April 3, 1956 C. E. BRANICK 2,740,607

BUMPER JACK

Filed Dec. 11, 1953

Fig. 1

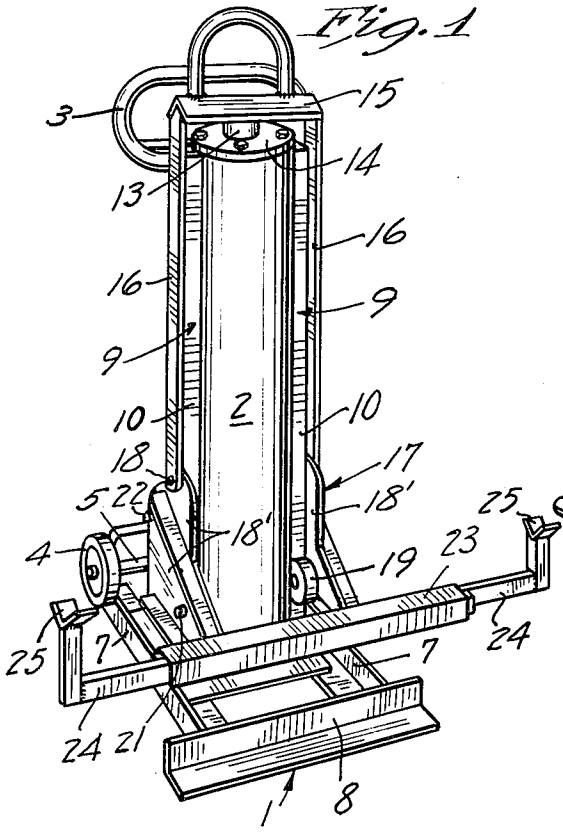


Fig. 2

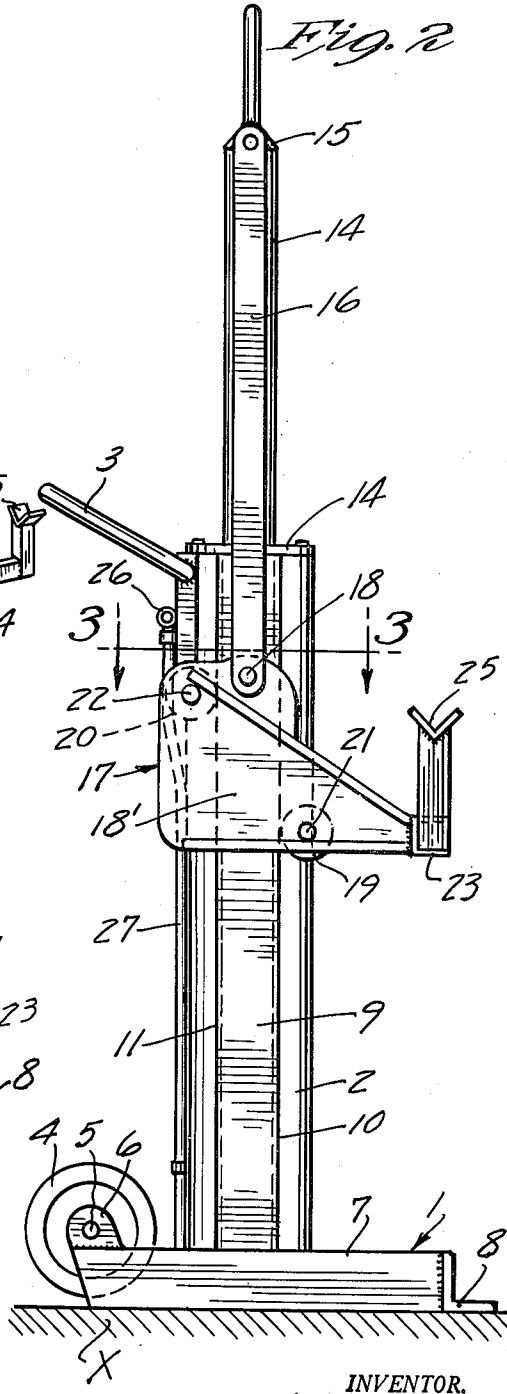
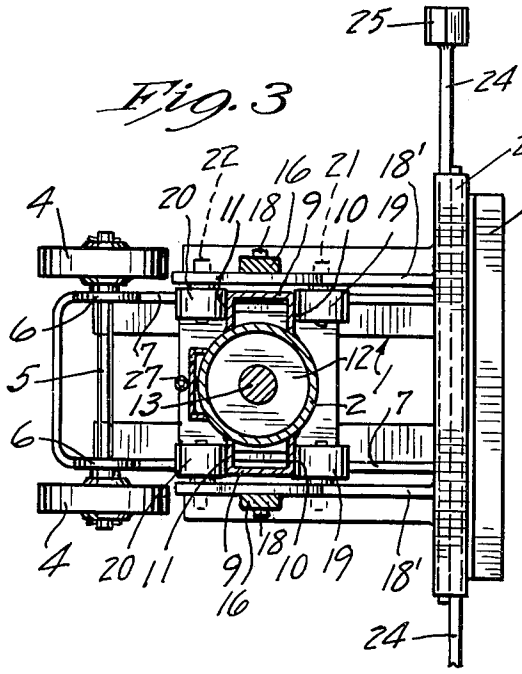


Fig. 3



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BUMPER JACK

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3 Claims. (Cl. 254—93)

My invention relates to fluid pressure operated lifting jacks and more particularly to bumper jacks for lifting automotive vehicles and the like.

This application is a continuation-in-part of my co-pending application filed July 10, 1952, entitled Bumper Jack, now United States Patent No. 2,669,422 issued February 16, 1954.

