June 11. 1946. R. H. McCLURE 2,401,787

VEHICLE JACK

Filed March 14, 1946

FIG. 2.

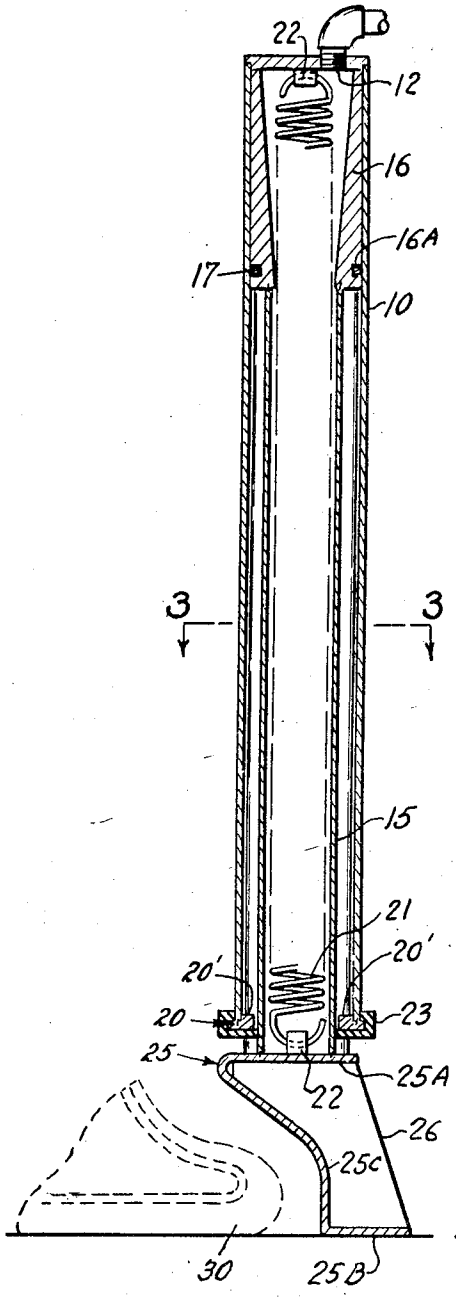


FIG. 1.

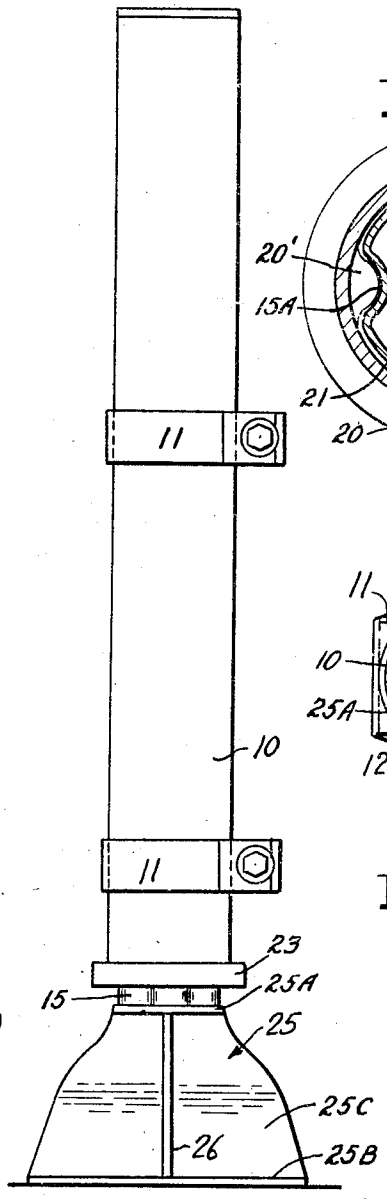
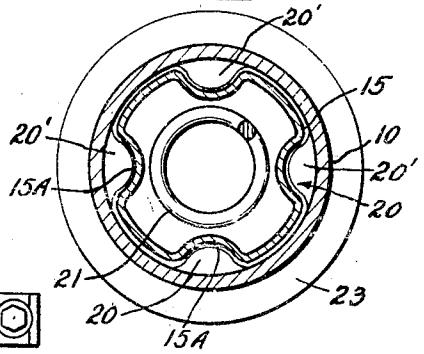


FIG. 3.



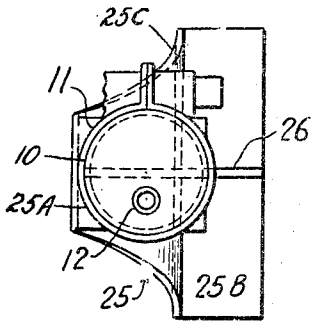


FIG. 4.

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VEHICLE JACK

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2 Claims. (Cl. 254—93)

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The present invention relates to vehicle jacks and specifically to jacks intended to be permanently attached to a not rotatable member adjacent a vehicle wheel and operable by means carried by the vehicle as set out in my prior application Serial No. 622,833, filed October 17, 1945.

