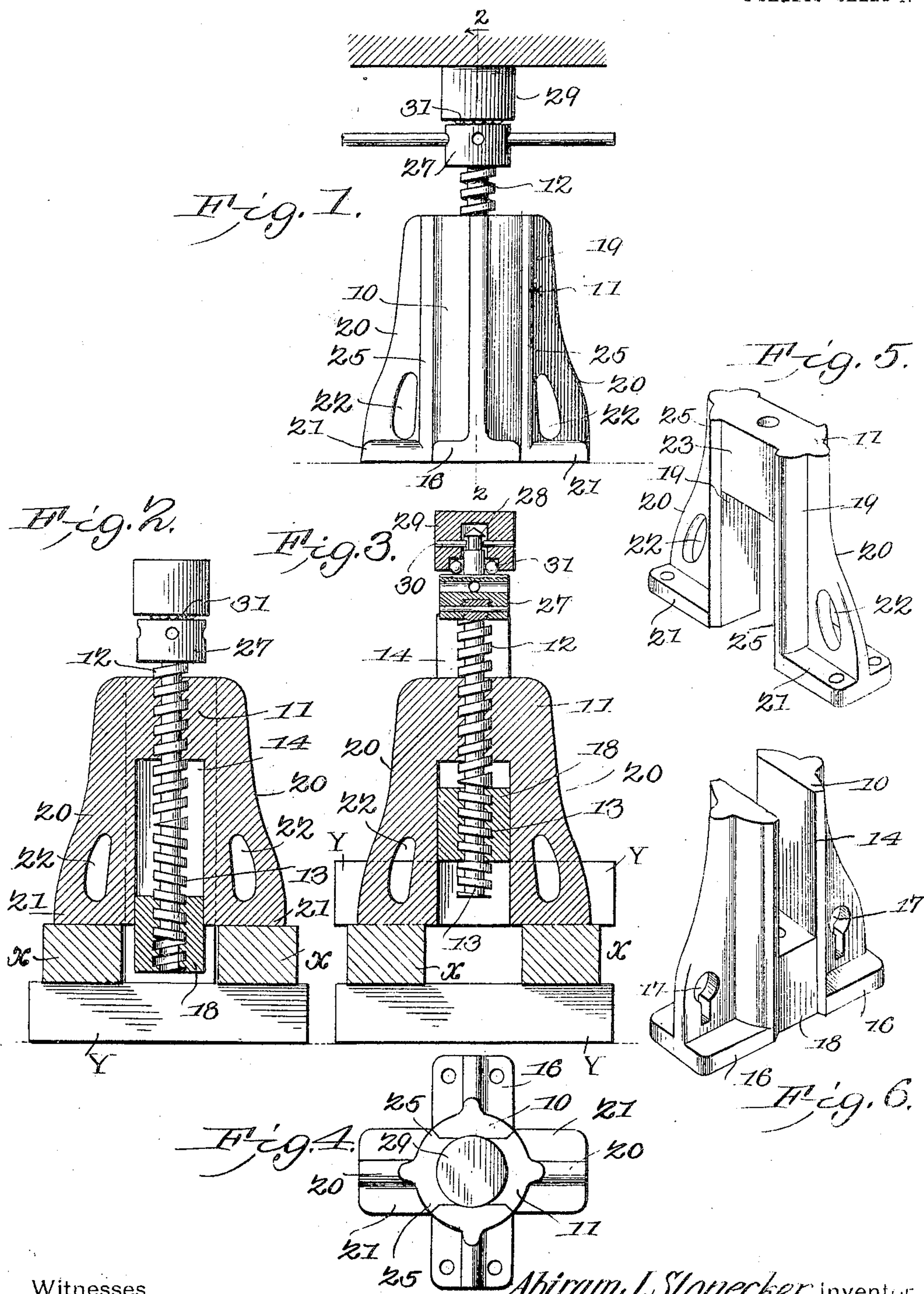


A. J. SLONECKER.

LIFTING JACK.

APPLICATION FILED JUNE 20, 1905.

