

March 21, 1933.

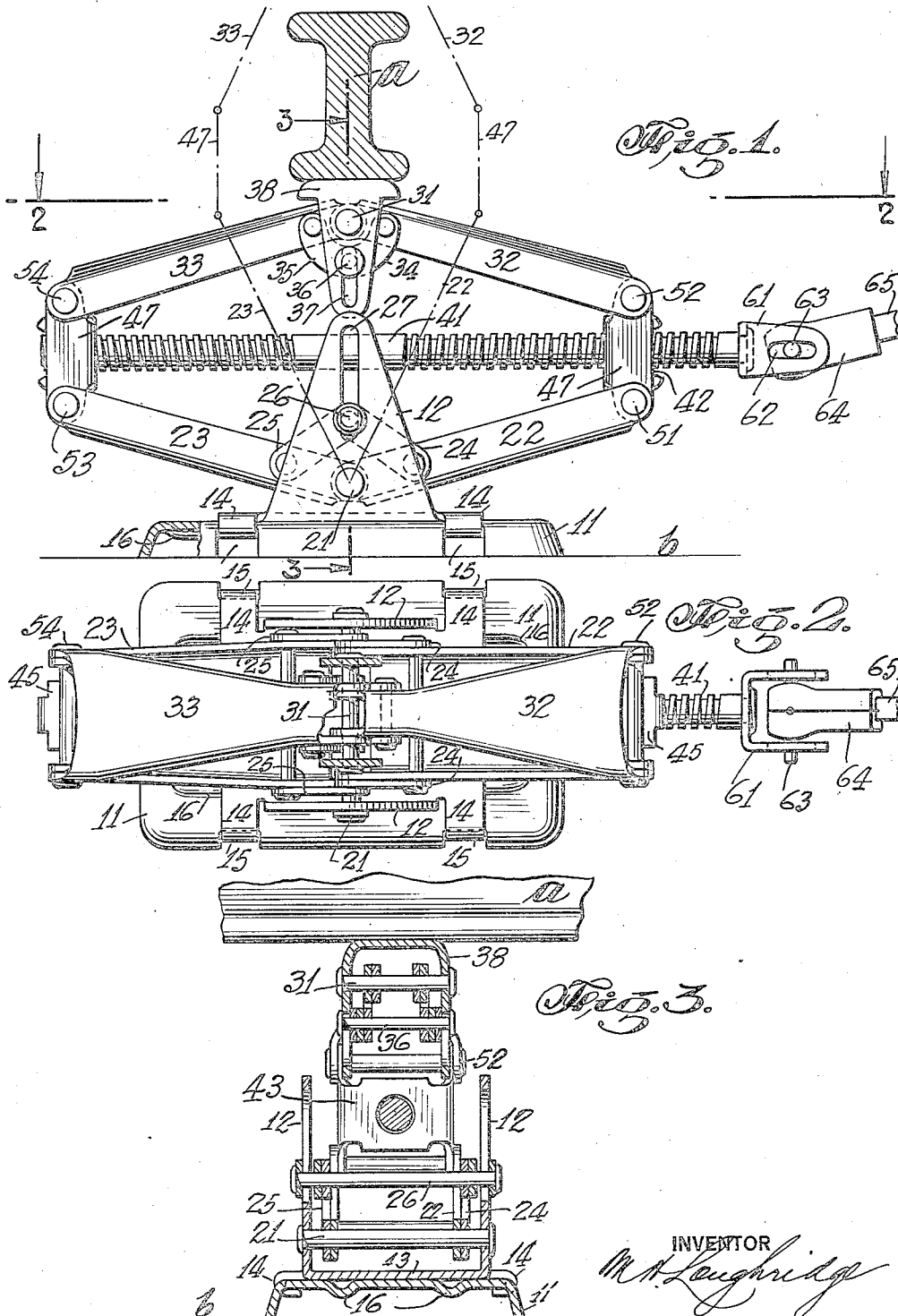
M. H. LOUGHRIDGE

1,901,915

LIFTING JACK

Filed June 23, 1930

2 Sheets-Sheet 1



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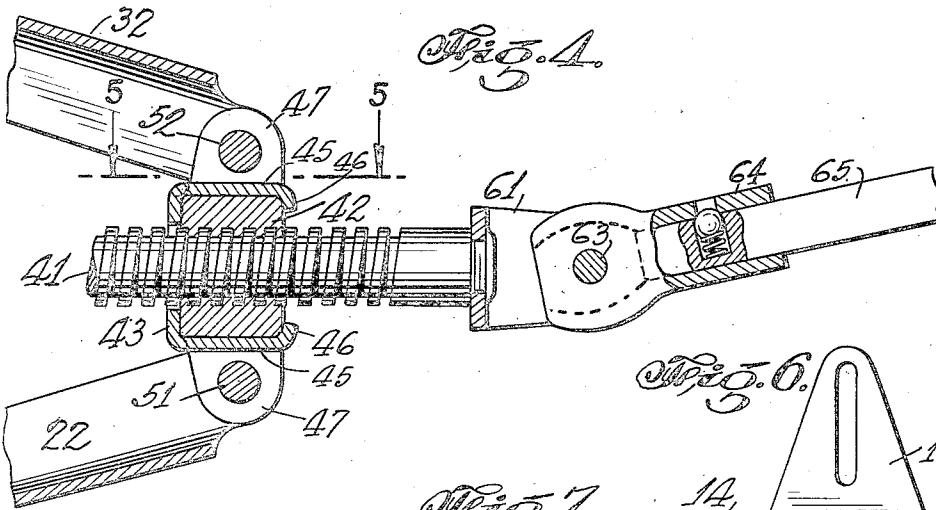
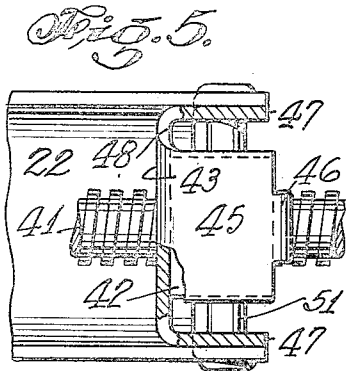
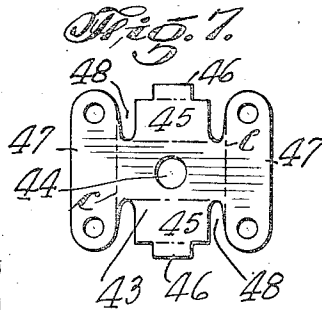
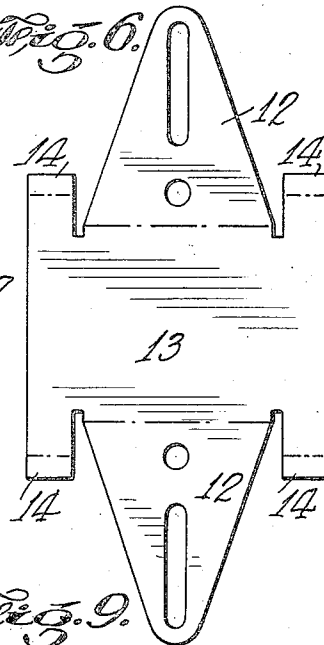