In the said application, jacks of the same type as the present one are described as being mounted adjacent the vehicle wheels and supplied with fluid from a single source, means being included for directing such fluid to a selected one or to all of said jacks.

Among the objects of the present invention is to provide a jack suitable for use in such installations.

Another object is to provide a jack which, when operated, will not contact the tire of its adjacent wheel even when such tire is deflated and, consequently, flattened to a considerable width.

Still other objects and advantages will be apparent to those skilled in the art upon reference to the following description and the accompanying drawing in which

Figure 1 is a view of the jack in elevation.

Figure 2 is a vertical central sectional view at right angles to Figure 1.

Figure 3 is a section on line 3—3 of Figure 2 with the foot eliminated.

Figure 4 is a top plan view of the jack.

As indicated in the drawing, the jack consists of an outer tube 10 provided with means, such as fixed clamps 11, for mounting the jack on, for example, the anchor plate of the wheel's brake (not shown). This tube 10 will be closed at the top except for the fluid inlet 12, and will be open at the bottom. Telescoped within tube 10 is a second tube or ram 15 crimped or fluted longitudinally (see Fig. 3) to provide one or several longitudinal guideways 15A, four being preferred and shown. It is to be noted that the guideways 15A are of an arcuate shape in cross section.

The tube 15 is welded or otherwise fixed to a suitable sleeve 16 at its upper end and the latter is of such outside dimension as to fit slidably within tube 10, acting as a piston. The sleeve 16 will be provided with a suitable peripheral groove 16A in which is a packing ring 17 preventing leakage of pressure fluid past the sleeve or piston.

Welded or otherwise fixed to the lower end of tube 10 is a ring 20, the inner contour of which is such as to fit slidably over the tube 15 and prevent turning of the latter when fluid is forced into the tube 10 to project tube 15; it is to be understood that the ring 20 is provided with in-

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wardly extending lugs 20', which are received in the guideways 15A and conform to the configuration thereof. The lower end of tube 15 is closed by a foot piece 25, preferably by welding, and within the assembly is mounted a return spring 21, carried by suitable eyes 22, one of which is fixed to the foot piece 25, and thereby to tube 15, and the other to the upper closure member of tube 10. This spring 21 is, of course, extended when the tube 15 is forced downwardly and serves to return the latter when the fluid pressure is released, and also supports the tube 15 in its idle position. A suitable rubber ring 23 may be used to exclude dust and dirt from the lower end of tube 10.

The foot piece 25 is preferably produced by forming a flat blank to provide an upper horizontal portion 25A and a lower horizontal portion 25B with the connecting intermediate portion 25C arranged angularly so that the portion 25B is displaced well to one side of the axis of the jack (i. e. the axes of tubes 10 and 15) and away from the wheel as indicated in Fig. 2—numeral 30 indicating a flattened tire portion. And in order to stiffen the foot piece, a suitable web plate 26 is preferably welded to the several portions 25A, 25B and 25C.

It is highly important to build a jack which will occupy a minimum amount of space on an automobile, so that the same will not interfere with adjacent vehicle parts. This is accomplished by keeping the diameter of the cylinder and piston tube to a minimum. Strength is gained in the smaller tube 15 by fluting or crimping the tube 15 longitudinally. These crimps or flutes perform the additional function of providing guideways for the keys or lugs 20' on the ring 20. Obviously, it is also highly important that the foot 25 be held against turning movement and in correct position relative to a deflated tire at all times.

Great stress is laid on the use of the longitudinal flutes, in that, the curved cross sectional area thereof effectively prevents binding of the keys or lugs therein and assures free sliding movement of the tube in the cylinder.

I claim:

1. In a hydraulic vehicle jack of the type adapted to be permanently secured to a vehicle in close proximity to a wheel thereof, a cylinder closed at its upper end, a tube of less diameter than the cylinder slidably mounted in said cylinder through the lower end thereof, said tube being provided with longitudinally extending flutes, whereby to strengthen the same, said flutes

also forming longitudinally extending guideways, a piston carried by the upper end of the tube snugly engaging the inner face of the cylinder, a foot carried by the lower end of the tube, said foot having a ground engaging member disposed wholly at one side of the longitudinal axis of the cylinder and tube, whereby to lie at one side of a deflated tire, and means carried by the lower end of the cylinder slidably received in the flutes for holding the tube and foot against rotation relative to the cylinder whereby said foot will be held in proper position relative to a tire at all time.

2. In a hydraulic vehicle jack of the type adapted to be permanently secured to a vehicle in

close proximity to a wheel thereof, a cylinder closed at its upper end, a ram slidably mounted in said cylinder through the lower end thereof, a piston carried by the upper end of the ram snugly engaging the inner face of the cylinder, a jack foot, said foot including a top plate secured to the lower end of the ram, a ground engaging bottom plate disposed wholly at one side of the longitudinal axis of the ram and a side wall connecting the top and bottom plates, the greater portion of said side wall being angularly disposed relative to the top and bottom plates and to the longitudinal axis of the ram.

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