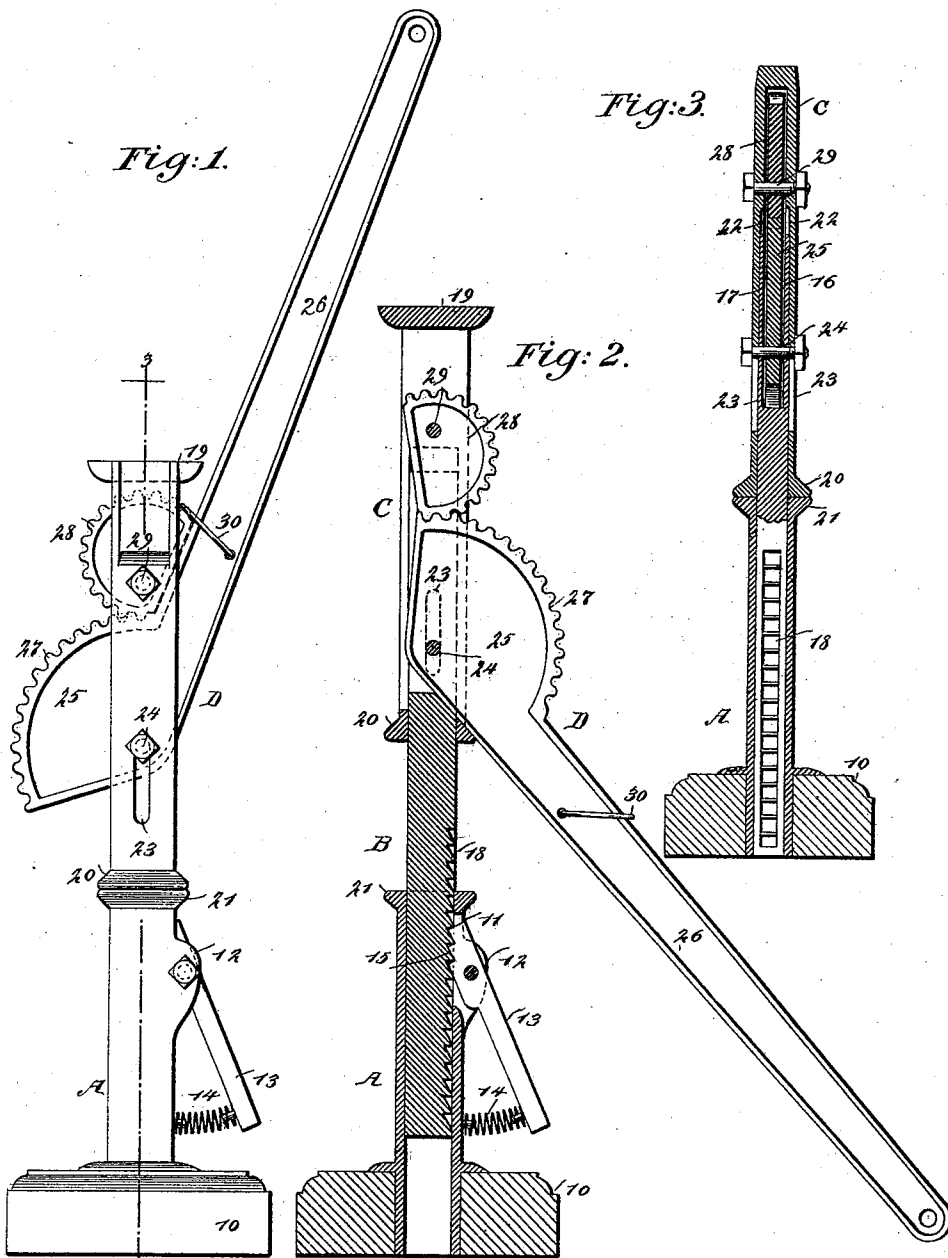


(No Model.)

H. REICHWEIN.
LIFTING JACK.

No. 497,604.

Patented May 16, 1893.



WITNESSES:

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HERMAN REICHWEIN, OF NEW YORK, N. Y.

LIFTING-JACK.

SPECIFICATION forming part of Letters Patent No. 497,604, dated May 16, 1893.

Application filed February 23, 1893. Serial No. 463,409. (No model.)

To all whom it may concern:

Be it known that I, HERMAN REICHWEIN, of New York city, in the county and State of New York, have invented a new and Improved
5 Lifting-Jack, of which the following is a full, clear, and exact description.

