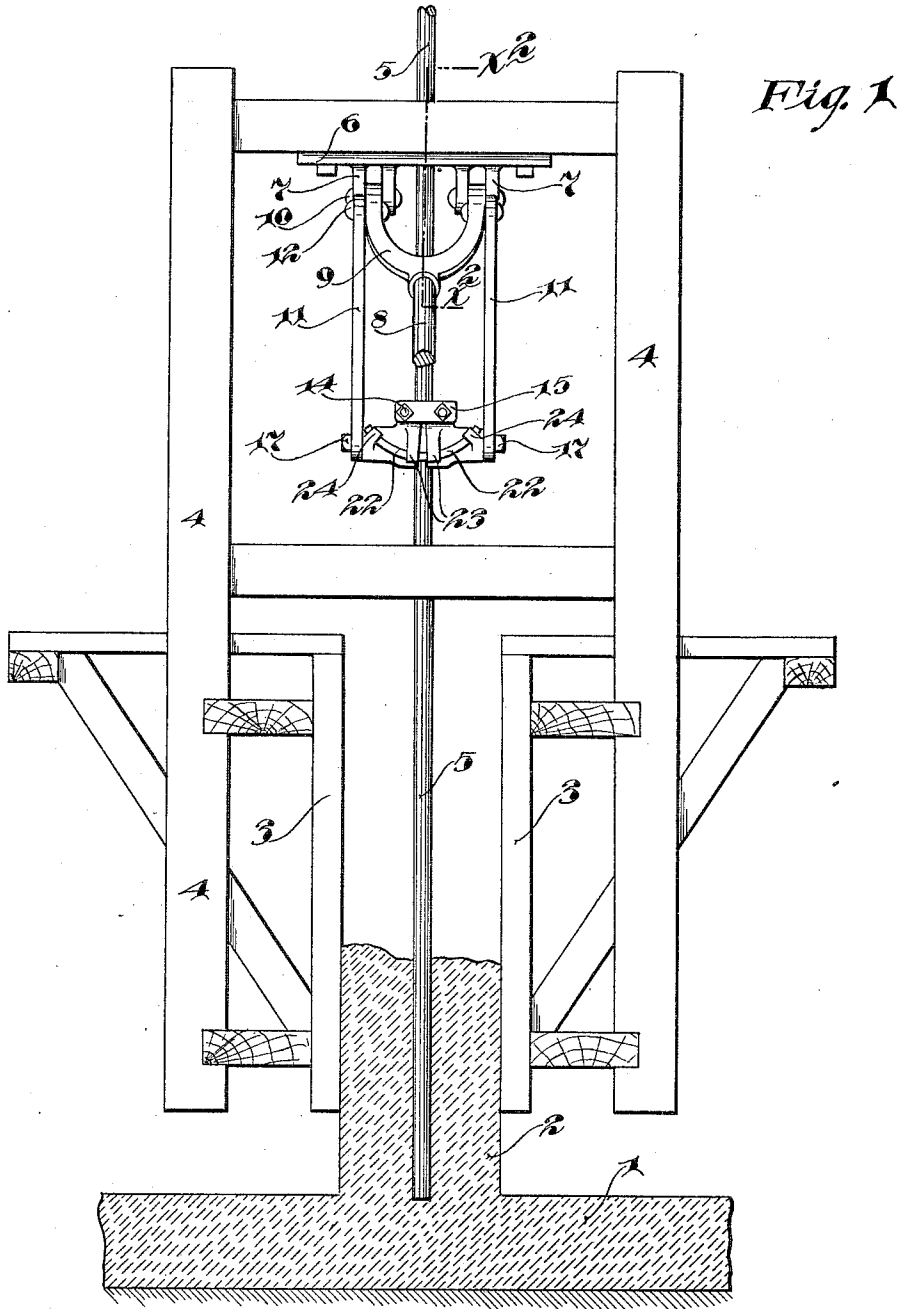


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 JACK FOR RAISING CONCRETE WALL FORMS.
 APPLICATION FILED NOV. 2, 1910.

1,044,659.

Patented Nov. 19, 1912.

3 SHEETS—SHEET 1.



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 Harry Opsahl.

