June 20, 1939. D. J. BISSELL 2,162,931

LIFTING JACK

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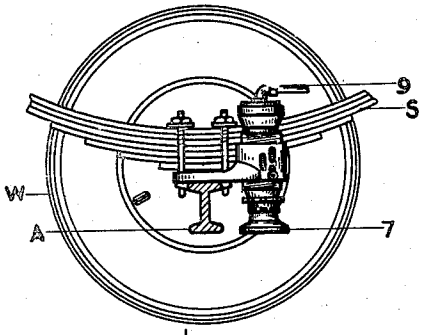


Fig. 1

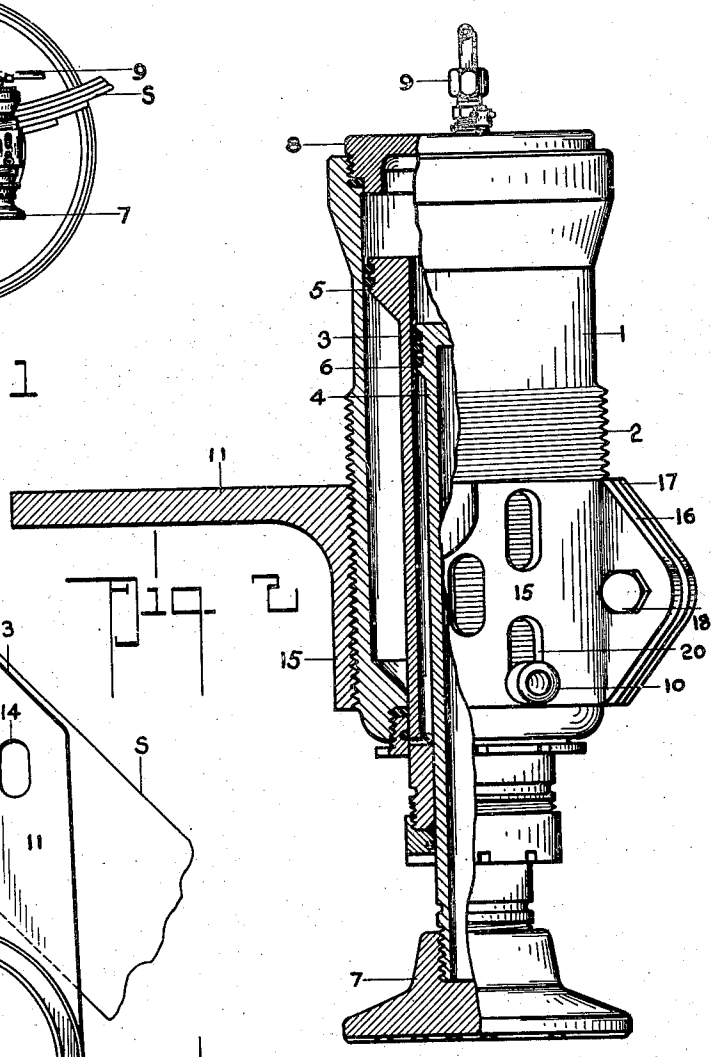


Fig. 2

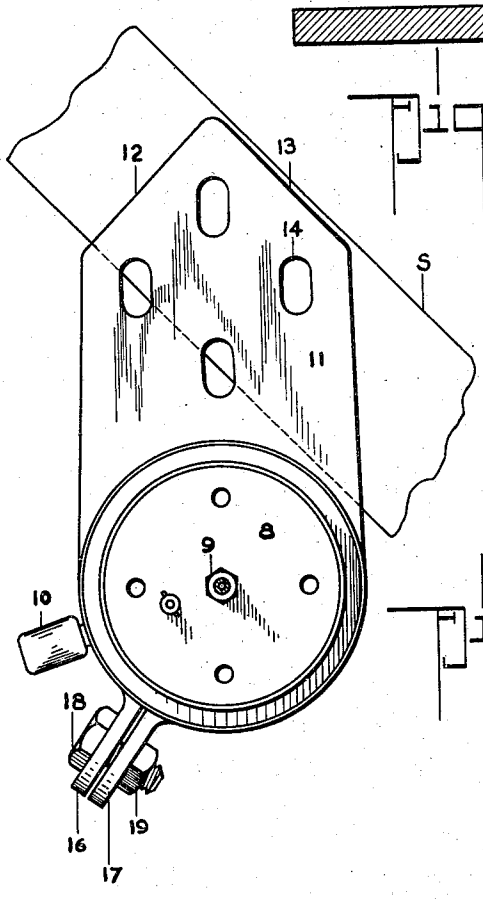


Fig. 3

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LIFTING JACK

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5 Claims. (Cl. 254—86)

My present invention relates to improvements in lifting jacks and while the improvements may be embodied in various types of jacks, I prefer to utilize them in connection with the well known type of telescoping, pneumatic jack that is generally employed for the purpose of lifting automotive vehicles in order that access may be had to parts of the vehicle for repairs, or for inspection. As is well known, when lifting the vehicle with jacks now in use, difficulty is frequently encountered by the mechanic, and others, in locating the jack in proper position for safe and reliable use, because of obstructions presented by the springs, axles, and other parts of the underrigging of the vehicle.

To overcome these difficulties I provide the jack with an exterior bracket that is reversible for use, and adjustable, with relation to the jack, to provide for clearance in adjusting the jack for use under the vehicle; and my invention consists in certain novel combinations and arrangements of the jack and its bracket as will hereinafter be more fully set forth and claimed.

In the accompanying drawing I have illustrated one example of the physical embodiment of my invention, wherein the bracket is combined and arranged for use with a telescoping, pneumatic, jack, but it will be understood that changes and alterations may be made in this exemplifying structure, within the scope of my claims, without departing from the principles of my invention.

Figure 1 is a view in elevation of the improved jack, in position and ready for use, with the bracket down and detachably connected with the spring and the axle of a vehicle.

