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AUTOMOBILE JACKING DEVICE

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Fig. 1.

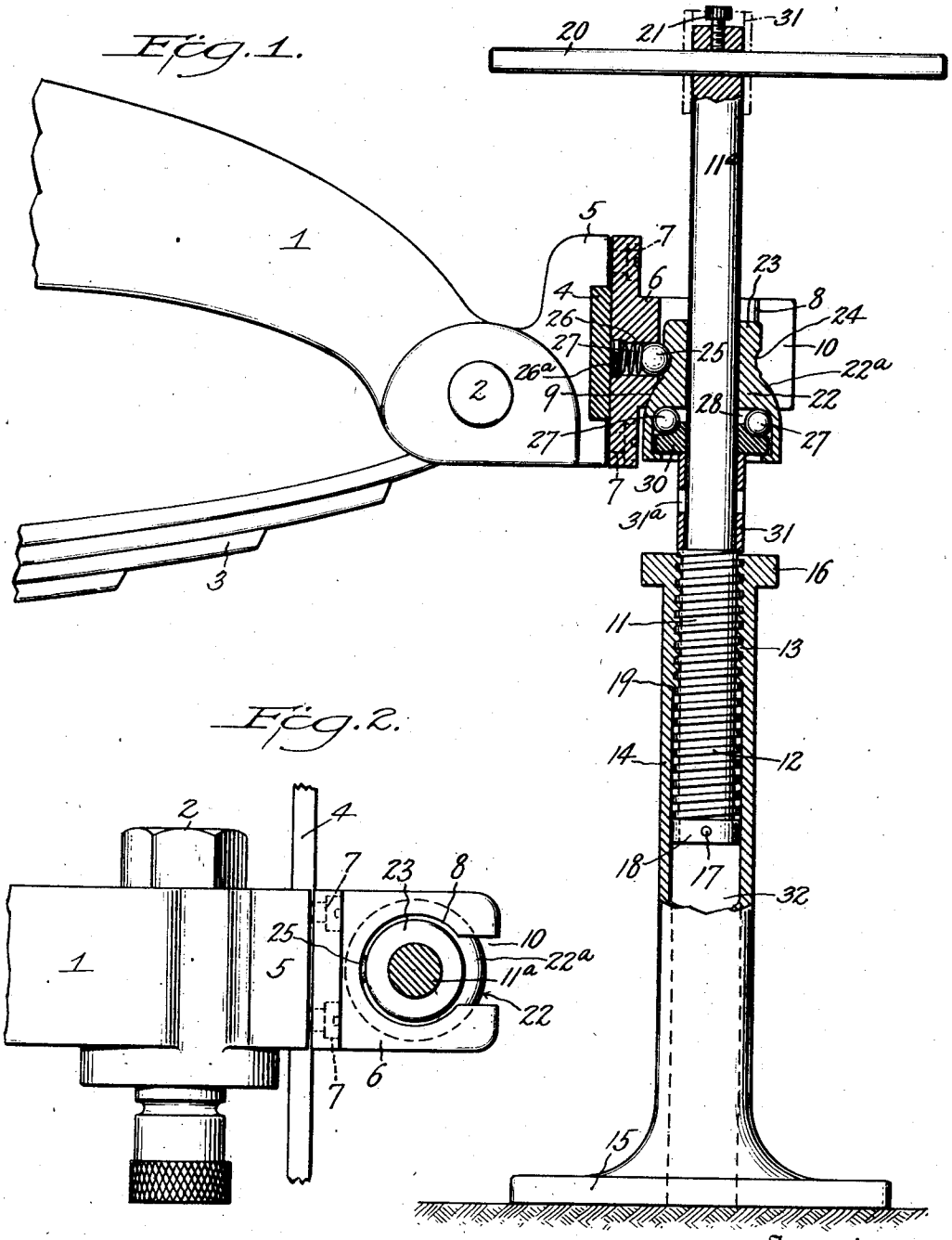


Fig. 2.

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UNITED STATES PATENT OFFICE

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AUTOMOBILE JACKING DEVICE

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This invention relates more especially to lifting jacks for automobiles and has for its object to provide a device of this character of improved construction to adapt it to engage the part to which it is applied with a positively interlocking connection.

One of the objects of our invention is to provide a lifting jack of the character hereinafter described with an improved interlocking connection of which all of the parts are permanently connected to either the vehicle or the jack itself in such a way as to eliminate all possibility of losing any of the parts.

Among other features, our invention contemplates an improved releasable connection between a part to be lifted and the jack proper which is easily manipulated for applying or removing the lifting jack.