My invention relates to an improvement in lifting jacks, and it has for its object to provide a jack which will combine in its construction simplicity, durability and economy of material, which jack may be also manipulated in an expeditious and convenient manner, and wherever it may be necessary to apply a wagon jack.

15 Another object of the invention is to so construct the rack that when a lever is elevated, which lever need not be very long, the jack may be raised and a heavy weight carried with it to a great height at one sweep of the
20 lever, the movement and action of the lever being exceedingly smooth and light.

Another object of the invention is to provide a means whereby when the jack is to be lowered it may be accomplished by the foot
25 of the operator, the construction admitting of the jack being dropped to its lowest point or for a slight distance only.

Another feature of the invention is to provide a means whereby when the part operated
30 by the lever is lowered to its lowermost position the lever will be automatically locked to the body of the jack.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

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

Figure 1 is a side elevation of the jack, illustrating it in its lower or normal position and the lever as locked. Fig. 2 is a vertical
45 section through the jack, illustrating the lever and gearing it co-operates with in side elevation, and illustrating also the lever in its lower position and the jack elevated as high as possible by means of the lever; and
50 Fig. 3 is a vertical section taken at a right angle to the section shown in Fig. 2 and practically on the line 3—3 of Fig. 1.

In carrying out the invention the body or frame of the jack may be said to consist of three parts, namely, a base section A, an intermediate lifting section B and an upper
55 lifting section C. The lower section A is tubular, and is preferably made rectangular in cross section; and the lower end of the base section is attached to a base block 10, in any
60 suitable or approved manner, the block being of sufficient weight to maintain the entire structure in a perpendicular position. The base section at one side is provided with
65 an opening 11, located preferably near its lower end, and from the sides of this opening ears 12, are projected, and a locking lever 13, is pivotally located between the ears
70 12 of the handle end of the lever, extending downward some distance below its fulcrum; and the said handle end of the lever is normally forced outward away from the base section through the medium of a spring 14 of
75 any approved character, which spring also serves to normally force the head portion of the lever inward, said head portion being provided with one or more teeth 15. Preferably,
80 however, three teeth are formed upon the head. The central or intermediate lifting section B, is adapted to slide in the lower base section A; therefore, its cross sectional
85 shape corresponds to that of the base section. The central lifting section B, is solid for the greater portion of its length, but at a point which will be above the base section when
90 the intermediate section is in its lowermost position, the intermediate section is bifurcated in such a manner as to form two opposed and parallel members 16 and 17, as shown in Fig. 3, while upon the side of the
95 solid portion facing the lever 13 a rack or toothed surface 18, is formed, the teeth being adapted to be engaged by the teeth of the lever 13, as shown in Fig. 2, the spring 14, holding the two in such locking engagement; and by reason of three teeth being
100 placed upon the lever the lever is not unnecessarily elevated, yet it has a firm bearing upon the rack 18. It is evident that the central lifting section may be elevated or drawn out from the base section without the lever 13 interfering with it; but the lever will act to prevent the section being forced downward under vertical pressure unless the han-

dle end of the lever is forced inward, which may be done by the foot of the operator, to remove the head from the rack. The upper or final lifting section C, is of shell-like construction, and is adapted to slide upon the upper portion of the intermediate section B. At the top of the upper lifting section quite a wide platform or shelf 19, is located, upon which the article to be lifted is adapted to rest; therefore the upper end of the upper lifting section C is closed but its lower end is open; and the lower end of the said section is also preferably provided with an exterior marginal flange 20, adapted for engagement with a like flange 21, produced upon the upper portion of the base section, as when the jack is in its lowest position the upper lifting section will rest upon the base section, as shown in Figs. 1 and 3, and the intermediate or central lifting section will be entirely concealed. Recesses or slide-ways 22, are made in opposite inner faces of the upper lifting section, and these slide-ways are adapted to receive the upper members 16 and 17 of the central lifting section; and in the sides of the upper lifting section, near its lower end, opposing and parallel longitudinal slots 23, are produced, and a pin 24, is passed through said slots and likewise through apertures produced in the upper members 16 and 17 of the central lifting section. The pin 24, has no play in the central lifting section, and is located near the lower ends of the said upper members of it, as is shown in Fig. 3, the said pin being adapted as a fulcrum for the lift lever D, the said lever comprising a head 25 of a segmental shape and a handle 26 projected from the head where the handle joins the head, which is at one corner, the continuation of the under line of the handle forming a portion of the back of the head 25, said line extending to the central portion of the head, as shown in both Figs. 1 and 2. Thus the rear portion of the head is in a measure triangular; and upon the segmental outer face of the head, teeth 27, are produced. It will be understood that the head of the lever is located between the upper members 16 and 17 of the central lifting section, and that the handle extends out through one side of the upper lifting section, as two opposite sides of that section are entirely open or practically so, thus permitting the head of the lever to move outward through the opposite open side, as shown in Figs. 1 and 2. The segmental head of the lever is adapted to engage with a segmental or mutilated gear 28, the gear being eccentrically fulcrumed in the upper portion of the upper lifting section, the fulcrum pin 60 being designated in the drawings as 29.

