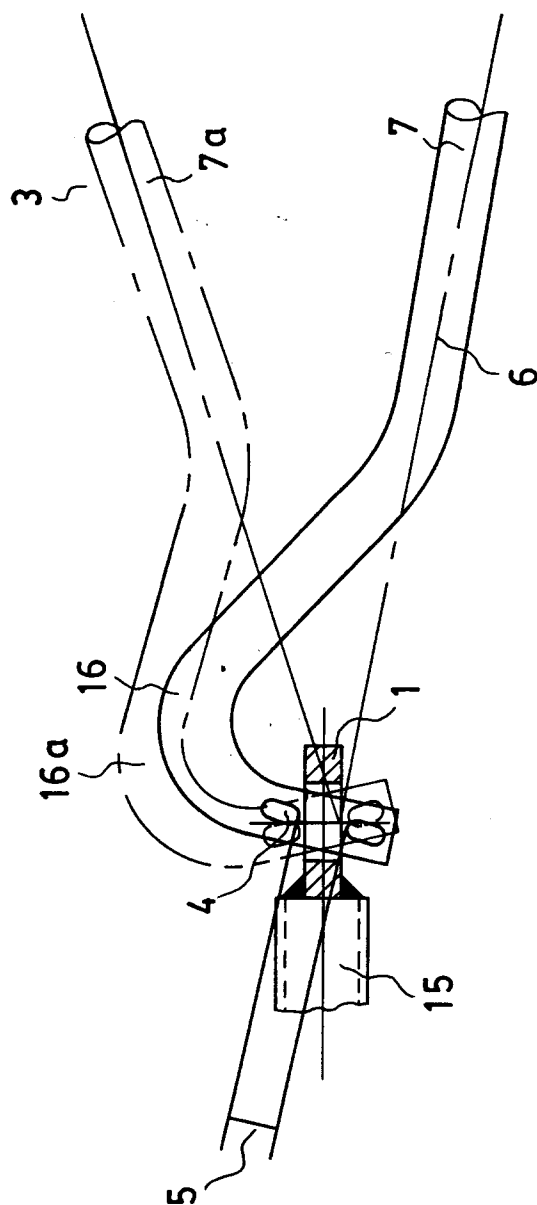
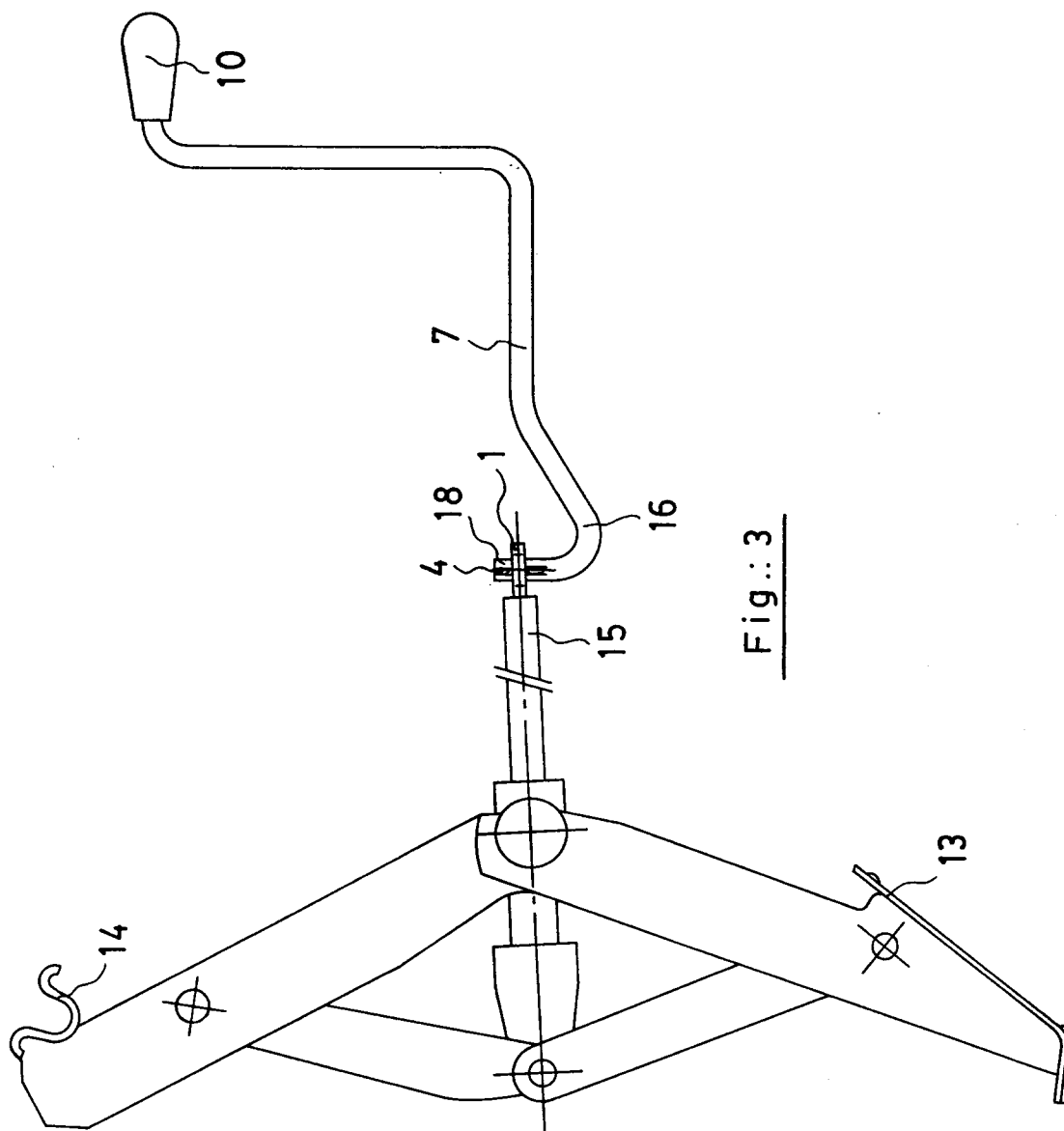