2 SHEETS—SHEET 1.



Witnesses

*E. J. Stewart*  
*John C. Parker*

Abiram J. Stonecker, Inventor

by *C. A. Snow & Co.*  
Attorneys



No. 807,511.

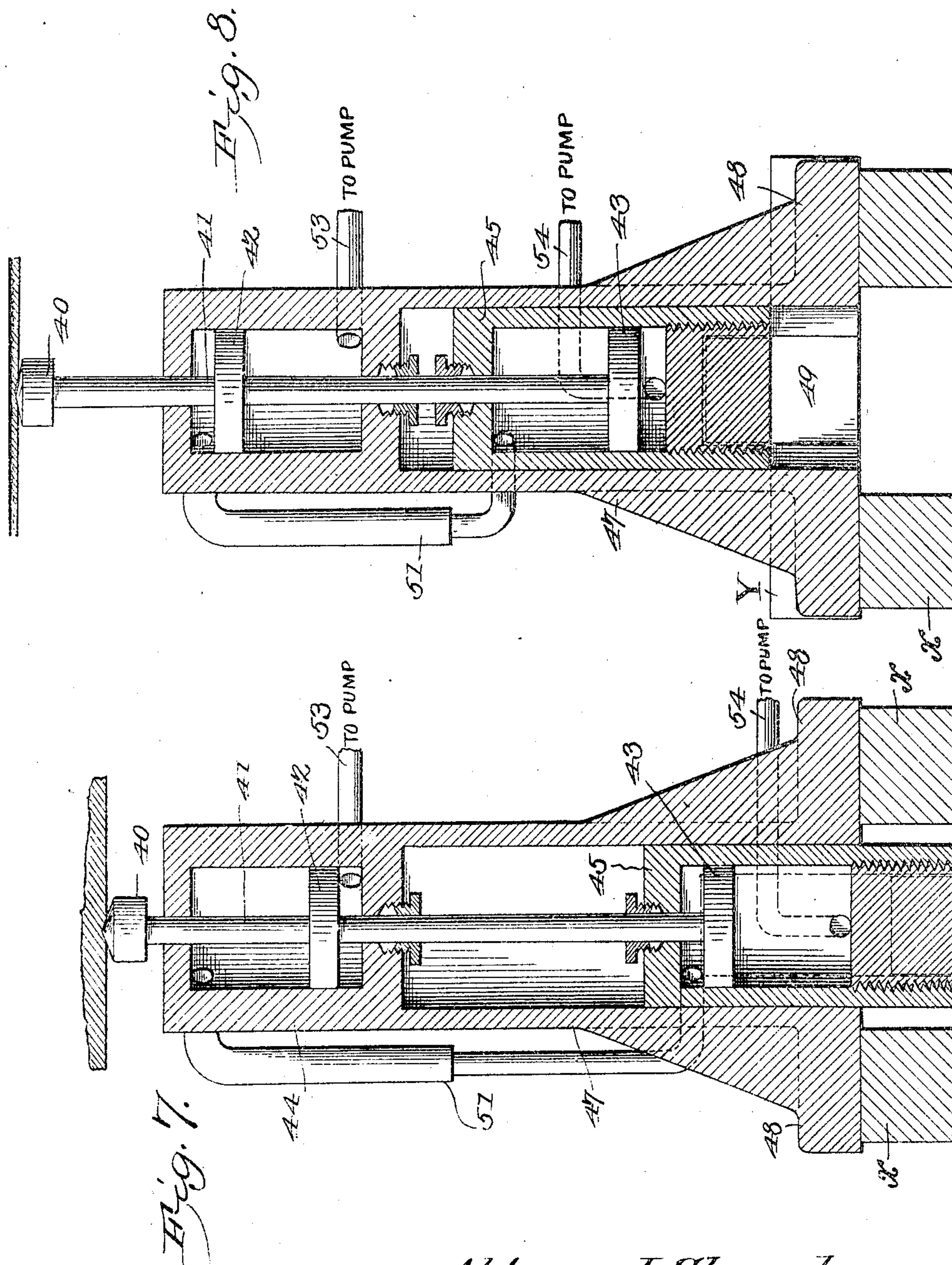
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# UNITED STATES PATENT OFFICE.