A very important feature of the invention is the location of the fulcrum of the segmental gear with relation to the head of the lift lever with which head the gear meshes. This position is shown best in Fig. 1, in which the parts of the jack are in their lower or normal position and the lever handle is carried

to its highest point; and it will also be seen that the fulcrum of the segmental gear is but slightly removed from the periphery of the lever head, thus causing a quick and decided throw of the gear at the first movement of the lever handle, and necessitating only a slight easy movement of the handle of said lever to throw the upper section to its uppermost position, during which time the locking faces of the gear and the lift lever will have just reversed their positions, as will be observed in Figs. 2 and 3; and the moment that the handle of the lift lever assumes its lowermost position, as shown in Fig. 2, the segmental gear will have been thrown over the center and will so lock with the segmental head of the lever as to hold the lever in a fixed position.

This device is exceedingly economic, simple and durable, and it may be applied wherever a jack is capable of being used. When the jack is not in use and the handle of the lift lever is in its upper position, a bail or link 30 pivotally attached to the handle will fall to an engagement with one of the teeth of the segmental gear and hold the lever in its upper position.

The operation of the jack is as follows: Assuming the lever handle to be locked, the upper section is drawn upward until the intermediate lift section has been elevated sufficiently to cause the platform or shelf 19 to engage with the article to be lifted; then the lever is unlocked, the handle end of it is pressed downward, and the upper section will be elevated, sliding upon the intermediate section, which remains firm, until the article to which the jack has been applied has been raised to the required height. By pressing the foot against the lever 13, the central section may be dropped as low as desired without interfering with the position of the upper section upon it.

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 lower section bifurcated at its upper end, and an upper lifting section having sliding movement upon the bifurcated portion of the lower section, of a lift lever comprising a handle and a segmental toothed head, the segmental toothed head of the lever being fulcrumed between the upper members of the lower section, and a segmental gear eccentrically pivoted in the lifting section and meshing with the teeth of the head of the lift lever, as and for the purpose set forth.

2. In a lifting jack, the combination, with a lower section provided with a recessed upper end, and an upper lifting section having sliding movement upon the upper portion of the lower section, of a lift lever comprising a segmental head and a handle, the head of the lever being fulcrumed in the recessed portion of the lower section, and a segmental gear eccentrically pivoted in the lifting section,

meshing with the teeth of the segmental head of the lift lever, the fulcrum of the gear being close to the periphery of the lever head when the handle of the lever is elevated, the lifting section lowered and the parts of the jack are in their normal position, substantially as described.

3. In a lifting jack, the combination, with a tubular base section provided with a spring-controlled toothed lever, a central lifting section having sliding movement in the base section and provided with a rack engaged by the said toothed lever, the upper portion of the central lifting section being recessed or bifurcated, of an upper lifting section having sliding movement upon the upper bifurcated or recessed portion of the central lifting section, a lift lever provided with a segmental head having its cylindrical face toothed, the head being fulcrumed in the recessed portion of the central lift section, and a segmental gear eccentrically fulcrumed in the lifting section, the teeth of the gear meshing with the teeth of the lift lever head, the fulcrum of the segmental gear, when said gear is in its normal

position being close to the periphery of the lever head, as and for the purpose specified.

4. In a lifting jack, the combination, with a lower section, and an upper lifting section having sliding movement upon the lower section, of a lift lever provided with a segmental toothed head fulcrumed in the lower section, the handle of the lever being provided with a pivoted link, and a segmental gear eccentrically fulcrumed in the lifting section, the gear meshing with the head of the lever, and the fulcrum of the gear when the lever head and gear are in their natural position being close to the periphery of the lever head, substantially as shown and described, whereby a quick throw of the lifting section is obtained, on a slight movement of the lever, and a locking connection is effected between the gear and the lever both when the lifting section is at its highest and lowest points, as and for the purpose specified.

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Witnesses:

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