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3,532,323

## INTEGRAL NUT AND BRACKET

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5 Claims

### ABSTRACT OF THE DISCLOSURE

A lift jack for automobiles or the like has a power screw that extends through a combination nut and bracket which is formed from a single piece of metal that is pierced, punched and folded into final form for assembly with the drive screw and other parts.

### BRIEF SUMMARY OF THE INVENTION

It is the purpose of the invention to reduce the cost but not the quality of a screw-type jack by substituting for a combination screw machine and sheet metal part a stamping that has been punched and pierced to provide slots that act as threads to receive the drive screw. The stamping is also folded into a bracket on which the lifting arm of the jack is pivoted.

### DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevation, partly broken away, of a side lift jack embodying the invention, the jack being of the type disclosed and claimed in application Ser. No. 699,508 filed Jan. 22, 1968 of Brian J. Kozlowski assigned to the present assignee,

FIG. 2 is an enlarged cross section along the line 2-2 of FIG. 1,

FIG. 3 is a perspective view of the combination nut and bracket of the present invention; and

FIG. 4 is a plan view of the blank which is used to form the nut and bracket of the invention.

### DESCRIPTION OF THE INVENTION

A side lift jack 1 has a front base member 3 and a rear base member 5 and a pair of channel shaped side frame members 7 and 9 which fit in a cup-shaped portion 11 of the rear support 5. The front ends of the frame members 7 and 9 are closed by an end cap 13 against which is held a thrust washer 15 and a nut 17, the nut being connected to the screw by cross pin 18. A drive screw 19 extends through the nut, thrust washer, and end cap and inside the housing formed by the side plates 7 and 9 and threads through a combination nut bracket 21 constructed in accordance with this invention. The bracket 21 has an upstanding lug or flange portion 23 on which is pivoted by means of pin 25 the end of a lifting arm 27. The other end of the arm 27 has a load engaging projection 29. Side links 31 are pivoted by pins 33 to the arm 27 and to the sides of the base 3 to guide movement of the lifting arm.

In accordance with this invention, the combination nut and bracket 21 is formed from sheet metal which in its original flat condition as a blank after piercing and punching looks substantially like the part 37 shown in FIG. 4.

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The blank 37 is approximately T-shaped and has a pair of holes 39 extruded in it so as to form the necked holes in sections 23 which receive the pivot pin 25. The center section of the blank is provided with three rows 41, 43 and 45 of angled slots which are spaced apart by the pitch of the threads on the power screw 19. The blank 37 is rebent or folded into the substantially U-shape shown in FIGS. 2 and 3 so that the rows 41, 43 and 45 and the blank portions containing them form three sides 47, 49 and 51 of a triangular tubular section which receives and surrounds the power screw 19 but is small enough so that the threads 53 of the power screw extend into the slots 41, 43 and 45. The portions 23A of the blank other than the triangular section 55 are rebent into face-to-face contact and spot-welded together as indicated at 57. The projecting portions 23 not only serve to support the lifting arm 27 but also fit between the spaced edges of the side frame members 7 and 9 so as to prevent turning of the member 21 when the screw is rotated.

It will be apparent that by forming the nut and bracket 21 from a stamping the normal screw machine operation to form threads has been eliminated and the part has been reduced from two or more pieces to one piece. This, therefore, reduces the difficulty and expense of manufacturing without adversely affecting in any way the quality or operation of the jack.

Modifications may be made without departing from the spirit and scope of the invention.

I claim:

1. A force applying device comprising frame means, a power screw supported on the frame means, a combination nut and bracket member supported by the frame means and threadably receiving the power screw, and a force applying member operatively connected to the bracket member and movable thereby, said nut and bracket member being formed of sheet metal and having a tubular side wall section surrounding said power screw, said side wall having slots formed therein receiving the threads on the power screw and the edges of the slots acting with the threads to provide a threaded connection between the power screw and said nut and bracket member so that rotation of the power screw moves the nut and bracket member axially along the power screw, said nut and bracket member being formed of a single piece of sheet metal that is U-shaped with the opposite sides adjacent the ends of the U being adjacent each other to provide a flange for attachment to said force applying member and the opposite sides adjacent the bight of the U being spaced apart to provide said tubular side wall section.

2. A device as set forth in claim 1 wherein the tubular side wall is of triangular cross section and has three sides with slots therein receiving said threads.

3. A device as set forth in claim 2 wherein said opposite sides adjacent the ends of the U have necked holes formed therein and including a pivot pin in said necked holes pivotally connecting said force applying member to said nut and bracket member.

4. A force applying device comprising frame means, a power screw supported on the frame means, a combination nut and bracket member supported by the frame means and threadably receiving the power screw, and a force applying member operatively connected to the bracket member.

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et member and movable thereby, said nut and bracket member being formed of two layers of sheet metal shaped to have a tubular side wall section surrounding said power screw, said side wall having slots formed therein extending through the sheet metal and receiving the threads on the power screw and the edges of the slots acting with the threads to provide a threaded connection between the power screw and said nut and bracket member so that rotation of the power screw moves the nut and bracket member axially along the power screw.

5. A device as set forth in claim 4 wherein the tubular side wall is of triangular cross section and has three sides with slots therein receiving said threads.

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