ABIRAM J. SLONECKER, OF TRENTON, MISSOURI.

## LIFTING-JACK.

No. 807,511.

Specification of Letters Patent.

Patented Dec. 19, 1905.

Application filed June 20, 1905. Serial No. 266,133.

*To all whom it may concern:*

Be it known that I, ABIRAM JOHNSON SLONECKER, a citizen of the United States, residing at Trenton, in the county of Grundy and State of Missouri, have invented a new and useful Lifting-Jack, of which the following is a specification.

This invention relates to screw-jacks, and has for its principal object to provide a jack in which a continuous lifting movement may be obtained during the time the jack-screw is turned, it being unnecessary to turn the screw down after it has been moved outward to the full limit.

A further object of the invention is to provide a jack capable of accomplishing the work of two or three ordinary jacks where a straight lift or push of considerable height or length is to be made, the jack being retained in constant engagement with the work until the latter has been moved to the desired extent.

A still further object of the invention is to provide a jack of such construction as to render it unnecessary to remove the jack for the purpose of adding to the foundation or timbers under said jack and, further, to provide for the employment of a single base or foundation from the starting to the completion of the operation.

A still further object of the invention is to provide a jack having a pair of alternately-operable thrust members.

A still further object of the invention is to provide a jack having a pair of members which are alternately raised and alternately form bases for the operation of the jack.

A still further object of the invention is to provide a novel form of jack in which a pair of alternately-operable base members are connected by a right and left hand screw, so arranged that there is no idle movement of the screw, the rotation in both directions being operative.

A still further object of the invention is to provide a jack which may be employed for lifting or elevating purposes generally or may be utilized as a bench-tool or the like for holding work or for compressing materials of different kinds.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood

that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a side elevation of a jack constructed in accordance with the invention. Fig. 2 is a sectional elevation of the same on the line 2 2 of Fig. 1. Fig. 3 is a similar view showing the parts in another position. Fig. 4 is a plan view of the jack. Figs. 5 and 6 are detached perspective views of the two main frame members. Fig. 7 is a sectional elevation illustrating the invention as embodied in the hydraulic jack. Fig. 8 is a view similar to Fig. 7 with the parts in a different position.

Similar characters of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The principal portions of the jack comprise a pair of members 10 and 11, that are provided, respectively, with female threads for the reception of the right and left hand threads 12 and 13 on the screw, and when the latter is turned in one direction the members 10 and 11 are separated and when turned in the opposite direction the members are drawn together. This fact is taken advantage of in providing a jack that is continuously operative.

The member 10 comprises a pair of vertically-disposed standards 14, preferably provided with strengthening-ribs and terminating in feet 16, that are designed to rest on a suitable base or foundation Y at intervals during the operation of the jack. The strengthening-ribs are provided with openings 17, having enlarged upper ends and contracted rear ends for engagement with log-chains or the like where the jack is to be used for hoisting purposes, as hereinafter described. The adjacent faces of the standards 14 are parallel with each other, and said standards are connected by a block 18, that is provided with a left-hand female thread for the reception of the corresponding thread 13 of the screw.

The member 11 comprises a pair of standards 19, having strengthening-ribs 20 and foot portions 21, which alternate with the feet 16 of the member 10 in the operation of the jack. The ribs 20 are preferably provided with openings 22 to form hand-holes for convenience in carrying or moving the jack. The upper ends of the standards 19



are connected by a block 23, having a female screw provided with right-hand threads for the reception of the threaded portion 12 of the main jack-screw. The two standards 19  
5 are spaced from each other for a distance equal to the width of the block 18, and the standards 14 are similarly spaced for a distance equal to the width of the block 23. The standards 19 are furthermore provided with  
10 ribs 25, which receive the edges of the standard 14 and serve as guides therefor in order to prevent lateral play.