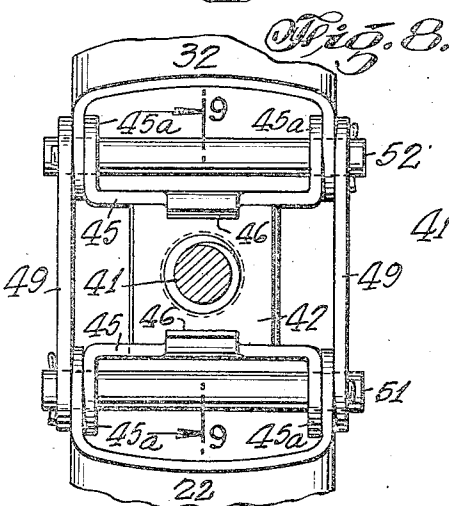
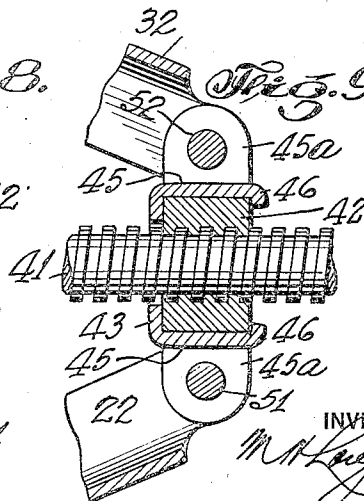
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2 Sheets-Sheet 2



INVENTOR

M. H. Loughridge

UNITED STATES PATENT OFFICE

MATTHEW H. LOUGHRIDGE, OF BOGOTA, NEW JERSEY

LIFTING JACK

Application filed June 23, 1930. Serial No. 463,110.

