No. 767,275. PATENTED AUG. 9, 1904.

J. C. HOUSTON.

LIFTING JACK.

APPLICATION FILED APR. 21, 1904.

NO MODEL. 2 SHEETS—SHEET 1.

FIG. 1.

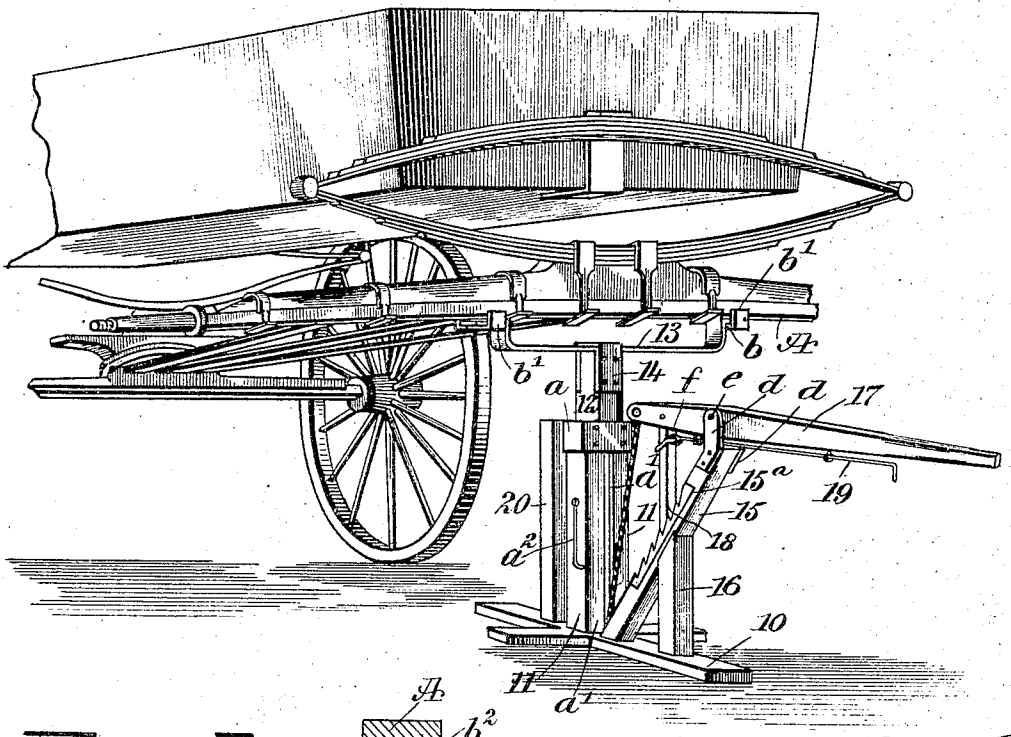
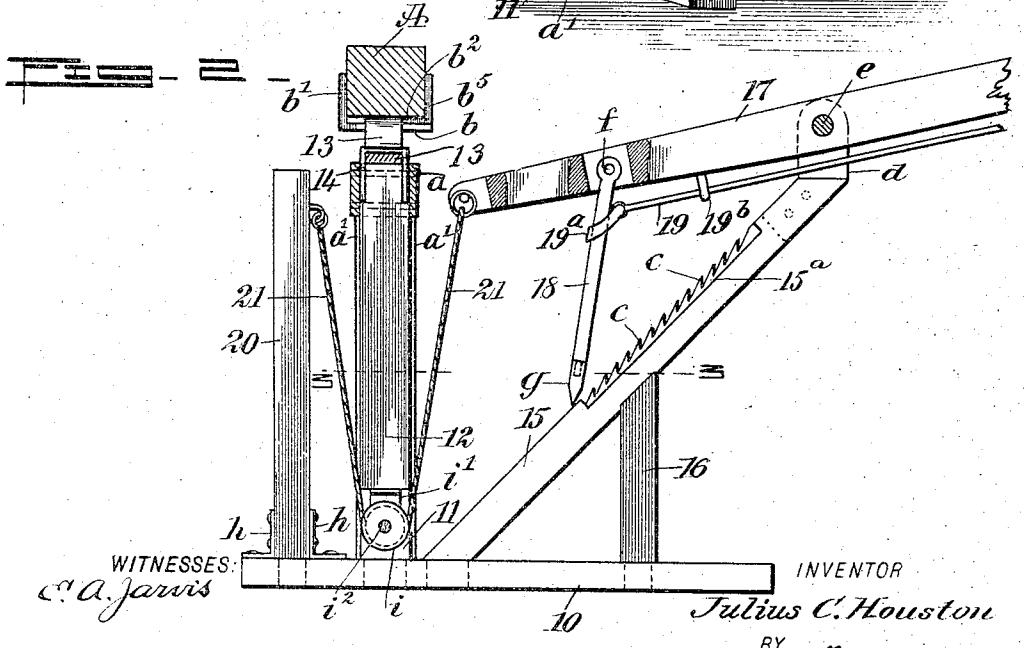


