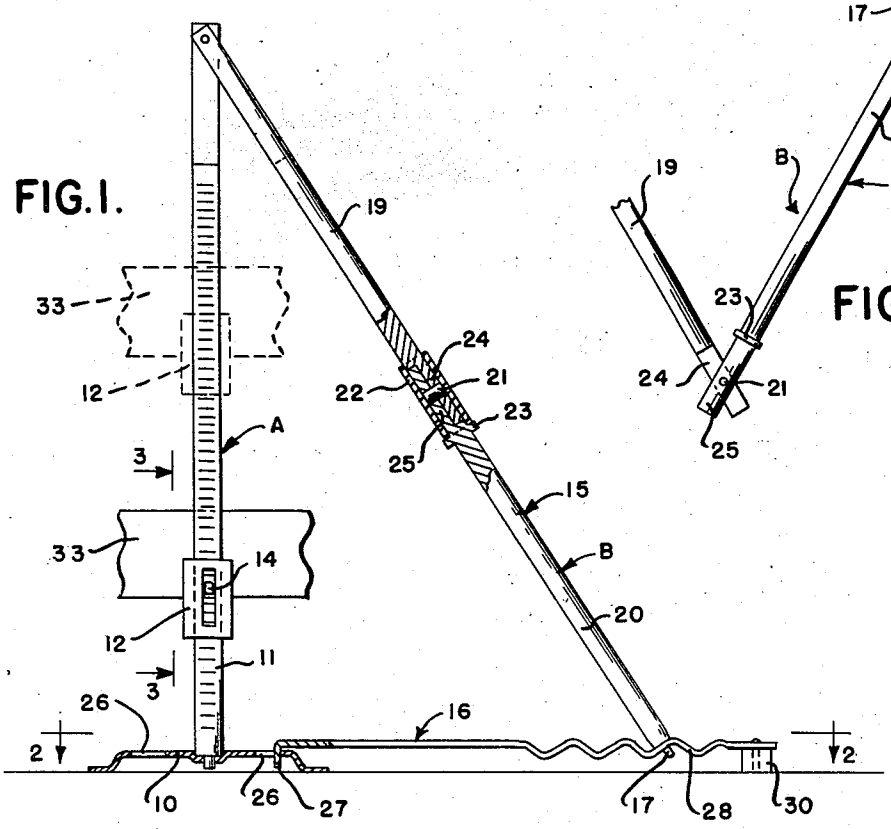
March 3, 1942. J. D. KITCHEN 2,274,794

JACK STRUCTURE

Filed April 14, 1941

FIG. 1.



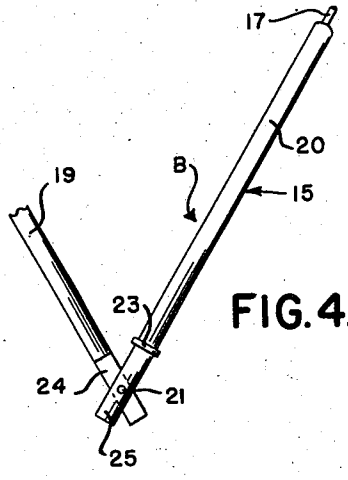


FIG. 4.

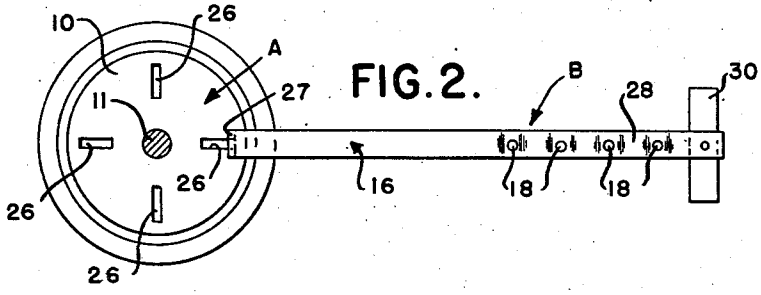


FIG. 2.

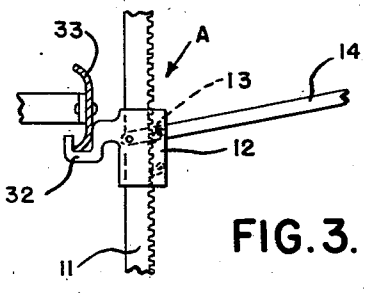


FIG. 3.