This invention relates to lifting-jacks, particularly of the lazy-jack type. One object of the invention is to increase the strength and to increase the lift of jacks of this type; another object of the invention is to reduce the cost of manufacture, to avoid castings in the construction and to make the jack from parts produced by screwing machines and punch presses. Other objects of the invention will be understood from the following specification and the accompanying drawings, in which:

Fig. 1 is a side elevation of the jack in use;

Fig. 2 is a plan view from the top with certain parts shown in section;

Fig. 3 is a transverse elevation on the vertical center of the jack;

Fig. 4 is an enlarged detail showing the coupling of the members of the lazy-jack;

Fig. 5 is a plan view sectioned on line 5-5 of Fig. 4;

Fig. 6 is a development from sheet stock of the supporting bracket;

Fig. 7 is a development from sheet stock of the coupling links;

Fig. 8 is an end view of an alternate form of construction for the coupling links, and

Fig. 9 is a sectional elevation of the construction in Fig. 8.

Lifting jacks of the lazy-jack type as heretofore constructed are usually made from an arrangement of links pivotally connected and arranged to be expanded and collapsed by a right and left hand screw. The screw operates through a nut in which the pivot for the links is mounted on the axial line of the screw. Jacks of this type are usually unstable, the links do not remain perpendicular and the pivotal connection between the links and the nuts is liable to slip under a heavy load.

In the present construction the links are made from channel-shaped members in which the channel part is arched. These members are connected together and to the supporting bracket by a pivot rod and are stabilized by a link connection to a pivot rod sliding in a vertical slot. The shoe of the jack is secured by a similar construction to the top members of the lazy-jack. The

top and bottom members of the lazy-jack are connected together and to the nut by a link arrangement in which a pivot rod passing above the screw secures the top member and a similar pivot rod passing below the screw secures the bottom member. This link is made from sheet stock and is arranged to clamp the nut in place. When the jack is raised these links are added to the extent of the lift of the jack and they enable the members to be collapsed into compact form. The base is made from two plates, the bottom plate being suitably ridged to secure rigidity and the top plate clamps the bottom plate through suitable notches and has a pair of up-standing members forming the supporting bracket of the mechanism.

In the drawings, 11 is the base which is suitably flanged and supports the bracket 13, Fig. 6, with the upstanding members 12. This bracket is provided with lugs at 14 which are bent around the base 11 through the notches 15 as indicated in Fig. 3. Longitudinal ridges 16 are provided in base 11 with the object of insuring rigidity particularly opposite the notches 15.

The pivot rod 21 passes through the members 12 and through eyes in the flanges of the bottom members of the lazy-jack 22 and 23 so that these members are free to move on this fixed pivot. A stabilizer is provided for the bottom members comprising the link 24, connected to 22 and the link 25 connected to 23. These links are connected by the pivot rod 26 which slides vertically in the slot 27, thereby insuring that the lift remains perpendicular to the base. A corresponding set of links 24 and 25 are provided on each side of the channels 22 and 23.

The top members of the lazy-jack 32 and 33 are connected by the pivot rod 31 which supports the shoe 38 engaging the weight *a*. This shoe is preferably stabilized by link 34 connecting to member 32 and link 35 connecting to member 33. These links are connected by the pivot rod 36 moving in the slot 37.

The jack is operated by the screw 41 which is provided with a right hand square thread on one end and a left hand square thread on

the opposite end. The operating end of the screw is provided with the jaw 61 slotted at 62 to receive the pin 63 of the socket 64 in which the operating crank 65 is inserted.

5 This provides a universal connection between the operating shaft 65 and the screw 41. The socket 64 is preferably formed from sheet stock as indicated.

