Sept. 9, 1924. 1,507,625

W. B. RUNYAN

LIFTING JACK

Filed Nov. 10, 1923

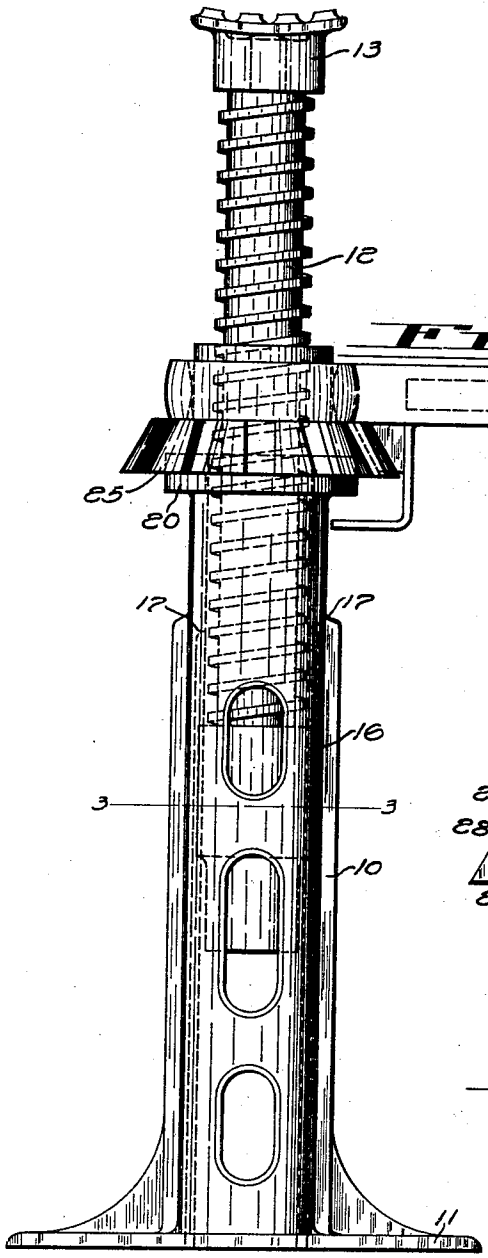


Fig. 1.

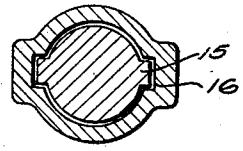


Fig. 3.

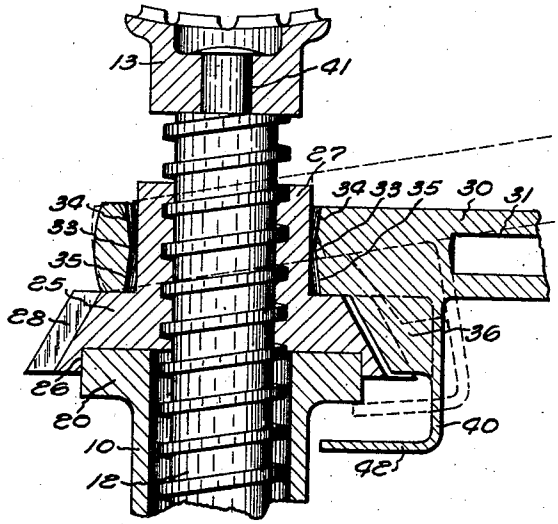


Fig. 2.

INVENTOR.

William B. Runyan

BY

Green Marschel

ATTORNEYS.

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UNITED STATES PATENT OFFICE.

WILLIAM B. RUNYAN, OF DAYTON, OHIO, ASSIGNOR TO THE DAYTON MALLEABLE IRON COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO.

LIFTING JACK.

Application filed November 10, 1923. Serial No. 673,946.

To all whom it may concern:

Be it known that I, WILLIAM B. RUNYAN, a citizen of the United States of America, residing at Dayton, county of Montgomery, and State of Ohio, have invented certain new and useful Improvements in Lifting Jacks, of which the following is a full, clear, and exact description.

This invention relates to improvements in lifting jacks, particularly those designed for use in connection with motor vehicles.

One of the principal objects of the invention is to provide a lifting jack which is simple in construction, composed of few parts, which is ruggedly built, which is easily manipulated, and which is so arranged that the various parts cannot separate after the jack is assembled, to thus permit of easier handling in use.

Other objects and advantages of the invention will be apparent from the description thereof set out below when taken in connection with the accompanying drawing.

In the drawing in which like characters of reference designate like parts throughout the several views thereof—

Fig. 1 is an elevational view of a lifting jack embodying the invention;

Fig. 2 is a fragmentary vertical sectional view through the operating mechanism for the lifting jack; and

Fig. 3 is a transverse sectional view through the lower part of the jack, along the line 3—3 of Fig. 1, showing certain details of construction.

This jack comprises a body member 10, having the usual base 11 attached thereto. The body member 10 is in the nature of a hollow shaft, the passage through this member being adapted to receive the screw member 12, the upper end of which carries a cap 13, which is adapted to contact with the body to be lifted. The lower end of the screw is provided with outwardly extending wings or ribs 15, which slide within corresponding grooves 16 in the jack body. These ribs serve to prevent rotation of the screw. The shoulders 17, which mark the upper ends of the grooves 16 serve to limit upward movement of the ribs 15, and thus both limit upward movement of the screw and prevent separation of the screw and body after the cap 13 is fixed in place. The upper end of the body member 10 is provided with a circular, laterally extending, bearing flange 20.