Certain subsidiary features of construction are described in the following specification and recited in the appended claims in reference to the accompanying drawings which show a preferred embodiment of our invention.

In the drawings:—

Figure 1 is a combined side elevation and vertical section of our improved device as applied to a vehicle such as an automobile.

Figure 2 is a top plan view of the same showing the thrust-rod in cross section.

Referring more particularly to the drawings, in the embodiment of our invention shown therein, an extension 1 of the side bar of an automobile is connected by a pin 2 with one end of a spring 3. A transverse buffer bar 4 may be held in a recessed bracket 5 by means of a flat plate or flange of a socket member 6 which is secured to the bracket 5 by means of screws 7. The socket member 6 is provided with a socket opening 8 around the bottom end of which extends an annular part-spherical bearing surface 9. As shown best in Figure 2, the bracket or socket member 6 is also provided with a longitudinal slot 10 which opens inwardly into the socket opening 8 and outwardly through the outer edge of the bracket 6. Movable laterally through the slot 10 is the upper shank portion 11*a* of a thrust rod 11 which is provided on its lower end with exterior screw-threads 12. Said thrust rod is thus adapted to be threaded into matching screw-threads 13 which are formed interiorly in the upper portion of a tubular base or pedestal 14, said base or pedestal being provided with a bottom flange or foot 15 and a top flange or shoulder 16. Secured to the lower end of the thrust-rod 11 by means of a pin 17 is a collar 18 which is adapted to come into abutment with an annular shoulder 19 formed on the inner wall of the tubular pedestal 14 at the lower end of screw-threads 13. The upper end 11*a* of the thrust-rod is made with a reduced diameter and at the top carries a cross-bar or handle 20 which is releasably secured thereto by a pin 21. A circular bearing block 22 is swiveled upon the reduced upper end of thrust-rod 11 and provided exteriorly with a part-spherical bearing surface 22*a* in movable engagement with the bearing surface 9 of the socket member 6.

Suitable and effective means for releasably retaining the bearing block in bearing engagement with the socket member 6 may be provided by means of a tubular neck or extension 23 which in its outer wall is provided with an annular groove 24. Seated in the annular groove 24 is a ball 25, said ball being movably axially within a socket-opening 26 under the pressure of a coil spring 27 which is interposed between said ball and a plug 26*a* which is threaded into an enlarged bore at the inner end of socket 26. The threaded plug 26*a* may be adjusted axially for regulating the pressure of spring 27. The ball or dog 25 is retained against outward displacement from its socket-opening by upsetting the metal around the outer edge of said socket. The tubular neck or extension 23 of the bearing-block 22 is made somewhat smaller in diameter than the socket-opening 8 for permitting a slight angular adjustment of the thrust-rod 11. Said bearing block 22 is provided with an annular recess 28 within which are mounted balls 27, said balls being confined between the annular race-way at the inner end of said recess and a ball bearing ring 30 which is secured in position within the recess 28 by upsetting the lower annular edge of the bearing block into engagement with the ball-bearing

ring 30. Slidable onto and off of the reduced upper end of the thrust rod, is a collar sleeve 31, the cross-bar or handle 20 being first removed for this purpose. If desired, said collar or sleeve may be provided with opposite coaxially-arranged openings 31*a* in its cylindrical wall to permit the insertion of cross-bar 20 after shifting the sleeve to dotted-line position shown in Figure 1. It will be understood, of course, that one or more of these collars may be employed to secure the desired vertical position of the bearing block 22. In this way, the jack may be adapted for different uses such as in the lifting of various makes of cars upon which corresponding parts are arranged at different heights from the ground.

The advantages of our improved construction will now be readily understood and briefly explained are as follows. When for any reason it is desired to elevate a part such as one end of the side bar 1 of an automobile, the thrust-rod 11 is screwed into the base or pedestal 14 for a sufficient distance to permit said thrust rod to be moved laterally through the slot 10. With the pedestal resting upon the ground, a rotation of the thrust-rod at first elevates the bearing-block 22 into bearing engagement with the socket-member 6 and then produces an upward lift to the part to be lifted. During this movement, the part-spherical bearing surfaces 9 and 22*a*, in conjunction with the reduced size of tubular neck 23, permits an angular adjustment of the jack. It will be seen that all of the parts related to the lifting jack are permanently connected either to the vehicle frame or to the lifting jack proper in such a way as to practically eliminate all danger of losing any of the essential parts of the device. The tubular pedestal 14 is provided with a bore 32 of uniform diameter extending from the lower end of the screw threads 13 through the bottom end thereof to permit the attachment and removal of collar 18 for assembling and disassembling the jack.

