

June 16, 1931.

W. E. LARSON ET AL

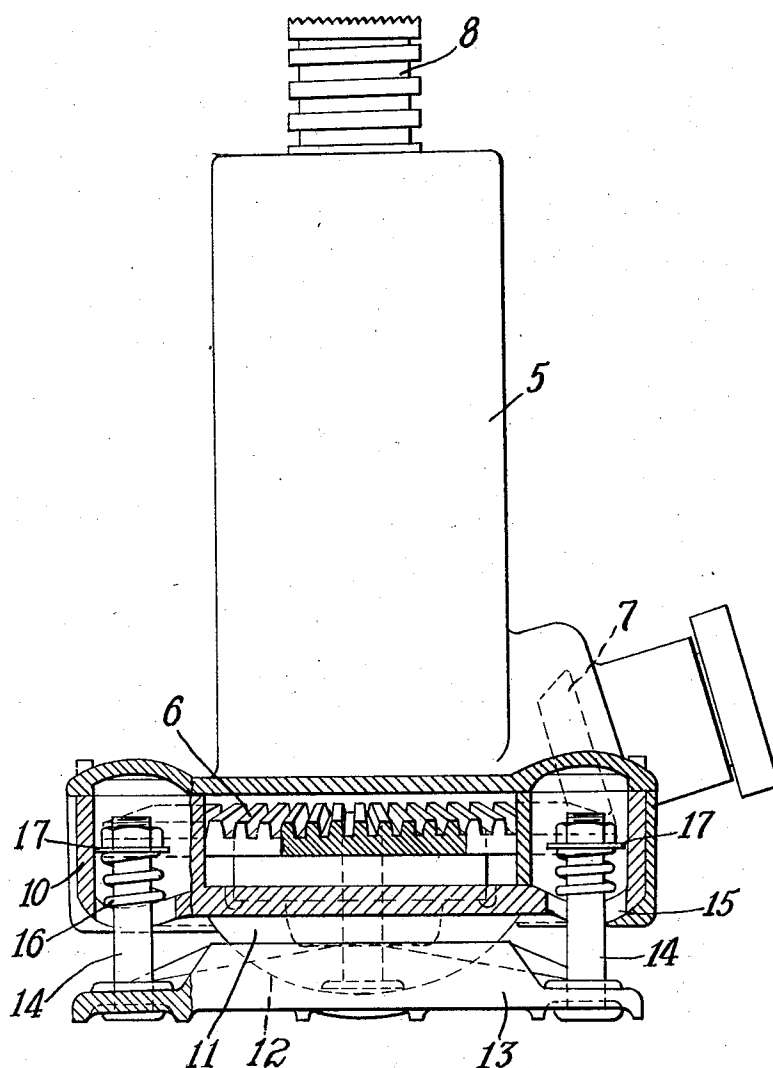
1,810,667

JACK

Filed May 10, 1928

2 Sheets-Sheet 1

Fig. 1.



INVENTOR.
Walter E. Larson & Roy S. Harvey
BY: *Green & McCallister*
Their ATTORNEYS.

June 16, 1931.