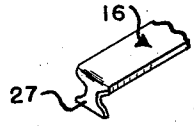


FIG. 5.

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JACK STRUCTURE

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7 Claims. (Cl. 248—352)

This invention relates generally to jack structures and refers more particularly to a combination jack and brace structure for motor vehicles and the like.

One of the essential objects of the invention is to provide a jack with a brace that will effectively prevent the jack from tilting or slipping out of place while applied to the bumper or other suitable part of a motor vehicle.

Another object is to provide a structure of the class described that may be readily collapsed when not in use so that it may be conveniently stored without taking up too much space in the rear deck or luggage compartment of the vehicle.

Another object is to provide a structure that is simple in construction, inexpensive to manufacture, easy to operate and effective for the purposes set forth.

Other objects, advantages and novel details of construction of this invention will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawing, wherein:

Figure 1 is a vertical elevational view of the combination jack and brace structure, with parts broken away and in section, and showing by dotted and full lines respectively the lifting element of the jack and the bumper of a motor vehicle at different heights relative to the ground.

Figure 2 is a horizontal sectional view taken substantially on the line 2—2 of Figure 1;

Figure 3 is a sectional view taken substantially on the line 3—3 of Figure 1;

Figure 4 is a fragmentary view of the brace when jackknifed or partially folded;

Figure 5 is a fragmentary perspective view of the horizontal arm of the brace.

Referring now to the drawing, A is the jack and B is the brace of a combination structure embodying my invention.

As shown, the jack A has a base plate 10 of circular configuration engageable with the ground, an upright or standard 11 removably engaging the base plate 10 at approximately the center thereof, a vertically movable lifting element 12 on the standard, suitable mechanism 13 for raising and lowering the lifting element 12, and an operating lever 14 for said mechanism.

The brace B is substantially V-shape in elevation and has a diagonally disposed arm 15 and a horizontally disposed supporting arm 16. Preferably the diagonal arm 15 is pivotally connected at its upper end to the upper end of the standard 11 and has a pointed lower end 17 engageable with any of a series of apertures or holes 18 in the supporting arm 16. In the present instance, the diagonal arm 15 has two sections 19 and 20 pivotally connected at 21 and adapted to be held in extended position by a slidable sleeve 22. A collar 23 is fixed upon the lower section 20 in spaced relation to the pivot 21 so as to limit downward sliding movement of the sleeve 22. It will also be noted that the pivotally connected end portions 24 and 25 of the sections 19 and 20 containing the pivot 21 are recessed complementarily to receive each other so the over-all cross sectional dimension thereof will be substantially the same as the over-all cross sectional dimensions of the sections 19 and 20. Thus, when the sections 19 and 20 are in extended position, as illustrated in Figure 1, the sleeve 22 may slide freely over the end portions 24 and 25 from the upper section 19 to the collar 23 on the lower section 20 to hold the sections from jackknifing or swinging about the pivot 21.

The horizontal arm 16 of the brace forms in reality a lateral extension of the base plate 10 of the jack and is detachably connected thereto. Preferably such base plate 10 is provided at four diametrically opposed points thereof with slots or apertures 26, and the arm 16 has a substantially X-shaped downturned end portion 27 that is engageable with any of said slots 26, depending upon which one thereof is nearest the brace B after the base 10 and standard 11 of the jack have been assembled. The apertured portion 28 of the arm 16 is corrugated, as illustrated in Figure 1, so that the holes 18 will be in the outermost inclined portions of such corrugations and thus be substantially in alignment with the diagonal arm 15. At the outer end of the horizontal arm 16 is an auxiliary base plate 30 that is preferably pivotally connected to the underside of said arm for engagement with the ground and is substantially equal in width to the arm so it may assume a compact position in registration with the arm 16 when not in use.

