No. 843,660. PATENTED FEB. 12, 1907.

C. O. BREWSTER.

HOISTING JACK.

APPLICATION FILED JAN. 5, 1906.

Fig. 1.

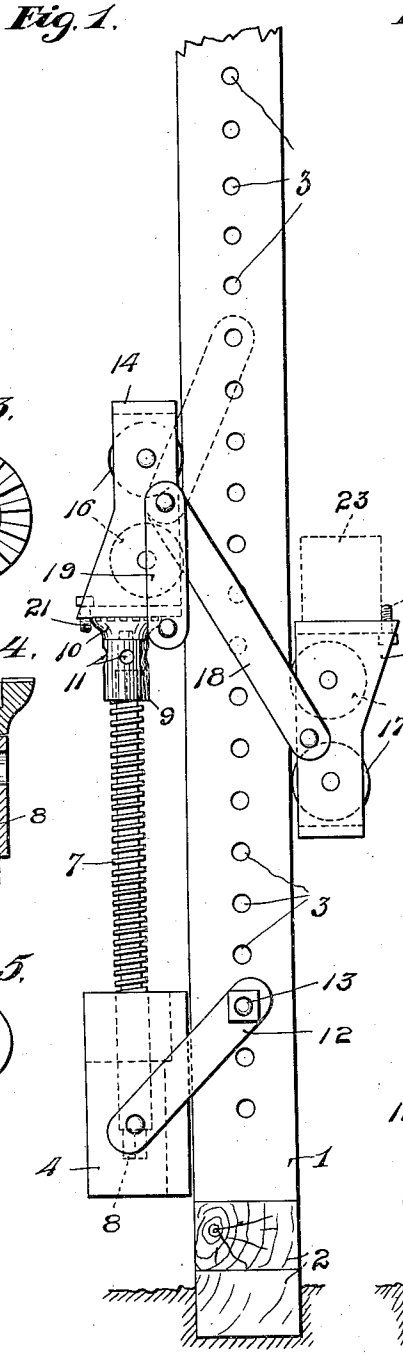


Fig. 2.

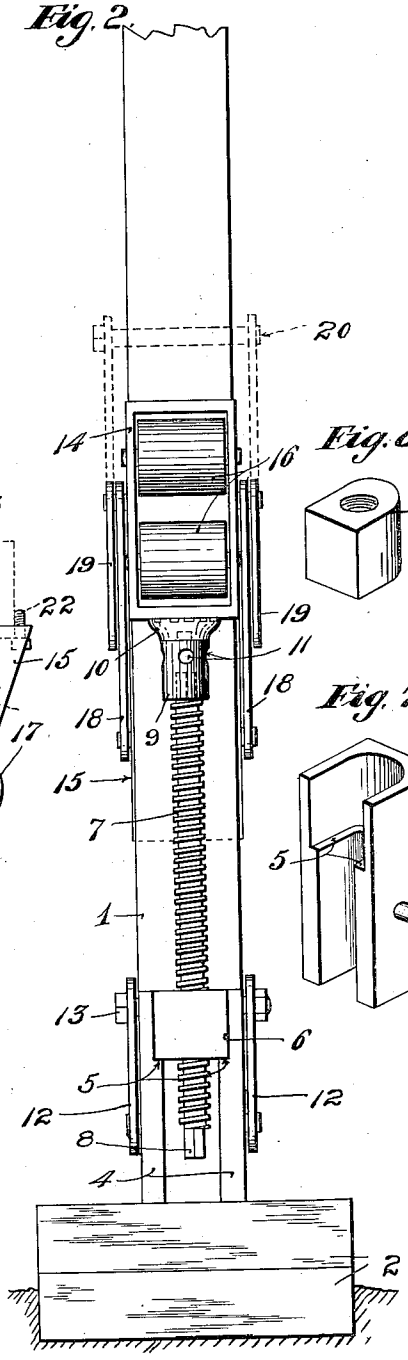


Fig. 3.

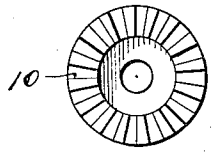


Fig. 4.