W. E. LARSON ET AL

1,810,667

JACK

Filed May 10, 1928

2 Sheets-Sheet 2

Fig. 2

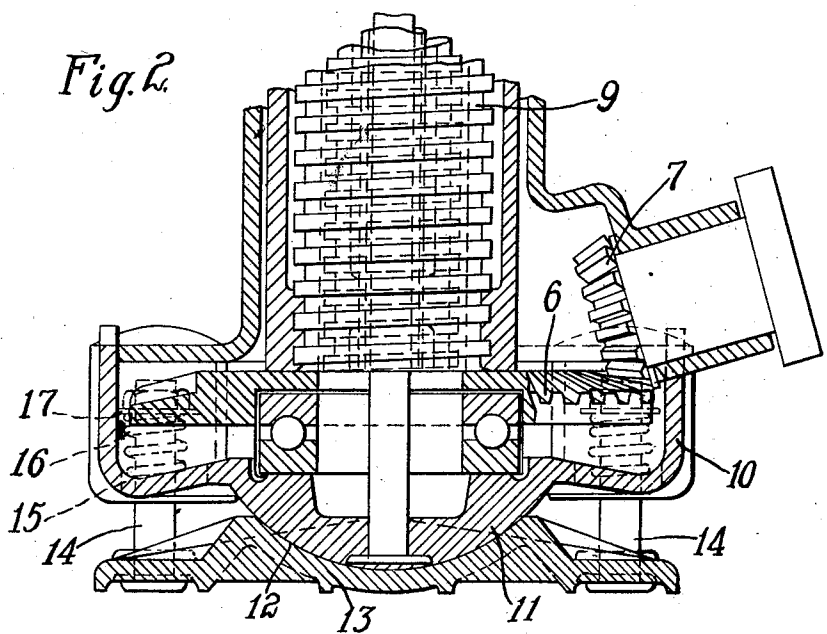
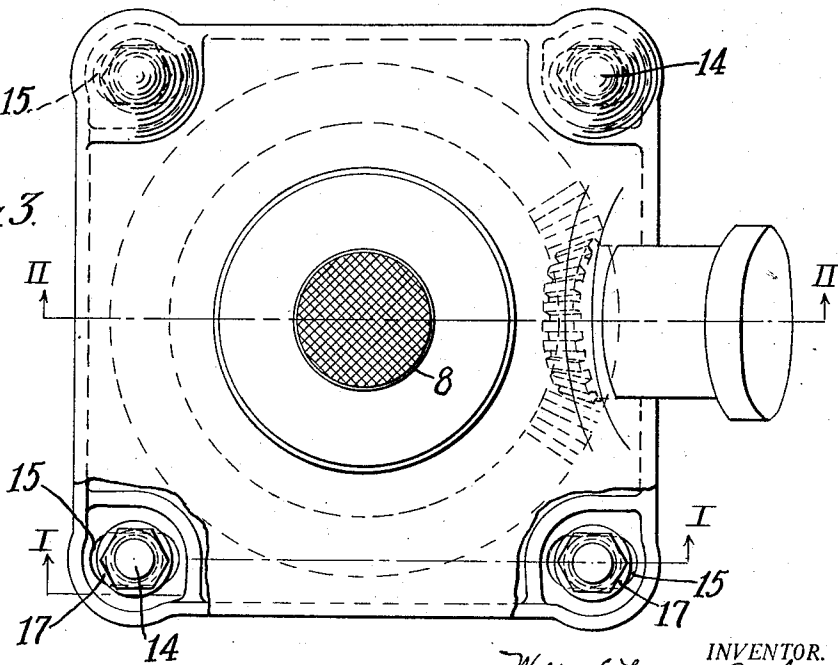


Fig. 3



INVENTOR.
Walter E. Larson & Roy A. Hervey
BY Green & McCallister
Their ATTORNEYS.

UNITED STATES PATENT OFFICE

WALTER E. LARSON AND ROY S. HARVEY, OF PITTSBURGH, PENNSYLVANIA, ASSIGNORS,
BY MESNE ASSIGNMENTS, TO WALKER MANUFACTURING COMPANY, OF RACINE,
WISCONSIN, A CORPORATION OF WISCONSIN

JACK

Application filed May 10, 1928. Serial No. 276,620.

This invention relates to jacks and more particularly to automobile jacks such as are commonly employed in connection with motor trucks, automobiles or the like.

5 In raising one wheel of an automobile or motor truck off the ground the vehicle axle is caused to swing about the point of contact between the opposite wheel and the ground and assumes a tilting or inclined position. As a
10 result of this movement, the axle imparts a lateral or binding strain to the lifting mechanism of the jack, resulting in such a binding of the jack elements as to render operation of the jack extremely stiff and difficult, if not
15 impossible, especially when the lifting element is near the top of its stroke.

An object of this invention is to provide a jack of the type set forth constructed and arranged to overcome the difficulties heretofore present in similar jacks now in use and
20 known to us.

A further object is to provide an automobile jack capable of lifting an axle to the extreme effect of height of the jack without
25 any binding of parts.

A still further object is to provide a jack of the type set forth which will be simple in construction, effective in operation and relatively cheap to manufacture and assemble.

30 These and other objects which will be apparent to those skilled in this particular art are accomplished by means of the invention illustrated in the accompanying drawings in which Figure 1 is a side elevation partly in
35 section of an automobile jack constructed in accordance with one embodiment of this invention. Fig. 2 is a transverse sectional view through the lower portion of the jack illustrated in Fig. 1, and Fig. 3 is a top plan view
40 thereof.