FIG. 2.



WITNESSES:

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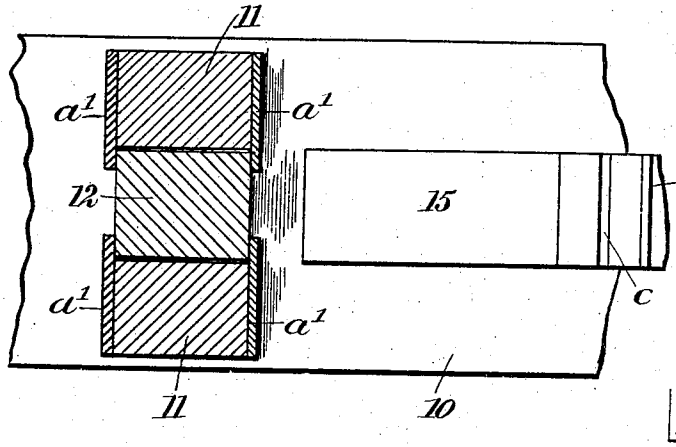
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NO MODEL. 2 SHEETS—SHEET 2.

FIG. 3.



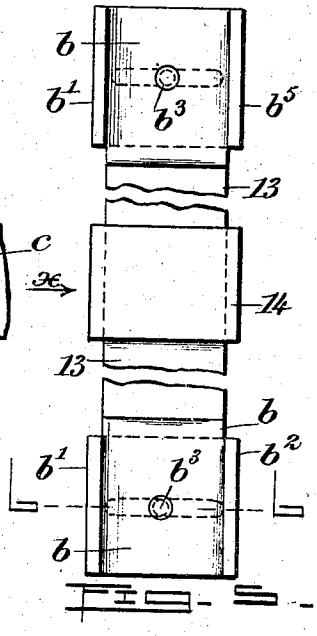
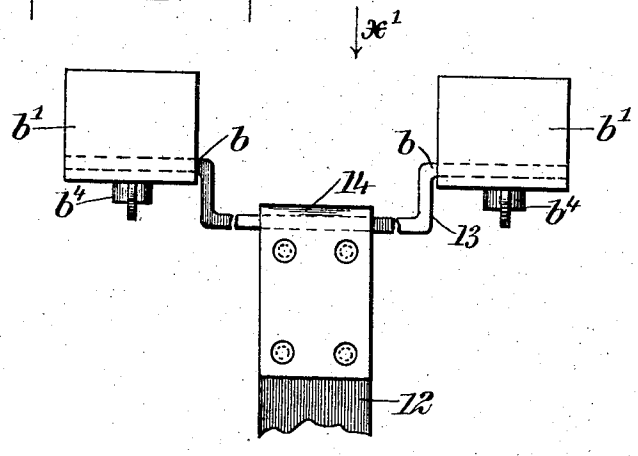
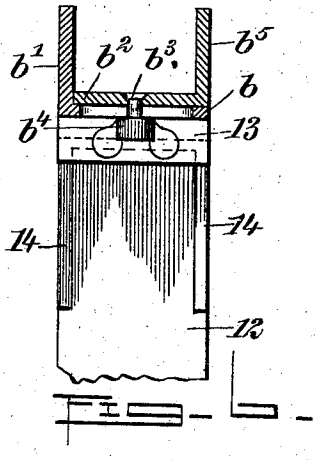


FIG. 5.

