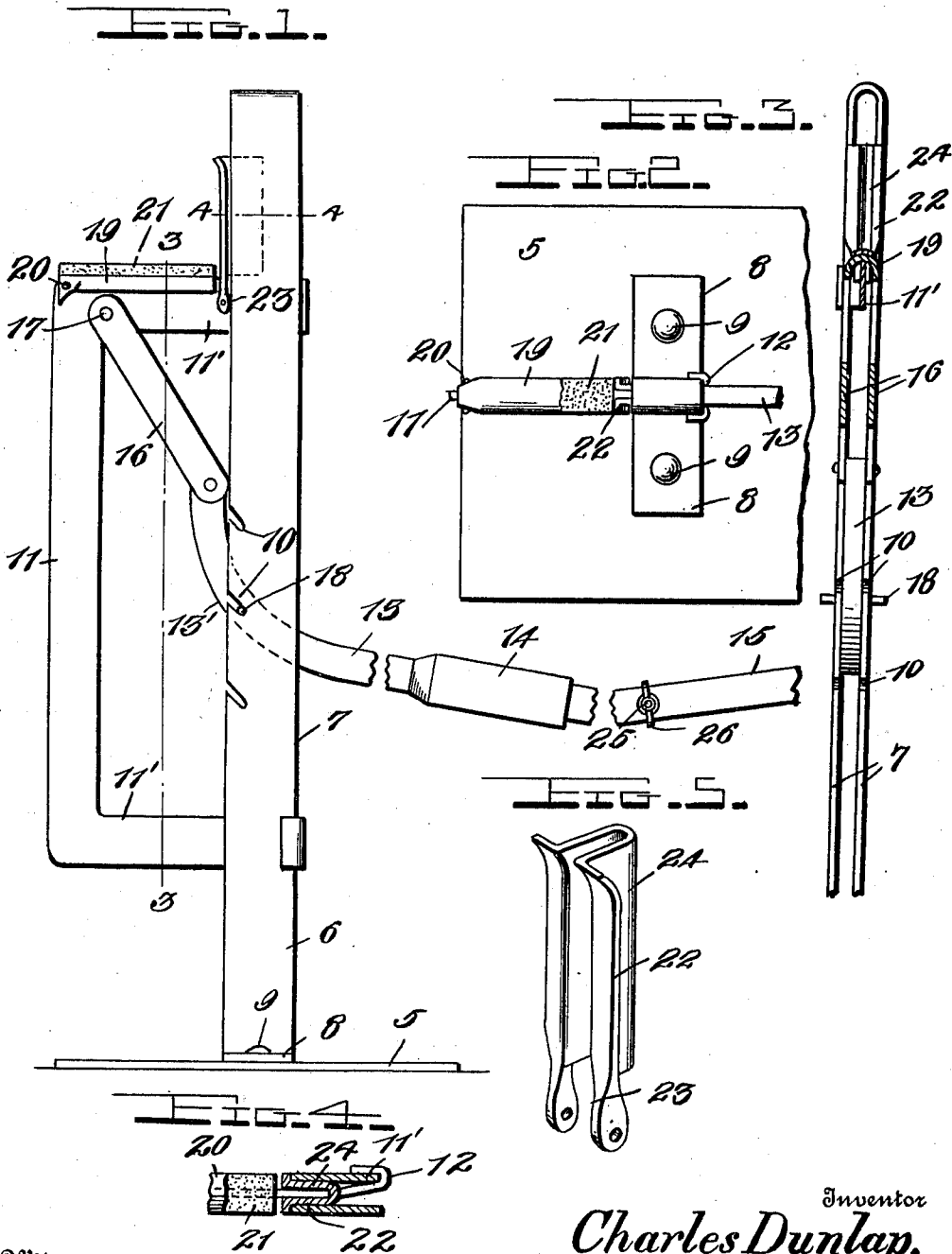


C. DUNLAP.
LIFTING JACK.

APPLICATION FILED AUG. 2, 1911.

1,021,138.

Patented Mar. 26, 1912.



Witnesses

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LIFTING-JACK.

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Specification of Letters Patent.

Patented Mar. 26, 1912.

Application filed August 2, 1911. Serial No. 641,995.

To all whom it may concern:

Be it known that I, CHARLES DUNLAP, a citizen of the United States, residing at Edgewood, in the county of Siskiyou and State of California, have invented certain new and useful Improvements in Lifting-Jacks, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to lifting jacks and more particularly to a wagon or automobile jack, the invention having for its primary object the provision of a device of this character which is simple in construction, light, and extremely rigid and durable in practical use.

Another object of the invention is to provide a lifting jack of the above character the parts of which may be readily disassembled and compactly arranged for convenience in transportation.