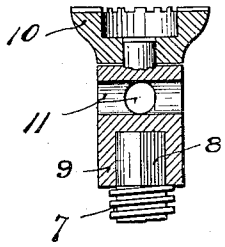


Fig. 5.

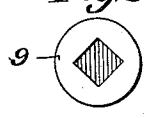


Fig. 6.

Fig. 7.

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HOISTING-JACK.

No. 843,660. Specification of Letters Patent. Patented Feb. 12, 1907.

Application filed January 5, 1906. Serial No. 294,794.

To all whom it may concern:

Be it known and remembered that heretofore, to wit, on the 17th day of October, A. D. 1904, at, to wit, the city of St. Paul, in the county of Ramsey and State of Minnesota, the undersigned, CHARLES O. BREWSTER, invented a new and useful Hoisting-Jack.

My invention relates to that class of devices usually designated as "hoisting-jacks," and has for its object to improve the same in the several particulars hereinafter noted.

The invention consists of the novel devices and combinations hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a view in side elevation, showing the improved device. Fig. 2 is a view of the said device in front elevation. Fig. 3 is a detail in plan, showing the swiveled head of the jack-screw. Fig. 4 is a detail principally in vertical section, but with some parts left in full, showing a detachable socket and swivel-head and a portion of the jack-screw. Fig. 5 is a bottom plan view of the detachable socket of the jack-screw. Fig. 6 is a perspective view of the so-called "nut-block," and Fig. 7 is a perspective view of the so-called "thrust-block."

The numeral 1 indicates the heavy upright column or base of the hoisting-jack, the same, as shown, being formed by a heavy timber, the lower end of which rests upon a ground-engaging base 2. The said column 1 is formed with vertically-spaced perforations or bolt-seats 3.

The numeral 4 indicates a channel-shaped so-called "thrust-block," which in its upper end is formed with an enlarged interior terminating at its lower extremity by a nut-supporting shoulder 5. The numeral 6 indicates a nut-block that fits loosely in the upper portion of the thrust-block 4 and rests upon the shoulder 5 thereof. In horizontal cross-section the nut-block is approximately U-shaped, and the seat therefor in the thrust-block 4 is correspondingly formed, so that the said nut-block when seated on the shoulder 5 cannot rotate, but nevertheless may be separated from the said thrust-block by lateral movement.

The numeral 7 indicates a jack-screw that works with threaded engagement through the nut-block 6 and at each end is provided with an angular shank 8, the said two angular shanks being of the same cross-section, so that either end is adapted to be inserted into the angular seat of a screw-socket 9. This screw-socket 9 is provided with a swiveled head 10 and is formed with diametrical perforations 11, into which the end of a rod or bar may be inserted in order to rotate the jack-screw.

The thrust-block 4 is securely but adjustably attached to the column 1, and preferably this is accomplished by a pair of laterally-spaced links 12, that are pivotally connected to said column by a nutted bolt 13, passed through one or the other of the perforations 3 thereof. As is evident, the said thrust-block 4 may be secured to the column 1 at any desired altitude and under downward pressure thereon will, in view of the angularity of the links 12, be pressed laterally and firmly against the opposing face of said column, so that it will be held in a true vertical position or in true alinement with the said column.

The numerals 14 and 15 indicate, respectively, what I designate as "primary" and "secondary" presser-heads. Both of these heads, as shown, are in the form of rectangular metal frames, having mounted therein rollers 16 and 17, respectively. The said rollers are adapted to run against the column 1 to reduce friction, and the said heads are arranged to work on opposite sides of said column. The two heads are yieldingly connected by a pair of laterally-spaced links 18, pivotally attached thereto and arranged to embrace the column 1. To the primary head 14 is also pivoted a pair of laterally-spaced anchoring-links 19, that are adapted to be secured to the column 1 by means of a bolt or pin 20. (Shown by dotted lines in Fig. 2.) The primary presser-head 14 rests upon the swivel-head 10, while the device or thing to be lifted may be rested upon the upper end of the presser-head 15. The numeral 21 indicates a set-screw passed through the bottom of said head 14, while the numeral 22 indicates the set-screw passed through the top of the secondary set-screw 15 and is adapted to prevent slipping of the said head with respect to the thing which is being lifted. In Fig. 1 the dotted lines marked 23 indicates the beam of a building or other structure which is assumed as being raised by the device.