The particular embodiment of this invention which has been chosen for the purposes of illustration is shown in connection with an automobile jack 5 of the screw type, but
45 it will be apparent that the invention is equally applicable to all types of lifting mechanisms. As illustrated, the jack includes an operating gear 6 adapted to be driven in the usual manner by a pinion 7, for raising and
50 lowering the lifting member 8 through the

suitable screw members 9 which may be of any desired arrangement, as will be readily understood by those skilled in this particular art.

The driving gear is housed within a base member 10 which forms in effect a gear case and which has a hemispherical ball 11 formed on the bottom thereof and supported in a ball receiving socket 12 of a supporting base member 13. It will be apparent that as
55 a result of the jack having a ball and socket support, the lifting member 8 can be tilted in any direction during operation thereof without causing any binding or bending strains to be applied to the operating mechanism of the jack, as the entire mechanism
60 can yield laterally in any direction as a result of the ball and socket support. The base sections are loosely secured together by suitable fastening means which is of such
65 character as to permit relative movement of the sections, and this securing means is preferably of such construction as to yieldingly hold the base sections in the normal position illustrated in the drawings.
70

As illustrated, securing bolts 14 are secured to the corners of the lower socket member 13 and extend upwardly through elongated openings 15 in the bottom wall of the ball member or base section 10. These openings
75 are so formed as to permit free relative movement of the base section 10 with relation to the bolts. Spiral springs 16 are positioned around each bolt between a suitable spring seat 17 and the inner face of the ball member 11, so that the jack parts are normally held in proper upright position, as illustrated in Fig. 1, by a yielding force.
80

It will be apparent, however, that the lifting member 8 and the jack mechanism can
85 move laterally as a result of the tilting movement of an axle which is being raised without causing any binding strains to be applied to any part of the jack mechanism with the result that the jack is as freely and easily
90 operated when extended to its full height as when contracted. It will, of course, be obvious that the present invention is applicable to other forms of jack than that illustrated, and that various changes, addi-
95 100

tions, omissions and substitutions can be made in the illustrated arrangement without departing from the spirit of this invention or the scope of the appended claims.

5 What we claim as new and desire to secure by Letters Patent is:

1. The combination in a jack of relatively movable base members, a ball and socket joint between said base members and means for
10 yieldingly securing said members together, said means comprising fastening bolts in the corners of one base member adapted to extend through openings in the corners of the other base member and spring member connections between said bolts and said other
15 member.

2. The combination in a jack of relatively movable base members, a universal joint between said base members to permit tilting of
20 said jack during operation thereof, a fastening bolt in each corner of one of said members extending loosely through each of the corners of the other of said members and a flexible connection between said bolts and
25 said other member.

3. The combination in a jack of relatively movable base members, a ball and socket joint between said base members, fastening bolts secured to each corner of one of said
30 members and extending through relatively enlarged openings in each corner of the other member and springs for connecting said bolts to said other member.

4. The combination in a jack having a
35 base member, a lifting member and a secondary base member, a socket in said base member, a ball on said secondary base member adapted to seat in said socket, means loosely extending through the corners of said base
40 members for securing said members together to permit said lifting member to be moved out of vertical position, and means associated with said securing means for yieldingly maintaining said members in normal position.

5. The combination in a jack having a base
45 member, a lifting member and a secondary base member, a socket in said base member, a ball on said secondary base member adapted to seat in said socket, a fastening bolt in
50 each corner of said base member adapted to extend through an opening in each corner of said secondary base member for loosely securing said members together to permit
55 said lifting member to be moved out of vertical position, and means associated with said bolts for yieldingly maintaining said lifting member in vertical position.

6. The combination in a jack having a base
60 member, a lifting member and a secondary base member, a socket in said base member, a ball on said secondary base member adapted to seat in said socket, a fastening bolt in each corner of said base member adapted to extend through an opening in each corner
65 of said secondary base member for loosely

securing said members together to permit said lifting member to be moved out of vertical position, and spring members associated with said bolts for yieldingly maintaining said lifting member in vertical position.

In testimony whereof, we have hereunto set our names this 3rd day of May, 1928.

WALTER E. LARSON.
ROY S. HARVEY.

70

75

80

85

90

95

100

105

110

115

120

125

130