Thus, from the foregoing, it will be apparent that the standard 11 and base plate 10 of the jack may be assembled so that the stirrup portion 32 of the lifting element 12 of the jack may be engaged in the usual manner with a bumper 33 or other suitable part of a vehicle when it is desired to lift the latter from the ground. The X-shaped end portion 27 of the horizontal arm 16 may be engaged with the nearest slot 26 in the base 10 of the jack, and the auxiliary base plate 30 may be turned at right angles to the arm 16,

as illustrated in Figure 2, to provide a good ground contact. The sections 19 and 20 of the diagonal arm 15 may be arranged in extended position and held in such position by the sleeve 22. The pointed lower end 17 of the arm 15 may be engaged with any of the apertures or holes 18 in the horizontal arm 16, depending upon the slope or condition of the ground under the brace, to insure the proper bracing effect. This adjustment is particularly useful when the jack structure is used on the side of a road where the ground is uneven, sloping or soft. Thus, the brace B will effectively hold the jack A in proper position relative to the vehicle while the latter is being lifted or lowered and thereby will prevent damage to the vehicle due to any slippage or accidental movement of the jack relative to the vehicle with which it is engaged. When not in use, the standard 11 and base plate 10 of the jack may be disassembled; the diagonal arm 15 may be disengaged from the horizontal arm 16 and jackknifed or folded after the sleeve 22 has been slipped upwardly on the section 19 clear of the overlapping end portions 24 and 25 of the pivotally connected sections; and the horizontal arm 16 may be disengaged from the base plate 10 of the jack. Such collapsed structure can then be compactly stored without taking up much space in the rear deck or luggage compartment of the vehicle.

As an alternative, one section of the diagonal arm 15 may telescopically engage the other instead of being pivotally connected thereto as shown herein. Moreover, the connections between the diagonal arm 15 and standard 11 and between the horizontal arm 16 and base 10 may be different than those shown herein, as desired. Likewise, the auxiliary base 30 may be different in configuration and be otherwise connected to the horizontal arm 16, all as long as the brace structure B has the general configuration illustrated herein and is capable of functioning in a similar manner for the purposes set forth.

What I claim as my invention is:

1. A combination jack and brace structure comprising a jack having a ground engaging base and a standard on the base, and a brace for the jack having two arms, one being connected to the standard of the jack and inclining downwardly and outwardly therefrom, and the other forming a support for the first mentioned inclined arm and being connected to the base of the jack.

2. A combination jack and brace structure comprising a jack having a ground engaging base and a standard on the base, said base being provided with an aperture, and a brace having two arms, one having a part engageable with the aperture in the base, and the other being connected to the standard and adjustably connected to the first mentioned arm.

3. A combination jack and brace structure comprising a jack having a ground engaging base and a standard on the base, said base being provided with an aperture, a brace having two arms, one having a downturned end portion engaging the aperture in the base, and the other being connected to the standard and adjustably connected to the first mentioned arm adjacent its outer end, and an auxiliary ground engaging base carried by the first mentioned arm adjacent its outer end.

4. A combination jack and brace structure comprising a jack having a ground engaging base and a standard on the base, and a brace for the jack having a ground engaging member attached to and constituting a lateral extension of the base, and a diagonal member connected at one end to the standard and having its other end adjustably engaging said ground engaging member.

5. A combination jack and brace structure comprising a jack having a ground engaging base and a standard on the base, and a brace for the jack having a ground engaging member attached to and constituting a lateral extension of the base, said member having a plurality of apertures therein, and a diagonal member pivotally connected at one end to the standard and having its other end alternately engageable with the apertures in said ground engaging member.

6. A combination jack and brace structure comprising a jack having a ground engaging base and a standard on the base, and a brace for the jack having a ground engaging member attached to and constituting a lateral extension of the base, and a sectional diagonal member connected at one end to the standard and having a free end adjustably engaging said ground engaging member, the sections of said diagonal member being movable relative to each other to shorten the over-all length thereof, and the ground engaging member being detachable from the base, whereby the structure may be compactly collapsed for storage or other purposes.

7. A combination jack and brace structure comprising a jack having a ground engaging base provided at spaced points thereof with apertures, and a standard on the base, and a brace having a ground engaging member anchored in one of the apertures in the base and projecting laterally from the latter, said ground engaging member having spaced apertures therein, and a diagonal member connected at one end to the standard and having its other end alternately engageable with the apertures in said ground engaging member.

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