C. G. ETTE.

VEHICLE JACK.

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1,158,192.

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Fig. 1.

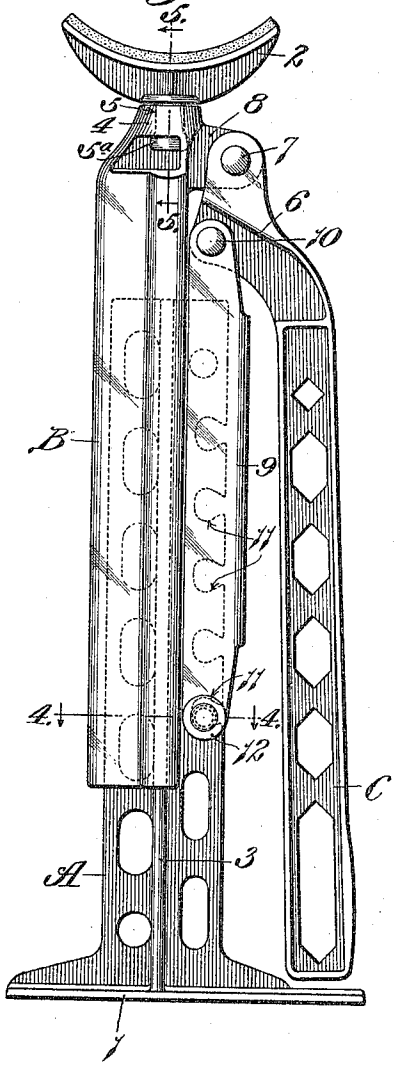


Fig. 2.

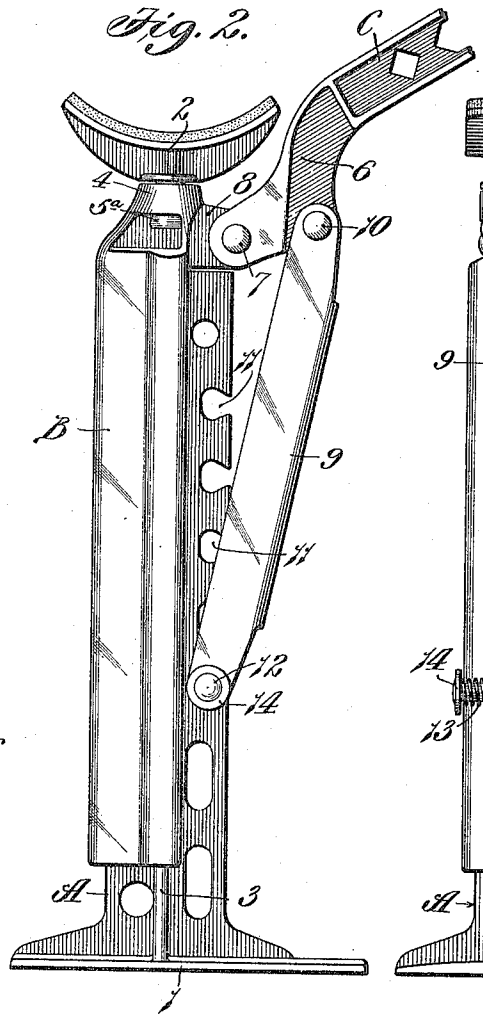


Fig. 3.

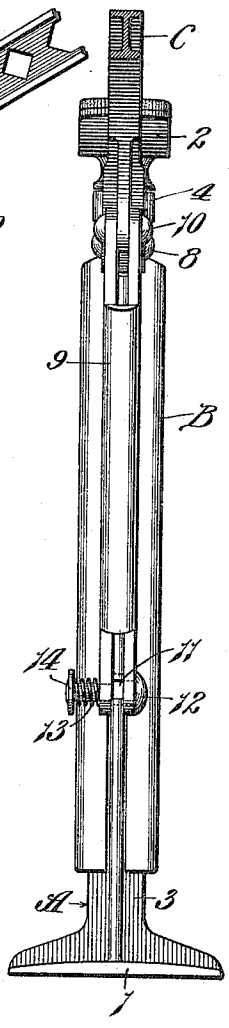


Fig. 4.

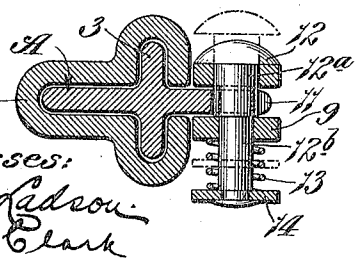
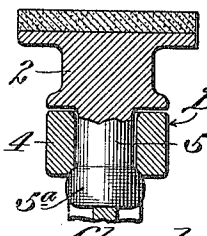


Fig. 5.



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VEHICLE-JACK.

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To all whom it may concern:

Be it known that I, CHARLES G. ETTE, a citizen of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Vehicle-Jacks, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to vehicle jacks, and has for its main object to provide a quick-acting jack that can be adjusted quickly to adapt it to the particular vehicle with which it is used, and which is so constructed that there is no liability of its getting out of adjustment accidentally when it is not in use.