We claim:—

1. In a device of the character described, the combination of a socket member provided with a slot therethrough on one side, an abutment member provided with a neck presented upwardly into said socket member, an axially-movable thrust rod rotatable in said abutment member, and means interengaging between said abutment member and thrust rod for rotatably holding the former against axial displacement on the latter, the diameter of said thrust-rod being less than the width of said slot for permitting the lateral retraction of said thrust rod, said thrust-rod being provided with a thrust-bearing rotatably engaging said abutment member.

2. In a device of the character described, the combination of a bracket adapted to engage a part to be lifted, said bracket being provided with a socket opening, an abutment member movably mounted in said socket opening, a pedestal, and a thrust rod threaded into said pedestal and movably engaging said abutment member.

3. In a device of the character described, the combination of a bracket adapted to be secured to a part to be lifted, said bracket being provided with a socket opening extending therethrough and with a slot opening outwardly through one side of said socket opening, an abutment releasably mounted in said socket opening and having a diameter greater than the width of said slot, a pedestal, and a thrust rod threaded into said pedestal and movably engaging said abutment, said thrust rod having a diameter less than the width of said slot.

4. In a device of the character described, the combination of a bracket adapted to be secured to a part to be lifted, said bracket being provided with a socket opening and with a rounded annular bearing surface extending around and at the bottom of said socket opening, an upwardly contracted bearing block presented upwardly through the lower end of said socket opening and bearing against said rounded annular bearing surface, an axially movable thrust rod journalled in said abutment, and a pedestal with which said thrust-rod has threaded connections.

5. In a lifting jack, the combination of a pedestal provided with an upwardly-presented abutment, a thrust-rod threaded into said abutment, a bearing block swiveled upon said thrust-rod, and a sleeve interposable between said bearing block and the upwardly-presented abutment on said pedestal.

6. A lifting jack comprising a pedestal, a thrust-rod having threaded connections with said pedestal for raising and lowering said thrust-rod, a bearing block provided with a bearing surface adapted to engage the part to be lifted, said thrust-rod being freely rotatable in said bearing block, a bearing ring mounted upon said thrust-rod and rotatably engaging said bearing block, and means for holding said bearing ring against axial displacement on said thrust rod.

7. A lifting jack for vehicles, said lifting jack comprising a bearing block adapted to be detachably connected to the vehicle frame, a thrust-rod freely rotatable in said bearing block, a bearing ring mounted on said thrust-rod and rotatably engaging said bearing block with an upward thrust thereon, said bearing ring and thrust-rod being provided with interengaging portions for preventing a relative downward axial movement of the former with respect to the latter, and a pedestal, said thrust-rod having threaded connections with said pedestal whereby an axial

movement of the thrust-rod may be produced by a rotary movement with respect to said pedestal.

8. In a device of the character described, the combination of a bracket arm provided with a socket opening extending therethrough, a bearing block removably mounted in said socket opening, a thrust rod rotatably mounted in said bearing block, a pedestal into which said thrust-rod is threaded, and means interengaging between said bearing block and thrust-rod for permitting relative rotation and preventing relative axial movement of the thrust-rod in said bearing block.

9. In a device of the character described, the combination of a pedestal, a thrust-rod threaded into said pedestal and movable axially by its threaded connection therewith, a bearing ring mounted on said thrust-rod and held against axial movement thereon, and a bearing block freely journaled on said thrust-rod and rotatably supported by said bearing ring.

10. In a device of the character described, the combination of a bracket adapted to be secured to a part to be lifted, said bracket being provided with a socket opening, a bearing block provided with an upwardly-contracted portion adapted to be removably inserted into said socket opening, a thrust-rod rotatable freely in said bearing block, a pedestal into which said thrust-rod is threaded, a bearing ring on said thrust-rod for rotatably engaging said bearing block, said bearing ring and thrust rod being provided with interengaging portions for preventing relative axial displacement, and a sleeve interposable between said interengaging portions of the thrust-rod and bearing ring for positioning the bearing ring at a higher point on said thrust-rod.

11. In a device of the character described, the combination of a bracket adapted to be secured to a part to be lifted, and having a socket provided with a vertical slot opening outwardly therefrom, a bearing block mounted in said socket, a thrust-rod journalled in said bearing block, said thrust-rod being of smaller diameter than the width of said vertical slot, a pedestal into which the lower end of said thrust-rod is threaded, and a journaling support for said bearing block mounted on said thrust-rod, said bearing block being removable axially from said socket to permit a lateral withdrawal of the thrust-rod.

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