It may here be stated that this improved lifting-jack is especially intended for use in

lifting or pushing buildings or other heavy structures or things through distance or space which is much greater than the length of the jack-screw 7. As is evident, a jack-screw of great length would not have great strength unless made of large diameter and great weight. The column or base 1, on the other hand, may be made of any desired length and of any desired strength.

Figs. 1 and 2 show the jack applied in working position to lift the structure or thing 23. In starting the jack into action the thrust-block 4 is secured low down on the column and that end of the jack-screw which projects but slightly above the nut-block 6 is turned upward, so that the primary and secondary presser-heads 14 and 15 will be supported low down for the proper initial lifting action. The jack-screw is then turned until nearly its entire length projects above the nut-block 6. Then the anchoring-links 19 are, by means of the bolt or pin 20, secured to the column 1, as shown by dotted lines in Figs. 1 and 2, thereby anchoring the said primary and secondary presser-heads 14 and their load to the column. This being done, the jack-screw may be loosened up and turned end for end—that is, with its long projecting end downward and its short projecting end turned upward. The nut-block 6 and the inverted jack-screw then being replaced in working position, the thrust-block 4 may be raised and secured to the column in such raised position. Then after having turned the jack-screw upward so that it again carries the load the links 19 may be attached, and the load may be lifted further upward by means of the jack-screw. By continuing the above action and successively reversing the jack-screw end for end the load may be lifted or pushed the entire length of the column 1.

The device described would be operative even without the secondary presser-head 15; but a very much better action is obtained by the use of both the primary and secondary presser-heads. With the said two heads connected by links 18 the weight of the load on the secondary head 15 causes the roller of both of the said heads 14 and 15 to tightly press against the column, and thereby perfects the said heads from falling away from the column.

In actual practice the device has been found highly efficient for the purposes had in view.

It is of course obvious that the device will be found very serviceable for pushing heavy structures or moving the same in a horizontal direction, as well as in a vertical direction.

What I claim is—

1. In a device of the kind described, the combination with a column or post, of a thrust-block securable in different positions longitudinally of said column, a presser-head adapted to travel on said column, and a reversible jack-screw and coöperating nut arranged to coöperate with said thrust-block and presser-head to cause the latter to travel with respect to the former, substantially as described.

2. In a device of the kind described, the combination with a column, of a thrust-block, and a presser-head, means for securing said thrust-block and presser-head to said column in different positions longitudinally thereof, and a reversible jack-screw and coöperating nut, which nut is adapted to be seated on said thrust-block either side up, and which screw is adapted to operate on said presser-head when turned either end up, substantially as described.

3. In a device of the kind described, the combination with a column, of a thrust-block and a presser-head, links and bolts for anchoring said thrust-block and presser-head to said column in different positions longitudinally thereof, a displaceable and reversible nut-block seated in said thrust-block, and a jack-screw working through said nut-block and adapted to operate on said presser-head when turned either end up, substantially as described.

4. In a device of the kind described, the combination with a column 1, having perforations 3, of a channel-shaped thrust-block 4, links 12 and coöperating bolts 13 adjustably securing said thrust-block to said column 1, a reversible nut-block 6 seated in said thrust-block 4, the jack-screw 7 working in said nut-block and having an angular shank at each end, a socket 9 adapted to receive either angular end of said jack-screw and provided with a swiveled head 10, a primary presser-head 14 adapted to rest upon said head 10 and provided with rollers 16, the secondary presser-head 15 provided with rollers 17, links 18 connecting said presser-heads 14 and 15, and anchoring-links 19 attached to said primary head 14 and adapted to be secured to said column, substantially as described.

5. In a device of the kind described, the combination with a column, of primary and secondary presser-heads provided with rollers engageable with the opposite sides of said column, links connecting said presser-heads, a thrust-block anchored to the lower portion of said column, and a jack-screw and nut coöperating with said thrust-block and primary presser-head, substantially as described.

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Witnesses:
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S. M. CURTIS.