The upper and lower channel members 10 of the lazy-jack are connected by parallel links 47, preferably formed from a punching of sheet stock as indicated in Fig. 7. This punching is perforated at 44 to receive the screw 41 and has the top and bottom 15 edges 45 bent outwardly to support the nut 42, Fig. 4. This nut is secured against moving outwardly by the tabs 46 which are crimped around the edge of the nut as indicated in Fig. 4. The ends of the plate 43 20 are bent over at right angles to form the links 47 making direct connection between the upper and lower members of the device. In order to reinforce these links and the edges 45 the plate is cut away with a sweep- 25 ing cut as indicated at 48 and the parts 47 are bent on line *c* with the object of providing an angular reinforcement for these links at the point where they develop from the flat stock of the plate thereby increasing the strength and the rigidity of the device 30 at a vital point.

These links are assembled as shown in Fig. 1 with the pivot rod 51 connecting member 22 and the pivot rod 52 connecting 35 member 32 to the right hand link and the pivot rod 53 connects member 23 and the pivot rod 54 connects member 33 to the left hand link. Each of these links supports a nut 42 which abuts against the plate 43 as 40 the screw is rotated to pull these nuts towards the center of the mechanism and thereby raise the load as indicated in the dotted outline in Fig. 1. It will be noted from this outline that the links 47 are added 45 to the top and bottom members of the device thereby increasing its lift while the device collapses into a small compass and can be operated in a low clearance. It will also be observed that the top and bottom 50 members 32 and 22 for instance are connected on a perpendicular line on the links 47 and the load is supported on separate pivots 51 and 52 and these pivots pass through from one flange to the other.

55 The arrangement shown in Figs. 8 and 9 eliminates the side links 47 on plate 43 and extends the upper and lower edges 45 which are bent outwards as indicated at 45a and suitably punched to receive the pivot rods 60 51 and 52. The connection in this case is further strengthened by the use of outside connecting links 49 placed outside the flanges of the connected members.

The accompanying drawings show the 65 preferred embodiment of my invention but

I do not limit myself to the construction shown which may be applied in other forms. Having thus described my invention, I claim;

1. In a lazy-jack type of lifting jack, the 70 combination, two pairs of opposed channel shaped, pivoted arms, a pair of vertical links, spaced connections on said links connecting the outer ends of said opposed arms 75 through the sides of the channels, each link comprising a punching from sheet stock having its outer ends turned over at a right angle to the body of the stock parallel with the sides of said channels to form the con- 80 nections, a nut abutting on each body substantially midway between said connections and clamped in place by said stock and a right and left screw engaging said nuts to raise and lower said arms.

2. In a lazy-jack type of lifting jack, the 85 combination, two pairs of opposed channel shaped, pivoted arms, a pair of vertical links connecting the outer ends of said op- 90 posed arms through the sides of the channels, each link comprising a punching from sheet stock having a central hole and hav- 95 ing its ends turned over at a right angle to the body parallel with the sides of said channels to form connecting links between said arms and having its edges bent over 100 at a right angle to the body, a nut clamped in place by said edges for each link and a screw passing through the central aperture in the link and engaging said nuts to raise and lower said arms.

3. In a lazy-jack type of lifting jack, the 105 combination, two pairs of opposed channel shaped, pivoted arms, a pair of spaced vertical links connecting the outer ends of said 110 arms through the sides of the channels, each link developed from a plate of sheet stock, said plate having a central aperture and having projecting sides turned at a right 115 angle to the body of the stock parallel with the sides of said channel with means in said sides connecting to said arms above and below the plane of said aperture, a nut abut- 120 ting on each plate and a right and left screw passing through the aperture in said plate and engaging said nuts for raising and 125 lowering said arms.

4. In a lazy-jack type of lifting jack, the combination of a base plate having longi- 120 tudinal ridges, with notches in the sides of said plate, a bracket plate with upstand- 125 ing sides mounted on said base plate, projecting lugs on said bracket plate bent around said base plate at the notches and pivotal means securing the arms of the lazy-jack to said upstanding sides.

In testimony whereof I affix my signature.

MATTHEW H. LOUGHRIDGE.