D. T. WELCH.

LIFTING-JACK.

No. 175,264. Patented March 28, 1876.

FIG. 1.

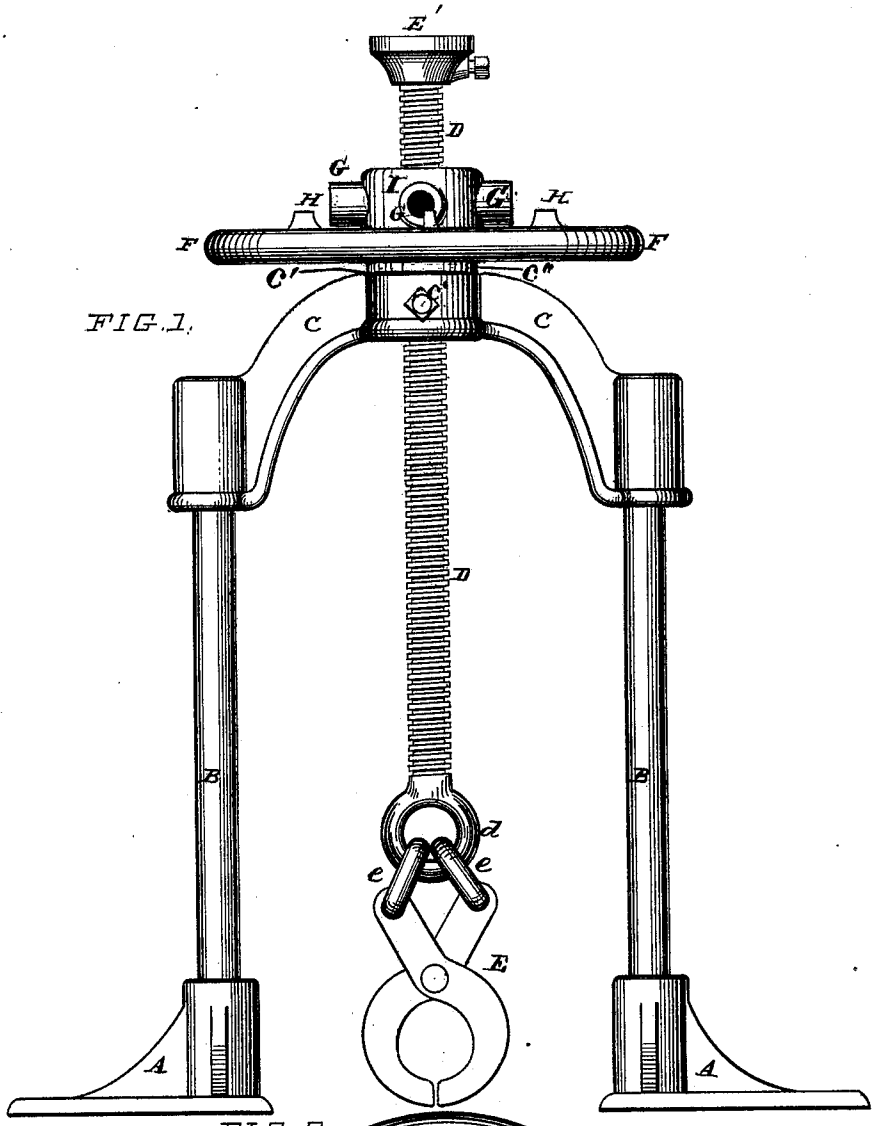


FIG. 2.

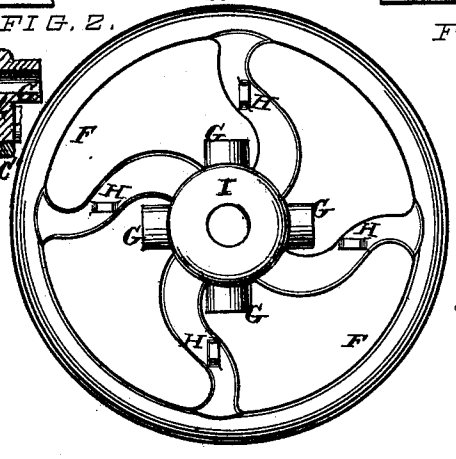


FIG. 3.

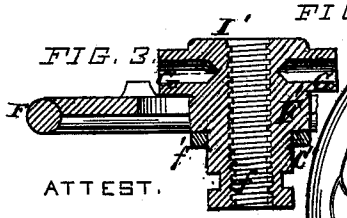
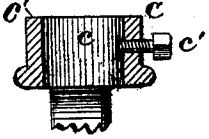


FIG. 4.