Inventor:
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 By his Attorneys:
 Williamson & Michael

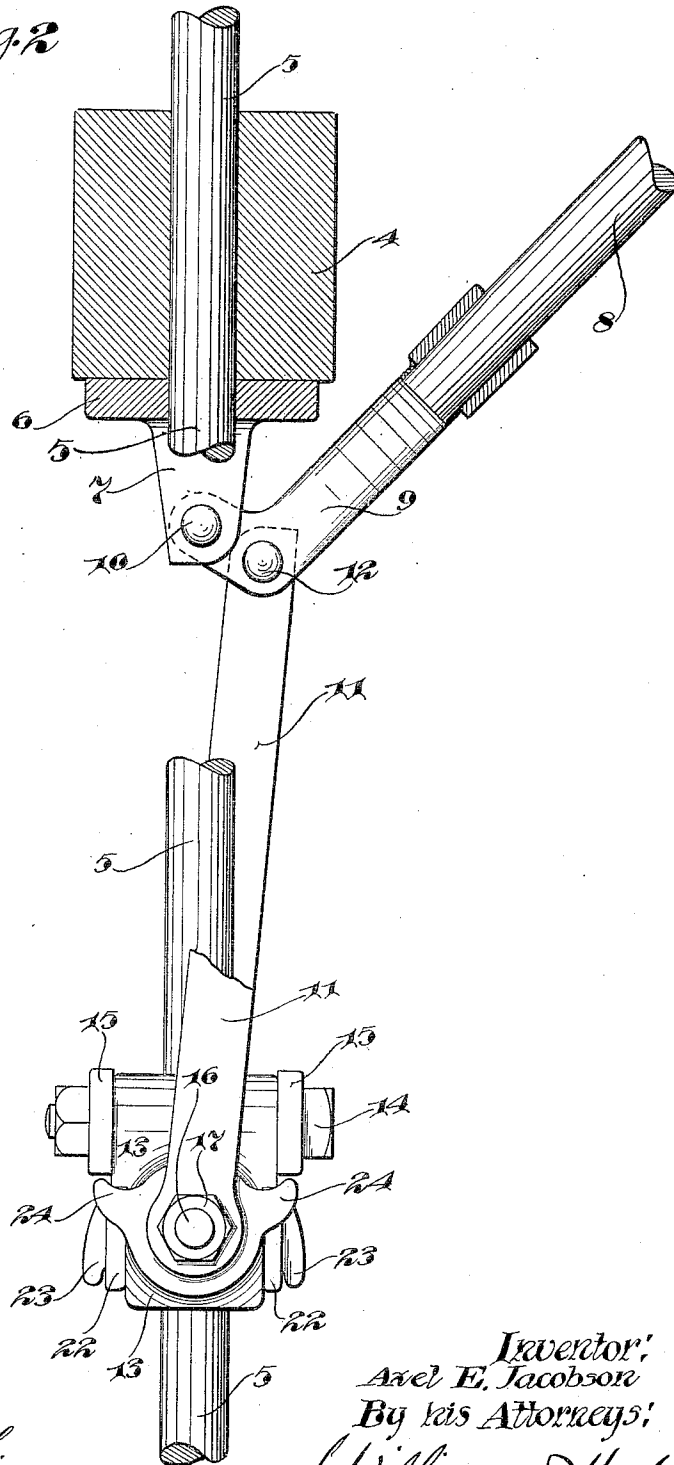
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Fig. 2



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3 SHEETS—SHEET 3.