Another object is to provide a vehicle jack of novel construction, in which the movable member of the jack which sustains the wedge of the vehicle or other load carried by the jack is arranged in direct longitudinal alinement with the standard or vertically disposed pedestal of the jack on which said movable member slides.

Another object is to provide a vehicle jack of the character just described, in which the operating mechanism for raising and lowering said movable member comprises a toggle joint whose coöperating members are pivotally connected together at a point intermediate the points where the outer ends of said toggle members engage the standard and the vertically adjustable load-supporting member of the jack, said operating mechanism being so designed that one of said toggle members lies in a vertical position parallel to the standard of the jack when the jack is in use, and thus transmits the load or downward force in a straight line directly to the standard of the jack. And still another object of my invention is to provide an efficient, strong and easily adjustable vehicle jack that can be manufactured at a low cost from cast metal. Other objects and desirable features of my invention will be hereinafter pointed out.

Figure 1 of the drawings is a side elevational view of a vehicle jack constructed in accordance with my invention, showing the jack arranged in operative position for sustaining a load. Fig. 2 is a similar view, illustrating the parts of the jack in positions that they occupy when the jack is not in use, or, in other words, when the vertically adjustable load-supporting member of the jack is in its depressed position. Fig. 3 is a rear elevational view of the jack. Fig. 4 is a horizontal sectional view taken on the line 4—4 of Fig. 1; and Fig. 5 is a vertical sectional view taken on the line 5—5 of Fig. 1.

Referring to the drawings, which illustrate the preferred form of my invention, A designates the standard or vertically disposed pedestal of the jack, which is provided at its lower end with a base 1, and B designates the vertically adjustable load-supporting member of the jack, which is provided at its upper end with a head 2 for receiving a vehicle axle or the hub of a vehicle wheel, said head being preferably curved slightly so as to conform approximately to the shape of a wheel hub, and being connected to the member B in such a manner that it can turn or rotate in a horizontal plane, and thus enable the jack to be set either parallel with the wheel or at right angles to same. The standard A preferably consists of a malleable casting provided with a web and vertically disposed flanges 3 that project laterally from opposite sides of the web at the vertical center axis of the standard A, the flanges 3 extending longitudinally of the standard A and being arranged intermediate the front and rear edges of the web of said standard. The load-supporting member B also preferably consists of a malleable casting of approximately the cross-sectional shape shown in Fig. 4, said member B having a substantially channel or U-shaped portion that embraces the part of the web of the standard A which lies in front of the flanges 3, and also two oppositely disposed channel or U-shaped portions that embrace or surround the flanges 3. The head 2 is connected to the member B at a point directly above the center line of the standard B, or, in other words, at a point in longitudinal alinement with the vertical axis of the standard A, so that the load which the head 2 sustains when the jack is in use will be carried directly over the standard A, thereby giving strength where it is most needed, enabling the member B to be raised with less effort and also eliminating the possibility of the jack tilting. The member B is provided at its upper end with a bearing portion 4 on which the head 2 rests, and, in order to reduce the cost of manufacture and also insure a strong, rigid structure, I prefer to permanently combine the head 2 and

member B together during the operation of casting the member B. To this end I provide the head 2 with a depending cylindrical shank 5 that passes freely through an opening in the bearing portion 4 at the upper end of the member B and which is provided at its lower end with a head or enlarged portion 5^a whose diameter is greater than the opening in the bearing portion 4 on the member B, thereby preventing the head 2 from being disconnected from the member B. In manufacturing the jack the head 2 with the integral shank 5 thereon is placed in the mold in which the member B is formed, so as to cause the center bearing 4 on said member B to be cast around said shank 5 during the operation of casting the member B.

The operating mechanism of the jack comprises a toggle joint whose coöperating members are connected to the vertically adjustable member B and to the standard A in such a manner that when said toggle joint is straightened the member B will move upwardly, and when it is broken said member B will move downwardly. One member of said toggle joint is formed by an angularly disposed portion 6 at the inner end of an operating lever C, which is pivotally connected at 7 to a rearwardly projecting ear 8 at the upper end of the member B, the portion 6 of the operating lever C being bifurcated so that it will straddle or embrace the ear 8 on the member B. The other member of said toggle joint consists of a link 9 whose upper end is pivotally connected at 10 to the toggle member 6 and whose lower end is pivotally connected to the standard A so as to cause the load-supporting member B of the jack to be raised and lowered when the lever C is operated. The toggle member 6 on the inner end of the lever C is so disposed with relation to said lever that when the jack is in use, as shown in Fig. 1, the pivot 10 that joins the two members of the toggle together will lie a trifle to one side of dead center, or slightly out of alinement with the points where the toggle members are connected to the standard A and to the load-supporting member B, thereby insuring the operating lever C remaining in its operative depressed position, as shown in Fig. 1. The lever C and the link 9 both preferably consist of malleable iron castings, and the link 9 is preferably channel or U-shaped in cross section throughout the major portion of its length, so that it will embrace the rear edge portion of the standard A when the jack is in use, and thus enable the toggle members to be connected to the standard A and to the movable member B of the jack in such a manner that they will lie very close to the vertical axis of said standard.