To the head of the jack-screw is secured a head 27, having a plurality of openings for  
15 the entrance of operating-levers of a type commonly used in devices of this class, and the upper end of said head is somewhat reduced in diameter and is provided with an annular groove 28. Over the reduced portion  
20 of the head fits a cap 29, carrying two pins 30, which extend into the groove 28 and serve to prevent removal of the cap. The cap is free to rotate in bearing-balls 31, arranged between the lower flanged edge of the cap  
25 and the upper part of the head 27.

In operation all of the feet resting on a common base turning of the screw to the right will elevate the member 11, and the screw will also be elevated, the vertical lift of the screw  
30 being half the vertical distance moved by said member 11. The feet 21 of said member 11 will be elevated some distance above the base or starting-point—say six or eight inches—and two cross-timbers  $x$  may then be placed  
35 below the feet 21 of said member. The screw is then turned to the left, with the cap 29 still resting against the work, and the member 10 is raised as the screw is also carried up, the member 10 moving twice the distance traveled by the screw, and at the completion of  
40 the movement the feet 16 of the member 10 will be elevated some six or eight inches above the timbers  $x$ . Timbers Y may now be placed on the timbers  $x$ , at right angles thereto and  
45 under the feet 16, after which the screw is again turned to the right, and the member 10 again becomes the support or thrust member, the two members alternating as supports for the jack, while the screw continues to elevate  
50 without regard to the direction in which it is turned.

It will be seen that with a device of this character buildings, bridges, or other heavy weights may be quickly raised, and each jack  
55 will need but a single foundation. There is no necessity for turning down the screw in order to gain a fresh hold, nor is it necessary to employ two jacks, one to receive the thrust while the other is removed and a fresh timber placed thereunder for an additional lift.  
60 The two members 10 and 11 operate alternately as thrusts or supports, and the operation of the screw is continuous, there being no lowering of the load nor turning of the  
65 screw, nor is the weight shifted from one

point to another, as where two or more jacks are employed.

The device may be used to advantage for elevating loads by placing the jack on an elevated support and employing chains or like  
70 members, which are passed through the openings 17 and around the article to be raised. It may also be used to advantage as a bench-tool for holding work, as a vise, or for the purpose of compressing articles to be carried.  
75

In Figs. 7 and 8 is illustrated a hydraulic jack also embodying the invention. In this case the thrust-head 40 is rigidly secured to a piston-rod 41, having two pistons 42 and 43,  
80 that are arranged, respectively, in cylinders 44 and 45. The cylinder 44 is provided with a pair of spaced standards 47, having laterally-extended feet 48, which may rest on the timbers or foundation  $x$ , while the cylinder 45 is provided with extensions which may rest  
85 on timbers, such as Y in Fig. 8, the object being to utilize first one cylinder and then the other to obtain a progressive movement of the jack in practically the same manner as with the right and left hand screw. The upper  
90 ends of the two cylinders are connected by a pipe 51, that may be formed of telescopically-fitting sections, so that the fluid displaced from one cylinder by the upward movement of the piston will flow freely to the second  
95 cylinder. The lower ends of the two cylinders are connected by pipes 53 and 54 to a suitable pumping mechanism of any ordinary type arranged to draw the liquid, such as oil or water, from the lower end of one cylinder to  
100 force it into the other. In operation, the parts being in the position shown in Fig. 7, liquid is forced into the lower end of the cylinder 44 through the pipe 52, the liquid being withdrawn from the lower end of the cylinder  
105 45 through pipe 54. This causes the piston 42 to move upward and results in the raising of the piston-rod and the thrust-head 40 and the elevation of the load. As the piston 42 moves upward it will displace the liquid in the  
110 upper portion of the cylinder 44, and said liquid will flow through the pipe 51 into the upper portion of the cylinder 45, and as there is no resistance to upward movement of such cylinder except its own weight said cylinder  
115 45 will travel upward, and the liquid will flow into the cylinder until the parts have assumed the position shown in Fig. 8, at which time the foot members of the piston 45 will be elevated above the timbers  $x$  to such an extent  
120 that secondary timbers Y may be placed in position and form the second base for the operation of the jack. If liquid is now introduced into the lower portion of the cylinder 45 and at the same time withdrawn from the cylinder  
125 44, the piston 43 will be forced upward and will carry with it the rod 41 and the head 40, thus elevating the load. At the same time the liquid above the piston 43 is displaced and moves upward into the upper portion of the  
130