FIG. 4.





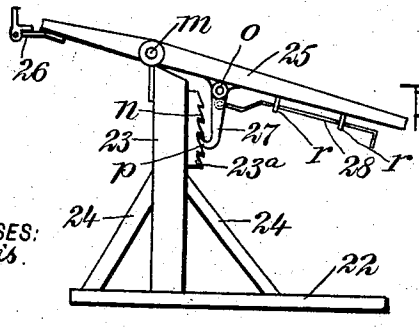


FIG. 7.

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No. 767,275. Patented August 9, 1904.

UNITED STATES PATENT OFFICE.

JULIUS CAESAR HOUSTON, OF YAZOO CITY, MISSISSIPPI.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 767,275, dated August 9, 1904.

Application filed April 21, 1904. Serial No. 204,193. (No model.)

To all whom it may concern:

Be it known that I, JULIUS CAESAR HOUSTON, a citizen of the United States, and a resident of Yazoo City, in the county of Yazoo and State of Mississippi, have invented a new and Improved Lifting-Jack, of which the following is a full, clear, and exact description.

This invention relates to lifting-jacks, and more particularly to such as are employed for raising a vehicle-axle to permit the removal and replacing of one or both wheels to permit lubrication or repair of the wheels, and has for its object to provide novel details of construction for a lifting-jack of the character indicated which are simple, practical, and inexpensive and that afford a light powerful jack that may be used to raise one or both ends of the axle engaged therewith, as occasion may require.

The invention consists in the novel construction and combination of parts, as is hereinafter described, and defined in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of the improvement constructed for lifting an axle and wheels thereon from the ground to permit removal of both wheels. Fig. 2 is a partly sectional side view of details embodied in the improved lifting-jack as exemplified in Fig. 1. Fig. 3 is a partly sectional plan view of details shown complete in Fig. 1, the line of section being indicated substantially at 3 3 in Fig. 2. Fig. 4 is a longitudinally-contracted side view of details seen in the direction of the arrow x in Fig. 5. Fig. 5 is a broken plan view of details seen in the direction of the arrow x' in Fig. 4. Fig. 6 is a transverse sectional view substantially on the line 6 6 in Fig. 5, and Fig. 7 is a side elevation of a modified form of the lifting-jack employed for lifting one wheel and an end portion of a vehicle-axle while in place on the vehicle.

In the jack shown in Figs. 1 to 6, inclusive, 10 represents a preferably wooden brace-piece that may be constructed of hardwood planks in the form of a Greek cross, thus affording a pedestal that is flat, of considerable area, and moderate weight. Centrally on the base-piece 10 two posts 11 of similar form and dimensions are erected, and said posts, which are spaced apart in parallel planes, are held in proper relative positions by the rectangular band a, which encircles their upper ends and is thereto secured by any suitable means. The height of the posts 11 is proportioned to enable the jack to be placed below a vehicle after other details are mounted upon a leg 12, that is held to slide vertically between the posts. The leg 12 is preferably formed of hardwood rectangular in cross-section, of such lateral dimensions as adapt it to slidably fit in the space between the posts 11, and to retain the leg in place metal guide-strips a' are secured on opposite sides of the posts, which loosely lap upon the leg, as shown in Fig. 3. Upon the upper end of the leg 12 a yoke-bar 13 is secured by means of a metal clip-band 14 in the form of a rectangular loop, the transverse portion of which is seated upon the yoke-bar and the depending members thereof secured upon opposite sides of the leg 12, as shown in Figs. 1, 2, 4, and 6. Near each end of the yoke-bar 13 portions of the same are bent upward and then outward, producing two bearings b, that are in the form of horizontal flanges, and on each flange, at a side edge thereof, a guard-flange b' is bent upward. A coacting flange b^2 is provided for each bearing-flange b and is held to slide thereon by means of the bolt b^3 and nut b^4, said bolt engaging a transverse slot in the flange b, so that said slidable extension-piece b^2 for each bearing-flange may be adjusted and secured at any point of sliding adjustment. On the outer end of each extension piece or flange b^2 an upright flange b^5 is bent, that is parallel with the flange b' and also serves as a guard-flange. It will be seen that if a vehicle-axle is seated upon the bearing-flanges b and their lateral extension-pieces b^2 and the latter are adjusted so as to cause the guard-flanges b' b^5 on each bearing-flange and its extension-piece to have contact with the sides of the axle and the extension-pieces are held as adjusted by the bolts b^3 and nuts b^4 the axle will be held securely seated and not liable to slide off of the supporting yoke-bar 13, and it will be ob-