A further object of the invention is to provide a lifting jack which may be easily and quickly operated with a minimum of manual exertion, the lifting elements being automatically locked, under the weight of the vehicle so as to retain the vehicle in its elevated position.

Still another object of the invention resides in the provision of a vertically movable lifting element mounted to slide upon a U-shaped standard or support, and a pair of guard plates pivotally mounted upon the lifting element, one of said plates when in its operative position having a portion extending between the legs of the supporting standard to brace the same at the point whereon the greatest strain devolves.

With the above and other objects in view, the invention consists of the novel features of construction, combination and arrangement of parts hereinafter fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the device showing the lifting element in locked position; Fig. 2 is a top plan view; Fig. 3 is a section taken on the line 3—3 of Fig. 1; Fig. 4 is a detail section taken on the line 4—4 of Fig. 1; and Fig. 5 is a detail perspective view of one of the pivoted guard plates.

Referring in detail to the drawings 5 designates a preferably rectangular steel base plate. Upon this base plate the vertical

standard 6 is mounted. This standard is formed from a single bar of steel bent upon itself intermediate of its ends into substantially U-shaped form whereby the parallel vertical bars 7 are provided. The extremities of these bars are laterally bent at right angles as indicated at 8 and are securely riveted, bolted or otherwise rigidly fixed upon the base plate 5 as shown at 9. One of the longitudinal edges of each of the bars 7 is provided with a plurality of spaced transversely disposed downwardly inclined recesses 10, the purpose of which will be hereinafter more fully pointed out.

Upon the U-shaped standard or support 6 a vertically movable lifting frame 11 is mounted. This frame is of substantially U-shaped form, and when in assembled operative position the parallel arms 11' thereof are horizontally disposed. The extremity of the upper arm 11' is bent around the longitudinal edge of one of the bars 7 of the standard as indicated at 12, and the extremity of the lower horizontal portion 11' of the lifting frame is similarly engaged around the corresponding edge of the other vertical bar 7. The ends of the parallel portions 11' of the lifting frame extend between the vertical bars 7 of the supporting standard and engage around the edges of said bars which are farthest disposed from the intermediate portion of the lifting frame.

An operating lever 13 extends between the parallel portions 7 of the standard 6 and has its end portion slightly curved or arcuately formed and upwardly disposed as indicated at 13'. The other end of this lever is provided with a handle receiving socket 14 to receive a suitable operating handle 15. A pair of parallel links 16 are pivotally connected to the curved end 13' of the lever 13 at one of their ends, and the other ends of said links are pivoted to the lifting frame at the point of juncture of the upper horizontal portion 11' with the vertical intermediate portion of said frame as shown at 17. At the point of greatest curvature of the lever 13, a transversely disposed pin 18 extends therethrough and is rigidly secured in any suitable manner to said lever. The pin 18 projects upon opposite sides of the lever 13 and is adapted to be received in the inclined slots 10 provided in the inner edge of the standard bars 7.

Upon the upper end of the lifting frame 11 at a point adjacent the pivotal connection of the links 16 thereto, a saddle plate 19 is pivotally mounted at one of its ends as indicated at 20. This plate is substantially U-shaped in cross sectional form and in its operative position engages over the upper edge of the horizontal arm 11' of the lifting frame. This saddle plate is provided with a facing or covering of felt or other non-abrasive material 21 which obviates the danger of marring the surface with which said saddle plate engages. A second guard plate 22 is also pivoted upon the upper horizontal arm 11' of the lifting frame, the end of said plate being bifurcated to receive said arm as indicated at 23. The free end of the plate 22 is slightly curved for engagement upon the curved upper surface of a vehicle axle bar. This guard plate is also provided with a longitudinal channel 24 which extends throughout the length of the plate, said channel being U-shaped in cross sectional form and substantially equal to the space between the opposed inner faces of the standard bars 7. It will thus be seen that in the operative positions of the saddle plate 19 and guard plate 22, the former serves to maintain the latter in its vertical position, in which position the U-shaped channel 24 of the guard plate is disposed between and in contact with the vertical standard bars 7 thereby providing a brace for the same and preventing undue strain upon said bars which are comparatively light.