Threadedly mounted upon the screw 12 is a nut 25 which has a socket 26 in the lower face thereof for receiving the bearing flange 20, the weight of the screw and its associated parts, and the weight of the body which is being lifted, being thus sustained upon this bearing flange 20. The nut 25 is also provided, upon its other or upper face, with a hub extension 27, of less diameter than the nut. Spaced around the periphery of the nut 25 are the beveled teeth 28, the beveling of these teeth being such that the nut, with the teeth carried thereby, has a substantially frusto-conical shape.

Cooperating with the nut 25 is a handle receiving member 30, which has a socket 31 in one end thereof for receiving an operating handle 32. The other end is preferably enlarged and is provided with a passage therethrough, which is oppositely tapered. This passage is so arranged that its minimum diameter is substantially midway of its length, as shown by the numeral 33, the wall of the passage being oppositely inclined from this point of minimum diameter, as clearly shown by the numerals 34 and 35. The portion of minimum diameter, 33, is preferably of such diameter that it will freely receive the hub extension 27. The inclined portions of the passage wall 34 and 35 are preferably arranged at such an angle that as the handle member is rocked about the portion 33, opposed upper and lower inclined portions will have substantially full bearing upon the hub.

Depending from the handle member 30 is a tooth or lug 36, which is preferably beveled to cooperate with the beveled teeth carried by the nut. As the handle member is rocked upwardly about the portion 33 the lug 36 will be moved out of alignment with the teeth 28 as shown in Fig. 2 and the handle member may then be freely moved in either direction in a substantially horizontal direction. When the handle is then rocked downwardly about the portion 33, to substantially the position shown in Fig. 1, the lug 36 engages with the teeth 28, and movement of the handle in a horizontal plane in either direction will then cause up or down movement of the screw. Because of the oppositely tapered construction of the passage receiving the hub extension, less movement of the handle is necessary for moving the depending lug 36 out of and into register with the teeth 28, than where a passage of uniform diameter is used.

The handle member 30 also carries a depending retaining lug 40, which is of malleable material. In assembling the screw is inserted in place within the body member 10. The nut 25 is then mounted upon the screw and the handle member 30 positioned with the passage therethrough receiving the hub extension 27. The cap 13 is then positioned upon the extension 41, at the upper end of the screw, after which this extension is beaded over to hold the cap firmly in place. The lower end of the retaining lug 40 is then overturned, by means of hammer blows or in any other suitable way, as shown at 42, to overlie the bearing flange 20 to retain the parts in assembled position. This construction, through the utilization of the retaining lug 40, permits of positioning the jack in place without the necessity of stooping down and getting partly under an automobile. For by lifting up on the handle 32 the whole jack will be lifted, the retaining lug 40 contacting with the lower face of the bearing flange to hold the parts against separating movement, thus permitting of handling the jack from a distance. In addition this lug serves as a stop to contact with the bearing flange to prevent raising the operating handle too high during positioning or operation of the jack.

This jack may be made of any desirable material, but it is preferably made of malleable iron, since this material is of such character that in a casting made of malleable iron, the retaining lug 40 may be readily overturned by means of hammer blows.

While the form of apparatus herein described constitutes a preferred embodiment of the invention, it is to be understood that the invention is not limited to this precise form of apparatus, and that changes may be made therein without departing from the scope of the invention which is defined in the appended claims.

What is claimed is:

1. A lifting jack of the character described comprising a body member having a passage therethrough; an outwardly extending bearing flange at the upper end of said body member; a screw member slidable within the passage in the body member, a nut threadedly mounted on said screw and having a socket in one face thereof for receiving the said bearing flange; beveled teeth on said nut, a hub extension carried by the other face of said nut; a handle member having an oppositely tapered passage therethrough for receiving the hub extension, a depending lug on said handle member for engagement with the beveled teeth and a locking extension carried by said handle member and overturned to cooperate with said bearing flange to hold the several parts against separation.

2. A lifting jack of the character described comprising a body member having a passage therethrough, an outwardly extending bearing flange at the upper end of said body member; a screw member slidable within the passage in the body member, a nut threadedly mounted on said screw member and having a socket in the lower face thereof for receiving the said bearing flange in bearing relation, beveled teeth on said nut, a hub extension carried by the other face of said nut; a handle member having a passage therethrough for receiving said hub extension, said handle member resting on the upper face of the nut, the passage through said handle member being oppositely tapered and having its minimum diameter substantially midway the length of said passage, a tapered lug depending from said handle member and tapered to cooperate with the beveled teeth, and a depending overturned retaining lug for holding the several parts against separation.

3. A lifting jack of the character described, comprising a body member having a passage therethrough, an outwardly extending bearing flange at the upper end of said body member; a screw member slidable within the passage in the body member, an internally threaded nut mounted on said screw member and having a socket in the lower face thereof for receiving said bearing flange in bearing relation, beveled teeth on said nut, a hub extension on the upper face of said nut; a handle member having a handle receiving socket in one end, and an enlargement on the other end which during operation of the device, has bearing on the upper face of the nut, an oppositely tapered passage through said handle member receiving the hub extension, the minimum diameter of said passage being such as to slidably receive said hub extension, the tapered walls being arranged to give full bearing thereof at opposed ends on said hub extension when the handle member is rocked about the portion of minimum diameter; a tapered lug depending from said handle member and positioned to be moved into and out of cooperation with the beveled teeth as the handle member is rocked about its portion of minimum diameter; and a depending malleable retaining lug carried by said handle member and bent over after assembling of the several parts to overlie the bearing flange of the body member to retain the several parts in assembled position and to permit bodily movement of the jack through the medium of the operating handle.

In testimony whereof I hereto affix my signature.

WILLIAM B. RUNYAN.