Fig. 3

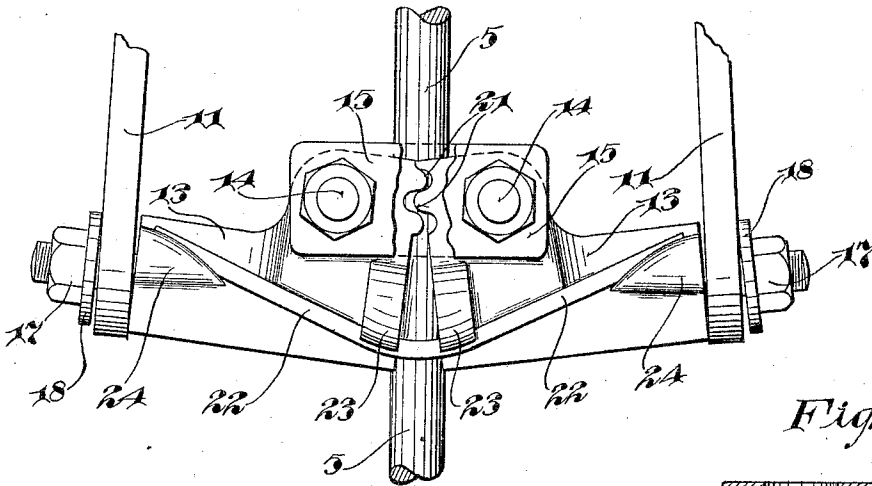


Fig. 5

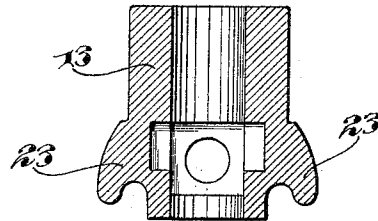
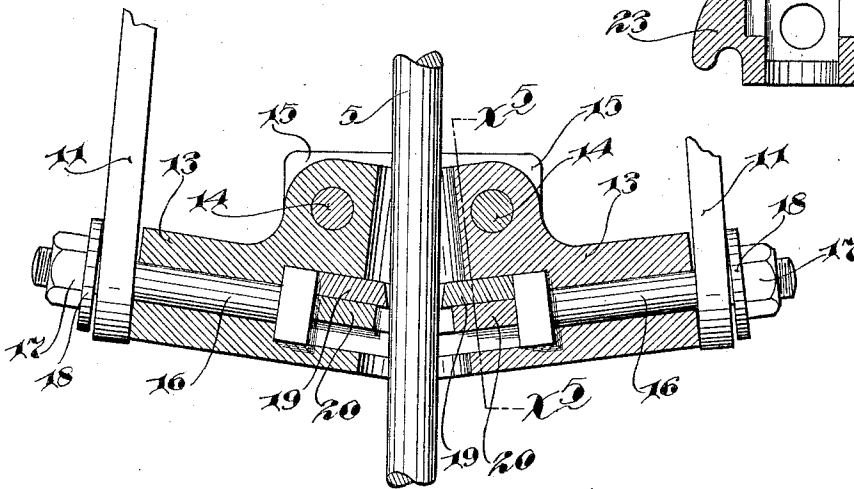


Fig. 4



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UNITED STATES PATENT OFFICE.

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JACK FOR RAISING CONCRETE-WALL FORMS.

1,044,659.

Specification of Letters Patent.

Patented Nov. 19, 1912.

Application filed November 2, 1910. Serial No. 590,252.

To all whom it may concern:

Be it known that I, AXEL E. JACOBSON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Jacks for Raising Concrete-Wall Forms; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide a simple and highly efficient lifting jack, especially adapted for use in raising concrete bin forms and, to such ends, the invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view partly in elevation and partly in section, showing the improved lifting jack applied to forms used in the construction of a concrete bin; Fig. 2 is an enlarged detail, partly in elevation and partly in section, on the line $x^2 x^2$ of Fig. 1; Fig. 3 is a view in elevation, showing in detail the rod clamping claws of the lifting jack; Fig. 4 is a view corresponding to Fig. 3, but with some parts in vertical section; and Fig. 5 is a detail taken in section on the line $x^5 x^5$ of Fig. 4, some parts being removed.

The numeral 1 indicates the floor or foundation and the numeral 2 the wall of the concrete bin. In the construction of the wall 2, the customary or any suitable forms may be employed. As shown, the inner and outer wall forms 3 are secured to and held properly spaced apart by a rectangular frame 4 of which, in practice, there will be a multiplicity. So far as my invention is concerned, the forms 3 may be arranged for the construction of a round bin, of a square bin, or of a straight concrete wall.

The numeral 5 indicates quite heavy upright wall reinforcing metal rods which are embedded in the completed wall 2, but in the process of the construction of the wall extend always above the top of the concrete

of the wall. There will, of course, be quite a large number of these reinforcing rods 5, and in the operation of my improved lifting jack, the jacks are made to climb these rods and thereby raise the concrete form step by step, from time to time, as required in the construction of the concrete wall.

The preferred construction of the jack illustrated in the drawings is as follows: A bearing plate 6, having depending lugs 7, is bolted or otherwise rigidly secured to the top transverse bar of the form supporting frame 4. An operating lever 8 is provided with bifurcated heads or prongs 9 that are pivotally attached to the lugs 7 at 10. The upper ends of a pair of depending links 11 are pivotally attached to the prongs 9 of the operating lever 8, at 12, and the lower ends of these links are connected to the outer ends of a pair of rod gripping members. The bodies of these rod gripping members, as shown, are in the form of toggle-acting levers 13 pivotally connected by bolts 14 to a pair of laterally spaced tie straps 15 that embrace the rod 5. The said levers 13, as shown, are provided with outwardly projecting bolts 16 having countersunk heads and provided, at their projecting threaded ends, with nuts 17 and washers 18; and the lower ends of the links 11 are loosely pivoted on the projecting ends of these bolts 16. Between the pivot bolts 14, the rod gripping levers 13 are cut away so as to afford clearance for the rod 5; and for biting action upon the said rod, the said lever members are provided with sharp edged hardened steel gripping jaws 19. These jaws 19, as shown, are seated against the heads of the bolts 16 and are further held in position by wedges 20. The said jaws 19, as clearly shown in Fig. 4, are located considerably below the pivot bolts 14, so that they will be moved toward and from the rod by oscillatory movements of the levers 13. The levers are connected for simultaneous movements in opposite directions, by intermeshing gear segments 21 formed thereon, as best shown in Fig. 3. A pair of spring rods 22 are seated in notched lugs 23 and 24 of the levers 13 and tend to straighten out and thereby keep the sharp edges of the jaws 19 engaged with the rod 5.