vious that by the construction of parts just described axles having different thickness may be engaged by the bearings at the ends of the yoke-piece and held thereon while the axle is raised and lowered, as will hereinafter be more fully explained. Upon the base-piece 10 a rack-bar 15 is supported in an inclined position, said rack-bar extending upward and outward in front of the leg 13. A prop or brace 16, that seats upon the base-piece 10, at its upper end engages the inclined rack-bar 15 and stably supports it. The rack-bar and brace may be formed of pieces of hardwood timber rectangular in cross-section, and if wood is employed for their construction a metal rack 15^a is provided, having teeth c thereon which project upward on the outer side of the rack when it is secured in place on the upper face of the bar 15, as shown in Figs. 1 and 2. A lifting-lever 17 is held to rock on the upper end of the inclined rack-bar 15 by means of leaf-plates d or the like, that are secured upon the rack-bar so as to project above it and embrace the lever pivoted thereon by a transverse bolt or pivot e. A pawl 18, formed of metal, is pivoted at its upper end in a slot in the lever 17, as shown at f in Fig. 2, the length of the pawl being so proportioned that it may be freely engaged at its lower end between the teeth on the rack-bar 15 when the lever 17 is inclined upward, and to render the pawl durable at its lower end a steel toe g may be formed or secured thereon and shaped to adapt it for engagement between the teeth c on the rack-bar. Upon the pawl 18, near its pivoted upper end, one end of a tripping-rod 19 is loosely connected, this connection being preferably in the form of a link 19^a, hinged upon the adjacent portion of the tripping-rod and loosely encircling the pawl 18. The tripping-rod 19 is held to slide, as at 19^b, by a staple which projects downward from the lever 17 and supports the rod near the lower side of the lever, and from the staple the rod extends forwardly between the joint leaf-plates d to a point near the front end of the lever, so that by manipulation of the rod 19 the pawl 18 may be rocked for its engagement between pairs of teeth c or be removed therefrom, as may be desired. A standard 20 is erected on the rear portion of the base 10 and firmly secured in place by knee-brackets h or similar means. On the lower end of the leg 12 a grooved wheel i is held to rotate by means of a bracket-frame i' and pivot i^2. A flexible connection, such as a chain or wire rope 21, is secured by one end thereof to the standard 20 and at its opposite end to the rear end of the lifting-lever 17, the rope or chain having its middle depending portion looped and engaged with the grooved periphery of the wheel i.

In use the jack is placed on level ground beneath an axle A of a vehicle, so that the bearings on the ends of the yoke 13 will engage the lower side of the axle at about equal distances from the center of the length of said axle, as indicated in Fig. 1. The lowered adjustment of the leg 12 will pull upon the bight of the flexible connection 21 and correspondingly draw the engaged end of the lever 17 down, which will elevate the other end of said lever. The one operating the jack now takes hold of the outer end of the lever 17 and by means of the tripping-rod 19 draws the pawl-toe g toward the rack-bar 15, at the same time depressing the lever at its outer end, which will pull upon the rope 21 and elevate the leg 12, thus raising the axle A from the ground or floor whereon the vehicle stands. When a proper height is attained, the rod 19 is pulled upon so as to enter the pawl-toe g between appropriate teeth c on the rack-bar, which will hold the axle and wheels thereon elevated. In lowering the axle and wheels that may have been removed, lubricated, and replaced upon the axle the lever 17 is first pressed down at its outer end so as to permit a release of the pawl-toe g from the teeth c. Then the axle and wheels are gently lowered to rest the wheels on the floor or ground, the length of the lever giving the operator full control of the jack, so that there need be no sudden dropping of the elevated axle and wheels.