Figure 2 is an enlarged detail view partly in elevation and partly in section of the jack and bracket, with the latter in reversed position, i. e. in the "up" position as distinguished from the position of the bracket in Figure 1.

Figure 3 is a top view of the jack showing the bracket arm and its angular relation to the jack and to the clamp device of the bracket.

In Figure 1 where I have illustrated one way of using the bracket preparatory to operating the jack I have indicated an automotive wheel as W, the spring as S, and the axle as A, and the jack is supported with the bracket arm under the spring and on top of the axle, in order that the pneumatic jack may be extended and its base 7 supported on the floor or ground, and thus utilized in lifting the body or chassis of the vehicle.

In carrying out my invention I combine and use the bracket with the exterior cylinder or barrel 1 of a jack, and this cylinder is fashioned with exterior screw threads, which extend upwardly from the lower end of the cylinder to near the upper end of the cylinder. It will be understood that the bracket may be mounted on or attached to various types or kinds of jacks of which the exterior cylinder has the threads 2 or other means for mounting the bracket on the cylinder.

As best illustrated in Figure 2 this particular telescoping, pneumatic jack has two telescoping tubular sections 3 and 4 within the exterior cylinder, and these sections have an open-center piston head 5 and a closed piston head 6, respectively, while the innermost section 4 is provided with a usual base 7 to take the load borne by the jack when in use.

The top head 8 of the exterior cylinder is provided with an inlet connection or fixture 9 for the introduction of motive fluid, as air under pressure, for extending the telescoping parts of the jack, and a lateral port-fixture is indicated at 10 as a return air-connection for the exterior cylinder.