ATTEST.

Robert Ewing.
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UNITED STATES PATENT OFFICE.

DAVID T. WELCH, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN LIFTING-JACKS.

Specification forming part of Letters Patent No. **175,264**, dated March 28, 1876; application filed July 23, 1875.

To all whom it may concern:

Be it known that I, DAVID T. WELCH, of the city and county of St. Louis, and State of Missouri, have invented a certain new and useful Improvement in Lifting-Jacks for Railway-Rails, &c., of which the following is a specification:

My invention consists, first, in an adjustable screw, whose lower end has an eye formed in one piece therewith, and a grapple, consisting of links and jaws, said screw being adapted to turn in its bearings, so as to adjust the grapple to the object to be raised, and non-rotatable when applied to the object to be lifted.

My invention consists, secondly, in an arch having a broad bearing-surface and an aperture in said bearing-surface, in combination with a hand-wheel having a downwardly-projecting neck, free to rotate in said aperture, and provided with a flange, forming a washer, between said hand-wheel and said bearing.

My invention consists, thirdly, in the combination of a hand-wheel, supplemental hub, and neck or sleeve adapted to turn around the screw for raising or lowering the latter, and free to rotate with said screw when desired to turn the grapple.

Figure 1 is a side elevation; Fig. 2, a top view of the hand-wheel and supplemental hub; Fig. 3, a section of hand-wheel, supplemental hub, and flanged neck or sleeve; and Fig. 4, a detail section of top of the straddle-frame.

The main or straddle frame is composed of cast base or foot plates A, wrought-iron columns B, which are preferably tubular to combine strength with lightness, and an arched top piece, C, which, like the feet, is of cast-iron, and which, in the manufacture, is, with the feet, cast upon the columns B.

The arched piece C is vertically bored through at its upper part for the reception of the sleeve or neck *f*, surrounding the lifting-screw D, and has at the top the bearing C′ for the flange C″ of the neck, which forms a washer between the bearing and hand-wheel F, by which the lifting-screw is raised by turning the wheel or supplemental hub, while the screw does not rotate.

The lifting-screw D is formed with an eye, *d*, at the bottom, from which are suspended the links *e e* of the grapple E, which is arranged to engage beneath the cap of the rail, and to tighten upon the rail as the screw is drawn upward. At the top of the screw is the head E′, to enable the lifting of an object by the top of the jack.

The rotary nut F′, by which the screw D is raised and lowered, constitutes the hub of the hand-wheel F. This hub or nut has a downwardly-projecting neck, *f*, which fits into a recess, *c*, in the top piece C, and is secured therein by a set-screw, *c′*, which engages in a groove, *f′*, passing circumferentially around the neck *f*.

The hub of the hand-wheel or nut has above it, and contiguous thereto, a supplemental hub, I, having radial flanged holes or sockets G for the insertion of the ends of hand-levers, which are used to turn the wheel-nut when a greater power is needed than can readily be applied by the hand engaging the rim of the wheel. The wheel-rim has lugs H extending upward to receive the pressure of the side of the levers.

It will be observed that in my improved lifting-jack I have the advantages of a non-rotating screw when lifting an object, and a screw capable of being rotated when detached from said object.

Whatever is the position of the rail to be lifted the grapple can be turned to accommodate it, but immediately the rail is grasped the screw cannot rotate. When the operating mechanism is in its normal condition it can be revolved by the hand-wheel without elevating or lowering the screw, but when applied all the parts perform their proper functions to raise or lower the screw without rotating it.

The following is what I claim as new and desire to secure by Letters Patent:

1. The screw D, provided with an eye, *d*, in combination with a grapple, E *e*, the whole arranged to turn freely in its sleeve or with said sleeve *f*, and so adapt it to suit the position of the object to be raised, and non-rotatable when applied to the object to be lifted, substantially as set forth.

2. The arch C, having the broad bearing C′, in combination with a hand-wheel, F, having a downwardly-projecting neck, free to rotate in an aperture in the bearing, and provided with a flange, C″, forming a washer be-

tween the hand-wheel and said bearing, as set forth.

3. The hand-wheel F, supplemental hub I, and flanged neck *f* C″, free to rotate around the screw for raising or lowering the same, and with said screw when desired to turn the grapple, as set forth.

In testimony of which invention I hereunto set my hand this 16th day of July, 1875, at St. Louis, Missouri.

DAVID T. WELCH.

Witnesses:

SAML. KNIGHT,

ROBERT BURNS.