In Fig. 7 a simple form of a jack embodying the general features of the other example of my invention is shown and consists of the following construction and arrangement of parts: Upon a base 22, that may be a single piece of wooden plank, is erected a post 23, braced by struts 24, secured at opposite sides of the post. A lifting-lever 25 is hinged, as at m, upon the upper end of the post 23, and at the end of the lever nearest the post a bracket 26 is secured, said bracket being adapted for a hooked engagement upon a vehicle-axle near a spindle thereon. Upon the post 23 a rack 23^a is formed or secured, the teeth n of the rack hooking downward, the rack being placed at the forward side of the post, near the upper end thereof. A detent hook-bar 27 is pivoted, as at o, on the lower side of the lever 25, said pendent hook-bar having a toe p for engagement with any one of the teeth n. A tripping-rod 28 is pivoted by one end on the front side of the pendent hook-bar 27 and thence extends forward in supports r below the lever 25, terminating in a handle at its front end. In use the bracket 26 is placed in engagement with the body of an axle that is to be lifted, near one end thereof, after the jack has been positioned near and below the axle, the lever then being rocked to incline it upward toward the end that is to be raised. The lever is depressed when the bracket 26 is properly engaged with the axle to be lifted, which will raise the axle in an obvious manner, and any degree of elevation

given to the axle and wheel thereon may be maintained by pushing the rod 28 so as to engage the toe *p* of the hook-bar 27 with a tooth *n*, that is located opposite the toe at this time, which engagement will secure the lever at a desired point for the reliable support of the axle and wheel. To release the jack, it is only necessary to slightly depress the outer end of the lever 25 and at the same time pull the tripping-rod 28, so as to disengage the toe *p* from the tooth *n* it has been engaged with and then permit the lever to move upward at its handle end in a manner that will avoid sudden dropping of the axle, this being effected by the controlling manipulation of the outer end of the lever.

A hook a^2 may be loosely secured by one end upon the outer side of one of the posts 11, as shown in Fig. 1, in a pendent condition, this hook being employed to hold the leg 12 fully depressed by an engagement of the nose of the hook over and upon the yoke-bar 13 when it is seated upon the band *a*, this engagement serving to retain the leg and yoke-bar in lowered adjustment, so as to render the jack compact when not in use.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a lifting-jack, the combination with a base, a yoke-bar adapted to engage an axle, a leg depending from the yoke-bar, means for supporting and guiding the leg from the base so as to permit vertical reciprocation of said leg, a rockably-supported lifting-lever, means engaging one end of the lever, adapted to elevate the yoke-bar when said lever is depressed at its handle end, and means for holding the handle end of the lever depressed at any point of rocked adjustment.

2. In a lifting-jack, the combination with a base-piece, spaced upright posts on the base-piece, a leg held to slide between the posts, a yoke-bar secured on the leg at right angles thereto, means carried by the yoke-bar at its ends for engaging an axle and preventing displacement therefrom, a rack-bar supported from the base-piece, a lifting-lever pivoted on a support above the rack-bar, a pawl-bar pivoted on the lever and adapted to engage a toe on its lower end with teeth on the rack-bar, a standard on the base-piece, a flexible connection secured by one end on the upper portion of said standard, and at the other end secured upon an end of the lever, a pulley on the lower end of the leg engaged by the looped depending portion of the flexible connection, and means for controlling the rocking adjustment of the pawl-bar from the outer end of the lever.

3. In a lifting-jack, the combination with a base-piece, two spaced upright posts on the base-piece, a yoke-bar having bearing-flanges on its ends that engage the lower side of an axle, a leg secured on the yoke-bar at its center and depending therefrom, said leg being held to slide between the posts, an inclined rack-bar at the front of the leg and supported from the base-piece, a lifting-lever pivoted near one end upon the upper end of the rack-bar, a pawl-bar pivoted to hang pendent from the lever and engage its toe with the teeth of the rack-bar, a tripping-rod loosely secured by one end on the upper portion of the pawl-bar, and hence extending to the handle end of the lever, a standard on the base-piece at the rear of the leg, a wheel pivoted upon the lower end of the leg, and a flexible connection having one end secured on the standard and the other end on the nearest end of the lever, said flexible connection engaging a depending looped portion thereof with the pivoted wheel.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JULIUS CAESAR HOUSTON.

Witnesses:
F. M. HOWARD,
L. T. MILLER.