In the use of my improved lifting jack, the lifting frame 11 is properly arranged upon the bars 7 of the standards 6 and the pivot pin 18 of the lifting lever 13 is engaged in the proper recesses 10 to dispose the lifting frame at the desired height beneath the axle bar of the vehicle. After disposing the saddle plate 19 of the guard plate 22 upon the frame 11 for engagement with the bottom and side respectively of the axle, the operator inserts the operating handle 15 in the socket 14 of the lifting lever and forces the same downwardly thereby rocking said lever in the standard and forcing the frame 11 upwardly to elevate the vehicle. The links 16 which connect the lever 13 to the frame 11 are now disposed in the position shown in Fig. 2, the lower ends thereof being in contact with the frame bars 7 and binding thereagainst. The weight of the vehicle upon the frame 11 acts to force said links against the standard, and as the pivotal connection of the links to the lever 13 is above the pivot pin 18, any lifting movement of the lever 13 which would lower the frame 11 is prevented so that the frame is rigidly maintained in its raised position. To lower the vehicle, the handle bar 15 is simply forced

upwardly to move the link 16 outwardly toward the vertical intermediate portion of the frame 11. When the links are thus moved out of contact with the standard 6, the frame 11 immediately descends upon said standard. As the greatest strain develops upon the frame bars 7 when the vehicle is elevated, and more particularly at the point of engagement therewith of the upper horizontal arm 11' of the lifting frame, it will be seen that such strains would have a weakening effect upon the standard bars and would tend to bend or twist the same. This weakening effect is fully overcome by the provision of the channel 24 formed in the plate 22 which is disposed between the bars 7 and braces the same. In this manner I aim to obtain a very strong and rigid structure and at the same time one which is comparatively light and may be easily handled.

The lifting frame 11 may be easily and quickly detached from the supporting standard and separately packed for convenience in transportation. To this end the peculiar form of the saddle plate 19 and the guard plate 22 also lend themselves, as the plate 22 may be folded down upon the lifting frame, the horizontal portion 11' thereof being received in the channel 24 of said plate. The U-shaped saddle plate 19 is then folded down upon the plate 22 and engages over the channel 24 thereof. The handle bar 15 has a bolt 25 loosely disposed therethrough intermediate of its ends and upon this bolt a wing nut 26 is threaded. After disassembling the parts, the bolt 25 is positioned in one of the recesses or notches 10 in one of the standard bars 7 and the nut 26 adjusted to rigidly clamp the handle bar upon said standard so as to prevent its loss. This feature of the device also facilitates the packing of the standards and handle bars together in large quantities.

From the foregoing it is believed that the construction and operation of my improved lifting jack will be fully understood. The device is simple, may be very easily and quickly operated and is extremely efficient in practical use. The construction and arrangement of parts above set forth provides a lifting jack which may be used for elevating heavy wagon bodies or automobiles for purposes of repair, while at the same time the device is comparatively light and may be easily moved from place to place. It will of course be obvious that any desired number of the notches 10 may be provided in the standard bars 7 in accordance with the range of adjustment of the lifting frame 11 which may be desired. The device is also susceptible of a great many other modifications in the form, proportion and arrangement of parts without

departing from the essential feature or sacrificing any of the advantages of the invention.

Having thus described the invention what is claimed is:—

5 1. A lifting jack comprising a vertical U-shaped standard, a lifting frame having upper and lower parallel arms, the extremities of said arms being slidably engaged upon the respective parallel bars, a lifting lever adjustably and pivotally mounted upon the standard, movable connections between said lever and the lifting frame, a saddle plate mounted upon said frame and engaged upon the upper horizontal arm thereof, and means mounted upon said frame and extending between the parallel bars of the standard, said latter means being maintained in its operative position by
10 20 said saddle plate.

2. A lifting jack comprising a vertical U-shaped standard, a lifting frame having upper and lower horizontal arms extending between the bars of the standard, the extremities of said arms being slidably engaged upon the corresponding edges of the respective standard bars, a lifting lever pivotally and adjustably mounted in the standard, a pair of links connecting said
25 30 lever to the frame whereby said frame is elevated on the standard, said links having binding engagement upon the standard to maintain the frame in its elevated position under the weight of the object supported thereby, means mounted upon said lifting frame and disposed between the standard bars to brace the same, and additional means

for maintaining said last named means in its operative position.

3. A lifting jack comprising a vertical U-shaped standard, a lifting frame vertically movable upon the standard, means mounted in the standard and connected to the frame to raise the same, a pair of guard plates movably mounted upon the lifting frame, one of said guard plates acting to maintain the other of said plates in its operative position.

4. A lifting jack comprising a vertical U-shaped standard, a substantially U-shaped lifting frame vertically movable upon the standard, the parallel bars of said frame being horizontally disposed and extending between the bars of the standard, means mounted upon said standard and connected to the frame to raise the same, a saddle plate pivoted at one end upon the frame and engaged upon the upper edge of the upper horizontal arm of the lifting frame, a guard plate pivotally mounted upon said arm and vertically disposed when in its operative position, said saddle plate engaging the guard plate to support the same in its vertical position, said guard plate having a longitudinal U-shaped channel formed therein disposed between the parallel bars of the standard to brace the same.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

CHARLES DUNLAP.

Witnesses:

MANUEL F. ROSE,
CLARENCE W. SOULÉ.