cylinder 44, and as said cylinder 44 is not held except by its own weight said cylinder will be elevated until its base members 48 are in a position to rest on another set of timbers  $\alpha$ .

5 The operation is thus rendered practically continuous, there being no stopping for the purpose of lowering the thrust-head or for shifting the position of the jack when the foundation is to be added to. In the claims  
 5 the cylinders or the threaded members or those portions of the device which rest against the base-timbers have been referred to as "supporting-standards" or "base members," and it is to be understood that these are intended to  
 5 include, broadly, any form of alternately-operable members coacting with a thrust-head or the like for the purpose of effecting a practically continuous lift.

Having thus described the invention, what is claimed is—

1. A jack having a thrust-head, and a pair of alternately-operable base members, each of which operates while the other advances toward the thrust-head.

5 2. A jack comprising a pair of members having right and left female screws, respectively, and a right and left hand screw connecting the same and forming a thrust-head whereby either of said members may constitute a base for the operation of the jack.

3. A jack having a screw serving as a thrust member when rotated in either direction.

4. A jack having a right and left hand screw revoluble alternately in opposite directions, one thread serving as a thrust member during movement in one direction, and the other as a thrust member during movement in the opposite direction.

5 5. A jack comprising a pair of interfitting members, each provided with supporting-feet, said members being provided respectively with right and left female screws, and a thrust-screw having right and left hand threads engaging said female threads.

5 6. The combination in a jack, of a pair of interfitting and alternately-operative base members provided, respectively, with right and left female threads, and a thrust-screw having right and left hand threads adapted to said female threads.

5 7. In a jack, a pair of interfitting base members, each serving as a guide for the other, and provided, respectively, with right and left female threads, and a thrust-screw having right and left hand threads adapted to said female threads.

8. In a jack, a pair of interfitting base members, each comprising a pair of spaced parallel standards, and each serving as a guide for the other, transversely-disposed blocks 60 connecting the standards and provided, respectively, with right and left hand female threads, and a thrust-screw having right and left hand threads adapted to said female threads. 65

9. The combination in a jack, of a pair of base members having laterally-extended feet, the feet of one being at a right angle to those of the other, right and left hand female threads formed in said members, and a thrust-screw 70 having right and left hand threads adapted to said female threads.

10. The combination in a jack, of a pair of base members, each comprising a pair of parallel-spaced standards, and each standard having a laterally-projecting foot, transversely-extending blocks connecting the standards of each pair and provided, respectively, with right and left hand female threads, and a thrust-screw having right and left hand 80 threads adapted to said female threads.

11. The combination in a jack, of a pair of alternately-operative base members, each comprising a pair of spaced parallel standards having projecting feet and provided with 85 strengthening-ribs, the strengthening-ribs of one pair of standards being recessed for the reception of chains or the like, transversely-disposed blocks connecting the pairs of standards and provided, respectively, with right 90 and left hand female threads, a thrust-screw having right and left hand threads adapted to said female threads.

12. In a jack, the combination with a pair of alternately-operative base members having 95 right and left hand female threads, respectively, of a thrust-screw having right and left hand threads adapted to said female threads, a turning-head carried by the screw and provided with an end portion of reduced 100 diameter, a cap fitting over the reduced end of the head, means for holding the cap in position, and bearing-balls arranged between the cap and head.

In testimony that I claim the foregoing as 105 my own I have hereunto affixed my signature in the presence of two witnesses.

ABIRAM J. SLONECKER.

Witnesses:

J. H. JOCHUM, Jr.,

JNO. E. PARKER.