Fig.: 2



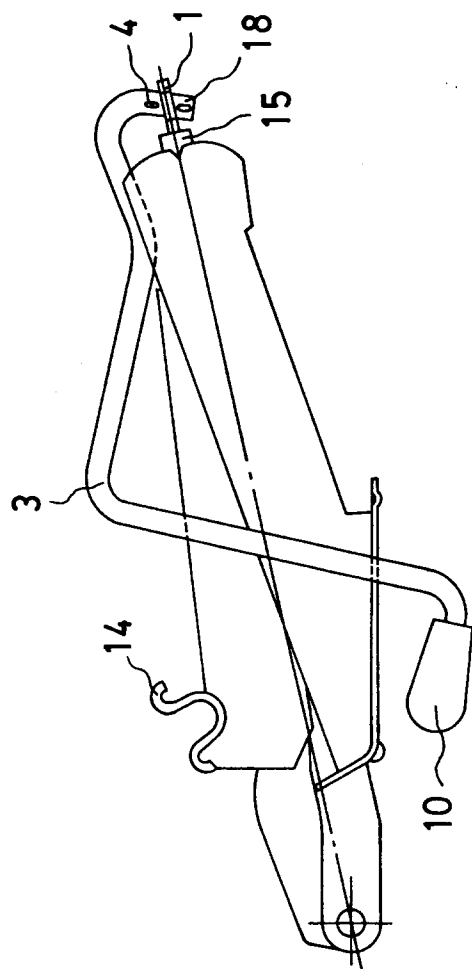


Fig.: 4

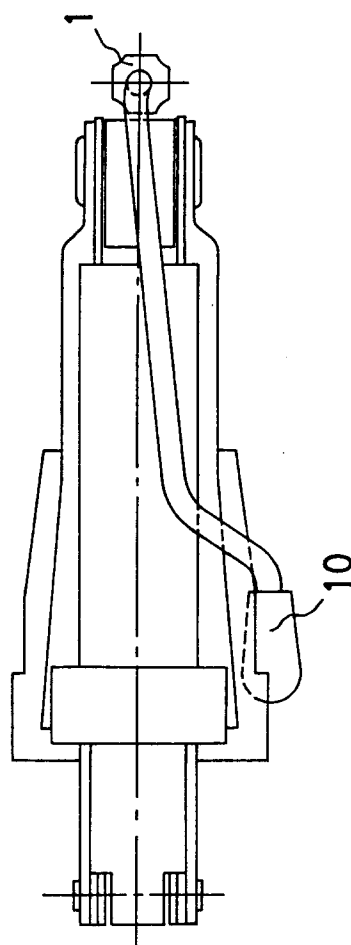


Fig.: 5



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EUROPEAN SEARCH REPORT

Application Number

EP 93 50 0059

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	FR-A-2 635 097 (TAKRAF) * the whole document * ---	1-5	B66F1/00 B66F3/12 B66F13/00
X	GB-A-2 030 107 (TAKRAF) * the whole document * ---	1-5	
A	GB-A-2 238 774 (FORD MOTOR COMPANY) * abstract; figures 1,2 * ---	4	
A	FR-A-2 558 817 (ASTRA) ---		
A	FR-A-2 644 766 (SOCIETE DE FABRICATION D'ACCESSOIRES AUTOMOBILES) ---		
A	US-A-4 586 696 (MUGFORD) ---		
A	US-A-2 479 362 (JACKSON) ---		
A	US-A-2 557 465 (RAUSCHER) ---		
A	US-A-2 463 971 (JACKSON) ---		TECHNICAL FIELDS SEARCHED (Int. Cl.5)
A	GB-A-2 053 846 (METALLIFACTURE) ---		B66F
A	US-A-2 760 756 (LUCKER) ----- -----		
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 04 OCTOBER 1993	Examiner VAN DEN BERGHE E.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			