In practice, a multiplicity of these lifting jacks will be applied to the several rods 5, and in lifting the wall form alternate lifting jacks will be operated while the other jacks are allowed to remain stationary and thus support the form while the jaws of the operated jacks are being raised into engagement with the rods at points higher up.

The lifting action of the jack is as follows: The springs 22 keep the jaws 19 engaged with the rod 5, so that they cannot, at any time, slip down on the engaged rod 5. By an upward movement of the operating lever 8, while the frame 4 and hence the bearing plate 6 are held stationary, the jaws 19 are caused to slip upward on the rod and to engage the same at a point higher up. Then, when the operating lever 8 is again forced downward, the jaws become the fixed members and the frame 4, together with the wall form 3, will be positively raised to a point higher up on the wall. When the lever 8 is forced downward to its extreme position, the pivot 12 of the toggle afforded by the link 11 and lifting prongs 9 will be forced to the left in respect to Fig. 2 beyond a dead center and, hence, the device will be self-locked.

The lifting jack described is of simple construction, has no parts likely to get out of order and, in practice, has been found highly efficient for the purposes had in view.

What I claim is:

1. A lifting jack of the kind described comprising a top member, a pair of independent pivotally connected levers having engaging gear segments and provided with gripping jaws located below their pivotal connection, a spring exerting a force on said levers tending to throw said jaws toward each other, independent links connected at their lower ends to the ends of the said levers, and a lever pivotally connected to the said top member and to the upper ends of said links, substantially as described.

2. The combination with an upright rod and a frame, of a lifting jack comprising a top member connected to the said frame, an operating lever pivoted to the said top member, a pair of links pivoted at their upper ends to said lever, a pair of pivotally connected gripping levers pivotally attached at their outer ends to the lower ends of said links and having a passage through which the said rod is passed, independent rod engaging jaws carried by said levers below their pivots, and a spring exerting a force on said gripping levers tending to hold said jaws engaged with said rod, substantially as described.

3. The combination with an upright rod and a frame, of a lifting jack comprising a top member connected to the said frame, an operating lever pivoted to the said top member, a pair of links pivoted at their upper

ends to said lever, a pair of pivotally connected gripping levers pivotally attached at their outer ends to the lower ends of said links and having a passage through which the said rod is passed, independent rod engaging jaws carried by said levers below their pivots, and a spring exerting a force on said gripping levers tending to hold said jaws engaged with said rod, the said gripping levers having engaging gear segments, substantially as described.

4. The combination with an upright rod and a frame, of a lifting jack comprising a top member connected to the said frame, an operating lever pivoted to said top member, a pair of links pivoted at their upper ends to said lever, a pair of pivotally connected gripping levers pivotally attached at their outer ends to the lower ends of said links and having a passage through which the said rod is passed, independent rod engaging jaws detachably mounted in said gripping levers below their pivots, means for holding said jaws interlocked with said gripping levers, and a spring exerting a force on said gripping levers to hold said jaws engaged with said rod, substantially as described.

5. The combination with an upright rod and a frame, of a lifting jack comprising a top member connected to said frame, an operating lever pivoted to said top member, a pair of pivotally connected gripping levers having a passage through which the said rod is passed, outwardly projecting bolts mounted on said levers and having their heads countersunk therein, a pair of links pivoted at their upper ends to said operating lever and having their lower ends pivotally attached to the outwardly projecting ends of said bolts, independent rod engaging jaws detachably mounted in said gripping levers and seated against the heads of said bolts, wedges for holding said jaws interlocked with said gripping levers, and a spring tending to exert a force on said gripping levers to hold said jaws engaged with said rod, substantially as described.

6. The combination with an upright rod and a frame, of a lifting jack comprising a top member connected to said frame, an operating lever having a bifurcated head, the prongs of which are pivotally connected to said top member, a pair of pivotally connected gripping levers having a passage through which the rod is passed, the said gripping levers also having engaging gear segments, outwardly projecting bolts mounted in said levers and having their heads counter-sunk therein, a pair of links pivoted at their upper ends to the prongs of the head of said operating lever and having their lower ends pivotally attached to the outwardly projecting ends of said bolts, independent rod engaging jaws detachably

5 mounted in said gripping levers and seated against the heads of said bolts, wedges for holding said jaws interlocked with said gripping levers, and a spring exerting a force on said gripping levers to hold said jaws engaged with said rod, substantially as described.

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

AXEL E. JACOBSON.

Witnesses:

ALICE V. SWANSON,
HARRY D. KILGORE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."