The lower end of the toggle link 9 is adjustably connected to the standard A, so that the point of connection between said link and standard can be changed when it is desired to change the initial adjustment of the jack, or, in other words, adapt the jack to a vehicle provided with wheels of a particular size, and in order to eliminate the possibility of the jack getting out of adjustment accidentally when it is not in use, I have connected the link 9 to the standard A in such a manner that said link can be adjusted quickly and easily without the aid of a wrench, screw-driver, or other tool. As shown in the drawings, the rear edge portion of the standard A is provided with a plurality of horizontally disposed slots 11 arranged in different horizontal planes, any one of said slots being adapted to receive a horizontally disposed cross pin 12 in the lower end of the toggle link 9. Each of the slots or notches 11 has a contracted mouth, and the pin 12 in the link 9 is provided with two portions 12^a and 12^b of different diameters. The portion 12^a of said pin is of greater diameter than the portion 12^b and it is large enough so that it cannot be moved transversely out of the contracted mouth of the notch 11 in which the pin 12 is positioned. The smaller portion 12^b of the pin 12 is of such dimensions that it will pass through the contracted mouth of the notch 11 that receives the pin 12 when said portion 12^b is positioned in said notch. Normally, the enlarged portion 12^a of the pin 12 is positioned in one of the notches 11 in the standard A, said pin 12 being held in the position shown in full lines in Fig. 4 by means of a coiled expansion spring 13 that is mounted on the pin 12 between one side of the link 9 and an abutment 14 at the outer end of the pin 12, which can be formed conveniently by a washer 14 secured to the pin 12 in any suitable manner, as, for example, by upsetting the outer end of said pin. If it is desired to change the initial adjustment of the jack the pin 12 is moved horizontally against the stress of the spring 13 into the position shown in broken lines in Fig. 4, thus positioning the reduced portion 12^b of the pin in the notch 11 in the standard and enabling the pin to be moved rearwardly out through the contracted mouth of said notch.

A vehicle jack of the construction above described can be manufactured at a low cost, owing to the fact that the parts of same consist of malleable castings which are so designed that they can be assembled and connected together quickly and easily; there is no liability of the jack getting out of initial adjustment when the jack is not in use, owing to the fact that the pin 12 is normally held in such a position that it cannot slip out of the slot or notch 11 in the standard A in which it is located. The initial

adjustment of the jack can be changed easily, however, and without the use of a wrench or similar tool, by simply punching the pin 12 laterally slightly, as previously described. In view of the fact that the head 2 on which the axle or the hub of the vehicle rests is located directly above the standard A and in longitudinal alinement with the vertical axis of said standard, the weight is carried directly over the standard, thus giving strength where it is most needed, enabling the member B to be raised easily and also eliminating the possibility of the jack tilting. And still another desirable feature of such a jack is that the toggle joint that forms part of the operating mechanism is not in tension when the jack is in use, owing to the fact that the link 9 is arranged in a vertical position and in parallel relation to the standard A of the jack, the toggle links being connected to the standard A and to the load-supporting member B in such a manner that the downward pressure which the load exerts on the jack is transmitted directly to the standard A in a direction parallel to the vertical axis of said standard.

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

1. A vehicle jack, comprising a standard having a vertically-disposed web provided intermediate its front and rear edges with laterally projecting flanges, a vertically adjustable load-supporting member slidably mounted on said standard and provided with portions that embrace the flanges thereon, an operating lever, an angularly-disposed portion on the inner end of said lever which is pivotally connected to a rearwardly projecting ear on said load-supporting member, and a link of substantially channel shape in cross section whose upper end is pivotally connected to the angularly-disposed portion of said lever and whose lower end is pivotally connected to said standard, said link being adapted to straddle one of the flanges on said standard.

2. A vehicle jack, comprising a standard, a vertically adjustable load-supporting member slidably mounted on said standard, and an operating mechanism for said member comprising a toggle joint, one of whose members is pivotally connected to said standard by means of a movable pin having two portions of different diameters, the larger one of which is normally positioned in a horizontally-disposed slot in the edge of said standard, said slot having a narrow mouth through which the smaller portion of said pin can pass laterally after the pin has been moved into a certain position.

3. A vehicle jack, comprising a standard, a vertically adjustable load-supporting member slidably mounted on said standard, an operating mechanism for said member comprising a toggle joint, one of whose members is pivotally connected to said load-supporting member, a spring-pressed pin passing transversely through the other toggle member and through an opening formed in the edge of said standard, said pin having a reduced portion and said notch having a narrow mouth, and an operating lever formed integral with one of said toggle members.

In testimony whereof I hereunto affix my signature in the presence of two witnesses, this twenty sixth day of February 1915.

CHARLES G. ETTE.

Witnesses:
WILLIAM L. SCHROEDER,
WALTER C. RAITHEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."