The primary object of my invention is the improvement of the connecting means between the plunger rod cross-head and load engagaing means of a bumper jack of the type disclosed in my above identified U. S. patent so that such bumper jack may be capable of lifting great loads without bringing about undue frictional engagement or "binding" between the several moving parts thereof.

A still further object of my invention is the provision of a bumper jack of the class described, which may be operated with a minimum of power and with a maximum of efficiency, which has a relatively small number of working parts and which is rugged and durable in construction.

The above and still further objects of my invention will become apparent from the following detailed specification, appended claims, and attached drawings.

Referring to the drawings wherein like characters indicate like parts throughout the several views:

Fig. 1 is a perspective view of my novel structure as seen from the front thereof;

Fig. 2 is an enlarged view in side elevation of the structure of Fig. 1, but showing a different position of some of the parts thereof; and

Fig. 3 is a view partly in vertical section and partly in top plan, as seen from the line 3—3 of Fig. 2.

Referring with greater particularity to the drawings, the number **1** indicates a mounting base having secured to its central portion a vertically disposed cylinder **2**, upwardly and rearwardly from the upper portion of which the handle **3** projects. A pair of wheels **4** are journalled to an axle **5** extending through ears **6** on flanges **7** projecting upwardly from opposite sides of, and forming part of frame **1**. As shown, the wheels **4** are engageable with the ground X only when the forward end **8** of the frame **1** is elevated by pressing downwardly and backwardly upon the handle **3**.

A pair of opposed channel irons **9** are secured to diametrically opposite side portions of the cylinder **2** and extend longitudinally thereof for substantially the length of the cylinder **2**. Opposite outer side portions of the channel members **9** define front and rear parallel guide rails **10** and **11** respectively on opposite sides of said cylinder **2**. A piston **12**, see particularly Fig. 3, is mounted for reciprocal movements within the cylinder **2** and has a plunger rod **13** projecting upwardly through a head **14** on the cylinder **2**. The cross-head **15** is secured to the upper end of the plunger rod **13** and projects laterally outwardly therefrom in opposite directions, overlying the upper ends of the rail forming members **9**. Rigidly secured to the opposite ends of the cross-head **15** and depending vertically therefrom, adjacent the

rail forming members **9**, are a pair of lifting links **16**. Lifting links **16** have pivotal connections at their lower ends with carriage structure **17**, as indicated at **18**. It will be noted that pivotal connections **18** are intermediate the front and rear guide rails **10** and **11** and vertically above the stub axles **22** and **21**.

Carriage structure **17** includes side frame members **18'** and guide rail engaging roller elements **19** and **20** carried thereby. Roller elements **19** are journalled on inwardly projecting stub axles **21** and are engageable one each with one of the front guide rails **10**. Roller elements **20** are upwardly spaced and laterally offset from the roller elements **19**, and are journalled on stub axles **22**, projecting inwardly from said side frame members **18'**. It will be noted that roller elements engage and ride upon the rear guide rails **11**. The forward end portions of the side frame members **18'** are tied together by a cross-sectionally rectangular horizontally disposed tubular lifting beam **23** in which are adjustably slidably mounted, in side by side relationship, a pair of beam sections **24**. Lifting beam sections **24** at their extreme outer ends are preferably provided with yoke-like load receiving heads **25**.

When the above structure is wheeled or otherwise placed in operative position, wherein the yoke-like heads **25** underlie the bumper, or other horizontally disposed bar-like portion of an automotive vehicle, air is introduced into the cylinder **2** by means of an air hose, not shown, being applied to the valve equipped upper end portion **26** of an air inlet pipe **27**. Air from the tube **27** enters the bottom of the cylinder **2** below the piston and causes elevation of the plunger rod **13** and parts carried thereby. Under such an arrangement, irrespective of the load carried by the yoke-like heads **25**, the weight will be equally distributed against the front and rear guide rails **10** and **11** through the medium of the roller elements **19** and **20** respectively. Furthermore no "binding" action or undue friction is brought to bear between the plunger rod **13** and the cylinder head **14** in view of the fact that the lifting links **16** are always in a vertical position parallel to the guide rails **10** and **11** and plunger rod **13**. Air is discharged from the lower end of the cylinder whereby to cause lowering movements of the plunger rod **13** and parts carried thereby, through the medium of an outlet valve, not shown.

My invention has been thoroughly tested and found to be completely satisfactory for the accomplishment of the above objects, and while I have disclosed a commercial embodiment thereof, it should be obvious that same is capable of modification without departure from the scope of the appended claims.

What I claim is:

1. In a portable fluid pressure operated jack, a mounting base, a vertically disposed pressure cylinder secured to said base, a piston within said cylinder, a plunger rod secured to said piston and projecting upwardly through the upper end of said cylinder, a cross-head mounted on the outer projecting portion of said plunger rod and extending laterally outwardly therefrom in opposite directions, front and rear vertical parallel guide rails at opposite sides of said cylinder, a pair of lifting links connected one each to opposite ends of said cross-head and depending vertically therefrom adjacent said guide rails, carriage structure including side frame members pivotally connected one each to lower end portions of said lifting links at points intermediate the front and rear guide rails, vertically spaced front and rear guide rail engaging anti-friction means connected to and carried by each of said side frame members, and transverse load engaging means connecting said side frame members forwardly of said pivotal connections and said anti-friction means, whereby a load supported by said load engaging means is equally

distributed against the front and rear guide rails through said front and rear guide rail engaging anti-friction means.

2. The structure defined in claim 1 in which said front and rear guide rails are in the nature of opposed longitudinally extended U-shaped channel members secured to the opposite sides of said cylinder.

3. The structure defined in claim 1 wherein said pivotal connections of the side frame members to the lower end portions of the lifting links is vertically above the connection of the anti-friction means to each of said side frame members.

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