The bracket is preferably a one-piece structure having a laterally extending plate or flat arm 11, and as best seen in Figure 3, this arm has angular, converging edges 12 and 13 which come to a substantial point at its free end. These angular edges readily lend themselves to freedom in use and facile adjustment with relation to various parts of the vehicle, as indicated in Figure 3 where the bracket arm is engaged with the spring S; and the arm also may be provided with holes 14 adapting it for use with various tools or devices when attaching the bracket arm to a part of the vehicle.

The bracket arm is rigid with, or integral with a cylindrical collar, sleeve, or bushing 15, that is interiorly threaded and thus adapted to be mounted on, and turned on, the exteriorly threaded cylinder of the jack, thus providing for an adjustment of the bracket throughout the substantial length of the jack-cylinder 1.

As may be observed in Figures 1 and 2 the bracket may be mounted on the jack with the arm down, or with the arm up, the former position providing for a longer stroke of the jack, and the latter providing for a shorter stroke of the jack.

To facilitate adjustment of the bracket on the cylinder and to provide means for rigidly fixing the bracket on the jack in adjusted position, the bushing 15 is split, and the adjoining edges of

the split bushing are provided with perforated ears or flanges 16 and 17 in which a clamp bolt 18 is mounted, and the clamp nut 19 is employed for rigidly clamping the bushing on the cylinder 1 to prevent relative rotary movement between the bushing and the cylinder of the jack.

As shown in Figure 2, the bushing is fashioned with slots 20 so placed that the attachment for the return air pipe 10 may readily be made through a slot that registers with the port in the cylinder 1.

The bracket arm and the ears 16—17 project radially from the bushing, but the bushing is at one side of the axial line of the arm, so that whether the arm is down as in Figure 1, or up as in Figure 2, the ears or flanges with the clamp bolt and nut, are readily accessible, but out of the way of interfering parts of the vehicle. After the bracket is adjusted to the desired position and clamped tightly on the cylinder, the bracket of course moves up or down, as the case may be, with the cylinder, and the bracket provides an essential auxiliary in the operation of the jack.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. The combination in a portable lifting jack having a supporting base and a movable jack-cylinder having exterior threads, and means for lifting the cylinder, of a rotatively adjustable bracket movable longitudinally of the cylinder and comprising a split bushing threaded on the cylinder and means for clamping the bushing in place, and a bracket arm rigid with the bushing.

2. The combination in a portable lifting jack having a supporting base and an adjustable jack-cylinder having exterior threads, of a rotatively adjustable bracket movable longitudinally of the cylinder and comprising a split bushing threaded on the cylinder, said bushing having a pair of perforated ears, a clamp bolt mounted in the ears and a nut for the bolt, and a laterally extending bracket arm integral with the bushing.

3. The combination in a portable lifting jack having a supporting base and an exteriorly threaded adjustable cylinder, of a rotatively adjustable bracket movable longitudinally of the cylinder and comprising a split-bushing and an integral arm projecting laterally from one end of the bushing, said arm having a pair of converging edges at its free end and said bushing having interior threads for co-action with the threaded cylinder, a pair of integral perforated ears projecting from the bushing on a line disposed at an angle to the longitudinal axis of the arm, and a clamp bolt and nut mounted in said ears.

4. The combination in a portable lifting jack with a supporting base and an interior fixed section, an intermediate telescopic tubular section mounted on the fixed section, and a telescopic jack-cylinder mounted on the intermediate section and provided with exterior screw threads, of a rotatively adjustable bracket movable longitudinally of the jack cylinder and comprising a cylindrical bushing threaded on the jack cylinder, and a bracket arm rigid with the bushing.

5. The combination in a portable lifting jack with a supporting base and its fixed interior section, an intermediate telescopic tubular section mounted on the fixed section, and a telescopic jack cylinder mounted on the intermediate section and provided with exterior screw threads, of a rotatively adjustable bracket movable longitudinally of the jack cylinder and comprising a split cylindrical bushing threaded on the jack cylinder, a bracket arm rigid with the bushing, perforated ears on the split bushing, and a clamp bolt mounted in said ears.

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